Washoe County School District

Project Title:
Kettle Boiler Demolition and
New Central Steam Boilers Installation at Nutrition Services

Bid #:
26-38-B-10-DA

Date:
October 21, 2025

Prepared By:
Purchasing Department
14101 Old Virginia Road, Room 0
Reno, NV 89521
Phone: (775) 850-8025
Fax: (775) 857-3175
E-Mail: solicitations@washoeschools.net

SECTION 00090 - NOTICE TO CONTRACTORS

Sealed bids for the **Kettle Boiler Demolition and New Central Steam Boilers Installation at Nutrition Services** will be received by the Washoe County School District's (WCSD) Purchasing Department located at the Brown Center 14101 Old Virginia Road, Room #0, Reno, NV 89521, **until 2:00 p.m., (Local Time) on November 18, 2025**. The bids will be opened publicly via a TEAMS Meeting at **2:30 pm (local time).**

Join the meeting now
Meeting ID: 291 161 562 410 9
Passcode: 8pM6eV9C

Scope of Work: Removal of four (4) existing steam boilers from kitchen cook-chill kettles, all associated utilities, drains, and flues. Connect existing kitchen cook-chill kettles to a new "house" steam system including new steam piping, condensate piping, steam traps, condensate receiver, flash tank, etc. Install two (2) new steam boilers, condensate receiver, feedwater tank, boiler blowdown, all associated piping and appurtenances, boiler flues, etc. to provide one hundred (100) PSI steam to the existing cook-chill kettles.

Contractors desiring to bid on this work shall be contractors presently licensed by the Nevada State Contractors Board and shall maintain a valid Contractor's License for the duration of the construction project. In addition, any and all Subcontractors that will be utilized by the Contractor shall also be presently licensed by the Nevada State Contractors Board and shall maintain a valid license for the duration of the construction project. All licensing requirements as specified in Nevada Revised Statutes (NRS) Chapter 624 shall also be strictly adhered to. Contractors shall also carry and provide evidence of required insurance liability coverage as specified in the Liability Insurance Specifications, as identified in Section 00800 – SUPPLEMENTARY GENERAL CONDITIONS.

***NOTE:* The Facilitating Buyer for this solicitation is named below. Interested parties may NOT contact anyone else regarding this solicitation. Any interested Bidder contacting any other individual including, but not limited to, WCSD staff, officials, evaluation committee members, or Board of Trustees may have their Bid submission rejected from evaluation and award consideration.**

Plans and specifications are available to view and download at WCSD's Purchasing Department website at http://solicitations.washoeschools.net/.

There will be a MANDATORY Pre-Bid Meeting held at 2:00 p.m. on November 4, 2025, at Nutrition Services (Meet In Front Of The Office) 585 Spice Islands Court, Sparks, NV 89431. Due to access and coordination involved in this project we highly recommend that contractors walk the project site that we are making available.

The physical work is to be commenced upon issuance of a "Notice to Proceed". Work shall be completed on or before **April 3, 2026**.

Bid #: 26-38-B10-DA
PWP #: WA-2026-074

Facilitating Buyer: Dawn Allshouse
Email: solicitations@washoeschools.net

To be published in the Reno Gazette Journal on October 21, 2025.

Washoe County School District
Purchasing Department
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SECTION 00100 - INSTRUCTION TO BIDDERS

Bids must be submitted in accordance with the following instructions to be considered for review and award.

Bids shall be submitted on the provided Bid Form (PUR-F523) only, and all of the blank spaces shall be completed; numbers shall be stated both in writing and in figures, the signature shall be in longhand; and the completed form shall be without interlineation, alteration or erasure. **Any bid submission will be disqualified and rejected if the bid submission is not signed.**

Washoe County School District only accepts signatures done manually (also known as a wet signature) or electronic digital signatures that are certified. Non-certified electronic digital signatures will NOT be accepted. A typed signature, even in cursive font, DOES NOT meet the requirements of an official digital signature. A digital signature must be accompanied by a certified digital stamp issued through programs like Adobe Acrobat, Docu-Sign or other similar programs that produce a digital stamp certifying the electronic digital signature. Any signatures on required forms that do not meet these requirements will not be accepted and the Contractor's submission will be deemed "Non-Responsive" and will be rejected. If you have any questions about this requirement, please submit your question by the question deadline, so that it can be answered prior to the bid submission deadline.

In the event of a discrepancy on the Bid Form, NRS 104.3114 Contradictory terms of instrument states that, "If an instrument contains contradictory terms, typewritten terms prevail over printed terms, handwritten terms prevail over both, and words prevail over numbers." No additional pages containing inclusions, exclusions or clarifications will be accepted as part of the bid. Any clarifications, additions or exclusions made by the Washoe County School District (WCSD – OWNER) will be considered incorporated into the specifications.

The Contractor is responsible for ensuring he/she has received and reviewed the entire bid package, including all specifications, plans and any/all issued Addendums.

Bids shall be addressed to the WCSD and delivered to the office of the Purchasing Department, located at the Brown Center, 14101 Old Virginia Road, Room #0, Reno, Nevada 89521**, until 2:00 p.m., (Local Time) on November 18, 2025**. Bids shall be delivered sealed in an opaque envelope. The outside of the envelope shall be clearly marked to indicate the bid for the proposed work and directed to the Purchasing Department. The bids will be opened publicly via a TEAMS Meeting at 2:30 pm.

Each individual bid shall be accompanied by a surety company issued Bid Bond or by a Certified or Cashier's Check made payable to the *Washoe County School District*, in the amount of not less than five percent (5%) of the bid, said amount to be forfeited to WCSD, should the Contractor to whom the Contract is awarded fail to enter into the Contract in accordance with the Contractor's bid and any other contract documents and furnish the required bonds within ten (10) days after the delivery of notice of such award. Bid Bonds, upon request, or deposits of the unsuccessful bidders will be returned upon signing of Contract, or within forty-five (45) days from bid date, whichever is earlier.

Contractors desiring to bid on this work shall be Contractors presently licensed by the Nevada State Contractors Board and shall maintain a valid Contractor's license for the duration of the construction project. In addition, any and all Subcontractors that will be utilized by the Contractor shall also be presently licensed by the Nevada State Contractors Board and shall maintain a valid license for the duration of the construction project. All licensing requirements as specified in NRS Chapter 624 shall also be strictly adhered to.

WCSD requires that all Contractors who work on construction projects have in place a Drug and Alcohol Policy and this shall be acknowledged by signature on the Bid Form (PUR-F523).

The physical work is to be commenced upon issuance of a "Notice to Proceed". Work shall be completed on or before **April 3, 2026**.

Contractor must agree that Owner may retain from the monies due the Contractor Two Thousand Dollars ($2,000) per day (Liquidated Damages) as a direct result of the Contractor's delay or for not completing the project in the required time allowance plus approved time extensions.

The right is reserved by WCSD to reject any and all bids or accept the bid, which is deemed by WCSD to be in the best interest of the school district. WCSD also reserves the right to waive any irregularities and/or informalities in the submitted bids.

Should a Contractor find discrepancies in, or omissions from, the drawings or documents, or should he/she be in doubt as to the meanings of said documents, he/she should immediately notify the Owner in writing via Email to solicitations@washoeschools.net, whereas the Owner will send written instruction via Addendum to all Contractors. The Owner, Architect/Engineer, Project Manager, Assistant Project Manager, or any other WCSD staff member will not be held responsible for any oral instructions provided during the bid submission process.

Before submitting a bid, Contractors shall carefully examine the scope of work outlined in the bid package and the proposed drawings, specifications, and forms and shall be thoroughly familiar with all existing conditions and expectations of a successful project completion.

No increase in cost or extension in performance time will be considered for failure to know the conditions to be encountered as to the character, quality, and quantity of the work to be performed, and materials to be furnished, and as to the requirements of the specifications.

No increase in cost or extension in performance time will be considered for material escalation. Section 01027 – Applications for Payment, Part 1, Subpart 1.3, Schedule of Values; B,5 of the contract documents provides a provision for the storage of materials, off-site if necessary, to help in managing the project costs and to hedge against potential future material price increases.

A 5% list showing all Subcontractors to be used on the project shall be submitted with the bid followed by a 1% list within 2 hours from the completion of the bid opening, as required

by Nevada Revised Statutes. WCSD also requires a Comprehensive Contractor/Subcontractor list showing all remaining subcontractors to be utilized on the project. All subcontractors shall be licensed as required by Nevada Revised Statutes.

Any Addendums issued during the bid solicitation process shall be acknowledged on the Bid Form (PUR-F523) and in the execution of a contract, Addendums will become a part thereof.

All questions shall be submitted in writing directly to WCSD's Solicitations website at http://solicitations.washoeschools.net/ or via e-mail to solicitations@washoeschools.net by **4:30 p.m. (Local Time) on November 10, 2025.** During this active solicitation there shall be no personal contact with any WCSD employees or other parties associated with this project directly. All inquiries shall be done in writing as stated above.

Addendums will be distributed by WCSD accordingly and can also be accessed via the WCSD Public Works website at: **http://solicitations.washoeschools.net/**

Modifications to bids may only be considered if submitted bids by delivery as previously noted have already been received and said modifications are completed prior to the due date and time for the bid submission.

Bids may be withdrawn in a written request received from a Contractor prior to the time fixed for opening of bids.

In cases where the award of the project has not been made, bids submitted and opened may not be withdrawn for a period of forty-five (45) calendar days from the due date and time of the bid.

A person who bids on this work may file a notice of protest regarding the awarding of the contract with the WCSD's Purchasing Department's Director of Procurement and Contracts within five (5) business days after the date the recommendation to award a contract is issued. The notice of protest must be submitted in accordance with NRS Chapter 338.142. Detailed specifications can be found in Section 00820 – Special Conditions, subsection 14.0 – Appeal by Unsuccessful Bidder.

A person filing a notice of protest in accordance with NRS Chapter 338.142 will be required to post a bond or other security in the amount of twenty-five (25%) percent of the value of the total bid or two hundred fifty thousand ($250,000) dollars, whichever is less. If the protest cannot be resolved by the WCSD's Director of Procurement and Contracts, it will be presented to the WCSD Board of Trustees at a regular meeting.

Contractors to be considered as a Preferential Bidder must submit the Certificate of Eligibility for Preferential Status issued by State of Nevada Contractors Board with their bid submission and the Preferential Bidder Status Affidavit must be provided within two (2) hours after the bid opening, although WCSD prefers the affidavit to also be submitted with the bid at the time of opening.

SPECIAL NOTIFICATIONS

Signature Requirements

Any bid submission will be disqualified and rejected if the bid submission is not signed.

Washoe County School District only accepts signatures done manually (also known as a wet signature) or electronic digital signatures that are certified. Non-certified electronic digital signatures will NOT be accepted. A typed signature, even in cursive font, DOES NOT meet the requirements of an official digital signature. A digital signature must be accompanied by a certified digital stamp issued through programs like Adobe Acrobat, Docu-Sign or other similar programs that produce a digital stamp certifying the electronic digital signature. Any signatures on required forms that do not meet these requirements will not be accepted and the Contractor's submission will be deemed "Non-Responsive" and will be rejected. If you have any questions about this requirement, please submit your question by the question deadline, so that it can be answered prior to the bid submission deadline.

Preferential Bidders

Contractors to be considered as a Preferential Bidder must submit the Certificate of Eligibility for Preferential Status issued by State of Nevada Contractors Board with their bid submission and the Preferential Bidder Status Affidavit must be provided within two (2) hours after the bid opening, although WCSD prefers the affidavit to also be submitted with the bid at the time of opening. Preferential Bidder Status shall be considered if the amount of the apparent low bid is $250,000 or greater per NRS Chapter 338.1389.

Specifications/Addendums

Contractor is responsible to ensure that he/she has received and reviewed the entire bid package, including specifications, plans and any/all issued Addendums. Contractors shall acknowledge by signing any issued Addendum(s) and returning the signed Addendums with his/her bid submission.

Technical Specifications

Any conflicts between the Architect and WCSD specification, it will be the responsibility of the Contractor to seek clarification for any conflicts or be responsible for all the requirements. Clarifications and questions must be submitted in writing via email to: solicitations@washoeschools.net

Washoe County School District Structured Cabling Standard – WCSD-SCS-015

The Washoe County School District Structured Cabling Standard – WCSD-SCS-015 dated March 13, 2023 is located on our website. The link to view it is https://www.washoeschools.net/cms/lib/NV01912265/Centricity//Domain/70/ITPC%20Images/WCSD-SCS-015%203-10-23.pdf

Project Completion

The construction contract time allowed for this project is based on a reasonable expectation of how long it will take to do a project of this scope. WCSD recognizes that Contractors often try to finish projects in significantly less time than the construction contract time and, in such cases, develop schedules which are based on everything going smoothly with no delays. While WCSD allows Contractors to submit such accelerated

construction schedules, WCSD reserves the right to deny the Contractor's submission. Acceptance of a submittal with a shortened schedule is not an official agreement between WCSD and the Contractor that the project can be done in less time than the construction contract time specified.

Roof Penetrations

All roof-mounted equipment or penetrations associated with this project are to be flashed by a licensed roofing Contractor. The roofing Contractor shall have experience with the existing roofing membrane. New flashing materials shall be installed to comply with the membrane manufacturer's specifications or details published by the National Roofing Contractors Association Waterproofing Manual. In acceptance of the work, the Owner will make no allowance for lack of skill on the part of the Contractor. The Contractor shall coordinate all aspects of roof work including any penetrations to maintain the building in a totally watertight condition, no exceptions.

Hours

There is a potential that Summer School, Extended School Year (ESY), Intercession School, After School Care, Parent nights, etc. may be held at the project sites. The Contractor will be required to flex schedule and/or work areas to accommodate school needs during this time frame. In addition, the Contractor may have to alter their normal schedule in order to perform any lead and asbestos attachments and penetrations.

Pre-Bid Meeting Attendance

All Pre-Bid Meetings, whether mandatory or not, will require that all attendees sign in on the sign-in sheet provided. It is the Contractor's responsibility to ensure that he/she documents his/her attendance by signing the Pre-Bid Sign-In Sheet. Failure to do so could result in the Contractor's bid not being accepted by the WCSD, especially in the event of a Mandatory Pre-Bid Meeting.

Mandatory Pre-Bid Meetings require attendees, who intend to bid on the project and act as the Prime Contractor, to participate in the entire meeting including site walk. Attendance will be recorded at the beginning and at the conclusion of the site walk on the Pre-Bid Sign-In Sheet and then posted on the Solicitations website. Leaving prior to the conclusion of the site walk risks contractor's attendance being disqualified and struck from the sign-in sheet.

In addition, if a Pre-Bid Meeting is held on-site, especially a school site, it is the Contractor's responsibility to sign in/register presence on grounds with the site's Front Office. A signature on a school's office sign-in sheet will not take the place of signature on the Pre-Bid Sign-In Sheet, which will only be present at the actual meeting and distributed by the staff of the Purchasing Department and Capital Projects Department.

Questions

All questions shall be submitted in writing directly to WCSD's Solicitations website at http://solicitations.washoeschools.net/ or via e-mail to solicitations@washoeschools.net by 4:30 p.m. (Local Time) November 10, 2025.

Force Accounts

When applicable, the force account amount listed on the Bid Form (PUR-F523) shall be used for changes in the work at the Owner's discretion. Any changes shall be approved

by change order and the force account balance shall be reduced to reflect said change. Any remaining force account balance at the completion of the project shall be returned to the Owner by a deductive change order.

Working Hours and Schedule

- Back of the House: From 7:00 a.m. until 11:00 p.m. Monday through Friday the Back of the House area will be available to the Contractor.
- Cooking Floor: From 7:00 a.m. until 11:00 p.m. Monday through Friday and 7:00 a.m. until 3:30 p.m. on Saturday, ONLY during School Breaks, the Cooking Floor area will be available to the Contractor.
    - At no time shall the kettles be non-operational for any school day.

- Once the new boilers and kettles are in operation, the remaining work may be completed from 3:00 p.m. until 11:00 p.m. Monday through Friday.
    - The food service areas shall be clean and ready for operations by 5:00 a.m. the following day.

Contractor's Licensing

It is WCSD's opinion that the scope of work for this project qualifies for the following license groups: General Contracting AB, B license groups if, more than two (2) building trades are utilized or; Specialty License C1 license group if the bidder is performing the majority of the work per NRS 338.139.

If a Contractor would like to seek clarification from the Nevada State Contractor's Board, then they must do so ten (10) days prior to the bid due date. https://www.nvcontractorsboard.com/

WCSD's Project Management Software (Procore)

The Awarded Contractor will be required to utilize WCSD's Project Management Software (Procore) for workflow of project documents. This will include, but not limited to submissions of RFIs, submittals, schedule and schedule updates, change documents, payment requests, and close out documents. The Awarded Contractor will be required to work with WCSD Project Manager and WCSD Consultants to manage process to meet project schedule needs. See Section 01041 – Project Management Software for details.

SECTION 00400 – SAMPLE BID BOND (PUR-F525)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____, as Principal, and _____ as Surety, are hereby held and firmly bound unto the Board of Trustees, Washoe County School District, as Owner, in the sum of _____ _____Dollars ($_____) for payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

Signed this _____day of_____, 20____.

The condition of the above obligation is such that whereas the Principal has submitted to the Board of Trustees, Washoe County School District, a certain bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for: _____.

NOW, THEREFORE, if said bid shall be rejected, or in the alternative, if said bid shall be accepted and the Principal shall execute and deliver a Contract in the form of Contract attached hereto (properly completed in accordance with said bid) and shall furnish a Bond for its Faithful Performance of said Contract, and a Bond for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the contract created by the acceptance of said bid, then this obligation shall be void.

Otherwise, the same shall remain in force and effect, and the sum herein specified paid over to the Owner; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Owner may accept such bid; said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their officers, the day and year first set forth above.

_____

_____

Principal

(Seal)

By: _____

_____

Surety

By: _____

Address:

(Seal)

_____

_____

_____

Phone: _____

SECTION 00500 – SAMPLE CONTRACT (PUR-F532)

THIS CONTRACT, made by and between _____ hereinafter called the Contractor, and **WASHOE COUNTY SCHOOL DISTRICT**, hereinafter called the Owner,

WITNESSETH, that the Contractor and the Owner, for the consideration hereinafter named, agree as follows:

Article 1 – Scope of Work. The Contractor shall furnish all of the materials and perform all of the work in conformance with the Contract Documents entitled **_____(Bid #_____).**

Article 2 – Time of Completion. The work to be performed under this Contract shall be commenced on the date set forth in the Notice to Proceed and shall be completed on or before **_____ or in _____ calendar days**. The Contractor agrees that Owner may retain from the monies due the Contractor the actual value of the damages to the Owner as a direct result of the Contractor's delay or for not completing the project in the required time allowance plus approved time extensions.

Article 3 – The Contract Sum. The Owner shall pay the Contractor for the performance of the Contract, subject to additions and deductions provided therein, in current funds the following stipulated sum:
_____($_____).

Article 4 – Progress Payments. The Owner shall make payments and pay interest to the Contractor in accordance with Nevada Revised Statutes, Chapter 338. No monies payable under this Contract shall be assigned by Power of Attorney, or otherwise, except upon written consent of Owner.

Article 5 – Acceptance and Final Payment. Upon written notice to the Owner that the work is one hundred percent (100%) complete, the Owner shall inspect the project. When the project is one hundred percent (100%) acceptable and complete to the Owner, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, interest on retention, and other indebtedness connected with the work have been paid. Once all requirements have been satisfied, the Owner shall issue a fully executed Certificate of Completion which shall constitute the Owner's acceptance of the work in accordance with NRS Chapter 338.

Article 6 – The Contract Documents. The entire bidding documents, including but not limited to the: Notice to Contractors, Instructions to Bidders, Contractor's Bid, General Conditions, Supplementary Conditions, Special Conditions, Technical Specifications, Addenda, and the Drawings (if any), and this document form the Contract, and they are as fully a part of the Contract as if hereto attached.

Article 7 – Lead and Asbestos Certification. The Contractor hereby certifies that no lead/asbestos containing building material will be used for the construction of the project. If a lead/asbestos containing building material is subsequently found to have been included in the construction of the project, the Contractor shall be responsible for and indemnify the Owner against all costs for the proper removal of the lead/asbestos containing building material and the replacement of said material with a non-lead/asbestos containing material substitute. The removal method shall be specifically approved by the Owner and any and all authorities having jurisdiction over such removal.

IN WITNESS WHEREOF, the parties hereto have executed this Contract the day and year written below.

Bid #_____ - _____

WASHOE COUNTY SCHOOL DISTRICT	CONTRACTOR
_____	_____
Signature	Signature
_____	_____
Name	Name
_____	_____
Title	Title
_____	_____
Date	Date

SECTION 00600 – SAMPLE LABOR AND MATERIALS BOND (PUR-F526)

KNOW ALL PERSONS BY THESE PRESENTS: That WHEREAS, the Board of Trustees of Washoe County School District in the State of Nevada has awarded to _____, hereinafter designated as "Principal", a contract dated _____, for _____ _____ _____ a copy of which contract is attached hereto and by reference made a part hereof, and hereinafter referred to as the "Contract."

And WHEREAS, said Principal is required under the terms of said Contract and by law under the provisions of NRS Chapter 339 to furnish a Bond for the Labor and Materials used in said Contract;

NOW, THEREFORE, we, the Principal, and _____, as Surety, are held and firmly bound unto the Board of Trustees of Washoe County School District in the State of Nevada in the sum of _____ Dollars ($_____), lawful money of the United States, being not less than one hundred percent (100%) of the estimated Contract cost of the work, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above-bounden Principal, or its heirs, executors, administrators, successors or assigns shall fail to pay for any materials, provisions, supplies implements or machinery used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Compensation Law with respect to such work or labor, as required by the Provisions of NRS Chapter 339, the Surety hereon will pay for the same within thirty (30) calendar days an amount not exceeding the sum specified in this bond, and the above obligation shall then be null and void. Otherwise, it shall remain in full force and virtue.

THE SURETY, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder, or to the specifications accompanying the same, shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.

And the said Surety, for value received, further stipulates and agrees that should the Board of Trustees of Washoe County School District, or other obligees, incur attorney's fees or other expenses for the enforcement of the Contract or this bond, the same shall

be paid by the Surety to the contracting body, subcontractors, workmen laborers, mechanics and furnishers of material as their interests may appear.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their seals this_____ day of _____, 20_____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____

_____
Principal

(Seal) By: _____

_____
Surety

By: _____

Address:

(Seal)

_____

_____

_____

Phone: _____

SECTION 00610 – SAMPLE PERFORMANCE BOND (PUR-F527)

KNOW ALL PERSONS BY THESE PRESENTS: That WHEREAS, the Board of Trustees of Washoe County School District in the State of Nevada has awarded to_____, hereinafter designated as "Principal": a contract dated _____, for _____
_____
a copy of which contract is attached hereto and by reference made a part hereof, and hereinafter referred to as the "Contract".

And WHEREAS, said Principal is required under the terms of said Contract and by law under the provisions of NRS Chapter 339 to furnish a Bond for the faithful Performance of said Contract;

NOW, THEREFORE, we, the Principal, and _____, as Surety, are held and firmly bound unto the Board of Trustees of Washoe County School District in the State of Nevada in the sum of _____Dollars ($_____), lawful money of the United States, being no less than one hundred per cent (100%) of the estimated Contract Cost of the work, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal, or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by and well and truly keep the faithfully perform the covenants, conditions, and agreements in the Contract and any alterations made as therein provided, on his or its part to be kept and performed at the respects according to their true intent and meaning; and shall indemnify and save harmless the Board of Trustees of Washoe County School District in the State of Nevada, its officers and agents, as therein stipulated; then this obligation shall become null and void. Otherwise, it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period of one (1) year after completion and acceptance of the work done, during which time if the above-bounden Principal, his or its heirs, executors, administrators, successors, or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the Board of Trustees of Washoe County School District in the State of Nevada from loss or damage made evident during said period of one (1) year from the date of acceptance of said work, and resulting from or caused by defective materials or faulty workmanship in the prosecution of the

work done, the above obligation in the said sum of _____Dollars ($_____) shall remain in full force and virtue; otherwise, the above obligation shall be void.

THE SURETY, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder, or to the specifications accompanying the same, shall in anyway affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work, or to the specifications.

And the said Surety, for value received, further stipulates and agrees that should the Board of Trustees, Washoe County School District, incur attorney's fees or other expenses for the enforcement of the Contract or his/her bond, the same shall be paid by the Surety to the Board of Trustees, Washoe County School District.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their seals this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____

_____
Principal

(Seal) By: _____

_____
Surety

By: _____

Address:

(Seal)

_____

_____

_____

Phone: _____

SECTION 00700 – GENERAL CONDITIONS

The General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition, Articles 1 through 15, are hereby incorporated by reference as the "General Conditions of this Project." Copies of General Conditions may be examined or obtained through formal request to the WCSD's Purchasing Department located at the Brown Center, 14101 Old Virginia Road, Room 0, Reno, Nevada, 89521 or by phone at (775) 850-8025.

The information contained in the Supplementary General Conditions (Section 00800), Special Conditions (Section 00820), Instructions to Bidders (Section 00100), and the Bid Form (PUR-F523) shall become a part of the Contract and shall apply to all Contractors and Subcontractors. The information contained in Supplementary General Conditions (Section 00800) may amend, modify, supersede, void or supplement the Articles of the "General Conditions of the Project." Where any part of an Article of the "General Conditions of the Project" is amended, modified, superseded or voided by a provision of the Supplementary General Conditions (Section 00800) or other Contract documents, all other provisions of such Article shall remain in effect, and the provisions of the Supplementary General Conditions (Section 00800) or other Contract documents shall be considered as added.

SECTION 00800 – SUPPLEMENTARY GENERAL CONDITIONS

The General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition, Articles 1 through 15, are hereby incorporated by reference as the “General Conditions of this Project.” Copies of General Conditions may be examined or obtained through formal request to the WCSD’s Purchasing Department located at The Brown Center, 14101 Old Virginia Road, Room 0, Reno, Nevada, 89521 or by phone at (775) 850-8025.

The information contained in the Supplementary General Conditions (Section 00800), Special Conditions (Section 00820), Instructions to Bidders (Section 00100), and the Bid Form (PUR-F523) shall become a part of the Contract and shall apply to all Contractors and Subcontractors.

In any instance where no Architect is involved in the project, any and all references contained in this or any other documents to "Architect" shall be deemed to refer to the consulting Engineer, if any, the special project consultant, if any, or, in the event no such individuals are involved, to the Owner.

The following supplements modify, delete and/or add to the “General Conditions of the Project.” Where any Article, Paragraph or Subparagraph in the “General Conditions of the Project” is supplemented by one of the following Paragraphs, the provisions of such Article, Paragraph, or Subparagraph shall remain in effect and the supplemental provisions shall be considered as added. Where any Article, Paragraph, or Subparagraph in the “General Conditions of the Project” is amended, voided or superseded by any of the following paragraphs, the remaining provisions of such Article, Paragraph or Subparagraph not amended, voided, or superseded shall remain in effect.

1. LIABILITY INSURANCE SPECIFICATIONS

A. INTRODUCTION

The Owner has established specific indemnification and insurance requirements for its construction contracts to help assure that reasonable insurance coverage is purchased and maintained. Insurance, indemnification and hold harmless clauses are intended to assure that a Contractor accepts and is able to pay for the loss or liability related to its activities.

Contractor’s attention is directed to the insurance requirements below. It is recommended that Contractors confer with their respective insurance carriers or brokers to determine **in advance of Bid submission** the availability of insurance certificates and endorsements as described and provided herein.

B. INDEMNIFICATION AGREEMENT

The Contractor agrees to hold harmless, indemnify and defend the Owner, its officers, agents, employees and volunteers from any loss or liability, financial or otherwise resulting from any claim, demand, suit, action, or cause of action based on bodily injury, including death, or property damage, including damage to the

Contractor's property or injury to the Contractor's employees, caused by any action, either direct or passive, the omission, failure to act or negligence on the part of the Contractor, employees, agents, representatives or Subcontractors arising out of the performance of work under this Contract by the Contractor, or by others under the direction or supervision of the Contractor.

In determining the nature of the claim against the Owner, the incident underlying the claim shall determine the nature of the claim, notwithstanding the form of the allegations against the Owner.

In the event of a lawsuit against the Owner, its officers, agents, employees and volunteers, the Contractor shall reimburse the Owner for costs of the Owner's attorneys' fees and costs, as well as personnel in defending such actions. Reimbursement for the time spent by such personnel shall be at the rate charged for such services by private counsel. The Owner shall not be held liable for any accident, loss or damage to the work prior to its completion and acceptance.

C. GENERAL REQUIREMENTS

The Contractor shall purchase Workers Compensation Insurance, General Liability and Automobile Liability as described below. The cost of such insurance shall be included in the Contractor's bid price.

D. WORKERS COMPENSATION INSURANCE

It is understood and agreed that there shall be no Workers Compensation Insurance coverage provided for the Contractor or any Subcontractor by the Owner. Contractor agrees, as a precondition to the performance of any work under this Contract and a precondition to any obligation of the Owner to make any payment under this Contract, to provide Owner with certificates issued by an insurer that shows compliance with NRS Chapters 616A, 616B, 616C and 616D, inclusive, and Chapter 617.

It is further understood and agreed by and between the Owner and the Contractor that the Contractor shall procure, pay for, and maintain the above-mentioned Workers Compensation Insurance coverage at the Contractor's sole cost and expense.

Should Contractor be self-funded for Workers Compensation Insurance, Contractor shall notify Owner in writing prior to the acceptance of this Contract. Owner reserves the right to approve said retentions and may request additional documentation, financial or otherwise, for review prior to the acceptance of this Contract as provisioned under NRS Chapter 616B.627.

E. MINIMUM SCOPE OF LIABILITY INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office (ISO) Commercial General Liability Coverage "Occurrence" form CG 0001 12 04 or substitute form

providing coverage as broad as CG 0001 12 04. The Commercial General Liability Coverage shall include, but is not limited to,
Liability Coverage arising from Operations, Premises, Blanket Contractual Liability, Broad Form Property Damage Liability, Products and Completed Operations, Personal Injury and Advertising Liability, and Stop Gap or Employers Liability. In addition, explosion, collapse, and underground coverage must be included unless Owner waives this requirement in writing prior to execution of Contract.

2. Business Auto Coverage form number ISO CA 0001, CA 00 055, CA00 12, CA 00 20 or an equivalent form covering Automobile Liability Symbol 1 "Any Auto."

F. MINIMUM LIMITS OF INSURANCE

The Contractor shall maintain limits no less than:

1. General Liability: **$2,000,000** minimum or the amount customarily carried by the Contractor, whichever is greater, combined single limit per occurrence (with $4,000,000 Aggregate Limit) for bodily injury, personal injury, and property damage. General Liability coverage shall specifically apply to the acts and/or omissions of Contractor and his/her Subcontractors. The above General Liability coverage shall be maintained in full force and effect for five (5) years from the date of completion of the project. The required limits may be met through a combination of primary and excess liability coverage. Any excess liability coverage shall provide coverage at least as broad as the primary coverage and be subject to all of the requirements herein.

2. Automobile Liability: $1,000,000 minimum or the amount customarily carried by the Contractor, whichever is greater, combined single limit per accident for bodily injury and property damage. No Aggregate Limits may apply. Non-owned and hired automobile liability must be included.

3. Workers Compensation Insurance: $1,000,000 minimum in limits (Employers Liability) and obtain Statutory Limits of Workers Compensation Insurance for employees engaged on or at the site of the project in accordance with NRS Chapters 616A, 616B, 616C and 616D, inclusive, and Chapter 617. If an excess policy is utilized, the policy will provide excess coverage for Employers' Liability.

4. Asbestos Environmental Risk Liability Insurance: $5,000,000 minimum, per occurrence (with $5,000,000 Aggregate Limit). Refer to Section 00820 – Technical Specifications for important information).

G. ASBESTOS COVERAGE

In the event that asbestos abatement is required on this project, Asbestos Liability Insurance is required. To that end, the Contractor will be required to provide written proof by way of an insurance certificate of a minimum of Five Million Dollars ($5,000,000) occurrence-based Asbestos Environmental Risk Liability Insurance from a domestic Insurance company that has an A, A+ or A++ rating in Best's Insurance Guide, OAE. The Asbestos Abatement Contractor shall name the WCSD additionally insured on a primary and non-contributory basis for the contract term as well as any asbestos consultants the District may hire for job design and/or supervision and shall provide an insurance certificate specifically naming them as additionally insured, primary and stating that the policy cannot be cancelled in less than 30 days for any reason including non-payment.

H. PROPERTY COVERAGES

The Contractor shall provide Builders Risk Insurance on the entire work, including but not limited to, temporary equipment, tools, temporary structures, temporary buildings, scaffolding, or other contractor property, etc. Flood coverage will also be included for projects that are within the 500-year flood plain. Such insurance shall be written on a completed value form and in an amount equal to the initial contract sum plus 10%, subject to subsequent modifications of the contract sum. The insurance shall apply on a replacement cost basis. Coverage shall, at a minimum, cover the causes of loss insured under the ISO special causes of loss form (CP 10 30) including earthquake coverage for the full replacement cost of the project, expediting and extra expense coverage with limits of at least $10,000,000 or 20% of the project, whichever is less, on a policy form satisfactory to the Owner, and shall be endorsed as needed to provide full coverage for loss or damage from collapse, including collapse resulting from design error. Coverage shall also include reasonable compensation for architects' services and expenses made necessary by an insured loss. Insured property shall include portions of the work located away from the site but intended for use at the site and shall also cover portions of the work in transit. The policy shall cover the cost of removing debris, including demolition as may be made legally necessary by the operation of any law, ordinance, or regulation.

The Contractor shall also provide Boiler and Machinery Insurance coverage with replacement cost endorsement with a minimum limit of 25% (twenty-five percent) of the bid value unless released from this responsibility, in writing, by the Owner prior to the execution of the Contract. Coverage shall be included for insured objects during installation, start-up, testing and until final acceptance by the Owner.

All policies shall include the Owner, Contractor, Subcontractors and suppliers as named insureds. Losses paid under any policy or policies shall be paid jointly to the owner, contractor and any other qualifying insureds. The Contractor shall comply with all warranties required by the insurer. Any deductible or self-insured retention shall be the responsibility of the Contractor.

I. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retention must be declared to and approved by the

Owner. The Owner reserves the right to request additional documentation, financial or otherwise, prior to giving its approval of the deductibles and self-insured retention's and prior to executing the Contract. Any changes to the deductibles or self-insured retentions made during the term of this Contract or during the term of any policy, must be approved by the Owner prior to the change taking effect. It is also understood that the Contractor is responsible for and shall assume payment of all deductibles and/or self-insured retentions.

J. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

1. General Liability and Automobile Liability Coverages

   a. The Owner, its agents, officers, employees and volunteers are to be included as Additional Insureds for damages and defense arising from: activities performed by or on behalf of the Contractor, including the insured's general supervision of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Owner, its officers, employees or volunteers.

   b. The Contractor's insurance coverage shall be primary insurance with respect to the Owner, its officers, employees and volunteers. Any insurance or self-insurance maintained by the Owner, its officers, employees or volunteers shall be in excess of the Contractor's insurance and shall not contribute to the Contractor's insurance coverage in any way.

   c. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

   d. The insurance companies issuing the policy or policies shall have no recourse against the Owner payment of any premiums, costs or assessments under any form of policy.

   e. Failure of the Contractor to take out and/or maintain any required insurance shall not relieve the Contractor from any liabilities under this Contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the Contractor concerning indemnification.

2. All Coverages

   a. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled

or non-renewed by either the Contractor or by the insurer, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the Owner, which must be approved, if acceptable, by the Owner in writing.

Furthermore, Contractor shall provide the Owner thirty (30) days prior notice, in writing when the Contractor elects to change carriers, not to renew the policy, or reduce coverage, which must be approved, if acceptable, by the Owner also in writing.

b. The Contractor's insurers shall have no right of recovery or subrogation against the Owner or the design professionals which provide work on the project.

c. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Owner, its officers, employees or volunteers.

d. The insurance companies issuing the policy or policies shall have no recourse against the Owner for payment of any premiums, costs or assessments under any form of policy.

K. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with an A.M. Best's rating of no less than A:X. The Owner may accept coverage with carriers that have lower A.M. Best's ratings upon review of financial information concerning Contractor and insurance carrier. The Owner reserves the right to require that the Contractor's insurer(s) be a licensed and admitted insurer(s) in the State of Nevada, or on the Insurance Commissioner's approved, but not admitted, list.

L. VERIFICATION OF COVERAGE

Prior to the commencement of any work on the project, the Contractor shall furnish the Owner with certificates of insurance and with original endorsements affecting coverage required. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements are to be received and approved by the Owner before work commences. The Owner reserves the right to require complete, certified copies of all required insurance policies, at any time should it be deemed in the best interest of the Owner.

M. SUBCONTRACTORS

The Contractor shall include all Subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each Subcontractor. All coverages for Subcontractors shall be subject to all of the requirements stated herein, except that if any Subcontractors maintain limits of insurance less than required in this Contract, Contractor's insurance shall include coverage for acts or omissions of

Subcontractor up to the full limits required in this Contract.

N. MISCELLANEOUS CONDITIONS

1. The Contractor shall be responsible for and remedy all damage or loss to any property, including property of the Owner, caused in whole or in part by the Contractor, any Subcontractor, or any employed, directed or supervised by the Contractor.

2. Nothing herein contained shall be construed as limiting in any way the extent to which the Contractor may be held responsible for payment of damages to persons or property resulting from its operations or the operations of any Subcontractor under it.

3. In addition to any other remedies the Owner may have should the Contractor fail to provide or maintain any insurance policies or policy endorsements to the extent and within the time required, the Owner may, at its sole option:

   a. Purchase such insurance to cover any risk for which the Owner may be liable through the operations of the Contractor under this Contract and deduct or retain the amount of the premiums for such insurance from any sums due to the Contractor under the Contract; or

   b. Order the Contractor to cease work under this Contract and/or withhold any payments, which became due the Contractor until the Contractor demonstrates compliance with the requirements hereof; or

   c. Terminate the Contract.

2. GUARANTEE BOND

Not Required For This Project.

3. INTEREST

Article 13.5 is hereby supplemented as follows:

Not Required For This Project.

4. CLEANING UP

Article 3.15 is hereby supplemented as follows:

The Contractor, at all times, shall keep the premises free from accumulation of waste materials or rubbish caused by operations. At the completion of the work, Contractor shall remove all waste materials and rubbish from and about the project as well as all tools, construction equipment, machinery and surplus materials, and shall clean all

glass surfaces and leave the work "broom clean" or its equivalent, except as otherwise specified.

5. LIQUIDATED DAMAGES

Add Article 8.2.4 as follows:

It is hereby understood and mutually agreed that the date of beginning, rate of progress, and the time for completion of the work to be done hereunder are essential conditions of this Contract and that the work embraced in this Contract shall be commenced on the date set forth in the Notice to Proceed issued by the Owner.

The Contractor agrees that all work shall be performed regularly, diligently, and uninterruptedly at a rate of progress that will ensure substantial completion within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the work described herein is an acceptable time for the completion of the work. If the Contractor should neglect, fail, or refuse to complete the work within the specified Contract time, that has been extended by the Owner, then the Contractor does hereby agree, as a part of the consideration for receiving the award of this Contract, to pay to the Owner, not as a penalty, but as Liquidated Damages, the amount of money specified in the Contract (Section 00100 – Instruction to Bidders and Bid Form (PUR-F523) per day. If the Owner incurs costs in excess of the Liquidated Damages as a result of the Contractor's inability to complete the work by the specified date the additional cost will be deducted from the Contract amount.

If the Contractor fails to complete or correct the work listed on the comprehensive list of deficiencies ("**Punch-List**") within the specified time for performance, the Contractor does hereby agree to pay the Owner **$500** as Liquidated Damages for each calendar day that the completion or correction of the work extends beyond the 45 days for performance allowed from the date the Contractor receives the Punch List of deficiencies from the Architect and/or his/her consultants and/or the Owner.

6. CHANGE ORDERS

Article 7.2 is hereby modified as follows:

A. The Owner, without invalidating the contract, may order changes in the work consisting of additions, deletions, or other revisions, the contract sum and contract time being adjusted accordingly. All such changes in the work shall be authorized by Change Order issued by the Owner.

B. The cost or credit to the Owner resulting from a change in the work shall be determined by the Architect in one or more of the following ways:

    1. By unit prices stated in the Contract documents or subsequently agreed upon.

    2. By mutual acceptance of a lump sum proposal, properly itemized by contractor/subcontractor, to include the following:

a. Labor, including fringe benefits, payroll taxes, and workers' compensation insurance;

b. Materials entering permanently into the work;

c. Equipment costs for equipment utilized to perform the Change Order work; and/or

d. Change Order Mark-Up per Schedule.

3. By the actual cost of properly itemized by contractor/subcontractor, to include the following:

a. Labor, including fringe benefits, payroll taxes, and workers' compensation insurance;

b. Materials entering permanently into the work;

c. Equipment costs for equipment utilized to perform the Change Order work; and/or

d. Change Order Mark-Up per Schedule.

C. The costs under Paragraph 6(B) 1-3 above may be increased by General/Prime Contractor, Subcontractor (all tiers) to include a fixed fee for Subcontractor profit and overhead, Prime Contractor profit and overhead on Subcontractor work, and profit and overhead on work done by the General/Prime Contractor's own forces. The total of such fixed fee shall not exceed the amount determined from the Change Order Mark-Up Schedule below for a single Change Order item, or for any group of related items, and shall be full compensation for the cost of supervision (to include Project Manager, Project Coordinator, Superintendent, Administrative Staff, etc.), overhead, profit, insurance, general conditions not listed and any BIM updating, Procore updating, or other general expense associated with completing the change in the scope of work. The allowable mark-up fee for contractor bonding shall be in addition to the fee below for the Prime Contractor only and shall not exceed 1% of the change if applicable.

CHANGE ORDER MARK-UP SCHEDULE

1. Additive Changes (for the entity performing the work):	
Total Cost of Change +$0.01 to +$50,000 +$50,000.00 and above	Allowable Fee 15% of the Total Cost 10% of the Total Cost
2. Additive Changes (Contractor Markup) Subcontractors work:	
Total Cost of Change +$0.01 to +$50,000 +$50,000.00 and above	Allowable Fee 10% of the Total Subcontractor Fee 5% of the Total Subcontractor Fee
3. Deductive Changes:	
Total Credit Cost of Change +$0.01 to +$50,000 +$50,000.00 and above	Credit Fee to be Applied 10% of the Total Subcontractor Cost. (*Deductive*) 5% of the Total Subcontractor Fee (Deductive)
Example of Deductive Change: Assume <$5,000.00> to be credited. The Contractor must include a 10% credit for profit and overhead, i.e. $5,000.00 X 0.10 = <$5,500.00> total credit to the Contract.	

D. No fees shall be paid for time extensions.

E. All proposals shall be submitted to the Architect in sufficient detail to complete an analysis of all costs. The Contractor shall submit invoices for materials and equipment utilized in Change Order work. Labor rates shall not exceed the applicable Wage Rates (including Prevailing Wage Rates) as published by the State of Nevada Office of the Labor Commissioner. Fringe benefits shall not exceed the cost of fringe benefits normally paid to such personnel or established by the industry in the Northern Nevada area, whichever is lower. Labor rates or additional rates not identified as part of Prevailing Wage Rates shall be identified and approved by WCSD prior to start of construction.

7. SUBCONTRACTORS

Article 5.2.1 is hereby modified as follows:

A. Per NRS Chapter 338:

1. Except as otherwise provided in Subsection 2, each bid submitted to any officer, department, board or commission for the construction of any public work or improvement must include:

   a. The name of each Subcontractor who will provide labor or a portion of the work or improvement to the Contractor for which he/she will be paid; and

b. A description of the portion of the work or improvement which each Subcontractor named in the bid will complete.

2. The Contractor shall list in the Bid Form (PUR-F523) pursuant to Subsection 1 the name of a Subcontractor for each portion of the project that will be completed by him/her.

3. A Contractor whose bid is accepted, shall not substitute any person for a Subcontractor who is named on the Bid Form (PUR-523), unless:

a. The Owner objects to the Subcontractor, requests in writing a change in the Subcontractor and pays any increase in costs resulting from the change; or

b. The substitution is approved by the Owner and:

1. The Subcontractor, after having a reasonable opportunity, fails or refuses to execute a written contract with the Contractor, which was offered to the Subcontractor with the same terms and conditions that all other Subcontractors on the project were offered; or

2. The named Subcontractor files for bankruptcy or becomes insolvent; or

3. The named Subcontractor fails or refuses to perform subcontract within a reasonable time.

8. MANDATORY DRUG TESTING PROGRAM

A. In order to be eligible to perform work on WCSD construction projects all Contractors who will work on such projects must have a current and valid Drug and Alcohol Policy that is applicable to all workers who will be employed on those projects regardless of tier. This requirement is a reasonable precaution to ensure a safe and drug-free environment on school construction projects that may involve workers being in relatively in close contact with students.

B. The Policy must meet the minimum requirements as outlined in Exhibit 1. Each Contractor shall demonstrate compliance with this provision by signature on the Bid Form that the Policy is in place, that it will be actively enforced, and that all workers who will be employed on WCSD projects will have undergone the pre-placement drug testing required by WCSD. The WCSD and/or the Prime Contractor is empowered to review Contractor records of enforcement of its Drug and Alcohol Policy at any time during the construction period up to and including completion of the project in order to determine whether the policy is in fact being enforced. The Contractor shall forthwith deliver to the WCSD any and all records requested to determine compliance with this Drug and Alcohol Policy requirement. Failure to maintain or rigorously enforce the policy or to timely respond to WCSD demands for production of records relating to the Drug and Alcohol Policy may

result in termination of the project agreement at no cost to the WCSD.

C. Refer to Washoe County School District Mandatory Drug and Testing Program Requirements – EXHIBIT 1.

EXHIBIT 1

WASHOE COUNTY SCHOOL DISTRICT

MANDATORY DRUG AND ALCOHOL TESTING PROGRAM REQUIREMENTS

In order to be eligible to perform work on WCSD construction projects, all Contractors who work on such projects must have a current and valid Drug and Alcohol Policy that meets the following minimum requirements:

1. A statement identifying prohibited conduct regarding employee drug and alcohol use. At a minimum, the policy should address the following areas of prohibited conduct:

    a. Alcohol

    Possession of open containers use or being under the influence of alcohol by any employee during normal business hours including lunch breaks, while performing Contractor business, while operating Contractor vehicles or equipment or while on company premises is prohibited. Failure to pass an alcohol test will be grounds for disciplinary action up to and including termination.

    b. Illegal Drugs

    The unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited. Failure to pass a drug test will be grounds for disciplinary action up to and including termination.

    c. Legal Drugs

    Except as provided below, use or being under the influence of any mood-altering legal drug by any employee while on company premises or while performing company business is prohibited to the extent such use or influence may affect the safety of the employee, co-workers or the public, the employee's job performance or the safe or efficient operation of the Contractor.

    An employee under the influence of a mood-altering legal drug has an obligation to inquire and determine whether the mood-altering legal drug he/she is taking may or will affect his/her ability to safely and efficiently perform his/her job duties. If the employee is using a mood-altering legal drug at the direction of a physician, dentist or other licensed practitioner, the employee is required to inform a designated company official. In compliance with the Americans with Disabilities Act (ADA), this policy does not require the employee, physician, dentist or other licensed practitioner to identify the name of the prescription drug or the medical condition for who it is prescribed. For the safety of all employees, the Contractor

may place persons using such drugs in a less hazardous job assignment or place them on temporary medical leave until released as fit for duty by the prescribing physician, dentist or other licensed practitioner. An employee taking over-the-counter medications contrary to instructions provided by the manufacturer may be subject to disciplinary action up to and including termination.

d. Drug Paraphernalia

Employee possession of drug paraphernalia on the project site is strictly prohibited.

2. A statement requiring, at a minimum, the following types of drug and/or alcohol testing:

a. Pre-Placement Testing

Prior to the start of employment generally, or employment on any WCSD project, the Contractor must assure that any employee assigned to work on a WCSD project has previously completed a pre-placement drug test before the effective date of the project assignment. In the case of a newly hired employee, he/she must pass a pre-placement drug test prior to being allowed to work on a WCSD project.

b. Reasonable Suspicion Testing

Contractor will require a medical examination, breath test, blood test, and/or urinalysis when there is reasonable suspicion to believe that the employee is using drugs and/or alcohol at work or where circumstances or workplace conditions justify it.

c. Post- Accident Testing

Each employee will be tested for prohibited drugs and alcohol use as soon as possible after a reportable accident. Reportable accident is defined as any incident that results in an employee requiring medical treatment that results in the filing of a Workers Compensation claim, or property damage in excess of five hundred dollars ($500.00). An employee shall not be relieved of duty pending the receipt of test results except where there is reasonable evidence that alcohol or illegal drug use was a contributing factor as determined by the treating physician.

d. Return To Duty Testing and Follow-Up Testing

At the Contractor's discretion, employees in violation of the drug and alcohol policy will be subject to a return to duty policy as a condition of continued employment. In essence, this policy states that the Contractor may rehire or retain the employee in return for the employee's promise to remain alcohol and drug free on WCSD project sites, complete an evaluation by a licensed alcohol and drug counselor and follow all professional recommendations, provide a negative drug and/or alcohol test to return to duty and submit to follow-up testing on a random basis to confirm on-going policy compliance. This document will be

kept in a confidential file belonging to the Contractor's agency.

3. A statement describing the procedures the Contractor will use to test for the presence of alcohol and controlled substances, protect the integrity of the testing processes, safeguard the validity of the test results and ensure that those results are attributed to the correct employee. To meet this requirement, the Contractor is encouraged to follow the Federal Substance Abuse and Mental Health Services Administration (SAMHSA) Drug and Alcohol Testing Guidelines (49 CFR Part 40). At a minimum, the employer must test for the following drugs of abuse:

    - Marijuana
    - Cocaine
    - Opiates
    - Amphetamines/Methamphetamines
    - Phencyclidine (PCP)

    a. For the purpose of this policy, a positive drug test means that the employee has ingested a drug(s), which causes the employee's drug threshold level to be above the Federal Substance Abuse and Mental Health Services Administration (SAMHSA) Drug and Alcohol Testing Guidelines (49 CFR Part 40). For the purpose of this policy an employee whose breath/blood alcohol level is .04 or greater is considered to be in violation of the policy. It is recommended that blood alcohol testing only be used when an employee is medically unable to provide a breath alcohol sample.

4. A statement indicating the consequences for employees found to be in violation of the drug and alcohol policy. The Contractor's policy must outline the procedures the Contractor will follow to assure that the employee is fit to return to duty following a policy violation. At a minimum, an employee in violation of the Contractor's drug and alcohol policy must complete an evaluation by a licensed alcohol and drug counselor and follow all professional recommendations, provide a negative drug and/or alcohol test to return to duty and submit to follow-up testing on a random basis to confirm on-going policy compliance.

5. A statement indicating that actions taken under this policy will be confidential within the affected Contractor and employee. At a minimum, the Contractor must inform the employee that test results may be disclosed to another member of management on a need-to-know basis and to the employee upon request. Disclosures, without employee consent may also occur when: (A) the information is compelled by law or judicial or administrative process; (B) the information has been placed at issue in a formal dispute between the employer and the employee or job applicant; (C) the information is used in administering an employee benefit plan or other insurance program; (D) the information is needed by first-aid, safety, or medical personnel for the diagnosis or treatment of an employee who is unable/unwilling to authorize disclosure; (E) for review by the State Worker's Compensation Board or the State Unemployment Security Division in determining a pending claim; or (F) the information is compelled by federal officials investigating compliance with the Americans with Disabilities Act (ADA).

6. A statement indicating that all employees shall participate in a company-sponsored drug/alcohol awareness program. The program shall provide employees with information regarding: (A) the company's drug/alcohol free workplace policy; (B) available counseling, referral agencies and rehabilitation; and (C) the penalties imposed upon employees for violations of this policy.

   Each Contractor shall ensure that all supervisors designated to supervise employees on a WCSD project complete a training course on reasonable suspicion testing. This training shall include information on the physical, behavioral, speech and performance indicators of probable employee alcohol or drug abuse and how to effectively intervene per Contractor policy.

7. A statement indicating that Subcontractors, Sub-tiered Contractors, vendors, and their employees shall be required to cooperate with the Contractor's policy to achieve a drug/alcohol free workplace.

END OF EXHIBIT 1

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9. ARTICLE 1.1 GENERAL PROVISIONS

Add the following at the end of Subparagraph 1.1.1:

In the event of any conflict among the Contract documents, the documents shall be construed according to the following priorities:

Highest Priority:	Modifications
Second Priority:	Agreement
Third Priority:	Addenda–later date to take precedence
Fourth Priority:	Supplementary General Conditions
Fifth Priority:	General Conditions
Sixth Priority:	Specifications with respect to quality and general performance of the Work
Seventh Priority:	Drawings with respect to quantity of materials and general location of the Work. Detail drawings shall take precedence over small scale drawings.

Add the following at the end of Subparagraph 1.2.1:

All Work mentioned or indicated in the Contract documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract documents that such Work is to be done by others. Should the Drawings or the Specifications disagree in themselves or with each other, the Contractor shall provide the better quality or greater quantity of work unless otherwise directed by written addendum to the Contractor.

Add the following to Subparagraph 1.2.2:

The Contractor and all Subcontractors shall refer to all of the Drawings, including those showing primarily the Work of the mechanical, electrical and other specialized trades, and to all of the Sections of the Specifications, and shall perform all Work reasonably inferable therefrom as being necessary to produce the indicated results.

Add new Subparagraphs 1.2.4 through 1.2.11 as follows:

1.2.4 All indications or notations which apply to one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract documents.

1.2.5 Where codes, standards, requirements and publications of public and private bodies are referred to in the Specifications, references shall be understood to be to the latest adopted version used to issue permits, except where otherwise indicated.

1.2.6 Where no explicit quality or standards for materials or workmanship are established for Work, such Work is to be of good quality for the intended use and consistent with the quality of the surrounding Work and of the construction of the Project generally.

1.2.7 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract documents.

1.2.8 The Mechanical, Electrical and Fire Protection Drawings are diagrammatic only, and are not intended to precisely show the alignment, physical locations or configurations of such Work. Such Work shall be installed without additional cost to the Owner to clear all obstructions, permit proper clearances for the Work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the Contractor shall prepare coordination drawings showing the exact alignment, physical location and configuration of the Mechanical, Electrical and Fire Protection installations and demonstrating to the Contractor's satisfaction that the installations will comply with the preceding sentence.

1.2.9 Exact locations of fixtures and outlets shall be obtained from the Architect as provided in Subparagraph 3.2.2 before the Work is roughed in; Work installed without such information from the Architect shall be relocated at the Contractor's expense.

1.2.10 Test boring or soil test information included with the Contract documents or otherwise made available to the Contractor was obtained by the Owner for use by the Architect in the design of the Project or Work. The Owner does not hold out such information to the Contractor as an accurate or approximate indication of subsurface conditions, and no claim for extra cost or extension of time resulting from reliance by the Contractor on such

information shall be allowed except as provided in Subparagraph 3.7.4.

1.2.11 Where the Work is to fit with existing conditions or work to be performed by others, the Contractor shall fully and completely join the Work with such conditions or work, unless otherwise specified.

11. ARTICLE 3.1 CONTRACTOR

Add the following to the end of 3.2.1:

If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract documents the Contractor could have discovered such, the Contractor shall bear all costs arising therefrom.

Add the following to the end of 3.2.2:

The Contractor shall give the Architect timely notice of any additional Drawings, Specifications, or instructions required to define the Work in greater detail or to permit the proper progress of the Work. The Contractor shall not proceed with any Work not clearly and consistently defined in detail in the Contract documents but shall request additional Drawings or instructions from the Architect. If the Contractor proceeds with such Work without obtaining further Drawings, Specifications or instructions, then the Contractor shall correct Work incorrectly done at the Contractor's own expense.

Add the following sentence to the end of Subparagraph 3.4.1:

The word "provide" shall mean furnish and install complete, including connections, unless otherwise specified.

Change the first sentence of Subparagraph 3.5.1 and delete the last (2) two sentences to read as follows:

The Contractor warrants that the materials and equipment furnished under the Contract will be new and of recent manufacture unless otherwise specified, and that all Work will be of good quality, free from faults and defects, and in conformance with the Contract documents.

Add new Subparagraphs 3.5.3 through 3.5.9 as follows:

3.5.3 The Contractor shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract documents. The Architect may require the Contractor to produce reasonable evidence that a material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the Architect, would lead to a reasonable certainty that any material used, or proposed to be used, in the Work meets the requirements of the Contract documents. All such data

shall be furnished at the Contractor's expense. This provision shall not require the Contractor to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract documents to be performed at the Contractor's expense.

3.5.4 If the Contractor proposes to use a material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract documents, the Contractor shall inform the Architect in writing of the nature of such deviations at the time the material is submitted for approval and shall request written approval of the deviation from the requirements of the Contract documents.

3.5.5 In requesting approval of deviations or substitutions, the Contractor shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that otherwise attainable. If, in the opinion of the Architect, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Architect may reject such substitution or deviation without further investigation.

3.5.6 The Contract documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The Architect shall judge the design and appearance of proposed substitutes based on their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which, in the Architect's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character of quality of design of the Project. In order to permit coordinated design of color and finishes the Contractor shall, if required by the Architect, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the Owner.

3.5.7 Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the Contractor, notwithstanding approval or acceptance of such substitution by the Owner or the Architect, unless such substitution was made at the written request or direction of the Owner or the Architect.

3.5.8 The warranty provided in this Paragraph 3.5 shall be in addition to and not in limitation of any other warranty required by the Contract documents or otherwise prescribed by law.

3.5.9 The Contractor shall procure and deliver to the Architect, no later than the date claimed by the Contractor as the date of Substantial Completion, all special warranties required by the Contract documents. Delivery by the Contractor shall constitute the Contractor's guarantee to the Owner that the warranty will be performed in accordance with its terms and conditions.

Change the title of Paragraph 3.9 to read “Superintendence.”

Change the first sentence of Subparagraph 3.9.1 to read as follows:

> The Contractor shall employ a competent superintendent, reasonably acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site full time during the progress of the Work until the date of Substantial Completion, and for such additional time thereafter as the Architect may determine to be necessary for the expeditious completion of the Work.

Add to end of Subparagraph 3.9.3 as follows:

> The Contractor shall remove the superintendent if requested to do so in writing by the Owner and shall promptly replace him with a competent person reasonably acceptable to the Owner.

Add new Subparagraphs 3.9.4 through 3.9.7 as follows:

3.9.4 The Contractor shall retain a competent Registered Professional Engineer or Registered Land Surveyor, acceptable to the Architect, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated Work such as, but not limited to, roads, utilities, and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

3.9.5 The Contractor shall establish the building grades, lines, levels, columns, walls and partition lines required by the various Subcontractors in laying out their Work.

3.9.6 The Contractor shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractor and all Subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the installation of work and the storage of materials.

3.9.7 The Contractor shall arrange for and attend job meetings with the Architect and such other persons as the Architect may from time-to-time wish to have present. The Contractor shall be represented by a principal, project manager, general superintendent or other authorized main office representative, as well as by the Contractor’s own superintendent. An authorized representative of any Subcontractor or Sub-Subcontractor shall attend such meetings if the representative’s presence is requested by the Architect. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, change orders, time schedules, and workforce. Any

notices required under the Contract may be served on such representatives.

Change Subparagraph 3.10.1 to read as follows:

3.10.1 The Contractor shall prepare and submit to the Architect a progress schedule as described in Subparagraphs 8.2.4 through 8.2.10.

Change Subparagraph 3.12.6 to read as follows:

3.12.6 By approving and submitting Shop Drawings, Product Data, Samples, and similar submittals the Contractor thereby represents that the Contractor has determined and verified all dimensions, quantities, field dimensions, relations to existing work, coordination with work to be installed later, coordination with information on previously accepted Shop Drawings, Product Data, Samples, or similar submittals and verification of compliance with all the requirements of the Contract documents. The accuracy of all such information is the responsibility of the Contractor. In reviewing Shop Drawings, Product Data, Samples, and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

Add the following at the end of Subparagraph 3.12.9:

Unless such written notice has been given, the Architect's approval of a resubmitted Shop Drawing, Product Data, Sample, or similar submittal shall not constitute approval of any changes not requested on the prior submittal.

Change Subparagraph 3.13 to read as follows:

The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times with the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract documents. The Contractor shall confine the Contractor's apparatus, the storage of materials, and the operations of the Contractor's workmen to limits indicated by law, ordinances, the Contract documents and permits and/or directions of the Architect and shall not unreasonably encumber the premises with the Contractor's materials. The Owner shall not be liable to the Contractor, their Subcontractors, their employees or anyone else with respect to the conditions of the premises, except only for a condition caused directly and solely by the negligence of the Owner.

Add the following at the end of Subparagraph 3.15.1:

Immediately prior to the Architect's inspection for Substantial Completion, the Contractor shall completely clean the premises. Concrete and ceramic surfaces shall be cleaned and washed. Resilient coverings shall be cleaned. Woodwork shall be dusted and cleaned. Sash, fixtures, and equipment shall be thoroughly cleaned. Stains, spots, dust, marks and smears shall be removed from all surfaces. Hardware and all metal

surfaces shall be cleaned and polished. Glass and plastic surfaces shall be thoroughly cleaned by professional window cleaners. All damaged, broken or scratched glass or plastic shall be replaced by the Contractor at the Contractor's expense.

12. ARTICLE 4.1 ADMINISTRATION OF THE CONTRACT

In Subparagraph 4.2.7, add to the end of the first sentence:

"…and only to the extent which the Architect believes desirable to protect the Owner's interest."

13. ARTICLE 8.1 TIME

Added new Subparagraphs 8.1.5 through 8.1.11 as follows:

8.1.5 Within two (2) weeks after award of the Contract, the Contractor shall submit to the Architect a Progress Schedule showing for each class of work included in the Schedule of Values, the percentage completion to be obtained and the total dollar value of work to be completed as of the first of each month until Substantial Completion. All calculations shall be based on the Work in place, and not include the value of materials delivered, but not in place.

8.1.6 The Progress Schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation (including adequate time for submission and review of submittals), and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Progress Schedule will be reviewed by the Architect for compliance with the requirements of this Article and will be accepted by the Architect or returned to the Contractor for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the Progress Schedule has been approved by the Architect.

8.1.7 If in any Application for Payment the total value of the completed Work in place, as certified by the Architect, is less than 90% of the total value of the Work in place estimated in the Progress Schedule, the Owner may, at the Owner's option, require the Contractor to accelerate the progress of the Work without cost to the Owner by increasing the work force of hours of work, or by other reasonable means approved by the Architect.

8.1.8 If each of three (3) successive applications, as certified by the Architect, indicate that the actual Work completed is less than 90% of the values estimated in the Progress Schedule to be completed by the respective dates, the Owner may at the Owner's option, treat the Contractor's delinquency as a default justifying the action permitted under Paragraph 14.2.

8.1.9 If the Architect has determined that the Contractor should be permitted to extend the time for completion as provided in Paragraph 8.3, the calendar

dates in the Progress Schedule shall be adjusted accordingly to retain the same relationship to the adjusted date of Substantial Completion, and the dollar value of Work to be completed as of the first of each month shall be prorated.

8.1.10 If the Contractor fails to submit any Application for Payment in any month, the Architect shall, for the purpose of this evaluation of progress, certify separately to the actual value of the Work in place completed as of the first of the month to the best of the Architect's knowledge.

8.1.11 Nothing herein shall limit the Owner's right to liquidated or other damages for delays by the Contractor or to any other remedy which the Owner may possess under other provisions of the Contract Documents or by law.

Change Subparagraph 8.3.3 and add new Subparagraph 8.3.4 as follows:

8.3.3 No claim for delay shall be allowed on account of failure of the Architect to furnish Drawings, Specifications, or instructions or to return Shop Drawings or Samples until fifteen (15) days after receipt by the Architect by registered or certified mail of written demand for such instructions, Drawings, or Samples, and not then unless such claim be reasonable.

8.3.4 The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner or the Architect on account of any delay in the commencement of the Work and/or any delay or suspension of any portion of the Work, whether such delay is caused by the Owner, the Architect, or otherwise. The Contractor acknowledges that the Contractor's sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article.

14. ARTICLE 9.1 PAYMENTS AND COMPLETION

Add at the end of the second sentence of Subparagraph 9.2:

"and shall be revised if later found by the Architect to be inaccurate."

Add new Subparagraph 9.3.4 as follows:

9.3.4 Each Application for Payment or periodic estimate requesting payment shall at the Owner's option be accompanied by: (1) a waiver of liens from each Subcontractor; or (2) a certificate from each Subcontractor stating that the Subcontractor has been paid all amounts due the Subcontractor on the basis of the previous periodic payment to the Contractor or else stating the amount not so paid and the reason for the discrepancy. In the event of any such discrepancy, the Contractor shall furnish the Contractor's own written explanation to the Owner through the Architect. Such waiver or certificate shall be in a form acceptable to the Owner.

In Subparagraph 9.5.1, add the new item to the list of .1 through .7 as follows:

.8 failure of mechanical trade or electrical trade Subcontractors to comply with mandatory requirements for maintaining record drawings. The Contractor shall check record drawings each month. Written confirmation that the record drawings are current will be required by the Architect before approval of the Contractor's monthly payment requisition.

Replace the second sentence of Subparagraph 9.10.2 with the following:

If the Contractor fails to furnish such releases or waivers, as the Owner reasonably requires, to satisfy the Owner that there are not outstanding liens, the Owner may require the Contractor, as a condition of final payment and at the Contractor's expense, to furnish a bond satisfactory to the Owner to indemnify the Owner against any such liens.

15. ARTICLE 10.1 PROTECTIONS OF PERSONS AND PROPERTY

At the end of the Subparagraph 10.1, add the following:

"… including compliance with 29 CFR 1910.132, 1910.133, and 1910.134, and for providing a safe workplace and complying with all codes, bylaws, rules and regulations applicable to the construction site."

In Subparagraph 10.2.1.2 delete the word "and" at the end of the Subparagraph.

In Subparagraph 10.2.1.3 add the word "and" to the end of the Subparagraph.

In Subparagraph 10.2.1, add the new item to the list of .1 through .3 as follows:

.4 any other property of the Owner, whether or not forming part of the Work, located at the site or adjacent thereto in areas to which the Contractor has access.

Add new Subparagraphs 10.2.9 through 10.2.12 as follows:

10.2.9 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local Fire Chief or Fire Marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

10.2.10 The Contractor shall, at all times, protect excavations, trenches, buildings and materials, from rainwater, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping, and other equipment necessary to this end.

10.2.11 The Contractor shall remove snow and ice which might result in damage or delay.

10.2.12 During the progress of the Work and at all times prior to the date of Substantial Completion of occupancy of the Work by the Owner, whichever is earlier, the Contractor shall provide temporary heat, ventilation, and enclosure, adequate to permit the Work to proceed in a timely fashion, and to prevent damage to completed Work or Work in progress, or to materials stored on the premises. The permanent heating and ventilation systems may be used for these purposes when available unless otherwise provided in the Contract Documents.

16. ARTICLE 11.3 PROPERTY INSURANCE

Subparagraphs 11.2.2 through 11.5.2 shall be deleted in their entirety.

17. ARTICLE 12.1 UNCOVERING AND CORRECTION OF WORK

Add at the end of Subparagraph 12.2.1:

"…and any cost, loss, or damages to the Owner resulting from such failure or defect."

18. ARTICLE 13.1 MISCELLANEOUS PROVISIONS

Change Subparagraph 13.4.4 to read as follows:

13.5.4 The Contractor shall obtain and deliver promptly to the Architect any occupancy permit and any certificates of final inspection of any part of the Contractor's work and operating permits for any mechanical apparatus, such as elevators, escalators, boilers, air compressors, etc., which may be required by law to permit full use and occupancy of the premises by the Owner. Receipt of such permits or certificates by the Architect shall be a condition precedent to Substantial Completion of the Work.

19. ARTICLE 14.1 TERMINATION OF THE CONTRACT

Delete "or" from end of Subparagraph 14.1.1.2

Delete Subparagraphs 14.1.1.4 in its entirety.

20. ARTICLE 15 CLAIMS AND DISPUTES

Add the following sentence to the end of Subparagraph 15.1.3.1:

Any change or addition to a previously made Claim shall be made by timely written notice in accordance with this Subparagraph 15.1.3.1.

Delete the second sentence of Subparagraph 15.1.6.1 and substitute the following:

The Contractor shall have the burden of demonstrating the effect of the claimed delay on the Contract Time and shall furnish the Architect with such documentation relating thereto as the Architect may reasonably require.

Add the following Subparagraph:

15.1.6.3 Any extension of time for weather delays shall be considered by the Architect and Owner only when a request for such extension is made in writing by the Contractor and provided further that any such request shall be presented to the Architect or Owner within ten (10) days from the commencement of the period of delay.

It is expressly understood and agreed that the Contract Time includes adequate time to allow for usual weather/smoke delays considering the climatic conditions in the area of the Project. No adjustments to the Contract Time will be allowed on account of usual weather or subsequent building/site conditions. The Contractor shall include adequate float or other allowance in the Contractors construction schedule to accommodate weather conditions that may be associated with weather dependent work. Any extension of time for weather will be per specifications 01310(A/B).

Time extension requests for delays caused by additional adverse weather conditions will be evaluated individually. Inclement weather days in which no work is conducted at the project site will be considered by the Owner for full day time extensions. Inclement weather days in which any trade or worker perform work on the project will be considered by the Owner for a maximum of one-half (½) daytime extension.

SECTION 00810 – WAGE RATES AND APPRENTICE UTILIZATION

The Contractor shall comply strictly with the requirements of **NRS Chapter 338** and shall pay, if required by statute, prevailing wage rates for the appropriate labor positions as outlined in 'Washoe County - Prevailing Wage Rates for Public Works, State of Nevada" for projects that are $100,000 or greater. Prevailing wage shall be paid for all work through punch list and issuance of Notice of Completion.

Wage rates as published by the Labor Commissioner of the State of Nevada are available as follows:

Office of Labor Commissioner
1818 College Parkway, Suite 102
Carson City, NV 89706

- Phone: (775) 684-1890
- Email: mail1@Labor.nv.gov
- Website: https://labor.nv.gov/

The Contractor shall comply strictly with the requirements of **NRS Chapter 338 and the Apprentice Utilization Act** as reformed by Senate Bill 82 (SB82) in the 2023 Legislative Session effective January 1, 2024. Please refer to the Labor Commissioner's website specifically for a copy of Senate Bill 82, Presentation Senate Bill 82 dated 12-12-23, Senate Bill 82 OLC Summary dated 12-12-23 and any other posted information.

(https://labor.nv.gov/Apprenticeship_Utilization_Act/Apprenticeship_Utilization_Act/)

A contractor or subcontractor engaged in Public Works construction who employs workers on one or more public works during a calendar year pursuant to NRS 338.040 shall use apprentices for a portion of the total hours of labor worked for each apprenticed craft or type of work to be performed on those public works.

This project is subject to the Apprentice Utilization Act and is categorized as **VERTICAL** work.

It is the Contractor's responsibility to comply, document and report directly to the Labor Commissioner annually if they have performed a certain number of hours or more on Public Works. Failure to comply, document and report could result in financial penalties and disqualification per NRS.

SECTION 00820 - SPECIAL CONDITIONS

1. TIME OF COMPLETION

The physical work is to commence upon issuance of a Notice to Proceed and shall be completed on or before **April 3, 2026.**

2. EXAMINATION OF SITE

Contractor is requested to visit the project site, compare the Drawings and Specifications with any work in place, and be informed of all conditions, including the work, if any, being performed. Failure to visit the project site will in no way relieve the Contractor from necessity of furnishing any materials or performing any work in accordance with Drawings and Specifications that may be required to complete the work without additional cost to the Owner.

The Contractor shall call the project site and make arrangements for a time to visit. To review the existing premises, contact the Principal and/or Site Facilities Coordinator at the site(s). **Whenever at the site, be sure to check in at the Front Office**.

3. STORAGE

If available as determined by the Capital Projects Department, the Contractor may make arrangements with the Capital Projects Department for an area which the Contractor may use for storage of tools, equipment, and supplies while the project is in progress. Contractor to provide own storage unit for self and any Subcontractors.

4. UTILITIES

If available as determined by the Capital Projects Departments, the Contractor may make arrangements with the Capital Projects Department for the use of all water, electricity, lighting, and other utilities necessary for construction purposes. However, the Contractor shall furnish at his/her own expense any lines or equipment, or extensions necessary to bring utilities to construction areas including any design, permitting, fees, hookup, etc. to execute the use of the utility.

5. TOILETS

If available as determined by the Capital Projects Department, the Contractor may make arrangements with the Capital Projects Department for toilets as necessary for use of workers. Toilets must be kept in sanitary condition and are the responsibility of the Contractor. Additional toilets may be required to be provided by the Contractor if weekend or after hour work is anticipated.

6. BUILDING CODES

All work in this project shall strictly comply with ordinances and laws, state and local, governing such construction in this locality.

Should the Drawings and/or Specifications in any way conflict with these ordinances and laws, the Contractor shall immediately notify the Owner.

7. WAGES

a. Wage Rates – The Contractor shall comply strictly with the requirements of NRS Chapter 338 and shall pay, if required by statute, prevailing wage rates for the appropriate labor positions as outlined in "Washoe County - Prevailing Wage Rates for Public Works, State of Nevada" for projects that are $100,000 or greater.

b. Nondiscrimination - In connection with the performance of the work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, color, national origin, or sex. Such agreement shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment, or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor further agrees to insert this provision in all subcontracts hereunder, except subcontract for standard commercial supplies or raw materials. Any violation of these provisions by a Contractor or Subcontractor shall constitute a material breach of Contract.

c. Health and Safety in Employment - All applicable provisions of NRS Chapter 618 shall be incorporated in the construction practices for all employees directly engaged in the completion of this project.

Safety: In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for condition of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

The duty of the Engineer/Architect to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures.

d. Hours - No overtime or weekend work on the project will be performed without the written approval of the Owner or Owner's representative except in cases of emergency where life or property is in imminent danger. The Contractor may submit a request for overtime, weekend or holiday work to the Capital Projects Department for review and approval or denial, a minimum of one (1) week prior to such work. It shall be the Contractor’s responsibility to pay, as a Deductive Change Order, any overtime costs associated with such work for WCSD personnel to open/close site, provide quality assurance and quality control for such work.

WCSD has the right to reject any overtime, holiday or weekend work.

No person shall be employed for more than eight (8) hours in any one day or more than forty (40) hours in any one week without proper overtime compensation being paid.

During occupied periods, the Contractor can only work with the WCSD's permission. During these occupied periods, the Contractor will be responsible for the complete clean-up and weatherproofing of any work each day in order that the space can be utilized for its educational purpose the next day.

The cost of these "off" hours shall be included in the bid.

- Back of the House: From 7:00 a.m. until 11:00 p.m. Monday through Friday the Back of the House area will be available to the Contractor.
- Cooking Floor: From 7:00 a.m. until 11:00 p.m. Monday through Friday and 7:00 a.m. until 3:30 p.m. on Saturday, ONLY during School Breaks, the Cooking Floor area will be available to the Contractor.
    - At no time shall the kettles be non-operational for any school day.

- Once the new boilers and kettles are in operation, the remaining work may be completed from 3:00 p.m. until 11:00 p.m. Monday through Friday.
    - The food service areas shall be clean and ready for operations by 5:00 a.m. the following day.

e. Employment – Contractors shall comply with NRS Chapter 338.125 and Chapter 338.130 inclusively. The Contractor expressly agrees to comply with the provisions of Chapter 338.130 and further agrees that if those provisions are not complied, or any failure or refusal to comply with the provisions of Chapter 338.130, shall render this Contract VOID.

f. Statutes - All applicable provisions of NRS Chapter 338 shall apply to this project and Contract and all Contractor and Subcontractors shall comply therewith.

g. Workers' Compensation - Workers' Compensation premiums shall be paid as required by law for the duration of the Contract practices delineated under "Occupational Safety and Health" (NRS Chapter 618) and will be adhered to in all phases of construction.

8. PERMITS AND INSPECTIONS

a. Since the project site is within Washoe County, City of Reno or City of Sparks, the Contractor shall secure a building permit and arrange for all inspections through the appropriate jurisdiction. WCSD is not exempt from the requirements of these authorities.

b. Any fees charged by Washoe County, City of Reno, or City of Sparks, for permanent improvements plan checking, permits; and water, sewer, electrical

hook-up will be paid by WCSD. The Contractor shall be responsible for all temporary use permits and associated fees, including but not limited to, discharge permits, dust control, encroachment, street cut, traffic control, and confined space, fire, elevator, etc. Contractor is responsible for all permit conditions, inspections, and final condition work.

c. The Contractor shall give all notices as required and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Specifications and/or Drawings are at variance therewith, the Contractor shall notify the Owner promptly in writing, of any necessary changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the Owner, the Contractor shall bear all costs arising therefrom.

d. Deferred submittal coordination is the Contractor's responsibility including scheduling and timing with the permitting agency. Contractor may elect to submit under separate permit at their own expense, including any design, fees, review and submittal costs, and inspection fees as a result of additional permits.

e. The Contractor shall notify the Owner when ready for final inspection.

f. Final payment shall not be made until all the closed out permits for the work have been turned over to the Owner.

9. EMPLOYEE REGULATIONS

The Contractor shall, at all times, enforce strict discipline and good order among employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

The Contractor shall ensure that each and every kind of work shall be performed by workmen, laborers, or mechanics especially skilled in the class of work (trade) required and that workmanship shall be of the best trade practice, regardless of the quality of materials.

The Contractor shall provide, at all times, sufficient and competent labor to carry on the work properly and ensure completion of each part in accordance with schedule and within the time agreed to.

An employee of the Contractor or Subcontractor, who is deemed incompetent, disorderly, or otherwise objectionable by the Owner, shall be removed promptly by the Contractor, and not reemployed on the work.

10. MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS

Wherever, in these specifications, a particular brand or make of item is specified, the Contractor shall comply strictly with the specifications and recommendations of that manufacturer as to the installation and/or application of that particular item.

11. REFERENCE TO SPECIFICATIONS AND TRADE NAMES

In these Specifications, wherever American Society for Testing Materials or other specifications or standards are mentioned it shall be understood that the materials or methods mentioned therewith shall conform to all requirements of the issue in effect on date of submission of bids. In these specifications whenever the trade name of a product or the name of a product or the name of a manufacturer appears it shall be understood to specify the product so identified or its "Approved Equal." The words "Or Equal" or "Approved Equal" shall mean equal in the opinion of and approved by the Owner or its representative. Refer to requirements outlined in Section 01631 - SUBSTITUTIONS.

12. NOTIFICATION TO CONTRACTOR OF WORK TO BE PERFORMED

After award of the bid, the project shall be initiated by the successful execution of a Contract and a “Notice to Proceed” has been issued by the WCSD’s Purchasing Department.

13. GUARANTEE

The Contractor shall guarantee all work and equipment provided under this Contract to be free from defects of workmanship and material for a period of **one (1) year** or as specified, from the date of final acceptance of the work, which constitutes the issuance of a Notice of Substantial Completion and shall, at Contractor’s own expense, repair and replace all defective work and materials.

14. APPEAL BY UNSUCCESSFUL BIDDER

Any unsuccessful Bidder (Appellant) may appeal the results in the solicitation’s RECOMMENDATION OF AWARD TABULATION if they believe applicable provisions of the law were violated.

Appellant must submit a notice of protest to the Director of Procurement and Contracts no later than five (5) business days beginning the day after the date of the ROA TABULATION.

The notice of protest must include a written statement setting forth with specificity the reasons the person filing the notice believes the applicable provisions of the law were violated.

Appellant shall submit with the notice of protest a bond (i.e., Protest Bond or Appeal Bond) with a good and solvent surety company, authorized to do business in the State of Nevada or submit other security in a form approved by WCSD, who will hold the bond or other security until a determination is made on the appeal.

The bond shall be in the amount of twenty-five percent (25%) of the total dollar value of the Appellant’s bid submission, up to a maximum amount of two hundred fifty thousand dollars ($250,000).

If Appellant is not satisfied with WCSD's Director of Procurement and Contracts' response, Appellant may then appeal to an appeals committee designated by WCSD.

If Appellant is not satisfied with the appeals committee's response, Appellant may then appeal to WCSD's Board of Trustees, who will render the final decision. WCSD will postpone any award action until after WCSD's Board of Trustees renders a final decision.

Appellant will not seek any type of judicial intervention until WCSD has rendered its final decision on the protest.

If an appeal is granted, the full amount of the posted bond will be returned to Appellant.
If the appeal is denied/not upheld, a claim may be made against the bond by WCSD for expenses suffered by WCSD as a result of the unsuccessful appeal.

WCSD is not liable for any costs, expenses, attorney's fees, loss of income, or other damages sustained by Appellant in an appeal process.

15. QUALITY ASSURANCE

It shall be the Contractor's responsibility to use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work.

16. OTHER PROJECTS

The Contractor is hereby informed that other projects may be happening at the school/ site at the same time as this project. The Contractor will make every effort to coordinate work with that of other Contractors.

17. EXISTING BUILDING AND CONDITIONS

During construction, it shall be the responsibility of the Contractor to take all reasonable precautions to preserve and protect surrounding buildings and property from damage of all kinds arising from the execution of this Contract. He/she shall repair and/or be responsible for any such damage at no additional cost to the Owner.

It is the Contractor's responsibility to identify and document any building or site damage that exists prior to the start of construction. If undocumented damage is discovered by the Owner that could have been caused as a result of the Contractor's presence it will be the Contractor's responsibility to repair the damage to the Owner's satisfaction without cost to the Owner. If the Contractor does not repair the damage to the Owner's satisfaction, then the Owner has the right after forty-eight (48) hours of written notification to repair the damage and process an Owner's Deductive Change Order for all expenses associated with the repair.

The Contractor shall provide temporary protective fencing or covering over any open trenching or excavation arising from the execution of this Contract, to keep out unauthorized persons, at no additional cost to the Owner.

The Contractor shall notify the Capital Projects Department's representative forty-eight (48) hours prior to any electrical shutdowns at the project site. Failure to do so could cause freezing and other damage due to shut down of the energy management system. The Contractor shall bear all costs for damage resulting from any failure to notify designated parties.

The Contractor shall meet with the representative of the Capital Projects Department to establish limits of work and general ground rules. As school may be in session, all safety precautions will be rigidly enforced.

Contractor shall hire a qualified, properly Licensed Contractor to test all natural gas lines within area of work for leaks prior to the start of the project and at project completion. Note all gas leaks at the start of the project and report it to the Capital Projects Department's representative IMMEDIATELY. Contractor shall not proceed with work in area of any leaks until directed by the Capital Projects Department's representative. Gas line leaks at project completion shall be the responsibility of the Contractor and be repaired by a qualified, Licensed Contractor at no cost to the Owner. Contractor shall assume that all exposed conduit that exists within the work area is fully functional and operational for all wiring that is within the conduit at the start of the project. If at any time during construction, operations utilizing this wiring fail or are disrupted, the Contractor shall be responsible for repairs to make the operations fully functional by a qualified, Licensed Contractor at no cost to the Owner.

18. MATERIAL DISTURBANCE PERMIT

The Building Material Disturbance Permit (MDP) is a Washoe County School District (WCSD) document that identifies asbestos and lead site specific information, and it is issued by the Environmental, Safety & Assessment (ES&A) Department. A site-specific Material Disturbance Permit is required for each project. Each project and facility require a separate Material Disturbance Permit because each facility has specific information and direction regarding asbestos and lead, as each facility is different in that regard. The Material Disturbance Permit is to be requested by the Project Manager, or appointed District representative, in accordance with current Material Disturbance Permit requirements. No work can be done by a Contractor in WCSD without an MDP.

19. WATER SYSTEM DISTURBANCE

Improper closing of valves and other improperly conducted disruptions to District facilities can result in cross connections and back siphoning of chemicals and other contaminates into the water supply. Since these disturbances are very important, the District has added a water system disturbance section to the Material Disturbance Permit (MDP). Work, as a part of this contract, may involve the disturbance of a facilities water distribution system and, as such, the contractor is required to comply with the Water System Disturbance Permit Appendix section of

the Material, Water & Lead Disturbance Permit for any work impacting a facility water system.

The contractor shall carefully comply with all requirements of the Material, Water & Lead Disturbance Permit, and shall be aware of this process prior to bid preparation and any construction. The permit requirements are hereby made a part of this specification and contract to the same extent as if bound herein and shall apply to all contractors and subcontractors.

The contractor shall be responsible for all costs incurred by the Washoe County School District, including the consultant, sampling and testing, clean-up, replacement of effected equipment, materials, etc., and any legal action that may result from an unauthorized disturbance of a water system caused by the contractor or his subcontractors, resulting in a cross connection or backflow incident.

If Contractors have any questions regarding the requirements of the Water System Disturbance Permit, please call the ES&A Department for the Regulated Systems Compliance & Safety Officers at (775) 325-8491.

20. ASBESTOS

The Washoe County School District has approx. 60% of our facilities that contain asbestos-containing materials. Contractors performing disturbances to asbestos-containing materials must be properly licensed and trained per the EPA AHERA regulation, as well as other Federal, State, and Local regulations.

Since so many of the facilities contain asbestos, minor construction activities many times will involve disturbance of materials which contain asbestos. These projects may involve “small scale-short duration” asbestos disturbances also termed “Attachments & Penetrations” to non-friable materials. As a part of this contract, the successful contractor will be required to include Attachments & Penetrations into the scope of their work.

a. Asbestos and the Material Disturbance Permit

The Contractor shall carefully comply with all the items of the Building Material Disturbance Permit (MDP) and shall review the permit and become familiar with its contents prior to bid preparation and any construction.

Once a Material Disturbance Permit Request is received for a specific project, building materials that have been identified as being disturbed during construction, and/or demolition, will have been tested for the presence of asbestos. These materials will be identified as asbestos-containing or non-asbestos-containing on the building Material Disturbance Permit(s) by the District’s AHERA Management Planner. The Material Disturbance Permit must be referred to before any work commences. No outside asbestos sampling of building materials, by the Contractor or a Contractor hired asbestos consultant, is allowed.

All asbestos-containing material must be handled by contractors and/or individuals trained and certified in the removal of asbestos-containing building materials. No asbestos-containing materials shall be disturbed prior to authorization from the owner. If any material is encountered that is not listed on the Material Disturbance Permit, it shall immediately be brought to the attention of the Project Manager before any work continues that might disturb this material. If any building material listed in the disturbance permit as containing asbestos is improperly disturbed, in the opinion of the District, by the Contractor or his sub-contractor/s, the District will immediately hire a third-party asbestos consultant to investigate possible asbestos contamination, and an asbestos Contractor to perform any recommended clean-up.

The Contractor shall be responsible for all costs incurred by the District including the consultant, sampling and testing, clean-up, replacement of affected equipment, materials, etc., and any legal action that may result from an asbestos fiber release incident caused by the Contractor or his sub-contractors.

b. Asbestos Abatement (The removal of an asbestos material)

Attachments and Penetrations does not include the removal (other than drilling holes) of asbestos containing materials. Any removal of asbestos-containing materials is not an “Attachment and Penetration” activity, but rather an abatement, and any abatement of asbestos materials must be designed by an EPA AHERA certified Asbestos Project Designer. Any abatement project’s design will be the responsibility of the District to design and provide abatement specifications. Asbestos abatement (Removal) must be conducted by an asbestos abatement contractor, which will be supervised by the District and/or a District hired asbestos abatement consultant. The abatement costs will be included into the scope of this project.

c. Asbestos – Attachments & Penetrations

Attachments & Penetrations, for the purpose of this document, is the drilling of holes, installing/removing screws, installing anchors, nails, and staples in non-friable asbestos-containing materials, in which the disturbance may release asbestos fibers. Attachments & Penetrations are minor disturbances that are normal activities such as installing conduits, mounting boxes or brackets, and removing equipment anchors from asbestos containing materials. The Material Disturbance Permit will identify which materials at a specific site can be disturbed, and the minimum requirements to perform an asbestos disturbance.

d. “Small Scale-Short Duration” – WCSD Attachment & Penetration Procedures

The WCSD Attachment & Penetration Procedures that the Contractor must utilize, when identified as being required in the MDP, are available from the Project Manager. The contractor shall submit their WCSD Attachment &

Penetration Procedures to the Project Manager. The Project Manager will submit the documents to the ES&A Department for approval.

The contractor can add additional requirements, but nothing required in the MDP and WCSD Attachment & Penetration Procedures may be omitted. The Contractor must submit their Attachment & Penetration Procedure to their Project Manager to get ES&A approval of these documents **prior to any disturbance.** The ES&A Department will notify the contractor upon approval of these documents.

Once the approval of the WCSD Attachment & Penetration Procedure and training certificates is received, the contractor may schedule the disturbance, but must notify the ES&A Department immediately prior to disturbing the asbestos-containing materials. The Contractor shall provide this notice by calling the ES&A Attachment & Penetration hotline at 325-8490, follow the directions, and leave a message. ES&A Department personnel, Project Managers, Assistant Project Managers/PCI's, and other district personnel may conduct site visits to ensure compliance with the contractor's submitted and approved procedures.

e. Asbestos Training Certificates – Abatement

Abatement of asbestos-containing materials, as allowed and identified in the Material Disturbance Permit, will be done by an Asbestos Abatement Contractor, with workers that have a minimum of 32-hour AHERA asbestos training (Asbestos Worker), and supervised by an abatement supervisor with 40-hour AHERA asbestos training (Contactor/Supervisor). Workers and supervisors must also get an annual refresher certificate if the original training is greater than one year old. Contractor training certificates will be submitted to the Project Manager at least two weeks prior to the start of the project. The ES&A Department will review the submitted training documentation, verify certificates as required, and approve the abatement workers and supervisors, so they can work on the assigned WCSD project. No one that has not been approved by the ES&A Department is authorized to perform any asbestos disturbances within the WCSD.

New workers added after the start of the project will be approved by the ES&A Department within one 8-hour work period of the standard Monday thru Friday work schedule. Certification submittal will be serviced by the ES&A Department on a first come, first served basis. Delays to review the documentation will be anticipated and taken into account on any abatement schedule developed, and asbestos workers and supervisors will not be allowed to work in any way on that project until their documentation has been reviewed and approved.

f. Asbestos Training Certificates – Attachment & Penetration

Contractors performing "Attachment & Penetration" work on non-friable asbestos-containing materials, as allowed, and identified in the Material Disturbance Permit, will be required to have a minimum of 16 hours of

AHERA asbestos training (Operations & Maintenance, or O&M), as well as an annual refresher certificate if the original training is greater than one year old. Contractor training certificates will be submitted to the Project Manager at least two weeks prior to the start of the project. The ES&A Department will review the submitted training documentation, verify certificates as required, and approve the Attachment & Penetration technicians, so they can work on the assigned WCSD project. No one that has not been approved by the ES&A Department is authorized to perform any asbestos disturbances within the WCSD.

New workers added after the start of the project will be approved by the ES&A Department within one 8-hour work period of the standard Monday thru Friday work schedule. Certification submittal will be serviced by the ES&A Department on a first come, first served basis. Delays to review the documentation will be anticipated and taken into account on any Attachment & Penetration schedule developed, and Attachment & Penetration technicians will not be allowed to work in any way on that project until their documentation has been reviewed and approved.

g. Asbestos Air Sampling, Respiratory Protection, and Protective Suits

Asbestos personal air sampling is required during any asbestos disturbance. Asbestos air sampling results will be supplied to the ES&A Department, and the Project Manager, within 48 hours of the completion of a disturbance. Laboratory results will be emailed directly to the ES&A Department from the laboratory providing analysis. Handwritten results will not be allowed. Regardless of air sampling results, Contractors will not be allowed to submit a Negative Exposure Assessment so that they can discontinue the use of respirators and personal protective suits. The District reserves the right to require this requirement, to reduce the long-term exposure liability from Contractors and their workers, which have disturbed this owner's asbestos materials.

If training certificates are issued for a class, those training certificates need to be submitted. Wallet cards will not be accepted as a training certificate unless no training certificate is provided by the training provider. In order for a wallet card to be accepted, the contractor will supply a letter from the training provider stating that no training certificate was provided, and only wallet cards were supplied to attendees. Wallet cards are less desirable due to their small size and mitigate the ability to clearly read and verify all the information on the card. Contractors are encouraged to request a full size 8 ½" x 11" training certificate from their training providers.

21. <u>LEAD PAINTS, COATINGS, CERAMIC TILE, AND LEAD-CONTAINING MATERIALS IN WCSD FACILITIES</u>

a. Lead-containing paints, coatings, ceramic tile, and lead materials are present in WCSD facilities.

Bidders/Contractors that disturb lead-containing or potentially lead-containing paints, coatings, ceramic tile, and lead-containing materials, by law, are required to know all applicable regulations, and comply with all state and federal regulations that apply to the disturbances to lead-containing paints, coatings, ceramic tile, and lead-containing materials they are conducting. The regulations that are recommended by the District for a contractor to be properly trained and knowledgeable related to lead disturbances, includes, but is not limited to, the following:

OSHA Regulation CFR 1926.62 – Lead & Appendix A, B, C, & D – Lead Construction Standard.
OSHA Regulation CFR 1910. 1025 - Lead & Appendix A, B, C, & D – General Industry Standard.
EPA, 40 CFR Part 745 – Lead; Renovation, Repair, and Painting Regulation.

b. Lead and the Material Disturbance Permit

The Contractor shall carefully comply with all items of the Building Material Disturbance Permit (MDP) and shall review the permit and become familiar with its contents prior to bid preparation and any construction.

Once a Material Disturbance Permit request is received for a specific project, building materials that have been identified as being disturbed during construction, and/or demolition, will have been tested for the presence of lead. These materials will be identified as lead-containing or not lead-containing on the building Material Disturbance Permit(s) by the District's ES&A Staff. The Material Disturbance Permit must be referred to before any work commences. **No outside lead sampling of building materials, by the Contractor or a Contractor hired lead consultant, is allowed.**

All lead-containing materials must be handled by contractors and/or individuals trained and certified to perform lead disturbances. No lead-containing materials shall be disturbed prior to authorization from the owner. If any building material listed in the disturbance permit as lead-containing are improperly disturbed, in the opinion of the District, by the Contractor or his sub-contractor, the District will immediately hire a third-party lead consultant to investigate possible lead contamination, and a lead removal Contractor to perform any recommended clean-up.

The Contractor shall be responsible for all costs incurred by the District, including the consultant, sampling and testing, clean-up, replacement of the affected equipment, materials, etc., and any legal action that may result from a lead contamination incident caused by the Contractor or his sub-contractors.

Bidders/Contractors accept and acknowledge, by signing the Material Disturbance Permit, the existence of lead related regulations, and accept all liability related to the disturbance of lead-containing materials, citations resulting from, or any other costs the District may incur by the action of all

parties of the bidders' company or companies hired by the successful bidder to complete this project.

c. Construction Age of Buildings in the District

At the conception of adding lead information to MDP's, it was thought that lead-containing paints, coatings, and ceramic tile were much more likely to be present on more surfaces in the District's older facilities. However, recent sampling has shown lead containing paints, coatings and ceramic tiles DO routinely exist, even in our newest facilities. Due to that finding, the age of buildings is not as important as was originally thought. We are still providing construction date information in MDP's because lead-based paint >5000 ppm is much less likely in facilities built after 1978.

d. Pre – 1978 WCSD Buildings

Paint and coating sampling have shown that paints and coatings contain some levels of lead in the Districts' Pre-1978 facilities. Therefore, all persons performing **any** disturbance to coatings or paints in our Pre-1978 constructed facilities must utilize lead safe work practices. In addition, any person performing **any** disturbance to paints, coatings, ceramic tile, and lead-containing materials must have taken an OSHA lead action level training class from a WCSD ES&A Department approved training provider. If identified as lead-containing, the Contractor will be required to perform all disturbances as per the MDP, WCSD provided lead specification, and all local, state, and federal regulations.

e. Post – 1978 WCSD Buildings

While it was originally thought that paints and coatings on materials other than metal surfaces and ceramic tile typically did not contain lead in WCSD post – 1978 constructed facilities, sampling has shown that is not the case. The MDP will provide specific historical sampling that has been conducted in the District facilities. If past sampling has shown the presence of lead-containing paints and coatings in the facility, the Contractor will be required to treat all painted and coated surfaces as lead-containing. If identified as lead-containing, the Contractor will be required to perform all disturbances as per the MDP, WCSD provided lead specification, and all local, state, and federal regulations.

The MDP will state all buildings identified above were constructed after 1978. While it was originally thought that paints, coatings and ceramic wall tile are less likely to contain lead in newer WCSD facilities, recent sampling has shown lead-containing paints, coatings, and ceramic tiles DO routinely exist, even in our newest facilities. Due to that finding, Contractors must treat all paints, coatings, and ceramic tile as lead-containing unless WCSD project sampling has proven otherwise, and it will be deemed negative within the MDP and the project scope. **The Bidder/Contractor must comply with all lead-containing or assumed lead-containing paint and coating disturbance instructions and requirements listed in the MDP,**

District provided lead specifications, and all local, state, and federal regulations, unless the material has been proven, to the satisfaction of the District, that said materials do not contain lead.

f. Lead Removal (The removal of a lead-containing material)

Attachments and Penetrations does not include any removal, demo, welding, sanding, abrading, sandblasting, cutting, grinding, heating, and torch cutting of lead-containing materials, and is not an "Attachment and Penetration" disturbance. These activities must be designed by an EPA Certified Lead Consultant. The project's design for the above-listed activities will be the responsibility of the District to design and provide the specs as a part of this bid package. Lead activities listed above must be conducted by a lead removal contractor, which will be supervised by the District and/or District hired EPA Certified Lead Consultant. The lead activities costs will be included into the scope of each project.

g. Lead Attachments & Penetrations

Attachments & penetrations, for the purpose of this document, is the drilling of holes, installing/removing screws, installing anchors, nails, and staples, in which the disturbance may release lead dust. Attachments and Penetrations are minor disturbances that are normal activities such as installing conduits, mounting boxes or brackets, and removing equipment anchors from lead-containing materials. The Material Disturbance Permit will identify which materials at a specific site can be disturbed, and the minimum requirements to perform a lead disturbance.

h. Lead Safe Work Practices – WCSD Attachment & Penetration Procedures

The WCSD Attachment & Penetration Procedures that the Contractor must utilize, when identified as being required in the MDP, are available from the Project Manager. The contractor shall submit their WCSD Attachment & Penetration Procedures to the Project Manager. The Project Manager will submit the documents to the ES&A Department for approval.

The contractor can add additional requirements, but nothing required in the MDP and WCSD Attachment & Penetration Procedures may be omitted. The Contractor must submit their Attachment & Penetration Procedure to their Project Manager to get ES&A approval of these documents **prior to any disturbance.** The ES&A Department will notify the contractor upon approval of these documents.

Once the approval of the WCSD Attachment & Penetration Procedure and training certificates is received, the contractor may schedule the disturbance, but must notify the ES&A Department immediately prior to disturbing the lead-containing materials. The Contractor shall provide this notice by calling the ES&A Attachment & Penetration hotline at 325-8490, follow the directions, and leave a message. ES&A Department personnel, Project Managers, Assistant Project Managers/PCI's, and other district

personnel may conduct site visits to ensure compliance with the contractor's submitted and approved procedures.

i. Lead Training Certificates – Removal and Attachments & Penetrations

The health and safety of all occupants of the WCSD facilities is the number one priority of the District. To that end, technicians performing disturbances to lead-containing materials must have adequate training. Contractors performing lead disturbances, as allowed and identified in the Material Disturbance Permit, will be required to have a minimum of "OSHA Lead Action Level" training, as well as an annual OSHA Lead Action Level training certificate if the original training is greater than one year old, before being approved to perform lead disturbances. OSHA Lead Action Level training will be conducted in accordance with OSHA 1926.62(l)(2)(i) thru (viii) and all required topics identified in this standard will be completed to include:

- 1926.62(l)(2)(i) The content of this standard and its appendices;
- 1926.62(l)(2)(ii) The specific nature of the operations which could result in exposure to lead above the action level;
- 1926.62(l)(2)(iii) The purpose, proper selection, fitting, use, and limitations of respirators;
- 1926.62(l)(2)(iv) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant);
- 1926.62(l)(2)(v) The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described in Appendix B of this section;
- 1926.62(l)(2)(vi) The contents of any compliance plan in effect;
- 1926.62(l)(2)(vii) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and
- 1926.62(l)(2)(viii) The employee's right of access to records under 29 CFR 1910.20.

Certificates of Training showing that technicians have successfully completed an OSHA Lead Action Level course and are required to be properly submitted and approved by the District's ES&A Department prior to any Contractor's technician performing any disturbances to lead-containing or assumed lead-containing paints or coatings, or any other lead-containing materials. The training certificate must have "OSHA Lead Action Level Training" clearly identified on the training certificate and should have a sentence that states that the training topics covered in the

class meet or exceed the training topics of OSHA 1926.62(I)(2)(i) thru (viii).

If training certificates are issued for a class, those training certificates need to be submitted. Wallet cards will not be accepted as training certificates unless no training certificate is provided by the training provider. In order for a wallet card to be accepted, the contractor will supply a letter from the training provider stating that no training certificate was provided, and only wallet cards were supplied to attendees. Wallet cards are less desirable due to their small size and mitigate the ability to clearly read and verify all the information on the card. Contractors are encouraged to request a full size 8 ½" x 11" training certificate from their training providers.
It is important that Contractor's planning on doing the lead work within the District become familiar with the lead training requirements, and spend the time confirming that the lead classes being taken are truly an OSHA Lead Action Level course, and not a lead awareness course as identified above. Many training providers have differing training class titles on their lead classes, but only training certificates that are noted as above will be accepted to fulfill the listed District's training requirements. Contractors requiring training are responsible in providing the training providers a clear understanding of what training is required.

Full Lead worker initial and annual training certificates that comply with adjacent state requirements for lead worker certification, will be accepted in lieu of the OSHA Lead Action Level training certificate, as long as they are titled "Lead Worker" and then accompanied with a letter from the training provider certifying that the topics identified in OSHA 1926.62(I)(2)(i) thru (viii) were covered in that class. Contractors are responsible with ensuring and verifying training certificates meet the above-listed requirements. Training certificates that do not have "OSHA Lead Action Level or Lead Worker" will not be accepted or submitted.

Contractor training certificates will be submitted to the Project Manager at least two weeks prior to the start of the project. The ES&A Department will review the submitted training documentation and must pre-approve workers so they can work on the assigned WCSD project. No one that has not been approved by the ES&A Department is authorized to perform any lead disturbances.

New workers added after the start of the project will be approved by the ES&A Department within one 8-hour work period of the standard Monday thru Friday work schedule. Certification submittal will be serviced by the ES&A Department on a first come, first served basis. Delays to review the documentation will be anticipated and taken into account on any Removal or Attachment & Penetration schedule developed, and Removal and/or Attachment & Penetration technicians will not be allowed to work in any way on that project until their documentation has been reviewed and approved.

j. Renovation, Repair & Painting Regulations (RR&P) - 40 CFR Part 745.81

Effective April 22, 2010, contractors will be required to be trained and registered with the EPA to conduct regulation applicable renovations, repairs and painting (RR&P) in all **elementary schools or child occupied District facilities constructed prior to 1978 when lead-based paints and coatings are being disturbed**. Contractors are reminded that there are some childcare facilities in middle and high school locations, and the RR&P would apply at those locations as outlined in the RR&P regulation requirements. http://www.epa.gov/lead/pubs/steps.pdf

In general, all firms that disturb 6 square feet of **lead-based** painted surface per room on the interior, or 20 square feet on the exterior, within a 30 day period in **this** facility, must comply with the EPA's Renovation, Repair and Painting (RR&P) regulation **and** must be registered with the federal EPA. Per the Regulation, the area of disturbance is calculated by adding up the entire surface areas being removed/disturbed, which then determines the amount of painted surface area disturbed. Work that involves window replacement or demolition of a painted surface, the EPA RR&P regulation applies regardless of size if lead-based paint is present.

The District requires all workers in RR&P projects involving lead disturbances to have, at a minimum, OSHA lead action level training. This regulation also requires that the contractor must assign an EPA RR&P certified renovator that is responsible for ensuring and documenting all work is conducted in compliance with the EPA RR&P regulation. There are extensive record keeping and notification requirements that the Contractor must perform. All workers with the minimum OSHA lead action level training, but are not EPA RR&P certified renovator trained, must be trained and supervised by the EPA RR&P certified renovator.

On a RR&P project, Contractors must have a minimum of one EPA RR&P certified renovator on-site that has successfully attended and passed a 8-hour EPA accredited renovator training course before working in any elementary schools or child occupied District facilities constructed prior to 1978. The renovator's training certification must remain current. Recertification requirements through the attendance of refresher courses are a requirement of this regulation. The renovator must be on-site throughout the project. The certified renovator is responsible for ensuring that lead safe work practices are utilized per this EPA RR&P regulation, as well as per all District lead requirements and policies that may be more stringent than the EPA and OSHA regulations.

The EPA RR&P regulation requires that personnel disturbing lead containing materials utilize lead safe work practices as identified in the EPA guidance document titled **"steps to lead safe renovation, repair and painting", pages 12 through 23**. This document is available electronically at http://www.epa.gov/lead/pubs/steps.pdf. The contractor shall submit lead safe work practice procedures, and all RR&P and OSHA lead action level training certificates to the Project Manager at least two weeks prior to the

start of the project. The ES&A Department will review the submitted training documentation and must pre-approve workers so they can work on the assigned WCSD project. No one that has not been approved by the ES&A Department is authorized to perform any lead disturbances.

New workers added after the start of the project will be approved by the ES&A Department within one 8-hour work period of the standard Monday thru Friday work schedule. Certification submittal will be serviced by the ES&A Department on a first come, first served basis. Delays to review the documentation will be anticipated and taken into account on any RR&P project schedule developed, and EPA RR&P certified renovators and workers will not be allowed to work in any way on that project until their documentation has been reviewed and approved.

This is a general overview of the regulation and the contractor must refer to the regulation for additional requirements and information. Fines are expensive and are levied toward the Contractor not the owner, so compliance with this regulation is very important, and it is important that Bidders/Contractors are well versed in this regulation.

k. Lead Air Sampling, Respiratory Protection and Protective Suits

Lead personal air sampling is required during any lead disturbance. Lead air sampling results will be supplied to the ES&A Department, and the Project Manager, within 48 hours of the completion of a disturbance. Laboratory results will be emailed directly to the ES&A Department from the laboratory providing analysis. Handwritten results will not be allowed. Regardless of air sampling results, Contractors will not be allowed to submit a Negative Exposure Assessment so that they can discontinue the use of respirators and personal protective suits. The District reserves the right to require this requirement, to reduce the long-term exposure liability from Contractors and their workers, which have disturbed this owner's lead materials.

22. INDOOR ENVIRONMENTAL QUALITY

Preventative job site practices will reduce the potential for residual problems with indoor air quality in completed buildings and reduce undue health risks for all workers. The following are the minimum standards required by the WCSD for on-site construction in the district.

a. Existing HVAC System:
When feasible, the HVAC system for the project area will be shut down for the duration of the project. If occupied spaces will be adversely affected by the shut-down of the system, construction area return registers should be sealed with polyethylene sheeting and secured as an alternative. Registers must be sealed prior to the start of work.

b. Separating Occupied Spaces From Non-Occupied:
Keep work areas separate from occupied spaces with polyethylene sheeting (or similar) if there are no other natural barriers in place OR in spaces where air exchange will occur around the barriers.

c. Ventilation:
During the installation of carpet, paints, furnishings and any other VOC emitting products, provide “spot” ventilation during application/installation and for at least 24 hours after the work is completed. In most cases, opening windows and doors will not be enough to effectively exhaust contaminants. It is recommended that an exhaust fan be used to pull polluted air out of the building. This can be accomplished by placing a fan in a window or door and temporarily sealing any opening around the fan with plastic. Additionally, a door or window at the opposite end of the room should be opened to allow fresh, outdoor air to flow across the work area and sweep polluted air out through the exhaust fan. As long as odors are present, the temporary exhaust ventilation must continue to operate. This may include nights and weekends, as necessary. Ventilation should continue for a minimum of 24 hours after the completion of the project or until there are no more noticeable odors.

d. Construction Dust:
Minimize the amount of dust in the air and on surfaces. Examples include the use of vacuum assisted drywall sanding equipment and the use of vacuums instead of brooms to clean construction dust from floors.

e. After Hours Scheduling:
Schedule high dust generating operations or extreme noise generating activities for after normal working hours. (i.e. saw cutting, jack hammering) and install temporary barriers to confine dust, as necessary.

f. Gasoline/Diesel Powered Equipment:
Electric powered equipment must be used in lieu of diesel or gasoline powered equipment. Gas and diesel equipment may not be used inside a WCSD building or near an outdoor fresh air building intake.

g. Material Safety Data Sheets (MSDS):
MSDS must be made be maintained onsite and made available upon request as required by federal law.

h. Construction Completion:
Prior to the occupancy of the building but after the installation of new furniture, carpet, etc., the building should be flushed with 100% outside air for one to three days.

i. Air Filters:
Replace all filtration media immediately at the conclusion of the job.

j. Monitoring Air Quality:
Indoor air quality monitoring will be conducted randomly throughout the project. Results and any recommendations will be communicated through the building inspector to construction management.

k. Pre-Construction Work Area Inspection:
Any overhead work including roof, the Contractor shall conduct a pre room condition walk through with WCSD Project Manager to determine the level of cleanliness that will be expected at completion of project. Contractor shall be responsible for cleaning all exposed surfaces within the facility beneath the work area. At the completion of the project, the Contractor shall clean all exposed surfaces within the facility beneath the aforementioned work area including but not limited to all shelving, duct, lighting, flooring, furniture, etc.

23. LOCK OUT TAG OUT (LOTO) PROCEDURE

Contractor will be responsible for the isolation and termination of all building systems that may be impacted by the scope of work within this bid. Contractor will coordinate all shut-down processes with the construction manager prior to any shutdowns up to and including Lock Out Tag Out procedures 24 hours prior to any shutdowns. WCSD will make the final determination of which systems and location shall be isolated. All Lock Out Tag Out will be performed at main service panel.

SECTION 00830 - TECHNICAL SPECIFICATIONS

I. SUMMARY OF THE WORK:

The work shall include the furnishing of all labor, tools, equipment, material, transportation and the performance of all operations required for the **Kettle Boiler Demolition and New Central Steam Boilers Installation at Nutrition Services** at the site(s) and associated work as specified herein and shall include the cleanup and removal from the site(s) of all debris resulting from the operations performed. It shall also be the Contractor's responsibility to take all necessary safety precautions and to furnish barricades and/or other safety measures as required.

All work shall be performed in strict accordance with the requirements of these specifications and any and all appropriate state, county and local ordinances.

II. LOCATION OF THE WORK:

The location(s) of the work and contact person(s) are:

Nutrition Services
585 Spice Islands Court
Sparks, NV 89431
Phone #: 775-325-8410
Principal: Leroy Dougherty & Daniel Pimm
Site Facilities Coordinator: Dave Haver

The Contractor is urged to examine the site(s) and compare the existing conditions with that of the work outlined. No extra payment will be considered for work additional to that shown or noted if such work would have been apparent in an inspection of the premises.

To review the existing premises, contact the Principal and/or Site Facilities Coordinator at the site(s). **Whenever at the site, be sure to check in at the front office**.

At the above-named site(s), school classes and other construction projects may or may not be taking place during the construction phase. It will require coordination between the school site(s), other vendors, and the WCSD's Capital Projects Department.

III. QUESTIONS & CLARIFICATIONS:

For questions and clarifications regarding the Technical Specifications, Drawings, General Conditions, Special Conditions, Bidding and Contract Information contact the Purchasing Department at solicitations@washoeschools.net. **All questions shall be submitted in writing directly to WCSD's Solicitations website at http://solicitations.washoeschools.net/ or via e-mail to solicitations@washoeschools.net by 4:30 p.m. (Local Time) on November 10, 2025.**

IV. MANUFACTURERS:

Manufacturers, types, model numbers and execution as detailed on the drawings.

V. ASBESTOS ASSESSMENT:

The Material, Water & Lead Disturbance Permit(s) are included in the Special Conditions section of the Specifications.

2025-2026 BALANCED CALENDAR

July 2025							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 0
		1	2	3	4	5	
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30	31			

August 2025							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 15
					1	2	
3	4	5	6	7	8	9	August 5 - 7 Teacher Professional Dev. Days
10	11	12	13	14	15	16	August 8 - Teacher Work Day
17	18	19	20	21	22	23	August 11 - First Day of School for Students
24	25	26	27	28	29	30	August 11 - 15 - Kindergarten Testing Week
							August 18 - First Day for Kindergarten Students

September 2025							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 21
	1	2	3	4	5	6	September 1 - Labor Day
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	
28	29	30					

October 2025							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 17
			1	2	3	4	October 6 - 10 - Fall Break
5	6	7	8	9	10	11	October 13 - Teacher Professional Dev. Day
12	13*	14	15	16	17	18	October 17 - End of Grading Period
19	20	21	22	23	24	25	October 24, 27 - 30 - Conference Week
26	27	28	29	30	31		October 31 - Nevada Day

November 2025							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 16
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	November 11 - Veterans Day
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	November 26 - 28 - Thanksgiving Break

December 2025							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 14
	1	2	3	4	5	6	
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	December 18 - End of Grading Period
21	22	23	24	25	26	27	December 19 - Teacher Work Day
28	29	30	31				December 22 - January 2 - Winter Break

January 2026							No School on Shaded Days
J	M	T	W	TH	F	S	# of School Days = 19
				1	2	3	January 1 - 2 - Winter Break
4	5*	6	7	8	9	10	January 5 - Teacher Professional Dev. Day
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	January 19 - Martin Luther King, Jr. Day
25	26	27	28	29	30	31	

February 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 19
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	February 16 - President's Day
22	23	24	25	26	27	28	

March 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 15
1	2	3	4	5	6	7	March 3 - College and Career Readiness Assessment for high schools only. Awaiting confirmation from NDE.
8	9	10	11	12	13	14	March 13 - End of Grading Period
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	March 23 - April 3- Spring Break
29	30	31					

April 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 19
			1	2	3	4	March 23 - April 3- Spring Break
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30			

May 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 20
					1	2	
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	May 25 - Memorial Day

June 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 5
	1	2	3	4	5	6	June 5 - End of Grading Period
7	8	9	10	11	12	13	June 5 - Last Day of School
14	15	16	17	18	19	20	June 9 - Primary Election Day
21	22	23	24	25	26	27	June 8, 9, 10 - Contingency Days
28	29	30					June 19 - Juneteenth

* October 13, 2025 & January 5, 2026 is a non-student day used for professional development but counted as a day in session per NAC 387.120 (4)

Number of Days per Quarter	44	39	48	49	180
Number of Days per Semester	83		97		180
Contingency Days: June 8, 9, 10					

Teacher Work Days: August 5 - 8, December 19

Teacher Professional Dev Days: October 13, 2025 & January 5, 2026

2026-2027 Balanced Calendar

July 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 0
			1	2	3	4	
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30	31		

August 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 16
						1	
2	3	4	5	6	7	8	August 4 - 6 - Teacher Professional Dev. Day
9	10	11	12	13	14	15	August 7 - Teacher Work Day
16	17	18	19	20	21	22	August 10 - First Day of School for Students
23	24	25	26	27	28	29	August 10 - 14 - Kindergarten Testing Week
30	31						August 17 - First Day for Kindergarten and Pre Kindergarten Students

September 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 21
		1	2	3	4	5	
6	7	8	9	10	11	12	September 7 - Labor Day
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30				

October 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 16
				1	2	3	October 5 - 9 - Fall Break
4	5	6	7	8	9	10	October 12 - Teacher Professional Dev. Day
11	12*	13	14	15	16	17	October 16 - End of Grading Period
18	19	20	21	22	23	24	October 23, 26-29 - Conference Week
25	26	27	28	29	30	31	October 30 - Nevada Day

November 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 17
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	November 11 - Veterans Day
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	November 25 - 27 - Thanksgiving Break
29	30						

December 2026							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 13
		1	2	3	4	5	
6	7	8	9	10	11	12	December 17 - End of Grading Period
13	14	15	16	17	18	19	December 18 - Teacher Work Day
20	21	22	23	24	25	26	December 21 - January 1 - Winter Break
27	28	29	30	31			

January 2027							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 19
					1	2	December 21 - January 1 - Winter Break
3	4*	5	6	7	8	9	January 4 - Teacher Professional Dev. Day
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	January 18 - Martin Luther King, Jr. Day
24	25	26	27	28	29	30	
31							

February 2027							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 19
	1	2	3	4	5	6	
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	February 15 - President's Day
21	22	23	24	25	26	27	February 23 - College and Career Readiness Assessment for high schools only.
28							

March 2027							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 15
	1	2	3	4	5	6	
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	March 12 - End of Grading Period
21	22	23	24	25	26	27	March 22 April 2 - Spring Break
28	29	30	31				

April 2027							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 20
				1	2	3	March 22 April 2 - Spring Break
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	
25	26	27	28	29	30		

May 2027							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 20
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						May 31 - Memorial Day

June 2027							No School on Shaded Days
S	M	T	W	TH	F	S	# of School Days = 4
		1	2	3	4	5	
6	7	8	9	10	11	12	June 4 - End of Grading Period
13	14	15	16	17	18	19	June 4 - Last Day of School
20	21	22	23	24	25	26	June 7, 8, 9 - Contingency Days
27	28	29	30				June 19 - Juneteenth

	Number of Days per Quarter	44	39	48	49	180
October 12, 2026 & January 4, 2027 are non-student days used for professional development but counted as school days in session per NAC 387.140	Number of Days per Semester	83		97		180
	Contingency Days: June 7, 8, 9					

Teacher Work Days: August 4 - 7, 2026 & December 18, 2026

Teacher Professional Dev. Days: October 12, 2026 & January 4, 2027

BID FORM

Washoe County School District - Purchasing Department
14101 Old Virginia Road - Reno, Nevada 89521
Phone: 775-850-8025 Email: solicitations@washoeschools.net

Bid #: 26-38-B-10-DA
PWP # WA-2026-074

Having carefully examined all of the Bid Specifications entitled **Kettle Boiler Demolition and New Central Steam Boilers Installation at Nutrition Services,** dated October 21, 2025; and the Drawings dated October 21, 2025; the addenda numbered _____; as well as the premises and the conditions affecting the work, the undersigned proposes to furnish for the stipulated sum of:

ITEM	DESCRIPTION	AMOUNT
A.	BASE BID 1	$
B.	FORCE ACCOUNT	$150,000.00
C.	**TOTAL – BASE BID 1 AND FORCE ACCOUNT (The Sum of Box A + Box B)**: All labor and materials for the **KETTLE BOILER DEMOLITION AND NEW CENTRAL STEAM BOILERS INSTALLATION AT NUTRITION SERVICES** as drawn and specified, the sum of _____ _____Dollars ($_____).	

If there is a mathematical error between the Base Bid amount and the Force Account amount and the total of those two items added together, WCSD will make the correction which may revise the Total Amount.

Any bid submission will be disqualified and rejected if the bid submission is not signed.

Bids shall be submitted on the provided Bid Form (PUR-F523) only, and all of the blank spaces shall be completed; numbers shall be stated both in writing and in figures, the signature shall be in longhand; and the completed form shall be without interlineation, alteration or erasure. Washoe County School District only accepts signatures done manually (also known as a wet signature) or electronic digital signatures that are certified. Non-certified electronic digital signatures will NOT be accepted. A typed signature, even in cursive font, DOES NOT meet the requirements of an official digital signature. A digital signature must be accompanied by a certified digital stamp issued through programs like Adobe Acrobat, Docu-Sign or other similar programs that produce a digital stamp certifying the electronic digital signature. Any signatures on required forms that do not meet these requirements will not be accepted and the Contractor's submission will be deemed "Non-Responsive" and will be rejected. If you have any questions about this requirement, please submit your question by the question deadline, so that it can be answered prior to quote submission deadline. In the event of a discrepancy on the Bid Form, NRS 104.3114 Contradictory terms of instrument states that, "If an instrument contains

contradictory terms, typewritten terms prevail over printed terms, handwritten terms prevail over both, and WORDS PREVAIL OVER NUMBERS." **WCSD will record the bid amount stated in WORDS in Box C**. Only bids on the form(s) provided will be accepted. No additional pages containing inclusions, exclusions or clarifications will be accepted as part of the bid. Any clarifications, additions or exclusions made by the Washoe County School District (WCSD/ OWNER) will be considered incorporated into the specifications.

Bidder shall proofread his/her bid carefully for errors.

WCSD reserves the right to award the bid for the best proposal for each individual item or to award on the best total proposal, whichever is deemed by the Owner to be in their best interests. WCSD also reserves the right to reject any or all bids and to waive irregularities or informalities in any bid for any reason whatsoever.

If they be notified of the acceptance of this proposal within forty-five (45) days of the time set for opening of bids, Contractor agrees to execute a contract for the above work for the above-stated compensation in the form of the contract attached within these bid specifications and to commence the physical work no fewer than ten (10) days after the execution thereof.

The undersigned agrees, if awarded the contract, work is to be commenced upon issuance of a Notice to Proceed and shall be completed on or before April 3, 2026. The commencement date for the physical work shall be coordinated by the Capital Projects Department upon the receipt of said Notice to Proceed. The undersigned further agrees that the Owner may retain from the monies due the Contractor Two Thousand Dollars ($2,000) per day as a direct result of the Contractor's delay for not completing the project in the required time allowance plus approved time extensions.

The undersigned agrees, if awarded the contract, to execute and deliver to the Owner, within ten (10) calendar days after delivery of notice of award of contract, an executed contract, satisfactory insurance, a performance bond for each awarded contract, and a labor & materials bond for each awarded contract in accordance with the specifications.

Enclosed is a bid bond or other surety in the amount of five percent (5%) of each total proposal (must be provided for each individual base bid item), as required in the Instructions to Bidders.

Enclosed, on the attached form, is a complete listing of the names of each subcontractor who will provide labor or a portion of the work or improvement to the prime contractor for which the subcontractor will be paid equal to or exceeding 5 percent of the prime contractor's total bid. The prime Contractor shall also add his/her name if they are performing any portion of work, including supervision, equal to or exceeding 5 percent of the total bid.

Within two (2) hours after the completion of the opening of the bids, the contractors who submitted the three lowest bids must submit on the form attached a list of each subcontractor who will provide labor or a portion of the work or improvement to the prime contractor for which they will be paid an amount equal to or exceeding 1 percent of the prime contractor's total bid or $50,000, whichever is greater, and the number of the license issued to the subcontractor pursuant to chapter 624 NRS. If a prime contractor fails to submit such a list within the required time, their bid shall be deemed not responsive.

I have read and acknowledge that our company is in compliance with all WCSD Drug & Alcohol Requirements specified in Section 00800 – Supplementary General Conditions.

NOTE: Any bid submission will be disqualified and rejected if the bid submission is not signed. Washoe County School District only accepts signatures done manually (also known as a wet signature) or electronic digital signatures that are certified. Non-certified electronic digital signatures will NOT be accepted. A typed signature, even in cursive font, DOES NOT meet the requirements of an official digital signature. A digital signature must be accompanied by a certified digital stamp issued through programs like Adobe Acrobat, Docu-Sign or other similar programs that produce a digital stamp certifying the electronic digital signature. Any signatures on required forms that do not meet these requirements will not be accepted and the Contractor's submission will be deemed "Non-Responsive" and will be rejected. If you have any questions about this requirement, please submit your question by the question deadline, so that it can be answered prior to bid submission deadline.

Interested parties may NOT contact anyone else regarding this solicitation. Any interested Bidder contacting any other individual including, but not limited to, WCSD staff, officials, evaluation committee members, or Board of Trustees may have their Bid submission rejected from evaluation and award consideration.

BID #: 26-38-B-10-DA

FIRM NAME:	NEVADA LICENSE #:
NAME OF AUTHORIZED REPRESENTATIVE:	
ADDRESS:	
PHONE #:	FAX #:
EMAIL ADDRESS:	DATE:
SIGNATURE:	

5% LIST

To be submitted with the bid in accordance with Article 5.2.1 of the General Conditions as modified and Chapter 338.141 of NRS. **If the Prime Contractor is performing any work, including Supervision, that is 5% or greater they must list themselves per NRS 338.**

PROJECT NAME: **Kettle Boiler Demolition and New Central Steam Boilers Installation at Nutrition Services**

BID #: **26-38-B-10-DA**

DESCRIPTION OF WORK	SUBCONTRACTOR	LICENSE #

Signature: _____
Authorized Firm Representative

Title: _____ Date: _____

1% LIST

To be submitted within two (2) hours after bid opening in accordance with Chapter 338.141 of NRS. Since all Subcontractors listed on the Bidder's 5% List are over 1% of the Bid amount, those Subcontractors shall automatically be deemed incorporated into this 1% List and need not be re-listed below. **If there are no further Subcontractors to list, please write "NONE or "N/A" and sign document.**

PROJECT NAME: **Kettle Boiler Demolition and New Central Steam Boilers Installation at Nutrition Services**

BID #: **26-38-B-10-DA**

DESCRIPTION OF WORK	SUBCONTRACTOR	LICENSE #

Signature: _____
Authorized Firm Representative

Title: _____ Date: _____

PREFERENTIAL BIDDER STATUS AFFIDAVIT FOR BIDS SUBMITTED IN ACCORDANCE WITH NRS 338.0117 VALUED $250,000 OR MORE

Although Washoe County School District prefers this form is submitted with the bid response, this form may be submitted within two (2) hours of the bid opening.

Note: The Certificate of Eligibility for Preferential Bidder Status issued by the State Contractor's Board must be submitted with the bid response.

I, _____ ("Affiant"), on behalf of _____ ("Contractor"), swear and affirm that in order to be in compliance with NRS 338.0117, and be eligible to receive a preference in bidding for Project No._____, Project Name _____ ("Project"), certify that for the duration of the project, collectively, and not on any specific day:

(a) At least 50 percent of the workers employed on the public work, including, without limitation, any employees of the contractor, applicant or design-build team and of any subcontractor engaged on the public work, will hold a valid driver's license or identification card issued by the Department of Motor Vehicles of the State of Nevada;

(b) All vehicles used primarily for the public work will be:

(1) Registered and partially apportioned to Nevada pursuant to the International Registration Plan, as adopted by the Department of Motor Vehicles pursuant to NRS 706.826; or

(2) Registered in this State;

(c) If applying to receive a preference in bidding pursuant to subsection 3 of NRS 338.1727 or subsection 2 of NRS 408.3886, at least 50 percent of the design professionals working on the public work, including, without limitation, employees of the design-build team and of any subcontractor or consultant engaged in the design of the public work, will have a valid driver's license or identification card issued by the Department of Motor Vehicles of the State of Nevada; and

(d) The contractor, applicant or design-build team and any subcontractor engaged on the public work will maintain and make available for inspection within this State his or her records concerning payroll relating to the public work.

If the contractor fails to comply with any requirements of this Affidavit, a public body may recover, by civil action against the party responsible for a failure to comply with a requirement of this affidavit, a penalty as described below for a failure to comply with a requirement of this affidavit. If a public body recovers a penalty pursuant to this subsection, the public body shall report to the State Contractors' Board the date of the failure to comply, the name of each entity which failed to comply and the cost of the contract to which the entity that failed to comply was a party. The Board shall maintain this information for not less than 6 years. Upon request, the Board shall provide this information to any public body or its authorized representative.

If a contractor, applicant or design-build team submits this affidavit, receives a preference in bidding described in this affidavit and is awarded the contract as a result of that preference, the contract between the contractor, applicant or design-build team and the public body, each contract between the contractor, applicant or design-build team and a subcontractor and each contract between a subcontractor and a lower tier subcontractor must provide that:

a) If a party to the contract causes the contractor, applicant or design-build team to fail to comply with a requirement of this affidavit, the party is liable to the public body for a penalty in the amount of 1 percent of the cost of the largest contract to which he or she is a party;

b) The right to recover the amount determined pursuant to paragraph (a) by the public body pursuant to this affidavit may be enforced by the public body directly against the party that caused the failure to comply with a requirement of this affidavit; and

c) No other party to the contract is liable to the public body for a penalty.

By:_____ Title:_____
(Print Name of Affiant)

Signature of Affiant: _____ Date: _____

Signed and sworn to (or affirmed) before me on this _____ day of _____, 20_____, by_____ (name of Affiant).

State of _____)
)ss.
County of _____)

_____
Notary Signature
STAMP & SEAL

Proof of Authorization to Sign Affidavit

The person must establish his/her actual authority to act on behalf of the business organization. The individual must be the person indicated in the table below and provide written documentation clearly indicating the person's position within that business organization. If the individual signing the Affidavit is an employee of the business organization, written documentation, on organization letterhead, clearly indicating the person's authority to act on behalf of the business organization must be provided. The written documentation must be signed by the authorized person identified on the table.

If the individual making application for the business organization is not one of the persons identified in the table or an authorized employee, a valid power of attorney executed by an authorized person on behalf of the business organization must be provided. The power of attorney must be made not more than 90 days before the Affidavit is signed.

BUSINESS ENTITY	PERSON WHO HAS AUTHORITY TO COMPLETE AFFIDAVIT
Sole Proprietorship	Sole Proprietor
Partnership	A Partner
Corporation	1. Director, if Authorized 2. Executive Officer as indicated in the Article of Incorporation
Limited Liability Company	1. Member, if Member-Managed LLC 2. Manager, if Manager-Managed LLC

WASHOE COUNTY SCHOOL DISTRICT PUBLIC DISCLOSURE FORM

VENDOR/CONTRACTOR

THIS IS A REQUIRED FORM TO BE COMPLETED, SIGNED, AND SUBMITTED BY THE VENDOR/CONTRACTOR

VENDOR/CONTRACTOR (EMPLOYEE) FIRST/LAST NAME: _____

VENDOR/CONTRACTOR NAME: _____

I understand that per NRS 281A.020, a public office is a public trust and shall be held for the sole benefit of the people, and a public officer or employee must commit themself to avoid conflicts between the private interests of the public officer or employee and those of the general public whom the public officer or employee serves.

Furthermore, I understand that pursuant to Washoe County School District (WCSD) Board of Trustees Policy 4505 and per NRS 281A.400, WCSD employees (as public officers) shall not seek and/or accept any gift, work/service, favor, employment, engagement, emolument, and/or economic opportunity, including, but not limited to, unlawful compensation, salary, retainer, augmentation, expense allowance, commission, personal profit, pecuniary interest in the course of performing WCSD duties. In addition, WCSD employees (as public officers) shall not use their positions to secure and/or grant unwarranted privileges, preferences, exemptions, and/or advantages for the public officer or employee with any business entity.

By signing this form, I certify and acknowledge that I am a duly authorized agent of the VENDOR/CONTRACTOR named above and that failure to disclose all facts relative to a conflict and/or potential conflict of interest (ethical standards) with regard to the specific solicitation, project, and/or contract to which the VENDOR/CONTRACTOR named above is submitting to WCSD may result in a rejection of said solicitation, project, and/or submission and/or termination of any resulting contract should the above-named VENDOR/CONTRACTOR be selected and/or awarded. Furthermore, I also certify that I have completed the following and have provided true and accurate information to the best of my knowledge:

A. I certify that, to the best of my knowledge, **NO** current or former WCSD employees, officers, or trustees have a private pecuniary interest in the VENDOR/CONTRACTOR. ☐ **AGREE** ☐ **DISAGREE**

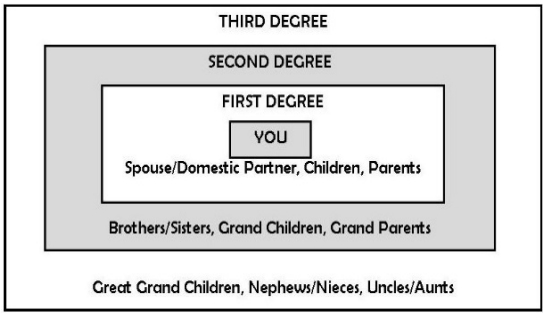
If you DISAGREE and cannot certify, then please explain:

_____
_____
_____

B. To the third degree of consanguinity (refer to the chart below), I have listed all of my and the principal(s) and key personnel of my organization's personal relationships, partnerships, correlations, and relatives (by blood and/or marriage) between WCSD, Officers of WCSD, key employees of WCSD, current and former WCSD Board of Trustees members and any other current and former WCSD personnel. ☐ **AGREE** ☐ **DISAGREE**

If you DISAGREE and cannot certify, then please explain:

_____
_____
_____



SIGNATURE: _____ **DATE**: _____

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____, as Principal, and _____ as Surety, are hereby held and firmly bound unto the Board of Trustees, Washoe County School District, as Owner, in the sum of _____ _____ Dollars ($_____) for payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

Signed this _____ day of _____, 20____.

The condition of the above obligation is such that whereas the Principal has submitted to the Board of Trustees, Washoe County School District, a certain bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for: _____ _____.

NOW, THEREFORE, if said bid shall be rejected, or in the alternative, if said bid shall be accepted and the Principal shall execute and deliver a Contract in the form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for its faithful performance of said Contract, and a Bond for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the contract created by the acceptance of said Bid, then this obligation shall be void.

Otherwise, the same shall remain in force and effect, and the sum herein specified paid over to the Owner; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within

which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their officers, the day and year first set forth above.

_____

_____

Principal

(Seal) By: _____

_____

Surety

By: _____

Address:

(Seal)

_____

_____

_____

Phone: _____

LABOR AND MATERIALS BOND

KNOW ALL PERSONS BY THESE PRESENTS: That WHEREAS, the Board of Trustees, Washoe County School District in the State of Nevada has awarded to_____, hereinafter designated as “Principal”, a contract dated _____, for _____ _____ a copy of which contract is attached hereto and by reference made a part hereof, and hereinafter referred to as the “Contract”.

And WHEREAS, said Principal is required under the terms of said Contract and by law under the provisions of N.R.S. 339 to furnish a Bond for the labor and materials used in said Contract;

NOW, THEREFORE, we, the Principal, and _____ _____, as Surety, are held and firmly bound unto the Board of Trustees, Washoe County School District in the State of Nevada in the sum of _____ Dollars ($_____), lawful money of the United States, being not less than one hundred percent (100%) of the estimated Contract cost of the work, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above-bounden Principal, or its heirs, executors, administrators, successors or assigns shall fail to pay for any materials, provisions, supplies implements or machinery used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Compensation Law with respect to such work or labor, as required by the Provisions of N.R.S. 339, the Surety hereon will pay for the same within thirty (30) calendar days an amount not exceeding the sum specified in this bond, and the above obligation shall then be null and void. Otherwise, it shall remain in full force and virtue.

THE SURETY, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be

performed thereunder, or to the specifications accompanying the same, shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.

And the said Surety, for value received, further stipulates and agrees that should the Board of Trustees, Washoe County School District, or other obligees, incur attorney's fees or other expenses for the enforcement of the Contract or this bond, the same shall be paid by the Surety to the contracting body, subcontractors, workmen laborers, mechanics and furnishers of material as their interests may appear.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their seals this_____ day of _____, 20_____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____

_____
Principal

(Seal) By: _____

_____
Surety

By: _____

Address:

(Seal)

_____

_____

_____

Phone: _____

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That WHEREAS, the Board of Trustees, Washoe County School District in the State of Nevada has awarded to _____,
Hereinafter designated as “Principal”: a contract dated _____,
for _____
_____
a copy of which contract is attached hereto and by reference made a part hereof, and hereinafter referred to as the “Contract”.

And WHEREAS, said Principal is required under the terms of said Contract and by law under the provisions of N.R.S. 339 to furnish a Bond for the faithful performance of said Contract;

NOW, THEREFORE, we, the Principal, and _____
_____, as Surety, are held and firmly bound unto the Board of Trustees, Washoe County School District in the State of Nevada in the sum of
_____
Dollars ($_____), lawful money of the United States, being no less than one hundred per cent (100%) of the estimated Contract Cost of the work, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal, or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by and well and truly keep the faithfully perform the covenants, conditions, and agreements in the Contract and any alterations made as therein provided, on his or its part to be kept and performed at the respects according to their true intent and meaning; and shall indemnify and save harmless the Board of Trustees, Washoe County School District in the State of Nevada, its officers and agents, as therein stipulated; then this obligation shall become null and void. Otherwise, it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period of one (1) year after completion and acceptance of the work done, during which time if the above-bounden Principal, his or its heirs, executors, administrators, successors, or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the Board of Trustees, Washoe County School District in the State of Nevada from loss or damage made evident during said period of one (1) year from the date of acceptance of said work, and resulting from or caused by defective materials or faulty workmanship in the prosecution of the work done, the above obligation in the said sum of _____ Dollars ($_____) shall remain in full force and virtue; otherwise, the above obligation shall be void.

THE SURETY, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder, or to the specifications accompanying the same, shall in anyway affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work, or to the specifications.

And the said Surety, for value received, further stipulates and agrees that should the Board of Trustees, Washoe County School District, incur attorney's fees or other expenses for the enforcement of the Contract or his/her bond, the same shall be paid by the Surety to the Board of Trustees, Washoe County School District.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their seals this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____

_____

Principal

(Seal)

By: _____

_____

Surety

By: _____

Address:

(Seal)

_____

_____

_____

Phone: _____

SECTION 01001 – CONSTRUCTION PROCEDURES FOR EXISTING SCHOOL SITES

PART 1 – GENERAL

1.1 DESCRIPTION

A. All work activities under this contract shall be coordinated with the requirements of the Washoe County School District's (WCSD) Facilities Management Department. WCSD shall be contacted prior to any service shutdown and advised when such shutdown shall be commenced. All materials and equipment shall be stored in spaces assigned by WCSD. The Contractor will be required to maintain a neat and orderly operation and to limit or keep noise and nuisance to a minimum.

B. WCSD reserves the right to remove any person from the property for the safety and security of the facility

1.2 GENERAL REQUIREMENTS FOR WORK INSIDE THE EXISTING PERIMETER AND EXISTING BUILDINGS

A. It is a felony to transport any alcoholic beverages, drugs, weapons or ammunition of any kind on WCSD property

B. Any contact or conversation with students is prohibited.

C. Smoking is prohibited on all WCSD property.

D. Working hours inside the existing perimeter and existing building will be coordinated with WCSD.

E. Storage of materials inside the existing perimeter and buildings will be coordinated with WCSD Facilities Management Department.

F. Construction operations shall be confined to the areas permitted under the contract. Areas beyond indicated work areas are not to be disturbed. Conform to site rules and regulations affecting the work.

G. Keep driveways and entrances serving the premises clear and available at all times. Do not use these areas for parking or storage of materials.

H. Passenger cars, trucks and motorized construction equipment, when parked and unattended, shall be locked and the ignition key removed. Do not leave any such vehicle with the motor running.

I. Limitations on site usage, as well as specific requirements that impact site utilization are indicated on the drawings and any other contract documents. Allocate available space equitably among sub-contractors needing both access and space so as to produce the best overall efficiency. Schedule deliveries to minimize space and time requirements for storage of materials and equipment.

J. All refuse will be removed daily.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01001

SECTION 01010 - SUMMARY OF WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all contract documents and addendums associated with this project shall apply to this section.

1.2 PROJECT DESCRIPTION

A. Project to entail work as described in scope of work.

B. The project shall consist of all on and off-site improvements, as shown in the contract documents.

1.3 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractor shall have full use of the premises (construction area) for construction operations. The Contractor's use of the premises (construction area) is limited only by the Owner's right to perform construction operations with its own forces or to employ separate contractors on portions of project.

B. Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment site.

1.4 OWNER OCCUPANCY

A. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building, prior to substantial completion provided that such occupancy does not interfere with completion of the work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total work.

1.5 OWNER FURNISHED ITEMS

A. The Owner will provide certain pieces of equipment and accessories that are to be installed and connected by the Contractor.

1. The Owner will arrange and pay for delivery of Owner furnished items in accordance with the Contractor's construction schedule, and will inspect deliveries for damage.

2. If Owner furnished items are damaged, defective or missing, the Owner will arrange for replacement. The Owner will also arrange for manufacturer's field

services and the delivery of manufacturer's warranties and bonds to the Contractor.

3. The Contractor is responsible for designating the delivery dates of Owner furnished items in the Contractor's construction schedule and for receiving, unloading and handling Owner furnished items at the site. The Contractor is responsible for protecting Owner furnished items from damage, including damage from exposure to the elements, and to repair or replace items damaged as a result of the Contractor's operations.

4. Owner furnished and Contractor installed and connected equipment shall be as indicated in the contract documents.

END OF SECTION 01010

SECTION 01015 – SCHEDULE OF DRAWINGS

Mechanical
M001 MECHANICAL LEGEND, SCHEDULES, & GENERAL NOTES
M100 OVERALL MECHANICAL FLOOR PLAN
M200 ENLARGED MECHANICAL ROOM PLAN – ALTERATIONS
M201 ENLARGED KITCHEN PLAN – ALTERATIONS
M202 ENLARGED KITCHEN PLAN – STEAM ALTERATIONS
M300 OVERALL MECHANICAL ROOF PLAN
M301 ENLARGED MECHANICAL ROOF PLAN – ALTERATIONS
M400 MECH AND ELECTRICAL PIPING DIAGRAM – REFERENCE
M401 MECH STEAM UTILITIES PIPING DIAGRAM
M402 STEAM SYSTEM PIPING DIAGRAM
M500 MECHANICAL DETAILS
M501 MECHANICAL DETAILS
M700 TEMPERATURE CONTROLS

Electrical
E001 ELETRICAL LEGEND AND DRAWING SCHEDULE
E002 ELECTRICAL SPECIFICATIONS
E003 NEW WORK ONELINE DIAGRAM
E101 OVERALL ELECTRICAL FLOOR PLAN
E201 ENLARGED ELECTRICAL PLAN – NEW WORK

PART 1 -GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for submittals required for performance of the work for all entities/individuals including, but not limited to, the following:

1. General Contractor
2. Sub-Contractor
3. Sub-Contractor of Sub-Contractor
4. Quality Control Personnel
5. Special Inspection Personnel
6. Security Personnel
7. Consultant Personnel

B. Administrative Submittals: Refer to other Division 1 sections and other Contract Documents for requirements for administrative submittals.

1.3 SUBMITTAL PROCEDURES

A. Required Submittals

1. Each company, engaged on a project, shall report to the Washoe County School District all required certifications for every employee who will be on a Washoe County School District site. This includes all personnel whom the Contractor engages for work on the project site as defined in 1.2 (A). This information must be submitted within twenty-one (21) calendar days prior to commencement of work by the Contractor, and any sub-contractor, regardless of tier. Such submittals required include:

a. Certification by Company Regarding Personnel Safety Check Application.

PART 2- PRODUCTS (Not Applicable)

PART 3- EXECUTION (Not Applicable)

CERTIFICATION BY COMPANY REGARDING PERSONNEL SAFETY CHECK APPLICATION

Washoe County School District – Capital Improvement Projects

I certify on behalf of the company/firm named below that adequate background check procedures have been or will be performed for all employees that will work on Washoe County School District project _____ (Project Name) regarding _____ (Company/Firm Name) to determine that their employees meet the qualifications required by the Washoe County School District.

With this certification, I confirm that:

- All employees working on a Washoe County School District project shall not have been arrested, convicted, pled guilty, or pled nolo contender for any offenses related to:
  - Sexual assault or sexual activities with a minor
  - Child abuse
  - Felony drug possession
  - Felony weapons possession
- All employees working on a Washoe County School District project shall not:
  - Have any active Wants/Warrants
  - Is a Registered Sex Offender
  - Is on a Terrorist list.

I understand that the Washoe County School District maintains the right to remove any individuals from the project who do not comply with the above requirements.

I certify the information provided on this application is true, complete, and correct to the best of my knowledge and belief and is provided in good faith. I understand that a knowing and willful false statement on this application can be an automatic disqualification.

I hereby release, discharge, exonerate and hold harmless the Washoe County School District, its agents and representatives and persons furnishing information from any and all liability arising out of the disseminating and inspection of my records.

_____

Company/Firm Name

_____ _____

Name of Executive Officer Title

_____ _____

Signature Date

SECTION 01027 – APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

B. Related Sections: The following sections contain requirements that relate to this section.

1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in SECTION 01300 - SUBMITTALS.

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

a. Contractor's Construction Schedule
b. Application for Payment forms, including continuation sheets
c. List of all tier Sub-Contractors
d. List of products
e. List of principal suppliers and fabricators
f. Schedule of Submittals
g. Schedule of Allowances
h. Schedule of Alternates

2. Submit the Schedule of Values to the Architect at the earliest possible date but no later than seven (7) calendar days before the date scheduled for submittal of the initial Application for Payment.

3. Sub-schedules: Where Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for

each Specification Section by site improvements, by each individual building new or addition construction, and by each individual building remodel or revitalization.

1. Arrange Schedule with subtotals for the following:
    a. General Conditions
    b. Fee including overhead, proffit, all insurances
    c. Site Improvements
    d. Each individual building new or addition;
    e. Each individual building remodel or revitilization

2. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location
    b. Name of the Architect
    c. Project Number
    d. Contractor's name and address
    e. Date of submittal

3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division including general conditions broken down catagorically.
    b. Description of Work
    c. Name of Sub-Contractor
    d. Name of manufacturer or fabricator
    e. Generic Name of supplier
    f. Change Orders (numbers) that affect value
    g. Dollar value

        1. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

4. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Application for Payment and progress reports. Coordinate with the Project Manual Table of Contents. Break principal subcontract amounts down into several line items. Include a line item for Force Accounts and unit price items, as applicable.

5. The total shall equal the Contract Sum.

6. For each part of the work where an Application for Payment may include materials or equipment, purchased or fabricated and stored on or off-site, provide separate line items on the Schedule of Values for cost of those materials.

a. If the Contractor is requesting payment for materials or equipment that are stored off-site, those materials must be stored in a bonded and insured third party warehouse, and they must be segregated from other stored materials and they shall be identified according to project name, material and/or equipment description, and quatity. These materials must be observed in their stored condition by either the Architect or the Owner's representative prior to approval of the Application for Payment. In lieu of bond for stored materials offsite the contractor/subcontractor may provide an appropriate insurance policy approved by the owner to provide for the full replacement cost coverage for all materials stored. Any coverage for materials or equipment stored off-site shall include Owner as loss payee with respect to its interests. These materials must be observed in their stored condition by either the Architect or the Owner's representatives prior to approval of the Application for Payment.

b. All stored material payment requests shall include material supplier invoicing and shall not include labor or delivery costs.

7. Temporary facilities and other major cost items that are not direct cost of actual work-in-place shall be shown as separate line items in the Schedule of Values

a. General Conditions shall be broken down by major cost items and catagories including breakout of labor and material.

b. General Conditions performed by subcontract work shall be broken down to individual catagories on the schedule of values. No internal changes to subcontracts shall be allowed without formal Change Order Documentation and reflected on the schedule of values.

8. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and Owner's representative and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements

C. Each application for payment shall include sufficient documentation to substantiate completed work including but not limited to: subcontractor invoicing, all tiers; general conditions cost breakdown, etc.

C. Payment Application Times: The date for each progress payment is as indicated in the Contract. The period covered by each Application for Payment is the period indicated in the Contract.

D. Payment Application Forms: Use Washoe County School District Certificate for Payment form only. This form is available in both hard copy format or electronic format.

E. Application Preparation: Complete every entry on the form. The execution of this form shall be by a person authorized to sign legal documents on behalf of the Contractor. The Owner will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.

2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

F. Pre-Approval of Application: Percentages of completed work are to be verified by the Owner’s Representative and Architect prior to transmittal to the Architect.

1. It shall be established at the Pre-Construction meeting the protocols that are acceptable to each party for the review of payment application percentages.

G. Record Drawings and Record Specifications: Prior to transmittal of the Application for Payment, Record Drawings and Record Specifications must be reviewed and approved by the Owner’s Representative and Architect.

1. It shall be established at the Pre-Construction meeting the protocols that are acceptable to each party for the review of Record Drawings and Specifications.

H. Transmittal: Submit one (1) signed original copy of each Application for Payment to the Architect by a method ensuring receipt within twenty-four (24) hours. The submitted copy shall be complete, including waivers of lien and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.

2. Obtain Owner’s Representative’s initials as established during the Pre-Construction meeting and in sub-section 1.4, items E & F above.

I. Waivers of Mechanic’s Lien: With each Application for Payment, submit conditional waivers of mechanic’s lien from every entity who is lawfully entitled to file a

mechanic's lien arising out of the Contract and related to the work covered by the payment.

1. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.

J. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment, include the following:

1. List of Sub-Contractors (all tiers)
2. List of principal suppliers and fabricators
3. Schedule of Values
4. Contractor's Construction Schedule
5. Schedule of principal products
6. Submittal Schedule
7. List of Contractor's staff assignments
8. List of Contractor's principal consultants
9. Copies of Building Permits
10. Copies of authorizations and licenses from governing authorities for performance of the work
11. Initial Progress Report
12. Report of Pre-Construction meeting
13. Data needed to acquire the Owner's insurance
14. Initial settlement survey and damage report, if required, (existing faclity condition)
15. Record Drawings *
16. Record Specifications*

* Record Drawings and Specifications must be reviewed and approved by the Owner's Representative prior to the Application for Payment.

K. Continuing Application for Payments: Administrative actions and submittals, that must precede or coincide with submittal of the Application for Payment, include the following:

1. Updated Contractor's Construction Schedule

2. Progress report

3. Record Drawings*

4. Record Specifications*

*Record Drawings and Specifications must be reviewed and approved by the Owner’s Representative prior to the Application for Payment.

L. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.

1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the work.

2. Administrative actions and submittals that shall precede or coincide with this application include:

a. Occupancy permits and similar approvals
b. Changeover information related to Owner's occupancy, use, operation, and maintenance
c. Final cleaning
d. Application for reduction of retainage and consent of surety
e. Advice on shifting insurance coverages
f. List of incomplete work, recognized as exceptions to Architect's Certificate of Substantial Completion
g. Record Drawings*
h. Record Specifications*
i. Meter Readings
j. Change of door locks to Owner's access

*Record Drawings and Specifications must be reviewed and approved by the Owner’s Representative prior to the Application for Payment.

M. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:

1. Completion of project closeout requirements

2. Completion of items specified for completion after Substantial Completion

3. Ensure that unsettled claims will be settled
4. Ensure that incomplete work is not accepted and will be completed without undue delay
5. Completion and final reporting of all prevailing wage and apprentice utilization including unsettled prevailing wage and apprentice utilization claims
6. Transmittal of required project construction records to the Owner
7. Proof that taxes, fees, and similar obligations were paid
8. Removal of temporary facilities and services
9. Removal of surplus materials, rubbish, and similar elements
10. Certified property survey
11. Warranties (Guarantees) and Maintenance Agreements
12. Test/adjust/balance records
13. Operation and Maintenance Manuals
14. Startup performance reports
15. Final progress photographs

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01027

SECTION 01035 - MODIFICATION PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing contract modifications.

B. Related Sections: The following sections contain requirements that relate to this Section:

1. Division 1 SECTION 01300 – SUBMITTALS for requirements for the Contractor's Construction Schedule.

2. Division 1 SECTION 01027 – APPLICATIONS FOR PAYMENT for administrative procedures governing Applications for Payment.

3. Division 1 SECTION 01631 – SUBSTITUTIONS for administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 MINOR CHANGES IN THE WORK

A. The Architect will issue supplemental instructions authorizing minor changes in the work, not involving adjustment to the contract sum or contract time, as an Architect's Supplemental Instruction.

1.4 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: The Architect will issue a detailed description of proposed changes in the work that will require adjustment to the contract sum or contract time. If necessary, the description will include supplemental or revised drawings and specifications.

1. Proposal requests issued by the Architect are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.

2. Within fourteen (14) working days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Architect for the Owner's review.

a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental and amounts of trade discounts.

c. Include a statement indicating the effect the proposed change in the work will have on the contract time.

d. Include all subcontractor and contractor overhead and profit per contract documents.

B. Contractor-Initiated Proposals: When latent or unforseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the contract sum and contract time.

2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Comply with requirements in SECTION 01631 – SUBSTITUTIONS if the proposed change requires substitution of one product or system for a product or system specified.

5. Include a list of all associated cost that would be incurred, including subcontractor and contractor overhead and profit per contract documents.

C. The Contractor shall prepare his response in accordance with the requirements set forth in the General Conditions.

D. Proposal Request Form: Use AIA Document G709-2001 for Change Order Proposal Requests or Change Order Request Form (CP-F107).

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and the Contractor disagree on the terms of a Proposal Request, the Owner and Architect may issue a Construction

Change Directive.The Construction Change Directive instructs the Contractor to proceed with a change in the work, for subsequent inclusion in a Change Order. The Construction Change Directive will be approved upon email confirmation from the Owner.

1. The Construction Change Directive contains a complete description of the change in the work. It also designates the method to be followed to determine change in the contract sum or contract time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

C. Notification: Contractor shall notify Owner prior to any “Not to Exceed” items being over run. Additional Construction Change Directive may be required for over run work.

1.6 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of the Owner and the Contractor on AIA Form G701-2000/2001 or WCSD’s Change Order Form (CP-F107).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01035

ARCHITECT / OWNER

SAMPLE PRICE REQUEST

Date: _____Price Request #_____

Contractor: _____

Bid/Quote #: _____

Project: _____

Please submit a Price Quotation for the following changes being considered. Quote the change within fourteen (14) calendar days - ADD or DEDUCT - in the Contract Sum and any change in the Contract Time. Also, please state how long the price quoted is effective before job conditions warrant an increase in price. This is NOT authorization to proceed with this work.

REFERENCE: _____
_____
_____
_____

CHANGE: _____
_____
_____
_____

REQUESTED BY: _____

REASON: _____
_____
_____

CONTRACTOR / OWNER

SAMPLE CHANGE ORDER REQUEST

Date: _____Price Request #_____

Contractor: _____

Bid/Quote #: _____

Project: _____

Please submit a Price Quotation for the following changes being considered. Quote the change within five (14) calendar days - ADD or DEDUCT - in the Contract Sum and any change in the Contract Time. Also, please state how long the price quoted is effective before job conditions warrant an increase in price. This is NOT authorization to proceed with this work.

REFERENCE: _____
_____
_____
_____

CHANGE: _____
_____
_____
_____

REQUESTED BY: _____

REASON: _____
_____
_____
_____

SAMPLE CLARIFICATION

DATE: _____

TO: _____

FROM: _____

SUBJECT: _____

REFERENCE: _____
_____
_____
_____
_____

CLARIFICATION: _____
_____
_____
_____
_____

THIS INFORMATION IS PROVIDED FOR CLARIFICATION ONLY AND DOES NOT INVOLVE ANY CHANGE IN CONTRACT PRICE OR TIME.

SIGNATURE: _____

TITLE: _____

DATE: _____CLAR. NO.: _____

SAMPLE REQUEST FOR INFORMATION

DATE: _____

TO: _____

FROM: _____

SUBJECT: _____

REFERENCE:
Specification Section: _____ Paragraph: _____
Drawing Number: _____Details: _____

INFORMATION REQUIRED: _____
_____
_____
_____

SIGNATURE: _____

TITLE: _____

DATE: _____

REPLY TO ABOVE RFI: _____
_____
_____
_____

THIS INFORMATION IS PROVIDED FOR CLARIFICATION ONLY AND DOES NOT INVOLVE ANY CHANGE IN CONTRACT PRICE OR TIME.

SIGNATURE: _____

TITLE: _____

DATE: _____CLAR. NO.: _____

SECTION 01040 – COORDINATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:

1. General project coordination procedures

2. Conservation

3. Coordination Drawings

4. Administrative and supervisory personnel

5. Cleaning and protection

B. Related Sections: The following sections contain requirements that relate to this Section:

1. Division 1 Section 01050 – FIELD ENGINEERING specifies procedures for field engineering services, including establishment of benchmarks and control points.

2. Division 1 Section 01200 – PROJECT MEETING for progress meetings, coordination meetings, and pre-installation conferences.

3. Division 1 Section 01300 – SUBMITTALS for preparing and submitting the Contractor's construction schedule.

4. Division 1 Section 01600 – MATERIALS AND EQUIPMENT for coordinating general installation.

5. Division 1 Section 01700 – CONTRACT CLOSEOUT for coordinating contract closeout.

1.3 COORDINATION

A. Coordinate construction operations included in various sections of these Specifications to assure efficient and orderly installation of each part of the work.

Coordinate construction operations included under different sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

3. Make provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination, include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules

2. Installation and removal of temporary facilities

3. Delivery and processing of submittals

4. Progress meetings

5. Project closeout activities

D. Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the work.

E. Coordinate the installation of all motor starters. General Contractor is responsible for costs associated with supplying and installing <u>all</u> required motor starters.

F. Dimensions: The Structural drawings are to be used in conjunction with the Architectural, Mechanical and Electrical drawings. Primary structural elements are dimensioned on the structural plans and details. Not all secondary dimensions are shown, such as exact door and window locations, wall configurations, slab slopes, depressions, curbs, etc. Coordination of the structure of the dimensions as shown on the drawings and architectural items to be embedded into, or attached to the structure, is the responsibility of the Contractor. Any dimensions discrepancies between the Architectural, Civil Structural, Mechanical and Electrical drawings shall be reported to the Owner's Representative and Architect before proceeding with the work.

G. Intent of Drawings:

1. The work of the Contractor and subcontractor shall conform to the intent of the architectural and coordination drawings as reviewed by the Architect. Drawings are partly diagrammatic and do not intend to show in details all features of work. The Contractor shall carefully review the work to be performed by other trades, compare related drawings and shall thoroughly understand the building conditions affecting their work.

2. All changes required in the work caused by failure to do so shall be at no expense to the Owner.

H. Interfaces and Right-of-Way:

1. Make proper provisions to avoid interfaces.

2. Where conflicts occur, architectural and structural has right-of-way over mechanical and electrical work; concealed mechanical work has right-of-way over concealed electrical work; exposed electrical fixtures have right-of-way over mechanical fixtures.

3. Submit conflicts which cannot be resolved by right-of-way to the Owner for direction.

4. Submit reflected ceiling coordination plans showing work by all applicable trades for review and approval by the Architect.

I. Masonry Wall Coordination Drawings:

1. Contractor shall be responsible for providing masonry wall coordination drawings for all concrete masonry unit walls. Drawings shall consist of wall elevations drawn to scale at not less than ¼" = 1'0".

2. Wall elevations shall include dimensioned sizes and locations for all door, window and mechanical openings and penetrations, beam and joist

bearing pockets, ledger angles, embedded plate connections, and anchor bolts. All miscellaneous steel to be embedded in the masonry unit wall shall be referenced by show drawing mark number or structural detail number.

3. Masonry wall coordination drawings shall be reviewed and approved by interfacing trades prior to submittal to the Architect. Shop drawings for masonry reinforcement shall be an 'overlay' of the masonry wall coordination drawings. Detail, fabricate and place per ACI 315. Reinforcing shop drawings elevations shall show all vertical and horizontal reinforcing layouts; special reinforcement at lintels and jams at doors, windows, mechanical openings and as called out on Structural drawings.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities. Prepare coordination drawings where limited space availability necessitates maximum utilization of space of efficient installation of different components.

1. Show the relationship of components shown on separate Shop drawings.

2. Indicate required installation sequences.

3. Comply with requirements contained in Section 01300 - SUBMITTALS.

B. Staff Names: Within 15 days of commencement of construction operations, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the project site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers.

1. Post copies of the list in the Project Meeting Room, the temporary field office and each temporary telephone.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.1 GENERAL COORDINATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.2 CLEANING AND PROTECTION

A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.

B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading
2. Excessive internal or external pressures
3. Excessively high or low temperatures
4. Thermal shock
5. Excessively high or low humidity
6. Air contamination or pollution
7. Water or ice
8. Solvents
9. Chemicals
10. Light
11. Radiation
12. Puncture
13. Abrasion
14. Heavy traffic
15. Soiling, staining and corrosion
16. Bacteria
17. Rodent and insect infestation
18. Combustion
19. Electrical current
20. High-speed operation
21. Improper lubrication
22. Unusual wear or other misuse
23. Contact between incompatible materials
24. Destructive testing
25. Misalignment
26. Excessive weathering
27. Unprotected storage

28. Improper shipping or handling
29. Theft
30. Vandalism

END OF SECTION 01040

SECTION 01041 – PROJECT MANAGEMENT SOFTWARE

1. SUMMARY

    a. Web based construction project management collaboration software to submit, track, distribute and collaborate on project documentation and action items.

    b. The intent of utilizing a web-based construction management application is to reduce cost and schedule risk, improve quality and safety, and maintain a healthy team dynamic by improving information flow, reducing non-productive activities, reducing rework and decreasing turnaround times.

    c. WCSD to work with Contractor to ensure directory for project is current and to be responsible for establishing and managing necessary permissions for users through duration of project.

    d. WCSD will hold a kickoff meeting with the Contractor and applicable consultants at the beginning of the project to discuss how the software will be used, routing & naming protocols, permissions & restrictions, roles & responsibilities, etc.

2. SOFTWARE CAPABILITIES (including but not limited to)

    a. Daily Log
        i. Provides daily log entry from web and mobile with automatic capture of daily weather conditions.
        ii. Provides ability to attach photographs to entries directly from mobile.
        iii. Provides reporting capabilities to easily report on man-hours and activities for a certain time frame and contractor.

    b. Dashboards
        i. Provides a dashboard that shows the status of all currently assigned items with drill down capability to see the subject, assignee and due date of each item.

    c. Deficiency Tracking
        i. Provides a means for recording, assigning and confirming completion of any deficiency or observation noted during the course of construction.

    d. Directory
        i. Provides a directory of all team member’s contact information that is accessible from web and mobile.

    e. Documents
        i. Provides a storage location for miscellaneous project documents with the ability to have a folder hierarchy and privacy settings on folders.

ii. No storage limit.
iii. Provides download tracking.

f. Drawings
   i. Provides access to a system maintained current set of drawings on web and mobile, with access to all previous revisions as well.
   ii. Provides automatic hyperlinking capability for detail callouts.
   iii. Provides drawing markup capabilities on web and mobile.
   iv. Provides ability to link RFIs, Submittals, Punchlist Items, Photos and Project Documents to the drawings.
   v. Drawing Markups can be carried forward when new revisions are uploaded.
   vi. Markups and linked documentation are able to be public or private.

g. Financial Management
   i. Provides ability to manage contracts, payment applications and change orders.
   ii. Provides ability to view contracts and change orders from web and mobile.

h. Inspections
   i. Provides ability to create inspections from web and mobile.
   ii. Provides ability to create a deficiency item from an inspection that can be assigned and tracked to completion.

i. Meetings
   i. Provides ability to create, edit and view meeting minutes from web and mobile.
   ii. Provides ability to create action items with assignees and due dates from a meeting item.

j. Mobile Accessibility
   i. Provide native mobile applications for iOS and Android phones at a minimum that provide access to relevant project documentation, including as-built versions of Drawings and Specifications, even when there is no internet access.

k. Photos
   i. Provides ability to upload and view photos from web and mobile.
   ii. Provides ability to markup photos from mobile to clarify anything important in the photo.
   iii. Provides ability to link photos to specific locations on drawings.

l. Punchlist
   i. Provides ability to create punchlist items from web and mobile and link them to specific locations on the drawings.

ii. Provides ability to distribute punchlist items to all contractors, for contractors to mark them as resolved with photographic proof of resolution via mobile, and for the items to be marked as complete via mobile or web.

m. Requests for Information (RFIs)
   i. Provides ability to create RFIs with assignees, due dates and attachments.
   ii. Provides ability for assignees to respond to RFIs both via the software and by responding to the system generated email.
   iii. Provides an auto-generated log of all RFIs.

n. Schedule
   i. Provides ability to display schedules from typical scheduling software.

o. Specifications
   i. Provides ability to upload project specifications and manage them at the individual specification level.
   ii. Provides ability to view and search specifications on web and mobile.
   iii. Provides ability to upload revisions to individual specifications and maintain all revision history.
   iv. Provides an auto-generated current specification log that provides access to the current version of each specification.
   v. Provides ability to link specifications to submittals and view the specification from the submittal.

p. Submittals
   i. Provides ability to upload a submittal register of all expected submittals.
   ii. Provides ability to create multi-step approval workflows for submittals, with reminder notifications for the current assignee.
   iii. Provides the ability to upload any file type without size restrictions.
   iv. Provides an auto-generated submittal log.

3. TECHNOLOGY

a. Fully web based with mobile apps for Windows, iOS and Android phones.

b. Accessible without logging in through a virtual private network (VPN).

c. Works on the current version of Internet Explorer, Google Chrome, Mozilla firefox and Apple Safari browsers.

d. Can generate emails automatically, and all attachments are included in the emails via download links to avoid emails not being delivered due to size.

e. PDF output of forms such as RFIs, Submittals, Meetings, Change Orders, etc. are available and customizable.

4. TRAINING AND SUPPORT

   a. Procore has learning portal certifications and support available online.

5. PROCEDURES

   a. RFIs and Submittals
      i. The Contractor will be responsible for submitting all RFIs and Submittals through the software and assigning them to the appropriate parties.
      ii. WCSD / Architects / Engineers / Consultants etc. are responsible for posting all responses to these items via the software, including all relevant attachments.
      iii. The Contractor will distribute responses to all affected subcontractors and confirm agreement with the response by closing the item.

   b. Construction Documentation
      i. The Contractor will manage Drawings, Specifications and Documents in the software to ensure that the current version of all applicable construction documentation is available to the entire team via web and mobile.
      ii. The Contractor will ensure that all RFIs which modify the current drawings are posted to the drawings and available via web and mobile within 24 hours of the RFI being responded to.

   c. Contractor will record and distribute action items via the software.

   d. Contractor will take daily site photos and make them publicly available.

   e. Punchlist
      i. All punch list items will be managed through the software.
      ii. Punchlist items will be created by the Contractor while walking with the Owner and applicable consultants.

6. PRICING

   a. The cost of Procore Technologies services (software fee) has been paid in full by WCSD, but the contractor's bid shall include any costs the Contractor deems necessary to execute the use of Procore as identified above.

END OF SECTION 01041

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all contract documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for cutting and patching.

B. Related Sections: The following sections contain requirements that relate to this section:

1. Division 1 SECTION 01040 - COORDINATION for procedures for coordinating cutting and patching with other construction activities.

2. Division 2 SELECTIVE DEMOLITION for demolition of selected portions of the building for alterations.

3. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the work.

    a. Requirements of this section apply to mechanical and electrical installations. Refer to Division 15 and 16 sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures well in advance of the time cutting and patching will be performed if the Owner requires approval of these procedures before proceeding. Request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.

2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.

3. List products to be used and firms or entities that will perform work.

4. Indicate dates when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.

6. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of unsatisfactory work.

1.4 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

a. Foundation construction
b. Bearing and retaining walls
c. Structural steel
d. Lintels
e. Miscellaneous structural metals
f. Piping, ductwork, vessels, and equipment

B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Primary operational systems and equipment
b. Air or smoke barriers
c. Water, moisture or vapor barriers
d. Membranes and flashings
e. Fire protection systems
f. Noise and vibration control elements and systems
g. Control systems
h. Communication systems
i. Electrical wiring systems
j. Operating systems of special construction in Division 13 sections

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.

1. If possible, retain the original installer or fabricator to cut and patch the exposed work. If it is impossible to engage the original installer or fabricator, engage another recognized experienced and specialized firm.

1.5 WARRANTY

A. Existing Warranties: Replace, patch and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties, required or existing.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.

1. Before proceeding, meet at the Project Site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Avoid cutting existing pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.

1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

3. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or a diamond-core drill.
4. Comply with requirements of applicable Division 2 sections where cutting and patching requires excavating and backfilling.

5. Where services are required to be removed, relocated or abandoned, bypass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after bypassing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

   a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.

4. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty and similar items. Thoroughly clean piping, conduit and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

SECTION 01110 – PREVAILING WAGE AND APPRENTICESHIP UTILIZATION SPECIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents, addendums and all NRS 338 Prevailing Wage and Apprenticeship Utilization Act requirements associated with this project shall apply to this section. Various forms and information can be found on the Office of the Labor Commisioner's website https://labor.nv.gov/

1.2 SUMMARY

A. This section includes administrative and procedural requirements for submittals required for performance of the work, including the following:

1. Contractor/Subcontractor Notification
2. Completion Notification
3. Weekly Wage and Hour Report of Public Works Contractors.
4. Weekly Wage and Hour Report submittal log.
5. Certification of bidder regarding penalties for noncompliance
6. Certification of bidder, proposed contractor or subcontractor regarding debarment, suspension, ineligibility of voluntary exclusion.

B. Related Sections: The following section(s) may contain requirements that relate to this section if included:

1. SECTION - 01027 APPLICATIONS FOR PAYMENT
2. SECTION – 01300 SUBMITTALS

1.3 SUBMITTAL PROCEDURES

A. Compensation:

1. No extension of contract time, overhead, or profit will be authorized because of failure to transmit any required submittals or payroll report submittals to the Owner sufficiently in advance of progress payment submittals.

2. No extension of contract time will be authorized because of failure to transmit or report of any forms.

B. Required Submittals

1. CONTRACTOR/SUBCONTRACTOR NOTIFICATION

a. The Apparent Low Bidder is requested to submit the information on the Comprehensive Contractor/Subcontractor List for the Prime Bidder and all named (used) Subcontractors whom they engage for work within two (2) business days after Recommendation of Award, which will be supplied by the Purchasing Department.

b. It shall be the Contractor's responsibility to comply and submit any required forms directly to the Office of the Labor Commissioner’s as required by NRS 338.

2. COMPLETION NOTIFICATION

The contractor shall notify Washoe County School District when completion of all work performed under the contract is complete.

3. WEEKLY WAGE AND HOUR REPORTING OF PUBLIC WORKS CONTRACTORS

a. The contractor and all subcontractors are required to submit Certified Weekly Wage and Hour Reports of Public Work Contractors for each weekly payroll to Washoe County School District through the use of LCP Tracker, a paperless online system for filling certified payroll. The first weekly report will begin on the Notice to Proceed date and conclude on the following Saturday. If the Notice to Proceed date falls on a Saturday, the first report will only include reporting for that day. All successive reports will begin on the following Sunday and conclude on the following Saturday. All subcontractor report numbers shall coincide with the General Contractors report numbers. If the contractor or subcontractors do not work during any weekly reporting period they still must submit a report

indicating no public work project hours were performed for that weekly period. When contract scope of work is completed including punch list work, the last report is to be clearly marked “FINAL REPORT.”

b. Weekly Wage and Hour Report of Public Works Contractors and Weekly Wage and Hour Report submittal log must be submitted into Washoe County School District LCP Tracker system within fifteen (15) calendar days following the end of the month being reported.

c. The Prime contractor is required to designate an individual as Prime Approver for the project. The Prime Approver will oversee the reporting for all subcontractors of all tiers on the project. WCSD will set up the Prime Approver Account for the project. Thereafter, the Prime Approver will have the responsibility to use the Account to approve all payroll on the project.

d. The prime contractor is required to assign subcontractors within the LCP Tracker system to the project and to ensure that all subcontractors are aware of the necessity to file payrolls electronically, are set up within the system and all required payrolls are filed by subcontractors of all tiers.

.

1.4 OWNER'S ACTION

A. The owner will review each submittal, mark to indicate action taken, and provide review and acceptance.

1. Compliance with submittal requirements is the Contractor’s responsibility.

1.5 POSTINGS/SIGNAGE

A. Each contractor engaged on a public work must post the applicable prevailing rate of wages for the project on the site of the public work in a generally visible place to workmen.

B. Each contractor engaged in a public work must provide a sign with a white background and 6" black lettering stating, "Posted prevailing wages apply to this public works project". This sign must be posted on the site of the public work in a generally visible place to workmen. This will be maintained by the Contractor throughout the construction phase from the Notice to Proceed date through completion of the project.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01110

WASHOE COUNTY SCHOOL DISTRICT

WEEKLY WAGE AND HOUR REPORT SUBMITTAL LOG

Report Number	Contractor	Week Ending Date	Date Submitted

Washoe County School District

WEEKLY WAGE AND HOUR REPORT OF PUBLIC WORK CONTRACTORS FOR THE PAYROLL PERIOD ENDING _____, _____

Month and Day Year

Pursuant to Chapter 338 of NRS and NAC, respectively, the contractor and each subcontractor shall keep or cause to be kept an accurate record showing the name and the actual per diem, wages and benefits paid to each workman employed by him in connection with the public work. The contractor or subcontractor shall ensure that a copy of the record for each calendar month is received by the public body awarding the contract no later than 15 days after the end of the month.

Report # ☐ Regular Weekly Report ☐ . Final Report Bid/Project # PWP-

Project Title Public Body Awarding Contract **Washoe County School District**

Prime Contractor Name & Address License #

Subcontractor Name & Address License #

Employee Name & State/Jurisdiction that Issued Identification	Work Classification		Hours Worked By Day							Total Hours For Week	Hourly Rate Of Pay including fringe	Hourly Fringe Benefit Contribution					Gross Amount Earned For Week	Net Wage Paid For Week
			S	M	T	W	T	F	S			H & W	Pen.	Vac.	App. Trg	Other		
		S								0								
		O								0								
		S								0								
		O								0								

Report Hours For Above Referenced Public Works Project Only

Employee Name & State/Jurisdiction that Issued Identification	Work Classification	Hours Worked By Day								Total Hours For Week	Hourly Rate Of Pay including fringe	Hourly Fringe Benefit Contribution					Gross Amount Earned For Week	Net Wage Paid For Week
			S	M	T	W	T	F	S			H & W	Pen.	Vac.	App. Trg	Other		
			1/0	1/0	1/0	1/0	1/0	1/0	1/0									
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Report Hours For Above Referenced Public Works Project Only

Employee Name & State/Jurisdiction that Issued Identification	Work Classification	Hours Worked By Day								Total Hours For Week	Hourly Rate Of Pay including fringe	Hourly Fringe Benefit Contribution					Gross Amount Earned For Week	Net Wage Paid For Week
			S	M	T	W	T	F	S			H & W	Pen.	Vac.	App. Trg	Other		
			1/0	1/0	1/0	1/0	1/0	1/0	1/0									
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Report Hours For Above Referenced Public Works Project Only

Employee Name & State/Jurisdiction that Issued Identification	Work Classification	Hours Worked By Day								Total Hours For Week	Hourly Rate Of Pay including fringe	Hourly Fringe Benefit Contribution					Gross Amount Earned For Week	Net Wage Paid For Week
			S	M	T	W	T	F	S			H & W	Pen.	Vac.	App. Trg	Other		
			1/0	1/0	1/0	1/0	1/0	1/0	1/0									
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Report Hours For Above Referenced Public Works Project Only

Employee Name & State/Jurisdiction that Issued Identification	Work Classification	Hours Worked By Day								Total Hours For Week	Hourly Rate Of Pay including fringe	Hourly Fringe Benefit Contribution					Gross Amount Earned For Week	Net Wage Paid For Week
			S	M	T	W	T	F	S			H & W	Pen.	Vac.	App. Trg	Other		
			1/0	1/0	1/0	1/0	1/0	1/0	1/0									
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Report Hours For Above Referenced Public Works Project Only

Employee Name & State/Jurisdiction that Issued Identification	Work Classification	Hours Worked By Day								Total Hours For Week	Hourly Rate Of Pay including fringe	Hourly Fringe Benefit Contribution					Gross Amount Earned For Week	Net Wage Paid For Week
			S	M	T	W	T	F	S			H & W	Pen.	Vac.	App. Trg	Other		
			1/0	1/0	1/0	1/0	1/0	1/0	1/0									
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Report Hours For Above Referenced Public Works Project Only

STATE OF NEVADA
Office of the Labor Commissioner
STATEMENT OF COMPLIANCE

In compliance with the provisions of Chapters 338 of NRS and NAC, respectively, I, as an officer, owner or director of the undersigned contractor, hereby certify that this report is a true and accurate statement of worker's earnings employed on this Public Works contract by the undersigned contractor for the following payroll period:

_____ , _____ to _____ , _____ .
Month and Day Year Month and Day Year

I further certify:

1. That no deductions have been made from the wages earned by any person so listed other than those permissible or required by law.
2. That any apprentice listed herein is registered in a bona fide apprenticeship program.
3. Check all that apply:

☐ The contractor is signatory to a collective bargaining agreement with some or all of its employees.
☐ Each employee listed has been paid the required applicable wages plus the amount of fringe benefits listed in their contract.
☐ Each employee listed has been paid the required applicable wages per hour with no fringe benefit contributions paid by the contractor.

☐ Prime Contractor
☐ Subcontractor

Contractor Name:	Address:
Telephone:	Fax:

_____ _____ _____
Printed Name / Title Signature Date

NRS 338.070:

4. The contractor and each subcontractor shall keep or cause to be kept an accurate record showing the name and the actual per diem, wages and benefits paid to each workman employed by him in connection with the public work.

5. The record must be open at all reasonable hours to the inspection of the public body awarding the contract, and its officers and agents. The contractor or subcontractor shall ensure that a copy of the record for each calendar month is received by the public body awarding the contract no later than 15 days after the end of the month. The copy must be open to public inspection as provided in NRS 239.010. The record in the possession of the public body awarding the contract may be discarded by the public body 2 years after final payment is made by the public body for the public work.

6. Any contractor or subcontractor, or agent or representative thereof, performing work for a public work who neglects to comply with the provisions of this section is guilty of a misdemeanor.



NON-PERFORMANCE PAYROLL REPORT FOR PUBLIC WORKS PROJECTS

Pursuant to Chapter 338 of NRS and NAC, respectively, the contractor and each subcontractor shall keep or cause to be kept an accurate record showing the name and the actual per diem, wages and benefits paid to each workman employed by him in connection with the public work. The contractor or subcontractor shall ensure that a copy of the record for each calendar month is received by the public body awarding the contract no later than 15 days after the end of the month.

Report # _____ ☐ Regular Weekly Report ☐ . Final Report Bid/Project # _____ PWP- _____

Project Title _____ Public Body Awarding Contract **WASHOE COUNTY SCHOOL DISTRICT**

Prime Contractor Name & Address _____ License # _____

Subcontractor Name & Address _____ License # _____

Payroll period _____, _____ to _____ _____

Month and Day Year Month and Day Year

I hereby certify that no employees or owner/operators were used on the construction of this Public Works project during the payroll period above.

_____ _____ _____

Name & Title (please print) Signature Date

STATE OF NEVADA

JOE LOMBARDO
GOVERNOR

DR. KRISTOPHER SANCHEZ
DIRECTOR

BRETT K. HARRIS, ESQ.
LABOR COMMISSIONER



OFFICE OF THE LABOR COMMISSIONER
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2026 PREVAILING WAGE RATES
WASHOE COUNTY REGION

DATE OF DETERMINATION: October 1, 2025

APPLICABLE FOR PUBLIC WORKS PROJECTS OVER $100,000 BID/AWARDED OCTOBER 1, 2025, THROUGH SEPTEMBER 30, 2026

PREVAILING WAGE DETERMINATIONS - NRS 338.030(7), the wages so determined must be:

(a) Issued by the Labor Commissioner on October 1 of the odd-numbered year in which the survey was conducted and, except as otherwise provided in subsection 8, remain effective for 2 years after that date; and (b) Made available by the Labor Commissioner to any public body which awards a contract for any public work.

Pursuant to NRS 338.025, for determining the prevailing rate of wages pursuant to NRS 338.030, four prevailing wage regions are hereby established in this State as follows:

1. The Washoe Prevailing Wage Region consisting of Washoe County;
2. The Northern Rural Prevailing Wage Region consisting of Carson City and the counties of Churchill, Douglas, Elko, Eureka, Humboldt, Lander, Lyon, Mineral, Storey, Pershing and White Pine;
3. The Clark Prevailing Wage Region consisting of Clark County, and
4. The Southern Rural Prevailing Wage Region consisting of the counties of Esmeralda, Lincoln and Nye.

OBJECTIONS TO PREVAILING WAGE DETERMINATIONS – NRS 338.030(2): Objections to Prevailing Wage Determinations must be submitted within 30 days after the Prevailing Wage Determinations are issued.

Pursuant to NRS 338.030(8), the Labor Commissioner will review the prevailing wage rates in each even-numbered year to determine if adjustments should be made.

Pursuant to Nevada Revised Statutes (NRS) 338.030(9)(a), "If the contract for a public work: (a) Is to be awarded pursuant to a competitive bidding process, the prevailing wages in effect at the time of the opening of the bids for a contract for a public work must be paid until the completion or termination of the contract or for the 36 months immediately following the date on which the bids were opened, whichever is earlier." For contracts not awarded pursuant to competitive bidding, please see NRS 338.030(9)(b). However, if a project exceeds 36 months new wage rates may apply pursuant to NRS section 338.030(9)(10). Prevailing Wage Rates may be adjusted based on Collective Bargaining Agreements (CBA's) and adjustments to those agreements. (See NRS 338.030)

As Amendments/Revisions are made to the wage rates, they will be posted within the corresponding region's prevailing wage rates immediately after the classification's published wage determination.

Air Balance Technician 4
Alarm Installer 5
Boilermaker 6
Bricklayer 7
Carpenter 9
Cement Mason 10
Electrician – Communication Technician 11
Electrician – Lineman 12
Electrician – Neon Sign 14
Electrician – Wireman 15
Elevator Constructor 16
Fence Erector 18
Flag Person 19
Floor Coverer 20
Glazier 22
Highway Striper 23
Hod Carrier-Brick Mason 24
Hod Carrier-Plasterer Tender 25
Ironworker 26
Laborer 29
Lubrication And Service Engineer (Mobile And Grease Rack) 30
Mechanical Insulator 31
Millwright 33
Operating Engineer 37
Operating Engineer – Steel Fabricator & Erector 37
Operating Engineer – Pile Driver 38
Painter 40
Pile Driver (Non-Equipment) 42
Plasterer 43
Plumber/Pipefitter 44
Refrigeration Mechanic 45
Roofer 46
Sheet Metal Worker 49
Soils and Material Tester 50
Sprinkler Fitter 51
Surveyor 52
Taper 53
Tile/Terrazzo Worker/Marble Mason Finisher 55
Tile/Terrazzo Worker/Marble Mason 57
Traffic Barrier Erector 58
Truck Driver 59
Well Driller 60

Group Classifications

Labor Group Classifications 61
Operating Engineers 65

NRS 338.010(25) "Wages" means:

a) The basic hourly rate of pay; and
b) The amount of pension, health and welfare, vacation and holiday pay, the cost of apprenticeship training or other similar programs or other bona fide fringe benefits which are a benefit to the worker.

NRS 338.035 Bona Fide Fringe Benefits - Discharge of part of obligation of contractor or subcontractor engaged on public work to pay wages by making certain contributions in name of workman. "Bona fide fringe benefit" means a benefit in the form of a contribution that is made not less frequently than monthly to an independent third party pursuant to a fund, plan or program: (a) Which is established for the sole and exclusive benefit of a worker and his or her family and dependents; and (b) For which none of the assets will revert to, or otherwise be credited to, any contributing employer or sponsor of the fund, plan or program. The term includes, without limitation, benefits for a worker that are determined pursuant to a collective bargaining agreement and included in the determination of the prevailing wage by the Labor Commissioner pursuant to NRS 338.030.

Please see NRS 338.010, 338.020, and 338.035 and Nevada Administrative Code (NAC) 338.0097 and 338.092 through 338.100 for further details on "bona fide fringe benefits," reporting requirements, and exceptions.

Job Descriptions for Recognized Classes of Workers

Regarding job descriptions for public works projects, please take notice of the following:

1. The job description links have been redacted to include ONLY the scope of work for the craft.

2. Pursuant to NAC 338.0095(1)(a): A worker employed on a public work must be paid the applicable prevailing rate of wage for the type of work that the worker actually performs on the public work and in accordance with the recognized class of the worker.

3. The work description for a particular class is not intended to be jurisdictional in scope.

4. Any person who believes that a type of work is not classified, or who otherwise needs clarification pertaining to the recognized classes or job descriptions, shall contact the Labor Commissioner in writing for a determination of the applicable classification and pay rate for a particular type of work.

5. The job descriptions set forth or referenced herein supersede any, and all descriptions previously agreed upon by the Labor Commissioner in any settlement agreements or stipulations arising out of contested matters.

6. The following specific provisions, where applicable, shall prevail over any general provisions of the job descriptions:

    - Amendments to the prevailing wage determinations.
    - Group Classifications and/or descriptions recognized by the Labor Commissioner and included with wage determinations for a particular type of work in a particular county.

Zone Rates

The zone rate has been added to each applicable craft.

Premium Pay Premium pay for hours worked in excess of a shift of 8 hours or 12 hours, or such other time increment set forth in the Collective Bargaining Agreement or on a weekend or holiday.

Craft: AIR BALANCE TECHNICIAN (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Air Balance Technician Journeyman……93.36
Air Balance Technician-Foreman[1]……99.35
Air Balance Technician-General Foreman[2]……105.33

ADD ZONE RATE

In addition to AIR BALANCE rates add the applicable amounts per hour, calculated based on a road from the courthouse in Reno, Nevada:

Zone 1	0 to 29 miles	$0.00
Zone 2	30 to 49 miles	$3.00
Zone 3	50-100 miles	$6.00
Zone 4	Over 100 Miles	$9.00

ADD PREMIUM PAY

All work performed outside the regular working hours[3] and performed during the regular work week[4] shall be at one and one-half (1.5) times the straight time rate of pay. Sunday and Holidays shall be paid at double (2x) the straight time of pay. When employees work more than 60 hours in a work week it will be at double (2x) time.

RECOGNIZED HOLIDAYS[5]

New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the Friday following Thanksgiving Day, Christmas Eve Day, Christmas Day, or days locally observed as such, and Sunday shall be recognized as holidays.

JOB DESCRIPTION: Excerpt from Sheet Metal Local 88 Collective Bargaining Agreement.

Manufacture, fabrication, assembling, handling, erection, installation, dismantling, conditioning, adjustment, alteration, repairing and servicing of all ferrous or nonferrous metal work and all other materials used in lieu thereof and of all HVAC systems, air veyor systems, exhaust systems, and air-handling systems regardless of material used including the setting of all equipment and all reinforcements in connection therewith; all lagging over insulation and all duct lining; testing and balancing of all air-handling equipment and duct work; the preparation of all shop and field sketches whether manually drawn or computer assisted used in fabrication and erection, including those taken from original architectural and engineering drawings or sketches; metal exterior wall systems, and metal roofing.

[1] General Foreman, Foreman and Stewards who maintain current First Aid/CPR Completion Certificates shall receive an additional Fifty Cents ($.50) over their base wage.
[2] General Foreman, Foreman and Stewards who maintain current First Aid/CPR Completion Certificates shall receive an additional Fifty Cents ($.50) over their base wage.
[3] Eight (8) hours between 6:00 am and 4:30 pm, except for the months of May 15 through September 15 in which 5:00 am may be the start time. Other start times must be approved.
[4] Five (5) consecutive eight (8) hour days, beginning with Monday and ending with Friday of each week.
[5] If a holiday falls on Saturday, the Friday preceding shall be the recognized holiday, if a holiday falls on Sunday the Monday following shall be the recognized holiday

Craft: ALARM INSTALLER (Non-Union Rate) [1]

Prevailing wage rates include the base rate as well as all applicable fringes

Alarm Installer……..…….42.08

JOB DESCRIPTION:

Includes but is not limited to:

- Install, maintain, or repair security systems, alarm devices, or related equipment, following blueprints of electrical layouts and building plans.
- Mount and fasten control panels, door and window contacts, sensors, or video cameras, and attach electrical and telephone wiring to connect components.
- Demonstrate systems for customers and explain details, such as the causes and consequences of false alarms.
- Test and repair circuits and sensors, following wiring and system specifications.

[1] Job description copied from O*NET OnLine

Craft: BOILERMAKER (Non-union Rate) [1]

Prevailing wage rates include the base rate as well as all applicable fringes

Boilermaker…….……..…….76.62

JOB DESCRIPTION:
Includes but is not limited to:

Construct, assemble, maintain, and repair stationary steam boilers and boiler house auxiliaries. Align structures or plate sections to assemble boiler frame tanks or vats, following blueprints. Work involves use of hand and power tools, plumb bobs, levels, wedges, dogs, or turnbuckles. Assist in testing assembled vessels. Direct cleaning of boilers and boiler furnaces. Inspect and repair boiler fittings, such as safety valves, regulators, automatic-control mechanisms, water columns, and auxiliary machines.

Sample of reported job titles: Boiler Installer, Boiler Mechanic, Boiler Repairman, Boiler Service Technician (Boiler Service Tech), Boiler Technician (Boiler Tech), Boilermaker, Boilermaker Mechanic, Boilermaker Pipe Fitter, Boilermaker Welder, Industrial Boiler Service Technician (Industrial Boiler Service Tech).

- Conduct pressure tests on vessels, such as boilers.
- Study blueprints to determine locations, relationships, or dimensions of parts.
- Examine boilers, pressure vessels, tanks, or vats to locate defects, such as leaks, weak spots, or defective sections, so that they can be repaired.
- Inspect assembled vessels or individual components, such as tubes, fittings, valves, controls, or auxiliary mechanisms, to locate any defects.
- Lay out plate, sheet steel, or other heavy metal and locate and mark bending and cutting lines, using protractors, compasses, and drawing instruments or templates.
- Bell, bead with power hammers, or weld pressure vessel tube ends to ensure leakproof joints.
- Locate and mark reference points for columns or plates on boiler foundations, following blueprints and using straightedges, squares, transits, or measuring instruments.
- Shape or fabricate parts, such as stacks, uptakes, or chutes, to adapt pressure vessels, heat exchangers, or piping to premises, using heavy-metalworking machines such as brakes, rolls, or drill presses.
- Position, align, and secure structural parts or related assemblies to boiler frames, tanks, or vats of pressure vessels, following blueprints.
- Clean pressure vessel equipment, using scrapers, wire brushes, and cleaning solvents.
- Repair or replace defective pressure vessel parts, such as safety valves or regulators, using torches, jacks, caulking hammers, power saws, threading dies, welding equipment, or metalworking machinery.
- Attach rigging and signal crane or hoist operators to lift heavy frame and plate sections or other parts into place.
- Straighten or reshape bent pressure vessel plates or structure parts, using hammers, jacks, or torches.
- Shape seams, joints, or irregular edges of pressure vessel sections or structural parts to attain specified fit of parts, using cutting torches, hammers, files, or metalworking machines.
- Bolt or arc weld pressure vessel structures and parts together, using wrenches or welding equipment.
- Install manholes, handholes, taps, tubes, valves, gauges, or feedwater connections in drums of water tube boilers, using hand tools.
- Assemble large vessels in an on-site fabrication shop prior to installation to ensure proper fit.
- Install refractory bricks or other heat-resistant materials in fireboxes of pressure vessels.

[1] Job description copied from O*NET OnLine

Craft: BRICKLAYER (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Bricklayer Journeyman……..……..……60.73
Bricklayer Foreman……..……61.73
Bricklayer General Foreman……..……65.73

ZONE PAY[1]

Expense payments for travel to and from projects located thirty-five (35) or more road miles from the Washoe County Courthouse in Reno:

Zone 1	0 – 34 Road Miles	Free Zone
Zone 2	35 – 75 Road Miles	$50.00 per day, seven days a week
Zone 3	Over 75 Road Miles	$80.00 per day

ADD PREMIUM PAY

Standard workday is eight (8) continuous hours of work between the hours of 5:30 am and 4:30 pm. The first ten (10) hours performed on Saturday[2] shall be at one and one-half (1.5) times the straight time rate and all work performed thereafter shall be paid at double (2x)[3]. Sundays[4] and Holidays shall be paid at double (2x) the straight time of pay.

The normal starting time for the first shift shall be between 5:30-10:00 am. If two work shifts are established, employees working on the second shift shall receive eight (8) hours times the basic straight time rate plus an additional fifty cents ($.50) per hour for each of those eight (8) hours. If three (3) work shifts are established, the third shift shall consist of seven (7) hours of continuous work, plus one half-hour unpaid lunch period midway through the shift. Employees working on the third shift shall receive the basic straight time rate plus three dollars and twenty-five cents ($3.25) for each of those seven hours. Time worked in excess of seven (7) hours on the third shift shall be paid at the appropriate overtime rate[5].

RECOGNIZED HOLIDAYS[6]

New Year's Day, Presidents' Day, Memorial Day, Fourth of July, Labor Day, Veterans' Day, Thanksgiving Day, Friday following Thanksgiving Day, and Christmas Day.

JOB DESCRIPTION: Excerpt from Bricklayer and Allied Craftworkers Local Union No. 13 Collective Bargaining Agreement.

Brick Masonry shall consist of, but not be limited to, the following work procedures and installation of the following materials:

The laying of brick made from any material in, under or upon any structure or form of work where bricks are used, whether in the ground, or over its surface, or beneath water; in commercial and residential buildings, rolling mills, iron works, blast or smelter furnaces, lime or brick kilns; in mines or fortifications, and in all underground work, such as sewers, telegraph, electric and telephone conduits; including the installation of substitutes for brick such as all carbon materials, Karbate, Impervite or mixtures, all acid resistant materials, all terra cotta and porcelain materials, except where the foregoing materials are manufactured to substitute for tile as provided for under the category of Section 8, C, of this Code.

---

[1] Eighty-five dollars ($85.00) subsistence per day, seven days per week, for the duration of the employee's participation on the job and IRS mileage reimbursement rate per road mile traveled in own transportation.
[2] Regardless of whether or not the Employer has already made forty (40) hours of work available during the preceding work week.
[3] Exceptions: The Saturday falls on a Union recognized holiday – then all hours should be paid at double (2x)
[4] If the employee did not work forty (40) straight time hours in the preceding week that employee shall be paid at one and one-half (1.5) the hourly wage rate for that portion of the Sunday work required to reach forty (40).
[5] One and one half (1.5) the straight time rate
[6] Any holiday falling on Sunday will be observed on the Monday following, any holiday falling on Saturday will be observed the preceding Friday

All cutting of joints, pointing, cleaning and cutting of brick walls, fireproofing, blockarching, terra cotta cutting and setting, the laying and cutting of all tile plaster, mineral-wool, cork blocks and glass masonry, or any substitute for above materials, the laying of all pipe sewers or water mains and the filling of all joints on the same when such sewers or conduits are of any vitreous material, burnt clay or cement, or any substitute material used for the above purpose, the cutting, rubbing and grinding of all kinds of brick and the setting of all cut stone trimmings on brick buildings, and the preparation and erection of plastic, castables or any refractory materials.

Cleaning, grouting, pointing, and other work necessary to achieve and complete the work under the foregoing categories; all waterproofing and black mastic waterproofing, silicone and/or substitutes sandwiched between masonry units in the interior of the wall.

All terra cotta called unit tile in sizes over 6"x12" regardless of method of installation; all quarry tile over 9"x9"x1 1/4" in size; split brick or quarry tile or similar material if bedded and jointed with one operation. The bedding, jointing, and pointing of the above materials shall be the work of the craft installing same.

All burnt clay extruded cellular products regardless of trade name or method of installation when used as a veneer on structures; all clay products known as terra cotta tile, unit tile, ceramic veneer and machine-made terra cotta and like materials in sizes larger than 6"x12", regardless of the method of installation. Where the preponderance of material to be installed is of the above size, and when material of lesser sizes is to be used in connection therewith, the bricklayers shall install all such materials. Brick paving comes under bricklayers' trade classification.

The preparation, setup, calibration, operation, cleaning, and routine maintenance of any mechanical devices or robotics used to install masonry units and materials, or that otherwise assist the mason in performing any of the work described in Article II and Code 1 of the IU Constitution, as well as the preparation and ongoing maintenance of the work area to allow proper installation of masonry units and materials.

Craft: CARPENTER (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Carpenter Journeyman……64.42
Carpenter Foreman……68.43
Carpenter General Foreman……72.84

ADD ZONE RATE

In addition to CARPENTER rates add the applicable amounts per hour, calculated from the Washoe County Courthouse:

Zone 1	Within 75 road miles	$0.00
Zone 2	Between 75 to 150 road miles	$6.00
Zone 3	Between 150 to 300 road miles	$7.00
Zone 4	In excess of 300 road miles	$8.00

ADD PREMIUM PAY

Regular workweek is Monday through Friday; working hours are between 5:30 am and 5:00 pm[1]. Saturday work shall be paid at one and one-half (1.5) the appropriate hourly rate. All work performed on Sundays, holidays, and over twelve (12) hours in one (1) day shall be paid at two times (2x) the appropriate hourly rate.

RECOGNIZED HOLIDAYS[2]

New Year's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, the Friday after Thanksgiving, Christmas Day.

JOB DESCRIPTION Excerpt from Southwest Regional Council of Carpenters and Affiliated Local Unions Master Labor Agreement, Carpenters Local 971.

All building construction, including but not limited to the construction, erection, alteration, repair, modification, demolition, addition, or improvement in whole or in part of any building structure. All rigging of Carpenters', and Pile Drivers' materials.

All heavy, highway and engineering construction, including but not limited to the construction, improvement, modification and demolition of all or any part of the streets, highways, bridges, viaducts, railroads, tunnels, airports, water supply, irrigation, flood control and draining systems, sewers and sanitation projects, dams, power houses, refineries, aqueducts, canals, river and harbor projects, wharves, docks, breakwaters, jetties, quarrying of breakwaters or rip rap stone or operations incidental to such heavy construction work and whether such work is above or below the water line level.

All carpenter, concrete form work, shoring, drywall, metal stud, drywall finishing, plaster, scaffold, modular furniture, trade show work, insulation, acoustical, and lathing work on such construction, including but not limited to plastics and such work in connection with new methods of construction or use of materials.

All interior and/or exterior wall finish work, including EIFS and other wet wall finish work.

[1] Earlier start time must be arranged.
[2] Holidays falling on Sundays shall be observed on the following Monday, holidays falling on Saturdays shall be observed on the prior Friday

Craft: CEMENT MASON (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Cement Mason - Journeyman…….……..…….56.92
Cement Mason - Foreman……..……61.42

ADD ZONE RATE

In addition to CEMENT MASON rates add the applicable amounts per hour, calculated from the Washoe County Courthouse:

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 150 miles	$6.00
Zone 3	150 to 300 miles	$7.00
Zone 4	More than 300 miles	$8.00

ADD PREMIUM PAY

Any work performed over eight (8) hours per day shall be compensated at time and one half (1.5x) the appropriate hourly rate. All work performed after twelve (12) consecutive hours shall be paid at double (2x) the appropriate rate. All work performed on Saturdays shall be compensated at time and one half (1.5x) the appropriate hourly rate. All Sunday and Holiday work shall be paid for at double time (2x).

RECOGNIZED HOLIDAYS[1]

New Year's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day the day after Thanksgiving, and Christmas. Holidays falling on Sundays shall be observed on the following Monday.

JOB DESCRIPTIONS: Excerpt from Operative Plasterers' and Cement Masons' Northern Nevada OP&CMIA Local 797 Master Labor Agreement.

All building construction, including but not limited to the construction, erection, alteration, repair, modification, demolition, addition, or improvement in whole or in part of any building structure.
All heavy, highway and engineering construction, including but not limited to construction, improvement, modification, demolition, of all or any part of streets and highways (including sidewalks, curbs and gutters), bridges, viaducts, rail roads, tunnels, airports, water supply, irrigation, flood control and drainage systems, sewers and sanitation projects, dams, power houses, refineries, aqueducts, canals, river and harbor projects, wharves, docks, breakwaters, jetties, quarrying of breakwater or rip-rap stone, or operation incidental to such heavy construction work.
The work to be performed by Cement Masons shall include but not be limited to the following, when tools of the Cement Masons trade are used or required:
Setting screeds, screed pins, curb forms and curb and gutter forms, rodding, spreading and tamping concrete, hand application of curing compounds, applying topping (wet or dry) colors or grits; using Darby and push floats, hand troweling or hand floating; marking edging, brooming or brushing, using base cove or step tools; chipping, and stoning, patching or sacking; dry packing; spreading and finishing gypsum, operating mechanical finishers (concrete) such as Clary, Jackson, Bidwell Bridge Deck Paver or similar types; grinding machines; troweling machines, floating machines powered concrete saws; finishing of epoxy and resin materials, bush hammering and exposed finishes for architectural work.
Operation of skill saw, chain saw, Laser Screed, Laser Level, Curb and Slipform machines, Epoxy Type Injection pumps, stamps or other means of texturing, any new devices, which are beneficial to the construction of or with concrete or related products.

[1] Holidays falling on Sundays shall be observed the following Monday

Craft: ELECTRICIAN COMMUNICATION TECHNICIAN (Non-Union Rate)[1]
Prevailing wage rates include the base rate as well as all applicable fringes

Communication Technician..…….....51.43

JOB DESCRIPTION:

ELECTRONIC COMMUNICATION TECHNICIAN, includes but is not limited to:

Install, set up, rearrange, or remove switching, distribution, routing, and dialing equipment used in central offices or headends. Service or repair telephone, cable television, Internet, and other communications equipment on customers' property. May install communications equipment or communications wiring in buildings.

- Demonstrate equipment to customers and explain its use, responding to any inquiries or complaints.
- Test circuits and components of malfunctioning telecommunications equipment to isolate sources of malfunctions, using test meters, circuit diagrams, polarity probes, and other hand tools.

- Test repaired, newly installed, or updated equipment to ensure that it functions properly and conforms to specifications, using test equipment and observation.
- Climb poles and ladders, use truck-mounted booms, and enter areas such as manholes and cable vaults to install, maintain, or inspect equipment.

- Assemble and install communication equipment such as data and telephone communication lines, wiring, switching equipment, wiring frames, power apparatus, computer systems, and networks.

[1] Job description copied from O*NET OnLine

Craft: ELECTRICIAN LINEMAN/GROUNDMAN/HEAVY EQUIPMENT OPERATOR
(Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Electrician-Groundman……..……63.91
Lineman-Journeyman…..……..…….....98.31
Lineman-Foreman……..……..106.34
Lineman-General Foreman……..……..……..114.47
Lineman-Equipment Man……..……..77.38

ADD PREMIUM PAY
Workday is eight (8) hours work between 8:00 am and 4:30 pm. Monday through Friday is the work week. All work performed outside of the regular scheduled working hours and on Saturdays, Sundays, and holidays shall be paid at double (2x) the regular straight-time rate of pay.

SHIFT DIFFERENTIAL
First shift (day shift)[1] is paid at the regular hourly rate. Second shift (swing shift)[2] is paid at regular hourly rate plus 10%.Third shift (graveyard shift)[3] is between 12:30 am and 8:00 am and is paid at regular hourly rate plus 15%[4].

RECOGNIZED HOLIDAYS[5]
New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Nevada Day, Thanksgiving Day and the Friday following, and Christmas Day

JOB DESCRIPTION: Excerpt from Western Line Constructors Chapter of NECA and IBEW Local 1245

Outside, overhead and underground construction and maintenance work on electrical transmission lines, switch yards, substations and distribution systems which shall include:

Pole line work (whether built of wood, metal or other material): the digging and back-filling of holes for poles or anchors (by hand or mechanical equipment): the loading or unloading, handling, sorting and moving of materials; the assembly or erection of all materials including the guying, stringing of conductors and fiber optics or other work necessary on through to the ultimate completion of such pole work.

Steel or metal structures used for the purpose of carrying electrical wire, conductors, or equipment (this includes transmission towers, outdoor substations, switch racks, or similar electrical structures); the moving of men, tools or equipment; the loading or unloading, handling, sorting and moving of materials; the assembly and erection of all materials used on the job site, including the assembly of the grillage and foundations, on through to the ultimate completion of such structures. Work covered shall include the grounding of all such structures except the bonding of stub-angle to rebar cage; the stringing and installation of wires, cables and insulators or other electrical equipment suspended from structure; also the handling and placing of transformers or O.C.B.'s and other related electrical equipment.

The moving of men, tools or equipment; the loading or unloading, handling, sorting and moving of materials; the assembly of all electrical materials on race-ways such as ducts. This shall also include CIC (cable in conduit), CC (coiliable conduit), the placing of fish wire, the pulling of cables or wires through such race-ways, installing and making up of termination and the splicing of such conductors.

[1] Between 8:00 am and 4:30 pm
[2] Between 4:30 pm and 12:30 am
[3] Between 12:30 am and 8:00 am
[4] There is no pyramiding of overtime rates and double the straight rate is the maximum for any hour worked.
[5] Holidays falling on Saturdays and Sundays do not require the employers to observe those holidays on a Friday or Monday

Street lighting systems where such work properly comes under the outside jurisdiction shall be handled in the same manner as pole line construction.

Installing and maintaining the catenary and trolley work and bonding of rails shall be handled in the same manner as pole line, and steel construction.

In connection with all of the above items, it shall include not only new installation work but shall also govern the repair, maintenance or dismantling of such structures, lines or equipment; the handling and operating of all equipment used to transport men, tools and/or materials on the job site as well as the equipment used to move, raise or place materials used in the Outside Branch of the Electrical Industry shall be performed unless otherwise excluded herein.

Craft: ELECTRICIAN – NEON SIGN (Non-Union Rate) [1]

Prevailing wage rates include the base rate as well as all applicable fringes

Electrician Neon Sign Journeyman……..…….64.86

JOB DESCRIPTION:

- Installing, servicing and repairing plastic, neon and illuminated signs;
- Ascending ladders or operating hydraulic or electric hoist to install, service, or examine sign to determine cause of malfunction;
- Wiring, rewiring or removing defective parts and installing new parts using electrician's tools;
- Removing sign or part of sign for repairs, such as structural fabrication, scroll repair, or transformer repair.

[1] Job description copied from O*NET OnLine

Craft: ELECTRICIAN WIREMAN (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Wireman……..……...…….……78.49
Wireman-Cable Splicer…...…….....86.44
Wireman Forman…..……..…….……86.44
Wireman General Foreman…..……..……91.99

ADD ZONE RATE
In addition to ELECTRICIAN-Wireman, rates, add the applicable amounts per hour, calculated from Washoe County Courthouse, Reno Nevada:

Zone 1	0 to 50 miles	$0.00
Zone 2	51 to 70 miles	$3.00
Zone 3	71 to 90 miles	$10.00
Zone 4	91 miles and over	$15.00

ADD PREMIUM PAY
Workday is eight (8) consecutive hours between 6:00 am and 6:00 pm. Work week is Monday through Friday. The first two (2) hours worked outside of these hours shall be paid at time and one-half (1.5) of the regular straight time rate. Saturday overtime is one and one-half (1.5) times the regular rate for the first eight (8) hours and two times (2x) the rate thereafter. Sundays and holidays shall be paid double (2) times the straight rate of pay.

SHIFT DIFFERENTIAL
[1]First shift (day shift) is eight (8) consecutive hours worked between 8:00 am and 4:30 pm. Day shift is paid at the regular hourly rate. Second shift (swing shift) is eight (8) consecutive hours worked between 4:30 pm and 1:00 am and should be paid at regular hourly rate plus 17.3% for all hours worked. Third shift (graveyard shift) is eight (8) consecutive hours worked between 12:30 am and 9:00 am and should be paid at regular hourly rate plus 31.4% for all hours worked.[2]

RECOGNIZED HOLIDAYS[3]
New Year's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving Day, Christmas Day. Holidays falling on Saturday shall be observed on the previous Friday. Holidays falling on Sunday shall be observed on the following Monday.

JOB DESCRIPTION: Excerpt from Agreement between NECA and Local Union 401, IBEW.

All electrical construction, installation, or erection work including fabrication or prefabrication of boxes, brackets, bends and nipples and all electrical maintenance thereon including the final running tests. This shall include the installation and maintenance of temporary wiring and the installation of all electrical lighting, heat and power equipment, installation of all raceway systems, including underground conduits and all supports, underground utility conduits, photovoltaic power generation systems, wind power generation systems and geothermal power generating systems. Further all salvage of electrical work shall be included.

[1] Any shift starting time may be varied by up to two (2) hours.
[2] Double the straight time rate is the max rate paid, no pyramiding of overtime rates
[3] Holidays falling on Saturday shall be observed on the previous Friday. Holidays falling on Sunday shall be observed on the following Monday

Craft: ELEVATOR CONSTRUCTOR (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Elevator Constructor-Journeyman Mechanic..……130.81
Elevator Constructor-Journeyman Mechanic In Charge…….....142.16

ADD ZONE RATE
In addition to ELECTRICIAN-Wireman, rates, add the applicable amounts per hour, calculated from Washoe County Courthouse, Reno Nevada:

Free Zone	0 to 12 miles	$0.00
Zone 1	12 to 17 miles	$30.61
Zone 2	17 to 22 miles	$61.23
Zone 3	22 to 27 miles	$91.84
Zone 4	27+ miles	$111.00

ADD PREMIUM PAY
Workday is eight (8) hours worked between 6:00 am and 5:00 pm. Work week is Monday through Friday. Work performed on Saturdays, Sundays, and before and after the regular working day Monday to Friday is to be paid at double (2x) the regular rate. Work done on holidays shall be paid at double (2x) the regular rate.

RECOGNIZED HOLIDAYS[1]
New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day.

JOB DESCRIPTION: Excerpt from Agreement of International Union of Elevator Constructors Local 8.

The handling and unloading of all equipment coming under the jurisdiction of the Elevator Constructor, from the time such equipment arrives at or near the building site, shall be handled and unloaded by the Elevator Constructors. Mechanical equipment such as a forklift or truck mounted swing boom may be used by the Elevator Constructors. A derrick, crane or material hoist can be used under the supervision of Elevator Constructors to handle and unload the heavy material where unusual conditions are expected to exist prior to delivery of equipment at or near the building site in regard to handling and unloading of equipment in the primary or secondary jurisdiction of the local union, the Company shall contact the Local's Business Representative to make appropriate arrangements for the handling and unloading of such equipment. In areas outside the jurisdiction of the local union, the Company shall contact the Regional Director.

The erecting and assembling of all elevator equipment to wit: electric, hydraulic, steam, belt, dumbwaiters, residence elevators, parking garage elevators (such as Bowser, Pigeon Hole, or similar types of elevators), shuttles, compressed air and handpower, automatic people movers, monorails, airport shuttles and like-named devices used in the transportation of people for short distances of travel (less than 5 miles), as well as vertical reciprocating conveyor systems.

It is understood and agreed that the preassembly of all escalators, moving stairways and link belt carriers that may be done in the factory shall include the following:

Truss or truss sections with tracks, drive units, machines, handrail drive sheaves, drive chains, skirts on the incline sections but not curved sections, step chains and steps installed and permanently aligned. Balustrade brackets may be shipped attached but not aligned.

[1] All recognized holidays are paid holidays. Holidays falling on Saturday shall be observed on the previous Friday. Holidays falling on Sunday shall be observed on the following Monday.

Setting of all controllers and all wiring and conduit from the controller.

All other work on escalators, moving stairways and link belt carriers shall be performed in the field before or after the truss or truss sections are joined and/or hoisted and placed in permanent position. This includes any and all work not done in the factory. The erecting and assembly of all theater
stage and curtain elevator equipment and guides and rigging thereto, organ consoles and orchestra elevators

All wiring, conduit, and raceways from main line feeder terminals on the controller to other elevator apparatus and operating circuits. Controllers are not to be shipped from the factory with extended wiring attached thereto.
The erecting of all guide rails.
The installation of all grating under the control of the Company. The installation of all counterweight screens, overhead work, either wood or iron, and all material used for mounting of elevator apparatus in machine room, overhead or below.
The drilling of overhead beams for attaching machines, sheaves, kick angles, and all other elevator equipment.
The setting of all templates.
All foundations, either of wood or metal, that should take the place of masonry.
The assembly of all cabs complete.
The installation of all indicators.
The erecting of all electrical or mechanical automatic or semi-automatic gates complete.
The hanging of all automatic or semi-automatic elevator hoistway doors, together with the installation of hangers and tracks.
The installation of all devices for opening and closing and locking of elevator car and hoistway doors and gates.
The drilling of doors for mounting of closing devices.
The drilling of angle supports for mounting of closing devices except one template hole.
The drilling of sills for sill trips.
The operating of temporary cars.
The setting of all elevator pressure open or pit tanks.
The setting of hydraulic power units (power units include: motor, pump, drive valve system, internal piping, muffler, internal wiring, controller and tank). Where power units arrive in parts, they shall be assembled at the job site. The wiring and piping to and between multiple hydraulic power units shall be performed at the job site.
All air cushions with the exception of those built of brick or those put together with hot rivets.
Landing door entrances.

Craft: FENCE ERECTOR (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Fence Erector……..……..……53.28

ADD ZONE RATE[1]
In addition to FLAG PERSON add the applicable amounts per hour, calculated based on a road miles from either the Carson City Courthouse or the Washoe County Courthouse:

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 150 miles	$6.00
Zone 3	150 to 300 miles	$7.00
Zone 4	300 miles or over	$8.00

ADD PREMIUM PAY
Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) the regular straight time and Sundays, Holiday time worked, and all hours worked over twelve (12) in one day are to be paid at double (2x) the regular rate.

SHIFT DIFFERENTIAL
Second (swing) and third (graveyard) shifts shall be paid 12.5% differential.

RECOGNIZED HOLIDAYS[2]
New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day.

JOB DESCRIPTION: Except from Laborers Local 169. Includes but is not limited to:

(SEE LABORERS GROUP 3)

[1] No remote area pay shall be paid within ten (10) miles of employee's permanent place of residence in the State of Nevada.
[2] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: FLAG PERSON (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Flag Person…….51.16

ADD ZONE RATE[1]

In addition to FLAG PERSON add the applicable amounts per hour, calculated based on a road miles from either the Carson City Courthouse or the Washoe County Courthouse:

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 150 miles	$6.00
Zone 3	150 to 300 miles	$7.00
Zone 4	300 miles or over	$8.00

ADD PREMIUM PAY

Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) the regular straight time and Sundays, Holiday time worked, and all hours worked over twelve (12) in one day are to be paid at double (2x) the regular rate.

SHIFT DIFFERENTIAL

Second (swing) and third (graveyard) shifts shall be paid 12.5% differential.

RECOGNIZED HOLIDAYS[2]

New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day.

JOB DESCRIPTION: Except from Laborers Local 169. Includes but is not limited to:

1. Directing movement of vehicular traffic through construction projects;
2. Distributing traffic control signs and markers along site in designated pattern;
3. Informing drivers of detour routes through construction sites;

(SEE LABORERS GROUP 1A)

[1] No remote area pay shall be paid within ten (10) miles of employee's permanent place of residence in the State of Nevada.
[2] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: FLOOR COVERER (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Floor Coverer Journeyman…….62.04
Floor Coverer Foreman…..…….66.30

ADD ZONE RATE

In addition to FLOOR COVERER rates add the applicable amounts per day calculated based on road miles from the Washoe County Court House[1].

Zone 1	0 to 70 miles	$0.00
Zone 2	Over 70 miles	$75.00

ADD PREMIUM PAY

Workday is between the hours of 6:00 am and 6:00 pm.[2] All work performed on Saturday up to eight (8) hours shall be paid at time and one-half (1.5) the base wage. All work performed after ten (10) hours Monday – Friday, after eight (8) hours on Saturday, and all hours on Sundays and holidays is to be paid at double time (2x) the base rate.

RECOGNIZED HOLIDAYS[3]

Memorial Day, New Year's Day, Fourth of July, Labor Day, Admission Day (last Friday in October), Thanksgiving Day, and the Friday after, Christmas Day.

JOB DESCRIPTION: Excerpt from Agreement between DC 16 and The Independent Flooring Contractors of Northern Nevada

All work including and related to the installation of resilient floor, wall, and ceiling materials commonly referred to as carpet, linoleum, vinyl, rubber, cork, asphalt, vinyl composite mastipave, synthetic grass and it's derivatives which includes but is not limited to the operation, maintenance and repair of the following equipment when used in the installation and removal of artificial turf, underlayments and all it's derivatives (forklifts, air compressors and any attachments, skid steer, skip loader, utility cart/top dresser, and lay-mor ride on sweeper), prefinished hardwood, laminates, engineered wood, all applications of pre-finished and laminate floors, epoxy, urethane, plastics, metal, and all similar materials in sheet, tile or liquid form.

Installation on floors, walls, ceilings, stairs, fixtures, furnishings, or exterior applications on structures, patios, pool perimeters, sport fields, area ways, all other like or similar applications, whether permanent or temporary.

Measuring, cutting, fabrication, packaging, pickup, delivery and handling of materials and tools that are used by the floor covering industry.

Preparatory removal of floor covering, wall covering, adhesive and underlayments. The sanding, patching, sealing and priming of the installation surface.

Installation of lining felt, carpet, pad, underlayment compositions, leveling compounds or any material used as a base for the finished surface.

[1] Excludes the City limits of Fallon and the Fallon NAS.
[2] Any hours worked between 6:00 pm and 6:00 am is Shift Work and should be paid at twenty percent (20%) above the base wage.
[3] In no case shall work be performed on Labor Day from midnight to midnight except to protect life, limb, and property. Holidays falling on Saturday will be observed on the preceding Friday and holidays falling on Sunday will be observed on the following Monday.

Applications and fitting of fasteners, protective and decorative trim relating to the installation such as tackless, tape, nosing, top set or butt-to-base, cap, corner beads, edging, hinging and all other accessories and related sundries.

Repair, finishing, coating, sculpturing, insets and such other processes relating to the industry.

Craft: GLAZIER (Non-Union Rate)[1]

Prevailing wage rates include the base rate as well as all applicable fringes

Glazier Journeyman…….29.70

JOB DESCRIPTION:

- Install glass in windows, skylights, store fronts, and display cases, or on surfaces, such as building fronts, interior walls, ceilings, and tabletops.
- Read and interpret blueprints or specifications to determine size, shape, color, type, or thickness of glass, location of framing, installation procedures, or staging or scaffolding materials required.
- Determine plumb of walls or ceilings, using plumb lines and levels.
- Install pre-assembled metal or wood frameworks for windows or doors to be fitted with glass panels, using hand tools.
- Fabricate or install metal sashes or moldings for glass installation, using aluminum or steel framing.
- Operate cranes or hoists with suction cups to lift large, heavy pieces of glass.
- Set glass doors into frames and bolt metal hinges, handles, locks, or other hardware to attach doors to frames and walls.
- Cut, fit, install, repair, or replace glass or glass substitutes, such as plastic or aluminum, in building interiors or exteriors or in furniture or other products.
- Drive trucks to installation sites and unload mirrors, glass equipment, or tools.
- Load and arrange glass or mirrors onto delivery trucks, using suction cups or cranes to lift glass.
- Measure mirrors and dimensions of areas to be covered to determine work procedures.
- Cut and attach mounting strips, metal or wood moldings, rubber gaskets, or metal clips to surfaces in preparation for mirror installation.
- Pack spaces between moldings and glass with glazing compounds and trim excess material with glazing knives.
- Assemble, erect, or dismantle scaffolds, rigging, or hoisting equipment.
- Cut and remove broken glass prior to installing replacement glass.
- Secure mirrors in position, using mastic cement, putty, bolts, or screws.
- Measure and mark outlines or patterns on glass to indicate cutting lines.
- Grind or polish glass, smoothing edges when necessary.
- Fasten glass panes into wood sashes or frames with clips, points, or moldings, adding weather seals or putty around pane edges to seal joints.
- Score glass with cutters' wheels, breaking off excess glass by hand or with notched tools.
- Cut, assemble, fit, or attach metal-framed glass enclosures for showers, bathtubs, display cases, skylights, solariums, or other structures.
- Prepare glass for cutting by resting it on rack edges or against cutting tables and brushing thin layer of oil along cutting lines or dipping cutting tools in oil.
- Move furniture to clear work sites and cover floors or furnishings with drop cloths.
- Confer with customers to determine project requirements or to provide cost estimates.
- Select the type or color of glass or mirror according to specifications.
- Measure, cut, fit, and press anti-glare adhesive film to glass or spray glass with tinting solution to prevent light glare.
- Assemble and cement sections of stained glass together.
- Create patterns on glass by etching, sandblasting, or painting designs.

[1] Job description copied from O*NET OnLine

Craft: Highway Striper (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Highway Striper……55.78
Highway Striper Foreman……56.28

ADD ZONE RATE[1]

In addition to HIGHWAY STRIPER rates add the applicable amounts per hour, calculated based on a road miles from either the Carson City Courthouse or the Washoe County Courthouse:

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 150 miles	$6.00
Zone 3	150 to 300 miles	$7.00
Zone 4	300 miles or over	$8.00

ADD PREMIUM PAY

Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) the regular straight time, and Sundays, holiday time worked, and all hours worked over twelve (12) in a day are to be paid at double (2x) the regular rate.

SHIFT DIFFERENTIAL

Second (swing) and third (graveyard) shifts shall be paid 12.5% differential.

RECOGNIZED HOLIDAYS[2]

New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day

JOB DESCRIPTION: Excerpt from Laborers Local 169 Master Labor Agreement. Includes but is not limited to:

1. Painting highways, streets and parking surfaces by using manually propelled or mechanically propelled machines, brushes, rollers or spray guns;
2. Installing any device or application of any material used in lieu of paint for traffic direction, including, without limitation, buttons, tapes, plastics, rumble bars and other similar materials;

(SEE LABORERS GROUP 5A)

[1] No remote area pay shall be paid within ten (10) miles of employee's permanent place of residence in the State of Nevada.
[2] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: Hod Carrier-Brick Mason Tender (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Brick Mason Journeyman……..53.53
Brick Mason Foreman……53.93

ADD ZONE RATE
In addition to HOD CARRIER-BRICK MASON TENDER rates add the applicable amounts per hour, calculated based on road miles from either the Carson City Courthouse or the Washoe County Courthouse:

Zone Rate	75 miles and over	$8.13

ADD PREMIUM PAY[1]
Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) the regular straight time, and Sundays, holiday time worked and all hours worked over twelve (12) in one day are to be paid at double (2x) the regular rate.

RECOGNIZED HOLIDAYS[2]
New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day

JOB DESCRIPTION: Excerpt from Agreement between No, NV Masonry Contractors and LiUNA Local 169.

Conveying of all materials used by the Brick and Stone Masons from the first point of delivery to the Mechanic whether done manually or by a piece of machinery or equipment devised to replace the wheelbarrow or buggy, including but not limited to the forklift. The handling of Bricks, Blocks, mortar, or any other material to serve the bricklayer in any capacity building and dismantling scaffolds of any kind or type used by Bricklayers for masonry work including but not limited to tower scaffolds, access scaffolds, or other specialty scaffolds, mixing and tempering mortar by hand and/or machine, mixing grout and cleaning up after the bricklayer, the repairing and maintenance of all equipment, either on the job or in the yard.

[1] Saturday, Sundays and Holiday from midnight to midnight
[2] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: Hod Carrier-Plasterer Tender (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Plasterer Tender-Journeyman……..53.87
Plasterer Tender- Gun Tender……..54.87
Plasterer Tender-Foreman……55.23

ADD ZONE RATE

In addition to HOD CARRIER-PLASTERER TENDER rates add the applicable amounts per hour, calculated based on road miles from either the Carson City Courthouse or the Washoe County Courthouse:

Zone Rate	75 miles and over	$8.00

ADD PREMIUM PAY[1]

Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) the regular straight time, and Sundays, holiday time worked and all hours worked over twelve (12) in one day are to be paid at double (2x) the regular rate.

RECOGNIZED HOLIDAYS[2]

New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day

JOB DESCRIPTION: Excerpt from Agreement between Plasterers Contractors and LIUNA Local Union 169.

Any Employee within the scope of this division tending or serving any other worker performing plasterers work, any plasterer, plasterers, or apprentices in any capacity performing plasterers work including but not limited to, handling and conveying of all materials after delivery used by plasters, including but not limited to, inside finish coat, outside finish coat, brown coat, scratch coat, sprayed or trawled on fireproofing, EIFS systems, and other materials or systems for the same or similar purpose whether done manually or by a piece of machinery or equipment devised to replace the wheelbarrow or buggy, including but not limited to the forklift, tusky hoist, and rigging and signaling for cranes to the point or points of application or installation, making mixing and preparing after delivery all materials used by plasters, whether by hand or machine including but not limited to mixers, pumps for plaster or fire proofing, plaster, finish coats, fireproofing, including Monocoat, Cafco or other materials for the same or similar use, moving any rolling scaffolding, building and handling all necessary trestle, scaffolding and planking of scaffolding for plasterers and lathers, building mortar boxes, mortar boards and stands, and the repairing and maintenance of all equipment either on the job or in the yard, the spreading of all temporary protective drop cloths, building paper or plastic covers and taping of same (in a composite crew with the plasterers when necessary), the cleaning of all floors, and debris, behind the plasterers or any other worker performing plasterers work in connection with the work performed all work necessary for cold weather protection and cure including but not limited to handling installing or tending to blankets, visqueen, and space heaters, and running putty. Tending to plasterers or any other worker performing plasterers work on EFIS system work shall include all work after the wallboard is installed including but not limited to any preparatory sealing or leveling, placing foam, mesh, and plaster including any rough, finish, and color coats.

[1] Saturday, Sundays and Holiday from midnight to midnight
[2] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: Ironworker (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Ironworker - Journeyman…..……87.86
Ironworker - Foreman…..……..……92.96

ADD ZONE RATE

In addition to Iron Worker rates add the applicable amounts per day, calculated based on a road mile from the Reno City Hall.

60 – 75 miles	$35.00 per day
75 – 100 miles	$65.00 per day
100 miles and over	$80.00 per day
Each additional 50 miles	$35.00 per day

ADD PREMIUM PAY

Workday is eight (8) hours 5:00 am to 5:00 pm[1] Monday through Friday[2]. Time and one-half (1.5) to be paid for the first eight (8) hours worked on Saturday. Double time (2x) to be paid for hours worked over eight (8) on Saturday; all hours over ten (10) in one day; all hours worked on Sunday and holidays.

SHIFT DIFFERENTIAL

1. 2nd shift add 6% of hourly wage[3]
2. 3rd shift add 13% of hourly wage[4]
3. Dedicated shift add 6% of hourly wage[5]

RECOGNIZED HOLIDAYS[6]

New Year's Day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Admission Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day.

JOB CLASSIFICATION: Excerpt from Agreement between NV AGC and DC of Ironworkers, Local 118.

All work in connection with energy producing windmill type towers, wind turbine erection, wind turbine to include but not limited to prep work, bolt up, tensioning or torquing of bolts on base, and all tower section turbine and blade assemblies, turbine towers and cylinders, turbine jackets, turbine blades and rotors, all work in conjunction with assembly and erection of nacelle housings, assembly of interior and exterior platforms for wind turbine towers. All work in connection with Offshore Wind installation, maintenance, manufacturing, rigging and erection including anchorage systems, pylon and steel bases on and offshore locations. All work in connection with multilayered beams, columns, floor panels, including rigging, connecting, bolting up and welding regardless of composition, including plumbing, unloading, and field modification of structural members. All associated waterproofing and integrated flashing systems. All work associated with the installation, modification and welding of stainless steel, including but not limited to reinforcing members, columns, girders, beams, grating, architectural panels and sheeting, handrail, including caps, shoes, and other metallic components. All work associated with autonomous and semi-autonomous robotic rebar machines and rebar carrying and placing robots. All work associated with autonomous and semi-autonomous robotic welding machines and equipment.

[1] Day shift may start earlier than 5:00 am if the Union is notified prior to making the change in start time.
[2] 1st shift is to start between 5:00 am and 9:00 am
[3] 2nd shift shall start not later than 5:30 pm
[4] 3rd shift shall start not later than 2:30 am
[5] Shift outside of regular work day of not less than three (3) days at eight (8) hours worked per day
[6] All holidays falling on Sunday will be observed on the following Monday, all holidays falling on Friday will be observed the preceding Friday

Field fabrication and/or erection or deconstruction of structural, ornamental and reinforcing steel, including but not limited to the fabrication, rigging and signaling, erection and construction of all iron and steel, ornamental lead, bronze, brass, copper and aluminum, plastics and all other substitute materials, including, but not limited to, composites, carbon fiber and fiberglass, all barrier railings, handrail, aluminum, steel, glass and plastic, reinforced concrete structures or parts thereof; bridges, viaducts, inclines, dams, docks, dredges, vessels, locks, gates, guides, aqueducts, reservoirs, spillways, flumes, caissons, cofferdams, subways, tunnels, cableways, tramways, monorails, blast furnaces, stoves, kilns, coolers, crushers, agitators, pulverizers, mixers, concentrators, ovens, cupolas, roof decking such as but not limited to “Cofar”, “Trusdeck”, Mahon “M”; smoke conveyors, penstocks, flag poles, drums, shafting, shoring, fur and storage rooms, fans and hot rooms, stacks, bunkers, conveyors, dumpers, elevators, vats, tanks, enamel tanks, enamel vats, towers, pans, hoppers, plates, anchors, caps, corbels, lintels, Howe and combination trusses, grillage and foundation work, grating, bucks, partitions, hanging ceilings, hangers, clips, brackets, flooring, floor construction and domes, rolling shutters, curtains, frames; aluminum, rolling fire, won and iron doors, including supports; cast tiling, air ducts, duct and trench frames and plates; wire work, railings, wire cable including pipe, guards, fencing, grill work, sidewalk and vault lights, skylights, roofs, canopies, light steel framing, marquees, awnings and other related equipment elevator and dumb waiter enclosures, elevator cars, tracks, fascias, aprons, operating devices, steel and aluminum sash, hardware and screens, frames, fronts, lockers, racks, book stacks, tables, shelving, metal furniture, seats, chutes, escalators, stairways including pre-engineered stairs, ventilators, boxes, fire escapes, signs, jail and cell work, safes, vaults, vault doors, safe deposit boxes, corrugated sheets when attached to steel frames, including insulation; frames in support of boilers; materials altered in field such as framing, cutting, bending, drilling, burning and welding including by acetylene gas and electric machines; metal forms and false work pertaining to concrete construction; seismic isolation systems and dampening systems including base isolators, sectional water tube and tubular boilers and stokers; traveling sheaves, vertical hydraulic elevators, bulkheads, skip hoists, making and installation of articles made of wire and fibrous rope, rigging in connection with pumps, compressors, forced and induced draft fans, air meters, Bailey meters, agitators, oxygen converters, cindering machines, pelletizing machines, reactor vessels, reactor spheres, completed tanks and assembled sections of completed tanks, scroll cases, refineries, hydroelectric power houses and steam plants, cogeneration plants, vessels and government departments; false work, travelers, scaffolding, pile drivers, sheet piling, derricks and powered derrick swinger including the erection, installation, handling and operating. Cranes erection, installation, handling and operating of same on all forms and types of construction work. The operation of Valla and Spider type battery and/or propane powered portable floor cranes having no operator seat utilized to install ironworker scope of work and the same on all forms and types of construction work. Crane work at the ports, including hammer-head cranes, container cranes and rubber tire cranes. Offloading, relocations, and commissioning of all burning and removal of sea bracing track layout; erection of apex boom extensions, back reach extensions, and rail replacement. Includes all welding, containment and structural modifications of the aforementioned items; railroad bridge work including maintenance thereof; moving, hoisting and lowering of machinery, modules, skid modules and placing of same on foundation, including bridges, cranes, intermittent use forklifts, derricks, buildings, piers and vessels; loading, unloading, necessary maintenance, erection, installation, removal, wrecking and dismantling of all of the above and all reinforcing work and submarine diving in connection with or about same; erection of steel towers, chutes and spouts for concrete where attached to towers and handling and fastening of cables and guys for same; unloading, racking, sorting, cutting, bending, hoisting, placing and tying including the use of any and all mechanical tying devices, burning and welding including stud welding of all iron, steel and metal in reinforced concrete construction including mesh for floor arches and the making of hoops and stirrups, metal forms and metal supports thereof; jacking of slip forms, installation of all wire, cable, parabolic cans, steel and all other materials, including, but not limited to, composites, carbon fiber and fiberglass, used for the purposes of prestressing including grouting of ducts, post stressing concrete girders, beams, columns, etc.; loading, unloading, hoisting, handling, signaling, placing and erection of all prestressed, post stressed, precast materials, G.F.R.C., Dryvit System, including the securing by bolting and/or welding and the installation of steeltex and wire mesh of any type when used for reinforced concrete construction; erection of all curtain wall; glass handrail; stay in place deck; automated and/or mechanical parking structures; offloading, staging,

hoisting and setting of modular structures and micro-units; curtain wall systems and associated sealants. Window wall and entrances, panels, insulated and non-insulated, factory and field assembled, porcelain enameled panels, ceramic, laminated spandrelite, louvers and sunscreens; application of thiokol, neoprene and other sealants used to seal materials installed by Iron Workers; installation and handling of phenolic panels, including but not limited to, Trespa products and all similarly related materials and/or systems; installation of metal window stools and sills; installation of aluminum, bronze and steel thresholds; erection and dismantling of all types of cranes and changing of booms; erection of rock, sand and gravel plants, dismantling and loading out conveyors, aggregate plants, batch plants, ableways, refrigeration plants, etc.; erection and dismantling of Monigan walking dragline, launchhammer bucket wheel excavator and other trenching equipment; signaling on highlines, whirley cranes and derricks, buck hoists, man hoists, fork lifts, material towers and scanning antennae; metal and steel supports of all types; fabrication, assembling and erection of offshore drilling platforms or similar installations; dust collectors, precipitators, multi-plate, specialty welding processes, unloading, loading, hoisting, handling and rigging of all building materials delivered to the job site; hanging ceilings, tees, channels, beams, acoustical elements, sound barriers, computer floors, etc.; installation of stage rigging (including counterweights), curtains, draperies, traverse rods, tracks, cables, window cleaning equipment, powered work platforms, including and loading and unloading, erection installation and removal of powered chassis mounted elevating mast climbing work platforms, rigging in connection with display shows; ski lifts, etc.; wrecking of bridges, viaducts, elevated roads and structural steel and iron in buildings; all steel frames for openings, all porches, verandas, canopies and balconies; all overhead travelers, duo rails, tram rails; erection, setting, repairing of guard or collision rails on bridges and approaches, road ways or any other structures; handling and setting of all types of steel and metal joists, including metal box joists for truss lab and preformed keystone shaped metal joists; erection of steel and metal houses and packaged buildings; all translucent and plastic material on steel frame construction; the erection of solar energy systems, including but not limited to, photo voltaic, heliostat and parabolic systems, energy producing windmill type towers, wind turbine erection to included, but not limited to, prep work, boltup, tensioning or torque of bolts on base and all tower section turbine and blade assemblies; nuclear reactors, electromagnetic shielding plates and atomic vessels including all component parts; the plumbing, aligning and leveling of all materials and equipment through the use of optical instruments, LASER beams, etc., and the use of instruments to establish layout, installation and disposition of ironworker installed scope of work; the unloading, distributing, stockpiling and handling of all materials coming under the jurisdictional claims of the UNION such as to rail heads, storage yards, loading and unloading, hoisting, handling, signaling of all fabricated material and equipment at the jobsite (except FOB deliveries) related to the Iron Workers jurisdiction that is within the individual employers' contractual scope of work including from and to barge and ships to a lay down yard or construction project, etc., shall be done by the Iron Workers.

All reinforcing work in connection with field fabrication, including but not limited to the pre-assembly of reinforcing cages, loading and unloading, handling, racking, sorting, cutting, bending, hoisting, intermittent use of forklifts, placing, burning, welding and tying of all material including the use of any and all mechanical tying devices, or substitute materials, including but not limited to, composites, carbon fiber and fiberglass, stainless steel, used to reinforce concrete construction shall be done by Iron Workers within the individual employers' scope of work at the jobsite, excluding FOB deliveries. A working Iron Worker shall be employed for maintenance on jobs of substantial size while concrete is being poured on reinforcing steel, wire mesh and paper back steeltex but will not be required as a stand-by man. All work in connection with the installation, alignment, repair & modification of panelized roofing systems, pre-engineered fabric structures, aluminum clarifier coverings, carports, ministorages, and dock planks. All work in connection with the installation, alignment, repair and modification of bleachers, planking and stadium seating. All work in connection of installation of amusement rides including, but not limited to, the erection and alignment of all track, machinery and related components.

Craft: Laborer (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Landscaper	47.87
Furniture Mover	49.37
Group 1	53.03
Group 1A	51.16
Group 2	53.13
Group 3	53.28
Group 3A	56.71
Group 4	53.53
Group 4A	56.03
Group 5	53.83
Group 5A	55.78
Group 5A Foreman	56.28
Group 6 Nozzlemen, Rodmen	52.83
Gunmen, Materialmen	52.83
Reboundmen	53.18
Gunite Foreman	54.23

ADD ZONE RATE[1]

In addition to LABORER rates add the applicable amounts per hour, calculated based on a road miles from either the Carson City Courthouse or the Washoe County Courthouse:

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 150 miles	$6.00
Zone 3	150 to 300 miles	$7.00
Zone 4	300 miles or over	$8.00

ADD PREMIUM PAY

Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) the regular straight time, and Sundays, holiday time worked and all hours worked over twelve (12) in one day are to be paid at double (2x) the regular rate.

SHIFT DIFFERENTIAL

Second (swing) and third (graveyard) shifts shall be paid 12.5% differential.

RECOGNIZED HOLIDAYS[2]

New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day

JOB DESCRIPTION: Excerpt from Agreement between AGC and LiUNA Local 169

The construction, erection, alteration, repair, modification, demolition, addition, improvement of all building, heavy and highway, utility, industrial and all other type(s) of construction.

(SEE LABORER GROUP CLASSIFICATIONS)

[1] No remote area pay shall be paid within ten (10) miles of employee's permanent place of residence in the State of Nevada.
[2] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: LUBRICATION AND SERVICE ENGINEER (EQUIPMENT GREASER MOBILE AND GREASE RACK) (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Lubrication and Service Engineer (Mobile and Grease Rack)……..78.18

ADD ZONE RATE

In addition to LUBRICATION AND SERVICE ENGINEER (MOBILE AND GREASE RACK) rates add the applicable amounts per hour calculated based on a road miles from the Carson City Courthouse or Washoe County Courthouse.

Zone 1 – (Carson City or Washoe County Courthouse)	0 to 75 miles	$0.00
Zone 2 – (Washoe County Courthouse)	75 to 150 miles	$5.00
Zone 3 – (Washoe County Courthouse)	150 to 300 miles	$6.00
Zone 4 (Washoe County Courthouse)	300 miles and over	$7.00

ADD PREMIUM PAY

Regular shift is eight (8) consecutive hours starting between 5:00 am and 10:00 am. One and one-half (1.5) times the applicable straight-time rate for the day, shift, work, equipment, and classification shall be paid for all work performed on Saturday[1] and before a shift begins and after it ends, except when operating equipment servicing a craft that is receiving double time on commercial building construction, in which case double (2x) time shall be paid. All work performed on Sundays[2], holidays, and over twelve (12) hours in one (1) day shall be paid at two (2) times the appropriate hourly rate.

SHIFT DIFFERENTIAL

Add 12.5% to base rate for “Special/Night” Shift[3]

RECOGNIZED HOLIDAYS[4]

New Year's Day (January 1); Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Nevada Admission Day (last Friday in October); Thanksgiving Day (4th Thursday in November); the day after Thanksgiving Day; and Christmas Day (December 25).

(SEE OPERATING ENGINEERS LOCAL 3 GROUP 7)

[1] On any shift, Saturday shall be the twenty-four-hour period commencing at 12:00 midnight Friday.
[2] On any shift, Sunday shall be the twenty-four-hour period commencing at 12:00 midnight Saturday.
[3] Work done outside the regular shift hours
[4] Holidays falling on Sunday shall be overserved the following Monday

Craft: Mechanical Insulator (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Mechanical Insulator-Mechanic…….....…….83.27
Mechanical Insulator-Foreman….. ...…….89.27
Mechanical Insulator-General Foreman ..…….91.27

ADD ZONE RATE

In addition to MECHANICAL INSULATOR rates add the applicable amounts per DAY, calculated based on a radius figured from Reno City Hall:

Zone 1	0 to 20 miles	$18.00
Zone 2	21 to 40 miles	$28.00
Zone 3	41 to 60 miles	$38.00
Zone 4	Over 60 miles	$140.00

ADD PREMIUM PAY

Workday commences at 8:00 am[1]. One and one-half (1.5) times the minimum hourly wage rate be paid for the first two (2) hours of overtime work, directly following eight (8) hours Monday through Friday, and for the first ten (10) hours worked on Saturdays. Double (2x) the minimum hourly wage rate shall be paid for all other overtime worked Monday through Friday; in excess of ten (10) hours on Saturdays, Sundays, and holidays.

SHIFT DIFFERENTIAL[2]

Shift Work: 1st Shift[3] paid at regular straight wage rate. 2nd Shift[4] to be paid at 110% of the regular wage rate for the hours worked, plus one-half hour (0.5). 3rd Shift[5] to be paid at 115% of the regular wage rate for the hours worked, plus one (1) hour.

RECOGNIZED HOLIDAYS[6]

New Year's Day, Martin Luther King Jr.'s Birthday, Memorial Day, Independence Day, Labor Day[7], Veteran's Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day.

JOB DESCRIPTION: Excerpt from the Int'l Assoc. of Heat and Frost Insulators and Allied Workers Local 16 and the No. CA Chapter. Western Insulation Contractors Assoc.

Lining of all mechanical room surfaces and air handling shafts. The filling and damming of fire stops and penetrations including, but not limited to, electrical and mechanical systems. All foam applications for the purpose of thermal, acoustical, or fire protective purposes, including RTV foams or equivalents, applied to mechanical or electrical systems. All duct lining, and duct wrapping, done on the job site, direct application and installation of fire protection of grease ducts, exhaust systems, or any other ductwork for acoustical or thermal purposes. The insulation of all field joints on pre-insulated underground piping, and the pouring of Gilsilite or its equivalent. Any finish material which is contiguous to the thermal or acoustical application. The preparation, distribution of materials on job sites, assembling, molding, spraying, pouring, mixing, hanging,

[1] May be changed to between 5 am and 8 am if particular job conditions permit
[2] If only one shift is worked, the pay rate shall be 110% other than the regular shift. Shift work must remain in effect for no less than five (5) consecutive working days. Must start on the 1st regular workday of the week. Should the shift be less than five (5) working days, the first eight (8) hours of each day shall be paid at the rate of one and one-half (1.5) times the applicable rate.
[3] Starts at 8:00 am and ends and 4:30 pm.
[4] Starts at 4:30 pm and ends at 12:30 am.
[5] Starts at 12:30 am and ends at 8:00 am.
[6] If a holiday falls on a Saturday the preceding Friday will be considered the holiday, if a holiday falls on Sunday the following Monday will be considered the holiday.
[7] Triple (3) the regular straight time should be paid for all time worked on Labor Day

adjusting, repairing, dismantling, reconditioning, maintaining, finishing, and weather proofing of hot or cold thermal or acoustical insulation with such materials as may be specified. The application of any material, including metal and PVC jacketing, Alumaguard or equivalent**,** on piping, fittings, valves, flanges, boilers, ducts, plenums, flues, tanks, vats, equipment and any other hot or cold surface for the purpose of thermal control.

Craft: MILLWRIGHT (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Millwright Journeyman…..……..……80.47
Millwright Welder…..……..……83.47
Millwright Foreman..……..……85.36
Millwright General Foreman..……..……90.74

ADD ZONE RATE

In addition to MILLWRIGHT rates add the applicable amounts per hour, calculated from City Hall in Reno, Nevada. The Employer agrees to provide each employee zone pay as established below if the project is further than forty-five (45) miles calculated via the "shortest route" filter using Google Maps from the address of city hall to respective dispatch points.

Zone 1	Up to 45 Miles	$0.00
Zone 2	More than 45 miles but less than 101 Miles	$4.00
Zone 3	101 or more Miles	$6.00

ADD PREMIUM PAY

Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight-time work shall be paid at one and one half (1.5) times the straight-time rate of pay. All additional overtime will be paid at two (2) times the straight-time rate of pay.

On a four (4) day-ten (10) hour shift, Monday through Thursday or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight-time work shall be paid at one and one half (1.5) times the straight-time rate of pay. All additional overtime will be paid at two (2) times the straight-time rate of pay.

On a four (4) day-ten (10) hour shift, the first twelve (12) hours of work on the fifth day (Friday or Saturday, as applicable) will be paid at one and one half (1.5) times the straight-time rate of pay; provided the fifth day is not a voluntary make-up day. All additional overtime shall be paid at two (2) times the straight-time rate of pay.

All work performed on Sunday and Holidays shall be paid at two (2) times the straight-time rate of pay. Any work performed on Labor Day shall be paid at triple (3x) the regular straight time hourly wage rate.

SHIFT DIFFERENTIAL

Two Shift Operation: Two dollars ($2.00) per hour for work on the second shift[1].
Three Shift Operation: Two dollars ($2.00) per hour for work on the second shift[2]. Three dollars and 25/100 ($3.25) per hour for work on the third shift[3].

RECOGNIZED HOLIDAYS

New Year's Day, Washington's Birthday (President's Day), Memorial Day, 4th of July, Labor Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, Christmas Day.

JOB DESCRIPTION: Excerpt from Southwest Regional Council of Carpenters' Millwright Regional Master Construction Agreement, Local 1607

[1] Eight (8) or ten (10) hours of continuous employment between the hours of 6:00 p.m. and 6:00 a.m. except for meal period.
[2] Eight (8) hours of continuous employment between the hours of 6:00 p.m. and 6:00 a.m. except for meal period.
[3] Eight (8) consecutive hours of employment, except for an unpaid meal period.

The machinery, equipment, processes and associated components listed below which are identified for the purpose of description only, falls within the jurisdiction of the United Brotherhood of Carpenters and Joiners of America (Millwrights). Although some components of machinery and/or equipment may be described in one application or location and not in another, it shall not be excluded from our craft jurisdiction when, to avoid repetition, it is not described in other applications, and such jurisdiction shall be applied to the initial commissioning, maintenance, decommissioning, and recommissioning of all associated machinery and/or equipment.

Loading, unloading, hoisting, rigging by any means, transferring, moving, cleaning, disassembling, assembling, moving and setting and removal of skids, welding, burning, erecting, calibrating, precision grouting, supporting, aligning, starting-up and testing, adjusting, repairing, and the maintaining of all machinery and equipment, be it powered by, or receiving power from, steam, gas, gasoline, diesel, biodiesel, hydrogen, jet, electric, pneumatic, magnetism, adiabatics, diabatics, isothermics, water, hydropnuematics, solar, thermal, mineral, atomic, rocket, nuclear, chemical, wind, waste product of any kind or any other source, regardless of whether or not such machinery or equipment is temporarily or permanently installed or located.

All activities necessary to: set all engines, motors, dynamos, generators, diesel generators, motor restraints and supports; install, measure and align with optical and/or electronic instruments when necessary the reactors, control, push and shut-down rods, rod pressure housing, drives, guide sleeves and other related equipment in reactors, turbines, castings, combustion chambers and all its related components; the attachment and final connection of the inlet manifolds and exhaust ducts, cylinders, diaphragms, gaskets, containment barriers, rotors, blade rings, blade or bucket assemblies, hydrogen coolers, blower assembles, packing joints on hydrogen coolers, exciter or Alterex and all others, turning gear, extension box, welding of extension box, lagging, stretching of coupling bolts or others; perform oil flush; install turbine lube oil tank, pumps and related component skids, filters, thrust bearings, magnetic bearings, the sweating on and shrinking of bearings, couplings, shafts and others, sole plates and machine bases; perform all precision grouting using the following materials: epoxy, wet, non-shrink, dripacking or other types; perform demineralizing and hydromation; install mechanical dust systems, sensors, air compressors, super charges, coolers, boiler controls and linkage, thermal management systems, Bailey Meters or similar devices and their linkages; installation, maintenance and removal of all instrumentation, gauges, antennae and other communication devices, fluid drives, power drive trains, embedded guides for traveling screens, traveling screens, roller, slide, knife, lock and sluice gates, limit torques on mechanical valves, gates and others, tainter valves, limit switches, trips, triggers or switches, including the brackets that are attached to, stop logs, dam rollers, transfer cars and gear head motors.

The setting of variable drives, fans, coal cranes, truck cranes or other types, including servicing and the adjusting and aligning of mechanical equipment within the cranes, crane rails and all other types of rails which would carry mechanically activated equipment, including their alignment, installation, removal, servicing, and alignment of hydraulic and pneumatic lifts and passenger boarding bridges, monorail (all sizes), magnetic propulsion systems, trolleys, pumps and their associated components, packaging equipment, refrigerating equipment, chillers, and related equipment, lantern rings, packing glands, packing for pumps, pollution equipment, carbon absorbers and filtration, heat exchanges, grain, ball, hammer, roller mills, pulverizers and others, crushers and beaters, hoppers, bins, chutes and spouts, turn tables, shears, casing machines, robots, air-veyors, conveyors of all sizes, types, and styles regardless of the materials they are constructed with, or mechanically powered conveyances of any type, including their supports, people movers, x-ray and imaging & scanning machines, elevator and platform lifts, dock levelers and locks, roll-up and sectional doors, operable partitions, retractable roofs, magnetic separators, hoists, feeding machinery, Z-loaders, S-loaders, palletizers, Triax equipment, mechanical equipment in scrubbers, pack towers, precipitators, cooling towers and air cooled condensers.

Sewage, Brackish, Desalination, Water Treatment and Mineral Extraction Plants — the disassembly, fabricating, rigging, erecting and aligning of skimmers, rake mechanisms, feed wells, baffles, scum troughs, de-gritting equipment, bar screens, communitors, mixers, pumps, aeration systems, blowers, membrane filtration systems, sequencing batch reaction systems, including related, filter presses, sand filtration systems, ultra violet rack systems, mechanical drive assemblies, conveyors, lines, piping, flanges, brackets, supports, mono rails, gates and setting odor control and detection equipment, (excluding heating, ventilating and air conditioning work). The setting of thru-clean bar, straight line bar, trash, tritor drum, and disc screens, straight line grit, circuline grit, circuline sludge, and circuline mixer collectors, straight line, flash, horizontal slow, vertical slow, and vibra flow feeder machines, pre-aeration and settling tanks, covers for tanks, bowls and basins including stationary or mechanical covers regardless of materials, thickeners, rotoline distributors, sludge bed and settling pond cleaners, digestion systems, heaters, dyna-grind sewage screening grinders, screw pumps, spiral classifer, agitators, junk remover, hydro pulper, cooling fans, lube systems, selectifier screens, hydrosensors, fuel blowers, grizzly screens, trommels, table feeders, dryers, optical sorters, high tension separators, grip dewatering screens, flash mixer, horizontal slow mixer, vertical slow mixer, filter, cone and rotary presses, comminutors, barminutors, degreasers, rotometers, dehumidifiers, benches, pressure cleaning systems & devices, washers for cars, trucks, buses, trains, planes unmanned and autonomous vehicles and other types, hydraulic, servo and pneumatic units, shroud boxes, silencers, scales, load cells, eddy current clutches, disintegrators, dehairing machines, grain handling devices, laboratory equipment, machine shop equipment, ladle cars, stunning pens and doors and gates, activation equipment, racks, material handling platforms, access & egress platforms, catwalks, transition pieces, the handling and installation, of pulleys, gears, fluid couplings, sheaves and fly wheels, air vacuum, worm, belt, friction, rope, magnetic, chain and gear drives that are directly or indirectly coupled to motors, belts, chains, shafts, or screws, installation of legs, boots, guards and boot tanks, all bin and diverter valves, turn hands and indicators, shafting, bearing cable sprockets, cutting of all key seats in old and new work, troughs, chippers, calenders, rolls, winders, rewinders, slitters, cutters, wrapping machines, blowers, forging machines, pneumatic, electric and hydraulic rams, servo actuators, extractors, expellers and extruders, ball and dust collectors, splicing of ropes and cables.

Millwright craft jurisdiction on energy generation facilities shall include all loading, unloading, movement, hoisting, preparation, uncrating, preparation of nacelle units prior to installation or removal, installation, setting, removal, alignment, and final torquing and tensioning of any mechanical component used in the generation of power, including any incidental wiring or piping. This shall include all aspects of power trains, drive and tracking systems, elevation and azimuth drives, energy collection optimization systems, all rams, dampers and other stabilization devices, antennae, bearing housing assemblies and units, actuators, pulleys, gears, access points, rotational connections, mounting and alignment of tracks, axles, bearings, rotational joints, or any other device which allows for the automated or manual movement of equipment post-installation, all turbines, and wind, wave and tidal analysis equipment. It shall also include all work associated with energy collection and storage facilities, including the loading, unloading, movement, hoisting, preparation, installation, setting, and alignment of racking systems, torque tubes, modules, batteries, energy storage systems, cooling or control systems, inertia systems or other equipment or machinery, and all incidental wiring or piping thereof.

The laying out, fabrication and installation of protecting equipment including: machinery guards; the making and setting of templates for machinery; the fabrication of bolts, nuts, pans; the drilling or creating of holes in machinery for any equipment which the Millwrights install, remove, service or inspect, regardless of material; installation of all methods of access and egress and safety devices whether temporary or permanent; all welding and burning regardless of type; the fabrication of all lines, hose or tubing used in the lubrication, operation, cooling or heating of machinery, including the installation of all fluids used to operate, lubricate, cool or heat equipment installed by Millwrights; the cleaning or pressure cleaning of machinery; the machining, grinding, milling, broaching, boring, threading, lapping, field machining, technical bolting and keying that may be necessary for any part of equipment, including the starting up, breaking in, trial running and operational or functional testing of any equipment or machinery installed or handled by the Millwrights,

the initial programing of robotics for startup, and the incidental connection and disconnection of machinery and equipment from piping and electrical systems.

Rock, sand and gravel plants, mineral processing plants and batch or aggregate plants: Installation, removal and maintenance of all recycling equipment, separators, centrifuges, classifiers, grates, crushers, conveyors, chutes or piping from one piece of mechanical equipment into another piece of mechanical equipment, or from a vessel into a conveyor, or into other places or mechanical equipment or other mechanical equipment used (for the purpose of description only) to excavate material from one area to another from highways, roadways, waterways or elsewhere.

When optical instruments such as total stations or similar devices, automatic levels, builder's transits, precision jig transits, tilting levels, theodolites or other precision tools and instruments are used to locate, set, scan-to-BIM or as-Built measure and verify machines, these tools are considered a tool of the Millwright trade and are to be used by Millwrights to set the equipment or machinery.

Incidental asbestos removal on equipment in which Millwrights normally remove during maintenance and repair work. Any new equipment or technology designed to replace any of the equipment described above shall remain in the craft jurisdiction of the Millwrights.

Craft: OPERATING ENGINEER (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Group 1……73.16
Group 1A……75.92
Group 2……76.45
Group 3……76.72
Group 4……77.46
Group 5……77.77
Group 6……77.93
Group 7……78.18
Group 8……78.77
Group 9……79.09
Group 10……79.44
Group 10A……79.63
Group 11……79.87
Group 11A……81.51
Group 11B……82.32
Foreman……81.51
Add 12.5% to base rate for "Special/Night" Shift[1]

Add Operating Engineers Zone Pay
Add Premium Pay

Craft: OPERATING ENGINEER (Union Rate)
STEEL FABRICATOR & ERECTOR
Prevailing wage rates include the base rate as well as all applicable fringes

Group 1……88.46
Group 1 Truck Crane Oiler……82.29
Group 1 Oiler……80.33
Group 2……86.95
Group 2 Truck Crane Oiler……82.04
Group 2 Oiler……80.12
Group 3……85.71
Group 3 Truck Crane Oiler……81.82
Group 3 Oiler……79.90
Group 3 Hydraulic……81.49
Group 4……83.98
Group 5……82.88
Add 12.5% to base rate for "Special/Night" Shift

Add Operating Engineers Zone Pay
Add Premium Pay

[1] Work done outside the regular shift hours

Craft: OPERATING ENGINEER (Union Rate)
PILE DRIVER
Prevailing wage rates include the base rate as well as all applicable fringes

Group 1……87.93
Group 1 Truck Crane Oiler……82.42
Group 1 Oiler……80.53
Group 2……86.39
Group 2 Truck Crane Oiler……82.26
Group 2 Oiler……80.35
Group 3……84.94
Group 3 Truck Crane Oiler……82.04
Group 3 Oiler……80.12
Group 4……83.43
Group 5……82.32
Group 6……79.04
Group 7……80.25
Group 8……79.29

ADD ZONE RATE
In addition to **OPERATING ENGINEER PILE DRIVER,** rates add the applicable amounts per hour calculated based on a road miles from the Carson City Courthouse or Washoe County Courthouse

Zone 1 – (Carson City or Washoe County Courthouse)	0 to 75 miles	$0.00
Zone 2 – (Washoe County Courthouse)	75 to 150 miles	$5.00
Zone 3 – (Washoe County Courthouse)	150 to 300 miles	$6.00
Zone 4 (Washoe County Courthouse)	300 miles and over	$7.00

ADD PREMIUM PAY
Regular shift is eight (8) consecutive hours starting between 5:00 am and 10:00 am. One and one-half (1.5) times the applicable straight-time rate for the day, shift, work, equipment, and classification shall be paid for all work performed on Saturday[1] and before a shift begins and after it ends, except when operating equipment servicing a craft that is receiving double (2x) time on commercial building construction, in which case double (2x) time shall be paid. All work performed on Sundays[2], holidays, and over twelve (12) hours in one (1) day shall be paid at two (2) times the appropriate hourly rate.

SHIFT DIFFERENTIAL
Add 12.5% to base rate for “Special/Night” Shift[3]

RECOGNIZED HOLIDAYS[4]
New Year's Day (January 1); Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Nevada Admission Day (last Friday in October); Thanksgiving Day (4th Thursday in November); the day after Thanksgiving Day; and Christmas Day (December 25).

JOB DESCRIPTION: Excerpt from the Master Agreement for Northern Nevada between Nevada Chapter AGC and Operating Engineers Local 3, includes but is not limited to:

[1] On any shift, Saturday shall be the twenty-four-hour period commencing at 12:00 midnight Friday.
[2] On any shift, Sunday shall be the twenty-four-hour period commencing at 12:00 midnight Saturday.
[3] Work done outside the regular shift hours
[4] Holidays falling on Sunday shall be overserved the following Monday

Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement.

(SEE OPERATING ENGINEER GROUP CLASSIFICATIONS)

Craft: PAINTER (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Brush/Roller Painter……..……..56.14
Spray Painter…….58.14
Paperhanger……..……..58.90
Specialty Pay (Faux Finish, Graining, Marbelizing)…….58.11
Swing Stage……..……..……58.14
Special Coating Application-Brush……..……58.14
Special Coating Application-Spray……..……60.14
Foreman (3 or More) $2.50 above highest paid journeyman
Foreman (6 or more) $3.50 above highest paid journeyman

ADD ZONE RATE

In addition to PAINTER rates add the applicable amounts per day calculated based on road miles from the Washoe County Court House[1].

Zone 1	0 to 70 miles	$0.00
Zone 2	Over 70 miles	$75.00

ADD PREMIUM PAY

Workday is from 6:00 am to 6:00 pm. Regular workweek is Monday through Friday. The first four (4) hours worked outside a regular constituted shift[2] and the first ten (10) hours worked on Saturday will be paid at one and one-half (1.5) the straight time rate. All hours worked beyond twelve (12) hours, hours worked beyond ten (10) on Saturday, and hours worked on Sundays[3] and holidays are to be paid at two (2) times the straight time.

SHIFT DIFFERENTIAL

Shift work[4] is to be paid ten percent (10%) above the employee's Taxable Net Wage.

RECOGNIZED HOLIDAYS[5]

New Year's Day, Memorial Day, Fourth of July, Labor Day, Admission Day (last Friday of October), Thanksgiving Day, Day after Thanksgiving Day, Christmas Day.

JOB DESCRIPTION: Excerpt from Agreement between DC 16 and Independent Painting Contractors of Northern Nevada, Local 567.

Covered work shall be and mean the following materials and application methods: paints, pigments, oils, turpentine, Japan dryers, thinners, varnishes, lacquers, shellac, stains, fillers, waxes, cement, joint cement, water and other vehicles; mediums that may be mixed and applied to the surfaces of materials and buildings, edifices, structures, monuments and the appurtenances thereto, of every type and description in their natural state of condition, or constructed or fabricated of any material or materials, whatsoever and provided; work or services pertaining to: the application texture, acoustic, plaster and stucco materials, incidental repairs, of all types and thickness on all surfaces and all such scope and application under the applicable Nevada Contractor License Classifications.

[1]Excludes the City limits of Fallon and the Fallon NAS.
[2] Regular constituted shift is a 5/8 or 4/10 schedule.
[3] Work beginning after 9:00 pm on Sunday and ends on Monday is considered Monday work.
[4] Shift work is work performed outside the regular workday.
[5] No work shall be permitted on Labor Day or Christmas Day under any conditions. If any holidays fall on Sunday, the Monday following shall be considered the holiday.

Painting, of all drywall and thin wall type surfaces, flushing or concrete surfaces, caulking and sealants between sheetrock walls and/or ceilings and floors of other materials.
Application of wallpapers, wall fabrics and all types of coverings or coatings whether decorative or protective and all preparations necessary before said application.
Application of protective coatings or products of similar nature whether they are plastic, vinyl, acrylics, epoxies, esters, urethans, etc., or any new products of this nature including the application to floor surfaces.
Applications of bond breaker, water repellant, damp proofing and/or waterproofing materials of all types.
Finishing and surface preparation on all hardwood or softwood floors and furniture at jobsites.
Priming and finish coats on fabricated metal or steel products.
Application of all fire retardant, fireproofing and/or insulation materials used on structural items or as architectural finishes.
Cleaning, polishing and refinishing of metal and masonry surfaces. “Steeplejack work”.
Preparation and decoration of all types; including drywall repairs and incidental repair related skimming, abrasive blasting, steam cleaning, building washing, hydro blasting, water blasting and the methods used in the removal of previously painted surfaces; including caulking, tuck pointing, spackling and wood dough work.
Application of hypolan, neoprene, and all similar products.
Llead removal and encapsulation.
Painting of lines, arrows, bumpers, curbs, etc.; on parking lots, airfields, highways, game courts (both indoor and outdoor) and other such surfaces; installation and maintenance thereof, including lines of metal, plastic or composition materials used instead of paint.
All products and methods of application which have or may be awarded to the Painters International through jurisdictional procedures.

Craft: PILE DRIVER (Union Rate) [1]

Prevailing wage rates include the base rate as well as all applicable fringes

Pile Driver-Journeyman	64.92
Pile Driver-Welder	65.92
Pile Driver-Foreman	68.98
Pile Driver-General Foreman	73.44
Tender	68.98
Stand-By Diver	69.98
Diver-Diving (Wet Pay)	115.61

JOB DESCRIPTION:

Move hand and foot levers of hoisting equipment to position piling leads, hoist piling into leads, and position hammers over pilings.

Move levers and turn valves to activate power hammers, or to raise and lower drophammers that drive piles to required depths.

Drive pilings to provide support for buildings or other structures, using heavy equipment with a pile driver head.

Conduct pre-operational checks on equipment to ensure proper functioning.

Clean, lubricate, and refill equipment.

Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or watercraft.

Inspecting Equipment, Structures, or Materials — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.

Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.

Repairing and Maintaining Mechanical Equipment — Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.

Operate cranes, hoists, or other moving or lifting equipment.

Operate heavy-duty construction or installation equipment.

Position structural components.

Inspect equipment or tools to be used in construction or excavation.

Clean equipment or facilities.

[1] Job description copied from O*NET OnLine

Craft: PLASTERER (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Plasterer-Journeyman……..……..……58.62
Plasterer-Foreman……..……..……62.84

ADD ZONE RATE
In addition to PLASTERER rates add the applicable amounts per hour, calculated from South Virginia and Mill Street, Reno, Nevada:

Zone 1	0 to 70 miles	$0.00
Zone 2	70 miles and over	$8.00

ADD PREMIUM PAY[1]
One and one-half (1.5) times the regular straight time hourly rate shall be paid for the first two (2) hours worked over eight (8) hours Monday through Friday, and for the first ten (10) hours on Saturday. Double (2x) the regular straight time rate shall be paid for all hours worked over ten (10) hours Monday through Saturday. All hours worked on Sundays and holidays shall be paid at double (2x) the regular straight time rate.

SHIFT DIFFERENTIAL
Multiple shifts may be established for three (3) or more consecutive working days[2]. 2nd shift shall be paid at 6.5% over the regular rate and 3rd shift shall be paid at 13% over the regular rate. The Friday graveyard shift ending on Saturday morning will be considered Friday work. The Saturday graveyard shift ending on Sunday morning will be considered Saturday work. The Sunday graveyard shift ending on Monday morning will be considered Sunday work

RECOGNIZED HOLIDAYS[3]
New Year's Day, Memorial Day, Fourth of July, Labor Day, Admissions Day, Thanksgiving Day and the Friday after Thanksgiving and also Christmas Day.

JOB DESCRIPTION: Excerpt from the Operative Plasters' & Cement Masons' Northern Nevada OP&CMIA Local 797 Master Labor Agreement, includes but is not limited to:

All building construction, including but not limited to the construction, erection, alteration, repair, modification, demolition, addition, or improvement in whole or in part of any building structures.

All interior or exterior plastering construction, restoration, repair and inspection of cement, stucco, stone imitation or any patent material when ornamental molded plaster, and the setting of same. All specialty finishes such as veneer, venetian, marmoreno and grasello. All custom and specialty finishes, including but not limited to custom rock, carved plaster, brick and block veneer, stone and wood. Smooth and finish surfaces of full system E.I.F.S. including sticking and shaping of foam pieces or surfaces by adhesive or mechanical installation. All spray or toweled on fireproofing, including cementitious and intumescent products. All plaster acoustical finish systems including, but not limited to, BASWA Phon and Fellert.

[1] Additional Premium Pay: Nozzle Man w/Certification=$2.50 above base rate. First Rod Man Pay= $1.50 above base rate. High Time Pay= $2.50 above base rate.
[2] The Union must be notified in writing twenty-four (24) hours in advance.
[3] If any holidays fall on Sunday, the Monday following shall be considered the holiday

Craft: PLUMBER/PIPEFITTER (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Plumber/Pipefitter-Journeyman..……..…….81.10
Plumber/Pipefitter-Foreman.……..……86.44
Plumber/Pipefitter-General Foreman.……..…….91.78

ADD ZONE RATE[1]
In addition to PLUMBER/PIPEFITTER rates add the applicable amounts per statute air mile radius from the Nevada freeway interchange of Interstate 80 and 580.

Zone 1	0 to 75	$0.00
Zone 2	Over 75 miles	$8.00

ADD PREMIUM PAY
Normal start time is between 5:00 am and 8:00 am. The first two (2) hours of overtime and work on Saturdays to be paid at one and one half (1.5) the straight time rate. After the first two (2) overtime hours, Sundays, holidays, and all hours worked over twelve (12) shall be paid at double time (2x).

RECOGNIZED HOLIDAYS[2]
New Year's Day, Memorial Day, July 4th, Friday before Labor Day, Labor Day, Nevada Admission Day (last Friday of October), Thanksgiving Day, the Friday after Thanksgiving Day, Day Before Christmas, Christmas Day

JOB DESCRIPTION Excerpt from Agreement between LU 350 of United Assoc. of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of United States and Canada.

Installation of all heating and refrigeration systems and competent parts thereof, including fabrication, assembling, erection installation, dismantling, repairing, reconditioning, adjusting, altering servicing, handling, distributing, and tying on all piping materials appurtenances and equipment by method, including all hangars and supports of every description, all other work including the the trade relevant to oil burner and all other types of heating and refrigeration equipment including low voltage controls.

[1] A separate free zone will be established for employees permanently residing and working within a seventy-five (75) statute air mile radius of the Elko, Nevada Post Office
[2] If a holiday falls on Saturday it shall be observed the preceding Friday; if a holiday falls on Sunday, it shall be observed the following Monday

Craft: REFRIGERATION MECHANIC (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Refrigeration-Journeyman…….……..…… 69.64
Refrigeration -Foreman…….……..……73.95

ADD ZONE RATE[1]
In addition to REFRIGERATION MECHANIC rates add the applicable amounts per statute air mile radius from the Nevada freeway interchange of Interstate 80 and 580.

Zone 1	0 to 75	$0.00
Zone 2	Over 75 miles	$8.00

ADD PREMIUM PAY
Normal start time is between 5:00 am and 8:00 am. The first two (2) hours of overtime and work on Saturdays to be paid at one and one half (1.5) the straight time rate. After the first two (2) overtime hours, Sundays, holidays, and all hours worked over twelve (12) shall be paid at double time (2x).

RECOGNIZED HOLIDAYS[2]
New Year's Day, Memorial Day, July 4th, Friday before Labor Day, Labor Day, Nevada Admission Day (last Friday of October), Thanksgiving Day, the Friday after Thanksgiving Day, Day Before Christmas, Christmas Day.

JOB DESCRIPTION Excerpt from Agreement between LU 350 of United Assoc. of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of United States and Canada.

Installation of all heating and refrigeration systems and competent parts thereof, including fabrication, assembling, erection installation, dismantling, repairing, reconditioning, adjusting, altering servicing, handling, distributing, and tying on all piping materials appurtenances and equipment by method, including all hangars and supports of every description, all other work including the trade relevant to oil burner and all other types of heating and refrigeration equipment including low voltage controls.

[1] A separate free zone will be established for employees permanently residing and working within a seventy-five (75) statute air mile radius of the Elko, Nevada Post Office
[2] If a holiday falls on Saturday it shall be observed the preceding Friday; if a holiday falls on Sunday, it shall be observed the following Monday

Craft: ROOFER (Union Rate)
(Does not include sheet metal roofs)
Prevailing wage rates include the base rate as well as all applicable fringes

Roofer-Journeyman……..……...……...……53.18
Roofer-Foreman……...61.33

ADD PREMIUM PAY
Any work performed in excess of ten (10) hours per day or forty hours per week shall be paid at the rate of one and one-half times (1.5) the regular straight time rate of pay. Two (2) times the regular wage shall be paid for all work performed on Sundays and holidays.

RECOGNIZED HOLIDAYS[1]
New Year's Day, Washington's Birthday (President's Day), Memorial Day, 4th of July, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving, Christmas Day.

JOB DESCRIPTION Excerpt from Roofers, Waterproofers, and Allied Workers Local 162.

Slate and Tile roofers shall include in their work jurisdiction the following work processes and types of materials. These shall include but not limited to:

1. All slate where used for roofing of any size, shape or color, used in any manner laid, including flat or promenade slates, with necessary metal flashing to make water-tight.
2. All tile where used for roofing of any size, shape or color, used in any manner laid, including flat or promenade tile, with necessary metal flashing to make watertight.
3. All asbestos shingles where used for roofing of any size, shape or color, and in any manner, laid with necessary metal flashing to make watertight.
4. All cementing in, on or around the said slate or tile roof or promenade.
5. All laying of felt, paper, membranes, ice shields, vapor barriers or similar underlayments on substrates.
6. All dressing, punching and cutting of all roof slate or tile.
7. All operation of slate cutting or punching machinery.
8. All substitute material taking the place of slate or tile, as asbestos slate or tile, cement or composition tile, including shingles of composition wood and metal tile.
9. All removal of slate or tile roofing as defined above when a roof is to be reapplied in their place.
10. All solar or photovoltaic cell-type roofing systems used to transform solar energy to electrical energy.

Composition roofers and damp and waterproof workers shall include in their work jurisdiction the following work processes and types of materials. These shall include but not limited to:

1. All organic or inorganic felts and fabrics that comprise the reinforcing membrane of built-up roofing and waterproofing systems.
2. All waterproofing using bituminous products whether structures are above or below grade.
3. All forms of plastic, slate, slag, gravel, or rock roofing, including all types of aggregates, blocks, bricks, stones or pavers used to ballast or protect Inverted Roof Membrane Assembly (IRMA) roofs, or roofs of similar construction where the insulation is laid over the roof membrane.
4. All kinds of asphalt and composition roofing and waterproofing.
5. All base flashings, curb flashings, and counter flashings of bituminous composition used to roof or waterproof intersections of horizontal surfaces.
6. All components of composition roofing systems used to seal the roof, including but not limited to compression seals, termination bars, lath, roof cement and reinforcements, caulking and sealants.

[1] If a holiday falls on Saturday it shall be observed the preceding Friday; if a holiday falls on Sunday, it shall be observed the following Monday

7. All kinds of coal tar pitch and coal tar bitumen roofing and waterproofing.
8. All cleaning, preparing, priming and sealing of roof decks and surfaces that receive roofing, dampproofing and/or waterproofing.
9. All rock asphalt and composition roofing.
10. All rock asphalt mastic when used for damp and waterproofing.
11. All prepared paper roofing.
12. All mineral surfaced roofing, including 90lb., and 818, whether nailed, mopped with bitumen, or applied with mastic or adhesive.
13. All compressed paper, chemically prepared paper, and burlap when used for roofing or damp and waterproofing purposes, with or without coating.
14. All substrates used on the roof deck for fireproofing or any materials used as a support or nailing surface for the roofing system over the deck.
15. All damp resisting preparations when applied with a mop, brush, roller, swab, trowel, or spray system inside or outside of structure.
16. All damp course, sheeting or coating on all foundation work.
17. All tarred floors.
18. All wood block floors that are set in and/or coated with bituminous products.
19. All waterproofing of shower pans and/or stalls.
20. All laying of tile, wood block or brick, when laid in pitch, tar, asphalt mastic, marmolite, or any form of bituminous products.
21. All forms of insulation used as part of, or in connection with, roofing, waterproofing or dampproofing.
22. All forms of composite insulations having nailable surfaces (e.g. plywood, pressboard, chipboard, drywall, or other laminates) bonded to the insulation wherever such composite insulations are used as an integral thermal insulating component of the roofing system.
23. All forms of protection boards, walkway pads and roof treads used in composition roofing or waterproofing to protect the membrane from damage.
24. All types of coatings, toppings and finishes used on the roof surfaces.
25. All solar or photovoltaic cell-type structures that are used as substitutes for ballast or membrane protection.
26. All solar or photovoltaic cell-type roof membrane systems used to transform solar energy to electrical energy.

Composition roofers and damp and waterproof workers shall also include in their work jurisdiction the following work processes and types of materials. These shall include but not limited to:

1. All forms of elastomeric and/or plastic (elasto-plastic) roofing systems, both sheet and liquid applied, whether single-ply or multi-ply. These shall include but not limited to:

a. PVC (polyvinyl chloride systems)
b. Butyl Rubber
c. EPDM (Ethylene-propylene diene monomer)
d. PIB (polyisobutylene)
e. CPE (chlorinated polyethylene)
f. CSPE (chlorosulfonated polyethylene)
g. Modified bitumens
h. TPO Membrane (Thermo Plastic Olefin)

2. All sealing and caulking of seams and joints on these roofing systems by heat or solvent welding or by adhesives or butyl tapes or any other means.
3. All base flashings, curb flashings and counter flashings of elasto-plastic composition as outlined
4. All components of elasto-plastic roofing systems used to seal the roof including but not limited to, compression seals, termination bars, caulking and sealants.

5. All insulations applied with the above systems, whether laid dry, mechanically fastened, or attached with adhesives, to include any gypsum board and/or fire barrier required.
6. All forms of composite insulations having nailable surfaces (e.g. plywood, chipboard, drywall, or other laminates) bonded to the insulation wherever such composite insulations are used as an integral thermal insulating component of the roofing system.
7. All types of aggregates, blocks, bricks, stones, or units of photovoltaic cell construction used to ballast these elasto-plastic systems.
8. All types of aggregates, blocks, stones, pavers or units of photovoltaic cell construction used to ballast or protect Inverted Roofing Membrane Assembly (IRMA) roofs, or roofs of similar construction where the insulation is laid over the roof membrane.
9. All sealing and caulking of seams and joints on these elasto-plastic systems to ensure water-tightness.
10. All liquid-type elasto-plastic preparations for roofing, damp or waterproofing when applied with a squeegee, trowel, roller or spray equipment, whether applied inside or outside of the building.
11. All sheet-type, elasto-plastic systems, whether single or multi-ply for waterproofing either inside or outside of a building.
12. All cleaning, preparing, priming and sealing of surfaces to be roofed, dampproofed or waterproofed, whether done by roller, mop, swab, three-knot brush, squeegee, spray systems, or any other means of application.
13. All types of pre-formed panels and rolls used in waterproofing (Volclay, Bentonite etc.)
14. All applications of protection boards to prevent damage to the dampproofing or waterproofing membrane by other crafts or during back-filling operations.
15. All handling of roofing, damp and waterproofing materials.
16. All hoisting and storing of roofing, damp and waterproofing materials.
17. All types of spray-in-place foams such as urethane, polyurethane, or polyisocyanurate, the machinery and equipment used to apply them, and the coatings that are applied over them.
18. All types of resaturants, coatings, mastics and toppings when used for roof maintenance and repairs.
19. All wrapping and/or coating of underground pipelines with bitumastic enamel or cold process, polykin tape, tapecoat, or other asphaltic coatings or tape inside or outside of pipe, whether done by roller, mop, swab, three-knot brush, or spray systems. Preparation of surface by sand blasting or wire brushing.
20. All operation of jeeper or holiday detectors.
21. All Zonolite or Cellular Concrete Roof Insulation and all materials, the machinery and equipment used to apply them.
22. All materials laminated to roofing and/or insulation systems.

Craft: SHEET METAL WORKERS (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Sheet Metal Worker Journeyman……..…….80.65
Sheet Metal Worker -Foreman…….....85.40
Sheet Metal Worker -General Foreman……..…….…90.15

ADD ZONE RATE[1]
In addition to SHEET METAL rates add the applicable amounts per hour, calculated based on a road from the courthouse in Reno, Nevada:

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 100 miles	$5.00
Zone 3	Over 100 miles	$10.00 the employee shall be provided reasonable lodging and meal expenses.

ADD PREMIUM PAY
Regular working day is between 6:00 am and 4:30 pm Monday through Friday[2]. The first eight (8) hours worked on Saturday shall be paid at one and one-half (1.5) times the regular rate. All work after ten (10) continuous hours; all hours worked beyond eight (8) on Saturday; and all hours worked on Sundays and holidays will be compensated at double (2x) the regular rate.

SHIFT DIFFERENTIAL
Add 10% to taxable wage for "Second" (evening) Shift[3]; and 15% to the taxable wage for "Third" (graveyard) Shift[4]

RECOGNIZED HOLIDAYS[5]
New Year's Day, Memorial Day, Independence Day, Friday before Labor Day, Labor Day, Nevada Day, Thanksgiving Day, Day after Thanksgiving, Day before Christmas, Christmas Day or days locally observed as such, and Sunday shall be recognized as holidays.

JOB DESCRIPTION: Excerpt from Sheet Metal Local 26 Collective Bargaining Agreement.

Manufacture, fabrication, assembling, handling, erection, installation, dismantling, conditioning, adjustment, alteration, repairing and servicing of all ferrous or nonferrous metal work and all other materials used in lieu thereof and of all HVAC systems, air veyor systems, exhaust systems, and air-handling systems regardless of material used including the setting of all equipment and all reinforcements in connection therewith; all lagging over insulation and all duct lining; testing and balancing of all air-handling equipment and duct work; the preparation of all shop and field sketches whether manually drawn or computer assisted used in fabrication and erection, including those taken from original architectural and engineering drawings or sketches; metal exterior wall systems, metal roofing; and all other work included in the jurisdictional claims of International Association of Sheet Metal, Air, Rail and Transportation Workers.

[1] A separate free zone will be established for employees permanently residing and working within a seventy-five (75) mile radius of the Elko, Nevada Post Office
[2] At the Employers discretion a regular work week, may include ten (10) hour days at four (4) days per week.
[3] When a second shift (evening) is required, the second shift may start any time following the day shift. If the second shift extends past midnight, the entire second shift shall be paid at the graveyard shift rate.
[4] When three (3) shifts are required, the graveyard shift will begin at 12:00 am on Monday. The day shift shall begin at 6:00 am and end at 4:30 pm. The evening shift will begin at 4:00 pm on Monday.
[5] If a holiday falls on Saturday, it shall be recognized on the preceding Friday; if a holiday falls on Sunday, it shall be recognized the following Monday

Craft: SOILS and MATERIAL TESTER (Non-Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Soils and Materials Tester.....52.09

Craft: SPRINKLER FITTER (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Sprinkler Fitter-Journeyman……..…….84.92
Sprinkler Fitter Foreman……..……...87.92
Sprinkler Fitter General Foreman…….90.17

ADD ZONE RATE

In addition to SPRINKLER FITTER rates add the applicable amounts per day, calculated based on a road from the courthouse in Reno, Nevada:

Zone 1	0 to 60 miles	$0.00
Zone 2	60 to 80 miles	$28.00
Zone 3	80 to 100 miles	$37.00
Zone 4	Over 100 miles	$140.00

ADD PREMIUM PAY

The standard workday and week shall be eight (8) consecutive hours of work between 6:00 am and 6:00 pm., Monday through Friday. Time worked on Sundays and holidays shall be double (2x) the regular rate of pay.

SHIFT DIFFERENTIAL

Add 15% to base rate for "Second & Third" Shift[1]

RECOGNIZED HOLIDAYS[2]:

New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day.

JOB DESCRIPTION: Excerpt from between National Fire Sprinkler Association and Road Sprinkler Fitters Local 669.

Installing, dismantling, maintenance, repairs, adjustments and corrections of all fire protection and fire control systems Including the unloading, handling by hand, power equipment and installation of all piping or tubing, appurtenances and equipment pertaining thereto, including both overhead and underground water mains, fire hydrants and hydrant mains, standpipes, and hose connections to sprinkler systems, sprinkler tank heaters, air lines and thermal systems used in connection with sprinkler and alarms systems, also all tanks and pumps connected thereto. Also including shall be CO2 and Cardox Systems, Dry Chemical Systems, Foam Systems and all other fire protection systems, but excluding steam fire protection systems.

[1] Work done outside regular shift hours

[2] When a holiday falls on a Sunday the following Monday shall be considered the holiday, when a holiday falls on Saturday, the preceding Friday shall be considered the holiday

Craft: SURVEYOR (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes.

Rodman/Chainman……..……...……..72.97
Chief of Party Surveyor……..…….. 75.69

ADD PREMIUM PAY

One and one-half (1.5) times the applicable straight-time rate for all work performed before a shift[1] begins and after it ends, and for all Saturday work in excess of forty (40) hours in one (1) work week. Double (2x) the applicable straight time rate after twelve (12) hours in any one shift. Any work performed on Sundays and holidays shall be paid at two (2) times the applicable straight time rate.

RECOGNIZED HOLIDAYS[2]

New Year's Day (January 1); President's Day (3rd Monday in February), Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Nevada Admission Day (last Friday in October); Thanksgiving Day (4th Thursday in November); the day after Thanksgiving Day; and Christmas Day (December 25).

JOB DESCRIPTION: Excerpt from Operating Engineers Local 3 Agreement, includes but is not limited to:

1. Planning ground surveys designed to establish base lines, elevation and other geodetic measurements;
2. Compiling data relevant to the shape, contour, gravitation, location, elevation and dimension of land and land features on or near the surface of the Earth for engineering, map making, mining, land evaluation, construction and other purposes;
3. Surveying bodies of water to determine navigable channels and to secure data for construction of breakwaters, piers and other marine structures;
4. Computing data necessary for driving and connecting underground passages, underground storage and volume of underground deposits.

[1] Night shifts are all shifts starting between 4:00 pm and 4:00 am and shall be paid twelve and one-half percent (12.5%) differential in addition to his/her regular pay.

[2] Holidays falling on Sunday shall be observed the following Monday, holidays falling on Saturday shall be observed the preceding Friday

Craft: TAPER (Union Rate)

Prevailing wage rates include the base rate as well as all applicable fringes

Taper-Journeyman……..……..63.36
Taper-Foreman.…..……..……..67.96

ADD ZONE RATE

In addition to TAPER rates add the applicable amounts per day calculated based on road miles from the Washoe County Court House[1].

Zone 1	0 to 70 miles	$0.00
Zone 2	Over 70 miles	$75.00

ADD PREMIUM PAY

The regular workweek shall consist of five (5) eight (8) hour workdays, or four (4) consecutive (10) hour workdays between Monday through Friday between 6:00 am and 6:00 pm. Saturday work will be paid at one and one-half (1.5) times the straight time rate for the first ten (10) hours, all additional hours shall be paid at double (2x). Sundays[2], holidays, and any hours over twelve (12) shall be paid at double (2x) the straight rate.

SHIFT DIFFERENTIAL

Second Shift, Afternoon Shift, seven (7) hours work for eight (8) hours pay at the regular rate of wages.
Third Shift, Graveyard Shift, six and one-half (6.5) hours work for eight (8) hours pay at the regular rate of wages.

RECOGNIZED HOLIDAYS[3]

New Year's Day, Memorial Day, Fourth of July, Labor Day, Admission Day (last Friday of October, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day.

JOB DESCRIPTION: Excerpt from Agreement between DC 16 and the independent Drywall Contractors of Northern Nevada.

Shall include (but not be limited to) all work operations, including distribution to the point of application, as follows:
(a) Work or services pertaining to the preparation, spotting, pointing, detailing, flushing, sanding and finishing of interior and/or exterior gypsum, drywall, thin wall, concrete, steel, wood and plaster surfaces, spackling of all surfaces where adhesive materials are used; and all drywall pointing, taping and finishing.
(b) Work or services pertaining to the application of all finish or flushing materials regardless of method of application or type of surface on which materials are applied, including but not limited to texture and simulated acoustic materials of all types and the application of radiant heat fill and steel fireproofing materials.
(c) Work or services pertaining to the installation of protective coverings and masking prior to the application of finish materials.
(d) The operation and care of all taping tools and texturing equipment used in the finishing and texturing of drywall and other surfaces including brushes, rollers, spray texturing equipment, miscellaneous hand, mechanical, and power tools, and the operation and maintenance of compressors required in the finishing and texturing of such surfaces.
(e) No limitation shall be placed on the work by reason of the surface, type of material or purpose for which the materials used are designed or intended.

[1]Excludes the City limits of Fallon and the Fallon NAS.
[2] Any work beginning after 9:00 pm Sunday that ends on Monday shall be considered Monday work. Any hours worked prior to 9:00 pm Sunday would be considered Sunday work and shall be paid at two (2) times the regular straight time rate of pay.
[3] No work shall be permitted on Labor Day or Christmas Day under any circumstances. Holidays falling on a Saturday shall be observed the prior Friday. Holidays falling on Sunday, the Monday following shall be observed.

(f) The cleanup of all materials and debris occasioned by any job operation at the site of construction, alteration, or repair undertaken whether such operation occurs on the interior or exterior of a building structure.

Craft: TILE SETTER/TERRAZZO WORKER/MARBLE MASON FINISHER (Non-Union Rate)[1]
Prevailing wage rates include the base rate as well as all applicable fringes

Tile Setter/Terrazzo Worker/Mable Mason Finisher.....……....43.46

JOB DESCRIPTION TILE FINISHER:

- Apply a mixture of cement, sand, pigment, or marble chips to floors, stairways, and cabinet fixtures to fashion durable and decorative surfaces.
- Measure designated amounts of ingredients for terrazzo or grout, according to standard formulas and specifications, using graduated containers and scales, and load ingredients into portable mixer.
- Grind surfaces with a power grinder, or polish surfaces with polishing or surfacing machines.
- Cut metal division strips and press them into the terrazzo base for joints or changes of color to form designs or patterns or to help prevent cracks.
- Blend marble chip mixtures, place into panels, and push a roller over the surface to embed the chips.
- Modify mixing, grouting, grinding, or cleaning procedures, according to type of installation or material used.
- Spread, level, or smooth concrete or terrazzo mixtures to form bases or finished surfaces, using rakes, shovels, hand or power trowels, hand or power screeds, or floats.
- Grind curved surfaces or areas inaccessible to surfacing machine, such as stairways or cabinet tops, with portable hand grinder.
- Wash polished terrazzo surface, using cleaner and water, and apply sealer and curing agent according to manufacturer's specifications, using brush or sprayer.
- Position and secure moisture membrane and wire mesh in preparation for pouring base materials for terrazzo installation.
- Fill slight grinding depressions with matching grout material and hand-trowel for a smooth, uniform surface.
- Clean installation site, mixing and storage areas, tools, machines, and equipment, and store materials and equipment.
- Sprinkle colored marble or stone chips, powdered steel, or coloring powder over surface to produce prescribed finish.
- Wet surface to prepare for bonding, fill holes and cracks with grout or slurry, and smooth with a trowel.
- Mix cement, sand, and water to produce concrete, grout, or slurry, using hoe, trowel, tamper, scraper, or concrete-mixing machine.
- Chip, scrape, or grind high spots, ridges, or rough projections to finish concrete, using pneumatic chisel, hand chisel, or other hand tools.
- Mold expansion joints and edges, using edging tools, jointers, or straightedges.
- Move terrazzo installation materials, tools, machines, or work devices to work areas, manually or using wheelbarrow.
- Clean chipped area, using wire brush, and feel and observe surface to determine if it is rough or uneven.
- Repair concrete by cutting out damaged areas, drilling holes for reinforcing rods, and positioning reinforcing rods, using power saw and drill.
- Precast terrazzo blocks in wooden forms.
- Wet concrete surface and rub with stone to smooth surface and obtain specified finish.
- Build wooden molds, clamping molds around areas to be repaired, or setting up frames to the proper depth and alignment.

[1] Job description copied from O*NET OnLine

- Spread roofing paper on surface of foundation and spread concrete onto roofing paper with trowel to form terrazzo base.
- Produce rough concrete surface, using broom.
- Remove frames when the foundation is dry.
- Signal truck driver to position truck to facilitate pouring concrete and move chute to direct concrete on forms.

Craft: TILE SETTER/TERRAZZO WORKER/MARBLE MASON (Non-Union Rate)[1]
Prevailing wage rates include the base rate as well as all applicable fringes

Tile Setter - Journeyman……...……....53.78
Terrazzo/Marble Mason - Journeyman ……...…….....55.32

JOB DESCRIPTION TILE/STONE SETTER

- Apply hard tile, stone, and comparable materials to walls, floors, ceilings, countertops, and roof decks.
- Align and straighten tile using levels, squares, and straightedges.
- Finish and dress the joints and wipe excess grout from between tiles, using damp sponge.
- Cut and shape tile to fit around obstacles and into odd spaces and corners, using hand and power cutting tools.
- Determine and implement the best layout to achieve a desired pattern.
- Mix, apply, and spread plaster, concrete, mortar, cement, mastic, glue or other adhesives to form a bed for the tiles, using brush, trowel and screed.
- Study blueprints and examine surface to be covered to determine amount of material needed.
- Measure and mark surfaces to be tiled, following blueprints.
- Lay and set mosaic tiles to create decorative wall, mural, and floor designs.
- Apply mortar to tile back, position the tile, and press or tap with trowel handle to affix tile to base.
- Mix and apply mortar or cement to edges and ends of drain tiles to seal halves and joints.
- Apply a sealer to make grout stain- and water-resistant.
- Level concrete and allow to dry.
- Measure and cut metal lath to size for walls and ceilings, using tin snips.
- Install and anchor fixtures in designated positions, using hand tools.
- Prepare surfaces for tiling by attaching lath or waterproof paper, or by applying a cement mortar coat to a metal screen.
- Remove and replace cracked or damaged tile.
- Cut tile backing to required size, using shears.
- Remove any old tile, grout and adhesive using chisels and scrapers and clean the surface carefully.
- Cut, surface, polish, and install marble and granite or install pre-cast terrazzo, granite or marble units.
- Spread mastic or other adhesive base on roof deck to form base for promenade tile, using serrated spreader.
- Assist customers in selection of tile and grout.
- Prepare cost and labor estimates, based on calculations of time and materials needed for project.
- Brush glue onto manila paper on which design has been drawn and position tiles, finished side down, onto paper.
- Select and order tile and other items to be installed, such as bathroom accessories, walls, panels, and cabinets, according to specifications.
- Build underbeds and install anchor bolts, wires, and brackets.

[1] Job description copied from O*NET OnLine

Craft: TRAFFIC BARRIER ERECTOR (Union Rate)
Prevailing wage rates include the base rate as well as all applicable fringes

Traffic Barrier Erector……..…….53.03

ADD ZONE RATE[1]
In addition to LABORER rates add the applicable amounts per hour, calculated based on a road miles from either the Carson City Courthouse or the Washoe County Courthouse.

Zone 1	0 to 75 miles	$0.00
Zone 2	75 to 150 miles	$6.00
Zone 3	150 to 300 miles	$7.00
Zone 4	300 miles and over	$8.00

ADD PREMIUM PAY
Single shift jobs are eight (8) consecutive hours with a starting time between 5:30 am and 8:00 am. Saturdays should be paid at one and one-half (1.5) times the regular straight time, and Sundays, holiday time worked, and all hours worked over twelve (12) in one day are to be paid at double (2x) the regular rate

SHIFT DIFFERENTIAL
Second and third shifts shall be paid 12.5% differential[2].

RECOGNIZED HOLIDAYS[3]
New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Day after Thanksgiving Day, Christmas Day

JOB DESCRIPTION: Excerpt from Agreement between AGC and LIUNA Local 169

1. Distributing traffic control signs and markers along site in designated pattern;
2. Informing drivers of detour routes through construction sites;

(SEE LABORERS GROUP 1)

[1]No remote area pay shall be paid within ten (10) miles of employee's permanent place of residence in the State of Nevada
[2] Work done outside the regular shift hours
[3] If any of these holidays fall on Sunday, the Monday following shall be considered a holiday

Craft: Truck Driver (Non-Union Rate)[1]

Prevailing wage rates include the base rate as well as all applicable fringes

Truck Driver……...……..……..…..…...39.00

JOB DESCRIPTION:

Per Nevada Administrative Code 338.017, a worker who performs the craft of truck driver shall be deemed to be employed on a public work only while:

1. Transporting materials at the site of a public work; or

Transporting materials between the sites of a public work.

[1] Job description copied from O*NET OnLine

Craft: WELL DRILLER (Non-Union Rate)[1]

Prevailing wage rates include the base rate as well as all applicable fringes

Well Driller……..……35.29

JOB DESCRIPTION Includes but is not limited to:

- Operate a variety of drills such as rotary, churn, and pneumatic to tap subsurface water and salt deposits, to remove core samples during mineral exploration or soil testing, and to facilitate the use of explosives in mining or construction. Includes horizontal and earth boring machine operators.
- Operate controls to stabilize machines and to position and align drills.
- Start, stop, and control drilling speed of machines and insertion of casings into holes.
- Regulate air pressure, rotary speed, and downward pressure, according to the type of rock or concrete being drilled.
- Select and attach drill bits and drill rods, adding more rods as hole depths increase, and changing drill bits as needed.
- Drive or guide truck-mounted equipment into position, level and stabilize rigs, and extend telescoping derricks.
- Operate machines to flush earth cuttings or to blow dust from holes.
- Verify depths and alignments of boring positions.
- Perform routine maintenance and upgrade work on machines and equipment, such as replacing parts, building up drill bits, and lubricating machinery.
- Select the appropriate drill for the job, using knowledge of rock or soil conditions.
- Document geological formations encountered during work.
- Drive trucks, tractors, or truck-mounted drills to and from work sites.
- Assemble and position machines, augers, casing pipes, and other equipment, using hand and power tools.
- Record drilling progress and geological data.
- Retrieve lost equipment from bore holes, using retrieval tools and equipment.
- Fabricate well casings.
- Pour water into wells, or pump water or slush into wells to cool drill bits and to remove drillings.
- Create and lay out designs for drill and blast patterns.
- Place and install screens, casings, pumps, and other well fixtures to develop wells.
- Operate water-well drilling rigs and other equipment to drill, bore, and dig for water wells or for environmental assessment purposes.
- Review client requirements and proposed locations for drilling operations to determine feasibility, and to determine cost estimates.
- Drill or bore holes in rock for blasting, grouting, anchoring, or building foundations.
- Perform pumping tests to assess well performance.
- Disinfect, reconstruct, and redevelop contaminated wells and water pumping systems, and clean and disinfect new wells in preparation for use.
- Design well pumping systems.
- Signal crane operators to move equipment.
- Withdraw drill rods from holes, and extract core samples.
- Inspect core samples to determine nature of strata, or take samples to laboratories for analysis.
- Retract augers to force discharge dirt from holes.
- Monitor drilling operations, by checking gauges and listening to equipment to assess drilling conditions and to determine the need to adjust drilling or alter equipment.

[1] Job description copied from O*NET OnLine

GROUP CLASSIFICATIONS

LABORER, includes but is not limited to:

Group 1

- All cleanup work of debris, grounds, and building including windows and tile
- Dumpmen or Spotter (other than asphalt)
- Handling and Servicing of Flares, Watchmen
- General Laborer
- Guideposts and Highway Signs
- Guardrail Erection and Dismantling
- Limber, Brushloader and Piler
- Pavement Marking and Highway Striping
- Traffic Barrier Erector
- Tending to portable space heaters
- Profilograph work all types manual, self propelled or carts
- Gabion basket, building, handling, installation and rigging
- Dry set paver work
- Traffic Barrier Erector

Group 2

- Choker setter or Rigger (clearing work only) Pittsburgh
- Chipper and similar type brush shredders
- Concrete worker (wet or dry) all concrete work not listed in Group 3 included but not limited to: concrete forms stripping, handling, cleaning, oiling and moving to the next point of installation.
- Crusher or Grizzly Tender
- Greasing Dowels
- Guinea Chaser (Stakemen)
- Panel Forms (wood or metal) handling, cleaning and stripping of Loading and unloading, (Carrying and handling of all rods and material for use in reinforcing concrete
- Railroad Trackmen (maintenance, repair or builders)
- Sloper
- Semi-Skilled Wrecker (salvaging of building materials other than those listed in Group 3)
- Waterproofing work
- Epoxy rebar/dowels and anchoring dowel baskets
- Placement pouring of concrete including any epoxy resin or similar materials, rodding, spreading and tamping concrete, brooming or brushing, hand application of curing compounds, applying topping (wet or dry) colors or grits, and exposed finishes for architectural work
- Concrete patching, dry packing, chipping, stoning, and grouting
- Concrete cold whether/rain protection and curing
- Placement /anchoring of all earth stabilization/filters fabrics,
- Mechanically stabilized Earth (MSE) and Keystone type retaining walls rigging, placing , aligning, backfilling and installation of dead men and any stablilization compenents

Group 3

- Asphalt Workers (Ironers, Shovelers, Cutting Machine)
- Buggymobile
- Chainsaw, Faller, Logloader and Bucker

- Compactor (all types)
- Concrete Mixer under 1/2 yard
- Concrete Pan Work (Breadpan type), handling, cleaning\stripping
- Concrete Saw, Chipping, Grinding, Sanding, Vibrator
- Cribbing, Shoring, Lagging, Trench Jacking, Hand-Guided Lagging Hammer
- Curbing or Divider machine
- Curb Setter (precast or cut)
- Ditching Machine (hand-guided)
- Drillers Helper, Chuck Tender
- Fence erector including safety, chain link, turtle, field and barbe wire fencing
- Form Raiser, Slip Forms
- Grouting of Concrete Walls, Windows and Door Jams
- Headerboardmen
- Jackhammer, Pavement Breaker, Air Spade
- Mastic Worker (wet or dry)
- Pipewrapper, Kettlemen, Potmen, and men applying asphalt, creosote and similar type materials
- All Power Tools (air, gas, or electric), Post Driver
- Riprap-Stonepaver and RockSlinger, including placing of sack concrete wet or dry
  Rototiller
- Rigging and Signaling in connection with Laborers' work
- Sandblaster, Potmen, Gunmen or Nozzlemen water blasting not covered in group 5A
- Vibra-screed
- All demolition and wrecking work including but not limited t any torch work cutting, burning, plasma are, dust control, and salvaging (removing and salvaging of all materials, windows, doors, plumbing, and electrical fixtures) and use of customary tools and equipment for demolition and wrecking
- All underpinning foundation work, digging and underpinning pits, removal of debris with tuggers or other methods, cutting, handling and installing all shoring boards and lagging boards used for underpinning and foundation work, placement and tying of steel reinforcing for underpinning piers, all tiebacks and soil nail work drilling and grouting, all soldier beam work and us of customary tools and equipment for underpinning foundation work

Group 3A

- Concrete Specialist
- Setting screeds
- Screed pins
- Curb forms and curb and gutter forms,
- Using Darby and push floats,
- Hand trowels or hand floating
- Marking edging
- Using base cove or step tools
- Spreading and finishing gypsum
- Concrete grinding machines (the terms does not include Rotomill machines for highway overlay grinding)
- Troweling machines,
- Floating machines
- Finishing of epoxy or resin materials,
- Operation of skill saw
- Laser Screed
- Laser Level

- Curb and Slipform machines,
- Stamps or other means or texturing,
- Any new devices which are beneficial to the construction of or with concrete or related products.

Group 4

- Burning and Welding in connection with Laborers' work
- Joy Drill Model TWM-2A, Gardner Denver Model DN143 and similar type drills (in accordance with Memorandum of Understanding between Laborers and Operating Engineers dated at Miami, Florida, Feb. 3, 1954) and Track Drillers, Diamond Core Drillers, Wagon Drillers, Mechanical Drillers on Multiple Units
- High scalers including but not limited to laying, anchoring, pinning, cabling and stretching of any rock fall netting, mesh or wire fabric and use of customary tools and equipment for high scaling
- Concrete pump operator
- Heavy Duty Vibrator with Stinger 5" diameter or over
- Pipelayer, Caulker and Bander
- Pipelayer-waterline, Sewerline, Gasoline, Conduit and all other types of composition for any purpose buried under ground outside of building including, stringing, trench shoring, backfilling sanding, caution taping, all walk behind equipment and spotting
- Laborer work in connection with micro tunneling, directional drilling and pipe-jacking
- Cathodic protection, grounding for pipe work
- Cleaning of Utility Lines
- Slip Lining of Utility Lines (including operation of Equipment)
- TV Monitoring and Grouting of Utility Lines
- Asphalt Rakers and Asphalt dump Man
- All mechanical and pressurized pipe work, including the installation of pipe above and below ground, cathodic protection, bolt up, and support installation in connection to water conveyance, c

Group 4A

- Foreman

Group 5

- Construction Specialists
- Blasters and Powdermen, all work of loading, placing, and blasting of all powder and explosives of any type, regardless of method used for such loading and placing
  Asbestos removal
- Lead abatement
- Hazardous waste
- Material removal

Group 5A

- Pavement Marking and Highway Striping
- Pavement Marking and Highway Striping Foreman
- Pavement Marking and Highway Striping work includes but is not limited to: All work by any method preformed in connection with the permanent or temporary application and installation of pavement marking of any kind, brand, type or style on parking lots, airfields, highways, streets and other such surfaces and all work performed in connection with removal of pavement.

Group 6

- Gunite Foremen, Nozzlemen, Rodmen, Gunmen, Materialmen, Reboundmen

- Tunnel and shaft workers/miners and use of customary tools and equipment for tunnel and mine work All worked performed in a compressed air tunnel shaft or chamber including the use of hand, power tools or equipment as necessary in connection with compressed air work

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OPERATING ENGINEER, includes but is not limited to:

Group 1
- Engineer Assistant

Group 1A
- Oiler (Construction)
- Partsman

Group 2
- Compressor Operator
- Material Loader and/or Conveyor Operator (handling building materials)
- Pump Operator

Group 3
- Bobcat or similar loader, 1/4 cu. yd. or less
- Concrete Curing Machines (streets, highways, airports, canals)
- Conveyor Belt Operator (tunnel)
- Forklift (under 20)
- Engineer Generating Plant (500 K.W.)
- Mixer Box Operator (concrete plant)
- Motorman
- Rodman/Chainman
- Rotomist Operator
- Oiler (truck crane)

Group 4
- Concrete Mixer Operator, Skip type
- Dinky Operator
- Forklift (20' or over) or Lumber Stacker
- Ross Carrier
- Skip Loader Operator (under one (1) cu. yd.)
- Tie Spacer

Group 5
- Concrete Mixers (over one (1) cu. yd.)
- Concrete Pumps or Pumpcrete Guns
- Elevator and Material Hoist (one (1) drum)
- Groundman for Asphalt Milling and similar

Group 6
- Auger type drilling equipment up to and including 30 ft. depth digging capacity M.R.C.
- Boom Truck or Dual-Purpose a-Frame Truck
- B.L.H. Lima Road Pactor or similar
- Chip Box Spreader (Flaherty type or similar)
- Concrete Batch Plant (wet or dry)
- Concrete Saws (highways, streets, airports, canals)
- Locomotives (over thirty (30) tons)
- Maginnis International Full Slab Vibrator (airports, highways, canals and warehouses)
- Mechanical Finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types)

- Mechanical Burn, Curb and/or Curb and Gutter Machine (concrete or asphalt)
- Pavement Breaker, Truck Mounted, with compressor combination
- Pavement Breaker or Tamper (with or without compressor combination)
- Power Jumbo Operator (setting slip-forms, etc., in tunnels)
- Roller Operator (except asphalt)
- Self-Propelled Tape Machine
- Self-Propelled Compactor (single engine)
- Self-Propelled Power Sweeper Operator
- Slip-Form Pump (power-driven by hydraulic, electric, air, gas, etc. lifting device for concrete forms)
- Small Rubber-Tired Tractors
- Snooper Crane, Paxton-Mitchell or similar
- Stationary Pipe Wrapping, Cleaning and Bending Machine Operator

Group 7

- Auger type drilling equipment over 30 ft. depth digging capacity M.R.C.
- Compressor (over 2)
- Concrete Conveyor or Concrete Pump, truck or equipment mounted (any assistance required shall be performed by an Assistant to Engineer) Boom length to apply
  Concrete Conveyor, Building Site
- Drilling and Boring Machine, vertical and horizontal (not to apply to waterliners, wagon drills or jack hammers)
- Crusher Plant Engineer
- Generators
- Instrument Man
- Kolman Loader
- Material Hoist (two (2) or more drums)
- Mine or Shaft Hoist
- Pipe Bending Machines (pipeline only)
- Pipe Cleaning Machines (tractor-propelled and supported)
- Pipe Wrapping Machines (tractor-propelled and supported)
- Portable Crushing and Screening Plants
- Post Driller And/or Driver
- Pumps (over 2)
- Screedman (except asphaltic or concrete paving)
- Self-Propelled Boom-Type Lifting Device (center mount) (on ten (10) ton capacity or less)
- Slusher Operator
- Soil Tester (Certified)
- Soils and Materials Tester
- Surface Heater and Planer Operator
- Trenching Machine (maximum digging capacity three (3) ft. depth) (Any assistance in the operation, if needed, shall be performed by an Assistant to Engineer)
- Truck-Type Loader
- Welding Machines (gasoline or diesel)

Group 8

- Articulated on-Site Dump Trucks
- Asphalt Plant Engineer
- Asphalt Milling Machine
- Cast-In-Place Pipe-Laying Machine

- Combination Slusher and Motor Operator
- Concrete Batch Plant (multiple units)
- Dozer Operator
- Drill Doctor
- Elevating Grader Operator
- Stiff Frame Off Road Haul Trucks
- Grooving and Grinding Machine (highways)
- Ken Seal Operator
- Marination Plant
- Loader (up to and including two and one-half (2 1/2) cu. yds)
- Mechanical Finishers or Spreader Machine (asphalt, Barber-Greene or similar)
- Shuttle Buggy
- Mechanical Trench Shield
- Mixermobile
- Push Cats
- Road Oil Mixing Machine Operator Wood-Mixer (and other similar Pugmill equipment)
- Roller Operator (asphalt)
- Rubber-Tired Earthmoving Equipment (up to and including thirty-five (35) cu. yds. "struck " M.R.C., Euclids, T-Pulls, DW10, 20, 21 and similar)
- Water Pull
- Screedman (Barber-Greene and similar) (asphaltic or concrete paving)
- Self-Propelled Compactors with Dozer; Hyster 450, Cat 825 or similar
- Sheepfoot
- Small Tractor (with boom)
- Soil Stabilizer (P & H or equal)
- Timber Skidder (rubber-tired) or similar equipment
- Track Loader
- Tractor-Drawn Scraper
- Tractor Operator
- Tractor-Mounted Compressor Drill Combination
- Trenching Machine Operator (over three (3) feet depth)
- Tri-Batch Paver
- Tunnel Badger or Tunnel Boring Machine Operator
- Tunnel Mole Boring Machine
- Vermeer T-600b Rock Cutter
- Vacuum Truck(excludes trailer mounted vaccums)

Group 9

- Chicago Boom
- Combination Backhoe and Loader (up to and including 3/8 cu. yd.)
- Combination Mixer and Compressor (gunite)
- Heavy Duty Repairman and/or Welder
- Lull Hi-Lift (twenty (20) feet or over)
- Mucking Machine
- Sub-Grader (Gurries or other types)
- Tractor (with Boom) (D6 or larger)
- Track-Laying-Type Earthmoving Machine (single engine with tandem scrapers)

Group 10

- Boom-Type Backfilling Machine
- Bridge Crane
- Cary-Lift or similar
- Chemical Grouting Machine
- Chief of Party
- Derricks (two (2) Group 10 Operators required when swing engine remote from hoist)
- Derrick Barges (except excavation work)
- Euclid Loader and similar types
- Heavy Duty Repairman
- Heavy Duty Rotary Drill Rigs
- Lift-Slab (Vagtborg and similar types)
- Loader (over two and one-half (2 1/2 cu. yds. up to and including four (4) cu. yds.)
- Locomotive (over one hundred (100) tons, single or multiple units)
- Multiple-Engine Earthmoving Machines (Euclid Dozers, etc.)
- Pre-Stress Wire Wrapping Machine
- Rubber-Tired Scraper, Self-Loading
- Single-Engine Scraper (over thirty-five (35) cu. yds.)
- Shuttle Car (Reclaim Station)
- Train Loading Station
- Trenching Machine multi-engine with sloping attachments (Jefco or similar)
- Vacuum Cooling Plant
- Whirley Crane (up to and including twenty-five (25) tons)

Group 10A

- Backhoe-Hydraulic (up to and including one (1) cu. yd.)
- Backhoe (up to and including one (1) cu. yd.) (Cable)
- CMI Dual Lane Auto-Grader SP30 or similar type
- Cranes (not over twenty-five (25) tons) (hammerhead and gantry)
- Finish Blade
- Gradalls (up to and including one (1) cu. yd.)
- Motor Patrol Operator
- Power Shovels, Clamshells, Draglines, Cranes (up to and including one (1) cu. yd.)
- Rubber-Tired Scraper, Self-Loading (twin engine)
- Self-Propelled Boom-Type Lifting Device, center mount (over 10 tons up to and including 25 tons)

Group 11

- Automatic Asphalt or Concrete Slip-Form Paver
- Automatic Railroad Car Dumper
- Canal Trimmer
- Cary Lift, Campbell or similar type
- Cranes (over twenty-five (25) tons)
- Euclid Loader when controlled from the Pullcat
- Finish Blade
- Gradesetter, Grade Checker
- Highline Cableway Operator
- Loader (over four (4) cu. yds. up to and including twelve (12) cu. yds.)
- Multi-Engine Earthmoving Equipment (up to and including seventy-five (75) cu. yds. struck m.r.c.)
- Multi-Engine Scrapers (when used to Push Pull)

- Power Shovels, Clamshells, Draglines, Backhoes Gradalls (over one (1) cu. yd. and up to and including seven (7) cu. yds. m.r.c.)
- Self-Propelled Boom-Type Lifting Device (center mount) (over 25 tons m.r.c.)
- Self-Propelled Compactor (with multiple-propulsion power units)
- Single-Engine Rubber-Tired Earthmoving Machine, with Tandem Scraper
- Slip-Form Paver (concrete or asphalt)
- Tandem Cats and Scraper
- Tower Crane Mobile (including Rail Mount)
- Truck Mounted Hydraulic Crane when remote control equipped (over 10 tons up to and including 25 tons)
- Universal Liebher and Tower Cranes (and similar types)
- Wheel Excavator (up to and including seven hundred fifty (750) cu. yds. per hour)
- Whirley Cranes (over twenty-five (25) tons)

Group 11A
- Band Wagons (in conjunction with Wheel Excavators)
- Operator of Helicopter (when used in construction work)
- Loader (over twelve (12) cu. yds.)
- Multi-Engine Earthmoving Equipment (over seventy-five (75) cu. yds. "struck" m.r.c.)
- Power Shovels. Clamshells, Draglines, Backhoes, and Gradalls (over seven 7 cu. yds. m.r.c.)
- Remote-Controlled Earth Moving Equipment
- Wheel Excavator (over seven hundred fifty (750) cu. yds. per hour)

Group 11B
- Holland Loader or similar or Loader (over 18 cu. yds.)

OPERATING ENGINEERS - Steel Fabricator & Erector

Group 1
- Cranes over 100 tons
- Derrick over 100 tons
- Self-Propelled Boom Type Lifting Devices over 100 tons

Group 2
- Cranes over 45 tons up to and including 100 tons
- Derrick, 100 tons and under
- Self-Propelled Boom Type Lifting Device, over 45 tons
- Tower Crane

Group 3
- Cranes, 45 tons and under
- Self-Propelled Boom Type Lifting Device, 45 tons and under

Group 4
- Chicago Boom
- Forklift, 10 tons and over
- 59
- Heavy Duty Repairman/Welder

Group 5

- Boom Cat

OPERATING ENGINEER -PILE DRIVER

Group 1

- Derrick Barge Pedestal mounted over 100 tons
- Clamshells over 7 cu. yds.
- Self-Propelled Boom Type Lifting Device, over 100 tons
- Truck Crane or Crawler, land or barge mounted over 100 tons

Group 2

- Derrick Barge Pedestal mounted 45 tons up to and including 100 tons
- Clamshells up to and including 7 cu. yds.
- Self-Propelled Boom Type Lifting Device over 45 tons
- Truck Crane or Crawler, land or barge mounted, over 45 tons up to and including 100 tons

Group 3

- Derrick Barge Pedestal mounted under 45 tons
- Self-Propelled Boom Type Lifting Device 45 tons and under
- Skid/Scow Piledriver, any tonnage
- Truck Crane or Crawler, land or barge mounted 45 tons and under

Group 4

- Assistant Operator in lieu of Assistant to Engineer
- Forklift, 10 tons and over
- Heavy Duty Repairman/Welder

Group 5

No current classification

Group 6

- Deck Engineer

Group 7

No current classification

Group 8

- Deckhand
- Fireman

SECTION 01200 - PROJECT MEETINGS

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for project meetings including, but not limited, to the following:

1. Pre-Construction Conference

2. Pre-Installation Conferences

3. Coordination Meetings

4. Progress Meetings

5. Start-up / Training

6. Service, maintenance, warranty review.

B. Construction Schedules are specified in Division 1 SECTION 01310-A – PROGRESS SCHEDULES.

1.3 PRE-CONSTRUCTION CONFERENCE

A. The Contractor shall schedule a pre-construction conference and organizational meeting at the project site or other convenient location no later than fifteen (15) days after execution of the Contract and prior to commencement of any construction activities. The Contractor shall conduct the meeting to review scope, responsibilities, personnel assignments, Permits, submittals, safety, emergency action plans, contacts, schedule, etc.

B. Attendees: Owner; Architect, and their consultants; Contractor and their Superintendent and major sub-contractors; and manufacturers, suppliers and other concerned appropriate parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.

C. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Construction schedule

2. Critical work sequencing

3. Designation of responsible personnel

4. Procedures for processing field decisions and change orders

5. Procedures for processing Applications for Payment

6. Submittal of Shop Drawings, product data and samples

7. Preparation of Record Documents

8. Use of the premises

9. Office, work and storage areas

10. Equipment deliveries and priorities

11. Safety and Security, emergency procedures

12. Housekeeping

13. Working hours

1.4 PRE-INSTALLATION CONFERENCES

A. Conduct a pre-installation conference at the site before each major construction activity that requires coordination with other construction. The installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination of integration with other materials and installations that have preceded or will follow, shall attend the meeting. The Contractor shall advise the Architect of scheduled meeting dates.

B. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

1. Contract Documents

2. Options

3. Related Change Orders

4. Purchases

5. Deliveries

6. Shop Drawings, products data and quality control samples
7. Possible conflicts
8. Compatibility problems
9. Time schedules
10. Weather limitations
11. Manufacturer's recommendations
12. Compatibility of materials
13. Acceptability of substrates
14. Temporary facilities
15. Space and access limitations
16. Governing regulations
17. Inspection and testing requirements
18. Required performance results
19. Recording requirements
20. Protections

C. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the minutes of the meeting to everyone concerned, promptly, including the Owner and the Architect.

D. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

1.5 PROGRESS MEETINGS

A. Conduct a weekly progress meeting at the project site at regularly scheduled intervals. Coordinate with the Owner and the Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request, Change Order request, mockup reviews, etc.

B. Attendees: In addition to representatives of the Owner, Architect, Construction Manager each sub-contractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future work shall be represented at these meetings by persons familiar with the project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's construction schedule, whether on time or ahead or behind schedule. Determine how construction that is behind schedule will be expedited; and secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the allotted contract time.

2. Review the present and future needs of each entity present, including such items as:

    a. Interface requirements
    b. Time
    c. Sequence
    d. Deliveries
    e. Off-site fabrication problems
    f. Access
    g. Site utilization
    h. Temporary facilities
    i. Hours of work
    j. Hazards of work
    k. Housekeeping
    l. Quality and work standards
    m. Change Orders
    n. Documentation of information for payment requests

D. Reporting: No later than three (3) days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: update the construction progress schedule after each progress meeting where modifications to the schedule have been made or recognized. Issue the updated schedule concurrently with the report of each meeting.

1.6 GUARANTEE/WARRANTIES; BONDS; AND SERVICE AND MAINTENANCE CONTRACTS REVIEW MEETING:

A. Eleven (11) months following the date of Substantial Completion of the work, hold a meeting for the purpose of review of guarantees/warranties; bonds; and service and maintenance contracts for materials and equipment.

B. Meeting location shall be at a mutually agreed upon site, as convenient as possible for all parties.

C. Attending shall be representatives of the following:

1. Owner

2. Architect

3. Owner's and Architect's Consultants, as appropriate to the agenda

4. Construction Manager

5. Commissioning Agent

6. Contractor

7 Sub-contractors, as appropriate to the agenda

8. Suppliers, as appropriate to the agenda

9. Others, as appropriate to the agenda

D. Owner will prepare an agenda for the meeting and distribute it to the attendees a minimum of seven (7) calendar days in advance of the scheduled meeting date.

E. The Contractor shall take action as appropriate to implement repair or replacement of defective items and to extend service and maintenance contracts.

F. Owner or Owners Representative shall take meeting notes and distribute them to all attendees. Attendees taking exception to anything in the meeting notes shall state in writing to the Owner within five (5) working days, following receipt of meeting notes.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01200

SECTION 01300 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for submittals required for performance of the work, including the following:

1. Submittal Schedule
2. Daily Construction Reports
3. Shop Drawings
4. Product Data
5. Samples
6. Quality Assurance Submittals
7. Record Drawings
8. Record Specifications

B. Administrative Submittals: Refer to other Division 1 Sections and other contract documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Permits
2. Applications for Payment
3. Performance and Labor & Material Bonds
4. Insurance Certificates
5. List of Sub-Contractors

C. Related Sections: The following sections contain requirements that relate to this section:

1. Division 1 SECTION 01027 – APPLICATION FOR PAYMENT specifies requirements for submittal of the Schedule of Values.

2. Division 1 SECTION 01040 - COORDINATION specifies requirements governing preparation and submittal of required coordination drawings.

3. Division 1 SECTION 01200 – PROJECT MEETING specifies requirements for submittal and distribution of meeting and conference minutes.

4. Division 1 SECTION 01400 – QUALITY CONTROL specifies requirements for submittal of inspection and test reports.

5. Division 1 SECTION 01700 – CONTRACT CLOSEOUT specifies requirements for submittal of project Record Documents and warranties at project closeout.

1.3 DEFINITIONS

A. Coordination drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.

1. Preparation of coordination drawings is specified in Division 1 SECTION 01040 - COORDINATION and may include components previously shown in detail on Shop Drawings or Product Data.

B. Field samples are full size physical examples erected onsite to illustrate finishes, coatings or finish materials. Field samples are used to establish the standard by which the work will be judged.

C. Mockups are full size assemblies for review of construction, coordination, testing or operation; they are not samples.

1.4 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.

a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.

   a. Allow three (3) weeks for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals, or needs additional information to complete review.
   b. If an intermediate submittal is necessary, process the same as the initial submittal.
   c. Allow two (2) weeks for reprocessing each submittal.
   d. No extension of contract time, overhead or profit will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the work to permit processing.
   e. Allow four (4) weeks for initial review of any submittal requiring review by Authority Having Jurisdiction (AHJ). A listing of these known submittals is indicated on the contract drawings, but this is not necessarily exhaustive.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4” x 5” (100 x 125 mm) on the label or beside the title block on the Shop Drawings to record the Contractor's review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken:

   a. Project Name
   b. Date
   c. Name and Address of the Architect
   d. Name and Address of the Contractor
   e. Name and Address of Sub-Contractor
   f. Name and Address of Supplier
   g. Name of the Manufacturer
   h. Number and Title of appropriate specification section
   i. Drawing Number and detail references, as appropriate

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. The Architect will not accept submittals received from sources other than the Contractor.

1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from contract document requirements, including variations and limitations. Include Contractor's certification that information complies with contract document requirements.

2. Transmittal Form: Use AIA Document G810.

1.5 SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within ten (10) days of the date required for submittal of the Contractor's construction schedule.

1. Coordinate submittal schedule with the list of sub-contracts, schedule of values and the list of products as well as the Contractor's construction schedule.

2. Prepare the schedule in chronological order. Provide the following information:

a. Scheduled date for the first submittal
b. Related section number
c. Submittal category (Shop Drawings, Product Data or Samples)
d. Name of the Sub-Contractor
e. Description of the part of the work covered
f. Scheduled date for resubmittal
g. Scheduled date for the Architect's final release or approval

B. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, Sub-Contractors and other appropriate parties required to comply with submittal dates indicated. Post copies in the project meeting room and field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.

C. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.6 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report recording the following information concerning events at the site and submit duplicate copies to the Architect and Owner daily:

1. List of sub-contractors at the site
2. Exact count of personnel at the site from each contractor or sub-contractor
3. Time spent by each person working on site vs off the job site
4. High and low temperatures, general weather conditions
5. Accidents and unusual events
6. Meetings and significant decisions
7. Stoppages, delays, shortages and losses
8. Emergency procedures
9. Orders and requests of governing authorities
10. Change Orders received, implemented
11. Services connected, disconnected
12. Equipment or system tests and startups
13. Partial Completions, occupancies
14. Substantial Completions authorized
15. Record Drawing identified changes
16. Record Specification identified changes

1.7 SHOP DRAWINGS

A. Submit newly prepared information drawn accurately to scale. Highlight, encircle or otherwise indicate deviations from the contract documents. Do not reproduce contract documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the project is not a Shop Drawing.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

1. Dimensions

2. Identification of products and materials included by sheet and detail number

3. Compliance with specified standards

4. Notation of coordination requirements

5. Notation of dimensions established by field measurement

6. Sheet Size: Except for templates, patterns and similar full size drawings, submit Shop Drawings on sheets at least 8½" x 11" but, no larger than 30" x 42".

7. Submit in the quantity the Contractor requires to be returned, together with four (4) additional copies each of brochures, catalog cuts and similar material for mechanical, electrical, hardware and elevator items; and three (3) additional copies for all others.

8. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

1.8 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing in diagrams and templates, standard wiring diagrams and performance curves.

1. Mark each copy to show applicable choices and options. Where printed, Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:

   a. Manufacturer's printed recommendations
   b. Compliance with trade association standards
   c. Compliance with recognized testing agency standards
   d. Application of testing agency labels and seals
   e. Notation of dimensions verified by field measurement
   f. Notation of coordination requirements

2. Do not submit Product Data until compliance with requirements of the contract documents has been confirmed.

3. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.

4. Submittals: Submit three (3) copies of each required submittal; submit four (4) copies where required for maintenance manuals. The Architect will retain one and will return one (1) marked with action taken and corrections or modifications required. One (1) copy with review comments will be supplied to the Owner.

    a. Unless non-compliance with contract document provisions is observed, the submittal may serve as the final submittal.

5. Distribution: Furnish copies of final submittal to installers, sub-contractors, suppliers, manufacturers, fabricators and others required for performance of construction activities. Show distribution on transmittal forms.

    a. Do not proceed with installation until a copy of Product Data is in the installer's possession.
    b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.9 SAMPLES

A. Submit full size, fully fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets and swatches showing color, texture and pattern.

1. Mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Architect's sample. Include the following:

    a. Specification section number and reference
    b. Generic description of the sample
    c. Sample source
    d. Product name or name of the manufacturer
    e. Compliance with recognized standards
    f. Availability and delivery time

2. Submit samples for review of size, kind, color, pattern, texture, and lead content testing for all paints and painted materials. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

    a. Where variation in color, pattern, texture or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

b. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
c. Refer to other sections for samples to be returned to the Contractor for incorporation in the work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.
d. Samples not incorporated into the work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
e. Samples that are tested by WCSD to have any lead content shall be rejected.

3. Preliminary Submittals: Submit a full set of choices where samples are submitted for selection of color, pattern, texture or similar characteristics from a range of standard choices.

   a. The Architect will review and return preliminary submittals with the Architect's notation, indicating selection and other action.

4. Submittals: Except for samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit three (3) sets. The Architect will return one set marked with the action taken.

5. Maintain sets of samples, as returned, at the project site, for quality comparisons throughout the course of construction.

   a. Unless non-compliance with contract document provisions is observed, the submittal may serve as the final submittal.
   b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to sub-contractors, manufacturers, fabricators, suppliers, installers and others as required for performance of the work. Show distribution on transmittal forms.

1. Field samples are full size examples erected on site to illustrate finishes, coatings or finish materials and to establish the project standard.

   a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.10 QUALITY ASSURANCE SUBMITTALS

A. Submit quality control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports and other quality control submittals as required under other sections of the specifications.

B. Certifications: Where other sections of the specifications require certification that a product, material or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.

C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 SECTION 01400 – QUALITY CONTROL.

1.11 ARCHITECT'S ACTION

A. Except for submittals for the record or information, where action and return is required, the Architect will review each submittal, mark to indicate action taken and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:

1. Final Unrestricted Release: When the Architect marks a submittal "No Exceptions Taken," the work covered by the submittal may proceed provided it complies with requirements of the contract documents. Final payment depends on that compliance.

2. Final-But-Restricted Release: When the Architect marks a submittal "Implement Exception Noted," the work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the contract documents. Final payment depends on that compliance.

3. Returned for Resubmittal: When the Architect marks a submittal "Not Approved, Revise and Resubmit," do not proceed with work covered by the submittal, including purchasing, fabrication, delivery or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.

a. Do not use, or allow others to use, submittals marked "Not Approved, Revise and Resubmit" at the project site or elsewhere where work is in progress.
b. When the submittal review action stamp is marked “Rejected”, do not proceed with that portion of the work covered by the submittal including, but not limited to, purchasing, fabrication, delivery or other activity. Make a new submittal in accordance with the review notations on the submittal and resubmit without delay in the same manner and number as for the original submittal. Resubmit as often as necessary as required to obtain an unrestricted or restricted release action. “Rejected” review action stamp notation shall not be construed by the Contractor as a valid reason for an increase in contract time.

4. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Architect will return the submittal marked "Action Not Required."

C. Unsolicited Submittals: The Architect will return unsolicited submittals to the sender without action.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01300

SECTION 01310A – PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 THIS SECTION INCLUDES:

A. Schedule Submittal Requirements

B. Schedule Submittal Format

C. CPM Schedule Structural Requirements

D. Updating Schedules

E. Schedule Revisions

F. Time Extensions

G. Three (3) Week Projection Schedule

1.2 RELATED SECTIONS

A. Division 1 SECTION 01010 – SUMMARY OF WORK

B. Schedule of Values

C. Division 1 SECTION 01027 – APPLICATION FOR PAYMENT

D. Change Order Procedures

E. Division 1 SECTION 01300 – SUBMITTALS

1.3 SCHEDULE SUBMITTAL REQUIREMENTS

A. Submit, in duplicate, as described in Part 1.5 A., to the Owner and the Architect at the Pre-Construction Conference the following preliminary documents defining planned operations:

1. Baseline Schedule

B. The Architect and the Owner will review schedule submittals; such review shall not constitute an approval or acceptance of the Contractor's construction means, methods, sequencing or its ability to complete the work in a timely manner.

C. The preliminary documents will illustrate, at a minimum, a detailed baseline schedule for those activities commencing within the first ten (10) calendar days after the Notice to Proceed is issued by the Owner.

D. The Contractor shall submit the completed Baseline documents to the Architect within thirty (30) calendar days from the Notice of Award. The schedules shall integrate the activities of the preliminary schedules, and include all activities required for contract completion.

1. Within fifteen (15) calendar days after receipt of the complete Baseline Schedule, the Owner and Architect will communicate in writing their comments and concerns to the Contractor. Within five (5) working days, the Contractor shall adjust the schedule and progress curve to incorporate comments from the Owner and Architect and resubmit.

2. Upon Owner and Architect receipt and acknowledgment of revisions to the Baseline Schedule, it shall become part of the contract documents. Payment to the Contractor shall be withheld until such schedule, satisfactory in form and substance to the Owner and Architect, has been received.

E. Changes in logic and/or durations shall not be made without first noticing on the need to change with the Owner and Architect. Changes will be accepted where they are reasonable. Changes will be accepted or denied without liability. Changes to simply accommodate a perception of still being on schedule will not be accepted. At the discretion of the Architect and the Owner, the Baseline Schedule no longer represents the actual prosecution and progress of the work, the Architect and Owner will require a Recovery Schedule.

F. Failure to provide the required schedule information at the required times will result in denial of the relative portion of progress payments until such time that the schedule information is submitted in the correct format at the sole option of the Owner.

1.4 SCHEDULE SUBMITTAL FORMAT

A. Follow the guidelines below when submitting a baseline, update, or projection schedule.

1. Required Diagrams:

a. Gantt/Bar Chart or Time Scaled Logic Diagram; sheet size to be a maximum of 30 x 42 inches, organized by building and/or area, sorted by early start and early finish dates.

b. The formatting of the (hard copy submission) Baseline Schedule, schedule updates and three (3) week projection schedules shall include the following information (order and content of columns):

i. Activity Description
ii. Original Duration

iii. Remaining Duration
iv. Percent Complete
v. Total Float
vi. Target Early Start (except on Baseline Schedule)
vii. Target Early Finish (except on Baseline Schedule)
viii. On all updates and projections, show Baseline Schedule as Target (with Target Early Start and Target Early Finish dates)
ix. Format title block to include (at a minimum) the Contractor's name, school name, project number, file name, data date and run date.

c. The Contractor will be responsible for planning, scheduling, managing, and reporting the progress of the work in accordance with all of the specific methods and submittals described in this section.

d. The construction schedule shall be prepared by a competent scheduler, and used by the Contractor to plan, prosecute and coordinate the work in an orderly and expeditious manner. The schedule will be used by the Owner and the Architect to evaluate progress and status at the various stages of the project, allocate funds, determine the impact of any changes to the Contract and establish the basis for progress payments.

1.5 CPM SCHEDULE STRUCTURAL REQUIREMENTS

A. The following requirements have been defined in an effort to create consistency across all project schedules for purpose of analysis.

1. Structure of Schedule:

a. The schedule should be broken down into logical areas of work. We suggest separate areas of the building and that sitework be divided into appropriate areas. We expect to see, at a minimum, the following areas (where applicable):

i. Milestones
ii. Prepare & Issue Submittals
iii. Review Submittals
iv. Material Procurement & Delivery
v. On Site Work
vi. Off Site Work
vii. Area A
viii. Area B
ix. Area C
x. Area D
xi. Plant

xii. Etc.

b. Tasks related to the submittal/procurement of material or equipment shall be included as separate activities in the project schedule. Examples of procurement activities include, but are not limited to:

i. Material/Equipment submittal preparation
ii. Submittal and approval of material/equipment
iii. Delivery of O&M manuals
iv. Material/equipment fabrication and delivery
v. Delivery of extra parts/extra stock/special tools
vi. Notification of Owner furnished materials/equipment delivery requirements
vii. Contractor's original network diagram submittal shall become the Baseline Schedule, once it is found acceptable by the Owner. The Baseline Schedule shall be duplicated and utilized as the Current Schedule and shown graphically over the Baseline.

c. Construction activities shall include at a minimum, but are not limited to:

i. Tasks corresponding to each specification section covered in the Specification Index in Divisions 2 through 16
ii. Tasks related to mobilization / demobilization
iii. Tasks related to Owner; Owner provide materials, FFE delivery and setup, Move in prior to substantial and final completion
iii. The installation of temporary or permanent work by tradesman
iv. Testing and inspections of installed work by technicians, inspectors, or engineers
v. System utility outages and tie ins
vi. Start up and testing of equipment, commissioning of building and related systems
vii. Scheduling of specified manufacturer's representatives
viii. Final clean up
ix. Training to be provided
x. Punch list completion
xi. Maintenance period
xii. Administrative tasks necessary to start, proceed with, accomplish or finalize the contract

1.6 UPDATING SCHEDULES

A. Updated Schedules shall accompany the monthly Application for Payment, reflecting progress since previous month's submittal.

B. The schedule update shall show the status of all activities, including those in progress, completed or not started, indicated by start and finish dates, whether forecasted or actual, completion percentages based on time, original and remaining durations, any changes in network logic or activity durations and any other relevant information. Refer to Part 1.8 for revisions to the Schedule.

C. Identify activities modified since previous submittal, major changes in work, changes associated with approved Change Orders and any other identifiable changes.

D. Actual start and finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software system. Actual start and actual finish dates on the CPM schedule shall match the dates of actual work accomplished in the field and not on projected completion dates. Out of sequence progress (if applicable) shall be handled through Retained Logic, not the option of Progress override.

E. With each updated schedule submission, the Contractor shall submit a brief narrative report, including descriptions of schedule revisions such as changes in network logic, planned activity start dates, duration or in the critical path. The report will include a description of the amount of progress during the last month, a description of any problem areas, current or anticipated delays and their estimated schedule impacts. In the narrative report, the Contractor shall provide explanation for any slippage in contractual completion or other milestone dates. Additionally, the Contractor shall propose remedial measures necessary to recover any lost time, whether actual or forecasted. Contractor shall take such additional steps as are necessary in order to effectively eliminate or minimize such delays and to comply with the contract schedule.

1.7 SCHEDULE REVISIONS

A. Updating the schedule to reflect actual progress made up to the data date of a schedule update shall not be considered revisions to the Baseline Schedule.

B. If, as a result of a schedule update, it appears the baseline schedule no longer represents the actual prosecution and progress of the work, the Architect or Owner shall request a revised schedule from the Contractor. The revision shall address the Contractor’s current construction plan for completing the work without impacting contract time and cost. Approved

revisions to the schedule shall be incorporated into the Baseline Schedule at the next schedule update submission.

C. If the Architect or Owner recognizes at any time, regardless of, reason that the work has fallen behind the scheduled contract time, milestone, phase dates or for work activity on the latest schedule that indicates more than a critical five (5) day delay to

the project, the Contractor shall submit a written and documented Recovery Schedule within seven (7) calendar days of the Architect's/Owner's written request. The Contractor will document in the Recovery Schedule and narrative, all additional resources, including materials equipment and labor and modifications of operations which will be provided so as to meet the schedule. The Contractor will provide all such additional resources and modifications of operations without additional cost to the Owner. Such additional resources and modifications shall include but not be limited to:

1. Required overtime for the Contractor's personnel

2. Increased construction manpower in such quantities as will substantially eliminate the backlog of work and put the project back on schedule

3. Increase numbers of shifts per working day, working days per week or the amount of construction equipment or any combination of the foregoing which will put the project back on schedule

4. Reschedule activities to achieve the maximum practical concurrence of accomplishment of activities to put the project back on schedule

5. Supplemental progress schedules detailing the specific operation changes instituted to regain the contract schedule

The Contractor will implement the Recovery Schedule without additional cost to the Owner and provide for completion of the work in accordance with the remaining milestone dates without a time extension. Should the logic and/or durations of the Recovery Schedule not receive acceptance of the Architect and the Owner, the Contractor is responsible to use concurrent operations, additional manpower, additional shifts, overtime, etc., including 24 hour production work day, seven (7) day work week operation, as required to put the project back on schedule at no additional cost to the Owner.

D. The Contractor may also request revisions to the Baseline Schedule in the event the Contractor's planning for the work is revised. If the Contractor desires to make changes in the Baseline Schedule to reflect revisions in its method of operating and scheduling of the work, the Contractor shall notify the Architect and Owner in writing stating the reason for the proposed revisions and accompanied by a copy of the Contractor's electronic CPM Schedule. The revision shall address the Contractor's current construction plan for completing the work without impacting contract time and cost. Accepted revisions to the schedule shall be incorporated into the Baseline Schedule at the next schedule update submission.

E. If changes in the method of operation and scheduling are desired, the Owner and/or Architect shall be notified in writing stating the reasons for the change. If the Owner and/or Architect considers these changes to be of a major nature, the Contractor

may be required to revise and submit for acceptance, without additional cost to the Owner, the network diagrams and required sorts. A change may be considered of a major nature if the estimated time required or actually used for an activity or the network logic is varied from the original plan to a degree that there is a reasonable doubt as to the effect on the contract completion date(s) (or phase completion dates). Changes that affect activities with adequate float time shall be considered a major change when their cumulative effect could extend the contract completion dates.

F. Use of float suppression techniques, such as:

1. Preferential sequencing (arranging critical path through activities more susceptible to Owner and/or Architect caused delay);

2. Special lead/lag logic restraints;

3. Zero total or fee float constraints;

4. Extended activity times, or imposing constraint dates other than as required by the contract;

shall be cause for rejection of the project schedule or its updates. The use of resource Leveling (or similar software features) used for the purpose of artificially adjusting activity durations to consume float and influence the critical path is expressly prohibited.

G. Definitions of Float or Slack

1. Free float is the length of time the start of an activity can be delayed without delaying the start of a successor activity.

2. Total float is the length of time along a given network path that the actual start and finish of activity(ies) can be delayed without delaying the project completion date.

3. Project float is the length of time between the Contractor's early completion (or Substantial Completion) and the contract completion date.

4. Project float is for the benefit of the project and for the mutual use of the Owner and the Contractor.
5. Contractor's non-work weather days bank of time activity shall not be defined as "Float or Slack" for this project. It is Contractor time identified in item 1.9.G which follows.

H. Negative float will not be a basis for requesting time extensions. Any extension of time will be addressed in accordance with item 1.9 Time Extensions. Scheduled

completion dates(s) that extend beyond the contract (or phase) completion date(s) (evidenced by negative float) may be used in computation for assessment of payment withholdings. The use of this computation is not to be construed as a means of acceleration.

1.8 TIME EXTENSIONS

A. Extensions of time to the Contract may be granted only for delays to activities on the critical path that actually delay the project completion beyond the date of Substantial Completion or for delays to activities that transform that activity onto the critical path, and, as a result, delay completion beyond the contract Substantial Completion date.

B. Seasonal weather conditions and resulting impacts shall be included in the planning and scheduling of all work influenced by wind, cold or warm weather, smoke, snow, and/or precipitation to ensure completion of all work within the Contract time.

If all the work, or the portion(s) of the work which are the currently controlling operation(s), are suspended for weather so as not to prosecute the work, a time extension at the Owners discretion, **may be awarded if the following conditions are satisfied**

a. The weather shall actually be the delay to the Substantial Completion Date of the project and the delay must be beyond the control and without the fault or negligence of Contractor; weather will be evaluated based on the original baseline schedule without revision if revision is the result of contractor performance; **and**

b. The weather recorded by NOAA / NWS (WS Form: F6) website: (www.weather.gov/climate/index), Reno location or owner approved location of work during the Contract period shall be found to occur more frequently than the weather normally recorded by NOAA / NWS to be anticipated is documented more frequently occurring than 5 Year NOAA / NWS (WS Form: F6) Averages for all project locations; or

c. Owner/Architect orders the stoppage or suspension of the work in the interest of public safety or health or due to specification requirements.

Weather is defined for the purposes of this Contract to be compared to current recorded National Oceanic and Atmospheric Administration (NOAA) / National Weather Service Preliminary Local Climatological Data (WS FORM: F-6) for Station: Reno, Nevada, or for owner approved alternate project location, as follows:

- **PRECIPITATION** water equivalent of greater than or equal to 0.1 inch

recorded for the 24-hour period, of the date, and /or

- **AVERAGE** wind speed of greater than or equal to 20 miles per hour recorded for the 24-hour period for the date of occurrence. **NOT** 2 Minute Sustained or Gusts as recorded in (WS FORM:F6).

The schedule of anticipated weather delays is based on current National Oceanic and Atmospheric Administration (NOAA) / National Weather Service (NWS) records kept as Preliminary Local Climatological Data (WS FORM: F-6) for Station: Reno, Nevada, (e.g. 5 Year NOAA / NWS (WS Form: F6) Averages) for all project locations **and will constitute the baseline for the total Contract Time weather delay evaluations.** Contractor's CPM schedule shall be understood to include as a minimum, the amount of weather delay days lost in all Contractors' weather dependent activities occurring during the activity.

1.9 THREE (3) WEEK PROJECTION SCHEDULE

A. As deemed necessary by the Owner or Architect, the Contractor shall provide a three (3) week detailed short interval schedule for each building story, and area of the work, at regularly scheduled progress meetings. The format shall be satisfactory to the Owner and Architect. Short interval schedules shall be based upon the most current precedence Network Diagram and will indicate the actual progress achieved the previous week as well as the detailed activities scheduled for the next two (2) weeks and will show anticipated durations, start and completion dates for activities, and how the schedule tracks to the baseline schedule. All projection schedules shall be derived from the baseline schedule.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01310A

SECTION 01400 – QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all contract documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for quality control services.

B. Quality control services include inspections, tests and related actions, including reports performed by the Contractor, by independent agencies and by governing authorities. They do not include contract enforcement activities performed by the Architect.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with contract document requirements.

D. Requirements of this section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality control requirements for individual construction activities are specified in the sections that specify those activities. Requirements in those sections may also cover production of standard products.

2. Specified inspections, tests and related actions do not limit the Contractor's quality control procedures that facilitate compliance with contract document requirements.

3. Requirements for the Contractor to provide quality control services required by the Architect, Owner or Authorities Having Jurisdiction (AHJ) are not limited by provisions of this section.

E. Related Sections: The following sections contain requirements that relate to this section:

1. Division 1 SECTION 01045 – CUTTING AND PATCHING specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.

2. Division 1 SECTION 01300 – SUBMITTALS specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

A. Owners Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, the Owner or Owners representatives/agents, project managers, QA/QC inspectors, coordinators etc. shall provide inspections, tests and other quality control services specified elsewhere in the contract documents and required by AHJ.

1. Where individual sections specifically indicate that certain inspections, tests and other quality control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality control services. Costs for these services are included in the contract sum.

2. Where individual sections specifically indicate that certain inspections, tests and other quality control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.

    a. Where the Owner has engaged a testing agency for testing and inspecting part of the work and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless agreed to in writing by the Owner.

B. Retesting: The Contractor is responsible for retesting where results of inspections, tests or other quality control services prove unsatisfactory and indicate non-compliance with contract document requirements, regardless of whether the original test was the Contractor's responsibility.

1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated non-compliance with contract document requirements.

C. Associated Services: Cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:

1. Provide access to the work.

2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.

3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.

4. Provide facilities for storage and curing of test samples.

5. Deliver samples to testing laboratories.

6. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.

7. Provide security and protection of samples and test equipment at the project site.

D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling and testing of materials and construction specified in individual sections shall cooperate with the Architect and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Architect and the Contractor promptly of irregularities or deficiencies observed in the work during performance of its services.

2. The agency is not authorized to release, revoke, alter or enlarge requirements of the contract documents or approve or accept any portion of the work.

3. The agency shall not perform any duties of the Contractor.

E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities. The Contractor will also be responsible for standby charges from the Owner’s laboratory if they are due to a scheduling error by the Contractor.

1.4 SUBMITTALS

A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test or similar service to the Architect. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test or similar service through the Contractor.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:

    a. Date of issue
    b. Project title and number
    c. Name, address and telephone number of testing agency
    d. Dates and locations of samples and tests or inspections
    e. Names of individuals making the inspection or test
    f. Designation of the work and test method
    g. Identification of product and specification section
    h. Complete inspection or test data
    i. Test results and an interpretation of test results
    j. Ambient conditions at the time of sample taking and testing
    k. Comments or professional opinion on whether inspected or tested work complies with the contract document requirements
    l. Name and signature of laboratory inspector
    m. Recommendations on retesting

1.5 QUALITY ASSURANCE

A. Qualifications for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' *Recommended Requirements for Independent Laboratory Qualification* and that specialize in the types of inspections and tests to be performed.

    1. Each independent inspection and testing agency engaged on the project shall be authorized by AHJ to operate in the State of Nevada.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with the contract document requirements for Division 1 SECTION 01045 – CUTTING AND PATCHING

B. Protect construction exposed by or for quality control service activities and protect repaired construction.

C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01400

SECTION 01420 – REFERENCES

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section includes abbreviations and acronyms, additional definitions, and reference standards used in the contract documents.

B. Refer to Drawings and general provisions of the Contract, including all contract documents and addendums associated with this project for further information.

1.2 ABBREVIATIONS AND ACRONYMS

A. The following abbreviations and acronyms may be used in the contract documents. Refer uncertainties to the Architect for a decision before proceeding.

AA	Aluminium Association
AAADM	American Association of Automatic Door Manufacturers
AAMA	Architectural Aluminum Manufacturers' Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AFPA	American Forest and Paper Association
AIA	American Institute of Architects
AIMA	Acoustical and Insulation Materials Association
AISC	American Institute of Steel Construction
AMCA	American Movement and Control Association
ANSI	American National Standards Institute
APA	The Engineered Wood Association (formerly the American Plywood Association)
ARI	Air Conditioning and Refrigeration Institute
ASA	American Standards Association
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWWA	American Water Works Association
AWS	American Welding Society
BHMA	Builders Hardware Manufacturers' Association
BIA	Brick Institute of America
CAL/OSHA	State of California Construction Safety Orders
CALTRANS	State of California, Business and Transportation Agency,

	Department of Transportation, *Standard Specifications*
CCR	California Code of Regulations
CDA	Copper Development Association
CISCA	Ceilings and Interior Systems Construction Association
CFFA	Chemical Fabrics and Film Association, Inc.
CFMG	Cabinet and Fixture Manufacturers Guild
CLFMI	Chain Link Fence Manufacturers' Institute
CPA	Composite Panel Association (formerly the National Particleboard Association)
CRI	Carpet and Rug Institute
CRSI	Concrete Reinforcing Steel Institute
CPSC	United States Consumer Products Safety Commission
CS	Commercial Standard, United States Department of Commerce
CSA	Canadian Standards Association
DASMA	Door and Access Systems Manufacturers Association International
EIMA	EIFS Industry Members Association
EPA	Environmental Protection Agency
ESO	Electrical Safety Orders
FAA	Federal Aviation Administration, United States Department of Transportation
FCC	Federal Communications Commission
FGMA	Flat Glass Marketing Association (now the GANA)
FM	Factory Mutual System, Factory Mutual Engineering Corporation
FS	Federal Specification Unit
GA	Gypsum Association
GANA	Glass Association of North America (formerly the Flat Glass Marketing Association and Glass Tempering Association)
GRI	Geosynthetic Research Institute
GTA	Glass Tempering Association (now the GANA)
HMA	Hardwood Manufacturers Association
HPMA	Hardwood Plywood Manufacturers Association
HPVA	Hardwood Plywood and Veneer Association
HUD	United States Department of Housing and Urban Development
IEEE	Institute of Electrical and Electronic Engineers
IGCC	Insulating Glass Certification Council
ITS-WH	Intertek Testing Service - Warnock Hersey
LSGA`	Laminator’s Safety Glass Association
MIA	Marble Institute of America or the Masonry Institute of America

MIL	Military Standardization Document, United States Department of Defense
MIW	Masonry Institute of Washington
ML/SFA	Metal Lath/Steel Framing Association
MM	“Materials Manual”, State of California, Business and Transportation Agency, Department of Transportation
NAAMM	National Association of Architectural Metal Manufacturers
NBGQA	National Building Granite Quarries Association, Inc.
NBS	National Bureau of Standards (now the NIST)
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NEMA	National Electric Manufacturers' Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association (now the AFPA)
NFRC	National Fenestration Rating Council
NHLA	National Hardwood Lumber Association
NIST	National Institute of Standards and Technology, United States Department of Commerce (formerly the National Bureau of Standards)
NOFMA	National Oak Flooring Manufacturers Association
NPDES	National Pollutant Discharge Elimination System
NRCA	National Roofing Contractors Association
NSF	NSF International (formerly National Sanitary Foundation)
NTMA	National Terrazzo and Mosaic Association
NWWDA	National Wood Window and Door Association (now WDMA)
OSA	Office of the State Architect, State of California
OSHPD	Office of Statewide Health Planning and Development, State of California
PCI	Precast / Prestressed Concrete Institute
PS	Product Standard, United States Department of Commerce
RCW	Revised Code of Washington, State of Washington
RIS	Redwood Inspection Service
SDI	Steel Deck Institute or the Steel Door Institute
SFM	Office of State Fire Marshal, State of California
SIGMA	Sealed Insulated Glass Manufacturer’s Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Society for Protective Coatings (formerly the Steel Structures Painting Council)
SWI	Steel Window Institute
TCA	Tile Council of America

UBC	Uniform Building Code
UFC	Uniform Fire Code
UL	Underwriters Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USPS	United States Postal Service
USS	United States Standard
WAC	Washington Administrative Code, State of Washington
WCLIB	West Coast Lumber Inspection Bureau
WDMA	Window and Door Manufacturers Association (formerly the National Wood Window and Door Association)
WIC	Woodwork Institute of California
WLPDIA	Western Lath Plaster /Drywall Industries Association (now the WWCCA)
WSDOT	Washington State Department of Transportation
WWCCA	Western Wall & Ceiling Contractors Association
WWPA	Woven Wire Products Association or Western Wood Products Association

B. Additional abbreviations, used only on the drawings, are listed and defined thereon.

USE SECTION 1.03 ONLY IF THESE DEFINITIONS ARE NOT INCLUDED IN THE GENERAL CONDITIONS FOR THE SPECIFIC CONTRACT.

1.03 ADDITIONAL DEFINITIONS

A. In addition to the terms defined in the General Conditions, the following terms are used in the contract documents and are defined as follows:

Accepted Equal	As accepted by the Architect as being of equivalent quality, utility and appearance.
Addenda	Written or graphic instruments issued by the Owner/Architect prior to the execution of the Contract which modify or interpret the bidding documents by additions, deletions, clarifications or corrections.
By Owner	Work on this project that will be performed by the Owner or its agents, at the Owner's cost.
By Others	Work on this project that is outside the Scope of Work to be performed by the Contractor under this Contract, but that will be performed by the Owner, other contractors or other means.
Consultant	A consultant to the Architect
Directed	Directed by the Architect

Furnish	Supply only; do not install
Indicated	As shown and/or noted on the drawings
Install	Install or apply only; do not furnish
Owner-Furnished, Contractor-Installed	The Owner will furnish at their cost and the Contractor shall install under their contract for this work.
Project Manual	The Project Manual consists of two volumes: Volume 1 includes the bidding and contract requirements and Specifications; and Volume 2 includes the details and schedules. One volume which includes the bidding and contract requirements and specifications and the details and schedules.
Provide	Furnish and install
Site	Geographical location of the project
Specified	As written in the specifications

1.4 REFERENCE STANDARDS

A. Specified standards of the construction industry shall have the same force and effect on the performance of the work as if bound or copied directly into the contract documents. Such standards are made a part of the contract documents by reference.

B. Each entity or person engaged in the work shall be familiar with the industry standards applicable to its construction activity.

C. Where compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum qualities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the Architect for a decision before proceeding.

D. Copies of applicable standards are not bound with the contract documents. Where copies are required for proper performance of the work, obtain and pay for authorized copies directly from publication source and maintain at the site during submittals, planning and performance of work until final acceptance by the Owner. Make such copies of standards available to the Owner and Architect for review upon request.

E. For products or quality of installation specified by association, trade, military, federal or other reference standards, comply with requirements of the standard, except when more rigid requirements are specified in the contract documents or are required by applicable codes and/or public Authorities Having Jurisdiction (AHJ).

1. Except as otherwise indicated or specified, where compliance with a reference standard is required, comply with the standard in effect as of the

date established for the receipt of bids. Where a reference standard has been revised and reissued after the date established for the receipt of bids and before performance of the work affected, notify the Architect in writing and request a decision on how to proceed. The Architect may issue a contract modification or an Architect's Supplemental Instruction (ASI) for proceeding in accordance with the updated standard.

2. The contractual relationship of the parties to the Contract shall not be altered from the contract documents by mention or inference otherwise in a reference standard. The provisions of the bidding requirements; contract documents including, but not limited to all issued addendums; and the Contract shall void the general, but not technical, provisions of a reference standard in conflict therewith.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01600 – MATERIALS AND EQUIPMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all contract documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements governing the Contractor's selection of products for use in the project.

B. Related Sections: The following sections contain requirements that relate to this Section:

1. Division 1 SECTION 01420 - REFERENCES specifies the applicability of industry standards to products specified.

2. Division 1 SECTION 01300 – SUBMITTALS specifies requirements for submittal of the Contractor's construction schedule and the submittal schedule.

3. Division 1 SECTION 01631 – SUBSTITUTIONS specifies administrative procedures for handling requests for substitutions made after award of the contract.

1.3 DEFINITIONS

A. Definitions used in this section are not intended to change the meaning of other terms used in the contract documents such as *Specialties, Systems, Structure, Finishes, Accessories* and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

1. *Products* are items purchased for incorporation in the work, whether purchased for the project or taken from previously purchased stock. The term *Product* includes the terms *Material, Equipment, System* and terms of similar intent.

a. *Named Products* are items identified by the Manufacturer's product name, including make and model number or other designation, shown or listed in the Manufacturer's published product literature that is current as of the date of the contract documents.

b. *Foreign Products* as distinguished from domestic products are items substantially manufactured fifty percent [(50%) or more of value] outside the United States and its possessions. Products produced or supplied by entities substantially owned [more than fifty percent (50%)] by persons who are not citizens of, nor living within, the United States and its possessions.

2. *Materials* are products substantially shaped, cut worked, mixed, finished, refined or otherwise fabricated, processed or installed to form a part of the work.

3. *Equipment* is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

A. Product List: A list of products required is included at the end of this section. Prepare a schedule in tabular form showing each product listed. Include the Manufacturer's name and proprietary product names for each item listed.

1. Coordinate product list with the Contractor's construction schedule and the schedule of submittals.

2. Form: Prepare product list with information on each item tabulated under the following column headings:

   a. Related Specification Section Number
   b. Generic name used in the contract documents
   c. Proprietary Name, Model Number and similar designations
   d. Manufacturer's Name and Address
   e. Supplier's Name and Address
   f. Installer's Name and Address
   g. Projected Delivery Date or time span of delivery period

3. Initial Submittal: Within thirty (30) days after date of commencement of the work, submit three (3) copies of an initial product list. Provide a written explanation for omissions of data and for known variations from the contract requirements.

   a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the contract period.

4. Completed List: Within sixty (60) days after date of commencement of work, submit three (3) copies of the completed product list. Provide a written explanation for omissions of data and for known variations from the contract requirements.

5. Architect's Action: The Architect will respond in writing to Contractor within two (2) weeks of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with the contract documents. The Architect's response will include a list of unacceptable product selections containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.

1. When specified products are available only from sources that do not, or cannot, produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability or compatibility. When a determination has been made select products from sources producing products that possess these qualities to the fullest extent possible.

B. Compatibility of Options: When the Contractor is given the option of selecting between two (2) or more products for use on the project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1. Each Prime Contractor is responsible for providing products and construction methods that are compatible with products and construction methods of other prime or separate contactors.

2. If a dispute arises between Prime Contractors over concurrently selectable, but incompatible products, the Architect will determine which products shall be retained and which are incompatible and must be replaced.

C. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the work:

1. No available domestic product complies with the contract documents.

2. Domestic products that comply with the contract documents are available only at prices or terms substantially higher than foreign products that comply with the contract documents.

D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturers or producer’s nameplate or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on concealed surfaces, or where required for observation after installation, on accessible surfaces that are not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service connected or power operated equipment. Locate on an easily accessible

surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

a. Name of Product and Manufacturer
b. Model and Serial Number
c. Capacity
d. Speed
e. Ratings

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle products according to the Manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft and other losses.

3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

4. Inspect products upon delivery to ensure compliance with the contract documents and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 – PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the contract documents that are undamaged and, unless otherwise indicated, new at the time of installation.

1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: The contract documents and governing regulations govern product selection. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted.

2. Semi Proprietary Specification Requirements: Where specifications name two (2) or more products or manufacturers, provide one (1) of the products indicated. No substitutions will be permitted.

   a. Where specifications specify products or manufactures by name, accompanied by the term “or equal” or “or approved equal.” Comply with the contract document provisions concerning *Substitutions* to obtain approval for use of an unnamed product.

3. Non-Proprietary Specifications: When specifications list products or manufacturers that are available and may be incorporated in the work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with contract requirements. Comply with contract document provisions concerning *Substitutions* to obtain approval for use of an unnamed product.

4. Descriptive Specification Requirements: Where specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with contract requirements.

5. Performance Specification Requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.

a. Manufacturer's recommendations may be contained in published product literature or by the Manufacturer's Certification of Performance.

6. Compliance with Standards, Codes, and Regulations: Where specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.

7. Visual Matching: Where specifications require matching an established sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.

   a. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the contract documents concerning *Substitutions* for selection of a matching product in another product category.

8. Visual Selection: Where specified product requirements include the phrase "…as selected from Manufacturer's standard colors, patterns, textures…" or a similar phrase, select a product and Manufacturer that comply with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

9. Allowances: Refer to individual specification sections and *Allowance* provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

PART 3 – EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Comply with Manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.

   1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01600

SECTION 01631 - SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

B. Related Sections: The following sections contain requirements that relate to this Section:

1. Division 1 SECTION 01420 - REFERENCES specifies the applicability of industry standards to products specified.

2. Division 1 SECTION 01300 - SUBMITTALS specifies requirements for submitting the Contractor's Construction Schedule and the Submittal Schedule.

1.3 DEFINITIONS

A. Definitions in this article do not change or modify the meaning of other terms used in the contract documents.

B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the contract documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions. The following are not considered to be requests for substitutions:

1. Substitutions requested during the bidding period, and accepted by addendum prior to award of the Contract, are included in the contract documents and are not subject to requirements specified in this section for substitutions.

2. Revisions to the Contract Documents requested by the Owner or Architect.

3. Specified options of products and construction methods included in the contract documents.

4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

A. Substitution Request Submittal: The Architect will consider requests for substitution if received within sixty (60) days after commencement of the work. Requests received more than sixty (60) days after commencement of the work may be considered or rejected at the discretion of the Architect.

1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for change-order proposals and include the Product Evaluation Questionaire (CP-F116) found within these bid documents.

2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification section and drawing numbers.

3. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

a. Coordination information, including a list of changes or modifications needed to other parts of the work and to construction performed by the Owner and separate contractors, that will be necessary to accommodate the proposed substitution.

b. A detailed comparison of significant qualities of the proposed substitution with those of the work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.

c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

d. Samples, where applicable or requested.

e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

f. Cost information, including a proposal of the net change, if any in the Contract Sum.

g. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.

h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

4. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one (1) week of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of the substitution within three (3) weeks of receipt of the request, or two (2) weeks of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.

    a. Use the product specified if the Architect cannot make a decision on the use of a proposed substitute within the time allocated.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions: The Architect will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.

1. Extensive revisions to the contract documents are not required.

2. Proposed changes are in keeping with the general intent of the contract documents.

3. The request is timely, fully documented, and properly submitted.

4. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the work promptly or coordinate activities properly.

5. The request is directly related to an “or-equal” clause or similar language in the contract documents.

6. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.

7. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the contract documents and where the Contractor certifies that the proposed substitution provides the required warranty.

B. The Contractor's submittal and the Architect's acceptance of shop drawings, product data, or samples for construction activities not complying with the contract documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01631

PRODUCT EVALUATION QUESTIONNAIRE

When proposing to substitute products for those specified or proposing a product to meet a specified performance standard, please furnish the following information to assist the Owner and Architect in evaluating the proposed product.

Bid/Quote #: _____

Project: _____

Specification Section: _____

Division:_____

Article #: _____

Name of Product: _____

Manufacturer's Name and Address: _____

_____

1. Attach manufacturer's complete technical data and all information relating to limitations of the product information requiring further testing be deemed necessary by the Architect, the cost of the prescribed test shall be borne by the Contractor. Contractor shall send product samples upon request.

2. Attach a list of projects where comparable use has been made of this product. List the name and location of the project, name of Owner or Architect, Engineer, General Contractor, and Subcontractor (if applicable), and the year installed.

3. List any problems encountered with this product on projects where it has been used. What corrective measures were required?

4. Provide a detailed comparison of the proposed substitute product with that of the specified product. Differences are to be highlighted and called out.

5. Submit a detailed specification, conforming to the format of the technical specifications herein contained, tailored to this project for installation of this product.

6. Will the services of an expert field representative be furnished to supervise the installation of this product?

7. Describe maintenance requirements for this product and availability of expert repair service, if needed.

8. Will the proposed substitution result in a change in Contract price or time of completion? If so, submit itemization of price change and explain effect on time of completion.

9. Will the use of the proposed product necessitate a change in the contract drawings or specifications?

10. Will the use of this product necessitate the payment of any license fees or royalties?

11. Furnish information establishing financial responsibility of the manufacturer. (Number of years in business, volume of business, Dunn & Bradstreet rating, etc.)

12. The Contractor certifies that he or she understands the conditions of use to which this product will be put and he/she warrants this product as stipulated in the General Conditions.

_____
Name of Contractor

_____
Signature of Officer, Owner or Partner

_____
Date

SECTION 01650 - CONTRACTOR MOVING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and supervisory requirements necessary for coordinating construction contractor moving requirements including, but not necessarily limited to, the following:

1. General Project Coordination Procedures

2. Conservation

3. Coordination Drawings

4. Administrative and Supervisory Personnel

5. Cleaning and Protection

B. Related Sections: The following sections contain requirements that relate to this section:

1. Division 1 SECTION 01200 – PROJECT MEETINGS for progress meetings and coordination meetings.

2. Division 1 SECTION 01300 - SUBMITTALS for preparing and submitting the Contractor's construction schedule.

1.3 OWNER RESPONSIBILITIES

A. The Owner shall complete all of the preparatory work required for the moving of furnishings, equipment, files, etc. as listed below:

1. Supply boxes, tape and box labels.

2. All personal property is the responsibility of WCSD.

3. All WCSD property that will fit in the WCSD provided boxes are to be boxed.
4. All file cabinets, desks, shelves and closets are to be emptied.

5. All loose trash shall be picked up and disposed of.

6. Inform school of time frames and schedules.

7. Coordinate staging area for temporary storage containers with site, as required.

8. All items will be ready to move based upon the Contractor's approved schedule.

1.4 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for moving all furnishings, equipment, files, etc. as directed by the Owner and listed above and all of the items as listed:

1. Hire movers and manage all aspects of the move.

2. Supply all required moving tools, dollies, hand trucks, carts, etc.

3. Supply steel lockable temporary storage containers, if required.

4. Photograph the space prior to moving out.

5. Replace all items in space as indicated on photographs.

6. Repair or replace any WCSD owned property damaged by the Contractor.

7. Disconnect and reconnect, as needed, any computer, audio, copy and print equipment, etc.

1.5 COORDINATION

A. Coordinate the construction operations included in various sections of these specifications to assure efficient and orderly installation of each part of the work. Coordinate the construction operations included under different sections that depend on each other for proper installation, connection and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
3. Make provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination, include such items as required such as, notices, reports and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules

2. Installation and removal of temporary facilities

3. Delivery and processing of submittals

4. Progress meetings

5. Project closeout activities

D. Conservation: Coordinate moving operations to assure that operations are carried out with consideration given to conservation of energy, water and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the work.

E. Intent of Drawings:

1. The work of the Contractor and any applicable sub-contractors shall conform to the intent of the architectural and moving coordination work as reviewed by the Architect. Drawings are partly diagrammatic and do not intend to show in detail all features of the work. The Contractor shall carefully review the work to be performed by other trades, compare related drawings and shall thoroughly understand the moving responsibilities affecting their work.

2. All changes required in the work caused by failure to do so shall be at no expense to the Owner.

F. Moving Coordination Drawings:

1. Floor Plans and Wall Elevations shall include dimensioned sizes and locations for all door and window openings.

1.6 SUBMITTALS

A. Coordination Drawings: Prepare moving coordination drawings where careful coordination is needed for installation of products, materials and equipment to be relocated and stored.

1. Show the relationship of components shown on separate Shop Drawings.

2. Indicate required installation sequences. Acknowledge the Contractor's responsibilities in written fashion.

3. Comply with requirements contained in Division 1 SECTION 01300 - SUBMITTALS.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL COORDINATION PROVISIONS

A. Inspection of Conditions: Require the mover of each component to inspect the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

3.2 CLEANING AND PROTECTION

A. Clean and protect material and equipment during handling and installation. Apply protective covering, where required, to assure protection from damage or deterioration at the time of Substantial Completion.

B. Clean and provide maintenance on moved and stored work as frequently as necessary through the remainder of the construction period.

C. Limiting Exposures: Supervise construction operations to assure that no part of the relocated work completed or in progress, is subject to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading

2. Excessive internal or external pressures

3. Excessively high or low temperatures
4. Thermal shock
5. Excessively high or low humidity
6. Air contamination or pollution
7. Water or ice
8. Solvents
9. Chemicals
10. Light
11. Radiation
12. Puncture
13. Abrasion
14. Heavy traffic
15. Soiling, staining and corrosion
16. Bacteria
17. Rodent and insect infestation
18. Combustion
19. Electrical current
20. High speed operation
21. Improper lubrication
22. Unusual wear or other misuse
23. Contact between incompatible materials
24. Destructive testing
25. Misalignment

26. Excessive weathering
27. Unprotected storage
28. Improper shipping or handling
29. Theft
30. Vandalism

END OF SECTION 01650

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all bid documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for Contract closeout including, but not limited to, the following:

1. Inspection Procedures
2. Submittal of Project Record Document
3. Submittal of Operation and Maintenance Manual
4. Submittal of Warranties
5. Final Cleaning
6. Submittal of Regulated Systems [ACBM (Asbestos Containing Building Materials) & Lead] Closeout Documents
7. Submittal of any Final Prevailing Wage Reports

B. Closeout requirements for specific construction activities are included in the appropriate sections in Divisions 2 through 16.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show one hundred percent (100%) completion for the portion of the work claimed as substantially complete.

    a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the contract sum.

    b. If one hundred percent (100%) completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.

c. Provide a list of all warranties, provide warranty duration, complete contract information of firm, and name of individual who will be performing work – post one (1) year. extended warranties will be submitted on a separate spread sheet within the closeout documents in the following format. Specification #, Company responsible for performing the warranty work, Local contact for responsible individual, phone number and email address, warranty description, warranty period, warranty start and end dates.

2. Advise the Owner of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

4. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities.

5. Include occupancy permits, operating certificates, and similar releases.

6. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.

7. Submit all required training meeting minutes and video recordings of all training courses.

8. Deliver tools, spare parts, extra stock, and similar items.

9. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.

10. Complete startup testing of systems and videoed training instruction of/for the Owner's Operation and Maintenance personnel.

11. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.

12. Complete final clean-up requirements, including touch up painting.

13. Touch-up and otherwise repair and restore marred, exposed finishes.

14. Provide Contractor furnished fixtures, furnishings, and equipment individually valued over $5,000 including description, manufacturer model and serial number, location at site, and specific value for equipment.

B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the work is substantially complete.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

3. The cost for any Architectural services for reinspection is the Contractor's sole responsibility.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the WCSD's, Architect's & Engineer's final inspection lists of items to be completed or corrected, endorsed, and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.

4. Submit consent of surety to final payment.

5. Submit a final liquidated damages settlement statement.

6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

7. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the work.

B. Reinspection Procedure: The Architect will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect.

1. Upon completion of reinspection, the Architect will prepare a Certificate of Final Acceptance. If the work is incomplete, the Architect will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, reinspection will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Architect's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set black line white prints of Contract Drawings and Shop Drawings or continuous live electronic as built drawings with appropriate mark ups. Mark the set to show the actual installation where the installation varies from the work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. At the conclusion of the project, this record set of prints shall be submitted to the Architect for his/her review and comment. If the record set of prints is found to be complete and accurate, the prints shall be returned to the Contractor for submittal to the Owner with other closeout documents.

Record drawings must be reviewed and approved prior to each pay request by the Owner’s representative. The drawings should reflect the work that has been accomplished during the time period of the pay request. Lack of record drawings approval at the time of submittal of a pay request will result in a potential delay in the processing of the pay request.

1. Mark record sets with red erasable pencil or electronic. Use other colors to distinguish between variations in separate categories of work.

2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.

3. Note related change order numbers where applicable.

4. Organize record drawing sheets into manageable sets.

5. Provide one Bound set of record drawings with durable paper cover sheets; print suitable titles, dates and other identification on the cover of each set.

6. . Provide record drawings using electronic media, including one PDF and one Auto Cad compatible. Original media will be provided for Contractor to make required record drawing notations.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual, one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

Record specifications must be reviewed and approved prior to each pay request by the Owner's representative. The specifications should reflect the work that has been accomplished during the time period of the pay request. Lack of record specification approval at the time of submittal of a pay request will result in a potential delay in the processing of the pay request.

1. Mark these documents to show substantial variations in actual work performed in comparison with the text of the specifications and modifications.

2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.

3. Note related record drawing information and product data.

4. Upon completion of the work, submit an electronic record specifications to the Architect for the Owner's records.

D. Record Product Data: Maintain one (1) copy of each Product Data submittal. Note related Change Orders and markup of record drawings and specifications.

1. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.

2. Give particular attention to concealed products and portions of the work that cannot otherwise be readily discerned later by direct observation.

3. Upon completion of markup, submit complete set of record Product Data to the Architect for the Owner's records.

E. Record Sample Submitted: Immediately prior to Substantial Completion, the Contractor shall meet with the Architect and the Owner's personnel at the project site to determine which samples are to be transmitted to the Owner for record purposes. Comply with the Owner's instructions regarding delivery to the Owner's sample storage area.

F. Miscellaneous Record Submittals: Refer to other specification sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or electronic file, ready for continued use and reference. Submit to the Architect for the Owner's records.

G. Maintenance Manuals: Organize operation and maintenance data into suitable sets of manageable size. Bind 2 copies (1 hard copy / 1 electronic) properly indexed data in individual, heavy duty, 2-inch, 3-ring, vinyl covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions
2. Spare parts list
3. Copies of warranties
4. Wiring diagrams
5. Recommended turn around cycles
6. Inspection procedures
7. Shop Drawings and Product Data
8. Fixture lamping schedule
9. Any other applicable information

H. Warranty Manuals: organize warranty data into suitable set of manageable size, Bind 1 copy and 1 electronic properly indexed in individual, heavy duty 3 ring binder. Mark appropriate identification on front and spine. Include the following types of information:

1. All products with extended warranties beyond 1 year, including duration (start and end date, similar to what is described in 1.3, A, 1,c)
2. Manufacturer

3. Model / Serial where applicable

4. Manufacturer contact information

I. Provide one complete download of all Procore Files properly organized and linked in PDF versions. Contractor to ensure original Procore file and documentation remains in place on Procore for use by owner. Owner shall instruct the contractor of the proper file structure

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operation and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Film Document each training and demonstration. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals
2. Record documents
3. Spare parts and materials
4. Tools
5. Lubricants
6. Fuels
7. Identification systems
8. Control sequences
9. Hazards
10. Cleaning
11. Warranties and bonds
12. Maintenance agreements and similar continuing commitments

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up
2. Shut down
3. Emergency operations
4. Noise and vibration adjustments
5. Safety procedures
6. Economy and efficiency adjustments
7. Effective energy utilization

END OF SECTION 01700

SECTION 01710 - FINAL CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all contract documents and addendums associated with this project shall apply to this section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for final cleaning at Substantial Completion.

B. Related Sections: The following sections contain requirements that relate to this Section:

1. Division 1 SECTION 01500 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS specifies general cleanup and waste removal requirements.

2. Division 1 SECTION 1700 – CONTRACT CLOSEOUT specifies general contract closeout requirements.

3. Special cleaning requirements for specific construction elements are included in appropriate sections of Divisions 2 through 16.

C. Multiple Prime Contracts: Each Prime Contractor is responsible for final cleaning their own work. The Contractor for General Construction is responsible for coordinating final cleaning of an area or piece of equipment where more than one (1) Prime Contractor is involved.

D. Environmental Requirements: Conduct cleaning and waste disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and antipollution regulations.

1. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains.

2. Burning or burying of debris, rubbish, or other waste material on the premises is not permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents

that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final-cleaning operations to all work spaces and any adjacent spaces affected by the work performed. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.

1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and foreign substances.

2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

3. Remove petrochemical spills, stains, and other foreign deposits.

4. Remove tools, construction equipment, machinery, and surplus material from the site.

5. Remove snow and ice to provide safe access to the building.

6. Clean exposed exterior and interior hard surfaced finishes to a dirt free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition. Wax any required flooring to the District standard.

7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

8. Broom clean concrete floors in unoccupied spaces.

9. Vacuum clean carpet and similar soft surfaces, removing debris and excess nap. Shampoo, if required.

10. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

11. Remove labels that are not permanent labels.

12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

    a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

13. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

14. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

15. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

16. Clean ducts, blowers, and coils if units were operated without filters during construction.

17. Clean food-service equipment to a sanitary condition, ready and acceptable for its intended use.

18. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.

19. Leave the Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests. Comply with regulations of local authorities. This section is only applicable for a new facility or an addition to an existing facility.

D. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.

E. Compliances: Comply with regulations of Authorities Having Jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Owner.

END OF SECTION 01710

WASHOE COUNTY SCHOOL DISTRICT

KETTLE BOILER DEMOLITION AND NEW CENTRAL STEAM BOILERS INSTALL AT NUTRITION SERVICES CENTER

PROJECT SPECIFICATIONS

100% Construction Documents

October 21, 2025

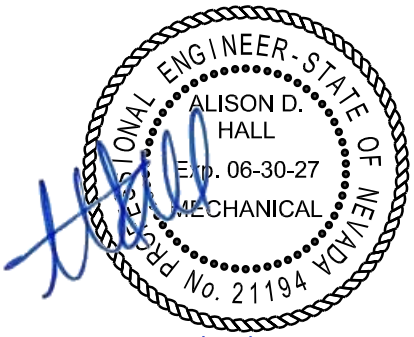
AINSWORTH ASSOCIATES
MECHANICAL ENGINEERS

WASHOE COUNTY SCHOOL DISTRICT

KETTLE BOILER DEMOLITION AND NEW CENTRAL STEAM BOILERS INSTALL AT NUTRITION SERVICES CENTER

100% CONSTRUCTION DOCUMENTS

October 21, 2025
AAME #2023-050



10/21/2025

Ainsworth Associates Mechanical Engineers
Mechanical Engineer

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SECTION 23 00 00 - HEATING, VENTILATING, AND AIR CONDITIONING

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. The Conditions of the Contract (General, Supplementary, and other Conditions) and the General Requirements (Sections of Division 1) are hereby made a part of this section.

B. This section lists general requirements for Heating, Ventilating, and Air Conditioning (HVAC) work and is hereby made a part of each Division 23 specification section.

C. For convenience or reference the Specifications are separated into Divisions and Sections. Such separations shall not operate to make the Engineer an arbitrator to establish subcontract limits between the Prime Contractor and his Subcontractors. In any case, the Prime Contractor is responsible to the owner for a complete job.

D. Wherever the word ‘provide’ is utilized with regard to materials or equipment on the drawings or in the specifications it shall be interpreted to mean ‘furnish and install’.

E. The term ‘exposed’ shall be interpreted to mean any equipment, ductwork, or piping that is not concealed above a continuous ceiling or inside a finished wall.

1.2 WORK INCLUDED

A. This section consists of general requirements and standard specifications covering certain parts of the HVAC work and is supplemented by other Division 23 specification sections covering additional work, requirements, and materials specifically applicable to the HVAC work of each section. Requirements of subsequent sections of the specifications, if in conflict with these general requirements, shall govern.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

A. Provide work and materials in full accordance with the latest rules and regulations of the following:

Nevada

2024 International Building Code
2024 International Existing Building Code (when applicable)
2024 Uniform Mechanical Code
2024 Uniform Plumbing Code
2024 International Energy Conservation Code
2023 National Electrical Code
2024 International Fire Code
2024 NFPA Codes and Standards
Nevada State Fire Marshal
Nevada Occupational Safety and Health
National Fire Protection Association
Underwriters Laboratories
All other applicable state codes, rules, and regulations

B. Nothing in the drawings or specifications shall be construed to permit work not conforming to the listed codes and regulations.

C. In the event of an inconsistency between or within the plans, specifications, any of the contract documents, codes, or regulations, the better quality, higher cost, and/or greater quantity of materials and work shall be provided at no additional cost to the Owner.

1.4 FEES, PERMITS, AND UTILITY SERVICES

A. Obtain and pay for all permits and service required for installation of this work; arrange for required inspections and secure approvals from the authorities having jurisdiction.

B. Arrange for utility connections and coordinate work with utility company.

C. Arrange required inspections and secure approvals from the authorities having jurisdiction.

1.5 SITE EXAMINATION

A. Examine site, verify dimensions and locations against drawings, and inform self of conditions under which work is to be done before submitting proposal. No allowance will be made for extra expense on account of error.

B. Information shown relative to existing services is based upon available records and data but is approximate only. Make minor deviations found necessary to conform to actual locations and conditions without extra cost. Verify location and elevation of all utilities prior to commencement of excavation for new piping or its installation.

C. Exercise extreme care in excavating near existing utilities to avoid any damage thereto. This Contractor is responsible for any damage caused by his operations.

1.6 PLACEMENT OF EQUIPMENT AND WORK

A. The placement of equipment and mechanical work in the locations and spaces shown on the drawings is the Contractor’s responsibility.

B. Move equipment and/or work into spaces through openings provided or located in the spaces during construction, as required.

C. Perform disassembling and reassembling of equipment and/or other work necessary to accomplish this requirement without extra cost to the Owner.

1.7 SUBMITTALS AND SUBSTITUTIONS

A. In all cases, there is one basis of design manufacturer or product for each item of equipment or product shown on the drawings and/or specified herein. These products are identified by name and model number on the drawings and/or in the specifications. Alternative manufacturers and products are also listed; however, their inclusion as an alternative manufacturer or product does not cause them to be the basis of design. If an alternative manufacturer and/or product is desired to be used by the Contractor, it will be considered a substitution. Substitutions will be interpreted to be all manufacturers or products other than the basis of design. Only one request for substitution will be considered for each item of material or equipment. No substitutions will be considered thereafter. After a substitution request is reviewed and is found to be unacceptable the Architect/Engineer reserves the right to require the originally specified equipment or product at no additional cost to the Owner.

B. If the Contractor desires to make a substitution, he shall submit complete information or catalog data to show equality of equipment or material offered to that specified. No substitutions will be allowed unless requested and reviewed in writing. The Architect/Engineer will review and take appropriate action on shop drawings, product data, samples, and other submittals as required by the contract documents. Such review shall be only for general conformance with the design concept and general compliance with the information given in the contract documents.

C. The review of submittals will not include review of quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination with the work of other trades, or construction safety precautions, all of which are the sole responsibility of the Contractor. Review of a specific item shall not indicate acceptance of an assembly of which the item is a component. The Architect/Engineer shall not be required to review and shall not be responsible for any deviations from the Contract Documents not clearly noted by the Contractor, nor shall the Architect/Engineer be required to review partial submissions or those for which submissions for correlated items have not been received. The Architect/Engineer reserves the right to require the originally specified item.

D. Installation of reviewed substitutions is the Contractor's responsibility. Any changes required for installation of reviewed substituted equipment must be made without additional cost to the Owner. Review by the Architect/Engineer of the substituted equipment and/or the dimensioned drawings does not waive the requirements stated herein.

E. In any case where the Contractor intends to utilize a listed or unlisted acceptable equipment manufacturer that is not the basis of design as listed on the drawings and in the specifications it is the Contractor's responsibility to confirm prior to bidding that all ductwork, piping, controls, electrical power, conduit, service clearances, space requirements, and structural requirements match those of the basis of design equipment. Costs for any revisions necessary to accommodate the ductwork, piping, controls, electrical power, conduit, service clearances, space requirements, and structural requirements for the alternative equipment are the responsibility of the Contractor and shall be included in the Contractor's bid. No extra cost will be allowed for failure to allow for accommodations related to the alternative equipment in the Contractor's bid.

F. Submit to the Architect/Engineer for review, within a reasonable time after award of Contract and in ample time to avoid delay of construction, shop drawings or submittals on all items of equipment and materials, including all substitutions. Also see Division 1 for additional related requirements.

G. Partial or incomplete sets of equipment and materials submittals will not be acceptable.

H. Assessment of quantities is solely the Contractor's responsibility and will not be reviewed.

I. All submittal data shall be tailored to suit the specific project, with appropriate model or part numbers, materials, sizes, options, and accessories clearly indicated for each different submittal item and on each submittal page. Submittal pages without this information will be returned and will need to be resubmitted with all of the required information indicated on each sheet.

J. The Contractor shall certify that he has examined all submittal data and that the equipment and materials submitted for review meet or exceed the requirements of the drawings and specifications. Submittals without the required certification will not be acceptable.

K. Should the Contractor neglect to include submittal data for any item of equipment or material it shall be assumed and agreed that the associated equipment or material is the exact item specified as the basis of design on the drawings and in the specifications.

L. Items indicated by the Architect/Engineer to be resubmitted shall be resubmitted as follows:
   1. Retain items marked as 'No Exceptions Taken' or 'Make Corrections Noted' and resubmit with the revised package. Do not provide new sheets for these items.
   2. Provide revised submittal sheets for all other reviewed items. Provide originally submitted sheet with Architect/Engineer comments. Clearly indicate amendments and modifications made in response to previous submittal review comments.

M. Electronic Formatted Submittals
   1. Provide submittals in electronic form (.pdf file format).
   2. Identify and incorporate submitted information, including a cover sheet, and the following:
      a. Project Name
      b. Submittal Package Number (with revision number identified)
      c. Date
      d. Name of Architect/Engineer
      e. Name of Contractor
      f. Name of Subcontractor
   3. Group submitted items by specification section, and provide the following:
      a. Index of submitted products with page numbers
      b. Name of Firm or entity that prepared submittal
      c. Name of Supplier
      d. Name of Manufacturer
      e. Equipment and/or fixture tag, if applicable
      f. Number and title of appropriate specification section
   4. Items indicated by the Architect/Engineer to be resubmitted shall be resubmitted as follows:
      a. Retain items marked as ‘No Exceptions Taken’ or ‘Make Corrections Noted’ and resubmit with the revised package. Do not provide new sheets for these items.
      b. Provide revised submittal sheets for all other reviewed items.
      c. Provide originally submitted sheet with Architect/Engineer comments.
      d. Clearly indicate amendments and modifications made in response to previous submittal review comments.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Mention herein or on the drawings requires that this Contractor provide each item listed of the quality noted, or equal. All material shall be new, full weight, standard in all respects, and in first class condition. Provide materials of the same brand or manufacturer throughout for each class of material or equipment wherever possible. Materials shall be tested within the continental United States by an independent, nationally recognized testing agency and shall be listed in accordance with testing agency requirements.

B. The grade or quality of materials desired is indicated by the trade names and/or catalog numbers stated on the drawings and in the specifications.

C. Dimensions, sizes, and capacities shown are a minimum and shall not be changed without the written permission of the Architect/Engineer.

D. All equipment shall comply with the mandatory equipment efficiencies listed in International Energy Conservation Code Section C403.3.2.

E. No material installed as part of this work shall contain asbestos in any form.

2.2 MATERIALS FURNISHED

A. Identify all materials and equipment by the manufacturer’s name and model number. Remove any unidentified materials and equipment from the site.

B. Equipment scheduled and/or specified by the manufacturer's model number shall include all accessories, controls, etc. listed in the catalog as standard with the equipment. Furnish optional or additional accessories as scheduled and/or specified.

C. Equipment or material damaged during transportation, installation, or operation is considered as totally damaged, and shall be replaced with new equipment. Variance from this requirement will be permitted only with the written consent of the Architect/Engineer.

D. Provide an authorized representative to constantly supervise the work of this division. Check all materials prior to installation for conformance with drawings and specifications.

PART 3 - EXECUTION

3.1 ACCESS TO HVAC WORK

A. Comply with manufacturer's written instructions for installation of access doors.

B. Access panels shall be furnished and installed wherever valves, balance valves, damper operating mechanisms, air terminal boxes, fans, and similar items normally requiring adjustment or servicing are installed in concealed or inaccessible spaces. Coordinate with access doors shown on architectural drawings.

C. Continuously check architectural drawings for clearance and accessibility of equipment specified herein to be placed. No allowance of any kind will be made for negligence on part of the Contractor to foresee means of installing his equipment into proper position.

3.2 DRAWINGS AND COORDINATION

A. General arrangement and location of piping, ductwork, equipment, etc. are shown on the drawings or herein specified. Carefully examine other work that may conflict with this work. Install this work in harmony with other crafts and at proper time to avoid delay of work.

B. In advance of construction, work out minor changes and relocations to suit actual conditions and work of other trades to avoid any conflicts. This shall not be cause for additional cost.

C. Verify all measurements at the building and be responsible for the correctness of same. No extra compensation will be allowed on account of differences between actual dimensions and those indicated on the drawings.

D. In addition, obtain all necessary information from the other trades regarding centers of partitions, walls, location of plumbing mains, fire sprinkler mains, and electrical conduits, ducts, pipes, etc. in order that pipes, equipment, and ductwork may be placed in their correct positions.

E. Execute all work shown on the drawings and not mentioned in the specifications, or vice versa, the same as if specifically mentioned by both. Omission from drawings or specifications of any minor details of construction, installation, materials, or essential specialties does not relieve the Contractor of furnishing and installing same in a complete and operational condition.

F. Furnish and install any incidental work not shown or specified which can reasonably be inferred as part of the work and necessary to provide a complete and operational system.

G. Furnish materials and work at proper time to avoid delay of the work.

3.3 AS-BUILT DRAWINGS

A. Upon completion of work submit to the Architect/Engineer as-built drawings showing all changes in equipment, piping, ductwork, etc. installed as part of this project which are not in accordance with the contract drawings. As-built drawing deliverables shall be in accordance with the requirements of Division 1, and shall consist of the following as a minimum.

1. Provide as-built drawings in electronic file format (pdf file). In addition to the electronic file, when field mark-ups have been utilized, provide a complete set of full size neatly and legibly marked as-built drawings on 20 pound white bond paper.
2. As-built drawings shall be full size (same size as the contract documents) and shall be standard engineering scale. The minimum drawing scale shall match those provided in the contract documents.
3. As-built drawings shall include all outside utility connections, piping, etc. installed under this Contract. Locate and dimension all work with reference to permanent landmarks.

B. Match all symbols and designations used in the contract drawings when preparing the as-built drawings.

C. Indicate clearly and correctly all work installed differently from that shown, and maintain records up to date as work progresses. Include invert elevations of pipes below grade of floor, the floor lines, plugged wyes, tees, caps, exact locations and sizing of piping, location of valves, and the like. Dimension locations from structural points.

D. Properly identify all stubs for future connections as to locations and use by setting of concrete markers at finished grade in manner suitable to the Architect/Engineer.

3.4 PROJECT MODIFICATIONS

A. During the progress of construction, if any conditions arise that necessitate revisions, modifications, or relocation of any mechanical equipment or materials, such revisions shall be immediately brought to the attention of the Architect/Engineer. The Contractor shall then prepare necessary drawings showing the proposed changes. All proposed changes shall be submitted, reviewed, and approved by the Architect/Engineer prior to proceeding with any associated revision work in the field.

B. Maintain copies of all approved changes at the project site for reference by all parties during the remaining work.

C. Incorporate all revisions into the as-built drawings.

3.5 CLOSING IN OF UNINSPECTED WORK

A. Do not allow or cause work installed to be covered up or enclosed before it has been inspected and tested. Should work be enclosed or covered up before it has been inspected and tested, uncover work at own expense. After it has been inspected and tested, make repairs necessary to restore work of other contractors to condition in which it was found at time of cutting.

3.6 FORMING, CUTTING, AND PATCHING

A. Coordinate with other contractors as necessary to provide any special forming, recesses, chases, etc., and provide wood blocking, backing, and grounds as necessary for proper installation of mechanical work.

B. If this Contractor fails to coordinate with other contractors at proper time or fails to locate items properly, resulting in extra work, then this Contractor is responsible.

C. This Contractor is responsible for proper placement of pipe sleeves, hangers, inserts, and supports for work.

D. Cutting, patching, and repairing of existing (old) construction to permit installation of piping, etc. is responsibility of this Contractor. Repair or replace damage to existing work with skilled mechanics for each trade involved in a first class manner.

3.7 EXISTING SERVICES

A. Provide and install all required connections to existing systems as required by the drawings and specifications.

B. Integrate existing systems with all new work to provide a complete working system.

C. Provide minimum 48 hour notice to Owner of any service interruptions. All service interruptions shall be kept to the minimum possible time. When requested by Owner service interruptions shall occur outside of normal working hours.

D. The Contractor shall be responsible for damage to any part of the premises during the guarantee period that is caused by defects, leaks, or breaks in work furnished and/or installed under this section.

E. The Contractor shall replace refrigerant, lubricants, and/or gases lost as a result of defects, breaks, or leaks in the work.

3.8 PROJECT COMPLETION TESTS AND STARTUP

A. Upon completion of the mechanical work, or at such time prior to completion as may be determined by the Architect/Engineer, operate and test all mechanical equipment and systems for a period of at least five consecutive 8 hour days to demonstrate the satisfactory overall operation of the building or project as a complete unit. Include operation of heating and air conditioning equipment and systems for a period of not less than two 8 hour days at not less than 90 percent of full specified heating and cooling capacities in tests.

B. Commence tests after preliminary balancing and adjustments to equipment have been checked. Immediately before starting tests, install air filters and lubricate all running equipment. The Contractor shall notify the Architect/Engineer at least seven calendar days in advance of starting the tests listed herein.

C. Provide training and orientation of the Owner’s facilities staff in proper care and operation of equipment, systems, and controls.

D. Neatly tabulate and deliver to the Architect/Engineer complete operational data, including air flows, room temperatures, fan speeds, motor currents, plenum and duct static pressures, and other data as required. The Architect/Engineer reserves the right to spot check results, and if discrepancies or errors are noted, the Contractor will be required to redo balancing tests and tabulations entirely.

E. During the test period, make final adjustments and balancing of equipment, systems, controls, and circuits so that all are placed in a first class operating condition.

F. Mark final positions of balancing valves after balancing is complete.

G. All areas of the building shall receive proper flow of hot and chilled water to assure adequate and uniform temperatures throughout.

H. Final observation will not be conducted until all of the above requirements have been completed and the balance report has been submitted and reviewed.

3.9 TEMPORARY UTILITIES, HEATING, AND COOLING

A. Temporary utilities may be connected to the Owner's existing metered utilities only with the Owner's and the utility company's written authorization. Any connection to the Owner's existing utilities shall be separately metered to allow for proper allocation of utility costs unless another arrangement is specifically agreed to and authorized by the Owner in writing. Temporary meters shall be removed upon completion of the Work.

B. The Contractor shall be solely responsible for providing temporary heating, cooling, and/or ventilation as required to prevent degradation or damage to the Work. The permanent heating, cooling, and air handling systems shall not be utilized for the purpose of temporary heating, cooling, or ventilation until the Owner approves of such use in writing. In no case shall the permanent heating, cooling, or air handling systems be operated until they are complete, including formal startup, check out, and testing and balancing.

C. Utilization of any of the permanent heating, cooling, or air handling systems prior to the date of Substantial Completion shall not impact the specified warranty for such equipment, which shall begin on the date of Substantial Completion.

3.10 POST CONTRACT COMPLETION TESTS

A. If the required full load operation conditions cannot be conducted at the time of the 'Project Completion Tests and Startup' due to outdoor seasonal temperatures, the Contractor shall return to the job site when appropriate weather conditions arise (and/or when requested by the Architect/Engineer) to complete proper loading of equipment and systems as required. The Contractor will be allowed seven calendar days after notification to begin the tests. The Owner will be responsible for providing new air filters for the Contractor to install prior to this testing if necessary.

3.11 PRE-SEASON STARTUP

A. Within one year of filing of the Notice of Substantial Completion, when all full load tests required under 'Project Completion Tests and Startup' and 'Post Contract Completion Tests' have not yet been performed, the Contractor shall perform startup of any equipment or systems required for heating or cooling season operation when such equipment and systems have remained shut down or remain to be tested under full load. The Contractor shall ensure that all equipment and systems are operating properly before being turned over for the first operational use by the Owner. All such testing shall occur within one year of filing the Notice of Substantial Completion. The Owner will be responsible for providing new air filters for the Contractor to install prior to this testing if necessary.

3.12 GUARANTEE

A. The Contractor shall be responsible for all work done and material installed under the plans and specifications. Repair or replace, as may be necessary, any defective work, material, or part which may show itself within one year of filing of the Notice of Substantial Completion and be responsible for damage to other materials, furnishing, equipment, or premises caused by such defects during this period, if in the opinion of the Architect/Engineer said defect is due to imperfection of material or workmanship. Provide all such work and materials at no cost to the Owner.

3.13 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 05 00 - BASIC MATERIALS AND METHODS FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Section 230000 (Heating, Ventilating, and Air Conditioning) is hereby made a part of this section.

B. This section provides requirements for basic materials and methods related to all of the HVAC work. This section applies to all other Division 23 specification sections.

1.2 WORK INCLUDED

A. Types of HVAC items specified in this section include the following:

1. Materials
2. Valves
3. Valve Boxes
4. Hangers and Supports for HVAC Systems
5. Seismic Bracing for HVAC Systems
6. Access Doors and Panels
7. Roof and Wall Flashings
8. Cathodic Protection
9. Pressure Gauges
10. Thermometers
11. Unions and Flanges
12. Pipe Escutcheons
13. Pipe Sleeves
14. Pipe Sleeves with Mechanical Sleeve Seals
15. Penetrations in Fire and Smoke Rated Partitions and Floors
16. Pipe Anchors and Guides
17. Flexible Hose Expansion Loops
18. Piping and Equipment Identification
19. Painting
20. Concrete Work
21. Electrical Disconnects
22. Electric Motors
23. Electric Motor Starters
24. Pre-Fabricated Roof Curbs
25. Belt Drives and Guards
26. Welding

B. Types of flow meters specified in this section include the following:

- Chilled Water, Hot Water, and Heat Pump Loop Flow Meters
- Make-Up Water Flow Meters
- Domestic Water Flow Meters

1.3 PROJECT CONDITIONS

A. Existing Utilities: Locate and protect existing utilities and other underground work in manner which will ensure that no damage or service interruption will result from excavating and backfilling.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in the manufacture of valves and piping specialties of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Valve Types: Provide valves of same type by the same manufacturer.

C. Identification: Provide valves and piping specialties with the manufacturer's name or trademark and pressure rating clearly marked on the valve body.

1.5 SUBMITTALS

A. Submit manufacturer's technical product data and installation instructions for each type of manufactured valve and piping specialty. Include pressure drop curve or chart for each type and size of isolation valve, balancing valve, and control valve.

B. Operation and Maintenance Data: Submit operation and maintenance data and spare parts lists for each type of manufactured valve and piping specialty. Include this data and product data in the operating and maintenance manual in accordance with all associated requirements.

C. All interface requirements (BACnet or other) shall be coordinated with the temperature control system subcontractor prior to issuing submittals and/or ordering any equipment that is required to have an interface.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide factory-fabricated valves and piping specialties as recommended by the manufacturer for use in the service indicated. Provide valves and piping specialties of types and with pressure ratings indicated for each service, or if not indicated, provide proper selections as determined by the Contractor to comply with the installation requirements. Provide sizes and connections which properly mate with pipe, tube, and equipment connections.

2.2 VALVES

A. See Specification Section 230510 (Valves for HVAC Systems).

2.3 VALVE BOXES

A. Provide at each valve in ground a concrete valve box with the cover marked for the applicable service. Furnish an extension handle for valves as required for opening and closing the valve. In areas that are not subject to vehicle traffic concrete valve boxes shall be Christy Model B-09, or approved equal, with a steel checker plate cover. In areas that are subject to vehicle traffic concrete valve boxes shall be Christy Model B-1017, or approved equal, with a steel checker plate cover.
   1. Do not locate valve boxes in areas subject to vehicle traffic, in walkways, or in covered passageways unless absolutely necessary.
   2. Provide valve box extensions as required to set the bottom of the valve box tight on top of the piping in which the valve is installed.
   3. Provide special valve boxes where required to conform to local codes.

2.4 HANGERS AND SUPPORTS FOR HVAC SYSTEMS

A. See Specification Section 230530 (Hangers and Supports for HVAC Systems).

2.5 SEISMIC BRACING FOR HVAC SYSTEMS

A. See Specification Section 230540 (Seismic Bracing for HVAC Systems).

2.6 ACCESS DOORS AND PANELS

A. Where floors, walls, or ceilings must be penetrated for access to mechanical equipment, provide access doors, 22 inch by 22 inch minimum size in usable opening. Where entry of service personnel may be required, provide a 22 inch by 30 inch minimum usable opening.

B. Access doors shall match those listed in the architectural documents in all respects, except as noted herein.

C. Where panels are located on ducts or plenums, provide neoprene gaskets to prevent air leakage, and use frames to set door out to flush with insulation.

D. Provide insulated access doors where located in internally insulated ducts or casings.

E. Where specific information or details relating to access panels different from the above is shown or given on the drawings or other divisions of work, then that information shall supersede this specification.

F. Available Manufacturers: Subject to compliance with requirements, manufacturers offering access doors which may be incorporated in the work include Milcor, Best, or approved equal:

Milcor Style M	Drywall and/or Masonry
Milcor Style K	Plaster
Milcor Style UFR	Fire Rated (where required)

2.7 ROOF AND WALL FLASHINGS

A. Flashing for penetrations of the roof for mechanical items such as ducts, pipes, and flues shall be as indicated on the drawings and in these specifications. Where exterior sheet metal flashings are indicated on the drawings or details, the flashings shall be galvanized sheet metal. The work of this section shall include layout, sizing, and coordination of roof and wall penetrations with all trades. Flues shall have a 24 gauge galvanized sheet metal storm collar securely clamped to the flue above the flashing.

2.8 CATHODIC PROTECTION

A. Furnish and install dielectric unions at all locations described herein, whether shown on drawings or not. Construct couplings and flanges so that the two pipes being connected are completely insulated from each other with no metal-to-metal contact. Couplings shall be lined with a hard, insulating, phenolic plastic threaded in standard pipe sizes.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers which may be incorporated in the work include the following:

Nibco
Legend
Zurn
Watts

2.9 PRESSURE GAUGES

A. Pressure gauges shall be flangeless case type, Miljoco Model P4598L, or approved equal by Weiss or Weksler. Gauges shall be accurate to within plus or minus 1% throughout the entire scale range. Scales shall have a minimum of 2 degrees between graduations and a maximum of 20 degrees between figures.

B. Pressure gauges shall be 4-1/2 inch diameter with acrylic lens, stainless steel case, and stainless steel ring. Gauge movement shall be brass with precision-milled teeth. Gauges shall be selected with a pressure range such that the gauge reads near the middle of the total gauge range at the pressure indicated on the drawings. The most common gauge selections will be for ranges of 0 to 160 psi, 0 to 60 psi, and/or 0 to 30 psi.

2.10 THERMOMETERS

A. Thermometers shall be of the bimetal helix type, Miljoco Model B5098A, or approved equal by Weiss or Weksler. Thermometers shall be accurate to within plus or minus 1% throughout the entire scale range. Scales shall have a minimum of 2 degrees between graduations and a maximum of 20 degrees between figures.

B. Thermometers shall be 5 inch diameter with polycarbonate lens, stainless steel case and ring, stainless steel stem, and stainless steel well. Thermometer stem length for piping shall be 2-1/2 inches, and stem length for tanks shall be 9 inches. Thermometers installed on insulated tanks or piping shall be provided with an extension neck well to compensate for the thickness of the insulation.

C. Thermometer ranges shall be as listed below.

Location	Range
Chilled water supply and return mains.	25° to 125°F
Heating water supply and return mains.	0° to 250°F
Heat pump well field supply and return mains at each header.	25° to 125°F

D. Thermometers used for air temperature in ductwork, plenums, etc., shall have a perforated guard over the stem suitable for sensing air temperature. Stem length shall be 9 inches minimum.

E. Thermometers shall include an adjustable bracket allowing rotation to any position, and shall be located such that they are easily read from a normal vantage point.

F. Thermometer wells with chain and cap shall be provided as spares wherever spare wells are indicated on the drawings.

2.11 UNIONS AND FLANGES

A. Furnish and install unions at each threaded or soldered connection to all equipment, tanks and valves, of the type specified in following schedule:

Type of Pipe	Union
Steel pipe 2" and smaller	150 lb threaded malleable ground joint, brass to iron seat, black for black piping, galvanized for galvanized piping.
Steel pipe 2-1/2" and larger	125 lb cast iron threaded flanged union, flat faced, gasket, black for black piping, galvanized for galvanized piping.
Copper tubing 2" and smaller	150 lb bronze ground joint, bronze to bronze sweat connection.
Copper tubing 2-1/2" and larger	150 lb cast bronze, flat faced flange with silver brazing threadless ends.

B. Insulating couplings or flanges shall be furnished and installed at all connections of piping with dissimilar materials. Construct couplings so that the two pipes being connected are completely insulated from each other with no metal-to-metal contact. Heavily line the couplings with a hard, insulating, phenolic threaded coupling in standard pipe sizes.

C. Furnish and install flanges at each flanged connection to equipment, tanks, and valves per the following schedule:

Type of Pipe	Flanges
Threaded black or galvanized steel pipe 2-1/2" and larger	125 lb threaded cast iron, flat face flange, black or galvanized steel as applicable.
Welded steel pipe 2-1/2" and larger	150 lb welded forged steel, raised face flange.

D. Provide full faced or ring type gasket material to suit facing on flanges. Gasket material shall be 1/16" thick Garlock Blue-Gard, or approved equal. Gasket material shall be suitable for the connected piping system content and temperature.

2.12 PIPE ESCUTCHEONS

A. Provide chrome plated brass pipe escutcheons with inside diameter closely fitting pipe outside diameter or outside of pipe insulation where pipe is insulated. Select outside diameter of escutcheon to completely cover pipe penetration hole in floors, walls, ceilings, or pipe sleeve extension, if any. Furnish pipe escutcheons with nickel or chrome finish and screw or spring clamping device with concealed hinge.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering pipe escutcheons which may be incorporated in the work include the following, or approved equal:

Chicago Specialty Manufacturing Company
Producers Specialty and Manufacturing Corporation
Sanitary Dash Manufacturing Company

2.13 PIPE SLEEVES

A. Where pipes pass through exterior walls above grade and/or through concrete floor slabs the pipe shall be covered with high density fiberglass insulation. Pipe insulation shall be 1/2” to 1” thick Johns Manville Microlok HP or Johns Manville Trymer 25-50 for the full thickness of the concrete. After the piping has been installed and the concrete has been poured, the fiberglass insulation shall be cut away or compressed leaving a 1/2” deep space that shall then be filled with a high quality silicone sealant resulting in a flat, water-tight installation.

B. Where pipes pass through fire rated concrete floors or walls install a Schedule 10 galvanized metal sleeve providing between a 1/2 inch and 1 inch clearance around the sides of the pipe and/or pipe insulation for the full thickness of the concrete. After the piping has been installed, fill the annular space in accordance with the applicable UL fire rating system.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering pipe sleeves which may be incorporated in the work include the following, or approved equal:

3M

2.14 PIPE SLEEVES WITH MECHANICAL SLEEVE SEALS

A. Provide sleeve seals for sleeves located in foundation walls below grade and/or in exterior walls below grade as follows:

1. Pipe Sleeves Through Foundations & Walls Below Grade: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing water-tight seal.
2. Available Manufacturers: Subject to compliance with requirement, manufacturers offering sleeve seals which may be incorporated in the work include the following, or approved equal:

Thunderline Link-Seal
Calpico
Metraflex

2.15 PENETRATIONS IN FIRE AND SMOKE RATED PARTITIONS AND FLOORS

A. Maintain indicated fire or smoke rating of walls, partitions, ceilings, and floors at pipe, conduit, and duct penetrations. Seal all penetrations with fire-stop and smoke-stop materials complying with the requirements for firestopping and fill materials specified in this section.

B. Schedule and conduct a firestopping pre-installation conference at the job site. Coordinate all firestopping means and methods with other contractors and the general contractor (when applicable) prior to beginning any work.

C. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991 (Approval of Firestop Contractors), or been evaluated by UL and found to comply with their 'Qualified Firestop Contractor Program Requirements'.

D. Install all penetration firestopping systems to comply with the manufacturer's written installation instructions and published drawings for products and applications.

E. Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by the penetration firestopping system manufacturer or when substrates are wet because of rain, frost, condensation, or other causes.

F. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilation, or where this is inadequate, forced-air circulation.

G. The specified firestopping systems are based on a solid sealant only, or combinations of solid sealant, foam sealant, and refractory fibers of thickness required to attain hour ratings.

H. Fire and Smoke Partition Systems shall comply with the following:
   1. Provide a flexible seal to prevent passage of fire, smoke, toxic gases, and water through openings, and prevent transmission of sound and vibration from the penetrating element to the structure.
   2. Provide hour ratings indicated and in accordance with ASTM E814 and/or UL 1479.
   3. For projects located in the State of California comply with requirements of CBC Sections 709.6, 709.7, 709.8, 710.2, 710.3 and 710.6, and CBC Standards 7-1 and 7-5.

I. Acceptable Manufacturers: 3M, Hilti, SpecSeal, Nelson, HoldRite, Tremco, Roxtec, or approved equal. The established standard in most cases is 3M, unless otherwise specified. The listed products are specified to establish standards and the type of materials required. Materials shall be as specified, or approved equal.

J. Sealant: Select among the following materials as appropriate.
   1. Solid (Elastomeric): 3M Fire Barrier Premium Latex CP 25WB+ Caulk, one-component elastomeric water-based latex sealant designed for use as a through-penetration firestop
   2. Foam: 3M Fire Barrier 2001 Silicone RTV Foam, two-component silicone elastomer foam-in-place sealant designed to fill irregular or complex voids.
   3. Wrap Strip: 3M Fire Barrier FS-195+ Wrap Strip, fire resistive strip designed to be wrapped around the penetrating item and secured in place.
   4. Restricting Collar: 3M Fire Barrier RC-1 Restricting Collar, sheet metal, designed for use with wrap strip in combustible through-wall firestop penetration systems.
   5. Composite Sheet: 3M Fire Barrier CS-195+ Composite Sheet, elastomeric layer reinforced with mesh restraining wire and covered with aluminum foil on one side and bonded to sheet metal, forming a fire resistive sheet.
   6. Putty: 3M Fire Barrier MP Moldable Putty+ Pads and Sticks, one-component elastomeric formable putty, designed for use as a through-penetration firestop system.
   7. Spray: 3M FireDam Spray 100, flexible water-based coating.
   8. Primers: As recommended by the sealant manufacturer.

K. Pillows: Nelson PLW Firestop Pillow, Hilti FS Fire Block, dust proof chemical resistant cloth with heat-reactive expanding solidifying fill, designed for large openings that require frequent cable alterations.

L. Safing Insulation: USG Thermafiber Safing Insulation, 4 lb density mineral wool insulation, unless indicated otherwise.

M. Damming Materials: As recommended by the firestopping manufacturer.

2.16 PIPE ANCHORS AND GUIDES

A. Provide pipe anchors and guides as indicated on the drawings and/or as required to accommodate any thermal expansion, contraction, or seismic movement of the piping system. Pipe anchors and guides shall be Metraflex Model PGIV, or approved equal by Mason Industries.

2.17 FLEXIBLE HOSE EXPANSION LOOPS

A. Provide flexible hose expansion loop(s) as indicated on the drawings and/or as required to accommodate any thermal expansion, contraction, or seismic movement of the piping system. Flexible hose expansion loops shall be Metraloop as manufactured by Metraflex, or approved equal. In cases where space constraints require a smaller footprint, the Contractor may utilize the Metraflex V-Loop product upon written approval from the Architect/Engineer.

B. Flexible hose expansion loops shall be manufactured complete with two parallel sections of corrugated metal house, compatible braid, 180 degree return bend, with inlet and outlet connections. Field fabricated loops will not be acceptable.

C. Flexible loops shall be capable of 4 inches of movement in the ±X, ±Y, and ±Z planes.

D. Flexible hose expansion loops shall impart no thrust loads to system supports, anchors, or the building structure.

E. Flexible hose expansion loop return fittings shall be supported to allow movement.

F. Flexible loops for natural gas service shall be CSA/AGA certified.

G. All flexible hose expansion loops shall be manufactured in accordance with the documented manufacturer's weld procedure specifications. The weld procedure qualification record shall be used to document the execution of this procedure and shall follow the general guidelines of ASME Section IX. Each welder shall conform to the in-house procedure qualification record and be qualified prior to each production lot. The testing of each individual welder shall be documented in a welding procedure qualification record.

H. Install loops, anchors, and guides per the manufacturer's written installation instructions and the Mechanical Contractors Association of America 'Guidelines for Quality Piping Installations'.

2.18 PIPING AND EQUIPMENT IDENTIFICATION

A. Each piping system furnished and installed under this work shall be identified and the direction of flow indicated by means of colored labels and flow arrows, all as specified herein. The labels shall be applied after all painting, priming, and cleaning of the piping and insulation is completed.

B. Provide prefabricated coiled plastic piping labels as manufactured by Marking Services Incorporated (MSI), or approved equal. Labels shall comply with ASME A13.1 with regard to color, letter height, and marker size. The labels shall have black or white lettering and flow arrows on colored backgrounds and shall not require adhesive. The background colors shall conform to the color schedule included in the 'Execution' section of this specification.

1. For pipe labels used indoors use coiled polyester labels, MSI Model MS-975, or equal.
2. For pipe labels used outdoors use coiled polyester labels, MSI Model MS-995, or equal.
3. For piping with an outside diameter, including insulation, greater than 6 inches provide the label manufacturer's nylon straps to secure label to piping. Labels shall lie smoothly against pipe or insulation completely around the pipe.
4. The size of the lettering and label shall be such that the lettering can be easily read from the floor and the colors shall be easily discernible.

C. Provide a white plastic lamacoid plate for each and every piece of equipment installed in this work. Lettering on plate shall be black, with size of lettering to suit equipment. Lettering shall be a minimum of 1/2 inch in height. Plates shall be riveted or bolted to equipment near electrical disconnect or control access panel.

D. Where mechanical or plumbing equipment requiring access is located above a ceiling or behind an access panel, provide an adhesive clear plastic label with 3/8” black lettering on the ceiling grid or access panel identifying the equipment.

E. Ground loop circuit piping inside a mechanical room shall be labeled to coincide with the numbering indicated on the mechanical drawings.

F. Available Manufacturers: Subject to compliance with requirements, manufacturers which may be incorporated in the work include the following, or approved equal:

Marking Services Incorporated (MSI)
LEM Products
Seton
Craftmark

2.19 PAINTING

A. In general, painting will be done by others. Exposed piping and unfinished portions of equipment to be painted shall be cleaned by this Contractor of grease, oil, rust, or dirt in preparation for painting. Spot prime all factory primed surfaces as necessary.

2.20 CONCRETE WORK

A. Where specifically indicated on the drawings or specified as part of the mechanical work, this Contractor shall furnish and install concrete work such as thrust blocks and/or spring isolator bases.

B. Concrete and reinforcing steel shall be equal to that specified for general construction.

C. Except as noted above, concrete work will be furnished and installed by others. This Contractor shall coordinate all requirements accordingly.

2.21 ELECTRICAL DISCONNECTS

A. The short circuit current rating (SSCR) of each integral or factory-furnished disconnect switch provided by Division 23 shall match or exceed the SSCR of the source panel or distribution board. Coordinate with Division 26 for the results of the Short Circuit Studies required in the Division 26 specifications prior to release of order(s) for disconnects. This requirement applies to all electrical disconnects, including but not limited to, disconnects for chillers, boilers, variable frequency drives, air handling units, rooftop units, condensing units, etc.

2.22 ELECTRIC MOTORS

A. Electric motors larger than 1/2 horsepower rating, unless otherwise noted, shall be ball bearing, open drip proof, squirrel cage, induction type, normal starting torque, 3 phase, 60 cycle service, 40°C continuous rating, and shall conform in all respects to latest applicable standards of NEMA and AIEE. Motors shall be Century, Louis Allis, Baldor, or equal. Motors located outdoors shall be TEFC type.

B. All motors 1 horsepower and above shall be premium efficiency type, Century E-Plus, or approved equal.

C. Motors utilized with variable frequency drives shall be rated as inverter duty per NEMA standards.

D. Motors shall have nameplate voltage rating of operating voltage specified in subsequent sections of specifications or as shown on drawings and shall have a 1.15 service factor.

E. For normal applications, motors shall be furnished for normal starting torque duty. It shall be this Contractor's responsibility, however, to provide motors and starters (where starters are furnished under this section) having suitable starting torque and current characteristics to allow starting the equipment within the branch circuit protection provided and within the overload protection required by code.

F. Splash-proof or totally enclosed motors having a continuous duty temperature rise rating not exceeding 35°C shall have adequate starting torque, as recommended by the manufacturer, for the service intended.

G. All motors shall be rated at ±10% of the scheduled voltage. If not, provide each motor with a boost transformer sized for the intended use and installed in a rated enclosure.

1. Boost transformers for equipment provided under the mechanical work shall be furnished by the mechanical contractor and turned over to the electrical contractor for installation, unless otherwise noted.

H. Shaft Grounding

1. All variable frequency drive motors less than 300 horsepower shall have a single shaft grounding system to protect the bearings from capacitive discharge through the bearings.
2. Available Manufacturers: Subject to compliance with requirements, manufacturers which may be incorporated in the work include the following, or approved equal:

   CR Series by Shaft Grounding Systems
   AEGIS SGR Conductive Microfiber Brush

2.23 ELECTRIC MOTOR STARTERS

A. Magnetic motor starters for equipment provided under the mechanical work shall be furnished by the mechanical contractor and turned over to the electrical contractor for installation, unless otherwise noted. All motor starters shall be by the same manufacturer, Westinghouse, Square D, Cutler-Hammer, General Electric, or approved equal.

B. Magnetic motor starters provided as part of motor control centers shall be provided and installed by the electrical contractor.

C. Unless otherwise noted, magnetic motor starters shall be furnished in a NEMA 1 enclosure for inside installation and in a gasketed NEMA 4 enclosure for outside installation, with three thermal overloads for three phase motors and one overload element for single phase motors. All overloads shall be ambient compensated.

D. Submit schedule to the Architect/Engineer denoting the following:

1. Designation of each motor
2. Name plate rating of each motor
3. Running current of each motor
4. Catalog number and rating of starter overload elements
5. Circuit breaker trip size (when in combination starter)

E. Combination magnetic starters shall be Westinghouse Type A206 with circuit breaker disconnect and trip size of breaker as required for motor size, or as otherwise noted.

F. Magnetic motor starters shall be Westinghouse Type A200, or approved equal.

G. Manual motor starters shall be Westinghouse Type MST01 less enclosure, or approved equal.

H. Magnetic motor starters shall be provided with cover-mounted Hand-Off-Auto ‘Oil-Tight’ type switches as scheduled, with integral fused 120 volt control transformer.

2.24 PRE-FABRICATED ROOF CURBS

A. Provide manufacturer's standard shop-fabricated units, modified if necessary, to comply with project requirements. All roof curbs shall be secured to the roof support structure.

B. All roof curbs shall be modified when necessary using pressure-treated tapered wood at the top of the support units to form a level top edge.

C. Roof curbs for equipment weighing over 400 lbs shall be seismically designed and rated, with seismic calculations prepared by a Nevada licensed structural engineer, based on an Importance Factor of 1.0, except for critical buildings or applications which require a higher Importance Factor based on the specific application.

D. The roof curb height listed on the drawings indicates the minimum height of the curb at the lower end of the roof slope. The Contractor is responsible for confirming the roof insulation assembly depth on the architectural drawings in order to determine the actual required height of each roof curb. All roof curbs shall be constructed such that the top of the curb is a minimum of 14 inches above the lowest point of the finished roof surface. For most applications the roof thickness is approximately 8 inches, resulting in a total curb height of 22 inches. Verify actual height with the architectural plans.

E. Fabricate structural framing for units of structural quality sheet steel formed to manufacturer's standard profiles for coordination with roofing, insulation, and deck construction. Include 45 degree cant strips and deck flanges with offsets to accommodate roof insulation. Weld corners and seams to form water-tight units.

F. Where roof curb metal gauge is not indicated fabricate units of 14 gauge metal.

G. Provide a pressure-treated wood nailer, not less than 1-5/8" thick and of not less than the width of the metal support wall assembly. Anchor nailer securely to top of metal frame unit.

H. Install 2-1/2” thick rigid insulation in the roof curb assembly just below the wood nailers and insulate the inside of roof curb structural support walls with R-30 fiberglass batt insulation (see the mechanical equipment curb detail on the drawings for additional information and requirements).

I. Available Manufacturers: Subject to compliance with requirements, manufacturers offering prefabricated seismic roof curbs which may be incorporated in the work include the following, or approved equal:

Same Manufacturer as Equipment
MicroMetl
Thybar

2.25 BELT DRIVES AND GUARDS

A. Belt drives for fans and equipment shall consist of ‘V’ belts and sheaves.

B. Drives that require no more than two belts shall be provided with variable pitch. Drive sheaves shall provide speed adjustment above and below the normal required operating speed, with the adjustments being as near equal as practicable. Drives that require three or more belts shall be provided with non-adjustable, constant speed sheaves.

C. Rating: Belt drives shall have a minimum horsepower rating at designed speeds of 1.5 times the motor nameplate horsepower rating.

D. Construction: Sheaves shall be cast iron, and shall be machined and balanced. Sheaves shall be keyed to the shaft and locked with allen type set screws.

E. Fan Drives: Fan drives for blower type fans shall be selected for the proper fan speeds required for the air volumes specified or shown on the drawings at the static pressures indicated. The static pressures indicated on the drawings are estimated conditions which may vary under actual operating conditions.

F. Should it be necessary to adjust fan speeds to obtain the proper air volume the Contractor shall make the necessary changes to the drives without additional cost to the Owner.

G. Belts shall be furnished in matched sets.

H. Belt drives, gear drives, shafts, couplings, fan inlets, and running equipment shall be properly protected by guards, whether shown on the drawings or not, all as required by local codes.

I. Construction: Belt guards shall be of all metal construction with angle iron framework. Guards for belt drives shall have a removable section held in place with studs and wing nuts for easy replacement of belts. Openings shall be provided at shaft ends for taking RPM readings. Belts shall be guarded on both sides of the drives.

J. Coupling guards shall be No. 10 gauge steel minimum.

K. Sheaves shall have pitch diameter of no less than the following for the belt types used.

Fractional HP Section Belt	2 inch minimum pitch diameter
A Section Belt	3 inch minimum pitch diameter
B Section Belt	5.4 inch minimum pitch diameter
C Section Belt	9 inch minimum pitch diameter
D Section Belt	13 inch minimum pitch diameter

2.26 WELDING

A. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

B. Steel Support Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M (Structural Welding Code - Steel).

C. Pipe Welding: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code Section IX. Comply with ASME B31.9 (Building Services Piping) for materials, products, and installation.

PART 3 - EXECUTION

3.1 EXCAVATION AND BACKFILL

A. Perform excavation required for installation of piping, service lines, and other work as indicated on the drawings. Verify location and elevation of all existing utilities prior to excavation for installation of new piping.

B. Excavations shall be of open vertical construction of sufficient width to provide free working space at both sides of the trench and around piping as required for joining, caulking, backfilling, and compacting.

C. Where invert elevations are not shown, dig trenches in accordance with the following:

Exterior Water Piping (36 inches minimum cover)
Gas Piping (18 inches minimum cover)

D. Dig trenches straight and true to line and grade with holes for bells for bell-and-spigot pipe. Evenly support piping for its entire length upon outside periphery of lower one third of pipe.

E. Where rock is encountered, undercut trenches by 3 inches, and fill with well tamped clean sand or pea gravel as required to correct pipe elevation.

F. After piping in the excavation has been installed and tested, backfill excavation to a point 6 inches above the piping using utility sand or pipe sand that is free of rocks and debris. Proceed evenly on both sides of the pipe and continuously tamp. Except as hereinafter noted, backfill more than 6 inches above the top of the pipe shall be made by using earth from the excavation placed in layers of 6 inch maximum depth. Compaction of each successive layer shall be achieved using a mechanical compactor. See drawings and trench details for additional requirements.

G. Special care shall be taken when backfilling over and around wrapped or pre-insulated piping to prevent damage to the protective wrapping and/or insulation.

H. Any backfill which subsides or settles below the adjacent finished grade or paving level during the guarantee period shall be brought to grade by the Contractor by adding compacted backfill or additional paving in paved areas.

I. See trench detail(s) on the drawings for additional information and requirements.

3.2 INSTALLATION OF PIPING SPECIALTIES

A. Pipe Escutcheons: Install pipe escutcheons on each pipe penetration through floors, walls, partitions, and ceilings where penetration is exposed to view and on exterior of building. Secure escutcheon to pipe or insulation so escutcheon covers penetration hole and is flush with adjoining surface.

B. Sleeves: Secure sleeves to metal or wood forms in such a manner that they will not become displaced during pouring of concrete. Fill sleeves on deck with sand. After forms have been removed from concrete, the sleeves shall be removed from the openings.

C. Core drill properly sized holes in the concrete to replace metal sleeves that are crushed or knocked out of position during pouring of concrete.

D. Provide piping passing through concrete fire walls with sleeves of standard black steel pipe nominally one size larger than pipe enclosed, but in the case of insulated pipe, large enough for insulation to pass through. Caulk space between pipe and sleeve with fire rated wicking, and provide metal retainer plates at both sides of the wall.

3.3 INSTALLATION OF WYE STRAINERS

A. Install low pressure wye strainers shall be full size of the connected piping in accordance with manufacturer's installation instructions. Install pipe nipple and shutoff valve in the strainer blowdown connection, full size of connection, except for strainers 2 inches and smaller installed ahead of control valves feeding individual equipment. Where indicated, provide a drain line from the shutoff valve to the nearest plumbing drain, same size as the blowdown connection.

B. Locate strainers in the supply line ahead of the following equipment and elsewhere as appropriate, if an integral strainer is not included in the equipment:

Pumps
Temperature and/or flow control valves
Pressure reducing valves
Temperature and/or pressure regulating valves

3.4 INSTALLATION OF HANGERS AND SUPPORTS

A. See Specification Section 230530 (Hangers and Supports for HVAC Systems). Where special hanger/support of piping or ductwork is detailed or shown on the drawings, the drawings shall be followed.

3.5 INSTALLATION OF VALVES

A. Install valves where required for proper operation of piping and equipment, including valves in branch lines where necessary to isolate sections of piping. Locate valves so as to be accessible and so that separate support can be provided when necessary.

B. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward from horizontal plane.

C. Provide union at each connection to equipment and downstream of each valve. Provide unions at both ends of valves when valves cannot be turned due to an obstruction.

D. After piping systems have been tested and put into service, but before final testing, adjusting, and balancing, inspect each valve for possible leaks. Adjust or replace packing to stop leaks; replace valve if leak persists.

E. Tag each valve and provide a complete listing of valve locations and functions. Valve and tag listing shall be laminated and turned over to the Owner for posting as desired. In addition, where valves are located above a ceiling or behind an access panel, provide an adhesive clear plastic label with black 3/8” lettering on ceiling grid or access panel identifying the valve.

3.6 INSTALLATION OF UNIONS AND FLANGES

A. Install unions and flanges so that piping can be easily disconnected for removal of tanks, equipment, and valves. Provide two unions at each 2-way valve and 3 unions at each 3-way valve.

3.7 INSTALLATION OF EXPANSION ANCHORS

A. Where permitted in other sections of this specification, expansion anchors may be used in hardened concrete.

B. Job testing: Load test 50 percent of the expansion anchors on each job to twice 80 percent of the ICBO recommended allowable load in tension for that particular anchor, except that if the design load is less than 75 pounds, only one anchor in ten need be tested. If any anchor fails, then test all anchors. Perform the load test in the presence of the building inspector or other designated owner’s representative.

3.8 INSTALLATION OF CATHODIC PROTECTION

A. Install dielectric unions in the following locations:
   1. At points in piping where dissimilar metal pipes are connected together.
   2. Any special applications shown on the drawings.

3.9 INSTALLATION OF GAUGES

A. Provide gauge connections at the following locations:
   1. Suction and discharge of chilled water, heating water, and geothermal bore field pumps.
   2. Inlet and outlet of butterfly type balancing valves.
   3. Elsewhere as shown on the drawings.

B. Gauges shall be provided in convenient locations within approximately 3 feet of the flanges or connections and elsewhere as may be shown on the drawings.

C. Gauge Valves and Siphons
   1. A needle point globe valve, Crane No. 88 or equal, shall be installed at each gauge.
   2. A gauge siphon shall be installed at each hot water gauge.

3.10 INSTALLATION OF THERMOMETERS

A. Thermometers for piping systems shall be installed so that the liquid flows completely around the sensing well. Pipe sizes at the bulb shall be increased where necessary to allow for full flow without excessive resistance.

B. Where shown on the temperature control diagrams, the temperature control subcontractor shall furnish and install remote panel-mounted thermometers. Duct-mounted thermometers may be omitted at these locations.

C. Thermometers shall be placed at all locations shown on the drawings.

D. In cases where the specified thermometers cannot be located so as to be easily read, a remote reading type thermometer shall be installed, as approved by the Architect/Engineer.

E. Thermometers provided as part of the temperature control work and located on a control panel need not be duplicated by the requirements listed above.

3.11 INSTALLATION OF PIPE IDENTIFICATION

A. Identification shall be applied to all piping, except piping located in furred spaces without access to permit entrance of personnel, and piping buried in the ground or concrete.

B. The legend and flow arrow shall be applied at all valve locations, at all points where piping enters or leaves a wall, partition, cluster of piping, or similar obstruction, and at approximately 20 foot intervals on pipe runs.

C. Practical variations or changes in locations and spacing may be made with the specific approval of the Architect/Engineer to meet specific conditions.

D. Wherever two or more pipes run parallel, the printed legend and other markings shall be applied in the same relative location so that all piping is easily identified.

E. Markings shall be located to be conspicuous from any reasonable vantage point.

F. The legends and flow arrows shall be in the colors as indicated in the pipe marking schedule.

G. Pipe labels shall be as described in Section 2.20 of this specification (Piping and Equipment Identification).

H. Pipe Marking Schedule

Service	Color
Heating Water Supply and Return	White Letters on Green Background
Chilled Water Supply and Return	White Letters on Blue Background
Heat Pump Supply and Return Water	White Letters on Gray Background
Steam	Black Letters on Yellow Background
Steam Condensate	White Letters on Yellow Background
Refrigerant Piping	Black Letters on Orange Background
Compressed Air	White Letters on Purple Background

I. Where different equipment such as fire sprinklers are supplied from a common main, such as a domestic water main, the main should be identified as ‘Domestic Water’ and each respective branch takeoff as ‘Fire Water’, etc.

3.12 INSTALLATION OF AIR VENTS

A. Install air vents in hydronic systems at all high points and as required to adequately bleed all air from the piping systems and equipment during initial filling, normal operation, and subsequent filling of each piping system.

B. Install air vents in steam and condensate systems at all high points and as required to adequately bleed all air from the piping systems and equipment during initial filling, normal operation, and subsequent filling of each piping system. Air vents for steam systems shall be balanced pressure type, Spirax Sarco Model VS-204, or approved equal by Armstrong.

3.13 DEMOLITION WORK

A. Demolition work shall be performed only where specifically identified on the drawings. Unless specifically indicated otherwise, demolition work shall include removal of all associated equipment, electrical and controls components, conduit and wiring, piping, valves and accessories, and supports. The surfaces where the demolition work was performed shall be restored to match the adjacent surfaces to the best extent practical.

B. When demolition work involves leaving existing systems in place for a prolonged time period (more than 30 days and/or any time period when there is the potential for freezing temperatures) the Contractor shall protect all existing equipment, piping, and ductwork from potential damage during the time that the equipment, piping, and ductwork is out of service.

C. The protection procedures shall include draining all hydronic coils and the associated piping systems that may be susceptible to freezing temperatures when the building heating system is disabled.

D. The protection procedures apply to both hydronic piping and domestic water piping systems. After the piping systems are drained, the Contractor shall purge all water from the hydronic coils, hydronic piping systems, and domestic water piping systems using compressed air or other appropriate means, and shall seal any open ends such that the potential for corrosion is minimized. This work shall be performed by an experienced mechanical or plumbing contractor, rather than by a demolition contractor.

3.14 FORMING, CUTTING, AND PATCHING

A. Coordinate with other contractors as necessary to provide any special forming, recesses, chases, etc., and provide wood blocking, backing, and grounds as necessary for proper installation of mechanical work.

B. If this Contractor fails to coordinate with other contractors at the proper time or fails to locate items properly, resulting in extra work, the Contractor is responsible for the additional work, at no cost to the Owner.

C. This Contractor is responsible for proper placement of pipe sleeves, hangers, inserts, and supports for all work.

D. Cutting, patching, and repairing of existing (prior) construction to permit installation of piping, conduit, etc. is the responsibility of the Contractor. Repair or replace any damage that occurs to existing work in a first class manner using skilled mechanics for each trade involved.

E. Cut existing construction in a neat and workmanlike manner by the use of a concrete saw. Use of pneumatic devices is not acceptable.

F. Core openings through existing construction as required for the passage of any new piping and/or conduit. Cut holes of the minimum diameter required to suit the size of the pipe to be installed, including the associated insulation.

G. In any case where it is necessary to disturb or remove structural fireproofing the Contractor shall be responsible for restoring the fireproofing to match the original condition. Fireproofing restoration shall be performed by a properly trained and licensed contractor.

3.15 ELECTRICAL WORK

A. Adequate working space shall be provided around electrical equipment in compliance with the National Electrical Code and other applicable codes. Mechanical work shall be coordinated with the electrical work in order to comply with these requirements. Any work which does not conform to these requirements shall be corrected without additional cost to the Owner.

B. Furnish and install all line and low voltage temperature control wiring in the mechanical work (typically furnished and installed by the temperature control subcontractor) including all interlock wiring between motor starter coils, interlock relays, and temperature control equipment. Unless noted otherwise, this does not include primary control wiring between starters and pushbuttons, other manual starter switches, or branch power circuits required for the temperature control system.

C. Electrical Coordination

1. Starters located in motor control centers will be provided under the electrical work. The Contractor is referred to electrical drawings for motors served by motor control centers.
2. Motors furnished under the mechanical work shall be furnished by the mechanical contractor, but connection to power wiring shall be by the electrical contractor. Coordinate all motor starter requirements with the electrical contractor.
3. Temperature control equipment, including relays shown on control diagram, shall be furnished and installed by the temperature control subcontractor.
4. Electrical devices with piping connections, such as solenoid valves, insertion thermostats, strap-on aquastats, and similar items which are to be wired under the electrical work or by the temperature control subcontractor, shall be installed by the mechanical contractor.

D. Equipment furnished in this work that is factory wired but requires modification to internal wiring to meet specifications or drawing requirements shall have such internal modifications made at the factory before shipment.

E. All electrical work and equipment, including internal wiring, shall comply with applicable codes and applicable portions of the electrical specifications. Route line and low voltage control wiring in conduit. Conduit for temperature control wiring shall be the responsibility of the mechanical contractor and shall be of the type specified in Division 26.

3.16 POST-CONSTRUCTION OWNER TRAINING

A. In addition to the Owner training requirements listed in all other specification sections, the Contractor shall provide an overall comprehensive training session one month prior to the one year warranty expiration date. This session is intended to address any and all questions that the Owner’s facility staff may have with regard to operation and maintenance of all of the installed mechanical systems.

3.17 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. At completion, carefully clean and adjust equipment and trim installed as part of this work. Leave systems and equipment in a satisfactory operating condition.

3.18 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.19 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 05 10 - VALVES FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 WORK INCLUDED

A. Types of valves specified in this section include the following:

- Ball Valves
- Butterfly Valves
- OS&Y Valves
- Check Valves
- Manual Balance Valves
- Automatic Pressure-Compensating Flow Limiting Valves
- Air Vent Valves
- Tempering Valves
- Pressure Relief Valves
- Temperature and Pressure Relief Valves
- Pressure Reducing Valves
- Emergency Gas Shutoff Valves
- Miscellaneous/Specialty Valves

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide factory-fabricated valves and piping specialties as recommended by the manufacturer for use in the service indicated.

B. All valves, fittings, and accessories located in potable water systems shall be constructed of appropriate materials and conform to the requirements of NSF/ANSI Standards 61 and 372.

C. Unless otherwise indicated, provide valves of same size as the upstream pipe size.

2.2 VALVES

A. Provide factory-fabricated valves as recommended by the manufacturer for use in the service indicated. Provide valves of types and with pressure ratings indicated for each service, or if not indicated, provide proper selections to comply with the installation requirements. Provide sizes and connections which properly mate with pipe, tube, and equipment connections.

B. Unless otherwise indicated, valves shall be the same size as the upstream pipe size.

C. Provide valves as shown on drawings and as necessary to segregate branches and equipment.

D. Furnish discs suitable for the service intended. Furnish a brass tag for each valve identifying the applicable service. Properly pack and lubricate all valves per manufacturer’s recommendations. Place a union adjacent to each threaded valve. Provide a union on both sides of soldered valves. Furnish the flow performance curve for each valve.

E. All valves 6 inch and larger located 10 feet or higher above finished floor shall be provided with chain operators.

F. Provide flanged valves in welded pipe, provide ball valves in water lines, unless otherwise indicated on the drawings.

G. Valves shall be full size of pipe, manufactured by Nibco, Milwaukee, Apollo, or equal, in accordance with the following listing:

Ball Valves	2" and below	Nibco T-585HP-66	Milwaukee BA-400S
Butterfly Valves	2-1/2" and above	Nibco LD-2022	Milwaukee HL-234E
OS&Y Valves	2-1/2" and above	Nibco F-667-O	Milwaukee F-2894-M
Check Valves	2” and below	Nibco T-453-B	Milwaukee 508
	2-1/2" and above	Nibco F-968-B	Milwaukee F-2970-M
Gas Valves	4” and below	Nibco T-FP-600A	Apollo 94ALF-A
	5” and above	Nordstrom 149	Resun R-1431-WGA

H. Ball Valves: All ball valves shall be two-piece bronze body with stainless steel ball and stem, PTFE packing/seats, and balancing handle. See the preceding table for acceptable valve manufacturers and models.

I. Butterfly Valves: All butterfly valves shall be lug style with ductile iron body, stainless steel disc and stem, EPDM seals, and balancing handle with memory stop. See the preceding table for acceptable valve manufacturers and models.

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Butterfly Valves: All butterfly valves shall be high performance double offset type with carbon steel body, stainless steel disc, stainless steel stem, PTFE seat and packing, and balancing handle with memory stop. High performance butterfly valves shall be Milwaukee HP1LSS4212, Nibco LCS-6822, Pratt HP Series, or approved equal.

J. Motorized Ball Valves: Provide motorized ball valves where indicated on the drawings. Motorized ball valves shall be Belimo B2 Series, or approved equal.

K. Motorized Butterfly Valves: Provide motorized butterfly valves where indicated on the drawings. Motorized butterfly valves shall be Belimo F6 Series, or approved equal

L. Lockshield valves shall be lead-free ball type with locking lever, Nibco T-585-80-LF-LL, Crane D171LS, or approved equal.

M. Globe valves and their trim shall be selected for the specific service that they are associated with. Globe valves shall be Nibco F-718-B, Milwaukee 2981-M, or approved equal.

N. Gate valves and their trim shall be selected for the specific service that they are associated with. Gate valves shall be Nibco NP450, Milwaukee 1140, or approved equal.

O. Manual Balance Valves (2” and Below): Fixed port venturi style, Pro Hydronic Specialties CBV Series, IMI Flow Design AccuSetter UA Series, Pro Hydronic Specialties CBVF Series, Taco Accu-Flo, Bell & Gossett Circuit Setter Plus, Nibco T-1810, or approved equal. Variable orifice balancing valves are not acceptable.

P. Manual Balance Valves (2-1/2” and Above): Fixed port venturi style, Pro Hydronic Specialties CBVF Series, IMI Flow Design AccuSetter AF Series, Hays Series CBVF, Nexus Series NVFB, Bell and Gossett Circuit Setter Plus, Nibco F739, or approved equal. Variable orifice balancing valves are not acceptable.

Q. Automatic Pressure-Compensating Flow Limiting Valves: Valves shall be Pro Hydronic Specialties Model AFLB, IMI Flow Design Model AC, Hays Mesurflo Model 2517, Nibco Model T-1880, or approved equal. Assembly shall include removable stainless steel cartridge, union, and test ports. All ball valves shall have stainless steel ball and stem. All butterfly valves shall have stainless steel disc and stem.

R. Strainer Assemblies for Coil Kits: Strainer assemblies shall be Pro Hydronic Specialties Model IVY for pipe sizes 2” and below, and Pro Hydronic Specialties Model CBYS for pipe sizes 2-1/2” and above, or approved equal. Assembly shall include an isolation valve, 20 mesh stainless steel strainer, drain valve with hose fitting, 1/4” tappings for accessories, and a union.

S. Manual Air Vent Valves: Manual air vents shall be furnished as indicated on the drawings, complete with ball type isolation valve, Hoffman Model 78, or approved equal. Valve pressure rating shall be as required for the system in which installed.

T. Automatic Air Vent Valves: Automatic air vents shall be furnished as indicated on the drawings and shall be Hoffman No. 79, Spirotherm Spirotop, or approved equal. Pipe vents to the nearest floor sink. Valve pressure rating shall be as required for the system in which installed.

U. Tempering Valves: Provide tempering valves as scheduled on the drawings. Install per manufacturer's written recommendations. Tempering valves shall be Lawler Series 61, or approved equal, with bronze finish, thermometer, and dual tempered water isolation valves.

V. Pressure Relief Valves

1. Provide ASME rated pressure relief valves and/or combination temperature and pressure relief valves as indicated on the drawings. Valve size and capacity shall be as required for proper relieving capacity equal to or greater than the total of the associated equipment output rating(s). Valves shall be sized and rated for compliance with Sections I, IV, and VIII of the ASME Boiler and Pressure Vessel Code, and ANSI Z21.22, as applicable.
2. Pressure Relief Valves: Where indicated on the drawings for boilers, heat exchangers, chillers, etc. provide bronze body relief valves with test lever, complying with the listing requirements for discharge capacity. Valves shall be Watts Series 174A, Series 374, Series 740, or approved equal.
3. Combination Temperature and Pressure Relief Valves: Where indicated on the drawings and in these specifications provide bronze body relief valves with test lever and thermal sensor (thermostat), complying with listing requirements for temperature and pressure discharge capacity. Valves shall be Watts XL Series, or approved equal.
4. Available Manufacturers: Subject to compliance with requirements, manufacturers offering relief valves which may be incorporated in the Work include the following, or approved equal:

   Watts
   Bell and Gossett
   Spirax Sarco

W. Pressure Reducing Valves

1. Pressure reducing valves shall comply with ASSE Standard 1003.
2. Pressure reducing valves shall be provided with the manufacturer's upstream strainer, and with an integral bypass capability. Provide upstream and downstream pressure gauges, and a full size valved bypass at each pressure reducing valve location.
3. Pressure reducing valve size shall be as indicated on the drawings, and/or as appropriate for the associated maximum water flow. Pressure reducing valves for closed hot water and chilled water system make-up shall be 1 inch unless indicated otherwise on the drawings. Provide parallel valves for water flows that are beyond the capacity of a 3 inch pressure reducing valve.
4. Valve Body shall be lead free brass or bronze. Valve end connections shall be threaded for valve sizes 2-1/2 inch and smaller, flanged for 3 inch valves.
5. Valves shall be rated for an initial pressure of 150 psi. Valves shall be selected for inlet and outlet pressures as indicated on the drawings.
6. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Watts Model 223-S-B
   Zurn Model 500XLYSBR

X. Emergency gas shutoff valves shall be 120 volt solenoid type. Valve and actuator shall be Asco Series S261, AGS GSV Series, or approved equal. See Specification Section 231500 (Facility Natural Gas Systems) for additional requirements.

Y. General Purpose Solenoid Valves: General purpose solenoid valves for air or water shall be Asco Series 8210, or approved equal.

Z. Multi-Purpose Valves (Triple Duty Valves)

1. Only when specifically indicated on the drawings, provide multi-purpose (triple duty) valves of size and capacity as indicated on the drawings. Valves shall provide shutoff, flow control, non-slam check, and flow metering functions.
2. Construction: Cast or ductile iron body with non-slam bronze seat dish with EPDM seat insert, stainless steel stem and spring, and non-asbestos Teflon impregnated packing. Valve shall be rated at a working pressure of 125 psi. Provide with flanged end connections.

PART 3 - EXECUTION

3.1 INSTALLATION OF VALVES

A. Install valves where required for proper operation of piping and equipment, including valves in branch lines where necessary to isolate sections of piping. Locate valves so as to be accessible and so that separate support can be provided when necessary.

B. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward from horizontal plane.

C. Provide a union at each connection to equipment and downstream of each valve. Provide unions at both ends of valves when valves cannot be turned due to an obstruction.

D. After piping systems have been tested and put into service, but before final testing, adjusting, and balancing, inspect each valve for possible leaks. Adjust or replace packing to stop leaks; replace valve if leak persists.

E. Tag each valve and provide a complete listing of valve locations and functions. Valve and tag listing shall be laminated and turned over to the Owner for posting as desired. In addition, where valves are located above a ceiling or behind an access panel, provide an adhesive clear plastic label with black 3/8” lettering on ceiling grid or access panel identifying the valve.

F. Install check valves with a minimum of 5 pipe diameters downstream of each pump discharge or change in direction (to avoid excessive turbulence at the check valve).

3.2 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. At completion, carefully clean and adjust equipment and trim installed as part of this work. Leave systems and equipment in a satisfactory operating condition.

3.3 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.4 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 05 20 - OPERATION AND MAINTENANCE OF HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Furnish the Architect/Engineer with two complete sets of typewritten operating and maintenance instructions, descriptive literature, catalog cuts, and diagrams covering all items of operation and maintenance for each and every mechanical system and piece of equipment furnished under these specifications.

B. In addition to the bound hard copies the Contractor shall provide an electronic copy (pdf file).

C. The Contractor shall begin compiling the above data (including obtaining operating and maintenance instruction data, catalog cuts, and diagrams from the manufacturer of the reviewed equipment) immediately upon review of his list of materials, so as not to delay the final installation and acceptance of the work.

D. Bind and index each set in a durable, hardboard binder. Final observation should not be requested until the operating and maintenance binders are submitted and have been reviewed by the Architect/Engineer.

E. Incorporate complete operating instructions including starting, stopping, and description of emergency manual operation methods for the following:

1. Steam Systems
2. Piping Systems
3. Temperature Control Diagrams
4. Test Data and Startup Reports

F. Provide charts and diagrams as required.

G. Provide operating manual for all equipment listed in individual sections of the specification.

H. Provide maintenance instructions for each item of individual equipment covering pertinent maintenance data, such as lubricants to be used, frequency of lubrication, inspections required, adjustments required, etc.

I. Provide parts bulletins containing manufacturer's part numbers, instructions, etc. for each item of equipment. Strip bulletins so that useless bulk is avoided.

J. Post service telephone numbers and/or addresses in an appropriate place as designated by the Architect/Engineer or Owner.

END OF SECTION

SECTION 23 05 30 - HANGERS AND SUPPORTS FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Section 230000 (Heating, Ventilating, and Air Conditioning), Section 230500 (Basic Materials and Methods for HVAC Systems), and Section 230540 (Seismic Bracing for HVAC Systems) are hereby made a part of this section.

1.2 GENERAL

A. The following information is for pipe hanger and support layout and design reference only. The actual design of all hangers, supports, and seismic bracing is the responsibility of the Contractor per the following specification sections:

Specification Section 23 05 30 (Hangers and Supports for HVAC Systems)
Specification Section 23 05 40 (Seismic Bracing for HVAC Systems)

B. Piping: Hangers and supports for piping shall be designed in accordance with the latest adopted edition of the standards and codes listed below, and with any other applicable standards. Except in cases where a pipe stress analysis is performed to justify adjusted support and restraint spacing, pipe hangers and supports shall not be placed at intervals that are further apart than the requirements listed in UPC Table 313.3 and in UMC Table 313.3.

Steel Piping	Maximum Spacing	Reference
1-1/4” and smaller	7 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
1-1/2”	9 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
2”	10 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
2-1/2”	11 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
3”	12 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
3-1/2”	13 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
4”	14 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
5”	16 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
6”	17 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
8”	19 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
10”	22 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
12”	23 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
14”	25 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
Copper Piping	**Maximum Spacing**	**Reference**
3/4” and smaller	5 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
1”	6 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
1-1/4”	7 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
1-1/2”	8 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
2”	8 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
2-1/2”	9 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
3”	10 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
3-1/2”	11 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
4”	12 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
5”	13 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
6”	14 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
8”	16 feet	ANSI/MSS SP-69 & SP-58 Tables 3 & 4
Gas Piping	**Maximum Spacing**	**Reference**
1/2”	6 feet	International Fuel Gas Code
3/4” & 1”	8 feet	International Fuel Gas Code
1-1/4” and larger	10 feet	International Fuel Gas Code

C. Ductwork: Hangers and supports for rectangular and round ductwork shall be designed in accordance with the latest adopted edition of the SMACNA HVAC Duct Construction Standards. Vertical duct supports shall also be designed in accordance with the latest adopted edition of the SMACNA HVAC Duct Construction Standards. Note that the SMACNA HVAC Duct Construction Standards require that duct hangers also be installed within 2 feet of duct elbows and within 4 feet of duct branch fittings.

D. Rectangular Ducts: Maximum spacing and strap and/or hanger rod sizes shall be in accordance with SMACNA HVAC Duct Construction Standards Table 4.1.

E. Round Ducts: Maximum spacing and strap and/or hanger rod sizes shall be in accordance with SMACNA HVAC Duct Construction Standards Table 4.2.

1.3 SUMMARY

A. This section includes the following:
   1. Metal Pipe Hangers and Supports
   2. Thermal Hanger Shield Inserts
   3. Fastener Systems
   4. Pipe Stands
   5. Ductwork Supports
   6. Equipment Stands
   7. Equipment Supports

B. Related Requirements: All hangers and support systems shall be designed, selected, and installed by the Contractor to comply with the requirements listed in Section 230540 (Seismic Bracing for HVAC Systems).

C. Costs for hanger, support, and seismic bracing systems complying with the requirements listed herein are the responsibility of the Contractor and shall be included in the Contractor's bid. No extra cost will be allowed for failure to include the associated costs in the Contractor's bid.

D. In no case shall hangers and/or supports for HVAC piping, ductwork, or equipment be attached to a metal roof deck, unless provisions or allowances are explicitly shown on the structural drawings.

1.4 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show fabrication and installation details for the following (Include product data for all components):
   1. Metal Framing (Strut) Systems
   2. Trapeze Pipe Hangers
   3. Pipe Stands
   4. Ductwork Supports
   5. Equipment Supports

C. Delegated Design Submittals: Provide comprehensive, all-inclusive, delegated design submittals for all listed items. Submittals shall comply with all performance requirements and design criteria, including analysis data, signed and sealed by the qualified professional engineer responsible for their preparation.
   1. Details for fabrication and assembly of trapeze hangers.
   2. Design calculations utilized for designing the trapeze hangers.
   3. Design details and calculations for ductwork and equipment supports.

D. The work of this section shall be coordinated with the requirements for the Contractor furnished seismic design submittal for hangers and supports specified in Section 230540 (Seismic Bracing for HVAC Systems). Design and detailing of seismic bracing, hangers, and supports is the responsibility of the Contractor.

E. Submittals shall be fully coordinated with the structural drawings and shall include all applicable structural and seismic attachment details. Locations and the methods of attachment of hangers and supports to the main structural frame shall comply with the limitations specified in the structural drawings.

F. Submittals shall include all support anchorage loads and vectors broken out by discrete load type. Each specific load shall be indicated in the submittals and the structural element that the support is attached to shall be clearly depicted/identified.

G. Shop drawing submittals will be reviewed by both the design mechanical engineer and the design structural engineer (structural engineer when applicable).

1.5 QUALITY ASSURANCE

A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M (Structural Welding Code - Steel).

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code, Section IX.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Where required, engage a licensed professional engineer (licensed in the state where the project is located), to design trapeze pipe hangers/supports, ductwork hangers/supports, & equipment hangers/supports.

B. Structural Performance: Hangers and supports for HVAC piping, ductwork, and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE Standard 7-16.

1. Design hangers/supports for piping, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
2. Design hangers/supports for ductwork and associated accessories.
3. Design equipment hangers/supports capable of supporting combined operating weight of supported equipment, including connected systems and components.
4. Design seismic restraint hangers and supports for piping, ductwork, and equipment. See Section 230540 (Seismic Bracing for HVAC Systems).
5. Design of connections for hangers, supports, and bracing shall comply with the requirements indicated on the structural drawings.

2.2 GENERAL MATERIALS

A. Aluminum: ASTM B221.

B. Carbon Steel: ASTM A1011/A1011M.

C. Structural Steel: ASTM A36/A36M, carbon steel plates, shapes, and bars; galvanized.

D. Stainless Steel: ASTM A240/A240M.

E. Threaded Rods: Continuously threaded. Zinc plated or galvanized steel for indoor applications and stainless steel for outdoor applications. Mating nuts and washers shall be same or similar materials as rods.

F. Grout: ASTM C1107/C1107M, factory mixed and packaged, dry hydraulic cement, non-shrink and non-metallic grout; suitable for interior and exterior applications.
   1. Properties: Non-staining, non-corrosive, and non-gaseous.
   2. Design Mix: 5,000 psi, 28 day compressive strength.

2.3 HVAC EQUIPMENT HANGERS AND SUPPORTS

A. Provide delegated design as applicable for the specific equipment.

2.4 DUCTWORK HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Galvanized steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electro-galvanized, all-thread rods, or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA HVAC Duct Construction Standards - Metal and Flexible, Table 5-1 (Minimum Hanger Sizes for Rectangular Ducts) and Table 5-2 (Minimum Hanger Sizes for Round Ducts).

D. Steel Cables for Galvanized Steel Ducts: Galvanized steel complying with ASTM A603.

E. Steel Cables for Stainless Steel Ducts: Stainless steel complying with ASTM A492.

F. Steel Cable End Connections: Galvanized steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic locking and clamping device.

G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

H. Trapeze and Riser Supports
   1. Supports for Galvanized Steel Ducts: Galvanized steel shapes and plates.
   2. Supports for Stainless Steel Ducts: Stainless steel shapes and plates.
   3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

2.5 HVAC PIPE HANGERS AND SUPPORTS

A. Carbon Steel Pipe Hangers and Supports
   1. Description: MSS SP-58, Types 1 through 58, factory fabricated components.
   2. Galvanized Metallic Coatings: Pre-galvanized, hot dip galvanized, or electro-galvanized.
   3. Non-Metallic Coatings: Plastic coated or epoxy powder coated.
   4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support the bearing surface of the piping.
   5. Hanger Rods: Continuous thread rod, nuts, and washers made of carbon steel.

B. Stainless Steel Pipe Hangers and Supports
   1. Description: MSS SP-58, Types 1 through 58, factory fabricated components.
   2. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
   3. Hanger Rods: Continuous thread rod, nuts, and washers made of carbon steel.

C. Copper Pipe and Tube Hangers
   1. Description: MSS SP-58, Types 1 through 58, copper plated steel, factory fabricated components.
   2. Hanger Rods: Continuous thread rod, nuts, and washers made of carbon steel.

2.6 HANGER AND SUPPORT MATERIALS

A. Additional hanger and support requirements are listed in sections specifying piping, ductwork, and equipment.

B. Comply with MSS SP-58 for pipe hanger selections and applications that are not specified in piping system sections.

C. Use hangers and supports with galvanized metallic coatings for piping, ductwork, and equipment that will not have field applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon steel pipe hangers and supports metal trapeze pipe hangers and metal framing systems and attachments for general service applications.

F. Use copper plated pipe hangers and copper or stainless steel attachments for copper piping and tubing.

G. Use padded hangers for piping that is subject to scratching.

H. Use thermal hanger shield inserts for insulated piping and tubing.

I. Horizontal Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of non-insulated or insulated, stationary pipes 1/2” thru 30” size.
2. Yoke Type Pipe Clamps (MSS Type 2): For suspension of up to 1050°F, pipes 4” thru 24” size, requiring up to 4 inchesof insulation.
3. Carbon or Alloy Steel, Double Bolt Pipe Clamps (MSS Type 3): For suspension of pipes 3/4” thru 36” size, requiring clamp flexibility and up to 4 inchesof insulation.
4. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes 1/2” thru 24” size if little or no insulation is required.
5. Pipe Hangers (MSS Type 5): For suspension of pipes 1/2” thru 4” size, to allow off center closure for hanger installation before pipe erection.
6. Adjustable Swivel Split or Solid Ring Hangers (MSS Type 6): For suspension of non-insulated, stationary pipes 3/4” thru 8” size.
7. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of non-insulated, stationary pipes 1/2” thru 8” size.
8. Adjustable Band Hangers (MSS Type 9): For suspension of non-insulated, stationary pipes 1/2” thru 8” size.
9. Adjustable, Swivel Ring Band Hangers (MSS Type 10): For suspension of non-insulated, stationary pipes 1/2” thru 8” size.
10. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of non-insulated, stationary pipes 3/8” thru 8” size.
11. Extension Hinged or Two Bolt Split Pipe Clamps (MSS Type 12): For suspension of non-insulated, stationary pipes 3/8” thru 3” size.
12. U-Bolts (MSS Type 24): For support of heavy pipes 1/2” thru 30” size.
13. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
14. Pipe Saddle Supports (MSS Type 36): For support of pipes 4” thru 36” size, with steel pipe base stanchion support and cast iron floor flange or carbon steel plate.
15. Pipe Stanchion Saddles (MSS Type 37): For support of pipes 4” thru 36” size, with steel pipe base stanchion support and cast iron floor flange or carbon steel plate, and with U-bolt to retain pipe.

16. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion type support for pipes 2-1/2” thru 3” size, 6” size if vertical adjustment is required, with steel pipe base stanchion support and cast iron floor flange.
17. Single Pipe Rolls (MSS Type 41): For suspension of pipes 1” thru 3” size, from two rods if longitudinal movement caused by expansion and contraction may occur.
18. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes 2-1/2” thru 24” size, from single rod if horizontal movement caused by expansion and contraction may occur.
19. Complete Pipe Rolls (MSS Type 44): For support of pipes 2” thru 42” size if longitudinal movement caused by expansion and contraction may occur but vertical adjustment is unnecessary.
20. Pipe Roll and Plate Units (MSS Type 45): For support of pipes 2” thru 24” size if small horizontal movement caused by expansion and contraction may occur and vertical adjustment is unnecessary.
21. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes 2” thru 30” size if vertical and lateral adjustment during installation may be required in addition to expansion and contraction.

J. Vertical Piping Clamps: Unless otherwise indicated and except as specified in piping system sections, install the following types:
   1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers 3/4” thru 24”.
   2. Carbon or Alloy Steel Riser Clamps (MSS Type 42): For support of pipe risers 3/4” thru 24” size if longer ends are required for riser clamps.

K. Hanger Rod Attachments: Unless otherwise indicated and except as specified in piping system sections, install the following types:
   1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inchesfor heavy loads.
   2. Steel Clevises (MSS Type 14): For 120°F to 450°Fpiping installations.
   3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
   4. Malleable Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
   5. Steel Weldless Eye Nuts (MSS Type 17): For 120°F to 450°Fpiping installations.

L. Building Attachments: Unless otherwise indicated and except as specified in piping system sections, install the following types:
   1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
   2. Top Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
   3. Side Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
   4. Center Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
   5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
   6. C-Clamps (MSS Type 23): For structural shapes.
   7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
   8. Side Beam Clamps (MSS Type 27): For bottom of steel I-beams.
   9. Steel Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
   10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.

11. Malleable Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
12. Welded Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:
    a. Light (MSS Type 31): 750 lbs.
    b. Medium (MSS Type 32): 1,500 lbs.
    c. Heavy (MSS Type 33): 3,000 lbs.
13. Side Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

M. Saddles and Shields: Unless otherwise indicated and except as specified in piping system sections, install the following types:
1. Steel Pipe Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal Hanger Shield Inserts: For supporting insulated pipe.

N. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system sections, install the following types:
1. Restraint Control Devices (MSS Type 47): Where indicated to control piping movement.
2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
3. Spring Cushion Roll Hangers (MSS Type 49): For equipping Type 41, roll hanger with springs.
4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
5. Variable Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from hanger.
6. Variable Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from base support.
7. Variable Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from trapeze support.
8. Constant Supports: For critical piping stress and if necessary, to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load adjustment capability. These supports include the following types:
    a. Horizontal (MSS Type 54): Mounted horizontally.
    b. Vertical (MSS Type 55): Mounted vertically.
    c. Trapeze (MSS Type 56): Two vertical type supports and one trapeze member.

O. Comply with MSS SP-58 for trapeze pipe hanger selections and applications that are not specified in piping system sections.

P. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system sections.

Q. Use powder actuated fasteners and mechanical expansion anchors instead of building attachments where required in concrete construction.

2.7 TRAPEZE PIPE HANGERS

A. Description: MSS SP-58, Type 59, shop or field fabricated pipe support assembly made from structural carbon steel shapes with MSS SP-58 carbon steel hanger rods, nuts, saddles, and U-bolts.

2.8 METAL FRAMING (STRUT) SYSTEMS

A. Metal Framing Manufacturers Association (MFMA) Metal Framing Systems

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

   B-line
   Unistrut
   Flex-Strut
   G-Strut
   Miro Industries

2. Description: Shop or field fabricated, pipe support assembly made of steel channels, accessories, fittings, and other components for supporting multiple parallel pipes.
3. Standard: Comply with MFMA-4 factory fabricated components for field assembly.
4. Channels: Continuous slotted carbon steel channel with in-turned lips.
5. Channel Width: Selected for applicable load criteria.
6. Channel Nuts: Formed or stamped nuts or other devices designed to fit into channel slot and, when tightened, prevent slipping along channel.
7. Hanger Rods: Continuous thread rod, nuts, and washers made of carbon steel.
8. Metallic Coating: Zinc dichromate finish applied over an electro-galvanized zinc plating.

2.9 THERMAL HANGER SHIELD INSERTS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:
   Pipe Shields
   nVent/Caddy
   Buckaroos

B. Standard Insulation Insert Material for Cold Piping: Polyisocyanurate high density insulation, with 125 psiminimum compressive strength, a flame spread/smoke developed rating of 25/50 or less, and vapor barrier.

C. Standard Insulation Insert Material for Hot Piping: Polyisocyanurate high density insulation, with 125 psiminimum compressive strength, a flame spread/smoke developed rating of 25/50 or less; or calcium silicate with 100 psiminimum compressive strength.

D. Structural/Seismic Insert Material for Cold Piping: Polyisocyanurate high density insulation, with a minimum density of 14 lbs/ft^3, a minimum compressive strength of 900 psi, and a flame spread/smoke developed rating of 25/50 or less. Structural inserts shall be used as recommended by the insert manufacturer to meet load ratings.

E. Structural/Seismic Insert Material for Hot Piping: Calcium Silicate with a minimum density of 28 lbs/ft^3 and a minimum compressive strength of 900 psi. Structural inserts shall be used as recommended by the insert manufacturer to meet load ratings.

F. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

G. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

H. Insert Length: Extend 2 inchesbeyond sheet metal shield for piping operating below ambient air temperature.

I. Provide a vapor barrier steel jacket around insulation. Insulation jackets shall be galvanized steel conforming to ASTM A653. Hanger bearing surface shall consist of a galvanized sheet metal insulation protection shield or casing.

J. Thermal hanger supports shall be load rated. Load ratings shall be established by the pipe support manufacturer based upon testing and analysis in conformance with the current edition of following codes and standards: ASME B31.1, MSS SP-68, SP-69, and SP-89.

K. Unless otherwise indicated, thermal hanger supports shall be as indicated in the following schedule, or approved equal. The listed model numbers are based on Pipe Shields.
   1. Pipe supported on hangers: Models A2000, A4000, A9000, and D3000 series.
   2. Pipe supported on flat surfaces: Models A2000, A4000, A6000, A7000, A7200, and A7400.
   3. Pipe Supported on pipe rolls: Models A4000, A6000, A8200, and A8400.
   4. Pipe supported on slides and guides: Model B series.
   5. Riser pipe supports: Model E series.

L. The selected model(s) shall conform to pipe service, support style, and support spacing.

M. Pipe support spacing shall be in accordance with the manufacturer's recommendations, but in no case shall exceed the maximum spacing required by ASME B31.1.

2.10 FASTENER SYSTEMS

A. Powder Actuated Fasteners: Threaded steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used. Powder actuated fasteners may only be utilized for point loads of 50 lbs or less.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

      Hilti
      ITW Ramset (Red Head)
      Simpson Strong-Tie

B. Mechanical Expansion Anchors: Insert wedge type anchors for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
   1. Indoor Applications: Zinc-coated stainless steel.
   2. Outdoor Applications: Stainless steel.
   3. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

      Hilti
      ITW Ramset/Red Head
      B-line

2.11 PIPE STANDS

A. General Requirements for Pipe Stands: Shop or field fabricated assemblies made of manufactured corrosion resistant components to support roof mounted piping.

B. Compact Pipe Stand
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

      Miro Industries
      PHP Systems/Design
      Rooftop Support Systems
   2. Description: Single base unit with integral rod roller, pipe clamps, or V-shaped cradle to support pipe, for roof installation without membrane penetration.
   3. Base: Single, vulcanized rubber, molded polypropylene, or polycarbonate.
   4. Hardware: Galvanized steel or polycarbonate.
   5. Accessories: Protection pads.

C. Low Profile, Single Base, Single Pipe Stand
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

      Miro Industries
      PHP Systems/Design
      Rooftop Support Systems
   2. Description: Single base with vertical and horizontal members, and pipe support, for roof installation without membrane protection.
   3. Base: Single, vulcanized rubber, molded polypropylene, or polycarbonate.
   4. Vertical Members: Two galvanized steel, continuous thread 1/2 inchrods.
   5. Horizontal Member: Adjustable horizontal, galvanized steel pipe support channels.
   6. Pipe Supports: Roller strut clamps, clevis hanger, or swivel hanger.
   7. Hardware: Galvanized steel.
   8. Accessories: Protection pads.
   9. Height: 12 inchesabove roof, or as indicated on the drawings.

D. High Profile, Multiple Pipe Stand
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

      Miro Industries
      PHP Systems/Design
      Rooftop Support Systems
   2. Description: Assembly of bases, vertical and horizontal members, and pipe supports, for roof installation without membrane penetration.
   3. Bases: Two or more vulcanized rubber molded polypropylene insert material.
   4. Vertical Members: Two or more galvanized steel channels.
   5. Horizontal Members: One or more adjustable height, galvanized steel pipe supports.
   6. Pipe Supports: Roller strut clamps, clevis hanger, swivel hanger.
   7. Hardware: Galvanized steel.
   8. Accessories: Protection pads**,** 1/2 inchcontinuous thread rod.
   9. Height: 24 inchesabove the roof or as indicated on the drawings.

E. Curb Mounted Type Pipe Stands: Shop or field fabricated pipe supports made from structural steel shapes, continuous thread rods, and rollers, for mounting on permanent stationary roof curb.

2.12 EQUIPMENT SUPPORTS

A. Description: Welded, shop or field fabricated equipment supports made from structural carbon steel shapes.

2.13 OUTDOOR EQUIPMENT STANDS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or approved equal:

Miro Industries
Rooftop Support Systems

B. Description

1. Description: Individual foot supports with elevated adjustable channel cross bars and clamps/fasteners/bolts for ground or roof supported outdoor equipment components, without roof membrane penetration, in a pre-fabricated system that can be modularly assembled on site.
2. Foot Material: Rubber or polypropylene.
3. Rails Material: Hot dip galvanized carbon steel.
4. Wind/Sliding Load Resistance: Up to 120 mph, or as indicated on the structural drawings.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with all requirements in other section of the specifications for firestopping materials and installation for penetrations through fire rated walls, ceilings, and assemblies.

B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lbs.

3.2 HANGER AND SUPPORT INSTALLATION

A. Metal Pipe Hanger Installation: Comply with MSS SP-58. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

B. Metal Trapeze Pipe Hanger Installation: Comply with MSS SP-58. Arrange for grouping of parallel runs of horizontal piping, and support together on field fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
2. Field fabricate from ASTM A36/A36M, carbon steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

C. Thermal Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

D. Fastener System Installation

1. Install powder actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inchesthick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder actuated tool manufacturer. Install fasteners according to powder actuated tool manufacturer's operating manual.
2. Install mechanical expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

E. Pipe Stand Installation
   1. Pipe Stand Types Except Curb Mounted Type: Assemble components and mount on smooth roof surface. Do not penetrate the roof membrane.
   2. Curb Mounted Type Pipe Stands: Assemble components or fabricate pipe stands and mounts on a permanent, stationary roof curb.

F. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

G. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

H. Install lateral bracing with pipe hangers and supports to prevent swaying.

I. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, 2-1/2” pipe size and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

J. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

K. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

L. Insulated Piping
   1. Attach clamps and spacers to piping.
      a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
      b. Piping Operating below Ambient Air Temperature: Use thermal hanger shield insert with clamp sized to match OD of insert.
      c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
   2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation. Optional: Thermal hanger shield inserts may be used. Include steel weight distribution plate for pipe NPS 4and larger if pipe is installed on rollers.
   3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees. Optional: Thermal hanger shield inserts may be used. Include steel weight distribution plate for pipes 4”and larger if pipe is installed on rollers.
   4. Shield Dimensions for Pipe: Not less than the following:
      a. 1/2” to 3-1/2” pipe: 12 incheslong and 0.048 inchthick.
      b. 4” and 5” pipe: 18 incheslong and 0.06 inchthick.
      c. 8” thru 14” pipe: 24 incheslong and 0.075 inchthick.
      d. 16” thru 24” pipe: 24 incheslong and 0.105 inchthick.
   5. Pipes 8”and Larger: Include wood or reinforced calcium silicate insulation inserts of length at least as long as the protective shield.
   6. Thermal Hanger Shields: Install with insulation same thickness as piping insulation.

3.3 EQUIPMENT HANGERS/SUPPORTS

A. Fabricate structural steel supports to suspend equipment from structure overhead or structural steel stands to support equipment above the floor.

B. Grouting: Place grout under supports for equipment and make bearing surface smooth.

C. Provide lateral bracing for equipment supports to prevent swaying.

3.4 DUCTWORK HANGERS/SUPPORTS

A. Fabricate structural steel supports to suspend ductwork from structure overhead.

B. Fabricate structural steel stands to support ductwork above the floor (when indicated on the drawings). Provide lateral bracing for ductwork supports to prevent swaying.

3.5 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.6 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous thread hanger and support rods to 1-1/2 inches.

3.7 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field painted surfaces. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing repair paint to comply with ASTM A780/A780M.

END OF SECTION

SECTION 23 05 40 - SEISMIC BRACING FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Section 230000 (Heating, Ventilating, and Air Conditioning), Section 230500 (Basic Materials and Methods for HVAC), and Section 230530 (Hangers and Supports for HVAC Systems) are hereby made a part of this section.

1.2 GENERAL

A. Seismic bracing for mechanical systems (equipment, ductwork, piping, and conduit) shall comply with all applicable requirements of the latest adopted edition of the International Building Code (IBC) including all applicable provisions of the latest adopted edition of the American Society of Civil Engineers (ASCE) Minimum Design Loads for Buildings and Other Structures (ASCE Standard 7-16). Basic seismic design criteria for each project shall be as listed on the structural drawings for that project.

B. The anchorage calculations shall show compliance with the latest adopted edition of the American Concrete Institute (ACI) Standards, Handbooks, and Manuals where anchoring to concrete for the project-specific loads and conditions, including project specific calculations for anchors, clips, and fasteners.

C. Anchorage calculations for seismic roof curbs shall be included in seismic roof curb submittal, including a stamped plan or detail showing the anchorage requirement. This detail shall include specific anchor type, diameter, embedment, and layout or spacing. The anchorage calculation shall show compliance with the American Concrete Institute (ACI) where anchoring to concrete for the specific loads and conditions present, including project specific calculations for anchors, clips, and fasteners

D. Compliance with the applicable seismic bracing requirements for equipment, ductwork, piping, and conduit shall be accomplished utilizing the most current version of one of the following design manuals, or approved equal.

International Seismic Application Technology (ISAT) Design Manual

Mason Industries Seismic Restraint Design Manual

Vibro-Acoustics Seismic Design Manual

SMACNA Seismic Restraint Manual (Guidelines for Mechanical Systems)

E. Component Importance Factors (Ip) for all equipment, ductwork, piping, and conduit shall be determined and assigned in accordance with ASCE Standard 7-16 Section 13.1.3.

F. Design and detailing of seismic bracing, hangers, and supports for equipment, ductwork, piping, and conduit is the responsibility of the Contractor.

G. Design of connections for hangers, supports, and bracing shall comply with the requirements indicated on the structural drawings (when provided).

H. The work of this section shall be coordinated with the requirements for the Contractor furnished delegated design submittal for hangers and supports specified in Section 230530 (Hangers and Supports for HVAC Systems). Design and detailing of seismic bracing, hangers, and supports is the responsibility of the Contractor.

1.3 SUBMITTALS

A. The Contractor shall provide the required number of seismic shop drawing submittal sets for review and approval by the Engineer. Submittals shall include a comprehensive set of shop drawings clearly depicting the seismic bracing requirements for all equipment, ductwork, piping, and conduit. Any piping or conduit that does not require seismic bracing shall be specifically identified in the submittal, and the reason for exemption shall be provided. Cite any and all references for the exemption. In cases where seismic bracing is not required due to the supported items being less than 12 inches below the supporting structure, a single note may be provided to cover those locations.

B. Submittals shall be fully coordinated with the structural drawings and shall include all applicable structural attachment details. Seismic bracing shop drawings shall include all vertical support anchorage loads and all seismic bracing anchorage loads. Each specific load shall be indicated and the structural element that the support is attached to shall be clearly depicted/identified. Seismic bracing submittals shall be stamped and signed by a structural or civil engineer with current registration licensed in the State of Nevada (or licensed in the state where the project is located, if the project is located outside the State of Nevada).

C. Seismic shop drawing submittals will be reviewed by both the design mechanical engineer and the design structural engineer.

1.4 SITE VISITS (QUALITY CONTROL)

A. An authorized representative of the seismic bracing system manufacturer shall visit the job site during the construction period to confirm that the seismic bracing installation complies with the shop drawings, with all applicable code requirements, and with the seismic bracing system manufacturer’s written installation requirements and associated details. As a minimum, an authorized representative shall visit the site when the seismic bracing installation is complete (and prior to installation of the ceilings).

B. A written report shall be issued within one week the site visit summarizing the observations made during the site visit and listing all required corrective actions and/or deficiencies. The report shall be made available to both the design mechanical engineer and the design structural engineer.

C. After all equipment installation is complete and all seismic bracing has been verified, the authorized representative that conducted the field verification shall issue a letter certifying that the installation is complete and that the installation complies with the specified requirements

D. Site visits shall be coordinated with the Owner and shall be scheduled in writing a minimum of one week prior to the proposed site visit date.

END OF SECTION

SECTION 23 05 50 - VIBRATION ISOLATORS FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning), 230500 (Basic Materials and Methods for HVAC Systems), and 230530 (Hangers and Supports for HVAC Systems) are hereby made a part of this section.

1.2 WORK INCLUDED

A. Types of vibration isolation products specified in this section include the following:
   1. Spring Isolators
   2. Spring Hangers
   3. Waffle Pad Isolators
   4. Pipe Riser Support Isolators
   5. Seismic Snubbers

B. Vibration isolation products furnished as part of factory-fabricated equipment are specified as part of the equipment assembly in other Division 23 sections.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in the manufacture of vibration isolation products of types and sizes required, whose products have been in satisfactory use in similar service for a minimum of 5 years.

B. Unless noted otherwise, all isolators shall be from single manufacturer.

C. Select isolation devices for uniform static deflections according to distribution of weight.

D. Select isolators to minimize vibration and noise transmission from equipment to the building structure using mounts and hangers. Coordinate weights and locations as required.

E. Reference Standards: SMACNA (Sheet Metal and Air Conditioning Contractors National Association). Provide isolation and seismic snubbing in accordance with the SMACNA standards.

F. For projects located in California all isolators shall be California Department of Health Care Access and Information (HCAI) pre-approved. Non-approved isolators will not be considered.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data including installation instructions for each type of vibration isolation product.

B. For all spring isolators include a tabulation of the design data, including supported equipment weight, free spring height, operating spring height, and solid spring height.

PART 2 - PRODUCTS

2.1 SPRING ISOLATORS

A. Spring isolators shall be housed type, with a minimum deflection of 1 inch and minimum outside diameter not less than spring operating height. Provide housing with screw-type adjustment at top of housing and with neoprene isolation material at all potential points of metal-to-metal contact. The size of spring isolators shall be as recommended by the isolator manufacturer for the weight of the supported equipment.

B. See Section 3.1 (Application) for equipment requiring spring isolators.

C. Spring isolators shall be furnished with height-saving brackets welded to channel base frames, with leveling bolts and base plate with non-skid neoprene or one inch thick pre-compressed fiberglas isolation pad. The springs shall have a minimum travel of 50 percent between the design height and the solid height. Isolator base plates shall be bolted to the floor, with size and number of bolts as recommended by the isolator manufacturer.

D. Available Manufacturers: Subject to compliance with requirements, manufacturer offering products which may be incorporated in the work include the following, or approved equal:

Mason Industries Model SSLFH
Kinetics Noise Control Model FLSS

2.2 SPRING HANGERS

A. Support equipment suspended from overhead with combination spring and rubber-in-shear hangers in the support rods. Provide hangers with a minimum of 1 inch of deflection, capable of moving through a 30 degree arc without any metal-to-metal contact. The size of spring isolators shall be as recommended by the isolator manufacturer for the weight of the supported equipment. Spring hangers shall be pre-loaded

B. See Section 3.1 (Application) for equipment requiring spring hangers.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

Mason Industries Model PC30N
Kinetics Noise Control Model SPH

2.3 WAFFLE PAD ISOLATORS

A. Where indicated on the drawings, isolate equipment located on grade from building slab with 5/16 inch thick neoprene waffle pads. Pad size shall be 6 inches larger than the associated equipment on all 4 sides unless indicated otherwise on the drawings. Provide appropriate anchor bolts with non-metallic grommets and washers.

B. See Section 3.1 (Application) for equipment requiring waffle pad isolators.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

Mason Industries Model W
Kinetics Noise Control Model RSP

2.4 ROOF OR EXTERIOR CONCRETE SLAB MOUNTED SUPPORTS

A. Where indicated on the drawings, isolate equipment and/or piping located on a roof or on an exterior concrete slab with roller-bearing, clamp, or strut type supports as appropriate for the specific application.

B. Ensure that an additional layer of roof membrane is installed below each support located on a membrane roof.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

Clearline Technologies C-Port (CREW or CEW Series)
Miro Industries (BS or RAH Series)

2.5 PIPE RISER SUPPORT ISOLATORS

A. Provide manufacturer's standard pad-type isolator and secure to pipe riser clamp for support of piping at each floor level above grade.

2.6 SEISMIC SNUBBERS

A. Provide all spring-isolated equipment or structures with adequate seismic snubbing. Select snubbers to restrict lateral movement in all directions and bolt to both the equipment and the floor or overhead structure. Select snubbers to allow 1/4 inch motion in any horizontal direction, and provide adjustments to limit vertical or rocking motion to 0.1 inch. Provide snubbers with a minimum rating equal to the weight of the equipment and base divided by the number of snubbers (1 g rating). Arrest motion with resilient material designed for 500 psi minimum at the 1 g load. Accommodate a 2 g load without distortion.

B. The vibration isolation manufacturer shall provide seismic snubbers as part of a complete package, including base frame and springs, or spring hangers.

PART 3 - EXECUTION

3.1 APPLICATION

A. General: Except as otherwise indicated, apply the following types of vibration isolators at the indicated locations.

Waffle Pad Isolators:	Base Mounted Pumps
Spring Isolators:	Pumps Mounted Inside a Building Above Grade
Spring Hangers:	In-Line Circulating Pumps (1 HP and Larger) Steam and Steam Condensate Piping

3.2 INSTALLATION

A. Except as otherwise indicated, comply with manufacturer's instructions for installation and load application for vibration isolation materials and units. Adjust to ensure that units do not exceed rated operating deflections or bottom out under loading, and are not short-circuited by other contact or bearing points.

3.3 INSPECTION

A. Examine areas and conditions under which vibration isolation products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Contractor and Engineer.

3.4 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in condition satisfactory to Architect/Engineer. At completion, carefully clean and adjust equipment and trim installed as part of this work. Leave systems and equipment in satisfactory operating condition.

3.5 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.6 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 07 00 - INSULATION FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 WORK INCLUDED

A. Types of mechanical insulation specified in this section include the following:

1. Piping Systems Insulation
   Steam and Condensate Piping
2. Equipment Insulation
   Heating Water Equipment
   Removable Insulating Jackets

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Insulation specialty firm with at least 5 years successful installation experience on projects with mechanical insulations similar to that required for this project.

B. IECC Compliance: Comply with applicable portions of the International Energy Conservation Code, including, but not limited to Section C403.13.

C. SMACNA Compliance: Comply with applicable portions of Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) recommendations for all work in this section.

D. ASHRAE Standards: Comply with applicable portions of American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) recommendations for all work in this section.

E. NFPA Standards: Comply with applicable portions of ANSI/NFPA Standard 90A (Standard for the Installation of Air Conditioning and Ventilating Systems) and ANSI/NFPA 90B (Standard for the Installation of Warm Air Heating and Air Conditioning Systems) for all work in this section.

F. NAIMA Standards: Comply with all applicable portions of the North American Insulation Manufacturers Association (NAIMA) standards for all related work in this section.

G. MICA Standards: Comply with all applicable portions of the Midwest Insulation Contractors Association standards for all related work in this section.

H. Install thermal insulation products on equipment in accordance with the manufacturer's written instructions and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data and installation instructions for each type of insulation. Submit schedule showing manufacturer's product number, k-Value, thickness, density, and furnished accessories for each mechanical system requiring insulation. Include complete description of installation methods with this submittal.

PART 2 - PRODUCTS

2.1 PIPE INSULATION MATERIALS

A. All pipe insulation thicknesses and conductivities shall meet or exceed the requirements listed in International Energy Conservation Code Section C403.13. All conductivity values listed in this specification section are in Btu-in/(hr-ft^2-°F).

B. Flame/Smoke Spread Ratings: Insulation installed inside the building shall consist of composite mechanical insulation (insulation, jackets, coverings, sealers, mastics, and adhesives) with a flame spread rating of 25 or less and a smoke developed index of 50 or less, per ASTM E84.

C. Kitchens, Hospitals, and Pharmacies: All insulated piping exposed in kitchen, hospital, and/or pharmacy areas shall be covered with Type 304 stainless steel jacketing secured with 3/4" wide stainless steel bands at 12" on center.

D. Aluminum Jacketing shall be Johns Manville 'JM Aluminum Jacketing' with 'Polyfilm Moisture Barrier' and stucco-embossed finish, or approved equal, and shall be installed in conformance with the manufacturer's written instructions. Secure jacketing with 3/4" wide Type 304 stainless steel bands at 12" on center. Finish all cold fittings as required to provide a vapor-tight seal. Aluminum and/or stainless steel jacketing shall be provided in the following thicknesses:

1. For Insulation Outside Diameters under 8": .016 inch thick jacketing
2. For Insulation Outside Diameters 8" thru 24": .024 inch thick jacketing

E. Lower Level Exposed in all piping applications shall mean any exposed pipe in a mechanical room, mezzanine area, or other accessible space that is less than 8'-0" above finished floor.

F. Higher Level Exposed in all piping applications shall mean any exposed pipe in a mechanical room, mezzanine area, or other accessible space that is 8'-0" or more above finished floor.

G. Fiberglass Insulation (Concealed Applications)

1. Fiberglass insulation shall be Johns Manville Microlok HP, or approved equal, with factory-applied fire-retardant ASJ jacket, self-sealing laps, and shall be applied per manufacturer's written recommendations. Conductivity shall be 0.23 at 75°F, 0.25 at 125°F, and 0.28 at 200°F. Insulation shall be rated for applications from 0°F up to 850°F. Insulation flame spread/smoke developed rating shall be 25/50 or less in accordance with ASTM E84.
2. Insulate and cover all fittings with Johns Manville Zeston Series 2000 standard gauge pre-molded fitting covers secured with serrated tacks, adhesive, and/or Zeston Z-Tape.
3. Install a segment of rigid calcium silicate insulation at each pipe hanger for pipe sizes 2-1/2 inches and larger.
4. Finish all cold fittings with Zeston Z-tape to provide a vapor-tight seal.
5. Seal all raw ends and exposed fiberglass insulation with Childers CP-10 weather barrier sealant, or approved equal.
6. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

   Johns Manville
   Knauf
   Owens Corning

H. Fiberglass Insulation (Lower Level Exposed Applications)

1. Fiberglass insulation shall be Johns Manville Microlok HP, or approved equal, with factory-applied fire-retardant ASJ jacket, self-sealing laps, and shall be applied per manufacturer's written recommendations. Conductivity shall be 0.23 at 75°F, 0.25 at 125°F, and 0.28 at 200°F. Insulation shall be rated for applications from 0°F up to 850°F. Insulation flame spread and smoke developed rating shall be 25/50 or less in accordance with ASTM E84. Lower level exposed piping shall be covered with aluminum jacketing.
2. Insulate and cover all fittings with aluminum jacketing and aluminum fitting covers.

3. Install a segment of rigid calcium silicate insulation at each pipe hanger for pipe sizes 2-1/2 inches and larger.
4. Finish all cold fittings with Zeston Z-tape to provide a vapor-tight seal.
5. Seal all raw ends of insulation with Childers CP-10 weather barrier sealant, or equal.
6. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

   Johns Manville
   Knauf
   Owens Corning

I. Fiberglass Insulation (Higher Level Exposed Applications)

1. Fiberglass insulation shall be Johns Manville Microlok HP Ultra with performance characteristics as specified for Johns Manville Microlok HP insulation plus a factory-applied polypropylene coating that is cleanable/washable.
2. Insulate and cover all fittings with Johns Manville Zeston Series 2000 standard gauge pre-molded fitting covers secured with serrated tacks, adhesive, and/or Zeston Z-Tape.
3. Install a segment of rigid calcium silicate insulation at each pipe hanger for pipe sizes 2-1/2 inches and larger.
4. Finish all cold fittings with Zeston Z-tape to provide a vapor-tight seal.
5. Seal all raw ends of insulation with Childers CP-10 weather barrier sealant, or equal.
6. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

   Johns Manville
   Knauf
   Owens Corning

J. Closed Cell Polyisocyanurate Insulation with Aluminum Jacketing

1. Closed cell polyisocyanurate insulation shall be Johns Manville Trymer 25-50 with vapor retarder film and tape, and aluminum jacketing, or approved equal. Install insulation and jacketing per the manufacturer's written recommendations. Conductivity shall be 0.19 at 75°F. Insulation shall be rated for applications from 0°F up to 300°F. Insulation flame spread and smoke developed rating shall be 25/50 or less in accordance with ASTM E84. Note that Johns Manville Trymer 25-50 is specified for outdoor applications due to the fact that it does not expand and contract during weather extremes like Armaflex and other closed cell foam pipe insulation products.
2. Chilled Water Piping Vapor Retarder: Cover all closed cell polyisocyanurate pipe and fitting insulation with JM Saranex 540-CX Vapor Retarder Film and JM Saranex 520-CX Vapor Retarder Tape, or approved equal.
3. Jacketing: Cover pipe and fitting insulation with stucco-embossed aluminum jacketing.

K. Closed Cell Phenolic Foam Insulation with Aluminum Jacketing

1. Closed cell phenolic foam insulation shall be Thermal Pipe Shields Phenolic Foam, Johns Manville Phenolic Foam, or approved equal. Install insulation and jacketing per the manufacturer's written recommendations. Conductivity shall be 0.152 at 75°F, 0.19 at 125°F, and 0.25 at 200°F. Insulation shall be rated for applications from 0°F up to 248°F. Insulation flame spread and smoke developed rating shall be 25/50 or less in accordance with ASTM E84.
2. Jacketing: Cover pipe and fitting insulation with stucco-embossed aluminum jacketing.

L. Closed Cell Foamglas Insulation with Aluminum Jacketing (above ground applications)

1. Closed cell foam insulation shall be Owens Corning Foamglas One, or approved equal, and shall be installed per manufacturer's recommendations. Conductivity shall be 0.29 at 75°F, 0.33 at 125°F, and .38 at 200°F. Insulation shall be rated for applications from 0°F up to 900°F. Insulation flame spread and smoke developed rating shall be 25/50 or less in accordance with ASTM E84.
2. Jacketing: Cover pipe and fitting insulation with stucco-embossed aluminum jacketing.

M. Closed Cell Foamglas Insulation with Pittwrap Jacketing (below ground applications)

1. Closed cell foam insulation shall be Owens Corning Foamglas One, or approved equal, and shall be installed per manufacturer's recommendations. Conductivity shall be 0.29 at 75°F, 0.33 at 125°F, and .38 at 200°F. Insulation shall be rated for applications from 0°F up to 900°F. Insulation flame spread and smoke developed rating shall be 25/50 or less in accordance with ASTM E84.
2. Jacketing: Cover pipe and fitting insulation with Owens Corning Pittwrap jacketing.

N. Calcium Silicate Insulation with Aluminum Jacketing

1. Calcium silicate insulation shall be Johns Manville Thermo-1200, or approved equal, and shall be installed per manufacturer’s written recommendations. Conductivity shall be 0.36 at 125°F and 0.39 at 200°F. Insulation shall be rated for hot water, steam, or steam condensate applications up to 1200°F. Insulation flame spread and smoke developed rating shall be 25/50 or less in accordance with ASTM E84.
2. Calcium silicate insulation installed outdoors shall be treated with a water-proofing sealant.
3. Jacketing: Cover pipe and fitting insulation with stucco-embossed aluminum jacketing.
4. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:

   Johns Manville
   Thermal Pipe Shields

2.2 STEAM PIPING 15 PSI THRU 125 PSI (INDOORS)

A. Insulate lower level exposed steam piping with fiberglass insulation covered with aluminum jacketing and aluminum fitting covers.

B. Insulate higher level exposed steam piping with fiberglass insulation with ASJ jacketing and heavy gauge pre-molded fitting covers.

C. Insulate concealed steam piping with fiberglass insulation covered with ASJ jacketing and heavy gauge pre-molded fitting covers.

D. Minimum Insulation Thickness

1. Piping 3/4 inch and smaller: 2-1/2 inch
2. Piping 1 inch thru 1-1/4 inch: 3-1/2 inch
3. Piping 1-1/2 inch thru 3-1/2 inch: 4 inch
4. Piping 4 inch thru 6 inch: 4 inch
5. Piping 8 inch and larger: 4 inch

E. Insulation on steam piping 3” and larger shall be installed in two layers, with staggered joints.

2.3 STEAM CONDENSATE AND FEED WATER PIPING (INDOORS)

A. Insulate lower level exposed steam condensate and feed water piping with fiberglass insulation covered with aluminum jacketing and aluminum fitting covers.

B. Insulate higher level exposed steam condensate and feed water piping with fiberglass insulation with ASJ jacketing and heavy gauge pre-molded fitting covers.

C. Insulate concealed steam condensate and feed water piping with fiberglass insulation covered with ASJ jacketing and heavy gauge pre-molded fitting covers.

D. Minimum Insulation Thickness

1. Piping 1-1/4 inch and smaller: 2 inch
2. Piping 1-1/2 inch thru 3-1/2 inch: 2 inch
3. Piping 4 inch thru 6 inch: 2-1/2 inch
4. Piping 8 inch and larger: 2-1/2 inch

2.4 EQUIPMENT INSULATION MATERIALS

A. General: All equipment insulation R-Values and thicknesses shall meet or exceed the requirements listed in 2024 International Energy Conservation Code Section C403.13.

B. Heating Water Equipment

1. Insulate all heating water equipment operating at increased surface temperatures and which does not have factory-applied insulation, including heating water system air separators. Do not insulate heating water expansion tanks or heating water pumps.
2. Flat insulation shall be 3 lb density fiberglass board with thickness as required for the operating temperature of the associated fluid inside the equipment. Insulation shall be Johns Manville Series 800 Spin-Glas with reinforced FSK jacket, Owens Corning Series 700 fiberglass board insulation with reinforced FSK jacket, or approved equal.
3. Curved insulation shall be 2.5 lb density semi-rigid fiberglass with thickness as required for the operating temperature of the associated fluid inside the equipment. Insulation shall be Johns Manville Micro-Flex large diameter pipe and tank insulation with reinforced FSK jacket, Owens Corning large diameter pipe and tank insulation with reinforced FSK jacket, or approved equal.
4. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

   Johns Manville
   Knauf
   Owens Corning

C. Removable Insulating Jackets

1. Removable insulating jackets shall be provided for the following items:
   Motorized control valves located indoors and/or outdoors
   Flanged valves located indoors and/or outdoors
2. Insulation and jacket material shall be rated for the operating temperature of the equipment and/or fluid being insulated. Insulating jackets shall be removable and reusable, thermal and acoustical insulating jackets, constructed of minimum 18 ounce material, and sewn with Kevlar thread.
3. Jackets for applications above 250°F (i.e., high temperature hot water and steam valves in exterior valve vaults) shall be fabricated with either silicone or PTFE coated fiberglass fabric inner and outer material, and minimum 4” thick needled fiberglass insulation (see pipe insulation section for required thickness based on pipe size and temperature). The inner layer shall include a stainless steel mesh liner.
4. Jackets for hot water applications 250°F and below (e.g., hot water valves in exterior valve vaults) shall be fabricated with PTFE-coated fiberglass fabric inner and outer material and minimum 2” thick needled fiberglass insulation (see pipe insulation section for required thickness based on pipe size and temperature).
5. Insulating jackets shall be secured with stainless steel d-rings with straps and Velcro fasteners.
6. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

Insultech
MIT International
Thermal Energy Products

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPING INSULATION

A. The term ‘piping’ used herein shall include pipe, valves, strainers, and fittings. Apply insulating cements to fittings, valves, and strainers, and trowel smooth to the thickness of adjacent covering. Covering on valves shall extend up to the bonnet. The covering cement shall be of the types specified herein.

B. Install all insulation products in accordance with the manufacturer's written instructions and in accordance with recognized industry practices.

C. Install insulation on pipe systems subsequent to installation of heat tracing, testing, and acceptance of tests.

D. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full length units of insulation, with single-cut pieces to complete each run. Do not use cut pieces or scraps abutting each other.

E. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.

F. Extend piping insulation without interruption through walls, floors, and similar penetrations, except piping through fire walls.

G. Install pipe hangers on the outside of the insulation and not in contact with the pipe. Protect insulation as specified in Specification Section 230500 (Basic Materials and Methods for HVAC Systems) under ‘Hangers and Supports for Ductwork and Piping’.

H. Install a 6 inch long section of rigid insulation at each pipe saddle and/or hanger. Rigid sections shall be calcium silicate, except on chilled water piping where rigid sections shall be foamglas.

I. Seal all raw ends of insulation with Childers CP-10 weather barrier sealant, or approved equal.

3.2 INSTALLATION OF EQUIPMENT INSULATION

A. Install all equipment insulation materials with smooth and even surfaces and on clean and dry surfaces. Replace any poorly fitted joints. Do not use mastic or joint sealer as filler for gapping joints and excessive voids resulting from poor workmanship.

B. Do not apply insulation to equipment, flues, breechings, or stacks while hot.

C. Do not insulate cleanouts, ASME stamps, or equipment manufacturer's nameplates. Provide neatly beveled edges at interruptions of insulation.

3.3 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective insulation. Leave entire work in condition satisfactory to the Architect/Engineer. At completion, carefully clean equipment installed as part of this work. Leave systems and equipment in a satisfactory operating condition.

3.4 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 08 00 - TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

B. Section 230910 (Sequence of Operation) is hereby made a part of this section.

1.2 WORK INCLUDED

A. Temperature performance testing on all heat transfer equipment and/or components.

B. Test and balance of air distribution systems and associated equipment and apparatus.

C. Test and balance of hydronic distribution systems and associated equipment and apparatus.

D. Testing, setting, and adjusting speed and volume of systems, recording data, conducting tests, preparing and submitting reports, and recommending modifications to work as required by the contract documents.

E. Component types of testing, adjusting, and balancing specified in this section includes the following as applied to mechanical equipment:

Central Plant Equipment (Boilers, Pumps, etc.)
Steam Plant Equipment (PRV Stations, Feedwater Pumps, Condensate Pumps, etc.)
Pumps
Piping Systems
Balancing Valves for HVAC Systems

1.3 QUALITY ASSURANCE

A. Balance Agency: Provide services and facilities of an independent agency that specializes in testing, analysis, and balancing of hydronic systems and air distribution for heating and/or cooling systems. Work shall be done by qualified engineering technicians and trained personnel, using instruments certified accurate to limits used in standard practice for testing and balancing of hydronic and air distribution for heating and cooling systems. The balance agency shall field test air and hydronic flows in accordance with the methods prescribed by the Associated Air Balance Council, National Standard Volume 1, latest edition.

B. The balance agency shall be a member of the Associated Air Balance Council. Subject to compliance with requirements, the balance agency shall be one of the following (no exceptions):

RS Analysis
Raglen System Balance

C. The balance agency shall submit the results of tests in this section to the Architect/Engineer for review and acceptance.

D. AABC Compliance: Comply with AABC ‘National Standards’ Volume 1, as applicable to mechanical air and hydronic distribution systems and associated equipment and apparatus.

E. Industry Standards: Comply with ASHRAE recommendations pertaining to measurements, instruments, and testing, adjusting and balancing, except as otherwise indicated.

F. Reference Standards

1. AABC (Associated Air Balance Council) AABC National Standards Volume 1.
2. ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers).

G. Test Instruments: Utilize test instruments and equipment for the test and balance work required, of type, precision, and capacity as recommended in AABC National Standards Volume 1.

1.4 SUBMITTALS

A. Provide a test and balance agenda that includes step-by-step testing and balancing procedures, test sheets, and schematic drawings, all being specific to the project.

B. Provide submittals to indicate the extent of work proposed. Submit certified test reports as hereinafter specified signed by test and balance technician/supervisor that performed test and balance work.

C. Include identification and types of instruments used and their most recent calibration date with submission of final test report.

D. The completed balance report shall be submitted for review and approval prior to requesting final observation of the project.

1.5 GENERAL REQUIREMENTS

A. The balance agency shall perform the following during the installation phase of systems:

1. Study the design drawings and specifications and prepare a schedule to physically inspect mechanical equipment for the hydronic and air distribution systems to be tested and balanced. The Contractor shall provide the balance agency with one copy of the contract drawings and specifications, mechanical equipment submittals, and change orders as necessary for proper balancing of the hydronic and air distribution systems.
2. The test and balance agency shall make field inspections prior to closing in portions of systems to be balanced. The balance agency shall verify that all work, fittings, dampers, balancing devices, etc. are properly fabricated and installed as shown or specified and that the balance agency will be able to properly balance the systems. Any problems or deficiencies shall be reported in writing to the Contractor, Mechanical Engineer, and CxA as soon as possible.
3. Prepare a testing and balancing schedule, test record forms, and necessary technical information regarding hydronic and air distribution systems for the installed heating and cooling equipment.
4. Provide written documentation when the above noted items have been completed, (see example checklist provided at the end of this section). A single page letter signed off by the mechanical contractor and the test and balance agency will suffice.
5. Recommend adjustments and/or corrections to mechanical equipment and hydronic and air distribution systems that are necessary for proper balancing of systems. Provide written documentation of the recommended items to the Architect/Engineer for review.

B. Patching Materials: Except as otherwise indicated, use same products as used by original installer for patching holes in insulation, ductwork, and housings which have been cut or drilled for test purposes, including access for test instruments, attaching jigs, and similar purposes. At tester's option, plastic plugs with retainers may be used to patch drilled holes in low pressure ductwork and housings (2” w.g. and below).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TESTING AND BALANCING

A. Upon completion of hydronic and air handling systems, the test and balance agency shall complete tests, analysis, and balance of hydronic and air handling systems for all heating and cooling equipment.

B. The report shall include as minimum, design and actual information for the following:
   1. All mechanical equipment scheduled on the drawings.
   2. Central plant equipment: Performance data for chillers, boilers, cooling towers, heat exchangers, accessory equipment, pumps, etc.
   3. Motors, pumps, and fans: Horsepower, brake horsepower, revolutions per minute, actual amperage, full load rated amperage, pump flow and head data, etc.
   4. Pumps: Suction, discharge, and shutoff pressures.
   5. Other information as required to establish completely balanced systems under design conditions.

3.2 BALANCING REQUIREMENTS AND TOLERANCES

A. All water systems, coils, and balancing valves shall be balanced to within 0 to +10% of design.

B. Balance of systems shall be reviewed by the Architect/Engineer. During this review the mechanical contractor shall furnish workmen, materials, ladders, etc. to enable the Architect/Engineer to witness all readings as may be directed. If any errors are found, the Testing and Balancing Agency shall readjust the system to the satisfaction of the Architect/Engineer.

C. The test and balance agency shall complete a Field Observation Report upon completion of the testing and balancing. See the following Field Observation Checklist Example.

Field Observation Checklist (Example)			
YES	**NO**	**N/A**	
□	□	□	Is all ductwork intact?
□	□	□	Are all access doors installed and secured tightly?
□	□	□	Are any air distribution inlets or outlets missing?
□	□	□	Are all turning vanes installed correctly?
□	□	□	Is the ductwork, fan inlets and outlets, installed according to the plans and specifications?
□	□	□	Are all balancing dampers, including fire-smoke dampers, installed and accessible?
□	□	□	Are all terminal boxes, reheat coils, and reheat components installed and accessible?
□	□	□	Does the return air have an unobstructed path from each conditioned space back to the unit?
□	□	□	Is the building architecturally complete?
□	□	□	Are all doors, windows, ceilings, and partitions installed?
□	□	□	Are all filters installed correctly and have frames that will not allow leakage?
□	□	□	Are all coils clean and properly installed?
□	□	□	Are the automatic control dampers installed in the correct locations?
□	□	□	Are the fan housings & plenums sealed & installed according to the plans and specifications?
□	□	□	Are all flexible duct connections installed properly without kinks?
□	□	□	Are suitable duct traverse locations available wherever necessary?
□	□	□	Is all piping intact and free of leaks?
□	□	□	Are all pumps, piping, and equipment installed according to the plans and specifications?
□	□	□	Are all valves, flow meters, and temperature-pressure taps installed to allow for TAB?
□	□	□	Are all valves, flow meters, and temperature-pressure taps accessible?
□	□	□	Are all valves piped correctly?
□	□	□	Are all terminal unit coils installed and piped correctly, and accessible?
□	□	□	Have all piping systems been cleaned, flushed, and treated?
□	□	□	Are all air vents properly installed?
□	□	□	Are vibration isolators properly installed and adjusted?
□	□	□	Are all flexible coil connections installed properly?

Notes: This checklist is an example and shall be customized for each individual project.
N/A = Not Applicable to this project.

END OF SECTION

SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

B. Section 230910 (Sequence of Operation) is hereby made a part of this section.

PART 2 - SCOPE OF WORK

2.1 GENERAL

A. The control system shall provide direct digital control with a Windows-based user interface. Third party viewing software is not acceptable. The manufacturer and/or his authorized representative shall be responsible for all work under this section of the specifications. Only pre-approved manufacturers and contractors will be allowed and shall be as follows (no substitutions):

Manufacturers	Northern Nevada Contractors	Telephone
Alerton Controls	Cerris Systems (formerly BCS Controls)	(775) 826-8998

B. Furnish and install an energy management control system (EMCS) and direct digital control (DDC) system complete with computer terminal (when specified), modem, surge suppressor, operating software, and training. Install the temperature control system software (most current edition) on the existing computer at the using agency's office and on the computer at the project site (when an on-site computer is specified). When third party software is necessary to allow for control system programming and/or editing of graphic displays that software (most current edition) shall also be provided on each of the aforementioned computers.

C. There shall be no annual maintenance or licensing fees of any kind required to be paid by the Owner at any time during the ongoing use of the installed system and software. Licenses shall be issued and authorized as directed by the Owner. Licenses shall be issued such that they can be modified by the Owner without the permission of the contractor and/or local system integrator. Specific license wording and format shall be provided as part of the contractor's submittals.

D. On any project that involves removal of existing controls, the Owner shall be given an opportunity to identify any control devices that they would like to have turned over to them for potential future use.

E. The temperature control contractor shall assist the testing and balancing contractor with temporary adjustments of control system programming and setpoints as necessary for proper completion of the testing and balancing scope of work.

F. Alerton Controls System

1. The Alerton Controls System shall be configured with multiple Ethernet connections to allow for remote network access and for direct connection of multiple computers via local area network. The Alerton Controls system shall utilize 'Compass' web-based graphic interface software (most current version). Communication with equipment controllers shall be via BACnet IP Ethernet backbone at 100.0 Mbps minimum speed. Controllers for central plant equipment and/or air handling units shall be Alerton ACM series with AXM expansion I/O modules or Alerton VIP series equipment controllers. All equipment controllers shall be furnished with integral hand-off-auto switches. Communication between equipment controllers and application specific controllers (Alerton VLC series) shall be via BACnet MS/TP network at 76.8k minimum speed.

2.2 SPARE CONTROLLER CAPACITY

A. All controllers for central plant equipment and air handling units (except application-specific controllers for unitary equipment) shall be furnished with a minimum of 10 percent spare capacity to allow for addition of both analog and digital inputs and outputs.

2.3 SUBMITTALS AND AS-BUILT DOCUMENTATION

A. The written control sequences, initial setpoints, dead-bands, and the graphic displays shall all be reviewed and confirmed with the Owner and the Engineer prior to preparing and forwarding the finalized submittals.

B. The submittals shall include complete written control sequences for each item of equipment requiring control. The sequences shall include all setpoints, dead-bands, etc. required for successful operation of the specified equipment. The submitted sequences shall include all necessary sequencing details, whether or not those details are furnished as part of the mechanical engineer's written control sequences (such details are commonly excluded from the Engineer's written control sequences) and all work associated with developing and incorporating those details shall be provided by the Temperature Controls Contractor at no additional cost to the Owner.

C. The Temperature Control Contractor shall prepare and submit a complete listing of BACnet points that are to be set up as trended and stored historical data. The list shall be broken down to include each system and/or item of equipment and shall be reviewed with the Owner and the Engineer for approval prior to setting up the trending in the temperature control system. The BACnet trend log names shall also be provided for approval.

D. After all temperature control sequences have been finalized and have been approved by the Owner and the Engineer (and after the HVAC systems commissioning process has been completed) the Contractor shall provide as-built documentation which shall include both an electronic copy of the finalized programming and a hard copy of the finalized programming (programming flow charts or line code as may be applicable) and written control sequences.

2.4 TRAINING

A. Upon completion of the commissioning process, the Temperature Controls Contractor shall instruct the Owner's designated personnel on the operation of all control system software features, shall provide a complete explanation of the control sequence for each item of equipment, and shall provide instructions on the operation and maintenance of all control devices. Training time shall be a minimum of 8 total hours (consisting of 2 separate 4 hour sessions).

2.5 WARRANTY PERIOD SERVICES

A. The Contractor shall provide full service for the temperature control system for a period of one year after the date of substantial completion. Service shall include, as a minimum, calibration of all sensors and other control devices, adjustments to setpoints, and modifications to control sequences or programming as required/desired to fine-tune and/or finalize all control sequences.

B. The Contractor shall provide a scheduled monitoring and reporting service for the duration of the one year warranty period. Monitoring shall be conducted via the remote control system interface (via modem or network connection) and the associated report shall be issued via email the same day that the monitoring is conducted. Monitoring shall be conducted on a weekly basis, preferably on either Monday or Tuesday. Reports shall include a specific listing of all alarms, all equipment failures, any noted operational problems or irregularities, and a set of screen prints. The weekly reports shall be emailed to the Owner and the Engineer.

2.6 SOFTWARE AND PROGRAMMING REQUIREMENTS

A. Provide a security/password system with two passwords (username and password). The security/password system shall allow access based on user security level as follows:

Level 1 Viewing only
Level 2 Room temperature and occupancy schedule adjustment
Level 3 Adjustment of all setpoints
Level 4 Full access to all setpoints and programming

B. The Temperature Controls Contractor shall program the applicable holidays into the EMCS software for the five years following the date of the installation.

C. Equipment Schedules: Schedules shall be coordinated with the Owner. A separate or combined occupied/unoccupied schedule shall be provided for each air handling unit, fan coil unit, exhaust fan, and/or other individual air handling system as designated by the Owner.

2.7 GRAPHIC DISPLAYS

A. All temperature setpoints and all other setpoints identified as adjustable in the written control sequence shall be adjustable from the appropriate graphic display(s). Setpoints listed in the contract documents are for initial set-up and trial of system operations. Control system shop drawings shall utilize the same (or similar) written sequences with all setpoints, throttling ranges, and differentials identified. As-built drawings shall include this same information with final setpoints resulting from startup, testing, and adjustment.

B. Monitored points and alarms for each system shall be shown on the displays with full color graphics and real-time data as listed below. Where indicated, graphic displays shall be dynamic (animated). All graphic displays shall be submitted to the Owner and the Engineer for review and modification as directed.

C. All temperatures shall be displayed with zero decimal places.

D. All valve and damper positions shall be displayed as percent open and shall be displayed with zero decimal places.

E. All setpoints which are identified as ‘adjustable’ in the written control sequences shall be adjustable via the associated graphic displays (including deadband between room setpoints).

F. All occupied mode and unoccupied mode room temperature setpoints shall have an adjustable deadband (adjustable from the associated graphic display).

G. All displays specified to be dynamic shall depict motion (as a minimum, dynamic displays shall include chiller compressors, boiler burners, rotating fan wheels, and rotating pump impellers).

H. All setpoints adjustable from the graphic displays shall be programmed with the deadband on one side of the setpoint (not split evenly across the setpoint) unless otherwise specified.

I. All outputs shall be programmed with the capability for the user to override the controlled commands/positions via the associated graphic display (this requirement applies to all equipment, valves, dampers, fans, pumps, etc.).

J. Alarm data fields shall be displayed with a red text when an alarm condition exists.

K. Each variable frequency drive shall be programmed to display command, status (via current sensor), input speed, output speed, and alarm/failure status (via alarm contacts at each vfd).

L. The finalized sequence of operation shall be inserted into the graphics for viewing as a pdf file.

2.8 SPECIALTY CONTROL DEVICES AND REQUIREMENTS

A. Outdoor temperature sensor (dry bulb only) shall be Mamac Systems Model TE-213-F with solar radiation and precipitation shield, Dwyer Model TE-RND with solar radiation and precipitation shield, or approved equal.

B. Current sensors for fan and pump motors less than one horsepower shall be split core digital output type and shall have an adjustable setpoint capability.

C. Duct temperature sensor probes shall have a minimum length of 6 inches and shall be selected with longer lengths when required to ensure accurate temperature readings and to avoid dead air spaces.

D. Averaging sensors and freeze sensors shall be a minimum length of 12 feet. Longer lengths and/or multiple sensors shall be provided as required to ensure adequate coverage of the entire surface of each coil. Sensors shall be sized to provide complete coil coverage based on the requirements listed herein. Averaging and freeze sensor capillaries shall be installed in a serpentine arrangement with coverage extending to within 6” of each coil perimeter edge (top, bottom, and side edges) and shall be installed such that there is no more than 12” between horizontal passes. Averaging sensors shall provide for averaging of the entire length of the capillary element rather than an average of individual sensing locations.

E. Modulating control valves for typical heating and cooling coil applications shall be Belimo characterized control valves, B200S Series (2-way) or Belimo B300S Series (3-way) as indicated on the drawings, with Belimo LRX24 actuators. Control valves for HVAC applications shall be chrome plated brass body with stainless steel ball and stem. All actuators shall include a clutch to allow manual rotation of the valve. Actuators shall be spring return type when indicated on the drawings. Modulating control valves for pipe sizes 2-1/2” and larger shall be flanged body type. Modulating control valves shall be selected for a Cv that is adequately greater than the associated coil pressure drop (see equipment schedules on drawings for coil pressure drops).

F. Carbon Dioxide (CO_2) sensors for indoor applications shall be Vaisala GMW90 series for wall mount applications, Model GMD110 for duct mount applications, or approved equal. There shall be no value displayed on the wall mount sensor (only displayed on the control system remote graphic interface).

G. Carbon Dioxide (CO_2) sensors for outdoor wall mount applications shall be Vaisala GMP343 series, or approved equal.

H. Indoor relative humidity sensors for indoor applications shall be Senva HT1-2A, Vaisala HMW92D, or approved equal.

I. Air filter differential pressure sensors shall be Dwyer Model MS2-X102, or approved equal. Dip switches for pre-filters shall be set for a 0 to 1” w.c. range, and dip switches for final filters shall be set for a 0 to 2” w.c. range.

J. Differential pressure sensors for dry applications shall be Dwyer 650 Series, Veris Industries Model PX, Senva Model P4, or approved equal. Verify desired/required sensing range prior to submitting and/or ordering. Sensor tubing connections shall be fitted with brass test tees for use by the test and balance contractor for verification/calibration.

K. Differential pressure sensors for wet applications shall be Veris Industries PWRLX series, or approved equal. Verify the desired/required sensing range prior to submitting and/or ordering. Sensor tubing connections shall be fitted with brass test tees for use by the test and balance contractor for verification/calibration.

L. Sensors for room differential pressure shall have a control range of ± .10" w.c. Sensors shall be Veris Industries Model PX-01-F (fast response) or Setra Model 2641-0R1WB, furnished with Air Monitor Corporation Model SAP probes. Sensor tubing connections shall be fitted with brass test tees for use by the test and balance contractor for verification/calibration.

M. Combination Carbon Monoxide (CO) and Methane (CH_4) sensors for Boiler Rooms: Sensors shall require 24 volt power, include a front display, audible alarm, BACnet interface capability when available, and shall be mounted at 5 feet above finished floor. Sensors shall include dry contacts to allow for interface with the direct digital control system and with the fire alarm panel in accordance with IBC Section 915.

1. Combination Carbon Monoxide and Methane sensors shall be Senva TGW Series, Macurco CX-6 Series, or approved equal. The alarm setpoint for carbon monoxide shall be 100 ppm. The alarm setpoint for methane shall be 20% of the LEL (lower explosive limit).

N. Carbon Monoxide (CO) and Nitrogen Dioxide (NO_2) sensors for Vehicle Maintenance Bays: Sensors shall require 24 volt power, include a front display, audible alarm, BACnet interface capability when available, and shall be mounted at 5 feet above finished floor. Sensors shall include dry contacts to allow for interface with the direct digital control system and with the fire alarm panel in accordance with IBC Section 915.

1. Combination Carbon Monoxide and Nitrogen Dioxide sensors shall be Senva TGW Series, Macurco CX-6 Series, or approved equal. The alarm setpoint for carbon monoxide shall be 100 ppm. The alarm setpoint for nitrogen dioxide shall be 1.5 ppm.

O. Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), and Oxygen (O_2) sensors for Welding Labs: Combination sensors shall require 24 volt power, include a front display, audible alarm, BACnet interface capability, and shall be mounted at 5 feet above finished floor. Sensors shall include dry contacts to allow for interface with the direct digital control system and with the fire alarm panel in accordance with IBC Section 915.

1. Combination sensors for welding labs shall be Critical Environment Technologies Model 'cGas-SC', or approved equal. The alarm setpoint for carbon monoxide shall be 100 ppm. The alarm setpoint for nitrogen dioxide shall be 1.5 ppm. The alarm setpoint for oxygen shall be 20%.

P. Carbon Monoxide (CO) sensors for Sleeping Areas and Group E Occupancies served by a gas-fired furnace: Sensors shall require 24 volt power, include a front display, audible alarm, BACnet interface capability when available, and shall be mounted at 5 feet above finished floor. Sensors shall include dry contacts to allow for interface with the direct digital control system and with the fire alarm panel in accordance with IBC Section 915.

1. Carbon Monoxide (CO) sensors shall be Senva TGW Series, Macurco CX-6 Series, or approved equal. The alarm setpoint for carbon monoxide shall be 100 ppm.

Q. Combination Carbon Monoxide (CO) and LP Gas (C_3H_8) sensors for Boiler Rooms: Sensors shall require 24 volt power, include a front display, audible alarm, BACnet interface capability when available, and shall be mounted at 12 inches above finished floor. Sensors shall include dry contacts to allow for interface with the direct digital control system and with the fire alarm panel in accordance with IBC Section 915.

1. Combination Carbon Monoxide and LP Gas sensors shall be Senva TGW Series, Macurco CX-6 Series, or approved equal. The alarm setpoint for carbon monoxide shall be 100 ppm. The alarm setpoint for LP Gas shall be 10% of the LEL (lower explosive limit).

R. Oxygen (O_2) sensors for gas storage cabinets shall require 24 volt power, include a front display, audible alarm, BACnet interface capability when available, and shall be mounted inside each gas storage cabinet. Sensors shall be Senva TGW Series, Macurco OX-6 Series, or approved equal. Oxygen sensors shall be installed in accessible locations inside gas storage cabinets where shown on the drawings. The alarm setpoint for oxygen shall be 20%.

S. Emergency gas shutoff valves shall be Asco 158/159 Series, Isimet 900 Series, or approved equal.

T. Heat tracing for piping systems is typically specified to include the heat tracing manufacturer's outdoor temperature sensor and a BACnet interface gateway. The outdoor air temperature sensor shall be mounted on a north facing wall at approximately 7-6" above grade and shall be wired to the gateway device. The direct digital control system shall display approximately 4 points of data pertaining the electrical heat tracing status. The specific data points shall be coordinated and confirmed during the temperature controls submittal process.

U. Air flow measuring stations shall be thermal dispersion type, Ebtron Gold Series Model GTx116, Ruskin Airflow IQ Series Model TDP05K, or approved equal. Sensor density and location shall be configured in strict conformance with the manufacturer's written installation instructions. Duct mounted air flow measuring stations shall be installed with a minimum of 12" of straight duct upstream of the sensor and with a minimum of 6" of straight duct downstream of the sensor. Duct sizing shall ensure a minimum velocity of 250 fpm.

V. Building static pressure sensors shall have a control range of ± .10" w.c. Sensor shall be Mamac Model PR-275-R2, Dwyer MSX series, Veris Industries Model PX-01-F (fast response), Setra Model 264-0R1WB, or approved equal, and shall be furnished with indoor and outdoor reference probes.

1. Outdoor static pressure probe shall be constructed of anodized aluminum and shall be capable of sensing static pressure to within 2% accuracy when subject to radial wind velocities of up to 80 mph with an approach angle of up to 30 degrees from horizontal. Outdoor probe shall be 'Static Outside Air Probe' by Air Monitor Corporation, Model PE-8000 Outside Air Probe by Paragon Controls, or approved equal.
2. Indoor static pressure probe(s) shall be suitable for flush mounting, shall be constructed of 10 gauge brushed aluminum, and shall be capable of sensing static pressure to within 1% accuracy when subject to air velocities of up to 1,000 fpm. Indoor static pressure probes shall be 'Shielded Static Air Probe No. 3' by Air Monitor Corporation, Paragon PE-7000 Indoor Static Pressure Probe, or approved equal.
3. Provide a surge dampener for each indoor static pressure probe/sensor. Surge dampeners shall be Schneider Electric Model 21-153, Kele & Associates Model SD-01, or approved equal. Interconnecting tubing between sensor and indoor/outdoor probes shall be 3/8" diameter braid-reinforced pvc or polyethylene tubing. Copper tubing is required in any case where the tubing is installed in a return air plenum.

W. Water Flow Meters

1. Water flow meters for chilled water, heating water, and heat pump systems shall be electromagnetic type (Onicon Model FT-3100, Rosemount Model 8700, ModMag Model M2000, or approved equal). Turbine type flow meters are not acceptable. Flow meters shall be installed in strict conformance with the manufacturer's installation instructions, including required straight pipe length upstream and downstream of the flow meter. Water flow meters shall be interfaced with and monitored by the direct digital control system.
2. Water flow meters for make-up water serving chilled water, heating water, and heat pump system shall be ultrasonic type (Belimo FM series, Onicon F-4600 series, or approved equal). Turbine type flow meters are not acceptable. Flow meters shall be installed in strict conformance with the manufacturer's installation instructions, including required straight pipe length upstream and downstream of the flow meter. Water flow meters shall be interfaced with and monitored by the direct digital control system.

3. Flow Meters for Domestic Water Make-Up: When shown on the drawings, provide ultrasonic style flow meters, Belimo Model FM100, or approved equal. Turbine type flow meters are not acceptable. Flow meters shall be installed in strict conformance with the manufacturer's installation instructions, including required straight pipe length upstream and downstream of the flow meter. Flow meters shall be certified under NSF/ANSI Standard 61 for use in a potable water system.
4. Flow Meters for Domestic Cold Water Mains (Monitored): When shown on the drawings, provide Seametrics Model iMag4700 electromagnetic flow meters. Turbine type flow meters are not acceptable. Flow meters shall be installed in strict conformance with the manufacturer's installation instructions, including required straight pipe length upstream and downstream of the flow meter. Flow meters shall be certified under NSF/ANSI Standard 61 for use in a potable water system. Water flow meters shall be interfaced with and monitored by the direct digital control system.
5. Flow Meters for Domestic Cold Water Mains (Non-Monitored): When shown on the drawings, provide Seametrics Model MJNE brass body flow meter, with hall-effect sensing, or approved equal. Flow meters shall be certified under NSF/ANSI Standard 61 for use in a potable water system.

X. Emergency shutdown switches shall be mushroom type with a clear hinged lockout lid (Pilla WPS-MP Series, or approved equal).

Y. Audible/visible alarm horn/strobe for seismic gas valves shall be Amseco Model CSHB-BG with blue light lens, or approved equal. The alarm horn/strobe shall be located on the building exterior adjacent to the seismic gas valve (mounted at 7'-6" above finished grade).

Z. Radiant floor heating system controls shall be Tekmar Model 519 Controller/Sensor with Tekmar Model 073 Slab Sensor(s). See drawings for control component locations.

2.9 MISCELLANEOUS REQUIREMENTS

A. All control devices shall be installed in reasonably accessible locations. Control devices that may require occasional calibration or adjustment shall be given special consideration with regard to being installed in a reasonably accessible location.

B. Room temperature sensors shall be programmable touchscreen type and shall be provided with an override feature and setpoint adjustment with the ability to be limited or locked out via the operator workstation.

C. Room temperature sensors shall be labeled with the corresponding terminal unit or fan coil unit number. Labels shall be self-adhesive with black lettering (1/8" height lettering).

D. Room temperature sensors installed on an exterior wall shall have a full thickness of insulation placed in the junction box behind the sensor.

E. Room temperature sensors in laboratory areas shall be sealed at the wall penetration behind the sensor to prevent air migration into the sensor from adjacent areas (due to the negative pressure of labs as compared to adjoining spaces).

F. Equipment specified to include a BACnet interface shall be provided with a terminal strip to allow remote control of the equipment via the direct digital control system (verify this requirement on the equipment schedules and/or in the equipment specifications).

G. When an air handling unit is depicted as including a temperature sensor at the inlet and at the outlet of the chilled water and/or heating water coil those sensors shall be 'paired thermistors'.

H. Sensor wells installed in a potable water system shall be stainless steel.

I. All control dampers in stainless steel ductwork shall be constructed of stainless steel and shall have flanged connections.

J. An as-built control diagram shall be laminated and secured inside of each temperature control panel prior to commencement of the final on-site mechanical systems commissioning sessions.

K. Trend logs shall be coordinated with the Owner and shall include as a minimum all identified temperature, pressure, gpm, cfm, percentage, status, and alarm data that is requested.

L. All low voltage wiring (whether plenum rated or not) shall be installed in raceways with the following conditions, clarifications, and exceptions.

1. Raceways shall be as defined in the National Electrical Code and open cable trays shall not be construed as meeting the definition of a raceway.
2. Low voltage wiring for temperature controls and energy management systems may be routed utilizing open cable trays above accessible ceilings. Low voltage wiring for temperature controls and energy management systems may also be installed utilizing appropriately spaced and neatly routed j-supports above accessible ceilings. Low voltage wiring routed in walls or at roof penetrations shall be installed in conduit.
3. Where open cable trays are utilized above accessible ceilings the following conditions apply.
   a. Low voltage wiring routed in open cable trays shall be plenum-rated (whether or not the ceiling space is utilized as a return air plenum).
   b. Low voltage wiring concealed in walls, floors, and above inaccessible ceilings shall be routed in raceways.
   c. Low voltage wiring routed between conduit stubs and cable trays shall be secured with appropriately spaced j-supports.

2.10 CHILLER ROOM CONTROL DEVICES AND SIGNAGE

A. Chiller room exhaust fan differential pressure switches (when required at the emergency exhaust fan) shall be Dwyer Instruments Model 1640-0 with Kele Model SSS-1003 duct sensing probes, or approved equal.

B. Refrigerant leak monitors shall be MSA Chillgard 5000, or approved equal. Refrigerant leak monitors shall be a photo-acoustic infrared sensor with single point sensing capability, dual alarm outputs, and the capability to transmit the current refrigerant concentration utilizing a 0 to 10 volt signal for remote monitoring via the direct digital control system. Provide sensor(s) suitable for sensing refrigerant R-134A, or as required for the specified chiller.

1. Provide two remote sensing probes with end-of-line filters and interconnecting tubing as required to locate the probes as indicated on the drawings (or as field-directed by the mechanical engineer). Interconnecting tubing shall be installed such that the branch tubing to each sensor is the same length. Probes shall be mounted at approximately 6” above finished floor at or near each chiller.
2. The refrigerant sensor shall be factory calibrated to alarm at 1,000 ppm. The refrigerant leak monitor shall be furnished with a calibration/test kit (MSA Model 50G) and with the appropriate test gas cylinders as required for calibration, testing, and commissioning of the leak monitor. The sensor shall also be furnished with two spare end-of-line filters for future use by the Owner. Locate two alarm horn/strobes at each chiller room exit (one inside and one outside of each exit door). Install each horn/strobe at approximately 7'-6" above finished floor. Remote audible/visible alarm horn/strobes shall be suitable for either indoor or outdoor installation (Amseco Model CSHB-BG with blue light lens, or approved equal by Kele & Associates).

C. Chiller room signage shall comply with all requirements listed in UMC Chapter 11 and in ASHRAE Standard 15. All signage shall be submitted to the Owner for review and approval prior to ordering and installation. Provide plastic labels with a minimum lettering height of ½”. Signage shall be in accordance with the requirements listed in this specification (although additional signage may be required in the applicable codes and standards).

D. Provide signage at each chiller room door to read as follows (per ASHRAE Standard 15):
Machinery Room - Authorized Personnel Only
No Entry Allowed During a Refrigerant Leak Alarm Condition Except by Authorized Personnel
Emergency Refrigerant Leak Procedures
If the refrigerant leak alarm is determined to be a reportable event please contact the following representative(s):
Owner's Designated Representative
Address
Phone (Normal Business Hours)
Phone (Nights and Weekends)

PART 3 - EXECUTION

3.1 PRE-SEASON STARTUP

A. Within one year of filing of the Notice of Substantial Completion, when all full load tests required under 'Project Completion Tests and Startup' and 'Post Contract Completion Tests' have not yet been performed, the Contractor shall perform startup of any equipment or systems required for heating or cooling season operation when such equipment and systems have remained shut down or remain to be tested under full load. The Contractor shall ensure that all equipment and systems are operating properly before being turned over for the first operational use by the Owner. All such testing shall occur within one year of filing the Notice of Substantial Completion. The Owner will be responsible for providing new air filters for the Contractor to install prior to this testing if necessary.

END OF SECTION

SECTION 23 15 00 - FACILITY NATURAL GAS SYSTEMS

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 WORK INCLUDED

A. Types of piping systems and specialties specified in this section include the following:

Steel Gas Pipe
Polyethylene Gas Pipe
Miscellaneous Piping Materials/Products
Gas Pressure Regulating Valves
Flexible Connections
Emergency Fuel Shutoff Valves
Hangers and Supports

1.3 QUALITY ASSURANCE

A. Welders' Qualifications:
   1. Welding: Qualify welding procedures, welders and operators in accordance with ASME B31.1, or ASME B31.9, as applicable, for shop and project site welding of piping work.

B. Heat fusion qualifications:
   1. Heat Fusion Joining: Qualify procedures and operators in accordance with the requirements of Title 49 of the Code of Federal Regulations as it applies to heat fusion.

C. Manufacturers: Firms regularly engaged in manufacture of supports and anchors of types and sizes required, whose products have been in satisfactory use in similar service for not less than five years.

D. Codes and Regulations
   1. Plumbing Code Compliance: Comply with applicable portions of the Uniform Plumbing Code pertaining to selection and installation of plumbing materials and products.
   2. ANSI Compliance: Fabricate and install natural gas piping in accordance with ANSI B31.2 (Fuel Gas Piping).
   3. NFPA Compliance: Fabricate and install natural gas systems in accordance with NFPA (National Fuel Gas Code).
   4. Utility Compliance: Fabricate and install natural gas systems in accordance with local gas utility company requirements.
   5. Comply with applicable codes pertaining to product materials and installation of supports and anchors.
   6. UL and FM Compliance: Provide products which are Underwriters Laboratories listed and Factory Mutual approved.

1.4 SUBMITTALS

A. Product Data: Submit catalog cuts, specifications, installation instructions, and dimensioned drawings for each type of pipe, support, anchor, and seal listed in this section.

B. Welding Certifications: Submit certifications and reports for welded piping work.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide pipe and tube, joint type, grade, size, and weight indicated for each service, and complying with governing regulations and industry standards.

B. All piping, valves, and accessories shall be specifically listed and approved for use with natural gas.

2.2 WELDING MATERIALS

A. Except as otherwise indicated, provide welding materials as determined by the Contractor as required to comply with all installation requirements and to comply with Section II, Part C of the ASME Boiler and Pressure Vessel Code.

2.3 PIPE AND PIPE FITTINGS

A. Gas Piping (Outside the Building Above Grade and Building Distribution Piping)

1. Pipe sizes 2 inches and smaller shall be Schedule 40 black steel pipe with threaded fittings.
2. Pipe sizes 2-1/2 inches and larger shall be Schedule 40 black steel pipe with butt and/or socket weld fittings.
3. Gas piping of all sizes routed inside a building at a pressure that exceeds 2 psi shall be welded Schedule 40 black steel pipe with wrought steel butt and/or socket weld fittings.

2.4 PIPING SPECIALTIES

A. Comply with Section 220500 (Basic Materials and Methods for Plumbing) for the following:

Pipe Escutcheons
Pipe Sleeves
Sleeve Seals
Unions and Flanges

2.5 BASIC GAS VALVES

A. Gas Valves: Valves 4 inch and smaller shall be Nibco T-FP-600A, Apollo 94ALF-A, or approved equal. Valves 5 inch and larger shall be worm gear operated, Resun Figure R-1431-WGA, Nordstrom Figure 149, or approved equal. Gas valves shall be CSA/AGA and ASME listed.

B. Appliance Gas Valves: Provide a gas valve at each connection to an appliance. Appliance gas valves shall be Nibco GB1A, Milwaukee BB2 Series, or approved equal. Gas valves shall be CSA/AGA and ASME listed.

2.6 GAS PRESSURE REGULATING VALVES

A. Provide single stage, steel jacketed, corrosion resistant gas pressure regulators with atmospheric vent, elevation compensator with threaded ends for 2 inches and smaller, flanged ends for 2-1/2 inches and larger, for inlet and outlet gas pressures, specific gravity, and volume flow indicated on the drawings. All gas pressure regulators shall be ANSI/CSA approved.

B. Install as indicated and comply with all utility provider requirements. Pipe atmospheric vent to outdoors, full size of outlet. Install a gas shutoff valve upstream of each pressure regulating valve.

C. Gas pressure regulating valves shall be installed such that the pressure regulator vent termination is a minimum of 3 feet from any doors, openable windows, foundation vents, crawlspaces, electrical panels, phone and/or cable tv conduits, etc. Pressure regulator vent terminations shall be a minimum of 5 feet from any powered air intakes, evaporative coolers, make-up air louvers, etc.

2.7 EMERGENCY GAS SHUTOFF VALVES

A. Provide emergency gas shutoff valves where shown on the drawings. Valves shall be listed for conformance with UL, FM, and CSA standards and shall be capable of being installed in either a horizontal or vertical position. Emergency gas shutoff valves shall be 120 volt solenoid type. Valve and actuator shall be Asco Series S261, AGS GSV Series, or approved equal. When an emergency gas shutoff valve is required in a boiler room it shall be installed as close as possible/practical to where the gas piping enters the boiler room. In the case of a gas line larger than 3 inches provide multiple gas valves in parallel having a combined gas capacity to match the application.

B. A strainer shall be installed upstream of each emergency gas shutoff valve. Strainers 3 inch and smaller shall be Titan YS-12-CI, or approved equal, with 40 mesh strainer and Buna gasket. In the case of a gas line larger than 3 inches provide multiple strainers in parallel.

2.8 SEISMIC GAS SHUTOFF VALVES

A. Provide seismic gas shutoff valves where shown on the drawings. Install seismic gas valves immediately outside the gas service entrance to each building. Seismic gas valves shall be California (Koso) Valve manufactured by Pacific Seismic Products, with Model MS monitoring switch, or approved equal. The monitoring switch shall be wired to activate an audible/visible alarm. Audible/visible alarm horn/strobe shall be Amseco Model CSHB-BG with blue light lens, or approved equal by Kele & Associates. The alarm horn/strobe shall be located on the building exterior adjacent to the seismic gas valve, mounted at 7'-6" above finished grade. The gas piping immediately adjacent to the seismic gas shutoff valve shall be secured to the building with Unistrut channel bracing and a Unistrut Series P1100 pipe clamp.

2.9 FLEXIBLE CONNECTIONS

A. Provide flexible connections in the gas piping at all equipment, including but not limited to, boilers, water heaters, furnaces, rooftop units, make-up air units, kitchen equipment, and clothes dryers. Flexible connections shall be CSA approved. Flexible connections shall be Metraflex Model GASCT, Mason Industries Model CSAMN, Flexicraft Model CSA, Unisource Series 400, Dormont Series 40C, or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION OF GAS PIPING

A. Install piping and pipe fittings in accordance with recognized industry practices which will achieve permanently leakproof piping systems, capable of performing each indicated service without piping failure. Install each run with minimum joints and couplings but with adequate and accessible unions for disassembly and maintenance/replacement of valves and equipment. Reduce sizes where indicated by use of reducing fittings. Align piping accurately at connections, within 1/16 inch misalignment tolerance.

B. Comply with ANSI B31 Code for Pressure Piping.

C. Use sealants on metal gas piping threads which are chemically resistant to natural gas. Use sealants sparingly and apply to only male threads of metal joints.

D. Remove cutting and threading burrs before assembling piping.

E. Do not install defective piping or fittings. Do not use pipe with threads which are chipped, stripped, or damaged.

F. Plug each gas outlet, including valves, with threaded plug or cap immediately after installation and retain until continuing piping or equipment connections are completed.

G. Ground gas piping electrically and continuously within project, and bond tightly to grounding connection. Provide listed isolation fitting above grade prior to entry into building. Provide independent ground systems for above ground and below grade.

H. Install drip legs in gas piping where indicated and where required by code or regulation.

I. Install tee fitting with bottom outlet plugged or capped at bottom of pipe risers.

J. Install gas piping with 1/64 inch per foot (1/8 percent) downward slope in direction of flow.

K. Maintain minimum of 12 inch clearance between gas piping and steam piping above 200°F.

L. Install magnesium anodes for underground steel pipe, one 5 lb anode for up to 100 feet in length and one 5 lb anode for each additional 100 feet.

M. Locate piping runs, except as otherwise indicated, vertically and horizontally (pitched to drain), and avoid diagonal runs wherever possible. Orient horizontal runs parallel with walls and column lines. Locate runs as shown or described by diagrams, details and notations, or if not otherwise indicated, run piping in shortest route which does not obstruct usable space or block access for servicing building and its equipment.

N. Hold piping close to walls, overhead construction, columns, and other structural and permanent enclosure elements of the building, limit clearance to 1/2 inch where furring is shown for enclosure or concealment of piping, locate insulated piping for a 1 inch clearance outside of the insulation. Wherever possible in finished and occupied spaces conceal piping from view by locating in column enclosures, in hollow wall construction, or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as indicated on the drawings.

O. Electrical Equipment Spaces: Do not run piping through transformer vaults and other electrical or electronic equipment spaces and enclosures unless unavoidable. Install drip pans under piping that must be run through electrical spaces and in all other locations indicated on the drawings.

P. Should structural difficulties or work of other contractors prevent the running of pipes or the setting of equipment at the points shown, the necessary deviations therefrom, as determined by the Contractor, with the Architect/Engineer's review, will be allowed but must be made without additional cost to Owner.

Q. Inspect each piece of pipe and each fitting to see that there is no defective workmanship on pipe or obstructions in pipes and fittings.

R. Install exposed polished or enameled connections from fixtures or equipment with special care, showing no tool marks or threads at fittings.

S. Cap or plug openings in piping and fittings immediately to exclude all dirt until fixtures are installed or final connections are made.

T. Use reducing fittings where any change in pipe size occurs. Bushings shall not be used.

U. Couplings shall not be used except where required pipe runs between fittings are longer than a standard length of the type of pipe being used and except where their use is specifically reviewed by the Architect/Engineer.

V. Conceal piping in finished portions of building, above the floor line, except where otherwise shown or noted. Cutting of walls and floors shall be held to the minimum possible to secure the proper installation.

W. Install piping subject to expansion or contraction in a manner permitting strains to be evenly distributed and alleviated by expansion loops installed as required.

X. Sleeves for branches through walls from adjacent mains shall be of sufficient size to allow for free side motion of covered pipe in sleeve.

Y. Install polyethylene pipe where indicated on the drawings in accordance with ASTM D2774 'Standard Recommended Practice for Underground Installation of Thermoplastic Pressure Piping' and as required by the manufacturer's installation instructions.

1. Polyethylene pipe fittings shall be joined in accordance with the pipe manufacturer's instructions.
2. Connection of plastic pipe with metal pipe shall be only outside underground with ASTM D2513 category I transition fittings.
3. Gas pipe risers to above grade, shall be metallic and shall be wrapped or coated to a point at least six inches above grade.
4. When riser connects underground to plastic pipe, the underground horizontal metallic portion of the riser shall extend at least 30 inches before connecting to the plastic pipe.
5. Heat fusion joints shall be made in accordance with qualified procedures that have been established and proven by test to produce gas tight joints at least as strong as the pipe or tubing being joined. Joints shall be made with the joining method recommended by the pipe manufacturer.
6. Plastic pipe shall be buried with an electrically continuous corrosion resistant tracer wire (minimum 14 AWG) and tape to facilitate locating. One end of the wire and tape shall be brought above ground at a riser.

3.2 INSTALLATION OF HANGERS AND SUPPORTS

A. See Specification Section 220500 (Basic Materials and Methods for Plumbing).

3.3 INSTALLATION OF PIPING SYSTEM JOINTS

A. General: Provide joints of type indicated in each piping system.

B. Cut all steel pipe by power hacksaw, a circular cutting machine using an abrasive wheel, or in square end vise by means of hand hacksaw. Wheel cutters may be used for steel pipe provided that the pipe shall have ends reamed to full inside diameter and beveled before being made up into fittings. Pipe shall have round edges or burrs removed such that a smooth and unobstructed flow will be obtained.

C. Thread pipe in accordance with ANSI B2.1, cut threads full and clean using sharp dies. Ream threaded ends to remove burrs and restore full inside diameter. Apply pipe joint compound, RectorSeal No. 5, or approved equal, on male threads at each joint and tighten joint to leave not more than 3 threads exposed. Teflon tape may be used on piping 1-1/2 inches and smaller.

D. Use joint compound, same as specified for threaded pipe joints, on all cleanout plugs.

E. Weld pipe joints in accordance with recognized industry practice and as follows:

1. Welding shall be done by qualified welders in a first class, workmanlike manner, conforming to the American Standard Code for Pressure Piping ANSI B31.1 and B31.1A.
2. Bevel pipe ends at a 37.5 degree angle where possible, smooth rough cuts, and clean to remove slag, metal particles, and dirt.
3. Do not weld out piping system imperfections using tack welding procedures. Re-fabricate piping to comply with requirements.

3.4 INSTALLATION OF FLANGED JOINTS

A. Match flanges within piping system and at connections with valves and equipment. Clean flange faces and install gaskets. Tighten bolts to provide uniform compression of gaskets.

3.5 INSTALLATION OF GAS PRESSURE REGULATING VALVES

A. Install as indicated on the drawings and comply with all utility provider requirements. Pipe atmospheric vent to outdoors, full size of outlet. Install a gas shutoff valve upstream of each pressure regulating valve.

B. Gas pressure regulating valves shall be installed such that the pressure regulator vent is a minimum of 3 feet from any doors, openable windows, foundation vents, crawlspaces, electrical panels, phone and/or cable tv conduits, etc. The pressure regulator vent shall also be a minimum of 5 feet from any powered air intakes, evaporative coolers, make-up air louvers, etc.

3.6 INSTALLATION OF GAS PIPING EQUIPMENT CONNECTIONS

A. Connect gas piping to each gas fired equipment item, with drip leg, gas shutoff valve, and flexible connection. Comply with the equipment manufacturer's instructions. Gas shutoff valves shall comply with UPC Section 1212.6 to be within 6 feet of the equipment and shall be installed no higher than 5 feet above finished floor.

3.7 PIPE CLEANING

A. Purge all newly installed natural gas piping with compressed air.

3.8 TESTING OF PIPING

A. Test piping at completion of rough-in, in accordance with the following schedule and show no loss in pressure or visible leaks after a minimum duration of four hours at the test pressures indicated.

System Tested	Test Pressure	Test With
Gas Piping	100 psi	Air

B. Testing equipment, materials, and labor shall be furnished by the Contractor.

C. Repair piping systems sections which fail required piping test, by disassembly and reinstallation, using new materials to extent required to overcome leakage. Do not use chemicals, stop-leak compounds, mastics, or other temporary repair methods.

D. A manometer test shall be performed and witnessed after the gas piping system is completed and all equipment is connected.

3.9 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in condition satisfactory to Architect/Engineer. At completion, carefully clean and adjust equipment, fixtures, and trim that are installed as part of this work. Leave systems and equipment in a satisfactory operating condition.

3.10 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.11 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 52 10 - STEAM AND CONDENSATE PIPING

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 SUMMARY

A. This section Includes:
   1. Steel pipe and fittings
   2. Stainless steel pipe and fittings
   3. Joining materials

1.3 SUBMITTALS

A. Product Data: For each type of the following:
   1. Steel pipe and fittings.
   2. Stainless steel pipe and fittings.
   3. Joining materials.

B. Delegated Design Submittal
   1. Design calculations and detailed fabrication and assembly of pipe anchors and alignment guides, hangers and supports for multiple pipes, expansion joints and loops, and attachments of the same to the building structure.
   2. Locations of pipe anchors and alignment guides and expansion joints and loops.
   3. Locations of and details for penetrations, including sleeves and sleeve seals for exterior walls, floors, basement, and foundation walls.
   4. Locations of and details for penetration and firestopping for fire and smoke rated wall, floor, and ceiling assemblies.

1.4 SHOP DRAWING SUBMITTALS

A. Coordination Drawings: Piping layout, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
   1. Suspended ceiling components.
   2. Other building services.
   3. Structural members.

1.5 QUALITY ASSURANCE

A. Pipe Welding: Qualify procedures and operators according to the following:
   1. ASME Compliance: Comply with ASME B31.1 (Power Piping) and ASME B31.9 (Building Services Piping) for materials, products, and installation, as applicable.
   2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

B. Steel Support Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M (Structural Welding Code for Steel).

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working pressures and temperatures unless otherwise indicated:
   1. High Pressure Steam Piping (30 psi to 125 psi): All accessories incorporated into the high pressure steam piping system shall be rated for a minimum of 400°F at 200 psi.
   2. Low Pressure Steam Piping (29 psi and below): All accessories incorporated into the low pressure steam piping system shall be rated for a minimum of 300°F at 125 psi.
   3. Condensate Piping: All accessories incorporated into the steam condensate piping system shall be rated for a minimum of 400°F at 200 psi.
   4. Make-Up Water Piping: All accessories incorporated into the make-up water piping system shall be rated for a minimum of 100°F at 100 psi.
   5. Blowdown Drain Piping: Equal to pressure of the piping system to which it is attached.
   6. Air Vent and Vacuum Breaker Piping: Equal to pressure of the piping system to which it is attached.
   7. Safety Valve Inlet and Outlet Piping: Equal to pressure of the piping system to which it is attached.

2.2 STEAM AND CONDENSATE PIPE AND FITTINGS

A. Steam Piping (2 inch and below): Schedule 40, Type S, Grade B, steel pipe; Class 125 cast iron fittings; and threaded joints.

B. Steam Piping (2-1/2 inch and above): Schedule 40, Type E, Grade B, steel pipe; Class 150 wrought steel fittings, flanges, and flange fittings; and welded and flanged joints.

C. Condensate piping above grade (2 inch and below): Schedule 80, Type S, Grade B, steel pipe; Class 125 cast iron fittings; and threaded joints.

D. Condensate piping above grade (2-1/2 inch and above): Schedule 80, Type E, Grade B, steel pipe; Class 150 wrought steel fittings, flanges, and flange fittings; and welded and flanged joints.

E. Condensate piping below grade (2 inch and below): Schedule 80, Type S, Grade B, steel pipe; Class 125 cast iron fittings; and threaded joints.

F. Condensate piping below grade (2-1/2 inch and above): Schedule 80, Type E, Grade B, steel pipe; Class 150 wrought steel fittings, flanges, and flange fittings; and welded and flanged joints.

2.3 STAINLESS STEEL PIPE AND FITTINGS

A. Stainless Steel Pipe: ASTM A312/A312M, plain ends, seamless; stainless steel of types and schedules as indicated in piping application articles.

B. Stainless Steel Socket Weld Fittings: Stainless steel, wrought or forged, of types and classes as indicated in piping application articles.

C. Stainless Steel Flanges and Flanged Fittings: ASME B16.5, Class 150, wrought, raised face weld neck, including gaskets, bolts, and nuts of material to match pipe.

2.4 PIPE ELBOWS

A. All elbows in steam and condensate piping systems shall be long radius. Short radius elbows shall be utilized only where necessitated by space constraints. Such instances shall be submitted to the Engineer for review and approval.

2.5 ANCILLARY PIPING APPLICATIONS

A. Blowdown Drain Piping: Same materials and joining methods as for piping specified for the service in which blowdown drain is installed.

B. Vacuum Breaker Piping: Outlet, same as service where installed.

C. Safety Valve Inlet and Outlet Piping: Same materials and joining methods as for piping specified for the service in which safety valve is installed.

2.6 JOINING MATERIALS

A. Pipe Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
   1. ASME B16.21, non-metallic, flat, asbestos free, 1/8 inch maximum thickness unless otherwise indicated.
      a. Full-Face Type: For flat-face flanges.
      b. Narrow-Face Type: For raised-face flanges.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel or stainless steel of type to match pipe unless otherwise indicated.

C. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

D. Welding Materials: Comply with Section II, Part C, of ASME Boiler and Pressure Vessel Code for welding materials appropriate for wall thickness and for chemical analysis of pipe being welded.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPING

A. Drawing plans, schematics, and diagrams indicate the general location and arrangement of piping systems. Install piping as indicated unless deviations are approved.

B. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless otherwise indicated.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Install piping to allow application of insulation.

I. Select system components with pressure rating equal to or greater than the system operating pressure.

J. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.

K. Install drains, consisting of a tee fitting, 3/4 inch full port ball valve, and short 3/4 inch threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

L. Install steam supply piping at a minimum uniform grade of 2% (1/4” per foot) downward in the direction of steam flow.

M. Install condensate return piping at a minimum uniform grade of 4% (1/2” per foot) downward in the direction of condensate flow.

N. Reduce pipe sizes using eccentric reducer fitting installed with level side down.

O. Install branch connections to mains using mechanically formed tee fittings in main pipe, with the branch connected to top of main pipe.

P. Install valves according to Section 230500 (Basic Materials and Methods for HVAC).

Q. Install unions in piping 2 inch and smaller adjacent to valves, at final connections of equipment, and elsewhere as indicated.

R. Install flanges in piping 2-1/2 inch and larger, at final connections of equipment, and elsewhere as indicated.

S. Install shutoff valve immediately upstream of each dielectric fitting.

T. Install strainers on supply side of control valves, pressure reducing valves, traps, and elsewhere as indicated. Install a 3/4 inch nipple and full port ball valve in the blowdown connection of strainers 2 inch and above. Match size of strainer blowoff connection for strainers smaller than 2 inch.

U. Comply with requirements in Section 230500 (Basic Materials and Methods for HVAC) for installation of expansion loops, expansion joints, anchors, and pipe alignment guides.

V. Comply with requirements in Section 230500 (Basic Materials and Methods for HVAC) for identifying piping.

W. Install drip legs at low points and natural drainage points such as ends of mains, bottoms of risers, and ahead of pressure regulators, and control valves.
   1. On straight runs with no natural drainage points, install drip legs at intervals not exceeding 300 feet.
   2. Size drip legs same size as main. In steam mains 6 inch and larger, drip leg size can be reduced, but to no less than 4 inch.

X. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements specified in Section 230500 (Basic Materials and Methods for HVAC).

Y. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements specified in Section 230500 (Basic Materials and Methods for HVAC).

Z. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements specified in Section 230500 (Basic Materials and Methods for HVAC).

3.2 INSTALLATION OF STEAM AND CONDENSATE PIPING SPECIALTIES

A. See Specification Section 235026 (Steam and Condensate Piping Specialties).

3.3 INSTALLATION OF HANGERS AND SUPPORTS

A. Comply with requirements specified in Section 230500 (Basic Materials and Methods for HVAC) for installation of hangers, supports, and anchor devices. Comply with requirements for seismic restraints in Section 230540 (Seismic Bracing for HVAC Systems).

B. Install hangers for steel steam supply piping and condensate piping with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and requirements of authorities having jurisdiction, whichever are most stringent.

C. Support vertical runs of steel steam supply piping and steel steam condensate piping to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

D. Support horizontal piping within 12 inches of each fitting.

3.4 PIPE JOINT CONSTRUCTION

A. Ream ends of pipes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to ‘Quality Assurance’ Article.

E. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

F. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.5 TERMINAL EQUIPMENT CONNECTIONS

A. Piping connection sizes shall be the same size or larger than the equipment connections.

B. Install traps and control valves in accessible locations close to connected equipment.

C. Install bypass piping with globe valve around control valve. If parallel control valves are installed, only one bypass is required.

D. Install vacuum breakers downstream from control valve, close to coil inlet connection.

E. Install a drip leg at coil outlet.

3.6 FIELD QUALITY CONTROL

A. Prepare steam and condensate piping according to ASME B31.1 (Power Piping) and ASME B31.9 (Building Services Piping) and as follows:
   1. Leave joints, including welds, uninsulated and exposed for examination during test.
   2. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
   3. Flush system with clean water. Clean strainers.
   4. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.

B. Testing Agency: The Owner will be responsible to engage a qualified testing agency to perform tests and inspections.

C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

D. Retain "Perform the following tests and inspections" Paragraph below to require Contractor to perform tests and inspections.

E. Perform the following tests and inspections with the assistance of a factory-authorized service representative: The procedures in the subparagraphs below are paraphrased from ASME B31.9.
   1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with the piping may be used.
   2. Subject the piping system to hydrostatic test pressure that is not less than 1.5 times the working pressure. The test pressure shall not exceed the maximum pressure for any vessel, pump, valve, or other component in the system under test. Verify that stress due to pressure at the bottom of vertical runs does not exceed 90 percent of the specified minimum yield strength.
   3. After the hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat the hydrostatic test until there are no leaks.

F. Prepare and submit test and inspection reports.

3.7 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in condition satisfactory to Architect/Engineer. At completion, carefully clean and adjust equipment and trim installed as part of this work. Leave systems and equipment in satisfactory operating condition.

3.8 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.9 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like, and leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 23 52 20 - STEAM AND CONDENSATE PIPING ACCESSORIES

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 SUMMARY

A. This section includes the following steam and condensate piping accessories:
Isolation Valves
Flash Tanks
Condensate Receivers
Strainers
Stop-Check Valves
Steam Safety Valves
Pressure Reducing Valves
Steam Traps and Steam Trap Monitors
Vacuum Breakers, Thermostatic Air Vents, and Vent Heads
Flexible Connections

PART 2 - PRODUCTS

2.1 PRESSURE AND TEMPERATURE RATINGS

A. General: Steam and condensate piping systems and components shall be constructed such that the systems are rated for continuous operation at a minimum of 400°F at 200 psi.

B. All specialties included in this section shall have a pressure and temperature rating equal to or greater to that of the piping system to which it is connected.

2.2 FLASH TANKS

A. Shop or factory fabricated of welded steel as indicated on the drawings, and constructed according to the ASME Boiler and Pressure Vessel Code for a 150 psi rating, and bearing an ASME label. Fabricate with tappings for low pressure steam and condensate outlets, high pressure condensate inlet, air vent, safety valve, and legs. Acceptable manufacturers for the flash tanks on this project include Spirax Sarco, Armstrong, Thrush, or approved equal.

2.3 ISOLATION VALVES

A. Isolation Valves (2-1/2 Inch and Smaller): Isolation valves for steam and condensate piping systems shall be threaded full port ball valves rated for a minimum of 400°F at 200 psi. Valves shall be bronze body with stainless steel ball and stem, and vented ball. Valves shall be Apollo Series 77-140 with modified/reinforced polytetrafluoroethylene (RPTFE) seats and packing, Nibco Model T-585-70-66-ST with modified/carbon-filled polytetrafluoroethylene (RPTFE) seats and packing, Milwaukee Series 20-BS with modified/reinforced polytetrafluoroethylene (RPTFE) seats and packing, or approved equal. Provide a locking handle when utilized at a steam boiler or other equipment with an external heat source.

B. Isolation Valves (3 Inch and Larger): Isolation valves for steam and condensate piping systems shall be double offset lug style butterfly valves rated for a minimum of 400°F at 200 psi. Valves shall be carbon steel body with stainless steel disc and stem. Valves shall be Apollo Series 230L with modified/reinforced polytetrafluoroethylene (RPTFE) seats and packing, DelVal Series 48 with modified/reinforced polytetrafluoroethylene (RPTFE) seats and packing, Milwaukee Series HP with modified/reinforced polytetrafluoroethylene (RPTFE) seats and packing, or approved equal. Provide a locking handle when utilized at a steam boiler or other equipment with an external heat source.

2.4 CONDENSATE RECEIVERS (DUPLEX)

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

Watson McDaniel
Spirax Sarco
Hoffman Specialty

B. Cast Iron Receiver

1. The condensate receiver shall be closed grain cast iron construction and shall be provided with a 20 year warranty against failure due to corrosion.
2. The condensate receiver and associated pump(s) shall be sized as scheduled on the drawings.
3. The receiver shall include a minimum of two 3” condensate return tappings.

C. Pumps

1. Duplex centrifugal pumps shall be flange-mounted on the condensate receiver. Pumps shall have the following characteristics.
   a. Premium Efficiency motor(s).
   b. Close-coupled vertical design.
   c. Bronze fitted.
   d. Stainless steel shaft.
   e. Bronze impellor.
   f. Carbon-ceramic mechanical shaft seal rated for 250°F.

D. Motors

1. Pumps shall be close-coupled to the vertical drip-proof motor.
2. Motors shall be 3500 rpm and shall have internal thermal overload protection.

2.5 STRAINERS

A. Y-Pattern Strainers (Stainless Steel)

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty
2. Body: ASTM A351 Insert type stainless steel, with bolted cover and bottom drain connection.
3. End Connections: Socket weld Threaded for strainers 2 inch and smaller; flanged ends for strainers 2-1/2 inch and larger.
4. Strainer Screen: Stainless steel strainer screen with 1/32 inch perforations.
5. Tapped blowoff plug.
6. Rating: Class 300 for socket weld threaded; Class 150 for flanged.

B. Basket Strainers

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Metraflex
   Mueller Steam Specialty
   Titan Flow Control

2. Body: ASTM A126, Class B cast iron, with bolted cover and bottom drain connection.
3. End Connections: Threaded ends for strainers 2 inch and smaller; flanged ends for strainers 2-1/2 inch and larger.
4. Strainer Screen: Stainless steel (20 mesh) stainless steel basket.
5. Rating: 250 psi working steam pressure.

2.6 STOP-CHECK VALVES

A. Stop-Check Valves

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Nibco
   Crane
   Stockham

2. Body and Bonnet: Malleable iron or carbon steel.
3. End Connections: Flanged.
4. Disc: Cylindrical with removable liner and machined seat.
5. Stem: Brass alloy.
6. Operator: Outside screw and yoke with cast iron handwheel.
7. Packing: PTFE-impregnated packing with two piece packing gland assembly.
8. Pressure Class: 250 psi.
9. Rating: 250 psi working steam pressure.

2.7 STEAM SAFETY VALVES

A. Bronze Brass Steam Safety Valves: ASME labeled.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty

2. Disc Material: Forged copper alloy.
3. End Connections: Threaded inlet and outlet.
4. Spring: Fully enclosed steel spring with adjustable pressure range and positive shutoff; factory set and sealed.
5. Pressure Class: 250 psi.
6. Drip-Pan Elbow: Cast iron and having threaded inlet and outlet, with threads complying with ASME B1.20.1.
7. Size and Capacity: As required for associated equipment according to the ASME Boiler and Pressure Vessel Code.

2.8 PRESSURE REDUCING VALVES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

Spirax Sarco
Armstrong
Hoffman Specialty

B. Capacities and Characteristics shall be as listed on the drawings, ASME labeled.

C. Size, Capacity, and Pressure Rating: Factory set for the inlet and outlet pressures indicated.

D. Description: Pilot-actuated diaphragm type, with adjustable pressure range, and positive shutoff.

E. Body: Cast iron.

F. Trim: Hardened stainless steel.

G. End Connections: Threaded connections for valves 2 inch and smaller and flanged connections for valves 2-1/2 inch and larger.

H. Head and Seat: Replaceable, main head stem guide fitted, with a flushing and pressure-arresting device cover over the pilot diaphragm.

I. Gaskets: Non-asbestos materials.

2.9 STEAM TRAPS

A. Universal Thermodynamic Steam Traps (Stainless Steel)

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty

2. End Connections: Threaded Insert connection type.
3. Disc and Seat: Insert type stainless steel.
4. Maximum Operating Pressure: 450 psi.

B. Universal Float and Thermostatic Steam Traps (Cast Iron with Stainless Steel Internals)

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty

2. Body and Bolted Cover: Cast Iron.
3. End Connections: Threaded Insert end connection type.
4. Float Mechanism: Type 316 stainless steel.
5. Seat: Type 316 stainless steel.
6. Strainer: Integral, stainless steel, with blowdown valve.
7. Trap Type: Balanced pressure.
8. Thermostatic air vent.
9. Maximum Operating Pressure: 150 psi.

C. Universal Inverted Bucket Steam Traps (Stainless Steel)

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty

2. Body and Cap: Stainless steel.
3. End Connections: Threaded Insert connection type.
4. Head and Seat: Stainless steel.
5. Valve Retainer, Lever, and Guide Pin Assembly: Stainless steel.
6. Bucket: Stainless steel.
7. Strainer: Integral stainless steel inlet strainer within the trap body.
8. Air Vent: Stainless steel thermostatic vent.
9. Pressure Rating: Minimum 200 psi at 450°F.

2.10 STEAM TRAP MONITORS

A. Steam Trap Monitors

1. Where shown on the drawings steam trap monitoring devices shall consist of an in-line sensor chamber and a cable capable of interfacing with an associated control device (hand-held or wall mounted) allowing for testing of the steam trap.
2. Steam trap monitor sensor chambers, fitted before each steam trap, shall have a stainless steel body, and shall incorporate a sensing element. The sensor chamber shall be installed immediately upstream of the steam trap (close coupled) in a horizontal position.
3. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong

4. Body: Stainless steel.
5. Pressure Rating: 300 psi.
6. Maximum Temperature Rating: 350°F.
7. Steam Trap Monitor Controls: Provide either a hand-held or a wall mounted control panel as indicated or scheduled on the drawings. Wall mounted control panels shall be capable of accepting inputs from up to 16 steam trap monitors.

2.11 VACUUM BREAKERS AND AIR VENTS

A. Vacuum Breakers

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty

2. Body: Cast iron, bronze, or stainless steel.
3. End Connections: Threaded.
4. Sealing Ball, Retainer, Spring, and Screen: Stainless steel.
5. O-Ring Seal: Ethylene propylene rubber.

6. Pressure Rating: 125 psi or 300 psi.
7. Maximum Temperature Rating: 350°F.

B. Thermostatic Air Vents

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty
2. Body: Cast iron, bronze, or stainless steel.
3. End Connections: Threaded.
4. Float, Valve, and Seat: Stainless steel.
5. Thermostatic Element: Phosphor bronze bellows in a stainless steel cage.
6. Pressure Rating: 125 psi or 300 psi.
7. Maximum Temperature Rating: 350°F

C. Vent Heads: Vent heads shall be installed at all steam vents and shall have outlet size drain piping routed to the nearest floor sink of drain location vVent heads shall be installed at all steam vents and shall have outlet size drain piping routed to the nearest floor sink of drain location. Vent heads shall be installed at all steam vents and shall have outlet size drain piping routed to the nearest floor sink or drain location.

1. Vent heads shall be installed at all steam vents and shall have outlet size drain piping routed to the nearest floor sink or drain location.
2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following, or approved equal:

   Spirax Sarco
   Armstrong
   Hoffman Specialty
3. Body: Stainless Steel
4. End Connections: Threaded

2.12 FLEXIBLE CONNECTIONS

A. Flexible connections for steam and condensate applications shall be Twin City Hose Model MPBR, or approved equal. Connections shall have T-361 2-ply bellows, Class 300 carbon steel flanges, and 5/8” tie rods. Flexible connections shall be rated for 400°F at 400 psi.

2.13 FLEXIBLE HOSE EXPANSION LOOPS

A. See Specification Section 230500 (Basic Materials and Methods for HVAC).

PART 3 - EXECUTION

3.1 VALVE APPLICATIONS

A. Install shutoff duty valves at branch connections to steam supply mains, at steam supply connections to equipment, and at the outlet of steam traps.

B. Install safety valves on pressure reducing stations and elsewhere as required by ASME Boiler and Pressure Vessel Code. Install safety-valve discharge piping, without valves, to nearest floor drain or as indicated on Drawings. Comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1, for installation requirements.

3.2 INSTALLATION OF PIPING

A. Install piping to permit valve servicing.

B. Install drains, consisting of a tee fitting, 3/4 inch full-port ball valve, and short 3/4 inch threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

C. Install valves according to Section 230500 (Basic Materials and Methods For HVAC).

D. Install unions in piping, 2 inch and smaller, adjacent to valves, at final connections of equipment, and elsewhere as indicated on the drawings.

E. Install flanges in piping, 2-1/2 inch and larger, at final connections of equipment, and elsewhere as indicated on the drawings.

F. Install a shutoff valve immediately upstream of each dielectric fitting.

G. Install strainers on supply side of control valves, pressure-reducing valves, traps, and elsewhere as indicated on the drawings. Install a 3/4 inch nipple and full port ball valve in the blowdown connection of strainers 2 inch and larger. Match the size of the strainer blowoff connection for strainers smaller than 2 inch.

H. Flash Tanks

1. Pitch condensate piping down toward the flash tank.
2. If more than one condensate pipe discharges into the flash tank, install a check valve in each line.
3. Install thermostatic air vent at tank top.
4. Install safety valve at tank top.
5. Install a full port ball valve and swing check valve on the condensate outlet.
6. Install an inverted bucket or float and thermostatic trap at the low pressure condensate outlet, sized for 3 times the calculated heat load.
7. Install a pressure gauge on the low pressure steam outlet.

3.3 INSTALLATION OF STEAM TRAPS

A. Install steam traps in accessible locations as close as possible to connected equipment.

B. Install full port ball valve, strainer, and union upstream from trap; install union, check valve, and full port ball valve downstream from trap unless otherwise indicated.

3.4 INSTALLATION OF PRESSURE REDUCING VALVES

A. Install pressure reducing valves in accordance with the manufacturer’s written installation instructions.

B. Install bypass piping around pressure reducing valves, with a globe valve equal in size to the area of the pressure reducing valve seat ring, unless otherwise indicated on the drawings.

C. Install ball type isolation valves on both sides of pressure reducing valves.

D. Install unions or flanges on both sides of pressure-reducing valves having threaded or flanged end connections, respectively.

E. Install pressure gauges on the low pressure side of pressure reducing valves after the bypass connection.

F. Install strainers upstream of each pressure reducing valve.

G. Install a safety valve downstream of each pressure reducing valve station.

3.5 INSTALLATION OF SAFETY VALVES

A. Install safety valves according to ASME B31.9 (Building Services Piping).

B. Pipe safety valve discharge without valves to atmosphere outside the building.

C. Install a drip pan elbow fitting adjacent to each safety valve and pipe drain connection to the nearest floor drain.

D. Install exhaust head with drain to waste, on vents 2-1/2 inch and larger.

3.6 TERMINAL EQUIPMENT CONNECTIONS

A. Install traps and control valves in accessible locations close to connected equipment.

B. Install bypass piping with globe valve around control valve. If parallel control valves are installed, only one bypass is required.

C. Install vacuum breakers downstream from control valve, close to coil inlet connection.

3.7 CARE AND CLEANING

A. Repair or replace broken, damaged or otherwise defective parts, materials, and work. Leave entire work in condition satisfactory to Owner’s representative. At completion, carefully clean and adjust equipment and trim installed as part of this work. Leave systems and equipment in a satisfactory operating condition.

3.8 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.9 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, tools, and the like and leave the premises clean, neat and orderly.

END OF SECTION

SECTION 23 52 30 - STEAM SYSTEM CHEMICAL TREATMENT

PART 1 - GENERAL

1.1 CONDITIONS OF THE CONTRACT

A. Sections 230000 (Heating, Ventilating, and Air Conditioning) and 230500 (Basic Materials and Methods for HVAC Systems) are hereby made a part of this section.

1.2 GENERAL

A. All water treatment equipment, chemicals, test equipment, start-up service, and warranty period service shall be provided by one of the following water treatment specialists, or approved equal:

Global Water Technology

B. The Contractor as referred to in this section of the specifications is generally intended to mean the mechanical contractor; however, work identified herein to be completed by the mechanical contractor may be assigned to and/or completed by the water treatment specialist.

1.3 INITIAL SYSTEM CLEANING

A. The entire initial system cleaning process (including removal, cleaning, and replacement of strainers) shall be witnessed by the Owner's designated representative. Any portion of the process that is not witnessed by the Owner's designated representative will need to be repeated. The water treatment specialist shall be on site to supervise and monitor the initial system cleaning procedures for each system. Also see Specification Section 232100-3.7 (Cleaning of Hydronic Piping Systems and Equipment).

B. The Contractor shall coordinate with the temperature control contractor to arrange for all heating and/or cooling coil control valves to be fully open during the initial system cleaning process and also shall coordinate with the temperature control contractor to arrange for the various valves in the central plant to be positioned/alternated such that all portions of the piping system are thoroughly flushed and cleaned.

C. At the conclusion of the initial system cleaning process the Contractor shall remove, clean, and replace each strainer in the piping system(s).

D. During the HVAC Systems Commissioning the Contractor shall remove strainers as directed by the Owner to demonstrate that the system is completely clean (less than 10% blockage on all strainers). The Contractor shall also remove strainers as directed by the Owner during the last month of the warranty period to demonstrate that the system and strainers are still completely clean (less than 10% blockage on all strainers). Should the water system(s) and/or the strainers be found contaminated or dirty during either of the afore-mentioned observations, the Contractor shall clean the system(s) and strainers and re-treat the water system(s) as required until they are accepted as clean and properly treated.

1.4 OPERATING AND MAINTENANCE (O&M) MANUALS & INSTRUCTIONS

A. On-site start-up, service, and instruction shall be provided for each chemical treatment system by the water treatment specialist. Start-up of chemical treatment system and ongoing chemical treatment of each system shall commence within 24 hours of the time that the system is started.

B. Provide operation and maintenance manuals with initial dosage rates, ongoing dosage recommendations, and operation and maintenance instructions.

C. The Contractor shall provide a minimum of 7 days written advance notice of the proposed day and time for the operation and maintenance instructions for the Owner's representatives.

D. Furnish and install an appropriately sized wall-mounted shelf in the central plant to allow for storage of the operating and maintenance manual, test kit, and monthly treatment reports. Provide fixed bookends on the shelf to prevent the manual(s) and test kit from sliding off of the shelf ends.

1.5 CHEMICAL TREATMENT SERVICE

A. During the first year warranty period (and during the period of time that the equipment is operational prior to commencement of the warranty period) the water treatment specialist shall provide complete chemical treatment service. The service shall include all required chemicals and a minimum of two site visits per year (summer and winter) to test and adjust the water treatment. The warranty period commences on the date that the Notice of Substantial Completion is executed.

B. The water treatment specialist shall provide written reports of the activities performed and test results/water analyses for each visit. One copy of each report shall be left in an appropriate plastic folder at the chemical treatment equipment area on site.

C. At the end of the warranty period the treated equipment and piping systems shall be in as-new condition or the Contractor shall provide the required cleaning, service, repair, and/or replacement of any components that are not in as-new condition. The Contractor shall meet with the Owner's representative(s) during the last month of the warranty period so that the Owner's representative(s) can verify the condition of the equipment, piping systems, and strainers along with the Contractor.

PART 2 - PRODUCTS

2.1 GENERAL

A. Add a sufficient supply of a liquid oil dispersant/surfactant for initial cleaning of each piping system.

B. Note that the supply of chemicals and the two year service period are in addition to the chemicals and service required during start-up and check-out of the systems prior to commencement of the warranty period.

2.2 STEAM BOILER CHEMICAL FEED TANKS

A. The steam boiler chemical feed tank is intended to disburse a neutralizing amine which is to be fed into the steam header to minimize corrosion in the steam and condensate piping.

B. The chemical feed tank assembly shall include a 15 gallon double wall chemical storage tank, high pressure feed pump capable of up to 300 psi, and microprocessor type controller. The chemical feed tank assembly shall be Pulsafeeder, or approved equal. Chemical feed pump shall be Pulsatron Series E-Plus, or approved equal.

C. Furnish and install a corporation stop and high pressure injection quill for each chemical feed pump.

2.3 FEEDWATER CHEMICAL FEED TANKS

A. The two deaerator chemical feed tanks are intended to disburse phosphate and sulfite which are to be fed into the deaerator.

B. The chemical feed tank assembly shall include a 15 gallon double wall chemical storage tank, high pressure feed pump capable of up to 300 psi, and microprocessor type controller. Chemical feed tank assembly shall be Pulsafeeder, or approved equal. Chemical feed pumps shall be Pulsatron Series E-Plus, or approved equal.

C. Furnish and install a corporation stop and high pressure injection quill for each chemical feed pump.

2.4 STEAM BOILER SYSTEM CHEMICAL TREATMENT EVALUATION AND ADJUSTMENT

A. The chemical treatment specialist shall sample and evaluate the make-up water supply and shall provide three chemicals (one for each chemical feed tank) as appropriate to maintain proper water quality in the steam system.

B. The chemical treatment specialist shall sample and evaluate the boiler blow-down water at appropriate intervals after the steam system is operating at full capacity to determine the appropriate blow down interval and duration.

PART 3 - EXECUTION

3.1 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with the indicated requirements.

3.2 CLEANING UP

A. Upon completion of the Work remove materials, equipment, apparatus, and tools, and leave the premises clean, neat, and orderly.

END OF SECTION

WASHOE COUNTY SCHOOL DISTRICT

MATERIAL, WATER, AND LEAD DISTURBANCE PERMIT

FACILITY AND MATERIAL LOCATION: Nutrition Services Center **MDP #24-144**

DESCRIPTION OF WORK TO BE PERFORMED: Steam Boiler Removal and Kitchen Equipment Replacement

IT IS THE RESPONSIBILITY OF THE CONTRACTOR/WORKER TO IDENTIFY MATERIAL TYPE PRIOR TO DISTURBANCE. ONLY MATERIALS LISTED ON THIS PERMIT MAY BE DISTURBED. ANY NEW MATERIAL DISCOVERED OR ANY MATERIAL WHOSE EXACT NATURE OR CHARACTER IS UNCERTAIN REQUIRES A NEW PERMIT PRIOR TO DISTURBANCE. ANY CITATIONS OR ASBESTOS/LEAD CONTAMINATION RESULTING FROM THE IMPROPER OR UNAUTHORIZED DISTURBANCE OF ASBESTOS OR LEAD MATERIALS IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. A COPY OF THIS PERMIT MUST BE SIGNED BY THE CONTRACTOR AND SUBMITTED TO THE DISTRICT PRIOR TO STARTING THE PROJECT.

ALL ITEMS	MATERIAL DESCRIPTION: **SEE FACS REPORT**
AHERA MATERIAL NUMBER: N/A	CONTAINS ASBESTOS ?: **SEE FACS REPORT**
MATERIAL DISTURBANCE INSTRUCTIONS: MATERIAL DISTURBANCE INSTRUCTIONS: THE PLANNING DEPARTMENT USED AN OUTSIDE CONSULTING COMPANY (FACS) TO CREATE AN ASBESTOS AND LEAD ASSESSMENT FOR THIS PROJECT. FOR LEAD AND ASBESTOS INFORMATION REFER TO THE FACS REPORT DATED 2/8/24 AND 3/8/24. ANY QUESTIONS RELATED TO ASBESTOS AND LEAD CONTENT, OR DISTURBANCE REQUIREMENTS SHOULD BE ADDRESSED TO THE PLANNING DEPARTMENT, PROJECT MANAGER, OR FACS.	

NOTE: THE ASBESTOS MATERIAL DISTURBANCE INSTRUCTIONS LISTED ABOVE ARE BASED ON THE AHERA REGULATION. THERE MAY EXIST OTHER REGULATIONS THAT MAY BE MORE STRINGENT THEN THESE RECOMMENDATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE COMPLIANCE WITH ALL REGULATIONS THAT ARE APPLICABLE TO THE DISTURBANCE OF ASBESTOS/LEAD CONTAINING MATERIALS. ASBESTOS IS A MICROSCOPIC FIBER AND THE CLEANING OF ASBESTOS DEBRIS MUST BE CONDUCTED TO A MICROSCOPIC LEVEL. IN THE EVENT THAT ANY VISIBLE DEBRIS IS DISCOVERED FROM A DISTURBANCE OR AIR SAMPLING RESULTS ARE NOT PROVIDED TO THE DISTRICT, THE DISTRICT WILL IMMEDIATELY HIRE A THIRD PARTY LEAD/ASBESTOS CONSULTANT TO INVESTIGATE POSSIBLE LEAD/ASBESTOS CONTAMINATION AND AN LEAD/ASBESTOS ABATEMENT CONTRACTOR TO PERFORM ANY RECOMMENDED CLEAN-UP. THE CONTRACTOR WILL BE REQUIRED TO REIMBURSE THE DISTRICT FOR ALL COSTS INCURRED. IF AIR MONITORING IS REQUIRED, AIR MONITORING MUST BE CONDUCTED THROUGHOUT THE PROJECT. AIR MONITORING RESULTS FAXED DIRECTLY FROM THE LAB TO THE ES&A DEPARTMENT @ 851-5695, WITHIN 48 HOURS OF THE DISTURBANCE

DATE ISSUED: October 20, 2025

WASHOE COUNTY SCHOOL DISTRICT
MATERIAL, WATER, AND LEAD DISTURBANCE PERMIT
CONTINUATION PAGE

Material Water & Lead Disturbance Permit, Water System Disturbance Permit Appendix Page #1

Contractors, their sub-contractors or workers are responsible in completing all work without impacting the water quality of District facilities and the domestic water supplies which feed district facilities. This Water System Disturbance Permit identifies the minimum requirements that Contractors, their sub-contractors and all workers will utilize to perform disturbance to the Districts water systems.

The following general requirements shall apply to any person who will be disturbing a District water system. In addition, they must contact the Environmental, Safety and Assessment Department (ES&A Dept) prior to any disturbance at 325-8494. This phone number has an answering machine and can be accessed 24 hours a day. These disturbances will be logged in and documented by the ES&A department.

All requirements for isolation are designed to protect the facility's potable water source from existing as well as potential cross-connections and to prevent any backflow occurrences in the form of backpressure or backsiphonage. The Water Disturbance Procedures listed are not site or incident specific and great care must be taken by technicians during all valving and isolation activities within a facility to prevent a potential backflow occurrence. There may be additional requirements that must be utilized to prevent any cross-connection or backflow occurrence, and each entity performing the disturbance is responsible for ensuring none occur and utilizing any additional steps as necessary to ensure none result from the completion of this project.

Any costs to correct any cross-connections and/or any backflow occurrences that result from the performance of this project are solely the responsibility of the Contractor, their sub-contractor and workers and the signing of this ES&A Department Disturbance Permit on acknowledges and agrees to this requirement.

FACILITY ISOLATION MINIMUM REQUIREMENTS

MECHANICAL ROOMS:

When turning off or disrupting the water service to a mechanical room all applicable requirements below must be conducted per this permit

1. **Remove all hoses from custodial faucets and bibs in location to be effected.**
2. **Shut down all boiler and chiller circulating pumps. Heating, Cooling and Domestic.**
3. **Shut down boiler, chiller and cooling tower if present.**
4. **Isolate boiler, cooling tower, chiller and relieve pressure from boiler.**
5. **Shut down hot water return pump, isolate any hot water heaters and turn off heating source.**
6. **Isolate domestic service to mechanical room.**
7. **Re-establish service to mechanical room in reverse order.**

BASIC WING:

When turning off or disrupting the water service to a facility wing all applicable requirements below must be conducted per this permit

1. **Remove all hoses from custodial, art and science faucets along with bibs in location to be effected.**
2. **Isolate all water utilizing chemical dispensers in location to be effected.**
3. **Shut down and isolate any water using equipment if applicable. Hot water heaters, domestic make ups for heat exchangers, photo labs, etc.**
4. **Isolate domestic cold water main to wing.**
5. **Re-establish service to wing in reverse order. Flush system at the end of each lateral to remove any and all foreign material and air.**

WASHOE COUNTY SCHOOL DISTRICT
MATERIAL, WATER, AND LEAD DISTURBANCE PERMIT
CONTINUATION PAGE

Material Water & Lead Disturbance Permit, Water System Disturbance Permit Appendix Page #2

FACILITY:

When turning off or disrupting the water service to a facility all applicable requirements below must be conducted per this permit. Turning off or disturbing the waters services to a facility should only be done as a last resort. If it is possible to isolate the area of disturbance without disrupting facilities entire water service that is the way the project is to be accomplished. This will also keep the contractor, his sub-contractors or workers from having to perform all the listed requirements.

1. **Remove all hoses from custodial, art and science faucets along with bibs in entire facility.**
2. **Isolate mechanical room. See above requirements.**
3. **Isolate each individual wing where possible. See above requirements.**
4. **Isolate all irrigation laterals connected to the domestic potable water supply.**
5. **Isolate domestic cold water main at all locations present to allow as little drain back as possible.**
6. **Re-establish service to facility in reverse order. Flush system at the end of each lateral to remove any foreign material and air.**

WASHOE COUNTY SCHOOL DISTRICT
MATERIAL, WATER, AND LEAD DISTURBANCE PERMIT
CONTINUATION PAGE

PAINTS AND COATINGS – Material Disturbance Permit Appendix - Lead in Paints and Coatings in WCSD Facilities

Lead containing paints and coating are present in WCSD facilities. Bidders/Contractors that disturb lead containing or potentially lead containing paints or coatings, by law, are required to know all applicable regulations applicable and comply with all state and federal regulations that apply to the disturbances to lead paints and coating they are conducting. The regulations that requires by a contractor to be properly trained and knowledgeable, related to lead disturbance includes, but is not limited to the following:

- **OSHA Regulation CFR 1926.62 – Lead & Appendix A, B, C, & D – Lead Construction Standard.**
- **OSHA Regulation CFR 1910. 1025 - Lead & Appendix A, B, C, & D – General Industry Standard.**
- **EPA, 40 CFR Part 745 – Lead; Renovation, Repair, and Painting Regulation.**

Bidders/Contractors accept and acknowledge by signing this Material Disturbance Permit, the existence of lead related regulations, and accept all liability related to the disturbance of lead containing materials, citation resulting from, or any other costs the District may incur by the action of all parties of the bidders company or companies hired by the successful bidder to complete this project.

LEAD CATEGORY #N/A	**PAINTS, COATINGS & CERAMIC TILE IN BUILDINGS**
CONTAINS LEAD?: **SEE FACS REPORT**	**Buildings:** ALL

Lead Containing or Assumed Lead Containing Paints and Coatings Disturbance Instructions

The planning department used FACS to create an asbestos and lead assessment for this project. For lead and asbestos information refer to the FACS report dated 2/8/24 AND 3/8/24..

OSHA Requirements

All persons performing any disturbance to coatings or paints to paints and coating in and on the buildings listed above must have taken an OSHA lead action level training class from a WCSD, ES&A department approved training provider, and utilize lead safe work practices. In addition, all work must be completed, as a minimum, utilizing the lead safe work practices identified in the EPA guidance document titled "steps to lead safe renovation, repair and painting", pages 12 thru 23. This document is available electronically at the following link: HTTP://WWW.EPA.GOV/LEAD/PUBS/STEPS.PDF.

EPA Renovation, Repair and Painting Regulation Requirements

In general, all firms that disturb 6 square feet of painted surface in a room or 20 square feet on the exterior within a 30 day period in **this** facility must comply with the EPA's Renovation, Remodel and Repair (RR&P) regulation and must be registered with the federal EPA. Per the Regulation, the area of disturbance is calculated, by adding up the entire surface areas being removed/disturbed, which then determines the amount of painted surface area disturbed. Work that involves window replacement or demolition of a painted surface, the RR&P regulation applies regardless of size. This regulation also requires that the contractor must assign a RR&P trained supervisor that is responsible for ensuring and documenting all work is conducted in compliance with the RR&P regulation and there are extensive record keeping and notification requirements that the Contractor must perform. In addition, This is a general overview of the regulation and the contractor must refer to regulation for additional requirements and information. Fines are expensive and the compliance with this regulation rests solely on the Contractor so it is very important that Bidders/Contractors are well versed in this regulation.

– CONTINUED SEE NEXT PAGE #11

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LEAD CATEGORY #N/A	PAINTS, COATINGS & CERAMIC TILE IN BUILDINGS CONSTRUCTED BEFORE 1978
CONTAINS LEAD?: **SEE FACS REPORT**	**Buildings:** ALL

– CONTINUED FROM PAGE #10

WCSD Requirements

In addition to regulatory requirements, the WCSD has requirements that must be met by the Contractor/Bidder. The contractor is responsible for submitting to the ES&A department lead disturbance procedures that outline the lead safe work practices to be utilized and that procedure must comply with the Districts minimum lead disturbance requirements. The current minimum lead disturbance requirements, which will apply to this project, follow these tables.

OSHA action level training and RR&P training certification and RR&P firm certification must be submitted to the project manager and they are to submit a copy to the ES&A department. The ES&A department must review, verify, and approve all required documentation **prior** to the contractor being able to perform any disturbance, so time for review must be taken into account when developing schedules. Once the ES&A department has approved the procedures and training and firm certification, the contractor may proceed but they must notify the ES&A department at 325-8490 of **any** paint/coating disturbance immediately disturbance prior to the disturbance**.** ES&A department personnel, project managers and assistant project managers and other district personnel will spot check in the field, to ensure compliance with the contractors submitted and approved procedures.

Refer to section listed below regarding lead sampling that may be available.

WASHOE COUNTY SCHOOL DISTRICT
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A NOTE ABOUT SAMPLING AND SAMPLING REQUEST PROCEDURES

Only approximately 20% of the paints and coatings in the District have been found to contain lead. The majority of white and off-white paints on sheetrock and block walls does not contain lead in facilities constructed after approx. 1990. Brighter or more colorful paints/coatings on any surface, or all paints and coatings on metals, are much more likely to be found to contain lead in all facilities. In addition, ceramic tile in any age facility is very likely to contain lead. It is highly recommended that sampling be done to confirm lead content unless time does not allow a delay for processing samples through the WCSD ES&A department. If paints and coatings are not sampled, all paints and coatings must be assumed to be lead containing, above 5000 parts per million (lead based), and treated in accordance with all lead regulations, lead specifications, and requirements identified in this permit.

The process to request lead sampling is for anyone requiring sampling to submit through their project's Project Manager. The designated WCSD Project Manager will submit the required sampling forms, and sampling will be coordinated by the ES&A department. A minimum of 10 days will be allowed before sampling results are provided to the Project Manager for them to be distributed to all interested parties. All lead sampling must be processed through the ES&A department, and sampled by ES&A approved and trained lead professionals.

Any paints or coatings that are not specifically addressed on this permit, or on the project drawings, has to be assumed to be lead containing, and above 5000 parts per million (lead based) – no exceptions. Any disturbance to those paints and coatings not specifically addressed on this permit or on the project drawings must be done by properly trained (Minimum of OSHA action level training) personnel, and those disturbances must be performed in accordance with all lead requirements listed in this permit, as well as any applicable regulations and local requirements. Many times scope modifications are required after the bid, and new areas of the facility may need to be disturbed. These areas would not have been addressed on this permit, since they were unknown at the time of issuance. Additional sampling could be conducted by requesting lead sampling through their project's Project Manager, but there will be a delay getting sampling requests and a new MDP would be required. The District reserves the right to direct the Contractor to assume new paints and coatings, due to scope changes, are lead containing and the contractor would then be required to treat all paints and coatings as lead containing in compliance with all requirements of this permit.

REPLACEMENT PAINTS, COATINGS, CERAMIC TILE, AND OTHER LEAD CONTAINING MATERIALS

Unless otherwise specifically allowed by this projects specifications, the Contractor shall not reinstall any lead containing paints/coatings in any detectable levels during the process of completing this project. "lead containing" is defined as any paint or coating that has ANY detectable lead level when paint chip sampling is conducted and chip is analyzed by the ICP method. The District may perform sampling of replacement materials and if analysis finds any detectable levels of lead, the Contractor will be liable for all costs to properly remove that material and re-apply paints and coatings with no detectable levels of lead. Contractors are encouraged to pre-sample paints they may be using to determine the actual amount in paint/coatings used.

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MINIMUM REQUIREMENTS TO PERFORM ATTACHMENTS AND PENETRATIONS IN WCSD FACILITIES

Below are the minimum requirements to perform any Attachment and Penetration activity to a known or assumed asbestos and/or lead containing material in Washoe County School District (WCSD) facilities. This document is not provided to address demolition, stabilization, abatement, or removal activities. If any work to known or assumed asbestos or lead materials need to be done on this project, and it is anything other than the installation of screws, the removal of screws, or the drilling of holes, the successful bidder must comply with, in addition to these minimum requirements, all applicable District asbestos and lead specifications and requirements. Regarding these procedures, the District has done its best to provide a complete and regulatory compliant attachment and penetration procedure, but by signing this MDP, the Contractor acknowledges that it is the successful bidder's sole responsibly for compliance with this MDP, as well as any other applicable regulatory requirements.

ASBESTOS/LEAD PROCEDURE SUBMISSION PROCESS

Prior to starting this project, each contractor working on this project is required to submit to the WCSD ES&A department an asbestos/lead procedure that includes all District requirements listed below. To simplify the procedure submittal process, an electronic PDF fillable template of these requirements will be provided to the successful bidder of this project. This document is available by contacting the assigned WCSD Capital Projects Project Manager for this project. Contractors must utilize the most current above-mentioned electronic template and fill out all required information, add company letterhead, sign, and date the document. The completed procedures will be e-mailed to the Project Manager by all contractors working on this project that will performing any applicable disturbances. Once submitted, the WCSD Project Manager will pass the document onto the ES&A department for approval. Successful bidders are required to add time to their project schedule for this procedure submittal and approval process.

The Contractor has the option to submit a site-specific or blanket district-wide applicable procedure. A district-wide blanket procedure applies to a scheduled project, as well as all future sites where a contractor will be performing disturbances. The site specific procedure will apply to just one site or project. District-wide procedures are valid for one year from the date the procedure is signed by the ES&A department. Site specific procedures will be valid for the term of the project. Each Contractor must receive a signed and approved procedure prior to performing any disturbances to all asbestos/lead paint or assumed asbestos/lead paint materials. The procedure is a combined procedure and it addresses both asbestos and lead disturbances. A minimum of one work day will be required by the ES&A department for the review and approval process.

In addition to the Material Disturbance Permit (MDP), the Contractors must also have a copy of the approved procedures on site at all times. The purpose of this procedure is to document the agreement between the Contractor and the District that all lead and asbestos disturbances performed by staff of the Contractor will be done per all noted District requirements, District Specifications, and project specifications. Again, Contractors must ensure that their procedure has been approved, and the approved signed procedure is on site prior to any disturbance.

MINIMUM REQUIREMENTS

1. Receive approved Lead/Asbestos procedures as identified above.

2. Technicians performing disturbances will be required to have a minimum of AHERA 16 Hour O&M training and OSHA action level training per 29 CFR 1926.62 (i) (2) lead training. In addition, as applicable, contractors must comply with the EPA RR&P training and certifications requirements listed in the RR&P section of this appendix. Copies of training certifications, including a refresher within the last 12 months, will be provided to the ES&A Department **prior** to the start of any project. Only personnel with the proper minimum training will be authorized to perform any disturbance to asbestos/lead paint or assumed asbestos/lead paint containing materials, or be in the adjacent area of a disturbance.

3. Notify the ES&A Department at **325-8490** and leave a message with the time, name of the technician doing the work, date and exact locations in the school where they will be performing any disturbance. This call should take place immediately prior to disturbance, this phone number (**325-8490**) will go to voice mail, and the contractors are to provide notifications with above identified information, 24 hours a day. The Contractor is also required to notify their assigned WCSD Construction Department Project Managers and Assistant Project Managers of scheduled disturbances so they can also verify compliance with the contractors approved disturbance procedures.

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4. Contractors must refer to this Material Disturbance Permit to determine what materials contain asbestos or lead and utilize the applicable lead/asbestos procedures. Some materials cannot be disturbed, and each specific material disturbance permit will identify what can be disturbed and provided material disturbance instructions. The minimum disturbance permits in this section of the material permit are in addition to any requirements listed in the material disturbance instructions. Any instance where 100% of the minimum asbestos/lead requirements are not followed, the District will immediately hire an environmental remediation contractor as well as an environmental consultant to properly clean up the contamination and perform air sampling. The contractor will be responsible for reimbursing the District for all costs due to any improper or unauthorized disturbances.

5. Contractors or technicians who are new to performing asbestos/lead paint or assumed asbestos/lead paint disturbances for the District must contact the Capital Projects PM/PCI Department and schedule a disturbance. A Capital Projects PM/PCI employee will be scheduled to review the technician's compliance with the disturbance procedures in the field. Once a technician has demonstrated on a minimum of two (2) occasions to the Capital Projects Department that he has an understanding of the District disturbance requirements and has proper equipment, the ES&A Department will then authorize that technician to perform disturbances without prior approval of the Capital Projects Department. Notifications prior to starting all disturbances as listed above will still be required and technicians should expect unannounced random compliance inspections, from the ES&A Department. A list of approved technicians is available upon request form the ES&A department.

6. Post the appropriate "Danger Lead - Keep Out" or "Danger Asbestos Keep Out" signs on the entry side of all doors leading into classrooms, hallways, bathrooms, offices or mechanical rooms where drilling is to occur. Doors will be closed. It is the contractor /technician's responsibility to take adequate means to keep the public or school staff out of the disturbance area.

7. Large rooms, such as multipurpose rooms, will have yellow caution tape placed across all entries to the room in addition to signage but access to these areas must be restricted to ensure no unprotected person can enter the areas where disturbances are taking place. If unprotected personnel can see the activity, this is not a large enough area of demarcation.

8. A 6 ml plastic drop will be placed under the disturbance in a manner that extends 6' out in all directions from the disturbance area. This poly drop can be reused if properly wet-wiped or HEPA-vacuumed off after use.

9. Worker will don the respiratory protection and a protective suit, (protective suits are optional for lead disturbance, "attachments and penetration" disturbances if the Contractor will not exceed the lead action level) and initiate personal air monitoring procedures per item #10 below. Respiratory protection is required throughout all asbestos/lead paint or assumed asbestos/lead paint disturbances in WCSD regardless of air sampling results.

10. If a Contractor is performing a **lead** attachments and penetrations (see the definition in #20 below), air sampling will be conducted at the start of the project. If air sampling results show the technicians performing the work is below the OSHA Lead Action Level, air sampling can be suspended unless the work being performed is changed. Air sampling will be performed for each type of lead attachment and penetration activity to develop a representative sample for each lead activity. Air sampling will be performed during **all** asbestos disturbances, no exceptions.

11. Drill the hole or holes as required using an HEPA VAC and a shrouded or dust collecting apparatus (i.e. Bit Buddy. A HEPA VAC is to remain running during this whole process to ensure all debris is cleared from hole. All clean-up must be conducted the HEPA Vacuum. If a contractor fails to properly control the asbestos/lead containing dust, the District will then hire an environmental remediation contractor as well as an environmental consultant to properly clean up the contamination. The contractor will be responsible for reimbursing the District for all costs due to improper disturbances that result in debris exiting the area of disturbance.

12. All HEPA vacuums used will have been DOP challenge tested prior to first use and annually thereafter. If this project involves 30 or more disturbances over the span of this project, the HEPA vacuum will be DOP tested on-site prior to the start of the project.

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13. If required, to be determined by the technician, an encapsulant material may be sprayed or brushed on to the area of the holes.

14. A device, backing, box or raceway, or any other equipment will then be mounted using anchors installed per #11 above, with the HEPA VAC running and properly directed at the area of the disturbance.

15. A HEPA VAC or wet methods will be used to clean up any debris on 6ml poly drop, around device box, technician's suit, and any surfaces below holes, such as tops of chalkboards and base boards.

16. The poly drop, if utilized, will be folded into itself in such a manner as to not spread any debris, the HEPA vacuum hose sealed, and personal air monitoring time logged appropriately. This poly drop can be reused if it is properly wet-wiped or HEPA-vacuumed off after use.

17. All signs and equipment are to be removed, and the technician is to move to the next location. The contaminated suit should be removed and a new suit utilized at the new disturbance location, unless the suit can be properly decontaminated.

18. Upon completion of a shift, air samples will be dated and sent in to a properly accredited lab to be analyzed. Results will be forwarded to WCSD. Lab results will be e-mailed directly from the lab to the ES&A Department within 48 hours of the disturbance. All lab results will reference the Material Disturbance Permit (MDP) # located on the top of the first page of this permit. Results without the MDP number prefix will be returned to the lab for clarification and the addition of the MDP tracking number

19. All debris, waste, poly drop, suits, etc. will be placed in 6 mil poly waste bags (double bagged) and disposed of properly.

20. The definition of "Attachment and Penetrations" in this document is **only** the drilling of holes through a HEPA shrouded device, the installation of screws through a HEPA shrouded device, or the removal of screws through a HEPA shrouded device. **Any other activity** that is not attachments and penetrations as listed in item #20 must be designed by an asbestos or lead project designer, done per a lead specification, and supervised by the District or District hired outside asbestos/lead consultant. Contractors cannot perform any work, other than "Attachments and Penetrations" without an onsite District or District hired asbestos or Lead Consultant being present.

21. All asbestos abatement or lead disturbances, other than "Attachment and Penetrations", must be completed in full compliance with applicable regulations, the District's Asbestos Abatement Specifications, and District hired asbestos or lead consultants supplement specifications. If in error, an asbestos abatement bid or quote is put forth without the District Asbestos Abatement Specifications, Contractors are required to request a copy of the most current asbestos abatement specifications from the bid or quote entity through the formal bid inquiry process

THE UNDERSIGNED AGREES TO COMPLY WITH THE CONDITIONS OF THIS MATERIAL, WATER & LEAD DISTURBANCE PERMIT, APPENDIXES, & ALL APPLICABLE REGULATIONS. UNDERSIGNED ACKNOWLEDGES LIABILITY FOR ANY COSTS THE DISTRICT MAY INCUR TO INVESTIGATE & CLEAN UP ANY DISCOVERY OF IMPROPER AND/OR UNAUTHORIZED DISTURBANCES DONE BY UNDERSIGNED'S EMPLOYEE(S) OR SUB-CONTRACTOR(S) TO MATERIALS LISTED AS LEAD/ASBESTOS-CONTAINING BY THE DISTRICT. IN ADDITION, THE UNDERSIGNED AGREES TO ALL REQUIREMENTS OF THE WATER & LEAD APPENDIX.

SIGNED BY (PRINT): _____SIGNATURE: _____

COMPANY (PRINT): _____

DATE RECEIVED: _____

FACS
Forensic Analytical Consulting Services

March 8, 2024

Asbestos & Lead Survey Report

Washoe County School District
Nutrition Services
Steam Boiler Removal Project
585 Spice Islands Court
Sparks, NV 89431

Prepared for:

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FACS Project #PJ80051

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List of Acronyms

AAC	Asbestos Abatement Consultant
ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
AIHA	American Industrial Hygiene Association
CFR	Code of Federal Regulation
DIR	Division of Industrial Relations
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency (EPA)
FACS	Forensic Analytical Consulting Services, Inc.
LCP	Lead-Containing Paints and Coatings
LBP	Lead-Based Paints and Coatings
ND	None Detected
NESHAP	National Emissions Standard Hazardous Air Pollutants
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Science and Technology
NVLAP	National Voluntary Laboratory Accreditation Program
PCM	Phase Contrast Microscopy
PLM	Polarized Light Microscopy
SGS-FL	SGS-Forensic Laboratories
TEM	Transmission Electron Microscopy
TTLC	Total Threshold Limit Concentration

Executive Summary

Forensic Analytical Consulting Services, Inc. (FACS) was retained by Washoe County School District to perform an asbestos and lead paint survey of all suspect materials in the planned project areas at the Nutrition Services Building, located at 585 Spice Islands Court in Sparks, Nevada. The survey included limited suspect asbestos-containing materials (ACM) and suspect paints and coatings which will be disturbed during the planned steam boiler removal project at the site. A list of suspect materials which were identified and sampled is included in Appendix A of this report. A list reporting suspect lead-containing paints or coatings which were identified and sampled is included in Appendix B of this report. The survey was performed on January 22 and March 5, 2024.

Asbestos

Due to the need to disassemble the boiler unit to sample any interior boiler insulation or gaskets, these materials are assumed to be asbestos-containing and will need to be handled accordingly.

All the following materials were found to not contain asbestos by laboratory analysis during this survey:

- 8” Fiberglass TSI
- 2” Fiberglass TSI
- 6” Fiberglass TSI
- 6” Black Foam TSI
- Concrete floor
- Concrete Expansion Joint
- White Sealant
- FRP and glue
- Drywall – Knockdown Texture with Tape and Joint Compound
- Drywall – Medium Texture with Tape and Joint Compound
- False Ceiling Panel – 2’ x 4’ Smooth Texture
- Red Floor Mat and Glue
- Epoxy Flooring
- Single Ply Roofing – White
- Penetration Mastic – White
- Penetration Mastic – Grey
- Duct Mastic – Grey
- Duct Mastic – Silver

Please see the Asbestos Survey Summary in Appendix A for a complete listing of suspect materials sampled during this survey.

Other suspect materials not included in this survey must be assumed to be asbestos-containing materials until tested and proven to be asbestos-free.

Lead

The following paints were found to be lead-containing by ICP laboratory analysis during this survey:

- White Paint on Metal Louver & Siding
- Blue Paint on Metal Boiler
- Blue Paint on Metal Frame
- Black Paint on Metal Pipe
- Light Grey Paint on Metal Tank

The following paints were found to not contain lead by ICP laboratory analysis during this survey:

- Dark Blue Paint on Metal Unit
- White Paint on Metal Tank
- White Paint on False Ceiling Panel
- Green Paint on Drywall Wall
- Light Grey Paint on Drywall Wall
- Grey Paint on Metal Tank

Any suspect paints or coatings not included in this survey must be assumed to be lead-containing materials until tested and proven to be lead-free.

FACS recommends that the results of this report be incorporated into any renovation plans provided for this project for informational purposes.

Introduction

Forensic Analytical Consulting Services, Inc. (FACS) was retained by Washoe County School District to perform an asbestos and lead paint survey of all suspect materials in the planned project areas at the Nutrition Services Building, located at 585 Spice Islands Court in Sparks, Nevada. The survey included limited suspect asbestos-containing materials (ACM) and suspect paints and coatings which will be disturbed during the planned steam boiler removal project at the site. The survey was performed on January 22 and March 5, 2024.

Scope of Work

The purpose of this survey was to identify asbestos-containing materials (ACMs) and lead-containing paints and coatings which may be disturbed during the upcoming steam boiler removal project. The visual survey, bulk sampling, and survey documentation were performed by Daniel Prado, Zachary Ramos, Ryan Hettich, and Patricia Galtieri. Mr. Prado, Mr. Hettich, and Mr. Ramos are licensed by the Division of Industrial Relations (DIR) as Asbestos Abatement Consultants (AAC) and are US EPA-accredited Asbestos Hazard Emergency Response Act Building Inspectors. Mr. Prado is also licensed as a US EPA Certified Lead Inspector/Assessor. Ms. Galtieri is licensed by the DIR as an AAC Trainee and is a US EPA-accredited AHERA Building Inspector. The scope of the survey and the services provided by FACS included:

- Performing a visual inspection to identify accessible suspect asbestos-containing materials (ACMs) that will be disturbed during the upcoming project;
- Collection of bulk samples for asbestos analysis by polarized light microscopy (PLM);
- Collection of bulk paint chip samples for lead analysis using inductively coupled plasma;
- Ensuring the technical quality of all work by using Asbestos Hazard Emergency Response Act (AHERA) accredited Building Inspectors;
- Ensuring the technical quality of all work by using a US EPA Certified Lead Inspector / Assessor;
- Consolidating data and findings into a report format.

Site Characterization

The upcoming steam boiler removal project involves work in the boiler room and surrounding spaces in the building. Suspect asbestos-containing materials observed on the spaces include, but are not limited to, drywall, pipe insulation, concrete, epoxy, ceiling panels, gaskets, single-ply roofing, mastics, and materials located at the interior of the boiler itself.

Survey Methods

Document Review

The extent of the planned project was provided by Caitlin Davis, Planning Manager of Capital Projects and Planning for Washoe County School District.

Visual Inspection

Accessible building materials were visually inspected using the methods presented in the Federal AHERA regulations (40 CFR, Part 763). AHERA inspection methodology is required to be used for inspections of K-12 schools and is generally accepted as the industry standard for all ACM inspections regardless of structure or facility type. Suspect ACMs were also physically assessed for friability, condition, and possible disturbance factors.

All areas were accessible during this inspection.

Asbestos Inspection

Bulk Sample Collection

Bulk samples of identified homogeneous materials were collected from materials that may be impacted by the planned renovation activities. Samples were collected of each separate homogeneous area. A homogeneous area is defined as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in use, color, and texture. Examples of homogeneous areas could include:

Concrete
Drywall with joint compound
Penetration Mastics
Epoxy

The specific number of samples collected was determined by using the methods required by the Federal AHERA regulations (40 CFR, Part 763.86) and ASTM standards as noted below:

1) For Surfacing Material:
   1,000 ft^2 or less – collect 3 samples
   1,001 to 5,000 ft^2 – collect 5 samples
   5,001 ft^2 or greater – collect 7 samples

2) For Thermal System Insulation:
   "In a randomly distributed manner" – collect 3 samples
   6 linear feet of patching or less – collect 1 sample
   cementitious pipe fittings – "In a manner sufficient to determine"

3) For all Miscellaneous Material:
   Collect samples "In a manner sufficient to determine whether material is ACM (asbestos-containing material) or not ACM…" – AHERA

   Collect "A minimum of three bulk samples shall be collected of each homogeneous miscellaneous material, except that a single sample may suffice for small, manufactured items such as HVAC vibration dampeners, gaskets, and friction products. This exception applies to individual components of less than 6 ft2 (0.557 m2) in size and not to multiple installations of similar components." – ASTM E2356 – 18 Standard

The suspect ACMs were sampled using a knife, chisel, scraper, drill, or other similar coring device suitable to the type of material sampled to cut through its entire thickness and to ensure that a cross-section of the material was obtained. The material was then placed in an appropriately labeled container that was sealed and submitted to the appropriate laboratory for analysis. A unique sample number (e.g. PJ80051-01A) was assigned to each sample.

Bulk samples will be retained by the laboratory for one month unless otherwise instructed. After this period, the samples will be disposed of appropriately.

Bulk Sample Analysis

A total of fifty-four (54) bulk samples were collected from a total of eighteen (18) suspect materials.

All interior and exterior bulk samples were delivered to WCSD Environmental, Systems, and Assessments (ES&A) Department for submission to Schneider Laboratories Global, Inc. (SLG) in Richmond, Virginia.

All roof bulk samples and samples taken on March 5, 2024 were analyzed by SGS – Forensic Laboratories (SGS-FL) in Hayward, California.

SLG and SGS-FL are both accredited by the National Institute of Science and Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP). SLG and SGS-FL participate in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing Program and have substantial experience in the analysis of asbestos.

All samples were analyzed using Polarized Light Microscopy with Dispersion Staining (PLM/DS) techniques in accordance with the methodology approved by the U.S. Environmental Protection Agency (EPA). The percentage of asbestos present in the samples was determined on the basis of a visual area estimation. The EPA defines asbestos-containing materials (ACM) as any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM). 40 CFR Part 763 identifies the lower limit of reliable quantification for asbestos using the PLM method as approximately one percent (1%) by volume. In addition to the percentages, the types of asbestos minerals are also reported. The PLM method is the standard method used to analyze asbestos bulk samples.

When "None Detected" (ND) appears in the laboratory results, it should be interpreted as meaning asbestos was not observed in the sample material.

Lead Inspection

The client-defined lead inspection was modeled upon the sampling protocol described in "Chapter 7: Lead Based Paint Inspection" of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997 Revision).

OSHA, in Title 29 Code of Federal Regulations (CFR) Part Number 1926, Standard Number 1926.62, regulates all construction work where an employee may be occupationally exposed to lead. Paints, coatings, or materials with any detectable level of lead is considered lead-containing by OSHA. Paints or coatings containing lead above 1.0 mg/cm^2, 0.5% by weight, or 5,000 parts per million are considered lead-based by the US EPA. For this inspection, a minimum of three bulk samples were collected from each suspect paint or coating to be potentially disturbed by the project, assuming sufficient material was present to justify.

Bulk Sampling Methodology

During this inspection, FACS personnel collected thirty-three (33) bulk paint chip samples from eleven (11) suspect paints for laboratory confirmation of lead-content. These samples were scraped from the substrate using a knife or chisel to obtain sufficient material for analysis.

All interior-collected bulk samples were delivered to WCSD Environmental, Systems, and Assessments (ES&A) Department for submission to Schneider Laboratories Global, Inc. (SLG) in Richmond, Virginia.

SLG is accredited by the American Industrial Hygiene Association's Environmental Lead Laboratory Accreditation Program for the analysis of lead in bulk paint chips by inductively coupled plasma.

Findings and Recommendations

Forensic Analytical Consulting Services, Inc. (FACS) was retained by Washoe County School District to perform an asbestos and lead paint survey of all suspect materials in the planned project areas at the Nutrition Services Building, located 585 Spice Islands Court in Reno, Nevada. The survey was performed on January 22 and March 5, 2024.

Asbestos

Due to the need to disassemble the boiler unit to sample any interior boiler insulation or gaskets, these materials are assumed to be asbestos-containing and will need to be handled accordingly.

All the following materials were found to not contain asbestos by laboratory analysis during this survey:

- 8" Fiberglass TSI
- 2" Fiberglass TSI
- 6" Fiberglass TSI
- 6" Black Foam TSI
- Concrete floor
- Concrete Expansion Joint
- White Sealant
- FRP and glue
- Drywall – Knockdown Texture with Tape and Joint Compound
- Drywall – Medium Texture with Tape and Joint Compound
- False Ceiling Panel – 2x4 Smooth Texture
- Red Floor Mat and Glue
- Epoxy Flooring
- Single Ply Roofing – White
- Penetration Mastic – White
- Penetration Mastic – Grey
- Duct Mastic – Grey
- Duct Mastic – Silver

Please see the Asbestos Survey Summary in Appendix A for a complete listing of suspect materials sampled during this survey.

Other suspect materials not included in this survey must be assumed to be asbestos-containing materials until tested and proven to be asbestos-free.

For those interior boiler materials assumed to be asbestos-containing, they are all categorized by the NESHAP regulation as Regulated Asbestos Containing Material (RACM). Since the boiler will be wrapped and removed fully intact, the abatement process is not likely to disturb the interior insulation materials. However, the presence of asbestos-containing materials will require the boiler to be disposed of as hazardous asbestos-containing material waste.

To comply with the AHERA regulation and OSHA requirements, workers performing abatement will need to have AHERA Worker training with at least one worker trained to the AHERA Contractor-Supervisor level. Workers will need to use asbestos work practices required by OSHA for Class I abatement activity.

A notification should also be submitted to the local OSHA office for the abatement of asbestos-containing materials on this project.
The contractor performing abatement of asbestos-containing materials will need to hold the A-23 license from the Nevada State Contractors Board and as required by the Nevada Administrative Code (NAC) 624.150(23).

Lead

The following paints were found to be lead-containing by ICP laboratory analysis during this survey:

- White Paint on Metal Louver & Siding
- Blue Paint on Metal Boiler
- Blue Paint on Metal Frame
- Black Paint on Metal Pipe
- Light Grey Paint on Metal Tank

The following paints were found to not contain lead by ICP laboratory analysis during this survey:

- Dark Blue Paint on Metal Unit
- White Paint on Metal Tank
- White Paint on False Ceiling Panel
- Green Paint on Drywall Wall
- Light Grey Paint on Drywall Wall
- Grey Paint on Metal Tank

Any suspect paints or coatings not included in this survey must be assumed to be lead-containing materials until tested and proven to be lead-free.

FACS recommends that the results of this report be incorporated into any renovation plans provided for this project for informational purposes.

OSHA regulates the handling of paints and coatings containing lead down to any detectable concentration. Therefore, workers that will handle paints or coatings on this project must have lead training. For work with Washoe County School District, this training must be OSHA Action Level training at minimum. Any contractor with workers disturbing any quantity of detectable lead must perform an initial determination regarding worker exposures to lead, which may be based on personal air monitoring at the start of the project, prior employee monitoring from the past 12 months under workplace conditions closely resembling the current project, or objective data demonstrating that exposures will not exceed the OSHA action level (30 micrograms per cubic meter of air). It is the employer's responsibility to conduct the initial determination and comply with any relevant OSHA requirements.

Workers must use lead-safe work practices when disturbing paints or coatings that contain lead. Disturbance of lead-containing paints or coatings must be performed within a contained area to prevent the spread and build-up of lead dust. HEPA vacuums, dustless tools or shrouds, and/or intact removal of components should be employed to minimize lead dust generation and work areas must be properly cleaned following disturbance to lead-containing materials during this project. Waste generated during disturbance to lead-containing materials must be profiled in a hazardous waste determination to ascertain proper disposal requirements.

FACS recommends that the results of this report be incorporated into any renovation plans provided for this project for informational purposes.

Limitations

This investigation is limited to the conditions and practices observed, and information made available to FACS. The methods, conclusions and recommendations provided are based on FACS' judgment, expertise, and the standard of practice for professional service. They are subject to the limitations and variability inherent in the methodology employed. As with all environmental investigations, this investigation is limited to the defined scope and does not purport to set forth all hazards, nor indicate that other hazards do not exist.

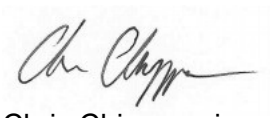
Please do not hesitate to contact our office at 775-993-7389 with any questions or concerns. Thank you for the opportunity to assist Washoe County School District with promoting worker safety and a healthy environment.

Respectfully,
FORENSIC ANALYTICAL



Daniel Prado
Project Manager, Reno
IJPM-2057
US EPA LBP-R-I214705-2

Reviewed by:
FORENSIC ANALYTICAL



Chris Chipponeri
Local Director, Central Valley Offices
IJPM-1410
US EPA LBP-R-128230-3

Appendix A

Asbestos Results Summary, Sample Chain-of-Custody and Laboratory Results Report

Asbestos Survey Summary (SLG Lab Report #548465) Nutrition Services - 585 Spice Islands Court, Sparks, NV 89431 Survey Date: January 22, 2024						
Sample Numbers	**Material Description**	**Location(s) of Material**	**Material Number**	**Asbestos Content (percent)**	**Asbestos NESHAP Category**	**Approx. Quantity**
31805 31806 31807	8” Fiberglass TSI	All Project Spaces	1	None Detect in tan fibrous TSI None Detect in yellow fibrous TSI None Detect in white/grey TSI	N/A	N/A
31808 31809 31810	Concrete	All Project Spaces	2	None Detect in grey hard concrete	N/A	N/A
31811 31812 31813	Concrete expansion joint	All Project Spaces	3	None Detect in soft white expansion joint	N/A	N/A
31814 31815 31816	6” Black Foam TSI	All Project Spaces	4	None Detect in black foamy TSI	N/A	N/A
31817 31818 31819	White Sealant	Exterior	5	None Detect in white soft sealant	N/A	N/A
31820 31821 31822	FRP and Glue	15 & 16	6	None Detect in white fibrous/brittle FRP None Detect in tan brittle glue	N/A	N/A
31823 31824 31825	Drywall – Knockdown Texture	22 & 23	7	None Detect in white powdery sheetrock None Detect in white granular joint compound None Detect in white granular texture	N/A	N/A
31826 31827 31828	Drywall – Medium Texture	16	8	None Detect in white powdery sheetrock None Detect in white granular joint compound None Detect in white granular texture	N/A	N/A

Asbestos Survey Summary (SLG Lab Report #548465) Nutrition Services - 585 Spice Islands Court, Sparks, NV 89431 Survey Date: January 22, 2024						
Sample Numbers	**Material Description**	**Location(s) of Material**	**Material Number**	**Asbestos Content (percent)**	**Asbestos NESHAP Category**	**Approx. Quantity**
31829 31830 31831	FCP – 2x4 Smooth Texture	15 & 16	9	None Detect in white powdery ceiling tile	N/A	N/A
31832 31833 31834	Red floor mat & glue	16	10	None Detect in red organically bound flooring None Detect in tan soft glue None Detect in tan soft mastic	N/A	N/A
31835 31836 31837	2” Fiberglass TSI	All Project Spaces	11	None Detect in white/yellow fibrous TSI	N/A	N/A
31838 31839 31840	6” Fiberglass TSI	All Project Spaces	12	None Detect in yellow/white fibrous TSI	N/A	N/A
31841 31842 31843	Epoxy Flooring	15	13	None Detect in grey brittle/fibrous flooring None Detect in grey brittle flooring	N/A	N/A

Asbestos Survey Summary (SGS Lab Report #B356226 & #B357705) Nutrition Services - 585 Spice Islands Court, Sparks, NV 89431 Survey Date: January 22, 2024 & March 5, 2024						
Sample Numbers	**Material Description**	**Location(s) of Material**	**Material Number**	**Asbestos Content (percent)**	**Asbestos NESHAP Category**	**Approx. Quantity**
01A-01C	Single Ply Roofing – White	Roof C	1	None Detect in off-white foam None Detect in black non-fibrous material None Detect in white coating	N/A	N/A
02A-02C	Penetration Mastic – White	Roof C	2	None Detect in white mastic None Detect in paint	N/A	N/A
03A-03C	Penetration Mastic – Grey	Roof C	3	None Detect in grey mastic None Detect in paint	N/A	N/A
100A-100C	Duct Mastic – Grey	Space 15	4	None Detect in grey non-fibrous material	N/A	N/A
101A-101C	Duct Mastic – Silver	Space 15	5	None Detect in silver non-fibrous material	N/A	N/A

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Washoe County School District (4991)
Address: 7495 S. Virginia Street
Reno, NV 89511

Order #: 548465

Attn:

Received 01/29/24
Analyzed 01/31/24
Reported 01/31/24

Project:
Location: 020 Nut Services Kitchen
Number:

PO Number: PO130717

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
548465-001	01/22/24	020-4022-31805	E Side S End S Boiler		
Layer 1: TSI Tan, Fibrous				No Asbestos Detected	10% CELLULOSE FIBER 80% FIBERGLASS 10% NON FIBROUS MATERIAL
548465-002	01/22/24	020-4022-31806	E Side S End		
Layer 1: TSI Yellow, Fibrous				No Asbestos Detected	10% CELLULOSE FIBER 80% FIBERGLASS 10% NON FIBROUS MATERIAL
548465-003	01/22/24	020-4022-31807	SE Corner		
Layer 1: TSI White/Gray, Fibrous				No Asbestos Detected	10% CELLULOSE FIBER 80% FIBERGLASS 10% NON FIBROUS MATERIAL
548465-004	01/22/24	020-4022-31808	S Center Floor		
Layer 1: Concrete Gray, Hard				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-005	01/22/24	020-4022-31809	W Side Center Floor		
Layer 1: Concrete Gray, Hard				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-006	01/22/24	020-4022-31810	S Side E End Floor @ Slab		
Layer 1: Concrete Gray, Hard				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-007	01/22/24	020-4022-31811	Center		
Layer 1: Expansion Joint White, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. The test results apply to the sample as received.

Project:
Location: 020 Nut Services Kitchen
Number: **PO Number:** PO130717

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
548465-008	01/22/24	020-4022-31812	N Side Center		
Layer 1: Expansion Joint White, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-009	01/22/24	020-4022-31813	S Side Center		
Layer 1: Expansion Joint White, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-010	01/22/24	020-4022-31814	E Center		
Layer 1: TSI Black, Foamy				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-011	01/22/24	020-4022-31815	Center Space		
Layer 1: TSI Black, Foamy				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-012	01/22/24	020-4022-31816	N Side Center		
Layer 1: TSI Black, Foamy				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-013	01/22/24	020-4022-31817	E Center @ Louver		
Layer 1: Sealant White, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-014	01/22/24	020-4022-31818	E Center @ Louver		
Layer 1: Sealant White, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-015	01/22/24	020-4022-31819	E Center @ Louver		
Layer 1: Sealant White, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-016	01/22/24	020-4022-31820	N Side Center		
Layer 1: FRP White, Fibrous/Brittle				No Asbestos Detected	35% MINERAL/GLASS WOOL 65% NON FIBROUS MATERIAL
Layer 2: Glue Tan, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. The test results apply to the sample as received.

Project:
Location: 020 Nut Services Kitchen
Number:

PO Number: PO130717

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
548465-017	01/22/24	020-4022-31821	E Side Center		
Layer 1: FRP White, Fibrous/Brittle				No Asbestos Detected	35% MINERAL/GLASS WOOL 65% NON FIBROUS MATERIAL
Layer 2: Glue Tan, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-018	01/22/24	020-4022-31822	W Side Center		
Layer 1: FRP White, Brittle/Fibrous				No Asbestos Detected	35% MINERAL/GLASS WOOL 65% NON FIBROUS MATERIAL
Layer 2: Glue Tan, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-019	01/22/24	020-4022-31823	W Side Center		
Layer 1: Sheetrock White, Powdery				No Asbestos Detected	5% MINERAL/GLASS WOOL 95% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Texture White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-020	01/22/24	020-4022-31824	SW Corner		
Layer 1: Sheetrock White, Powdery				No Asbestos Detected	5% MINERAL/GLASS WOOL 95% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Texture White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-021	01/22/24	020-4022-31825	E Side S End @ Louver		
Layer 1: Sheetrock White, Powdery No joint compound or texture found.				No Asbestos Detected	5% MINERAL/GLASS WOOL 95% NON FIBROUS MATERIAL

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. The test results apply to the sample as received.

Project:
Location: 020 Nut Services Kitchen
Number:

PO Number: PO130717

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
548465-022	01/22/24	020-4022-31826	E Side N End		
Layer 1: Sheetrock White, Powdery				No Asbestos Detected	5% MINERAL/GLASS WOOL 95% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular No texture found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-023	01/22/24	020-4022-31827	N Center		
Layer 1: Sheetrock White, Powdery				No Asbestos Detected	5% MINERAL/GLASS WOOL 95% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Texture White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-024	01/22/24	020-4022-31828	N Side E End		
Layer 1: Sheetrock White, Powdery				No Asbestos Detected	5% MINERAL/GLASS WOOL 95% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular No texture found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-025	01/22/24	020-4022-31829	E Side N End		
Layer 1: Ceiling Tile White, Powdery				No Asbestos Detected	2% CELLULOSE FIBER 4% MINERAL/GLASS WOOL 94% NON FIBROUS MATERIAL
548465-026	01/22/24	020-4022-31830	E Side Center		
Layer 1: Ceiling Tile White, Powdery				No Asbestos Detected	2% CELLULOSE FIBER 4% MINERAL/GLASS WOOL 94% NON FIBROUS MATERIAL
548465-027	01/22/24	020-4022-31831	N Side E End		
Layer 1: Ceiling Tile White, Powdery				No Asbestos Detected	2% CELLULOSE FIBER 4% MINERAL/GLASS WOOL 94% NON FIBROUS MATERIAL

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. The test results apply to the sample as received.

Project:
Location: 020 Nut Services Kitchen
Number:

PO Number: PO130717

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
548465-028	01/22/24	020-4022-31832	W Side N End		
Layer 1: Flooring Red, Organically Bound				No Asbestos Detected	95% NON FIBROUS MATERIAL 5% SYNTHETIC FIBER
Layer 2: Glue Tan, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-029	01/22/24	020-4022-31833	W Side N End		
Layer 1: Flooring Red, Organically Bound				No Asbestos Detected	95% NON FIBROUS MATERIAL 5% SYNTHETIC FIBER
Layer 2: Glue Tan, Soft				No Asbestos Detected	2% MINERAL/GLASS WOOL 98% NON FIBROUS MATERIAL
548465-030	01/22/24	020-4022-31834	W Side N End		
Layer 1: Flooring Red, Organically Bound				No Asbestos Detected	95% NON FIBROUS MATERIAL 5% SYNTHETIC FIBER
Layer 2: Mastic Tan, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-031	01/22/24	020-4022-31835	W Side Center Adjacent 23		
Layer 1: TSI White/Yellow, Fibrous				No Asbestos Detected	50% CELLULOSE FIBER 35% FIBERGLASS 15% NON FIBROUS MATERIAL
548465-032	01/22/24	020-4022-31836	W Side Center Adjacent 23		
Layer 1: TSI White/Yellow, Fibrous				No Asbestos Detected	45% CELLULOSE FIBER 40% FIBERGLASS 15% NON FIBROUS MATERIAL
548465-033	01/22/24	020-4022-31837	W Side Center Adjacent 23		
Layer 1: TSI White/Yellow, Fibrous				No Asbestos Detected	40% CELLULOSE FIBER 45% FIBERGLASS 15% NON FIBROUS MATERIAL
548465-034	01/22/24	020-4022-31838	SW Corner		
Layer 1: TSI Yellow/White, Fibrous				No Asbestos Detected	30% CELLULOSE FIBER 55% FIBERGLASS 15% NON FIBROUS MATERIAL
548465-035	01/22/24	020-4022-31839	W Side Center		
Layer 1: TSI Yellow/White, Fibrous				No Asbestos Detected	30% CELLULOSE FIBER 55% FIBERGLASS 15% NON FIBROUS MATERIAL

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. The test results apply to the sample as received.

Project:
Location: 020 Nut Services Kitchen
Number:

PO Number: PO130717

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
548465-036	01/22/24	020-4022-31840	S Side Center		
Layer 1: TSI Yellow/White, Fibrous				No Asbestos Detected	30% CELLULOSE FIBER 55% FIBERGLASS 15% NON FIBROUS MATERIAL
548465-037	01/22/24	020-4022-31841	E Side N End		
Layer 1: Flooring Gray, Brittle/Fibrous				No Asbestos Detected	55% CELLULOSE FIBER 45% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
548465-038	01/22/24	020-4022-31842	E Side Center		
Layer 1: Flooring Gray, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
548465-039	01/22/24	020-4022-31843	E Side N End		
Layer 1: Flooring Gray, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL

EPA Regulatory Limit: 1%
Total layers analyzed on order: 53

548465-01/31/24 07:00 PM

Analyst **Michael Alers**

Reviewed By: **Mohammed Hashim**
Microscopy Supervisor/Analyst

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. The test results apply to the sample as received.

Charge to C.C.

WCSD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Type: (PLM), PCM, TEM **Analysis Turn Around Time: 2hr, Same Day, 1 Day, 2 Day, (3 Day), 5 Day**

Instructions: Email results to the ESA Department, and produce a separate report for each facility. New prefix numbers on a sample identifies a new site. ACCT. #4991

SAMPLE #	DATE	MAT. DESCRIPTION	LOCATION	ROOM	SITE
020 - 4022 - 31805	1/22/2024	8" Fiberglass TSI	East side, South end, above South boiler.	22	020 - Nut. Services Kitchen
020 - 4022 - 31806	1/22/2024	8" Fiberglass TSI	East side, South end.	22	020 - Nut. Services Kitchen
020 - 4022 - 31807	1/22/2024	8" Fiberglass TSI	South East corner.	22	020 - Nut. Services Kitchen
020 - 4022 - 31808	1/22/2024	Concrete	South of center of floor.	22	020 - Nut. Services Kitchen
020 - 4022 - 31809	1/22/2024	Concrete	West side, center of floor.	16	020 - Nut. Services Kitchen
020 - 4022 - 31810	1/22/2024	Concrete	South side, East end of floor @ slab.	23	020 - Nut. Services Kitchen
020 - 4022 - 31811	1/22/2024	Concrete Expansion Joint	Center.	22	020 - Nut. Services Kitchen
020 - 4022 - 31812	1/22/2024	Concrete Expansion Joint	North side, center.	22	020 - Nut. Services Kitchen
020 - 4022 - 31813	1/22/2024	Concrete Expansion Joint	South side, center.	22	020 - Nut. Services Kitchen
020 - 4022 - 31814	1/22/2024	6" Black Foam TSI	East of center.	22	020 - Nut. Services Kitchen
020 - 4022 - 31815	1/22/2024	6" Black Foam TSI	Center of space.	22	020 - Nut. Services Kitchen
020 - 4022 - 31816	1/22/2024	6" Black Foam TSI	North side, center.	22	020 - Nut. Services Kitchen

SENT BY: Brian Priest **DATE/TIME:** 1-26-24 10:43 AM

RECEIVED BY: **DATE/TIME:** 1/29 13:00

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

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thawks 1/29/2024 12:53:40 PM

U.S. Mail N/A

Charge to C.C

WCSD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Type: PLM, PCM, TEM **Analysis Turn Around Time: 2hr, Same Day, 1 Day, 2 Day, 3 Day, 5 Day**

Instructions: Email results to the ESA Department, and produce a separate report for each facility. New prefix numbers on a sample identifies a new site. ACCT. #4991

SAMPLE #	DATE	MAT. DESCRIPTION	LOCATION	ROOM	SITE
020 - 4022 - 31817	1/22/2024	White Sealant	East, center @ louver.	Exterior	020 - Nut. Services Kitchen
020 - 4022 - 31818	1/22/2024	White Sealant	East, center @ louver.	Exterior	020 - Nut. Services Kitchen
020 - 4022 - 31819	1/22/2024	White Sealant	East, center @ louver.	Exterior	020 - Nut. Services Kitchen
020 - 4022 - 31820	1/22/2024	FRP and Glue	North side, center.	16	020 - Nut. Services Kitchen
020 - 4022 - 31821	1/22/2024	FRP and Glue	East side, center.	16	020 - Nut. Services Kitchen
020 - 4022 - 31822	1/22/2024	FRP and Glue	West side, center.	16	020 - Nut. Services Kitchen
020 - 4022 - 31823	1/22/2024	Sheetrock/Texture/Joint Compound	West side, center.	22	020 - Nut. Services Kitchen
020 - 4022 - 31824	1/22/2024	Sheetrock/Texture/Joint Compound	South West corner.	23	020 - Nut. Services Kitchen
020 - 4022 - 31825	1/22/2024	Sheetrock/Texture/Joint Compound	East side, South end @ louver.	22	020 - Nut. Services Kitchen
020 - 4022 - 31826	1/22/2024	Sheetrock/Texture/Joint Compound	East side, North end.	16	020 - Nut. Services Kitchen
020 - 4022 - 31827	1/22/2024	Sheetrock/Texture/Joint Compound	North of center.	16	020 - Nut. Services Kitchen
020 - 4022 - 31828	1/22/2024	Sheetrock/Texture/Joint Compound	North side, East end.	16	020 - Nut. Services Kitchen

SENT BY: Brian Priest **DATE/TIME:** 1-26-24 10:43AM

RECEIVED BY: [signature] **DATE/TIME:** 1/29 1300

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Charge to C.C.

WCSD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Type: PLM, PCM, TEM **Analysis Turn Around Time: 2hr, Same Day, 1 Day, 2 Day, 3 Day, 5 Day**

Instructions: Email results to the ESA Department, and produce a separate report for each facility. New prefix numbers on a sample identifies a new site. ACCT. #4991

SAMPLE #	DATE	MAT. DESCRIPTION	LOCATION	ROOM	SITE
020 - 4022 - 31829	1/22/2024	Drop-In Ceiling Tile	East side, North end.	16	020 - Nut. Services Kitchen
020 - 4022 - 31830	1/22/2024	Drop-In Ceiling Tile	East side, center.	16	020 - Nut. Services Kitchen
020 - 4022 - 31831	1/22/2024	Drop-In Ceiling Tile	North side, East end.	16	020 - Nut. Services Kitchen
020 - 4022 - 31832	1/22/2024	Red Floor Mat & Glue	West side, North end.	16	020 - Nut. Services Kitchen
020 - 4022 - 31833	1/22/2024	Red Floor Mat & Glue	West side, North end.	16	020 - Nut. Services Kitchen
020 - 4022 - 31834	1/22/2024	Red Floor Mat & Glue	West side, North end.	16	020 - Nut. Services Kitchen
020 - 4022 - 31835	1/22/2024	2" Fiberglass TSI	West side, center, adjacent to 23.	22	020 - Nut. Services Kitchen
020 - 4022 - 31836	1/22/2024	2" Fiberglass TSI	West side, center, adjacent to 23.	22	020 - Nut. Services Kitchen
020 - 4022 - 31837	1/22/2024	2" Fiberglass TSI	West side, center, adjacent to 23.	22	020 - Nut. Services Kitchen
020 - 4022 - 31838	1/22/2024	6" Fiberglass TSI	South West corner.	22	020 - Nut. Services Kitchen
020 - 4022 - 31839	1/22/2024	6" Fiberglass TSI	West side, center.	22	020 - Nut. Services Kitchen
020 - 4022 - 31840	1/22/2024	6" Fiberglass TSI	South side, center.	22	020 - Nut. Services Kitchen

SENT BY: Brian Priest **DATE/TIME:** 1-26-24 10:43AM

RECEIVED BY: **DATE/TIME:** 1/29 0800

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Charge to C.C.

WCSD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Type: (PLM), PCM, TEM **Analysis Turn Around Time: 2hr, Same Day, 1 Day, 2 Day, (3 Day), 5 Day**

Instructions: Email results to the ESA Department, and produce a separate report for each facility. New prefix numbers on a sample identifies a new site. ACCT. #4991

SAMPLE #	DATE	MAT. DESCRIPTION	LOCATION	ROOM	SITE
020 - 4022 - 31841	1/22/2024	Epoxy Flooring	East side, North end.	15	020 - Nut. Services Kitchen
020 - 4022 - 31842	1/22/2024	Epoxy Flooring	East side, center.	15	020 - Nut. Services Kitchen
020 - 4022 - 31843	1/22/2024	Epoxy Flooring	East side, North end.	15	020 - Nut. Services Kitchen

SENT BY: Brian Priest **DATE/TIME:** 1-26-24 10:43 AM

RECEIVED BY: [signature] **DATE/TIME:** 1/29 13:00

RECEIVED BY: _____ **DATE/TIME:** _____

RECEIVED BY: _____ **DATE/TIME:** _____

FACS
Forensic Analytical Consulting Services

Bulk Material Analysis Request Form

Date: 07-24-23
Collected by: Danny Prado & Ryan Hettich
Date Collected: 07-22-23
Laboratory: SGS Forensics

Contact Name: Daniel Prado
Bill: RN12
Type of Analysis: PLM w/Dispersion Staining
Turnaround Time: 5 day

Job ID: PJ80051
Job Site: WCSD – Nutrition Services Center
Special Instructions:
Send Results: dprado@forensicanalytical.com & Zachary.ramos@forensicanalytical.com

Sample ID	Results	Material Description and Location
PJ80051-01A		Single Ply Roofing – White
		Roof C - @south flue
PJ80051-01B		Single Ply Roofing – White
		Roof C - @south flue
PJ80051-01C		Single Ply Roofing – White
		Roof C - @north flue
PJ80051-02A		Penetration Mastic – White
		Roof C - @north flue
PJ80051-02B		Penetration Mastic – White
		Roof C - @north flue
PJ80051-02C		Penetration Mastic – White
		Roof C - @south flue
PJ80051-03A		Penetration Mastic – Grey
		Roof C – E side @ North flue
PJ80051-03B		Penetration Mastic – Grey
		Roof C – E side @ North flue
PJ80051-03C		Penetration Mastic – Grey
		Roof C – E side @ south flue

Submitted By: Zachary Ramos Date: 1-24-24
Received By: RECEIVED 1030 Date:
JAN 26 2024
BY: Fx0656

Final Report

Bulk Asbestos Analysis

(EPA Method 40CFR, Part 763, Appendix E to Subpart E and EPA 600/R-93-116, Visual Area Estimation)
NVLAP Lab Code: 101459-0

Forensic Analytical Consulting Svcs
Daniel Prado
21228 Cabot Blvd.

Hayward, CA 94545

Client ID: FACS00
Report Number: B356226
Date Received: 01/26/24
Date Analyzed: 02/02/24
Date Printed: 02/02/24
First Reported: 02/02/24

Job ID/Site: PJ80051; Washoe County School District - Capital Projects & Planning 585 Spice Islands Court Sparks NV 89431

Date(s) Collected: 01/24/2024

SGSFL Job ID: FACS00
Total Samples Submitted: 9
Total Samples Analyzed: 9

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
PJ80051-01A	12725928						
Layer: Off-White Foam			**ND**				
Layer: Black Non-Fibrous Material			**ND**				
Layer: White Coating			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-01B	12725929						
Layer: Off-White Foam			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-01C	12725930						
Layer: Off-White Foam			**ND**				
Layer: Black Non-Fibrous Material			**ND**				
Layer: White Coating			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-02A	12725931						
Layer: White Mastic			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-02B	12725932						
Layer: White Mastic			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-02C	12725933						
Layer: White Mastic			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					

3777 Depot Road, Suite 409, Hayward, CA 94545 | Phone: 510.887.8828 / 800.827.3274 Fax: 510.887.4218 | https://falaboratories.sgs.com

Report Number: B356226

Client Name: Forensic Analytical Consulting Svcs **Date Printed:** 02/02/24

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
PJ80051-03A	12725934						
Layer: Grey Mastic			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-03B	12725935						
Layer: Grey Mastic			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80051-03C	12725936						
Layer: Grey Mastic			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					

Maria E. Casper

Maria Cosper, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by SGS Forensic Laboratories (SGSFL) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by SGSFL to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by SGSFL. The client is solely responsible for the use and interpretation of test results and reports requested from SGSFL. This report must not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government. SGSFL is not able to assess the degree of hazard resulting from materials analyzed. SGS Forensic Laboratories reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

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FACS
Forensic Analytical Consulting Services

Bulk Material Analysis Request Form

Date:	March 5, 2024	Contact Name:	Daniel Prado
Collected by:	Ryan Hettich & Tricia Galtieri	Bill:	RN12
Date Collected:	March 5, 2024	Type of Analysis:	PLM w/ Dispersion Staining
Laboratory:	SGS Forensics	Turnaround Time:	Same Day

Job ID: PJ80051
Job Site: Nutrition Services
Special Instructions:
Send Results: @Tricia.galtieri@facs.com , Danny.Prado@facs.com, Ryan.hettich@facs.com

Sample ID	Results	Material Description and Location
PJ80860 – 100A		Duct Mastic – Grey
		Space 15 – North Side, Center
PJ80860 – 100B		Duct Mastic – Grey
		Space 15 – North Side, Center
PJ80860 – 100C		Duct Mastic – Grey
		Space 15 – North Side, Center
PJ80860 – 101A		Duct Mastic – Silver
		Space 15 – NE Corner
PJ80860 – 101B		Duct Mastic – Silver
		Space 15 – NE Corner
PJ80860 – 101C		Duct Mastic – Silver
		Space 15 – NE Corner

Submitted By: Patricia Galtieri Date: 03/05/24
Received By: RECEIVED Date:
MAR 06 2024
10:30am
BY: FX-7010

Final Report

Bulk Asbestos Analysis

(EPA Method 40CFR, Part 763, Appendix E to Subpart E and EPA 600/R-93-116, Visual Area Estimation)
NVLAP Lab Code: 101459-0

Forensic Analytical Consulting Svcs
Daniel Prado
21228 Cabot Blvd.

Hayward, CA 94545

Client ID: FACS00
Report Number: B357705
Date Received: 03/06/24
Date Analyzed: 03/06/24
Date Printed: 03/06/24
First Reported: 03/06/24

Job ID/Site: PJ80051; Washoe County School District - Capital Projects & Planning 585 Spice Islands Court Sparks NV 89431

Date(s) Collected: 03/05/2024

SGSFL Job ID: FACS00
Total Samples Submitted: 6
Total Samples Analyzed: 6

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
PJ80860-100A	12733356						
Layer: Grey Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80860-100B	12733357						
Layer: Grey Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80860-100C	12733358						
Layer: Grey Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80860-101A	12733359						
Layer: Silver Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80860-101B	12733360						
Layer: Silver Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
PJ80860-101C	12733361						
Layer: Silver Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					

Maria E. Casper

Maria Cosper, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

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Report Number: B357705

Client Name: Forensic Analytical Consulting Svcs **Date Printed:** 03/06/24

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer

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Appendix B

Lead Paint Chip Summary Table, Sample Chain-of-Custody and Laboratory Results Report

Lead Paint Chip Results Summary (SLG Lab Report 548468) Nutrition Services - 585 Spice Islands Court, Sparks, NV 89431 Survey Date: January 22, 2024					
Sample Number	**Component Location**	**Component**	**Color**	**Substrate**	**Analytical Results mg/kg**
13476	Exterior - East Side South End	Siding	White	Metal	27.3
13477	Exterior - East Side South End	Louver	White	Metal	56.5
13478	Exterior - East Side South End	Louver	White	Metal	41.4
13479	22 - (North Boiler) Northwest Corner	Boiler	Blue	Metal	197
13480	22 - (South Boiler) Northwest Corner	Boiler	Blue	Metal	89.7
13481	22 - (North Boiler) Southside Center	Boiler	Blue	Metal	54.2
13482	22 - South Side Center @ Doors	Unit	Dark Blue	Metal	< 5.87
13483	22 - South Side Center @ Doors	Unit	Dark Blue	Metal	< 6.31
13484	22 - South Side Center @ Doors	Unit	Dark Blue	Metal	< 6.58
13485	22 - Southeast Corner	Tank	White	Metal	< 6.48
13486	22 - Southeast Corner	Tank	White	Metal	< 6.65
13487	22 - Southeast Corner	Tank	White	Metal	< 6.25
13488	16 - East Side Center	Ceiling	White	FCP	< 6.20
13489	16 - East Side North End	Ceiling	White	FCP	< 6.33
13490	16 - North Side East End	Ceiling	White	FCP	< 6.46

Lead Paint Chip Results Summary (SLG Lab Report 548468) Nutrition Services - 585 Spice Islands Court, Sparks, NV 89431 Survey Date: January 22, 2024					
Sample Number	**Component Location**	**Component**	**Color**	**Substrate**	**Analytical Results mg/kg**
13491	16 - East Side West End	Wall	Green	Drywall	< 6.50
13492	16 - East Side North End	Wall	Green	Drywall	< 6.25
13493	16 - North Side East End	Wall	Green	Drywall	< 5.80
13494	Exterior - East Side South End	Frame	Blue	Metal	49.3
13495	Exterior - East Side South End	Frame	Blue	Metal	46.9
13496	Exterior - East Side South End	Frame	Blue	Metal	11.4
13497	22 - Center of Space	Pipe	Black	Metal	561
13498	22 - East Side North End	Pipe	Black	Metal	36.9
13499	22 - East Side South End in Between Boilers	Pipe	Black	Metal	254
13500	23 - North Side Center	Wall	Light Grey	Drywall	< 6.65
13501	22 - West Side Center	Wall	Light Grey	Drywall	< 5.99
13502	22 - East Side South End @ Louver	Wall	Light Grey	Drywall	< 6.52
13503	22 - West Side South End	Tank	Grey	Metal	< 11.8
13504	22 - West Side South End	Tank	Grey	Metal	< 7.44
13505	22 - West Side South End	Tank	Grey	Metal	< 8.93
13506	22 - (East Tank) West Side Center	Tank	Light Grey	Metal	40.3
13507	22 - (East Tank) West Side Center	Tank	Light Grey	Metal	< 17.0

Lead Paint Chip Results Summary (SLG Lab Report 548468) Nutrition Services - 585 Spice Islands Court, Sparks, NV 89431 Survey Date: January 22, 2024					
Sample Number	**Component Location**	**Component**	**Color**	**Substrate**	**Analytical Results mg/kg**
13508	22 - (West Tank) West Side Center	Tank	Light Grey	Metal	30.9

*Samples in bold lettering are lead-based

"<" with results indicate samples did not contain lead above the laboratory's reporting limit. This does not mean this paint color may be handled as lead-free and results need to be interpreted with information from the written report above.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Washoe County School District (4991)
Address: 7495 S. Virginia Street
Reno, NV 89511

Attn:

Project:
Location: 020 Nut Services Kitchen
Number:

Order #: 548468

Matrix Paint
Received 01/29/24
Reported 01/31/24

PO Number: PO131616

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
548468-001	020-4024-13476	E Side S End Siding					
Metals Analysis							
Lead		EPA 6010D	**27.3**	7.52	mg/kg	01/31/24	DM
548468-002	020-4024-13477	E Side S End Louver					
Metals Analysis							
Lead		EPA 6010D	**56.5**	5.76	mg/kg	01/31/24	DM
548468-003	020-4024-13478	E Side S End Louver					
Metals Analysis							
Lead		EPA 6010D	**41.4**	6.56	mg/kg	01/31/24	DM
548468-004	020-4024-13479	N Boiler NW Corner					
Metals Analysis							
Lead		EPA 6010D	**197**	6.35	mg/kg	01/31/24	DM
548468-005	020-4024-13480	S Boiler NW Corner					
Metals Analysis							
Lead		EPA 6010D	**89.7**	8.93	mg/kg	01/31/24	DM
548468-006	020-4024-13481	N Boiler S Side Cnt					
Metals Analysis							
Lead		EPA 6010D	**54.2**	6.49	mg/kg	01/31/24	DM
548468-007	020-4024-13482	S Side Cnt@DR					
Metals Analysis							
Lead		EPA 6010D	**<5.87**	5.87	mg/kg	01/31/24	DM
548468-008	020-4024-13483	S Side Cnt@DR					
Metals Analysis							
Lead		EPA 6010D	**<6.31**	6.31	mg/kg	01/31/24	DM
548468-009	020-4024-13484	S Side Cnt@DR					
Metals Analysis							
Lead		EPA 6010D	**<6.58**	6.58	mg/kg	01/31/24	DM
548468-010	020-4024-13485	SE Corner on Tank					
Metals Analysis							
Lead		EPA 6010D	**<6.48**	6.47	mg/kg	01/31/24	DM
548468-011	020-4024-13486	SE Corner on Tank					
Metals Analysis							
Lead		EPA 6010D	**<6.65**	6.64	mg/kg	01/31/24	DM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Washoe County School District (4991)
Address: 7495 S. Virginia Street
Reno, NV 89511

Attn:

Project:
Location: 020 Nut Services Kitchen
Number:

Order #: 548468

Matrix Paint
Received 01/29/24
Reported 01/31/24

PO Number: PO131616

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
548468-012	020-4024-13487	SE Corner on Tank					
Metals Analysis							
Lead		EPA 6010D	**<6.25**	6.25	mg/kg	01/31/24	DM
548468-013	020-4024-13488	E Side Cnt Ceiling					
Metals Analysis							
Lead		EPA 6010D	**<6.20**	6.19	mg/kg	01/31/24	DM
548468-014	020-4024-13489	E Side N End Ceiling					
Metals Analysis							
Lead		EPA 6010D	**<6.33**	6.33	mg/kg	01/31/24	DM
548468-015	020-4024-13490	N Side E End Ceiling					
Metals Analysis							
Lead		EPA 6010D	**<6.46**	6.45	mg/kg	01/31/24	DM
548468-016	020-4024-13491	N Side W End Wall					
Metals Analysis							
Lead		EPA 6010D	**<6.50**	6.49	mg/kg	01/31/24	DM
548468-017	020-4024-13492	E Side N End Wall					
Metals Analysis							
Lead		EPA 6010D	**<6.25**	6.25	mg/kg	01/31/24	DM
548468-018	020-4024-13493	N Side E End Wall					
Metals Analysis							
Lead		EPA 6010D	**<5.80**	5.80	mg/kg	01/31/24	DM
548468-019	020-4024-13494	E Side S End Frame					
Metals Analysis							
Lead		EPA 6010D	**49.3**	6.12	mg/kg	01/31/24	DM
548468-020	020-4024-13495	E Side S End Frame					
Metals Analysis							
Lead		EPA 6010D	**46.9**	6.06	mg/kg	01/31/24	DM
548468-021	020-4024-13496	E Side S End Frame					
Metals Analysis							
Lead		EPA 6010D	**11.4**	5.85	mg/kg	01/31/24	DM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Washoe County School District (4991)
Address: 7495 S. Virginia Street
Reno, NV 89511

Attn:

Project:
Location: 020 Nut Services Kitchen
Number:

Order #: 548468

Matrix Paint
Received 01/29/24
Reported 01/31/24

PO Number: PO131616

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
548468-022	020-4024-13497	Cnt Space On Pipe					
Metals Analysis							
Lead		EPA 6010D	**561**	14.1	mg/kg	01/31/24	DM
Sample weight below methods guidelines; results are accurate for weight provided.							
548468-023	020-4024-13498	E Side N End Pipe					
Metals Analysis							
Lead		EPA 6010D	**36.9**	9.05	mg/kg	01/31/24	DM
548468-024	020-4024-13499	E Side S End Boil					
Metals Analysis							
Lead		EPA 6010D	**254**	12.2	mg/kg	01/31/24	DM
Sample weight below methods guidelines; results are accurate for weight provided.							
548468-025	020-4024-13500	N Side Cnt Wall					
Metals Analysis							
Lead		EPA 6010D	**<6.65**	6.64	mg/kg	01/31/24	DM
548468-026	020-4024-13501	W Side Cnt Wall					
Metals Analysis							
Lead		EPA 6010D	**<5.99**	5.99	mg/kg	01/31/24	DM
548468-027	020-4024-13502	E Side S End@Louver					
Metals Analysis							
Lead		EPA 6010D	**<6.52**	6.51	mg/kg	01/31/24	DM
548468-028	020-4024-13503	W Side S End Tank					
Metals Analysis							
Lead		EPA 6010D	**<11.8**	11.8	mg/kg	01/31/24	DM
Sample weight below methods guidelines; results are accurate for weight provided.							
548468-029	020-4024-13504	W Side S End Tank					
Metals Analysis							
Lead		EPA 6010D	**<7.44**	7.43	mg/kg	01/31/24	DM
548468-030	020-4024-13505	W Side S End Tank					
Metals Analysis							
Lead		EPA 6010D	**<8.93**	8.93	mg/kg	01/31/24	DM
548468-031	020-4024-13506	E Tank W Side Cnt					
Metals Analysis							
Lead		EPA 6010D	**40.3**	8.33	mg/kg	01/31/24	DM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Washoe County School District (4991)
Address: 7495 S. Virginia Street
Reno, NV 89511

Attn:

Project:
Location: 020 Nut Services Kitchen
Number:

Order #: 548468

Matrix Paint
Received 01/29/24
Reported 01/31/24

PO Number: PO131616

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
548468-032	020-4024-13507	E Tank W Side Cnt					
Metals Analysis							
Lead		EPA 6010D	**<17.0**	16.9	mg/kg	01/31/24	DM
Sample weight below methods guidelines; results are accurate for weight provided.							
548468-033	020-4024-13508	W Tank W Side Enter					
Metals Analysis							
Lead		EPA 6010D	**30.9**	6.56	mg/kg	01/31/24	DM

548468-01/31/24 05:52 PM

Reviewed By: **Kelly Muncy**
Manager

State Certifications

Method	Parameter	Nevada	Virginia
EPA 6010D	Lead	Not Certified	VELAP Certified

State	Certificate Number
Virginia	VELAP 12664

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Charge to C. C.

WCSD LEAD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Turn Around Time: Rush-Same Day, 1 Day, 2 Day, 3 Day, 5 Day

Instructions: Email results to the ESA Department. In addition, produce a separate report for each facility. A new prefix number on a sample identifies a new site. ACCT. #4991

Analysis Type: ICP **Date Sampled: 1/24/2024** **Facility: 020 - Nut. Services Kitchen**

SAMPLE #	ITEM DESCRIPTION	SUBSTRATE	COLOR	ROOM
020PB - 4024 - 13476	East side, south end on siding.	Metal	White	Exterior
020PB - 4024 - 13477	East side, south end on louver.	Metal	White	Exterior
020PB - 4024 - 13478	East side, south end on louver.	Metal	White	Exterior
020PB - 4024 - 13479	(North Boiler) Northwest corner.	Metal	Blue	22
020PB - 4024 - 13480	(South Boiler) Northwest corner.	Metal	Blue	22
020PB - 4024 - 13481	(North Boiler) Southside Center.	Metal	Blue	22
020PB - 4024 - 13482	South side, center @ doors of unit.	Metal	Dark Blue	22
020PB - 4024 - 13483	South side, center @ doors of unit.	Metal	Dark Blue	22

SENT BY: Brian Priest **DATE/TIME:** 1-29-24 7:20 AM

RECEIVED BY: [signature] **DATE/TIME:** 1-29-24 10:20a

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Charge to C.C.

WCSD LEAD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Turn Around Time: **Rush-Same Day,** **1 Day,** **2 Day,** **3 Day,** **5 Day**

Instructions: Email results to the ESA Department. In addition, produce a separate report for each facility. A new prefix number on a sample identifies a new site. ACCT. #4991

Analysis Type: ICP **Date Sampled: 1/24/2024** **Facility: 020 - Nut. Services Kitchen**

SAMPLE #	ITEM DESCRIPTION	SUBSTRATE	COLOR	ROOM
020PB - 4024 - 13484	South side, center @ doors of unit.	Metal	Dark Blue	22
020PB - 4024 - 13485	Southeast corner on tank.	Metal	White	22
020PB - 4024 - 13486	Southeast corner on tank.	Metal	White	22
020PB - 4024 - 13487	Southeast corner on tank.	Metal	White	22
020PB - 4024 - 13488	East side, center of ceiling.	FCP	White	16
020PB - 4024 - 13489	East side, North end of ceiling.	FCP	White	16
020PB - 4024 - 13490	North side, East end of ceiling.	FCP	White	16
020PB - 4024 - 13491	North side, West end on wall.	Sheetrock	Green	16

SENT BY: Brian Priest **DATE/TIME:** 1-29-24 7:20 AM

RECEIVED BY: [signature] **DATE/TIME:** 1-29-24 10:30 am

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Charge to C.C.

WCSD LEAD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Turn Around Time: **Rush-Same Day, 1 Day, 2 Day, (3 Day), 5 Day**

Instructions: Email results to the ESA Department. In addition, produce a separate report for each facility. A new prefix number on a sample identifies a new site. ACCT. #4991

Analysis Type: (ICP) **Date Sampled: 1/24/2024** **Facility: 020 - Nut. Services Kitchen**

SAMPLE #	ITEM DESCRIPTION	SUBSTRATE	COLOR	ROOM
020PB - 4024 - 13492	East side, North end on wall.	Sheetrock	Green	16
020PB - 4024 - 13493	North side, East end on wall.	Sheetrock	Green	16
020PB - 4024 - 13494	East side, South end of frame.	Metal	Blue	Exterior
020PB - 4024 - 13495	East side, South end of frame.	Metal	Blue	Exterior
020PB - 4024 - 13496	East side, South end of frame.	Metal	Blue	Exterior
020PB - 4024 - 13497	Center of space on pipe.	Metal	Black	22
020PB - 4024 - 13498	East side, North end on pipe.	Metal	Black	22
020PB - 4024 - 13499	East side, South end in between boilers on pipe.	Metal	Black	22

SENT BY: Brian Priest **DATE/TIME:** 1-29-24 7:20 AM

RECEIVED BY: [signature] **DATE/TIME:** 1-29-24 [illegible]

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Charge to C.C.

WCSD LEAD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number: 775-325-8491** **Fax Number: 775-851-5662**

Analysis Turn Around Time: Rush-Same Day, 1 Day, 2 Day, 3 Day, 5 Day

Instructions: Email results to the ESA Department. In addition, produce a separate report for each facility. A new prefix number on a sample identifies a new site. ACCT. #4991

Analysis Type: ICP **Date Sampled: 1/24/2024** **Facility: 020 - Nut. Services Kitchen**

SAMPLE #	ITEM DESCRIPTION	SUBSTRATE	COLOR	ROOM
020PB - 4024 - 13500	North side, center on wall.	Sheetrock	Light Grey	23
020PB - 4024 - 13501	West side, center on wall.	Sheetrock	Light Grey	22
020PB - 4024 - 13502	East side, South end @ louver on wall.	Sheetrock	Light Grey	22
020PB - 4024 - 13503	West side, South end on tank.	Metal	Grey	22
020PB - 4024 - 13504	West side, South end on tank.	Metal	Grey	22
020PB - 4024 - 13505	West side, South end on tank.	Metal	Grey	22
020PB - 4024 - 13506	(East Tank) West side, center.	Metal	Light Grey	22
020PB - 4024 - 13507	(East Tank) West side, center.	Metal	Light Grey	22

SENT BY: Brian Priest **DATE/TIME:** 1-29-24 7:20 AM

RECEIVED BY: [signature] **DATE/TIME:** 1-29-24 10:36 am

RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Charge to C.C.

WCSD LEAD BULK SAMPLE CHAIN OF CUSTODY FORM

Requested By: John Nolan **Phone Number:** 775-325-8491 **Fax Number:** 775-851-5662

Analysis Turn Around Time: Rush-Same Day, 1 Day, 2 Day, (3 Day), 5 Day

Instructions: Email results to the ESA Department. In addition, produce a separate report for each facility. A new prefix number on a sample identifies a new site. ACCT. #4991

Analysis Type: (ICP) **Date Sampled:** 1/24/2024 **Facility:** 020 - Nut. Services Kitchen

SAMPLE #	ITEM DESCRIPTION	SUBSTRATE	COLOR	ROOM
020PB - 4024 - 13508	(West Tank) West Side enter.	Metal	Light Grey	22

SENT BY: Brian Priest **DATE/TIME:** 1-29-24 7:20 AM

RECEIVED BY: [signature] **DATE/TIME:** 1-29-24 10:20a

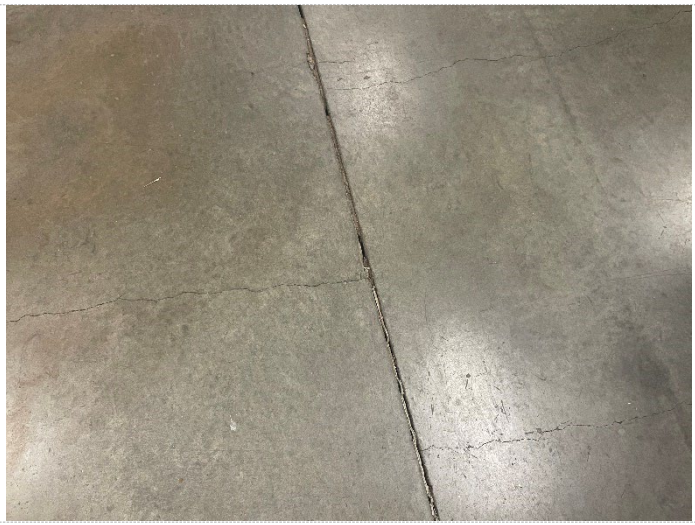
RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**

Appendix C
Site Photographs



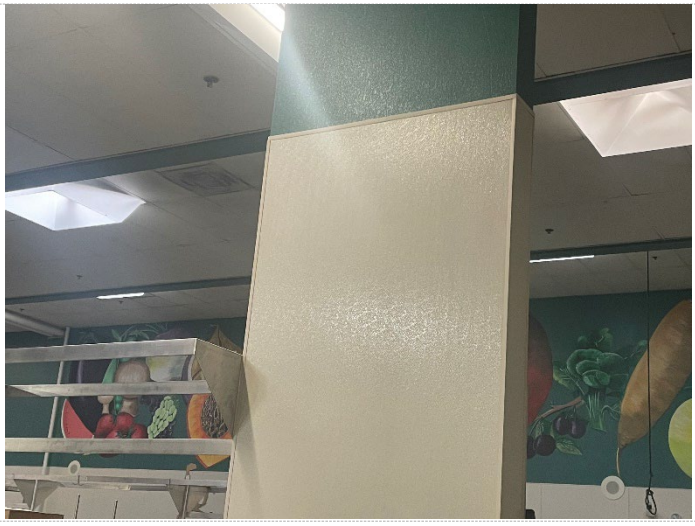
White Paint on Metal Tank – Sample Location



Concrete
Concrete Expanstion Joint



Epoxy Flooring



FRP & Glue
Drywall Medium Texture
Green Paint on Drywall Wall



FCP – 2'x4' Smooth Texture
White Paint on FCP Ceiling



White Paint on Metal Siding
White Paint on Metal Louver
Blue Paint on Metal Frame



White Sealant



Assumed Asbestos Containing Boiler
Blue Paint on Metal Boiler



Black Paint on Metal Pole



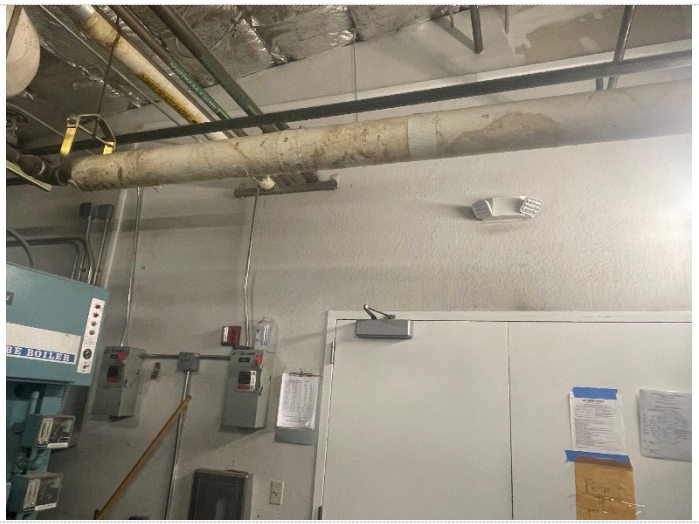
Drywall Knockdown Texture



Dark Blue Paint on Metal Unit – Sample Location



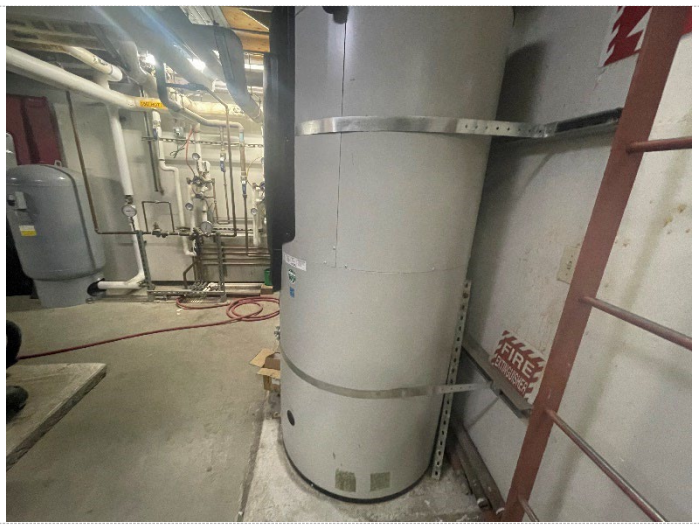
8” Fiberglass TSI



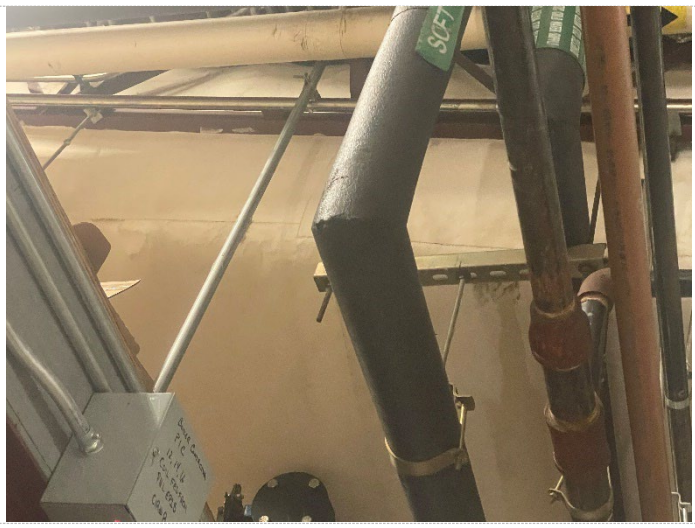
6” Fiberglass TSI
2” Fiberglass TSI



Light Grey Paint on Metal Tank



Light Grey Paint on Metal Tank – Sample Location



6” Black Foam TSI



Grey Paint on Metal Tank



Red Floor Mat & Glue



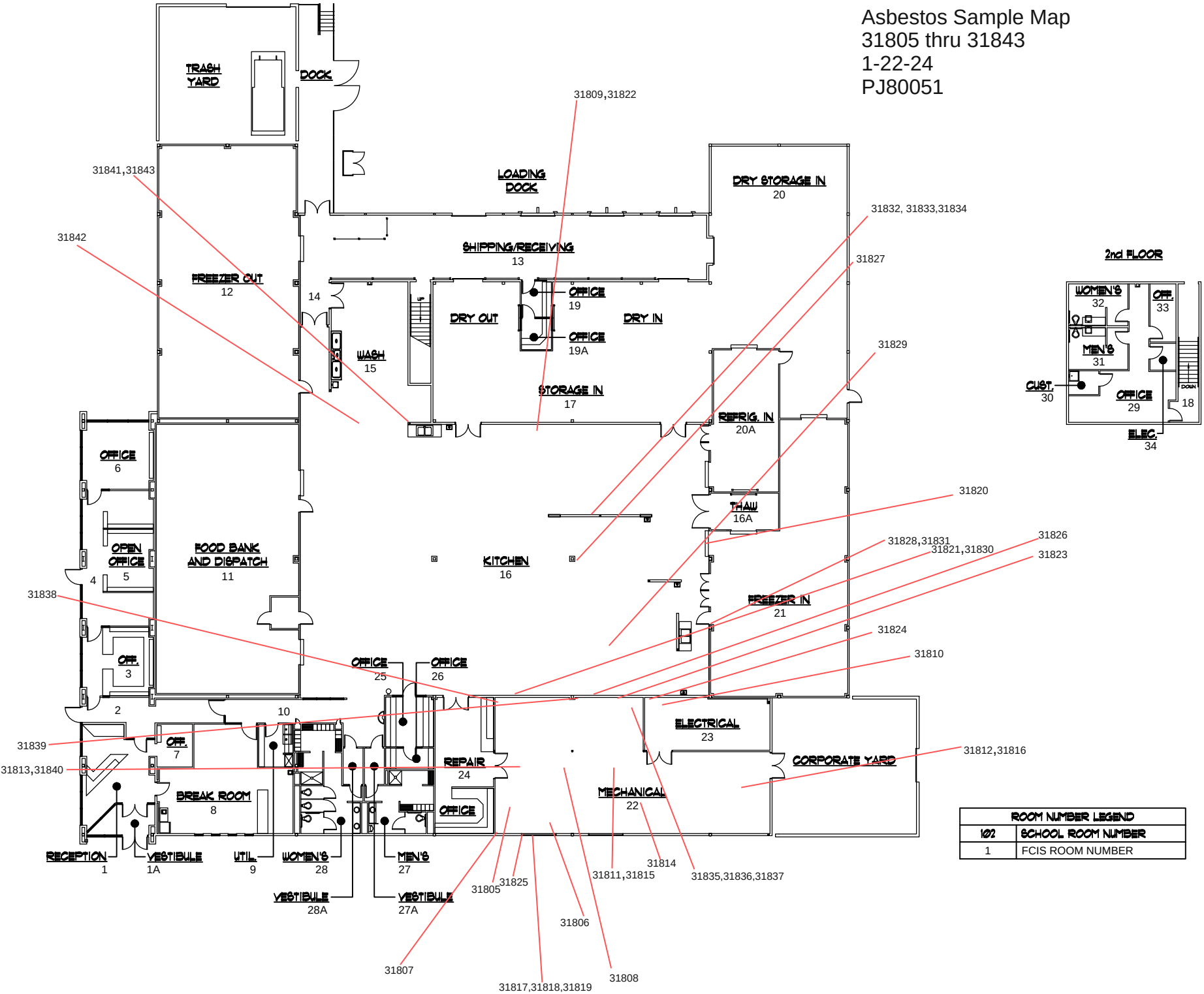
Duct Mastic – Grey



Duct Mastic – Silver

Appendix D
Sample Location Drawings

Asbestos Sample Map
31805 thru 31843
1-22-24
PJ80051



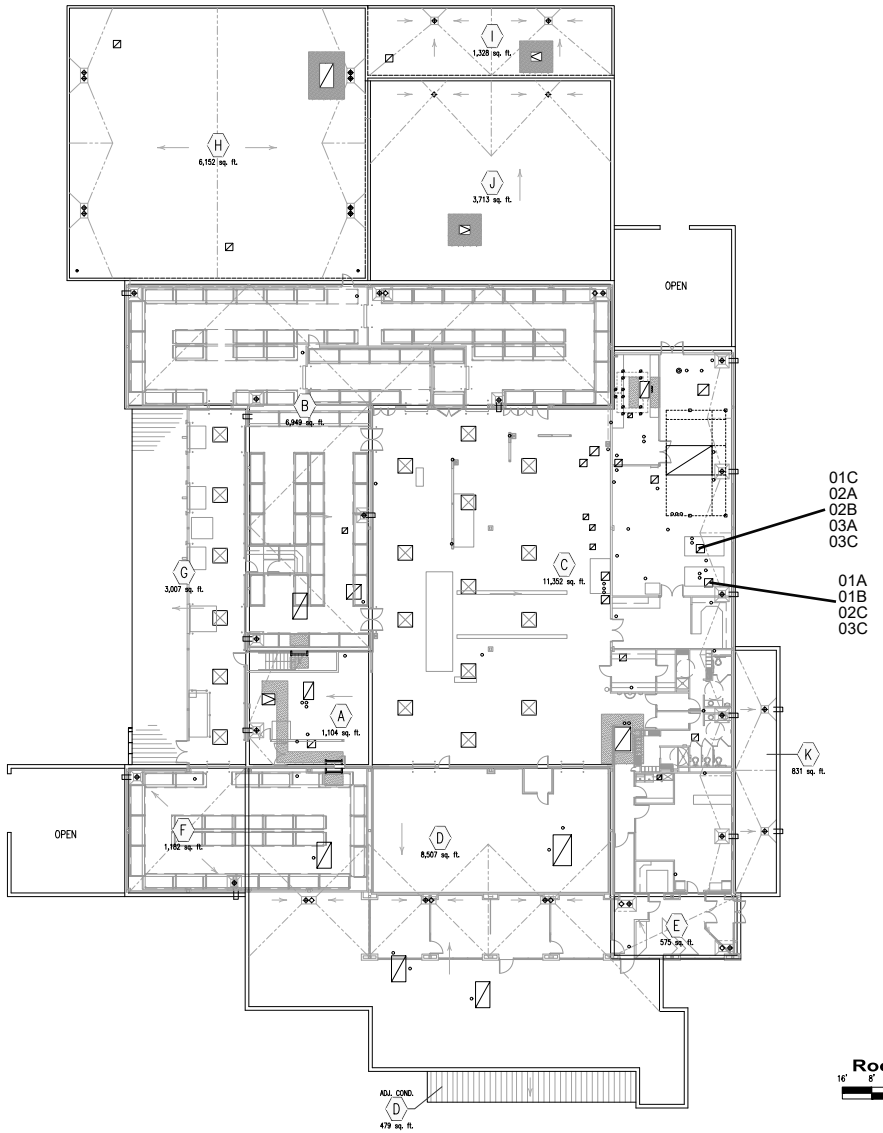
ROOM NUMBER LEGEND	
102	SCHOOL ROOM NUMBER
1	FCIS ROOM NUMBER

NUTRITION SERVICES - FCIS ROOM NUMBER REFERENCE FLOOR PLAN

N.T.S.

Roof Samples
January 22, 2024

Roof Section	Size (Sq. Ft.)	Roof System	Roof Membrane	Year Installed	Manufacturer	Mfgr Warranty Expires	Mfgr Warranty Phone	Contractor	Contractor Warranty Expires	Contractor Warranty Phone	Estimated Replacement
A, B, C, E and F (YR 2016 CU)	21,162	Single-ply	PVC	2016	Sika Sarnafil, Inc.	–	(800) 451-2504	Western Single Ply	–	–	11+ years
D and K (YR 2020 CU)	9,817	Single-ply	PVC	2020	Sika Sarnafil, Inc.	–	(800) 451-2504	Alpine Roofing	–	–	11+ years
G (YR 2014 RI)	3,007	Metal	Coated steel	1996	Unknown	–	–	Unknown	–	–	11+ years
H and I (2018 Expansion)	7,480	Single-ply	PVC	2018	Sika Sarnafil, Inc.	01/25/2039	(800) 451-2504	Alpine Roofing	–	–	11+ years
J (2015 Expansion)	3,713	–	–	2016	Sika Sarnafil, Inc.	–	–	–	–	–	11+ years



SYMBOL LEGEND

- PARAPET WALL
- METAL EDGE
- SCUPPER
- PITCH PAN
- PIPE PENETRATION
- FLANGED PENETRATION
- ROOF DRAIN
- OVERFLOW DRAIN
- ROOF CURB
- ELEVATED UNIT/EQUIPMENT
- ROOF HATCH
- OBSOLETE HARDWARE
- LADDER
- SUPPORT LEGS
- METAL ROOF
- SKYLIGHT
- PIPING ON SUPPORTS
- CRICKET/SADDLE
- WALKWAY PROTECTION
- SLOPE DIRECTION
- ROOF SECTION

Roof Plan

16' 8' 0 16'

DRAWING RECORD

REV. NO.	DESCRIPTION	DATE	BY
219A	2014 REINSPECTION/OVERLAY PLAN	08/30/14	MW/PM
230C	2016 CU PLAN - SECTIONS A, B, C, E, & F	02/15/17	TB/TM
280C	2018 CU PLAN - SECTIONS H & I	11/07/18	MW/DA
282C	2020 CU PLAN - SECTIONS D & K	01/06/21	TBD/A

ISSUED
ISSUED BY: T. BOSTON
PROJECT MGR: O. ALMEDA
DRAWN BY:
CHECKED BY:
PROJECT NO: 4910402020CU00.dwg

Benchmark INC
CEDAR RAPIDS, IA • WAUKESHA, WI
Phone: 319.393.9100
www.benchmarkcu.com

CLIENT: WASHOE COUNTY SCHOOL DISTRICT
PROJECT: 020 - NUTRITION SERVICES CENTER
SIE SPICE ISLANDS COURT
SPARKS, NEVADA
DRAWING TITLE: 2020 CONSTRUCTION UPDATE PLAN

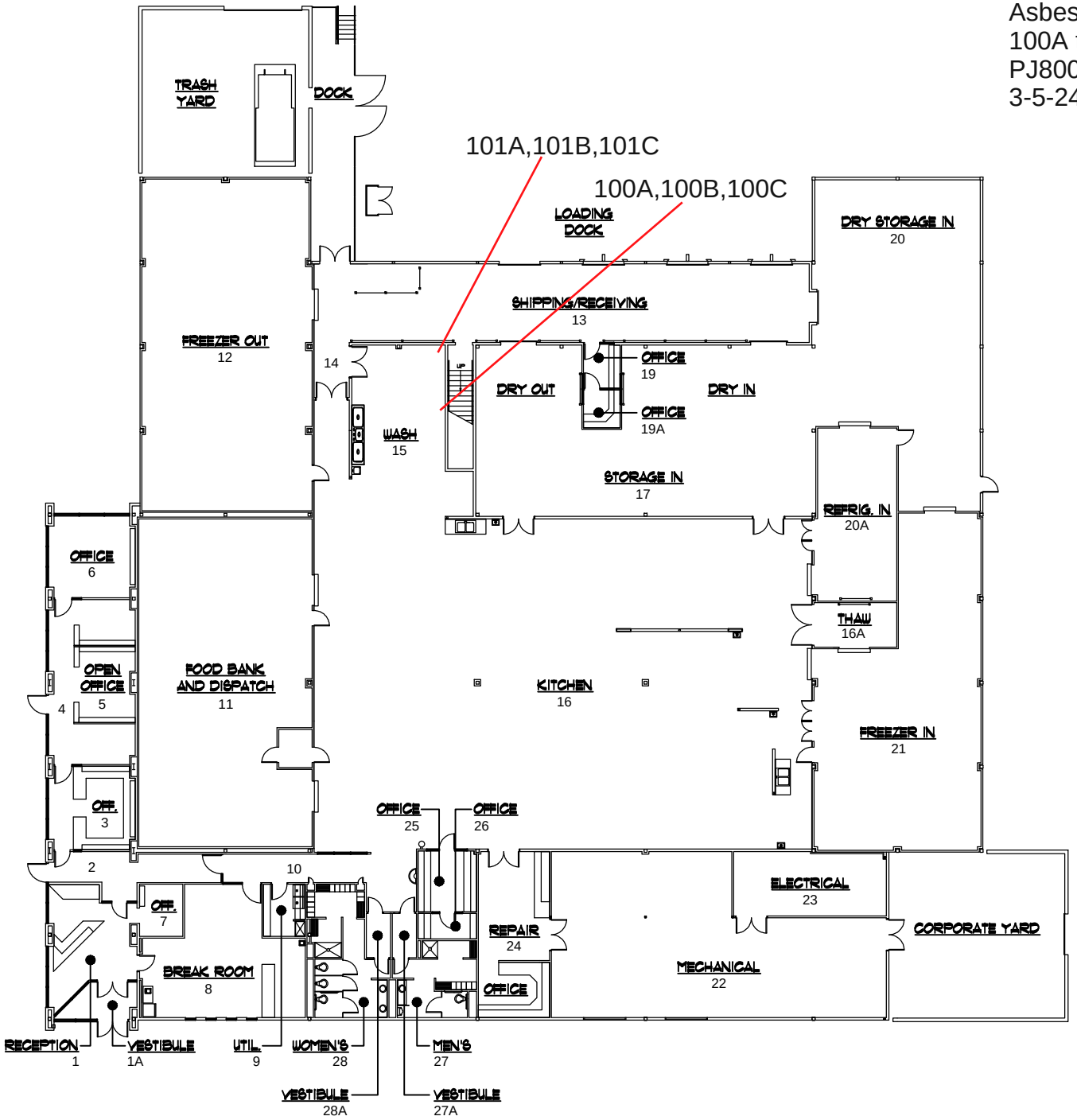
CLIENT PROJECT NUMBER:

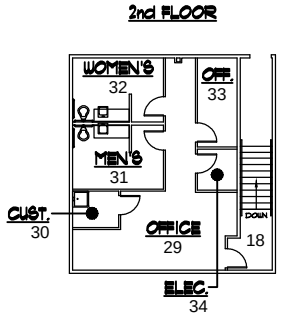
SHEET NUMBER: R-1

ORIGINAL SHEET SIZE: 36 x 24

File: J:\Washoe County School District_WCS\Sparks-NV_1\9WA50020\9CB2C\DWG\19WA50020\9CB2C0009.dwg Time: Jan 07, 2021 – 8:47am

Asbestos Sample Map
100A thru 101C
PJ80051
3-5-24



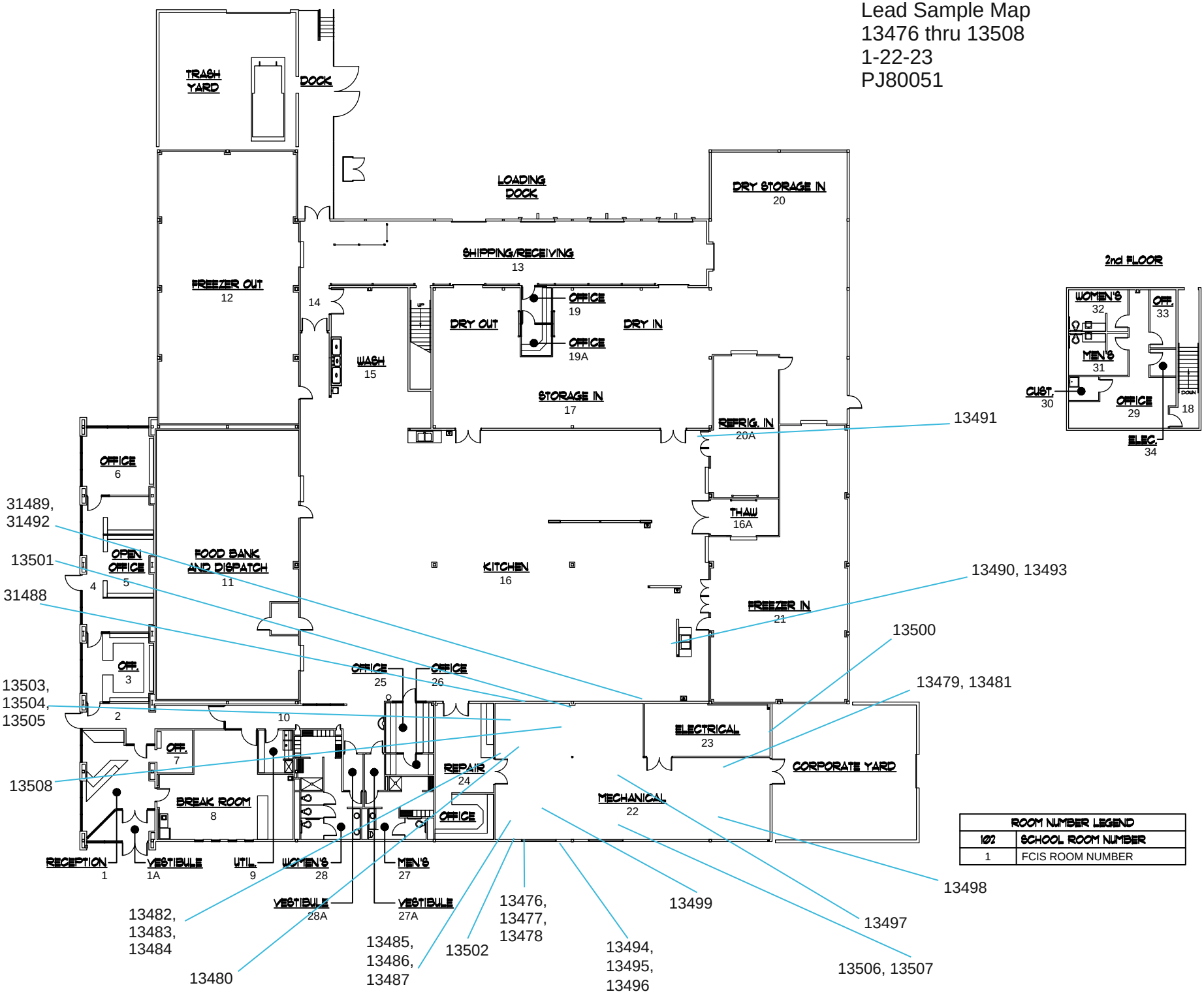


ROOM NUMBER LEGEND	
102	SCHOOL ROOM NUMBER
1	FCIS ROOM NUMBER

NUTRITION SERVICES - FCIS ROOM NUMBER REFERENCE FLOOR PLAN

N.T.S.

Lead Sample Map
13476 thru 13508
1-22-23
PJ80051



ROOM NUMBER LEGEND	
102	SCHOOL ROOM NUMBER
1	FCIS ROOM NUMBER

NUTRITION SERVICES - FCIS ROOM NUMBER REFERENCE FLOOR PLAN

N.T.S.

Appendix E
Certifications of Personnel and Laboratories

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That Daniel Prado

Forensic Analytical Consulting Services

is Licensed As Asbestos Abatement Consultant

License No. IJPM-2057 Expiration Date 09/05/2024

Signature Of Licensee _____

Forensic Analytical Consulting Services, Inc.

This is to confirm that

Daniel Prado

Has attended the four-hour

AHERA Refresher Course for Asbestos Inspectors

And has completed the requisite training for

asbestos accreditation under TSCA Title II

September 05, 2023

Certificate Number: FACSBIR1523

Valid Until: 9/05/24

Cal/OSHA Approval Number: CA-025-06

FACS
Forensic Analytical Consulting Services

Fred J. Vinciguerra, Chief Executive Officer
Forensic Analytical Consulting Services,Inc.
21228 Cabot Blvd, Hayward, CA 94545
(800) 677-1483

United States Environmental Protection Agency

This is to certify that



Daniel J Prado

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires May 01, 2026

LBP-R-I214705-2

Certification #

February 28, 2023

Issued On

Adrienne Priselac, Manager, Toxics Office

Land Division

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That Zachary Ramos
Forensic Analytical Consulting Services
is Licensed As Asbestos Abatement Consultant

License No. IJM-2341 Expiration Date 05/17/2024

Signature Of Licensee _____

Forensic Analytical Consulting Services, Inc.

This is to confirm that

Zachary Ramos

Has attended the four-hour

AHERA Refresher Course for Asbestos Inspectors

And has completed the requisite training for

asbestos accreditation under TSCA Title II

September 05, 2023

Certificate Number: FACSBIR1520

Valid Until: 9/05/24

Cal/OSHA Approval Number: CA-025-06

FACS
Forensic Analytical Consulting Services

Fred J. Vinciguerra, Chief Executive Officer
Forensic Analytical Consulting Services,Inc.
21228 Cabot Blvd, Hayward, CA 94545
(800) 677-1483

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That Ryan Hettich
Forensic Analytical Consulting Services
is Licensed As Asbestos Abatement Consultant

License No. IJM-2342 Expiration Date 05/17/2024

Signature Of Licensee Ryan Hettich

Forensic Analytical Consulting Services, Inc.

This is to confirm that

Ryan Hettich

Has attended the four-hour

AHERA Refresher Course for Asbestos Inspectors

And has completed the requisite training for

asbestos accreditation under TSCA Title II

September 05, 2023

Certificate Number: FACSBIR1521

Valid Until: 9/05/24

Cal/OSHA Approval Number: CA-025-06

FACS
Forensic Analytical Consulting Services

Fred J. Vinciguerra, Chief Executive Officer
Forensic Analytical Consulting Services,Inc.
21228 Cabot Blvd, Hayward, CA 94545
(800) 677-1483

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That Patricia Galtieri

Forensic Analytical Consulting Services,

is Licensed As An Asbestos Abatement Consultant

License No. M-2395 Expiration Date 05/26/2024

Trainee

Signature Of Licensee Patricia Galtieri

Forensic Analytical Consulting Services, Inc.

This is to confirm that

Patricia Galtieri

Has attended the twenty-four hour

AHERA Initial Course for Asbestos Inspectors

And has completed the requisite training and passed the exam for

asbestos accreditation under TSCA Title II

June 12 - June 14, 2023

Certificate Number: FACSBII256
Valid Until: June 14, 2024

Cal/OSHA Approval Number: CA-025-05

FACS
Forensic Analytical
Consulting Services

Fred J. Vinciguerra, Chief Executive Officer
Forensic Analytical Consulting Services, Inc.
21228 Cabot Blvd. Hayward, CA 94545
(800) 677-1483

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101150-0

Schneider Laboratories Global, Inc.

Richmond, VA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2023-04-01 through 2024-03-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101459-0

SGS Forensic Laboratories

Hayward, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2023-07-01 through 2024-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Schneider Laboratories Global

2512 West Cary Street, Richmond, VA 23220-5117

Laboratory ID: LAP-100527

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs, LLC (AIHA LAP) accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

☑	**INDUSTRIAL HYGIENE**	Accreditation Expires: August 01, 2025
☑	**ENVIRONMENTAL LEAD**	Accreditation Expires: August 01, 2025
☑	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: August 01, 2025
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:
☐	**BERYLLIUM FIELD/MOBILE**	Accreditation Expires:

Specific Field(s) of Testing/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP website (www.aihaaccreditedlabs.org) for the most current Scope.

Cheryl O. Morton

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision21: 05/15/2023

Date Issued: 08/01/2023

Right People

Right Perspective

Right Now

www.forensicanalytical.com

ASBESTOS ABATEMENT TECHNICAL SPECIFICATIONS – EFFECTIVE 1/25/23

PART 1 – GENERAL REQUIREMENTS

1.1 LOCATION

This asbestos abatement is to take place at: Nutrition Services Center, Boiler Removal, Issued 10/20/25

1.2 DESCRIPTION

The work shall include the furnishing of all labor, tools, and equipment, material, transportation, ALL waste disposal fees and services to include waste characterization sampling costs and the performance of all operations required to properly provide the work. The Contractor will be supervised by District AHERA certified personnel or District Hired Asbestos Consultants and the abatement work will be coordinated through the Regulated Systems and Assessment department. The work shall also include obtaining required permits and notifying regulating agencies as required by all applicable state, local and federal laws and regulations for the work to be performed. Notification fees and disposal manifest fees are to be paid by the Contractor. Contractors are reminded that non-friable asbestos projects may not require regulatory notification, but non-friable materials that have been made friable in the opinion of the regulatory agency require notification. Mastics removed with buffers require notification. It is the responsibility of the Contractor to determine if regulatory notification is required and any monetary citations that result from failure to notify or improperly done notifications will be fully the responsibility of the Contractor. Should the District be named in addition to the contractor, due to a Contractors failure or improper notification, the contractor shall be required to reimburse legal fees to defend the District, as well as the cost of any monetary citation that results. The work shall also include the cleanup and removal from the site of all debris resulting from the operations performed. Waste disposal of all materials removed from the site shall be performed in a manner consistent with these specifications and all applicable regulations and the Contractor is required to complete properly and pay for all waste characterization sampling costs. The Contractor shall be responsible for submitting the application for the waste disposal permit and the contractor will be responsible for the picking up and the payment of the fee for the permit. The Contractor will submit the waste application to the District prior to submittal to the Health Department for signature. It shall also be the Contractors responsibility to take all necessary safety precautions and to furnish security barricades, and/or any safety measures as may be required to properly separate the abatement areas from the public. All taxes/fees associated with the disposal of asbestos containing wastes, regulated or not, shall be the responsibility of the abatement contractor.

As the District may decide to pay a third party consultant to supervise projects, the District would have to pay the consultant additional money or pay overtime to district employees for weekend and overtime work. The work schedule of this project will be set by the Construction Department Project Manager. If the contractor must work additional time or hours not identified in the initial schedule, due to the contactors inability to man the job with enough workers, the District may require the contractor to reimburse the district for additional costs for consultants incurred by the District. **The Contractor will be required to staff this project with enough personnel to ensure completion within the required timeline.** The Contractor shall provide at all times sufficient and competent labor to carry on the work

properly and insure completion of each part in accordance with schedule and within the time agreed to. An employee of the Contractor or subcontractor, who is deemed incompetent, disorderly, or otherwise objectionable by the Owner, shall be removed promptly by the Contractor, and not re-employed on the work. Any employee of the Contractor that is observed that is not utilizing his personal protective equipment will be immediately removed from a project and not allowed on any other District projects. Should any disagreements result regarding the identification of the employee or his/her proper use of personal protective equipment, the determination of the District Regulated Systems Supervisor or District hired Consultant will be considered final and conclusive. The Contractors Asbestos Abatement Supervisors who allow employees to not utilize their personal protective equipment will be immediately removed from a project and not allowed on any other District projects. Contractors will be required to replace removed employees/Supervisors and no additional time will be allowed to complete the project.

When possible without the disturbance of asbestos-containing materials, it shall be the responsibility of the **OWNER** to remove and replace all loose and attached furniture, cabinets, bookcases, etc. before the project commences. The removal of these items, where removal impacts asbestos-containing materials, and re-hanging of doors that have to be removed because they impede removal will be the responsibility of the contractor.

The **OWNER** will be responsible for air sampling for the purpose of project clearance. The Contractor shall not include the cost associated with clearance sampling in his bid. The Contractor shall be responsible for all personal and area air monitoring required by regulation, the technical specifications or required by the Contractor's asbestos liability insurance carrier.

The **OWNER** shall be responsible for the cost associated with the initial air sample clearance requirements. If the initial sample analysis results do not pass for clearance, the Contractor will be responsible for the cost of all additional air sample analysis until clearance is achieved.
In the case that a project requires the isolation of toilet facilities it shall be the responsibility of the Contractor to provide alternative facilities as needed, if no alternative facilities are available on-site. If the Contractor utilizes District toilet facilities, the Contractor will be required to maintain the cleanliness of the designated District toilet facilities.

The contractor will be required to assign enough personnel and equipment to complete all projects scheduled for completion during each site's normal work hours. Costs to provide access to facilities after normal work hours, due to a Contractors inability to meet the schedule during normal hours will be passed on to the Contractor and deducted from a project's final payment.

There may be supplemental asbestos abatement specifications created by an outside asbestos consultant and provided to the Contractor to provide additional information. The Contractor must refer to all specifications provided in the bid package, and comply with all specification requirements. If there are any conflicts regarding asbestos abatement specification requirements, Contractors are required to comply with the most stringent requirement. Conflicts/disagreements regarding specification requirements will be settled based upon direction from the WCSD ES&A Department AHERA Project Designer certified staff.

1.3 EQUIPMENT

If requested the Contractor shall provide proof acceptable to the District that Contractors has disposal is enough equipment to support this project. Delays of up to 48 hours are to be anticipated for TEM Laboratory analysis result turnaround and abatement project schedule will reflect this delay. Additional equipment needs may result and the Contractor will be required to have enough equipment to proceed with work as schedule in spite of delays in awaiting final clearance sampling.

1.4 ASBESTOS LIABILITY INSURANCE REQUIREMENTS

The Contractor will be required to written proof by way of an insurance certificate of a minimum of Five Million Dollar ($5,000,000.) Occurrence Based Asbestos Environmental Risk Liability Insurance from a domestic Insurance company that has an A, A+ or A++ rating in Best's Insurance Guide, OAE. The Asbestos Abatement Contractor shall name the WCSD additionally insured on a primary and non-contributory basis for the contract term as well as any asbestos consultants the District may hire for job design and/or supervision and shall provide an insurance certificate specifically naming them as additionally insured, primary and stating that the policy cannot be cancelled in less than 30 days for any reason including non-payment.

1.5 LOCK OUT/TAG OUT PROGRAM

The Contractor will be required to comply with the Districts Lock Out/Tag out procedures. Requirements are available to contacting the WCSD safety officer.

1.6 WORK HOURS

The work schedule of this project will be set by the Construction Department Project Manager. Contractor must determine the work hours by reviewing the other contract documents and specifications or address these issues with the Project Manager so all Contractors are clear of the required abatement schedule prior to bidding on this project. These asbestos abatement specifications are not meant to set work hours or schedules rather the procedures to be used to abate asbestos containing materials within the district. The WCSD, ES&A department will be the entity ensuring the abatement specification are being properly being addressed by Contractors but the day to day scheduling and project specifics, not related to abatement procedures, will be administered by the Construction Department of WCSD.

SECTION 02110

ASBESTOS ABATEMENT: GENERAL

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. These specifications cover the removal of specific types of asbestos containing material for the Washoe County School District. Refer to the project drawing for exact abatement information and locations. The work may include the abatement of asbestos containing material (ACM) on floors. New flooring materials will be installed over abatement areas so mastic removal techniques employed by the abatement contractor are to be done so that installed flooring products are able to be warranted by the flooring manufactures. If the abatement contractor is being hired by a flooring contractor the abatement contractor must consult the flooring installer and ensure their employed removal techniques do not void any warranties for new installed products. It is quite possible that chemical mastic removers may not be able to be utilized to achieve this requirement. No power tools may be used to remove asbestos containing materials unless approved by the District and the applicable regulatory authority. All carpeting in the areas shall be removed and disposed of as ACM, as directed by the District. Work will require use of a negative air pressure system and depending upon personal air sampling may require Type "C" supplied air respirators. Transmission Electron Microscopy (TEM) or Phase Contrast Microscopy (PCM) will be used by the District to establish final airborne asbestos levels prior to acceptance of the work by the District; final levels of airborne asbestos fibers at the completion of the work shall be in accordance with AHERA Regulations (40 CFR Part 763).

B. Polished Concrete and Concrete Grinding: The district may be grinding and or polishing concrete in scheduled areas after a flooring asbestos abatement project has been completed. In cases that polished concrete will be a part of the scope, **or concrete grinding will be required after abatemen**t, Contractors will **not** be allowed to utilize solvent mastic removers or any other method that liquefies the matrix of the mastic which could contribute to the mastic entering into cracks, and pores of the concrete. The exception to this would be the use of a fully HEPA vacuum shrouded techniques, such as water jet or hydro blasting. The intent of this requirement is that all mastic will be removed and no liquefied mastics will remain at the conclusion of work. If grinding of the concrete is required, it will happen after the final asbestos air clearance has passed and the asbestos abatement is complete. The poly containment that has been built, during the asbestos abatement phase, might be very helpful and cost effective if it were left in place for the concrete grinding contractor to use. So once the final clearance and abatement contractor has removed all signage, asbestos contaminated materials and the negative pressure machines, the grinding contractor may want to make arrangements with the abatement contractor to leave the poly containment up. All arrangements regarding the logistics of this agreement are up to the contractors' responsibility to determine. Contractors performing concrete grinding will be required to comply with District specifications regarding silica exposure during the grinding phase.

C. INTENT

1. These specifications are intended to describe all material, labor, and equipment necessary for asbestos material removal.

2. The listing or mention of any method of installation, erection, fabrication, or workmanship shall not operate to make the Contractor an agent, but shall be for the sole purpose of setting a standard of quality for the finished work; an alternate method may be approved in writing by the District if it results in quality equal to that intended by these documents, without increasing the District's liability. Unless an alternate method is approved, all work shall be in strict accordance with all methods of installation, erection, fabrication, and ownership listed or mentioned herein. In addition, while the methods are provided, the Contractor will be required to ensure any method utilized complied with all applicable regulations.

3. It is the responsibility of the Contractor to verify the square footage of asbestos containing material that needs to be removed on this project. The Contractor shall remove all asbestos-containing material from the areas as directed.

1.02 DESCRIPTION OF WORK

A. Furnish all labor, licenses, notifications, payment of notification and waste manifest fees, permits, materials, services, insurance, associated taxes, and equipment to complete and dispose of all asbestos containing materials and asbestos-contaminated material as directed by the District. Base cove materials inhibit the removal process and trap contaminated materials, therefore all removable base cove materials must be removed as a apart of the abatement process of flooring materials.

B. CORRELATION OF DRAWINGS AND SPECIFICATIONS

1. In general, the specifications will describe the "quality" of the work. The specifications are cooperative and supplementary; however, each item of work is not necessarily mentioned in the specifications. All work necessary to complete the projects so described is to be included in this Contract.

2. In case of disagreement within the specifications, the better quality of the work shall be estimated and the matter drawn to the District's attention for decision and/or adjustment. Any work done by the Contractor without consulting with the District, when the same requires a decision, shall be done at the Contractor's risk.

3. Omissions or Errors. If any omissions or errors in technical specifications are noted, or instructions at variance with the obvious intent of the document, it is the responsibility of the Contractor to call them to the District's attention before performing the work.

C. INTERPRETATION OF "OR EQUAL"

1. The use of trade names, with a notation such as "or equal" in these specifications is to establish quality required; there is no attempt to limit competitive bidding, but, in like manner, the quality specified will be rigidly maintained.

2. The words "approved", "equal to", "as directed". etc., are interpreted and will be taken to mean "to the satisfaction of the District."

D. UTILITIES (each of the following apply to this project as stated, unless otherwise noted in the project documents.)

1. Water - Existing service is available for the Contractor's use.

2. Electrical Service

   a. Existing service is available for the Contractor's use.

   b. The Contractor shall be responsible for furnishing necessary light bulbs, temporary lighting, temporary power stations, GFI outlets and extension cords as may be essential to the execution of their respective branches of the work. In addition, for extensions of lines to sheds or to power tools and remote areas which cannot be reached with extension cords.

   c. The Contractor shall be responsible for replacement cost of transformers, panels, circuit breakers and any other item of electrical equipment and installation thereof which is destroyed or broken as a result of or during the course of the Contractor's abatement activity.

3. Utility charges for electric power and water service will be paid by the Owner.

E. GUARANTEE

1. The Contractor shall, in case of work performed by his Subcontractors and where guarantees are required, secure warranties from said Subcontractors and deliver copies of same to the District upon completion of the work and prior to final retention payment.

2. All portions of the work shall also be maintained in perfect condition during this period. Such written guarantees as may be requested shall be submitted in duplicate at the completion of the work. These will be supplementary to and not in any way canceling specific guarantees which apply to various portions of the work.

3. If, in the Contractor's opinion, any work that is called for in the specifications in such a manner as to make it impossible for him to produce and guarantee a first-class piece of work, he shall refer the same to the District in a timely manner before proceeding.

1.03 DEFINITIONS

A. GENERAL TERMINOLOGY FOR ASBESTOS ABATEMENT

1. Owner - Washoe County School District, hereinafter referred to as the Owner, or the District, or the authorized representative of the Owner, or the District's consultant.

2. Authorized Visitor - Any visitor to the site whose visit has been authorized by the District.

3. Asbestos - The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. Materials are considered to contain asbestos if any amount of asbestos is present.

4. ACM - Asbestos-containing material(s).

5. Visible Asbestos - Visible Asbestos Containing Material

6. Abatement - Procedure to control fiber release from asbestos-containing building materials. Includes encapsulation, enclosure and removal.

7. Removal - All herein specified procedures necessary to strip all ACM from the designated areas and to dispose of these materials at an acceptable site. **The preferred method of removal of flooring material mastic is by wet method utilizing a chemical mastic remover.**

8. Work Area - A room or location in which ACM is indicated to be removed by this Contract.

9. Containment Area - A work area or zone which is prepared with plastic sheeting, barriers, negative air, etc., for asbestos abatement work.

10. Enclosure - All herein specified procedures necessary to completely enclose all ACM behind airtight, impermeable, permanent barriers.

11. Encapsulation - All herein specified procedures necessary to treat ACM with an encapsulant to control the possible release of asbestos fibers into the ambient air.

12. Encapsulant (Sealant) - A liquid material which can be applied to ACM and which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). Any encapsulant installed must be compatible with any new products that will installed over the encapsulate such as flooring products.

13. Air Monitoring (Air Sampling) - The process of measuring the fiber content of a specific volume of air in a stated period of time.

14. Area Monitoring - Air monitoring of fiber concentrations within the asbestos control area and outside the asbestos control area which is representative of the ambient airborne concentration of fibers.

15. Personal Monitoring - Air monitoring of fiber concentrations within the breathing zone of an employee.

16. HEPA Filter - A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of particles greater than 0.3 micron in size.

17. Negative Air Pressure System - A local exhaust system capable of maintaining a minimum pressure differential of minus 0.03 inch of water gauge in work area relative to adjacent areas. Documentation of negative air pressure is mandatory.

18. Negative Air Machine (NAM, "HOG") - A self-contained local exhaust machine utilized in a negative air pressure system. This equipment must use HEPA filters when used in asbestos work areas to collect and retain asbestos fibers.

19. HEPA Filter Equipment - Vacuuming equipment, which uses HEPA filters capable of collecting and retaining asbestos fibers. Filters shall be of 99.97% efficiency for retaining fibers of 0.3 micron or larger in size.

20. Surfactant - A chemical wetting agent added to water to improve penetration.

21. Amended Water - water to which a surfactant has been added.

22. Removal Encapsulate - a penetrating encapsulate specifically designed for removal of asbestos-containing materials rather than for on site encapsulation.

23. Chemical Remover - A pre-mixed chemical-penetrating agent designed specifically for removal of asbestos-containing material.

24. Airlock - A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways.

25. Curtained Doorway - Device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms

26. Decontamination Facilities - A series of connected rooms, with doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. The facility minimally consists of a clean room, a shower room, and an equipment room.

27. Clean Room - An uncontaminated area or room, which is part of the worker decontamination facility, with provisions for storage or workers' street clothes and clean or unused protective equipment.

28. Shower Room - A room between the clean room and the equipment room in the worker decontamination facility, with hot and cold running water, soap, shampoo, and suitably arranged for complete showering during decontamination.

29. Equipment Room - A contaminated area or room that is part of the worker decontamination facility, with provisions for storage of contaminated clothing and equipment.

30. Wet Cleaning - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.

31. Water Filtration System - A local water-filtering system capable of trapping and retaining 99.9% of asbestos fibers greater than 5 micron in size.

32. Fixed Object - A unit of equipment or furniture in the work area which is not removed from the work area. To include chalk boards, bulletin boards, TV stands etc.

33. Movable Object - A unit of equipment or furniture in the work area, which can be feasibly removed from the work area without disassembly.

34. MSDS - Material Safety Data Sheet - OSHA Form 20 or equivalent form containing health hazard information about chemical products.

35. NESHAPS - The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).

36. NIOSH - National Institute for Occupational Safety and Health.

37. OSHA - Occupational Safety and Health Administration.

38. EPA - Environmental Protection Agency.

39. ASTM - American Society for Testing and Materials.

40. ULI - Underwriters Laboratories, Inc.

41. Chemical Mastic Remover - A non-flammable solvent manufactured especially for the removal of mastic materials. **The flash point of the mastic remover used on District projects must be no less than 140 degrees Fahrenheit**.

PART 2 - APPLICABLE STANDARDS AND GUIDELINES

2.01 REFERENCE DOCUMENTS AND RESOURCES

A. All work covered by these regulations shall be performed in accordance with all applicable federal, state, and local regulations, standards, and codes governing asbestos abatement, transportation, and disposal. The current issue of each document shall govern. Where conflict among requirements or with these specifications, the more stringent requirements shall apply. Requirement shall include but not be limited to:

B. Department of Transportation

- Title 49 CFR 172 – Special Provisions, Hazardous Materials Communications, Emergency Response Information and Training requirements.
- Title 49 CFR 173 – General Requirements for Shipments and Packaging.

C. Environmental Protection Agency (EPA)

- Title 40 CFR, Part 763, Asbestos Containing Materials in Schools (AHERA)
- Title 40 CFR 61, Subparts A & M – National Emission Standard for Asbestos (Neshaps)
- Title 40 CFR, Part 763 – Revised Model Accreditation Plan

D. Federal Occupational Safety and Health Administration (OSHA)

- Title 29 CFR 1910.20 – Access to Employee Exposure and Medical Records
- Title 29 CFR 1910.38 – Emergency Procedures
- Title 29 CFR 1910.134 – Respiratory Protection
- Title 29 CFR 1926.20 – General Safety and Health Provisions
- Title 29 CFR 1926.21 – Safety Training and Education
- Title 29 CFR 1926.23 – First Aids
- Title 29 CFR 1926.24 – Fire Protection
- Title 29 CFR 1926.25 – Housekeeping
- Title 29 CFR 1926.28 – Personal Protective Equipment
- Title 29 CFR 1926.51(f) – Washing Facilities
- Title 29 CFR 1926.55 – Gases, Vapors, Fumes, Dusts, and Mists
- Title 29 CFR 1926.56 – Illumination
- Title 29 CFR 1926.57 – Ventilation
- Title 29 CFR 1926.59 – Hazard Communication Standard
- Title 29 CFR 1926.103 – Respiratory Protection
- Title 29 CFR 1926.300, 301, 302 – Hand and Power Tools
- Title 29 CFR 1926.451 – Scaffolding
- Title 29 CFR 1926.500, 502, 503 – Fall Protection
- Title 29 CFR 1926.1101 – Asbestos Standard for the Construction Industry

E. Nevada Division of Environmental Protection (NDEP)

- NAC 444.965 to 444.976 – Sanitation of Asbestos

F. Nevada Occupational Safety and Health Enforcement Section (OSHES)

- NAC 618.850 to 618.907 – Abatement of Asbestos, General Provisions
- NAC 618.910 to 618.948 – Abatement of Asbestos, Licensing and Accreditation to Perform Services
- NAC 618.950 to 618.962 – Abatement of Asbestos, Performance of Activities for Abatement
- NAC 618.970 to 618.986 – Abatement of Asbestos, Disciplinary Action

G. Washoe County District Health Department, Environmental Health Services Division. (WCHD)

- 030107A to 030.107C – District Board of Health Regulations Governing Air Quality Management (regarding asbestos)
- 030.184 to 030.185 - District Board of Health Regulations Governing Solid Waste Management

H. STATE AND LOCAL REQUIREMENTS

1. The Contractor shall comply with the State of Nevada, Division of Occupational Safety and Health Regulations for construction and handling of asbestos. All Contractor personnel will have the applicable Nevada OSHES card on their person at all times during the completion of the project. Personnel will be required to present the license to District personnel upon request. Personnel without their Nevada OSHES card, or with unreadable or mutilated cards, or expired cards will not be allowed to work on the project until a readable, unexpired card is produced.

2. The Contractor shall comply with the Federal Environmental Protection Regulations pertaining to handling and disposal of asbestos-containing materials as well as the State of Nevada and any local governmental agencies which have delegated responsibility for the administration and enforcement of NESHAPS and other federal regulations.

3. The Contractor shall comply with all requirements of the EPA approved landfill which is selected as the disposal site.

I. OTHER REQUIREMENTS

- ANSI - American National Standards Institute: ANSI Z9.2 Fundamentals Governing the Design and Operation of Local Exhaust Systems.

J. The Contractor shall comply with said regulations, requirements, and standards (noted in B through I) and require and be directly responsible for compliance therewith on the part of his agents, employees, and subcontractors; and shall directly receive and be responsible for all citations, assessments, fines or penalties which may be incurred by reason of his agents, employees, or subcontractors failing to so comply.

PART 3 - REQUIRED DOCUMENTATION

3.01 SUBMITTALS AND NOTICES

A. PRIOR TO COMMENCEMENT OF WORK, ALL THE FOLLOWING MUST BE SUBMITTED TO THE WCSD, ES&A DEPARTMENT

1. Notification in writing of proposed asbestos work, with copy to the WCSD, ES&A Department, the EPA Regional Office, OSHA or OSHA Regional Office, local air pollution agency, and local authority with responsibility for enforcement of occupational health and safety regulations and enforcement of NESHAPS regulations and with jurisdiction in the State in which this project is located, not fewer than ten (10) working days before work commences on this project. Courtesy notifications will be submitted on **all** projects regardless of the regulatory requirement.

2. Submit proof satisfactory to the WCSD, ES&A Department that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing materials, supplies and the like have been obtained.

3. Submit documentation to the WCSD, ES&A Department indicating that all employees have had medical examinations (See Section 02110, PART 3, 3.01, B, 6) and instruction on the hazards of asbestos exposure, use of protective clothing, on use of showers, on entry and exit from work areas, on work procedures and protective measures, and on all aspects of 29 CFR 1910.134 (See also Section 02130, PARTS 3 and 4).

4. Submit documentation to the WCSD, ES&A Department that fifty (50) percent of the work force (exclusive of job foremen, superintendents, etc.) have at least one year's experience in asbestos abatement work for any employee not already approved and verified.

5. Submit to the WCSD, ES&A Department documentation that all superintendents, and supervisors have been certified as supervisors for at least two (2) year's and possess two (2) years’ experience supervising asbestos abatement projects in that capacity for any employee not already approved and verified.

6. Submit documentation that **all** of the work force members are licensed by the State of Nevada in the field of asbestos control. Personnel will be required to present the license to District personnel upon request. Personnel without their Nevada OSHES card, with unreadable or mutilated cards, or expired cards will not be allowed to work on the project until a readable unexpired card is produced.

7. Submit documentation that each negative air machine and HEPA vacuums have been "thermally DOP tested" by a "third party" testing agency within a 6 month period prior to the start of each project. The "third party" testing must be conducted by a testing agency with its own testing equipment and may have no relationship with the contractor. The District's decision regarding the issue of when a testing agency meets the "third party"

requirement will be regarded as final and conclusive. The Contractor will be required to submit DOP test result certification for each unit prior to its use. The DOP testing company will be required to strictly comply with the manufacture procedures and testing media. The District may require access to review the DOP testing conducted during the contract period**. Any negative air machine or vacuums that are to be exhausted outside of a negative pressure enclosure must be DOP tested on-site prior to the start of any project. In addition equipment inside a containment larger than 2000 square feet will require on-site DOP testing of all negative air machines and vacuums prior to the start of the project.** Contractor will be required to add this delay for DOP testing into the project schedule and supplement the workforce accordingly to maintain the required abatement schedule.

8. Submit documentation that each negative air recording device (manometer) has been calibrated within 12 months prior to the start of each project.

9. Various manufacturers' information, including MSDS's, for approval, prior to its use on any project. In addition to submitting a copy to the ES&A department, Contractors will also be required to provide to the site's administration office and the Site Coordinator (head custodian) one complete copy of all MSDS's for all chemicals used on site.

10. Proof of insurance coverage prior to the start of each project.

11. Submit documentation from the Contractors asbestos liability insurance company, information on all area and personal area monitoring requirements. A complete copy of the insurance policy including any riders must be provided.

12. Submit documentation to the District indicating that all employees have taken the required AHERA training for the type of work they will be performing. Legible copies of each employee's initial training class and copies of the most recent refresher must be submitted. All employees will be required to have in their possession when performing abatement work the original copies of the initial training and refresher training certificates. District inspectors will review certificates in the field. Personnel without their AHERA training certificates, with unreadable or mutilated certificates, or expired certificates will not be allowed to work on the project until a readable initial or unexpired refresher certificate is produced.

B. The following procedure is to be implemented in an effort to reduce the time and cost to submit worker/employee training certs, Nevada State license, and physical documentation, items #3, #6 and #12 listed above. The required compliance will reduce the time the Contractor must put forth submitting training/physical documents as well as reduce the time it takes to review and approve the documents submitted. Contractors **will not** submit duplicate documentation to the ES&A department or representatives in the field that the ES&A department already has on file. Contractor can request a complete list of documents the ES&A department has on-file by calling the ES&A department at 851-5675 and one will be provided.

1. **<u>At least two weeks prior to the start of the project</u>**, contractor shall provide all worker/employee training certs and physical documentation for employees not already in the WCSD training database, to the ES&A Department at 7495 South Virginia Street, Reno, Nevada. To do this electronic copies will be provided through e-mail to the ES&A department Administrative Secretary. Contact the ES&A department Administrative Secretary. At 851-5675 if you do not their e-mail address. The ES&A Department will review the submitted training documentation and pre-approve workers and supervisors so they can work on the assigned WCSD project.

2. New workers added to the project after the start of the project will be approved by the ES&A department within one 8 hour period of the standard Monday thru Friday normal work schedule. Certification submittal will be serviced by the ES&A Department on a first come, first served basis. Delays to review the documentation will be anticipated and taken into account on any project schedule developed.

3. Workers or technicians will not report to the job site until they have been added to the ES&A database and properly documented on the contractors training report which is provided to ES&A or lead supervisory consulting staff in the field. ny way that requires certification on that project.

4. Contractors should request and will be provided a copy of the most current WCSD Company Training Report for their company which will identify training and physical documentation on file with WCSD for each employee. This database should be kept current by perspective bidders by providing to the ES&A department any new documentation when it is received for their employee so no delays are encountered due to a contactor not keeping this companies documentation current. Do not wait till you get a bid to provide updated data for your employees otherwise delays can occur.

5. ES&A staff in the field or environmental lead consulting staff will not be allowed to let anyone work or show up to the job site of they are not up to date on their documentation as identified on the WCSD Company Training Report.

C. The Contractor shall submit to the WCSD, ES&A Department, upon request, any other information the District may require, including, but not limited to, the following:

1. Weekly work schedule.
2. Type and brands of materials for worker protection.
3. Method of application and materials to be used.
4. Medical examination results of all employees (OSHA 1910.1001), including chest roentgenogram, pulmonary function and forced expiratory volume at one second (Contractor is responsible for obtaining the appropriate medical releases).
5. Schedule for changing filters in negative air pressure system and water filtration system.
6. Copies of all OSHA Form 101 or equivalent accident/injury/incident reports.

D. The Contractor shall submit directly to the WCSD, ES&A Department, **not Capital Projects Construction personnel**, or the Districts Consultant, upon each jobs completion And prior to final invoice submittal, a complete original documents job package including the following, **this is in addition to any other contract required documentation or documentation requested by others like asbestos consultants:**

1. Asbestos Removal Certification Letter signed and dated by the Contractors representative with language certifying that all asbestos materials have been properly removed in accordance with all Federal, State and Local regulations.
2. Asbestos insurance certificates
3. Manometer documentation that records air pressure differential between work areas and external air).
3. Copies of all daily manpower, work logs, and containment sign in logs indicating area(s) and type of work performed.
4. An original copy of all certifications of disposal.
5. Copies of permits.
6. Copy of the submitted notifications or courtesy notifications
7. Personal air sampling logs and an original air sampling results of each personal air sample taken on the project. The submitted log and sample results must include all the required data listed under air monitoring, Section 02120, part 2 of the technical specifications on page 23 and 24. The submittal of all personal sampling data identified above is in addition to the submittal of daily sample logs.

E. It is the Districts intention that the Contractors are responsible for supplying to the WCSD ES&A Department all Contractor generated documents. WCSD District-hired asbestos abatement consultants will be required to supply the following documents as a minimum, to the WCSD ES&A Department, at the end of the project and prior to final billing. The cost for development and submittal of the following is to be included in the asbestos consulting cost estimates provided to WCSD. Any costs for asbestos consultants to gather and/or submit a duplications of Contractor items listed above is not to be added to the Consultant's cost estimate. The District will not pay for this service twice, as the document submission of Contractor documents will be included in a Contractor's bid.

1. Summary letter explaining what was done, with a certification statement that observed work was done in accordance with Contract Specifications.

2. Drawing identifying what was done with post abatement notes, with information as required to identify all abatement work done.

3. Consultant's Daily logs documenting what was done, notes and narratives of the daily progress of the Contractor, and the steps taken to enforce contract specifications. Important project milestones should be addressed, as well in these daily logs, and pictures are encouraged.

4. Clearance air sampling maps identifying the outline of the abatement containment, date that the samples were taken, times that pumps were turned on and off, and flow measurements for each set of clearance air samples.

5. Copy of each clearance air sample laboratory chain of custody forms.

6. A copy of each clearance air sample laboratory results.

7. Area air sampling maps identifying the location samples were taken, date that the samples were taken, times that pumps were turned on and off, and flow measurements for each set of area air samples.

8. Copy of each area air sample laboratory chain of custody forms.

9. A copy of each area air sample laboratory results.

10. Bulk sampling map(s) identifying the locations any bulk samples were taken (if applicable).

11. Copy of any bulk sample laboratory chain of custody forms (if applicable).

12. A copy of each bulk sample laboratory results (if applicable).

F. The Contractor will submit daily by fax or e-mail to the WCSD, ES&A Department a copy of a daily air monitoring log with the numbers of all air monitoring cassette taken that day and the location taken or activity conducted by the personnel wearing the sample. A copy of each projects sample logs will not be acceptable. The daily sampling data listed above must be combined from all projects and listed on one daily air-monitoring log.

G. The Contractor shall have his laboratory e-mail or fax within **48 hours** of the date the sample was taken final laboratory result documents for air monitoring to the WCSD, ES&A Department. No hand written result report will be allowed. The laboratory reports will reference the air monitoring cassette's factory assigned number and the personal air monitoring results must be properly applied to an 8 hour time weighted average. Failure to submit results within the required 72 hour period may result in the District temporarily stopping the applicable abatement projects until results are received. Continued failure may also result in the termination of this contract.

H. The contractor may only invoice for a percentage of the project as agreed upon by the WCSD Project Manager & Contractor at the completion of work. but prior to submitting the final complete job package to the WCSD, ES&A Department at the Contrator discretion. The remaining agreed upon % may not be invoiced, and will not be authorized for payment until a complete job package has been submitted to the WCSD, ES&A Department and the completed package has been reviewed for correctness and accepted and all restoration of damage has been completed.

I. The Contractor will submit **daily** by fax or e-mail to the WCSD, ES&A Department an activity log with the location that contractor conducted activities that day, with a complete listing of workers assigned to each project.

J. Upon submittal, job packages will be reviewed for completeness by the WCSD, ES&A Department. In the event that a job package must be returned more than once, due to omissions or corrections, the contractor shall deduct a $200.00 processing fee from the projects final invoice, one fee per each occurrence after the first that the WCSD ES&A Department, district consultant or WCSD project Manager must contact the contractor due to omissions or errors.

PART 4 - SPECIAL PROCEDURES

4.01 ACCEPTANCE CRITERIA

A. Before any building or section of any building can be occupied by any personnel without respiratory protection, the level of airborne fibers must be less than or equal to the AHERA clearance level.

B. After the final cleaning, projects will be cleared by laboratory analysis of 5 air monitoring cassettes taken by the Owner, or Owner representative, inside the containment using aggressive methods. The analysis of cassettes from projects under 160 square feet will be analyzed by Phase Contrast Microscopy (PCM), NIOSH 7400. Projects over 160 square feet will analyzed by Transmission Electron Microscopy (TEM). Acceptable clearance levels for PCM analysis is all samples must be less than or equal to .01 fibers/cc. The Acceptable clearance level for TEM analysis is the average of the 5 samples taken inside the containment must be equal to or less than 70 asbestos structures per square millimeter. Fiber levels outside of the containment **cannot** be deducted from samples inside the containment to meet clearance criteria. It is the Contractor's responsibility to filter make-up air if so deemed necessary. Failure to filter a containments make up air will not relieve the Contractor from reimbursing the District for additional clearance samples that exceed clearance levels and fibers from outside the containment are suspected.

C. In the event that the initial clearance samples do not meet with the above protocol for air sampling clearance, the Contractor shall bear all costs required to perform additional sampling.

D. The District or Districts hired asbestos consultant will only perform as many air clearances as time allows. All attempts will be made to accommodate all requested requests for air clearance but the Contractor will be required to anticipate this requirement. Any delays or equipment tie ups due to the Contractors requiring more clearance samples then time allows on any given District work day is solely the responsibility of the Contractors and no additional fees will be paid to the contractor by the District. The Contractor will be required to have enough equipment available to maintain the required schedule in spite of any delays due the contractor requiring more samples then time allows. Locations requiring clearance sampling must be scheduled with the District one (1) day in advance by mail or fax. The containment must be ready for clearance sampling by 12:00 PM or earlier the day the samples are scheduled to be taken or the samples will be taken the next day. Contractor will anticipate an up to a 48 hour delay in receiving from the District TEM laboratory results.

4.02 STOPPING THE WORK

A. If, at any time, the WCSD, ES&A Department decides that work practices are violating pertinent provisions of the Contract, endangering workers, innocent bystanders, or endangering District facilities, they will immediately notify the Contractor in writing that operations shall cease until corrective action is taken and the Contractor shall take such corrective action before proceeding with the work.

B. If, at any time, the negative air pressure system is not operating in compliance with Sections 02120, PART 3, 3.02 and 02140, PART 1, 1.01H, and/or units are non-operational, operations shall cease until corrective action is taken and the Contractor shall take such corrective action before proceeding with the work.

C. Delays caused by inappropriate work practices as noted in 4.02A or 4.02B (Section 02110, PART 4) and/or excessive airborne fiber concentrations (defined as concentrations in excess of 0.2 fibers/cc, TWA) shall be at the Contractor's expense. No later claims for extra compensation which result from action taken under 4.02A, 4.02B or 4.02C (Section 02110, PART 4), or other delays caused by the Contractor failure to comply this Contract specifications will be recognized by the District.

D. In case of disagreement between the District and the Contractor regarding the analysis of any air monitoring data, either personal or area, the results of the District will be regarded as final and conclusive.

4.03 SITE SECURITY

A. The work area is to be restricted only to authorized, trained, and protected personnel. These may include the Contractor's employees, employees of subcontractors, District employees and representatives, State and local inspectors and any other designated individuals. The Contractor is responsible to ensure that the security of the building is not diminished and install all outside negative air machine exhaust ports in a secure manner. Failure to provide adequate security measures will leave the Contractor responsible to loss or damage of property if it is determined that access was gained through an inadequate security measure employed by the Contractor. A list of authorized personnel shall be established prior to job start and posted in the clean room of the worker decontamination facility and in the Contractor's office. The Contractor will not restrict access to District asbestos personnel to any asbestos containment at any time.

1. Contractor shall be notified by the District of any other authorized visitors prior to their entry to the job site.

B. Entry into the work area by unauthorized individuals shall be reported immediately to the District by the Contractor.

C. A log sheet shall be maintained in the clean-room area of the worker decontamination system or Contractor's office. Anyone who enters the work area must record name, affiliation, time in, and time out for each entry (See Section 02140, PART 1, 1.04G).

D. Should any keys that have been signed out to the Contractor become lost and cannot be found, the Contractor may be responsible for all cost associated with re-keying all locks at the site that the lost key opened.

4.04 EMERGENCY PLANNING

A. Emergency planning and procedures shall be developed by the Contractor prior to abatement initiation and agreed to by the Contractor and District.

B. Emergency procedures shall be in written form and prominently posted in the clean change area and equipment room of the worker decontamination area. All employees must read and sign these procedures to acknowledge receipt and understanding of work site layout, location of emergency exits and emergency procedures.

C. Emergencies may arise during the progress of work which may require special effort or require extra shifts of personnel to continue the work beyond the normal working hours. Be prepared in case of such emergency to do all necessary work promptly, at no additional cost to the District.

D. The Contractor shall file with District the names, addresses and telephone numbers of local personnel who can be contacted at any time in case of emergency. These persons must be fully authorized and equipped to correct unsafe conditions on short notice.

E. The Contractor shall provide the District with means to contact the Contractor or his representative, available 24 hours a day, in the case of emergencies while asbestos projects are in progress. Acceptable means would be a home or office phone plus a cell phone or beeper for when the Contractor is out of the home or office. Vehicle phone will not be acceptable. If the Contractor assigns this responsibility to one of his employees, the employee must have authorization and the ability to perform any emergency response requested.

4.05 PRE-CONSTRUCTION MEETING

A. The Contractor shall attend as specified a pre-construction job meeting at a time agreed upon by the Contractor and the District. Attending this meeting will be representatives of the District who will actually participate in the District's asbestos project monitoring program. The preconstruction meeting may be held via the telephone at the District's option. This meeting may be waived at the Districts discretion.

B. At this meeting or prior to starting work, the Contractor shall provide all submittals as required in Section 02110, PART 3. They shall be prepared to discuss the following information:

1. Preparation of work area.
2. Personal protective equipment including respiratory protection and protective clothing.
3. Employees who will participate in the project, including delineation of experience, training, and assigned responsibilities during the project.
4. Decontamination procedures for personnel, work area and equipment.
5. Abatement methods and procedures to be utilized.
6. Required air monitoring procedures.
7. Procedures for handling and disposing of waste materials.
8. Procedures for final decontamination and clean-up.
9. Detailed work and performance schedule.
10. Emergency procedures.

SECTION 02120

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 It should not be inferred that all materials, tools and equipment listed in Part 2 are required or that all required materials, tools and equipment necessary are listed herein.

PART 2 - MATERIALS

2.01 Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer, the brand name, and labeling as required by 29 CFR 1910.1200.

A. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be disposed of in accordance with the applicable regulations.

2.02 Polyethylene sheeting of a **true** 4 mil and 6 mil thickness unless otherwise specified, clear in color and in sizes to minimize the frequency of joints. All Polyethylene sheeting will be **Fire retardant.**

2.03 Polyethylene bags, properly labeled, of a **true** 6 mil thickness, clear in color, for disposal of asbestos debris.

2.04 Tape - capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water, chemical removers, or removal encapsulant.

2.05 Surfactant (wetting agent) - shall consist of 50% polyoxyethlene ester and 50% polyoxyethlene ether, or equivalent and shall be mixed with water to provide a concentration of 1.25 kg/cubic meter of water.

2.06 Chemical Remover - suitable to aid in removal of ACM such as EPA 55 or equivalent.

2.07 Removal Encapsulant - suitable to aid in removal of ACM such as Asbestite 1000, Serpiflex Shield #4, BWE 5000, or equivalent; the removal encapsulant shall act as its own solvent and be capable of binding and encapsulating individual asbestos fibers.

2.08 Impermeable containers (Drums) - suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site. (The containers shall be labeled in accordance with OSHA Regulations 29 CFR 1910.1001).

2.09 Warning labels and signs - as required by Regulation.

2.10 Encapsulant - Penetrating type, such as Asbestite 2000, American Coatings' Cable Coating 22p, SK 13-1C, BWE 3000, or equivalent. The encapsulant should have a coverage of 80 square feet per gallon and shall be compatible with new applications of flooring mastic. The encapsulant **must** be **clear** in color.

2.11 Encapsulant - Bridging type, such as American Coating FNE High Temperature Sealant, Ocean 666, or equivalent. Bridging encapsulant shall have a coverage of 25 square feet per gallon. Any encapsulant installed must be compatible with any new products that will installed over the encapsulate such as flooring products.

2.12 Spray Poly - Spray applied water resistant film with minimum coverage of 16 mil thickness when wet, such as Isotek Spray Poly or equivalent.

2.13 Other Materials - provide all other materials as specified in drawings; also, other materials such as lumber, nails, and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area.

2.14 Chemical Mastic Remover - A non-flammable solvent manufactured especially for the removal of mastic materials such as Control Low Odor, Sentinel 747, or equivalent. The flash point shall be no less than 140 degrees Fahrenheit.

PART 3 - TOOLS AND EQUIPMENT

3.01 Provide suitable tools for asbestos removal. The minimum acceptable amount of equipment to support this contract is estimated at 4 recording manometers, 4 standard incline manometers, 4 shower and water filter units, and twenty four 1500 cfm negative air units. This is an estimate of the minimum equipment and additional equipment may be required to comply with Contract Specifications and Documents.

A. If the Contractor is unable to keep up with the requested work schedule due to the lack of required equipment or inoperable equipment, the District reserves the right to purchase or rent equipment which will then be supplied to the Contractor. The Contractor will then be responsible to reimburse the District for the cost associated with the rental or procurement. The District would only exercise this option in the event the Contractor fails to take reasonable steps on his own to repair his own equipment or rent or procure equipment necessary to keep up with the requested schedule.

B. Under no circumstance will contaminated tools or equipment, be placed inside of a District room outside of a containment. Contaminated tools and equipment will be sealed in impermeable plastic bags (minimum of six-mil think) and **immediately** transported into the containment from the transporting vehicle directly into a containment that has already had its critical barriers completed and is under negative pressure. This includes equipment or tools that is placed in bags or sealed in plastic.

3.02 Negative Air Pressure System - a negative pressure must be established in the work area by means of a local exhaust system. The equipment shall exhaust through a **three** or more stage HEPA filtration system to the outside of the work area. The equipment shall be in operation for 24 hours per day until decontamination and final clean-up of the work area is completed. A recording device shall be used to provide documentation of the pressure differential of 0.03 inches of water gauge. The system shall have the following additional characteristics:

A. Filtration equipment in compliance with ANSI Z9.2, Local Exhaust Ventilation.

B. Capable of maintaining a minimum pressure differential of minus 0.05 inch of water gauge in the work area relative to adjacent areas. The 0.05 inch of water gauge requirement must be maintained throughout the removal process including the waste load out and during the entrance and exit of the containment through the Decon. It is suggested that this is considered when calculating the negative air requirements of each containment.

C. Negative air pressure system units shall be employed in sufficient quantity to provide no less than **eight** (**8**) air changes per hour in the work area.

D. Negative pressure units **must** be exhausted to the outside of the building through a reinforced **Owner** approved opening. In the event a window or door to the outside is removed, the opening installed will be vandal proof and not reduce the security of the building. As a minimum, when a window or door is removed, the contractor must install a plug constructed of 1/2" plywood. The plug must be larger than the hole and secured inside the opening with two or more wood 2 x 4s installed crosswise and secured with 3/8" tamper proof bolts.

E. **Pre-fabricated** metal reinforced exhaust tube will be utilized to exhaust all negative air machines. The exhaust tubing utilized must be the same size throughout the exhaust run and the same size as the negative air machine exhaust port. Continuous runs of tubing without splices are required for runs less than twenty-five feet (25'). The Pre-fabricated exhaust tubes will be replaced at the first signs of wear. Contaminated, taped or damaged tubes will not be allowed to be used. The Districts decision regarding when an exhaust tube requires replacement will be regarded as final and conclusive.

F. At the discretion of the Owner and at no extra cost the contractor may be required to install an extension to the negative air exhaust tube where it exits a containment. The extension will be constructed of metal reinforced exhaust tubing. Typically the extension would extend from the plug to a point on the roof determined by the District inspector.

G. The negative air machine exhaust tubing will be routed as per the direction of the District inspector. The routing of the negative air machine exhaust tubing through rooms not included in the containment will not be allowed unless there are no exterior windows or doors present inside the containment area. In the case of inoperable windows, Contractors will be required to hire a window company or perform the work themselves to remove and properly re-install inoperable windows as required so the negative air machine exhaust tubing is routed through windows. Only the WCSD ES&A department AHERA Project Designer certified staff are allowed to sign off on any instance, where a negative air machine tube is routed through a room that is not a part of the asbestos abatement containment area, instead of using a window or other exterior openings. No exceptions and Contractors must bid accordingly.

3.03 Water Filtration System - Water used for showering in the decontamination area and any other asbestos-contaminated water must be filtered prior to disposal as waste water. The system shall contain at a minimum a three-stage filtering system with the following additional characteristic:

A. Capable of trapping and retaining 99.9% of asbestos fibers greater than 3 microns in size.

B. All water systems equipment to include showers and filter systems will comply with all (including the District's) applicable backflow/cross connection prevention requirements. The District will enforce all backflow/cross connection prevention requirements

3.04 Airless Pump - Encapsulant, if spray-applied, shall be applied with an airless pump in order to minimize fiber dispersion during the decontamination process. The tip shall have an orifice of .019 to .026 or as required by the manufacturer of the encapsulant selected for use.

3.05 Type "C" Supplied Air System - A continuous flow or pressure-demand, supplied air respirator, NIOSH/MSHA certified or other suitable air filtration system, as required by OSHA regulations for performance of work of this nature, is suggested for all workers. Type "C" system shall have visual and audible alarms to warn of carbon monoxide levels in excess of 20 ppm. Such system shall meet all criteria prescribed by OSHA for supplied air respirators. It also must be fully certified for hose length combinations up to 300 feet. Either half-mask or full facepiece units fitted with HEPA filter back-up units are acceptable.

3.06 Temporary electrical cords and outlets shall be of an approved type and connected to a source of power outside of the work area as directed by the District (see Section 02140, 1.01). All temp power cords must be plugged into a ground fault interrupter equipped power source.

SECTION 02130

COMPLIANCE REQUIREMENTS

PART l - PERSONAL PROTECTION

1.01 RESPIRATORY PROTECTION

A. Provide workers with clean and properly maintained respiratory equipment approved by NIOSH/MSHA as specified in Section 02120, PART 3, 3.05. The Contractor must present documentation of no less than five (5) similar projects with personal sampling results indicating that employee exposure levels were at “clean air levels” (0.01 f/cc) inside the respirator. Half-mask air-purifying respirators equipped with high-efficiency particulate air (HEPA) filters may be utilized with written permission of the Owner. Initially, temporary approval for the use of half-mask respirators will be granted after receipt of the proof requested above. Continued authorization will be considered based thereafter on personal monitoring samples taken on projects completed under this contract. If the Contractor consistently maintains personal monitors levels at or below “clean air levels” (0.01 f/cc inside the respirator) on a 8 hour time weighted average, continued use of half-mask respirators will be authorized. Should the personal monitoring or area monitoring levels show the contractor is unable to maintain levels at the “clean air levels” (0.01 f/cc), inside the respirator, the half-mask authorization will be rescinded. Area or personnel monitoring level above 1.0 fibers/cc TWA will require that personnel utilize type "C" respiratory protection. The Contractor will be responsible for providing sample results that have been applied over the 8 hour time weighted average. When utilized, the Contractor shall provide a sufficient quantity of filters during the work day. The clean respirator filters shall be stored at the job site in the change room and shall be totally protected from exposure to asbestos prior to their use.site in the change room and shall be totally protected from exposure to asbestos prior to their use.

1. Single-use or disposable respirators will not be permitted at the job site.

2. Contractor shall also monitor and provide documentation indicating that the workers are properly protected against over exposure to any of the chemicals contained in the chemical mastic remover(s).

3. Additional air filter protection will be required when chemical solvents are used.

1.02 PROTECTIVE CLOTHING

A. Provide workers with sufficient sets of protective full-body clothing. Such clothing shall consist of full-body coveralls and headgear. Provide eye protection and hard hats as required by applicable safety regulations. Non-disposable type protective clothing and footwear shall be left

in the Contaminated Equipment Room until the end of the asbestos abatement work, at which time such items shall be disposed of as asbestos waste, or shall be thoroughly cleaned of all asbestos or asbestos-containing material. Disposable type protective clothing, headgear, and footwear may be used and shall be disposed of as asbestos waste. Bare feet will not be permitted.

1.03 WORKER PROTECTION PROCEDURES

A. Each worker shall, upon entering the job site: Remove street clothes in the clean change room, put on a respirator and clean protective clothing before entering the equipment room or work area, except that workers intending to rewear contaminated protective clothing stored in the equipment room shall enter equipment room wearing respirators.

B. Each worker shall, each time he leaves the work area: Remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except respirators; still wearing the respirator, proceed to the showers; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves, remove filters (where required) and place them in the container provided for the purpose; and wash and rinse the inside of the respirator.

C. Following showering, each worker shall proceed directly to the clean change room and dress in clean clothes at the end of each day's work, or before eating, smoking or drinking. Before re-entering the work area from the clean change room, each worker and authorized visitor shall put on a clean respirator with filters (where required) and shall dress in clean protective clothing, except that workers intending to rewear contaminated protective clothing stored in the equipment room shall enter the equipment room wearing respirators.

D. Contaminated work footwear shall be stored in the equipment room when not in use in the work area. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from equipment and access area. Store contaminated protective clothing in the equipment room for reuse or place in receptacles for disposal with other asbestos contaminated materials.

E. Workers shall not eat, drink, smoke or chew gum or tobacco, or utilize sanitary (toilet) facilities at the worksite except in established locations outside the work and containment areas, and enclosures.

F. Workers shall be fully protected with respirators and protective clothing immediately prior to the first disturbances of asbestos-containing or contaminated materials and until final clean-up is completed. This includes removal of fixtures, ceilings, or anything else which may disturb the ACM.

PART 2 - AIR MONITORING

2.01 Throughout the removal and subsequent cleaning operations AMBIENT (AREA) MONITORING may be conducted by the District to ensure that the Contractor is complying with all regulations and is conducting the work in a manner which minimizes airborne asbestos levels as well as minimizes the contamination of the District's facilities.

A. The Contractor is responsible to complete all regulatory required area monitoring and all area monitoring that is required by the Contractors liability insurance company.

2.02 Throughout the removal and subsequent cleaning operations, PERSONAL AIR MONITORING shall be conducted by the Contractor. Such samples shall be taken in order to establish an 8-hour TWA (for example, a minimum time of 480 minutes at 2.0 lpm) and exposure for each type of employee operation. Analytical results of personal air samples shall be sent to the Districts ES&A Department and provided to the Districts asbestos consultant on a 72 hour turn-around basis. Electronic PDF final reports shall be e-mailed directly to the District ES&A department directly from the Contractor's laboratory. Personal monitoring will be conducted on 50% of the workers. The workers shall wear personal monitoring devices, and all sampling will be conducted in each workers breathing zone only. Asbestos Consultants hired by WCSD, and supervising asbestos abatement projects, are required to strictly enforce these Personal Air Monitoring requirements, so Contractors must plan accordingly. Failure for the Contractor to provide air sampling results within 72 hours requires that the District's consultant supervising the project must stop the job. No exceptions. To that end, District Consultants must monitor the situation and provide the Contractor a written 24 hours notification, after 48 hours that results have not been received. After these 24 hours have transpired, the Consultant must stop the job awaiting submittal of required sampling results. No exceptions.

A. For each set of air samples submitted to a laboratory by the Contractor for analysis, the Contractor shall submit a blank cassette for analysis (minimum of 10 percent). Each blank cassette shall be submitted as a part of the Contractor's quality control program.

B. Any PCM air sample submitted by the Contractor for analysis shall be to an independent laboratory currently enrolled in the AIHA/NIOSH proficiency Analytical Testing (PAT) program.

C. The Contractor shall use factory pre-numbered air monitoring cassettes and note each cassette's numbers on the daily log or a separate monitoring cassette log. The number on each cassette shall be recorded **PRIOR** to use. Each cassette's number will also be listed on the laboratory analysis request form and also be referenced on the Laboratory sample analysis report. A copy of the daily log or separate monitoring cassette log will be e-mailed to the ES&A department **and** the District's asbestos consultant **daily** for all projects in progress. Asbestos Consultants hired by WCSD and supervising asbestos abatement projects are required to strictly enforce these requirements so they must monitor and document this process as a part of the Consultants project monitoring process.

D. Daily project personal air sample logs must be kept and submitted. As a minimum the sample log must include, date sample taken, air flow measurements taken at the start and finish of the sampling duration, time started and stopped, the factory assigned cassette number, employee sampled, and the activity of the employee. Legible sample logs will be submitted in the completed job package along with an original laboratory analysis report. Consultants hired by WCSD and supervising asbestos abatement projects are required to strictly enforce these requirements so they must monitor and document this process as a part of the Consultants project monitoring process.

E. A credit of $25.00 per sample will be deducted from the Contractors final invoice for each documented case, that a required sample per contract specifications (50% of the workforce is NOT monitored) was not taken or submitted for analysis. In addition, this credit will also apply to samples that were not taken properly or the data required by contract specifications is not provided. Consultants hired by WCSD and supervising asbestos abatement projects are required to strictly enforce these requirements so they must monitor and document this process as a part of the Consultants project monitoring process.

PART 3 - SUPPORT ACTIVITIES AND PERSONNEL

3.01 TRAINING

A. Training by a EPA accredited training provider shall be provided by the Contractor to **all** employees or agents or subcontractors who may be required to disturb asbestos-containing or asbestos-contaminated materials for abatement and auxiliary purposes and to all Contractor supervisory personnel who may be involved in planning, execution, or inspection of abatement projects. **No on-line training certificates for Lead or Asbestos training will be accepted.**

B. Training shall provide, at a minimum, information on the following topics:

1. The health hazards of asbestos including the nature of various asbestos related diseases, routes or exposure, known dose-response relationships, the synergistic relationship between asbestos exposure and cigarette smoking, latency periods for disease and health basis for standards.

2. The physical characteristics of asbestos including fiber size, aerodynamic properties, physical appearance and uses.

3. Employee personal protective equipment including the types and characteristics of respirator classes, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage of respirators, field testing the facepiece-to-face seal (positive and negative pressure fitting tests), qualitative and quantitative fit testing procedures,

variations between laboratory and field fit factors, factors that affect respirator fit (e.g., facial hair), selection and use of disposable clothing, non-skid shoes, gloves, eye protection, and hard hats.

4. Medical monitoring requirements for workers including required and recommended tests, reasons for medical monitoring, and employee access to records.

5. Air monitoring procedures and requirements for workers including description of equipment and procedures, reasons for monitoring, types of samples, and current standards with recommended changes.

6. Work practices for asbestos abatement including purpose, proper construction and maintenance of plastic barriers, job set-up of airlocks, worker decontamination systems and waste transfer airlocks, posting of warning signs, engineering controls, electrical and ventilation system lockout, proper working techniques, waste cleanup, and storage and disposal procedures.

7. Personal hygiene including entry and exit procedures for the work area, use of showers and prohibition of eating, drinking, smoking, and chewing in the work area.

8. Special safety hazards that may be encountered including electrical hazards, air contaminants (CO, wetting agents, encapsulant, materials from Owner's operation), fire and explosion hazards, scaffold and ladder hazards, slippery surfaces, confined spaces, heat stress, and noise.

9. Workshops affording both supervisory personnel and abatement workers the opportunity to see (and experience) the construction of containment barriers and decontamination facilities.

C. Training is to have occurred within 12 months prior to the initiation of abatement activities.

D. Contractor must document training by providing date(s) of training, training entity, course outline, and names and qualifications of trainers.

E. Submit documentation to the District indicating that all employees have taken the required AHERA training for the type of work they will be performing per Section 02110, Part 3, 3.01, B, of these specifications.

F. An employee of the Contractor or subcontractor who is deemed incompetent, disorderly, or otherwise objectionable by the Owner, shall be removed promptly by the Contractor, and not re-employed on the work. Any employee of the Contractor that is observed that is not utilizing his personal protective equipment will be immediately removed from a project and not allowed on any other District projects. Should any disagreements result regarding the identification of the employee or his/her proper use of personal protective equipment, the determination of the District AHERA Program Supervisor/ Technicians or District hired Consultant will be considered final and

conclusive. The Contractors Asbestos Abatement Supervisors who allow employees to not utilize their personal protective equipment will be immediately removed from a project and not allowed on any other District projects. Contractors will be required to replace removed employees/Supervisors and no additional time will be allowed to complete the project.

PART 4 - MEDICAL MONITORING

A. Medical monitoring must be provided by the Contractor to any employee or agent that may be exposed to asbestos in excess of background levels during any phase of the abatement project. The purposes of a medical monitoring program, in addition to meeting the requirements of the law, are to document the state of health of workers for workers' compensation and to determine work relatedness of disease as well as to ensure fitness for duty, particularly ability to wear a respirator. Smokers should be made aware of the synergistic effects of cigarette smoking and asbestos exposure. The medical monitoring program provides the appropriate setting to share this information. Employers should also be aware of the potential cost of this additional risk. Medical monitoring shall include at a minimum the requirements of OSHA 29 CFR 1910.1001 (1).

1. A work/medical history to elicit symptomatology of respiratory disease (see CFR 1910.1001), Appendix D, Medical Questionnaires).

2. A chest X-ray (posterior-anterior, 14 x 17 inches) taken by a certified radiology technician and evaluated by a certified B-reader.

3. A pulmonary function test, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV.), and FEV/FVC ratio (administered by a NIOSH or A.T.S. Certified Pulmonary Technician and interpreted and compared to standardized normals by a Board Certified Occupational Physician or Pulmonary Specialist).

4. Employees shall be given the opportunity to be evaluated by a physician to determine their capability to work safely while breathing through the added resistance of a respirator. (Examining physicians shall be aware of the nature of respiratory protective devices and their contributions to breathing resistance. They shall also be informed of the specific types of respirators the employees shall be required to wear and the work they will be required to perform, as well as special workplace conditions such as high temperatures, high humidity, and chemical contaminants to which they may be exposed. Evaluation of groups of workers should take into consideration epidemiologic principals as suggested by the American Thoracic Society in their statement on the work relatedness of disease adopted in 1982).

SECTION 02140

EXECUTION

PART 1 - PREPARATION

1.01 WORK AREA;

A. The following procedures are to be utilized to establish a work area and containments for all projects except mini work areas and mini-containments;

1. Shut down electrical power as necessary. When and where required, provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide safety lighting and ground fault interrupter circuits as power source for electrical equipment.

2. Shut down and isolate heating, cooling, ventilating air systems to prevent contamination and fiber dispersal to other areas of the structure. During the work, vents or openings within the work area shall be sealed with tape and at least 2 layers of 6 mil poly sheeting.

3. As directed by the District, pre-clean fixed objects within the proposed work areas using HEPA filtered vacuum equipment and wet cleaning methods, and enclose all fixed objects with a minimum of clear 6 mil plastic sheeting sealed with tape. This is in addition to the splash protection layer specified in item F below. All edges of the 6 mil will sealed with duct tape.

4. As directed by the District, pre-clean the proposed work areas using HEPA-filtered vacuum equipment and wet cleaning methods. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters shall not be used. Failure to pre-clean may increase the nuisance fiber level inside the containment and thereby raise personal monitoring results.

5. Seal off all openings with critical barriers, including, but not limited to, windows, corridors, doorways, skylights, duct, grille, or diffuser openings and any other penetrations of the work areas, with clear 6 mil plastic sheeting sealed with tape. Doorways, windows and corridors which will not be used for passage during work must be sealed with two layers of 6 mil plastic barriers. Doors and windows can be taped around the edges and then covered with one layer of clear 6 mil plastic to achieve the two layer requirement. Any opening that requires support such as hallways or large opening or other large criticals must be supported with 2x4 studs, 24 inches on center

6. All doors will be left in place unless approved by the ES&A Director. Doors are much more secure than plastic critical which is why these will not allowed to be removed. If there is tile/mastic under the door in the door opening the following is the only procedure that will be allowed. The contractor shall create the entire containment except for sealing the doors that have tile under them. The containment and negative air will be in place and running and the containment, other than the doors will have been inspected and

approved. Once this has happened, the contractor shall have a worker don proper personal protective equipment (PPE) and then do a spot abatement in the area under the door using manual methods. The worker shall complete spot abatement under the door and the door will be secured and sealed per #5 above. No abatement shall take place inside the containment, other than doorway spot abatement. The number of doorways that can be spot abated at one time will be no more than two at a time.

7. If the Contractor is removing asbestos containing materials, and the flooring material within the containment is not identified for abatement, cover floor surfaces with at least 2 layers of 6 ml poly. Use a minimum of two layers of clear 6 mil poly. Cover the floor **first** so that the 2 layers of plastic that extends at least 12 inches up on the walls. Depending on the material of the roof and its practicality of being wet wiped the Owner may require that one clear layer of 4 or 6 mil plastic layer be installed for a ceiling.

8. Cover wall surfaces with plastic sheeting sealed with tape. Use a minimum of one (1) clear layer of 4 mil plastic on walls. Cover walls so that the plastic extends eight (8) feet above the area of work. Seams should overlap a minimum of six (6) inches.

9. Build airlocks at entrances to and exits from the work area. Airlocks should be built in a manner which allows for in-flow air. The installation of air locks which restrict the air flow of make-up air through the Decon will not be permitted. Additional make-up air, if required to achieve eight (8) air changes, shall be admitted through specially constructed vents which prevent contaminated air from leaving the work area.

10. Contractor may be required to install one clear layer of 4 or 6 mil plastic layer for a ceiling in the containment depending upon the ceilings construction, asbestos design considerations, and its air permeability and the ability to maintain negative pressure inside the containment.

11. Establish negative air pressure system which produces no less than eight (8) air changes per hour in the work area and maintains a pressure differential of 0.05 inch water gauge between the inside and outside of the work area. The location and identification of each individual negative air unit shall be provided to the District for each work area. The District, as certified Project managers reserves the right to direct the contractor to relocate the negative air machines. Identification (for example, labels) shall be clearly visible in the work area and at the unit's exhaust location.

12. The Contractor shall provide two manometers, located as directed by the Owner. The first manometer shall be a continuous printout type with an adjustable set-point audible alarm. The alarm may not be deactivated. The second shall be a standard inclined manometer, Dwyer Model 250.5 AF or approved equal.

13. As directed by the District, remove and clean ceiling or wall mounted objects, such as lights and other items not previously sealed off, that interferes with asbestos abatement. Use localized water spraying or HEPA filtered vacuum equipment during fixture removal to reduce the fiber dispersal.

14. Maintain emergency and fire exits from the work areas, or establish adequately marked alternative exits satisfactory to the District. The contractor will have on site before the start of the project a fire extinguisher and first aid kit.

15. The Contractor shall place a job board with all MSDS, emergency numbers (24 Hour), safety procedures, air monitoring results, etc., at an accessible location to employees and visitors. The job board may be placed in the clean room overnight if the entrance to a containment is outside and the board's security is in question.

16. Contractor shall provide a clear 18" x 18" plexi-glass view windows at locations designated by the Owner. Contractor will add or move viewing windows at any time throughout the project at the Owners request. View windows will never be covered once installed.

17. Use smoke methods to test effectiveness of barriers and the negative pressure system when directed by the District.

B. The following procedures shall be utilized to establish a work area and mini-containment for small scale/short duration projects. The Owner shall determine if a mini-containment is more practical or cost affective then the containment of the entire room space;

1. Prior to the construction of the mini-containment enclosure, the Contractor will consult with the Owner and receive Owner approval of the containments proposed design prior to the start of a mini-containment enclosure.

2. Contractor shall construct a 2 layer, clear 6 mil poly enclosure with walls, a roof and a floor. The containment will be supported by means of wooden studs, PVC pipe, or other rigid materials. It will be sufficiently supported to ensure that negative pressure will not damage the containment. It will be large enough to ensure the material can be removed without puncturing the containment.

3. Negative pressure inside the mini-containment will be provided by a small adjustable flow negative air machine. All mini-containments will require negative pressure and a HEPA vacuum cleaner will not be allowed to provide negative pressure except in very small mini-containments and only with prior written approval of the Owner.

4. A two cell decontamination enclosure shall be installed to provide access to the containment and serve as a decontamination enclosure. Air-locks shall be installed at the entrance to the decontamination cell and the abatement containment. Minimum size of the decontamination enclosure shall be six feet high by 5 feet wide.

5. Waste load-out and double bagging will be accomplished in the decontamination enclosure.

6. All other provisions of these contract documents and specifications apply to mini-containment enclosures except for the modification to the work area, decontamination enclosure and waste load-out addressed in 1 thru 4 above.

C. The following procedures shall be utilized to establish a work area and perform abatement for windows and window sealant abatement. The following window procedure will be utilized to remove the window frame with possible asbestos containing putty, and asbestos containing window sealant (Caulking) from WCSD window openings.

1. From the inside of the school, inside of each classroom install Plywood ½" over the window opening. Install 2 layers of 6-mil polyethylene plastic (poly) on the exterior surface of the plywood, to assist with clean up of the plywood surface prior to installation of the plywood. After the plywood is installed, install 2 layers of 6 mil poly over the interior surface extending out past the edge of the plywood, and attach with tape in an adequate fashion to completely seal off the exterior window opening from the inside of the building. The removal cannot proceed until an airtight poly seal has been created between the inside and the outside of the window opening. This contractor will not be able to proceed with any removal until District's ES&A personnel or District's asbestos consultant approves the prep of each window. This will be documented in the contractor's daily log and initialed by the District's ES&A personnel or the District's asbestos consultant.

2. Washoe County Health Department personnel can be expected to visit the abatement site. The contractor will be required to cooperate and comply with all WCHD requests.

3. Isolate the HVAC for the entire wing or area being abated, prior to the start of abatement.

4. It may be necessary to isolate the wings adjacent to the building being abated, based upon the discretion of the District's ES&A personnel or assigned asbestos consultant.

5. Install 6-mil poly drop that extends out at least 20'out and adjacent from each window opening. If any window debris leaves the poly drop area, the contractor will be required to HEPA vacuum the ground as directed by the District's ES&A personnel or the District's asbestos consultant.

6. Place safety tape to isolate the area of the broken window from the public. At least 50 ' has to be isolated. Contractor will need to ensure that only abatement workers or the District's ES&A personnel or the District's asbestos consultant enter this area during abatement. No personnel or school staff will be allowed to work on the same side of the school wing when abatement activates are taking place. If a wing is directly across from the abatement activity that wings classrooms on the side of the abatement cannot be occupied.

7. As needed, use a glasscutter to score the inside of window glass to ease with glass removal. **A power tool cannot be used** for the removal of the window frame. Hand tool may be utilized.

8. As needed, remove glass by tapping on scored part of glass breaking it out, remove all glass present except the pieces behind putty. This makes it easier and safer to remove the frame without the glass being in the way.

9. Damage to and disturbance to the putty and sealant should be limited to the extent possible, and removed as intact as possible.

10. Pick up and dispose of the glass, asbestos debris and frame, in contractor's vehicle or dumpster for transport for proper asbestos disposal at a remote site. Do not dispose of debris in the District dumpster.

11. From the outside, clean up the internal area of the window frame, ledge and window jamb up to the poly window opening seal of any debris. The block opening will need to scraped, so that no sealant material is left behind before the window frame will pass a visual clearance, conducted by the District's ES&A personnel or the District's asbestos consultant. HEPA vacuum all areas of abatement surfaces, including the inside of the window opening prior to requesting a visual clearance.

12. When the window frame has been completely removed and the removal passes a visual clearance conducted by the District's ES&A personnel or District's asbestos consultant, carefully roll up the exterior poly drop that is on the ground, with the debris in it, and dispose at a remote location as asbestos waste. Do not dispose of any window poly/debris in the District dumpster.

13. Spray on encapsulate will be sprayed onto the window opening and poly surface of the plywood on the exterior side of the window opening.

14. Air Quality Air Samples may be taken once a wing is completed inside a number of the classrooms inside the wings by the District's ES&A personnel or the District's asbestos consultant and analyzed by TEM analysis. No personnel except the District's ES&A personnel or the District's asbestos consultant properly protected will be allowed inside the building being abated prior to receiving air sampling results or visual clearance. The plywood on the window openings will be left in place, and secured until air-sampling results or a visual clearance is received from the District's ES&A personnel or the District's asbestos consultant.

15. The window replacement contractor can work in the window opening, once the removal has passed a visual clearance, but cannot enter the area of demarcation or work on the same side of a building, while abatement is being conducted. Once abatement activities have been completed for the day, the replacement contractor could then work on that side of the building until abatement activities are resumed.

1.02 DECONTAMINATION ENCLOSURE SYSTEM AND WASTE LOAD-OUT AREA

A. Construct a worker decontamination enclosure system contiguous to the work area as follows:

1. The decontamination enclosure shall be constructed of two layers of 6 mil poly sealed with tape. At the discretion of the Owner the contractor may be required to construct a decontamination enclosure outside of the building. The exterior Decon shall be constructed with a minimum of 2x4 studs 24 inches on center and 1/2 inch plywood and to a standard which insures the security of the building. The outside chamber shall have a solid lockable door that shall remain locked whenever the Contractor is not on site. A key will be given to the Owner. The location of any decontamination enclosures will be determined by the Owner.

2. An equipment or dirty room with two doorways, one to the work area and one to the shower room. Pop-up Decon chambers typically will not be approved for use by the District. The use of Pop- up Decon Chambers will be reviewed on a case by case basis and the District reserves the right to require that they not be used.

3. A **metal** shower room with two doorways, one to the equipment room and one to the clean room. The shower room shall contain at least one shower with hot and cold water. Careful attention shall be paid to the shower enclosure to ensure against leaking of any kind. Ensure a supply of soap and shampoo at all times in the shower room. Clean and dry towels shall be available for employees and owner-authorized visitors and personnel. A three-stage water filtration system must be employed prior to release of shower water into the local sewage system. The shower must comply with all applicable backflow prevention/cross connection requirements including the Districts. Any shower or water device that does not meet the minimum air gap requirement will have to be fitted with the appropriate backflow prevention device. Proof of the required testing of any employed backflow prevention assembly will be required. Non-metal pop up showers are not acceptable.

4. A clean room with one doorway into the shower and one entrance or exit to non-contaminated areas of the building or outside. The clean room shall have sufficient space for storage of the workers' street clothes, towels and other non-contaminated items. Individual lockers shall be available to workers within the clean room. Pop-up Decon chambers typically will not be approved for use by the District. The use of Pop- up Decon Chambers will be reviewed on a case by case basis and the District reserves the right to require that they not be used.

B. As directed by the District, construct using (2) two layer of 6 mil. Poly, a waste load-out area contiguous to the work area which is utilized for transportation of ACM to a landfill.

1. The decontamination enclosure may only be used as a waste load out area with Owner approval, and only when it exits to the exterior of a building and there are no other exterior doors inside the containment. All waste load out activities will be accomplished through a waste load out enclosure exiting an exterior door whenever one is available.

The Decontamination enclosure will only be considered for use as a waste load out enclosure when all other avenues of exit are not deemed practical by the Owner.

1.03 MAINTENANCE OF ENCLOSURE SYSTEMS:

A. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

B. Visually inspect enclosures and negative air units at the beginning of each work period or shift. Details of the inspections are to be included in the Contractor's daily log. The contractor will be required to note the manometer readings of the containment in the daily log at the start and end of the shift and every 1/2 hour while on the job site. **The Contractor will be required to inspect containments at locations that are awaiting final clearance sampling results twice daily, once in the morning and once late in the afternoon before the building is scheduled to be locked up.**

C. Use smoke methods to test effectiveness of barriers and the negative air pressure system when directed by the District.

1.04 ASBESTOS REMOVAL WORK SHALL NOT COMMENCE UNTIL;

A. Arrangements have been made for disposal of waste at an acceptable site.

B. Arrangements have been made for containing and/or disposal of waste water resulting from showering and other abatement activities.

C. Work areas, decontamination enclosure system, and waste load-out area are effectively segregated.

D. Tools, equipment and material waste receptacles are on-site.

E. The Type "C" supplied air respirator system(s) or other approved air filtration system is (are) on-site and fully operative, when required by the District.

F. All other preparatory steps have been taken and applicable notices posted and permits obtained.

G. A visitor and employee log-in/log-out system is in place at the job site. All persons entering the site will be required to sign-in and sign-out.

H. Plexi-glass view windows have been installed in all locations requested by the Owner.

I. The containment has been inspected and written approval has been given by the Owner.

PART 2 - ASBESTOS REMOVAL

2.01 ORDER OF OPERATIONS

A. In general, work shall progress in the following order of operations; this listing is not provided to suggest that abatement sequences or additional requirements may not be required of the Asbestos Abatement Contractor to comply with regulatory requirements depending on the specific nature of each particular asbestos abatement projects:

1. Site preparations (See Section 02140, PART 1).

2. Removal of all asbestos debris and contaminated fixtures from the work site.

4. Rough clean and remove all remaining asbestos debris.

5. Detail clean and removal all asbestos containing asbestos debris and residual asbestos contaminants.

4. Encapsulate all areas from which asbestos was removed. Any encapsulant installed must be compatible with any new products that will installed over the encapsulate such as flooring products. Encapsulation will be done prior to taking air clearance samples or after air samples have been sampled to ensure that the project encapsulation activity complies with Nevada regulations. (See Section 02140, Part 2, 2.03)

5. Clean up site (See Section 02140, PART 2, 2.04).

6. Remove final (splash protection) layer of polyethylene sheeting from walls.

7. Nothing in Section 02140, PART 2, 2.01 is meant to supersede the inspection procedures noted in Section 02150, PART 2.

2.02 REMOVAL PROCEDURES

A. Floor covering may be removed physically, mechanically, or chemically. The work may include the abatement of asbestos containing material (ACM) on floors. New flooring materials will be installed over abatement areas so mastic removal techniques employed by the abatement contractor are to be done so that installed flooring products are able to be warranted by the flooring manufactures. If the abatement contractor is being hired by a flooring contractor the abatement contractor must consult the flooring installer and ensure their employed removal techniques do not void any warranties for new installed products. It is quite possible that chemical mastic removers may not be able to be utilized to achieve this requirements. No power tools may be utilized to remove flooring materials. As feasible, all removal shall be conducted using wet methods to reduce the release of fibers. If chemical mastic removers are used, follow

the manufacturers recommended procedures.

B. Remove the asbestos material in small sections. As it is removed, pack the wetted material in impermeable plastic bags (2) of 6 mil minimum thickness. Plastic waste bags will be then placed into waste containers prior to removal from the abatement area. Material shall not be allowed to leak out or dry out prior to insertion into the containers.

1. Contractor shall adhere to disposal authorities' size and weight requirements for containers (bags or packages).

2. All ACM or asbestos-contaminated material that has been removed shall be bagged at the end of each work shift (that is, debris on the floor cannot be allowed to accumulate).

3. All ACM or asbestos-contaminated material which has been bagged or wrapped in the work area cannot be allowed to accumulate; all bagged or wrapped material must be placed in the dumpster after every shift.

C. Remove bagged or wrapped material to waste load-out area. Re-bag or re-wrap all material in a second impermeable 6 mil bag or second 6 mil layer of plastic, respectively and then place into a waste container, except carpet rolls. Clean external surfaces of bags by wet sponging prior to being put into the waste container. The exterior of the containers shall be wet wiped inside the waste load out decon and place caution labels on containers in accordance with OSHA regulation 29 CFR 1926.58. **No abatement activities may be taking place inside the containment during waste load out. The decon shall be sealed up during waste load out.** Egress through the decon shall take place prior to or after waste load out.

1. **Under no circumstance will waste bags or containers be allowed to be stored inside a building.** The waste will be removed from the containment and **immediately** be transported outside the building and placed into the waste disposal receptacle.

D. In the event that no work is performed in a given area for any period which exceeds thirty-six (36) hours, all visible ACM on the plastic walls and all bagged and containered ACM or asbestos-contaminated material shall be locked and secured in the dumpster. If the amount of material exceeds the storage capacity of the dumpster, all material must be properly disposed of at the landfill prior to that 36-hour, non-work period.

E. The chemical mastic remover(s) shall be used in accordance with the manufacturer's directions at all times. Due to the combustible nature of chemical mastic removers, the District reserves the right to limit the amount of mastic remover used at any one time.

2.03 ENCAPSULATION PROCEDURES:

A. On friable asbestos abatement projects, the State of Nevada requires that air clearance samples be taken prior to encapultaion. Contractors will take direction from the District ES&A personnel

or District hired asbestos consultant to determine if encapsdulation will be done prior to taking air clearance samples or after air samples have been sampled to ensure that the project encapsulation activity complies with Nevada regulations. Prior to air clearance sampling or after and upon approval by the Owner, either Contractor shall apply a penetrating encapsulant to bind any remaining non-visible asbestos fibers; encapsulant shall be applied according to manufacturer's directions. Contractor shall submit product information for prior approval by the District.

B. The encapsulant shall be clear in color. Any encapsulant installed must be compatible with any new products that will installed over the encapsulate such as flooring products.

2.04 CLEAN-UP

A. Remove all visible accumulations of asbestos material and debris. Wet clean all surfaces within the work area.

B. The windows, doors, and HVAC vents shall remain sealed and any HEPA filtered negative air pressure systems, waste load-out, and decontamination enclosure systems shall remain in service.

1. All equipment used in the work area shall be included in the clean-up and shall be removed from work areas via the decontamination enclosure system or waste load-out, at appropriate times in the cleaning sequence.

2. **Under no circumstances will contaminated materials, tools or equipment that has been removed from the containment be allowed to be placed inside a building outside containment.** All items will be **immediately** transported to a lockable storage unit or placed inside a Contractor's vehicle. Items will also not be allowed to accumulate outside of a building.

C. As directed by the District, clean all remaining surfaces in the work area (including the HVAC system, see Section 02160) and any other contaminated areas with water and with HEPA filtered vacuum equipment. After cleaning the work area, wait an appropriate period of time to allow for settlement of dust, and again wet clean a second time and clean with HEPA filtered vacuum equipment all surfaces in the work area. After completion of the second cleaning operation, perform a complete visual inspection of the work area to ensure that the work area is free of visible asbestos debris.

1. If the District, after the second cleaning finds visible accumulations of asbestos debris in the work area, the Contractor shall repeat the wet cleaning until the work area is in compliance, all at the Contractor's expense.

2. Wet clean as necessary.

3. Remove splash guards as directed by the District.

4. Nothing in this section is meant to relieve the Contractor of his responsibility to meet the

final clean criteria as established by these contract documents or any other applicable laws or regulations.

D. When a final inspection determines that the work area is free of accumulations of visible asbestos debris, and fiber levels continue to remain at or below .010 fibers/cc the District will proceed with the final TEM clearance sampling (see criteria as set forth in Section 02110, PART 4, 4.01).

E. WHEN CLEAN-UP IS COMPLETE, AFTER AIR CLEARANCE IS RECEIVED;

1. Remove final polyethylene barriers from windows, doors, corridors, and so on; remove negative air pressure system from area.

2. Relocate objects moved to temporary locations in the course of the work to their former positions.

3. Where applicable, establish HVAC, mechanical and electrical systems in proper working order. Install new filters, furnished by the Owner, and dispose of used filters as asbestos-contaminated waste.

4. When more than one work or containment area is required, install new clean barriers (6 mil plastic or better) to separate adjoining areas.

5. Contractor shall mop the abatement area floor with two coats of a product that will remove any residue but does not void and product being installed over the abatement areas such as flooring materials. Additional coats of clear water will then be mopped onto the floor until the product utilized to do the final wash residue is removed.

2.05 DISPOSAL

A. As the work progresses, and to prevent exceeding available dumpster storage capacity on site, remove asbestos waste and dispose of such at an authorized disposal site in accordance with the requirements of the disposal authority. Submit documentation regarding disposal to the District. Contractor is responsible for all costs regarding waste including waste characterization sampling.

1. All ACM or asbestos-contaminated material must be double-bagged (or wrapped) in 6 mil bags and then placed into a waste container (drum). All materials that are generated from the asbestos containment must be disposed of as asbestos waste to include the poly containment materials or any other materials used to create the containment that are present inside or with surfaces that are inside the containment.

2. All ACM or asbestos-contaminated material must be damp when delivered to the disposal site.

3. **Under no circumstance will waste bags or containers be allowed to be stored inside a building.** The waste will be removed from the containment and **immediately** be transported outside the building and placed into the waste disposal receptacle.

4. Chemical mastic remover will be separated from the asbestos waste and disposed of in accordance with all applicable regulations. It is the Contractors responsibility to determine the proper disposal based upon the type and amount of mastic remover.

5. All waste load out activities will be scheduled for and inspected by the Owner.

B. Sealed plastic bags may be dumped into the burial site unless the bags have been broken or damaged. Damaged bags shall remain in the drum and the entire contaminated drum shall be buried. Uncontaminated drums may be recycled.

C. Dumpsters or any EPA-approved hazardous waste container system capable of being totally secured can be used in lieu of drums for transport to the disposal site. Absolutely no uncovered, unlockable dumpsters will be allowed to be used as a waste container system. This includes dumpster for construction debris that is associated with an asbestos abatement project. Open dumpsters, vehicles or trailers with wood covering installed will not be allowed for use as a waste container system.

1. All loads are to be delivered in an enclosed vehicle. No open pick-ups will be allowed.

D. Each load must be accompanied by a Uniform Hazardous Waste Manifest (EPA Form-22) or equivalent and any other certificate required by State or local agencies.

1. Original copies of the Hazardous Waste Manifest shall be provided to the District.

SECTION 02150

WORK SCHEDULE AND INSPECTION PROCEDURES

PART 1 - WORK SCHEDULE

1.01 The work is to be carried out diligently to completion with utmost speed. The Contractor shall furnish to the District a final working schedule showing anticipated starting and completion dates for each removal zone or area. This schedule shall be furnished to the District within at least five (5) calendar days from issuance of the District's written Notice to Proceed.

1.02 If, in the opinion of the District, it becomes necessary to work additional men for maintaining the schedule and for the completion of any phase of the project within the specified time, the Contractor must immediately do so upon written request by the District.

1.03 Work shall proceed immediately upon receipt of Contractor's Notice to Proceed from the District. Facilities shall be available to the Contractor as agreed upon. All work must be completed no later than agreed upon.

PART 2 - INSPECTIONS BY THE DISTRICT

2.01 The District shall inspect the site preparation work within the building as outlined in Section 02140, PART 1 to ensure that the facility is adequately sealed off, the negative air pressure system is functioning properly, the decontamination enclosure system, and waste area are in place. The Contractor SHALL NOT PROCEED with the gross removal until such time as the District has inspected the site preparation work and given the Contractor a Notice to Proceed (PREP).

2.02 The District shall inspect the removal work and work area upon its completion within the building or section thereof to ensure that all visible ACM or asbestos-contaminated material has been removed. The Contractor SHALL NOT PROCEED with the next phase of the work or spray any materials on the building systems until such time as the District has inspected the facility and given the Contractor a Notice to Proceed (REMOVAL AND DETAIL).

2.03 After encapsulation, the District will inspect the adequacy of encapsulation within each building or section thereof. The Contractor SHALL NOT PROCEED with final clean-up until a Notice to Proceed has been issued (ENCAPSULATION).

2.04 The District will inspect the facilities on a daily basis as necessary to ensure compliance with this Contract. Representatives of the District may be on-site at all times during the performance of this Contract.

A. The District is not limited by the inspection requirements as noted above in Sections 2.01 through 2.03; additional safety and health inspections as well as inspections by the Owner will occur randomly. Contractor will not attempt to control access to asbestos containments to District asbestos personnel.

SECTION 02160

MECHANICAL

PART 1 - SCOPE OF WORK

1.01 Remove as directed all HVAC ventilation grilles and registers, including ceiling or wall access panels. Each shall be wet-cleaned and stored by the Contractor except those designated to be disposed of as asbestos waste. Or seal all grilles, registers, and ceiling or wall access panels in plastic sheeting.

1.02 Contractor will ensure that the all equipment has been properly locked out and all procedures to secure all equipment, including mechanical equipment, will comply with all requirements of the OSHA and the Districts Lock out/tag out procedures.

1.03 As directed by the District, during final cleaning, wet-clean and vacuum all HVAC ventilation ducts with HEPA filtered vacuum equipment.

A. Cleaning may include, but is not limited to, the first six feet of all supply, return and exhaust air ducts adjacent to the work area.

SECTION 02170

ELECTRICAL

PART l - SCOPE OF WORK

1.01 Disconnect all circuits in the work area at the main panel box and lock out same as approved by the District.

1.02 Where required, remove all existing electrical fixtures including, but not limited to, ceiling and wall lights, clocks, alarms, and sound system fixtures. Each shall be wet-cleaned, location tag attached and store as directed by the District.

A. Nonfunctional electrical fixtures or systems shall be brought to the attention of the District in writing prior to commencement of work. Failure to notify the District in writing of any nonfunctional electrical fixtures or systems will not act to relieve the Contractor of the provisions of Section 02170, PART 2, 2.04.

1.03 Protect all exposed wires.

1.04 Contractor will ensure that the all equipment has been properly locked out and all procedures to secure all equipment, including electrical equipment, will comply with all requirements of the OSHA and the Districts Lock out/tag out procedures.

SECTION 02180

RESTORATION

PART 1 - RESTORATION WORK

1.01 Existing conditions disturbed by the Contractor's operations shall be restored to a condition satisfactory to the District and shall match existing adjacent surfaces. Damage due to tape, staples, nails, spray-poly, water, including unforeseen actions, is the responsibility of the Contractor and must be restored to the prior to final acceptance of the facility by the District.

1.02 The Contractor shall survey and detail all existing damage to walls, floors and floor coverings, fixtures and so on. This survey shall be submitted to the District in writing prior to set-up and preparation of the worksite.

1.03 All restoration must be completed within two weeks after the abatement project containment is torn down. Failure to complete the restoration in the two week time frame will result in the District hiring an outside vendor to complete the restoration. The cost of services for the restoration will be deducted from the projects final payments or any payments outstanding to the contractor.

1.04 The contractor is responsible for supplying all labor and materials to properly perform the restoration.

1.05 The contractor is responsible for the security of items removed by the contractor that require reinstallation. The District assumes not responsibility for the security of items left in District facilities. The contractor is responsible for replacing at no cost to the District any item removed by the contractor that is found to be missing or damaged at the time of reinstallation.

PART 2 - WALL AND FLOOR COVERING

2.01 It is the Contractor's responsibility to ensure that all wall areas are adequately sealed with 6 mil plastic in order to prevent water accumulation and asbestos contamination. Any wall material which is stained or otherwise damaged during any phase of the work shall be replaced in its entirety with materials of equal quality and selected by the District.

2.02 The Contractor shall restore all painted, varnished, lacquered, paneled or enameled surfaces (including factory finished surfaces) should damage occur from tape, staples, nails, water, and so on. Should such procedures be unacceptable to the District, the District may require, at its option, the entire replacement, refinishing, repainting or resurfacing of the damaged surface area.

PART 3 - FIXTURES

3.01 Any electrical fixtures, HVAC grilles, registers, and access doors lost or damaged by the Contractor shall be replaced at Contractor's expense.

3.02 Any other fixtures, furniture, appliances, and equipment not specifically mentioned must be replaced or repaired at Contractor's expense if lost or damaged.

PART 4 - SEWER SYSTEM

4.01 Should the Contractor, his employees, or subcontractors utilize existing sewer facilities for disposal of any ACM, asbestos contaminated material, or asbestos contaminated water, Contractor shall thoroughly clean the entire building's sewage system including, but not limited to, all sink, shower, floor, and toilet drains and traps, all primary and secondary sewage lines, and all lines wherever located and extending underground to the main sewer service connection.

PART 5 - EXTERIOR OF BUILDING

5.01 It is the Contractor's responsibility to repair or replace any and all damaged external areas of the building including, but not limited to, walls, doors, sidewalks, driveways, parking lots, concrete curbs, shrubbery, grass, sprinkler systems, and so on.

A. Damaged areas will be repaired or replaced at the option of the District.

5.02 Any ground areas external to the building which may become contaminated with asbestos shall be decontaminated at the Contractor's expense.

A. Decontamination procedures shall require removal of dirt to a depth of 4 inches which shall be disposed of as asbestos waste.

B. All areas from which soil was decontaminated shall be restored to its original condition at the option of the District.

SECTION 02190

TRANSITE SUPPLEMENTAL SPECIFICATIONS

Asbestos Abatement Specifications
Washoe County School District
Transite Panels at District Sites

Background

Washoe County School District (WCSD) will be performing the abatement of transite wall, ceiling panels, pipes and/or window panels at various District sites. This supplemental spec as well as the District specs will apply to the removal of all transite materials. The abatement contractor shall be prepared to abate the transite materials as identified in the site-specific architectural drawings provided for the individual site or information provided prior to bidding.

The contractor will need to note when additional asbestos-containing materials are to be abated within the same containment area and perform that work within the same negative pressure enclosure, if applicable. The contractor's onsite supervisor, or project estimator during bidding, will need to confer with either WCSD or the District's independent third-party consultant, for the expected containment areas and number of containments at a particular site.

Scope of Work

The contractor awarded the project will be responsible for all costs associated with the abatement of the transite.

The project scope shall be determined by the site-specific architectural drawings prepared for the individual site. The Contractor is responsible for reviewing the architectural drawings and the WCSD Regulated Systems and Assessment (ES&A) Material Disturbance Permit to determine which materials, including any sealants, in the project area are asbestos-containing.

The District has retained an independent third-party abatement consultant to draft these specifications, who may provide oversight during the projects, conduct visual clearance inspections and collect clearance air samples at the conclusion of these abatement projects. All oversight or additional oversight and collection of air samples may be performed by the District's ES&A Department as well at their discretion.

In addition to complying with these supplemental specifications, the Contractor must also comply with all other asbestos abatement requirements listed in these asbestos abatement specifications. If Contractors find any conflicting information in the supplemental specifications, the Contractor must comply with the requirements listed herein that are deemed most stringent by the District or District hired asbestos consultant supervising the abatement.

Project Requirements

Contractor shall be approved by the WCSD ES&A Department to perform asbestos abatement activities within the District. **Approval of firms that have not performed activities impacting asbestos for the District previously, will need to submit all necessary documentation outlined in the WCSD ES&A Technical Specifications for the project at least ten (10) business days prior to work commencing for approval.**

All workers certifications – asbestos training and licensing and medical clearance – shall be submitted to the WCSD ES&A at least five (5) working days prior to project commencement at minimum for approval. Contractor is responsible for reviewing WCSD ES&A worker roster for the company to assure all workers to be used on the project have been approved prior to arrival onsite. Workers not identified on the approved worker list for the contractor will not be allowed to perform any activities onsite, even if documentation is provided onsite at time of the project commencement.

The abatement contractor's onsite supervisor shall have a copy of these Specifications onsite at all times and be familiar with the project requirements prior to arrival onsite at the project. Failure to follow requirements of these Specifications, or lack of knowledge of requirements to be followed during the project, are grounds for replacement of the abatement contractor's onsite supervisor.

Only the abatement contractor will be allowed to occupy the project area once abatement activities are scheduled to start. This applies to all WCSD non-ES&A staff/personnel and site staff/personnel. The area shall only be occupied by the abatement contractor, WCSD ES&A staff, and District's independent third-party abatement consultant. Other personnel will not be allowed to occupy the building during asbestos abatement activities.

Contractor shall adhere to the requirements of these Specifications, WCSD ES&A Technical Specifications, Federal, State, and Local regulations.

Water and Electricity

Water and electricity are available onsite, but long hoses and cords may be necessary. The contractor is responsible for any damage to water or power systems caused by their use of those systems.

Contractor shall provide a GFI at the primary plug-in of all electrical trains used for electrical equipment. Hose washers shall be provided at all hose connections to prevent leakage of water and potential damage to District facilities.

Pre-Cleaning

Pre-cleaning is not expected to be necessary; however, Contractor may need to remove some debris or clean surfaces to facilitate building containment area.

Notifications

Contractor is responsible for timely notifications (including courtesy notifications if applicable) to Nevada Division of Industrial Relations and Washoe County Health Department. Notifications shall be filed in advance of any waiting periods in lieu of the proposed project start date or other requirements for pre-work notification. Any revisions to notifications including project scope, start date, duration of project, or any other changes are the Contractor's responsibility. Valid notifications shall be posted onsite during the project, and copies shall be provided to the District's onsite third-party consultant.

Equipment

Contractor is responsible for providing all necessary equipment in sufficient quantities to complete the project in the schedule provided for the project. All equipment must arrive onsite clean and in proper functioning order. Any equipment that arrives onsite dirty or not in proper functioning order shall be removed from the project site for cleaning and/or repairs.

Training

Workers performing asbestos abatement activities as part of this project must have AHERA Worker training with at least one worker trained to the AHERA Contractor-Supervisor level. All workers shall be licensed by the Nevada DIR for asbestos work. The crew lead Contractor-Supervisor may not leave the site anytime asbestos abatement operations are being performed.

As noted previously, all workers certifications must be approved by the WCSD ES&A prior to arrival onsite to start work. Copies of the worker certs shall be provided to the District's onsite third-party consultant as well.

Personal Protection Equipment

The contractor is responsible for adhering to Nevada Division of Industrial Relations and OSHA requirements for worker respiratory protection. At a minimum, workers shall wear half-face, negative pressure respirators with HEPA (P-100) filters during any activities which disturb asbestos-containing materials.

Workers shall wear Tyvek-level disposable coveralls, hard hats, work gloves, and safety glasses (if not using a full face-piece respirator.) Street clothes may be worn under disposable coveralls.

All employees shall have a valid medical clearance and fit test for respirators to be used. Medical clearance shall be provided for approval to the WCSD ES&A prior to the project commencement. Copies of the medical clearance and fit test shall be provided to the District's onsite third-party consultant as well.

Personal Air Monitoring

The contractor is responsible for the collection of personal air samples on workers during all abatement activities for asbestos. Personal air samples shall be collected in accordance with OSHA sampling protocols and analyzed by a laboratory with the proper accreditation.

Laboratories to be used for personal air sample analysis must be approved by WCSD ES&A.

Copies of the personal air sampling results, along with laboratory accreditation, shall be submitted to the WCSD ES&A and District's independent third-party consultant.

In addition, the contractor will comply with all requirements regarding personal air monitoring listed in Section 02130, Part 2- - Air Monitoring, 2.02.

Security and Safety

The contractor is responsible for security of all equipment and safety of all employees. Contractor shall provide any storage containers or security needed for tools and equipment if needed.

Contractor is responsible for all worker safety and following all applicable regulations, namely Nevada and Federal OSHA, including for asbestos and respirable crystalline silica exposures.

Occupancy

As noted previously, the project area will be limited to the abatement contractor, WCSD ES&A staff, and District's independent third-party consultant once abatement activities are ready to commence. Once the area has been cleared, other parties may occupy.

Emergency services may also occupy areas in the event of an emergency during the project.

Challenge Testing

All HEPA-filtered equipment to be used on this project shall have been challenge tested (DOP or equivalent) within the previous 30 days prior to use onsite. Copies of the challenge testing results shall be provided to the WCSD ES&A and/or District's independent third-party consultant.

Asbestos Abatement Containment and Abatement Requirements

ALL POLY USED ON PROJECT SHALL BE 6-MIL AND FIRE-RETARDANT UNLESS EXEMPTED IN REQUIREMENTS BELOW.

WHERE POSSIBLE, TRANSITE PANELS SHALL BE REMOVED FROM THE EXTERIOR SIDE.

Interior Transite Panel Abatement

1. Contractor shall seal all critical barriers (HVAC, windows, doors, etc.) in each area with one layer of 6-mil poly. Doors leading outside of the containment area shall remain in place for security.

2. All walls, floors, and any fixed objects that cannot be removed from the containment shall be covered with one layer of 6-mil poly. An additional layer of 4-mil poly may be applied to covered surfaces for use as a cleaning barrier. Vertical barriers may be installed to decrease the size of containment areas; however, such barriers shall be constructed with wood framing and ½" plywood backing.

3. Poly critical barriers with wood framed ½" plywood backing shall be installed on the exterior side of the transite panel to contain the interior space and secure the wall opening. Two layers of poly shall be used to cover the plywood with an additional two layers installed on exterior side of the plywood which will extend out 2" on each side of the plywood.

4. A minimum three-stage decontamination unit with operable shower shall be contiguous with each containment. See "Decontamination Chamber Requirements" in this specification for further requirements.

5. Negative pressure shall be established and a recording manometer shall be attached to each containment. Copies of the manometer recordings shall be provided on 8.5"x11" paper by the Contractor.

6. An air pressure differential of -0.050" WC must be established and maintained throughout all phases of abatement and through receipt of passing air clearance.

7. Workers shall wet all materials prior to, and during, removal using amended water.

8. Transite panels shall be removed intact wherever possible.

9. Any sealants at edges of transite panels, or other suspect materials that may need to be disturbed by the transite panel removal shall be considered to be asbestos-containing materials unless sampled and proven otherwise.

10. Following removal of all transite panels, all poly shall be wet-wiped or HEPA-vacuumed clean as part of detail cleaning. Any 4-mil poly cleaning barriers may be removed as part of this detail cleaning.

11. All waste shall be placed into two separate waste bags of 6-mil thickness. The outer waste bag shall be sealed in a "goose-neck" fashion to create a leak-tight container.

Exterior Transite Panel Abatement

1. Contractor shall seal all critical barriers (HVAC, windows, doors, etc.) within 20 feet of the work area with one layer of 6-mil poly.

2. Poly drop sheets shall be installed in the work area, extending 20 feet out from any transite panel to be removed, and this work area shall be demarcated with warning signs / tape. The Contractor shall control access to this regulated area to a distance of 50 feet out, demarcating the perimeter with caution tape.

3. Poly critical barriers with wood framed ½" plywood backing shall be installed on the interior side of the transite panel to seal off the interior space and secure the wall opening. The plywood will be covered with two layers of 6-mil poly on both the interior and exterior side. The interior poly barriers shall extend out two inches on each side.

4. Decontamination facilities shall be sited adjacent to the work area, and shall include a drop sheet. A water source shall be provided, along with soap and towels. Dirty water shall be contained. A privacy barrier shall also be installed as needed.

5. Workers shall wet all materials prior to, and during, removal using amended water.

6. Transite panels shall be removed intact wherever possible.

7. Any sealants at edges of transite panels, or other suspect materials that may need to be disturbed by the transite panel removal shall be considered to be asbestos-containing materials unless sampled and proven otherwise.

8. Following removal of all transite panels, all poly shall be wet-wiped or HEPA-vacuumed clean as part of detail cleaning.

9. All waste shall be placed into two separate waste bags of 6-mil thickness. The outer waste bag shall be sealed in a "goose-neck" fashion to create a leak-tight container.

Decontamination Requirements

A three stage decon unit including a shower is required for any interior asbestos containments. Each chamber of the decon must have self-closing Z-flaps that seal air tight. A four-inch barrier must exist at the floor of each chamber to prevent the transfer of water and debris from chamber to chamber. This barrier will also provide a seal for the flaps between each chamber. Equipment and bag out chambers do not require a shower, but a washing station must exist and they must be three-stages. The washing station must be constructed in a manner that prevents water from splashing or traveling out of the central decon chamber. Equipment and bag out chambers must also have flaps that seal air tight.
Shower units must be equipped with an overflow pan to catch water which overfills the drain system, or is splashed out of the chamber during employee showers. Showers must be supplied with hot water, soap, shampoo, and towels for the workers. Showers shall be sited in the central decon chamber. Showers and washing station must also be equipped with a filtering system that includes a 0.5 micron filter. If filtering system is not available or is not functioning correctly, shower water must be bagged and disposed of as asbestos-containing waste.
All chambers of the decon, including the clean chamber, must be kept clean and dry (except shower) at all times. Abatement work will be stopped if decon is not kept in acceptable condition.

Regulated Area Signage
Asbestos Danger signs shall be posted at all entrances or exits to the containment area, even if the entrance or exit is sealed as a critical barrier. Signs shall also be posted on the flap leading into the shower station of

decontamination chambers. Signage will be set once a pre-start visual is passed and work may begin in the containment, but no work will start until all signs are posted.
Signage shall meet the revised requirements set forth in 29 CFR 1926.1101(k)(7).

Air Pressure Differential – Full Containment Areas Only

Air pressure differential must be established and maintained at -0.05 inches water differential or better before start of abatement and air pressure differential must be maintained through all phases of project, including collection of clearance air samples and receipt of results. A minimum of eight air changes per hour is required for the project. Work will be halted if the air pressure drops below -0.05 inches water differential and can resume when air pressure differential of -0.05 inches is established again.
Air pressure differential must be displayed and recorded on a properly calibrated and fully functioning manometer. Copies of the manometer recording must be provided by the contractor on 8.5" x 11" paper at completion of project.
All negative air machines must be exhausted to the exterior of the building using wire-reinforced flex duct. All negative air machines must be used inside containment. No machines shall be attached to the exterior of the containment with the intake only inside.
Any exterior or interior barricades need to be constructed of a minimum ½" plywood and shall be made secure.

Make-Up Air Sources

Available, but may need to be HEPA-filtered. Any make-up holes in critical barriers must be equipped with a challenge/DOP-tested HEPA filter. Placing a pre-filter in the make-up air hole will not be allowed.

Disposal Requirements

All asbestos waste generated on this project will need to be double-bagged in 6-mil poly waste bags, or double-wrapped in 6-mil polyethylene sheeting. All waste bags must be sealed in a "gooseneck" fashion and "burrito-wrapped" materials shall have staggered seams. All non-friable debris shall be properly labeled and identified for disposal as an asbestos-containing waste. Materials that have become friable or which removal methods have made friable shall be labeled and identified for disposal as regulated asbestos-containing material (RACM).

The contractor will need to provide a lockable waste bin for all waste created on this project. Waste bin will need to be labeled with asbestos signage once the waste is loaded into the bin. Waste bins shall be lined with one layer of 6-mil poly prior to waste being loaded.

Waste bins will need to arrive onsite clean of debris or any other waste and in proper functioning order. Waste bins may be rejected by WCSD ES&A staff or District's independent third-party consultant if these conditions are not met, with no extra charge to the District.

Clearance

Upon completion of asbestos abatement activities, a final visual inspection will be performed by either WCSD ES&A staff or District's independent third-party consultant. This inspection will be performed only after the abatement contractor crew supervisor has performed their own final visual clearance. Areas must be free of all three-dimensional material with all surfaces clean of dust and debris and all materials abated within the containment area.

The visual inspection will serve as final clearance for exterior transite panel removal. Following a successful visual clearance inspection, the Contractor shall apply a lock-down encapsulant, then remove containment drop sheets, signage, equipment, etc. The barriers at window / wall openings shall be left in place.

For interior removal of transite panels within full containment, final clearance shall be through aggressive air sampling conducted by the District's independent third-party consultant. A set of five air samples will be collected inside the containment to be analyzed in accordance with AHERA completion of response action criteria using either phase contrast microscopy (PCM) or transmission electron microscopy (TEM), depending on the quantity of materials abated.

Clearance criteria for PCM sample analysis, in accordance with AHERA, is 0.01 fibers per cubic centimeter (0.01 f/cc) or less for each of the five samples.

Clearance criteria for TEM sample analysis, in accordance with AHERA, is an average of 70 structures per square millimeter (70 s/mm^2) or fewer for the inside-containment set of five samples.

Contractor shall return to the site to apply a lock-down encapsulant, remove poly barriers and equipment upon notification of passing clearance air samples. The barriers at window / wall openings shall be left in place.

SECTION 02200

SUPPLEMENTAL FLOOR TILE & MASTIC SPECIFICATIONS
Asbestos Abatement Specifications
Washoe County School District
Floor Tile and Mastic at District Sites

Background

Washoe County School District (WCSD) will be performing the abatement of vinyl floor tile (VFT) and mastic at various District sites. This supplemental spec as well as the District specs will apply to the removal of all Floor Tile and Mastic materials. The abatement contractor shall be prepared to abate flooring materials as identified in the site-specific architectural drawings provided for the individual site or information provided prior to bidding.

The contractor will need to note when additional asbestos-containing materials are to be abated within the same containment area and perform that work within the same negative pressure enclosure. The contractor's onsite supervisor, or project estimator during bidding, will need to confer with either WCSD or the District's independent third-party consultant, for the expected containment areas and number of containments at a particular site.

Scope of Work

The contractor awarded the project will be responsible for all costs associated with the abatement of flooring materials.

The project scope shall be determined by the site-specific architectural drawings prepared for the individual site. The Contractor is responsible for reviewing the architectural drawings and the WCSD Regulated Systems and Assessment (ES&A) Material Disturbance Permit to determine which materials, including baseboards and mastic, in the project area are asbestos-containing.

The District has retained an independent third-party abatement consultant to draft these specifications, who may provide oversight during the projects, conduct visual clearance inspections and collect clearance air samples at the conclusion of these abatement projects. All oversight or additional oversight and collection of air samples may be performed by the District's ES&A Department as well at their discretion.

In addition to complying with these supplemental specifications, the Contractor must also comply with all other asbestos abatement requirements listed in these asbestos abatement specifications. If Contractors find any conflicting information in the supplemental specifications, the Contractor must comply with the requirements listed herein that are deemed most stringent by the District or District hired asbestos consultant supervising the abatement.

Most floors in the District are concrete, but wood floors may be encountered. Since cleaning flooring mastics are difficult if not impossible on wood floors, whenever there is more than is one layer of flooring sub-floor, one layer will be removed as a part of the abatement process and properly disposed as asbestos containing materials.

Project Requirements

Contractor shall be approved by the WCSD ES&A Department to perform asbestos abatement activities within the District. **Approval of firms that have not performed activities impacting asbestos for the District previously, will need to submit all necessary documentation outlined in the WCSD ES&A Technical Specifications for the project at least ten (10) business days prior to work commencing for approval.**

All workers certifications – asbestos training and licensing and medical clearance – shall be submitted to the WCSD ES&A at least five (5) working days prior to project commencement at minimum for approval. Contractor is responsible for reviewing WCSD ES&A worker roster for the company to assure all workers to be used on the project have been approved prior to arrival onsite. Workers not identified on the approved worker list for the contractor will not be allowed to perform any activities onsite, even if documentation is provided onsite at time of the project commencement.

The abatement contractor's onsite supervisor shall have a copy of these Specifications onsite at all times and be familiar with the project requirements prior to arrival onsite at the project. Failure to follow requirements of these Specifications, or lack of knowledge of requirements to be followed during the project, are grounds for replacement of the abatement contractor's onsite supervisor.

Only the abatement contractor will be allowed to occupy the project area once abatement activities are scheduled to start. This applies to all WCSD non-ES&A staff/personnel and site staff/personnel. The area shall only be occupied by the abatement contractor, WCSD ES&A staff, and District's independent third-party abatement consultant. Other personnel will not be allowed to occupy the building during asbestos abatement activities.

Contractor shall adhere to the requirements of these Specifications, WCSD ES&A Technical Specifications, Federal, State, and Local regulations.

Water and Electricity

Water and electricity are available onsite, but long hoses and cords may be necessary. The contractor is responsible for any damage to water or power systems caused by their use of those systems.

Contractor shall provide a GFI at the primary plug-in of all electrical trains used for electrical equipment. Hose washers shall be provided at all hose connections to prevent leakage of water and potential damage to District facilities.

Pre-Cleaning

Pre-cleaning is not expected to be necessary; however, Contractor may need to remove some debris or clean surfaces to facilitate the building of negative pressure enclosure.

Notifications

Contractor is responsible for timely notifications (including courtesy notifications if applicable) to Nevada Division of Industrial Relations and Washoe County Health Department. Notifications shall be filed in advance of any waiting periods in lieu of the proposed project start date or other requirements for pre-work notification. Any revisions to notifications including project scope, start date, duration of project, or any other changes are the Contractor's responsibility. Valid notifications shall be posted onsite during the project, and copies shall be provided to the District's onsite third-party consultant.

Equipment

Contractor is responsible for providing all necessary equipment in sufficient quantities to complete the project in the schedule provided for the project. All equipment must arrive onsite clean and in proper functioning order. Any equipment that arrives onsite dirty or not in proper functioning order shall be removed from the project site for cleaning and/or repairs.

Training

Workers performing asbestos abatement activities as part of this project must have AHERA Worker training with at least one worker trained to the AHERA Contractor-Supervisor level. All workers shall be licensed by the Nevada DIR for asbestos work. The crew lead Contractor-Supervisor may not leave the site anytime asbestos abatement operations are being performed.

As noted previously, all workers certifications must be approved by the WCSD ES&A prior to arrival onsite to start work. Copies of the worker certs shall be provided to the District's onsite third-party consultant as well.

Personal Protection Equipment

The contractor is responsible for adhering to Nevada Division of Industrial Relations and OSHA requirements for worker respiratory protection. At a minimum, workers shall wear half-face, negative pressure respirators with HEPA (P-100) filters during any activities which disturb asbestos-containing materials.

Workers shall wear Tyvek-level disposable coveralls, hard hats, work gloves, and safety glasses (if not using a full face-piece respirator.) Street clothes may not be worn under disposable coveralls.

All employees shall have a valid medical clearance and fit test for respirators to be used. Medical clearance shall be provided for approval to the WCSD ES&A prior to the project commencement. Copies of the medical clearance and fit test shall be provided to the District's onsite third-party consultant as well.

Personal Air Monitoring

The contractor is responsible for the collection of personal air samples on workers during all abatement activities for asbestos. If removal activities or methods are expected to disturb any substrates which contain silica, the contractor is also responsible for collection of personal air samples for respirable crystalline silica

exposure. Asbestos and silica personal air samples shall be collected in accordance with OSHA sampling protocols and analyzed by a laboratory with the proper accreditation.

Laboratories to be used for personal air sample analysis must be approved by WCSD ES&A.

Copies of the personal air sampling results, along with laboratory accreditation, shall be submitted to the WCSD ES&A and District's independent third-party consultant.
In addition, the contractor will comply with all requirements regarding personal air monitoring listed in Section 02130, Part 2- - Air Monitoring, 2.02.

Security and Safety

The contractor is responsible for security of all equipment and safety of all employees. Contractor shall provide any storage containers or security needed for tools and equipment if needed.

Contractor is responsible for all worker safety and following all applicable regulations, namely Nevada and Federal OSHA, including for asbestos and respirable crystalline silica exposures.

Occupancy

As noted previously, the project area will be limited to the abatement contractor, WCSD ES&A staff, and District's independent third-party consultant once abatement activities are ready to commence. Once the area has been cleared, other parties may occupy.

Emergency services may also occupy areas in the event of an emergency during the project.

Challenge Testing

All HEPA-filtered equipment to be used on this project shall have been challenge tested (DOP or equivalent) within the previous 30 days prior to use onsite. Copies of the challenge testing results shall be provided to the WCSD ES&A and/or District's independent third-party consultant.

Asbestos Abatement Containment and Abatement Requirements

ALL POLY USED ON PROJECT SHALL BE 6-MIL AND FIRE-RETARDANT UNLESS EXEMPTED IN REQUIREMENTS BELOW.

Vinyl Floor Tile and Mastic Abatement

1. Contractor shall seal all critical barriers (HVAC, windows, doors, etc.) in each containment area with one layer of 6-mil poly. Doors leading outside of the containment area shall remain in place for security.

2. The contractor shall setup a regulated area and abate those areas of tiles that extend below door threshold prior to sealing of doorways as critical barriers as applicable.

3. All walls and any fixed objects that cannot be removed from the containment shall be covered with one layer of 6-mil poly. One additional layer of 4-mil poly may extend up from the floor to a height of 4' to act as a cleaning barrier.

4. A false-ceiling, minimum of 4-mil poly, shall be installed as directed by the owner or if needed to achieve and maintain sufficient negative air pressure differential as noted below. Mastic to be removed by hydro-blasting or grinding will require installation of a 4-mil poly ceiling. See hydro-blasting and grinding sections below.

5. A minimum three-stage decontamination unit with operable shower shall be contiguous with each containment. See "Decontamination Chamber Requirements" in this specification for further requirements.

6. Negative pressure shall be established and a recording manometer shall be attached to each containment. Copies of the manometer recordings shall be provided on 8.5"x11" paper by the Contractor to the District and third-party independent consultant.

7. An air pressure differential of -0.050" WC must be established and maintained throughout all phases of abatement and through receipt of passing air clearance.

8. Workers shall wet all materials prior to, and during, removal using amended water.

9. Baseboard removal shall not take place until containment is established.

10. At the conclusion of abatement, the floor surface shall be HEPA-vacuumed clean and all mastic removed. The criteria for mastic removal shall be no three-dimensional material, including mastic that may have become liquefied and entered slab divots, joints, or any other areas during the removal process.

11. All poly shall be wet-wiped or HEPA-vacuumed clean as part of detail cleaning. The 4-mil poly cleaning barrier may be removed as part of this detail cleaning unless required for maintaining sufficient air pressure differential.

12. All waste shall be placed into two separate waste bags of 6-mil thickness. The outer waste bag shall be sealed in a "gooseneck" fashion to create a leak-tight container.

For the hydro-blasting of the concrete substrate to remove mastic and for areas which must have the top surface of the concrete removed, as directed by the flooring subcontractor(s), the following requirements must be met by the Contractor:

1. For hydro-blasting, a full negative pressure containment must be constructed, including a ceiling of 4-mil poly.

2. All critical barriers must be sealed with one layer of 6-mil poly. Any fixed objects that cannot be moved out of the containment area shall be covered with one layer of 6-mil poly.

3. Contractor shall use a hydro-blasting unit to "power wash" the floors clear of mastic, including any cracks or seams in the concrete slab. This system shall have a man-operated unit that will capture the water with vacuum pressure at the front of the machine as it is operating to prevent the build-up of water in the containment.

4. The hydro-blasting unit shall be set to remove mastic on the substrate surface, cracks, and seams, without damage to the concrete slab. For areas where the top surface layer of the concrete is to be removed, at the direction of the flooring subcontractor(s), the abatement contractor shall set the hydro-blasting unit to remove the surface to a depth specified by the flooring subcontractor(s).

5. The abatement contractor shall anticipate the unit not being able to hydro-blast all areas of the containment (corners, along walls) and shall plan to use alternate methods to remove mastic or the top concrete surface in such areas. Any mechanical means to remove the mastic will need to have HEPA-filtered local exhaust.

6. At the conclusion of the hydro-blasting, the abatement contractor shall clean the floor of the containment using HEPA-vacuums followed by wet-cleaning, and HEPA-vacuuming again to assure that surfaces have been cleaned sufficiently.

7. All poly surfaces, including the ceiling, shall be wet-wiped clean as part of detail cleaning.

8. Contractor shall perform treatment of waste water prior to discharge if water will not be treated as a hazardous waste. Waste water must meet the levels of requirements provided in City of Reno Municipal Code 12.16.565.

9. Contractor shall follow all requirements, including collection of any necessary permits, for the discharge of contaminated water as required by City of Reno Municipal Code 12.16.

10. If abatement contractor will dispose of all water, they shall be responsible for profiling water for disposal. Copies of the waste profile results, along with chain of custody, shall be provided to HMS, Inc. Project Manager prior to disposal.

For the grinding of concrete floor surfaces, the work shall be performed within the same containment erected for floor tile and mastic abatement (as applicable). If areas being ground are not within a contained area (such as non-asbestos floor removal), a negative pressure enclosure shall be constructed as listed in the hydro-blasting section above. In addition to the requirements as noted above, the following engineering controls shall be met by the contractor performing the grinding of floor surfaces.

1. All power equipment to be used for the grinding of concrete floor surfaces shall have an approved shroud system that provides local exhaust.

2. A HEPA-vacuum shall be attached to the shroud system to provide the local exhaust.

3. An airless sprayer or equivalent shall be used to provide water for the suppression of any visible emissions that may be released by the work and to keep surfaces wet prior to cleaning.

4. All slurries or dust remaining within the containment area shall be HEPA-vacuumed cleaned. Additional wet-wiping to assure all dust has been cleaned in the containment area may be required.

Decontamination Requirements

A three stage decon unit including a shower is required for asbestos containments. Each chamber of the decon must have self-closing Z-flaps that seal air tight. A four-inch barrier must exist at the floor of each chamber to prevent the transfer of water and debris from chamber to chamber. This barrier will also provide a seal for the flaps between each chamber. Equipment and bag out chambers do not require a shower, but a washing station must exist and they must be three-stages. The washing station must be constructed in a manner that prevents water from splashing or traveling out of the central decon chamber. Equipment and bag out chambers must also have flaps that seal air tight.

Shower units must be equipped with an overflow pan to catch water which overfills the drain system, or is splashed out of the chamber during employee showers. Showers must be supplied with hot water, soap, shampoo, and towels for the workers. Showers shall be sited in the central decon chamber. Showers and washing station must also be equipped with a filtering system that includes a 0.5 micron filter and heated water. If a filtering system is not available or is not functioning correctly, shower water must be bagged and disposed of as asbestos-containing waste with no extra compensation being given to the Contractor.

All chambers of the decon, including the clean chamber, must be kept clean and dry (except shower) at all times. Abatement work will be stopped if decon is not kept in acceptable condition.

Regulated Area Signage

Asbestos Danger signs shall be posted at all entrances to the containment area, even if the entrance is sealed as a critical barrier. Signs shall also be posted on the flap leading into the shower station of decontamination chambers. Signage will be set once a pre-start visual is passed and work may begin in the containment, but no work will start until all signs are posted.
Signage shall meet the revised requirements set forth in 29 CFR 1926.1101(k)(7).

Air Pressure Differential

Air pressure differential must be established and maintained at -0.05 inches water differential or better before start of abatement and air pressure differential must be maintained through all phases of project, including collection of clearance air samples and receipt of results. A minimum of eight air changes per hour is required for the project. Work will be halted if the air pressure drops below -0.05 inches water differential and can resume when air pressure differential of -0.05 inches is established again.

Air pressure differential must be displayed and recorded on a properly calibrated and fully functioning

manometer. Copies of the manometer recording must be provided by the contractor on 8.5" x 11" paper at completion of project.

All negative air machines must be exhausted to the exterior of the building using wire-reinforced flex duct. All negative air machines must be used inside containment. No machines shall be attached to the exterior of the containment with the intake only inside.

Any exterior barricades need to be constructed of a minimum ½" plywood and lockable for security. Contractor is responsible for providing a lock to any exterior barricades, and keys shall be provided to WCSD site facilities coordinator and District's independent third-party consultant.

Make-Up Air Sources

Available, but may need to be HEPA-filtered. Any make-up holes in critical barriers must be equipped with a challenge/DOP-tested HEPA filter. Placing a pre-filter in the make-up air hole will not be allowed.

Disposal Requirements

All asbestos waste generated on this project will need to be double-bagged in 6-mil poly waste bags. At least one of the waste bags must be sealed in a "gooseneck" fashion. All non-friable debris shall be properly labeled and identified for disposal as an asbestos-containing waste. Materials that have become friable or which removal methods have made friable shall be labeled and identified for disposal as regulated asbestos-containing material (RACM).

The contractor will need to provide a lockable waste bin for all waste created on this project.

Waste bin will need to be labeled with asbestos signage once the waste is loaded into the bin. Waste bins shall be lined with one layer of 6-mil poly prior to waste being loaded.

Waste bins will need to arrive onsite clean of debris or any other waste and in proper functioning order. Waste bins may be rejected by WCSD ES&A staff or District's independent third-party consultant if these conditions are not met, with no extra charge to the District.

Clearance

Upon completion of asbestos abatement activities, a final visual inspection will be performed by either WCSD ES&A staff or District's independent third-party consultant. This inspection will be performed only after the abatement contractor crew supervisor has performed their own final visual clearance. Areas must be free of all three-dimensional material with all surfaces clean of dust and debris and all materials abated within the containment area. Once the containment has been successfully visually inspected and cleared, the Contractor shall apply a lock-down encapsulant to contaminated surfaces in the containment area. The contractor will need to use care to not apply encapsulant to floor surfaces which may prevent adhesion of new flooring materials.

Final clearance shall be through aggressive air sampling conducted by the District's independent third-party

consultant or a District AHERA certified technician. A set of five air samples will be collected inside the containment to be analyzed in accordance with AHERA completion of response action criteria using either phase contrast microscopy (PCM) or transmission electron microscopy (TEM), depending on the quantity of materials abated.

Clearance criteria for PCM sample analysis, in accordance with AHERA, is 0.01 fibers per cubic centimeter (0.01 f/cc) or less for each of the five samples.

Clearance criteria for TEM sample analysis, in accordance with AHERA, is an average of 70 structures per square millimeter (70 s/mm^2) or fewer for the inside-containment set of five samples.

Contractor shall return to the site to remove poly barriers and equipment upon notification of passing clearance air samples. Contractor is also responsible for washing the floor using an approved detergent cleaner and water to provide a clean surface for the new floor installation.

In the event that floor grinding is required to be completed within the same containment area, clearance air samples will be collected at the conclusion of grinding and cleaning of the surfaces within the containment area.

Supplemental Asbestos Abatement Specifications
Washoe County School District
Thermal System Insulation at District Sites

Background

Washoe County School District (WCSD) will be performing the abatement of thermal system insulation (TSI) materials at various District sites. This supplemental spec as well as the District specs will apply to the removal of all asbestos containing Thermal System Insulation. The abatement contractor shall be prepared to abate TSI materials as identified in the site-specific architectural drawings provided for the individual site or information provided prior to bidding.

The contractor will need to note when additional asbestos-containing materials are to be abated within the same containment area and perform that work within the same negative pressure enclosure. The contractor's onsite supervisor, or project estimator during bidding, will need to confer with either WCSD or the District's independent third-party consultant, for the expected containment areas and number of containments at a particular site.

Scope of Work

The contractor awarded the project will be responsible for all costs associated with the abatement of TSI materials.

The project scope shall be determined by the site-specific architectural drawings prepared for the individual site. The Contractor is responsible for reviewing the architectural drawings and the WCSD Regulated Systems and Assessment (ES&A) Material Disturbance Permit to determine which TSI materials in the project area are asbestos-containing and will be required to be abated.

The District has retained an independent third-party abatement consultant to draft these specifications, who may provide oversight during the projects, conduct visual clearance inspections and collect clearance air samples at the conclusion of these abatement projects. All oversight or additional oversight and collection of air samples may be performed by the District's ES&A Department as well at their discretion.

In addition to complying with these supplemental specifications, the Contractor must also comply with all other asbestos abatement requirements listed in these asbestos abatement specifications. If Contractors find any conflicting information in the supplemental specifications, the Contractor must comply with the requirements listed herein that are deemed most stringent by the District or District hired asbestos consultant supervising the abatement.

Project Requirements

Contractor shall be approved by the WCSD ES&A Department to perform asbestos abatement activities within the District. **Approval of firms that have not performed activities impacting asbestos for the District previously, will need to submit all necessary documentation outlined in the WCSD ES&A Technical Specifications for the project at least ten (10) business days prior to work commencing for approval.**

All workers certifications – asbestos training and licensing and medical clearance – shall be submitted to the WCSD ES&A at least five (5) working days prior to project commencement at minimum for approval. Contractor is responsible for reviewing WCSD ES&A worker roster for the company to assure all workers to be used on the project have been approved prior to arrival onsite. Workers not identified on the approved worker list for the contractor will not be allowed to perform any activities onsite, even if documentation is provided onsite at time of the project commencement.

The abatement contractor's onsite supervisor shall have a copy of these Specifications onsite at all times and be familiar with the project requirements prior to arrival onsite at the project. Failure to follow requirements of these Specifications, or lack of knowledge of requirements to be followed during the project, are grounds for replacement of the abatement contractor's onsite supervisor.

Only the abatement contractor will be allowed to occupy the project area once abatement activities are scheduled to start. This applies to all WCSD non-ES&A staff/personnel and site staff/personnel. The area shall only be occupied by the abatement contractor, WCSD ES&A staff, and District's independent third-party abatement consultant. Other personnel will not be allowed to occupy the building during asbestos abatement activities.

Contractor shall adhere to the requirements of these Specifications, WCSD ES&A Technical Specifications, Federal, State, and Local regulations.

Water and Electricity

Water and electricity are available onsite, but long hoses and cords may be necessary. The contractor is responsible for any damage to water or power systems caused by their use of those systems.

Contractor shall provide a GFI at the primary plug-in of all electrical trains used for electrical equipment. Hose washers shall be provided at all hose connections to prevent leakage of water and potential damage to District facilities.

Pre-Cleaning

Pre-cleaning of debris may be required during setup and prior to abatement of TSI.

If required, cleanup will be performed once HVAC is shut down and tagged out by the contractor, with District approval, and critical barriers are sealed with 6-mil poly. Workers performing pre-cleaning will use HEPA-vacuums to vacuum debris and dust from the area. Workers will need to wear half-mask respirator fitted with HEPA (P-100) filters and tyvek quality disposable coveralls with attached hood and boots.

Notifications

Contractor is responsible for timely notifications (including courtesy notifications if applicable) to Nevada Division of Industrial Relations and Washoe County Health Department. Notifications shall be filed in advance of any waiting periods in lieu of the proposed project start date or other requirements for pre-work notification. Any revisions to notifications including project scope, start date, duration of project, or any other changes are

the Contractor's responsibility. Valid notifications shall be posted onsite during the project, and copies shall be provided to the District's onsite third-party consultant and ES&A Department.

Equipment

Contractor is responsible for providing all necessary equipment in sufficient quantities to complete the project in the schedule provided for the project. All equipment must arrive onsite clean and in proper functioning order. Any equipment that arrives onsite dirty or not in proper functioning order shall be removed from the project site for cleaning and/or repairs.

Training

Workers performing asbestos abatement activities as part of this project must have AHERA Worker training with at least one worker trained to the AHERA Contractor-Supervisor level. All workers shall be licensed by the Nevada DIR for asbestos work. The crew lead Contractor-Supervisor may not leave the site anytime asbestos abatement operations are being performed.

As noted previously, all workers certifications must be approved by the WCSD ES&A prior to arrival onsite to start work. Copies of the worker certs shall be provided to the District's onsite third-party consultant as well.

Personal Protection Equipment

A tight-fitting powered air-purifying respirator (PAPR) fitted with HEPA filters shall be worn for respiratory protection when performing TSI abatement.

A full facepiece, supplied-air respirator operated in the pressure-demand mode shall be worn by workers performing Class 1 work if the negative exposure assessment, or air sampling performed by ES&A or the District's third-party consultant, indicates that the exposure level will be above 1 f/cc as an 8-hour TWA.

Workers shall wear Tyvek-level disposable coveralls, hard hats, and work gloves. Street clothes may not be worn under disposable coveralls.

All employees shall have a valid medical clearance and fit test for respirators to be used. Medical clearance shall be provided for approval to the WCSD ES&A prior to the project commencement. Copies of the medical clearance and fit test shall be provided to the District's onsite third-party consultant as well.

Personal Air Monitoring

The contractor is responsible for the collection of personal air samples on workers during all abatement activities for asbestos. These samples shall be collected in accordance with OSHA sampling protocols and analyzed by a laboratory with the proper accreditation.

Laboratories to be used for personal air sample analysis must be approved by WCSD ES&A.

Copies of the personal air sampling results, along with laboratory accreditation, shall be submitted to the WCSD ES&A and District's independent third-party consultant.

In addition, the contractor will comply with all requirements regarding personal air monitoring listed in Section 02130, Part 2- - Air Monitoring, 2.02.

Security and Safety

The contractor is responsible for security of all equipment and safety of all employees. Contractor shall provide any storage containers or security needed for tools and equipment if needed.

Contractor is responsible for any ladder, scaffolding, or any other worker safety measures needed to facilitate the TSI abatement as required by state or Federal regulation.

Contractor is responsible for all worker safety and following all applicable regulations, namely Nevada and Federal OSHA.

Occupancy

As noted previously, the project area will be limited to the abatement contractor, WCSD ES&A staff, and District's independent third-party consultant once abatement activities are ready to commence. Once the area has been cleared, other parties may occupy.
Emergency services may also occupy areas in the event of an emergency during the project.

Challenge Testing

All HEPA-filtered equipment to be used on this project shall have been challenge tested (DOP or equivalent) within the previous 30 days prior to use onsite. Copies of the challenge testing results shall be provided to the WCSD ES&A and/or HMS, Inc.

Asbestos Abatement Containment and Abatement Requirements

ALL POLY USED ON PROJECT SHALL BE 6-MIL AND FIRE-RETARDANT UNLESS EXEMPTED IN REQUIREMENTS BELOW.

1. The Contractor shall develop a regulated area that meets the requirements of OSHA regarding posting and limited access.

2. The Contractor shall follow the procedures recommended by the manufacturer of the glovebags, and the specifications required by OSHA regulations.

3. All critical openings within the regulated area shall be sealed prior to set up of the containment using two layers of 6 mil poly.

4. At least one layer of 6 mil poly must be used to contain the abatement area, including ceiling. Two layers of 6 mil poly shall be placed on the floor of the containment. The bottom layer of floor poly must be black to assist with visual clearance.

5. Stationary objects in the immediate area of the room which cannot be removed from the work area must be covered with at least one layer of 6 mil poly sheeting after being pre-cleaned.

6. A minimum three stage decontamination unit with a shower shall be contiguous with the containment. See “Decontamination Chamber Requirements” in this specification for further requirements.

7. Negative pressure shall be established and a recording manometer shall be attached to the containment. Copies of the manometer recordings shall be provided on 8.5”x11" paper by the Contractor.

8. A HEPA-filtered vacuum shall be in the immediate area for use in conjunction with the bags or in case of a spill.

9. Glovebags may not be used on surfaces where temperatures exceed 150 degrees Fahrenheit.

10. Glovebags will be utilized only used inside of a full negative pressure containment.

11. Glovebags may be used only once, and may not be moved or slid for removal of a second section of TSI.

12. At least two persons shall perform glovebag removal.

13. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in two layers of 6 mil poly sheeting or otherwise rendered intact using encapsulating cloth.

14. The Contractor shall apply a sufficient volume of amended water to wet all pipewrap removed from the pipes while it is enclosed in the glovebag.

15. Prior to placement in the disposal bag, glovebags shall be collapsed by removing air within them using a HEPA-vacuum.

16. Upon detachment, the glovebag must be immediately placed into a 6 mil thick disposal bag. The disposal bags must be sealed using the "gooseneck" sealing technique. Waste bags shall be properly labeled as a regulated asbestos containing waste.

17. Where pipes enter walls, floors, or ceilings which are not within the scope of the project, the pipewrap shall be removed at least 1" into the structure and the pipewrap end must be sealed with bridging encapsulant and/or wettable cloth.

18. The Contractor shall be responsible for ensuring the piping system remains adequately supported at all times. This may be achieved by readjusting existing hanger brackets as insulation is removed, or by other approved methods, such as inserting wood blocks to replace the thickness of the removed insulation.

Decontamination Requirements

A three stage decon unit including a shower is required for asbestos containments. Each chamber of the decon must have self-closing Z-flaps that seal air tight. A four-inch barrier must exist at the floor of each chamber to prevent the transfer of water and debris from chamber to chamber. This barrier will also provide a seal for the flaps between each chamber. Equipment and bag out chambers do not require a shower, but a washing station must exist and they must be three-stages. The washing station must be constructed in a manner that prevents water from splashing or traveling out of the central decon chamber. Equipment and bag out chambers must also have flaps that seal air tight.

Shower units must be equipped with an overflow pan to catch water which overfills the drain system, or is splashed out of the chamber during employee showers. Showers must be supplied with hot water, soap, shampoo, and towels for the workers. Showers shall be sited in the central decon chamber. Showers and washing station must also be equipped with a filtering system that includes a 0.5 micron filter. If filtering system is not available or is not functioning correctly, shower water must be bagged and disposed of as asbestos-containing waste.

All chambers of the decon, including the clean chamber, must be kept clean and dry (except shower) at all times. Abatement work will be stopped if decon is not kept in acceptable condition.

Regulated Area Signage

Asbestos Danger signs shall be posted at all entrances to the containment area, even if the entrance is sealed as a critical barrier. Signs shall also be posted on the flap leading into the shower station of decontamination chambers. Signage will be set once a pre-start visual is passed and work may begin in the containment, but no work will start until all signs are posted.

Signage shall meet the revised requirements set forth in 29 CFR 1926.1101(k)(7).

Air Pressure Differential

Air pressure differential must be established and maintained at -0.05 inches water differential or better before start of abatement and air pressure differential must be maintained through all phases of project, including collection of clearance air samples and receipt of results. A minimum of eight air changes per hour is required for the project. Work will be halted if the air pressure drops below -0.05 inches water differential and can resume when air pressure differential of -0.05 inches is established again.

Air pressure differential must be displayed and recorded on a properly calibrated and fully functioning manometer. Copies of the manometer recording must be provided by the contractor on 8.5" x 11" paper at completion of project.

All negative air machines must be exhausted to the exterior of the building using wire-reinforced flex duct. All negative air machines must be used inside containment. No machines shall be attached to the exterior of the containment with the intake only inside.

Any exterior barricades need to be constructed of a minimum ½" plywood and lockable for security. Contractor is responsible for providing a lock to any exterior barricades, and keys shall be provided to WCSD site facilities coordinator and HMS, Inc. Project Manager.

Make-Up Air Sources

Available, but may need to be HEPA-filtered. Any make-up holes in critical barriers must be equipped with a challenge/DOP-tested HEPA filter. Placing a pre-filter in the make-up air hole will not be allowed.

Disposal Requirements

All asbestos waste generated on this project will need to be double-bagged in 6-mil poly waste bags, or double-wrapped in 6-mil polyethylene sheeting. All waste bags must be sealed in a "gooseneck" fashion. All waste shall be properly labeled and identified for disposal as a regulated asbestos-containing material (RACM).

The contractor will need to provide a lockable waste bin for all waste created on this project.Waste bin will need to be labeled with asbestos signage once the waste is loaded into the bin. Waste bins shall be lined with one layer of 6-mil poly prior to waste being loaded.

Waste bins will need to arrive onsite clean of debris or any other waste and in proper functioning order. Waste bins may be rejected by WCSD ES&A staff or District's independent third-party consultant if these conditions are not met, with no extra charge to the District.

Clearance

Upon completion of asbestos abatement activities, a final visual inspection will be performed by either WCSD ES&A staff or District's independent third-party consultant. This inspection will be performed only after the abatement contractor crew supervisor has performed their own final visual clearance. Areas must be free of all three-dimensional material with all surfaces clean of dust and debris and all materials abated within the containment area.

Final clearance shall be through aggressive air sampling conducted by the District's independent third-party consultant. A set of five air samples will be collected inside the containment to be analyzed in accordance with AHERA completion of response action criteria using either phase contrast microscopy (PCM) or transmission electron microscopy (TEM), depending on the quantity of TSI abated.

Clearance criteria for PCM sample analysis, in accordance with AHERA, is 0.01 fibers per cubic centimeter (0.01 f/cc) or less for each of the five samples. Clearance criteria for TEM sample analysis, in accordance with AHERA, is an average of 70 structures per square millimeter (70 s/mm^2) or fewer for the inside-containment set of five samples.

Contractor shall return to the site to apply a lock-down encapsulant, remove poly barriers and equipment upon notification of passing clearance air samples.

FACS
Forensic Analytical Consulting Services

Hazardous Materials Specifications

Nutrition Services
Boiler Room Removal Project
585 Spice Islands Court
Sparks, NV 89431

Prepared for:
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Site Address

Nutrition Services
585 Spice Islands Court
Sparks, NV 89431

Background

Washoe County School District (WCSD) will be performing a steam boiler removal project at their Nutrition Services site. Components shall be removed from the project area as indicated on the project plans by an asbestos abatement contractor (work involving boilers) and lead remediation sub-contractor, working for the General Contractor and/or by contractors with valid training for the work to be performed (lead work activities only).

Scope of Work

The contractor shall review all project contract documents, drawings and any other information provided for bidding purposes before submittal of their bid to determine the exact scope of work required for the project.

As a general narrative, remediation work on this project involves the removal of the boiler units and associated mechanical units and pipes as shown on the project drawings.

An asbestos and lead paint survey was conducted by FACS in January of 2024.

For this project, the two boiler units are to be handled as asbestos-containing material unless contractor opts to meet the requirements listed in the section at the bottom of the page. The results of the survey indicate that the other suspect materials in the planned project areas do not contain asbestos.

The following paints were sampled and found to be lead-containing:

- White Paint on Metal Louver & Siding
- Black Paint on Metal Pipe
- Blue Paint on Metal Boiler
- Light Grey Paint on Metal Tank
- Blue Paint on Metal Frame

The following paints were sampled and found to not contain lead:

- Dark Blue Paint on Metal Unit
- White Paint on Metal Tank
- White Paint on False Ceiling Panel
- Green Paint on Drywall Wall
- Light Grey Paint on Drywall Wall
- Grey Paint on Metal Tank

Any materials or paints not tested will be assumed to contain asbestos and/or lead for this project.

The boilers materials may be removed intact without actual disassembly of units or disconnections being required to be made by the contractor. The boilers will be handled as asbestos-containing due to enclosed suspect asbestos-containing materials that could not be sampled because the boiler interior was not accessible at the time of pre-project survey.

If disassembly of the boiler appears necessary for removal of the boiler vessel and equipment from the boiler room, the demolition will need to be systematic. The company disassembling the boiler will need to closely work with the District's third-party consultant to first know exactly what was sampled and found to be negative for asbestos. After that, the demo must proceed cautiously, and newly discovered suspect material will require additional sampling. Any asbestos-containing materials confirmed through sampling by the District's third-party consultant would then require abatement by a contractor-hired asbestos abatement contractor. Care must taken to control any disturbance to discovered suspect materials during the demolition process. Demolition and handling activities will have to be completed by properly trained asbestos workers unless full destructive sampling has clearly shown that no asbestos material exists within the boiler/boiler components.

The contractor(s) performing work for this project shall review project drawings to determine if items to be removed or disturbed as part of this project require lead work activities to be performed. Please note that penetrations through lead-containing painted surfaces would fall under the WCSD requirements for penetrations and attachments. The specific areas of penetration and attachment work may not be shown on the drawings.

These specifications identify only a general narrative for the scope of work for this phase of work. The contractor is responsible for reviewing project and construction drawings, along with completion of own measurements, inspection of site conditions, and any other items required to submit their bids and complete the project.

Within these specifications are means and methods for the removal of materials that will be followed on the project for all known work to be completed. As not all potential circumstances or conditions can be anticipated, minimal field adjustment of the means and methods listed within this document may be required.

The general contractor and any sub-contractors working onsite will need to consult the WCSD Environmental, Safety, and Assessment (ES&A) Department's Material Disturbance Permit to verify asbestos and lead content of materials prior to impacting any materials.

Testing of materials not previously sampled or testing to verify asbestos and lead content of materials will only be performed by WCSD ES&A Staff or District's independent third-party consultant. Testing by another third-party consultant will not be accepted as proof of the asbestos content of building materials or lead-content of paints or coatings.

Since the lead paint inspection of the project area has determined that paints within the planned work area are lead-containing, disturbance to painted surfaces is regulated by the OSHA Lead-in-Construction Standard (29 CFR 1926.62) and work must be performed in compliance with the means and methods defined in these specifications and/or WCSD Lead Requirements. Since the paints to be disturbed are not lead-based, the US EPA Renovation, Repair, and Painting Rule would not apply to this project.

Work that is deemed "penetration and attachment" by the District's ES&A Department or District's onsite third-party hazardous materials consultant shall be performed in accordance with the District's policy for this type of work. These specifications may have applicable requirements that may be included for overall project compliance, but do not identify all work practices or engineering controls that would need to be met for compliance with the District's penetration and attachment policy.

Project Requirements

Abatement of asbestos-containing materials must be completed by a contractor registered by the Nevada Division of Industrial Relations as an asbestos abatement contractor. This licensing is required even if boilers are removed intact without disassembly.

Contractors disturbing lead-containing paints shall be approved by the WCSD ES&A Department to perform lead activities within the District. **Approval of firms that have not previously performed activities impacting lead paints or coatings for the District will require submission for approval of all necessary documentation outlined by WCSD for the project at least fifteen (15) business days prior to work commencing.** This firm approval requirement includes contractors that will be performing any work impacting lead-containing paints, even if that firm is not primarily a lead remediation contractor.

All worker certifications (lead training) shall be submitted to the WCSD ES&A Department for approval at least fifteen (15) working days prior to project commencement at minimum. Online training of employees is not sufficient to meet the requirements of District policies and all training must be provided in-person with each attendee receiving an individual training certificate for the specific discipline from the training provider, unless modified by other contract documents or District-policy. Contractor is responsible for reviewing WCSD ES&A worker roster for the company to ensure all workers to be used on the project have been approved prior to arrival onsite. Workers not identified on the approved WCSD ES&A worker list for the contractor will not be allowed to perform any activities onsite, even if documentation is provided onsite at time of the project commencement or work.

The contractor performing lead work activities will be responsible for following all plan requirements for materials or components to be removed. Neither WCSD personnel, nor any independent consultant providing project oversight, will be responsible for identifying materials or components to be removed as part of this contract. The Contractor's onsite supervisor shall have a copy of these Specifications onsite at all times and shall be familiar with the project requirements prior to arrival onsite at the project. Failure to follow requirements of these Specifications, or lack of knowledge of requirements to be followed during the project, are grounds for replacement of the remediation contractor's onsite supervisor.

Only the remediation contractor will be allowed to occupy the immediate project area once remediation activities are scheduled to start. This applies to all WCSD non-ES&A staff/personnel, general contractor, and other sub-contractors. The area shall only be occupied by the remediation contractor, WCSD ES&A staff, and District's independent third-party hazardous materials consultant.

Contractor shall adhere to the requirements of these Specifications, WCSD ES&A Lead Appendix (found in Material Disturbance Permit), and Federal, State and local regulations.

Water, HVAC, and Electricity

Water and electricity are available onsite; however, long hoses and cords may be necessary. Contractor shall provide a GFCI at the primary plug-in of all electrical trains used for electrical equipment. Hose washers shall be provided at all connections to prevent leakage of water and potential damage to District facilities. Contractor is responsible for any damage caused by their usage to any District water or electrical systems.

Contractor shall coordinate with the WCSD Project Manager for the shut-down of any active HVAC systems within the project area prior to commencing abatement/removal activities. Contractor is responsible for the lock-out / tag-out of all electrical circuits and HVAC systems that may be impacted by the project. Contractor shall follow requirements of WCSD for the lock-out / tag-out of equipment. Contractor shall coordinate the shut-down of HVAC systems at least 72 hours prior to turning any units off as some units are controlled by an off-site location and additional steps may be required to turn off the units.

Pre-Cleaning and Movement of Items in Space

No pre-cleaning of lead contamination is required to complete this project; however, small amounts of garbage and a build-up of dust will be required to be cleaned to allow sufficient adherence of containment barriers.

Any movable equipment, furnishings, or supplies will be removed by WCSD personnel prior to any containment activities commencing unless movement responsibility is modified by other contractual requirements.

Notifications

A notification shall be filed with the Washoe County Health District and Nevada DIR for the abatement of materials that contain asbestos at least 10 working days prior to work commencing. The contractor is responsible for the payment of any fees associated with these notifications. A copy of the notifications shall be provided to the District's independent third-party consultant prior to any work commencing onsite.

No notifications are required to be filed with regulatory agencies for expected lead work activities; however, any contractor performing removal of lead-containing materials shall provide at least 48-hour notice to the District's independent third-party consultant, including setup / mobilization to the site.

Equipment

Contractor is responsible for providing all necessary equipment in sufficient quantities to complete the work in the schedule provided for the project. All equipment must arrive onsite clean and in proper functioning order. This includes HEPA-vacuums having new vacuum bags, negative air machines with new pre-filters, etc.

Any equipment that arrives onsite dirty or not in proper functioning order shall be removed from the project site for cleaning and/or repairs. If the equipment is provided by a rental agency, the contractor is required to provide a signed statement from the rental agency that states they acknowledge the equipment will be used within a lead work area.

Training

Workers impacting asbestos-containing materials must hold AHERA Worker training with one worker trained to the AHERA Contractor-Supervisor level. Workers performing work impacting lead paints or coatings, regardless of level of lead present and amount of disturbance, must have OSHA Lead Action Level training.

Workers performing work impacting lead paints or coatings, regardless of level of lead present and amount of disturbance, must have OSHA Lead Action Level training.

As noted previously, all worker certifications must be approved by WCSD ES&A prior to arrival onsite to start work. Copies of the worker certifications may be requested to be provided to the District's onsite third-party consultant as well. The lead training certificates must state training as "OSHA Action Level" and have the

employee's complete name(s). Failure to meet this requirement may cause a delay in approval of certifications up to full rejection of the training certificates. Web-based or online lead action level training is prohibited unless modified by other contractual documents or District-policy.

Personal Protection Equipment

All personnel entering a regulated area, regardless of level of work to be performed, shall wear disposable coveralls, tight-fitting half-face negative-pressure air purifying respirators fitted with HEPA (P-100) filters, safety glasses and gloves. The contractor may require additional personal protection equipment based on their job hazard assessment, but the listed requirements must be met at minimum.

Street clothes may be worn beneath disposable coveralls for lead activities, but street clothes will be HEPA-vacuumed clean if coveralls are torn or ripped. Requirements of PPE extend to any contractors disturbing hazardous materials, even if they are not primarily a remediation contractor.

All employees shall have a valid medical clearance and fit test for the respirators to be worn. Copies of the medical clearance and fit test shall be provided to the District's onsite independent third-party consultant.

The contractor may opt to include additional PPE items based on their own job hazard assessment for the project, but they may not reduce level/type of PPE below what is required in this Specification.

Personal Air Monitoring

The contractor is responsible for the collection of personal air samples for asbestos and/or lead on 50% of workers entering a regulated work area during asbestos abatement or lead disturbance activities as applicable. If an odd number of workers are entering the regulated work area, the contractor shall round up for the number of workers to be monitored (i.e., five workers entering a work area would require collection of three samples). These samples shall be collected in accordance with OSHA sampling protocols and analyzed by a laboratory with the proper accreditation and approval from the WCSD ES&A Department.

The contractor shall have their laboratory submit or fax within **48 hours** of the date the sample was taken, the final laboratory result documents (including legible chain-of-custody) for air monitoring to the WCSD ES&A Department. No handwritten results reports will be allowed. The laboratory reports will reference the air monitoring cassette's factory assigned number and the personal air monitoring results must be properly applied to an 8-hour time weighted average. Failure to submit results within the required 72-hour period (48-hour turnaround with 24-hour grace period) may result in the District temporarily stopping the applicable remediation project until results are received. Continued failure may also result in the termination of the contract.

Copies of the personal air sampling results, along with laboratory accreditation, shall be submitted to the WCSD ES&A and District's independent third-party consultant as noted above.

The District's independent third-party consultant reserves the right to halt work or increase respiratory protection if personal air samples are not submitted in a timely manner, or if area air sampling shows current respiratory protection does not sufficiently protect employees.

Security and Safety

The Contractor is responsible for security of all equipment and safety of all employees. Contractor shall provide any storage containers or security needed for tools and equipment if they are to be left onsite. Contractor shall coordinate with WCSD Site Facilities Coordinator or WCSD Project Manager for placement of any storage container brought onsite.

Contractor is responsible for all worker safety and following all applicable regulations, namely Nevada and Federal OSHA. Contractor or their designated supervised shall hold a safety meeting on the first day of the project that addresses all safety hazards workers may encounter. Safety meetings shall be held at least weekly thereafter, or in the event that job hazards change or an accident occurs. The safety meeting topics shall be documented and all attendees sign the document for recordkeeping. A copy of the safety meeting shall be provided to the District's independent third-party consultant.

Occupancy

As noted previously, the immediate project area will be limited to the remediation contractor, WCSD ES&A staff, and District's independent third-party consultant once lead work activities are ready to commence. Once the area has been cleared, other parties may occupy. Emergency services may also occupy areas in the event of an emergency during the project.

Challenge Testing

All HEPA-filtered equipment to be used on this project shall be challenge tested (DOP or equivalent) within the previous 30 days of project start date. Copies of the challenge testing results shall be provided to the WCSD ES&A and/or District's independent third-party consultant.

HEPA-filtered units shall also have a sticker/documentation indicating that they have passed challenge testing, including the date of testing.

Air Pressure Differential

Negative pressure enclosures on this project must have an air pressure differential established and maintained at -0.05" WC or greater for removal of materials. The air pressure differential shall be displayed on a recording manometer in an easily accessed and visible location. The recording function of the manometer shall be operating from the start of abatement through the receipt of clearance sample results and recordings shall be provided as part of the contractor's closeout package.

All negative air machines used to establish air pressure differential shall be exhausted to exterior areas with wire-reinforced flex ducting. Contractor shall provide any manifolds and security of manifold at exhaust points for negative air machines.

Regulated Area Signage

Asbestos Danger and Lead Hazard signs shall be posted at all entrances to a containment area, even if the entrance is sealed as a critical barrier. Signage will be posted after a pre-start visual is passed and work may begin in the containment, but no work will start until all signs are posted.

Lead signage shall meet the revised requirements for lead set forth in 29 CFR 1926.62(m). Asbestos signage shall meet the revised requirements for asbestos set forth in 29 CFR 1926.1101(k)(7).

Containment Requirements & Component Removal

As noted above, it is anticipated that asbestos-containing materials including the boilers on this project may be removed intact without disassembly being required. If disassembly is required, please refer back to the description of steps needed in the Scope of Work section of these specifications.

The requirements below may overlap for both asbestos and lead work activities. It is recommended that lead and asbestos work be combined within the same work area to the greatest extent possible for project efficiency and ease of compliance with all project requirements.

All poly used on this project shall be 6-mil in thickness and fire-retardant unless exempted below.

1. All openings within the space shall be sealed with one layer of 6-mil poly to act as critical barriers. This includes doors, windows, louvers, etc.
2. One layer of 6-mil poly shall be installed over the floor of the space. Poly shall be curbed up walls as available to limit debris from falling into seam between poly and wall. Floor poly shall be overlaid at least 4" at seams to prevent debris from falling below the poly.
3. Sufficient negative air machines shall be installed to generate an air pressure differential of -0.05" WC and eight air changes per hour.
4. Negative air machines shall be exhausted to the exterior of the building using wire-reinforced flex ducting. Contractor shall provide a manifold and tamper-proof bolts to secure openings used for negative air machine exhausts.
5. A decontamination chamber system shall be sited at the entry/exit into the containment area. Additional details for this system are provided below.
6. The contractor's supervisor shall notify the consultant of their schedule and submit their plan to remove the boilers for approval prior to beginning the process. WCSD and the District's independent third-party consultant reserve the right to deny the contractor's plan for removal of the boilers or make modifications as necessary to protect worker and environmental health while reducing their liability.
7. Boiler units shall be wrapped in two separate layers of 6-mil poly prior to removal from the containment area. The poly wrap shall be installed prior to disturbance of boilers or pipes to enclose any asbestos fibers that may be released from the materials.
8. Disturbance to painted or coated components or materials shall be performed using hand tools, or power tools with HEPA-equipped vacuum attachment shrouds to limit dust and debris generated. Such items shall be removed in an intact state wherever possible.
9. Painted or coated components or materials to be disturbed shall be wetted prior to and during removal to limit the creation of dust.
10. As part of removal process, any loose and peeling paints within the project area shall be stabilized. Paints shall be stabilized back to the point of being tight to the substrate and the contractor shall anticipate a larger area will be stabilized than may currently be damaged or peeling.
11. A build-up of waste or debris within the work area is prohibited. Contractor workers shall ensure that the area is kept free of waste bags, paint chips, or other debris as work progresses to prevent the crushing of debris into finer dust.
12. Waste shall be placed into 6-mil poly waste bags or "burrito-wrapped" in 6-mil poly. Waste must be double-bagged with both waste bags sealed in a "gooseneck" fashion or wrapped in two separate layers of 6-mil poly with staggered seams, to create a double-layered leak-tight container.

13. Lead waste shall be characterized by the generating contractor prior to disposal and shall be labeled and disposed of in accordance with the waste determination. No waste containing asbestos, including assumed materials present within boilers, may be recycled.
14. No "loose" water shall be present in the waste bags at the conclusion of packaging. Water shall be soaked up with either kitty litter or diatomaceous earth as necessary to meet this requirement.
15. A HEPA-vacuum shall be used to evacuate air from waste bags when sealing. Workers using hands or knees to collapse air out of waste bags is prohibited.
16. At the conclusion of abatement/remediation activities, the containment area shall be cleaned of all debris and dust. This includes HEPA-vacuuming surfaces before wet-wiping and then performing a final HEPA-vacuum of the work area.

Decontamination Requirements

A three-stage decontamination chamber shall be attached to the negative pressure enclosure. This chamber system shall consist of a dirty chamber, a shower, and a clean chamber. The decon chambers shall be constructed of 6-mil poly. A curb of at least 4" shall exist between each chamber to prevent the movement of debris or material from chamber to chamber. Each chamber shall be separated with a Z-flap that will seal closed in the event of a power outage.

Water in the shower shall be provided via a properly operating shower head. Both hot and cold water shall be provided, and water temperature shall be controllable by personnel using the shower. Contractor shall provide soap and towels for workers to properly decontaminate themselves and any re-usable PPE. The shower system shall have a filtration system that filters water down to 5 microns prior to discharge into a storm drain system.

Failure to keep any chamber of decon system in acceptable condition will be grounds for a work stoppage until cleaning has occurred and procedures have been corrected. Workers may need to construct an additional privacy screen around the decontamination for donning or doffing street clothes.

Wipe Sampling Criteria

The District will hire an independent third-party consultant to perform lead wipe sampling prior to commencement of work at the site. The consultant will collect wipe samples from floors or other horizontal surfaces as appropriate within the work areas to verify lead dust levels prior to work commencing. If cleaning of floors or other horizontal surfaces to remove a detected lead hazard is required, the contractor shall be notified, and the hazardous materials contractor will be required to perform the cleaning.

At the conclusion of lead disturbances, post-project wipe samples will be collected from the floor or applicable horizontal surface in the work area, beneath the containment poly. If post-project wipe samples indicate that an EPA lead dust hazard exists or if samples indicate a higher level of lead on surfaces than shown on pre-project wipe samples, then recleaning of the work area will be necessary. The recleaning process will be required to be repeated until wipe samples indicate lead levels are below both current EPA lead dust hazard levels and below pre-project wipe sample levels.

Disposal Requirements

Contractor is responsible for the waste characterization profiling of all lead waste to be disposed of. Copies of the laboratory results, including chain-of-custody, must be provided to WCSD ES&A or independent third-party

consultant prior to disposal. Lead-containing materials which do not also contain asbestos may be recycled, but a letter signed by the recycling facility acknowledging the lead content must be provided by the contractor prior to removal of such materials from the site.

The boilers being removed shall be disposed of as regulated asbestos-containing material due to the presence of assumed friable asbestos insulation materials.

The contractor will need to provide a lockable waste bin or trailer for all waste created on this project. The waste container will need to be labeled with appropriate signage once the waste is loaded into the bin. Waste containers shall be lined with one layer of 6-mil poly prior to waste being loaded. Asbestos and lead waste may not be mixed within the same waste bin. In addition, the contractor may not store any of their supplies or equipment within the waste bins.

Waste bins will need to arrive onsite clean of debris or any other waste and in proper functioning order. Waste bins may be rejected by WCSD ES&A staff or District's independent third-party consultant if these conditions are not met, with no extra charge to the District. Contractor shall install plywood, or similar material, below the footings/casters of the waste bin to prevent damage to the site grounds. Contractor is responsible for any damage caused by waste bin delivery, onsite storage, and collection. Contractor will need to coordinate location of waste bins with the WCSD Site Facilities Coordinator.

Clearance

At the conclusion of remediation within the regulated area, a final visual inspection will be performed by the District's independent third-party consultant. The work area will need to be free of all dust and debris with all remediation work completed within the regulated area to pass visual criteria.

As noted previously, pre-job and post-job lead dust wipe samples will be collected in spaces to verify the contractor has not created a lead hazard by removal of their containment area and to verify that the spaces can be re-occupied by non-lead trained personnel. Post project wipe samples must be below pre-project levels and current EPA lead dust hazard levels for the surface tested to pass clearance.

In the event that a potential lead hazard has been created by a contractor, such as improper disturbance of painted surfaces outside of a contained area, the District's ES&A staff or independent third-party consultant will collect dust wipe samples to verify conditions. If a lead hazard has been created, the contractor performing the improper disturbance will be responsible for all cleaning costs required for the lead abatement contractor to remediate the hazard, including costs for collection of clearance dust wipe samples to document that the lead hazard has been remediated.

Clearance air monitoring may be required at project areas based on actual site conditions and work completed within the project area. The District's independent third-party consultant will notify all parties of the need to perform clearance air monitoring depending on the work completed by the remediation contractor and condition of materials removed. Clearance air monitoring will be performed in compliance with the US EPA AHERA regulation. Results of clearance air monitoring will need to meet the requirements of the AHERA regulation prior to removal of the containment area.

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