ADDENDUM NO. 5

FOR THE CONSTRUCTION OF

JEFFERSON ELEMENTARY SCHOOL RENOVATION
JEFFERSON CITY, TENNESSEE



November 10, 2026

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents, dated September 01, 2026, as noted above.

CHANGES TO THE PROJECT MANUAL

ITEM 1 **DELETE** "Jefferson Invitation to Bid Packet – Revision 2, 11/09/26" in its entirety.
ADD "Jefferson Invitation to Bid Packet – Revision 3, 11/10/26"

1. Corrected the date on page 1 from "2:00pm on Friday, November 12, 2026" to "2:00pm on Friday, November 20, 2026". All revisions past and current are highlighted.

ITEM 2 **ADD** Specification section "Section 08 87 00 – Security Glazing Film".

ITEM 3 **ADD** Specification section "Section 21 05 00 – Common Work Results for Fire Suppression".

ITEM 4 **DELETE** "Specification 22 11 16 – Domestic Water Piping" in its entirety.
ADD "Specification 22 11 16 – Domestic Water Piping".

1. Domestic Water Piping: All domestic water piping above ground shall be Type "L" Copper.

ITEM 5 **DELETE** "Specification 22 11 19 – Domestic Water Piping Specialties" in its entirety.
ADD "Specification 22 11 19 – Domestic Water Piping Specialties" in its entirety.

1. Water pressure reducing valve has been deleted from the specification section

CHANGES TO THE PROJECT DRAWINGS

ITEM 1 **DELETE** Sheet **"**DP2.2 – Demo Partial Floor Plans - Plumbing (issue date: 9/01/26)" in its entirety.
ADD Sheet **"**DP2.2 – Demo Partial Floor Plans - Plumbing (revision 1 date: 11/03/26).

1. Existing grease interceptor to remain active until Phase 4A is starting construction, at that time existing grease interceptor shall be pumped and removed

ITEM 2 **DELETE** Sheet **"**DP7.0 – Plumbing Schedule & Details (issue date: 9/01/26)" in its entirety.
ADD Sheet **"**DP7.0 – Plumbing Schedule & Details (revision 1 date: 11/03/26)".

1. (DBI) drain box has been added to fixture specification.

END OF ADDENDUM

November 9, 2026 - Addendum No. 4 Attachments:

Jefferson Invitation to Bid Packet – Revision 3, 11/10/26
Section 08 87 00 – Security Glazing Film
Section 21 05 00 – Common Work Results for Fire Suppression
Specification 22 11 16 – Domestic Water Piping
Specification 22 11 19 – Domestic Water Piping Specialties
DP2.2 – Demo Partial Floor Plans - Plumbing (revision 1 date: 11/03/26)
DP7.0 – Plumbing Schedule & Details (revision 1 date: 11/03/26)

CLARIFICATIONS

1. The ITB (1.22) states the Board's purchases are not subject to taxation, while the Bid Form (item 7) states the lump sum includes all sales and use taxes. Can you please confirm the contractor is to include sales and use tax on materials incorporated into the Work?

   Response: The contractor is to include sales and use tax on materials incorporated into the Work. ITB 1.22 is correct in that any materials purchased directly by the Jefferson County Board of Education is exempt, however, the contractor is purchasing the materials under this ITB.

2. Addendum 2 (#18) says the project is NOT tax exempt because the contractor makes the purchases. The ITB reissued in Addendum 3 (1.22) still says Board of Education purchases are not subject to taxation and exemption certificates are available. Should subcontractors include sales tax on flooring materials?

   Response: The contractor is to include sales and use tax on materials incorporated into the Work. ITB 1.22 is correct in that any materials purchased directly by the Jefferson County Board of Education is exempt, however, the contractor is purchasing the materials under this ITB.

3. Spec 27 00 00 Scope of Work- B, All Division 27 under a separate contract to the owner. Who is responsible for DIV 27, data/ voice structured cabling system and the VOIP intercom system? (the schools reps were under the impression this was by the awarded GC)

   Response: The contractor is to provide work under Div 27 including data/voice structured cabling system and VOIP intercom system. The Owner is providing wireless access points.

4. Spec 28 00 00 Scope of Work- B, Has access control, security system, IP CCTV under a separate contract. Please confirm these are not included in this scope.

   Response: The contractor is to provide access control, security system, and IP CCTV.

5. Subcontract commercial requirements: Are subcontractor bonds, payment- platform fees, special insurance, or specific bid breakouts required?

   Response: The contractor shall determine the extent of subcontractor bonds and insurance requirements per the limits required of the general contractor.

6. Grease Interceptor: Is there an existing grease interceptor? If so does it need to be pumped and removed? Or filled with flowable fill and left in place?

   Response: Replace existing grease interceptor with new.

7. Project manual section 26 03 00, *Power Service and Grounding, Part 1 General, Paragraph D* currently calls for the electrical contractor to pay the AEC "Aid to Construction" charges for the new utility company pad mounted transformer, primary power line, etc. AEC does not provide the "Aid to Construction" amount to contractors to include in their bids but instead bills the owner (Jefferson County Schools) directly for these "Aid to Construction" charges.

   Response: Aid to Construction fees are not to be included in bids.

8. Gas Meter: Should we carry the cost for the new gas meter installation?

   Response: Aid to Construction fees are not to be included in bids.

9. Plumbing Specifications: There is an overlap in the plumbing specs regarding what material to use for 3" domestic water. PEX-A is approved for ½"-3" and type L copper for 3" through service entry size. Which is the appropriate material for this size?

   Response: All domestic water piping aboveground shall be type "L" copper. Spec Section: 22 11 16 – Domestic Water Piping has been revised to delete PEX-A piping out of specifications. Refer to Revision No. 1, Dated 11-03-26.

10. Grease Interceptor: Is there an existing grease interceptor? If so does it need to be pumped and removed? Or filled with flowable fill and left in place?

    Response: Existing Grease Interceptor to remain active until phase 4A is starting construction, then at that time existing grease interceptor shall be pumped and removed. Refer to Revision No. 1, Dated 11-03-26.

11. Gas Meter: Should we carry the cost for the new gas meter installation?

    Response: Yes, a new (2 P.S.I.) Gas Meter will be required. Contractor shall pay all cost for gas meter installation.

12. Water Main Entrance: On the water service entrance detail on P7.1 it does not show a PRV for the domestic system. Can you provide an updated detail showingthe location of the PRV?

    Response: PRV will NOT be required because water pressure is too low to install one.

13. In wall drain box: In the shared wall of this bathroom group, it shows a drain box toreceive the condensate run off from a unit. There is no drain box mentioned on theplumbing schedule. Can you provide more information on what drain box should be provided?

    Response: Drain box (DB1) specification has been added to Fixture Specifications on sheet P7.0. Refer to Revision No. 1, Dated 11-03-26.

14. Backflow bypass: P7.1 shows a normally-closed bypass around the two 4" RPBPs; spec 22 11 19 says not to install one. We would like to confirm the configuration desired by the engineer and utility P7.1, 22 11 19

    Response: The P7.1 detail sheet (dated 9-1-26) does NOT show a by-pass around the Backflow Preventers. Refer to attached P7.1 sheet.

15. Kitchen note 8 vs. spec. Note 8 requires dishwasher and booster waste in Type M copper to the floor sinks, with cast iron for the first 10 ft of waste below grade from those floor sinks. Spec 22 13 16 says all underground waste is PVC. Will Cast Iron be required in this application? P5.0/P5.1, 22 13 16

    Response: Note 8 on sheet P5.1 shall be utilized as stated with copper drain lines and cast-iron waste for first 10 feet. All other waste shall be sch. 40 solid wall PVC.

16. SMV1 conflict. The schedule defines SMV1 as a Studor Maxi-Vent AAV, but the kitchen plan and roof plan label the same points "4" V.T.R. – SMV1" / "3" V.T.R. – SMV1". These are either full vents through the roof (pipe, flashing, roof work) or AAVs. P5.1, P6.0, P7.0

    Response: SMV1 Studor vents shall be utilized on top of the V.T.R.'s above the kitchen roof. All V.T.R.'s will penetrate the roof structure, and roof flashing will be required. These are utilized above roof to control odors from entering fresh air intakes on rooftop units.

17. Electric water heater voltage. The heaters are scheduled at 208V and require a 240→208V conversion kit. Should we include pricing for conversion kits or price the heaters as specified? Does a different water heater need to be specified and priced? P7.0

    Response: All Electric Water Heaters shall be 208v with conversion kit as called out on sheet P7.0.

18. I noticed that additional addenda have been posted, and after reviewing the available information, I have not been able to identify any clarification regarding the anti-shatter film requirements outlined in Section 08 80 00, Paragraph 2.6.F. As mentioned previously, I attended the October 29 pre-bid walkthrough and evaluated the building's exterior window and door locations. However, we still need clarification on a few items to ensure our proposal accurately reflects the intended scope: Film specifications: Is there a required film thickness, manufacturer, product, or specific performance standard? Installation locations: Is security film required on the entire building envelope, only the first floor, or specific designated windows and doors? Quantities and dimensions: Are there updated drawings, window schedules, or elevations identifying the glazing scheduled to receive film? Upcoming clarification: Will there be an additional addendum addressing these requirements?

    Response: See "Section 08 87 00 – Security Glazing Film" included in this addendum. The glazing to receive the film is noted on the door schedule in the REMARKS column with a double asterisk (**).

19. On drawing A8.1 there are call outs for 1" Shatter Resistant Glazing on some panels (transoms/windows). Are those receiving Shatter Resistant Glazing or do we need to include in the security film scope?

20. **Response:** The noted panels are to be 1" tempered glass with an applied security glazing film.

21. Window Security Film. There is no Spec for the film, but Addenda 2 calls for Armored One as the basis of design. We have used ASWF 24 mil Security Films on projects that have also specified Armored One. ASWF, meets or exceeds Armored One specifications (see attached).

    Response: A specification has been added.

22. Tag 108A is given Ballistic glazing. Is the door and frame to be Ballistic Rated as well? If so, what level?

    Response: Tag 108A is shown as a private restroom door with no glazing.

23. A temporary site enclosure fence with lockable gates is required "where indicated," but no temporary fence is shown on PH0.1–PH0.6. Please define the extent and gate locations for each phase, or confirm the Contractor determines the extent.

    Response: The contractor determines the extent.

24. "Survey of fence location to be provided by ____" is blank. Please confirm the fence line will be staked by the Contractor's surveyor (not the fence installer), and that finish grade will be complete along the fence line before installation.

    Response: The contractor would make the determination if it's their responsibility or the fence installer's responsibility.

25. Drive-anchor setting is allowed for line posts. Is it acceptable on this project, or are all posts to be concrete set (holes 4x post OD, 36" embedment)? We are pricing all posts concrete set.

Response: Posts to be concrete set.

26. Please confirm (a) the existing 4' chain link fence along US-11E remains and the new 6' fence ties into it at the southeast end; (b) the existing perimeter chain link fence along Universal Rd, and the existing service-drive gate, remain as-is. No fence removal, relocation, or new openings are shown on A1.0 where the new parent drive connects to Universal Rd.

    Response: (a) correct. (b) there is a new opening in the existing fence at the new parent drive. The rest of the existing fencing is to remain.

27. On S2.0 I will have a lot of joist reinforcement per the details on S3.4 and S3.7,3.8. I do not see any sizing of the existing joists. Do you have access to existing structural drawings, so I know how deep I need to make the reinforcement?

    Response: Drawings for the original building have been provided.

28. Footing W3.0 at the ramp/stair (3/S1.0) is not included in the footing schedule, and the 8" reinforced concrete tunnel close-off wall (A2.0 Keynote 23) has no dimensions or reinforcing shown. Can you please provide this information?

    Response: The W3.0 is a 3'-0" wide x 1'-0" thick continuous footing. Reinforced w/ (4) #5 continuous and #4 transverse @ 16" oc. Rebar for close-off wall is #4 @ 12" oc each way. Field measure the existing opening or see the existing building drawings provided.

29. There is a 30" red oak at or near the fence line between the loop end and US-11E, and a 26" sycamore near the west run. May the fence alignment be adjusted in the field to avoid them, or will tree removal or root protection be by others? Please also confirm the fence follows grade (racked to the slope) rather than stepping.

    Response: The trees are to be removed. Tree removal is to be included in the contract scope of work.

JEFFERSON COUNTY

BOARD OF EDUCATION & FINANCE DEPARTMENT

Invitation to Bid (ITB)
Jefferson Elementary School (JES) Renovation

REVISION 3: 11/10/2026
ALL CURRENT AND PREVIOUS REVISIONS ARE HIGHLIGHTED

Prepared in accordance with Tennessee Code Annotated (T.C.A.) and applicable requirements governing 1981 Act counties. Jefferson County Purchasing is receiving sealed bids for the above-mentioned project. Bids shall be identified on the exterior of the sealed envelope with all the information requested in the specifications included in this bid packet. Bids are to be addressed to the Jefferson County Finance Department and mailed or delivered to the following address:

Jefferson County Finance Department
Attn: Purchasing Agent
1244 Gay St./P.O. Box 1749
Dandridge, TN 37725

OR Via HAND DELIVERY ONLY to:

Jefferson City Library Conference Hall
108 City Center Drive
Jefferson City, TN 37760

Bids will be received until 2:00 pm on Friday, November 20, 2026. Date/Time Stamps of 2:00 pm or later will be rejected. Late bids will not be considered under any circumstances nor returned. Jefferson County Board of Education is not responsible for any delays due to weather, trafficconditions, nor postal services.

Hand delivery will be accepted at the library the day of bid opening **Beginning** at 1:30pm. Hand deliver to Julie Anglea (Purchasing Agent), Curits Elswick, or Erick Bustos.

During the evaluation process Jefferson County Board of Education reserves the right, where it may serve the school's best interest, to request additional information or clarifications from suppliers/vendors.

Questions and requests for clarification or additional information should be directed by email to:

Brett Stone
Blankenship & Partners, LLC
bstone@bpdesigners.com
865-251-2585

With copies to:

Julie Anglea, Purchasing Agent
Janglea@jeffersoncountytn.gov

Erick Bustos, Owner's Representative
erick.bustos@skanska.com

Jefferson County Board of Education will consider all submittals that meet bid requirements as specified within the bid packet herein and to award contracts to the lowest, responsive, responsible bidder. Jefferson County Board of Education reserves the right to reject any and all bids, to waive irregularities or informalities in any proposal, and to make an award in any manner, consistent with law, deemed in the best interest of the schools.

SECTION 1: GENERAL TERMS AND CONDITIONS

General administrative, submission, and evaluation requirements applicable to all solicitations issued by Jefferson County and Jefferson County Board of Education.

1.1 General Information/Intent

Sealed bids are invited for the Jefferson Elementary School Renovation Project in Jefferson City, TN to include all renovation work required per specifications and contract documents.

1.2 Timeline (All Times are Eastern Standard Time):

1.2.1 ITB Issued: 10/13/2026

1.2.2 Mandatory Pre-Bid: 10/29/2026 at 2:00pm. Location: Jefferson Elementary School located at 321 W. Broadway Blvd., Jefferson City, TN 37760

1.2.3 Last Day for Questions: 11/5/2026 by 2:00pm

1.2.4 Addendum Issued (if applicable): TBD

1.2.5 Bid Opening: Friday, 11/20/2026 at Jefferson City Library Conference Hall, 108 City Center Drive, Jefferson City, TN 37760 at 2:00pm

1.2.6 Anticipated Start Date: On or before 1/4/2027

1.3 Additional Information

Information about the Jefferson County Finance Department, ITB, specifications, and scope of work for this project can be obtained on the Jefferson County website at www.jeffersoncountytn.gov/finance-department.

1.4 Required Bonds/Retainage/Liquidated Damages (Construction Projects Only):

1.4.1 Bid Bond: equal to 10% of the bid is required on all construction bids as described in T.C.A 62-6-129.

1.4.2 Payment Bond: equal to 100% of a construction contract is required on all contracts above $100,000.00 as described in T.C.A. 12-4-201.

1.4.3 Performance Bond: equal to 100% of a contract is required for all construction contracts above $100,000.00. The awarded supplier(s)/vendor(s) must provide performance bonds from a Surety Company before signing a contract.

1.4.4 Actual Damages: Actual damages may accrue if work is not completed in agreed upon timeframe and to Jefferson County Board of Education 's satisfaction.

1.4.5 Retainage: A retainage account, not to exceed 5% of the contract, is required for all construction projects above $500,000 as described in T.C.A §66-34-103-104. This should be established by the contractor when the contract is signed.

1.4.6 Contractor License: certain contractor license information must be placed on the outside of the bid envelope for construction projects. When the amount of the bid exceeds $50,000.00. The name, license number, expiration date, and license classification of the contractors applying for the prime contract and for electrical, plumbing, heating, ventilation, and air condition contracts. T.C.A. §62-6-119-120.

1.5 Copies of Bids: Jefferson County Board of Education requires that submitted bids include two (2) identical copies one marked "original" and one marked "copy". Bid pages must be single sided.

1.6 Bid Submittal: Vendors shall hold their price firm and subject to acceptance by Jefferson County Board of Education for a period of forty-five (45) days from the date of bid opening, unless otherwise indicated in the bid proposal. Any bid submittal may be withdrawn prior to the scheduled time for the opening of bids, otherwise, bids will be reviewed as submitted. Jefferson County Board of Education reserves the right to reject any and or all bids and to waive any informality, technical defect, or clerical error in any bid submittal.

1.7 Bidder Obligation: Each bidder shall become fully acquainted with conditions relating

to the scope and restrictions attending the execution of the work specified. Failure or omission of a vendor to become acquainted with existing conditions shall in no way relieve the bidder of any obligations with respect to the specifications or the contract.

1.8 Bid Delivery: Jefferson County Board of Education requires all bids/proposals to be submitted in sealed envelopes, addressed to the Jefferson County Finance Department, and clearly marked with the bid name by time of opening of the specified bid. Bid/proposal must be mailed or hand delivered. No bids/proposals will be accepted electronically, by fax, or by email. All bids will be opened at the specified time, and all suppliers/vendors and other people shall be invited to be present. Jefferson County Board of Education will not be responsible for any lost or misdirect mail sent by common carriers, delivery to addresses other than the one listed in solicitation, or for any late bid submissions received after the time and/or date specified. Not properly sealed and/or not properly labeled bids will not be accepted. Any bid/proposal may be withdrawn prior to the scheduled time of bid opening.

1.9 Signing Bids/Proposals & Use of Bid Forms: To be considered the bid proposal must be signed. By signing the bid proposal, the vendor acknowledges and accepts the terms and conditions stated in the document and bid packet. Vendors must complete the requested forms contained in the bid packet. Failure to complete requested forms may result in rejection of their bid proposal.

1.10 Bid Acceptance/Award: Jefferson County Board of Education reserves the right to use all, part, or none of the submitted proposal or bid in order to provide the broadest coverage of requested parts, equipment, products, or services. Awards may be based on categories. Award will be made to the lowest, best, responsive, responsible bidder(s) meeting specifications that present the product or service that is most advantageous to Jefferson County Schools. Jefferson County Board of Education reserves the right to award this bid on an all or none basis, or by multiple awards, whichever is in the best interest of the schools. Award of specified bid (if any) should be made within thirty (30) days of bid opening. Bidders will be notified by email of the results regarding specified bid. The bidder(s) to whom the award is given may be required to enter a written contract.

1.11 Anticipated Contract Term: This contract will begin once contract is signed and all required bonds and retainage have been received. **The expected Substantial Completion of said project is 510 calendar days from start of work or by 5/28/2028. Final Completion shall be reached within 30 calendar days or by 6/27/2028.** Actual damages may accrue if work is not completed in agreed upon timeframe and to Jefferson County Board of Education's Satisfaction.

1.12 Rejection of Bids: Jefferson County Board of Education reserves the right to reject any and all bids received and to waive any informality, technical defect or clerical error in any bid. Non-acceptance of any bid will be devoid of any criticism of the bid and of any implication that the bid is deficient in any manner. Non-acceptance of a bid shall be construed as meaning simply Jefferson County Board of Education does not deem the bid acceptable or that another bid was deemed to be more advantageous for the services or goods proposed.

1.13 Evaluation Review: Jefferson County Board of Education reserves the right to use all pertinent information that might affect the school's judgement as to the appropriateness of an award to the best evaluated supplier/vendor. This information may be appended to the bids evaluation process results. Information on a service provider from reliable sources, and not within the service provider's bid proposal, may also be noted and made part of the evaluation file. Jefferson County Board of Education shall have sole responsibility for determining a reliable source. Jefferson County Board of Education reserves the right to conduct written and/or oral discussions/interviews after bid opening. The purpose of such discussions/interviews is to provide clarification and/or additional information to make an award that is in the best interest of the schools.

1.14 Restrictive or Ambiguous Specifications: It is the responsibility of the prospective bidder to review the entire bid packet and to notify the Jefferson County Finance Department Purchasing Agent if the specifications are formulated in a manner that would unnecessarily restrict competition. Any such protest or question regarding specifications or bid procedures must be received in the Jefferson County Finance Dept. no later than seven (7) business days prior to bid opening to provide ample time, if necessary, to issue an addendum to the bid specifications. These requirements also apply to specifications that are ambiguous.

1.14.1 No oral interpretation will be made to any supplier/vendor regarding the meaning of specifications. All questions are to be submitted electronically by email and will be answered in the form of an Addendum to the solicitation by the Jefferson County Purchasing Agent.

1.14.2 Bidders taking exception to any part or section of bid specifications shall indicate such exceptions or deviations in their bid response. Failure to indicate any exceptions shall be interpreted as the bidder's intent to fully comply with the specifications as written. Conditional or qualified offers are subject to rejection in whole or in part. Exceptions will be negotiated for a mutual resolution.

1.15 Questions and Addendum: Vendor(s) shall carefully examine the ITB and any addenda. Vendor(s) are responsible for seeking clarification of any ambiguity, conflict, omission, or other errors in this specified bid writing. If the answer materially affects the specified bid the information will be incorporated into an addendum and provided to all bidders and will also be posted on the county website. An addendum will be issued, if necessary, to address questions or clarifications that result in changes to the bid scope or specifications, in accordance with Section 1.2.

1.16 Vendor Default: Jefferson County Board of Education reserves the right, in case of vendor default, to procure the articles or services from other sources and hold the defaulting vendor responsible for any excess costs occasioned thereby. Should the vendor default be due to failure to perform or because of a request for a price increase, Jefferson County Board of Education reserves the right to remove the vendor from the school's bidder list for twenty-four (24) months.

1.17 Term Bid Agreements: If this bid results in a term bid contract with the supplier/vendor, Jefferson County Board of Education must receive all general price decreases that other similar customers receive.

1.18 Alternative Bids: Jefferson County Board of Education will not accept alternate bids (those not equal to specifications) unless authorized by Jefferson County Board of Education and/or the Purchasing Agent.

1.19 Additions and/or Deletions: Jefferson County Board of Education reserves the right to consider adding goods and/or services to this bid or deleting goods and/or services that are deemed necessary and/or unnecessary. Any additions and/or deletions must be approved in writing by the Jefferson County Finance Department prior to any changes in service.

1.20 Declarative Statement: Any statement or words (e.g.: must, shall, will) are declarative statements that the vendor/supplier must comply with the condition. Failure to comply with any such condition may result in their bid being non-responsive and disqualified.

1.21 Incurred Costs: Jefferson County Board of Education will not be responsible for any costs incurred in the preparation, submission, nor to procure or contract for any services or goods.

1.22 Taxes: Jefferson County Board of Education purchases are not subject to taxation. Tax exemption certificates will be provided upon request.

1.23 Proof of Financial and Business Capability: Bidder must, upon request, furnish satisfactory evidence of the ability to furnish products or services in accordance with the terms and conditions of these specifications. Jefferson County Board of Education will make the final determination as to the bidder's ability.

1.24 Public Records Act: Jefferson County Board of Education is subject to the Tennessee Public Records Act 10-7-503 et seq. Bidders are cautioned that all documents submitted on behalf of this solicitation shall be open to the public for viewing and inspection and Jefferson County Board of Education will comply with all legitimate requests.

1.25 Removal of Vendor's Employees: The successful contractor(s) agrees to utilize only experienced licensed, responsible, and capable people in the performance of the work specified under contract. Jefferson County Board of Education may require that the contractor remove employees who endanger persons or property, or whose continued employment under this contract is inconsistent with the interest of the schools.

1.26 State Licensing Requirements: Vendors must be properly licensed, if applicable, by the State of Tennessee for the type of work requested. Bidders should submit a copy of the required license with their bid. If a copy is not included at the time of submission, the awarded vendor must provide a valid license prior to commencing any work. All licensing

must be in accordance with the Tennessee Code Annotated (T.C.A) §62-6-119.

1.27 News Releases by Vendors/Suppliers: As a matter of policy, Jefferson County Board of Education does not endorse the services of a vendor/supplier. A vendor/supplier will not make news releases concerning any resultant contract from this solicitation without prior written approval of Jefferson County Board of Education.

1.28 Closures: During periods of closure due to unforeseen circumstances or inclement weather in Jefferson County or closures at the direction of the School Superintendent, Jefferson County Mayor; the Jefferson County Finance Department/Purchasing Department will enact the following procedures in regard to solicitations, pre-bid meetings, and closures:

1.28.1 If the mayor and/or School Superintendent close the administrative offices prior to the time set for solicitation opening of any business day, all solicitations due that same day will be moved to the next operational business day.

1.28.2 Pre-Bid Meetings may be cancelled if closures occur. If a change is required due to unforeseen circumstances or inclement weather, an addendum will be issued for any changes and can be found on the county website. You may also contact the Purchasing Agent for any updates by email or telephone.

1.28.3 Other unforeseen circumstances shall be at the sole discretion of the Jefferson County Finance Director.

1.28.4 Jefferson County and/or Jefferson County Board of Education shall not be liable for any commercial carrier's decision regarding deliveries during any unforeseen circumstances.

1.29 Communications: The successful execution of this contract will require extensive communication between all parties involved. While information may be transmitted via telephone, it should always be followed up with an email. It is essential that the Vendor(s) have email capabilities.

1.30 Compliance with all Applicable Regulations: Vendor agrees and covenants that the company, its agents, and employees will comply with all city, county, state and federal codes, laws, rules, and regulations applicable to the business to be conducted under this contract. If the vendor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, the vendor shall bear all costs arising from them.

1.31 Contact Personnel: It shall be essential to the success of this contract to develop a good working relationship with the vendor(s). It is imperative that the Jefferson County Board of Education account be handled efficiently and professionally. Jefferson County Board of Education should be assigned no more than two (2) vendor contacts to handle billing inquiries and service-related issues. In the event one (1) or both contacts leave the Jefferson County Board of Education account, the vendor shall formally introduce the new contacts to school personnel. These contacts must be knowledgeable of the Jefferson County

Board of Education account to avoid any interruption of services.

1.32 Pricing: The vendor(s) warrants that the unit price stated for all items shall remain firm for a period of twelve (12) months from the first day of the contract period or until June 30 (the end of the government fiscal year) whichever comes first. If the vendor's price is increased after the initial year, Jefferson County Board of Education must be given written notice 30 days prior to contract end to consider continuation of services. Such a request shall include as a minimum 1) the cause for the adjustment; 2) the amount of the change requested with documentation to support the requested adjustment. Price increases will only be considered at renewal period(s). If the price increase is rejected the vendor may:

1.32.1 Continue with existing prices.

1.32.2 Request a lower price increase.

1.32.3 Not accept the renewal offer.

1.32.4 Re-submit a bid once the product/service goes back out to bid.

1.32.5 Vendor(s) must submit proof of price increase. If a price increase is approved by the Jefferson County Finance Department and the requesting department the approval notification will be made in writing and the vendor(s) will be notified of the new price schedule and the effective date of the increase. This documentation will become part of the bid file. No approvals will be authorized verbally.

1.33 Invoice Detail: Jefferson County Board of Education requests invoices show the following details to help expedite review for payment. The vendor(s) may be required to modify invoicing procedures to show detail. All potential vendor(s) are hereby cautioned that Jefferson County Board of Education will only pay from the original invoices and not facsimiles or copies. Invoices which do not adhere to these details may be returned to the vendor(s). Vendor(s) may be asked to submit a sample copy of their invoice for review during evaluation of this solicitation. Account information may be deleted.

1.33.1 The invoice must show the amount due to the vendor(s) by Jefferson County Board of Education.

1.33.2 The invoice must show an itemized detailed part and material count including dates of service, location of service, type of part, the associated unit price for the materials, parts, and/or services provided, and the total price for materials, parts, and/or services provided.

1.33.3 Invoices are to be original and uniquely pre-numbered.

1.33.4 Invoices should indicate PO number and/or department ordering.

1.34 Invoice Review: Pay applications must be submitted to the architect and Owner's

project manager for review before they are fully signed and submitted to the Jefferson County Board of Education for processing payment. All invoices must adhere to the terms and conditions of the contract. Variations from the contract and contract pricing are strictly prohibited. Any variations found in the invoice will result in the rejection of those invoices. Rejected invoices will be returned to the vendor for correction.

1.35 Processing Time for Payment: Vendor(s) are advised that a minimum of thirty (30) days is required to process payment. This begins once the invoice has been submitted & approved by the architect and Owner's project manager and received in the Finance Dept. for payment.

1.36 Payment: Payment will be issued for goods received and/or services completed after final inspection and approval. Payment will be issued in full unless otherwise stated in the contract.

> **1.36.1 Payment Draws (Construction Projects Only):** Unless otherwise stated, vendor(s) may request payment draws based on the amount of the project and work completed. Payment draws must be approved by the Jefferson County Finance Director. Retainage will be returned after work has been completed and approved by Jefferson County Board of Education Administration and the final draw has been issued.

Section 2: Obligations, Rights, and Remedies

These terms and conditions shall be part of the contract. Jefferson County Board of Education reserves the right to negotiate other terms and conditions it deems appropriate and necessary under the circumstances to protect the public's trust.

2.1 Alterations or Amendments: No alterations, amendments, changes, modifications, or deletions to this contract shall be binding without the prior written approval by Jefferson County Board of Education.

2.2 Appropriation: In the event no funds are appropriated by Jefferson County Board of Education for the goods or services in any fiscal year or insufficient funds exist to purchase the goods or services, then the contract shall expire upon the expenditure of previously appropriated funds or the end of the current fiscal year, whichever occurs first, with no further obligations owed to or by either party.

2.3 Assignment: Vendor shall no assign or sub-contract this agreement, its obligations or rights hereunder to any party, company, partnership, incorporation, or person without the prior written specific consent of Jefferson County Board of Education.

2.4 Books and Records: Vendor shall maintain all relevant records for a minimum of three (3) years and make them available for audit or inspection.

2.5 Public Records Act: Jefferson County Board of Education is subject to the Tennessee Public Records Act T.C.A. § 10-7-503 et seq. Vendors are cautioned that all documents submitted on behalf of this solicitation shall be open to the public for viewing and inspection and Jefferson County Board of Education will comply with all legitimate requests.

2.6 Compliance with All Laws: Vendors shall comply with all applicable federal, state, and local laws, regulations, and licensing requirements affecting the provision of goods and/or services.

2.7 Default: Failure to perform or comply with any provision of this contract or the terms and conditions of any documents referenced and made a part hereof, Jefferson County Board of Education may terminate the contract, in whole or in part, and may consider such failure or noncompliance a breach of contract. Jefferson County Board of Education expressly retains all its rights and remedies provided by law in case of such breach, and no action by Jefferson County Board of Education shall constitute a waiver of any such rights or remedies. In the event of termination for default, Jefferson County Board of Education reserves the right to purchase requirements elsewhere.

2.8 Governing Law: This agreement shall be governed by the laws of the State of Tennessee with venue in Jefferson County. The Chancery Court and/or Circuit Court of Jefferson County, TN shall have exclusive and concurrent jurisdiction of any disputes which arise hereunder.

2.9 Indemnification/Hold Harmless: Vendor shall indemnify and hold harmless Jefferson County and/or Jefferson County Board of Education, its officials, and employees from all claims arising out of vendor performance, negligent act, occurrence, omission, or commission of vendor, its sub-vendors, suppliers, agents, or employees.

2.10 Non-Collusion: By submission of a signed bid/proposal the vendor certifies the proposal is made without collusion with any other person or company engaged in the same line of business or commence, or fraudulent act punishable under TN or US law

2.11 Title VI of the Civil Rights Act: Non-discrimination in Federally Assisted Programs- No person in the US shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal Financial Assistance 42 U.S.C. Section 2000d. It is the policy of Jefferson County Board of Education that all its services and activities be administered in conformance with the requirements of Title VI.

2.12 Independent Contractor: Vendor/Contractor acknowledges that it is an independent vendor/contractor and not an employee or agent of Jefferson County, TN.

2.13 Criminal History Check: Any and all contractors, subcontractors, vendors, vendor employees, agree to comply with T.C.A. § 49-5-413 requiring that all parties providing services for Jefferson County Board of Education must submit a criminal history records

check at their expense. The criminal history check is to be conducted by the TN Bureau of Investigation and the Federal Bureau of Investigation.

2.14 No Boycott of Israel: Pursuant to TCA Title 12, Chapter 4, Part 1, by submission of a response to this solicitation, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint response each party thereto as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not currently engaged in, and will not for the duration of the agreement engage in, a Boycott of Israel.

2.15 Iran Divestment Act: By submission of this solicitation, each vendor and each person signing on behalf of any vendor certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each vendor is not on the list created pursuant to T.C.A. § 12-12-106.

2.16 Non-Discrimination and Non-Conflict Statement: Vendor shall comply with all non-discrimination laws including Title VI. Vendors shall comply with the Fair Wage and Hour Laws, the National Labor Relations Act, and other federal and state employment laws as

applicable. Vendors covenant that it does not engage in any illegal employment practices. The vendor covenants that it has no public or private interest and shall not acquire directly or indirectly any interest, which would conflict in any manner with the provision of its goods or the performance of its services. Vendor warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of Jefferson County Board of Education as wages, compensation, or gifts in exchange for acting as officer, agent, employee, sub-vendor, or consultant to vendor in connection with any goods provided or work contemplated or performed relative to the agreement.

2.17 Drug-Free Affidavit: Construction bidders in Tennessee with five (5) or more employees must submit a notarized affidavit (T.C.A. § 50-9-113) with their bid, certifying they have a drug-free workplace program in effect. The affidavit must affirm compliance with Tennessee Code Annotated Title 50, Chapter 9.

2.18 Warranty/Inspection/Acceptance: Vendor warrants all goods and services are of merchantable quality, fit for purpose, and conform to specifications. Warranty periods shall not commence until Jefferson County Board of Education inspects and formally accepts goods and/or services. Acceptance of goods or services does not constitute a waiver of latent or hidden defects or defects not readily detectable by a reasonable person under the circumstances. Jefferson County Board of Education reserves the right to reject any or all items or services not in conformance to applicable specifications. Vendor assumes the costs associated with such nonconformance.

2.19 Limitations of Liability: In no event shall Jefferson County Board of Education be liable for any indirect, incidental, consequential, special, exemplary damage, or lost profits

even if Jefferson County Board of Education has been advised of the possibility of such damages.

2.20 Order of Precedence: In the event of inconsistent or conflicting provisions the following order shall prevail: Change Orders and Written Amendments (executed after the contract), Contract, Addenda, RFP/ITB, Award, Supplementary Terms and Conditions, General Terms and Conditions, Specifications, Drawings/Plans, Vendor Bid/Proposal response.

2.21 Remedies: Jefferson County Board of Education retains all remedies available under Tennessee Law, including damages and termination.

2.22 Right to Inspect: Jefferson County Board of Education reserves the right to inspect work, services, and materials at any time.

2.23 Severability: If any provision is invalid, remaining provisions remain in effect.

2.24 Tax Compliance: Vendor acknowledges, by submission of bid and signature, that it is current in its respective Federal, State, County, and City taxes of whatever kind or nature and is not delinquent in any way. Delinquent status must be disclosed or risk debarment by Jefferson County and Jefferson County Board of Education.

2.25 Gratuities and Kickbacks: It shall be a breach of ethical standards for any person or company to offer, give, or agree to give any employee or former employee, or for any employee or formal employee to solicit, demand, accept, or agree to accept from another person or company gratuities or kickbacks. Breach of these provisions is a breach of contract & ethical standards and will result in disqualification, legal action, and/or debarment or suspension from being a vendor or sub-vendor under Jefferson County Board of Education contracts.

2.26 Insurance: Vendor shall maintain required insurance and provide proof of insurance. A copy of COI may be requested for proof of insurance. The successful vendor will be required to submit a COI with the specified coverage and listing Jefferson County Board of Education as additional insured; endorsement pages shall be included. It shall be the successful vendor's responsibility to keep current COI and endorsement pages on file with the Jefferson County Finance Department if the contract is in effect. The contractor shall, at its sole cost and expense, carry and maintain statutory workers' compensation insurance, employer's liability insurance, and professional liability insurance (if applicable) for any and all persons employed directly or indirectly by the contractor for the duration of the contract. The limits of liability therein shall meet, at a minimum, the limits of liability stated within the Standard Liability Insurance Requirements.

2.27 Environmental Liability: Vendor assumes responsibility for proper handling and disposal of materials in accordance with TN law.

2.28 Notice to Proceed (Construction Projects Only): Once the notice to proceed is

issued, the construction completion timeframe begins with the agreed upon completion date. A written request must be received thirty (30) days prior to the expected completion date if unable to complete during given timeframe. At the discretion of Jefferson County Board of Education an extension may be granted without penalty. If a written request is not received thirty (30) days prior or Jefferson County Board of Education does not grant an extension, actual damages will begin to be assessed until the work has been completed to Jefferson County Board of Education's satisfaction.

Section 3: Specifications and Scope of Work

3.1 Refer to Project Manual & Drawings for additional details & requirements.

Section 4: Checklist

This section is provided for reference only and is not intended to represent a complete list of all documents or items that may be required as part of the bid submission.

4.1 Vendor Information Sheet

4.2 Iran Divestment Act Affidavit

4.3 Title VI Contract Assurance

4.4 Non-Collusion Affidavit

4.5 Non-Discrimination, Non-Debarment, & Lobbying Affidavit

4.6 Addendum Acknowledgement (If Applicable)

4.7 Drug-Free Workplace Affidavit

4.8 No Contact/No Advocacy Affidavit

4.9 Copy of Contractor License

4.10 Proof of Insurance and Liability

4.11 Bid Form – Price Sheet

4.12 Signature on Bid and on all required documents.

4.13 Properly Seal and Label envelope as described in ITB.

4.14 Contractor License Information From Attached to Outside of Envelope

4.15 Include two single sided copies of bid marked original and copy.

4.16 Pages one (1) through thirteen (13) do not need to be included in bid packet.

Vendor Information Sheet

Company Name: _____

Company Address: _____

Billing Address: _____

Contact Name: _____

Phone Number: _____

Email Address: _____

List of References (List at least 3 references: Name, Phone Number, Email)

_____
_____
_____
_____
_____

Signature: Title: Date:

_____

Print Name: Title:

_____

The undersigned certifies that he/she has the authority to bind this company in an agreement/contract to supply the commodity or service in accordance with all terms, conditions, and pricing specified. By signing and submitting this proposal, the vendor acknowledges that they have read, understand, and agree to all aspects of the specifications and proposal requirements as presented without reservation or alteration. This proposal, if accepted, will constitute an agreement and contract with Jefferson County Board of Education. Prices are firm during this agreement term, unless agreed upon in writing by the BOE.



Iran Divestment Act Affidavit

Iran Divestment Act Affidavit as per Tennessee Code Annotated, Title 12, and effective July 1, 2016: By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to 12-12-106.

Authorized Signature:_____Date:_____

Print Name: _____

Date Bid Submitted:_____

Title:_____

Company Name:_____

Address:_____

Phone Number:_____

Email Address:_____

Title VI Contract Assurance

It is the policy of Jefferson County Board of Education not to discriminate on the basis of race, color, national origin, age, sex, or disability in its hiring practices; or in admission to, access to, or operation of its programs services or activities. With regard to all aspects of this contract, Contractor certifies and warrants it will comply with this policy.

Please print: _____

Vendor Name

_____

Street Address

_____

City State Zip Code

_____

Phone Number Email

I_____, hereby agree to abide by the Title VI regulations.

Signature_____Date_____

Ownership Type (please check all that apply)

	African American Owned Business		Asian Owned Business
	Women Minority Owned Business		Disabled Owned Business
	Native American Owned Business		All Others
	Hispanic Owned Business		



Non-Collusion Affidavit

_____, being first duly sworn, deposes and says that:

1) He/She is_____of_____, the bidder that has submitted the attached proposal;

2) He/She is fully informed respecting the preparation and contents of the attached proposal and of all pertinent circumstances respecting such proposal;

3) Such proposal is genuine and is not a collusive or sham proposal;

4) Neither the said bidder nor any of its officers, partners, owners, agents, representatives, employees, or partied interest, including this affiant, has in any way colluded, conspired, connived, or agree, directly or indirectly, with any other bidder, firm or person to submit a collusive or sham bid in connection with the contract for which the attached proposal has been submitted or to retain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm, or person to fix the price of prices in the attached proposal, or of any other bidder, or to fix any overhead, profit, or cost element or the bid price or the bid price of any other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against Jefferson County or any person interested in the proposed contract; and

5) The price or prices quoted in the attached proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

Signature_____

Print Name_____

Title_____

Date_____



Non-Discrimination, Non-Debarment, & Lobbying Affidavit

I do hereby certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment, and is in all respects fair and without collusion or fraud.

I understand that collusive pricing is a violation of State and Federal law and can result in fines, prison sentences, and civil damage awards and that no collusion with another firm was used in preparation of this bid.

I also certify that this firm does not discriminate against any employee or applicant for employment on the grounds of race, color, national origin or sex; and does not and will not maintain or provide for his employees any segregated facilities at any of its establishments, and further, that the firm does not and will not permit their employees to perform their services at any location under this contract where segregated facilities are maintained.

By submission of this bid, the bidder certifies that neither it or its principals is presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal or State department or agency.

I further certify that during the Invitation to Bid solicitation and/or during the performance of this contract that neither it nor its principals will participate in lobbying activities in conjunction with this project.

I agree to abide by all terms and conditions of this Invitation to Bid and certify that I am authorized to sign this affidavit for the vendor.

Please indicate which of the following apply to your company. This information is requested for information purposes only. Jefferson County currently has no policy that allows for set asides or preferences for woman owned or minority owned businesses.

_____African American _____Native American Owned _____Hispanic Owned

_____Caucasian Owned _____Asian Owned _____Women Owned _____Other Owned

Signature:_____Title_____Date_____



Addendum Acknowledgement (if applicable)

If applicable, please complete and return this with bid proposal response.

I the undersigned acknowledge the receipt of the following addenda to this solicitation.

Addendum #1- Date Received_____

Addendum #2- Date Received_____

Addendum #3- Date Received_____

Addendum #4- Date Received_____

Signature_____

Print Name_____

Title_____

Company Name_____

Email_____

Phone Number_____

Drug-Free Workplace Affidavit

State of _____

County of_____

The undersigned, principal officer of_____, an employer of five (5) or more employees contracting with Jefferson County Government and Board of Education to provide construction services, hereby states under oath as follows:

1) The undersigned is a principal officer of _____ (hereinafter referred to as the "Company") and is duly authorized to execute this Affidavit on behalf of the Company.

2) The Company submits this Affidavit pursuant to T.C.A. § 50-9-113, which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9,of the Tennessee Code Annotated.

3) The Company is in compliance with T.C.A. . § 50-9-113. Further affiant saith not.

_____

Principal Officer

State of_____

County of_____

Before me personally appeared_____, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that such person executed the foregoing affidavit for the purpose of therein contained.

Witness my hand and seal at office this_____day of_____, 2026

Notary Public_____My Commission Expires_____

No Contact/No Advocacy Affidavit

State of _____

County of _____

_____, being first duly sworn, deposes and says that:

(1) He/She is the owner, partner, officer, representative, or agent of _____ _____, the Proposer that has submitted the attached Proposal;

(2) The Proposer_____swears or affirms that he/she will abide by the following "No Contact" and "No Advocacy" clauses:

a) NO CONTACT POLICY: After the posting of this solicitation to the Purchasing Division's website, any contact initiated by any proposer with any Jefferson County and/or Jefferson County Schools representative concerning this proposal is strictly prohibited, unless such contact is made with the Jefferson County Purchasing Agent. Any unauthorized contact may cause the disqualification of the proposer from this procurement transaction.

b) NO ADVOCATING POLICY: To ensure the integrity of the review and evaluation process, companies and/or individuals submitting proposals for any part of this project, as well as those persons and/or companies representing such proposers, may not lobby or advocate to Jefferson County and/or Jefferson County Schools staff including, but not limited to, members of Jefferson County Commission, Jefferson County Offices, Office of the Mayor, Jefferson County School Board or any other Jefferson County staff.

Any company and/or individual who does not comply with the above stated "No Contact" and "NO Advocating" policies may be subject to having their proposal rejected from consideration.

Signed: _____

Title: _____

Subscribed and sworn to before me this _____ day of_____, 2026

Notary Public_____
My Commission expires: _____

To:	Jefferson County Purchasing Attn: Julie Anglea P.O. Box 1749/1244 Gay St. Dandridge, TN 37725	Project:	
Date:		Time:	
Site Location:		Bid Opening:	

Name of Bidder:		Bidder's License Classification:	
License No.:		Expiration Date: Monetary Limits:	

*If the Bid involves: Electrical, Plumbing, HVAC, Masonry, Roofing, or Geothermal Work, complete below section. If not enter "NONE" in the space provided under Section (A) for each work of service. *

Electrical	Plumbing	HVAC	Masonry	Roofing	Geothermal
A. Name of Sub holding electrical license	Name of Sub holding plumbing license	Name of Sub holding HVAC license	Name of Sub holding Masonry license	Name of Sub holding Roofing license	Name of Sub holding Geothermal license
B. License No. of Contractor holding Electrical License	License No. of Contractor holding Plumbing License	License No. of Contractor holding HVAC License	License No. of Contractor holding Masonry License	License No. of Contractor holding Roofing License	License No. of Contractor holding Geothermal License
C. License Classification & Limits	License Classification & Limits	License Classification & Limits	License Classification & Limits	License Classification & Limits	License Classification & Limits
D. Expiration Date of Electrical License	Expiration Date of Plumbing License	Expiration Date of HVAC License	Expiration Date of Masonry License	Expiration Date of Roofing License	Expiration Date of Geothermal License

SECTION 08 87 00 SECURITY GLAZING FILM

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Security Glazing film applied to new and existing glazing assemblies.

B. Locations: As identified in the Contract Documents.

1.2 RELATED SECTIONS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 REFERENCED STANDARDS

A. American National Standards Institute (ANSI)

1. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; current version.

B. American Society for Testing and Materials (ASTM)

1. ASTM D882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting, current version.

2. ASTM D1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics, current version.

3. ASTM D2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates, current version.

4. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials; current version.

5. ASTM F3561 - Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack.

C. Code of Federal Regulations

1. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Consumer Products Safety Commission; current edition.

D. FILTI Testing and Development

1. FTD SA – FILTI Shooter Attack Certification Testing, FILTI Testing and Development Shooter Attack Certification.

E. Florida Building Code (Miami-Dade County) for Hurricane Resistance

1. TAS 201 – Impact Test Procedures

2. TAS 202 – Criteria for Testing Impact & Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure

3. TAS 203 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Glazing film manufacturer specializing in manufacture of security glazing films with minimum 5 years' experience manufacturing products meeting specified requirements.

B. Installer Qualifications: Direct employees of film manufacturer or manufacturer-approved installers trained in all aspects of film installation.

C. Field Mockup: Apply security glazing film in location(s) as directed to verify installation requirements and to demonstrate application effects and qualities of materials and execution.

1. Obtain approval of field samples before continuing with remainder of installation.

2. Maintain mockup during duration of installation in an undisturbed condition as a standard for judging the completed Work.

3. Approved field mockup may become part of the completed Work.

D. Film application and performance verification:

1. In addition to only proceeding with reviewed and approved submittals, the awarded contractor/ installer shall certify that the security film installed meets the performance requirements identified within the Contract Documents.

2. Post installation film verification may include the random choosing and removal of up to three pieces of glass with applied film to be tested to verify that film installed meets specification and performance requirements as indicated. Film may need to be removed as part of the verification process.

3. All installed film locations shall be subject to inspection of structural sealant to verify full bite on frames has been achieved.

1.5 SUBMITTALS

A. Submit under provisions of Division 01.

B. Test Reports: Detailed reports of full-scale chamber tests to specified criteria, using assemblies commensurate with those required for this project.

C. Product Data: Manufacturer’s data sheets on product to be used, including:

1. Record of product certification for safety requirements.

2. Preparation instructions and recommendations.

3. Storage and handling requirements and recommendations.

4. Installation methods.

D. Samples: For each film product to be used, minimum size 4-inches by 6-inches, representing actual product, color, and patterns.

E. Manufacturer Guidelines

1. Completed work inspection procedure and guidelines

2. Post-Installation Agreement

a. Curing time and expectations

b. Cleaning guidelines

c. Other manufacturer specific information

F. Specimen Warranty.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products as directed in manufacturer’s unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

1.7 FIELD CONDITIONS

A. Coordinate installation timeline with General Contractor's and/or Owner's schedule and potential other adjacent work that may create or cause adverse installation conditions.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside the manufacturer's absolute limits.

1.8 WARRANTY

A. Provide 15 Year manufacturers replacement warranty to cover film against peeling, cracking, discoloration, and deterioration.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Armoured One, LLC., 386 North Midler Ave. Syracuse, NY 13206. Tel: 315-720-4186; Email: info@armouredone.com; Web: www.armouredone.com.

1. Basis of design: Armoured One 23mil Shooter Attack Security Film.

B. Substitutions: Must provide demonstrated equality to the specified basis of design product and performance requirements.

2.2 SECURITY GLAZING FILM MATERIALS

A. Security Glazing Film

1. Single thickness 23 mil (0.023 inch) thick, clear, UV stable, optically transparent, adhesive backed polyester film for permanent bonding to glass.

a. Installing multiple layers of thinner film to accomplish the required thickness is not acceptable nor considered equal to the basis of design.

2. Adhesive Type: Pressure sensitive as recommended by glazing film manufacturer.

3. Performance Requirements:

a. ASTM F3561 - Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack, Resistance Level 1 (tested on 1/4-inch tempered glass.).

1) Specimen sample shall be evaluated per the requirements of the ASTM F3561 Appendix for Glazing Only Weakening Testing – Non-System Test, as this method is not a systems test and therefore not a certified assembly.

b. FTD SA – Standard for Shooter Attack certification, Class 1 (tested on 1/4-inch tempered glass).

c. Tensile Strength: ASTM D-882, 35,000 psi minimum.

d. Breaking Strength: ASTM D-882, 640 lbs. / inch.

e. Elongation at Break: ASTM D-882, 230%

f. Haze: ASTM D1003, <4%

g. Color b: ASTM D2244, 4.2

h. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, as tested in accordance with ASTM E84 (Class A).

2.3 SUPPLEMENTAL MATERIALS

A. Structural Sealant: Per manufacturer's recommendations for the installation application.

1. Acceptable product: DOW Corning DOWSIL795 Silicone Building Sealant, DOWSIL 995 Structural Silicone Sealant, or glazing film manufacturer approved equal.

B. Provide supplemental anchoring system components as required.

C. Cleaners, Primers, and Sealers: Types recommended by glazing film manufacturer.

2.4 FIRE RATED SECURITY GLAZING

A. Fire-rated laminated glass panes can be fabricated to fire-rating resistance ratings of 20-, 45-, 60-, and 90-minute protection as required utilizing security glazing film applied in factory under controlled conditions.

1. Consult with manufacturer if higher rating resistance is required.

B. Security glazing film may be field applied to existing fire-rated glazing assemblies maintaining the existing fire-resistance protection rating.

PART 3 - EXECUTION

3.1 GENERAL

A. At existing glazed openings, retrofit glazing assemblies to provide impact resistance and forced/ attack resistance complying with FTD-SA-C1, ANSI Z97.1 and CPSC 16 CFR 1201 Category II.

3.2 EXAMINATION

A. Field-Applied Film: Verify that existing conditions are adequate for proper application and performance of film.

B. Examine glass and frames, ensure that existing conditions are adequate for proper application and performance of film.

C. Verify glass is not cracked, chipped, broken, or damaged.

D. Verify that frames are securely anchored and free of defects.

3.3 PREPARATION

A. Clean glass of dust, dirt, paint, oil, grease, mildew, mold, and other contaminants that would inhibit adhesion.

B. Blade the inside surface of window glass to ensure removal of foreign contaminants.

C. Immediately prior to applying film, thoroughly wash glass with neutral cleaning solution.

D. Protect adjacent surfaces.

E. Do not begin installation until substrates have been properly prepared.

3.4 INSTALLATION

A. Install in accordance with manufacturer's instructions as required to achieve specified performance.

B. Seams. Seam film only as required to accommodate material sizes, seam without overlaps. Seam orientation to be identified and coordinated during shop drawing review and verified in field prior to installation.

C. Apply bead of structural sealant overlapping 3/8-inch to 1/2-inch of the exposed edge of film and overlapping equally onto the glazing system frame. Allow to cure before cleaning.

D. Clean glass and excess structural sealants from finished surfaces.

E. Remove any labels or protective covers. Do not encapsulate anything under the film.

3.5 POST INSTALLATION VERIFICATION

A. Awarded contractor will be required to verify that film installed meets the requirements highlighted in this bid. By submitting a bid, contractor understands that three pieces of glass, chosen at random will be removed and film applied will be measured to verify that film installed meets specifications as requested. Film may need to be removed as part of the verification process.

3.6 PROTECTION

A. Protect installed products until completion and final acceptance of project.

B. Repair or replace damaged products before Substantial Completion.

1. Bubbles and haziness during the curing period is not considered grounds for replacement.

3.7 CURING

A. After installation, small bubbles or a hazy appearance may appear due to trapped moisture between the film and the glass. These imperfections typically disappear as the film cures, a process that can take anywhere from a few days to several weeks, depending on temperature, humidity, other environmental conditions.

B. Allow the film to cure undisturbed for a smooth, clear finish.

C. Allow film to cure for up to six weeks prior to initiating an inspection review of bubbles or haziness.

D. If after 6 months of curing, bubbles and haziness persist, replace film.

END OF SECTION 08 8753

ENGINEERING SERVICES GROUP, INC.
CONSULTING ENGINEERS
MECHANICAL • ELECTRICAL

JEFFERSON ELEMENTARY SCHOOL RENOVATION
REVISION NO. 1
ESG Project No. 26553

The following items shall be changed as noted below:

A. Refer to revised specification Section 22 11 16 – Domestic Water Piping: All domestic water piping above ground shall be Type "L" Copper.

B. Refer to revised specification Section 22 11 19 – Domestic Water Piping Specialties: Water pressure reducing valve has been deleted from the specification section.

C. Refer to specification Sections 22 07 00 – Plumbing Insulation, 22 05 23 – General Duty Valves for Piping, 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment: Delete any PEX piping reference in specification sections listed above.

D. Reference specification Section 22 07 00, 3.10: Insulation on all domestic cold, hot, and hot water return piping, 4" and smaller, shall be mineral fiber, preformed pipe insulation, 1" thick. Delete 3.10, B.

E. Reference Sheet FP4.2 "Fire Pump Water Storage Tank General Arrangement Detail." Tank is noted as being a "Reinforced PVC Tank." Storage tank is to be a bolted sectional corrugated tank with non-potable PVC lining. See specification Section 21 10 20.

F. Refer to revised Sheet DP2.2: Existing grease interceptor to remain active until Phase 4A is starting construction, at that time existing grease interceptor shall be pumped and removed. See attached Sheet DP2.2.

G. Refer to Sheet P5.0: New (2 P.S.I.) gas meter shall be installed in Phase 1 as noted. Contractor shall pay all costs for gas meter installation.

H. Refer to Sheet P7.0: (DBI) drain box has been added to fixture specification. See attached Sheet P7.0.

I. Added specification Section 21 05 00 – Common Work Results for Fire Suppression.

Engineering Services Group, Inc.
Prepared by: Mark Austin – Plumbing/Fire Protection
Reviewed by: Jeffrey R. Whillock, P. E.

Date: November 10, 2026

Attachments: 21 05 00 Common Work Results for Fire Suppression
22 11 16 Domestic Water Inside
22 11 19 Domestic Water Piping Specialties

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SECTION 21 05 00 - COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 22 05 10 – Hangers and Supports for Plumbing Piping and Equipment shall also apply to this section.

1.2 SUBMITTALS

A. Product Data: For the following:

1. Piping materials, including dielectric fittings, and sprinkler specialty fittings.
2. Pipe hangers and supports, including seismic restraints.
3. Valves, including listed fire-protection valves, unlisted general-duty valves, and specialty valves and trim.
4. Sprinklers, escutcheons, and guards. Include sprinkler flow characteristics, mounting, finish, and other pertinent data.
5. Monitors.
6. Fire hydrants.
7. Fire department connections, including type; number, size, and arrangement of inlets; caps and chains; size and direction of outlet; escutcheon and marking; and finish.
8. Alarm devices, including electrical data.

B. Fire-hydrant flow test report. Flow test must be performed by the sprinkler contractor preparing the calculations, prior to preparing calculations, to determine adequate water availability.

C. Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, including hydraulic calculations.

D. Field Test Reports and Certificates: Include "Contractor's Material and Test Certificate for Aboveground Piping" and "Contractor's Material and Test Certificate for Underground Piping."

E. Field quality-control test reports.

F. Operation and Maintenance Data: For sprinkler specialties to include in emergency, operation, and maintenance manuals.

1.3 DESCRIPTION OF WORK

A. A complete sprinkler system shall be furnished and installed to insure the lowest insurance rate possible; however, no requirements of NFPA 13, Local Fire Marshal, State Fire Marshal, Division of Fire Prevention, water Department, and Building Insurance Co. shall be violated and/or omitted.

B. All areas indicated on plans shall be provided with an automatic sprinkler system in accordance with N.F.P.A. 13.

C. It shall be the Contractors responsibility to examine all architectural drawings, sections, details and structural drawings to determine areas required to be sprinklered to meet applicable code requirements.

D. All cutting of holes necessary for the installation of work specified under this section of the specifications shall be done by this Contractor. Applicable provisions elsewhere in the specifications apply here, also. Cutting will be done under the supervision of the General Contractor. Do all patching of concrete, masonry and other materials which are cut by this Contractor, employing the services of the Contractor whose work is cut. Patching shall be of the same material and shall be finished neatly.

1.4 DRAWINGS

A. The drawings show and the specifications describe the work intended under this section, but the Contractor shall be solely responsible for taking his own measurements, performing his own flow test, and installing the work to fit the conditions encountered. Everything necessary for a complete and satisfactory installation shall be furnished and installed by this Contractor performing work under this contract, whether or not specifically shown or specified. This is not intended to cover major items of equipment not shown or specified but is intended and will be interpreted to cover all miscellaneous parts, devices, accessories, controls, and appurtenances which are required by any applicable code, ordinance, regulation or law required to complete and place the system in satisfactory operation and required for a first class job which is complete in every respect.

B. It shall be the responsibility of this Contractor to install all sprinkler work to coordinate with other trades in advance so as to clear all interferences with all architectural, structural, electrical, heating, ventilating, air conditioning, plumbing, sewerage, and other work. Any work installed by this Contractor which interferes with any other work by failure to coordinate said work shall be altered by this Contractor at his own expense as directed by the Architect to clear such interferences.

C. Sprinklers shall be referred to on drawings, submittals, and other documentation, by the sprinkler identification or model number as specifically published in the appropriate agency listing or approval. Trade names or other abbreviated designations shall not be allowed.

D. Grooved joint couplings and fittings shall be shown on drawings and product submittals and shall be specifically identified with the applicable style or series designation.

1.5 DEVIATIONS

A. No deviations from the plans and specifications shall be made without the full knowledge and consent of the Architect. Should this Contractor find at any time during the progress of the work that, in his judgment, existing conditions made desirable a modification in requirements covering any item he shall report such items to the Architect for his decision and instructions. No changes shall be made until written request has been made by the Contractor to the Architect and written approval of said change has been given by the Architect.

1.6 OMISSIONS

A. The drawings and specifications shall both be considered as part of the contract. Any work or material shown in one and omitted in the other shall be furnished and performed as though shown in both to give a complete sprinkler job approvable by the Authority Having Jurisdiction. The awarding of the contract shall be construed to mean that this Contractor will install a complete and satisfactory system, furnishing all items of materials and labor to accomplish this result whether or not such items are particularly specified or shown on plans. Should any discrepancy or omission be discovered in the plans or

specifications, such must be reported to the Architect immediately in order that any necessary addenda may be issued before the bids are received.

1.7 INTERPRETATION

A. The meaning and intent of the plans and specifications shall be subject to the interpretations of the Architect whose decision on all questions pertaining thereto shall be binding upon the Contractor.

1.8 LOCAL STANDARDS

A. Term, "Local Standards", as used herein, means the standards of design and construction of respective municipal (or county) department or utility company.

1.9 COORDINATION

A. This Contractor shall visit the job site and thoroughly inform himself as to the conditions under which the work is to be done.

B. Failure to route pipes through the building without interfering with other Contractor's equipment or construction and at maximum possible elevation shall not constitute a reason for an extra charge.

C. All equipment requiring service shall be made easily accessible.

1.10 PERMITS, LICENSES AND INSURANCE

A. The Contractor shall obtain and pay for all permits, licenses, fees, etc., required for his work.

1.11 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Electrical Characteristics for Fire-Suppression Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

C. All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.

D. All castings used for coupling housings, fittings, valve bodies, etc., shall be date stamped for quality assurance and traceability.

1.12 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for fire-suppression installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

1.13 SHOP DRAWINGS

A. Submit shop drawings to Designer's Office. Obtain stamped approved plans and letter of approval and then submit approved drawings to Authorities Having Jurisdiction for approval. No sprinkler work shall be done prior to all above approvals. Contractor shall include in his bid all equipment and labor necessary to comply with the Authority Having Jurisdiction requirements.

B. Submit 5 equipment submittals of all materials proposed for use in the work, giving name of manufacturer, trade name, catalog number and all information hereinafter requested. It is understood and agreed by all concerned that the Architect shall have the authority to reject any or all material, equipment or workmanship not complying with these specifications and that Contractor shall replace such rejected equipment, materials or workmanship upon notification by the Architect. Submission of shop drawings electronically is acceptable in lieu of hard copy material.

C. Submittal data and drawings shall be examined by the General Contractor prior to his transmitting to the above-mentioned authorities. The submittals shall bear the Contractor's stamp of approval evidencing that he has examined and checked same and that he found the information contained to be in accordance with the Contract requirements.

D. All materials and equipment furnished under this Division 21 shall be new and approved by Underwriters' Laboratories, Inc. (UL), Factory Mutual (FM), or American Water Works Association (AWWA) where applicable.

1.14 GUARANTEE

A. The Contractor shall furnish a guarantee covering all labor and materials for a period of one year from date of acceptance of his work which shall include an agreement to repair replace and make good at his expense, any and all defects which may appear in his work or materials during that time, which in the judgment of the Architect arise from defective workmanship or imperfect or inferior materials.

1.15 SEISMIC BRACING

A. This contractor shall examine Architectural and Structural drawings and acknowledge Seismic Classification of the building and site. Seismic bracing required will be determined by listed Classification in those documents and done in accordance with the latest locally adopted International Building Code (Chapter 16). In addition, sprinkler piping shall ALSO be braced in accordance with the latest locally adopted NFPA 13.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include but are not limited to, the manufacturers specified.

2.2 PIPE AND FITTINGS

A. Refer to individual Division 21 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

C. Pipe Grooved Joints: ASME / AWWA C606. Fittings and couplings shall be of a single manufacturer, UL listed and FM approved. Fittings shall be ductile iron, short-pattern with flow equal to standard pattern, Victaulic FireLock™. Couplings shall consist of two ductile iron housing segments, pressure responsive gasket, and zinc-electroplated steel bolts and nuts.

1. Rigid Type: Housings shall be cast with offsetting angle-pattern bolt pads to provide rigidity and system support and hanging in accordance with NFPA-13. Couplings shall be fully installed at visual pad-to-pad offset contact. (Tongue and recess type couplings, or any coupling that requires exact gapping of bolt pads on each side of the coupling at specified torque ratings, are not allowed.)

   a. 1-1/4” through 4”: Installation-Ready, for direct stab installation without field disassembly. Victaulic Style 009H-EZ.
   b. Victaulic FireLock™ Style 005 and Zero-Flex Style 07.

2. Flexible Type: For use in locations where vibration attenuation and stress relief are required, and for seismic applications. Victaulic Installation-Ready Style 177 and Style 75 / 77.
3. Flange Adapter: Flat face, ductile iron housings with elastomer pressure responsive gasket, for direct connection to ANSI Class 125 or 150 flanged components. Victaulic Style 741 / 744.
4. Gaskets:

Fire Protection Service	Temp. Range	Gasket Recommendation
Dry Systems	Ambient	FlushSeal®, Grade EPDM, Type A
Freezer Applications	-40°F to 0°F	FlushSeal®, Grade L, Silicone
Water/Wet Systems	Ambient	Grade EPDM, Type A

5. Grooved Joint Lubricants: Lubricate gaskets in accordance with the manufacturer’s recommendations with lubricant supplied by the coupling manufacturer that is suitable for the gasket elastomer and system media. Standard of Acceptance: Victaulic ‘Vic-Lube’.
6. Grooved Joints: Grooved joints shall be installed in accordance with the manufacturer’s latest published installation instructions. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Gaskets shall be of an elastomer grade suitable for the intended service and shall be molded and produced by the coupling manufacturer.

D. Pipe and Fittings, Inside Buildings: Schedule 40 or Schedule 10 black steel pipe conforming to ASTM A120 or A53, plain end, threaded end, or grooved end, as applicable to joint types involved; class 125 for pressure rating 175 psi black cast iron threaded fittings conforming to ANSI 816.4 or Schedule 40 black steel butt welding fittings conforming to ANSI 816.9 or Victaulic, Gustin-Bacon, or equal black malleable iron fitting, as applicable to joint types involved; fittings shall have at least 175 or 300 psi cold

water working pressure ratings, and UL listing for fire protection service. Schedule 10 can be used for 2½" and up, all other piping Schedule 40.

2.3 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Available Manufacturers:

   a. Advance Products & Systems, Inc.
   b. Metraflex Co.
   c. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Plastic. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.4 SLEEVES

A. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

B. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with set screws.

2.5 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe and an OD that completely covers opening.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.

C. One-Piece, Cast-Brass Type: With set screw.

1. Finish: Polished chrome-plated.

2.6 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. 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 specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.

I. Select system components with pressure rating equal to or greater than system operating pressure.

J. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New Piping:

    a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
    b. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.
    c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
    d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.
    e. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
    f. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with polished chrome-plated finish.
    g. Bare Piping in Unfinished Service Spaces: One-piece, stamped-steel type with concealed hinge and set screw.
    h. Bare Piping in Equipment Rooms: One-piece, cast-brass type.
    i. Bare Piping in Equipment Rooms: One-piece, stamped-steel type with set screw.

K. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.
2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
3. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. Steel Pipe Sleeves: For pipes smaller than NPS 6
b. Steel Sheet Sleeves: For pipes NPS 6and larger, penetrating gypsum-board partitions.
c. Seal space outside of sleeve fittings with grout.

4. Except for underground wall penetrations, seal annular space between sleeve and pipe using joint sealants appropriate for size, depth, and location of joint.

L. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches in diameter.
2. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.
3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

M. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

N. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to details on drawings for U.L. system numbers and penetration firestops.

O. Verify final equipment locations for roughing-in.

3.2 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 21 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. 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.

E. Grooved Joints: Grooved joints shall be installed in accordance with the manufacturer’s latest published installation instructions. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Gaskets shall be of an elastomer grade suitable for the

intended service, and shall be molded and produced by the coupling manufacturer. The grooved coupling manufacturer's factory trained representative shall provide on-site training for contractor's field personnel in the use of grooving tools and installation of grooved joint products.

3.3 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor fire-suppression materials and equipment.

B. Field Welding: Comply with AWS D1.1.

END OF SECTION 21 05 00

SECTION 22 11 16 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 61 for potable domestic water piping and components.

1.3 PROJECT CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Architect no fewer than two days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Architect's written permission.

1.4 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 COPPER PIPE AND FITTINGS

A. Hard Copper Tube: ASTM B 88, Type L water tube, drawn temper.

1. Cast-Copper Solder-Joint Fittings: ASME B16.18, pressure fittings.
2. Wrought-Copper Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.
3. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.
4. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

B. Soft Copper Tube: ASTM B88, Type “K”, soft drawn.

1. Wrought copper solder-joint fittings; and brazed joints.

2.3 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free, unless otherwise indicated; full-face or ring type unless otherwise indicated.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

2.4 SPECIALTY VALVES

A. Comply with requirements in Division 22 Section "General-Duty Valves for Plumbing Piping" for general-duty metal valves.

B. Comply with requirements in Division 22 Section "Domestic Water Piping Specialties" for balancing valves, drain valves, backflow preventers, and vacuum breakers.

2.5 TRANSITION FITTINGS

A. General Requirements:

1. Same size as pipes to be joined.
2. Pressure rating at least equal to pipes to be joined.
3. End connections compatible with pipes to be joined.

B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

C. Sleeve-Type Transition Coupling: AWWA C219.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Cascade Waterworks Manufacturing.
   b. Dresser, Inc.; Dresser Piping Specialties.
   c. Ford Meter Box Company, Inc. (The).

D. Plastic-to-Metal Transition Fittings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Charlotte Pipe and Foundry Company.
   b. Harvel Plastics, Inc.
   c. Spears Manufacturing Company.

2. Description: PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert and one solvent-cement-socket or threaded end.

E. Plastic-to-Metal Transition Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Colonial Engineering, Inc.
b. NIBCO INC.
c. Spears Manufacturing Company.

2. Description: PVC four-part union. Include brass threaded end, solvent-cement-joint or threaded plastic end, rubber O-ring, and union nut.

2.6 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Capitol Manufacturing Company.
b. Central Plastics Company.
c. EPCO Sales, Inc.

2. Description:

a. Pressure Rating: 150 psig at 180 deg F.
b. End Connections: Solder-joint copper alloy and threaded ferrous.

C. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Capitol Manufacturing Company.
b. Central Plastics Company.
c. EPCO Sales, Inc.

2. Description:

a. Factory-fabricated, bolted, companion-flange assembly.
b. Pressure Rating: 150 psig.
c. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Kits:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Central Plastics Company.

2. Description:

a. Nonconducting materials for field assembly of companion flanges.
b. Pressure Rating: 150 psig.
c. Gasket: Neoprene or phenolic.
d. Bolt Sleeves: Phenolic or polyethylene.
e. Washers: Phenolic with steel backing washers.

E. Dielectric Couplings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Calpico, Inc.
b. Lochinvar Corporation.

2. Description:

a. Galvanized-steel coupling.
b. Pressure Rating: 300 psig at 225 deg F.
c. End Connections: Female threaded.
d. Lining: Inert and noncorrosive, thermoplastic.

F. Dielectric Nipples:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Perfection Corporation; a subsidiary of American Meter Company.
b. Precision Plumbing Products, Inc.
c. Victaulic Company.

2. Description:

a. Electroplated steel nipple complying with ASTM F 1545.
b. Pressure Rating: 300 psig at 225 deg F.
c. End Connections: Male threaded or grooved.
d. Lining: Inert and noncorrosive, propylene.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

C. Install domestic water piping level and plumb.

D. Rough-in domestic water piping for water-meter installation according to utility company's requirements.

E. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

F. Install thermostats in hot-water circulation piping.

3.2 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, 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.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

D. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook," "Brazed Joints" Chapter.

E. Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

F. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.3 TRANSITION FITTING INSTALLATION

A. Install transition couplings at joints of dissimilar piping.

B. Transition Fittings in Underground Domestic Water Piping:

1. NPS 1-1/2 and Smaller: Fitting-type coupling.
2. NPS 2 and Larger: Sleeve-type coupling.

C. Transition Fittings in Aboveground Domestic Water Piping NPS 2 and Smaller: Plastic-to-metal transition fittings or unions.

3.4 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Dielectric Fittings for NPS 2 and Smaller: Use dielectric couplings or nipples.

C. Dielectric Fittings for NPS 2-1/2 to NPS 4: Use dielectric flanges.

D. Dielectric Fittings for NPS 5 and Larger: Use dielectric flange kits.

3.5 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment and machines to allow service and maintenance.

C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.

D. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:

1. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
2. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Comply with requirements in Division 22 plumbing fixture Sections for connection sizes.
3. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.6 IDENTIFICATION

A. Identify system components. Comply with requirements in Division 22 Section "Identification for Plumbing Piping and Equipment" for identification materials and installation.

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Piping Inspections:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
2. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:

    a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
    b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

3. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

C. Piping Tests:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.

2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
4. Cap and subject piping to static water pressure of 125 psig. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
6. Prepare reports for tests and for corrective action required.

D. Domestic water piping will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.8 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.
3. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.

    a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide flow of hot water in each branch.
    b. Adjust calibrated balancing valves to flows indicated.

4. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
5. Remove and clean strainer screens. Close drain valves and replace drain plugs.
6. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
7. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.9 CLEANING

A. Clean and disinfect potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:

    a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
    b. Fill and isolate system according to either of the following:

        1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
        2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.

c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.10 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

C. Under-building-slab, domestic water, building service piping, NPS 4 and smaller, shall be the following:

1. Soft copper tube, ASTM B 88, Type K; wrought-copper solder-joint fittings; and brazed joints.

D. Aboveground domestic water piping shall be the following:

1. Hard copper tube, ASTM B 88, Type L; wrought- copper solder-joint fittings; and soldered joints.

3.11 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use ball valves for piping NPS 2 and smaller. Use butterfly, valves with flanged ends for piping NPS 2-1/2 and larger.
2. Hot-Water Circulation Piping, Balancing Duty: Calibrated balancing valves, ball valves.
3. Drain Duty: Hose-end drain valves.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

END OF SECTION 22 11 16

SECTION 22 11 19 - DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 PERFORMANCE REQUIREMENTS

A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. NSF Compliance:

1. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic domestic water piping components.
2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

PART 2 - PRODUCTS

2.1 VACUUM BREAKERS

A. Pipe-Applied, Atmospheric-Type Vacuum Breakers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Ames Co.
b. Cash Acme.
c. Conbraco Industries, Inc.
d. FEBCO; SPX Valves & Controls.
e. Watts Industries, Inc.; Water Products Div.
f. Zurn Plumbing Products Group; Wilkins Div.

2. Standard: ASSE 1001.
3. Size: NPS 1/4 to NPS 3, as required to match connected piping.
4. Body: Bronze.
5. Inlet and Outlet Connections: Threaded.
6. Finish: Chrome plated.

2.2 BACKFLOW PREVENTERS

A. Reduced-Pressure-Principle Backflow Preventers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Conbraco Industries, Inc.
b. FEBCO; SPX Valves & Controls.
c. Watts Industries, Inc.; Water Products Div.
d. Zurn Plumbing Products Group; Wilkins Div.

3. Standard: ASSE 1013.
4. Operation: Continuous-pressure applications.
5. Size: ½" – 3".
6. Body: Bronze for NPS 2 and smaller; ductile iron for NPS 2-1/2 and larger.
7. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
8. Configuration: Designed for horizontal, straight through flow.
9. Accessories:

a. Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; outside screw and yoke gate-type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.
b. Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

2.3 BALANCING VALVES

A. Copper-Alloy Calibrated Balancing Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Armstrong International, Inc.
b. Flo Fab, Inc.
c. ITT Industries; Bell & Gossett Div.
d. NIBCO Inc.
e. TAC Americas.

f. Taco, Inc.
g. Watts Industries, Inc.; Water Products Div.

3. Type: Ball valve with two readout ports and memory setting indicator.
4. Body: Brass or bronze,
5. Size: Same as connected piping, but not larger than NPS 2.
6. Accessories: Meter hoses, fittings, valves, differential pressure meter, and carrying case.

2.4 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:

1. Pressure Rating: 125 psig minimum, unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or FDA-approved, epoxy coating and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations, unless otherwise indicated.
5. Drain: Pipe plug.

2.5 HOSE BIBBS

A. Hose Bibbs:

1. Standard: ASME A112.18.1 for sediment faucets.
2. Body Material: Bronze: Chrome Plated in public areas.
3. Seat: Bronze, replaceable.
4. Supply Connections: NPS 1/2 or NPS 3/4 threaded or solder-joint inlet.
5. Outlet Connection: Garden-hose thread complying with ASME B1.20.7.
6. Pressure Rating: 125 psig.
7. Vacuum Breaker: Integral non-removable, drainable, hose-connection vacuum breaker complying with ASSE 1011.
8. Include operating key with each operating-key hose bibb.
9. Include integral wall flange with each chrome- or nickel-plated hose bibb.

2.6 WALL HYDRANTS

A. Non-freeze Wall Hydrants:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Josam Company.
b. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
c. Woodford Manufacturing Company.
d. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.21.3M for exposed-outlet, self-draining wall hydrants.
4. Pressure Rating: 125 psig.
5. Operation: Loose key.
6. Casing and Operating Rod: Of length required to match wall thickness. Include wall clamp.

7. Inlet: NPS 3/4 (DN 20.
8. Outlet: With integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.
9. Outlet: Exposed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.
10. Nozzle and Wall-Plate Finish: Rough bronze.
11. Operating Keys(s): Two with each wall hydrant.

2.7 WATER HAMMER ARRESTERS

A. Water Hammer Arresters:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. AMTROL, Inc.
    b. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
    c. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASSE 1010 or PDI-WH 201.
4. Type: Metal bellows.
5. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

2.8 HOT WATER CIRCULATORS

A. In-line domestic hot water recirculating pump:

1. Available Manufacturer’s:

    a. Bell & Gossett; ITT Fluid Handling Division.
    b. Grundfos, Inc.
    c. Taco Pump Co.

2. All bronze or stainless construction.
3. Flanged connections.
4. Hardened steel shaft.
5. Bronze sheathed, diamond-bored sleeve bearing.
6. Bronze impeller.
7. Mechanical seals.
8. Flexible-coupled motor, supported from pump casing, provided with manual motor starter and thermal overload protection.
9. Refer to plumbing drawings for horsepower, voltage and capacities.
10. Strap-on aquastat (When mixing valves are not utilized).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Refer to Division 22 Section "Common Work Results for Plumbing" for piping joining materials, joint construction, and basic installation requirements.

B. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.

1. Locate backflow preventers where indicated on drawings.
2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.
3. **Do not install bypass piping around backflow preventers.**

C. Install water regulators with inlet and outlet shutoff valves and full size valved by-pass. Install pressure gages on inlet and outlet sides where indicated on drawing.

D. Install balancing valves in locations where indicated on hot water recirculating system.

E. Install liquid-in-glass thermometers in the outlet of each domestic, hot-water heater where indicated on water heater piping diagram.

F. Provide the following temperature ranges for thermometers:

1. Domestic Hot Water: 30 to 180 degree F, with 2-degree scale divisions.

G. Install dry-case-type pressure gauges where indicated on plans for discharge or each pressure-reducing valve.

H. Install direct-mounting thermometers and adjust vertical and tilted positions.

I. Install direct-mounting pressure gauges in piping tees with pressure gauge located on pipe at most readable position.

J. Install needle-valve and snubber fitting in piping for each pressure gauge.

K. Install test plugs in tees in piping.

L. Install thermometers and gauges adjacent to machines and equipment to allow service and maintenance for thermometers, gauges, machines and equipment.

M. Adjust faces of thermometers and gauges to proper angle for best visibility.

N. Install Y-pattern strainers for water on supply side of each water pressure-reducing valve.

O. Install water hammer arresters in all areas where indicated on plans including locations with solenoid valves, flush valves, and washer boxes in accordance with PDI-WH 201.

P. Install air vents at high points of water piping.

Q. Install supply-type, trap-seal primer valves with outlet piping pitched down toward drain trap a minimum of 1 percent, and connect to floor-drain body, trap, or inlet fittings. Adjust valve for proper flow.

R. Install strap-on aquastat to control pump operation on hot water circulators.

S. Isolate hot water circulators with a ball valve on each side of the flanged connections.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping and specialties.

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and prepare test reports:

1. Test each double-check, detector-assembly backflow preventer according to authorities having jurisdiction and the device's reference standard.

B. Remove and replace malfunctioning domestic water piping specialties and retest as specified above.

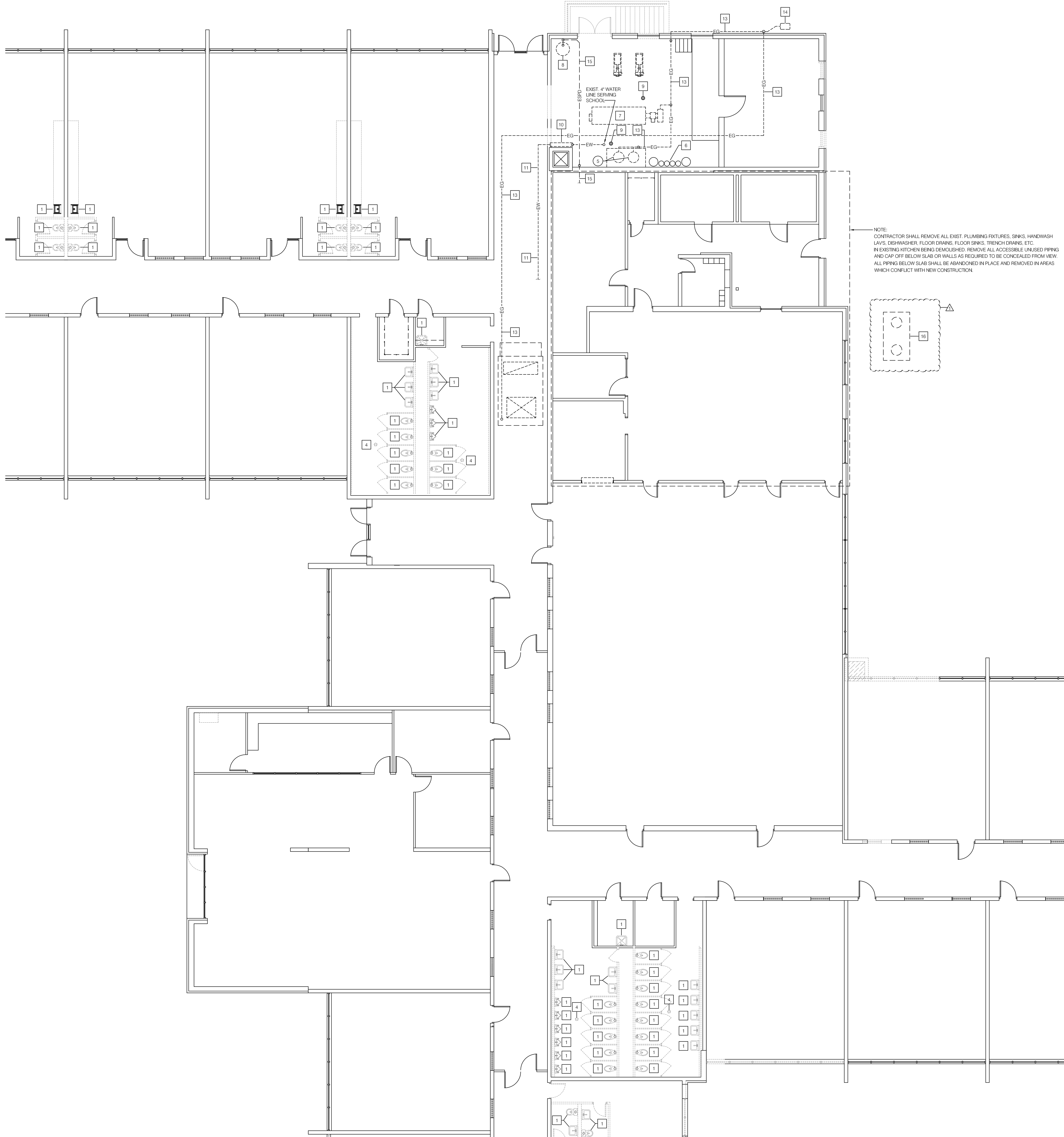
3.4 ADJUSTING

A. Set field-adjustable pressure set points of water pressure-reducing valves.

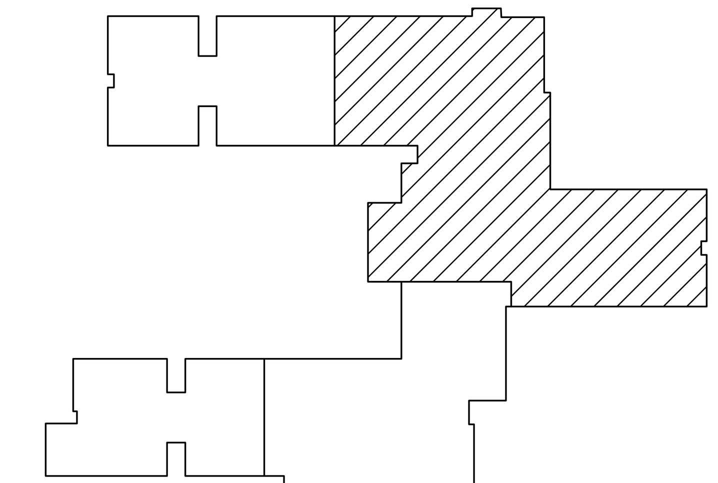
B. Set field-adjustable flow set points of balancing valves.

C. Set field-adjustable temperature set points of temperature-actuated water mixing valves.

END OF SECTION 22 11 19



DEMO PARTIAL FLOOR PLAN - PLUMBING
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

PLUMBING DEMOLITION AND CONSTRUCTION NOTES

1. REMOVE EXISTING PLUMBING FIXTURE AND CONNECTING PIPING IN THIS LOCATION. CAP OFF OR REMOVE EXISTING SERVICES AS REQUIRED WHICH CONFLICT WITH NEW CONSTRUCTION AND CONCEAL FROM VIEW.
2. REMOVE EXISTING WATER CLOSET AND CONNECTING PIPING IN THIS LOCATION. CAP OFF OR REMOVE EXISTING SERVICES AS REQUIRED WHICH CONFLICT WITH NEW CONSTRUCTION WORK.
3. REMOVE EXISTING URINAL AND CONNECTING PIPING IN THIS LOCATION. CAP OFF OR REMOVE EXISTING SERVICES AS REQUIRED WHICH CONFLICT WITH NEW CONSTRUCTION WORK.
4. REMOVE EXISTING FLOOR DRAIN AND CONNECTING PIPING IN THIS LOCATION. CAP OFF OR REMOVE EXISTING SERVICES AS REQUIRED WHICH CONFLICT WITH NEW CONSTRUCTION WORK.
5. REMOVE EXISTING GAS WATER HEATERS AND CONNECTING PIPING IN THIS LOCATION. CAP OFF OR REMOVE EXISTING SERVICES AS REQUIRED WHICH CONFLICT WITH NEW CONSTRUCTION WORK.
6. RELOCATE EXISTING WATER SOFTENERS TO NEW MECH ROOM SHOWN ON SHEET P5.0.
7. EXISTING GAS BOILER BEING REMOVED. REMOVE ALL CONNECTING GAS PIPING AS REQUIRED.
8. EXISTING SUMP PUMP TO REMAIN ACTIVE. REFER TO ENLARGED KITCHEN PLAN ON SHEET P5.1 FOR ADDITIONAL WORK & NOTES.
9. EXISTING BOILER ROOM FLOOR DRAINS TO REMAIN ACTIVE UNTIL REMOVAL OF SUMP PUMP.
10. REMOVE EXISTING WATER ENTRANCE AFTER COMPLETION OF NEW AS SHOWN ON SHEET P5.0.
11. REMOVE EXISTING WATER LINE IN TUNNEL AFTER COMPLETION OF NEW AS SHOWN ON SHEET P5.0. CAP OFF LINE AT END OF TUNNEL AS REQUIRED.
12. EXISTING GAS RTU BEING REMOVED. REMOVE ALL CONNECTING GAS PIPING AS REQUIRED.
13. EXISTING GAS PIPING TO BE REMOVED IN PHASING WHICH THE GAS EQUIPMENT IS BEING REMOVED.
14. EXISTING GAS METER / REGULATOR AND GAS PIPING TO REMAIN ACTIVE UNTIL COMPLETION OF ALL PHASING.
15. EXISTING SUMP DISCHARGE LINE TO REMAIN UNTIL DEMO OF EXISTING KITCHEN. REFER TO ENLARGED KITCHEN PLAN ON SHEET P5.1 FOR ADDITIONAL WORK & NOTES.
16. EXISTING GREASE INTERCEPTOR IN THIS LOCATION TO REMAIN ACTIVE UNTIL PHASE 4A IS STARTING CONSTRUCTION, THEN AT THAT TIME THE EXISTING GREASE INTERCEPTOR SHALL BE PUMPED AND REMOVED.

NOTE:
ALL DEMOLITION INDICATED ON DEMOLITION PLANS SHALL BE DONE IN COORDINATION WITH THE ARCHITECTURAL PHASING PLANS.

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Seal

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Project Number:	24-05

Revisions

No.	Date:
1	11-03-26

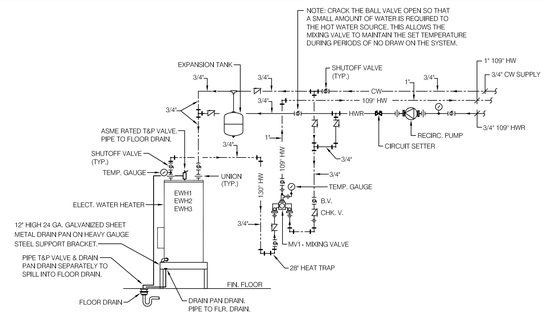
Drawing Title:
Demo Partial Floor Plans - Plumbing

Drawing No.:
DP2.2

WATER HEATER SCHEDULE

HEATER NO.	GAL. CAP.	GAS B.TU. INPUT	VOLTAGE/ KW/PHASE	RECOVERY @ 100° RISE	MFR. & MODEL NO.	LOCATION	RECIRCULATION PUMP			STORAGE TANK	EXPANSION TANK
							H.P.	VOLTAGE	MFR. & MODEL #		
EWH1	65	---	208/4.5/1	18.45	LOCHINVAR MODEL LDT-65-XR LIGHT DUTY COMMERCIAL	JANITOR 172	1/6	120	GRUNDFOS UPS26-99SFC	---	ZURN XT-6 2 GALLON
EWH2	65	---	208/4.5/1	18.45	LOCHINVAR MODEL LDT-65-XR LIGHT DUTY COMMERCIAL	CUST. ROOM 124	1/6	120	GRUNDFOS UPS26-99SFC	---	ZURN XT-6 2 GALLON
EWH3	65	---	208/4.5/1	18.45	LOCHINVAR MODEL LDT-65-XR LIGHT DUTY COMMERCIAL	JANITOR 145	1/6	120	GRUNDFOS UPS26-99SFC	---	ZURN XT-6 2 GALLON
GWH1	200	285,000	120	327	LOCHINVAR MODEL AWN286PM (ARMOR)	RISER ROOM 138	1/6	120	GRUNDFOS UPS26-99SFC	LOCHINVAR MODEL RJA200	ZURN XT-12 4 GALLON

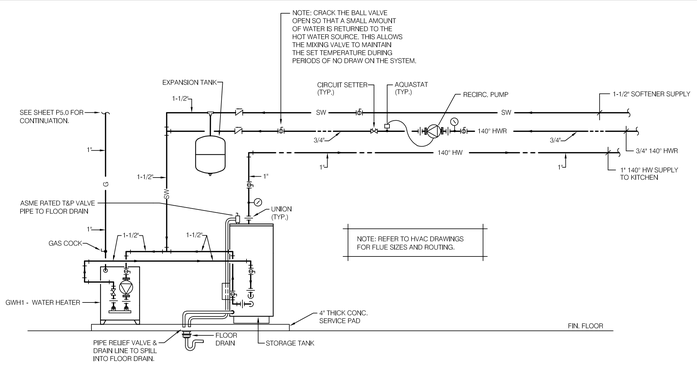
NOTES:
1. ON GWH1 GAS FIRED CONDENSING WATER HEATER CONTRACTOR SHALL PROVIDE & INSTALL NEUTRA-SAFE CONDENSATE NEUTRALIZER TANK PART # 30RCK, 400 MBH RECHARGE KIT WITH (2) REPLACEMENTS O-RINGS.
2. RELIEF VALVE PIPING FROM ALL WATER HEATERS & STORAGE TANKS SHALL BE TYPE 'L' COPPER.
3. ON GWH1 GAS FIRED WATER HEATER CONTRACTOR SHALL PROVIDE & INSTALL KELE E-STOP ESM SERIES EMERGENCY SHUT-DOWN STATION W/BUTTON ADJACENT TO EXIT DOOR FROM ROOM.
4. ON ALL ELECTRIC WATER HEATER PROVIDE & INSTALL CONVERSION KIT TO CHANGE VOLTAGE FROM 240V TO 208V AS SPECIFIED.



ELECT. WATER HEATER EWH1, EWH2 & EWH3 PIPING DETAIL

NOT TO SCALE

NOTE: SET WATER HEATER TEMPERATURE AT TANK AT 130 DEGREES.



GAS WATER HEATER GWH1 PIPING DIAGRAM

N.T.S.

NOTE: SET WATER HEATER TEMPERATURE AT TANK AT 140 DEGREES.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
SA	SANITARY SEWER ABOVE FLOOR
SA	SANITARY SEWER BELOW FLOOR AND/OR GRADE
GI	GREASE INTERCEPTOR INLET LINE
ESA	EXISTING SANITARY SEWER PIPING
	SANITARY VENT PIPING
	COLD WATER (C.W.)
EW	EXISTING WATER LINE
SW	SOFTENER COLD WATER (SW)
	HOT WATER (H.W)
	HOT WATER RETURN (H.W.R.)
F	FIRE LINE
	GAS COCK
	SHUT-OFF VALVE
	SHUT-OFF VALVE ON RISE OR DROP
	BALANCING VALVE
	PRESSURE REDUCING VALVE
CD	CONDENSATE DRAIN
G	NATURAL GAS PIPING
HPG	2PSIG HIGH PRESSURE NATURAL GAS PIPING
SPD	SUMP PUMP DRAINAGE
ESPD	EXISTING SUMP PUMP DRAINAGE
	CHECK VALVE
WCO	WALL CLEANOUT
CO	CLEANOUT
P.D.I.'A'	WATER HAMMER ARRESTOR (RATING NOTED)
V.T.R.	VENT THRU ROOF
SAN.	SANITARY SEWER
R.P.B.P.	REDUCED PRESSURE BACKFLOW PREVENTER
	POINT AT WHICH NEW CONNECTS TO EXISTING
1	PLUMBING DEMOLITION OR CONSTRUCTION NOTE SYMBOL
1	ARCHITECTURAL PHASING SYMBOL

FIXTURE CONNECTION SCHEDULE

FIXTURE NO.	DESCRIPTION	H.W.	C.W.	WASTE
WC1	WATER CLOSET	---	1"	4"
WC2	WATER CLOSET (H.C.)	---	1"	4"
U1	URINAL	---	3/4"	2"
U2	URINAL (H.C.)	---	3/4"	2"
L1	LAVATORY	1/2"	1/2"	1-1/4"
L2	LAVATORY (H.C.)	1/2"	1/2"	1-1/4"
L3	LAVATORY (H.C.)	1/2"	1/2"	1-1/4"
S1	SINK (H.C.)	1/2"	1/2"	1-1/2"
S2	ART RM. SINK (H.C.)	1/2"	1/2"	1-1/2"
S3	SINK	1/2"	1/2"	1-1/2"
SS1	SERVICE SINK	1/2"	1/2"	3"
EWC1	ELECT. WATER COOLER (H.C.)	---	1/2"	1-1/4"
EWC2	ELECT. WATER COOLER (H.C.)	---	1/2"	1-1/4"
WH1	WALL HYDRANT	---	3/4"	---
CWH1	CAN WASH HYDRANT	3/4"	3/4"	---
HB1	HOSE BIBB	---	1/2"	---
HB2	HOSE BIBB	---	1/2"	---
RH1	ROOF HYDRANT	---	3/4"	---
FD1	FLOOR DRAIN	---	---	3",4"
FD2	FLOOR DRAIN	---	---	2"
FD3	FLOOR DRAIN	---	---	4"
FS1	FLOOR SINK	---	---	4"
FS2	FLOOR SINK	---	---	4"
FS3	FLOOR SINK	---	---	4"
WB1	WASHER BOX	1/2"	1/2"	2"
IMB1	ICE MAKER BOX	---	1/2"	---
MV1	MIXING VALVE	3/4",1"	3/4"	---
TMV1	MIXING VALVE	1/2",1/2"	1/2"	---
SMV1	STUDOR VENT	---	---	3", 4"
IMB1	ICE MAKER BOX	---	1/2"	---
DB1	DRAIN BOX	---	---	1-1/2"

PLUMBING FIXTURE SPECIFICATIONS

(NUMBERS ARE ZURN UNLESS NOTED OTHERWISE)

WC1	WATER CLOSET	ST-2009, SLOAN FLOOR MOUNTED SIPHON JET, TOP SPUD, 1.6 GALLON
	SEAT	500STSCC, CENTOCO OPEN FRONT LESS COVER, W/ SELF-SUSTAINING STAINLESS STEEL CHECK HINGE
	FLUSH VALVE	111-1.6, SLOAN MANUAL FLUSH, LOW CONSUMPTION,1.6 GALLON, DUAL FILTERED BYPASS
WC2	WATER CLOSET (H.C.)	ST-2029, SLOAN FLOOR MOUNTED 16-3/4" HIGH BOWL, SIPHON JET, 1.6 GALLON
	SEAT	500STSCC, CENTOCO OPEN FRONT LESS COVER, W/ SELF-SUSTAINING STAINLESS STEEL CHECK HINGE
	FLUSH VALVE	111-1.6, SLOAN MANUAL FLUSH, LOW CONSUMPTION,1.6 GALLON, DUAL FILTERED BYPASS
U1	URINAL	SU-1009, SLOAN WALL HUNG SIPHON JET, 0.5 GPF
	FLUSH VALVE	186-0.5, SLOAN, 0.5 GALLON
	CARRIER	0637, JAY R. SMITH
U2	URINAL (H.C.)	SU-1009, SLOAN WALL HUNG, SIPHON JET, 0.5 GPF TOP SPUD, 1.0 GALLON
	FLUSH VALVE	186-0.5, SLOAN, 0.5 GALLON
	CARRIER	0637, JAY R. SMITH
	REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS	
L1	LAVATORY	SS-3017, SLOAN 20"X18" ENAMELED CAST IRON WALL HUNG, FRONT OVERFLOW,4" CENTERS
	FAUCET	B-0871-V50F, T&S BRASS W/ LEVER HANDLES AND VANDAL RESISTANT, LEAD-FREE, 0.5 GPM
	GRID DRAIN	Z-8743, ZURN W/1-1/4" TAILPIECE
	SUPPLIES	Z-8804-XL-LR-LK, ZURN W/LOOSE KEY STOPS
	P-TRAP	Z-8700, ZURN W/C.O. PLUG
	CARRIER	ZURN AS REQUIRED
	CONTRACTOR SHALL INSULATE P-TRAP AND HOT WATER SUPPLY W/ZURN Z8946-1-NT ADA COMBINATION WRAP PROTECTOR KIT	
	REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS	
L2	LAVATORY (H.C.)	SS-3017, SLOAN 20"X18" ENAMELED CAST IRON WALL HUNG, FRONT OVERFLOW,4" CENTERS
	FAUCET	B-0890-VF05, T&S BRASS W/4" WRIST BLADE HANDLES AND VANDAL RESISTANT, LEAD-FREE, 0.5 GPM
	GRID DRAIN	Z-8743, ZURN W/1-1/4" TAILPIECE
	SUPPLIES	Z-8804-XL-LR-LK, ZURN W/LOOSE KEY STOPS
	P-TRAP	Z-8700, ZURN W/C.O. PLUG
	CARRIER	ZURN AS REQUIRED
	CONTRACTOR SHALL INSULATE P-TRAP AND HOT WATER SUPPLY W/ZURN Z8946-1-NT ADA COMBINATION WRAP PROTECTOR KIT	
	REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS	
L3	LAVATORY (H.C.)	SS-3001, SLOAN 19"X16" VITREOUS CHINA UNDERMOUNT,FRONT OVERFLOW,4" CENTERS
	FAUCET	B-0890-VF05, T&S BRASS W/4" WRIST BLADE HANDLES AND VANDAL RESISTANT, LEAD-FREE, 0.5 GPM
	GRID DRAIN	Z-8743, ZURN W/1-1/4" TAILPIECE
	SUPPLIES	Z-8804-XL-LR-LK, ZURN W/LOOSE KEY STOPS
	P-TRAP	Z-8700, ZURN W/C.O. PLUG
	CARRIER	ZURN AS REQUIRED
	CONTRACTOR SHALL INSULATE P-TRAP AND HOT WATER SUPPLY W/ZURN Z8946-1-NT ADA COMBINATION WRAP PROTECTOR KIT	
	REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS	
S1	SINK (H.C.)	GECR-2521-R (ADA) ELKAY 25" X 21-1/4" X 5-3/8" DEEP, 18 GA STAINLESS STEEL, SINGLE BOWL, 3 HOLE
	FAUCET	B-2866-05FC15, T&S BRASS W/GOOSENECK, WRIST BLADE HANDLES, LEAD-FREE, 1.5 GPM
	STRAINER	Z-8741, ZURN
	SUPPLIES	Z-8800-LR-XL, ZURN W/WHEEL HANDLE STOPS
	P-TRAP	Z-8702, ZURN W/C.O. PLUG
	CONTRACTOR SHALL INSULATE P-TRAP AND HOT WATER SUPPLY W/ZURN Z8946-1-NT ADA COMBINATION WRAP PROTECTOR KIT	
S2	ART SINK (H.C.)	GECR-3321 (ADA) ELKAY 33" X 21-1/4" X 5-3/8" DEEP 18 GA STAINLESS STEEL, DOUBLE BOWL, 3 HOLE, DRAIN HOLES AT BACK
	FAUCET	B-2866-05FC15, T&S BRASS W/GOOSENECK, WRIST BLADE HANDLES, LEAD-FREE, 1.5 GPM
	STRAINER	Z-8741, ZURN, (2)
	SUPPLIES	Z-8800-LR-XL, ZURN W/WHEEL HANDLE STOPS
	TRAP	STRIEM SIDEKICK, 10-5/8"X 7-7/16"X 7-7/16" SOLID INTERCEPTOR
	CONT. WASTE	Z-8751, ZURN CONTINUOUS WASTE
	CONTRACTOR SHALL PROVIDE UNION CONNECTIONS TO EACH SIDE OF SOLID INTERCEPTOR. HANDICAP ART ROOM SINK SOLID INTERCEPTOR SHALL BE LOCATED IN ADJACENT BASE CABINET AS SHOWN ON PLANS.	
	CONTRACTOR SHALL INSULATE P-TRAP AND HOT WATER SUPPLY W/ZURN Z8946-1-NT ADA COMBINATION WRAP PROTECTOR KIT	
S3	SINK	LR-2219, ELKAY, 22" X 19-1/2" X 7-5/8" DEEP 18 GA STAINLESS STEEL, SINGLE BOWL, 3 HOLE
	FAUCET	B-2866-05FC15, T&S BRASS W/GOOSENECK, WRIST BLADE HANDLES, LEAD-FREE, 1.5 GPM
	STRAINER	Z-8741, ZURN (2)
	SUPPLIES	Z-8802-LR, ZURN 1/2"IPSx38" OD,WHEEL HANDLE STOPS
	P-TRAP	Z-8702, ZURN W/C.O. PLUG
SS1	SERVICE SINK	Z-5888, ZURN 22"X18"X11-1/4", ENAMELED CAST IRON W/ 9" BACK SPLASH, 8" CENTERS
	TRAP	Z-5900-IP3, ZURN CAST IRON EXPOSED TRAP W/ 3" IPS OUTLET
	FAUCET	Z-841M1-RC-WHK, ZURN W/VACUUM BREAKER AND INTEGRAL STOP ARMS, PAIL HOOK
	HOSE & WALL BRACKET	T-35, STERN WILLIAMS, 36" LONG HOSE AND STAINLESS STEEL WALL BRACKET
EWC1	ELECT. WATER COOLER (H.C.)	EZ8WSSK, ELKAY, SINGLE WALL HUNG, ALL STAINLESS STEEL, W/ BOTTLE FILLER & EZH2O FILTER
	SUPPLY	Z-8802-LR-XL, ZURN, 1/2" IPS X 3/8" OD W/WHEEL HANDLE STOP
	P-TRAP	Z-8700, ZURN W/C.O. PLUG
	CARRIER	ZURN AS REQUIRED
	REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS	
EWC2	ELECT. WATER COOLER (H.C.)	LZSTL8WSVRSK, ELKAY, WALL HUNG, BI-LEVEL (ADA), WHEEL CHAIR ACCESSIBLE, ALL STAINLESS STEEL FINISH, W/BOTTLE FILLER & EZH2O FILTER
	SUPPLY	Z-8802-LR-XL, ZURN, 1/2" IPS X 3/8" OD W/WHEEL HANDLE STOP
	P-TRAP	Z-8700, ZURN W/C.O. PLUG
	CARRIER	JOSAM AS REQUIRED
	REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS	
WH1	WALL HYDRANT	65, WOODFORD, FREEZELESS, LOOSE KEY TYPE
CWH1	CAN WASH HYDRANT	HC65, WOODFORD, FREEZELESS, HOT AND COLD MIXING TYPE
HB1	HOSE BIBB	Z-1350-VR, ZURN W/VACUUM BREAKER, CHROME FINISH,WHEEL HANDLE, & NARROW BOX
HB2	HOSE BIBB	24P-1/2, ZURN, W/VACUUM BREAKER, WHEEL HANDLE
RH1	ROOF HYDRANT	SRH-MS, WOODFORD, FREEZELESS, NO DRAIN REQUIRED
FD1	FLOOR DRAIN	2005-A05NB, JAY R. SMITH W/TYPE "A" STRAINER, 5" TOP
	TRAP SEAL	2692, JAY R. SMITH QUARD TRAP SEAL DEVICE
FD2	FLOOR DRAIN	2005-F37NB, JAY R. SMITH W/TYPE "F37" STRAINER, 5" TOP
	TRAP SEAL	2692, JAY R. SMITH QUARD TRAP SEAL DEVICE
FD3	FLOOR DRAIN	2130-S-B, JAY R. SMITH W/12" SQUARE HEAVY-DUTY TOP, SEDIMENT BUCKET
	TRAP SEAL	2692, JAY R. SMITH QUARD TRAP SEAL DEVICE
FS1	FLOOR SINK	3100, JAY R.SMITH W/8" X 8" NICKEL BRONZE TOP
FS2	FLOOR SINK	3100-12, JAY R. SMITH W/1/2 GRATE, 8" X 8" NICKEL BRONZE TOP
FS3	FLOOR SINK	3150, JAY R. SMITH W/1/2 GRATE, 10" DEEP, 12" X 12" NICKEL BRONZE TOP
WB1	WASHER BOX	BB-200-TS, GUY GRAY W/2" DRAIN CONN
MV1	MIXING VALVE	HL45-S59-3045-B-N, BRADLEY, THERMOSTATIC HIGH-LOW WATER MIXER, 3/4" INLETS & 1" OUTLET, WALL MOUNTING BRACKET, PIPED ASSEMBLY WITH OUTLET SHUTOFF
TMV1	MIXING VALVE	559-4007, BRADLEY, THERMOSTATIC MIXING VALVE, 1/2" COPPER & 1/2" NPT CONNECTION, CHECK VALVE ON SUPPLY INLETS, LEAD-FREE
SMV1	STUDOR VENT	STUDOR, MAXI-VENT, AIR ADMITTANCE VALVE WITH MAXI-FILTRA CAP FOR DAMAGING UV RAYS & TEMPERATURE EXTREMES
IMB1	ICE MAKER BOX	IMOB, OATEY, WITH 1/4 TURN VALVE, INSTALLED
DB1	DRAIN BOX	SIOUX CHIEF, 696-3-696-SC-696-CF CONDENSATE DRAIN BOX W/DRAINAGE FUNNEL & AIR GAP, SOLID COVER

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