

## PROFESSIONAL SERVICES AGREEMENT

This Professional Services Agreement (this "Agreement") is made and entered into effective September 21, 2023 (the "Effective Date") between Grant School District 3 (hereafter "Owner" or "District"), an Oregon special district, whose address is 401 N Canyon City Blvd, Canyon City, OR 97820 and Frontier Consulting Engineers ("Consultant"), a California limited liability company whose address is 2727 Bechelli Lane, Redding, CA 96002.

### RECITALS:

A. Consultant is a licensed California design firm engaged in the business of providing electrical engineering, electrical design, and related services on a contract basis.

B. Owner desires to make certain improvements on or about that certain real property associated with Grant Jr./Sr. High School located at 911 S. Canyon Blvd, John Day, Oregon (the "Property"). Owner and Consultant desire to enter into this Agreement pursuant to which Consultant will undertake and perform certain electrical engineering and design services concerning or related to the Property.

### AGREEMENT:

NOW, THEREFORE, for and in consideration of the parties' mutual obligations under this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

#### 1. SERVICES; STANDARDS; SCHEDULE; COMPENSATION

1.1 Description of Services. Consultant will perform and complete the following Project design and related services for and on behalf of Owner concerning or related to the Property (collectively, the "Services"): (a) those design services necessary to provide power to replace or install new HVAC units, specifying a new main switchboard, and replacing the electrical service at Grant Union High School, in accordance with the Plans and Specifications included on the attached Exhibit A; and (b) all other necessary or appropriate services customarily provided by Consultant in connection with its performance of the services set forth in this Agreement and in accordance with Consultant's proposal dated August 29, 2023 included on the attached Exhibit B.

1.2 Standards. Subject to the terms and conditions contained in this Agreement, Consultant will (a) consult with and advise District on all matters concerning the Services reasonably requested by District, (b) communicate all matters and information concerning the Services to District's superintendent (or his or her designee) and perform the Services under the general direction of District's superintendent (or his or her designee), (c) devote such time and attention to the performance of the Services as District deems necessary or appropriate, and (d) perform the Services to the best of Consultant's ability. Consultant acknowledges and agrees that District may cause or direct other persons or contractors to provide services for and on behalf of District that are the same or similar to the Services provided by Consultant under this Agreement.

1.3 Schedule of Services. Timely and proper completion of the Services is of the essence to this Agreement. Consultant will commence performance of the Services promptly after Owner issues Consultant written notice to proceed. Consultant will prosecute completion of the Services diligently and continuously. The Services will be Completed (as defined below) no later than November 30, 2023 (the "Completion Date") unless Owner provides a written extension. For the purposes of this Agreement, the term "Completion" or "Completed" means when Owner determines, in its sole discretion, that the Services is complete in accordance with this Agreement. Consultant will front-load the switch gear sizing and design in order to facilitate Owner's submittal process for those components.

1.4 Compensation. Subject to the terms and conditions contained in this Agreement, in consideration of Consultant's timely completion of the Services in accordance with this Agreement, Owner will pay

Consultant in accordance with the Proposal and Fee Schedule on the attached Exhibit B. Consultant will submit a monthly invoice to Owner concerning the Services (the "Invoice"). Owner will pay the amount due under the Invoice within thirty (30) days after Owner has reviewed and approved the Services. Owner's payment will be accepted by Consultant as full compensation for completing the Services. No compensation will be paid by Owner for any portion of the Services not completed in accordance with this Agreement. Owner will not provide any benefits to Consultant, and Consultant will be solely responsible for obtaining Consultant's own benefits, including, without limitation, insurance, medical reimbursement, and retirement plans. Notwithstanding anything contained in this Agreement to the contrary, Owner's performance of its obligations under this Agreement is conditioned on Consultant's performance of its obligations under this Agreement, including, without limitation, those Consultant obligations described under Section 1.1 and Section 2.1. Total compensation payable under this Agreement shall not exceed \$35,000 without prior written approval.

## 2. RELATIONSHIP

2.1 Independent Consultant. Consultant is an independent contractor of District. Consultant is not an employee of District. Consultant will be free from direction and control over the means and manner of performing the Services, subject only to the right of District to specify the desired results. This Agreement does not create an agency relationship between District and Consultant and does not establish a joint venture or partnership between District and Consultant. Consultant does not have the authority to bind District or represent to any person that Consultant is an agent of District. Consultant has the authority to hire other persons to assist Consultant in performing the Services (and has the authority to fire such persons).

2.2 Taxes; Licenses. District will not withhold any taxes from any payments made to Consultant, and Consultant will be solely responsible for paying all taxes arising out of or resulting from Consultant's performance of the Services, including, without limitation, income, social security, workers' compensation, and employment insurance taxes. Consultant will be solely responsible for obtaining all licenses, approvals, and certificates necessary or appropriate to perform the Services.

## 3. REPRESENTATIONS; WARRANTIES; COVENANTS

In addition to any other Consultant representation, warranty, and/or covenant made in this Agreement, Consultant represents, warrants, and covenants to District as follows:

3.1 Authority; Binding Obligation; Conflicts. Consultant is duly organized, validly existing, and in good standing under applicable Oregon law. Consultant has full power and authority to sign and deliver this Agreement and to perform all of Consultant's obligations under this Agreement. This Agreement is the legal, valid, and binding obligation of Consultant, enforceable against Consultant in accordance with its terms. The signing and delivery of this Agreement by Consultant and the performance by Consultant of all of Consultant's obligations under this Agreement will not (a) breach any agreement to which Consultant is a party, or give any person the right to accelerate any obligation of Consultant, (b) violate any law, judgment, or order to which Consultant is subject, or (c) require the consent, authorization, or approval of any person, including, without limitation, any governmental body.

3.2 Quality of Services. Consultant will perform the Services to the best of Consultant's ability, diligently, in good faith, in a professional manner, free from errors and/or deficiencies, and consistent with the terms and conditions contained in this Agreement. The Services will be performed in accordance with the Laws (as defined below). Consultant will be solely responsible for the Services. Consultant will make all decisions called for promptly and without unreasonable delay. All materials and documents prepared by Consultant will be accurate, complete, unambiguous, prepared properly, and in compliance with the Laws.

3.3 Insurance. Consultant will maintain public liability and property damage insurance against death or injury to persons and physical loss or damage to property, which insurance will include perils of fire, theft, vandalism, Acts of God, and malicious mischief; the insurance will include coverage for contractual liability and

“products-completed operations” that will apply for a period of two years from the date the Services is determined Completed. The insurance required under the immediately preceding sentence will be in the form of general liability and property damage insurance (occurrence version) against personal injury claims arising out of Consultant’s activities on, or any condition of, the Building with limits of no less than \$1,000,000.00 per occurrence, \$2,000,000.00 in the aggregate. Consultant will obtain and maintain the following insurance: (a) commercial automobile insurance with limits of no less than \$500,000 combined single limit or split limits of \$250,000 per person, \$500,000 per occurrence and \$250,000 property damage, for any and all automobiles used in the prosecution of the Services. Each liability insurance policy will be in form and content satisfactory to Owner and will contain a severability of interest clause. By separate endorsement, each liability insurance policy will name Owner and Owner’s Representatives as additional insureds. Consultant’s insurance will be primary, and any insurance carried by Owner will be excess and noncontributing. Consultant will provide evidence of the insurance coverage (including applicable endorsements) required to be maintained by Consultant under this Section 3.1 prior to commencement of the Services and upon Owner’s demand. All policies of insurance Consultant is required to carry under this Agreement will provide that the insurer waives the right of subrogation against Owner. For purposes of this Agreement, the term “Owner’s Representative(s)” means each present and future Owner officer, employee, representative, Consultant, and/or agent.

3.4 Compliance with Laws. Consultant will comply and perform the Services subject to and in accordance with the Laws. Without otherwise limiting the generality of the immediately preceding sentence, Consultant will comply with each obligation applicable to Consultant and/or this Agreement under ORS 279B.220, 279B.225, 279B.230, and 279B.235, which statutes are incorporated herein by reference. Prior to the Effective Date, Consultant obtained all licenses, approvals, and/or certificates necessary or appropriate to perform the Services, including, without limitation, an unexpired certificate issued by the Oregon Department of Administrative Services under ORS 279A.167. For purposes of this Agreement, the term “Law(s)” means all applicable federal, state, and local laws, regulations, restrictions, orders, codes, rules, handbooks, and ordinances related to or concerning Consultant, this Agreement, and/or the Services.

3.5 Indemnification. To the fullest extent permitted by the Laws, Consultant will defend, indemnify, and hold District, and each present and future District officer, employee, agent, and representative (collectively, “District’s Representatives”), harmless for, from, and against all claims, actions, proceedings, damages, liabilities, injuries, losses, and expenses of every kind, whether known or unknown, including, without limitation, attorney fees and costs, resulting from or arising out of the following: (a) damage, injury, and/or death to person or property caused directly or indirectly by Consultant (and/or Consultant’s directors, officers, shareholders, members, managers, partners, employees, agents, representatives, and/or contractors); (b) Consultant’s failure to pay any tax arising out of or resulting from performance of the Services; and/or (c) Consultant’s breach and/or failure to perform any Consultant representation, warranty, covenant, and/or obligation contained in this Agreement. Consultant’s indemnification obligations provided in this Section 4.5 will survive the termination of this Agreement.

3.6 Assignment of Studies and Reports. Consultant will assign all studies, reports, data, documents, and/or materials of any kind produced under this Agreement (collectively, the “Deliverables”) to District upon the earlier of District’s request or termination of this Agreement. All copies of the materials provided to District will become the property of District who may use them without Consultant’s permission for any proper purpose relating to the Services, including, without limitation, additions to or completion of the Services; provided, however, any District modification and/or use of the Deliverables for any non-Project related purpose will be at District’s risk and expense. Consultant will defend all suits or claims for infringement of patent, trademark, and/or copyright for which Consultant is responsible (including, without limitation, any claims which may be brought against District), and Consultant will be liable to District for all losses arising therefrom, including costs, expenses, and attorney fees.

3.7 Records. Consultant will maintain complete and accurate records concerning all Services performed, the number of hours each person spent to perform the Services, and all documents produced under this Agreement for a period of three years after termination of this Agreement. Consultant’s records will be

maintained in accordance with sound accounting practices. Consultant will provide, and cause its subcontractors to provide, District, the State of Oregon, the federal government and/or any of their duly authorized representatives access to any Consultant books, documents, papers, and/or records which are pertinent to this Agreement and/or the Services. Consultant will maintain all books, documents, papers, and records generated under this Agreement for a period no less than three years commencing on the date of District's final payment to Consultant under this Agreement.

3.8 Confidential Information. During the term of this Agreement, and at all times thereafter, Consultant will maintain all Confidential Information (as defined below) in the strictest confidence and will not directly or indirectly use, communicate, and/or disclose any Confidential Information to any person, or remove or make reproductions of any Confidential Information, except that Consultant may (a) use Confidential Information to perform the Services to the extent necessary, and (b) communicate or disclose Confidential Information in accordance with a judicial or other governmental order or as required by applicable law, but only if Consultant promptly notifies the superintendent of the order and complies with any applicable protective or similar order. Consultant will promptly notify the superintendent of any unauthorized use, communication, and/or disclosure of any Confidential Information and will assist District in every way to retrieve any Confidential Information that was used, communicated, and/or disclosed by Consultant and will exert Consultant's best efforts to mitigate the harm caused by the unauthorized use, communication, and/or disclosure of any Confidential Information. Upon the earlier of District's request or termination of this Agreement, Consultant will immediately return to District all documents, instruments, and/or materials containing any Confidential Information accessed or received by Consultant, together with all copies and summaries of such Confidential Information. If requested by District, Consultant will execute a written certification satisfactory to District pursuant to which Consultant will represent and warrant that Consultant has returned all Confidential Information to District in accordance with the terms of this Agreement. Notwithstanding anything contained in this Agreement to the contrary, the terms of this Agreement do not operate to transfer any ownership or other rights in or to the Confidential Information to Consultant or any other person. For purposes of this Agreement, the term "Confidential Information" means all documentation, information, and/or materials identified by District as confidential and/or any documentation, information, and/or materials relating to or concerning District's future plans, business affairs, employment, legal, and litigation matters that need to be protected from improper disclosure, in whatever form (e.g., hard and electronic copies, etc.), that is received or accessed by Consultant; provided, however, the term "Confidential Information" does not include District's public records which are non-exempt public records under applicable federal, state, and/or local laws.

#### 4. TERMINATION AND DAMAGES

4.1 Termination. Subject to the terms and conditions contained in this Agreement, the term of this Agreement commenced on the Effective Date and will remain in full force and effect until Consultant's completion of the Services, unless sooner terminated or extended as provided in this Agreement. Notwithstanding anything contained in this Agreement to the contrary, (a) this Agreement may be terminated at any time by the mutual written agreement of District and Consultant, and/or (b) District may terminate this Agreement for convenience and without cause by giving ten (10) days' prior written notice of such termination to Consultant. Upon receipt of the notice of termination, except as explicitly directed by District, Consultant must immediately discontinue performing any Services..

4.2 Termination for Cause. Notwithstanding anything contained in this Agreement to the contrary, District may terminate this Agreement immediately upon notice to Consultant upon the happening of any of the following events: (a) Consultant fails to perform the Services within the time specified in this Agreement or by District-approved extension; (b) Consultant engages in any form of dishonesty or conduct that reflects adversely on the reputation or operations of District; (c) Consultant fails to comply with any applicable law related to Consultant's independent contractor relationship with District; (d) problems occur in connection with the performance of the Services; and/or (e) Consultant breaches and/or otherwise fails to perform any Consultant representation, warranty, covenant, and/or obligation contained in this Agreement. The determination as to whether any of the aforementioned events have occurred will be made by District in District's sole discretion.



4.3 Consequences of Termination. Upon termination of this Agreement, District will not be obligated to reimburse or pay Consultant for any continuing contractual commitments to others or for penalties or damages arising from the cancellation of such contractual commitments. Notwithstanding anything contained in this Agreement to the contrary, termination of this Agreement by District will not constitute a waiver or termination of any rights, claims, and/or causes of action City may have against Consultant. Within a reasonable period of time after termination of this Agreement (but in no event later than five days after termination), Consultant will deliver to District all materials and documentation, including raw or tabulated data and work in progress, related to or concerning the Services. District agrees to make just and equitable compensation to Consultant for satisfactory Services completed up through the date that the termination notice is delivered to Consultant. Compensation will not include anticipated profit on non-performed Services. District agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause.

4.4 Remedies. If a party breaches or otherwise fails to perform any of its representations, warranties, covenants, and/or obligations under this Agreement, the non-defaulting party may, in addition to any other remedy provided to the non-defaulting party under this Agreement, pursue all remedies available to the non-defaulting party at law or in equity. All available remedies are cumulative and may be exercised singularly or concurrently.

## 5. MISCELLANEOUS

5.1 Severability; Assignment; Binding Effect. Each provision contained in this Agreement will be treated as a separate and independent provision. The unenforceability of any one provision will in no way impair the enforceability of any other provision contained herein. Any reading of a provision causing unenforceability will yield to a construction permitting enforcement to the maximum extent permitted by applicable law. Consultant will not assign this Agreement to any person without District's prior written consent. Subject to the immediately preceding sentence, this Agreement will be binding on the parties and their respective heirs, personal representatives, successors, and permitted assigns, and will inure to their benefit. This Agreement may be amended only by a written agreement signed by each party.

5.2 Attorney Fees; Dispute Resolution. If any arbitration or litigation is instituted to interpret, enforce, and/rescind this Agreement, including, without limitation, any proceeding brought under the United States Bankruptcy Code, the prevailing party on a claim will be entitled to recover with respect to the claim, in addition to any other relief awarded, the prevailing party's reasonable attorney fees and other fees, costs, and expenses of every kind, including, without limitation, costs and disbursements specified in ORCP 68 A(2), incurred in connection with the arbitration, the litigation, any appeal or petition for review, the collection of any award, or the enforcement of any order, as determined by the arbitrator or court. If any claim, dispute, or controversy arising out of or related to this Agreement occurs (a "Dispute"), District and Consultant will exert their best efforts to seek a fair and prompt negotiated resolution of the Dispute and will meet at least once to discuss and seek a resolution of the Dispute. If the Dispute is not resolved by negotiated resolution, either party may initiate a suit, action, arbitration, or other proceeding to interpret, enforce, and/or rescind this Agreement.

5.3 Governing Law; Venue. This Agreement is governed by the laws of the State of Oregon, without giving effect to any conflict-of-law principle that would result in the laws of any other jurisdiction governing this Agreement. Any action or proceeding arising out of this Agreement will be litigated in courts located in Grant County, Oregon. Each party consents and submits to the jurisdiction of any local, state, or federal court located in Grant County, Oregon.

5.4 Attachments; Further Assurances; Notices. Any exhibits, schedules, instruments, documents, and other attachments referenced in this Agreement are part of this Agreement. The parties will sign other documents and take other actions reasonably necessary to further effect and evidence this Agreement. Time is of the essence with respect to Consultant's performance of its obligations under this Agreement. All notices or other communications required or permitted by this Agreement must be in writing, must be delivered to the parties at the addresses set forth above, or any other address that a party may designate by notice to the other party, and

are considered delivered upon actual receipt if delivered personally, by fax or email transmission (with electronic confirmation of delivery), or by a nationally recognized overnight delivery service, or at the end of the third business day after the date of deposit if deposited in the United States mail, postage pre-paid, certified, return receipt requested.

5.5 Waiver; Entire Agreement. No provision of this Agreement may be modified, waived, or discharged unless such waiver, modification, or discharge is agreed to in writing by District and Consultant. No waiver of either party at any time of the breach of, or lack of compliance with, any conditions or provisions of this Agreement will be deemed a waiver of other provisions or conditions hereof. This Agreement contains the entire agreement and understanding between the parties with respect to the subject matter of this Agreement and contains all the terms and conditions of the parties' agreement and supersedes any other oral or written negotiations, discussions, representations, or agreements. Consultant has not relied on any promises, statements, representations, or warranties except as set forth expressly in this Agreement.

5.6 Person; Interpretation; Execution. For purposes of this Agreement, the term "person" means any natural person, corporation, limited liability company, partnership, joint venture, firm, association, trust, unincorporated organization, government or governmental agency or political subdivision, or any other entity. All pronouns contained herein and any variations thereof will be deemed to refer to the masculine, feminine, or neutral, singular or plural, as the identity of the parties may require. The singular includes the plural and the plural includes the singular. The word "or" is not exclusive. The words "include," "includes," and "including" are not limiting. The titles, captions, or headings of the sections herein are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement. The parties may execute this Agreement in separate counterparts, each of which when executed and delivered will be an original, but all of which together will constitute one and the same instrument. Facsimile or email transmission of any signed original document will be the same as delivery of an original. At the request of either party, the parties will confirm facsimile or email transmitted signatures by signing and delivering an original document.

IN WITNESS WHEREOF, the undersigned have caused this Agreement to be executed and effective for all purposes as of the Effective Date.

OWNER:  
Grant School District 3  
an Oregon special district

CONSULTANT:  
Frontier Consulting Engineers  
a California limited liability company

\_\_\_\_\_  
By: Mark Witty, Superintendent

\_\_\_\_\_  
By:

Exhibit A  
Plans and Specifications

[Enclosed]



**SCOPE OF WORK**

- 1 - PROVIDE EQUIPMENT AS SCHEDULED AND AS SHOWN ON THE PLANS
- 2 - PROVIDE COMMISSIONING REPORT BY AN INDEPENDANT AGENT, O&Ms, SUBMITTALS, AS-BUILTS AND BALANCE REPORT TO OWNER AT CLOSEOUT.
- 3 - DUCT LAYOUT AND EQUIPMENT LOCATION IS DIAGRAMATIC. CORRINDINATE WITH OWNER AND OTHER TRADES FOR EXACT PLACEMENT.
- 4 - R12 INSULATION ON OSA DUCTS AND DUCTS OUTSIDE THE BUILDING ON HRU'S AND PACKAGED HEAT PUMPS. PROVIDE DUCT LINER ON PACKAGED HEAT PUMPS.
- 5 - BREAK EXTERIOR DUCT TO FACILITATE WATER RUNOFF.
- 6 - EVERY DUCT AND PLENUM WHICH IS A PORTION OF THE COMFORT HEATING AND OR COOLING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE 2019 OREGON MECHANICAL SPECIALITY CODE AND/OR ASHRAE AND/OR SMACNA.
- 7 - ROUND AND RECTANGULAR DUCTWORK ARE INTERCHANGABLE IF THE CROSS SECTIONAL AREAS ARE EQUIVALENT AT NO ADDITIONAL CHARGE.
- 8 - THERMOSTATS SHALL BE PROGRAMMABLE WITH 7 DAY TYPES, OFF HOUR SETBACKS, 5 DEGREE DEADBAND.
- 9 - EXTERIOR DUCTWORK TO BE SEALED AND LINED W/R12. DUCT DIMENSIONS ARE INSIDE CLEAR.
- 10 - ALL DUCTWORK IS LOW PRESSURE
- 11 - ECONOMIZERS TO PROVIDE PARTIAL COOLING AND TO GO TO FULL OSA MODE WHERE CONDITIONS ALLOW FOR FREE COOLING. INTERLOCK RELIEF MOTORIZED DAMPER WITH ECONOMIZER FUNCTION TO PROVIDE BAROMETRIC RELIEF.
- 12 - HEAT PUMPS TO COME WITH FAULT DIAGNOSTICS
- 13 - DRAIN CONDENSATE TO APPROVED LOCATION
- 14 - HANG UH-2's PER STRUCTURAL DETAIL
- 15 - PROVIDE LOCKING COVERS ON THERMOSTATS AND CO2 SENSORS.
- 16 - HEAT TAPE, INSULATE AND WRAP WITH PVC PROTECTIVE COVER THE 3" DRAIN OFF THE HEAT PUMP SECONDARY DRAIN PAN BUILT INTO HEAT PUMP STAND.
- 17 - CONTRACTOR TO PROVIDE ASBESTOS CERTIFIED WORKERS, AND TESTING RESULTS BEFORE AND AFTER WORK IS PREFORMED FOR EACH ROOM WHERE CEILING TILES ARE CUT, DRILLED OR OTHERWISE DISTURBED.
- 18 - PROVIDE SENSOR UNDER KITCHEN HOOD TO ENERGIZE FAN AT 90 DEGREES.
- 19 - COORDINATE WITH OWNER FOR LOCATION OF THERMOSTATS. LOCATE MORE THAN 10' FROM AN EXTERIOR WALL.
- 20 - LOCATE CO2 SENSORS NEAR THERMOSTAT TO CONTROL ECONOMIZERS AND HRU OPERATION.
- 21 - COORDINATE WITH OWNER FOR EXACT LOCATION OF FAN COILS. OBTAIN APPROVAL FROM ENGINEER WHERE MOVED MORE THAN 10 FEET FROM LOCATION SHOWN.
- 22 - CONTRACTOR TO PROVIDE AND LOCATE CURBS ON ROOF STAGED WITH THE RE-ROOF PROJECT STARTING LATE JUNE.
- 23 - PIPE 3/4" PROPANE FROM TANK TO EACH UNIT HEATER. COORDINATE ROUTING WITH OWNER.
- 24 - ELECTRICIAN TO REPAIR OPERATION OF FANS THAT PROVIDE OSA IN GYMNASIUM
- 25 - INSULATE PIPE PER CODE.
- 26 - LOCATE ROOF TOP EQUIPMENT MORE THAN 10'-0" OFF ROOF EDGE OR PROVIDE GUARDRAIL
- 27 - INTERLOCK OSA FANS IN GYMNASIUM WITH CO2 SENSOR AND MOTORIZED DAMPERS IN RELIEF. PROVIDE ECONOMIZER CONTROL OF THE FANS.
- 28 - 14X14 SUPPLY AIR OFF HRU. DUCT HEATER, 14X14X10" CAN W/10X8 GRILLES ON THREE SIDES TO THROW AIR AWAY FROM EXHAUST DROP.
- 29 - THESE PLANS ARE PREPARED FOR GRANT UNION HIGH SCHOOL. THE CONTRACTOR SELECTED SHALL HAVE 5 YEARS EXPERIENCE INSTALLING SIMILAR EQUIPMENT AND SHALL TAKE RESPONSIBILITY FOR FIELD VERIFICATION AND ASSOCIATED ACCOMMODATIONS, INCLUDING CUT, PATCH AND REPAIR.
- 30 - PROVIDE CONTROLS FOR MODULATING ECONOMIZER DAMPERS ON UH-2's TO CONTROL CO2 LEVELS BELOW 600 PPM.
31. SET CO2 SENSORS TO 600 PPM.

**VENTILATION SCHEDULE**

SPACE	AREA (SF)	NATURAL VENTILATION AREA REQ (OSSC 1203.1)	NATURAL VENTILATION AREA PROVIDED	NATURAL VENTILATION PROVIDED PERCENT	P/1000 SF	# PEOPLE	CFM/P	CFM/SF	DERATE FOR CLG SUPPLY	MECH OSA CFM REQD	MIN OSA CFM PROVIDED
MENS LOCKER (EXISTING)	920	37	0	0%							-
LADIES LOCKER (EXISTING)	945	38	0	0%							-
GYMNASIUM (EXISTING)	11,664	467	0	0%							-
KITCHEN - Z2	880	35	20	250%	20	0	7.5	0.12	80%	-68	0
CAFETERIA - Z3-EAST	1,276	51	36	71%	100	128	7.5	0.18	80%	437	450
CAFETERIA - Z3-WEST	1,276	51	36	71%	100	128	7.5	0.18	80%	437	450
CLASSROOM 4	1,056	42	12	28%	35	37	10	0.12	80%	444	450
MUSIC - Z5	1,512	60	21	35%	35	53	10	0.12	80%	464	500
CLASSROOM 6	1,512	60	18	30%	35	53	10	0.12	80%	499	500
WOOD SHOP - Z7	3,240	130	36	28%	20	5	10	0.18	80%	454	500
CLASSROOM 8	1,260	50	8	16%	35	44	10	0.12	80%	498	500
CLASSROOM 9	800	32	16	50%	35	28	10	0.12	80%	235	250
CLASSROOM 10	1,280	51	18	35%	35	45	10	0.12	80%	488	500
ADMIN OFFICES - Z11	1,513	61	0	0%	5	8	5	0.06	80%	161	200
DETENTION OFFICES - Z12	1,520	61	0	0%	5	8	5	0.06	80%	162	200
LIBRARY - Z13	2,000	80	21	26%	25	50	10	0.12	80%	546	800
CLASSROOM 14	1,050	42	18	43%	35	37	10	0.12	80%	353	400
CLASSROOM 15	660	26	18	68%	35	23	10	0.12	80%	123	200
CLASSROOM 16	625	25	28	112%	35	22	10	0.12	80%	-44	0
CLASSROOM 17	720	29	32	111%	35	25	10	0.12	80%	-47	0
CLASSROOM 18	1,100	44	18	41%	35	39	10	0.12	80%	382	400
STUDENT LOUNGE - Z19	1,680	67	54	80%	35	59	10	0.12	80%	194	200
NURSE OFFICE - Z20	750	30	0	0%	5	4	5	0.06	80%	80	200
CLASSROOM 21	720	29	18	63%	35	25	10	0.12	80%	159	200
CLASSROOM 22	1,100	44	18	41%	35	39	10	0.12	80%	382	400
STAGE - Z23	900	36	0	0%	70	63	10	0.06	80%	855	
MAINT. OFFICE - Z24	800	32	48	150%	5	4	5	0.06	80%	-43	5400
AUDITORIUM - Z25	5,400	432	72	17%	150	810	5	0.06	80%	4556	

**HEATER SCHEDULE**

ID	QUANTITY	SERVES	MANUFACTURER	MODEL	KW	LENGTH	AMPS	V/PH	MOCF	WEIGHT	NOTES
UH-1	6	LOCKER ROOMS, RR	REZNOR	EGHB	10	-	42	208/1	50	45	2
UH-2	4	GYMNASIUM	REZNOR	SCE-6	250 MBH INPUT	-	9	240/3	15	482	2, 3, 4
WH-1	2	OFFICES	REZNOR	ORC0600	0.6	47"	3	208/1	15	40	2
WH-2	8	ENTRANCES	REZNOR	ORC1050	1	83"	4	208/1	15	42	2
AC-1	2	ENTRANCES	BERNER	AEO8E	10.8	48"	29	208/1	40	71	1
AC-2	2	AUDITORIUM ENTRANCE	BERNER	AEO8E	14.4	72"	37	208/1	50	86	1
RH-1	1	WELDING SHOP	REZNOR	VPS-100	100 MBH	30'-0"	5.0	120/1	15	250	1

**NOTES:**

- 1 - PROVIDE WITH DOOR SWITCH, WHITE COLOR
- 2 - WALL STAT AND DISCONNECT BY EC
- 3 - PROCURE TWO WITH RIGHT HAND ACCESS AND TWO WITH LEFT SIDE ACCESS
- 4 - PROPANE, MOTOR STARTER AND DISCONNECT, BURNER AIR SHUTTERS, TWO STAGE BURNER, FREEZESTAT, 4" FILTER RACK W/EXTRA CASE OF FILTERS, BOTTOM RETURN, MERV 8, CONCENTRIC VENT, 409 HX, STAINLESS STEEL DRAIN PAN, INTERMITTENT LOCKOUT PILOT RESET AT BREAKER, INTERLOCK WITH CO2 SENSOR, DUCT FLANGE, DRAIN KIT DRAINED TO LANDSCAPE. 7-DAY PROGRAMMABLE STAT, MANUAL SHUTOFF VALVE AND UNION.

**HEAT RECOVERY UNIT SCHEDULE**

ID	QUANTITY	SERVES	MANUFACTURER	LOCATION	CFM	HTR KW	MCA	MOCF	V/PH	WEIGHT	NOTES
HRU-3A	1	CAFETERIA - EAST	RENEWAIRE	ROOF	450	3	5	15	208/1	250	1, 2
HRU-3B	1	CAFETERIA - WEST	RENEWAIRE	ROOF	450	3	5	15	208/1	250	1, 2
HRU-4	1	CLASSROOM 4	RENEWAIRE	ROOF	450	3	5	15	208/1	250	1, 2
HRU-5	1	MUSIC CLASSROOM 5	RENEWAIRE	ROOF	500	3	5	15	208/1	250	1, 2
HRU-6	1	CLASSROOM 6	RENEWAIRE	ROOF	500	3	5	15	208/1	250	1, 2
HRU-7	1	WOOD SHOP	RENEWAIRE	ROOF	500	3	5	15	208/1	250	1, 2
HRU-8	1	CLASSROOM 8	RENEWAIRE	ROOF	500	3	5	15	208/1	250	1, 2
HRU-9	1	CLASSROOM 9	RENEWAIRE	ROOF	250	1	5	15	208/1	250	1, 2
HRU-10	1	CLASSROOM 10	RENEWAIRE	ROOF	500	3	5	15	208/1	250	1, 2
HRU-11	1	ADMIN OFFICES 11	RENEWAIRE	ROOF	200	1	5	15	208/1	250	1, 2
HRU-12	1	LIBRARY OFFICES 12	RENEWAIRE	ROOF	300	1	5	15	208/1	250	1, 2
HRU-13	1	LIBRARY13	RENEWAIRE	ROOF	500	3	5	15	208/1	250	1, 2
HRU-14	1	CLASSROOM 14	RENEWAIRE	ROOF	400	3	5	15	208/1	250	1, 2
HRU-15	1	CLASSROOM 15	RENEWAIRE	ROOF	200	1	5	15	208/1	250	1, 2
HRU-18	1	CLASSROOM 18	RENEWAIRE	ROOF	400	3	5	15	208/1	250	1, 2
HRU-19	1	STUDENT LOUNGE 19	RENEWAIRE	ROOF	200	1	5	15	208/1	250	1, 2
HRU-20	1	CLASSROOM 20	RENEWAIRE	ROOF	200	1	5	15	208/1	250	1, 2
HRU-21	1	CLASSROOM 21	RENEWAIRE	ROOF	200	1	5	15	208/1	250	1, 2
HRU-22	1	CLASSROOM 22	RENEWAIRE	ROOF	400	3	5	15	208/1	250	1, 2

**NOTES:**

- 1 - PROVIDE 14" CURB, CURB CLIPS, TIME CLOCK, CO2 SENSOR, FUSED DISCONNECT, FILTER ALARMS, DOUBLE WALL CONSTRUCTION, WHITE, MERV 13 FILTERS, AND BACKDRAFT DAMPER ACCESSORIES.
- 2 - PROVIDE AUX HEATER SET TO MAINTAIN DISCHARGE AIR TEMP TO 70 DEGREES WHEN OSA IS LESS THAN 55 DEGREES. SEPARATE POWER CONNECTION.

**DUCT HEATER SCHEDULE**

ID	QUANTITY	SERVES	KW/STAGES	CFM	SIZE	V/PH	WEIGHT	NOTES
DH-1	3	AUDITORIUM	30/2	1800	MATCH OSA	480/3	20	1, 2
DH-2	7	SEE HRU SCHEDULE	1/1	200-399	14X14	208/1	10	3, 4
DH-3	12	SEE HRU SCHEDULE	3/1	400-600	14X14	208/1	10	3, 4

**NOTES:**

- 1 - RATED FOR EXTERIOR USE
- 2 - LOCATE STAT IN MIXED AIR STREAM TO MEASURE THE TEMPERATURE OF AIR HITTING THE COIL. SET THE STAT TO 50 DEGREES
- 3 - LOCATE STAT IN ERV SUPPLY DUCT IN SPACE. SET THE STAT TO 65 DEGREES. 14X14 DUCT DROP INTO SPACE WITH DUCT HEATER IN HORIZONTAL. DROP CAN AN ADDITIONAL 10" WITH 10X8 EGGRATE GRILLES ON THREE SIDES.
- 4 - RETURN TO BE EGGRATE AT CEILING. PROVIDE AIR FLOW SWITCH.

**FAN SCHEDULE**

ID	QUANTITY	SERVES	MANUFACTURER	MODEL	TYPE	CFM	ESP	VOLT	AMPS	WEIGHT	NOTES
TF-1	25	TRANSFER FAN	BROAN	FG 12	INLINE	150	0.2	120	1.5	5	1
EF-1	1	LADIES RESTROOM	GREENHECK	CUE-070D	WALL	250	0.2	120	1/30 HP	30	1

**NOTES:**

- 1 - INTERLOCK WITH OCCUPANCY SENSOR, BY EC

**PACKAGED HEAT PUMP SCHEDULE**

ID	QUANTITY	SERVES	MANUFACTURER	MODEL	CFM	OSA	ESP	TON	SEER	V/PH	MCA	MOCF	WEIGHT	NOTES
HP-26A, B & C	3	AUDITORIUM	TRANE	WSC120H4ROA	4,000	1,800	0.5	10.0	14.1	480/3	25.0	35	850	1, 2

- 1 - ECONOMIZER AND CO2 CONTROL OF DAMPER POSITIONS
- 2 - EQUIPMENT PAD BY OTHERS



TO BE FIXED BY EC



THESE PLANS ARE PREPARED FOR GRANT UNION HIGH SCHOOL. CONTRACTOR SELECTED SHALL HAVE 5 YEARS EXPERIENCE INSTALLING SIMILAR EQUIPMENT AND SHALL TAKE RESPONSIBILITY FOR FIELD VERIFICATION AND ASSOCIATED ACCOMMODATIONS.



# FAN COIL SCHEDULE



ID	QUANTITY	SERVES	MFG	STYLE	MODEL	MBH	CFM	V/PH	MCA	MOCP	WEIGHT	NOTES
FC-2	1	KITCHEN	mitsubishi	WALL HUNG	PKA-A24KA7	24	700	208/1	1.0	15	37	
FC-3A1	1	CAFETERIA - NW	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-3A2	1	CAFETERIA - SW	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-3B1	1	CAFETERIA - NE	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-3B2	1	CAFETERIA - SW	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-4A	1	CLASSROOM 4 NORTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-4B	1	CLASSROOM 4 SOUTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-5	1	CLASSROOM 5	mitsubishi	WALL HUNG	PKA-A36LA7	36	1,050	208/1	1.0	15	37	
FC-6A	1	CLASSROOM 6 WEST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-6B	1	CLASSROOM 6 SOUTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-6C	1	OFFICE 5	mitsubishi	WALL HUNG	PKFY-P06NLMU-E	6	150	208/1	1.0	15	37	
FC-7A	1	WOOD SHOP 7 WEST	mitsubishi	WALL HUNG	PKA-A36KA7	36	1,050	208/1	1.0	15	37	
FC-7B	1	WOOD SHOP 7 EAST	mitsubishi	WALL HUNG	PKA-A36KA7	36	1,050	208/1	1.0	15	37	
FC-8A	1	CLASSROOM 8 NORTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-8B	1	CLASSROOM 8 SOUTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-9	1	CLASSROOM 9	mitsubishi	WALL HUNG	PKA-A36KA7	36	1,050	208/1	1.0	15	37	
FC-10A	1	CLASSROOM 10 NORTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-10B	1	CLASSROOM 10 SOUTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-11A	1	PRINCIPAL 11	mitsubishi	WALL HUNG	PKFY-P06NKMU-E	6	150	208/1	1.0	15	37	
FC-11B	1	WEST OFFICES 11	mitsubishi	WALL HUNG	PKFY-P08NKMU-E	8	150	208/1	1.0	15	37	
FC-11C	1	CONF 11	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-12A	1	LIBRARY RECEPT 12	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-12B	1	ADMIN RECEPT 12	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-12C	1	VICE PRINCIPAL 12	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-12D	1	LIBRARY CONF 12	mitsubishi	WALL HUNG	PKFY-P08NKMU-E	8	150	208/1	1.0	15	37	
FC-13A	1	LIBRARY13 WEST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-13B	1	LIBRARY13 EAST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-14A	1	CLASSROOM 14 WEST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-14B	1	CLASSROOM 14 EAST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-15	1	CLASSROOM 15	mitsubishi	WALL HUNG	PKA-A36KA7	36	1,050	208/1	1.0	15	37	
FC-16	1	CLASSROOM 16	mitsubishi	WALL HUNG	PKA-A36KA7	36	1,050	208/1	1.0	15	37	
FC-17A	1	CLASSROOM 17 WEST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-17B	1	CLASSROOM 17 EAST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-18A	1	CLASSROOM 18 NORTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-18B	1	CLASSROOM 18 SOUTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-19A	1	WEST OFFICE 19	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-19B	1	SMALL OFFICE 19	mitsubishi	WALL HUNG	PKFY-P06NKMU-E	6	150	208/1	1.0	15	37	
FC-19C	1	LOUNGE 19	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-19D	1	SE OFFICE 19	mitsubishi	WALL HUNG	PKFY-P06NKMU-E	6	150	208/1	1.0	15	37	
FC-20A	1	NURSE RECEPTION 20	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-20B	1	PATIENT 20	mitsubishi	WALL HUNG	PKFY-P06NKMU-E	6	150	208/1	1.0	15	37	
FC-20C	1	CONFERENCE 20	mitsubishi	WALL HUNG	PKFY-P06NKMU-E	6	150	208/1	1.0	15	37	
FC-20D	1	STORAGE	mitsubishi	WALL HUNG	PKFY-P12NKMU-E	12	350	208/1	1.0	15	37	
FC-21A	1	CLASSROOM 21 WEST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-21B	1	CLASSROOM 21 EAST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-22A	1	CLASSROOM 22 NORTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-22B	1	CLASSROOM 22 SOUTH	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-23A	1	STAGE 23 WEST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-23B	1	STAGE 23 EAST	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	700	208/1	1.0	15	37	
FC-24A	1	MAINTENANCE OFFICE 24	mitsubishi	WALL HUNG	PKFY-P08NKMU-E	8	270	208/1	1.0	15	37	
FC-24B	1	MAINTENANCE STOR 24	mitsubishi	WALL HUNG	PKFY-P24NKMU-E2	24	500	208/1	1.0	15	37	

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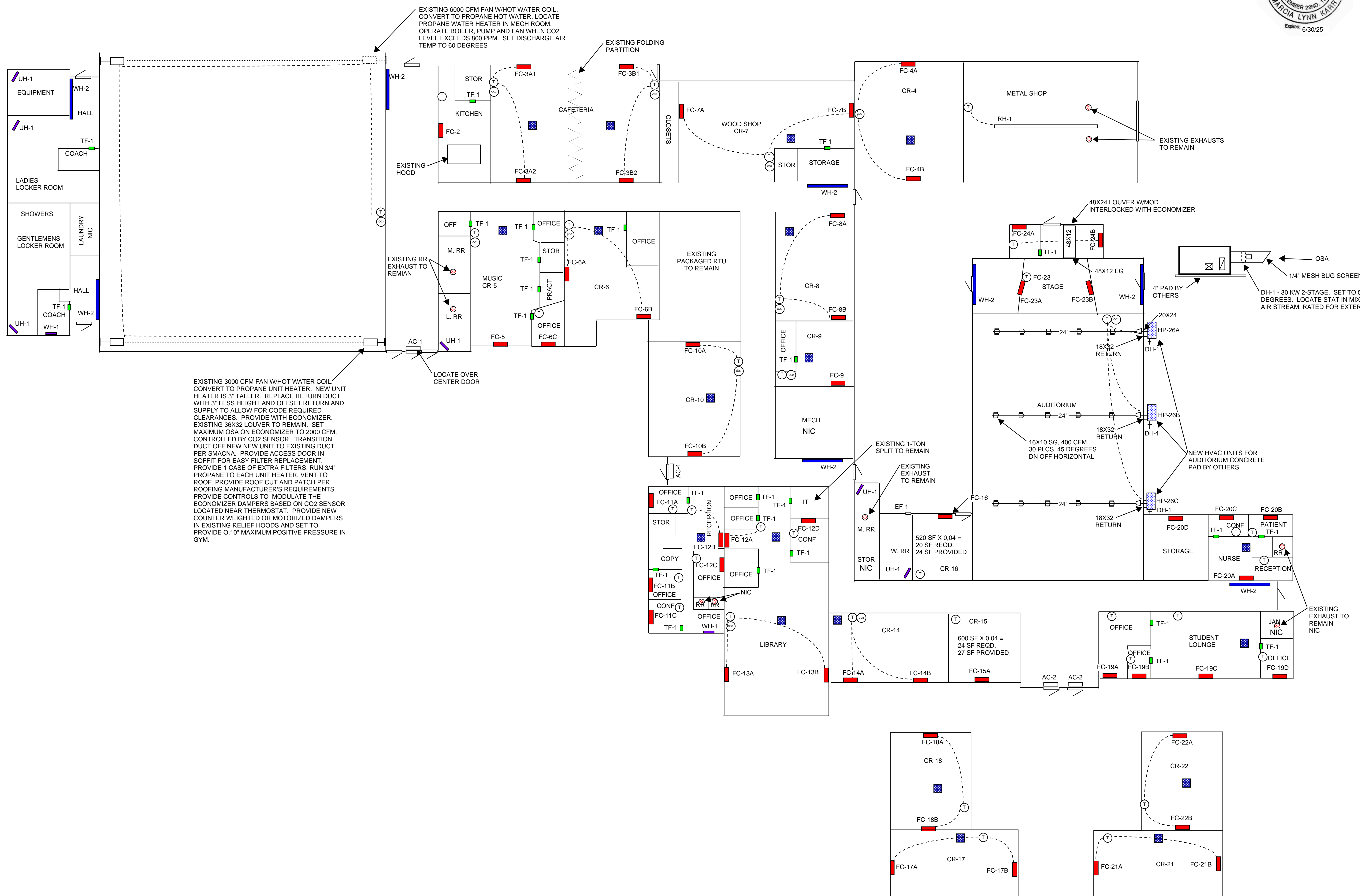
# HEAT PUMP SCHEDULE

ID	QUANTITY	SERVES	MANUFACTURER	HYPER HEAT MODEL	TON	SEER	HSPF	V/PH	MCA	MOCP	WEIGHT	NOTES
HP-2	1	KITCHEN	mitsubishi	PUZ-HA24NHA1	2.0	23.0	12.5	208/1	42	50	290	1, 2
HP-3A	1	CAFETERIA - EAST	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-3B	1	CAFETERIA - WEST	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-4	1	CLASSROOM 4	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-5	1	MUSIC CLASSROOM 5	mitsubishi	PUZ-HA36NHA1	3.0	22.0	12.0	208/1	42	50	290	1, 2
HP-6	1	CLASSROOM 6	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-7A	1	WOOD SHOP 7 WEST	mitsubishi	PUZ-HA36NHA1	3.0	23.0	12.5	208/1	42	50	290	1, 2
HP-7B	1	WOOD SHOP 7 EAST	mitsubishi	PUZ-HA36NHA1	3.0	23.0	12.5	208/1	42	50	290	1, 2
HP-8	1	CLASSROOM 8	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-9	1	CLASSROOM 9	mitsubishi	PUZ-HA36NHA1	3.0	23.0	12.5	208/1	42	50	290	1, 2
HP-10	1	CLASSROOM 10	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-11	1	ADMIN OFFICES 11	mitsubishi	MXZ-SM36NAMHZ	3.0	23.0	12.0	208/1	42	50	290	1, 2
HP-12	1	LIBRARY OFFICES 12	mitsubishi	MXZ-SM36NAMHZ	3.0	23.0	12.0	208/1	42	50	290	1, 2
HP-13	1	LIBRARY13	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-14	1	CLASSROOM 14	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-15	1	CLASSROOM 15	mitsubishi	PUZ-HA36NHA1	3.0	23.0	12.5	208/1	42	50	290	1, 2
HP-16	1	CLASSROOM 16	mitsubishi	PUZ-HA36NHA1	3.0	23.0	12.5	208/1	42	50	290	1, 2
HP-17	1	CLASSROOM 17	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-18	1	CLASSROOM 18	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-19	1	STUDENT LOUNGE 19	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-20	1	NURSES OFFICE 20	mitsubishi	MXZ-SM36NAMHZ	3.0	23.0	12.5	208/1	42	50	290	1, 2
HP-21	1	CLASSROOM 21	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.5	208/1	42	50	290	1, 2
HP-22	1	CLASSROOM 22	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.5	208/1	42	50	290	1, 2
HP-23	1	STAGE 23	mitsubishi	MXZ-SM48NAMHZ	4.0	23.0	12.0	208/1	42	50	290	1, 2
HP-24	1	MAINTENANCE OFFICE 24	mitsubishi	MXZ-SM36NAMHZ	3.0	23.0	12.5	208/1	42	50	290	1, 2
	33				120.0							

1 - PROVIDE PAN HEATER, DUAL FAN STAND QSMS2402M, DEFROST HEATER,  
 2 - PROVIDE 115 VOLT, 10 WATT PAN/PIPE HEATER CABLE FOR SECONDARY DRAIN PAN AND PIPE TO HEATED GUTTERS. (FIELD VERIFY GUTTER HEATING AND PROVIDE AS NEEDED)

PRINT  
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**M2**  
 JOB





EXISTING 3000 CFM FAN W/HOT WATER COIL CONVERT TO PROPANE UNIT HEATER. NEW UNIT HEATER IS 3" TALLER. REPLACE RETURN DUCT WITH 3" LESS HEIGHT AND OFFSET RETURN AND SUPPLY TO ALLOW FOR CODE REQUIRED CLEARANCES. PROVIDE WITH ECONOMIZER. EXISTING 36X32 LOUVER TO REMAIN. SET MAXIMUM OSA ON ECONOMIZER TO 2000 CFM, CONTROLLED BY CO2 SENSOR. TRANSITION DUCT OFF NEW NEW UNIT TO EXISTING DUCT PER SMACNA. PROVIDE ACCESS DOOR IN SOFFIT FOR EASY FILTER REPLACEMENT. PROVIDE 1 CASE OF EXTRA FILTERS. RUN 3/4" PROPANE TO EACH UNIT HEATER. VENT TO ROOF. PROVIDE ROOF CUT AND PATCH PER ROOFING MANUFACTURER'S REQUIREMENTS. PROVIDE CONTROLS TO MODULATE THE ECONOMIZER DAMPERS BASED ON CO2 SENSOR LOCATED NEAR THERMOSTAT. PROVIDE NEW COUNTER WEIGHTED OR MOTORIZED DAMPERS IN EXISTING RELIEF HOODS AND SET TO PROVIDE 0.10" MAXIMUM POSITIVE PRESSURE IN GYM.

EXISTING 6000 CFM FAN W/HOT WATER COIL. CONVERT TO PROPANE HOT WATER. LOCATE PROPANE WATER HEATER IN MECH ROOM. OPERATE BOILER, PUMP AND FAN WHEN CO2 LEVEL EXCEEDS 800 PPM. SET DISCHARGE AIR TEMP TO 60 DEGREES

EXISTING FOLDING PARTITION

EXISTING EXHAUSTS TO REMAIN

EXISTING RR EXHAUST TO REMIAN

LOCATE OVER CENTER DOOR

EXISTING 1-TON SPLIT TO REMAIN

EXISTING EXHAUST TO REMAIN

48X24 LOUVER W/MOD INTERLOCKED WITH ECONOMIZER

48X12 EG

48X12 EG

18X32 RETURN

18X32 RETURN

18X32 RETURN

16X10 SG, 400 CFM 30 PLCS. 45 DEGREES DN OFF HORIZONTAL

20X24

HP-26A

DH-1

HP-26B

DH-1

HP-26C

DH-1

FC-20C

FC-20D

TF-1

CONF

PATIENT

RECEPTION

FC-20A

NURSE

WH-2

EXISTING EXHAUST TO REMAIN NIC

JAN

NIC

OFFICE

TF-1

FC-19D

FC-19C

STUDENT LOUNGE

OFFICE

FC-19B

FC-19A

AC-2

AC-2

CR-15

600 SF X 0.04 = 24 SF REQD. 27 SF PROVIDED

CR-14

LIBRARY

OFFICE

WH-1

RR

RR

CONF

FC-11C

FC-11B

OFFICE

TF-1

FC-12C

FC-12B

RECEPTION

FC-12A

FC-12D

CONF

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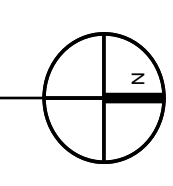
THESE PLANS ARE PREPARED FOR GRANT UNION HIGH SCHOOL. CONTRACTOR SELECTED SHALL HAVE 5 YEARS EXPERIENCE INSTALLING SIMILAR EQUIPMENT AND SHALL TAKE RESPONSIBILITY FOR FIELD VERIFICATION AND ASSOCIATED ACCOMMODATIONS.

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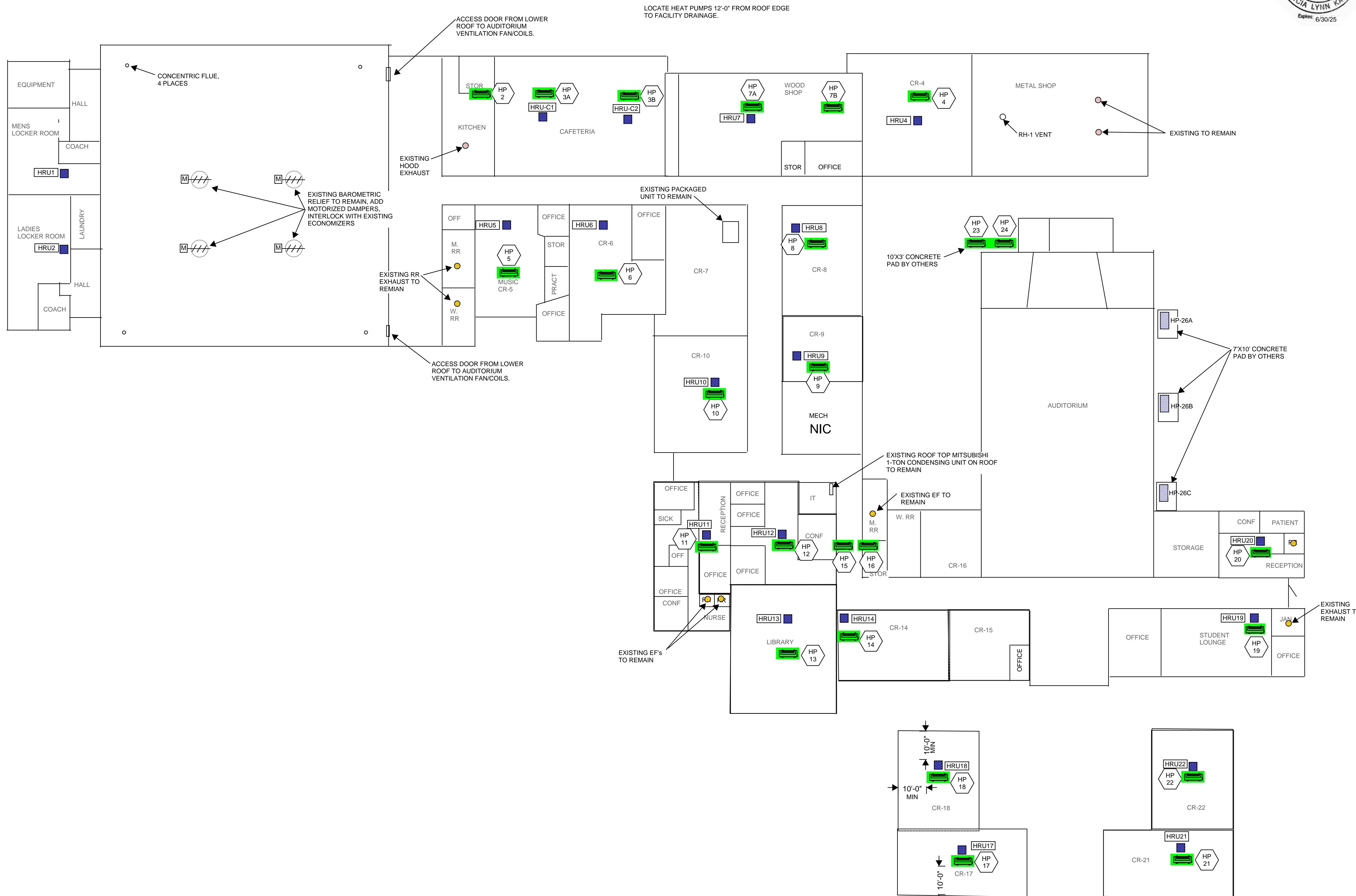
M3

FLOOR PLAN

SCALE: 1/16" = 1'-0"



JOB



LOCATE HEAT PUMPS 12'-0" FROM ROOF EDGE TO FACILITY DRAINAGE.

CONCENTRIC FLUE, 4 PLACES

ACCESS DOOR FROM LOWER ROOF TO AUDITORIUM VENTILATION FAN/COILS.

EXISTING BAROMETRIC RELIEF TO REMAIN, ADD MOTORIZED DAMPERS, INTERLOCK WITH EXISTING ECONOMIZERS

EXISTING RR EXHAUST TO REMIAN

ACCESS DOOR FROM LOWER ROOF TO AUDITORIUM VENTILATION FAN/COILS.

EXISTING PACKAGED UNIT TO REMAIN

10'X3' CONCRETE PAD BY OTHERS

EXISTING ROOF TOP MITSUBISHI 1-TON CONDENSING UNIT ON ROOF TO REMAIN

EXISTING EF TO REMAIN

EXISTING EF'S TO REMAIN

EXISTING TO REMAIN

7'X10' CONCRETE PAD BY OTHERS

EXISTING EXHAUST TO REMAIN

# ROOF PLAN

SCA 1/16" = 1'-0"

THESE PLANS ARE PREPARED FOR GRANT UNION HIGH SCHOOL. CONTRACTOR SELECTED SHALL HAVE 5 YEARS EXPERIENCE INSTALLING SIMILAR EQUIPMENT AND SHALL TAKE RESPONSIBILITY FOR FIELD VERIFICATION AND ASSOCIATED ACCOMMODATIONS.

PRINT  
DRAWN  
APPROVED  
SHEET

M4

JOB

















**ROOF PLAN GENERAL NOTES:**

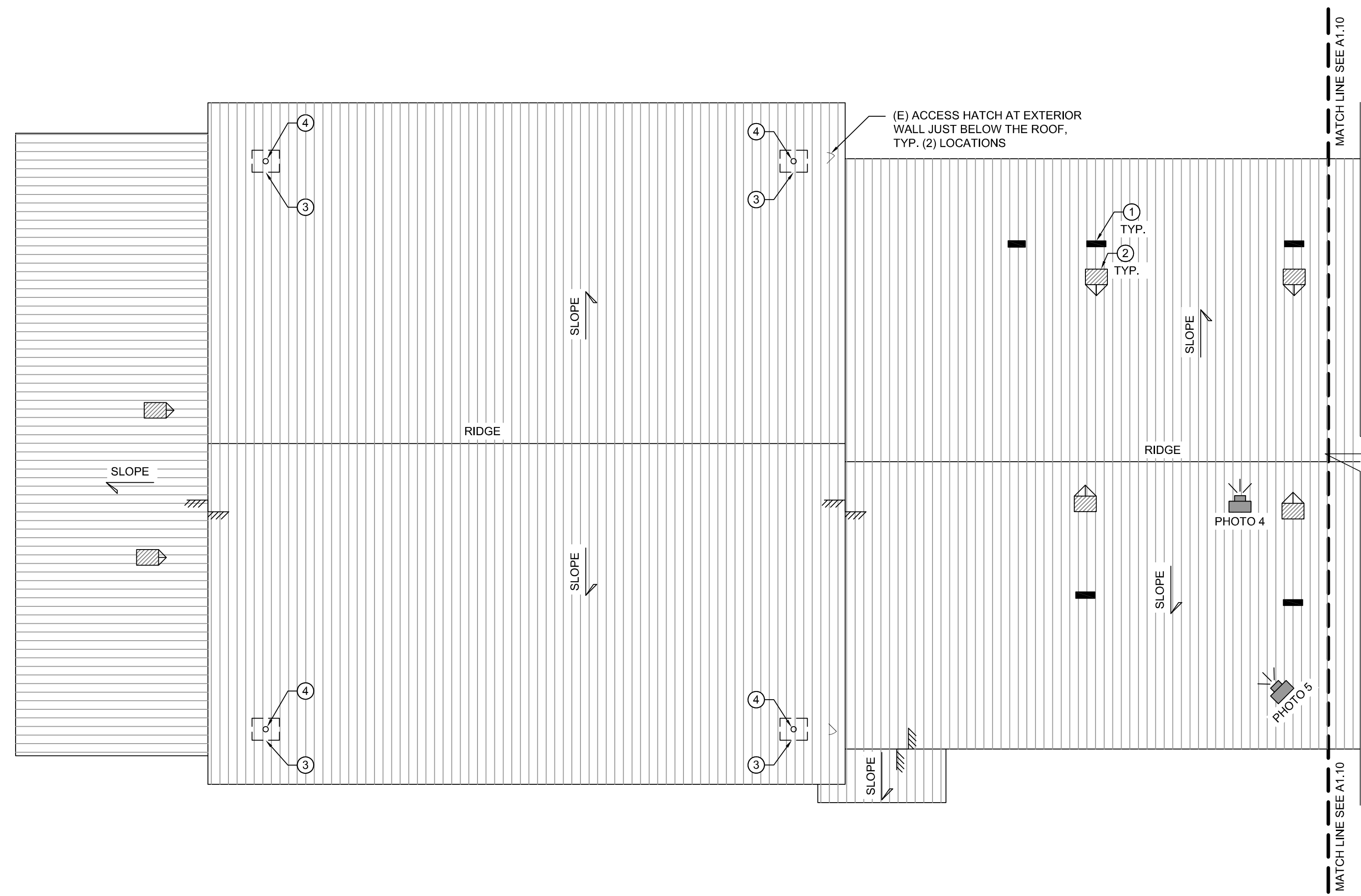
- ALL WORK AND MATERIALS SHALL CONFORM TO ALL APPLICABLE STATE AND LOCAL REGULATIONS, STANDARDS AND MFR. SPECIFICATIONS AND THE 2022 OSBC. CONTACT ARCHITECT FOR DIRECTIVE IN THE EVENT OF CONFLICTING STANDARDS AND SPECS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND MAINTENANCE OF ALL TEMPORARY ROOF ACCESS SYSTEMS. ALL SYSTEMS MUST COMPLY WITH OSHA. ALL JOINTS TO BE WATER-TIGHT AND TO BE INSTALLED PER DETAILS AND MANUFACTURER'S SPECIFICATIONS. NOTIFY ARCHITECT OF RECORD IN THE EVENT OF A CONFLICT.
- IN THE EVENT OF CONFLICTS BETWEEN CONTRACT PLANS AND MANUFACTURER'S SPECIFICATIONS CONSULT ARCHITECT PRIOR TO PROCEEDING.
- CONTRACTOR TO RESTORE ALL FEATURES AND OTHER INCIDENTAL WORK TO THEIR ORIGINAL CONDITION UPON COMPLETION OF THE WORK, AS INCLUDED IN CONTRACT WORK AS REQUIRED TO PROVIDE A COMPLETE ROOFING PACKAGE.
- COORDINATE STAGING AND MATERIALS STORAGE AREA WITH DISTRICT PERSONNEL. SECURITY OF STORED MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR.
- WORK SHALL BE APPROPRIATELY STAGED AND SEQUENCED TO PREVENT THE INTRUSION OF MOISTURE INTO ANY PORTION OF THE BUILDING.
- NO PORTION OF THE ROOF SHALL BE LEFT UNPROTECTED AGAINST THE ELEMENTS BETWEEN CONTRACTOR SHIFTS. PRESENT PROPOSED WORK SEQUENCING PLAN AND WEATHER CONTINGENCY PLAN PRIOR TO BEGINNING WORK.
- SEE PLAN SET AND/OR SPECIFICATIONS FOR MORE INFORMATION.
- REFER TO AND PROVIDE MANUFACTURE RECOMMENDED DETAILS FOR ALL CONDITIONS AS REQUIRED TO COMPLETE PROJECT SCOPE AND MAINTAIN WARRANTIES.

**ROOF LEGEND:**

- HATCH INDICATES AREA OF (E) STANDING SEAM METAL ROOFING
- HATCH INDICATES AREA OF (E) TPO ROOFING
- INDICATES STEP IN ROOF
- ERV UNIT WITH CURB, SEE MECHANICAL
- MINI-SPLIT UNIT, SEE MECHANICAL
- (E) ROOF TOP EQUIPMENT, VENT PIPES, HEAT STACKS, EXHAUST FANS TO REMAIN

**# ROOF PLAN KEY NOTES**

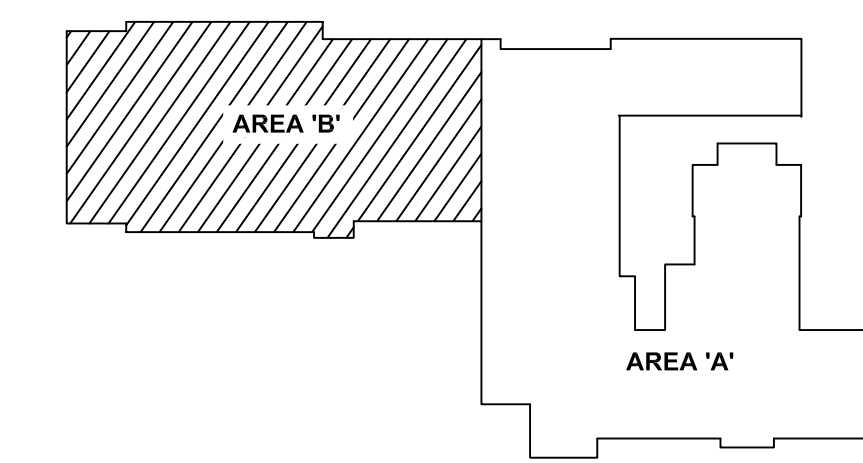
- FLASH MINI-SPLIT SUPPORT STAND TO (E) STANDING SEAM METAL ROOFING PER 5/A2.00. FLASH ANY ASSOCIATED PIPE PENETRATIONS PER 4/A2.00
- FLASH ERV CURB WITH CRICKET TO (E) STANDING SEAM METAL ROOFING PER 1/A2.00, 2/A2.00, AND 3/A2.00
- REPLACE (E) HVAC EQUIPMENT WITH NEW PER MECHANICAL. REMOVE AND INSTALL NEW EQUIPMENT THROUGH INTERIOR SOFFIT/PLENUM BELOW THE ROOF. REMOVE AND REPLACE (E) ACOUSTIC CEILING TILES IN KIND AS NEEDED TO SWAP OUT EQUIPMENT. CONTRACTOR SHALL VERIFY (E) ACCESS HATCH IS ADEQUATELY SIZED FOR EASY FILTER REPLACEMENT.
- FLASH NEW FLUE TO (E) STANDING SEAM METAL ROOFING PER 4/A2.00



2 EXISTING PHOTO #4  
A1.20 NTS



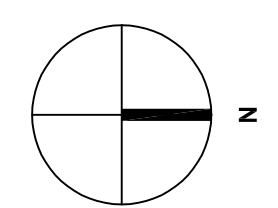
3 EXISTING PHOTO #5  
A1.20 NTS



BUILDING KEY  
A1.20 NTS

1 ROOF PLAN - AREA 'B'  
A1.20

1/16" = 1'-0"



ONE INCH EQUALS FULL SCALE



REVISION ID:	DATE:

PROJECT NO: P-2869-23  
DRAWN: LIS  
CHECKED: DDS  
DATE: 08-17-2023

ROOF PLAN - AREA 'B'

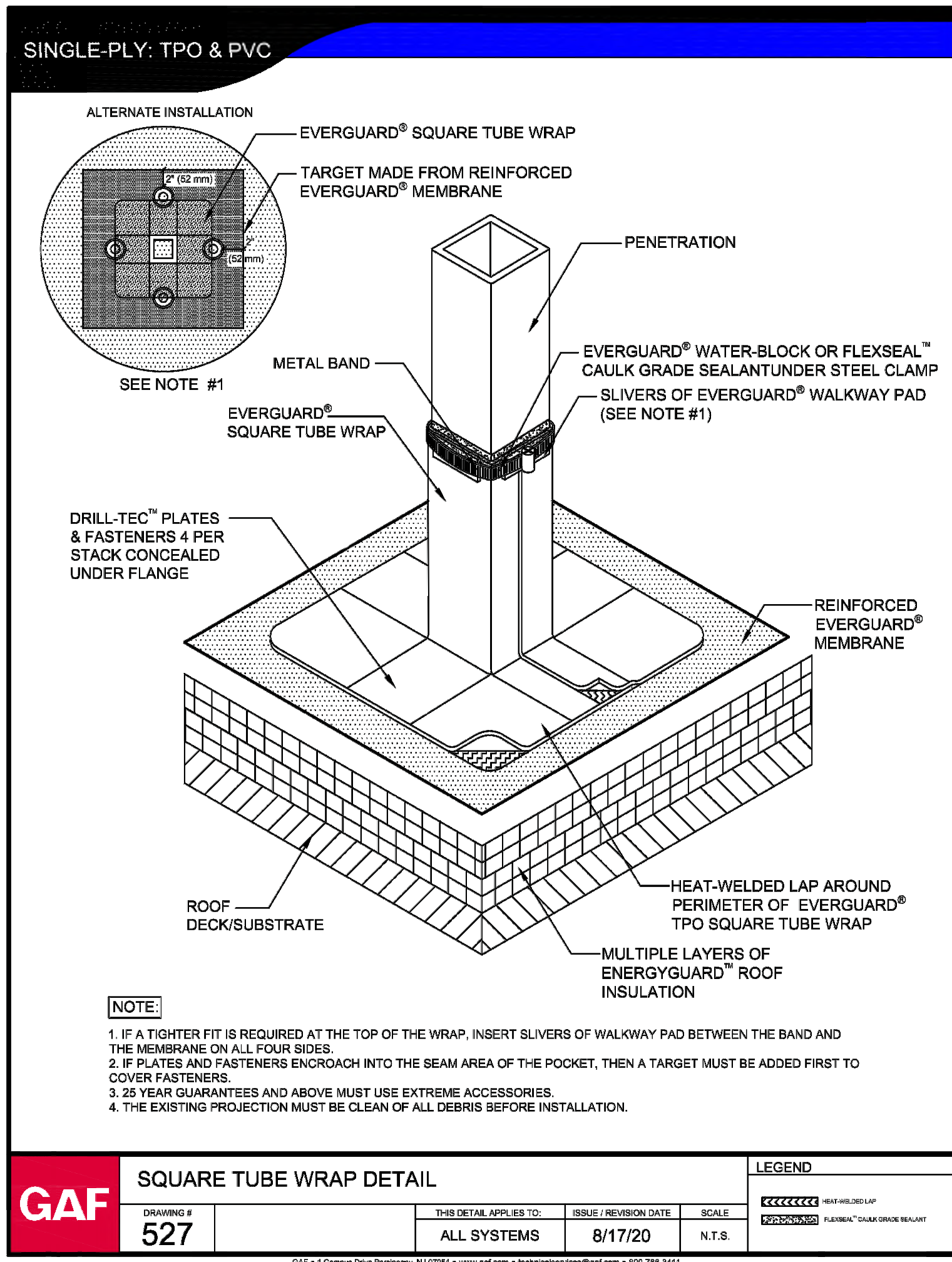
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REVIEW SET | NOT FOR CONSTRUCTION





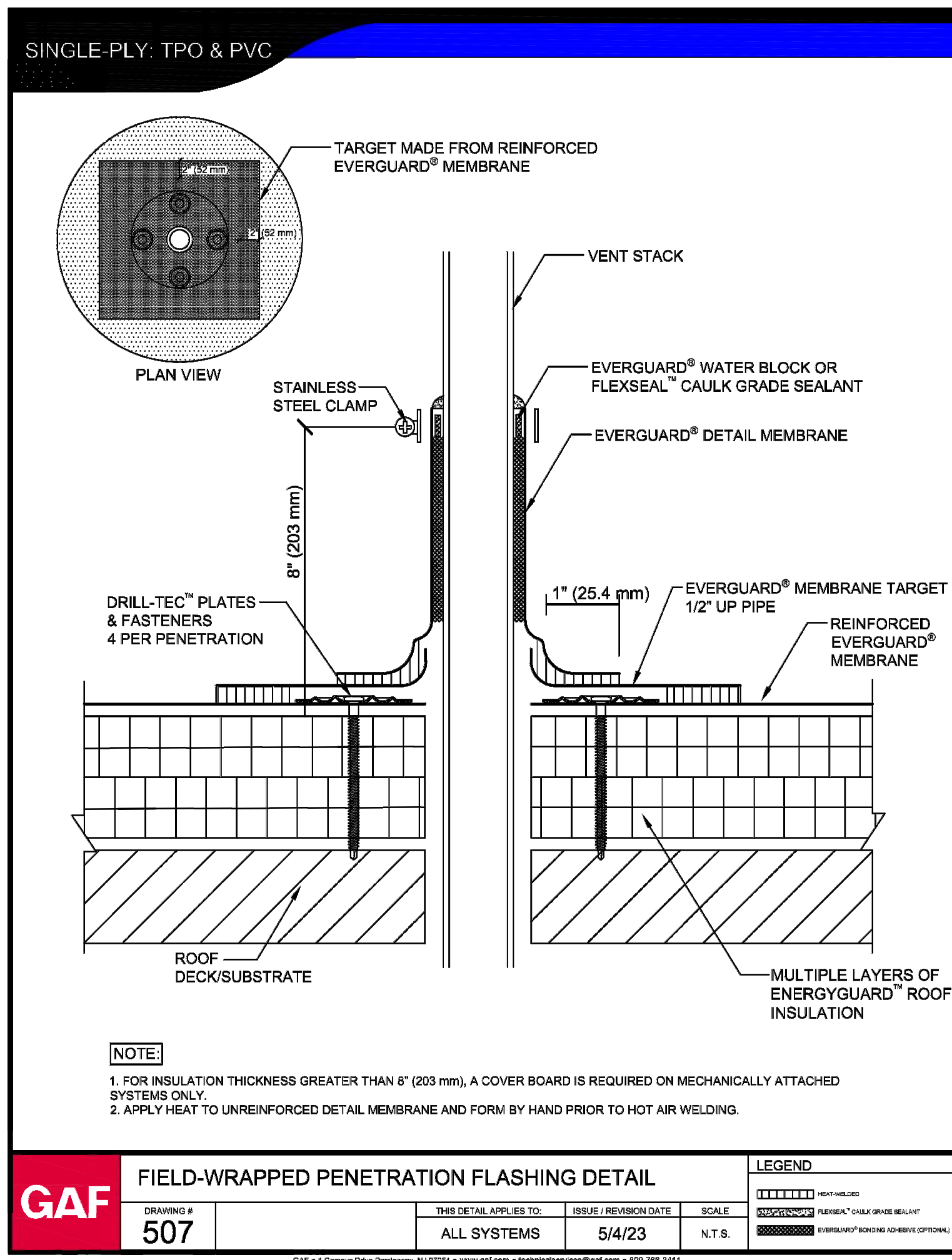




1 SQUARE TUBE TPO WRAP DETAIL

A2.10

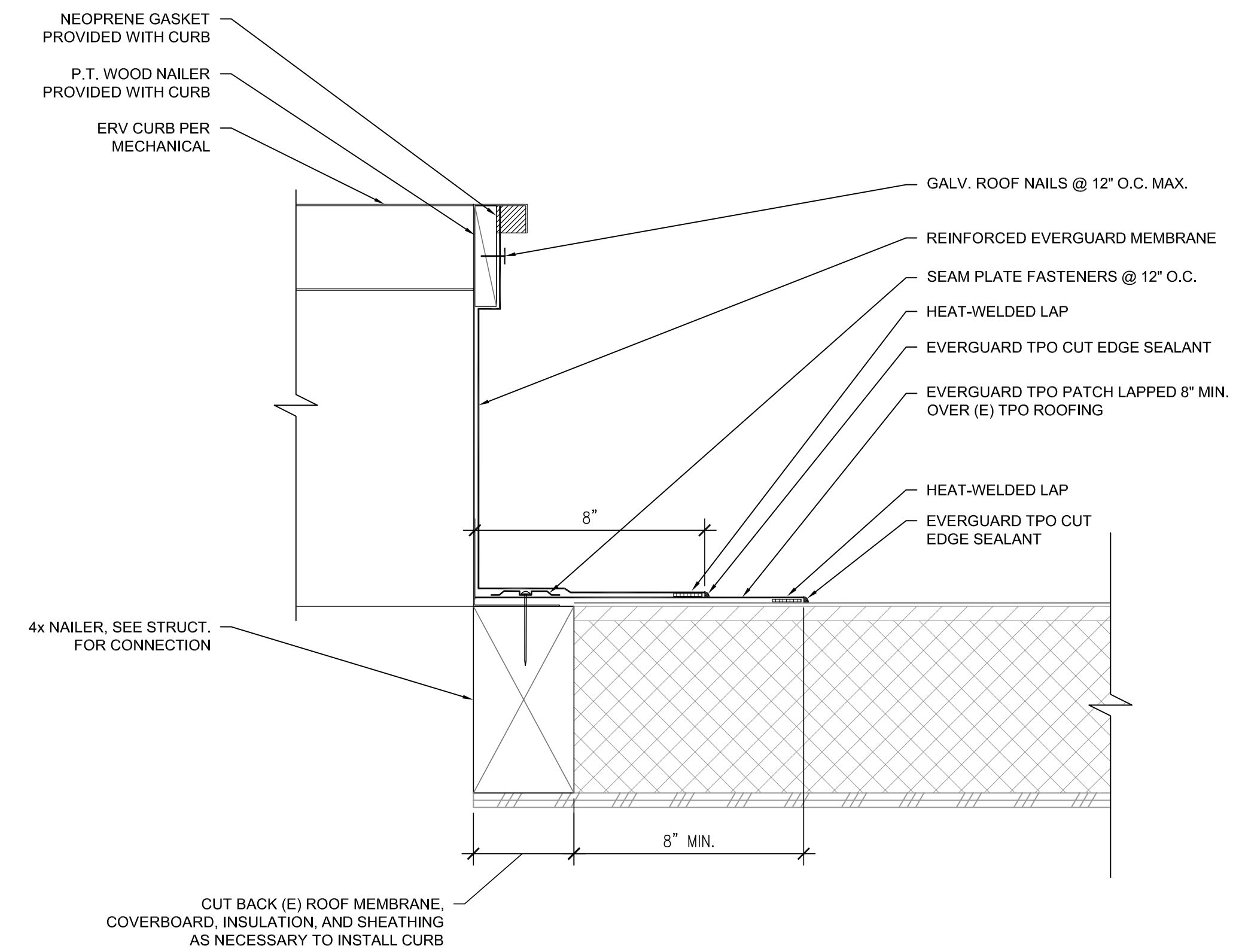
NTS



2 FIELD-WRAPPED PENETRATION TPO FLASHING DETAIL

A2.10

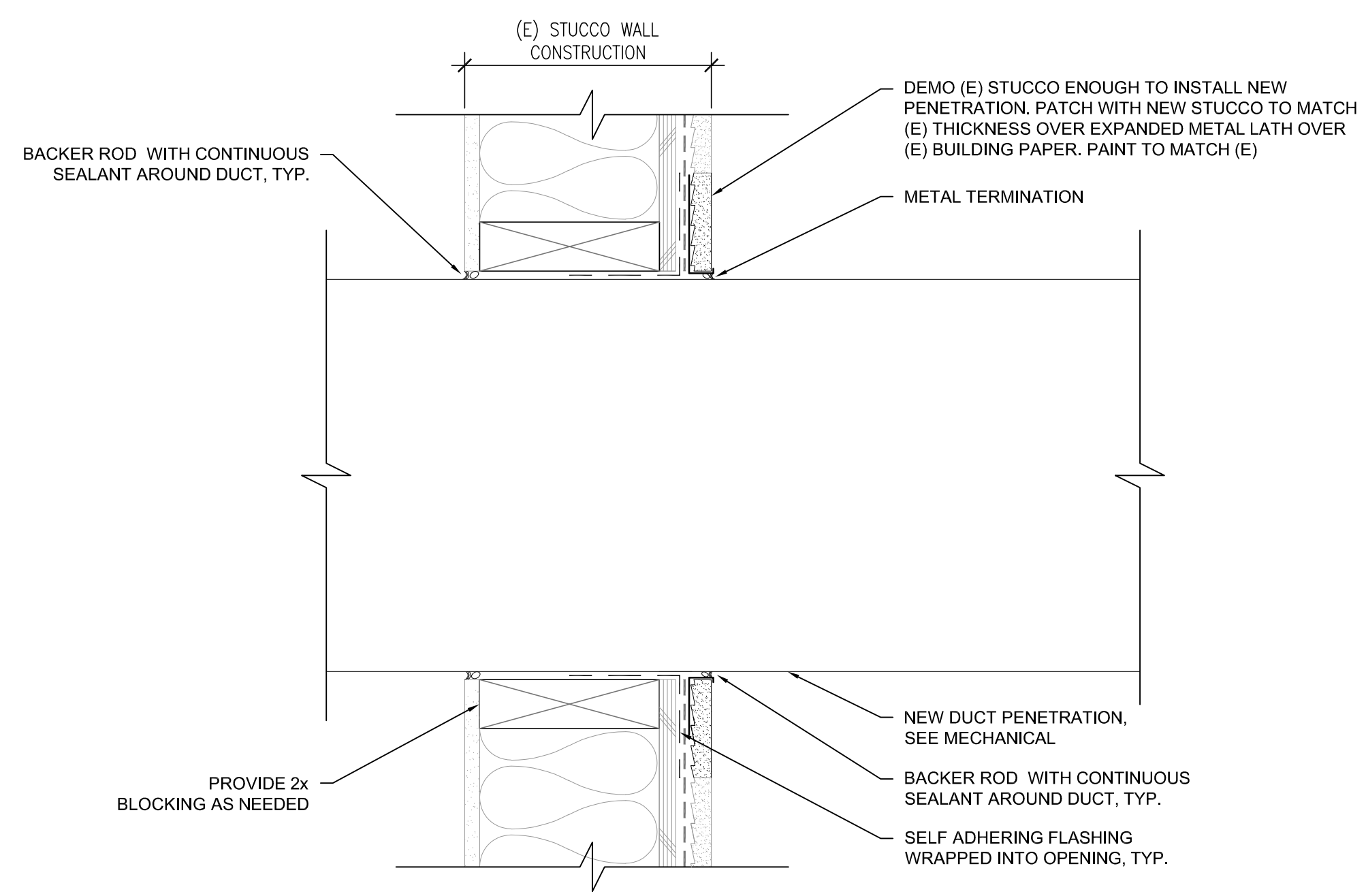
NTS



3 ERV CURB FLASHING DETAIL

A2.10

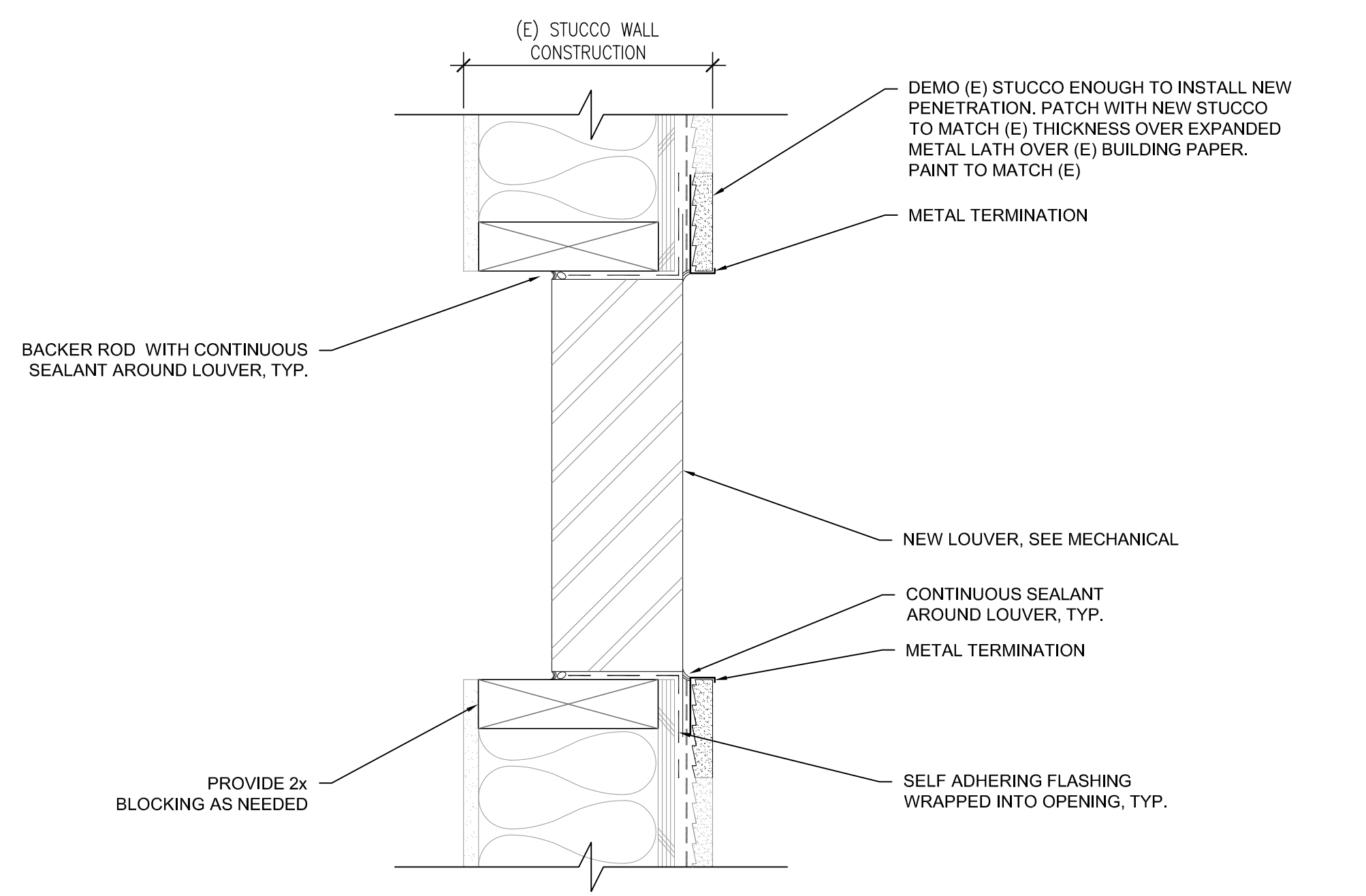
3" = 1'-0"



4 PENETRATION DETAIL

A2.10

3" = 1'-0"



5 WALL LOUVER DETAIL

A2.10

3" = 1'-0"



524 Main Street, Suite 2, Oregon City, Oregon 97045 | 503-659-2205

GRANT UNION HIGH SCHOOL HVAC



REVISION ID:	DATE:
PROJECT NO:	P-2869-23
DRAWN:	LJS
CHECKED:	DDS
DATE:	08-17-2023

DETAILS

A2.10

REVIEW SET | NOT FOR CONSTRUCTION

ONE INCH EQUALS FULL SCALE



01 33 00 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- 1.1 SUMMARY
A. SHOP DRAWING, PRODUCT DATA, AND SAMPLE REQUIREMENTS FOR ALL WORK SPECIFIED
B. SUBMITTALS FOR PROJECT CLOSEOUT
C. RELATED SECTION: SUBMITTALS IN DIVISION 1 WHICH PROVIDES DETAILED INFORMATION ON SUBMITTAL REQUIREMENTS AND FORMAT.
1.2 REQUIREMENTS
A. SHOP DRAWINGS: PROVIDE SHOP DRAWINGS IN A CLEAR AND THOROUGH MANNER...
B. PRODUCTS OR MODELS. SHOW PERFORMANCE CHARACTERISTICS AND CAPACITIES...
C. SAMPLES: SAMPLES SHALL BE OF SUFFICIENT SIZE AND QUALITY TO CLEARLY ILLUSTRATE THE FOLLOWING: FUNCTIONAL CHARACTERISTICS OF THE PRODUCTS WITH INTEGRALLY RELATED PARTS AND ATTACHMENT DEVICES...
1.3 SUBMITTALS REQUIRED:
A. SHOP DRAWINGS: PROVIDE SHOP DRAWINGS FOR THE FOLLOWING SPECIFIED ITEMS:
1. ROOFING ASSEMBLIES: BASE FLASHINGS, MEMBRANE TERMINATIONS, FASTENING PATTERNS AND SPACING FOR ROOFING...
2. ROOF SPECIALTIES: PLANS, ELEVATIONS, EXPANSION JOINT LOCATIONS, KEYED DETAILS, AND ATTACHMENTS TO OTHER WORK...
B. PRODUCT DATA: PROVIDE PRODUCT DATA FOR THE FOLLOWING SPECIFIED ITEMS:
1. GYPSUM ASSEMBLIES, WEATHER BARRIERS: PRODUCT DATA SHEET, METAL FLASHING: MAINTENANCE DATA, WARRANTY...
2. JOINT SEALANTS: PRODUCT DATA, COMPATIBILITY AND ADHESION TEST REPORTS...
3. JOINT SEALANTS: PRODUCT DATA, QUALIFICATION DATA FOR MANUFACTURER AND INSTALLER...
4. ROOF ASSEMBLIES: PRODUCT DATA, QUALIFICATION DATA FOR MANUFACTURER AND INSTALLER...
5. PAINTING: PRODUCT DATA, PAINT SCHEDULE INDICATING SUBSTRATE, COLOR, SHEEN, PAINT TYPE, AND PRIMER...
C. SAMPLES: PROVIDE PHYSICAL SAMPLES FOR THE FOLLOWING SPECIFIED ITEMS:
1. ROOF ASSEMBLY, SHEET METAL FLASHING: PROVIDE STANDARD COLOR CHART FOR SELECTION IF NOT INDICATED ON DRAWINGS...
2. PAINTING: PROVIDE COLOR SAMPLES OF EACH COLOR AND SHEEN USED ON PROJECT.

02 41 19 SELECTIVE DEMOLITION

- 1.1 SUMMARY
A. DEMOLITION AND REMOVAL OF SELECTED PORTIONS OF BUILDING
B. SALVAGE OF EXISTING ITEMS TO BE REUSED OR RECYCLED
1.2 DEFINITIONS
A. REMOVE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE.
B. REMOVE AND SALVAGE: CAREFULLY DETACH FROM EXISTING CONSTRUCTION, IN A MANNER TO PREVENT DAMAGE AND DELIVER TO OWNER.
C. REMOVE AND REINSTALL: DETACH ITEMS FROM EXISTING CONSTRUCTION, PREPARE FOR REUSE, AND REINSTALL WHERE INDICATED.
D. EXISTING TO REMAIN: EXISTING ITEMS OF CONSTRUCTION THAT ARE NOT TO BE PERMANENTLY REMOVED.
2.1 SELECTIVE DEMOLITION - GENERAL
A. VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND CAPPED BEFORE STARTING SELECTIVE DEMOLITION OPERATIONS.
B. MAINTAIN FIRE-PROTECTION FACILITIES IN SERVICE DURING SELECTIVE DEMOLITION OPERATIONS.
C. EXISTING SERVICES TO BE REMOVED, RELOCATED, OR ABANDONED: LOCATE IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF INDICATED UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS SERVING AREAS TO BE SELECTIVELY DEMOLISHED.
D. PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN.
E. NEATLY CUT OPENINGS AND HOLES PLUMB, SQUARE AND TRUE TO DIMENSIONS REQUIRED, USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION.
F. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. MAINTAIN PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS.
G. LOCATE SELECTIVE DEMOLITION EQUIPMENT AND REMOVE DEBRIS AND MATERIALS SO AS NOT TO IMPOSE EXCESSIVE LOADS ON SUPPORTING WALLS, FLOORS, OR FRAMING.
H. REMOVED AND SALVAGED ITEMS: STORE ITEMS IN A SECURE AREA UNTIL DELIVERY TO OWNER AND TRANSPORT ITEMS TO OWNER'S STORAGE AREA.
I. EXISTING ITEMS TO REMAIN: PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. WHEN PERMITTED BY EOR, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION DURING SELECTIVE DEMOLITION AND CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS AFTER SELECTIVE DEMOLITION OPERATIONS ARE COMPLETE.
J. DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON-SITE. TRANSPORT DEMOLISHED MATERIALS OFF OWNER'S PROPERTY AND LEGALLY DISPOSE OF THEM.

07 62 00 SHEET METAL FLASHING AND TRIM

- 1.1 SUMMARY
A. FORMED EQUIPMENT SUPPORT FLASHING
1.2 PERFORMANCE CRITERIA
A. SHEET METAL FLASHING AND TRIM ASSEMBLIES SHALL WITHSTAND WIND LOADS, STRUCTURAL MOVEMENT, THERMALLY INDUCED MOVEMENT, AND EXPOSURE TO WEATHER WITHOUT FAILURE DUE TO DEFECTIVE MANUFACTURE, FABRICATION, INSTALLATION, OR OTHER DEFECTS IN CONSTRUCTION...
B. SHEET METAL STANDARD FOR FLASHING AND TRIM: COMPLY WITH NCRA'S "THE NRCA ROOFING MANUAL" AND SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" REQUIREMENTS FOR DIMENSIONS AND PROFILES.
2.1 PRODUCTS
A. METALLIC-COATED STEEL SHEET: PROVIDE ZINC-COATED (GALVANIZED) STEEL SHEET ACCORDING TO ASTM A 653/A 653M, G90 COATING DESIGNATION; PREPAINTING BY COIL-COATING PROCESS COMPLY WITH ASTM A 755/A755M
1. SURFACE: SMOOTH, FLAT
2. EXPOSED COIL-COATED FINISH
A. TWO-COAT FLUOROPOLYMER AAMA 621, FLUOROPOLYMER FINISH CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT.
B. COLOR: WHERE NOTED ON DRAWINGS.
B. FASTENERS:
1. EXPOSED FASTENERS: SELF-DRILLING, GASKETED, WITH HEX-WASHER HEAD.
2. BLIND FASTENERS: HIGH-STRENGTH ALUMINUM OR STAINLESS STEEL RIVETS SUITABLE FOR METAL
3. GALVANIZED STEEL SHEET: SERIES 300 STAINLESS STEEL OR HOT-DIP GALVANIZED STEEL
C. SOLDER: FOR GALVANIZED STEEL: ASTM B 32, GRADE SN50, 50% TIN AND 50% LEAD OR GRADE SN 69% TIN AND 40% LEAD.
D. SEALANT TAPE: PRESSURE-SENSITIVE, 100% SOLIDS, POLYISOBUTYLENE COMPOUND SEALANT TAPE WITH RELEASE-PAPER BACKING. PROVIDE PERMANENTLY ELASTIC, NONSAG, NONTOXIC, NONSTAINING TAPE 1/2 INCH WIDE BY 1/8 INCH THICK
E. ELASTOMERIC SEALANT: ASTM C 920, X
F. BUTYL SEALANT: ASTM C 1311, TYPE S, GRADE NS, COLOR: GRAY;
1. TREMCO; BUTYL SEALANT
2. DAP; BUTYL-FLEX
3. OR EQUAL
G. EPOXY SEAM SEALER: TWO-PART, NONCORROSIVE, ALUMINUM SEAM-CEMENTING COMPOUND RECOMMENDED BY ALUMINUM MANUFACTURER FOR EXTERIOR NONMOVING JOINTS, INCLUDING RVETED JOINTS
H. BITUMINOUS COATING: COLD-APPLIED ASPHALT EMULSION ACCORDING TO ASTM D 1187
I. SELF-ADHERED MEMBRANE FLASHING: MIN. 30 MILS THICK, CONSISTING OF SLIP-RESISTANT POLYETHYLENE- OR POLYPROPYLENE-FILM TOP SURFACE LAMINATED TO A LAYER OF BUTYL- OR SBS MODIFIED ASPHALT ADHESIVE WITH RELEASE-PAPER BACKING. SPECIFICALLY DESIGNED TO WITHSTAND HIGH METAL TEMPERATURES. PROVIDE PRIMER AS RECOMMENDED BY MANUF.
1. CARLISLE; CCW WIP 300HT
2. W.R. GRACE CO.; GRACE VVCOR V40 SELF-ADHERED FLASHING
3. HENRY CO.; BLUESKIN PE200 HT
4. KIRSKIN BUILDING PRODUCTS; SHARKSKIN ULTRA SA
5. METAL-FAB MANUF.; METSHIELD
6. OWENS-CORNING; WEATHERLOCK METAL HIGH TEMPERATURE UNDERLAYMENT
3.1 EXECUTION
A. INSTALL SHEET METAL FLASHING AND TRIM TRUE TO LINE, LEVELS, SLOPES. PROVIDE UNIFORM, NEAT SEAMS WITH MINIMUM EXPOSURE OF SOLDER, WELDS, AND SEALANT. DO NOT TORCH CUT SHEET METAL FLASHING.
B. SPACE CLEATS NOT MORE THAN 12 INCHES APART. ATTACHE CLEAT WITH AT LEAST TWO FASTENERS. BEND TABS OVER FASTENERS.
C. WHERE DISSIMILAR METALS CONTACT EACH OTHER, OR WHERE METAL CONTACTS PRESSURE-TREATED WOOD OR OTHER CORROSIVE SUBSTRATES, PROTECT AGAINST GALVANIC ACTION OR CORROSION BY PAINTING CONTACT SURFACES WITH BITUMINOUS COATING OR OTHER PERMANENT SEPARATION. EXPANSION PROVISIONS: PROVIDE FOR THERMAL EXPANSION OF EXPOSED FLASHING AND TRIM. SPACE MOVEMENT JOINTS AT MAX. 10 FEET WITH NO JOINTS WITHIN 24 INCHES OR CORNER OR INTERSECTION. FORM EXPANSION JOINTS WITH INTERMESHING HOOKED FLANGES, NOT LESS THAN 1 INCH DEEP, FILLED WITH SEALANT CONCEALED WITHIN JOINTS.
E. SELF-ADHERING MEMBRANE FLASHING (SAF): INSTALL WRINKLE FREE. SHINGLE FASHION TO SHED WATER, WITH END LAPS OF NOT LESS THAN 6 INCHES STAGGERED 24 INCHES BETWEEN COURSES. COVER SAF WITHIN 14 DAYS. PROVIDE A CONTINUOUS LAYER OF SAF BELOW ALL PARAPET COPINGS AND AS INDICATED ON THE DRAWINGS.

07 72 00 ROOF ACCESSORIES

- 1.1 SUMMARY
A. SECTION INCLUDES:
1. FORMED EQUIPMENT SUPPORT FLASHING
1.2 ACTION SUBMITTALS
A. GENERAL PERFORMANCE: ROOF SPECIALTIES SHALL WITHSTAND EXPOSURE TO WEATHER AND RESIST THERMALLY INDUCED MOVEMENT WITHOUT FAILURE, RATTLING, LEAKING, OR FASTENER DISENGAGEMENT DUE TO DEFECTIVE MANUFACTURE, FABRICATION, INSTALLATION, OR OTHER DEFECTS IN CONSTRUCTION.
B. THERMAL MOVEMENTS: ALLOW FOR THERMAL MOVEMENTS FROM AMBIENT AND SURFACE TEMPERATURE CHANGES TO PREVENT BUCKLING, OPENING OF JOINTS, HOLE ELONGATION, OVERSTRESSING OF COMPONENTS, FAILURE OF JOINT SEALANTS, FAILURE OF CONNECTIONS, AND OTHER DETRIMENTAL EFFECTS. PROVIDE CLIPS THAT RESIST ROTATION AND AVOID SHEAR STRESS AS A RESULT OF THERMAL MOVEMENTS. BASE CALCULATIONS ON SURFACE TEMPERATURES OF MATERIALS DUE TO BOTH SOLAR HEAT GAIN AND NIGHTTIME-SKY HEAT LOSS.
1. TEMPERATURE CHANGE (RANGE): 120 DEGREES F, AMBIENT 180 DEGREES F, MATERIAL SURFACE
2.1 PRODUCTS
A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
1. GAF
2. MASTER FLASH
3. DEKITEE
B. AUXILIARY MATERIALS
1. GENERAL: AUXILIARY MATERIALS RECOMMENDED BY ROOFING SYSTEM MANUFACTURER FOR INTENDED USE AND COMPATIBLE WITH OTHER ROOFING COMPONENTS.
2. SHEET FLASHING: MANUFACTURER'S STANDARD UNREINFORCED TPO SHEET FLASHING, 55 MILS THICK, MINIMUM, OF SAME COLOR AS TPO SHEET.
3. PREFABRICATED PIPE FLASHINGS: AS RECOMMENDED BY ROOF MEMBRANE MANUFACTURER.
4. ROOF VENTS: AS RECOMMENDED BY ROOF MEMBRANE MANUFACTURER.
a. SIZE: NOT LESS THAN 4-INCH DIAMETER.
5. BONDING ADHESIVE: MANUFACTURER'S STANDARD, WATER BASED.
6. SLIP SHEET: ASTM D2178/D2178M, TYPE IV; GLASS FIBER; ASPHALT-IMPREGNATED FELT.
7. SLIP SHEET: MANUFACTURER'S STANDARD, OF THICKNESS REQUIRED FOR APPLICATION.
8. METAL TERMINATION BARS: MANUFACTURER'S STANDARD, PREDRILLED STAINLESS STEEL OR ALUMINUM BARS, APPROXIMATELY 1/8 BY 1/8 INCH THICK, WITH ANCHORS.
9. METAL BATTENS: MANUFACTURER'S STANDARD, ALUMINUM-ZINC-ALLOY-COATED OR ZINC-COATED STEEL SHEET, APPROXIMATELY 1 INCH WIDE BY 0.05 INCH THICK PRE-PUNCHED.
10. FASTENERS: FACTORY-COATED STEEL FASTENERS AND METAL OR PLASTIC PLATES COMPLYING WITH CORROSION-RESISTANCE PROVISIONS IN FM APPROVALS 4470, DESIGNED FOR FASTENING ROOFING COMPONENTS TO SUBSTRATE, AND ACCEPTABLE TO ROOFING SYSTEM MANUFACTURER.
11. MISCELLANEOUS ACCESSORIES: PROVIDE POURABLE SEALERS, PREFORMED CONE AND VENT SHEET FLASHINGS, PREFORMED INSIDE AND OUTSIDE CORNER SHEET FLASHINGS, T-JOINT COVERS, LAP SEALANTS, TERMINATION REGLETS, AND OTHER ACCESSORIES.

- 3.1 EXECUTION
A. GENERAL: INSTALL COMPONENTS TO PRODUCE A WATER-TIGHT SYSTEM ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, COORDINATE INSTALLATION OF FLASHING WITH INSTALLATION OF PENETRATIONS.
B. PENETRATIONS: UTILIZE FACTORY PREFABRICATED FLASHINGS FOR PENETRATIONS SUCH AS PIPES, EQUIPMENT CURBS, BRACES, AND PITCH POCKETS. THESE FLASHING SHALL BE MADE OF THE SAME MEMBRANE MATERIAL AS THE ROOF SECTIONS. ATTACH EACH FLASHING TO THE ROOF MEMBRANE USING HOT-AIR WELDS AND TERMINATE THE FLASHING TO THE PENETRATION PER MANUFACTURER'S SPECIFICATION.

07 92 00 JOINT SEALANTS

- 1.1 SUMMARY
A. ACRYLIC LATEX JOINT SEALANTS
B. URETHANE JOINT SEALANTS
C. SILICONE JOINT SEALANTS
D. RELATED SECTION:
1. BUTYL SEALANTS IN ROOFING
2. GLAZING SEALANTS IN GLAZING
3. FIRE-RESISTANCE-RATED CONSTRUCTION SEALANTS IN FIRESTOPPING
1.2 QUALITY ASSURANCE
A. PRECONSTRUCTION FIELD-ADHESION TESTING: BEFORE INSTALLING SEALANTS, FIELD TEST ADHESION TO PROJECT JOINT SUBSTRATES AS FOLLOWS:
1. FOR JOINTS WITH DISSIMILAR SUBSTRATES, VERIFY ADHESION TO EACH SUBSTRATE SEPARATELY; EXTEND CUT ALONG ONE SIDE, VERIFY ADHESION TO OPPOSITE SIDE. REPEAT PROCEDURE FOR OPPOSITE SIDE.
B. COMPATIBILITY: PROVIDE JOINT SEALANTS, BACKINGS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ON ANOTHER AND WITH JOINT SUBSTRATES UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY JOINT-SEALANT MANUFACTURER, BASED ON TESTING AND FIELD EXPERIENCE.
C. SUITABILITY FOR IMMERSION IN LIQUIDS: WHERE SEALANTS ARE INDICATED FOR USE IN JOINTS THAT WILL BE CONTINUOUSLY IMMERSED IN LIQUIDS, PROVIDE PRODUCTS THAT HAVE UNDERGONE TESTING ACCORDING TO ASTM C 1247. LIQUID USED FOR TESTING SEALANTS IS DEIONIZED WATER,U.N.O..
D. STAIN-TEST-RESPONSE CHARACTERISTICS: WHERE SEALANTS ARE SPECIFIED TO BE NON-STAINING TO POROUS SUBSTRATES, PROVIDE PRODUCTS THAT HAVE UNDERGONE TESTING ACCORDING TO ASTM C 1248.
2.1 PRODUCTS
A. ACRYLIC LATEX JOINT SEALANTS: ASTM C 834, TYPE O, GRADE NF. APPLICATION: PERIMETER JOINTS BETWEEN INTERIOR WALL SURFACES, FRAMES OF INTERIOR DOORS, WINDOWS, ELEVATOR ENTRANCES ETC. PAINTABLE.
1. BASF BUILDING SYSTEMS; SONOLOC
2. BOSTIK INC.; CHEM-CALK 600
3. MAY NATIONAL ASSOC.; BONDAFLEX 600
4. PECORA CORP.; AC-20+
5. SCHNIEE-MOREHEAD, INC.; SM8200
6. TREMCO INC.; TREMFLEX 834
B. ACRYLIC LATEX SEALANTS: ASTM C 834, TYPE O, GRADE NF, NON-STAINING, PAINTABLE. APPLICATION: INTERIOR PERIMETER AND CONCEALED JOINTS OF ACOUSTIC PARTITIONS
1. MIRAGLE SCS-100
2. PECORA CORP.; AC-20 FTR ACOUSTICAL AND INSULATION SEALANT.
3. US GYPSUM CO.; SHEETROCK ACOUSTICAL SEALANT.
C. URETHANE JOINT SEALANTS: TYPE M, GRADE NS, CLASS 25, USES (EXPOSURE) T AND NT, USES (SUBSTRATES) M, A, O APPLICATION: EXTERIOR VERTICAL AND HORIZONTAL NON TRAFFIC JOINTS IN CIP AND PRECAST CONCRETE, EXTERIOR CONTROL AND EXPANSION JOINTS, EXTERIOR PERIMETER JOINTS AT FRAMES OF DOORS, WINDOWS, AND LOUVERS, VERTICAL JOINTS ON EXPOSED SURFACES OF INTERIOR CONCRETE, VERTICAL CONTROL AND EXPANSION JOINTS ON EXPOSED INTERIOR SURFACES OF EXTERIOR WALLS.
1. BASF BUILDING SYSTEMS; SONOLOSTIC NP 2
2. MAY NATIONAL ASSOC.; BONDAFLEX PUR 2 NS
3. PACIFIC POLYMERS; ELASTO-THANE 227 HIGH SHORE TYPE II
4. PECORA CORP.; DYNATRED
5. SIKA CORP.; SIKAFLEX -2C NS OR SIKAFLEX 2C EZ MX
6. TREMCO; VULKEM 240 FC OR VULKEM 227
D. URETHANE JOINT SEALANTS: TYPE S OR M, GRADE P, CLASS 50, USES (EXPOSURE) T AND NT, USES (SUBSTRATES) M, A, O (BRICK & CERAMIC TILE) APPLICATION: INTERIOR CERAMIC TILE EXPANSION, CONTROL, CONTRACTION, AND ISOLATION JOINTS IN HORIZONTAL TRAFFIC SURFACES, EXTERIOR HORIZONTAL NONTRAFFIC AND TRAFFIC ISOLATION AND CONTRACTION JOINTS IN CIP CONCRETE SLABS.
1. TYPE M (MULTI-COMPONENT)
a. POLYMERIC SYSTEMS, INC.; PSI-270
b. SONNEBORN DIVISION OF CHEMREX; SL 2
c. TREMCO INC.; DYMERIC 240 FC
d. PECORA CORP.; DYNATRED II-G
e. SIKA CORP.; SIKAFLEX - 2C SL
2. TYPE S (SINGLE-COMPONENT)
a. POLYMERIC SYSTEMS, INC.; PSI-901
b. PACIFIC POLYMERS INT.; ELASTO-THANE 230 LM TYPE II
E. SILICONE JOINT SEALANTS: TYPE S, GRADE NS, CLASS 50, USES (EXPOSURE) NT, USES (SUBSTRATES) M, G, A, O (BRICK, GALV. STEEL) APPLICATION: EXTERIOR JOINTS IN STUCCO SYSTEMS.
1. NEUTRAL-CURING SILICONE SEALANT
a. DOW CORNING CORP.; 790
b. GE SILICONES; SILLPRUF LM SCS2700
c. TREMCO INC.; SPECTREM 1 (BASIC)
d. PECORA CORP.; 890
e. SONNEBORN DIVISION OF CHEMREX; OMNISEAL
2. SYL-TERMINATED POLYETHER SEALANT
a. SONNEBORN DIVISION OF CHEMREX; 150 VLM

09 91 00 PAINTING

- 1.1 SUMMARY
A. INTERIOR PAINTING
B. EXTERIOR PAINTING
1.2 REGULATORY AGENCY REQUIREMENTS
A. REMOVAL OF ANY LEAD-BASE PAINT PRODUCTS (EXCEEDING 20 FT OF EXTERIOR SURFACE OR 6 SO FT OF INTERIOR SURFACE) MUST BE PERFORMED BY WORKERS WHO HAVE BEEN PRE-CERTIFIED BY EPA.
B. EXISTING STRUCTURE IS OLDER THAN 1978, THEREFORE, COMPLY WITH FEDERAL DUST REMOVAL LAW REQUIREMENTS INCLUDING THE FOLLOWING:
1. PROVIDE HEPA FILTER EQUIPPED VACUUMS AND OTHER NECESSARY DUST-REMOVAL TOOLS
1.3 SITE CONDITIONS
A. PERFORM WORK ONLY UNDER THE FOLLOWING CONDITIONS, UNLESS OTHERWISE INSTRUCTED BY MANUFACTURER:
1. MAXIMUM RELATIVE HUMIDITY: 85%
2. AMBIENT AIR TEMPERATURES ARE BETWEEN 50 DEGREES AND 95 DEGREES F
B. MAXIMUM MOISTURE CONTENT OF SUBSTRATES, WHEN MEASURED WITH AN ELECTRONIC MOISTURE METER:
1. CONCRETE: 12%
2. MASONRY (CLAY AND CMU): 12%
3. WOOD: 15%
4. PORTLAND CEMENT PLASTER: 12%
5. GYPSUM BOARD: 12%
2.1 EXTERIOR PAINTING SCHEDULE
A. BASIS OF DESIGN IS SHERWIN WILLIAMS.
B. CONCRETE
1. PREVIOUSLY COATED SURFACES: LOXON CONDITIONER
2. PRIMER: LOXON CONCRETE & MASONRY PRIMER SEALER
3. (2) TOP COATS: A5-400 CONFLX XL SMOOTH ELASTOMERIC HIGH BUILD COATING
C. CMU
1. PREVIOUSLY COATED SURFACES: LOXON CONDITIONER
2. PRIMER: LOXON BLOCK SURFACE
3. (2) TOP COATS: A5-400 CONFLX XL SMOOTH ELASTOMERIC HIGH BUILD COATING
D. METAL
1. PRIMER: PRO-INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER
2. (2) TOP COATS: PRO INDUSTRIAL WATER BASED ACROLON 100 URETHANE
E. WOOD
1. PRIMER: EXTERIOR LATEX WOOD PRIMER
2. (2) TOP COATS: A-100 EXTERIOR LATEX SATIN
F. EXTERIOR PLASTER, STUCCO, EIFS
1. PREVIOUSLY COATED SURFACES: LOXON CONDITIONER
PRIMER: LOXON CONCRETE & MASONRY PRIMER SEALER
3. (2) TOP COATS: A5-400 CONFLX XL SMOOTH ELASTOMERIC HIGH BUILD COATING
2.2 INTERIOR PAINTING SCHEDULE
A. BASIS OF DESIGN IS SHERWIN WILLIAMS. PROVIDE APPROPRIATE PRIMER FOR EACH SUBSTRATE PER MANUFACTURER.
B. CORRIDORS AND STAIRWELLS:
1. WALLS: (2) TOP COATS - PRO INDUSTRIAL PRE-CATALYZED WATERBASED EPOXY SEMI-GLOSS
2. CEILINGS: (2) TOP COATS - PROMAR 200 ZERO VOC LATEX SATIN
C. CLASSROOMS AND OFFICES:
1. WALLS: (2) TOP COATS - PROMAR 200 ZERO VOC INTERIOR LATEX SATIN
D. CEILINGS: (2) TOP COATS - PROMAR 200 ZERO VOC LATEX EGG SHELL RESTROOMS, KITCHEN, CAFETERIA, LOCKER ROOMS:
1. WALLS & CEILINGS: (2) TOP COATS - PRO INDUSTRIAL WATERBASED CATALYZED EPOXY SEMI-GLOSS
E. DOOR FRAMES, WINDOW FRAMES, TRIM:
1. (2) TOP COATS - PRO INDUSTRIAL ACRYLIC SEMI-GLOSS
F. EXPOSED METAL DECKING OR BAR JOISTS:
1. (2) TOP COATS - PRO INDUSTRIAL WATERBOURNE ACRYLIC DRYFALL EGG SHELL
3.1 SURFACE PREPARATION
A. ALUMINUM: REMOVE ALL OIL, GREASE, DIRT, OXIDE AND OTHER FOREIGN MATERIAL BY CLEANING PER SSPC-SP1 SOLVENT CLEANING.
B. CMU & CONCRETE: REMOVE ALL LOOSE MORTAR AND FOREIGN MATERIAL, FILL BUG HOLES, AIR POCKETS, AND OTHER VOIDS WITH A CEMENT PATCHING COMPOUND. CONCRETE AND MORTAR MUST BE CURED AT LEAST 30 DAYS.
C. CEMENT SIDING/PANELS: WASH SURFACE WITH APPROPRIATE CLEANER, RINSE THOROUGHLY AND ALLOW TO DRY. EXISTING PEELLED OR CHECKED PAINT SHOULD BE SCRAPED AND SANDED TO A SOUND SURFACE.
D. INTERIOR DRYWALL: ALL SCREWNAIL HEADS MUST BE SET AND SPACKLED, JOINTS TAPED AND MUDDLED, SANDED SMOOTH, AND ALL DUST REMOVED FROM SURFACE.
E. GALVANIZED METAL: CLEAN PER SSP-SP1 USING DETERGENT OR A DEGREASING CLEANER TO REMOVE GREASES AND OILS.
F. PLASTER: DAMAGED AREAS MUST BE REPAIRED WITH AN APPROPRIATE PATCHING MATERIAL. BARE PLASTER MUST BE CURED AND HARD, TEXTURED, SOFT, POROUS, OR POWDERY PLASTER SHOULD BE TREATED WITH A SOLUTION OF 1 PINT HOUSEHOLD VINEGAR TO 1 GALLON OF WATER. REPEAT UNTIL SURFACE IS HARD, RINSE WITH CLEAR WATER, AND ALLOW TO DRY.
G. STEEL: REMOVE ALL LOOSE MILL SCALE, LOOSE RUST, AND OTHER FOREIGN MATERIAL. CLEAN WITH SOLVENT PER SSPC-SP1, REMOVING ALL VISIBLE OIL, GREASE, SOIL, DRAWING AND CUTTING COMPOUNDS, CHANGE RAGS AND CLEANING SOLUTION FREQUENTLY.
H. WOOD: KNOTS, PITCH STREAKS MUST BE SCRAPED, SANDED, AND SPOT PRIMED BEFORE FULL PRIMING COAT IS APPLIED. PATCH ALL NAIL HOLES WITH WOOD FILLER OR PUTTY AND SAND SMOOTH.
I. MILDEW: REMOVE ANY MILDEW BY SCRUBBING WITH TRISODIUM PHOSPHATE SOLUTION, TREAT WITH BLEACH SOLUTION, RINSE WITH CLEAN WATER, AND ALLOW SURFACES TO COMPLETE DRY.

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Table with 2 columns: REVISION ID, DATE. Includes project info: PROJECT NO: P-2869-23, DRAWN: LIS, CHECKED: DDS, DATE: 08-17-2023

SPECIFICATIONS

AS.10

REVIEW SET | NOT FOR CONSTRUCTION







GENERAL INFORMATION:

- 1. STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS AND ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK. THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES. ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SIGNIFICANT DISCREPANCIES FROM CONDITIONS SHOWN ON THE DRAWINGS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. RESPONSIBILITY SHALL INCLUDE BUT NOT LIMITED TO DEMOLITION AND CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCING, AND SAFETY REQUIRED TO COMPLETE CONSTRUCTION. UNLESS OTHERWISE NOTED, MATERIAL AND DESIGN SPECIFICATIONS CITED HEREIN SHALL BE THOSE CONFORMING WITH THE VERSION OF THE APPLICABLE SPECIFICATIONS OR CODE MOST RECENTLY ADOPTED BY THE PERMITTING AUTHORITY. THESE STRUCTURAL NOTES ARE TO BE USED AS A SUPPLEMENT TO THE SPECIFICATIONS. THIS STRUCTURE AND ALL OF ITS PARTS MUST BE ADEQUATELY BRACED AGAINST WIND, LATERAL EARTH AND SEISMIC FORCES UNTIL THE PERMANENT LATERAL-FORCE RESISTING SYSTEMS HAVE BEEN CONSTRUCTED AND ALL ATTACHMENTS AND CONNECTIONS NECESSARY FOR THE STABILITY OF THE STRUCTURE AND ITS PARTS HAVE BEEN MADE. ALL FEATURES OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME TYPE AND CHARACTER AS SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD. ALL PRODUCTS AND MATERIALS USED BY THE CONTRACTOR SHALL BE APPLIED, PLACED, ERECTED OR INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

CODE REQUIREMENT:

- 1. CONFORM TO THE 2022 OREGON STRUCTURAL SPECIALTY CODE, BASED ON THE 2021 INTERNATIONAL BUILDING CODE (IBC). NOTE: THIS APPLIES TO ALL REFERENCES TO OSSC.

DESIGN CRITERIA:

- 1. DESIGN IS BASED ON THE STRENGTH AND DEFLECTION CRITERIA OF THE OSSC. IN ADDITION TO THE DEAD LOADS, THE FOLLOWING LOADING AND ALLOWABLE LOAD IS USED FOR DESIGN:

Table with 2 columns: Category (A, B, C, D) and Item (e.g., LIVE LOADS, GROUND SNOW LOAD, WIND LOAD, EARTHQUAKE DESIGN DATA). Includes values like 100 PSF, 8 PSF, 111 MPH, IV, etc.

Table with 2 columns: System (AIR-SIDE HVACR CONSTRUCTION OF SHEET METAL FRAMING, SEISMIC FORCE RESISTING SYSTEMS) and Factor (R = 6, CS = 0.107, etc.).

SPECIAL INSPECTION & STRUCTURAL OBSERVATIONS:

- 1. SEE SHEET S0.20 FOR SPECIAL INSPECTION & STRUCTURAL OBSERVATION REQUIREMENTS.

SUBMITTALS:

- 1. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION REGARDING ALL STRUCTURAL ITEMS, INCLUDING THE FOLLOWING: A. CONCRETE MIX DESIGNS, CONCRETE AND MASONRY REINFORCEMENT (INCLUDING MILL TEST REPORTS), STRUCTURAL STEEL (INCLUDING MILL TEST REPORTS) B. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE STRUCTURAL ENGINEER OF RECORD. C. DESIGN DRAWINGS, SHOP DRAWINGS, AND CALCULATIONS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS, INCLUDING: UNISTRUT CATWALK AND ATTACHMENTS, STEEL & UNISTRUT ROOFTOP RACK SYSTEM SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON, AND SHALL BE INCLUDED FOR CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS INDUCED BY THE CONNECTION LOADS. DESIGN SHALL BE BASED ON THE REQUIREMENTS OF THE OSSC WITH THE FOLLOWING: EARTHQUAKE AND WIND LOADS AS NOTED IN DESIGN CRITERIA MAXIMUM INELASTIC STORY DRIFT M: 0.228 INCHES (N/S DIRECTION) & 0.253 INCHES (E/W DIRECTION). D. THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT, MACHINERY, AND ASSOCIATED PIPING WITH THE STRUCTURE. ANY CONNECTIONS TO THE STRUCTURE SHALL CONFORM TO THE OSSC AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION.

DIVISION 03 - CONCRETE

CONCRETE:

- 1. CONCRETE WORK SHALL CONFORM TO CHAPTER 19 OF THE OSSC. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD 28 DAY CYLINDER TESTS PER ASTM C39, AND SHALL BE AS FOLLOWS:

Table: ABSOLUTE WATER-CEMENT RATIO BY WEIGHT. Columns: fc (psi), NON AIR-ENTRAINED, AIR-ENTRAINED, USE. Values: 3,000, N/A, 0.50, MECHANICAL PAD.

- 2. VERIFY WATER/CEMENT RATIO WITH FLOOR COVERING MANUFACTURER FOR CONCRETE FLOORS WITH MOISTURE SENSITIVE FLOOR COVERINGS, AND VERIFY COORDINATE WITH PROJECT SPECIFICATIONS. 3. MINIMUM CEMENT CONTENT PER CUBIC YARD SHALL BE AS FOLLOWS: fc=4,000 psi: 550 lbs. 4. FLY ASH CONFORMING TO ASTM C618 (INCLUDING TABLE 2A) TYPE F, MAY BE USED TO REPLACE UP TO 20% OF THE CEMENT CONTENT, PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA. 5. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS, ALONG WITH TEST DATA COMPLIANT WITH OSSC SECTION 1905, A MINIMUM OF TWO WEEKS PRIOR TO PLACING CONCRETE. NO WATER MAY BE ADDED TO CONCRETE IN THE FIELD UNLESS SPECIFICALLY APPROVED IN WRITING BY THE CONCRETE SUPPLIER IN CONJUNCTION WITH THE CONCRETE MIX DESIGN. 6. A WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494, USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, SHALL BE INCORPORATED IN CONCRETE DESIGN MIXES. A HIGH-RANGE WATER-REDUCING (HRWR) ADMIXTURE CONFORMING TO ASTM C494, TYPE F OR G, MAY BE USED IN CONCRETE MIXES PROVIDING THAT THE SLUMP DOES NOT EXCEED 8". AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260 SHALL BE USED IN CONCRETE MIXES FOR EXTERIOR HORIZONTAL SURFACES EXPOSED TO WEATHER. THE AMOUNT OF ENTRAINING AIR SHALL BE 5% +/- 1% BY VOLUME.

CONCRETE CAST IN PLACE:

- 1. STRUCTURAL CALCULATIONS ARE BASED ON 2,500 psi CONCRETE STRENGTH, THEREFORE SPECIAL INSPECTION IS NOT REQUIRED PER OSSC 1705.3. 2. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" WITHOUT THE USE OF ADMIXTURES AS NOTED. 3. A MINIMUM OF THREE (3) CONCRETE TEST CYLINDERS SHALL BE PROVIDED FOR EACH ONE HUNDRED (100) CU. YARDS, OR EACH DAY OF POUR, FOR EACH CONCRETE STRENGTH. CYLINDERS SHALL BE TESTED AS FOLLOWS: A. ONE (1) AT SEVEN (7) DAYS, AND B. TWO (2) AT TWENTY-EIGHT (28) DAYS 4. CONCRETE CYLINDER SAMPLING AND TESTING SHALL CONFORM WITH ASTM SPECIFICATIONS. ACCEPTANCE OF CONCRETE SHALL BE GOVERNED BY THE PROVISIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". TWO (2) SETS OF MIX DESIGNS, WITH COMPLETE STATISTICAL BACKUP, SHALL BE SUBMITTED FOR REVIEW. 5. CONCRETE CURING, FORMWORK, MIXING, PLACING AND CURING SHALL CONFORM WITH THE SPECIFICATIONS CONTAINED IN THE ACI "MANUAL OF CONCRETE PRACTICE". 6. AT AREAS OF DEPRESSIONS FOR SLABS AND BEAMS, PROVIDE MINIMUM THICKNESS OF DEPTH AS FOR ADJACENT AREAS, UNLESS NOTED OTHERWISE. 7. CONCRETE SHALL NOT BE PLACED ON FROZEN GROUND. 8. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFER, UNLESS NOTES OTHERWISE.

CONCRETE REINFORCING STEEL:

- 1. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. FOR DEFORMED BARS AND ASTM A185 FOR SMOOTH WELDED WIRE FABRIC (WWF), UNLESS OTHERWISE NOTED. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE. 2. BARS IN SLABS SHALL BE SUPPORTED ON WELL CURED CONCRETE BLOCKS OR APPROVED METAL CHAIRS, AS SPECIFIED BY THE CRSI MANUAL OF STRANDED PRACTICE, MSP-1. REINFORCING STEEL SHALL BE DETAINED IN ACCORDANCE WITH THE "ACI MANUAL OF STANDARD PRACTICE, MSP-1 REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315. LAP ALL REINFORCING BARS PER THE TYPICAL LAP SPLICE LENGTH SCHEDULE, EXCEPT AS NOTED. MECHANICAL SPLICES NOTED ON THE PLANS SHALL BE DAYTON BAR-GRIP SPLICES OR APPROVED WITH A CURRENT ICC APPROVAL REPORT.

Table: TYPICAL LAP SPLICE LENGTH SCHEDULE. Columns: BAR SIZE, 3,000 psi, 4,000 psi, 5,000 psi, 6,000 psi. Rows: #3, #4.

- NOTES: A. DIMENSIONS ARE IN INCHES. B. CASES 1 AND 2 ARE DEFINED AS FOLLOWS: (db = BAR DIAMETER) a. BEAMS OR COLUMNS: CASE 1: COVER >= db AND c-c SPACING >= 2db CASE 2: COVER < db OR c-c SPACING < 2db b. ALL OTHERS: CASE 1: COVER >= db AND c-c SPACING >= 3db CASE 2: COVER < db OR c-c SPACING < 3db C. FOR TOP BARS, MULTIPLY LAP LENGTH ABOVE BY 1.3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.

- 3. REINFORCEMENT SHALL BE SECURED IN FORMS WITH TIES AND ANCHORAGE TO PREVENT DISPLACEMENT. ALL TIE WIRE SHALL BE MIN. #16 ANNEALED STEEL. 4. ALL REINFORCING STEEL SHALL BE TIED 100% ALONG ALL PERIMETER EDGES AND 50% FIELD. 5. REINFORCING (MINIMUM UNLESS NOTED OTHERWISE ON PLANS) A. PLACE TWO (2) NO. 4 CONTINUOUS AT BOTTOM, TOP AND AT DISCONTINUOUS ENDS OF ALL FOUNDATIONS. B. PLACE 2'-0" x 1'-0" BARS AT CORNERS AND INTERSECTIONS FOR WALLS AND FOUNDATIONS EQUAL IN SIZE AND NUMBER TO HORIZONTAL REINFORCING. C. PLACE TWO (2) NO. 4X OPENING DIMENSIONS PLUS 4'-0" EACH SIDE OF ALL OPENINGS AND TWO (2) NO. 4X4'-0" DIAGONAL BARS AT EACH CORNER OF ALL SLAB OPENINGS GREATER THAN 1'-6" IN DIMENSION. 6. ALL WELDED WIRE FABRIC SHALL CONFORM WITH ASTM A 185. ALL WIRE FABRIC SHALL BE SUPPLIED, LAID IN FLAT SHEETS AND CHAIRED TO PROPER POSITION IN SLABS. LAP ONE (1) FULL MESH PLUS 2" ON SIDES AND ENDS. 7. ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI DETAILING MANUAL 315. A. ALL REINFORCING STEEL SHALL BE ACCURATELY AND SECURELY PLACED. B. REINFORCING SHALL NOT BE BENT OR DISPLACED FOR THE CONVENIENCE OF OTHER TRADES, UNLESS APPROVED BY THE STRUCTURAL ENGINEER. C. SPLAY REINFORCING STEEL AROUND OPENINGS WITH 1" IN 10" SPLAY, UNLESS NOTED OTHERWISE. D. MINIMUM COVER FROM CONCRETE SURFACES TO REINFORCING STEEL SHALL BE: 3" TO BOTTOM OF FOOTING 3/4" SLAB TO TOP AND BOTTOM SURFACES, CENTER OF SLAB ON GRADE 8. REINFORCEMENT BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS OR APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. 9. REINFORCEMENT COUPLERS SHALL BE LENTON, FOX-HOWLETT OR APPROVED, CAPABLE OF DEVELOPING ONE HUNDRED TWENTY-FIVE PERCENT (125%) OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCEMENT.

CONCRETE ACCESSORIES:

- 10. MECHANICAL BOLTS SHALL BE SIMPSON TITEN HD, OR APPROVED WITH EQUIVALENT ICC ALLOWABLE TENSION AND SHEAR VALUES. MECHANICAL BOLTS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION. 11. PERMANENTLY EXPOSED EMBEDDED PLATES AND ANGLES SHALL BE HOT-DIPPED, GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED. NO LOADS OR WELDS SHALL BE PLACED ON EMBEDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING.

DIVISION 05 - METALS

STRUCTURAL STEEL AND MISCELLANEOUS IRON:

STRUCTURAL STEEL SHALL BE:

Table: STRUCTURAL STEEL. Columns: ASTM A36, CHANNELS, PLATES, AND ANGLES, U.N.O., ASTM A500, GRADE B (Fy = 46 ksi), HOLLOW STRUCTURAL SECTIONS (TUBES).

- 1. DESIGN, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" WITH "COMMENTARY" AND THE "CODE OF STANDARD PRACTICE", WITH EXCEPTIONS NOTED IN SPECIFICATIONS. 2. DRAWINGS ARE DIMENSIONED FOR LAYOUT AND NOT DIMENSIONED PER AISC STANDARDS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE BETWEEN ALL DRAWINGS AND DEVELOP SHOP DRAWINGS WITH DETAIL AND DIMENSIONING PER AISC. 3. ALL FABRICATION, ERECTION, IDENTIFICATION, AND PAINTING SHALL CONFORM TO AISC SPECIFICATIONS. 4. ALL STEEL EXPOSED TO WEATHER, SOIL, MOISTURE, OR AS DENOTED ON PLANS SHALL BE HOT DIP GALVANIZED PER ASTM A-123, OR OTHER APPROVED PROTECTIVE COATING. 5. ALL WELDING SHALL CONFORM TO AWS (LATEST EDITION) SPECIFICATIONS. A. ALL WELDERS TO BE QUALIFIED UNDER AWS SPECIFICATIONS WITHIN THE PAST TWO YEARS FOR THE TYPE OF WELDING PERFORMED. B. ALL WELDS SHALL BE PERFORMED USING PRE-QUALIFIED WELDING PROCEDURES. C. WELDS FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70XX ELECTRODES OR AWS A5.18 ER70S-X. D. AFTER FABRICATION, BUT BEFORE INSTALLATION, REMOVE RUST, SCALE, GREASE, AND OIL BY WIRE BRUSHING AND CHEMICAL TREATMENT. E. WELDS TO METAL DECK, METAL STUDS OR OTHER LIGHT GAUGE METALS SHALL CONFORM WITH AWS D1.3. 6. ALL HIGH-STRENGTH BOLTS, MATERIAL AND INSTALLATION, SHALL CONFORM WITH ASTM STANDARDS. A. BOLTS SHALL CONFORM WITH ASTM A 325, TYPE N, TYPE X, TYPE SC (CLASS A). BOLTS NOT NOTED IN THE DRAWINGS AS TYPE SC SHALL BE TYPE N, TYPE X. B. FRICTION CONNECTIONS SHALL BE FREE OF PAINT AT THE FAYING SURFACES, OR A CLASS A SURFACE SHALL BE PROVIDED. C. FOR FRICTION TYPE CONNECTIONS (TYPE SC), LOAD-INDICATING BOLTS SHALL BE THE LEJEUNE TENSION CONTROL FASTENING SYSTEM MANUFACTURED BY THE LEJEUNE BOLT COMPANY, OR APPROVED. LOAD-INDICATING BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. CONNECTION BOLTS SHALL HAVE A HARDENED WASHER PLACED UNDER THE ELEMENT TO BE TIGHTENED. AS APPROVED, STANDARD TYPE SC BOLTS WITH LOAD-INDICATING WASHERS MAY BE USED IN LIEU OF THE LOAD-INDICATING BOLT ASSEMBLY. LOAD-INDICATING WASHERS SHALL BE ASTM F959 "CORONET", AS MANUFACTURED BY THE COOPER AND TURNER DIVISION OF J AND M TURNER, INC. D. FOR BEARING-TYPE CONNECTIONS, TYPE N, TYPE X BOLTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION, ONLY. E. ALL HIGH-STRENGTH BOLTS SHALL BE INSTALLED WITH HARDENED WASHERS, CONFORMING WITH ASTM F 436, AND NUTS, CONFORMING WITH ASTM A 563. F. ALL BOLTS REQUIRING GALVANIZATION SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153, CLASS C. G. NO WELDING TO HIGH-STRENGTH BOLTS IS ALLOWED. 7. ALL MEMBERS SHALL BE CONNECTED WITH SEMI-FINISHED MACHINE BOLTS, UNLESS NOTED OTHERWISE ON PLANS. MACHINE BOLTS SHALL CONFORM TO ASTM A 307, GRADE A. 8. ANCHOR BOLT SHALL CONFORM WITH ASTM A 307, GRADE A, AND SHALL BE PROVIDED WITH STANDARD WASHERS AND NUTS. GALVANIZE EXTERIOR BOLTS. GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A 153, CLASS C. NUTS SHALL BE OVER-TAPPED TO CLASS 2A FIT BEFORE GALVANIZING. IN ACCORDANCE WITH ASTM A 563. 9. BOLT HEADS OR NUTS BEARING ON SLOPING FLANGES SHALL BE EQUIPPED WITH BEVELED WASHERS. 10. ERECTION AIDS (SUCH AS BOLTS, CLIPS, SHIMS, SEATS OR ANY OTHERS REQUIRED TO FACILITATE CONSTRUCTION) ARE THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN AND PROVIDE. 11. ALL FIELD WELDS TO GALVANIZED STEEL AND AREAS DAMAGED BY WELDING, FLAME CUTTING OR HANDLING, SHALL BE REPAIRED WITH AN ORGANIC COLD GALVANIZING COMPOUND HAVING A MINIMUM OF NINETY-FOUR PERCENT (94%) ZINC DUST IN THE DRY FILM. APPLY IN MULTIPLE COATS, UNTIL AN 8 MIL THICKNESS HAS BEEN ACHIEVED. SURFACES TO RECEIVE ZINC-RICH PAINT SHALL BE CLEAN, DRY AND FREE OF OIL, GREASE, SALT AND CORROSION PRODUCTS. 12. ALL EMBEDDED STEEL SHALL BE FABRICATED FROM MATERIAL CONFORMING WITH THE REQUIREMENTS OF ASTM A 36. HOT-DIP GALVANIZE IN ACCORDANCE WITH ASTM A 123, UNLESS NOTED OTHERWISE.

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES

FRAMING LUMBER:

- 1. ALL FRAMING LUMBER SHALL BE DOUGLAS FIR-LARCH AND SHALL BE GRADED UNDER THE MOST RECENTLY ADOPTED RULES OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB). 2. ALL BEAMS AND JOISTS SHALL BE NO. 2 MINIMUM, UNLESS INDICATED OTHERWISE ON THE PLANS. 3. ALL STUDS AND BLOCKING SHALL BE NO. 2. 4. ALL LUMBER IN CONTACT WITH CONCRETE OR EXPOSED SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C-2 AND SHALL BEAR THE AWPA QUALITY MARK. 5. DOUBLE ALL JOISTS UNDER WALL PARTITIONS, AND PROVIDE BLOCKING BETWEEN JOISTS WHERE BEARING WALLS ARE PERPENDICULAR TO JOISTS.

NAILING AND FASTENERS:

- 1. NAILING INDICATED ON PLANS AND DETAILS ARE "COMMON" NAILS. MINIMUM FRAMING NAILING SHALL CONFORM TO OSSC TABLE 2304.10.1. SEE DETAILS FOR ADDITIONAL TYPICAL NAILING REQUIREMENTS. SUBSTITUTION OF NAILS OTHER THAN "COMMON" IS NOT PERMITTED WITHOUT PRIOR APPROVAL. 2. POWER DRIVEN NAILS OTHER THAN "COMMON" NAILS MAY BE USED IF DATA IS SUBMITTED AND APPROVED PRIOR TO USE. 3. BLOCKING, AND PLATES IMMEDIATELY PRIOR TO PLACEMENT OF FLOOR SHEATHING. 4. ALL BOLTED CONNECTIONS SHALL BE MADE WITH MACHINE BOLTS (M.B.) CONFORMING TO ASTM A307. ALL BOLTS AND LAGS SHALL BE INSTALLED WITH STANDARD WASHERS, UNLESS NOTED. 5. JOIST HANGERS, HOLDDOWNS AND OTHER FRAMING ACCESSORIES ARE REFERRED TO ON PLANS BY PARTICULAR TYPE AS MANUFACTURED BY SIMPSON COMPANY, SAN LEANDRO, CA. ALL HARDWARE IS TO BE FASTENED PER MANUFACTURER'S SPECIFICATIONS, U.N.O. 6. ALL PLATES AND LEDGERS SHALL BE ANCHORED WITH A MINIMUM OF THREE FASTENERS PER PIECE. 7. PRE-DRILL HOLES FOR LAG BOLTS. SOAP THREADS OF LAGS IMMEDIATELY PRIOR TO INSTALLATION.



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STRUCTURAL GENERAL NOTES

SO.10

ONE INCH EQUALS FULL SCALE

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Exhibit B  
Proposal and Fee Schedule

[Enclosed]



August 29, 2023

Shaun Wilson  
ZCS Engineering & Architecture  
524 Main Street, Suite 2  
Oregon City, Oregon 97045

Re: Grant Union High School HVAC  
Proposal for Engineering Services

Shaun,

We appreciate the opportunity to provide a proposal for engineering services related to the above-referenced project. We understand that the project consists of providing power to replacement HVAC units, specifying a new main switchboard, and replacing the electrical service at Grant Union High School. Based on our review of the plans and subsequent discussions, we understand that the proposed scope of work will be as follows:

- Verification of existing electrical service capacity.
- Specification of a new main switchboard to serve the campus.
- Evaluation of existing electrical equipment for use with new equipment.
- Review mechanical drawings and provide power to new equipment.
- Power design for new HVAC equipment serving school.

## **SCOPE OF WORK**

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We understand that the scope of work for this project will consist of the following:

1. Construction Documents Phase: Visit site to verify existing conditions and points of connection. Evaluate existing electrical service and specify new main switchboard suitable for carrying the additional electrical load. Prepare construction drawings and technical specifications for electrical systems as described above. Closely coordinate this work with design team. Submit drawings and calculations to reviewing agency.
2. Agency Review Phase: Respond to reviewing agency comments related to scope of work described above. Provide revised drawings and backcheck comment response letter.
3. Construction Phase: Prepare addenda and clarification documents, interpret drawings and specifications where required to clarify the intent of construction documents. Review shop drawings and submittal data for general compliance with mechanical contract documents, respond to RFIs and submittals, and prepare change order documents where required to meet existing job conditions, and provide site visits during construction.



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## CONTRACT EXCLUSIONS

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The following items are excluded from the Scope of Work described above:

1. Structural design.
2. Mechanical and plumbing design.
3. Fire alarm and fire protection design.
4. Low voltage and security system design.
5. Photovoltaic and microgrid system design.
6. Commissioning services.
7. LEED consulting services.
8. Testing and inspection services.
9. Additional site visits beyond those described above.

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## PROJECT FEE

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The fee for the Scope of Work will be as follows:

*Base Services*

Construction Documents Phase (Includes one site visit)	\$	23,000
Agency Review Phase	\$	1,500
Construction Administration Phase (Includes one site visit)	\$	6,100
<b>Total Fee</b>	<b>\$</b>	<b>30,600</b>

*Reimbursable Expenses*

Accommodation	\$	300
Mileage (2 site visits, \$0.55 per mile)	\$	1,000

This includes all expenses such as travel, printing, and postage. All services will be invoiced monthly based on the percent of work completed at that time. This proposal will be valid for a period of thirty (30) calendar days. Please do not hesitate to contact me if you have any questions or concerns. We look forward to working with you on a successful project.

Sincerely,



Nathan Warner, E.I.T.  
Electrical Designer