

3728 Bemidji Ave. N
Suite 300
Bemidji, MN 56601

Phone (218) 751-4502
Fax (218) 444-4505



2471 Galpin Court
Suite 114
Chanhassen, MN 55317

Phone (952) 855-4830
Fax (952) 855-4834

SHORT FORM PRIME CONTRACT BETWEEN OWNER & CONTRACTOR

This Agreement ("Contract") is made this _____ day of _____, 20____,
between _____ ("Contractor") and
_____ ("Owner") at _____

The work described in Section 1 below shall be performed in accordance with all
plans, specifications and other Contract documents for the project known as:

SECTION 1. SCOPE The Contractor agrees to furnish all labor, materials,
equipment and other facilities required to complete the following work:

SECTION 2. PRICE AND PAYMENT The Owner agrees to pay the
Contractor for the strict performance of the work, the sum of

\$ _____
(\$ _____) subject to adjustments for changes in the work
as may be agreed to by the Owner and the Contractor, as may be required under this
Contract.

The Owner agrees to pay the Contractor in monthly progress payments for all
work completed, less agreed upon _____ % retention held back. Payments will be due
and payable within thirty days of invoice. Final payment to the Contractor shall be made
within forty – five (45) days after substantial completion of the Contract and submission
of the final invoice to Owner.

SECTION 3. ENTIRE AGREEMENT. This agreement represents the entire agreement between the Contractor and the Owner regarding the work described in Section 1 and supersedes any prior written or oral agreements or representations as to that work.

SECTION 4. TIME. Time is of the essence of this agreement. The Contractor shall provide the Owner with a progress and completion schedule or milestone dates and shall conform to that schedule, including any changes to that schedule agreed to between the Owner and the Contractor or required by circumstances beyond Contractor's control.

SECTION 5. DIFFERING SITE CONDITIONS. Contractor shall promptly, and before the following conditions are disturbed, notify the Owner, in writing of any:

(1) Material that the contractor believes may be material that is hazardous waste, or a toxic pollutant or other substance, the handling of which may subject Contractor to legal liability;

(2) Subsurface or latent physical conditions at the work site differing from those indicated in the Contract; or

(3) Unknown physical conditions at the work site of any unusual nature, materially different from those ordinarily encountered and generally recognized as inherent to work of the character provided for in the Contract.

The Owner shall promptly investigate. If the Owner finds that the worksite conditions do materially differ, or involve hazardous waste or toxic pollutants, the Owner shall cause a decrease or increase in the Contractor's cost of, or the time required for, performance of the affected part of the work by issuing a change order under the procedures described in the Contract.

SECTION 6. CHANGES IN WORK. The work shall be subject to changes or additions, deletions or revisions by the Owner. The Contractor will be notified by receipt of written additions and/or revised drawings, specifications, exhibits or written orders.

Whenever an adjustment in the Contract price or Contract time is required because of Owner's request, differing site conditions, errors in the plans and specifications, or other circumstances beyond the control of Contractor (including lack of worksite access, weather, fires, floods, strikes, acts of God, natural disasters, or acts of third parties), the Contractor shall submit to the Owner within a reasonable time a detailed estimate, with supporting calculations, pricing and adjustments in the schedule of the change to the Contract price and the Contract time. Pricing of the adjustment shall be in general accordance with the pricing structure of this Contract. However, to the extent that such pricing is inapplicable, cost of the change or the amount of the adjustment shall be determined on the basis of the cost to the Contractor plus reasonable amounts for overhead and profit.

The Contractor shall not be obligated to perform changes in the work or additional work until the Owner has approved, in writing, the changes to the Contract price and the Contract time.

SECTION 7. SUSPENSION OF WORK. If any payment is not made to Contractor as required under this Contract, Contractor may suspend work until such payment is made. Contractor may also suspend work under this Contract if a dispute over payment for extra work, differing site conditions, changes by Owner or other circumstances beyond Contractor's control will cause the Contractor to suffer substantial financial hardship if Contractor is required to continue the work. Contractor may request that Owner provide written proof of Owner's ability to pay Contractor for the work remaining to be performed by Contractor at any time prior to or during performance of this Contract. Failure of Owner to provide such proof shall be justification for Contractor's suspension of work under this Contract.

Any suspension of work under this Contract will also suspend the progress and completion dates set forth in Section 4.

SECTION 8. INSPECTION OF THE WORK. The Contractor shall make the work accessible at all reasonable time for inspection by the Owner. The Contractor shall inspect all material and equipment delivered to the job site by others to be used or incorporated in the Contractor's work.

SECTION 9. SITE ACCESS AND RIGHTS OF WAY. The Owner shall provide, no later than the date when needed by the Contractor, all necessary access to the lands upon which the Work is to be performed, including convenient access to the lands and any other lands designated in the Contract Documents for use by the Contractor. Owner shall continue to provide such access until completion of the Contract. Any failure to provide such access shall entitle the Contractor to an equitable adjustment in the Contract price and the Contract time.

SECTION 10. REPORTS AND SURVEYS Owner shall furnish prior to the start of work all maps, surveys and reports describing the physical characteristics, soil, geological and subsurface conditions, legal limitations, utility locations and legal descriptions that might assist the Contractor in properly evaluating the extent and character of the work required. The Owner shall provide all land surveys and baselines necessary for the Contractor to locate the principal parts of the Work and perform the Work.

SECTION 11. PERMITS, LICENSES AND REGULATIONS. Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be obtained and paid for by the Contractor. The Owner shall assist the Contractor in obtaining such permits and licenses. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for the Owner.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the performance of the Work. If the Contractor observes that drawings, specifications or other Contract documents are at variance with such laws, ordinances, rules and regulations, the Owner shall promptly be notified and, if necessary, an adjustment made to the Contract time or Contract price.

SECTION 12. TERMINATION The Owner reserves the right to terminate the work for its convenience upon notice in writing to the Contractor. In such an event, the Contractor shall be paid its actual costs for the portion of the work performed to the date of termination, and for all of Contractor's incurred costs of termination, including demobilizations and any termination charges by vendors and subcontractors, plus 20% of all of Contractor's actual and incurred costs for overhead and profit.

SECTION 13. INDEMNIFICATION Contractor shall indemnify the owner against claims, demands, lawsuits and liabilities arising out of or connected to property damage or personal injury caused, or alleged to be caused, by Contractor or its subcontractors, suppliers, employees, agents or representatives. Contractor shall have no obligation to defend Owner except to the extent of the following coverage:

14.1.1. Casualty Insurance

- a. Worker's Compensation and Employer's Liability Insurance;
- b. Commercial General Liability Insurance, including coverage for Contractor's owned, hired and non-owned automobiles.

14.1.2. Property Insurance

Subcontractor shall effectually secure and protect the work done hereunder and assume full responsibility for the condition thereof until final acceptance by Architect, Owner and Contractor. Subcontractor further agrees to provide such protection as is necessary to protect the work and the workmen of Contractor, Owner and other subcontractors from its operations.

14.1.2.1 Waiver of Subrogation

Owner and Contractor waive all rights against each other and against all other subcontractors and Owner for loss or damage to the extent reimbursed by any property or equipment insurance applicable to the work, except such rights as they may have to the proceeds of such insurance. If any applicable policies of insurance require an endorsement or consent of the insurance company to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be so endorsed or obtain such consent.

14.1.2.2. Builder's Risk

"All risk" Builder's Risk insurance (excluding the hazards of earthquake and flood) is purchased by Owner and such insurance provides property insurance coverage for both Contractor and subcontractors including loss or damage to Contractor's work. Such insurance shall also apply to any of Owner's property in the care, custody or control of Contractor. Owner waives all rights of recovery against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards, however caused.

SECTION 15. ARBITRATION. Claims, disputes, or other matters in controversy arising out of or related to the contract shall be subject to mediation as a condition precedent to binding dispute resolution. The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

SECTION 16. WARRANTY. The Contractor warrants to the Owner that all materials and equipment furnished under this Contract shall be new unless otherwise specified and that all work under this agreement will be performed in a good and workmanlike manner, shall be of good quality, free from faults and defects, and in conformance with Contract documents.

SECTION 17. SPECIAL PROVISIONS. (Including unit pricing, if applicable):

Contractor must comply with all Federal and State laws, codes, and regulations and all municipal ordinances and regulations effective where the work under this contract is to be performed, and to pay all costs and expenses connected with such compliance, to pay all fees and taxes, including sales and use taxes, and also pay all taxes imposed by any State or Federal law for any employment insurance, pensions, old age retirement funds or any similar purpose and to furnish all necessary reports and information to the appropriate federal, state and municipal agencies.

Dated: _____

Dated: _____

OWNER: _____

CONTRACTOR: _____

By: _____

By: _____

(Name)

(Name)

(Title)

(Title)

(Address)

(Address)

(Contractor's License Number)

NOTE: This document has important legal consequences. Consultation with an attorney prior to use or modification of this document is encouraged. Some contracts may require the use of special provisions not included in this form.

Work Order Signature Document

Sourcewell EZIQC Contract No.: MN-R2-HVAC-040622-PSM

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New Work Order



Modify an Existing Work Order

Work Order Number: 131567.00

Work Order Date: 08/09/2024

Owner PO No:

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Owner Name: ISD #363 South Koochiching - Rainy River

Contractor Name: Peterson Sheet Metal Inc

Contact: Jeremy Tammi

Contact: Jaime Quello

Phone: 218-897-5275

Phone: 218-751-4502

Work to be Performed

Work to be performed as per the Final Detailed Scope of Work Attached and as per the terms and conditions of Sourcewell EZIQC Contract No MN-R2-HVAC-040622-PSM.

Brief Work Order Description:

Boiler Replacement & HVAC Upgrades

Time of Performance

See Schedule Section of the Detailed Scope of Work

Duration

Liquidated Damages

Will apply:

☐

Will not apply:

☒

Work Order Firm Fixed Price: \$3,282,118.13

Owner Purchase Order Number:

Approvals

Owner

Date

Contractor

Date

Detailed Scope of Work

To: Jaime Quello
Peterson Sheet Metal Inc

No Data Input
No Data Input,
218-751-4502

From: Jeremy Tammi
ISD #363 South Koochiching - Rainy River
School District
PO Box Hwy. 1
Northome, MN 56661
218-897-5275

Date Printed: August 09, 2024

Work Order Number: 131567.00

Owner PO No:

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Brief Scope: Boiler Replacement & HVAC Upgrades

☐

Preliminary

☐

Revised

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Final

The following items detail the scope of work as discussed at the site. All requirements necessary to accomplish the items set forth below shall be considered part of this scope of work.

See attached drawings for detailed scope of work.

Contractor

Date

Owner

Date

Contractor's Price Proposal - Summary

Date: August 09, 2024

Re: IQC Master Contract #: MN-R2-HVAC-040622-PSM
Work Order #: 131567.00
Owner PO #:
Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024
Contractor: Peterson Sheet Metal Inc
Proposal Value: \$3,282,118.13

No Category Input	\$3,282,118.13
Proposal Total	\$3,282,118.13

Contractor's Price Proposal - Detail

Date: August 09, 2024

Re: IQC Master Contract #: MN-R2-HVAC-040622-PSM
 Work Order #: 131567.00
 Owner PO #:
 Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024
 Contractor: Peterson Sheet Metal Inc
 Proposal Value: \$3,282,118.13

Sect.	Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)		
No Category Input					
1	05 12 23 00 0431		LF	2-1/2" x 2-1/2" x 3/16" Thick, Plain Steel Angle Iron	\$1,391.10
				Quantity Unit Price Factor = Total	
			Installation	81.00 x 9.52 x 1.3100 = 1,010.17	
			Demolition	81.00 x 3.59 x 1.3100 = 380.93	
2	05 12 23 00 0439		LF	1-1/2" x 1-1/2" x 1/4" Thick, Plain Steel Angle Iron	\$1,240.41
				Quantity Unit Price Factor = Total	
			Installation	88.00 x 7.67 x 1.3100 = 884.20	
			Demolition	88.00 x 3.09 x 1.3100 = 356.22	
3	05 12 23 00 0443		LF	2" x 2" x 1/4" Thick, Plain Steel Angle Iron	\$757.47
				Quantity Unit Price Factor = Total	
			Installation	46.00 x 9.28 x 1.3100 = 559.21	
			Demolition	46.00 x 3.29 x 1.3100 = 198.26	
4	05 12 23 00 0445		LF	2-1/2" x 2-1/2" x 1/4" Thick, Plain Steel Angle Iron	\$1,103.54
				Quantity Unit Price Factor = Total	
			Installation	54.00 x 11.61 x 1.3100 = 821.29	
			Demolition	54.00 x 3.99 x 1.3100 = 282.25	
5	07 53 23 00 0009		SQ	60 Mil, Single Ply Ethylene Propylene Diene Monomer (EPDM) Roofing Membrane, Fully AdheredIncludes adhesive and fasteners .	\$20,112.10
				Quantity Unit Price Factor = Total	
			Installation	25.00 x 541.44 x 1.3100 = 17,732.16	
			Demolition	25.00 x 72.67 x 1.3100 = 2,379.94	
6	07 53 23 00 0019		EA	>8" To 13" Pipe Diameter, Prefabricated Ethylene Propylene Diene Monomer (EPDM) Pipe Cone/BootIncludes attaching the boot to the membrane, caulking around the pipe and installing a draw band.	\$981.56
				Quantity Unit Price Factor = Total	
			Installation	6.00 x 116.51 x 1.3100 = 915.77	
			Demolition	6.00 x 8.37 x 1.3100 = 65.79	
7	07 53 23 00 0023		SF	Ethylene Propylene Diene Monomer (EPDM) Membrane Curb Flashing	\$303.59
				Quantity Unit Price Factor = Total	
			Installation	25.00 x 7.29 x 1.3100 = 238.75	
			Demolition	25.00 x 1.98 x 1.3100 = 64.85	
8	22 11 16 00 0374		LF	3/4" Hard Drawn Type L Copper Tube/Pipe	\$6,549.84
				Quantity Unit Price Factor = Total	
			Installation	523.00 x 7.28 x 1.3100 = 4,987.75	
			Demolition	523.00 x 2.28 x 1.3100 = 1,562.10	
9	22 11 16 00 0375		LF	1" Hard Drawn Type L Copper Tube/Pipe	\$377.28
				Quantity Unit Price Factor = Total	
			Installation	24.00 x 9.44 x 1.3100 = 296.79	
			Demolition	24.00 x 2.56 x 1.3100 = 80.49	
10	22 11 16 00 0376		LF	1-1/4" Hard Drawn Type L Copper Tube/Pipe	\$1,716.41
				Quantity Unit Price Factor = Total	
			Installation	76.00 x 13.43 x 1.3100 = 1,337.09	
			Demolition	76.00 x 3.81 x 1.3100 = 379.32	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description					Line Total		
Labor	Equip.	Material	(Excluded if marked with an X)									
No Category Input												
11	22	11	16	00	0377	LF	1-1/2" Hard Drawn Type L Copper Tube/Pipe					\$4,901.92
							Quantity	Unit Price		Factor	Total	
						Installation	182.00	x	16.30	x	1.3100 = 3,886.25	
						Demolition	182.00	x	4.26	x	1.3100 = 1,015.67	
12	22	11	16	00	0378	LF	2" Hard Drawn Type L Copper Tube/Pipe					\$2,416.27
							Quantity	Unit Price		Factor	Total	
						Installation	64.00	x	23.56	x	1.3100 = 1,975.27	
						Demolition	64.00	x	5.26	x	1.3100 = 441.00	
13	22	11	16	00	0379	LF	2-1/2" Hard Drawn Type L Copper Tube/Pipe					\$3,974.85
							Quantity	Unit Price		Factor	Total	
						Installation	64.00	x	41.23	x	1.3100 = 3,456.72	
						Demolition	64.00	x	6.18	x	1.3100 = 518.13	
14	22	11	16	00	0438	EA	1/4" 90 Degree Copper Elbow					\$277.07
							Quantity	Unit Price		Factor	Total	
						Installation	6.00	x	23.48	x	1.3100 = 184.55	
						Demolition	6.00	x	11.77	x	1.3100 = 92.51	
15	22	11	16	00	0441	EA	3/4" 90 Degree Copper Elbow					\$27,257.46
							Quantity	Unit Price		Factor	Total	
						Installation	321.00	x	40.66	x	1.3100 = 17,097.94	
						Demolition	321.00	x	24.16	x	1.3100 = 10,159.52	
16	22	11	16	00	0442	EA	1" 90 Degree Copper Elbow					\$1,741.15
							Quantity	Unit Price		Factor	Total	
						Installation	16.00	x	54.23	x	1.3100 = 1,136.66	
						Demolition	16.00	x	28.84	x	1.3100 = 604.49	
17	22	11	16	00	0443	EA	1-1/4" 90 Degree Copper Elbow					\$2,473.54
							Quantity	Unit Price		Factor	Total	
						Installation	20.00	x	63.20	x	1.3100 = 1,655.84	
						Demolition	20.00	x	31.21	x	1.3100 = 817.70	
18	22	11	16	00	0444	EA	1-1/2" 90 Degree Copper Elbow					\$3,200.17
							Quantity	Unit Price		Factor	Total	
						Installation	22.00	x	76.91	x	1.3100 = 2,216.55	
						Demolition	22.00	x	34.13	x	1.3100 = 983.63	
19	22	11	16	00	0445	EA	2" 90 Degree Copper Elbow					\$3,361.33
							Quantity	Unit Price		Factor	Total	
						Installation	18.00	x	104.28	x	1.3100 = 2,458.92	
						Demolition	18.00	x	38.27	x	1.3100 = 902.41	
20	22	11	16	00	0446	EA	2-1/2" 90 Degree Copper Elbow					\$1,690.58
							Quantity	Unit Price		Factor	Total	
						Installation	7.00	x	145.38	x	1.3100 = 1,333.13	
						Demolition	7.00	x	38.98	x	1.3100 = 357.45	
21	22	11	16	00	0483	EA	1/4" Straight Copper Tee					\$221.42
							Quantity	Unit Price		Factor	Total	
						Installation	3.00	x	38.70	x	1.3100 = 152.09	
						Demolition	3.00	x	17.64	x	1.3100 = 69.33	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description				Line Total
Labor	Equip.	Material	(Excluded if marked with an X)						
No Category Input									
22	22 11 16 00 0489		EA		1-1/2" Straight Copper Tee				\$235.88
					Quantity		Unit Price	Factor	Total
					Installation	1.00 x	128.92	x 1.3100 =	168.89
					Demolition	1.00 x	51.14	x 1.3100 =	66.99
23	22 11 16 00 0490		EA		2" Straight Copper Tee				\$2,379.69
					Quantity		Unit Price	Factor	Total
					Installation	8.00 x	169.40	x 1.3100 =	1,775.31
					Demolition	8.00 x	57.67	x 1.3100 =	604.38
24	22 11 16 00 0502		EA		1" Reducing Copper Tee				\$5,477.69
					Quantity		Unit Price	Factor	Total
					Installation	32.00 x	89.49	x 1.3100 =	3,751.42
					Demolition	32.00 x	41.18	x 1.3100 =	1,726.27
25	22 11 16 00 0503		EA		1-1/4" Reducing Copper Tee				\$3,426.02
					Quantity		Unit Price	Factor	Total
					Installation	17.00 x	109.14	x 1.3100 =	2,430.55
					Demolition	17.00 x	44.70	x 1.3100 =	995.47
26	22 11 16 00 0504		EA		1-1/2" Reducing Copper Tee				\$2,616.71
					Quantity		Unit Price	Factor	Total
					Installation	11.00 x	132.74	x 1.3100 =	1,912.78
					Demolition	11.00 x	48.85	x 1.3100 =	703.93
27	22 11 16 00 0506		EA		2-1/2" Reducing Copper Tee				\$813.59
					Quantity		Unit Price	Factor	Total
					Installation	2.00 x	254.16	x 1.3100 =	665.90
					Demolition	2.00 x	56.37	x 1.3100 =	147.69
28	22 11 16 00 0516		EA		1-1/2" Copper Coupling				\$510.11
					Quantity		Unit Price	Factor	Total
					Installation	4.00 x	63.22	x 1.3100 =	331.27
					Demolition	4.00 x	34.13	x 1.3100 =	178.84
29	22 11 16 00 0527		EA		3/4" Reducing Copper Coupling				\$23,194.86
					Quantity		Unit Price	Factor	Total
					Installation	300.00 x	37.24	x 1.3100 =	14,635.32
					Demolition	300.00 x	21.78	x 1.3100 =	8,559.54
30	22 11 16 00 0528		EA		1" Reducing Copper Coupling				\$1,561.31
					Quantity		Unit Price	Factor	Total
					Installation	16.00 x	48.03	x 1.3100 =	1,006.71
					Demolition	16.00 x	26.46	x 1.3100 =	554.60
31	22 11 16 00 0529		EA		1-1/4" Reducing Copper Coupling				\$907.36
					Quantity		Unit Price	Factor	Total
					Installation	8.00 x	56.60	x 1.3100 =	593.17
					Demolition	8.00 x	29.98	x 1.3100 =	314.19
32	22 11 16 00 0530		EA		1-1/2" Reducing Copper Coupling				\$528.30
					Quantity		Unit Price	Factor	Total
					Installation	4.00 x	68.20	x 1.3100 =	357.37
					Demolition	4.00 x	32.62	x 1.3100 =	170.93

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description					Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)								
No Category Input												
33	22	11	16	00	0531	EA	2" Reducing Copper Coupling					\$314.82
							Quantity	Unit Price		Factor	Total	
						Installation	2.00	x	84.01	x	1.3100 = 220.11	
						Demolition	2.00	x	36.15	x	1.3100 = 94.71	
34	22	11	16	00	0541	EA	1/2" Male Copper Adapter					\$20,108.32
							Quantity	Unit Price		Factor	Total	
						Installation	318.00	x	30.63	x	1.3100 = 12,759.85	
						Demolition	318.00	x	17.64	x	1.3100 = 7,348.47	
35	22	11	16	00	0542	EA	3/4" Male Copper Adapter					\$647.04
							Quantity	Unit Price		Factor	Total	
						Installation	8.00	x	39.69	x	1.3100 = 415.95	
						Demolition	8.00	x	22.05	x	1.3100 = 231.08	
36	22	11	16	00	0543	EA	1" Male Copper Adapter					\$426.90
							Quantity	Unit Price		Factor	Total	
						Installation	4.00	x	55.90	x	1.3100 = 292.92	
						Demolition	4.00	x	25.57	x	1.3100 = 133.99	
37	22	11	16	00	0544	EA	1-1/4" Male Copper Adapter					\$260.30
							Quantity	Unit Price		Factor	Total	
						Installation	2.00	x	70.25	x	1.3100 = 184.06	
						Demolition	2.00	x	29.10	x	1.3100 = 76.24	
38	22	11	16	00	0546	EA	2" Male Copper Adapter					\$832.85
							Quantity	Unit Price		Factor	Total	
						Installation	4.00	x	116.18	x	1.3100 = 608.78	
						Demolition	4.00	x	42.76	x	1.3100 = 224.06	
39	22	11	16	00	0554	EA	3/4" Female Copper Adapter					\$668.62
							Quantity	Unit Price		Factor	Total	
						Installation	8.00	x	41.75	x	1.3100 = 437.54	
						Demolition	8.00	x	22.05	x	1.3100 = 231.08	
40	22	11	16	00	0570	EA	2-1/2" Wrot Copper, Solder Union					\$834.81
							Quantity	Unit Price		Factor	Total	
						Installation	2.00	x	272.01	x	1.3100 = 712.67	
						Demolition	2.00	x	46.62	x	1.3100 = 122.14	
41	22	11	23	23	0017	EA	1/6 HP, 3/4" Flanges, Cast Iron In-Line Centrifugal Domestic Water Booster Pump (B&G PL36)					\$2,696.40
							Quantity	Unit Price		Factor	Total	
						Installation	1.00	x	1,912.12	x	1.3100 = 2,504.88	
						Demolition	1.00	x	146.20	x	1.3100 = 191.52	
42	22	34	36	23	0011	EA	500 MBH Gas Fired Volume Water Heater (Laars MT2V0500)					\$28,572.61
							Quantity	Unit Price		Factor	Total	
						Installation	1.00	x	20,835.77	x	1.3100 = 27,294.86	
						Demolition	1.00	x	975.38	x	1.3100 = 1,277.75	
43	23	05	23	00	0096	EA	1/2" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve					\$24,605.36
							Quantity	Unit Price		Factor	Total	
						Installation	368.00	x	42.22	x	1.3100 = 20,353.42	
						Demolition	368.00	x	8.82	x	1.3100 = 4,251.95	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

	Sect.	Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)			
No Category Input						
44	23 05 23 00 0097		EA		3/4" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve	\$6,981.21
					Quantity Unit Price Factor = Total	
			Installation	77.00 x 59.51 x 1.3100 =	6,002.77	
			Demolition	77.00 x 9.70 x 1.3100 =	978.44	
45	23 05 23 00 0098		EA		1" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve	\$450.74
					Quantity Unit Price Factor = Total	
			Installation	4.00 x 75.00 x 1.3100 =	393.00	
			Demolition	4.00 x 11.02 x 1.3100 =	57.74	
46	23 05 23 00 0099		EA		1-1/4" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve	\$310.52
					Quantity Unit Price Factor = Total	
			Installation	2.00 x 106.79 x 1.3100 =	279.79	
			Demolition	2.00 x 11.73 x 1.3100 =	30.73	
47	23 05 23 00 0100		EA		1-1/2" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve	\$747.80
					Quantity Unit Price Factor = Total	
			Installation	4.00 x 129.13 x 1.3100 =	676.64	
			Demolition	4.00 x 13.58 x 1.3100 =	71.16	
48	23 05 23 00 0101		EA		2" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve	\$2,039.55
					Quantity Unit Price Factor = Total	
			Installation	9.00 x 156.95 x 1.3100 =	1,850.44	
			Demolition	9.00 x 16.04 x 1.3100 =	189.11	
49	23 05 23 00 0102		EA		2-1/2" Threaded Or Sweated, 125 LB, Regular Port, Carbon Steel Trim, Brass Body, Ball Valve	\$1,290.06
					Quantity Unit Price Factor = Total	
			Installation	2.00 x 470.70 x 1.3100 =	1,233.23	
			Demolition	2.00 x 21.69 x 1.3100 =	56.83	
50	23 05 23 00 0690		EA		2-1/2" Lift Check Valve, Iron Body, Flanged, 125 LB	\$1,724.73
					Quantity Unit Price Factor = Total	
			Installation	1.00 x 1,198.82 x 1.3100 =	1,570.45	
			Demolition	1.00 x 117.77 x 1.3100 =	154.28	
51	23 05 23 00 0691		EA		3" Lift Check Valve, Iron Body, Flanged, 125 LB	\$11,351.88
					Quantity Unit Price Factor = Total	
			Installation	6.00 x 1,306.18 x 1.3100 =	10,266.57	
			Demolition	6.00 x 138.08 x 1.3100 =	1,085.31	
52	23 05 23 00 1090		EA		2-1/2" Butterfly Valve, Cast Iron, With Bronze Disc Gear Operated, 200 PSI	\$1,949.52
					Quantity Unit Price Factor = Total	
			Installation	2.00 x 626.32 x 1.3100 =	1,640.96	
			Demolition	2.00 x 117.77 x 1.3100 =	308.56	
53	23 05 23 00 1091		EA		3" Butterfly Valve, Cast Iron, With Bronze Disc Gear Operated, 200 PSI	\$7,461.35
					Quantity Unit Price Factor = Total	
			Installation	7.00 x 675.59 x 1.3100 =	6,195.16	
			Demolition	7.00 x 138.08 x 1.3100 =	1,266.19	
54	23 05 23 00 1094		EA		6" Butterfly Valve, Cast Iron, With Bronze Disc Gear Operated, 200 PSI	\$15,520.88
					Quantity Unit Price Factor = Total	
			Installation	8.00 x 1,170.43 x 1.3100 =	12,266.11	
			Demolition	8.00 x 310.57 x 1.3100 =	3,254.77	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material	(Excluded if marked with an X)								
No Category Input											
55	23	05	29	00	0007	EA	1-1/4" Steel Clevis Hanger (Cooper B-Line B3100)				\$149.97
							Quantity	Unit Price	Factor	Total	
						Installation	4.00	x	19.84	= 103.96	
						Demolition	4.00	x	8.78	= 46.01	
56	23	05	29	00	0008	EA	1-1/2" Steel Clevis Hanger (Cooper B-Line B3100)				\$264.74
							Quantity	Unit Price	Factor	Total	
						Installation	7.00	x	20.09	= 184.23	
						Demolition	7.00	x	8.78	= 80.51	
57	23	05	29	00	0009	EA	2" Steel Clevis Hanger (Cooper B-Line B3100)				\$393.00
							Quantity	Unit Price	Factor	Total	
						Installation	10.00	x	21.06	= 275.89	
						Demolition	10.00	x	8.94	= 117.11	
58	23	05	29	00	0010	EA	2-1/2" Steel Clevis Hanger (Cooper B-Line B3100)				\$257.18
							Quantity	Unit Price	Factor	Total	
						Installation	6.00	x	23.46	= 184.40	
						Demolition	6.00	x	9.26	= 72.78	
59	23	05	29	00	0011	EA	3" Steel Clevis Hanger (Cooper B-Line B3100)				\$7,654.76
							Quantity	Unit Price	Factor	Total	
						Installation	167.00	x	25.25	= 5,523.94	
						Demolition	167.00	x	9.74	= 2,130.82	
60	23	05	29	00	0012	EA	3-1/2" Steel Clevis Hanger (Cooper B-Line B3100)				\$1,549.78
							Quantity	Unit Price	Factor	Total	
						Installation	32.00	x	26.27	= 1,101.24	
						Demolition	32.00	x	10.70	= 448.54	
61	23	05	29	00	0014	EA	5" Steel Clevis Hanger (Cooper B-Line B3100)				\$869.21
							Quantity	Unit Price	Factor	Total	
						Installation	13.00	x	37.44	= 637.60	
						Demolition	13.00	x	13.60	= 231.61	
62	23	05	29	00	0015	EA	6" Steel Clevis Hanger (Cooper B-Line B3100)				\$2,492.24
							Quantity	Unit Price	Factor	Total	
						Installation	31.00	x	45.12	= 1,832.32	
						Demolition	31.00	x	16.25	= 659.91	
63	23	05	29	00	0016	EA	8" Steel Clevis Hanger (Cooper B-Line B3100)				\$536.05
							Quantity	Unit Price	Factor	Total	
						Installation	5.00	x	61.53	= 403.02	
						Demolition	5.00	x	20.31	= 133.03	
64	23	05	29	00	0017	EA	10" Steel Clevis Hanger (Cooper B-Line B3100)				\$2,963.40
							Quantity	Unit Price	Factor	Total	
						Installation	19.00	x	91.44	= 2,275.94	
						Demolition	19.00	x	27.62	= 687.46	
65	23	05	29	00	0652	LF	3/8" Diameter, Plain Finish Steel, Low Carbon Threaded Rod				\$5,892.75
							Quantity	Unit Price	Factor	Total	
						Installation	1,051.00	x	3.73	= 5,135.50	
						Demolition	1,051.00	x	0.55	= 757.25	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description	Line Total					
Labor	Equip.	Material	(Excluded if marked with an X)								
No Category Input											
66	23	05	29	00 0653	LF	1/2" Diameter, Plain Finish Steel, Low Carbon Threaded Rod					\$3,888.18
						Quantity		Unit Price		Factor = Total	
					Installation	498.00	x	5.36	x	1.3100 = 3,496.76	
					Demolition	498.00	x	0.60	x	1.3100 = 391.43	
67	23	05	29	00 0654	LF	5/8" Diameter, Plain Finish Steel, Low Carbon Threaded Rod					\$217.98
						Quantity		Unit Price		Factor = Total	
					Installation	20.00	x	7.71	x	1.3100 = 202.00	
					Demolition	20.00	x	0.61	x	1.3100 = 15.98	
68	23	05	29	00 0655	LF	3/4" Diameter, Plain Finish Steel, Low Carbon Threaded Rod					\$1,647.51
						Quantity		Unit Price		Factor = Total	
					Installation	92.00	x	13.04	x	1.3100 = 1,571.58	
					Demolition	92.00	x	0.63	x	1.3100 = 75.93	
69	23	05	29	00 0668	EA	3/8" Inside Diameter, Zinc Plated Steel, Low Carbon Flat Washer					\$432.06
						Quantity		Unit Price		Factor = Total	
					Installation	478.00	x	0.52	x	1.3100 = 325.61	
					Demolition	478.00	x	0.17	x	1.3100 = 106.45	
70	23	05	29	00 0669	EA	1/2" Inside Diameter, Zinc Plated Steel, Low Carbon Flat Washer					\$147.03
						Quantity		Unit Price		Factor = Total	
					Installation	122.00	x	0.75	x	1.3100 = 119.87	
					Demolition	122.00	x	0.17	x	1.3100 = 27.17	
71	23	05	29	00 0670	EA	5/8" Inside Diameter, Zinc Plated Steel, Low Carbon Flat Washer					\$18.47
						Quantity		Unit Price		Factor = Total	
					Installation	10.00	x	1.15	x	1.3100 = 15.07	
					Demolition	10.00	x	0.26	x	1.3100 = 3.41	
72	23	05	29	00 0671	EA	3/4" Inside Diameter, Zinc Plated Steel, Low Carbon Flat Washer					\$110.88
						Quantity		Unit Price		Factor = Total	
					Installation	46.00	x	1.58	x	1.3100 = 95.21	
					Demolition	46.00	x	0.26	x	1.3100 = 15.67	
73	23	05	29	00 0676	EA	3/8" Diameter, Zinc Plated Steel, Low Carbon/Grade 2 Hex Nut					\$1,766.01
						Quantity		Unit Price		Factor = Total	
					Installation	1,586.00	x	0.63	x	1.3100 = 1,308.93	
					Demolition	1,586.00	x	0.22	x	1.3100 = 457.09	
74	23	05	29	00 0677	EA	1/2" Diameter, Zinc Plated Steel, Low Carbon/Grade 2 Hex Nut					\$356.03
						Quantity		Unit Price		Factor = Total	
					Installation	254.00	x	0.85	x	1.3100 = 282.83	
					Demolition	254.00	x	0.22	x	1.3100 = 73.20	
75	23	05	29	00 0678	EA	5/8" Diameter, Zinc Plated Steel, Low Carbon/Grade 2 Hex Nut					\$19.13
						Quantity		Unit Price		Factor = Total	
					Installation	10.00	x	1.24	x	1.3100 = 16.24	
					Demolition	10.00	x	0.22	x	1.3100 = 2.88	
76	23	05	29	00 0679	EA	3/4" Diameter, Zinc Plated Steel, Low Carbon/Grade 2 Hex Nut					\$117.51
						Quantity		Unit Price		Factor = Total	
					Installation	46.00	x	1.51	x	1.3100 = 90.99	
					Demolition	46.00	x	0.44	x	1.3100 = 26.51	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description	Line Total					
Labor	Equip.	Material	(Excluded if marked with an X)								
No Category Input											
77	23	05	29	00	0825	EA	3/8" Rod Size, C-Clamp Style Beam Clamp (B-Line B-3034)				\$7,273.85
							Quantity	Unit Price	Factor	Total	
						Installation	281.00	x 15.26	1.3100	=	5,617.36
						Demolition	281.00	x 4.50	1.3100	=	1,656.50
78	23	05	29	00	0826	EA	1/2" Rod Size, C-Clamp Style Beam Clamp (B-Line B-3034)				\$3,025.04
							Quantity	Unit Price	Factor	Total	
						Installation	93.00	x 19.10	1.3100	=	2,326.95
						Demolition	93.00	x 5.73	1.3100	=	698.09
79	23	05	29	00	0827	EA	5/8" Rod Size, C-Clamp Style Beam Clamp (B-Line B-3034)				\$185.50
							Quantity	Unit Price	Factor	Total	
						Installation	5.00	x 22.14	1.3100	=	145.02
						Demolition	5.00	x 6.18	1.3100	=	40.48
80	23	05	29	00	0828	EA	3/4" Rod Size, C-Clamp Style Beam Clamp (B-Line B-3034)				\$1,106.98
							Quantity	Unit Price	Factor	Total	
						Installation	23.00	x 30.13	1.3100	=	907.82
						Demolition	23.00	x 6.61	1.3100	=	199.16
81	23	05	29	00	0941	LF	3/4" Wide x 0.025" Thick Galvanized Hanger Strap				\$164.88
							Quantity	Unit Price	Factor	Total	
						Installation	29.00	x 4.34	1.3100	=	164.88
82	23	05	29	00	1006	EA	3" Pipe Saddle, For 2" Insulation (Cooper B-Line B3162)				\$8,999.02
							Quantity	Unit Price	Factor	Total	
						Installation	199.00	x 31.22	1.3100	=	8,138.74
						Demolition	199.00	x 3.30	1.3100	=	860.28
83	23	05	29	00	1007	EA	4" Pipe Saddle, For 2" Insulation (Cooper B-Line B3162)				\$381.16
							Quantity	Unit Price	Factor	Total	
						Installation	8.00	x 33.02	1.3100	=	346.05
						Demolition	8.00	x 3.35	1.3100	=	35.11
84	23	05	29	00	1008	EA	6" Pipe Saddle, For 2" Insulation (Cooper B-Line B3162)				\$2,183.98
							Quantity	Unit Price	Factor	Total	
						Installation	36.00	x 42.86	1.3100	=	2,021.28
						Demolition	36.00	x 3.45	1.3100	=	162.70
85	23	05	29	00	1009	EA	8" Pipe Saddle, For 2" Insulation (Cooper B-Line B3162)				\$343.94
							Quantity	Unit Price	Factor	Total	
						Installation	5.00	x 48.92	1.3100	=	320.43
						Demolition	5.00	x 3.59	1.3100	=	23.51
86	23	05	29	00	1010	EA	10" Pipe Saddle, For 2" Insulation (Cooper B-Line B3162)				\$1,372.43
							Quantity	Unit Price	Factor	Total	
						Installation	19.00	x 51.50	1.3100	=	1,281.84
						Demolition	19.00	x 3.64	1.3100	=	90.60
87	23	05	93	00	0003	EA	Balancing Heating And Ventilating Units				\$2,452.58
							Quantity	Unit Price	Factor	Total	
						Installation	4.00	x 468.05	1.3100	=	2,452.58
88	23	05	93	00	0006	EA	Balancing Roof Exhaust Fan				\$5,520.08
							Quantity	Unit Price	Factor	Total	
						Installation	15.00	x 280.92	1.3100	=	5,520.08

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

	Sect.	Item	Modifier	UOM	Description	Line Total				
Labor	Equip.	Material	(Excluded if marked with an X)							
No Category Input										
89	23	05	93	00	0013	EA	Balancing Variable Volume Air Handling Unit			\$14,907.01
						Installation	Quantity	Unit Price	Factor	Total
							10.00	1,137.94	1.3100	14,907.01
90	23	05	93	00	0016	EA	Balancing HVAC Duct System, Ceiling Height >12' Supply, Return, Exhaust, Register And Diffuser			\$5,673.90
						Installation	Quantity	Unit Price	Factor	Total
							37.00	117.06	1.3100	5,673.90
91	23	05	93	00	0018	EA	Balance Variable Air Volume Box			\$1,814.28
						Installation	Quantity	Unit Price	Factor	Total
							21.00	65.95	1.3100	1,814.28
92	23	05	93	00	0026	EA	Balance Dampers			\$888.63
						Installation	Quantity	Unit Price	Factor	Total
							26.00	26.09	1.3100	888.63
93	23	05	93	00	0037	EA	Water Balance, Pumps			\$1,277.83
						Installation	Quantity	Unit Price	Factor	Total
							4.00	243.86	1.3100	1,277.83
94	23	05	93	00	0045	EA	>1,000 MBH, Water Balance, Boiler			\$4,685.08
						Installation	Quantity	Unit Price	Factor	Total
							2.00	1,788.20	1.3100	4,685.08
95	23	09	23	11	0030	EA	1/2" 2-Way Brass Ball Valve With Actuator (Belimo B215B+LRB24-3)			\$22,280.15
						Installation	Quantity	Unit Price	Factor	Total
							75.00	215.38	1.3100	21,161.09
						Demolition	Quantity	Unit Price	Factor	Total
							75.00	11.39	1.3100	1,119.07
96	23	09	23	11	0031	EA	3/4" 2-Way Brass Ball Valve With Actuator (Belimo B220B+LRB24-3)			\$1,409.56
						Installation	Quantity	Unit Price	Factor	Total
							4.00	253.65	1.3100	1,329.13
						Demolition	Quantity	Unit Price	Factor	Total
							4.00	15.35	1.3100	80.43
97	23	09	23	11	0032	EA	1" 2-Way Brass Ball Valve With Actuator (Belimo B225+LRB24-3)			\$400.98
						Installation	Quantity	Unit Price	Factor	Total
							1.00	287.51	1.3100	376.64
						Demolition	Quantity	Unit Price	Factor	Total
							1.00	18.58	1.3100	24.34
98	23	09	23	11	0040	EA	1" 3-Way Brass Ball Valve With Actuator (Belimo B325+LRB24-3)			\$538.11
						Installation	Quantity	Unit Price	Factor	Total
							1.00	382.91	1.3100	501.61
						Demolition	Quantity	Unit Price	Factor	Total
							1.00	27.86	1.3100	36.50
99	23	09	23	11	0041	EA	1-1/4" 3-Way Brass Ball Valve With Actuator (Belimo B331+ARB24-3)			\$763.01
						Installation	Quantity	Unit Price	Factor	Total
							1.00	547.16	1.3100	716.78
						Demolition	Quantity	Unit Price	Factor	Total
							1.00	35.29	1.3100	46.23
100	23	09	23	11	0043	EA	2" 3-Way Brass Ball Valve With Actuator (Belimo B352+ARB24-3)			\$2,131.74
						Installation	Quantity	Unit Price	Factor	Total
							2.00	765.52	1.3100	2,005.66
						Demolition	Quantity	Unit Price	Factor	Total
							2.00	48.12	1.3100	126.07
101	23	09	23	12	0062	EA	36" x 20" Volume Control Damper (Ruskin CD36)			\$545.04
						Installation	Quantity	Unit Price	Factor	Total
							1.00	334.12	1.3100	437.70
						Demolition	Quantity	Unit Price	Factor	Total
							1.00	81.94	1.3100	107.34

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description					Line Total	
Labor	Equip.	Material	(Excluded if marked with an X)								
No Category Input											
102	23	09	23	12	0074	EA	36" x 68" Volume Control Damper (Ruskin CD36)				\$1,055.17
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	700.12	x	917.16
						Demolition	1.00	x	105.35	x	138.01
103	23	09	23	12	0078	EA	36" x 84" Volume Control Damper (Ruskin CD36)				\$2,772.38
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	952.81	x	2,496.36
						Demolition	2.00	x	105.35	x	276.02
104	23	09	23	12	0127	EA	48" x 40" Volume Control Damper (Ruskin CD36)				\$4,055.69
							Quantity		Unit Price	Factor	Total
						Installation	5.00	x	525.54	x	3,442.29
						Demolition	5.00	x	93.65	x	613.41
105	23	09	23	12	0129	EA	48" x 48" Volume Control Damper (Ruskin CD36)				\$2,659.90
							Quantity		Unit Price	Factor	Total
						Installation	3.00	x	583.17	x	2,291.86
						Demolition	3.00	x	93.65	x	368.04
106	23	09	23	12	0165	EA	60" x 48" Volume Control Damper (Ruskin CD36)				\$4,294.47
							Quantity		Unit Price	Factor	Total
						Installation	3.00	x	987.39	x	3,880.44
						Demolition	3.00	x	105.35	x	414.03
107	23	09	23	12	0167	EA	60" x 56" Volume Control Damper (Ruskin CD36)				\$1,581.90
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	1,102.21	x	1,443.90
						Demolition	1.00	x	105.35	x	138.01
108	23	09	23	12	0211	EA	76" x 40" Volume Control Damper (Ruskin CD36)				\$2,684.11
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	919.12	x	2,408.09
						Demolition	2.00	x	105.35	x	276.02
109	23	09	23	14	0008	EA	Analog Transmitter, 4 Point, 4 Sensor Air Flow Monitoring Station (Ebtron GTA116)10' cable, 60" x 48" typical duct size.				\$97,891.32
							Quantity		Unit Price	Factor	Total
						Installation	10.00	x	7,382.72	x	96,713.63
						Demolition	10.00	x	89.90	x	1,177.69
110	23	09	23	53	0050	PNT	EMCS Field Checkout And StartupPriced per point.				\$8,049.95
							Quantity		Unit Price	Factor	Total
						Installation	50.00	x	122.90	x	8,049.95
111	23	09	23	53	0054	PNT	EMCS System Engineering/Submittal Design And LayoutPriced per point.				\$2,684.85
							Quantity		Unit Price	Factor	Total
						Installation	50.00	x	40.99	x	2,684.85
112	23	09	23	53	0118	EA	16 Digital Outputs, 16 Universal Inputs, 0 Analog Outputs Standalone Control Module (Automated Logic M16160)				\$107,536.46
							Quantity		Unit Price	Factor	Total
						Installation	10.00	x	7,609.85	x	99,689.04
						Demolition	10.00	x	599.04	x	7,847.42
113	23	09	23	53	0126	EA	Air Flow Sensor And Damper Actuator Accessory For ZN341V+ Or ZN141V+ (Automated Logic ZASF)				\$28,851.57
							Quantity		Unit Price	Factor	Total
						Installation	10.00	x	1,977.77	x	25,908.79
						Demolition	10.00	x	224.64	x	2,942.78

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)							
No Category Input											
114	23 09	23 53	0127		EA	Unlimited Points, Front End Software For Building Control (Automated Logic WC)					\$17,607.92
					Installation	Quantity		Unit Price		Factor	Total
						1.00	x	13,441.16	x	1.3100	17,607.92
115	23 21	13 23	0021		LF	1-1/2" Schedule 40, Threaded And Coupled, Black Steel Pipe					\$722.14
					Installation	Quantity		Unit Price		Factor	Total
						21.00	x	21.53	x	1.3100	592.29
					Demolition	21.00	x	4.72	x	1.3100	129.85
116	23 21	13 23	0022		LF	2" Schedule 40, Threaded And Coupled, Black Steel Pipe					\$4,041.10
					Installation	Quantity		Unit Price		Factor	Total
						93.00	x	27.49	x	1.3100	3,349.11
					Demolition	93.00	x	5.68	x	1.3100	691.99
117	23 21	13 23	0023		LF	2-1/2" Schedule 40, Threaded And Coupled, Black Steel Pipe					\$7,176.10
					Installation	Quantity		Unit Price		Factor	Total
						117.00	x	40.08	x	1.3100	6,143.06
					Demolition	117.00	x	6.74	x	1.3100	1,033.04
118	23 21	13 23	0024		LF	3" Schedule 40, Threaded And Coupled, Black Steel Pipe					\$19,656.88
					Installation	Quantity		Unit Price		Factor	Total
						243.00	x	52.73	x	1.3100	16,785.54
					Demolition	243.00	x	9.02	x	1.3100	2,871.34
119	23 21	13 23	0025		LF	4" Schedule 40, Threaded And Coupled, Black Steel Pipe					\$5,308.33
					Installation	Quantity		Unit Price		Factor	Total
						48.00	x	74.10	x	1.3100	4,659.41
					Demolition	48.00	x	10.32	x	1.3100	648.92
120	23 21	13 23	0027		LF	6" Schedule 40, Threaded And Coupled, Black Steel Pipe					\$41,371.45
					Installation	Quantity		Unit Price		Factor	Total
						223.00	x	126.01	x	1.3100	36,811.30
					Demolition	223.00	x	15.61	x	1.3100	4,560.15
121	23 21	13 23	0037		EA	1-1/2", 150 LB, Black Malleable Iron 90 Degree Elbow					\$459.44
					Installation	Quantity		Unit Price		Factor	Total
						4.00	x	64.61	x	1.3100	338.56
					Demolition	4.00	x	23.07	x	1.3100	120.89
122	23 21	13 23	0038		EA	2", 150 LB, Black Malleable Iron 90 Degree Elbow					\$1,638.16
					Installation	Quantity		Unit Price		Factor	Total
						10.00	x	95.73	x	1.3100	1,254.06
					Demolition	10.00	x	29.32	x	1.3100	384.09
123	23 21	13 23	0039		EA	2-1/2", 150 LB, Black Malleable Iron 90 Degree Elbow					\$6,743.09
					Installation	Quantity		Unit Price		Factor	Total
						23.00	x	180.42	x	1.3100	5,436.05
					Demolition	23.00	x	43.38	x	1.3100	1,307.04
124	23 21	13 23	0040		EA	3", 150 LB, Black Malleable Iron 90 Degree Elbow					\$4,080.13
					Installation	Quantity		Unit Price		Factor	Total
						10.00	x	254.44	x	1.3100	3,333.16
					Demolition	10.00	x	57.02	x	1.3100	746.96
125	23 21	13 23	0041		EA	4", 150 LB, Black Malleable Iron 90 Degree Elbow					\$673.16
					Installation	Quantity		Unit Price		Factor	Total
						1.00	x	453.46	x	1.3100	594.03
					Demolition	1.00	x	60.40	x	1.3100	79.12

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)							
No Category Input											
126	23	21	13	23	0043	EA	6", 150 LB, Black Malleable Iron 90 Degree Elbow				\$61,894.12
							Quantity		Unit Price	Factor	Total
						Installation	34.00	x	1,323.71	x	58,958.04
						Demolition	34.00	x	65.92	x	2,936.08
127	23	21	13	23	0074	EA	2-1/2", 150 LB, Black Malleable Iron 45 Degree Elbow				\$4,262.48
							Quantity		Unit Price	Factor	Total
						Installation	12.00	x	227.77	x	3,580.54
						Demolition	12.00	x	43.38	x	681.93
128	23	21	13	23	0075	EA	3", 150 LB, Black Malleable Iron 45 Degree Elbow				\$927.43
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	296.96	x	778.04
						Demolition	2.00	x	57.02	x	149.39
129	23	21	13	23	0085	EA	1-1/2", 150 LB, Black Malleable Iron Tee				\$171.71
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	96.15	x	125.96
						Demolition	1.00	x	34.93	x	45.76
130	23	21	13	23	0086	EA	2", 150 LB, Black Malleable Iron Tee				\$718.88
							Quantity		Unit Price	Factor	Total
						Installation	3.00	x	139.54	x	548.39
						Demolition	3.00	x	43.38	x	170.48
131	23	21	13	23	0091	EA	6", 150 LB, Black Malleable Iron Tee				\$5,555.00
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	2,016.65	x	5,283.62
						Demolition	2.00	x	103.58	x	271.38
132	23	21	13	23	0098	EA	2", 150 LB, Black Malleable Iron Reducing Tee				\$244.46
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	143.23	x	187.63
						Demolition	1.00	x	43.38	x	56.83
133	23	21	13	23	0099	EA	2-1/2", 150 LB, Black Malleable Iron Reducing Tee				\$1,012.32
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	329.36	x	862.92
						Demolition	2.00	x	57.02	x	149.39
134	23	21	13	23	0100	EA	3", 150 LB, Black Malleable Iron Reducing Tee				\$587.65
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	380.85	x	498.91
						Demolition	1.00	x	67.74	x	88.74
135	23	21	13	23	0101	EA	4", 150 LB, Black Malleable Iron Reducing Tee				\$1,137.28
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	791.82	x	1,037.28
						Demolition	1.00	x	76.33	x	99.99
136	23	21	13	23	0103	EA	6", 150 LB, Black Malleable Iron Reducing Tee				\$16,042.26
							Quantity		Unit Price	Factor	Total
						Installation	6.00	x	1,937.42	x	15,228.12
						Demolition	6.00	x	103.58	x	814.14

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)							
No Category Input											
137	23	21	13	23	0124	EA	2-1/2", 150 LB, Black Malleable Iron Reducing Coupling				\$2,499.90
							Quantity		Unit Price	Factor	Total
						Installation	8.00	x	195.16	x	2,045.28
						Demolition	8.00	x	43.38	x	454.62
138	23	21	13	23	0125	EA	3", 150 LB, Black Malleable Iron Reducing Coupling				\$1,576.09
							Quantity		Unit Price	Factor	Total
						Installation	4.00	x	243.76	x	1,277.30
						Demolition	4.00	x	57.02	x	298.78
139	23	21	13	23	0126	EA	4", 150 LB, Black Malleable Iron Reducing Coupling				\$613.34
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	407.80	x	534.22
						Demolition	1.00	x	60.40	x	79.12
140	23	21	13	23	0128	EA	6", 150 LB, Black Malleable Iron Reducing Coupling				\$8,492.97
							Quantity		Unit Price	Factor	Total
						Installation	6.00	x	1,014.61	x	7,974.83
						Demolition	6.00	x	65.92	x	518.13
141	23	21	13	23	0134	EA	1-1/2", 150 LB, Black Malleable Iron Cap				\$59.75
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	35.37	x	46.33
						Demolition	1.00	x	10.24	x	13.41
142	23	21	13	23	0135	EA	2", 150 LB, Black Malleable Iron Cap				\$161.84
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	48.69	x	127.57
						Demolition	2.00	x	13.08	x	34.27
143	23	21	13	23	0147	EA	1-1/2", 150 LB, Black Malleable Iron Union				\$216.24
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	130.14	x	170.48
						Demolition	1.00	x	34.93	x	45.76
144	23	21	13	23	0148	EA	2", 150 LB, Black Malleable Iron Union				\$520.73
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	155.37	x	407.07
						Demolition	2.00	x	43.38	x	113.66
145	23	21	13	23	0221	EA	1-1/2" x 4" Long, Schedule 40 Black Steel Nipple				\$195.24
							Quantity		Unit Price	Factor	Total
						Installation	4.00	x	28.24	x	147.98
						Demolition	4.00	x	9.02	x	47.26
146	23	21	13	23	0222	EA	2" x 4" Long, Schedule 40 Black Steel Nipple				\$520.33
							Quantity		Unit Price	Factor	Total
						Installation	8.00	x	38.04	x	398.66
						Demolition	8.00	x	11.61	x	121.67
147	23	21	13	23	0251	EA	1-1/2" x 6" Long, Schedule 40 Black Steel Nipple				\$56.57
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	34.16	x	44.75
						Demolition	1.00	x	9.02	x	11.82

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)							
No Category Input											
148	23	21	13	23	0252	EA	2" x 6" Long, Schedule 40 Black Steel Nipple				\$148.92
							Quantity		Unit Price		Factor = Total
						Installation	2.00	x	45.23	x	1.3100 = 118.50
						Demolition	2.00	x	11.61	x	1.3100 = 30.42
149	23	21	13	23	1778	EA	2-1/2" Flanged Adapter Nipples With Groove Gasket, ANSI CL 125 And 150				\$1,463.61
							Quantity		Unit Price		Factor = Total
						Installation	3.00	x	349.11	x	1.3100 = 1,372.00
						Demolition	3.00	x	23.31	x	1.3100 = 91.61
150	23	21	13	23	1977	EA	2" Grooved Rigid Coupling				\$667.76
							Quantity		Unit Price		Factor = Total
						Installation	11.00	x	37.48	x	1.3100 = 540.09
						Demolition	11.00	x	8.86	x	1.3100 = 127.67
151	23	21	13	23	1978	EA	2-1/2" Grooved Rigid Coupling				\$6,831.06
							Quantity		Unit Price		Factor = Total
						Installation	95.00	x	44.09	x	1.3100 = 5,487.00
						Demolition	95.00	x	10.80	x	1.3100 = 1,344.06
152	23	21	13	23	1979	EA	3" Grooved Rigid Coupling				\$3,781.60
							Quantity		Unit Price		Factor = Total
						Installation	48.00	x	47.23	x	1.3100 = 2,969.82
						Demolition	48.00	x	12.91	x	1.3100 = 811.78
153	23	21	13	23	1981	EA	4" Grooved Rigid Coupling				\$819.06
							Quantity		Unit Price		Factor = Total
						Installation	7.00	x	72.10	x	1.3100 = 661.16
						Demolition	7.00	x	17.22	x	1.3100 = 157.91
154	23	21	13	23	1982	EA	5" Grooved Rigid Coupling				\$597.26
							Quantity		Unit Price		Factor = Total
						Installation	4.00	x	92.37	x	1.3100 = 484.02
						Demolition	4.00	x	21.61	x	1.3100 = 113.24
155	23	21	13	23	1983	EA	6" Grooved Rigid Coupling				\$18,562.12
							Quantity		Unit Price		Factor = Total
						Installation	94.00	x	122.56	x	1.3100 = 15,092.04
						Demolition	94.00	x	28.18	x	1.3100 = 3,470.09
156	23	21	16	00	0048	EA	3/4" Screwed Ends, 150 LB, Bronze Body, Y-Type Strainer				\$9,330.80
							Quantity		Unit Price		Factor = Total
						Installation	75.00	x	81.38	x	1.3100 = 7,995.59
						Demolition	75.00	x	13.59	x	1.3100 = 1,335.22
157	23	21	16	00	0049	EA	1" Screwed Ends, 150 LB, Bronze Body, Y-Type Strainer				\$608.68
							Quantity		Unit Price		Factor = Total
						Installation	4.00	x	99.93	x	1.3100 = 523.63
						Demolition	4.00	x	16.23	x	1.3100 = 85.05
158	23	21	16	00	0050	EA	1-1/4" Screwed Ends, 150 LB, Bronze Body, Y-Type Strainer				\$413.86
							Quantity		Unit Price		Factor = Total
						Installation	2.00	x	137.89	x	1.3100 = 361.27
						Demolition	2.00	x	20.07	x	1.3100 = 52.58

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)							
No Category Input											
159	23	21	16	00	0051	EA	1-1/2" Screwed Ends, 150 LB, Bronze Body, Y-Type Strainer				\$246.25
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	166.36	1.3100	217.93
						Demolition	1.00	x	21.62	1.3100	28.32
160	23	21	16	00	0330	EA	11.0 Gallon Vertical Diaphragm Type (Bladder) Steel Expansion Tank				\$2,488.99
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	1,822.80	1.3100	2,387.87
						Demolition	1.00	x	77.19	1.3100	101.12
161	23	21	16	00	0341	EA	211.0 Gallon Vertical Diaphragm Type (Bladder) Steel Expansion Tank				\$24,894.53
							Quantity		Unit Price	Factor	Total
						Installation	2.00	x	9,237.05	1.3100	24,201.07
						Demolition	2.00	x	264.68	1.3100	693.46
162	23	21	16	00	0423	EA	10", 950 GPM, Removable Head, Air Eliminator And Dirt Separator (Spirotherm VDN)				\$34,372.45
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	25,497.42	1.3100	33,401.62
						Demolition	1.00	x	741.09	1.3100	970.83
163	23	21	23	16	0009	EA	25 HP, 600 GPM At 100' Head Single Stage Cast Iron Centrifugal Pump (B&G 1510, 4 E, BF, 284T)				\$52,095.37
							Quantity		Unit Price	Factor	Total
						Installation	3.00	x	12,781.95	1.3100	50,233.06
						Demolition	3.00	x	473.87	1.3100	1,862.31
164	23	25	13	00	0002	EA	15 Gallon Chemical Storage Tank, Polyethylene				\$80,857.03
							Quantity		Unit Price	Factor	Total
						Installation	132.00	x	466.57	1.3100	80,679.28
						Demolition	2.00	x	67.84	1.3100	177.74
165	23	25	13	00	0011	EA	5 Gallon Bypass Shot Chemical Feeder, Floor Mount, 175 PSIG				\$2,068.69
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	1,232.89	1.3100	1,615.09
						Demolition	1.00	x	346.26	1.3100	453.60
166	23	25	13	00	0014	EA	5 Gallon Bypass Shot Chemical Feeder, Floor Mount, 150 LB ASME Code				\$2,068.69
							Quantity		Unit Price	Factor	Total
						Installation	1.00	x	1,232.89	1.3100	1,615.09
						Demolition	1.00	x	346.26	1.3100	453.60
						Axiom SF100 Glycol Feeder					
167	23	31	13	13	0005	LB	Seal Class A, Rectangular Or Square, Galvanized Steel Sheet Metal Ductwork				\$582,164.55
							Quantity		Unit Price	Factor	Total
						Installation	28,298.00	x	13.29	1.3100	492,665.35
						Demolition	28,000.00	x	2.44	1.3100	89,499.20
168	23	31	13	13	0013	LB	Seal Class A, Type 304, Stainless Steel Sheet Metal Ductwork				\$13,821.02
							Quantity		Unit Price	Factor	Total
						Installation	480.00	x	18.73	1.3100	11,777.42
						Demolition	480.00	x	3.25	1.3100	2,043.60
169	23	31	13	16	0003	LF	4" Diameter, 26 Gauge, Seal Class C, Galvanized Sheet Metal Round And Flat-Oval Duct				\$307.75
							Quantity		Unit Price	Factor	Total
						Installation	28.00	x	6.33	1.3100	232.18
						Demolition	28.00	x	2.06	1.3100	75.56

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)							
No Category Input											
170	23	31	13	16	0008	LF	10" Diameter, 26 Gauge, Seal Class C, Galvanized Sheet Metal Round And Flat-Oval Duct				\$1,604.44
						Installation	Quantity		Unit Price	Factor	Total
							67.00	x	13.61	1.3100	1,194.55
						Demolition	67.00	x	4.67	1.3100	409.89
171	23	31	13	16	0015	EA	4" Diameter, 26 Gauge, Seal Class C, Galvanized Sheet Metal Round And Flat-Oval Adjustable Elbow				\$170.80
						Installation	Quantity		Unit Price	Factor	Total
							3.00	x	30.99	1.3100	121.79
						Demolition	3.00	x	12.47	1.3100	49.01
172	23	31	13	16	0020	EA	10" Diameter, 26 Gauge, Seal Class C, Galvanized Sheet Metal Round And Flat-Oval Adjustable Elbow				\$1,082.24
						Installation	Quantity		Unit Price	Factor	Total
							6.00	x	96.12	1.3100	755.50
						Demolition	6.00	x	41.57	1.3100	326.74
173	23	31	13	16	0063	EA	4" Diameter, 26 Gauge, Seal Class C, Galvanized Sheet Metal Round And Flat-Oval Connector				\$22.70
						Installation	Quantity		Unit Price	Factor	Total
							1.00	x	17.33	1.3100	22.70
174	23	31	13	16	0068	EA	10" Diameter, 26 Gauge, Seal Class C, Galvanized Sheet Metal Round And Flat-Oval Connector				\$70.77
						Installation	Quantity		Unit Price	Factor	Total
							2.00	x	27.01	1.3100	70.77
175	23	31	13	16	0079	LF	10" Diameter, 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct				\$261.61
						Installation	Quantity		Unit Price	Factor	Total
							10.00	x	18.24	1.3100	238.94
						Demolition	10.00	x	1.73	1.3100	22.66
176	23	31	13	16	0080	LF	12" Diameter, 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct				\$165.13
						Installation	Quantity		Unit Price	Factor	Total
							5.00	x	22.63	1.3100	148.23
						Demolition	5.00	x	2.58	1.3100	16.90
177	23	31	13	16	0081	LF	14" Diameter, 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct				\$1,752.58
						Installation	Quantity		Unit Price	Factor	Total
							45.00	x	27.15	1.3100	1,600.49
						Demolition	45.00	x	2.58	1.3100	152.09
178	23	31	13	16	0082	LF	16" Diameter, 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct				\$105.98
						Installation	Quantity		Unit Price	Factor	Total
							2.00	x	37.87	1.3100	99.22
						Demolition	2.00	x	2.58	1.3100	6.76
179	23	31	13	16	0143	EA	12" x 10", 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct Reducer				\$254.23
						Installation	Quantity		Unit Price	Factor	Total
							1.00	x	157.83	1.3100	206.76
						Demolition	1.00	x	36.24	1.3100	47.47
180	23	31	13	16	0144	EA	14" x 12", 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct Reducer				\$277.96
						Installation	Quantity		Unit Price	Factor	Total
							1.00	x	172.49	1.3100	225.96
						Demolition	1.00	x	39.69	1.3100	51.99

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)			
No Category Input						
181	23 31 13 16 0156		EA		14" Diameter, 26 Gauge, Seal Class C, Slip Joint, Galvanized, Spiral Duct Coupling	\$534.40
					Quantity Unit Price Factor = Total	
			Installation	2.00 x	164.28 x 1.3100 =	430.41
			Demolition	2.00 x	39.69 x 1.3100 =	103.99
182	23 33 13 13 0018		EA		8" x 8" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$1,398.61
					Quantity Unit Price Factor = Total	
			Installation	7.00 x	141.57 x 1.3100 =	1,298.20
			Demolition	7.00 x	10.95 x 1.3100 =	100.41
183	23 33 13 13 0021		EA		10" x 10" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$2,345.95
					Quantity Unit Price Factor = Total	
			Installation	10.00 x	166.62 x 1.3100 =	2,182.72
			Demolition	10.00 x	12.46 x 1.3100 =	163.23
184	23 33 13 13 0023		EA		12" x 8" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$462.80
					Quantity Unit Price Factor = Total	
			Installation	2.00 x	164.75 x 1.3100 =	431.65
			Demolition	2.00 x	11.89 x 1.3100 =	31.15
185	23 33 13 13 0024		EA		12" x 10" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$1,217.91
					Quantity Unit Price Factor = Total	
			Installation	5.00 x	173.48 x 1.3100 =	1,136.29
			Demolition	5.00 x	12.46 x 1.3100 =	81.61
186	23 33 13 13 0025		EA		12" x 12" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$1,884.53
					Quantity Unit Price Factor = Total	
			Installation	7.00 x	191.46 x 1.3100 =	1,755.69
			Demolition	7.00 x	14.05 x 1.3100 =	128.84
187	23 33 13 13 0036		EA		16" x 16" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$1,042.86
					Quantity Unit Price Factor = Total	
			Installation	3.00 x	246.63 x 1.3100 =	969.26
			Demolition	3.00 x	18.73 x 1.3100 =	73.61
188	23 33 13 13 0113		EA		44" x 18" Rectangular Opposed Blade Damper, Steel Construction, Manual Operation	\$682.30
					Quantity Unit Price Factor = Total	
			Installation	1.00 x	483.38 x 1.3100 =	633.23
			Demolition	1.00 x	37.46 x 1.3100 =	49.07
189	23 33 13 16 0049		EA		24" x 24" Folding Curtain Fire Damper, Steel Construction, UL Listed, 1-1/2 Hour Rated	\$583.97
					Quantity Unit Price Factor = Total	
			Installation	2.00 x	191.71 x 1.3100 =	502.28
			Demolition	2.00 x	31.18 x 1.3100 =	81.69
190	23 33 23 00 0002		LF		Duct Turning Vane Rail	\$6,228.26
					Quantity Unit Price Factor = Total	
			Installation	336.00 x	11.82 x 1.3100 =	5,202.69
			Demolition	336.00 x	2.33 x 1.3100 =	1,025.57

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

	Sect.	Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)			
No Category Input						
191	23	33	23	00 0003	LF Double Thick Factory Fabricated, Duct Turning Vane	\$30,363.30
					Quantity Unit Price Factor = Total	
					Installation 1,731.00 x 12.45 x 1.3100 = 28,231.74	
					Demolition 1,731.00 x 0.94 x 1.3100 = 2,131.55	
192	23	33	53	00 0007	SF 1/2" Shop Installed, 3 LB/CF, Fiberglass Duct Liner Board	\$507.93
					Quantity Unit Price Factor = Total	
					Installation 29.00 x 10.57 x 1.3100 = 401.55	
					Demolition 29.00 x 2.80 x 1.3100 = 106.37	
193	23	33	53	00 0009	SF 1" Shop Installed, 3 LB/CF, Fiberglass Duct Liner Board	\$72,215.66
					Quantity Unit Price Factor = Total	
					Installation 2,642.00 x 12.90 x 1.3100 = 44,647.16	
					Demolition 5,642.00 x 3.73 x 1.3100 = 27,568.50	
194	23	34	16	00 0005	EA 1/6 HP, 12-1/4" Wheel, 450 To 1,750 CFM At 1/8" Static Pressure, Centrifugal Fan	\$15,657.83
					Quantity Unit Price Factor = Total	
					Installation 9.00 x 1,138.50 x 1.3100 = 13,422.92	
					Demolition 9.00 x 189.56 x 1.3100 = 2,234.91	
195	23	34	16	00 0006	EA 1/4 HP, 12-1/4" Wheel, 650 To 2,950 CFM At 1/8" Static Pressure, Centrifugal Fan	\$2,432.74
					Quantity Unit Price Factor = Total	
					Installation 1.00 x 1,660.34 x 1.3100 = 2,175.05	
					Demolition 1.00 x 196.71 x 1.3100 = 257.69	
196	23	34	16	00 0007	EA 1/3 HP, 12-1/4" Wheel, 650 To 2,950 CFM At 1/8" Static Pressure, Centrifugal Fan	\$4,882.32
					Quantity Unit Price Factor = Total	
					Installation 2.00 x 1,706.71 x 1.3100 = 4,471.58	
					Demolition 2.00 x 156.77 x 1.3100 = 410.74	
197	23	34	16	00 0008	EA 1/2 HP, 12-1/4" Wheel, 650 To 2,950 CFM At 1/8" Static Pressure, Centrifugal Fan	\$2,616.95
					Quantity Unit Price Factor = Total	
					Installation 1.00 x 1,782.84 x 1.3100 = 2,335.52	
					Demolition 1.00 x 214.83 x 1.3100 = 281.43	
198	23	34	16	00 0009	EA 3/4 HP, 12-1/4" Wheel, 650 To 2,950 CFM At 1/8" Static Pressure, Centrifugal Fan	\$2,687.49
					Quantity Unit Price Factor = Total	
					Installation 1.00 x 1,823.75 x 1.3100 = 2,389.11	
					Demolition 1.00 x 227.77 x 1.3100 = 298.38	
199	23	34	16	00 0129	EA 30" Diameter Wheel, 5 HP, 14,266 CFM At 1/4" Static Pressure, Belt Drive, Kitchen Upblast Exhaust Fan115/208-230/60/3. Includes heat baffle, grease baffle and disconnect switch.	\$8,996.91
					Quantity Unit Price Factor = Total	
					Installation 1.00 x 6,652.17 x 1.3100 = 8,714.34	
					Demolition 1.00 x 215.70 x 1.3100 = 282.57	
200	23	34	16	00 0129 0029	For Bird Screen, Add	\$0.00
					Quantity Unit Price Factor = Total	
					Installation 0.00 x 147.81 x 1.3100 = 0.00	
201	23	34	16	00 0129 0035	For Hinged Curb Kit, Add	\$0.00
					Quantity Unit Price Factor = Total	
					Installation 0.00 x 528.77 x 1.3100 = 0.00	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.	Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)		
No Category Input					
202	23 34 16 00 0129	0622		For Backdraft Damper, Add	\$0.00
			Installation	Quantity 0.00 x Unit Price 274.04 x Factor 1.3100 = Total 0.00	
203	23 36 16 00 0019		EA	10" Diameter Inlet, 165 To 1,400 CFM, Variable Air Volume Box With Analog Electronic Controls	\$8,725.98
			Installation	Quantity 3.00 x Unit Price 2,166.17 x Factor 1.3100 = Total 8,513.05	
			Demolition	3.00 x 54.18 x 1.3100 = 212.93	
204	23 36 16 00 0020		EA	12" Diameter Inlet, 235 To 2,000 CFM, Variable Air Volume Box With Analog Electronic Controls	\$3,046.82
			Installation	Quantity 1.00 x Unit Price 2,265.10 x Factor 1.3100 = Total 2,967.28	
			Demolition	1.00 x 60.72 x 1.3100 = 79.54	
205	23 36 16 00 0021		EA	14" Diameter Inlet, 320 To 3,000 CFM, Variable Air Volume Box With Analog Electronic Controls	\$54,726.77
			Installation	Quantity 16.00 x Unit Price 2,480.32 x Factor 1.3100 = Total 51,987.51	
			Demolition	16.00 x 130.69 x 1.3100 = 2,739.26	
206	23 36 16 00 0022		EA	16" Diameter Inlet, 420 To 4,000 CFM, Variable Air Volume Box With Analog Electronic Controls	\$3,482.66
			Installation	Quantity 1.00 x Unit Price 2,527.83 x Factor 1.3100 = Total 3,311.46	
			Demolition	1.00 x 130.69 x 1.3100 = 171.20	
207	23 37 13 13 0007		EA	12" x 12" Ceiling Diffuser With Perforated Face, Flush Mount, Aluminum Construction With Damper	\$214.28
			Installation	Quantity 1.00 x Unit Price 149.56 x Factor 1.3100 = Total 195.92	
			Demolition	1.00 x 14.01 x 1.3100 = 18.35	
208	23 37 13 13 0011		EA	24" x 24" Ceiling Diffuser With Perforated Face, Flush Mount, Aluminum Construction With Damper	\$4,873.99
			Installation	Quantity 13.00 x Unit Price 263.78 x Factor 1.3100 = Total 4,492.17	
			Demolition	13.00 x 22.42 x 1.3100 = 381.81	
209	23 37 13 13 0083		EA	24" x 24" Single Deflection Return/Exhaust Register, Aluminum, Opposed Blade Damper, Wall/Ceiling	\$4,453.55
			Installation	Quantity 9.00 x Unit Price 356.25 x Factor 1.3100 = Total 4,200.19	
			Demolition	9.00 x 21.49 x 1.3100 = 253.37	
210	23 37 23 13 0038		EA	24" x 48" Throat, Galvanized Steel, Gravity Intake/Relief Ventilator Hood (Greenheck FGI)	\$4,986.57
			Installation	Quantity 1.00 x Unit Price 3,615.88 x Factor 1.3100 = Total 4,736.80	
			Demolition	1.00 x 190.66 x 1.3100 = 249.76	
211	23 52 16 13 0071		EA	4,804 MBH 96% Efficient, Gas Fired, Stainless Steel Firetube, Condensing Boiler (Lochinvar Crest FBN5001)	\$321,211.63
			Installation	Quantity 2.00 x Unit Price 121,137.03 x Factor 1.3100 = Total 317,379.02	
			Demolition	2.00 x 1,462.83 x 1.3100 = 3,832.61	
212	23 63 13 00 0004		EA	10 Ton Air Cooled Condensing Unit With Compressor, Condenser, Fan And Motor	\$14,583.44
			Installation	Quantity 1.00 x Unit Price 10,307.40 x Factor 1.3100 = Total 13,502.69	
			Demolition	1.00 x 825.00 x 1.3100 = 1,080.75	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total		
Labor	Equip.	Material		(Excluded if marked with an X)								
No Category Input												
213	23	73	13	00	0056	EA	3,500 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$23,024.39	
							Quantity		Unit Price	Factor	Total	
						Installation	1.00	x	15,741.85	x	20,621.82	
						Demolition	1.00	x	1,834.02	x	2,402.57	
214	23	73	13	00	0057	EA	4,000 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$25,640.58	
							Quantity		Unit Price	Factor	Total	
						Installation	1.00	x	17,604.94	x	23,062.47	
						Demolition	1.00	x	1,968.02	x	2,578.11	
215	23	73	13	00	0058	EA	4,500 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$27,997.36	
							Quantity		Unit Price	Factor	Total	
						Installation	1.00	x	19,264.44	x	25,236.42	
						Demolition	1.00	x	2,107.59	x	2,760.94	
216	23	73	13	00	0063	EA	7,000 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$40,877.93	
							Quantity		Unit Price	Factor	Total	
						Installation	1.00	x	28,194.19	x	36,934.39	
						Demolition	1.00	x	3,010.34	x	3,943.55	
217	23	73	13	00	0075	EA	20,000 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$107,419.23	
							Quantity		Unit Price	Factor	Total	
						Installation	1.00	x	76,002.19	x	99,562.87	
						Demolition	1.00	x	5,997.22	x	7,856.36	
218	23	73	13	00	0078	EA	27,500 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$311,321.45	
							Quantity		Unit Price	Factor	Total	
						Installation	2.00	x	111,197.45	x	291,337.32	
						Demolition	2.00	x	7,627.53	x	19,984.13	
219	23	73	13	00	0079	EA	30,000 CFM Multizone Air Handling Unit, Built-Up, Horizontal / Vertical, Draw-Through Fan				\$337,350.49	
							Quantity		Unit Price	Factor	Total	
						Installation	2.00	x	120,549.70	x	315,840.21	
						Demolition	2.00	x	8,210.03	x	21,510.28	
220	23	82	19	00	0036	EA	1,000 CFM, 30 MBH Cooling, Vertical Fan Coil, Hot Water Heating, Floor Mounted, Chilled Water Coil, With Cabinet				\$31,985.27	
							Quantity		Unit Price	Factor	Total	
						Installation	4.00	x	5,864.97	x	30,732.44	
						Demolition	4.00	x	239.09	x	1,252.83	
221	23	82	19	00	0036	0554	EA	For Thru-Wall Sleeve, Add				\$787.99
							Quantity		Unit Price	Factor	Total	
						Installation	4.00	x	150.38	x	787.99	
222	23	82	39	16	0005	EA	36 MBH Steam, 26.1 MBH Hot Water, 550 CFM Unit Heater Fan Propelled, Horizontal, 115 Volt				\$2,958.35	
							Quantity		Unit Price	Factor	Total	
						Installation	2.00	x	1,040.91	x	2,727.18	
						Demolition	2.00	x	88.23	x	231.16	
223	26	05	19	16	0014	MLF	#12 AWG, Type THHN-THWN, 600 Volt, Copper, Single Solid Cable, Installed In Conduit				\$950.15	
							Quantity		Unit Price	Factor	Total	
						Installation	0.79	x	680.38	x	699.67	
						Demolition	0.79	x	243.58	x	250.49	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)			
No Category Input						
224	26 05 19 16 0015		MLF		#10 AWG, Type THHN-THWN, 600 Volt, Copper, Single Solid Cable, Installed In Conduit	\$3,190.77
			Installation	Quantity	Unit Price	Factor = Total
				2.12	x 851.61	= 2,363.98
			Demolition	2.12	x 297.85	= 826.80
225	26 05 19 16 0239		MLF		#18/2 With #18 Tinned Ground And #14/2 With #14 Tinned Ground FPLP Twisted Shielded Pair Red Armored Cable	\$8,811.84
			Installation	Quantity	Unit Price	Factor = Total
				0.92	x 6,265.41	= 7,551.07
			Demolition	0.92	x 1,046.11	= 1,260.77
226	26 05 19 16 0241		MLF		#16/4 With Two #16 Tinned Grounds FPLP Twisted Shielded Pair Red Armored Cable	\$695.00
			Installation	Quantity	Unit Price	Factor = Total
				0.08	x 5,697.69	= 597.12
			Demolition	0.08	x 934.03	= 97.89
227	26 05 19 16 0279		MLF		#12 AWG, Type THHN-THWN, 600 Volt, Copper, Single Stranded Cable, Installed In Conduit	\$6,218.97
			Installation	Quantity	Unit Price	Factor = Total
				5.59	x 686.12	= 5,024.39
			Demolition	5.59	x 163.13	= 1,194.58
228	26 05 19 16 0280		MLF		#10 AWG, Type THHN-THWN, 600 Volt, Copper, Single Stranded Cable, Installed In Conduit	\$1,006.49
			Installation	Quantity	Unit Price	Factor = Total
				0.72	x 858.95	= 812.41
			Demolition	0.72	x 205.20	= 194.08
229	26 05 19 16 0281		MLF		#8 AWG, Type THHN-THWN, 600 Volt, Copper, Single Stranded Cable, Installed In Conduit	\$41.10
			Installation	Quantity	Unit Price	Factor = Total
				0.02	x 1,223.39	= 33.66
			Demolition	0.02	x 270.46	= 7.44
230	26 05 19 16 0282		MLF		#6 AWG, Type THHN-THWN, 600 Volt, Copper, Single Stranded Cable, Installed In Conduit	\$3,103.61
			Installation	Quantity	Unit Price	Factor = Total
				1.20	x 1,691.65	= 2,665.92
			Demolition	1.02	x 326.60	= 437.69
231	26 05 29 00 0029		LF		>2' Length x 1-5/8" Wide x 1-5/8" High, 12 Gauge, Steel Unistrut Channel	\$2,233.81
			Installation	Quantity	Unit Price	Factor = Total
				120.00	x 12.28	= 1,930.42
			Demolition	120.00	x 1.93	= 303.40
232	26 05 29 00 0136		EA		3/8-16, Steel Lock Nut With Spring For Unistrut Channel	\$188.64
			Installation	Quantity	Unit Price	Factor = Total
				18.00	x 8.00	= 188.64
233	26 05 29 00 0140		EA		1/4-20, 316 Stainless Steel Lock Nut With Spring For Unistrut Channel	\$194.61
			Installation	Quantity	Unit Price	Factor = Total
				8.00	x 18.57	= 194.61
234	26 05 29 00 0167		EA		1/2", One Hole Steel Conduit Strap	\$193.67
			Installation	Quantity	Unit Price	Factor = Total
				42.00	x 3.52	= 193.67
235	26 05 29 00 0168		EA		3/4", One Hole Steel Conduit Strap	\$1,332.86
			Installation	Quantity	Unit Price	Factor = Total
				285.00	x 3.57	= 1,332.86

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description	Line Total					
Labor	Equip.	Material	(Excluded if marked with an X)								
No Category Input											
236	26	05	29	00	0169	EA	1", One Hole Steel Conduit Strap				\$60.05
						Installation	Quantity	Unit Price	Factor	Total	
							12.00	x 3.82	1.3100 =	60.05	
237	26	05	29	00	0240	EA	24" Long Snap On T-Bar Electrical Box Hanger (Caddy 512)				\$762.03
						Installation	Quantity	Unit Price	Factor	Total	
							21.00	x 27.70	1.3100 =	762.03	
238	26	05	33	13	0459	EA	1/2" Rigid Galvanized Steel (RGS) Threaded Coupling				\$388.60
						Installation	Quantity	Unit Price	Factor	Total	
							18.00	x 11.36	1.3100 =	267.87	
						Demolition	18.00	x 5.12	1.3100 =	120.73	
239	26	05	33	13	0460	EA	3/4" Rigid Galvanized Steel (RGS) Threaded Coupling				\$30.35
						Installation	Quantity	Unit Price	Factor	Total	
							1.00	x 15.92	1.3100 =	20.86	
						Demolition	1.00	x 7.25	1.3100 =	9.50	
240	26	05	33	13	0461	EA	1" Rigid Galvanized Steel (RGS) Threaded Coupling				\$39.71
						Installation	Quantity	Unit Price	Factor	Total	
							1.00	x 20.93	1.3100 =	27.42	
						Demolition	1.00	x 9.38	1.3100 =	12.29	
241	26	05	33	13	0601	LF	1/2" Electrical Metallic Tubing (EMT) Conduit				\$1,303.82
						Installation	Quantity	Unit Price	Factor	Total	
							156.00	x 4.84	1.3100 =	989.10	
						Demolition	156.00	x 1.54	1.3100 =	314.71	
242	26	05	33	13	0602	LF	3/4" Electrical Metallic Tubing (EMT) Conduit				\$21,671.87
						Installation	Quantity	Unit Price	Factor	Total	
							2,197.00	x 5.82	1.3100 =	16,750.37	
						Demolition	2,197.00	x 1.71	1.3100 =	4,921.50	
243	26	05	33	13	0603	LF	1" Electrical Metallic Tubing (EMT) Conduit				\$1,118.40
						Installation	Quantity	Unit Price	Factor	Total	
							93.00	x 7.30	1.3100 =	889.36	
						Demolition	93.00	x 1.88	1.3100 =	229.04	
244	26	05	33	13	0634	EA	1/2" Electrical Metallic Tubing (EMT) Set Screw Coupling				\$77.81
						Installation	Quantity	Unit Price	Factor	Total	
							9.00	x 4.55	1.3100 =	53.64	
						Demolition	9.00	x 2.05	1.3100 =	24.17	
245	26	05	33	13	0635	EA	3/4" Electrical Metallic Tubing (EMT) Set Screw Coupling				\$2,326.64
						Installation	Quantity	Unit Price	Factor	Total	
							234.00	x 5.54	1.3100 =	1,698.23	
						Demolition	234.00	x 2.05	1.3100 =	628.41	
246	26	05	33	13	0636	EA	1" Electrical Metallic Tubing (EMT) Set Screw Coupling				\$117.90
						Installation	Quantity	Unit Price	Factor	Total	
							10.00	x 6.61	1.3100 =	86.59	
						Demolition	10.00	x 2.39	1.3100 =	31.31	
247	26	05	33	13	0678	EA	1/2" Electrical Metallic Tubing (EMT) Straight Box Connector With Set Screw				\$471.08
						Installation	Quantity	Unit Price	Factor	Total	
							58.00	x 4.49	1.3100 =	341.15	
						Demolition	58.00	x 1.71	1.3100 =	129.93	

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description				Line Total	
Labor	Equip.	Material	(Excluded if marked with an X)								
No Category Input											
248	26	05	33	13	0679	EA	3/4" Electrical Metallic Tubing (EMT) Straight Box Connector With Set Screw				\$513.62
							Quantity		Unit Price	Factor	Total
						Installation	52.00	x	5.49	x	1.3100 = 373.98
						Demolition	52.00	x	2.05	x	1.3100 = 139.65
249	26	05	33	13	0680	EA	1" Electrical Metallic Tubing (EMT) Straight Box Connector With Set Screw				\$94.32
							Quantity		Unit Price	Factor	Total
						Installation	8.00	x	6.61	x	1.3100 = 69.27
						Demolition	8.00	x	2.39	x	1.3100 = 25.05
250	26	05	33	13	2357	LF	1/2" Flexible Liquid Tight Metallic Conduit				\$348.09
							Quantity		Unit Price	Factor	Total
						Installation	52.00	x	4.09	x	1.3100 = 278.61
						Demolition	52.00	x	1.02	x	1.3100 = 69.48
251	26	05	33	13	2358	LF	3/4" Flexible Liquid Tight Metallic Conduit				\$233.31
							Quantity		Unit Price	Factor	Total
						Installation	26.00	x	5.49	x	1.3100 = 186.99
						Demolition	26.00	x	1.36	x	1.3100 = 46.32
252	26	05	33	13	2359	LF	1" Flexible Liquid Tight Metallic Conduit				\$155.43
							Quantity		Unit Price	Factor	Total
						Installation	15.00	x	6.55	x	1.3100 = 128.71
						Demolition	15.00	x	1.36	x	1.3100 = 26.72
253	26	05	33	13	2368	EA	1/2" Straight Liquid Tight Connector				\$297.30
							Quantity		Unit Price	Factor	Total
						Installation	17.00	x	10.62	x	1.3100 = 236.51
						Demolition	17.00	x	2.73	x	1.3100 = 60.80
254	26	05	33	13	2369	EA	3/4" Straight Liquid Tight Connector				\$169.78
							Quantity		Unit Price	Factor	Total
						Installation	8.00	x	13.13	x	1.3100 = 137.60
						Demolition	8.00	x	3.07	x	1.3100 = 32.17
255	26	05	33	13	2370	EA	1" Straight Liquid Tight Connector				\$85.16
							Quantity		Unit Price	Factor	Total
						Installation	3.00	x	18.26	x	1.3100 = 71.76
						Demolition	3.00	x	3.41	x	1.3100 = 13.40
256	26	05	33	13	2379	EA	1/2" 90 Degree Angle Liquid Tight Connector				\$452.30
							Quantity		Unit Price	Factor	Total
						Installation	17.00	x	16.56	x	1.3100 = 368.79
						Demolition	17.00	x	3.75	x	1.3100 = 83.51
257	26	05	33	13	2381	EA	1" 90 Degree Angle Liquid Tight Connector				\$127.41
							Quantity		Unit Price	Factor	Total
						Installation	3.00	x	27.64	x	1.3100 = 108.63
						Demolition	3.00	x	4.78	x	1.3100 = 18.79
258	26	05	33	13	2398	LF	1/2" Flexible Metallic Conduit				\$1,078.20
							Quantity		Unit Price	Factor	Total
						Installation	177.00	x	3.53	x	1.3100 = 818.50
						Demolition	177.00	x	1.12	x	1.3100 = 259.69

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item		Modifier	UOM	Description					Line Total	
Labor	Equip.	Material		(Excluded if marked with an X)								
No Category Input												
259	26	05	33	13	2399	LF	3/4" Flexible Metallic Conduit					\$36.16
							Quantity		Unit Price		Factor	Total
						Installation	5.00	x	4.03	x	1.3100	= 26.40
						Demolition	5.00	x	1.49	x	1.3100	= 9.76
260	26	05	33	13	2400	LF	1" Flexible Metallic Conduit					\$43.30
							Quantity		Unit Price		Factor	Total
						Installation	5.00	x	5.12	x	1.3100	= 33.54
						Demolition	5.00	x	1.49	x	1.3100	= 9.76
261	26	05	33	13	2410	EA	1/2" Flexible Straight Connectors, Plain					\$811.47
							Quantity		Unit Price		Factor	Total
						Installation	58.00	x	7.32	x	1.3100	= 556.17
						Demolition	58.00	x	3.36	x	1.3100	= 255.29
262	26	05	33	13	2411	EA	3/4" Flexible Straight Connectors, Plain					\$16.39
							Quantity		Unit Price		Factor	Total
						Installation	1.00	x	8.40	x	1.3100	= 11.00
						Demolition	1.00	x	4.11	x	1.3100	= 5.38
263	26	05	33	13	2412	EA	1" Flexible Straight Connectors, Plain					\$23.68
							Quantity		Unit Price		Factor	Total
						Installation	1.00	x	13.60	x	1.3100	= 17.82
						Demolition	1.00	x	4.48	x	1.3100	= 5.87
264	26	05	33	13	2433	EA	1/2" Flexible 90 Degree Connector, Plain					\$356.77
							Quantity		Unit Price		Factor	Total
						Installation	18.00	x	11.02	x	1.3100	= 259.85
						Demolition	18.00	x	4.11	x	1.3100	= 96.91
265	26	05	33	13	2434	EA	3/4" Flexible 90 Degree Connector, Plain					\$24.84
							Quantity		Unit Price		Factor	Total
						Installation	1.00	x	14.48	x	1.3100	= 18.97
						Demolition	1.00	x	4.48	x	1.3100	= 5.87
266	26	05	33	13	2435	EA	1" Flexible 90 Degree Connector, Plain					\$33.60
							Quantity		Unit Price		Factor	Total
						Installation	1.00	x	20.41	x	1.3100	= 26.74
						Demolition	1.00	x	5.24	x	1.3100	= 6.86
267	26	05	33	16	0003	EA	1-1/2" Depth, 4" Square Steel Box					\$3,604.60
							Quantity		Unit Price		Factor	Total
						Installation	60.00	x	31.85	x	1.3100	= 2,503.41
						Demolition	60.00	x	14.01	x	1.3100	= 1,101.19
268	26	05	33	16	0004	EA	2-1/8" Depth, 4" Square Steel Box					\$872.98
							Quantity		Unit Price		Factor	Total
						Installation	14.00	x	33.59	x	1.3100	= 616.04
						Demolition	14.00	x	14.01	x	1.3100	= 256.94
269	26	05	33	16	0008	EA	1/2" Depth, 1 Gang, 4" Square Steel Mud Ring					\$207.37
							Quantity		Unit Price		Factor	Total
						Installation	10.00	x	11.16	x	1.3100	= 146.20
						Demolition	10.00	x	4.67	x	1.3100	= 61.18

Contractor's Price Proposal - Detail Continues..

Work Order Number: 131567.00

Work Order Title: ISD #363 Northome School Boiler Replacement & HVAC Upgrades 2024

Sect.		Item	Modifier	UOM	Description	Line Total
Labor	Equip.	Material	(Excluded if marked with an X)			
No Category Input						
270	26 05 33 16 0026		EA		One Toggle Switch And One Duplex Receptacle, 4" Square Steel Exposed Work Cover	\$205.03
					Quantity Unit Price Factor = Total	
			Installation	9.00 x 12.72 x 1.3100 =	149.97	
			Demolition	9.00 x 4.67 x 1.3100 =	55.06	
271	26 05 33 16 0034		EA		Flat, 4" Square Steel Exposed Work Cover	\$1,098.04
					Quantity Unit Price Factor = Total	
			Installation	55.00 x 10.57 x 1.3100 =	761.57	
			Demolition	55.00 x 4.67 x 1.3100 =	336.47	
272	26 05 33 16 0238		EA		1" Depth, Type FSE, Shallow, Single Gang Non-Metallic (PVC) BoxOne hub.	\$1,333.50
					Quantity Unit Price Factor = Total	
			Installation	11.00 x 64.75 x 1.3100 =	933.05	
			Demolition	11.00 x 27.79 x 1.3100 =	400.45	
273	26 05 83 00 0018		EA		#16-14 AWG Low Voltage (To 600 Volt) One Hole Compression Lug	\$606.16
					Quantity Unit Price Factor = Total	
			Installation	16.00 x 16.78 x 1.3100 =	351.71	
			Demolition	16.00 x 12.14 x 1.3100 =	254.45	
274	26 05 83 00 0124		EA		3 Port, #14 to 2/0, Push On Gel Stub Splice KitKit contains connector, gel filled cap and cap clamp.	\$11,941.50
					Quantity Unit Price Factor = Total	
			Installation	141.00 x 64.65 x 1.3100 =	11,941.50	
275	26 05 83 00 0176		EA		25 HP AC Motor Three Phase, 460 Volt Motor/Equipment, Connection, Termination And Rotation Testing	\$5,006.45
					Quantity Unit Price Factor = Total	
			Installation	14.00 x 202.93 x 1.3100 =	3,721.74	
			Demolition	14.00 x 70.05 x 1.3100 =	1,284.72	
276	26 05 83 00 0187		EA		1/2 HP AC And Less Single Phase, 120 Volt Motor/Equipment, Connection, Termination And Rotation Testing	\$2,542.67
					Quantity Unit Price Factor = Total	
			Installation	23.00 x 61.04 x 1.3100 =	1,839.14	
			Demolition	23.00 x 23.35 x 1.3100 =	703.54	
277	26 27 26 00 0009		EA		20 Amperes, 1 Gang, GFI, Duplex Receptacle Assembly	\$535.27
					Quantity Unit Price Factor = Total	
			Installation	3.00 x 100.71 x 1.3100 =	395.79	
			Demolition	3.00 x 35.49 x 1.3100 =	139.48	
278	26 27 26 00 0138		EA		1 Gang, 20 Amperes, 120/277 Volt, SPST, Switch Assembly	\$1,315.97
					Quantity Unit Price Factor = Total	
			Installation	8.00 x 90.08 x 1.3100 =	944.04	
			Demolition	8.00 x 35.49 x 1.3100 =	371.94	

Subtotal for No Category Input **\$3,282,118.13**

Proposal Total **\$3,282,118.13**

This total represents the correct total for the proposal. Any discrepancy between line totals, sub-totals and the proposal total is due to rounding.



- ARCHITECTURE
- LANDSCAPE ARCHITECTURE
- INTERIOR DESIGN
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SOUTH KOOCHICHING - RAINY
RIVER ISD #363 NORTHOME AND
INDUS SCHOOLS BOILER AND IAQ
UPGRADES

NORTHOME
SCHOOL

P.O. BOX 465, HWY 1
NORTHOME, MN 56661

PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY: Author

REVISIONS:

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION, OR REPORT WAS
PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION, AND THAT I
AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS
OF THE STATE OF MINNESOTA.
(ENGINEER)

DAVID JORDAN REG. NO.
42696
MICHAEL WASHBURN REG. NO.
52709

MECHANICAL
&
ELECTRICAL
LEGENDS

ME0.0

M/E SYMBOL LEGEND	
-----	ITEM SCHEDULED FOR REMOVAL / DEMOLITION
---	EXISTING ITEM TO REMAIN
---	NEW ITEM
①	KEYED NOTE REFERENCE
①	EQUIPMENT NUMBER

M/E ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
BMS	BUILDING MANAGEMENT SYSTEM
C.V.	CONTROL VALVE
E.A.	EXHAUST AIR
F.F.E.	FINISHED FLOOR ELEVATION
O.A.	OUTSIDE AIR
R.A.	RETURN AIR
ROP	RADIANT CEILING PANEL
S.W.	SOLAR WALL DUCT
S.A.	SUPPLY AIR
TYP	TYPICAL
V.R.C.	VANDAL RESISTANT COVER (T-STATS & SENSORS)

HVAC LEGEND	
SA	INDICATES SUPPLY (S.), RETURN/RELIEF (R.), TRANSFER (T.) OR EXHAUST (E.)
DB	DIFFUSER FROM REGISTER SCHEDULE
DB	AIR VOLUME (CFM)
DB	NECK SIZE
SA	SUPPLY DUCT (24"10 S.A.)
RA	RETURN OR RELIEF DUCT (24"10 R.A.)
EA	EXHAUST DUCT (24"10 E.A.)
TD	LINED DUCT WITH INTERNAL FREE AREA LISTED
TD	THERMOSTAT
TD	REVERSLACTING THERMOSTAT
TD	THERMOSTAT WITH DEVICE CONTROLLED
TD	BALANCING DAMPER
TD	COMBINATION FIRESMOKE DAMPER
TD	BACKDRAFT DAMPER
TD	FIRE DAMPER
TD	MOTORIZED DAMPER
TD	DUCT TURNING VANE
TD	FINED TUBE RADIATION, SEE PLAN & SPEC. (F.T.R.)
TD	EXPANSION JOINT
TD	VARIABLE AIR VOLUME (V.A.V.) BOX
TD	DUCT CONTINUATION
TD	FLEXIBLE DUCT (MAXIMUM 5 FEET)
TD	LINEAR GRILLE / DIFFUSER / PLENUM SLOT
TD	SUPPLY DIFFUSER
TD	RETURN GRILLE
TD	UNIT HEATER

PLUMBING & PIPING LEGEND	
---	COLD WATER PIPE (CW)
---	HOT WATER PIPE (HW)
---	CIRCULATING HOT WATER (CHW)
---	WASTE PIPE ABOVE GROUND (W)
---	VENT PIPE (V)
---	UNDERGROUND WASTE (W)
---	HEATING WATER SUPPLY PIPE (HWS)
---	HEATING WATER RETURN PIPE (HWR)
---	NATURAL GAS PIPE
---	UNDERGROUND STORM
---	RAIN LEADER (RL)
---	OVERFLOW RAIN LEADER (RL)
---	STRAINER
---	STRAINER W/ DRAIN VALVE
---	UNION
---	MOTORIZED / CONTROL VALVE
---	FLOW BALANCING & MEASURING DEVICE
---	BALL VALVE
---	CHECK VALVE
---	GAS SHUTOFF VALVE
---	PIPE ANCHOR
---	PIPE GUIDE
---	PIPE CONNECTION
---	PIPING TEE DOWN
---	PIPING DOWN
---	PIPING UP
---	PIPE CONTINUATION
---	PIPE CLEAN-OUT
---	PIPE CAP
---	WALL CLEAN-OUT
---	VENT THRU ROOF (V.T.R.)
---	WATER HAMMER ARRESTER W/ PDX SIZE
---	FLOOR DRAIN (RISER)
---	P-TRAP (RISER)
---	THERMOMETER
---	PRESSURE GAUGE
---	RELIEF VALVE
---	AIR VENT (MANUAL)
---	AIR VENT (AUTOMATIC)
---	PLUMBING FIXTURE IDENTIFICATION
---	CLEANOUT
---	FLOOR DRAIN
---	ROOF DRAIN

ELECTRICAL DEVICES LEGEND	
WALL	DEVICE INDICATOR LETTER "XX" EQUALS DESIGNATION BELOW (TYPICAL FOR MOST RECEPTACLE TYPES)
WALL	BLANK FOR NORMAL POWER
WALL	GFI = GROUND FAULT INTERRUPTER
WALL	IP = INSULATED GROUND
WALL	WP = WEATHERPROOF AND GFCI
WALL	TV = TELEVISION
WALL	WM = WIREMOLD
WALL	SM = SURFACE MOUNT
WALL	CR = CORD REEL
WALL	EM = EMERGENCY POWER RECEPTACLE
WALL	TL = TWIST LOCK
WALL	INDICATES NON-STANDARD MOUNTING HEIGHT MEASURED FROM FINISHED FLOOR TO CENTER OF OUTLET.
POWER / DATA RECEPTACLES	
WALL	DUPLEX RECEPTACLE
WALL	DOUBLE DUPLEX (QUADPLEX) RECEPTACLE
WALL	EMERGENCY DUPLEX RECEPTACLE EMERGENCY
WALL	DOUBLE DUPLEX (QUADPLEX) RECEPTACLE
WALL	30A RECEPTACLE
WALL	50A RECEPTACLE
WALL	80A RECEPTACLE
WALL	SPECIAL PURPOSE RECEPTACLE
WALL	220V RECEPTACLE
WALL	COMBINATION DUPLEX RECEPTACLE AND DATA
WALL	JUNCTION BOX
OTHER POWER SYMBOLS	
WALL	PUSHBUTTON (EMERGENCY POWER OFF - EPO)
WALL	EMERGENCY LIGHTING CONTROL UNIT
WALL	THERMOSTAT, 4" x 4" F.F. MOUNTING HEIGHT, TYP
WALL	POWER POLE, SEE DETAIL
WALL	NON-FUSED DISCONNECT SWITCH
WALL	FUSED DISCONNECT SWITCH
WALL	MOTOR STARTER
WALL	COMBINATION FUSIBLE DISCONNECT SWITCH & MOTOR STARTER

LIGHTING LEGEND	
WALL	TROFFER LIGHT FIXTURE (SEE SCHEDULE FOR FIXTURE 'A', TYP)
WALL	FIXTURE ON EMERGENCY CIRCUIT
WALL	LINEAR LIGHT FIXTURE
WALL	RECESSED LIGHT FIXTURE
WALL	WALL MOUNTED FIXTURE
WALL	SINGLE HEAD, POLE MOUNTED LUMINAIRE
WALL	DOUBLE HEAD, POLE MOUNTED LUMINAIRE
WALL	SINGLE POLE TOGGLE SWITCH
WALL	LOW VOLTAGE LIGHT SWITCH
WALL	EXIT LUMINAIRE
WALL	SINGLE FACE EXIT LUMINAIRE WITH ARROW
WALL	DOUBLE FACE EXIT LUMINAIRE WITH ARROWS
WALL	COMBINATION EMERGENCY BATTERY PACK & EXIT FIXTURE
WALL	EMERGENCY BATTERY PACK LUMINAIRE (BUG-EYE/FROG-EYE)
WALL	EMERGENCY LIGHT - REMOTE
WALL	OCCUPANCY SENSOR
WALL	DAY-LIGHTING SENSOR
WALL	INDICATES LIGHTING CONTROL OPERATION (SEE LIGHTING CONTROL SCHEDULE)
WALL	PHOTOCELL
WALL	EMERGENCY LIGHTING CONTROL UNIT (SEE DETAIL)

RACEWAY AND CONDUCTORS	
WALL	PANEL / CIRCUIT(S). NO. OF CIRCUITS INDICATES PHASING.
WALL	NO. HASH MARKS INDICATES NO. WIRES
WALL	MULTIPLE ARROWS INDICATES MULTI-CIRCUIT HOME-RUN
EQUIPMENT POWER	
WALL	PANEL / CIRCUIT. NO. OF CIRCUITS INDICATES PHASING.
WALL	HOMERUN
WALL	FUSED DISCONNECT MOTOR STARTER EQUIPMENT NUMBER TAG. SEE EQUIPMENT SCHEDULE.
FOOD SERVICE EQUIPMENT POWER	
WALL	PANEL / CIRCUIT. NO. OF CIRCUITS INDICATES PHASING.
WALL	HOMERUN
WALL	FUSED DISCONNECT MOTOR STARTER EQUIPMENT NUMBER TAG. SEE FOOD SERVICE PLANS.
WALL	CONCEALED CONDUIT IN WALLS OR CEILING
WALL	UNDERGROUND CONDUIT
WALL	EXPOSED RACEWAY ON WALLS OR CEILING
WALL	CONCEALED RACEWAY BETWEEN LIGHT FIXTURES IN WALLS OR CEILING GROUPS OF LIGHTS ON EACH END OF RACEWAY ARE ON THE SAME POWER CIRCUIT WITH SEPARATE CONTROLS.
ELECTRICAL SITE PLAN	
WALL	OVERHEAD ELECTRIC
WALL	UNDERGROUND ELECTRIC. SEE TRENCH DETAIL
WALL	UNDERGROUND FIBER OPTIC CABLE AND/OR COMMUNICATIONS. SEE TRENCH DETAIL

ELECTRICAL EQUIPMENT LEGEND	
WALL	MAIN SWITCHBOARD
WALL	WALL (TYP.)
WALL	DISTRIBUTION BOARD
WALL	ELECTRICAL PANEL

ELECTRICAL EQUIPMENT LEGEND	
WALL	DEVICE INDICATOR LETTER "X" EQUALS DESIGNATION BELOW (TYPICAL FOR MOST EQUIPMENT TYPES)
WALL	N = NORMAL POWER
WALL	S = STANDBY POWER
WALL	EM = EMERGENCY POWER
WALL	ME = MECHANICAL
WALL	PS = PANEL NUMBER IN SEQUENCE
WALL	UPS = UNINTERRUPTIBLE POWER SUPPLY
WALL	MTS = MANUAL TRANSFER SWITCH
WALL	ATS = AUTOMATIC TRANSFER SWITCH
WALL	PG = PORTABLE GENERATOR CONNECTION
WALL	TF = TRANSFORMER
WALL	INDICATES NON-STANDARD MOUNTING HEIGHT MEASURED FROM FINISHED FLOOR TO BOTTOM OF EQUIPMENT

FIRE ALARM /ACCESS CONTROL LEGEND	
WALL	FIRE ALARM CONTROL PANEL
WALL	FIRE ALARM ANNUNCIATOR PANEL
WALL	MANUAL PULL STATION
WALL	FIREMAN'S TELEPHONE OUTLET
WALL	HANDICAP PUSH BUTTON
WALL	HORN STROBE NOTIFICATION
WALL	SPEAKER STROBE NOTIFICATION
WALL	STROBE NOTIFICATION
WALL	MAGNETIC DOOR HOLDER
WALL	DUCT SMOKE DETECTOR
WALL	SMOKE DAMPER
WALL	SMOKE DETECTOR
WALL	SMOKE DETECTOR WITH AUDIOVISUAL NOTIFICATION
WALL	HEAT DETECTOR

SPECIAL SYSTEMS LEGEND	
WALL	INTERCOM CALL SWITCH
WALL	INTERCOM MASTER STATION
WALL	MICROPHONE OUTLET
WALL	VOLUME CONTROL KNOB
WALL	COMMUNICATION HORN
WALL	COMMUNICATION BELL
WALL	WALL CLOCK
WALL	WALL SPEAKER
WALL	DURESS ALARM
WALL	PUSHBUTTON DOOR RELEASE
WALL	PUSHBUTTON LOCK DOWN
WALL	PUSHBUTTON DIGITAL SIGNAGE VIDEO DISPLAY
WALL	VIDEO PROJECTOR
WALL	RECESSED CEILING SPEAKER
WALL	RECESSED 1x1' CEILING SPEAKER
WALL	RECESSED 2x2' SQUARE CEILING SPEAKER
WALL	INFRARED MICROPHONE RECEIVER
WALL	CABLE TRAY - TELECOMMUNICATIONS

SECURITY & ACCESS CONTROL LEGEND	
WALL	CARD READER
WALL	KEY PAD
WALL	REQUEST TO EXIT
WALL	DOOR RELEASE BUTTON
WALL	PANIC BUTTON
WALL	LOCKDOWN BUTTON
WALL	HANDICAP PUSH BUTTON
WALL	EXTERIOR SECURITY CAMERA
WALL	INTERIOR SECURITY CAMERA
WALL	INTERIOR SECURITY CAMERA 360°
WALL	ELECTRIC STRIKE DOOR LOCK
WALL	DOOR CONTACT
WALL	ELECTRIC LATCH RETRACTOR
WALL	DOOR OPERATOR
WALL	GLASS BREAK DETECTOR
WALL	MOTION DETECTOR

NOTE: Shop Drawings shall be clearly identified as to pertinent equipment number
O = OWNER



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SOUTH KOOCHICHING - RAINY
RIVER ISD #363 NORTHOME AND
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UPGRADES

NORTHOME
SCHOOL

P.O. BOX 465, HWY 1
NORTHOME, MN 56666

PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY:

REVISIONS:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DAVID JORDAN REG. NO. 12126

MICHAEL WASHBURN REG. NO. 50700

MECHANICAL & ELECTRICAL EQUIPMENT SCHEDULE

ME1.1

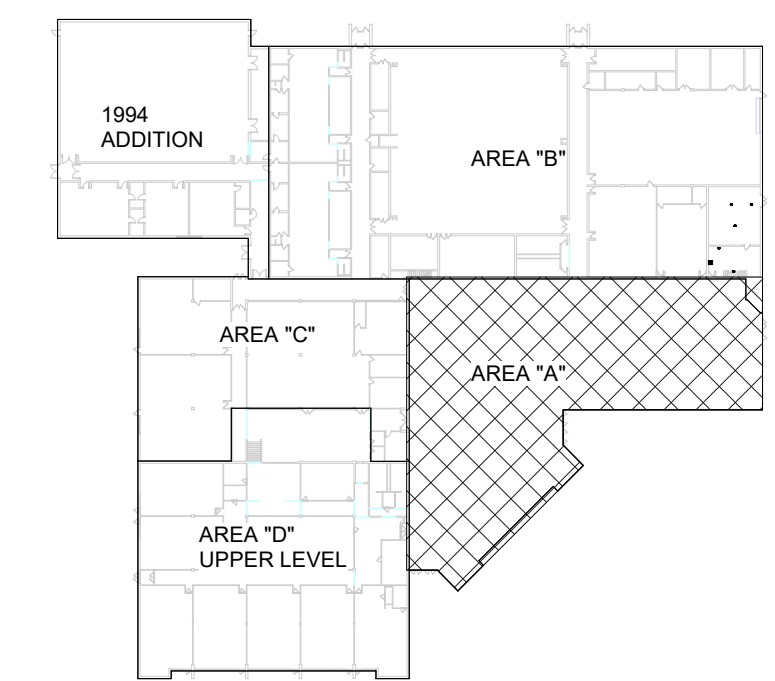
EXISTING HVAC HOT WATER SYSTEM NOTE:
DIV 23 CONTRACTOR TO COMPLETELY DRAIN HOT WATER HEATING SYSTEM, DISPOSE OF EXISTING FLUID (WATER / 40% ETHYLENE GLYCOL MIXTURE) AND CLEAN AND FLUSH THE SYSTEM. PROVIDE NEW 35% PROPYLENE GLYCOL / 65% TREATED WATER MIXTURE. SEE SPECIFICATIONS SECTION 23 25 00 FOR ADDITIONAL REQUIREMENTS.

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE BALANCED TO COMPLETE RETURN AIR DUCT SYSTEM IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

CEILING REMOVAL NOTE:
IN REMODELED AREAS, EACH CONTRACTOR IS RESPONSIBLE FOR CEILING REMOVAL & REPLACEMENT AS WELL AS REMOVAL OF ANY OTHER CEILING COMPONENT. REPLACE ANY CEILING COMPONENT DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: TILE, GRID, LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.

DEMOLITION KEYED NOTES

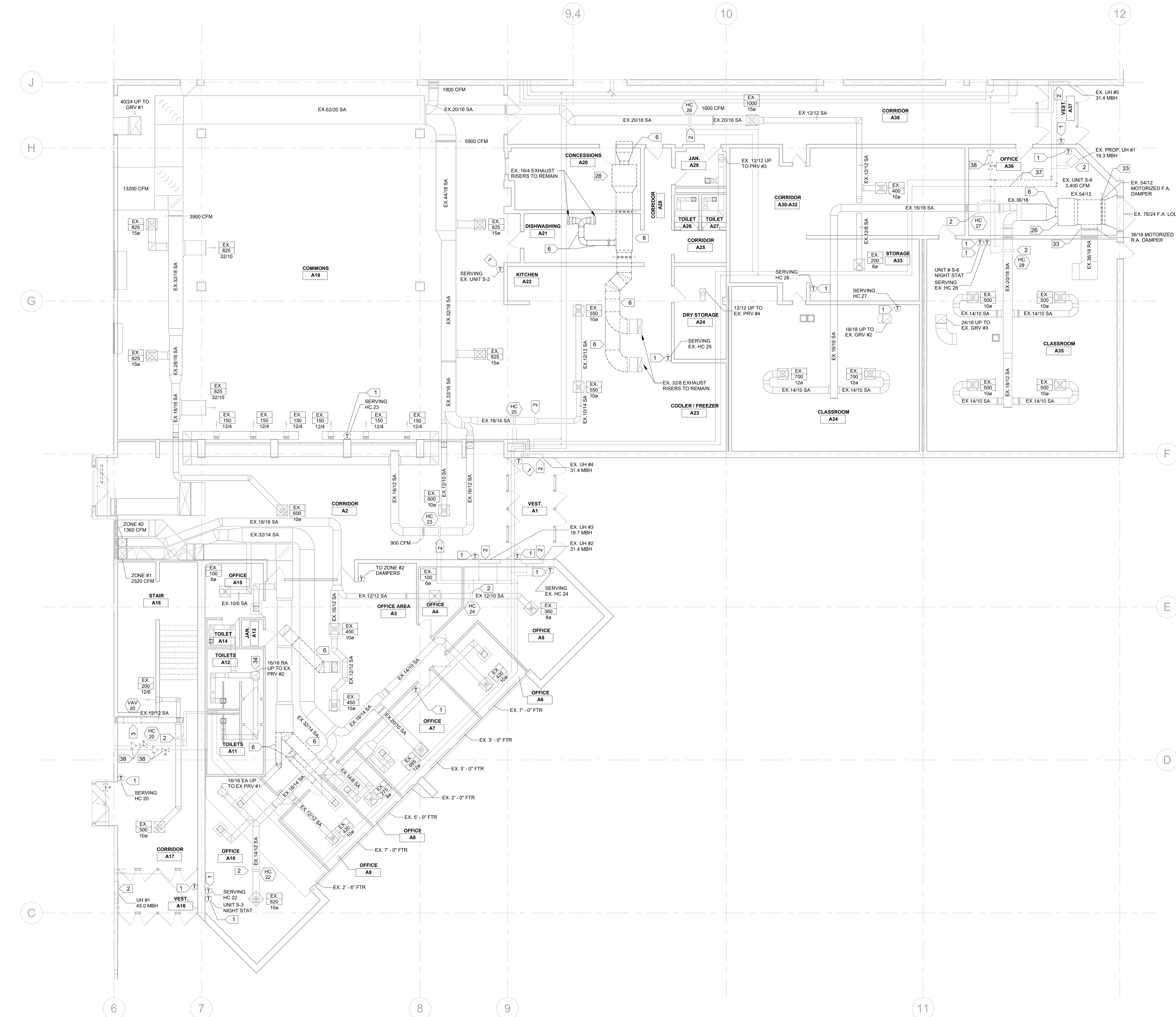
- 1 DISCONNECT AND REMOVE EXISTING THERMOSTAT. CAP PNEUMATIC TUBING IN WALL. PATCH WALL TO MATCH EXISTING.
- 2 DISCONNECT AND REMOVE EXISTING CONTROL VALVE. PREPARE EXISTING PIPING FOR CONNECTION TO NEW.
- 3 DISCONNECT AND REMOVE EXISTING VAV BOX. PREPARE EXISTING DUCT FOR CONNECTION TO NEW.
- 4 DISCONNECT AND REMOVE EXISTING STEAM UNIT HEATER, CONTROLS, RELATED PIPING, & F & TRAP.
- 5 DISCONNECT AND REMOVE EXISTING REHEAT COIL, PIPING, AND RELATED CONTROLS.
- 6 DISCONNECT AND REMOVE EXISTING DUCTWORK AS SHOWN ON PLANS.
- 8 DISCONNECT AND REMOVE EXISTING BOILER, RELATED VENTING, STEAM PIPING, OIL PIPING, CONTROLS & CONCRETE EQUIPMENT PADS. PATCH ROOF TO MATCH EXISTING.
- 9 DISCONNECT AND REMOVE EXISTING HEATING PUMPS, RELATED PIPING, AND CONTROLS.
- 10 DISCONNECT AND REMOVE EXISTING BOILER FEED SYSTEM, RELATED PIPING, AIR LINES, AND CONTROLS.
- 11 DISCONNECT AND REMOVE EXISTING TEMPERATURE CONTROL PANEL/CABINET & RELATED CONTROLS.
- 12 DISCONNECT AND REMOVE EXISTING BOILER CONTROL PANEL.
- 13 DISCONNECT AND REMOVE EXISTING CIRCULATOR PUMP, RELATED PIPING, AND CONTROLS.
- 15 DISCONNECT AND REMOVE EXISTING HOT WATER STORAGE TANK & RELATED PIPING.
- 16 DISCONNECT AND REMOVE EXISTING ELECTRIC BOILER, INDIRECT WATER HEATER, HEAT EXCHANGER & RELATED PIPING.
- 17 DISCONNECT AND REMOVE EXISTING STEAM CONVERTOR, EXPANSION TANK, AND RELATED PIPING.
- 18 DISCONNECT AND REMOVE EXISTING OIL STORAGE TANK HEATER, EXPANSION TANK, AND RELATED PIPING.
- 19 DISCONNECT AND REMOVE EXISTING OIL HEATER (QTY: 2) AND RELATED PIPING.
- 20 DISCONNECT AND REMOVE EXISTING DUPLEX #5 OIL TANK GLYCOL HEATING PUMPS.
- 21 DISCONNECT AND REMOVE EXISTING STEAM WATER HEATER & RELATED PIPING.
- 22 DISCONNECT AND REMOVE EXISTING COMPRESSION TANK AND RELATED PIPING.
- 23 DISCONNECT AND REMOVE EXISTING GRAVITY VENTILATOR AND RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
- 24 DISCONNECT AND REMOVE EXISTING BOILER STACK & RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
- 25 DISCONNECT AND REMOVE EXISTING AIR COMPRESSOR, RELATED PIPING, AND CONTROLS.
- 26 DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT, RELATED PIPING, DUCTWORK, CONTROLS, TEMPERATURE CONTROL PANEL, AND CONCRETE EQUIPMENT PAD.
- 27 DISCONNECT AND REMOVE EXISTING DAMPER & RELATED CONTROLS. PREPARE DUCT FOR CONNECTION TO NEW.
- 28 DISCONNECT AND REMOVE EXISTING FAN & FILTER ASSEMBLY, RELATED DUCTWORK, AND CONTROLS.
- 29 DISCONNECT AND REMOVE EXISTING HOT WATER HEATING PUMP, RELATED PIPING, AND CONTROLS.
- 30 DISCONNECT AND REMOVE EXISTING OIL PUMPS & RELATED OIL PIPING SERVING BOILERS.
- 31 DISCONNECT AND REMOVE EXISTING UNIT VENT & RELATED CONTROLS. PREPARE PIPING AND LOUVER FOR CONNECTION TO NEW.
- 32 NOT USED
- 33 DISCONNECT AND REMOVE EXISTING ACTUATOR SERVING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE FOR CONNECTION TO NEW.
- 34 DISCONNECT AND REMOVE EXISTING EXHAUST FAN AND RELATED CONTROLS. PREPARE CURB FOR CONNECTION TO NEW FAN. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
- 35 DISCONNECT AND REMOVE EXISTING CONDENSING UNIT, RELATED PIPING & CONTROLS.
- 36 DISCONNECT AND TEMPORARILY REMOVE EXISTING LOUVER. LOUVER TAKING DOWN FOR ACCESS TO MECHANICAL ROOM FOR NEW AIR HANDLING UNITS. CLEAN & REINSTALL EXISTING LOUVER. SEAL WEATHER TIGHT.
- 37 DISCONNECT AND REMOVE EXISTING PIPING AS SHOWN ON PLAN. CAP PIPING & PREPARE FOR CONNECTION TO NEW.
- 38 DISCONNECT AND REMOVE EXISTING BALANCING DEVICE & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW BALANCING DEVICE.



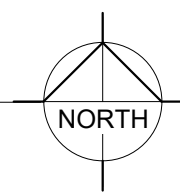
KEY PLAN - AREA A

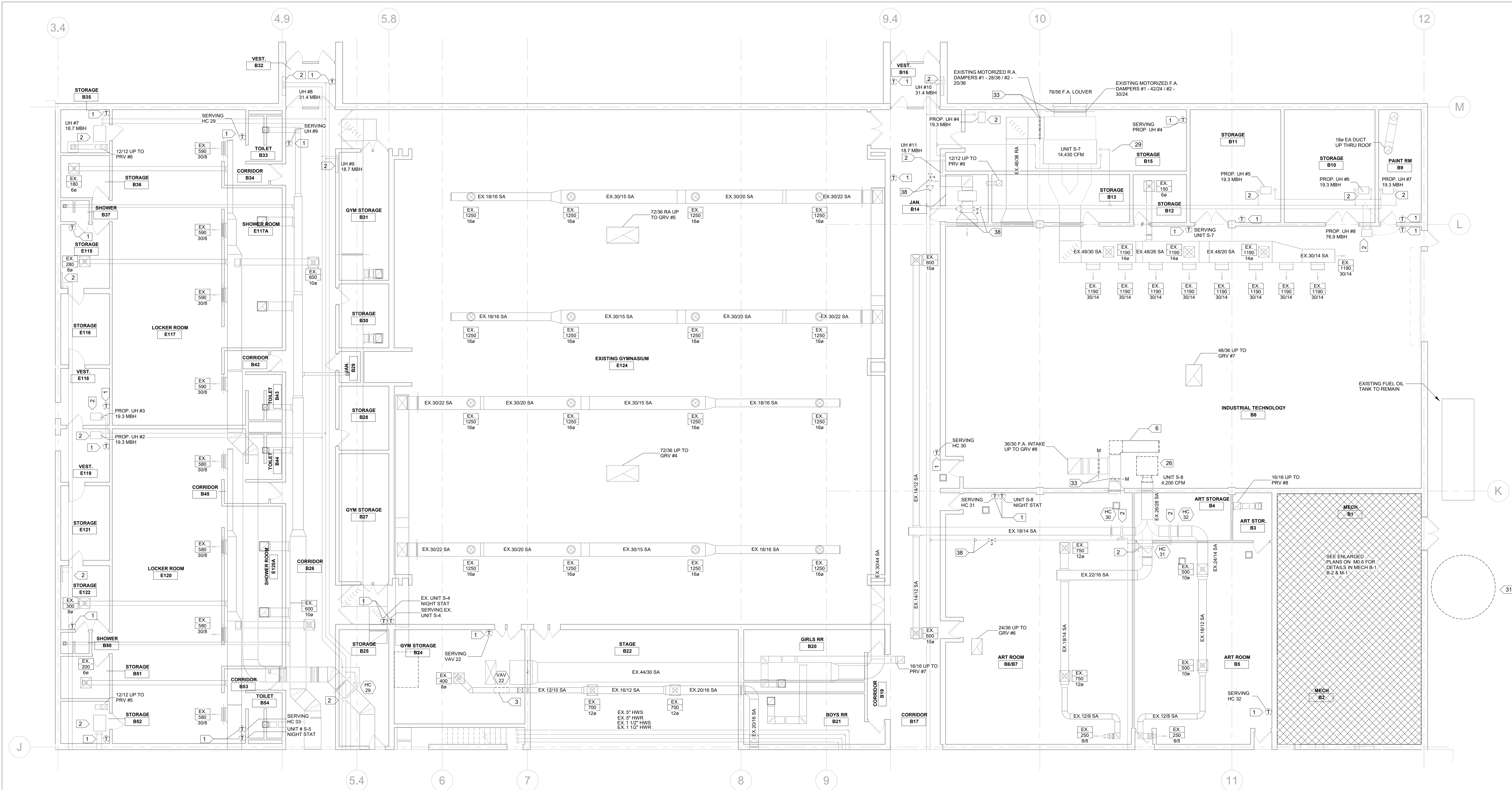
GENERAL MECHANICAL DEMOLITION NOTES:

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- 2 CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTIONS, LOCATIONS AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
- 3 ALL MATERIALS REMOVED BY THIS CONTRACTOR SHALL BE REVIEWED BY THE OWNER. MATERIAL NOT WANTED BY THE OWNER SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES. MATERIAL THE OWNER ELECTS TO KEEP SHALL BE HAULED TO (BY THIS CONTRACTOR) AND STORED IN A LOCATION DETERMINED BY THE OWNER.
- 4 WHEN REMOVING EXISTING EQUIPMENT AS SHOWN AND AS NOTED, PIPING, WIRING, TUBING, DUCTWORK, AND ANY OTHER CONNECTIONS SHALL BE CAPPED AIRTIGHT BELOW FLOORS, INSIDE WALLS AND/OR ABOVE CEILINGS. CONCEALED ITEMS NOT TO BE REUSED MAY BE ABANDONED IF DISCONNECTED FROM THE SYSTEM. EXISTING EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: PLUMBING FIXTURES, TEMPERATURE CONTROLS, CONTROL WIRING, H VALV EQUIPMENT AND ANY OTHER DEMOLITION WORK. THE FLOORS, WALLS, AND/OR CEILINGS SHALL BE PATCHED TO MATCH THE EXISTING CONDITIONS BY THE MECHANICAL CONTRACTOR.
- 5 UPON COMPLETION OF MODIFICATION AND / OR REMOVAL OF TEMPERATURE CONTROL COMPONENTS THE REMAINING MODIFIED TEMPERATURE CONTROL SYSTEM IS TO BE OPERATIONAL.
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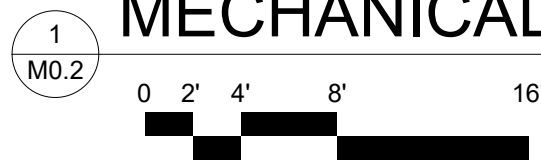


MECHANICAL DEMOLITION PLAN - AREA A





MECHANICAL DEMOLITION PLAN - AREA B



DEMOLITION KEYED NOTES

- 1 DISCONNECT AND REMOVE EXISTING THERMOSTAT. CAP PNEUMATIC TUBING IN WALL. PATCH WALL TO MATCH EXISTING.
- 2 DISCONNECT AND REMOVE EXISTING CONTROL VALVE. PREPARE EXISTING PIPING FOR CONNECTION TO NEW.
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- 4 DISCONNECT AND REMOVE EXISTING STEAM UNIT HEATER, CONTROLS, RELATED PIPING, & F & TRAP.
- 5 DISCONNECT AND REMOVE EXISTING REHEAT COIL, PIPING, AND RELATED CONTROLS.
- 6 DISCONNECT AND REMOVE EXISTING DUCTWORK AS SHOWN ON PLANS.
- 7 DISCONNECT AND REMOVE EXISTING BOILER, RELATED VENTING, STEAM PIPING, OIL PIPING, CONTROLS & CONCRETE EQUIPMENT PADS. PATCH ROOF TO MATCH EXISTING.
- 8 DISCONNECT AND REMOVE EXISTING HEATING PUMPS, RELATED PIPING, AND CONTROLS.
- 9 DISCONNECT AND REMOVE EXISTING BOILER FEED SYSTEM, RELATED PIPING, AIR LINES, AND CONTROLS.
- 10 DISCONNECT AND REMOVE EXISTING TEMPERATURE CONTROL PANEL/CABINET & RELATED CONTROLS.
- 11 DISCONNECT AND REMOVE EXISTING BOILER CONTROL PANEL.
- 12 DISCONNECT AND REMOVE EXISTING CIRCULATOR PUMP, RELATED PIPING, AND CONTROLS.
- 13 DISCONNECT AND REMOVE EXISTING HOT WATER STORAGE TANK & RELATED PIPING.
- 14 DISCONNECT AND REMOVE EXISTING ELECTRIC BOILER, INDIRECT WATER HEATER, HEAT EXCHANGER & RELATED PIPING.
- 15 DISCONNECT AND REMOVE EXISTING STEAM CONVERTER, EXPANSION TANK, AND RELATED PIPING.
- 16 DISCONNECT AND REMOVE EXISTING OIL STORAGE TANK HEATER, EXPANSION TANK, AND RELATED PIPING.
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- 20 DISCONNECT AND REMOVE EXISTING DUPLEX #5 OIL TANK GLYCOL HEATING PUMPS.
- 21 DISCONNECT AND REMOVE EXISTING STEAM WATER HEATER & RELATED PIPING.
- 22 DISCONNECT AND REMOVE EXISTING COMPRESSION TANK AND RELATED PIPING.
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EXISTING HVAC HOT WATER SYSTEM NOTE:

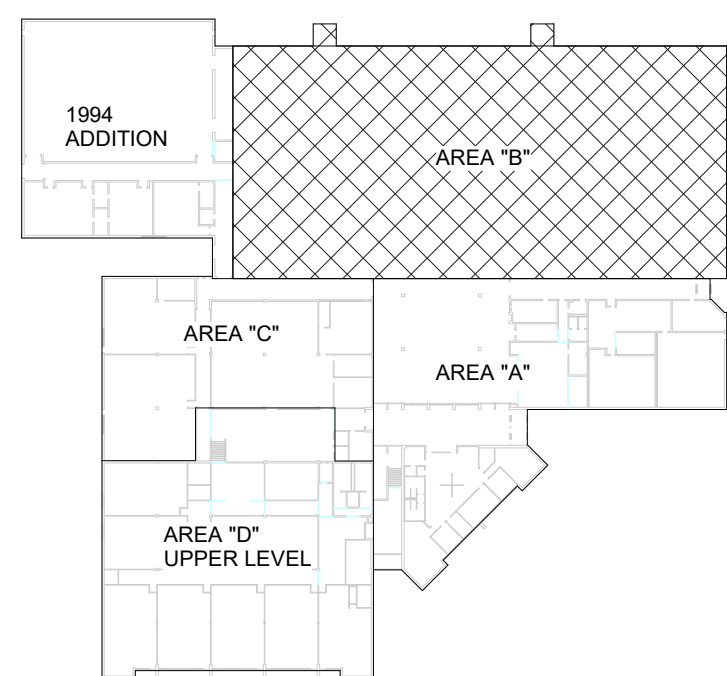
DIV 23 CONTRACTOR TO COMPLETELY DRAIN HOT WATER HEATING SYSTEM, DISPOSE OF EXISTING FLUID (WATER / 40% ETHYLENE GLYCOL MIXTURE) AND CLEAN AND FLUSH THE SYSTEM. PROVIDE NEW 35% PROPYLENE GLYCOL / 65% TREATED WATER MIXTURE. SEE SPECIFICATIONS SECTION 23 25 00 FOR ADDITIONAL REQUIREMENTS.

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE BALANCED TO COMPLETE RETURN AIR DUCT SYSTEM IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

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6. CONTRACTOR TO VERIFY EXISTING OPERATING CONDITIONS PRIOR TO MODIFICATION.



KEY PLAN - AREA B



- ARCHITECTURE
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NORTHOME SCHOOL

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PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY: RNR/DMV

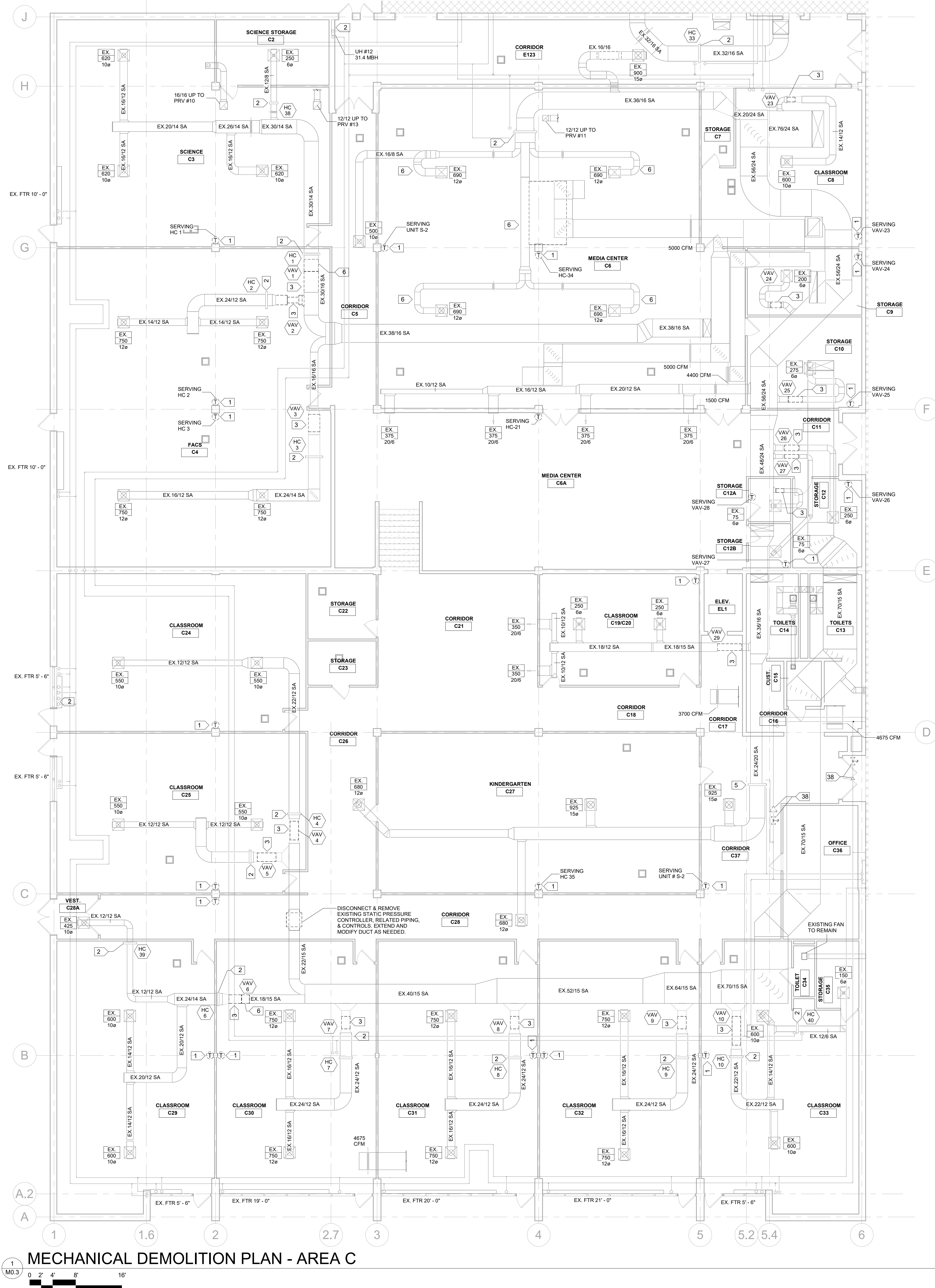
REVISIONS:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Michael C. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

MECHANICAL DEMOLITION PLAN - AREA B

M0.2



EXISTING HVAC HOT WATER SYSTEM NOTE:
DIV 23 CONTRACTOR TO COMPLETELY DRAIN HOT WATER HEATING SYSTEM, DISPOSE OF EXISTING FLUID (WATER / 40% ETHYLENE GLYCOL MIXTURE) AND CLEAN AND FLUSH THE SYSTEM. PROVIDE NEW 35% PROPYLENE GLYCOL / 65% TREATED WATER MIXTURE. SEE SPECIFICATIONS SECTION 23 25 00 FOR ADDITIONAL REQUIREMENTS.

DEMOLITION KEYED NOTES

1. DISCONNECT AND REMOVE EXISTING THERMOSTAT. CAP PNEUMATIC TUBING IN WALL. PATCH WALL TO MATCH EXISTING.
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6. DISCONNECT AND REMOVE EXISTING DUCTWORK AS SHOWN ON PLANS.
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16. DISCONNECT AND REMOVE EXISTING OIL STORAGE TANK HEATER, EXPANSION TANK, AND RELATED PIPING.
17. DISCONNECT AND REMOVE EXISTING OIL HEATER (QTY. 2) AND RELATED PIPING.
18. DISCONNECT AND REMOVE EXISTING DUPLEX #5 OIL TANK GLYCOL HEATING PUMPS.
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KEY PLAN - AREA C

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Michael C. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

**MECHANICAL
DEMOLITION
PLAN - AREA
D**

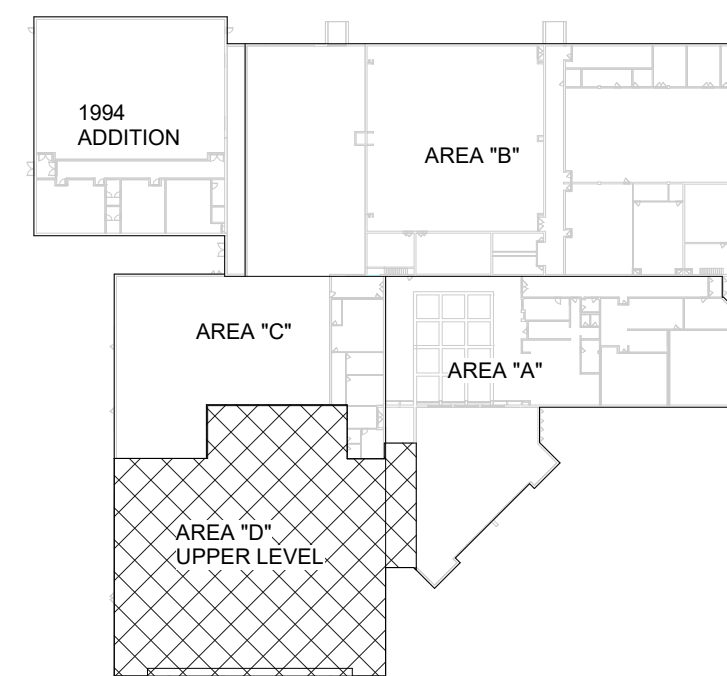
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KEY PLAN - AREA D

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MECHANICAL DEMOLITION PLAN - AREA D

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- ENGINEERING
- TECHNOLOGY

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SOUTH KOOCHICHING - RAINY
RIVER ISD #363 NORTHOME AND
INDUS SCHOOLS BOILER AND IAQ
UPGRADES

NORTHOME
SCHOOL

P.O. BOX 465, HWY 1
NORTHOME, MN 56661

PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY: RNR/DMV

REVISIONS:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Michael C. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

MECHANICAL
DEMOLITION
PLAN - 1994
ADDITION

M0.5

EXISTING HVAC HOT WATER SYSTEM NOTE:

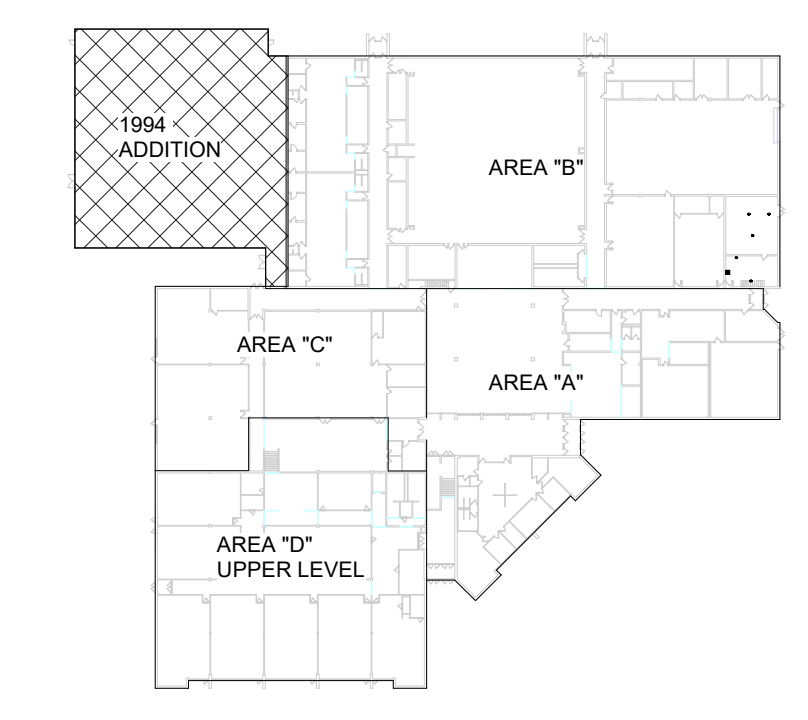
DIV 23 CONTRACTOR TO COMPLETELY DRAIN HOT WATER HEATING SYSTEM, DISPOSE OF EXISTING FLUID (WATER / 40% ETHYLENE GLYCOL MIXTURE) AND CLEAN AND FLUSH THE SYSTEM. PROVIDE NEW 35% PROPYLENE GLYCOL / 65% TREATED WATER MIXTURE. SEE SPECIFICATIONS SECTION 23 25 00 FOR ADDITIONAL REQUIREMENTS.

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE BALANCED TO COMPLETE RETURN AIR DUCT SYSTEM IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

CEILING REMOVAL NOTE:
IN REMODELED AREAS, EACH CONTRACTOR IS RESPONSIBLE FOR CEILING REMOVAL & REPLACEMENT AS WELL AS REMOVAL OF ANY OTHER CEILING COMPONENT. REPLACE ANY CEILING COMPONENT DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: TILE, GRID LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.

DEMOLITION KEYED NOTES

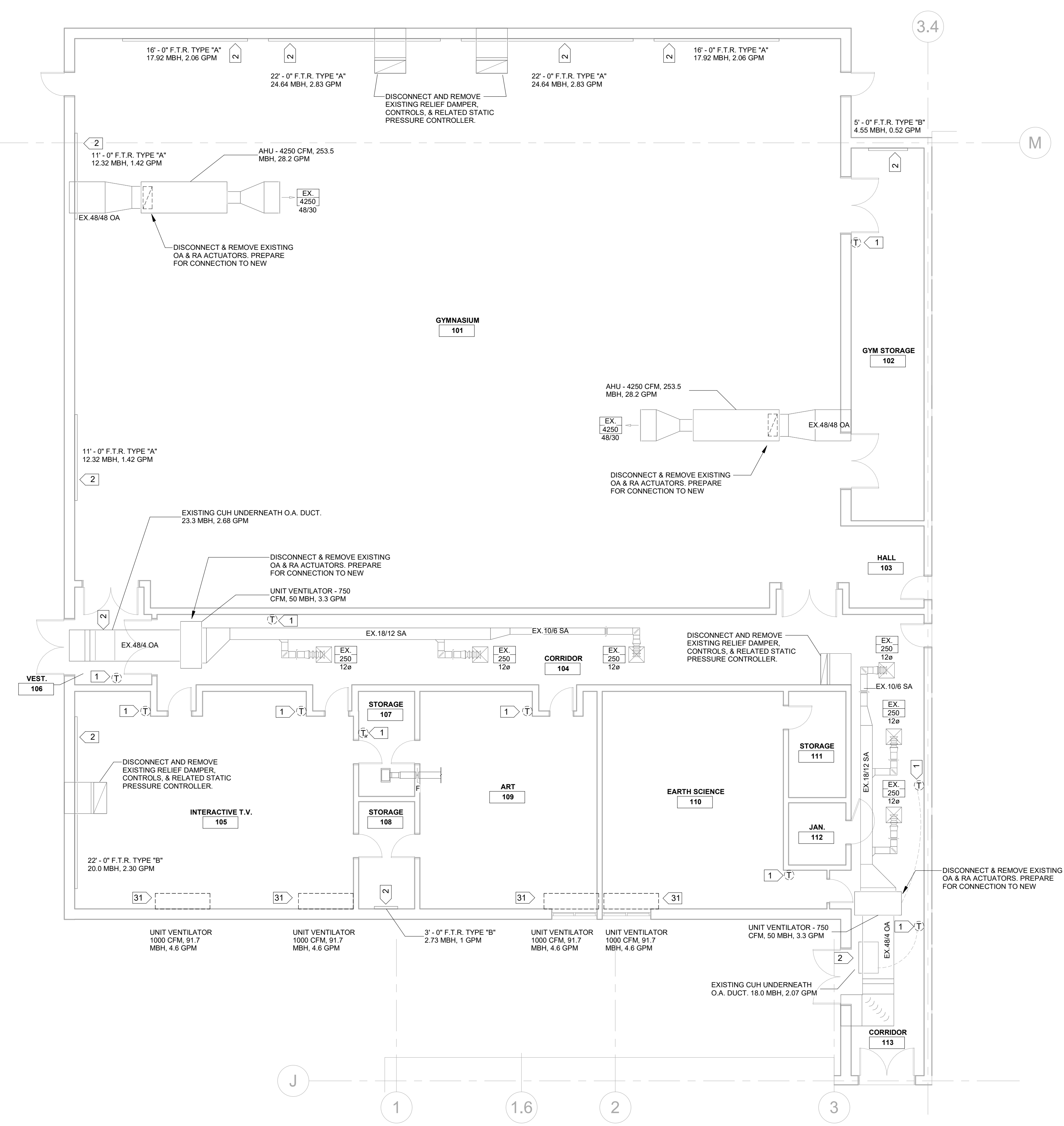
- 1 DISCONNECT AND REMOVE EXISTING THERMOSTAT. CAP PNEUMATIC TUBING IN WALL. PATCH WALL TO MATCH EXISTING.
- 2 DISCONNECT AND REMOVE EXISTING CONTROL VALVE. PREPARE EXISTING PIPING FOR CONNECTION TO NEW.
- 3 DISCONNECT AND REMOVE EXISTING VAV BOX. PREPARE EXISTING DUCT FOR CONNECTION TO NEW.
- 4 DISCONNECT AND REMOVE EXISTING STEAM UNIT HEATER, CONTROLS, RELATED PIPING, & F & TRAP.
- 5 DISCONNECT AND REMOVE EXISTING REHEAT COIL, PIPING, AND RELATED CONTROLS.
- 6 DISCONNECT AND REMOVE EXISTING DUCTWORK AS SHOWN ON PLANS.
- 8 DISCONNECT AND REMOVE EXISTING BOILER, RELATED VENTING, STEAM PIPING, OIL PIPING, CONTROLS & CONCRETE EQUIPMENT PADS. PATCH ROOF TO MATCH EXISTING.
- 9 DISCONNECT AND REMOVE EXISTING HEATING PUMPS, RELATED PIPING, AND CONTROLS.
- 10 DISCONNECT AND REMOVE EXISTING BOILER FEED SYSTEM, RELATED PIPING, AIR LINES, AND CONTROLS.
- 11 DISCONNECT AND REMOVE EXISTING TEMPERATURE CONTROL PANEL/CABINET & RELATED CONTROLS.
- 12 DISCONNECT AND REMOVE EXISTING BOILER CONTROL PANEL.
- 13 DISCONNECT AND REMOVE EXISTING CIRCULATOR PUMP, RELATED PIPING, AND CONTROLS.
- 15 DISCONNECT AND REMOVE EXISTING HOT WATER STORAGE TANK & RELATED PIPING.
- 16 DISCONNECT AND REMOVE EXISTING ELECTRIC BOILER, INDIRECT WATER HEATER, HEAT EXCHANGER & RELATED PIPING.
- 17 DISCONNECT AND REMOVE EXISTING STEAM CONVERTOR, EXPANSION TANK, AND RELATED PIPING.
- 18 DISCONNECT AND REMOVE EXISTING OIL STORAGE TANK, HEATER, EXPANSION TANK, AND RELATED PIPING.
- 19 DISCONNECT AND REMOVE EXISTING OIL HEATER (QTY. 2) AND RELATED PIPING.
- 20 DISCONNECT AND REMOVE EXISTING DUPLEX #5 OIL TANK GLYCOL HEATING PUMPS.
- 21 DISCONNECT AND REMOVE EXISTING STEAM WATER HEATER & RELATED PIPING.
- 22 DISCONNECT AND REMOVE EXISTING COMPRESSION TANK AND RELATED PIPING.
- 23 DISCONNECT AND REMOVE EXISTING GRAVITY VENTILATOR AND RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
- 24 DISCONNECT AND REMOVE EXISTING BOILER STACK & RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
- 25 DISCONNECT AND REMOVE EXISTING AIR COMPRESSOR, RELATED PIPING, AND CONTROLS.
- 26 DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT, RELATED PIPING, DUCTWORK, CONTROLS, TEMPERATURE CONTROL PANEL, AND CONCRETE EQUIPMENT PAD.
- 27 DISCONNECT AND REMOVE EXISTING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE DUCT FOR CONNECTION TO NEW.
- 28 DISCONNECT AND REMOVE EXISTING FAN & FILTER ASSEMBLY, RELATED DUCTWORK, AND CONTROLS.
- 29 DISCONNECT AND REMOVE EXISTING HOT WATER HEATING PUMP, RELATED PIPING, AND CONTROLS.
- 30 DISCONNECT AND REMOVE EXISTING OIL PUMPS & RELATED OIL PIPING SERVING BOILERS.
- 31 DISCONNECT AND REMOVE EXISTING UNIT VENT & RELATED CONTROLS. PREPARE PIPING AND LOUVER FOR CONNECTION TO NEW.
- 32 NOT USED
- 33 DISCONNECT AND REMOVE EXISTING ACTUATOR SERVING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE FOR CONNECTION TO NEW.
- 34 DISCONNECT AND REMOVE EXISTING EXHAUST FAN AND RELATED CONTROLS. PREPARE CURB FOR CONNECTION TO NEW FAN. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
- 35 DISCONNECT AND REMOVE EXISTING CONDENSING UNIT, RELATED PIPING & CONTROLS.
- 36 DISCONNECT AND TEMPORARILY REMOVE EXISTING LOUVER. LOUVER TAKEN DOWN FOR ACCESS TO MECHANICAL ROOM FOR NEW AIR HANDLING UNITS. CLEAN & REINSTALL EXISTING LOUVER. SEAL WEATHER TIGHT.
- 37 DISCONNECT AND REMOVE EXISTING PIPING AS SHOWN ON PLAN. CAP PIPING & PREPARE FOR CONNECTION TO NEW.
- 38 DISCONNECT AND REMOVE EXISTING BALANCING DEVICE & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW BALANCING DEVICE.



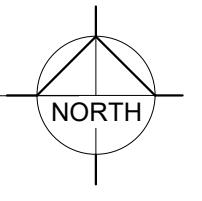
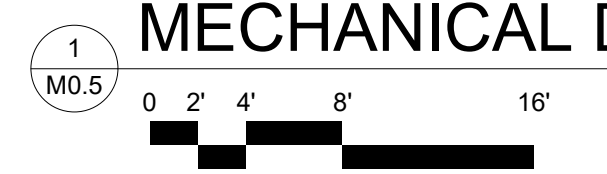
KEY PLAN - ADDITION

GENERAL MECHANICAL DEMOLITION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTIONS, LOCATIONS AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. ALL MATERIALS REMOVED BY THIS CONTRACTOR SHALL BE REVIEWED BY THE OWNER. MATERIAL NOT WANTED BY THE OWNER SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES. MATERIAL THE OWNER ELECTS TO KEEP SHALL BE HAULED TO (BY THIS CONTRACTOR) AND STORED IN A LOCATION DETERMINED BY THE OWNER.
4. WHEN REMOVING EXISTING EQUIPMENT AS SHOWN AND AS NOTED, PIPING, WIRING, TUBING, DUCTWORK, AND ANY OTHER CONNECTIONS SHALL BE CAPPED AIRTIGHT BELOW FLOORS, INSIDE WALLS AND/OR ABOVE CEILINGS. CONCEALED ITEMS NOT TO BE REUSED MAY BE ABANDONED IF DISCONNECTED FROM THE SYSTEM. EXISTING EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: PLUMBING FIXTURES, TEMPERATURE CONTROLS, CONTROL WIRING, H VALVE EQUIPMENT AND ANY OTHER DEMOLITION WORK. THE FLOORS, WALLS, AND/OR CEILINGS SHALL BE PATCHED TO MATCH THE EXISTING CONDITIONS BY THE MECHANICAL CONTRACTOR.
5. UPON COMPLETION OF MODIFICATION AND / OR REMOVAL OF TEMPERATURE CONTROL COMPONENTS THE REMAINING MODIFIED TEMPERATURE CONTROL SYSTEM IS TO BE OPERATIONAL.
6. CONTRACTOR TO VERIFY EXISTING OPERATING CONDITIONS PRIOR TO MODIFICATION.



MECHANICAL DEMOLITION PLAN - 1994 ADDITION





- ARCHITECTURE
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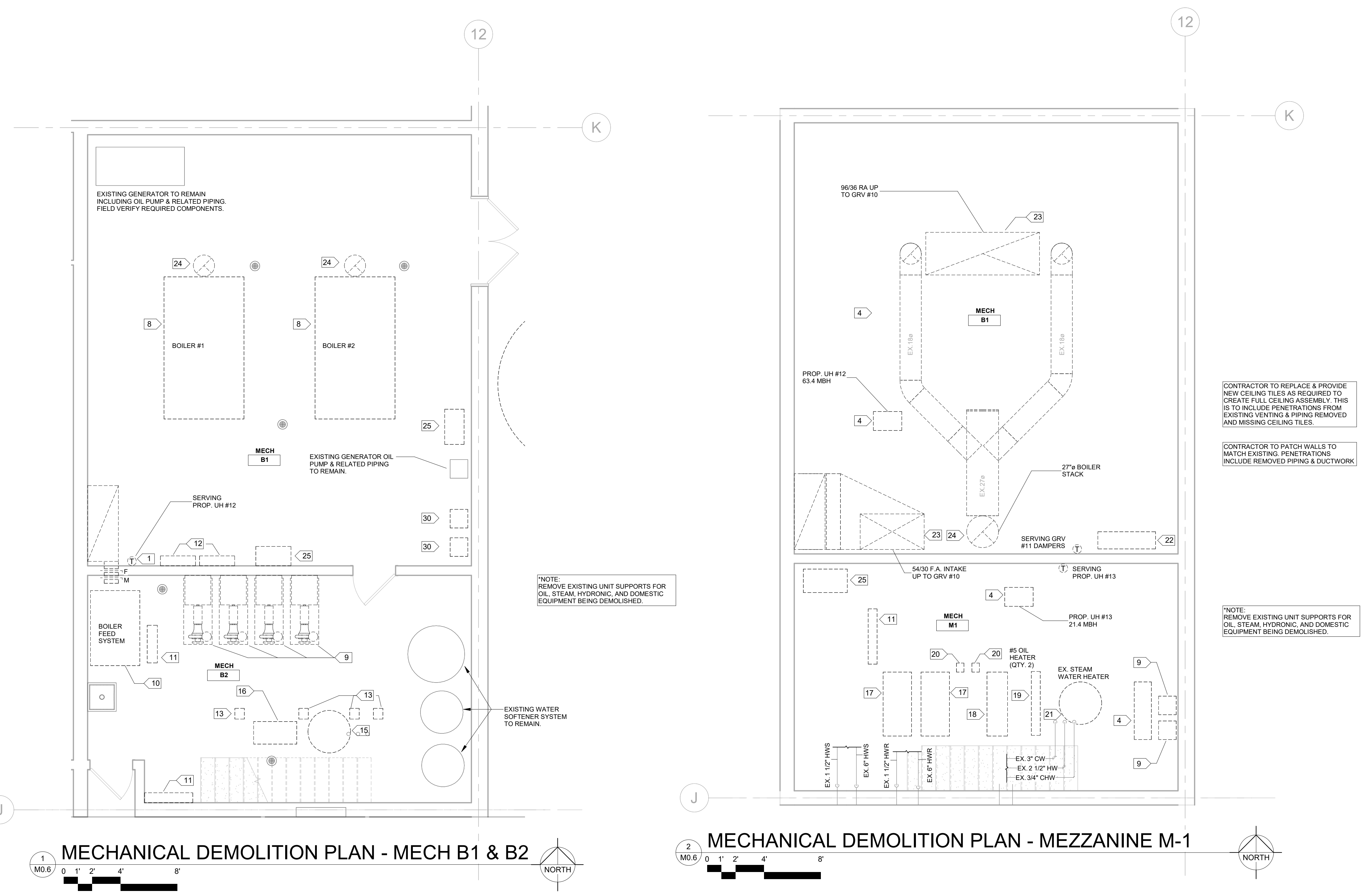
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Michael R. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

MECHANICAL
DEMOLITION
PLAN -
BOILER
ROOM

M0.6



EXISTING HVAC HOT WATER SYSTEM NOTE:
DIV 23 CONTRACTOR TO COMPLETELY DRAIN HOT WATER HEATING SYSTEM, DISPOSE OF EXISTING FLUID (WATER / 40% ETHYLENE GLYCOL MIXTURE) AND CLEAN AND FLUSH THE SYSTEM. PROVIDE NEW 35% PROPYLENE GLYCOL / 65% TREATED WATER MIXTURE. SEE SPECIFICATIONS SECTION 23 25 00 FOR ADDITIONAL REQUIREMENTS.

- DEMOLITION KEYED NOTES
- 1 DISCONNECT AND REMOVE EXISTING THERMOSTAT. CAP PNEUMATIC TUBING IN WALL. PATCH WALL TO MATCH EXISTING.
 - 2 DISCONNECT AND REMOVE EXISTING CONTROL VALVE. PREPARE EXISTING PIPING FOR CONNECTION TO NEW.
 - 3 DISCONNECT AND REMOVE EXISTING VAV BOX. PREPARE EXISTING DUCT FOR CONNECTION TO NEW.
 - 4 DISCONNECT AND REMOVE EXISTING STEAM UNIT HEATER, CONTROLS, RELATED PIPING, & F & TRAP.
 - 5 DISCONNECT AND REMOVE EXISTING REHEAT COIL, PIPING, AND RELATED CONTROLS.
 - 6 DISCONNECT AND REMOVE EXISTING DUCTWORK AS SHOWN ON PLANS.
 - 7 DISCONNECT AND REMOVE EXISTING BOILER, RELATED VENTING, STEAM PIPING, OIL PIPING, CONTROLS & CONCRETE EQUIPMENT PADS. PATCH ROOF TO MATCH EXISTING.
 - 8 DISCONNECT AND REMOVE EXISTING HEATING PUMPS, RELATED PIPING, AND CONTROLS.
 - 9 DISCONNECT AND REMOVE EXISTING BOILER FEED SYSTEM, RELATED PIPING, AIR LINES, AND CONTROLS.
 - 10 DISCONNECT AND REMOVE EXISTING TEMPERATURE CONTROL PANEL, CABINET & RELATED CONTROLS.
 - 11 DISCONNECT AND REMOVE EXISTING BOILER CONTROL PANEL.
 - 12 DISCONNECT AND REMOVE EXISTING CIRCULATOR PUMP, RELATED PIPING, AND CONTROLS.
 - 13 DISCONNECT AND REMOVE EXISTING HOT WATER STORAGE TANK & RELATED PIPING.
 - 14 DISCONNECT AND REMOVE EXISTING ELECTRIC BOILER, INDIRECT WATER HEATER, HEAT EXCHANGER & RELATED PIPING.
 - 15 DISCONNECT AND REMOVE EXISTING STEAM CONVERTOR, EXPANSION TANK, AND RELATED PIPING.
 - 16 DISCONNECT AND REMOVE EXISTING OIL STORAGE TANK, HEATER, EXPANSION TANK, AND RELATED PIPING.
 - 17 DISCONNECT AND REMOVE EXISTING OIL HEATER (QTY. 2) AND RELATED PIPING.
 - 18 DISCONNECT AND REMOVE EXISTING DUPLEX #5 OIL TANK GLYCOL HEATING PUMPS.
 - 19 DISCONNECT AND REMOVE EXISTING STEAM WATER HEATER & RELATED PIPING.
 - 20 DISCONNECT AND REMOVE EXISTING COMPRESSION TANK AND RELATED PIPING.
 - 21 DISCONNECT AND REMOVE EXISTING GRAVITY VENTILATOR AND RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
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 - 25 DISCONNECT AND REMOVE EXISTING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE DUCT FOR CONNECTION TO NEW.
 - 26 DISCONNECT AND REMOVE EXISTING FAN & FILTER ASSEMBLY, RELATED DUCTWORK, AND CONTROLS.
 - 27 DISCONNECT AND REMOVE EXISTING HOT WATER HEATING PUMP, RELATED PIPING, AND CONTROLS.
 - 28 DISCONNECT AND REMOVE EXISTING OIL PUMPS & RELATED OIL PIPING SERVING BOILERS.
 - 29 DISCONNECT AND REMOVE EXISTING UNIT VENT & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW.
 - 30 DISCONNECT AND REMOVE EXISTING BALANCING DEVICE & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW.
 - 31 DISCONNECT AND REMOVE EXISTING ACTUATOR SERVING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE FOR CONNECTION TO NEW.
 - 32 DISCONNECT AND REMOVE EXISTING EXHAUST FAN AND RELATED CONTROLS. PREPARE CURB FOR CONNECTION TO NEW FAN. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
 - 33 DISCONNECT AND REMOVE EXISTING CONDENSING UNIT, RELATED PIPING & CONTROLS.
 - 34 DISCONNECT AND TEMPORARILY REMOVE EXISTING LOUVER. LOUVER TAKEN DOWN FOR ACCESS TO MECHANICAL ROOM FOR NEW AIR HANDLING UNITS. CLEAN & REINSTALL EXISTING LOUVER. SEAL WEATHER TIGHT.
 - 35 DISCONNECT AND REMOVE EXISTING PIPING AS SHOWN ON PLAN. CAP PIPING & PREPARE FOR CONNECTION TO NEW.
 - 36 DISCONNECT AND REMOVE EXISTING BALANCING DEVICE & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW.
 - 37 DISCONNECT AND REMOVE EXISTING BALANCING DEVICE & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW.
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GENERAL MECHANICAL DEMOLITION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
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3. ALL MATERIALS REMOVED BY THIS CONTRACTOR SHALL BE REVIEWED BY THE OWNER. MATERIAL NOT WANTED BY THE OWNER SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES. MATERIAL THE OWNER ELECTS TO KEEP SHALL BE HAULED TO (BY THIS CONTRACTOR) AND STORED IN A LOCATION DETERMINED BY THE OWNER.
4. WHEN REMOVING EXISTING EQUIPMENT AS SHOWN AND AS NOTED, PIPING, WIRING, TUBING, DUCTWORK, AND ANY OTHER CONNECTIONS SHALL BE CAPPED AIRTIGHT BELOW FLOORS, INSIDE WALLS AND/OR ABOVE CEILINGS. CONCEALED ITEMS NOT TO BE RELEASED MAY BE ABANDONED IF DISCONNECTED FROM THE SYSTEM. EXISTING EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: PLUMBING FIXTURES, TEMPERATURE CONTROLS, CONTROL WIRING, HVAC EQUIPMENT AND ANY OTHER DEMOLITION WORK. THE FLOORS, WALLS, AND/OR CEILINGS SHALL BE PATCHED TO MATCH THE EXISTING CONDITIONS BY THE MECHANICAL CONTRACTOR.
5. UPON COMPLETION OF MODIFICATION AND / OR REMOVAL OF TEMPERATURE CONTROL COMPONENTS THE REMAINING MODIFIED TEMPERATURE CONTROL SYSTEM IS TO BE OPERATIONAL.
6. CONTRACTOR TO VERIFY EXISTING OPERATING CONDITIONS PRIOR TO MODIFICATION.



- DISCONNECT AND REMOVE EXISTING THERMOSTAT, CAP PNEUMATIC TUBING IN WALL, PATCH WALL TO MATCH EXISTING.
DISCONNECT AND REMOVE EXISTING CONTROL VALVE, PREPARE EXISTING PIPING FOR CONNECTION TO NEW.
DISCONNECT AND REMOVE EXISTING VBA COIL, PREPARE EXISTING DUCT FOR CONNECTION TO NEW.
DISCONNECT AND REMOVE EXISTING STEAM UNIT IN WALL, PREPARE EXISTING DUCTWORK, PATCH ROOF TO MATCH EXISTING.
DISCONNECT AND REMOVE EXISTING REHEAT COIL, PIPING, AND RELATED CONTROLS.
DISCONNECT AND REMOVE EXISTING DUCTWORK IN WALL, PATCH ROOF TO MATCH EXISTING.
DISCONNECT AND REMOVE EXISTING BOILER, RELATED VENTING, STEAM PIPING, COIL PIPING, CONTROLS & CONCRETE EQUIPMENT PADS, PATCH ROOF TO MATCH EXISTING.
DISCONNECT AND REMOVE EXISTING HEATING SYSTEM, RELATED PIPING, AND CONTROLS.
DISCONNECT AND REMOVE EXISTING BOILER FEED SYSTEM, RELATED PIPING, AIR LINES, AND CONTROLS.
DISCONNECT AND REMOVE EXISTING TEMPERATURE CONTROL PANEL, CABINET & RELATED CONTROLS.
DISCONNECT AND REMOVE EXISTING BOILER CONTROL PANEL.
DISCONNECT AND REMOVE EXISTING CIRCULATOR PUMP, RELATED PIPING, AND CONTROLS.
DISCONNECT AND REMOVE EXISTING HOT WATER HEATER, INDIRECT WATER HEATER, EXCHANGER & RELATED PIPING.
DISCONNECT AND REMOVE EXISTING ELECTRIC BOILER, INDIRECT WATER HEATER, HEAT EXCHANGER & RELATED PIPING.
DISCONNECT AND REMOVE EXISTING STEAM CONTROL, EXPANSION TANK, AND RELATED PIPING.
DISCONNECT AND REMOVE EXISTING COIL, STORAGE TANK, WATER HEATER, EXCHANGER, AND RELATED PIPING.
DISCONNECT AND REMOVE EXISTING HOT WATER HEATER (QTY. 2) AND RELATED PIPING.
DISCONNECT AND REMOVE EXISTING DUXPRESS 40 IN. TANK GLYCOL HEATING PIPING.
DISCONNECT AND REMOVE EXISTING STEAM WATER HEATER, EXCHANGER, AND RELATED PIPING.
DISCONNECT AND REMOVE EXISTING COMPRESSION TANK AND RELATED PIPING.
DISCONNECT AND REMOVE EXISTING GRAVITY VENTILATOR AND RELATED DUCTWORK, PATCH ROOF TO MATCH EXISTING, VERIFY EXISTING ROOF WARRANTY WITH OWNER.
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DISCONNECT AND REMOVE EXISTING MOTORIZED DAMPER & RELATED CONTROLS, PREPARE DUCT FOR CONNECTION TO NEW.
DISCONNECT AND REMOVE EXISTING FAN & FILTER, RELATED PIPING, DUCTWORK, AND CONTROLS.
DISCONNECT AND REMOVE EXISTING HOT WATER HEATING PUMP, RELATED PIPING, AND CONTROLS.
DISCONNECT AND REMOVE EXISTING COIL PIPING & RELATED COIL PIPING SERVING BOILERS.
DISCONNECT AND REMOVE EXISTING UNIT VENT & RELATED CONTROLS, PREPARE PIPING AND LOUVER FOR CONNECTION TO NEW.
DISCONNECT AND REMOVE EXISTING EXHAUST FAN, RELATED PIPING & CONTROLS.
DISCONNECT AND REMOVE EXISTING ACTUATOR SERVING MOTORIZED DAMPER & RELATED CONTROLS, PREPARE FOR CONNECTION TO NEW.
DISCONNECT AND REMOVE EXISTING EXHAUST FAN AND RELATED CONTROLS, PREPARE CURB FOR CONNECTION TO NEW FAN, VERIFY EXISTING ROOF WARRANTY WITH OWNER.
DISCONNECT AND REMOVE EXISTING CONDENSING UNIT, RELATED PIPING & CONTROLS.
DISCONNECT AND TEMPORARILY REMOVE EXISTING LOUVER, LOUVER TAKEN DOWN FOR ACCESS TO MECHANICAL ROOM FOR EXISTING UNIT, CAN BE REINSTALLED AFTER EXISTING UNIT IS REINSTALLED, WATER WASHED.
DISCONNECT AND REMOVE EXISTING BALANCING DAMPER AS SHOWN ON PLAN, CAP PIPING AND PREPARE FOR CONNECTION TO NEW.
DISCONNECT AND REMOVE EXISTING BALANCING DAVE & FLOW METER, CAP PIPING AND PREPARE FOR CONNECTION TO NEW.

DIV 23 CONTRACTOR TO COMPLETELY DRAIN HOT WATER HEATING SYSTEM, DISPOSE OF EXISTING FLUID (WATER / 40% ETHYLENE GLYCOL MIXTURE) AND CLEAN AND FLUSH THE SYSTEM. PROVIDE NEW 35% PROPYLENE GLYCOL / 65% TREATED WATER MIXTURE. SEE SPECIFICATIONS SECTION 23 25 00 FOR ADDITIONAL REQUIREMENTS.

GENERAL MECHANICAL DEMOLITION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES
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LOCATIONS AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL
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3. ALL MATERIALS REMOVED BY THIS CONTRACTOR SHALL BE REVIEWED
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KEEP SHALL BE MAILED TO (BY THIS CONTRACTOR) AND STORED IN A
LOCATION TO BE DETERMINED BY THE OWNER.
4. WHEN REMOVING EXISTING EQUIPMENT AS SHOWN AND AS NOTED,
PIPING, WIRING, TUBING, DUCTWORK, AND ANY OTHER CONNECTIONS
TO BE REMOVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE
ABOVE LISTINGS. CONCEALED ITEMS NOT TO BE REUSED MAY BE
REMOVED IF DISCOVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR
EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
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ELECTRIC EQUIPMENT AND ANY OTHER ELECTRICAL WORK, THE FLOOR
WALLS, AND OTHER CEILINGS SHALL BE PATCHED TO MATCH THE EXISTING
CONDITIONS BY THE MEGACORP CONTRACTOR.
5. UPON COMPLETION OF MODIFICATION AND, OR REMOVAL OF
TEMPERATURE CONTROL COMPONENTS THE REMAINING MODIFIED
TEMPERATURE CONTROL SYSTEM IS TO BE OPERATIONAL.
6. CONTRACTOR TO VERIFY EXISTING OPERATING CONDITIONS PRIOR TO
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Michael C. Washburn
ENGINEER REG. NO.
MICHAEL WASHBURN 52709

**MECHANICAL
DEMOLITION
PLAN -
ROOF**

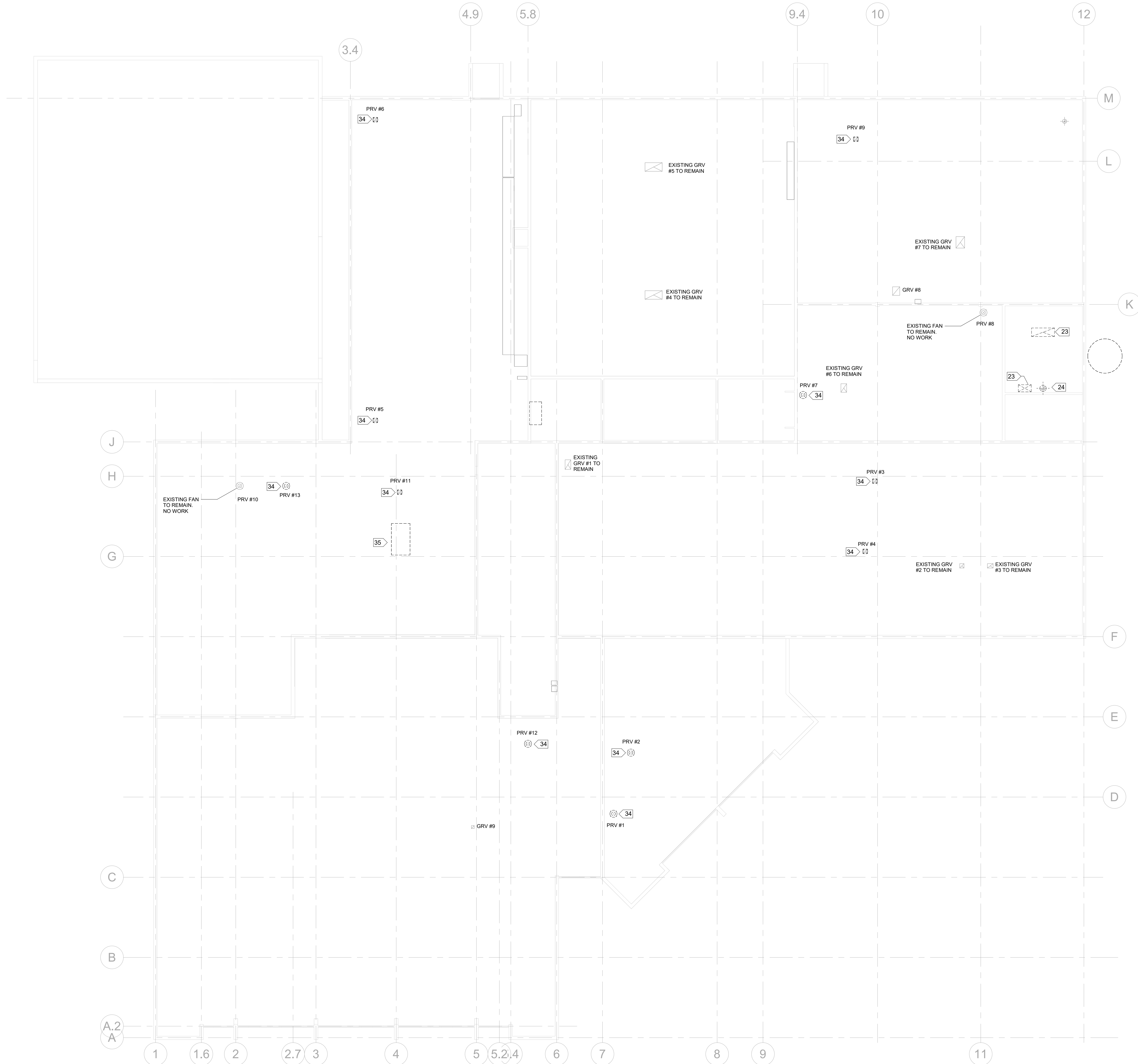
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DEMOLITION KEYED NOTES:

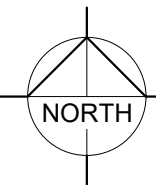
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2. DISCONNECT AND REMOVE EXISTING CONTROL VALVE. PREPARE EXISTING PIPING FOR CONNECTION TO NEW.
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8. DISCONNECT AND REMOVE EXISTING BOILER, RELATED VENTING, STEAM PIPING, OIL PIPING, CONTROLS & CONCRETE EQUIPMENT PADS. PATCH ROOF TO MATCH EXISTING.
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18. DISCONNECT AND REMOVE EXISTING OIL STORAGE TANK HEATER, EXPANSION TANK, AND RELATED PIPING.
19. DISCONNECT AND REMOVE EXISTING OIL HEATER (QTY. 2) AND RELATED PIPING.
20. DISCONNECT AND REMOVE EXISTING DUPLEX OIL TANK GLYCOL HEATING PUMPS.
21. DISCONNECT AND REMOVE EXISTING STEAM WATER HEATER & RELATED PIPING.
22. DISCONNECT AND REMOVE EXISTING COMPRESSION TANK AND RELATED PIPING.
23. DISCONNECT AND REMOVE EXISTING GRAVITY VENTILATOR AND RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
24. DISCONNECT AND REMOVE EXISTING BOILER STACK & RELATED DUCTWORK. PATCH ROOF TO MATCH EXISTING. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
25. DISCONNECT AND REMOVE EXISTING AIR COMPRESSOR, RELATED PIPING, AND CONTROLS.
26. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT, RELATED PIPING, DUCTWORK, CONTROLS, TEMPERATURE CONTROL PANEL, AND CONCRETE EQUIPMENT PAD.
27. DISCONNECT AND REMOVE EXISTING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE DUCT FOR CONNECTION TO NEW.
28. DISCONNECT AND REMOVE EXISTING FAN & FILTER ASSEMBLY, RELATED DUCTWORK, AND CONTROLS.
29. DISCONNECT AND REMOVE EXISTING HOT WATER HEATING PUMP, RELATED PIPING, AND CONTROLS.
30. DISCONNECT AND REMOVE EXISTING OIL PUMPS & RELATED OIL PIPING SERVING BOILERS.
31. DISCONNECT AND REMOVE EXISTING UNIT VENT & RELATED CONTROLS. PREPARE PIPING AND LOUVER FOR CONNECTION TO NEW.
32. NOT USED.
33. DISCONNECT AND REMOVE EXISTING ACTUATOR SERVING MOTORIZED DAMPER & RELATED CONTROLS. PREPARE FOR CONNECTION TO NEW.
34. DISCONNECT AND REMOVE EXISTING EXHAUST FAN AND RELATED CONTROLS. PREPARE CURB FOR CONNECTION TO NEW FAN. VERIFY EXISTING ROOF WARRANTY WITH OWNER.
35. DISCONNECT AND REMOVE EXISTING CONDENSING UNIT, RELATED PIPING & CONTROLS.
36. DISCONNECT AND TEMPORARILY REMOVE EXISTING LOUVER. LOUVER TAKEN DOWN FOR ACCESS TO MECHANICAL ROOM FOR NEW AIR HANDLING UNITS. CLEAN & REINSTALL EXISTING LOUVER. SEAL WEATHER TIGHT.
37. DISCONNECT AND REMOVE EXISTING PIPING AS SHOWN ON PLAN. CAP PIPING & PREPARE FOR CONNECTION TO NEW.
38. DISCONNECT AND REMOVE EXISTING BALANCING DEVICE & FLOW METER. CAP PIPING AND PREPARE FOR CONNECTION TO NEW BALANCING DEVICE.

GENERAL MECHANICAL DEMOLITION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTIONS, LOCATIONS AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. ALL MATERIALS REMOVED BY THIS CONTRACTOR SHALL BE REVIEWED BY THE OWNER. MATERIAL NOT WANTED BY THE OWNER SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES. MATERIAL THE OWNER ELECTS TO KEEP SHALL BE HAULED TO (BY THIS CONTRACTOR) AND STORED IN A LOCATION DETERMINED BY THE OWNER.
4. WHEN REMOVING EXISTING EQUIPMENT AS SHOWN AND AS NOTED, PIPING, WIRING, TUBING, DUCTWORK, AND ANY OTHER CONNECTIONS SHALL BE CAPPED AIRTIGHT BELOW FLOORS, INSIDE WALLS AND/OR ABOVE CEILINGS. CONCEALED ITEMS NOT TO BE REUSED MAY BE ABANDONED IF DISCONNECTED FROM THE SYSTEM. EXISTING EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: PLUMBING FIXTURES, TEMPERATURE CONTROLS, CONTROL WIRING, H VAL EQUIPMENT AND ANY OTHER DEMOLITION WORK. THE FLOORS, WALLS, AND/OR CEILINGS SHALL BE PATCHED TO MATCH THE EXISTING CONDITIONS BY THE MECHANICAL CONTRACTOR.
5. UPON COMPLETION OF MODIFICATION AND / OR REMOVAL OF TEMPERATURE CONTROL COMPONENTS THE REMAINING MODIFIED TEMPERATURE CONTROL SYSTEM IS TO BE OPERATIONAL.
6. CONTRACTOR TO VERIFY EXISTING OPERATING CONDITIONS PRIOR TO MODIFICATION.



MECHANICAL DEMOLITION PLAN - ROOF



Single Duct Terminal Unit Schedule												
Tag	AHU	Room	Model	Size		CFM		Heating		Static Pressure		NC Levels
				Unit	Outlet	Max	Min	CFM	Min	Inlet	Down	
VAV-01	EQ #24 "S-1"	C3 Science	DESV	16	24x18	2110	1160	1600	1	0.25	0.02	20
VAV-02	EQ #24 "S-1"	C4 FACS	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-03	EQ #24 "S-1"	C4 FACS	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-04	EQ #24 "S-1"	C24 Classroom	DESV	14	20x17.5	1100	610	800	1	0.25	0.01	19
VAV-05	EQ #24 "S-1"	C25 Classroom	DESV	14	20x17.5	1100	610	800	1	0.25	0.01	19
VAV-06	EQ #24 "S-1"	Classroom C29	DESV	14	20x17.5	1625	900	1200	1	0.25	0.02	23
VAV-07	EQ #24 "S-1"	C30 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-08	EQ #24 "S-1"	C31 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-09	EQ #24 "S-1"	C32 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-10	EQ #24 "S-1"	C33 Classroom	DESV	14	20x17.5	1350	750	900	1	0.25	0.02	21
VAV-11	EQ #24 "S-1"	D10 Classroom	DESV	14	20x17.5	1250	690	800	1	0.25	0.01	20
VAV-12	EQ #24 "S-1"	D9 Classroom	DESV	09	14x12.5	500	275	350	1	0.25	0.02	16
VAV-13	EQ #24 "S-1"	D11 Classroom	DESV	12	16x15	1000	550	800	1	0.25	0.01	22
VAV-14	EQ #24 "S-1"	D14 Classroom	DESV	14	20x17.5	1250	690	800	1	0.25	0.01	20
VAV-15	EQ #24 "S-1"	D15 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-16	EQ #24 "S-1"	D16 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-17	EQ #24 "S-1"	D17 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22
VAV-18	EQ #24 "S-1"	D18 Classroom	DESV	14	20x17.5	1350	750	900	1	0.25	0.02	21
VAV-19	EQ #24 "S-1"	D25 Corridor	DESV	09	14x12.5	680	375	450	1	0.25	0.03	19
VAV-20	EQ #24 "S-1"	A17 Corridor	DESV	09	14x12.5	700	385	500	1	0.25	0.03	19
VAV-21	EQ #24 "S-1"	Area C/D Clerestory	DESV	14	20x17.5	1500	825	1200	1	0.25	0.02	22

Notes:

1. Selections are based on Titus as Manufacturer.
2. All performance based on tests conducted in accordance with ASHRAE 130-2008 and AHRI 850-2011.
3. All NC levels determined using AHRI 850-2008 Appendix E.
4. All airflow, pressure losses and heating performance values have been corrected for altitude.
5. Units of measure: dimensions (in), airflow (cfm), water flow (gpm), air pressure (in w.g), water head losses (ft) and temperatures (degF).
6. In the "Steps" column, code "S" denotes a modulating SCR Heater.
7. The minimum supply circuit ampacity (MCA) and maximum overcurrent protection (MOP) ratings were calculated in accordance with UL standards based on motor and electric coil full load current ratings.

ALTERNATE #1:
SUPPLY DUCTS, TRANSFER DUCTS, MIXED AIR PLENUMS AND SELECT RETURN DUCT SYSTEMS ARE INTERNALLY LINED SYSTEMS WITH A "FIBERGLASS" TYPE LINER PRODUCT. THE SCOPE OF WORK UNDER THIS ALTERNATE BID IS TO CLEAN AND ENCASELATE THIS EXISTING DUCT LINER IN ACCORDANCE WITH SPECIFICATION SECTION 23 32 00. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. EXISTING LINED DUCTWORK IS INDICATED ON THE 1977 MECHANICAL DRAWINGS WITH A "DASHED LINE" SYMBOL. SCOPE OF WORK TO INCLUDE ALL INDICATED LINED SYSTEMS ON THE 1977 PLAN SETS.

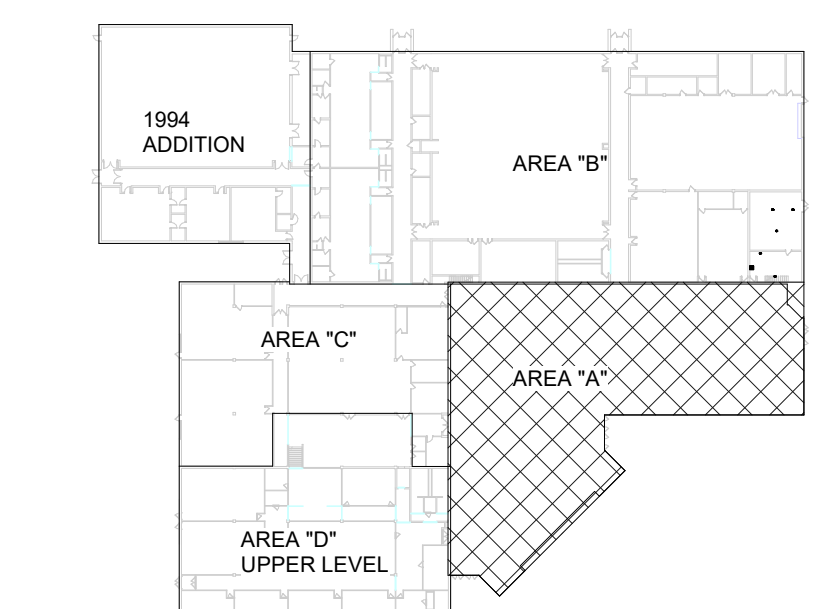
ALTERNATE #2:
PROVIDE ADDITIONAL BMS CONTROL WORK FOR THE EXISTING RADIATION HEATING LOOP SYSTEMS FOR NORTHOME AND INDUS SCHOOLS. THIS INCLUDES NEW CONTROL VALVE, PIPING DISCONNECTION, NEW PIPING CONNECTION AND WIRING TO SERVE THE EXISTING PERIMETER RADIATION IN ROOMS WITHIN THE ADMINISTRATION, CLASSROOM, AND LOCKER ROOM ZONES AS DESCRIBED ON THE PLANS. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. THIS PIPING ZONE IS LABELED "RADIATION LOOP" HWS-1 AND HWR-1 ON THE 1977 PLAN SETS.

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE BALANCED TO. COMPLETE RETURN AIR DUCT SYSTEM IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

CEILING REMOVAL NOTE:
EACH CONTRACTOR IS RESPONSIBLE FOR IN REMODELED AREAS. CEILING REMOVAL & REPLACEMENT AS WELL AS REMOVAL OF ANY OTHER CEILING COMPONENT. REPLACE ANY CEILING COMPONENT DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: TILE, GRID, LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.

MECHANICAL KEYED NOTES

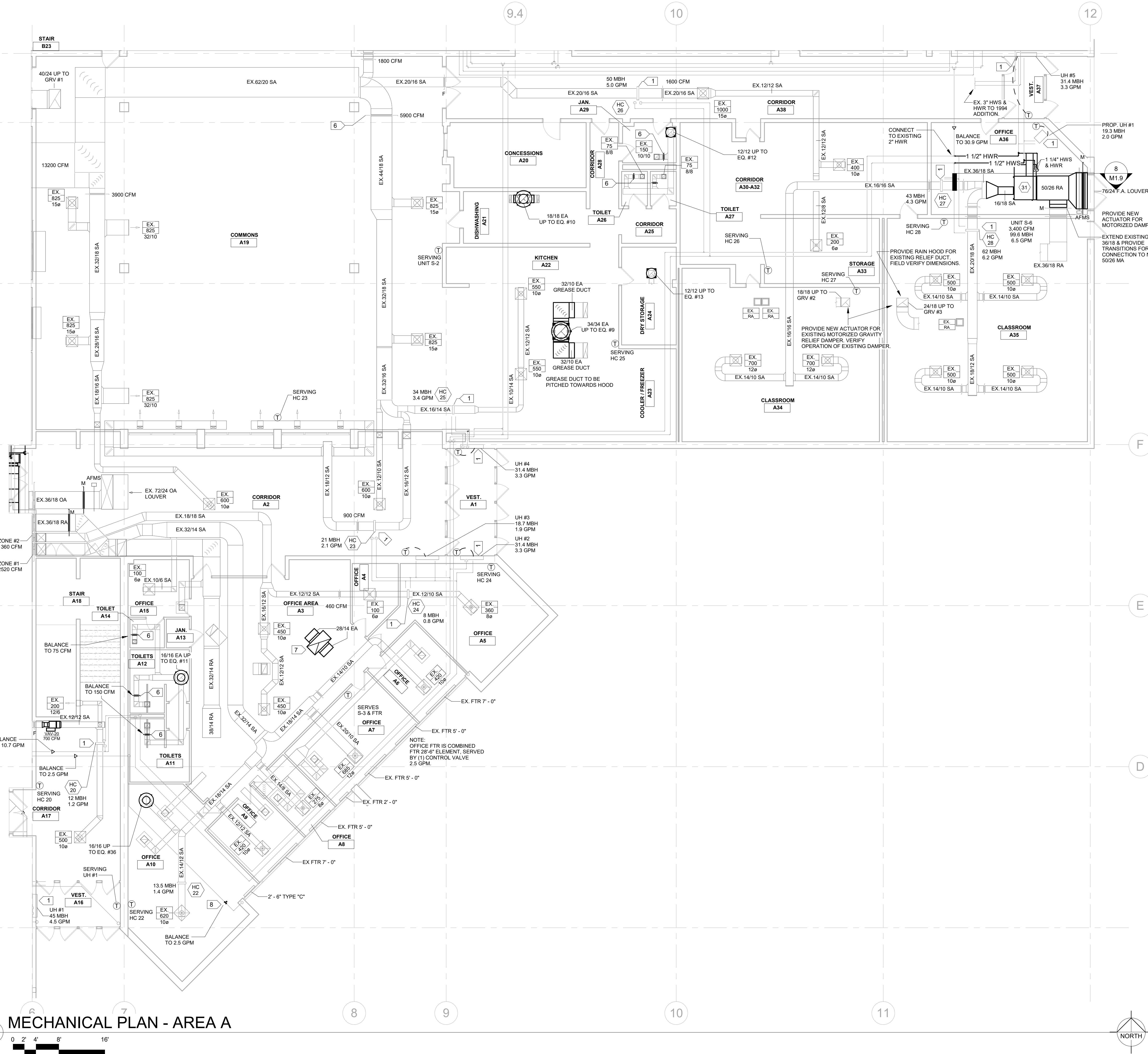
1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS.
2. MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE FOR CONNECTIONS TO EXISTING DUCT WORK & NEW VAV. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
3. PROVIDE NEW MOTORIZED RELIEF AIR DAMPER, STATIC PRESSURE SENSOR, & DIGITAL CONTROLS.
4. PROVIDE NEW MOTORIZED OUTSIDE AIR DAMPER ACTUATOR. RETURN AIR DAMPER ACTUATOR & DIGITAL CONTROLS.
5. EXTEND & MODIFY DUCTWORK AS SHOWN ON PLAN. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
6. PROVIDE BALANCE DAMPER. MODIFY EXISTING DUCTWORK AS NEEDED.
7. 24x18 UP TO EQUIPMENT #35 VAV MOTORIZED RELIEF DAMPER & DRIP PAN. INTERLOCK WITH EQ 28 MOTORIZED RETURN AIR & OUTSIDE AIR DAMPERS. DUCT TO BE ROUTED BETWEEN EXISTING JOISTS. FIELD VERIFY LOCATION AND DUCT ROUTING.
8. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.
9. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING LOCATED IN FTR COVER. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.



KEY PLAN - AREA A

GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTION, LOCATIONS, AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY FITTINGS AND/OR APPURTENANCES FOR THE COMPLETE INSTALLATION. OPERATION AND CONNECTION OF THE EQUIPMENT SHOWN AND/OR SPECIFIED.
4. CONTRACTOR SHALL INSTALL EQUIPMENT, PIPING, AND DUCTWORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE NEW AND EXISTING EQUIPMENT AND SYSTEMS.
5. SEE ARCHITECTURAL CODE REVIEW / LIFE SAFETY PLANS FOR RATED PARTITIONS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIRE STOPPING ALL NEW PENETRATIONS OF FLOORS, WALLS AND CEILINGS (NEW AND EXISTING CONSTRUCTION) WHERE NEW PIPING AND DUCTWORK PASS THROUGH FIRE RATED PARTITIONS.
6. OPENINGS AND PENETRATIONS REQUIRED FOR INSTALLATIONS SHOWN ON THE DRAWINGS SHALL BE BY THIS CONTRACTOR. PATCH AND PAINT TO MATCH EXISTING.
7. DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
8. ARCHITECTURAL REFLECTED CEILING PLAN SHALL SUPERCEDE MECHANICAL PLANS FOR FINAL CEILING DIFFUSER/GRILLE LOCATIONS. COORDINATE.



MECHANICAL PLAN - AREA A





Notes:

1. Selections are based on Titus as Manufacturer.
2. All performance based on tests conducted in accordance with ASHRAE 130-2008 and AHRI 880-2011
3. All INC levels determined using AHRI 885-2008 Appendix E.
4. All airflow, pressure losses and heating performance values have been corrected for altitude.
5. Units of measure: dimensions (in), airflow (cfm), water flow (gpm), air pressure (in wg), water head loss (ft)
6. In the "Steps" column, code "S" denotes a modulating SCR heater.
7. The minimum supply circuit ampacity (MCA) and maximum overcurrent protection (MOP) ratings were standards based on motor and electric coil full load current ratings.

KEY PLAN - AREA B

GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SLOTTED, AND CONDITIONS PRIOR TO BIDDING. NOTIFY ENGINEER OF ANY DISCREPANCIES.

- ALTERNATE #1: PROVIDE TRANSFER DUCTS, MIXED AIR PLenums AND SELECT RETURN AIR DUCTS TO INTERNALLY LINED SYSTEMS WITH A "FIBERGLASS" TYPE LINER. PRODUCT: THE SCOF OF WORK UNDER THIS PLAN AND WIRING TO CLEAR ARE EXISTING. ENCAPSULATE THIS EXISTING DUCT IN ACCORDANCE WITH SPECIFICATION SECTION 23 02 00. EXISTING 17" MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE. EXISTING DUCTS, EXISTING LINED DUCTWORK IS INDICATED ON THE 17" MECHANICAL DRAWINGS WITH A "DASHED LINE" SYMBOL. SCOPE OF WORK TO INCLUDE ALL INDICATED LINED SYSTEMS ON THE 17" PLAN SETS.
- ALTERNATE #2: PROVIDE NORTHLINE RMS CONTROL WORK FOR THE EXISTING RADATION HEATING LINER SYSTEMS FOR NORTHERNE AND INDUS SCHOOLS. THIS INCLUDES NEW CONTROL VALVE, PERIMETER DISTRIBUTION OF WORK UNDER THIS PLAN AND WIRING TO CLEAR ARE EXISTING. PERIMETER RADATION IN ROOMS WITHIN THE ADMINISTRATION, CLASSROOM, AND LOCKER ROOM AS DESCRIBED IN THE PLANS. EXISTING 17" MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. THIS PIPING ZONE IS Labeled "RADATION LOCK" HW-1 AND HW-1-1 ON THE 17" PLAN SETS.
- EXISTING BUILDING HAS A HYBRID PLenum / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS AND SPOTTED LINED WITH A "FIBERGLASS" TYPE LINER. SCOPE OF WORK TO BE BALANCED TO COMPLETE RETURN AIR DUCT SYSTEM TO MATCH EXISTING DAMPERS. THIS LINE SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.
- CEILING REMOVAL AND REPAIRS TO BE MADE IN REMODELED AREAS. EACH CONTRACTOR IS RESPONSIBLE FOR CEILING REMOVAL, REPLACEMENT AND REPAIRS AS NECESSARY, OR ANY OTHER CEILING COMPONENT. REPAIRS TO BE MADE TO CEILING TO BE DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL COMPONENTS TO INCLUDE ARE LISTED IN THE FOLLOWING:
- THE GRID, LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.
- ## MECHANICAL KEYED NOTES
1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS.
 2. MODIFY, EXTEND AND PROVIDE TRANSFERS AS NEEDED TO ACCOMMODATE EXISTING SYSTEMS. EXISTING 17" MECHANICAL DRAWINGS ARE PROVIDED TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
 3. PROVIDE 1/2" MOTORIZED DAMPER, RETURN AIR DAMPER, STATIC PRESSURE SENSOR, & DIGITAL CONTROLS.
 4. PROVIDE 1/2" MOTORIZED OUTSIDE AIR DAMPER, RETURN AIR DAMPER, RETURN AIR DAMPER ACTUATOR & DIGITAL CONTROLS.
 5. EXTEND & MODIFY DUCTWORK AS SHOWN ON PLAN. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
 6. PROVIDE BALANCE DAMPER, MODIFY EXISTING DUCTWORK AS NEEDED.
 7. 24"ELONG TO EQUIPMENT ROOMS 8" W/ MOTORIZED RELIEF DAMPER & DAMPER ACTUATOR TO EQUIPMENT ROOMS. 8" W/ MOTORIZED RELIEF DAMPERS DUCT TO BE ROUTED BETWEEN EXISTING JOISTS. FIELD VERIFY LOCATION AND SIZING.
 8. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADATION HEATING LINER SYSTEMS. DUCT TO BE INSTALLED ON RETURN PIPING BALANCE TO 1" GPM UNLESS OTHERWISE NOTED.
 9. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADATION HEATING LINER SYSTEMS. DUCT TO BE INSTALLED ON RETURN PIPING LOCKED IN PFR COVER. BALANCE TO 1" GPM UNLESS OTHERWISE NOTED.



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SCHOOL

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NORTHOME, MN 56666

PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY: DMV

REVISIONS:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ENGINEER REG. NO.
MICHAEL WASHBURN 52709

MECHANICAL
PLAN - AREA
B

M1.2

Single Duct Terminal Unit Schedule												
Tag	AHU Tag	Room	Model	Size		CFM		Heating		Static Pressure		NC Levels
				Unit	Outlet	Max	Min	CM	CM	Inlet	Down	
VAV-01	EQ #24 "S"-1	C3 Science	DESV	16	24x18	2110	1160	1600	1	0.25	0.02	20 20
VAV-02	EQ #24 "S"-1	C4 FACS	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-03	EQ #24 "S"-1	C4 FACS	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-04	EQ #24 "S"-1	C24 Classroom	DESV	14	20x17.5	1100	610	800	1	0.25	0.01	19 19
VAV-05	EQ #24 "S"-1	C25 Classroom	DESV	14	20x17.5	1100	610	800	1	0.25	0.01	19 19
VAV-06	EQ #24 "S"-1	Classroom C29	DESV	14	20x17.5	1625	900	1200	1	0.25	0.02	23 22
VAV-07	EQ #24 "S"-1	C30 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-08	EQ #24 "S"-1	C31 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-09	EQ #24 "S"-1	C32 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-10	EQ #24 "S"-1	C33 Classroom	DESV	14	20x17.5	1350	750	900	1	0.25	0.02	21 20
VAV-11	EQ #24 "S"-1	D10 Classroom	DESV	14	20x17.5	1250	690	800	1	0.25	0.01	20 20
VAV-12	EQ #24 "S"-1	D9 Classroom	DESV	09	14x12.5	500	275	350	1	0.25	0.02	16 22
VAV-13	EQ #24 "S"-1	D11 Classroom	DESV	12	16x15	1000	550	800	1	0.25	0.01	22 24
VAV-14	EQ #24 "S"-1	D14 Classroom	DESV	14	20x17.5	1250	690	800	1	0.25	0.01	20 20
VAV-15	EQ #24 "S"-1	D15 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-16	EQ #24 "S"-1	D16 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-17	EQ #24 "S"-1	D17 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22 22
VAV-18	EQ #24 "S"-1	D18 Classroom	DESV	14	20x17.5	1350	750	900	1	0.25	0.02	21 20
VAV-19	EQ #24 "S"-1	D25 Corridor	DESV	09	14x12.5	680	375	450	1	0.25	0.03	19 25
VAV-20	EQ #24 "S"-1	A17 Corridor	DESV	09	14x12.5	700	385	500	1	0.25	0.03	19 25
VAV-21	EQ #24 "S"-1	Area C/D Clerestory	DESV	14	20x17.5	1500	825	1200	1	0.25	0.02	22 22

Notes:
1. Selections are based on Titas as Manufacturer.
2. All performance based on tests conducted in accordance with ASHRAE 130-2008 and AHRI 880-2011.
3. All NC levels determined using AHRI 885-2008 Appendix E.
4. All airflow, pressure losses and heating performance values have been corrected for altitude.
5. Units of measure: dimensions (in), airflow (cfm), water flow (gpm), air pressure (in w.g), water head losses (ft) and temperatures (degF).
6. In the "Sleep" column, code "S" denotes a modulating SCR heater.
7. The minimum supply circuit ampacity (MCA) and maximum overcurrent protection (MOP) ratings were calculated in accordance with UL standards based on motor and electric coil full load current ratings.

ALTERNATE #1:
SUPPLY DUCTS, TRANSFER DUCTS, MIXED AIR PLENUMS AND SELECT RETURN DUCT SYSTEMS ARE INTERNALLY LINED SYSTEMS WITH A "FIBERGLASS" TYPE LINER PRODUCT. THE SCOPE OF WORK UNDER THIS ALTERNATE BID IS TO CLEAN AND ENCAPSULATE THIS EXISTING DUCT LINER IN ACCORDANCE WITH SPECIFICATION SECTION 32.32.0. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. EXISTING LINED DUCTWORK IS INDICATED ON THE 1977 MECHANICAL DRAWINGS WITH A DASHED LINE SYMBOL. SCOPE OF WORK TO INCLUDE ALL INDICATED LINED SYSTEMS ON THE 1977 PLAN SETS.

ALTERNATE #2:
PROVIDE ADDITIONAL BMS CONTROL WORK FOR THE EXISTING RADIATION HEATING LOOP SYSTEMS FOR NORTHOME AND INDUS SCHOOLS. THIS INCLUDES NEW CONTROL VALVE, PIPING DISCONNECTION, NEW PIPING CONNECTION AND WIRING TO SERVE THE EXISTING PERIMETER RADIATION IN ROOMS WITHIN THE ADMINISTRATION, CLASSROOM, AND LOCKER ROOM ZONES AS DESCRIBED ON THE PLANS. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. THIS PIPING ZONE IS LABELED "RADIATION LOOP" HWYS-1 AND HWY-1 ON THE 1977 PLAN SETS.

EXISTING DIFFUSERS, REGISTERS & GRILLES HAVE FIRE DAMPERS IN THE THROAT OF THE DUCT LOCATED AT THE CEILING. EXISTING GRID CEILING IS THE RATING.

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE BALANCED TO. COMPLETE RETURN AIR DUCT SYSTEM IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

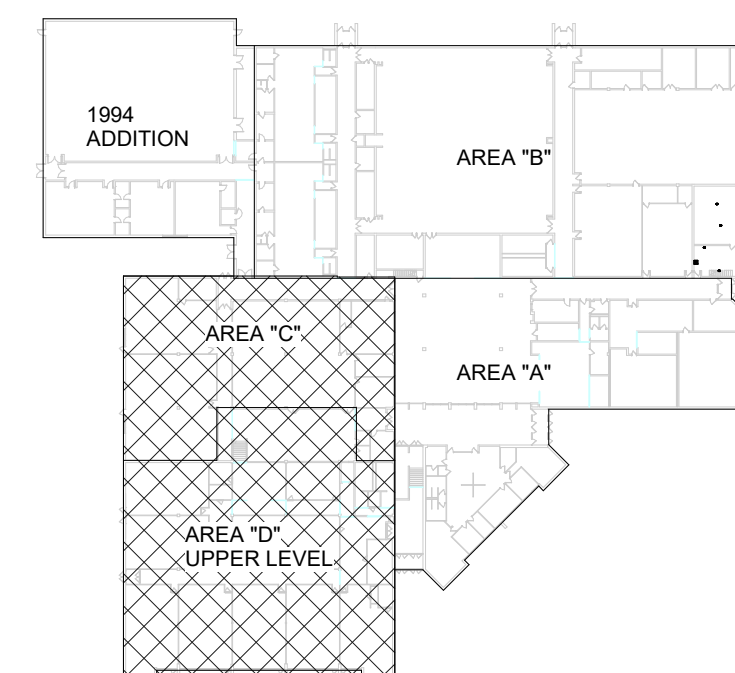
CEILING REMOVAL NOTE
IN REMODELED AREAS, EACH CONTRACTOR IS RESPONSIBLE FOR CEILING REMOVAL & REPLACEMENT AS WELL AS REMOVAL OF ANY OTHER CEILING COMPONENT. REPLACE ANY CEILING COMPONENT DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: TILE, GRID, LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.

MECHANICAL KEYED NOTES

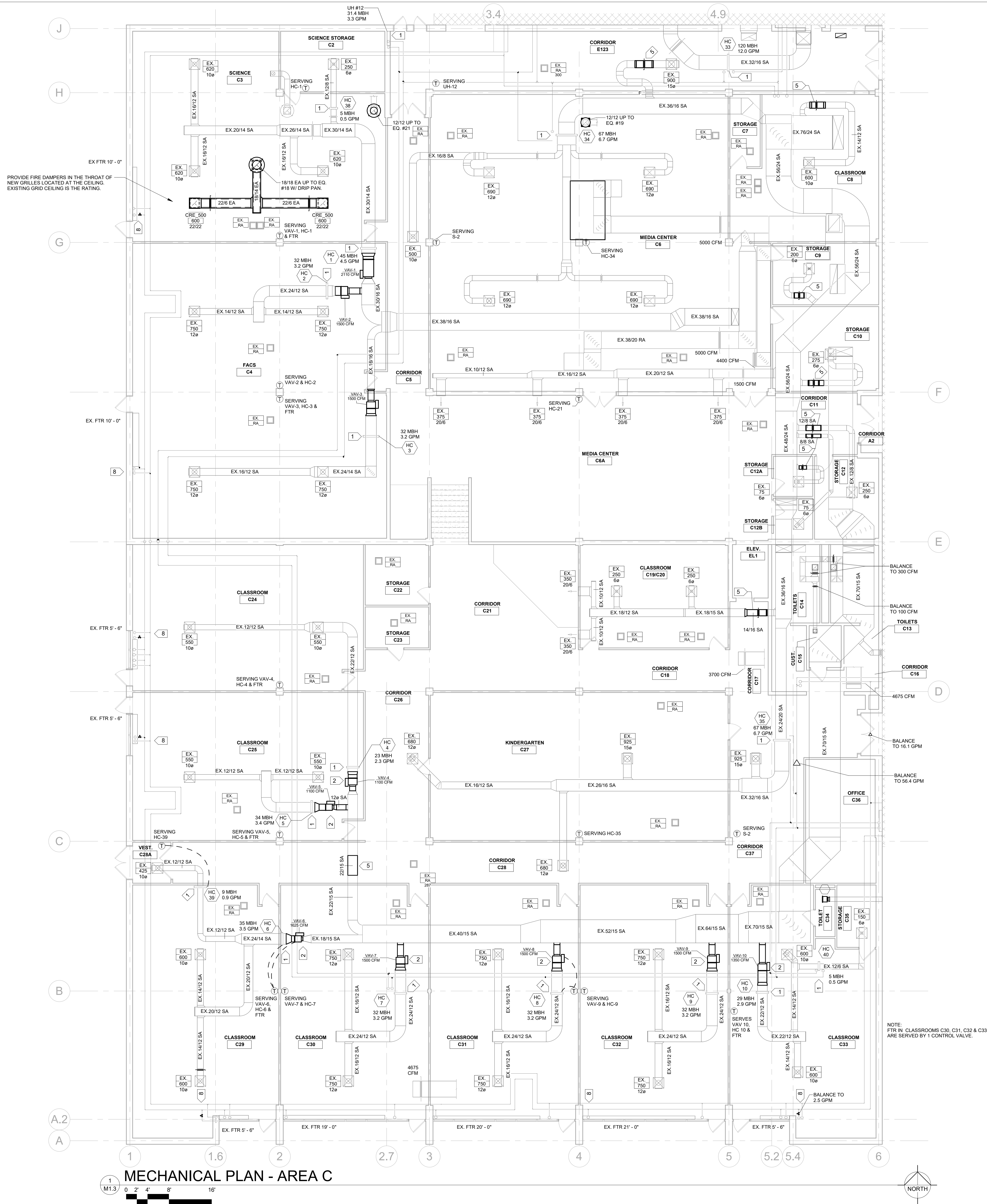
1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS.
2. MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE FOR CONNECTIONS TO EXISTING DUCT WORK & NEW VAV. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
3. PROVIDE NEW MOTORIZED RELIEF AIR DAMPER, STATIC PRESSURE SENSOR, & DIGITAL CONTROLS.
4. PROVIDE NEW MOTORIZED OUTSIDE AIR DAMPER ACTUATOR, RETURN AIR DAMPER ACTUATOR & DIGITAL CONTROLS.
5. EXTEND & MODIFY DUCTWORK AS SHOWN ON PLAN. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
6. PROVIDE BALANCE DAMPER. MODIFY EXISTING DUCTWORK AS NEEDED.
7. 2448 UP TO EQUIPMENT #35 IW MOTORIZED RELIEF DAMPER & DRIP PAN. INTERLOCK WITH EQ 28 MOTORIZED RETURN AIR & OUTSIDE AIR DAMPERS. DUCT TO BE ROUTED BETWEEN EXISTING JOISTS. FIELD VERIFY LOCATION AND DUCT ROUTING.
8. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.
9. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING LOCATED IN FTR COVER. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.

GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTION, LOCATIONS, AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY FITTINGS AND/OR APPURTENANCES FOR THE COMPLETE INSTALLATION. OPERATION AND CONNECTION OF THE EQUIPMENT SHOWN AND/OR SPECIFIED.
4. CONTRACTOR SHALL INSTALL EQUIPMENT, PIPING, AND DUCTWORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE NEW AND EXISTING EQUIPMENT AND SYSTEMS.
5. SEE ARCHITECTURAL CODE REVIEW / LIFE SAFETY PLANS FOR RATED PARTITIONS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIRE STOPPING ALL NEW PENETRATIONS OF FLOORS, WALLS AND CEILINGS NEW AND EXISTING CONSTRUCTION WHERE NEW PIPING AND DUCTWORK PASS THROUGH FIRE RATED PARTITIONS.
6. OPENINGS AND PENETRATIONS REQUIRED FOR INSTALLATIONS SHOWN ON THE DRAWINGS SHALL BE BY THIS CONTRACTOR, PATCH AND PAINT TO MATCH EXISTING.
7. DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
8. ARCHITECTURAL REFLECTED CEILING PLAN SHALL SUPERSEDE MECHANICAL PLANS FOR FINAL CEILING DIFFUSER/GRILLE LOCATIONS. COORDINATE.



KEY PLAN - AREA C



NOTE:
FTR IN CLASSROOMS C30, C31, C32 & C33 ARE SERVED BY T1 CONTROL VALVE.



- ARCHITECTURE
- LANDSCAPE ARCHITECTURE
- INTERIOR DESIGN
- ENGINEERING
- TECHNOLOGY

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SOUTH KOOCHICHING - RAINY
RIVER ISD #363 NORTHOME AND
INDUS SCHOOLS BOILER AND IAQ
UPGRADES

NORTHOME
SCHOOL

P.O. BOX 465, HWY 1
NORTHOME, MN 56661

PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY: DMV

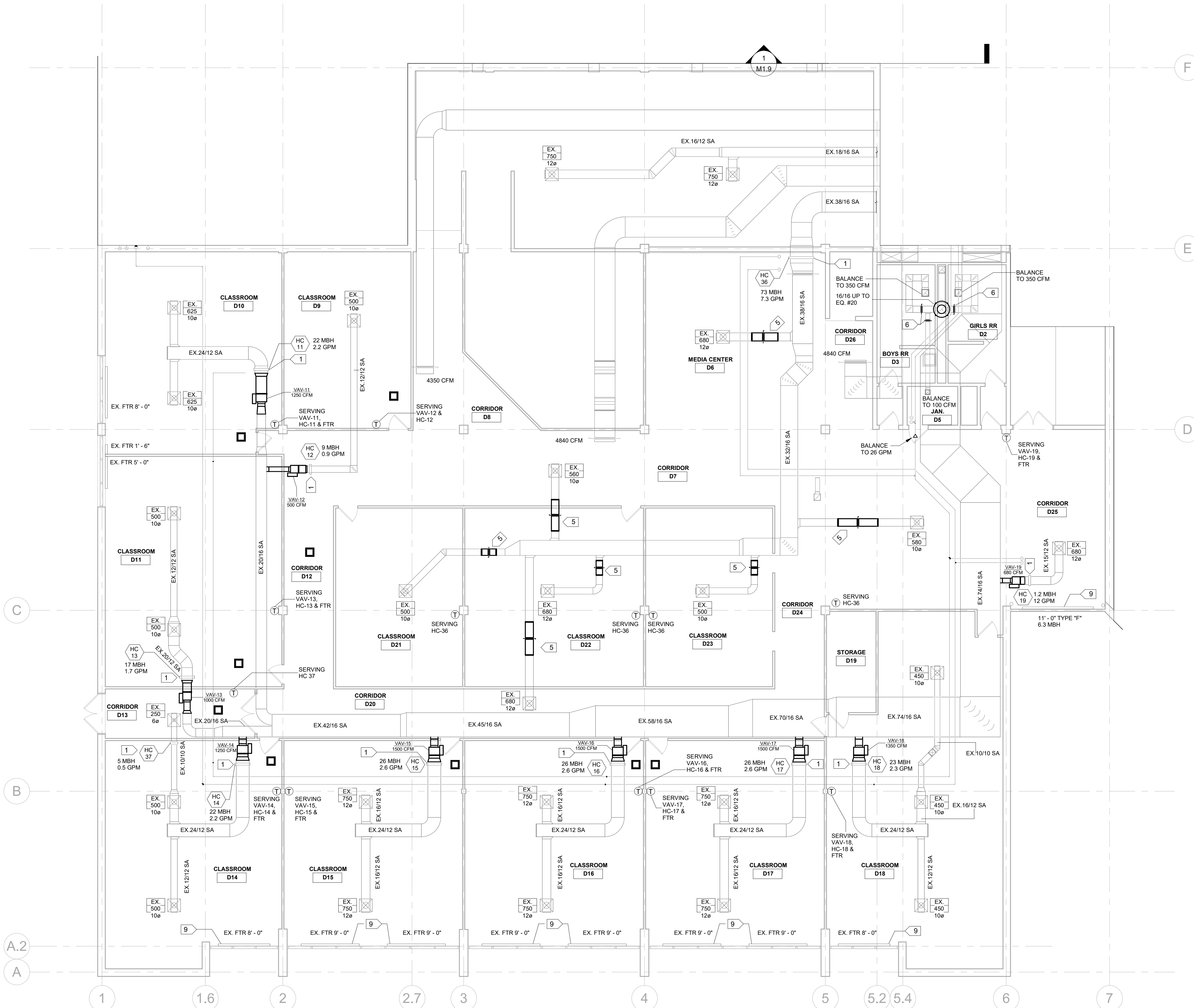
REVISIONS:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

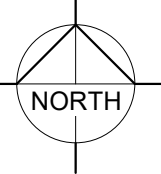
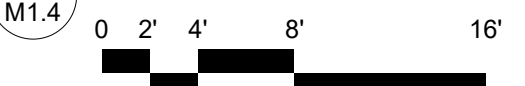
Michael C. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

MECHANICAL
PLAN - AREA
D

M1.4



MECHANICAL PLAN - AREA D 2ND FLOOR

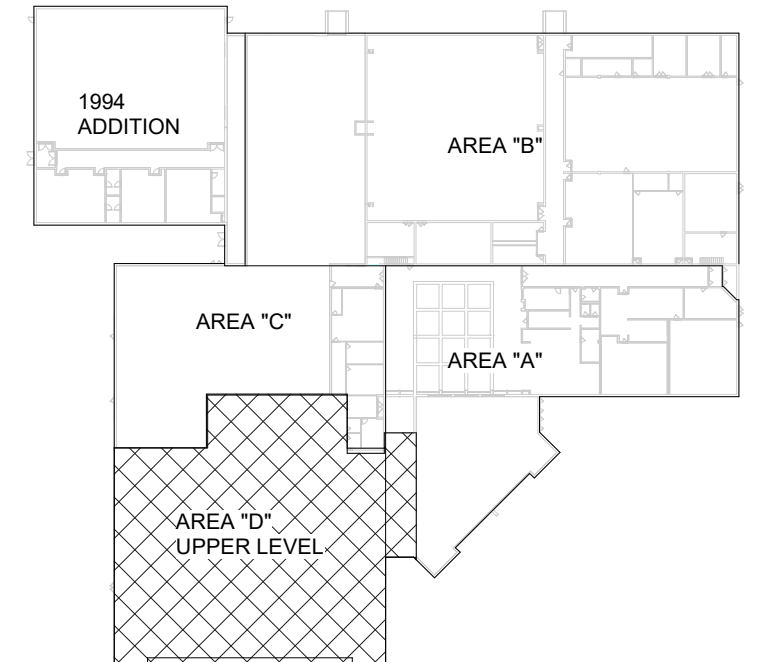


Single Duct Terminal Unit Schedule													
Northome IAQ													
Tag	AHU Tag	Room	Model	Size		CFM		Heating		Static Pressure		NC Levels	
				Unit	Outlet	Max	Min	CFM	Inlet	Down	Min	Rad	Disch.
VAV-01	EQ #24 "S-1"	C3 Science	DESV	16	24x18	2110	1160	1600	1	0.25	0.02	20	20
VAV-02	EQ #24 "S-1"	C4 FACS	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-03	EQ #24 "S-1"	C4 FACS	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-04	EQ #24 "S-1"	C24 Classroom	DESV	14	20x17.5	1100	610	800	1	0.25	0.01	19	19
VAV-05	EQ #24 "S-1"	C25 Classroom	DESV	14	20x17.5	1100	610	800	1	0.25	0.01	19	19
VAV-06	EQ #24 "S-1"	Classroom C29	DESV	14	20x17.5	1625	900	1200	1	0.25	0.02	23	22
VAV-07	EQ #24 "S-1"	C30 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-08	EQ #24 "S-1"	C31 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-09	EQ #24 "S-1"	C32 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-10	EQ #24 "S-1"	C33 Classroom	DESV	14	20x17.5	1350	750	900	1	0.25	0.02	21	20
VAV-11	EQ #24 "S-1"	D10 Classroom	DESV	14	20x17.5	1250	690	800	1	0.25	0.01	20	20
VAV-12	EQ #24 "S-1"	D9 Classroom	DESV	09	14x12.5	500	275	350	1	0.25	0.02	16	22
VAV-13	EQ #24 "S-1"	D11 Classroom	DESV	12	16x15	1000	550	800	1	0.25	0.01	22	24
VAV-14	EQ #24 "S-1"	D14 Classroom	DESV	14	20x17.5	1250	690	800	1	0.25	0.01	20	20
VAV-15	EQ #24 "S-1"	D15 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-16	EQ #24 "S-1"	D16 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-17	EQ #24 "S-1"	D17 Classroom	DESV	14	20x17.5	1500	825	1000	1	0.25	0.02	22	22
VAV-18	EQ #24 "S-1"	D18 Classroom	DESV	14	20x17.5	1350	750	900	1	0.25	0.02	21	20
VAV-19	EQ #24 "S-1"	D25 Corridor	DESV	09	14x12.5	680	375	450	1	0.25	0.03	19	25
VAV-20	EQ #24 "S-1"	A17 Corridor	DESV	09	14x12.5	700	385	500	1	0.25	0.03	19	25
VAV-21	EQ #24 "S-1"	Area C/D Clerestory	DESV	14	20x17.5	1500	825	1200	1	0.25	0.02	22	22

- Notes:
1. Selections are based on T10 as Manufacturer.
 2. All performance based on tests conducted in accordance with ASHRAE 130-2008 and AHRI 880-2011.
 3. All NC levels determined using AHRI 885-2008 Appendix E.
 4. All airflow, pressure losses and heating performance values have been corrected for altitude.
 5. Units of measure: dimensions (in), airflow (cfm), water flow (gpm), air pressure (in wg), water head losses (ft) and temperatures (degF).
 6. In the "Steps" column, code "S" denotes a modulating SCR heater.
 7. The minimum supply circuit ampacity (MCA) and maximum overcurrent protection (MOP) ratings were calculated in accordance with UL standards based on motor and electric coil full load current ratings.

MECHANICAL KEYED NOTES

1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS.
2. MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE FOR CONNECTIONS TO EXISTING DUCT WORK & NEW VAV, NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
3. PROVIDE NEW MOTORIZED RELIEF AIR DAMPER, STATIC PRESSURE SENSOR, & DIGITAL CONTROLS.
4. PROVIDE NEW MOTORIZED OUTSIDE AIR DAMPER ACTUATOR, RETURN AIR DAMPER ACTUATOR & DIGITAL CONTROLS.
5. EXTEND & MODIFY DUCTWORK AS SHOWN ON PLAN, NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
6. PROVIDE BALANCE DAMPER, MODIFY EXISTING DUCTWORK AS NEEDED.
7. 2448 UP TO EQUIPMENT #35 W/ MOTORIZED RELIEF DAMPER & DRP PAN. INTERLOCK WITH EQ 28 MOTORIZED RETURN AIR & OUTSIDE AIR DAMPERS DUCT TO BE ROUTED BETWEEN EXISTING JOISTS. FIELD VERIFY LOCATION AND DUCT ROUTING.
8. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING, BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.
9. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING LOCATED IN FTR COVER, BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.



KEY PLAN - AREA D

GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTION, LOCATIONS, AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY FITTINGS AND/OR APPURTENANCES FOR THE COMPLETE INSTALLATION, OPERATION AND CONNECTION OF THE EQUIPMENT SHOWN AND/OR SPECIFIED.
4. CONTRACTOR SHALL INSTALL EQUIPMENT, PIPING, AND DUCTWORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE NEW AND EXISTING EQUIPMENT AND SYSTEMS.
5. SEE ARCHITECTURAL CODE REVIEW / LIFE SAFETY PLANS FOR RATED PARTITIONS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIRE STOPPING ALL NEW PENETRATIONS OF FLOORS, WALLS AND CEILINGS (NEW AND EXISTING CONSTRUCTION) WHERE NEW PIPING AND DUCTWORK PASS THROUGH FIRE RATED PARTITIONS.
6. OPENINGS AND PENETRATIONS REQUIRED FOR INSTALLATIONS SHOWN ON THE DRAWINGS SHALL BE BY THIS CONTRACTOR, PATCH AND PAINT TO MATCH EXISTING.
7. DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
8. ARCHITECTURAL REFLECTED CEILING PLAN SHALL SUPERCEDE MECHANICAL PLANS FOR FINAL CEILING DIFFUSER/GRILLE LOCATIONS. COORDINATE.

ALTERNATE #1:
SUPPLY DUCTS, TRANSFER DUCTS, MIXED AIR PLENUMS AND SELECT RETURN DUCT SYSTEMS ARE INTERNALLY LINED SYSTEMS WITH A "FIBERGLASS" TYPE LINER PRODUCT. THE SCOPE OF THIS ALTERNATE IS TO CLEAN AND ENCAPSULATE THIS EXISTING DUCT LINER IN ACCORDANCE WITH SPECIFICATION SECTION 23 32 30. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. EXISTING LINED DUCTWORK IS INDICATED ON THE 1977 MECHANICAL DRAWINGS WITH A "DASHED LINE" SYMBOL. SCOPE OF WORK TO INCLUDE ALL INDICATED LINED SYSTEMS ON THE 1977 PLAN SETS.

ALTERNATE #2:
PROVIDE ADDITIONAL BMS CONTROL WORK FOR THE EXISTING RADIATION HEATING LOOP SYSTEMS FOR NORTHOME AND INDUS SCHOOLS. THIS INCLUDES NEW CONTROL VALVE, PIPING DISCONNECTION, NEW PIPING CONNECTION AND WIRING TO SERVE THE EXISTING PERIMETER RADIATION IN ROOMS WITHIN THE ADMINISTRATION, CLASSROOM, AND LOCKER ROOM ZONES AS DESCRIBED ON THE PLANS. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. THIS PIPING ZONE IS LABELED "RADIATION LOOP" HWY-1 AND HWY-1 ON THE 1977 PLAN SETS.

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE BALANCED TO, COMPLETE RETURN AIR DUCT SYSTEM IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

CEILING REMOVAL NOTE:
IN REMODELED AREAS, EACH CONTRACTOR IS RESPONSIBLE FOR CEILING REMOVAL & REPLACEMENT AS WELL AS REMOVAL OF ANY OTHER LEADING COMPONENT. REPLACE ANY CEILING COMPONENT DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: TILE, GRID, LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.



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UPGRADES

NORTHOME
SCHOOL

P.O. BOX 465, HWY 1
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PROJECT NO.: 20-005.2

DATE: 11/29/2022

DRAWN BY: DMV

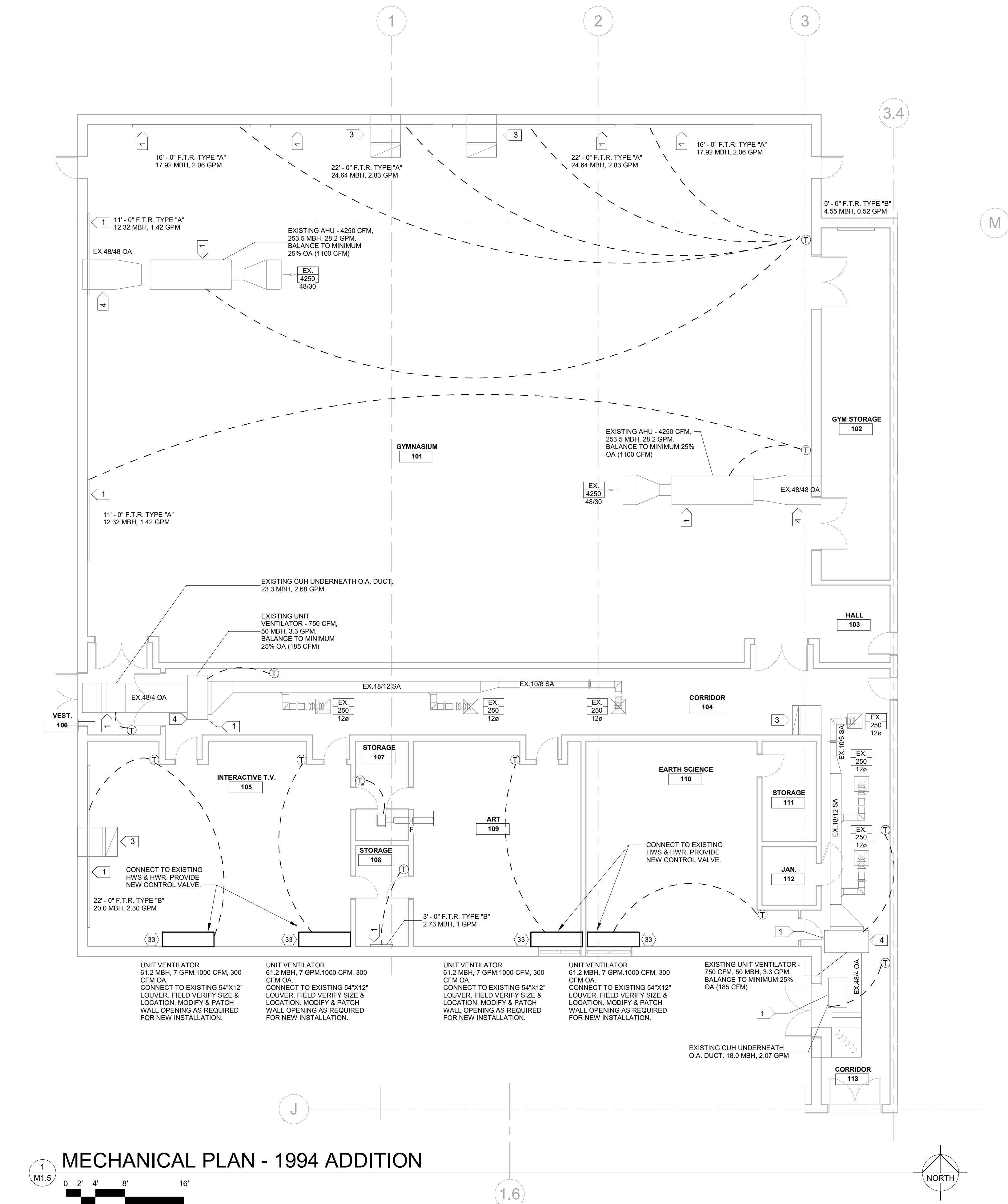
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ENGINEER UNDER THE LAWS
OF THE STATE OF MINNESOTA.

Michael R. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

MECHANICAL
PLAN - 1994
ADDITION

M1.5



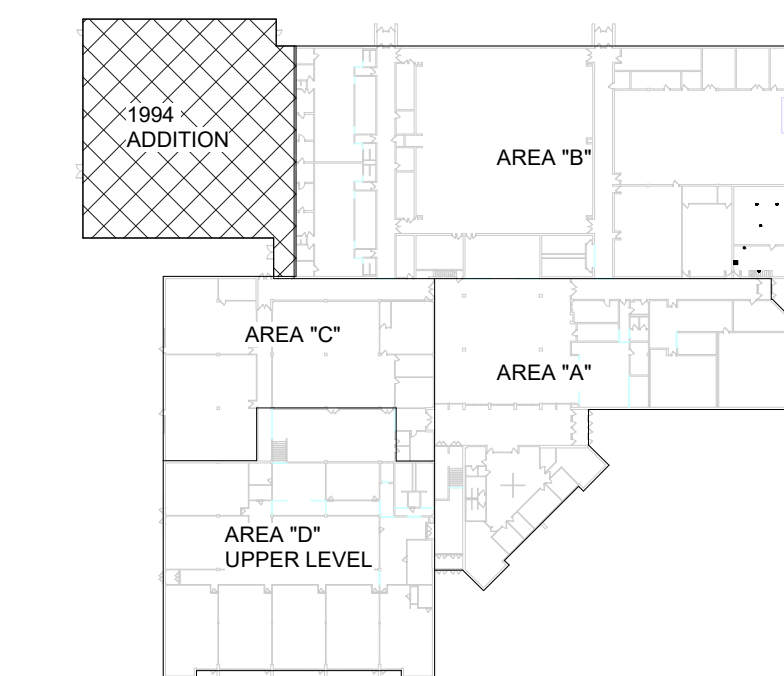
ALTERNATE #1:
SUPPLY DUCTS, TRANSFER DUCTS, MIXED AIR PLENUMS AND SELECT RETURN DUCT
SYSTEMS ARE INTERNALLY LINED SYSTEMS WITH A "FIBERGLASS" TYPE LINER
PRODUCT. THE SCOPE OF WORK UNDER THIS ALTERNATE BID IS TO CLEAN AND
ENCAPSULATE THIS EXISTING DUCT LINER IN ACCORDANCE WITH SPECIFICATION
SECTION 23.32.00. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR
REFERENCE AND PRICING PURPOSES. EXISTING LINED DUCTWORK IS INDICATED ON THE
1977 MECHANICAL DRAWINGS WITH A "DASHED LINE" SYMBOL. SCOPE OF WORK TO
INCLUDE ALL INDICATED LINED SYSTEMS ON THE 1977 PLAN SETS

EXISTING BUILDING HAS A HYBRID PLENUM / DUCTED
RETURN AIR SYSTEM. RETURN AIR DUCTS HAVE
DAMPERS & ARE SPOTTED ON PLANS WITH CFM TO BE
BALANCED TO. COMPLETE RETURN AIR DUCT SYSTEM
IS NOT SHOWN FOR CLARITY. EXISTING DRAWINGS
SHALL BE PROVIDED TO SUCCESSFUL CONTRACTOR.

CEILING REMOVAL NOTE:
IN REMODELED AREAS, EACH CONTRACTOR IS RESPONSIBLE FOR
CEILING REMOVAL & REPLACEMENT AS WELL AS REMOVAL OF ANY
OTHER CEILING COMPONENT. REPLACE ANY CEILING COMPONENT
DAMAGED DUE TO MODIFICATIONS MADE. CEILING REMOVAL
COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
TILE, GRID, LIGHTS, SPEAKERS, GRILLES, DIFFUSERS, ETC.

MECHANICAL KEYED NOTES

1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS.
2. MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE
FOR CONNECTIONS TO EXISTING DUCT WORK & NEW W/AV. NEW DUCTWORK TO
BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
3. PROVIDE NEW MOTORIZED RELIEF AIR DAMPER, STATIC PRESSURE SENSOR, &
DIGITAL CONTROLS.
4. PROVIDE NEW MOTORIZED OUTSIDE AIR DAMPER ACTUATOR, RETURN AIR
DAMPER ACTUATOR & DIGITAL CONTROLS.
5. EXTEND & MODIFY DUCTWORK AS SHOWN ON PLAN. NEW DUCTWORK TO BE
INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
6. PROVIDE BALANCE DAMPER. MODIFY EXISTING DUCTWORK AS NEEDED.
7. 2448 UP TO EQUIPMENT #35 W/ MOTORIZED RELIEF DAMPER & DRIP PAN.
INTERLOCK WITH EQ 28 MOTORIZED RETURN AIR & OUTSIDE AIR DAMPERS
DUCT TO BE ROUTED BETWEEN EXISTING JOISTS. FIELD VERIFY LOCATION AND
DUCT ROUTING.
8. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL
CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON
RETURN PIPING. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.
9. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL
CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON
RETURN PIPING LOCATED IN FTR COVER. BALANCE TO 1 GPM UNLESS
OTHERWISE NOTED.



KEY PLAN - ADDITION

GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES
IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTION,
LOCATIONS, AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL
NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY FITTINGS
AND/OR APPURTENANCES FOR THE COMPLETE INSTALLATION.
OPERATION AND CONNECTION OF THE EQUIPMENT SHOWN AND/OR
SPECIFIED.
4. CONTRACTOR SHALL INSTALL EQUIPMENT, PIPING, AND DUCTWORK IN
SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE NEW AND
EXISTING EQUIPMENT AND SYSTEMS.
5. SEE ARCHITECTURAL CODE REVIEW / LIFE SAFETY PLANS FOR RATED
PARTITIONS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE
FOR FIRE STOPPING ALL NEW PENETRATIONS OF FLOORS, WALLS AND
CEILINGS (NEW AND EXISTING CONSTRUCTION) WHERE NEW PIPING
AND DUCTWORK PASS THROUGH FIRE RATED PARTITIONS.
6. OPENINGS AND PENETRATIONS REQUIRED FOR INSTALLATIONS SHOWN
ON THE DRAWINGS SHALL BE BY THIS CONTRACTOR, PATCH AND PAINT
TO MATCH EXISTING.
7. DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
8. ARCHITECTURAL REFLECTED CEILING PLAN SHALL SUPERCEDE
MECHANICAL PLANS FOR FINAL CEILING DIFFUSER/GRILLE LOCATIONS.
COORDINATE.



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P.O. BOX 465, HWY 1
NORTHOME, MN 56661

DATE: 11/29/2022

DRAWN BY: DMV

HEREBY CERTIFY THAT THIS PLAN,
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ENGINEER UNDER THE LAWS
OF THE STATE OF MINNESOTA.

Michael R. Washburn
ENGINEER REG. NO.
MICHAEL WASHBURN 52709

MECHANICAL PLAN - BOILER ROOM

M1.6

MECHANICAL PLAN - MECH B1 & B2

CONNECT TO EXISTING 6"
HWS & 1 1/2" HWS. FIELD
VERIFY SIZE & LOCATION

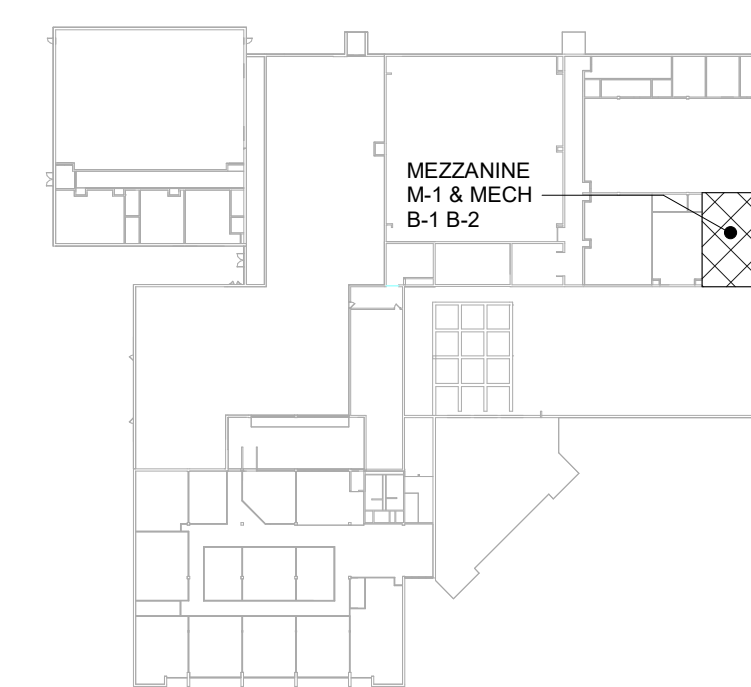
CONNECT TO EXISTING 6" HWR & 1 1/2"
HWR. FIELD VERIFY SIZE & LOCATION

MECHANICAL PLAN - MEZZANINE M-1

*NOTE:
HWS & HWR RUNOUTS TO BE 3/4"
UNLESS OTHERWISE NOTED.

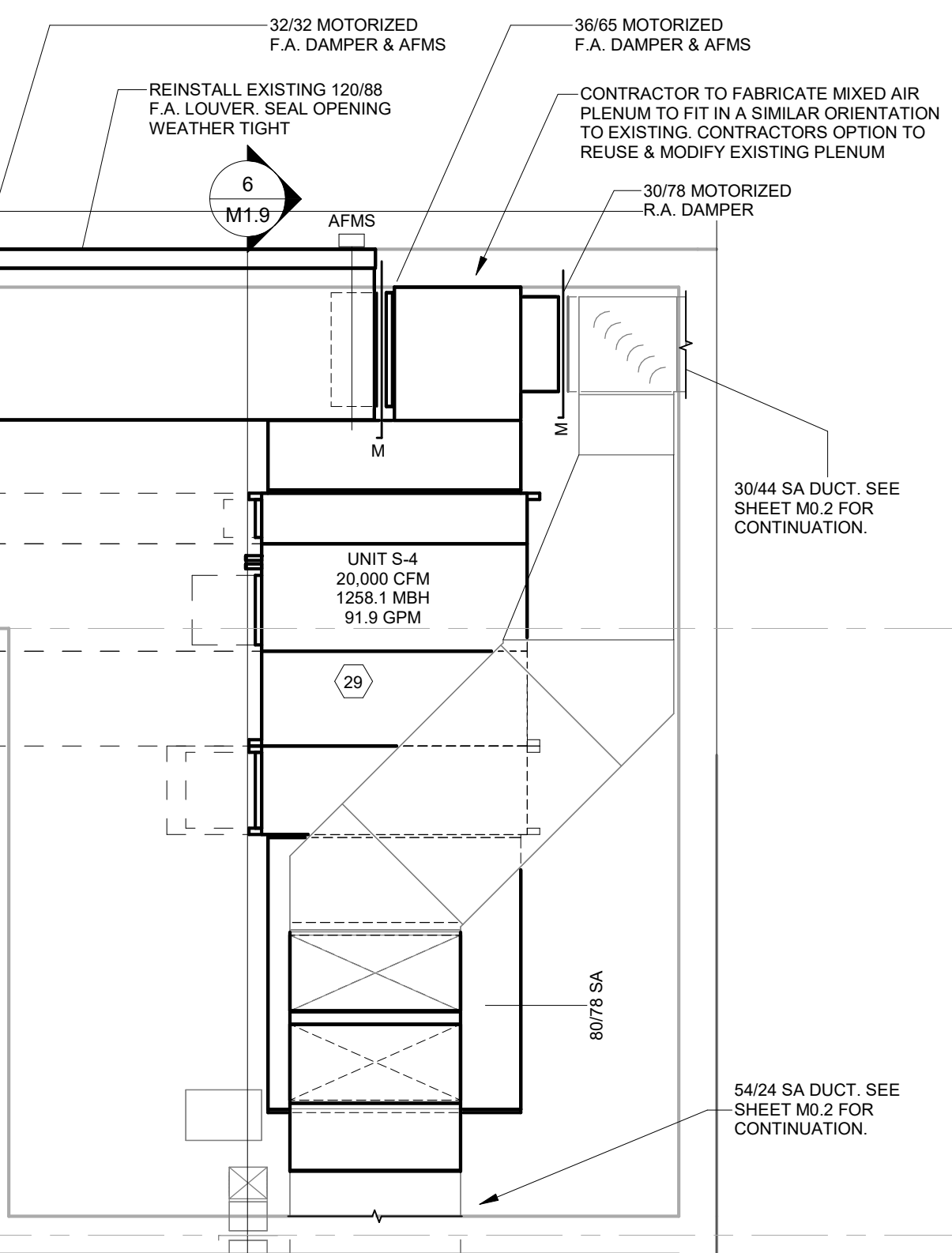
1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS TO MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE OPERATIONAL REQUIREMENTS. PROVIDE 1" ARMATEX AS PER SPECIFICATIONS. RETURN PIPING TO BE INTERNALLY LINED WITH 1" ARMATEX AS PER SPECIFICATIONS.
2. PROVIDE NEW MOTORIZED RETURN AIR DAMPER, STATIC PRESSURE SENSOR, & DIGITAL CONTROLS.
3. PROVIDE NEW MOTORIZED OUTSIDE AIR DAMPER ACTUATOR, RETURN AIR DAMPER ACTUATOR & DIGITAL CONTROLS.
4. PROVIDE DUCTWORK TO BE INSTALLED ON PLAN, NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMATEX AS PER SPECIFICATIONS.
5. PROVIDE BALANCE DAMPER, VALVE, & EXISTING DUCTWORK AS NEEDED TO PASS EXISTING EQUIPMENT AIRS W/OUT EXCEEDING DESIGN FRICTION LOSS ON PLAN, INTERLOCK WITH EQ28 MOTORIZED RETURN AIR & OUTSIDE AIR DAMPERS TO BE ROUTED BETWEEN EXISTING JOISTS, FIELD VERIFY LOCATION AND DUCT ROUTING.
6. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS TO MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE OPERATIONAL REQUIREMENTS. RETURN PIPING, BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.
7. ALTERNATE #3: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADPACON, CONTROL VALVE TO BE INSTALLED ON RETURN PIPING LOCATED IN FTR COVER, BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.

*NOTE:
HOT WATER HEATING SYSTEM IS 40/60 ETHYLENE GLYCOL. CONTRACTOR SHALL VERIFY SYSTEM VOLUME & GLYCOL REQUIREMENTS.



1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTION, LOCATIONS, AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY FITTINGS AND/OR APPURTENANCES FOR THE COMPLETE INSTALLATION. SPECIFICATION AND CONNECTION OF THE EQUIPMENT SHOWN AND/OR OTHER.
4. CONTRACTOR SHALL INSTALL EQUIPMENT, PIPING, AND DUCTWORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE NEW AND EXISTING EQUIPMENT AND/OR STRUCTURES.
5. SEE ARCHITECTURAL CODE REVIEW (LIFE SAFETY PLANS FOR RATED PARTITIONS). MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR STOPPING ALL NEW AND EXISTING CONSTRUCTION OF WALLS AND CEILINGS NEW AND EXISTING CONSTRUCTION WHERE NEW PIPING AND DUCTWORK PASS THROUGH FIRE RATED PARTITIONS.
6. OPENINGS AND PENETRATIONS REQUIRED FOR INSTALLATIONS SHOWN ON THE DRAWINGS SHALL BE BY THIS CONTRACTOR, PATCH AND PAINT TO MATCH EXISTING.
7. DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
8. ARCHITECTURAL REFLECTED CEILING PLAN SHALL SUPERSEDE MECHANICAL PLANS FOR FINAL CEILING DIFFUSER/GRILLE LOCATIONS. CONTRACTOR SHALL VERIFY.

KEY PLAN - MEZZANINE



MECHANICAL KEYED NOTES

1. PROVIDE NEW CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS.
2. MODIFY, EXTEND, AND PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE FOR CONNECTIONS TO EXISTING DUCT WORK & NEW VAV. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
3. PROVIDE NEW MOTORIZED RELIEF AIR DAMPER, STATIC PRESSURE SENSOR, & DIGITAL CONTROLS.
4. PROVIDE NEW MOTORIZED OUTSIDE AIR DAMPER ACTUATOR, RETURN AIR DAMPER ACTUATOR & DIGITAL CONTROLS.
5. EXTEND & MODIFY DUCTWORK AS SHOWN ON PLAN. NEW DUCTWORK TO BE INTERNALLY LINED WITH 1" ARMAFLEX AS PER SPECIFICATIONS.
6. PROVIDE BALANCE DAMPER, MODIFY EXISTING DUCTWORK AS NEEDED.
7. 24" UP TO EQUIPMENT AS W/ MOTORIZED RELIEF DAMPER & DRIP PAN. INTERLOCK WITH EQ. 28 MOTORIZED RETURN AIR & OUTSIDE AIR DAMPERS. DUCT TO BE ROUTED BETWEEN EXISTING JOISTS. FIELD VERIFY LOCATION AND DUCT ROUTING.
8. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.
9. ALTERNATE #2: PROVIDE CONTROL VALVE, BALANCING DEVICE & DIGITAL CONTROLS SERVING RADIATION. CONTROL VALVE TO BE INSTALLED ON RETURN PIPING LOCATED IN FTR COVER. BALANCE TO 1 GPM UNLESS OTHERWISE NOTED.

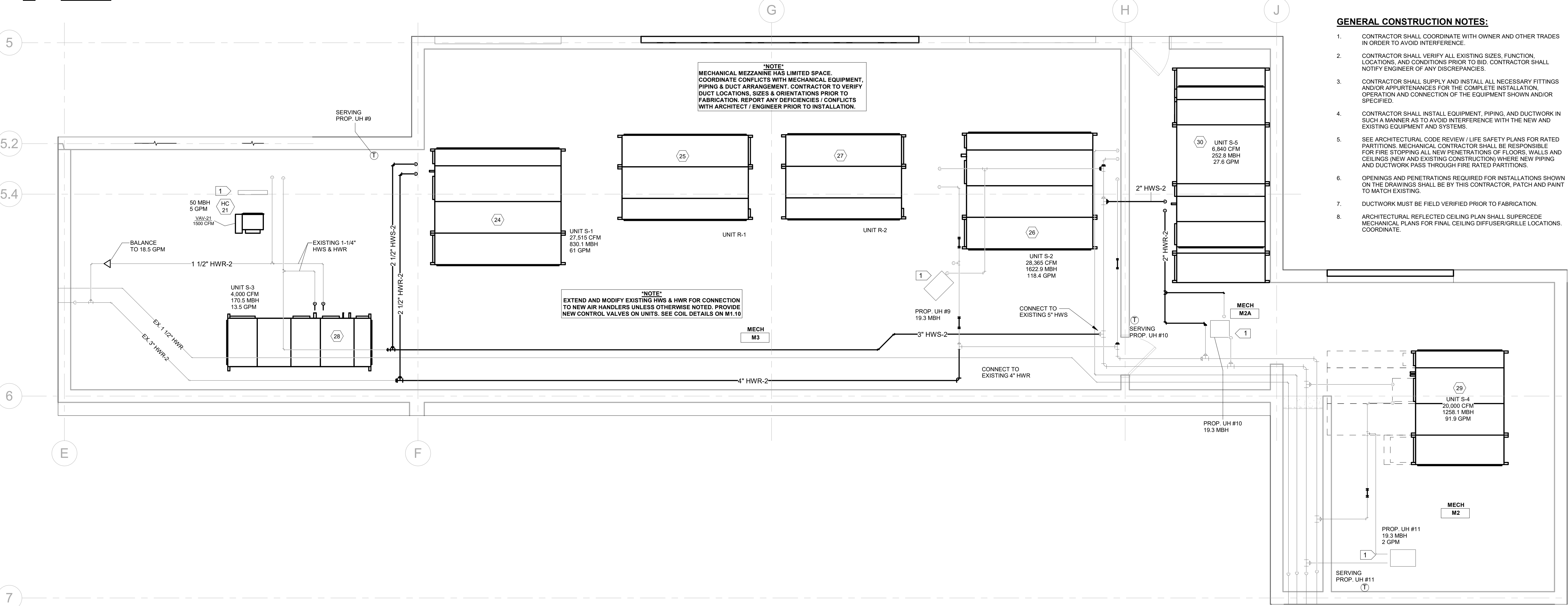
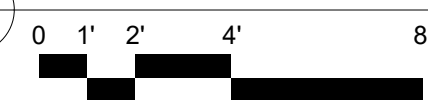
"NOTE"
MECHANICAL MEZZANINE HAS LIMITED SPACE. COORDINATE CONFLICTS WITH MECHANICAL EQUIPMENT, PIPING & DUCT ARRANGEMENT. CONTRACTOR TO VERIFY DUCT LOCATIONS, SIZES & ORIENTATIONS PRIOR TO FABRICATION. REPORT ANY DEFICIENCIES / CONFLICTS WITH ARCHITECT / ENGINEER PRIOR TO INSTALLATION.

ALTERNATE #1:
SUPPLY DUCTS, TRANSFER DUCTS, MIXED AIR PLENUMS AND SELECT RETURN DUCT SYSTEMS ARE INTERNALLY LINED SYSTEMS WITH A "FIBERGLASS" TYPE LINER PRODUCT. THE SCOPE OF WORK UNDER THIS ALTERNATE BID IS TO CLEAN AND ENCAPSULATE THIS EXISTING DUCT LINER IN ACCORDANCE WITH SPECIFICATION SECTION 23 52 00. EXISTING 1977 MECHANICAL DRAWINGS ARE PROVIDED FOR REFERENCE AND PRICING PURPOSES. EXISTING LINED DUCTWORK IS INDICATED ON THE 1977 MECHANICAL DRAWINGS WITH A DASHED LINE SYMBOL. SCOPE OF WORK TO INCLUDE ALL INDICATED LINED SYSTEMS ON THE 1977 PLAN SETS.

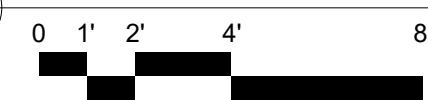
GENERAL CONSTRUCTION NOTES:

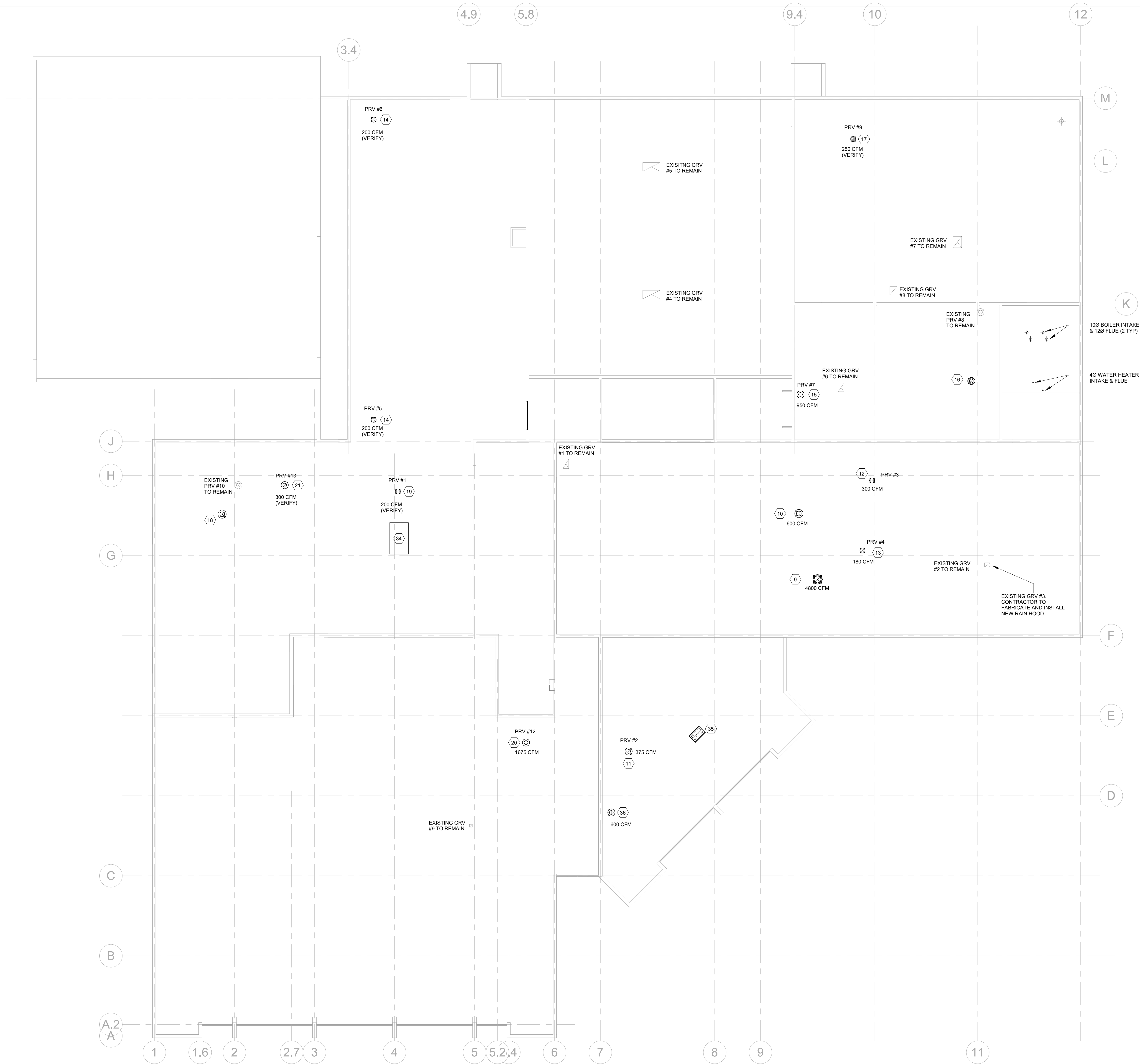
1. CONTRACTOR SHALL COORDINATE WITH OWNER AND OTHER TRADES IN ORDER TO AVOID INTERFERENCE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SIZES, FUNCTION, LOCATIONS, AND CONDITIONS PRIOR TO BID. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY FITTINGS AND/OR APPURTENANCES FOR THE COMPLETE INSTALLATION, OPERATION AND CONNECTION OF THE EQUIPMENT SHOWN AND/OR SPECIFIED.
4. CONTRACTOR SHALL INSTALL EQUIPMENT, PIPING, AND DUCTWORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE NEW AND EXISTING EQUIPMENT AND SYSTEMS.
5. SEE ARCHITECTURAL CODE REVIEW / LIFE SAFETY PLANS FOR RATED PARTITIONS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIRE STOPPING ALL NEW PENETRATIONS OF FLOORS, WALLS AND CEILINGS (NEW AND EXISTING CONSTRUCTION) WHERE NEW PIPING AND DUCTWORK PASS THROUGH FIRE RATED PARTITIONS.
6. OPENINGS AND PENETRATIONS REQUIRED FOR INSTALLATIONS SHOWN ON THE DRAWINGS SHALL BE BY THIS CONTRACTOR, PATCH AND PAINT TO MATCH EXISTING.
7. DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
8. ARCHITECTURAL REFLECTED CEILING PLAN SHALL SUPERCEDE MECHANICAL PLANS FOR FINAL CEILING DIFFUSER/GRILLE LOCATIONS. COORDINATE.

MECHANICAL PLAN - MEZZANINE VENTILATION



MECHANICAL PLAN - MEZZANINE HVAC PIPING





MECHANICAL PLAN - ROOF

GENERAL CONSTRUCTION NOTES:

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NORTHOME, MN 56661

PROJECT NO.: 20-005.2
DATE: 11/29/2022
DRAWN BY: DMV
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Michael R. Washburn
ENGINEER REG. NO. 52709
MICHAEL WASHBURN

**MECHANICAL
ROOF PLAN**

M1.8



- ARCHITECTURE
- LANDSCAPE ARCHITECTURE
- INTERIOR DESIGN
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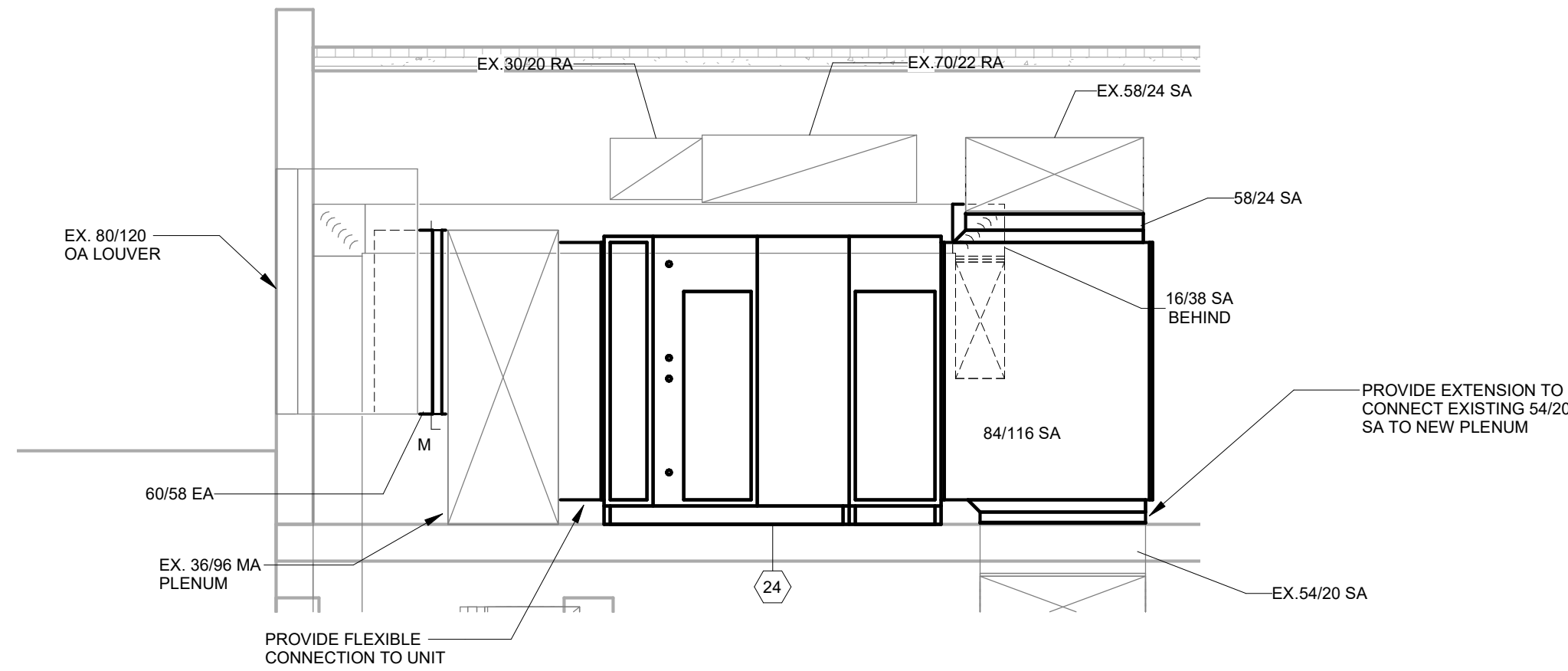
DRAWN BY: DMV

REVISIONS:

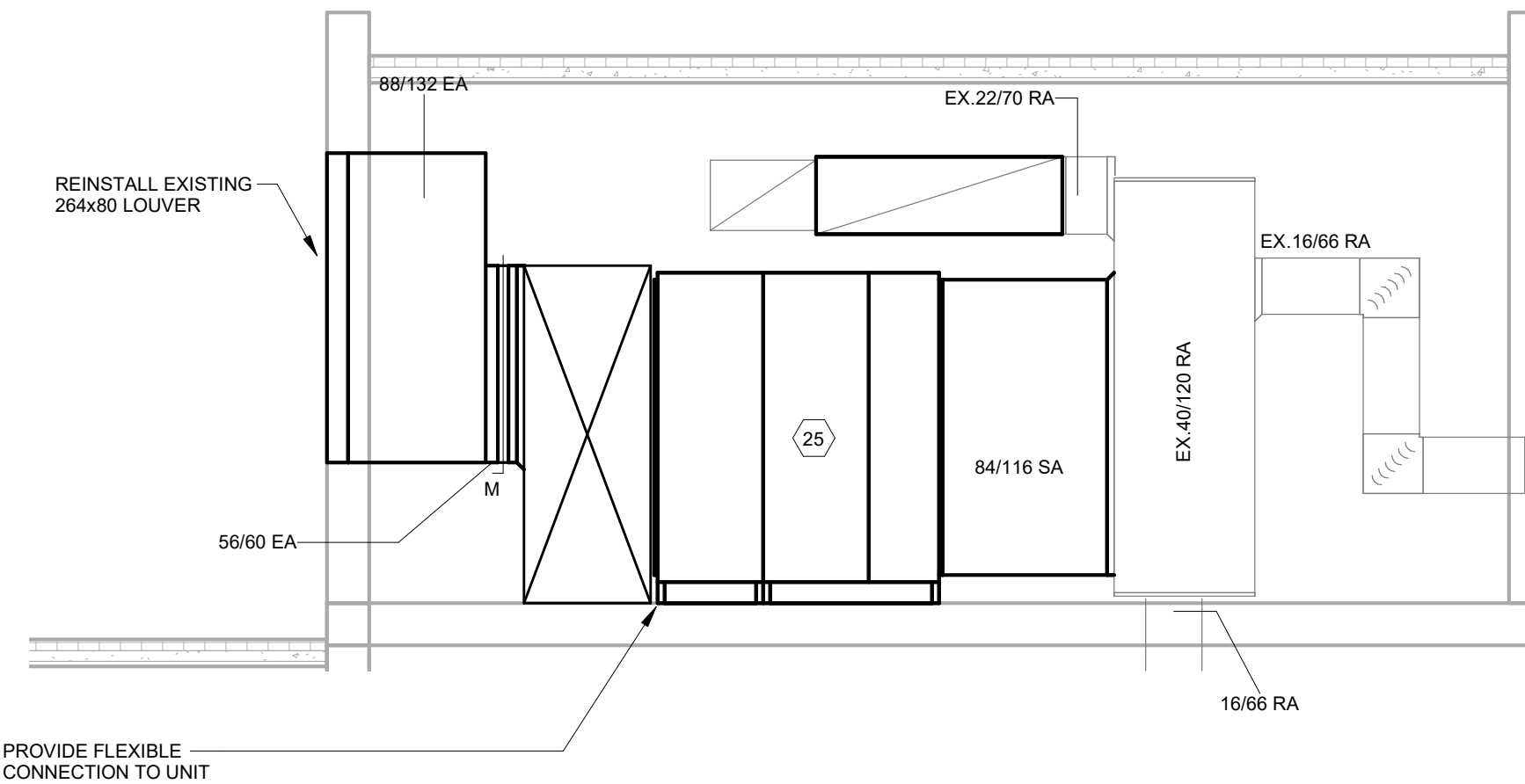
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Michael R. Washburn
ENGINEER REG. NO.
MICHAEL WASHBURN 52709

AHU SECTIONS

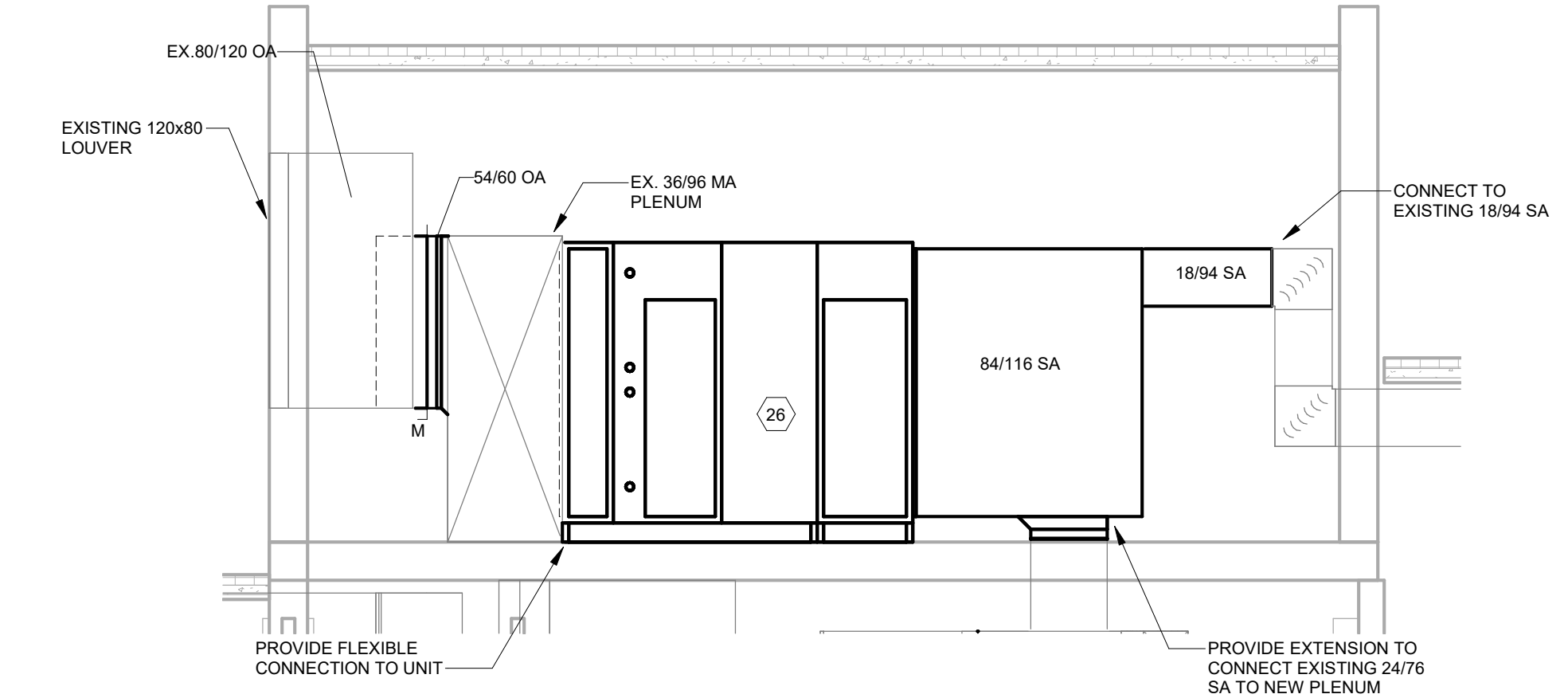
M1.9



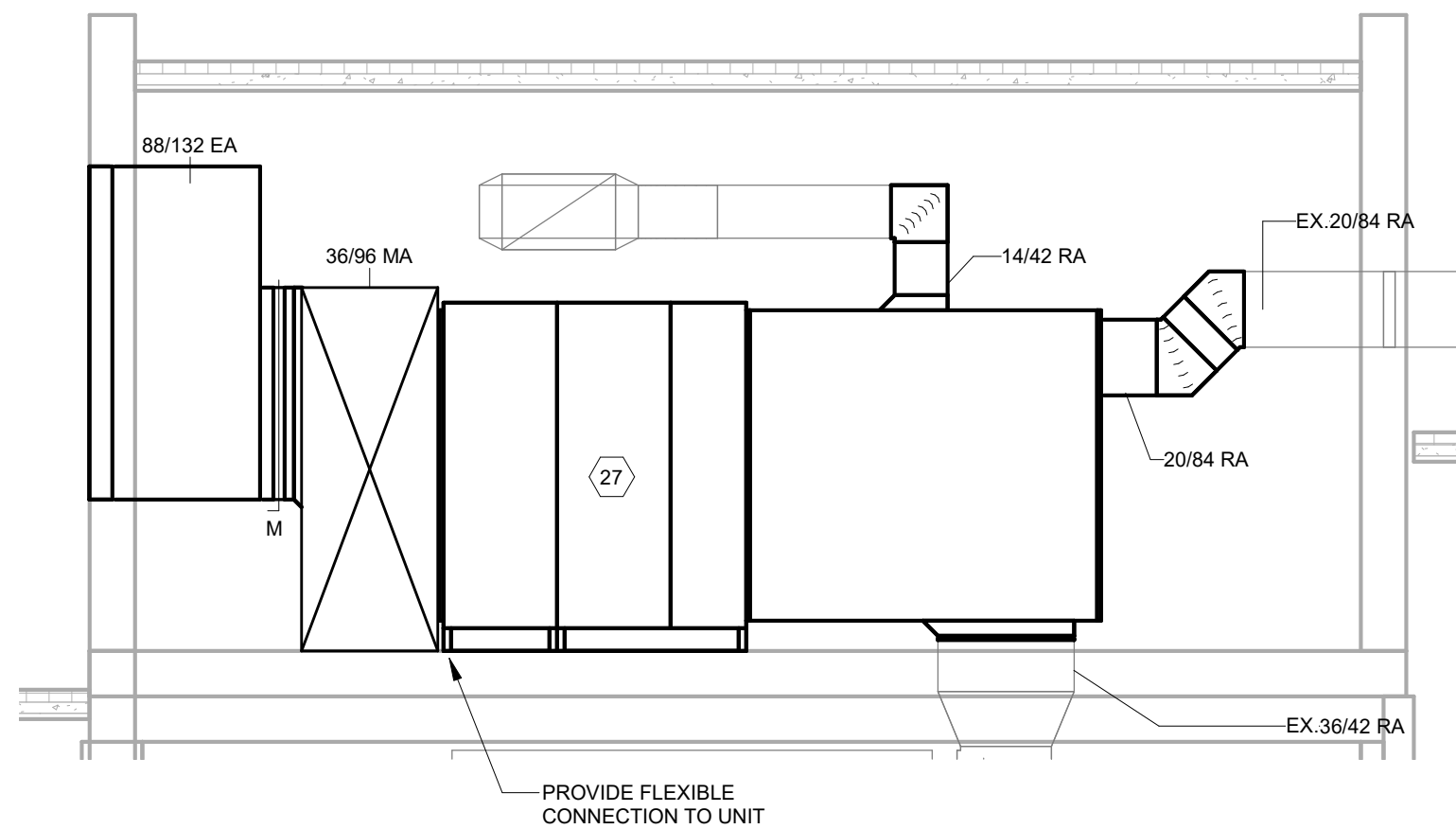
1 AHU-24 SECTION (REPLACEMENT 1977 "S-1")



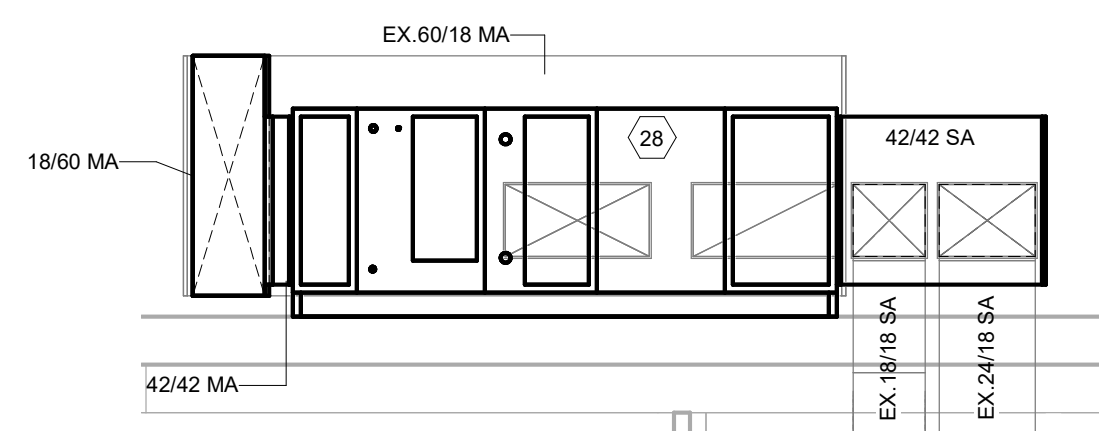
2 AHU-25 SECTION (REPLACEMENT 1977 "R-1")



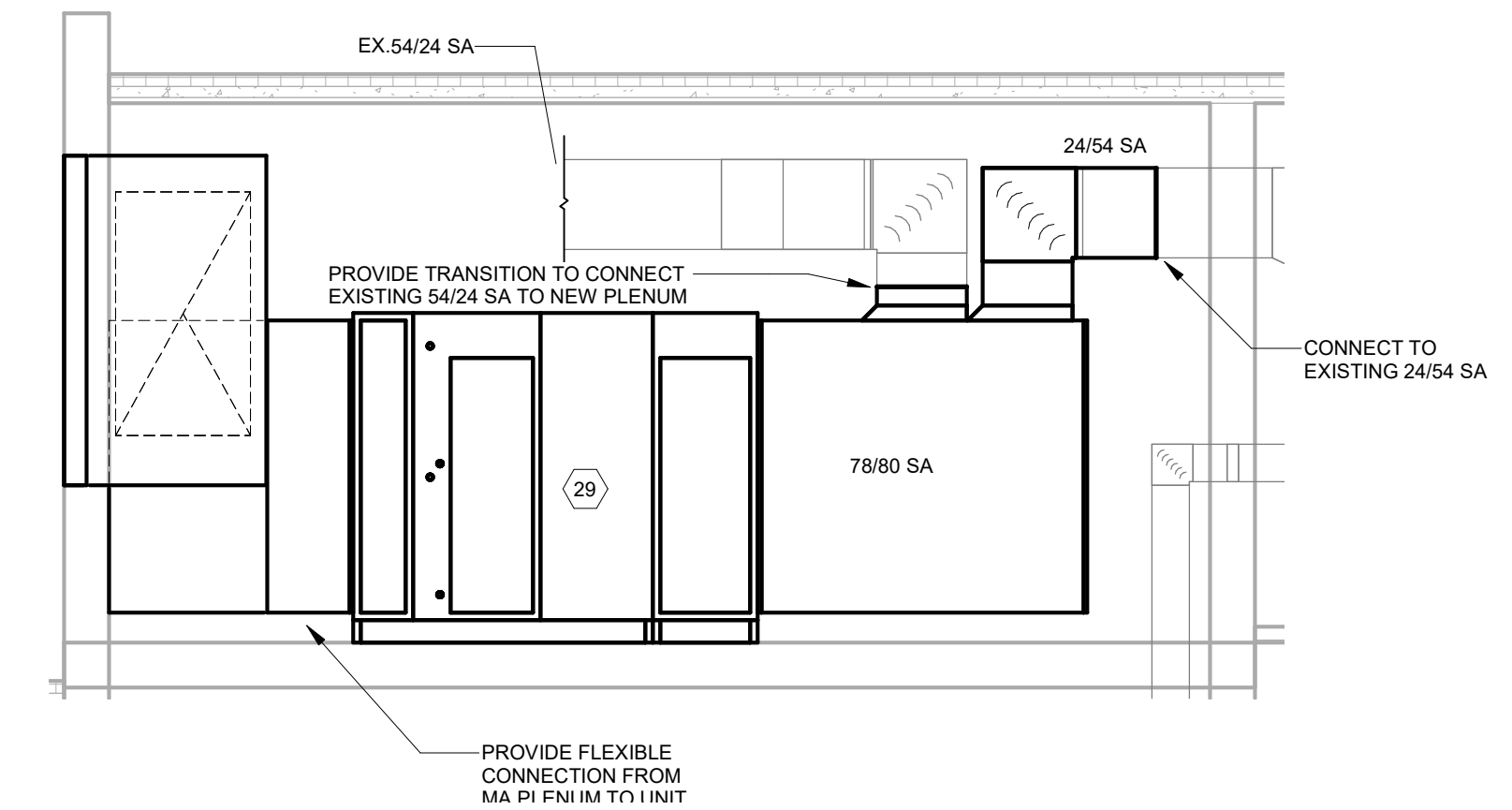
3 AHU-26 SECTION (REPLACEMENT 1977 "S-2")



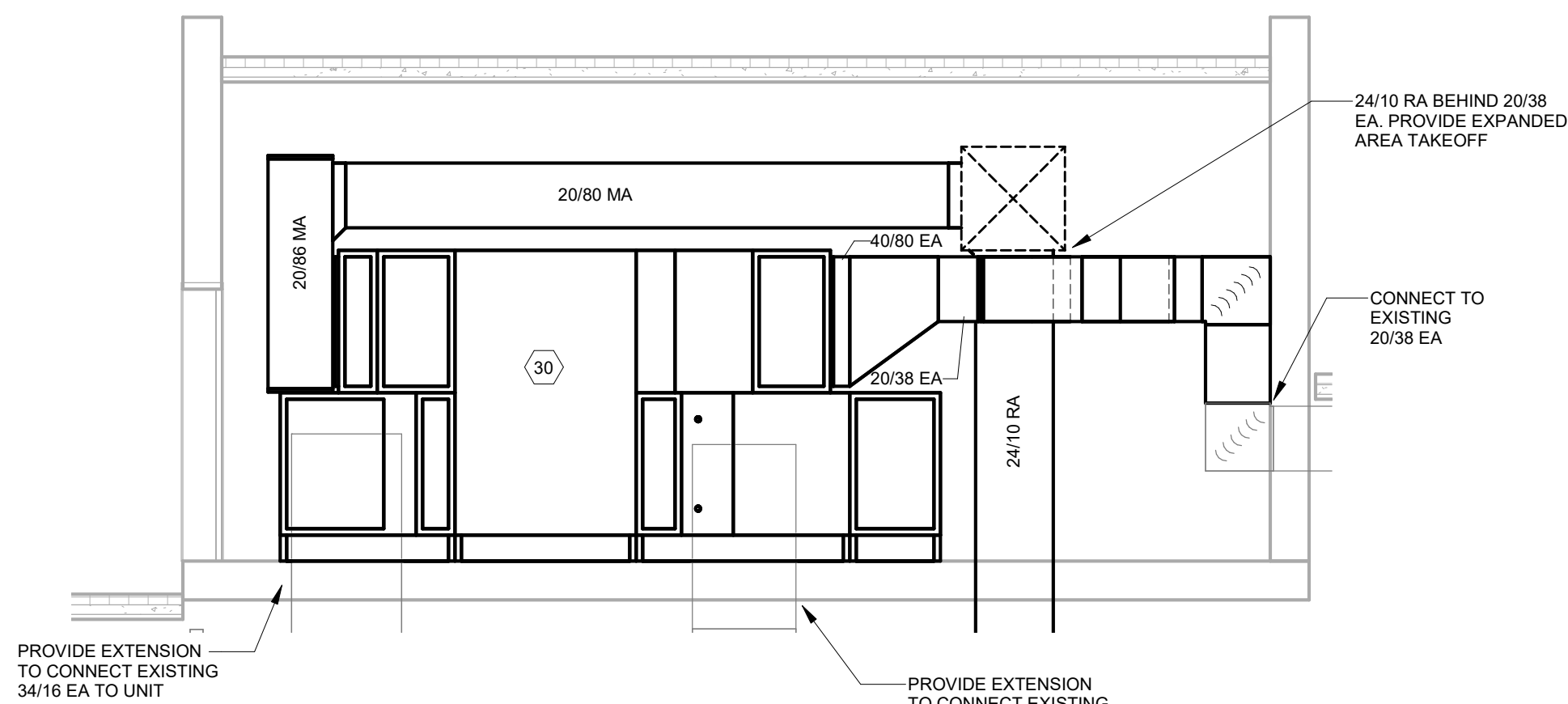
4 AHU-27 SECTION (REPLACEMENT 1977 "R-2")



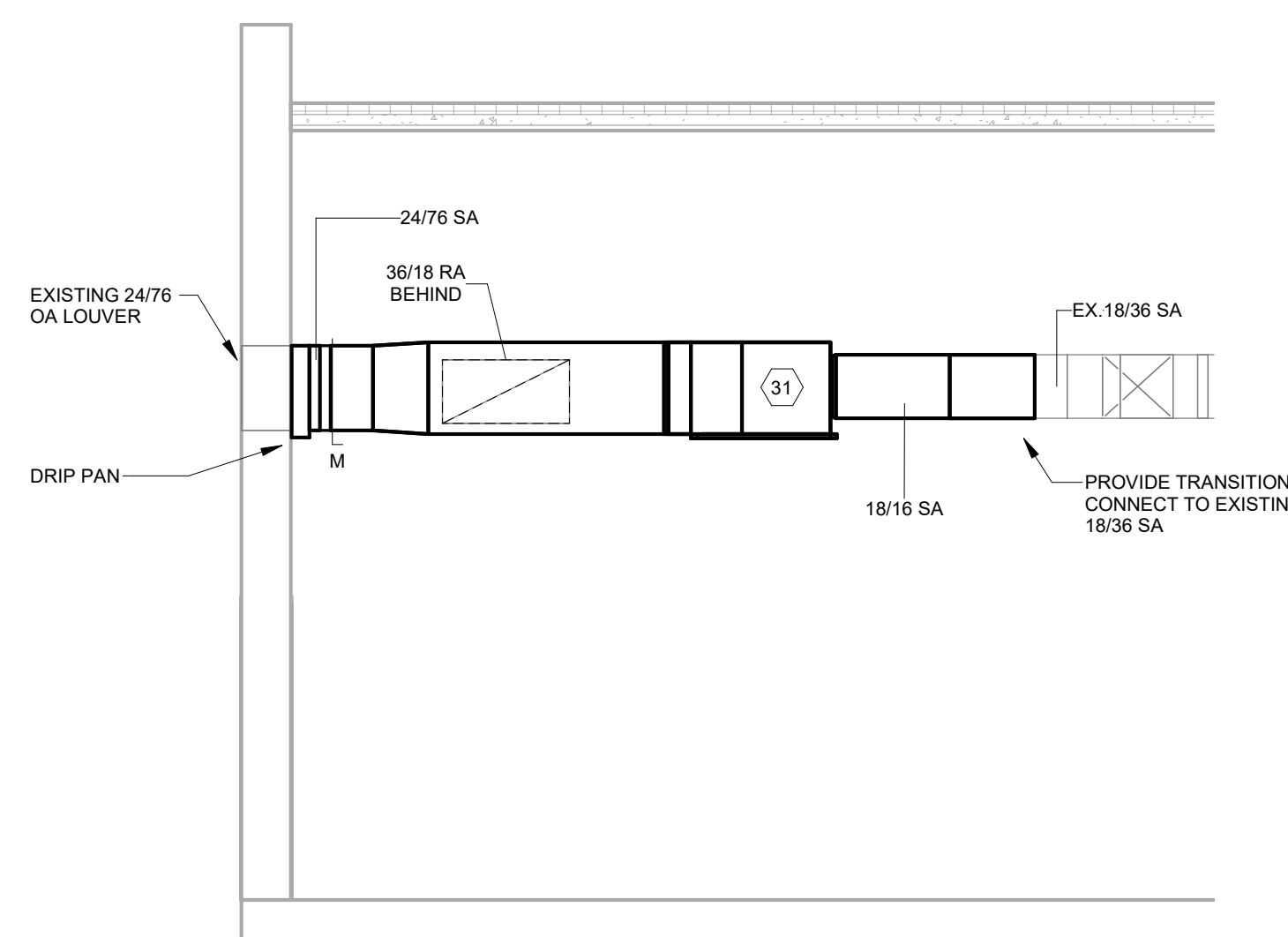
5 AHU-28 SECTION (REPLACEMENT 1977 "S-3")



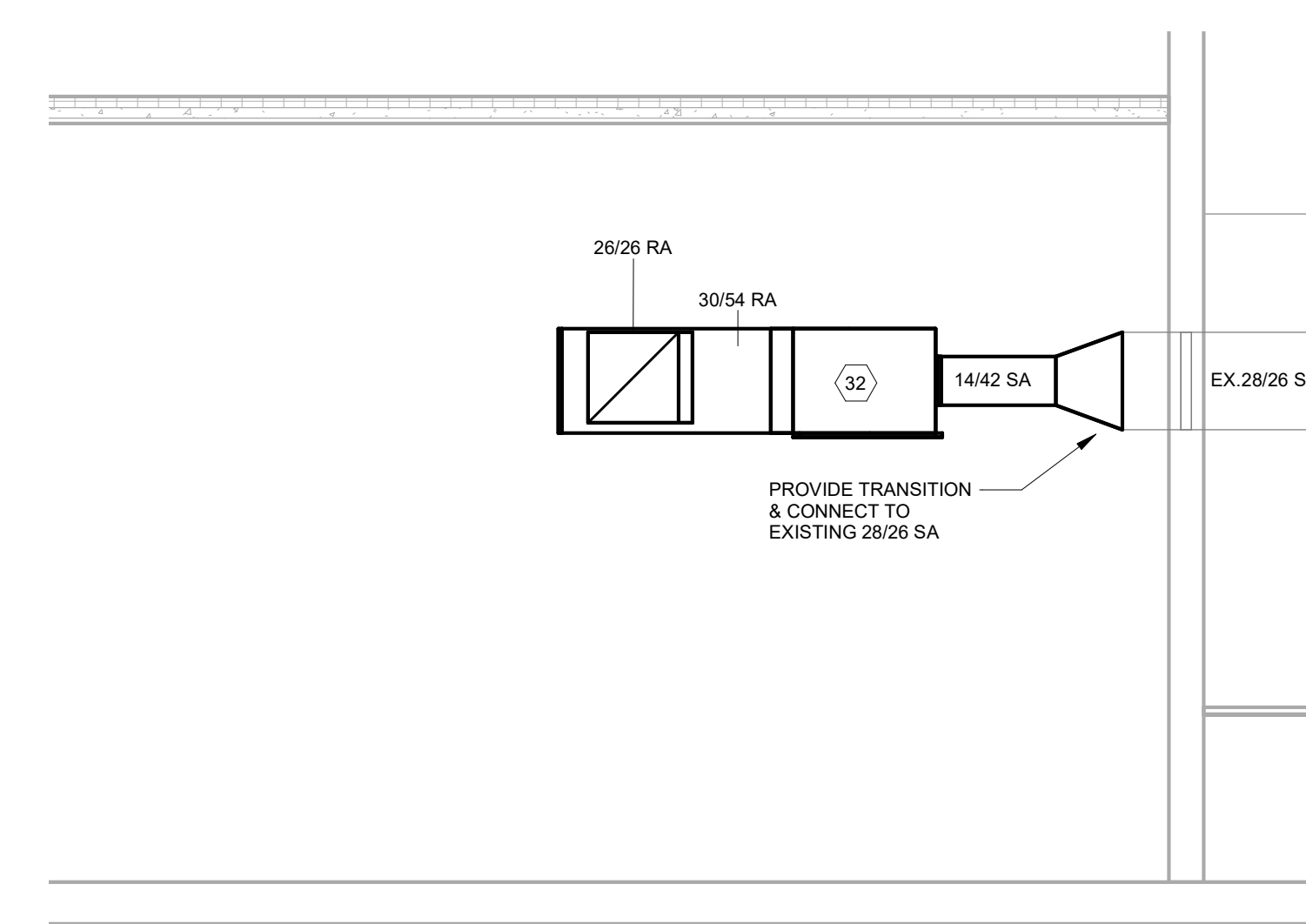
6 AHU-29 SECTION (REPLACEMENT 1977 "S-4")



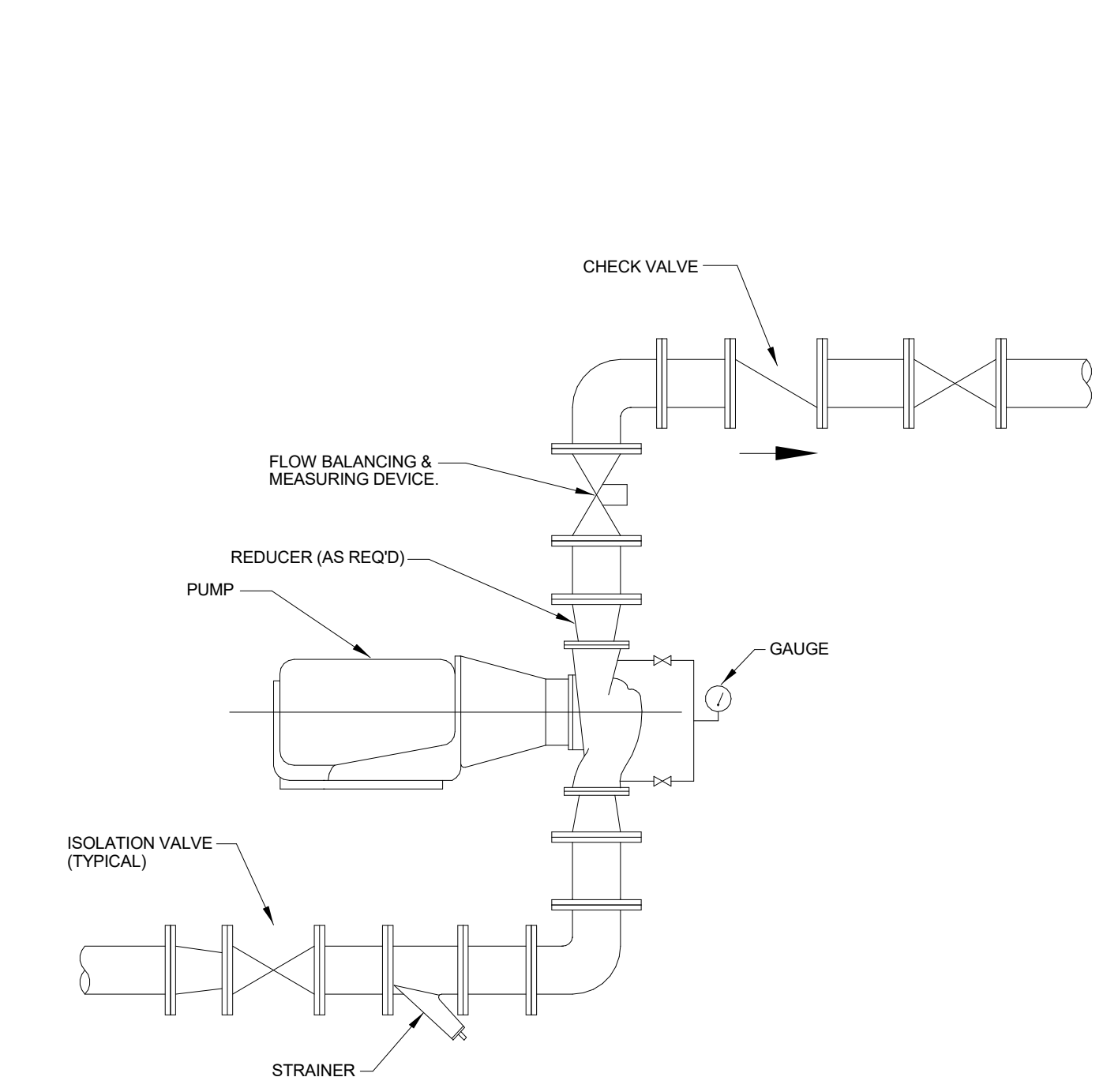
7 AHU-30 SECTION (REPLACEMENT 1977 "S-5" & "ER-1")



8 AHU-31 SECTION (REPLACEMENT 1977 "S-6")

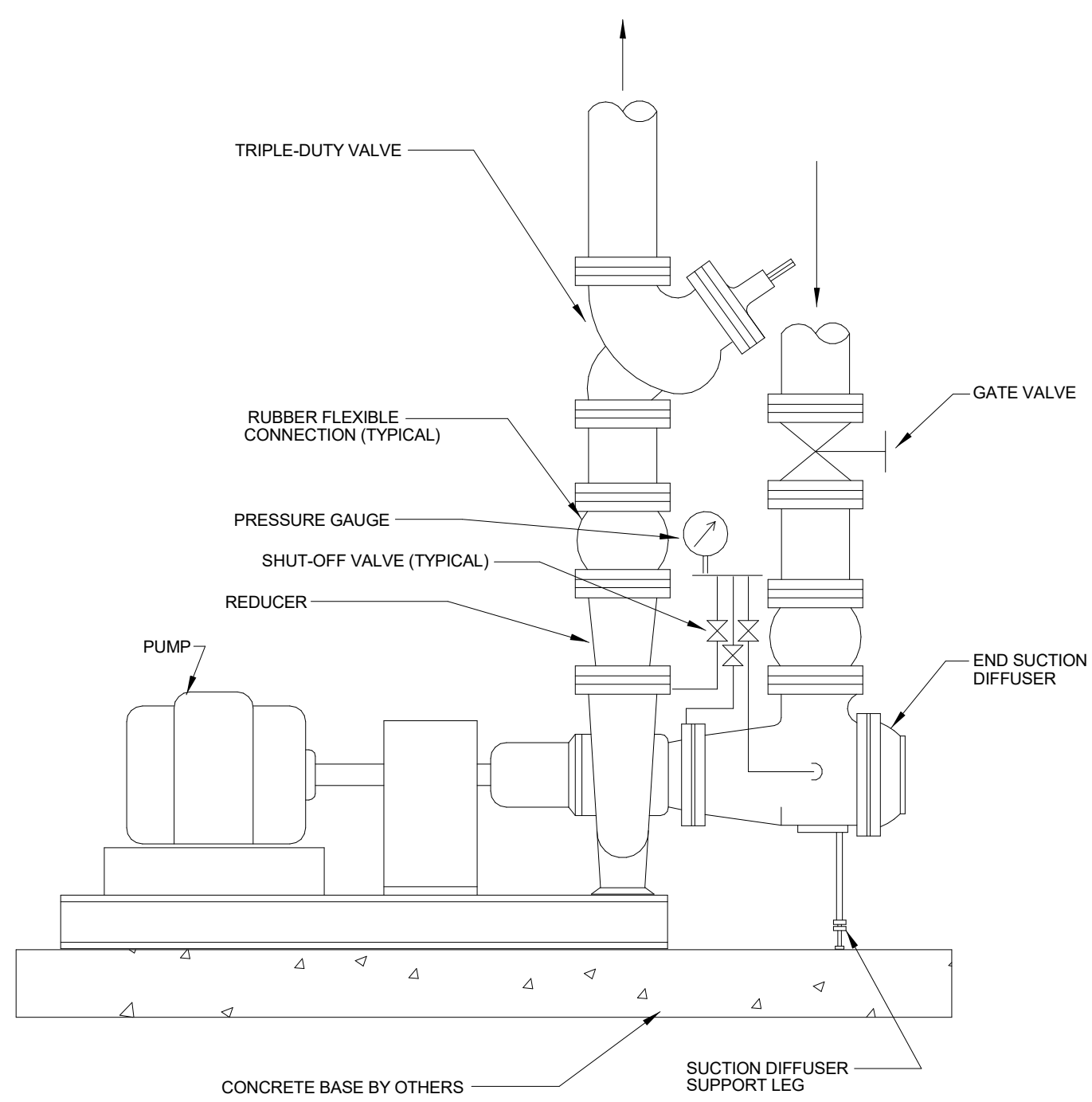


9 AHU-32 SECTION (REPLACEMENT 1977 "S-8")



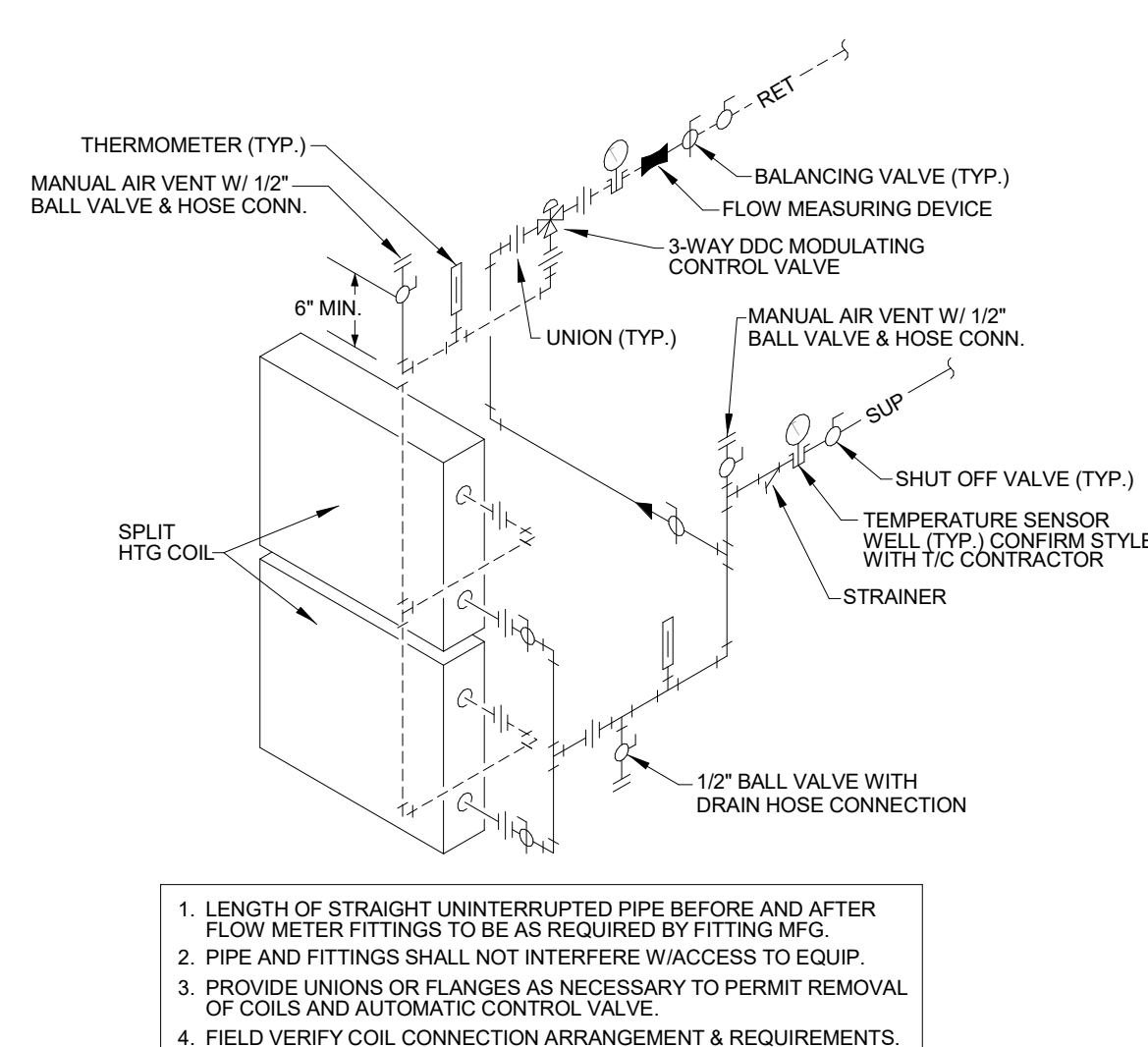
INLINE PUMP PIPING DETAIL

NO SCALE



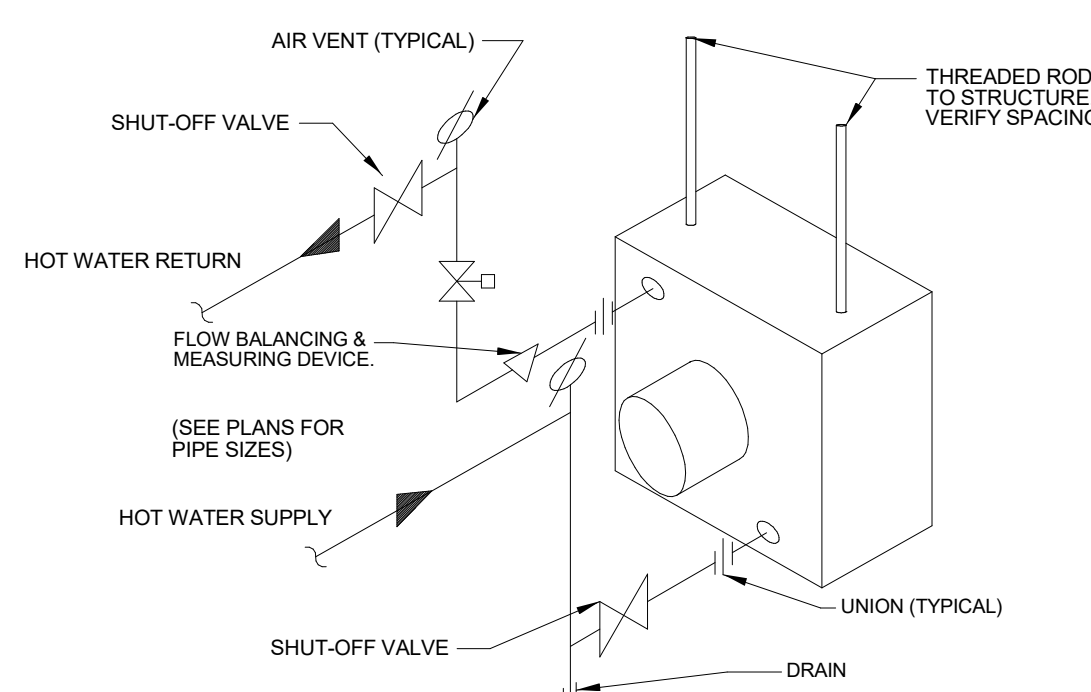
BASE MOUNTED PUMP PIPING DETAIL

NO SCALE



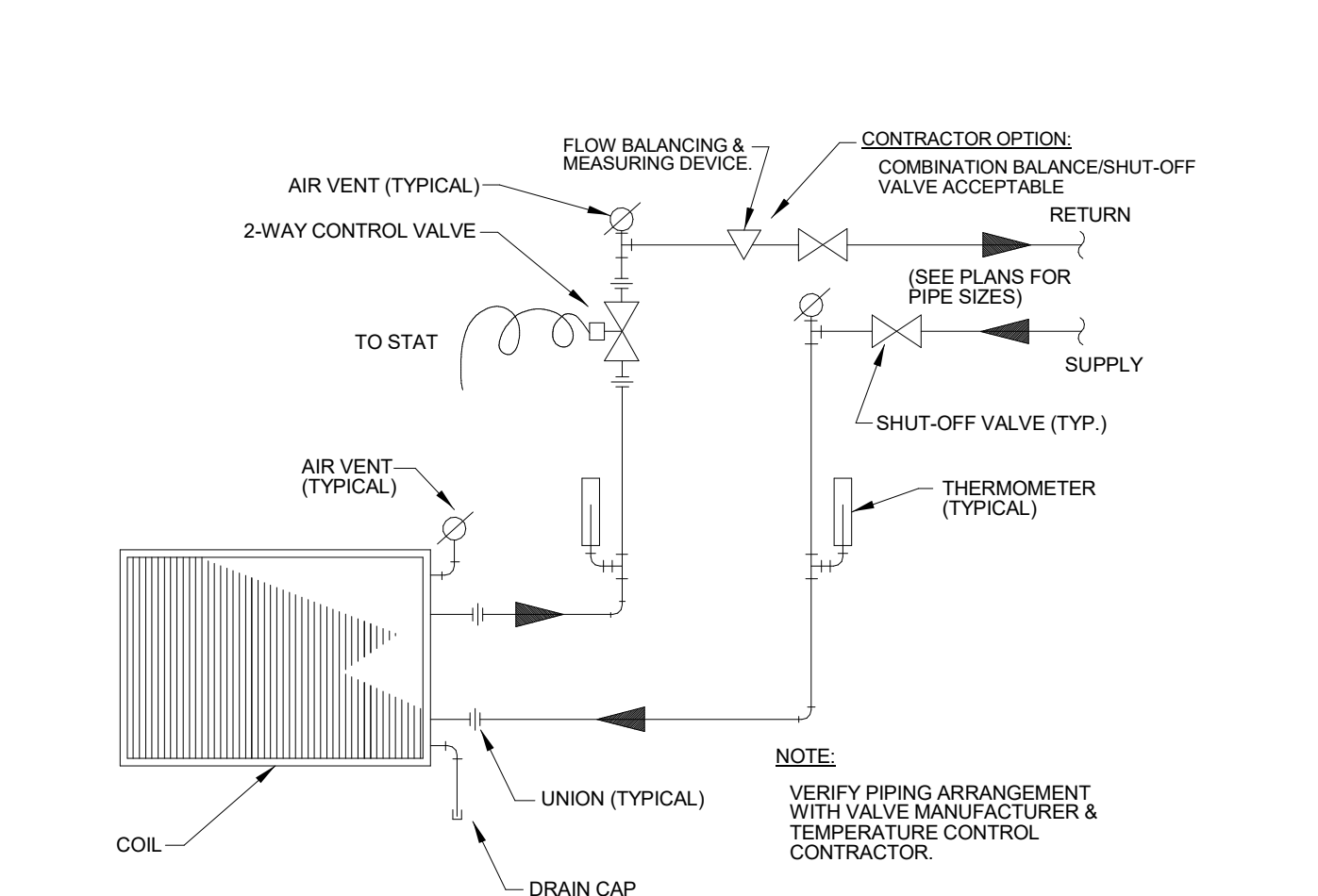
SPLIT COIL PIPING DETAIL (3-WAY) EQ. #29

NO SCALE



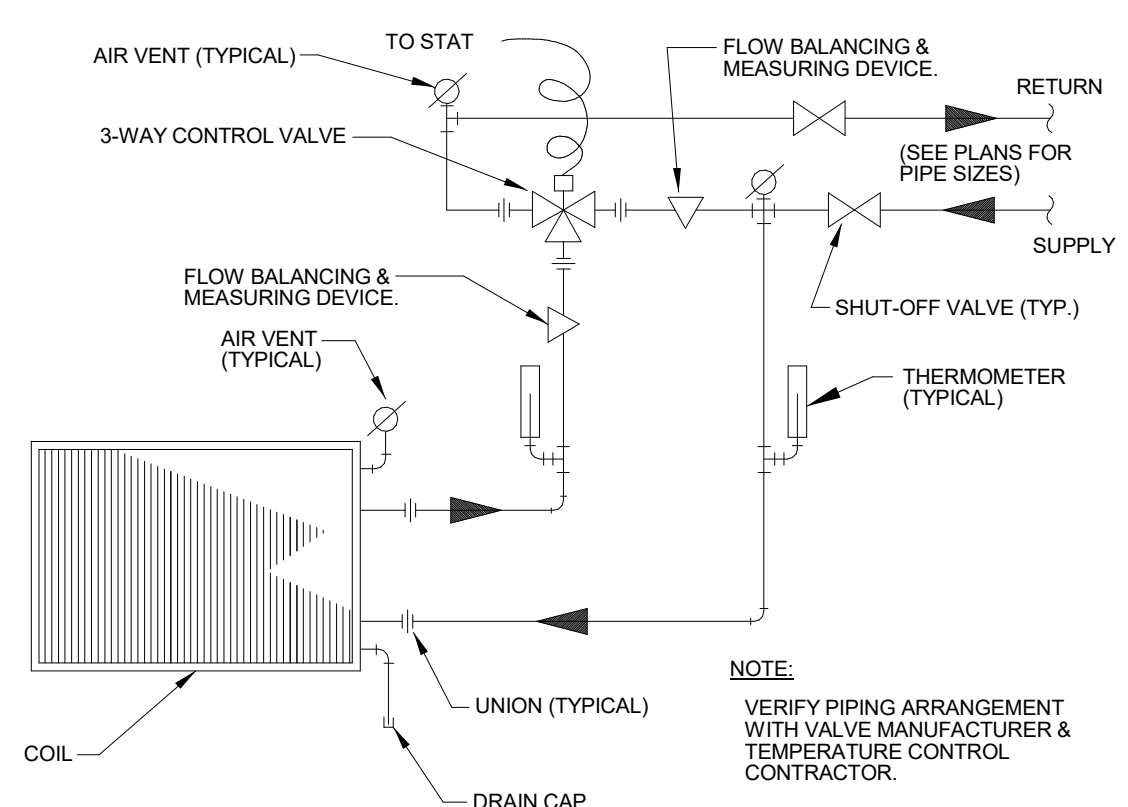
UNIT HEATER PIPING DETAIL

NO SCALE



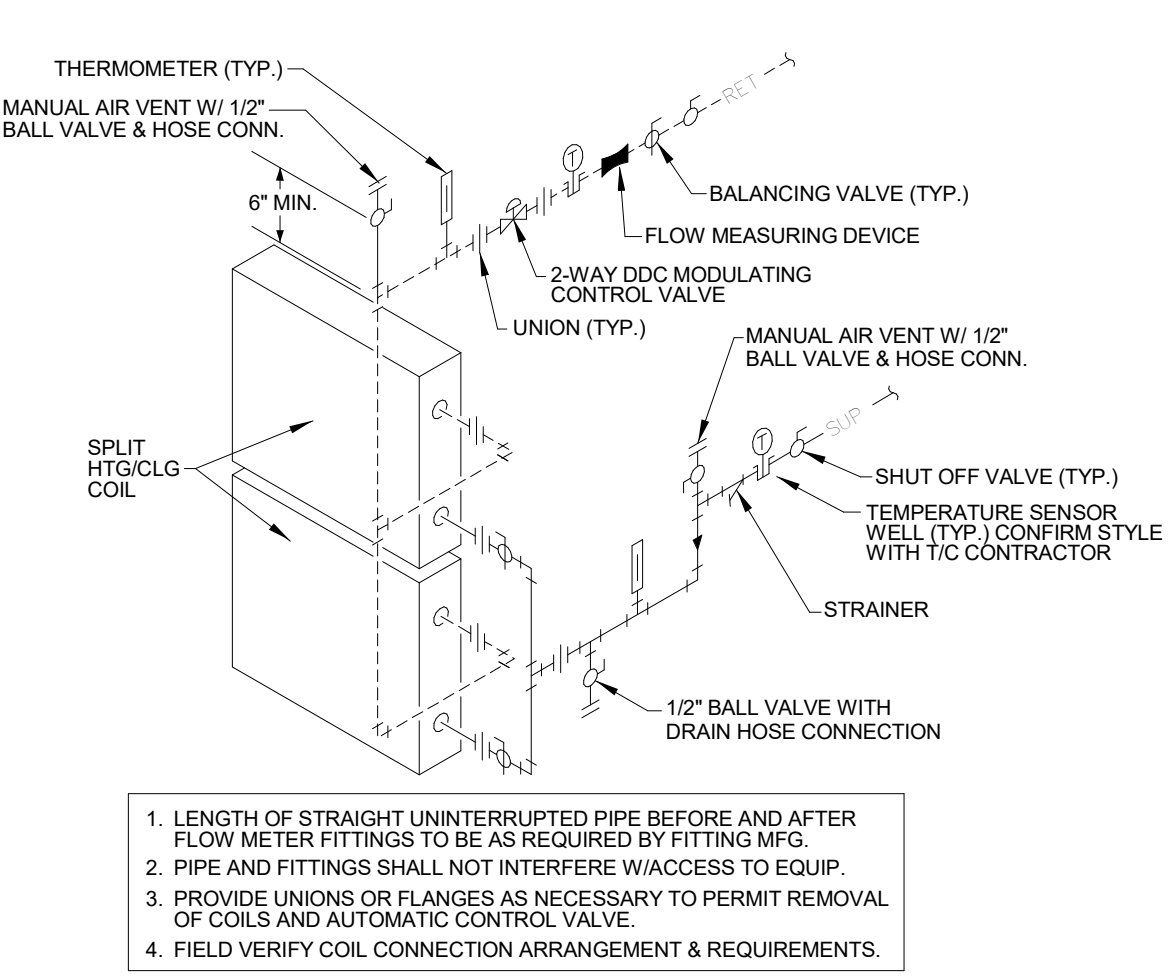
2-WAY CONTROL VALVE COIL DETAIL

NO SCALE



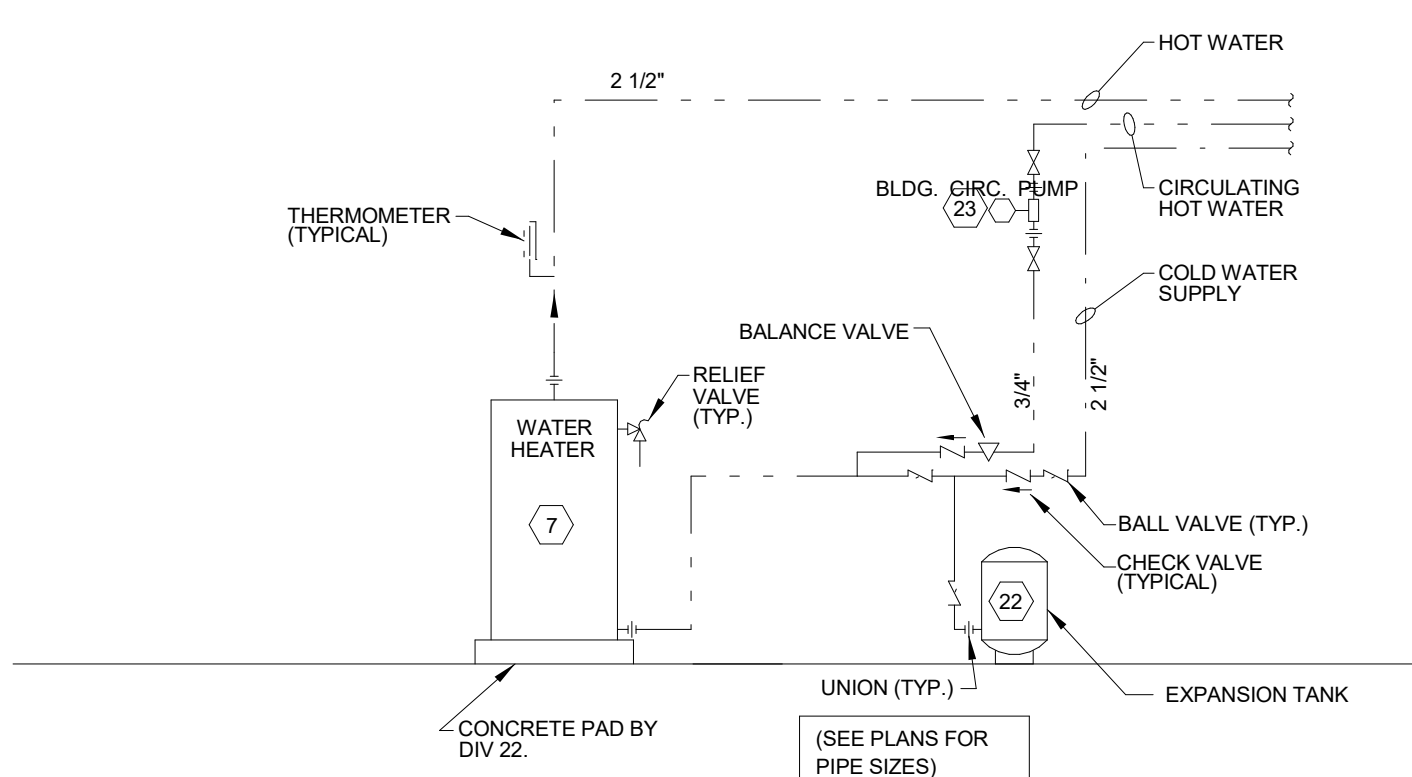
3-WAY CONTROL VALVE COIL DETAIL (EQ. #31, EXISTING 1994 GYM AHU - EAST. EXISTING SHOP AHU S-7. EXISTING HC 20, 35, & 36)

NO SCALE



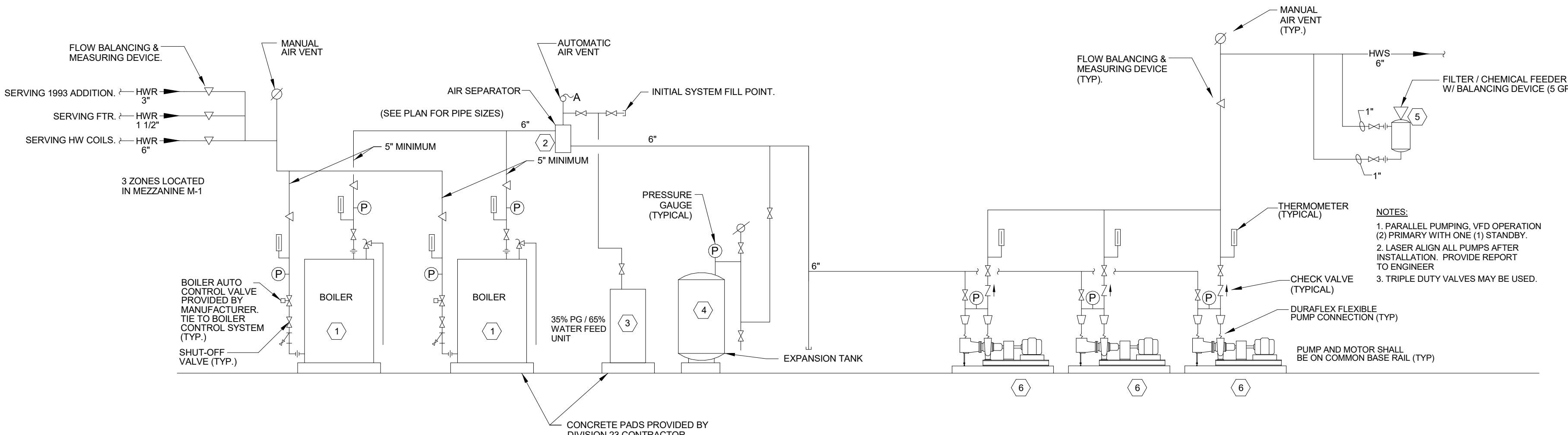
SPLIT COIL PIPING DETAIL (2-WAY) EQ. #24 & 26

NO SCALE



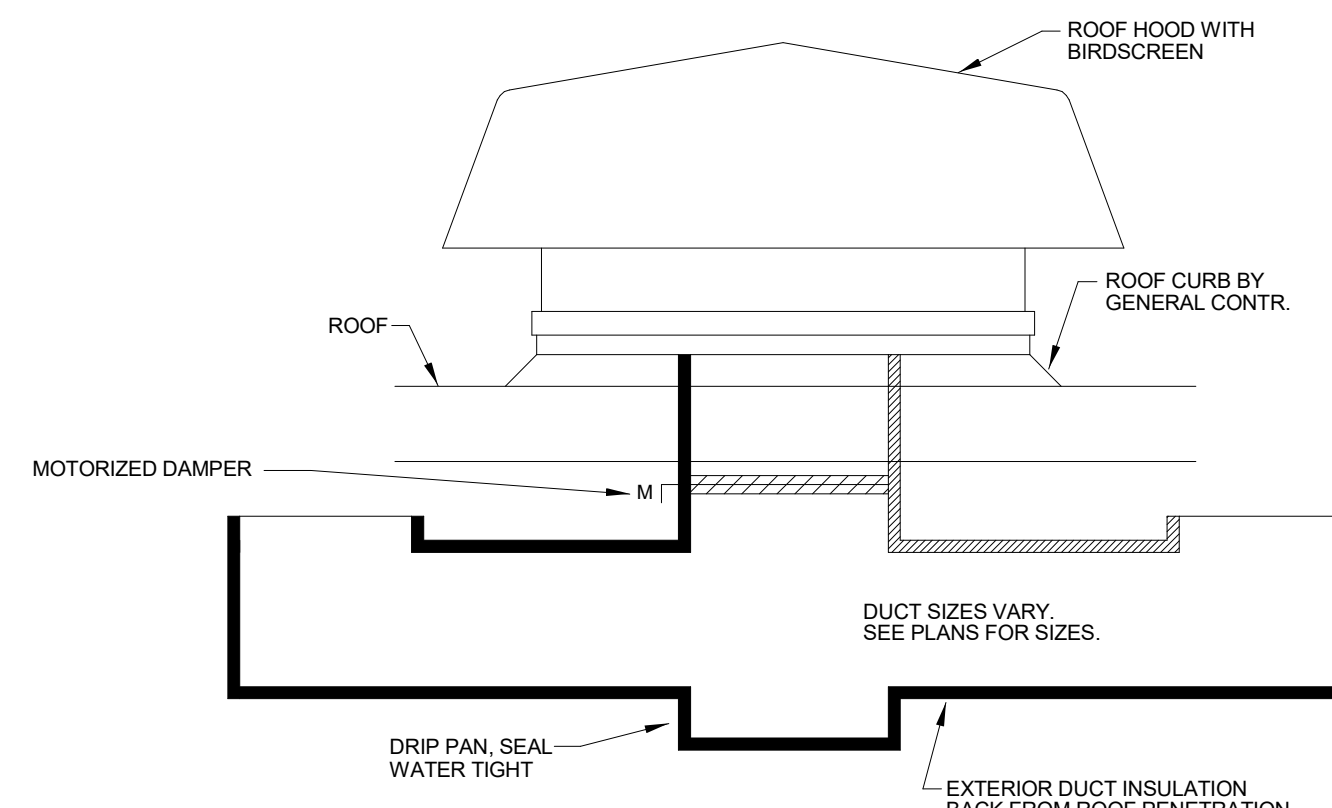
WATER HEATER PIPING SCHEMATIC

NO SCALE



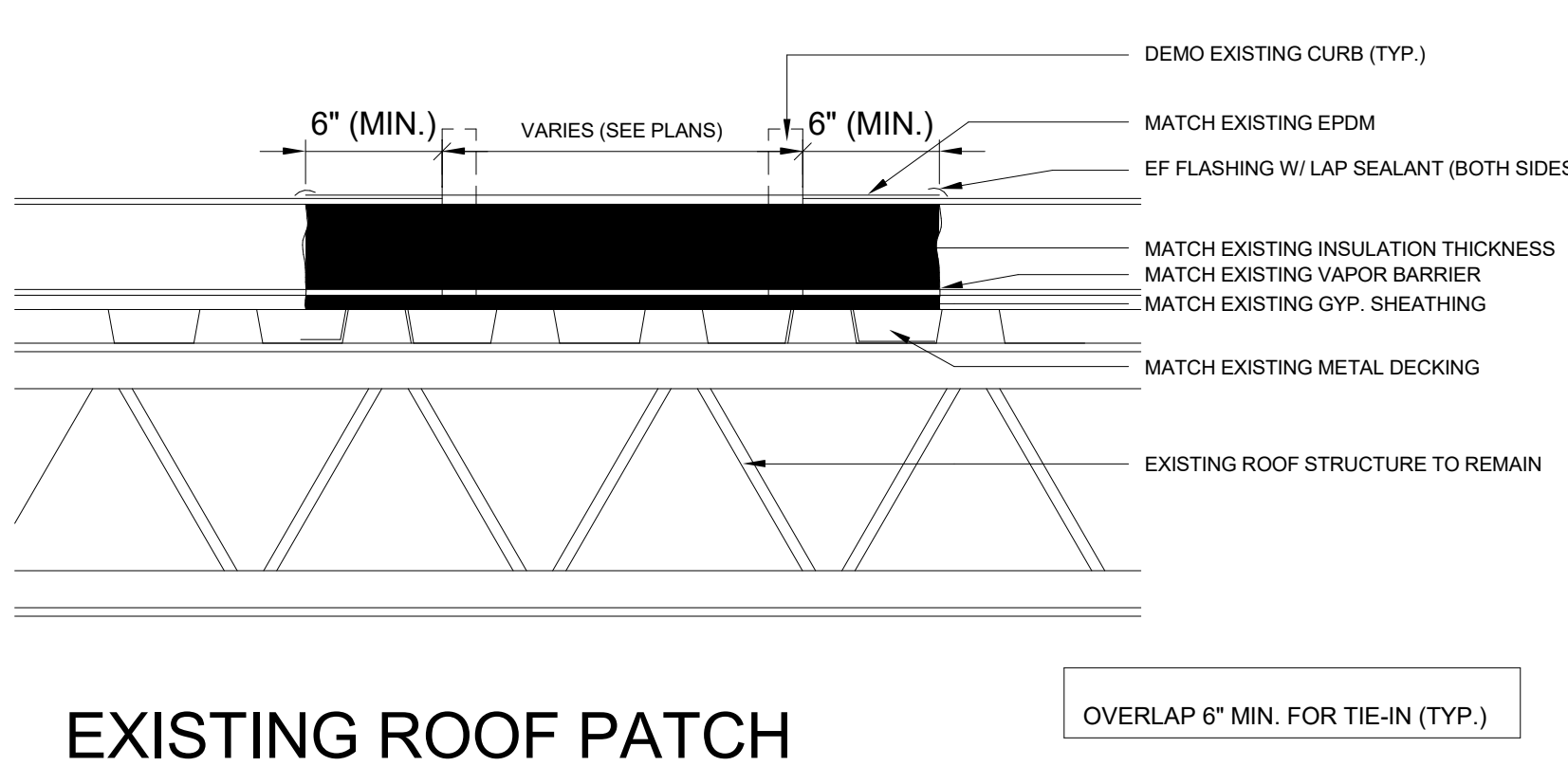
BOILER PIPING SCHEMATIC

NO SCALE



RELIEF HOOD DETAIL

NO SCALE



EXISTING ROOF PATCH

0 3" 6" 12" 24" SCALE



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ENGINEER
MICHAEL WASHBURN
Michael R. Washburn

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52709

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M1.10