



**2/14/22**

Attn: Davinci Academy Contractor & All Subcontractors

**Re: Addendum 1 for Davinci Academy**

**Location: 215 22<sup>nd</sup> Street, Ogden, Utah (Project #21-311)**

The following items have been revised on the Drawings:

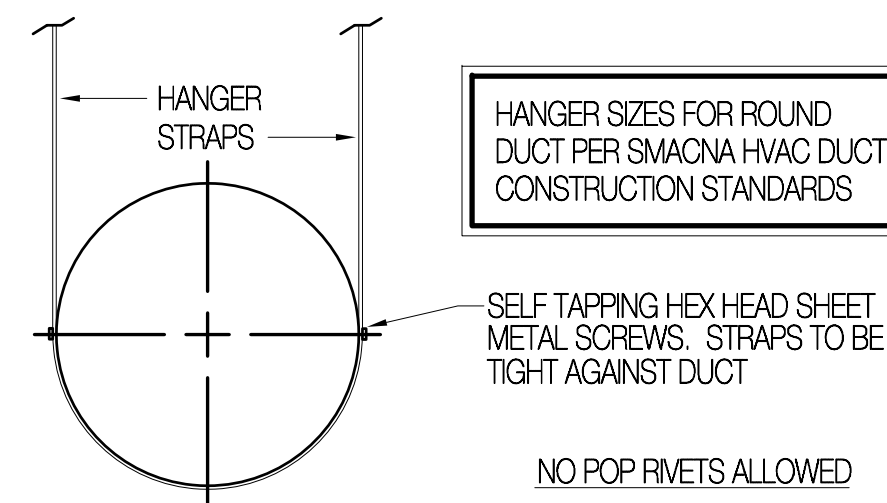
1. Sheet S501
  - Floor Opening Detail 14/S501 has been added to the structural details in case the mechanical needs to add an HVAC chase.
  
2. Sheets M-000, M-100, M-700, MP-100
  - The mechanical drawings have been modified to account for modification to the office/reception HVAC design.

If you should have any questions, please feel free to call.

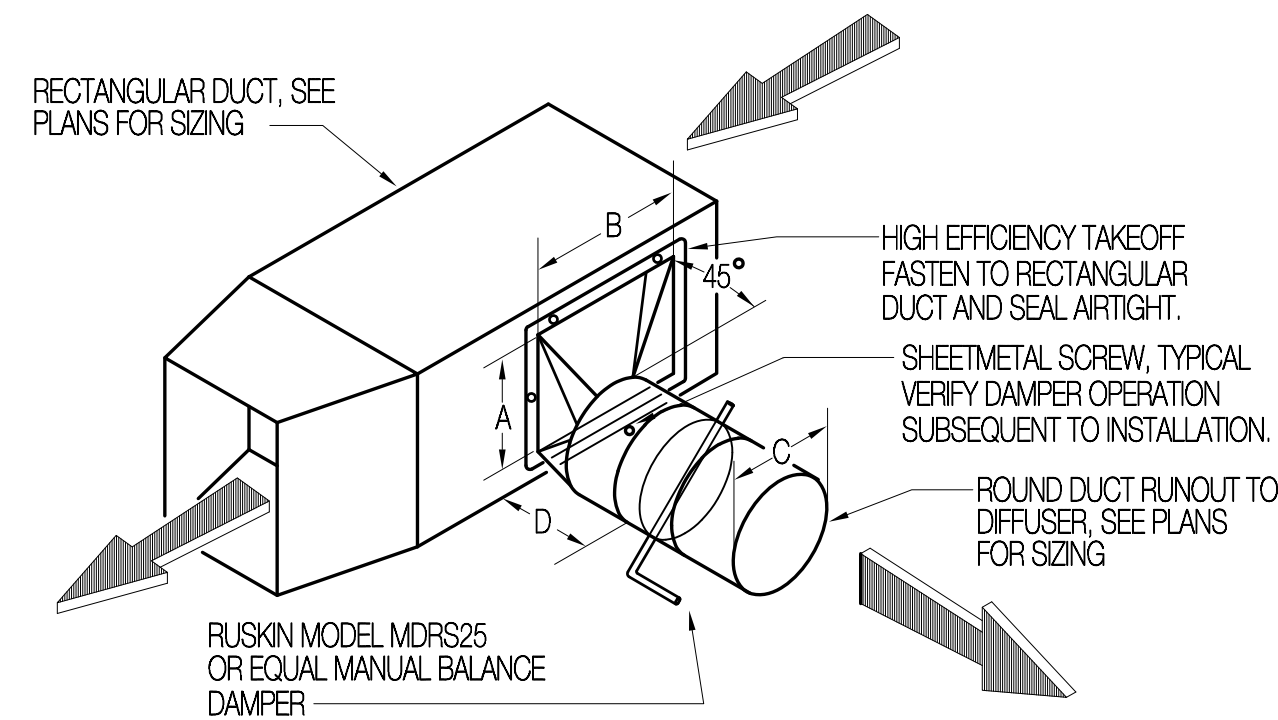
Sincerely,

Cathy Jackson  
Silverpeak Engineering





**7 RND. DUCT HANGER DETAIL**  
SCALE: NONE

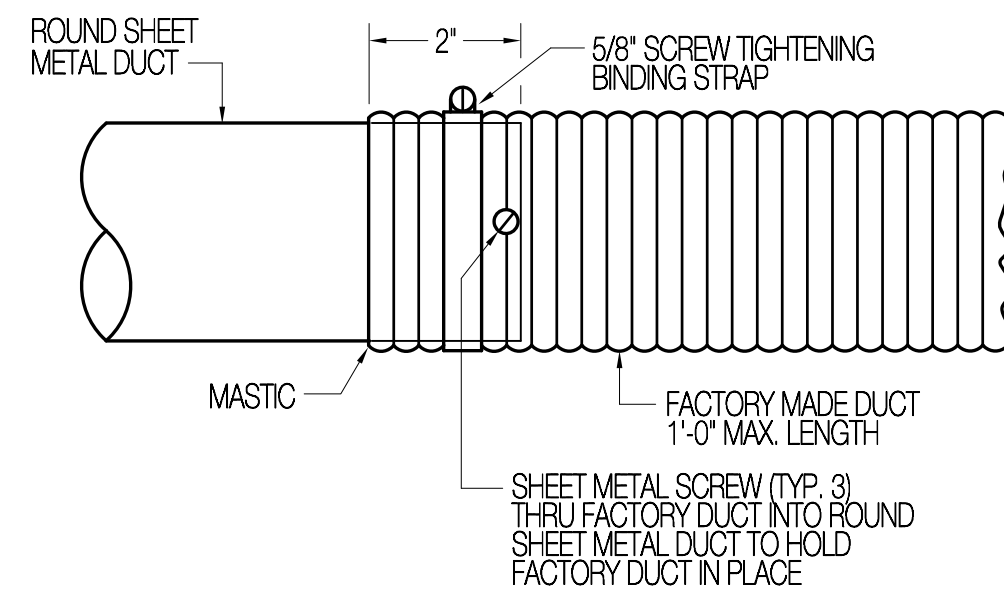


**HET DIMENSIONS**

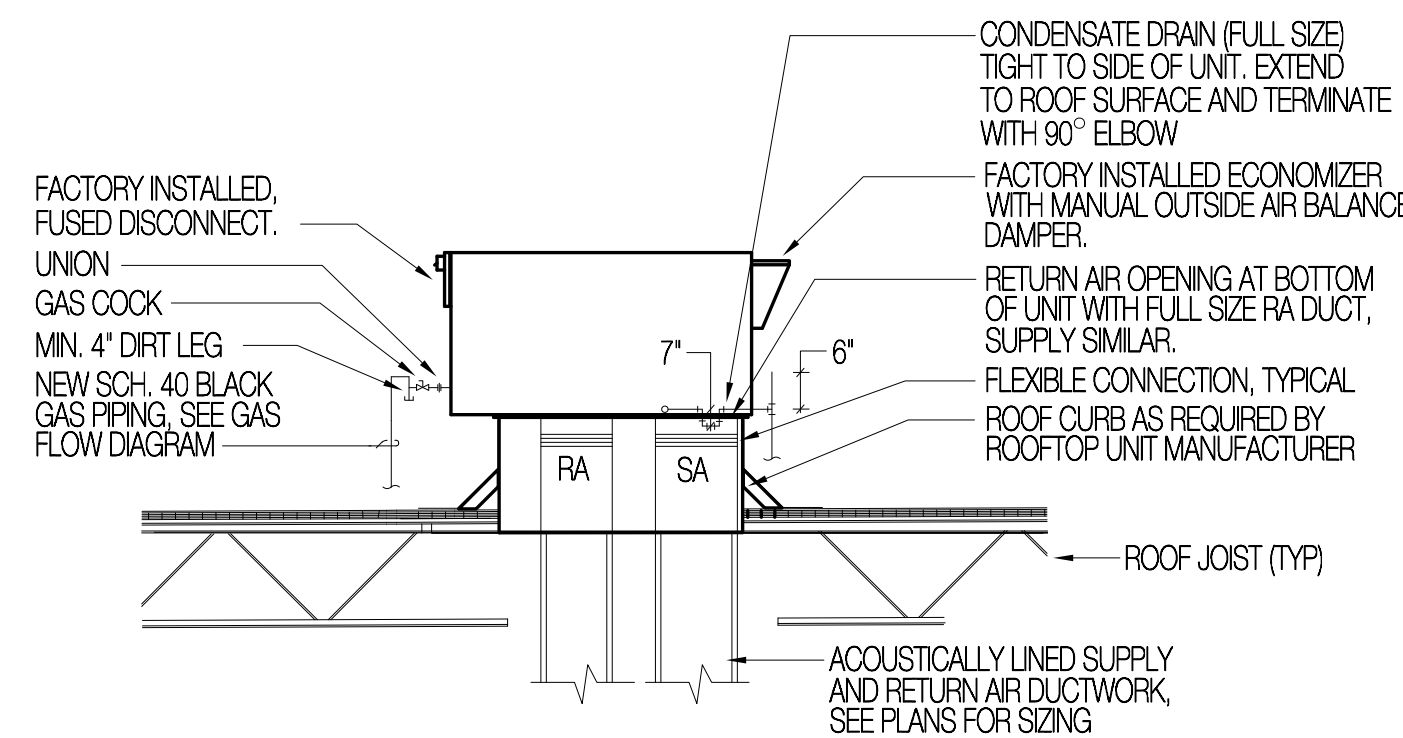
BRANCH SIZE (C)	THROAT DIM.		MIN. AREA AxB
	A	B	
6"	8-1/4"	12"	3.5 X AREA OF C
8"	10-1/4"	14"	2.8 X AREA OF C
10"	12"	15"	2.3 X AREA OF C
12"	14"	17"	2.1 X AREA OF C

LENGTH D SHALL BE A MINIMUM OF 11"

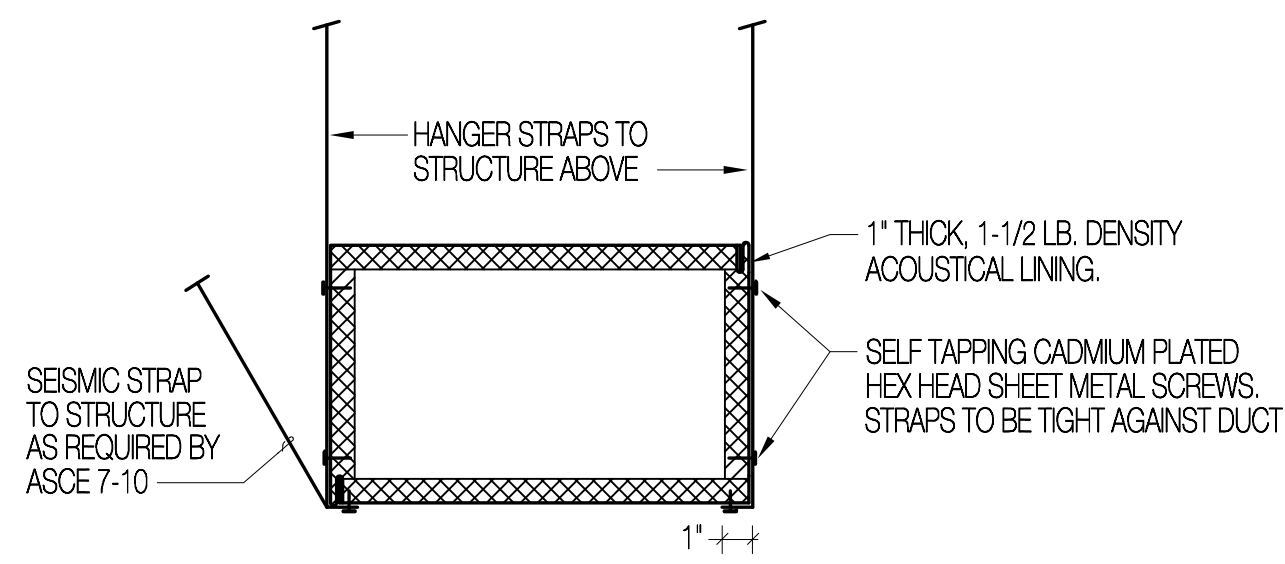
**8 ROUND DUCT RUNOUT DETAIL**  
SCALE: NONE



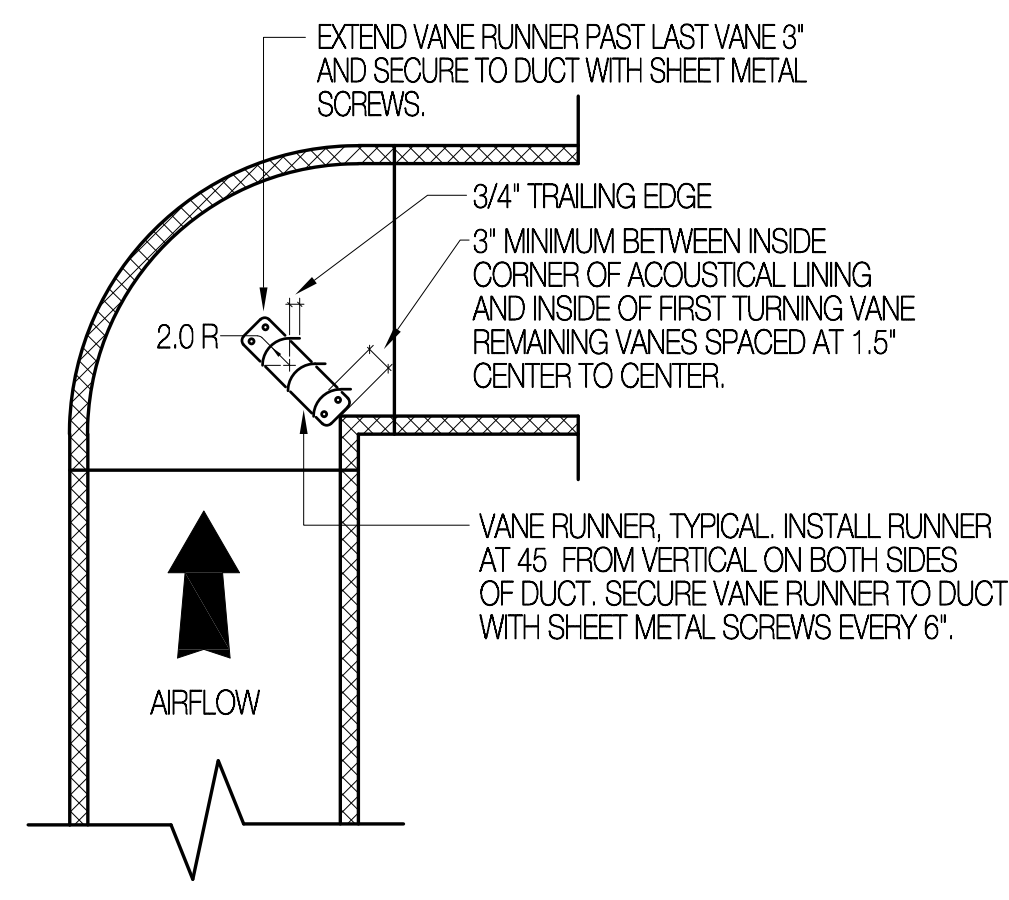
**9 FACTORY DUCT DETAIL**  
SCALE: NONE



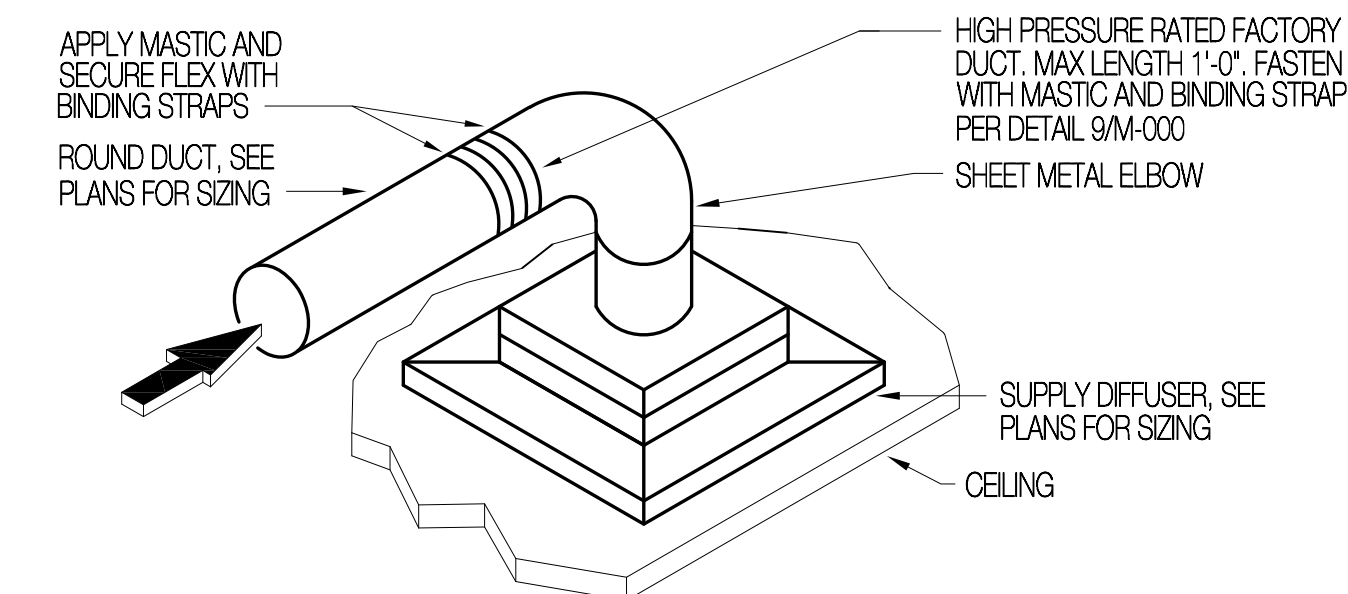
**10 RTU INSTALLATION DETAIL**  
SCALE: NONE



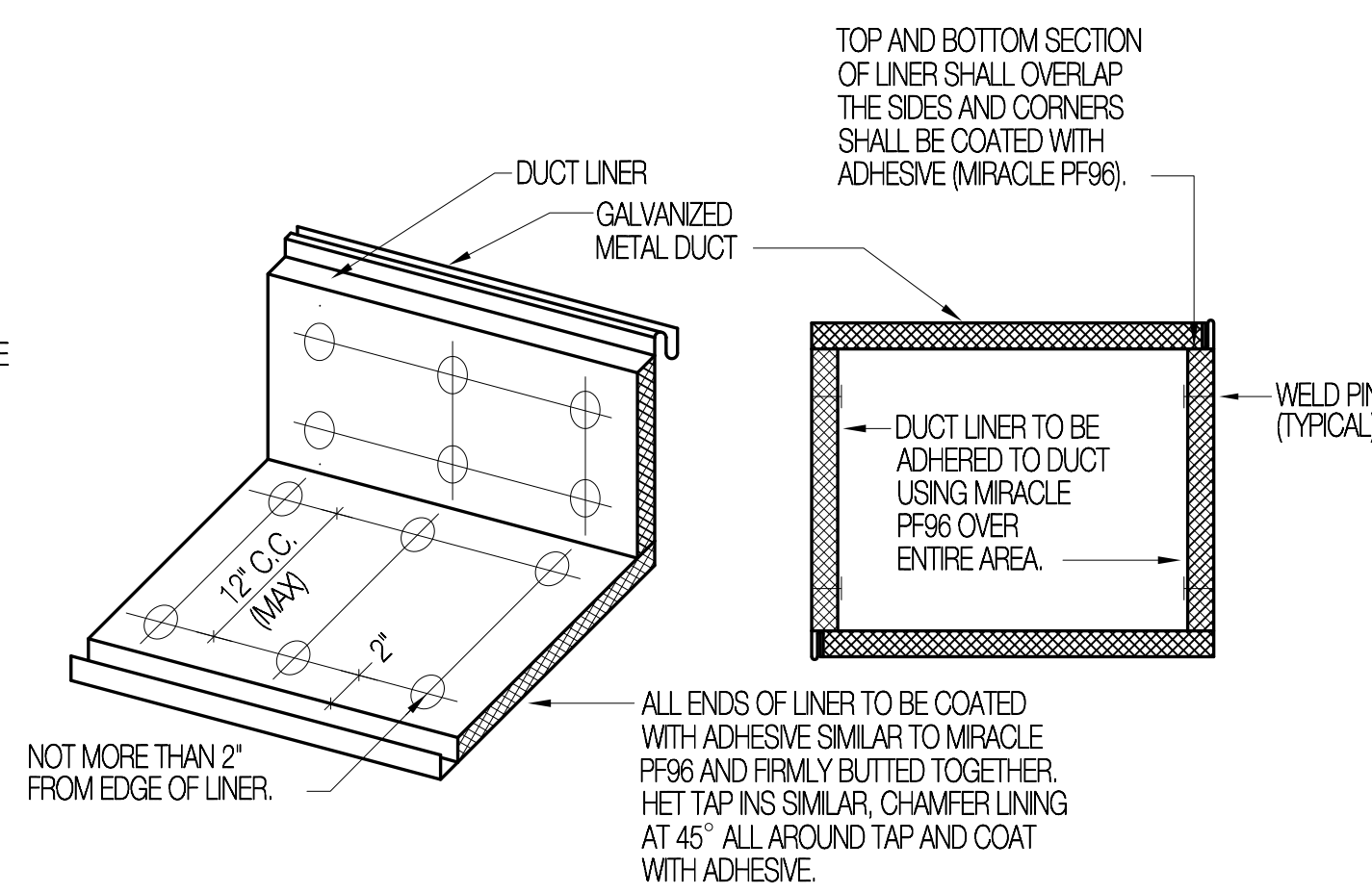
**3 RECT. DUCT HANGER DETAIL**  
SCALE: NONE



**4 TURNING VANE DETAIL**  
SCALE: NONE



**5 DIFFUSER CONNECTION DETAIL**  
SCALE: NONE



LINING FASTENERS:  
DURA DYNE MODEL CP WELD TYPE FASTENERS OR EQUIVALENT. ADHESIVE TYPE STICK CLIPS OR GRIP NAILS NOT ALLOWED.

**6 ACOUSTICAL LINER DETAIL**  
SCALE: NONE

**SYMBOL LEGEND**

---X---	SUPPLY AIR DIFFUSER	---HD---	HAND DAMPER, SEE DETAIL 8M-000
---G---	RETURN OR EXHAUST GRILLE	⊕	THERMOSTAT
---A---	ACOUSTICALLY LINED DUCTWORK (INSIDE CLEAR DIMENSION)	---	SUPPLY AIR DIRECTION
---R---	RECTANGULAR SUPPLY AIR DUCT CROSS SECTION	---	RETURN AIR DIRECTION
---	ROUND SUPPLY AIR DUCT CROSS SECTION	A.F.F.	ABOVE FINISHED FLOOR
---		---	AL
		---	S.A.
		---	R.A.
		---	NK

**HEATING/COOLING ROOFTOP UNIT (RTU)**

SYMBOL	HEATING SECTION		COOLING SECTION		FAN SECTION			COND. COIL AREA (SQ. FT.)	AMB. AIR TEMP.	MIN. EER	UNIT ELEC. REQUIREMENTS					TRANE MODEL	REMARKS	
	HEATING INPUT (BTU/H)	HEATING OUTPUT (BTU/H)	TOTAL CAP. (BTU/H)	SENS. CAP. (BTU/H)	CFM	E.S.P. (IN. WC.)	MOTOR HP				VOLTS	PH.	HZ.	MCA	MOOP			20
RTU-1	121,500	85,100	54,900	54,900	1,950	1.0	2.0	11.3	3,900	95°F	11.5	460	3	60	14.0	20	YSC060	(1)(2)(3)(4)(5)(6)(7)(8)

① CAPACITY REQUIRED AT SITE ELEVATION AND CONDITIONS. ④ BELT DRIVE ⑦ HOT GAS BYPASS (ZONE CONTROL)

② PROVIDE UNIT WITH 120 V CONVENIENCE OUTLET. ⑤ BALANCE OUTSIDE AIR TO 385 CFM. ⑧ UNIT TO REUSE EXISTING ROOF CURB, GAS / POWER SUPPLY

③ FACTORY INSTALLED ECONOMIZER W/ BARO. RELIEF. ⑥ HI / LOW LIMIT SWITCHES (ZONE CONTROL)

UNIT WEIGHTS:  
RTU-1: 570 LBS.

**GRILLES AND DIFFUSERS**

SYMBOL	CFM	NECK SIZE	FACE SIZE	KRUEGER MODEL	REMARKS
S-1	AS NOTED	AS NOTED	AS NOTED	1400A	
R-1	AS NOTED	AS NOTED	AS NOTED	6490	

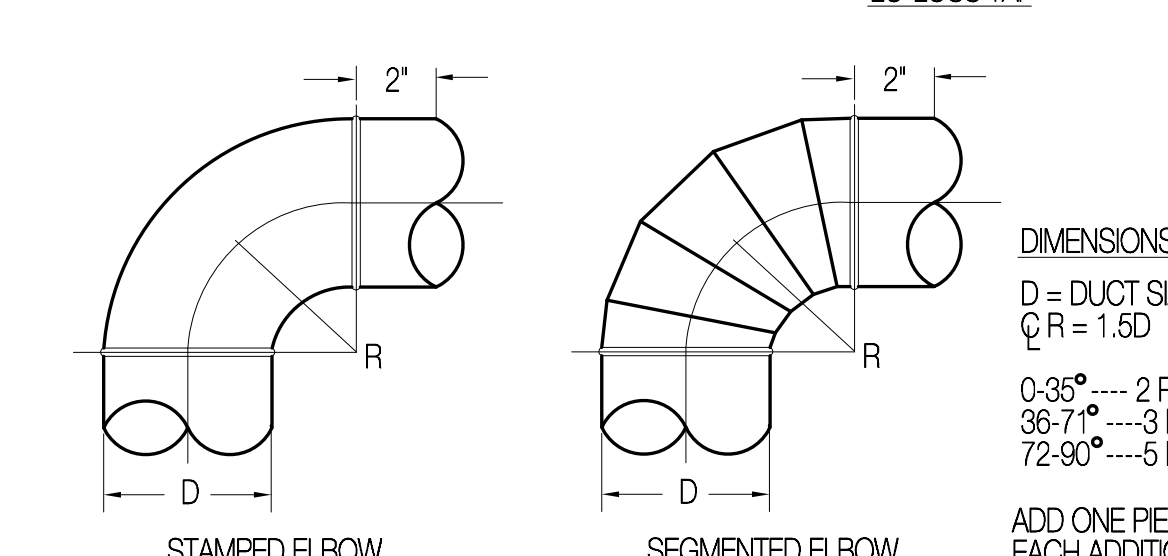
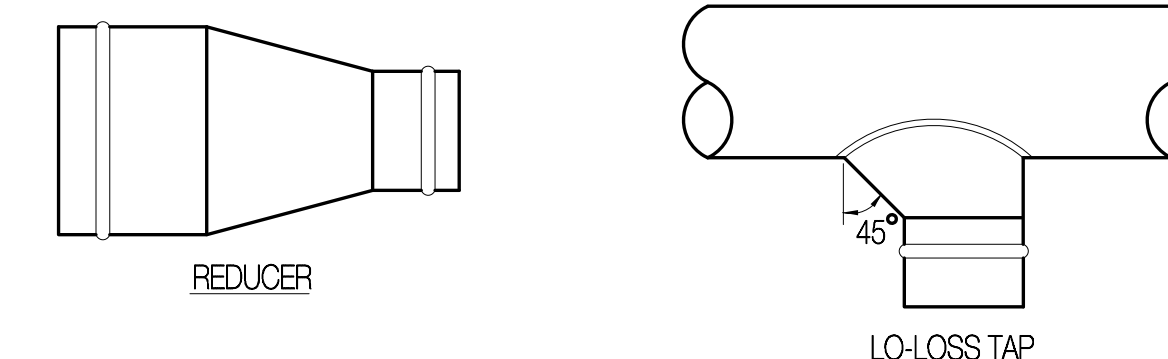
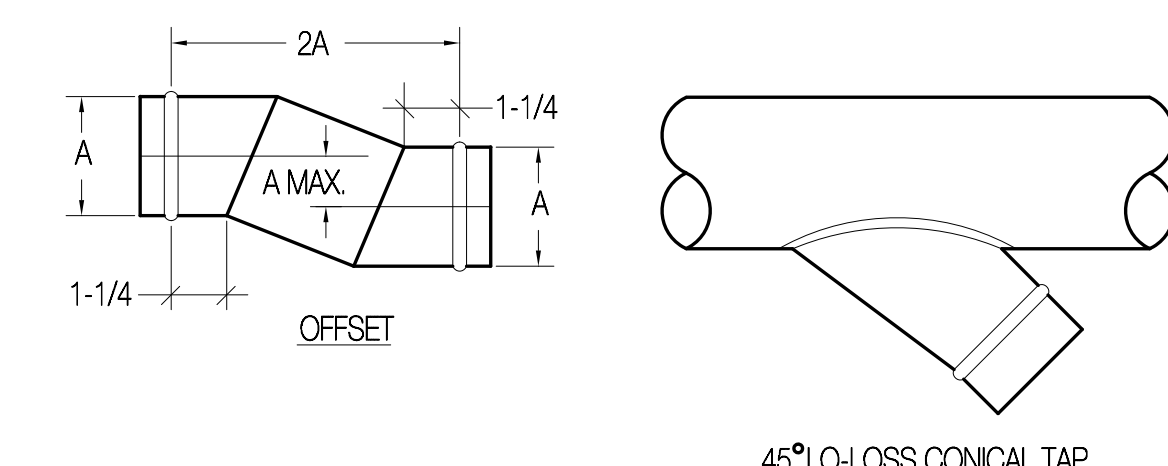
**OUTSIDE AIR SCHEDULE**

ROOM	AREA	CFM / SQ. FT.	PEOPLE / 1,000 SQ. FT.	# PEOPLE	CFM / PEOPLE	CFM	SERVED BY
EXISTING COMMONS	735	0.12	-	-	-	90	(E) RTU
PROPOSED CLASSROOM 230	371	0.06	25	10	5	75	
PROPOSED CLASSROOM 231	535	0.06	25	13	5	110	
PROPOSED CLASSROOM 232	535	0.06	25	13	5	110	
						385	TOTAL

CALCULATIONS BASED ON TABLE 6-1 ASHRAE STANDARD 62.1-2010 AND 2018 INTERNATIONAL MECHANICAL CODE

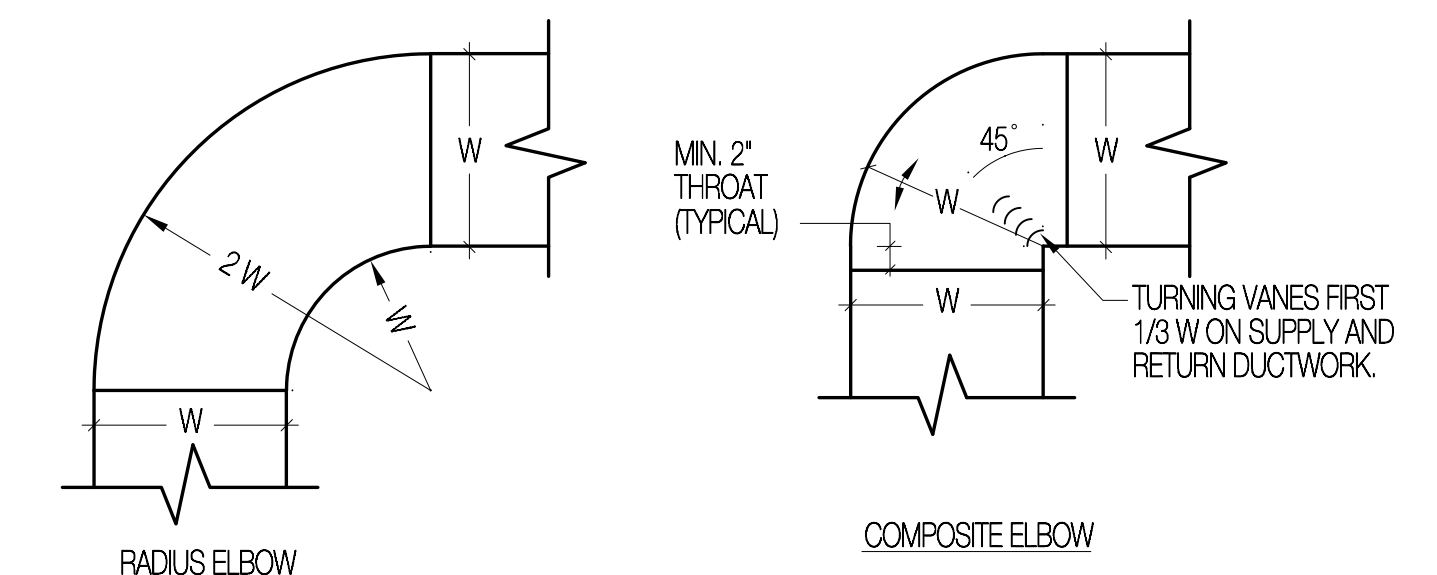
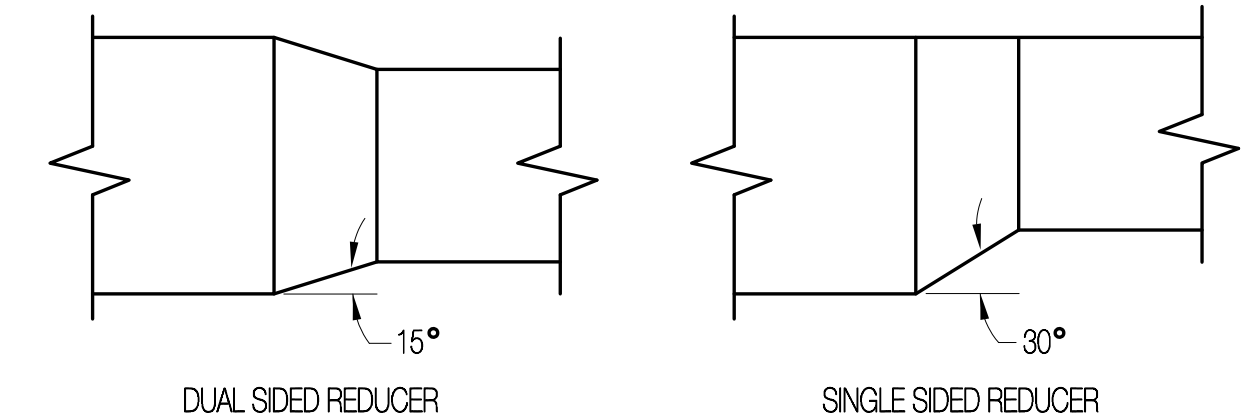
**GENERAL NOTES**

- ALL DRAWINGS SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL ASPECTS OF THE CONTRACT DOCUMENTS PRIOR TO SUBMITTING PRICING. ANY AND ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO ANY INSTALLATION SUCH THAT CLARIFICATIONS CAN BE ISSUED.
- ANY WORK PERFORMED OR MATERIAL USED WHICH IS SHOWN TO BE IN CONFLICT WITH THE CONTRACT DRAWINGS, SPECIFICATIONS OR ANY APPLICABLE CODE OR GOVERNING REGULATION SHALL BE REMOVED AND REPLACED OR CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL SYMBOLS AND ABBREVIATIONS USED ON THE CONTRACT DRAWINGS ARE CONSIDERED CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH ANY WORK.
- DO NOT SCALE THE DRAWINGS. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO FABRICATION OF MATERIALS OR ERECTION OF ASSEMBLIES. IF DISCREPANCIES ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED FOR CLARIFICATION.
- THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR AND EQUIPMENT, TRANSPORTATION AND SERVICES REQUIRED FOR COMPLETION OF THE WORK. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE DONE IN STRICT COMPLIANCE WITH ALL LOCAL CODES AND GOVERNING REGULATIONS.
- ALL PERMITS AND FEES WHICH ARE REQUIRED FOR THIS WORK SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR.
- ALL PLUMBING AND MECHANICAL INSTALLATIONS SHALL ADHERE TO THE 2018 IECC INCLUDING: MINIMUM R-6 INSULATION ON ALL NON-ACOUSTICALLY LINED DUCTWORK; ACOUSTICAL LINER SHALL PROVIDE A MINIMUM OF R-6 INSULATING VALUE.



**2 ROUND DUCT FITTINGS**  
SCALE: NONE

DIMENSIONS  
D = DUCT SIZE  
C/R = 1.5D  
0-36° ---- 2 PIECE  
36-72° ---- 3 PIECE  
72-90° ---- 5 PIECE  
ADD ONE PIECE FOR EACH ADDITIONAL 18



**1 RECTANGULAR DUCT FITTINGS**  
SCALE: NONE

Revisions

Revisions	Date

Seal

Consultant:

**Mechanical Consulting Engineers**

Cunning & Associates

4685 W. 11600 N. Provo, UT 84637

Email: norm@cunning-eng.com

Ph: (801) 726-5047

Project Name

**DAVINCI ACADEMY REMODEL**

**215 22ND. STREET**

**OGDEN, UT**

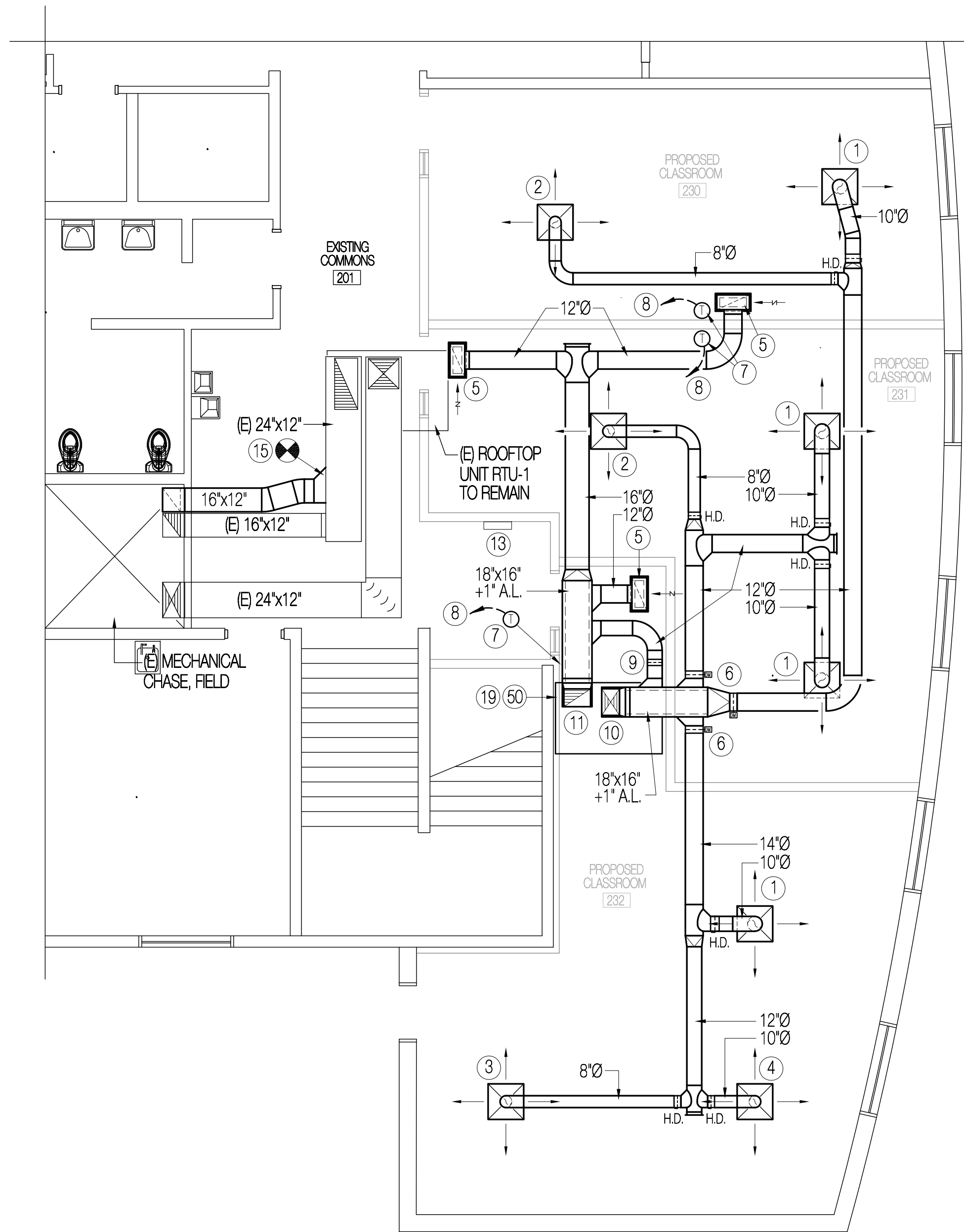
Project Number	Issue Date
5221	01/05/21

Drawing Title

**MECH. SYMBOL LEGEND, SCHED. AND DETAILS**

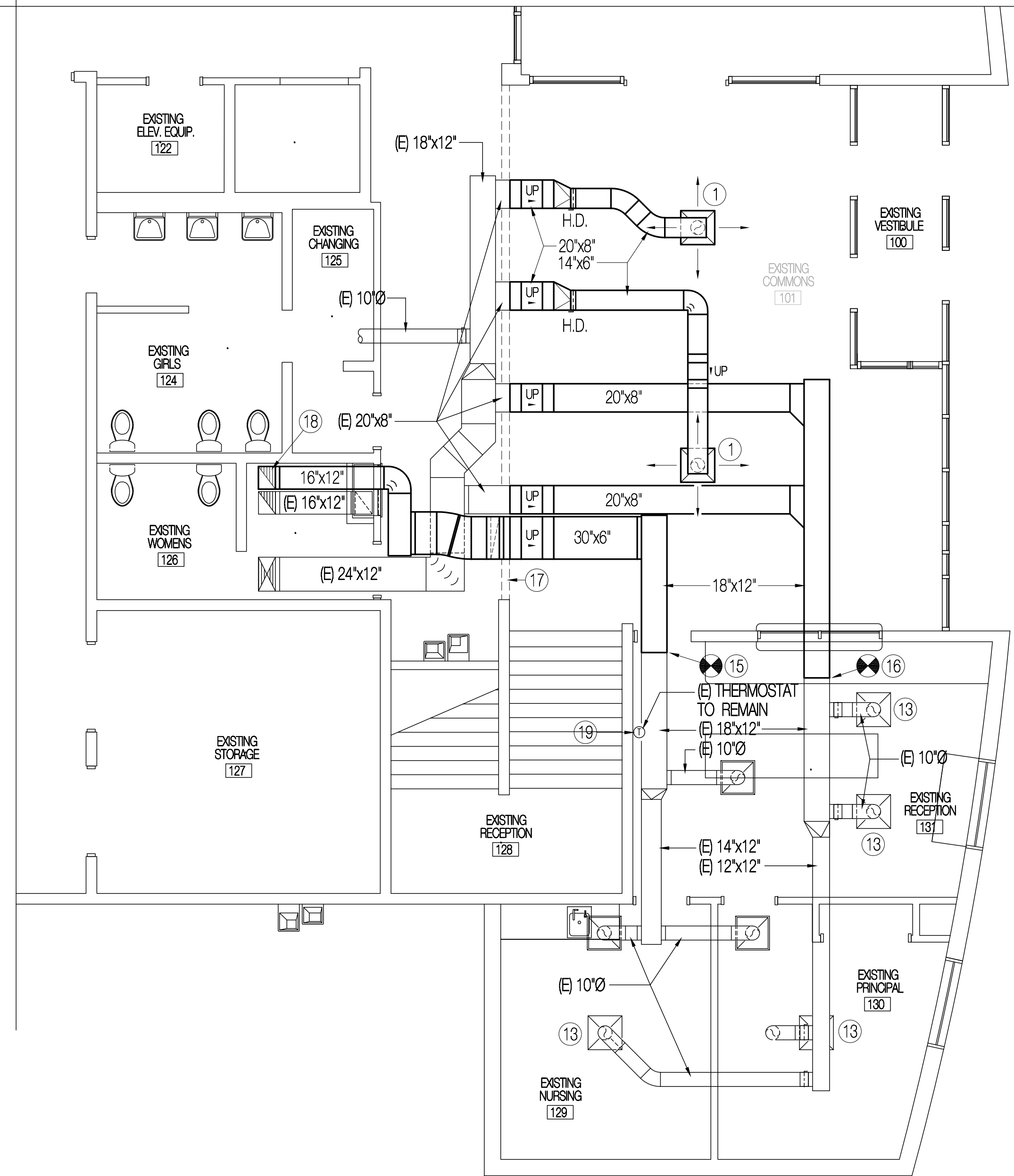
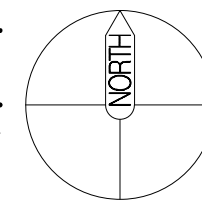
Sheet Number

**M-000**



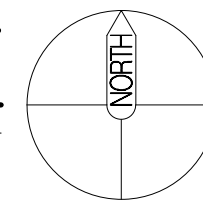
**SECOND FLOOR HVAC REMODEL PLAN**

SCALE 3/16" = 1'-0"



**MAIN FLOOR HVAC REMODEL PLAN**

SCALE 3/16" = 1'-0"

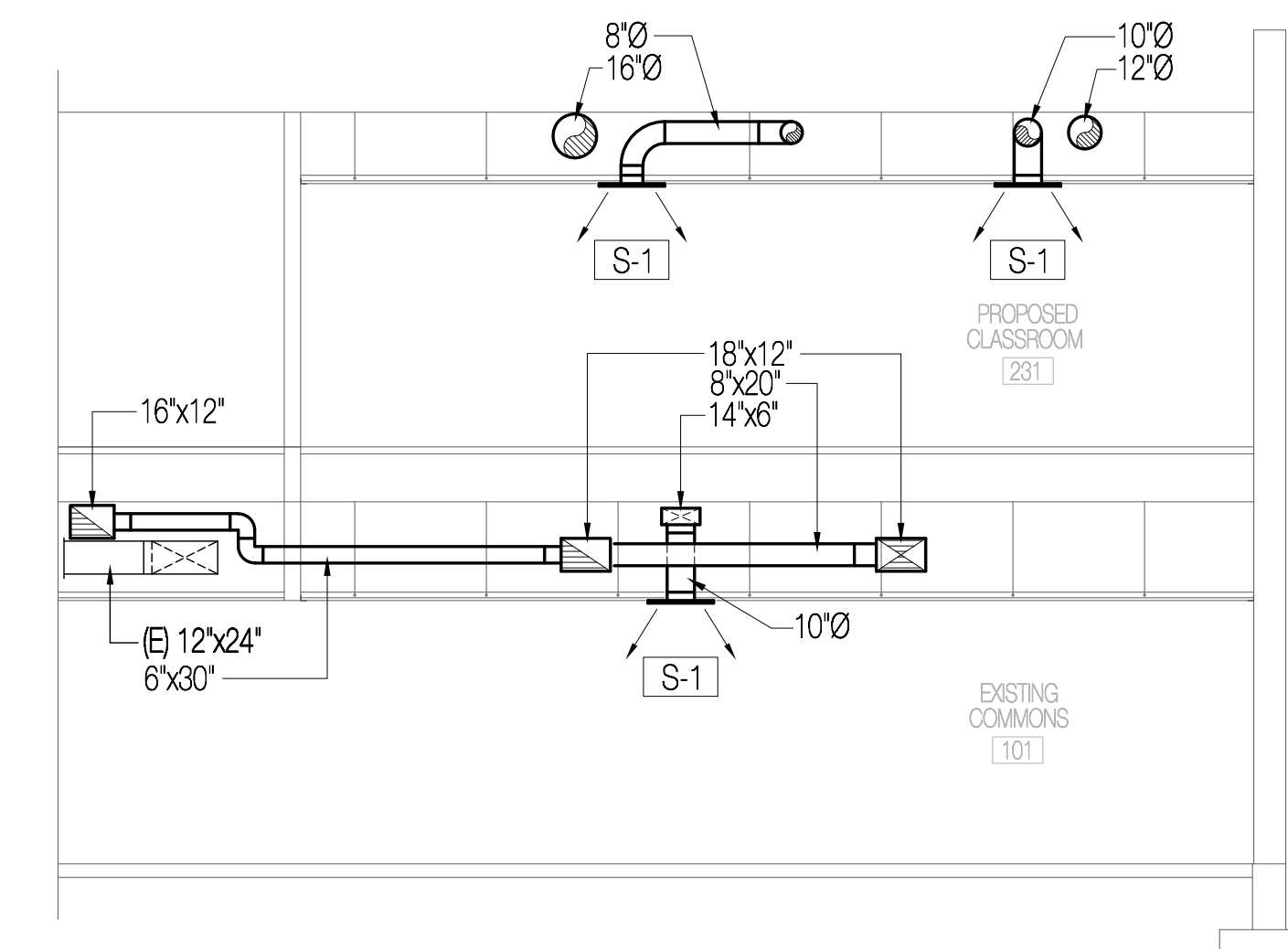


**DRAWING NOTES**

- ① S-1 300 CFM, 10"Ø NK. S.A. DIFFUSER.
- ② S-1 150 CFM, 8"Ø NK. S.A. DIFFUSER.
- ③ S-1 200 CFM, 8"Ø NK. S.A. DIFFUSER.
- ④ S-1 250 CFM, 10"Ø NK. S.A. DIFFUSER.
- ⑤ R-1 10"x22" NK. R.A. GRILLE WITH ACOUSTICALLY LINED PLENUM.
- ⑥ ZONE CONTROL DAMPER, SEE CONTROL DRAWINGS SHEET M-700 FOR ADDITIONAL INFORMATION.
- ⑦ PROVIDE AND INSTALL NEW THERMOSTAT, MOUNT THERMOSTAT AT 48" A.F.F. SEE CONTROL DIAGRAMS SHEET MP-700 FOR ADDITIONAL INFORMATION.
- ⑧ CONTROL WIRING FROM THERMOSTATS TO ZONE CONTROLLER. SEE CONTROL DRAWINGS SHEET MP-700 FOR ADDITIONAL INFORMATION.
- ⑨ BYPASS DUCTWORK WITH STATIC PRESSURE DAMPER, SEE MP-700 FOR ADDITIONAL INFORMATION.
- ⑩ 18"x16"+1"AL. SUPPLY AIR DUCTWORK ON BOTTOM OF ROOFTOP UNIT. TRANSITION DUCTWORK TO OUTLET COLLAR SIZE AND CONNECT WITH FLEXIBLE CONNECTION.
- ⑪ 18"x16"+1"AL. RETURN AIR DUCTWORK ON BOTTOM OF ROOFTOP UNIT. TRANSITION DUCTWORK TO INLET COLLAR SIZE AND CONNECT WITH FLEXIBLE CONNECTION.
- ⑫ ROOFTOP UNIT ZONE CONTROLLER, SEE CONTROL DRAWINGS SHEET MP-700 FOR ADDITIONAL INFORMATION.
- ⑬ REBALANCE EXISTING DIFFUSER TO 215 CFM.
- ⑭ FIELD VERIFY EXACT LOCATION OF EXISTING THERMOSTAT IN RECEPTION AREA. RECONNECT EXISTING THERMOSTAT TO (E) RTU-1 ON SECOND FLOOR UTILIZING NEW THERMOSTAT WIRE AND VERIFY PROPER OPERATION.
- ⑮ FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING RETURN AIR DUCTWORK AND CONNECT NEW TO EXISTING, SEAL NEW CONNECTIONS AIR TIGHT.
- ⑯ FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING SUPPLY AIR DUCTWORK AND CONNECT NEW TO EXISTING, SEAL NEW CONNECTIONS AIR TIGHT.
- ⑰ STRUCTURAL BEAM, EXTEND DUCTWORK BELOW STRUCTURAL BEAM IN THIS LOCATION.
- ⑱ 16"x12" RETURN AIR DUCTWORK RISE TO ROOFTOP UNIT ON SECOND FLOOR, SEE SECOND FLOOR HVAC REMODEL PLAN THIS SHEET FOR CONTINUATION.
- ⑲ FIELD VERIFY THE EXACT LOCATION AND CAPACITY OF EXISTING ELECTRICAL AND GAS SERVICE WHICH SERVED THE ROOFTOP UNIT WHICH WAS REMOVED AS PART OF THE DEMOLITION WORK. RECONNECT THE EXISTING UTILITIES TO THE NEW ROOFTOP UNIT ONCE CAPACITY HAS BEEN VERIFIED. PROVIDE NEW HEATERS IN THE DISCONNECT AND A NEW CIRCUIT BREAKER IN THE EXISTING PANEL AS REQUIRED.

**EQUIPMENT NOTES**

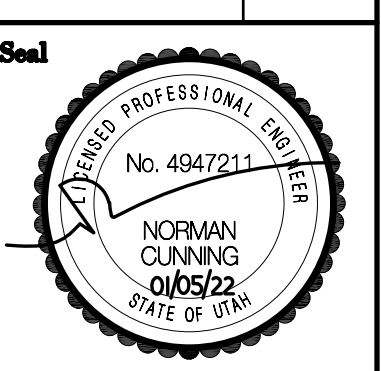
- ⑤ RTU 1 ROOFTOP UNIT



**HVAC SECTION A**

SCALE 3/16" = 1'-0"

Revisions	Date



**Consultant:**  
**Mechanical Consulting Engineers**  
**Cunning & Associates**  
 4465 W. 11600 N. Provo, UT 84637  
 Email: norm@cunning-eng.com  
 Ph: (801) 726-5047

**Project Name:**  
**DAVINCI ACADEMY REMODEL**  
**215 22ND. STREET**  
**OGDEN, UT**

Project Number	Issue Date
5221	01/05/21

**Drawing Title:**  
**1ST. AND 2ND. FLOOR HVAC REMODEL PLANS**

**Sheet Number:**  
**M-100**

**MECHANICAL SPECIFICATIONS**

**GENERAL CONDITIONS**

**DESCRIPTION OF PROJECT:** The mechanical work described in these mechanical specifications is for a project located in Ogden, Utah. Design weather conditions are: 95° db, 65° wb, and winter 8°F. Altitude readings, unless otherwise noted, are for an elevation of 4,450 feet above sea level. Make adjustment to manufacturer's performance data as needed.

**CODES AND PERMITS, AUTHORITIES HAVING JURISDICTION:**  
 2018 International Mechanical Code - (with Utah amendments)  
 2018 International Building Code - (with Utah amendments)  
 2018 International Plumbing Code - (with Utah amendments)  
 2018 International Energy Conservation Code - (with Utah amendments)  
 SMACNA Duct Design Standards  
 Locally enforced NFPA Codes  
 Local Fuel Utility Regulations  
 Local Power Utility Regulations  
 American Gas Association  
 ASTM B31.1 Piping

**DEFINITION OF PLANS AND SPECIFICATIONS:** The mechanical drawings at reduced scale show the general arrangement of piping, ductwork, equipment, etc., and shall be followed as closely as the actual building construction and the work of other trades will permit. The architectural and structural drawings shall be considered as part of the work insofar as these drawings furnish the Contractor with information relating to design and construction of the building. Architectural drawings shall take precedence over mechanical drawings. Request clarification and participate in resolution in the event of conflict.

A. Because of the small scale of the mechanical drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Investigate the structural and finish conditions affecting the work and arrange the work accordingly, providing such extensions, fittings, valves and accessories to meet the conditions as may be required. Some small scale work is not shown such as control conduit and piping, incidental piping, specialties. Provide as directed by note or specification.

B. Examine the actual construction site prior to bidding and obtain an understanding of the conditions under which the work will be performed. No allowances will be made for failure to make such examination.

C. During construction, verify the dimensions governing the mechanical work at the building. No extra compensation shall be claimed or allowed because of differences between actual dimensions and those indicated on the drawings. Examine adjoining work on which mechanical work is dependent for perfect efficiency, and report any work of other trades which must be corrected. No waiver of responsibility for defective work shall be claimed nor allowed due to failure to report unfavorable conditions affecting the mechanical work.

**ALTERNATIVE CONSTRUCTION/SUBSTITUTION:** The contract documents outline a way in which the Owner may be delivered a functional and reliable facility. Drawings and specifications describe reasonable engineering practice for the Contractor to follow.

A. Coordination between trades may result in periodic needs to adjust the installation from that indicated, but in no case shall the intended function be compromised.

B. The Contractor may perceive some work methods which differ from those specified which could save time and effort. These may be presented to the Architect with a breakdown of possible cost savings for review. Implement only with authorization.

C. Materials substitutions will generally be covered in a review process prior to bidding. After bidding, substitutions shall be proposed only on the basis of definitive cost accounting and implemented only with authorization.

**QUALITY OF MATERIALS AND EQUIPMENT:**

A. All equipment and materials shall be new, and shall be the standard products of manufacturers regularly engaged in the production of plumbing, heating, ventilating and air conditioning

B. Fabricate ductwork with duct liner in each section of duct where indicated. Laminate liner to internal surfaces of duct in accordance with instructions by manufacturers of lining and adhesive, and fasten with weld type fasteners.

C. Offset, transition, adapt ductwork to structural obstacles and work of other trades in a coordinated effort. Layout work to avoid conflict with piping, etc. With review of conditions, teardrop around conflicting piping, lights, etc., all at no added cost to the owner.

**LOW PRESSURE ROUND DUCTWORK:**

A. Round type ductwork for use on low velocity supply systems (1200 fpm maximum), low pressure (0.75" maximum duct pressure), shall be fabricated on 26 gauge galvanized steel sheets with snap-lock longitudinal seams and crimped and beaded joints.

B. All end joints shall have at least three screw fasteners and joints shall be sealed airtight with Hardcast TA tape or water based duct sealer. Snap lock longitudinal seams shall be seal with water based duct sealer **NO EXCEPTIONS**. Elbows and fittings shall provide smooth air flow patterns and have a neat appearance.

**MEDIUM PRESSURE DUCTWORK: (3" SMACNA Pressure Class)**

A. General: At Installer's option, provide factory-fabricated duct and fittings, in lieu of shop-fabricated duct and fittings.

B. Round Ductwork: Construct of galvanized sheet steel complying with ASTM A 527 by the following methods and in minimum gauges listed.

Diameter	Minimum Gauge	Method of Manufacture
3" to 14"	26	Spiral Lockseam
15" to 26"	24	Spiral Lockseam

Provide locked seams for spiral duct; fusion-welded butt seam for longitudinal seam duct.

C. Round Duct Fittings and Couplings: Construct of minimum gauges listed. Provide continuous welds along seams. Mitered elbows shall be of at least 5 piece construction with R/D ratio of 1.5.

Diameter	Minimum Gauge
3" to 36"	20

**LOW PRESSURE RECTANGULAR DUCTWORK:**

A. Rectangular ductwork for use on supply systems up to 2" maximum duct static pressure and 2000 fpm maximum duct velocity shall be constructed of galvanized steel using construction for nominal 3" SMACNA rated systems. Seal all transverse and longitudinal joints with water based duct sealer **NO EXCEPTIONS**.

B. Use radiused elbows, or square inside radiused outside elbows with single thickness turning vanes in the first 1/3 where space restrictions prohibit fully radiused elbows. Use 45° high efficiency tapping takeoffs with separate downstream balance dampers.

C. Duct dimensions are inside clear. Increase for acoustical lining.

**MISCELLANEOUS DUCTWORK MATERIALS:**

A. General: Provide miscellaneous materials and products of types and sizes indicated and, where not otherwise indicated, provide type and size required to comply with ductwork system requirements including proper connection of ductwork and equipment.

B. Runout Fittings: Runout fittings shall be used to make round to rectangular duct connections. Use 45° time and a half square to round fittings. Provide with locking quadrant dampers where balance is involved. Provide with insulation guard where insulated duct is involved.

C. Duct Sealing Compound: Duct sealing compound shall be 3M brand number EC-750 or Duro-Dyne S-2. This material shall be used in making up duct joints or in water

equipment, and shall be the manufacturer's latest design. Specific equipment shown in schedules on drawings and specified herein is to be the basis for the Contractor's bid. Provisions for substitute equipment are outlined in the General Conditions. All materials shall be produced by manufacturing plants located in the United States of America.

B. Furnish and install all major items of equipment specified in the equipment schedules on the drawings complete with all accessories normally supplied with catalog items listed, and all other accessories necessary for a complete and satisfactory installation.

**MANUFACTURER'S DIRECTIONS:** Install all equipment in strict accordance with directions and recommendations furnished by the manufacturer. Where such directions are in conflict with the plans and specifications, report such conflicts to the Architect who shall direct adjustments as deemed necessary and desirable.

**EQUIPMENT:** Per manufacturer and model numbers indicated on mechanical schedules.

**NATURAL GAS PIPING:**

A. Building Distribution Piping:  
 1. Pipe Size 2" and Smaller: Black steel pipe; Schedule 40; malleable-iron threaded fittings (exposed), welded fittings and joints (concealed).

B. Gas Cocks:  
 1. Gas Cocks 2" and Smaller: 150 psi non-shock WOG, bronze straightway cock, flat or square head, threaded ends.  
 2. Manufacturer: Subject to compliance with requirements, provide gas cocks of one of the following:  
 a. DeZurik Corp.  
 b. Jenkins Bros.  
 c. Lukenheimer Co.  
 d. NIBCO, Inc.  
 e. Powell (The Wm.) Co.  
 f. Rockwell International; Flow Control Div.  
 g. Stockham Valves and Fittings.  
 h. Walworth Co.

C. Pressure Regulating Valves:  
 1. General: Provide single stage, steel jacketed, corrosion-resistant gas pressure regulators; with atmospheric vent, elevation compensator; with threaded ends for 2" and smaller, flanged ends for 2-1/2" and larger; for inlet and outlet gas pressures, specific gravity, and volume flow indicated.

**DUCTWORK - GENERAL:**

A. Standards: All duct fabrications shall comply with standards and techniques detailed by SMACNA "Duct Construction Manuals" for the appropriate pressure class, with the ASHRAE Handbook, 1988 edition, Chapter 1, Duct Construction, and with the contract drawing details.

B. Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A 527, lockforming quality, with G 90 zinc coating in accordance with ASTM A 525; mill phosphatized for exposed locations.

**FITTINGS AND FABRICATION:**

A. Fittings: Fabricate duct fittings to match adjoining ducts, and to comply with duct requirements as applicable to fittings. Fabricate elbows utilizing inside and outside radiuses with a center-line radius equal to associated duct width; or where fully radiused elbows are not possible, fabricate elbows with an inside square and outside radius and include turning vanes in the first 1/3 of elbow. Maintain duct width throughout turn on inside square and outside radiused elbows. Limit angular tapers to 30° for contracting tapers and 20° for expanding tapers.

B. Fabricate ductwork with accessories installed during fabrication to the greatest extent possible. Refer to Division-15 section "Duct Accessories" for accessory requirements.

Acoustical Lining: Acoustical lining in ducts shall be 1" thick, 1-1/2 pound density, coated, flexible glass fiber type, set in adhesive and impaled on weld studs spaced not more than 12" on centers and secured with lock washers. Airstream surface faced with black coated matte. Acoustical lining shall completely line the ducts. Lining shall have a fire and smoke hazard rating not exceeding 20-50-50. Owens-Corning, Johns-Manville, Certainteed.

1. All joints, edges and/or surface breaks in the coating of the acoustical lining shall be pointed up to a smooth surface with adhesive.

E. Duct Liner Adhesive: Comply with ASTM C 916 "Specifications for Adhesives and Duct Thermal Insulation".

F. Duct Liner Fasteners: Comply with SMACNA HVAC Duct Construction Standards, Article S2.11.

G. Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, struts, trim and angles for support of ductwork.

**GRILLES AND DIFFUSERS:**

1. Ceiling Supply Diffuser (S-1): Krueger series 1400A with adjustable tabs for directional air flow control, square face, round neck, four-way deflection, anti-smudge design, removable inner core, all steel construction, appropriate mounting frame, white baked enamel finish, sponge rubber gasket, size as indicated on drawings.

2. Perforated Return Register / square neck (R-1): Krueger series 6490. Concealed hinge frame, sponge rubber gasket, white baked-on enamel, filter holding frame, color as selected by architect, size as indicated on drawing.

**MECHANICAL CONTROLS:**

**CONDUCTORS:**

A. Color coded and No. 16 and No. 12 AWG Type TWN, TFN, or THHN, stranded.

B. Thermostat Cable - 12 conductor or 8 conductor, 18AWG solid copper wire, insulated with high density polyethylene. Conductors parallel enclosed in brown PVC jacket (No 22 AWG cable allowed).

**AUXILIARY RELAYS:**

A. Light Duty - as required.

B. Heavy Duty - Square D, Class 8501, Type X.

**THERMOSTAT:** (Typical of all Rooftop Units utilizing zone controllers - RTU-1)

A. Programmable low voltage type provided with automatic change over feature for both heating and cooling stages, seven day program with two starts and stops per day, and provisions for damper operators. Thermostat and subbase compatible with heat pump operation.

B. Battery - Mallory AA 1.5 volt alkaline type or equal as approved by Engineer.

C. Approved Manufacturer & Model -  
 1. Honeywell TH8320.

**ZONE CONTROLLER**

A. Microprocessor controller with LED indicator display, 4 stage heat / 3 stage cooling capacity, smoke detector input terminals, LCD display, 365 day per year clock.

B. Approved Manufacturer -  
 1. Zonefirst.  
 a. MZP4, field verify number of zones provide expansion as required.

**DAMPER ACTUATORS**

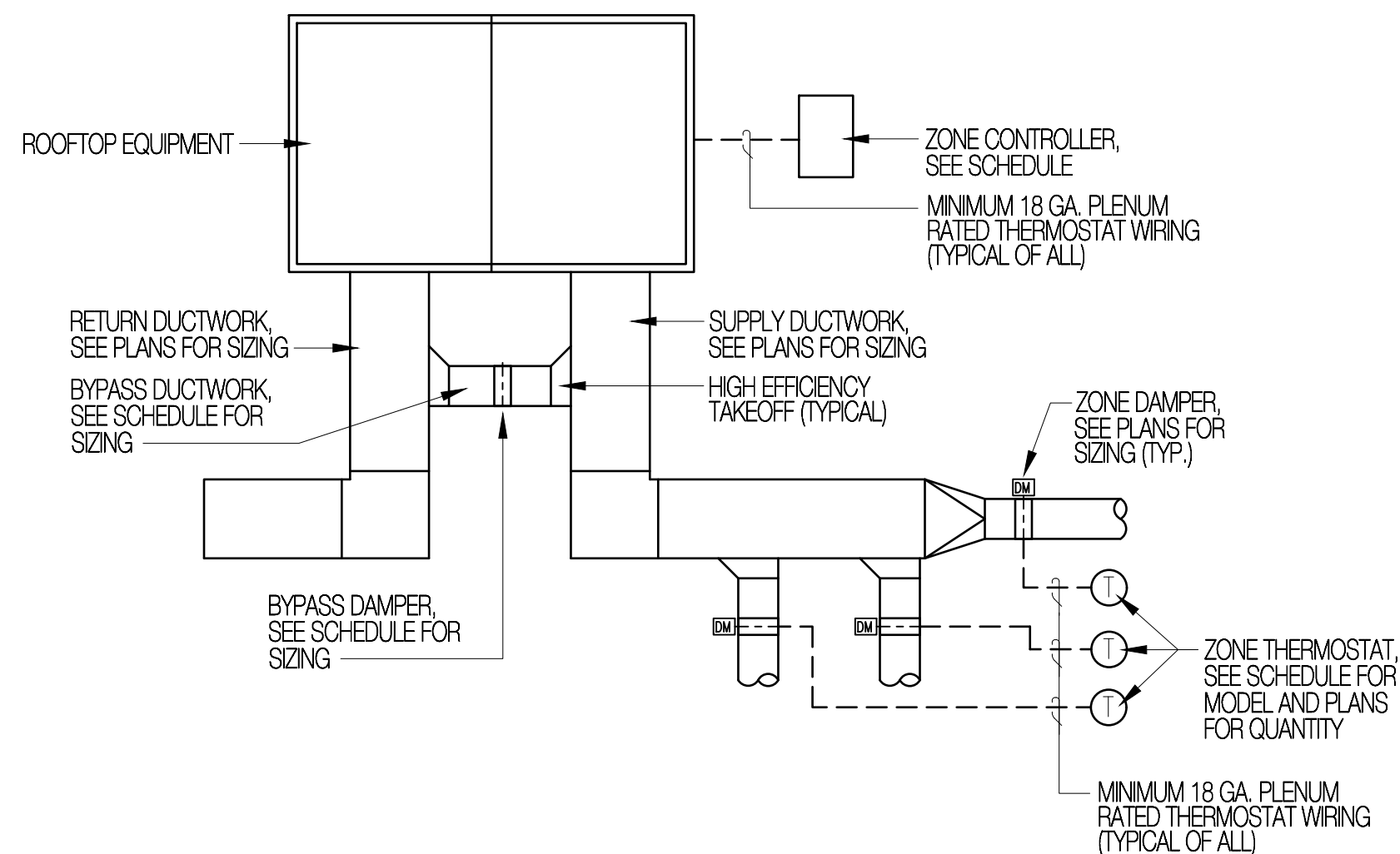
A. Electric type equipped for Class I wiring.

B. Shall not consume power during UNOCCUPIED cycle or use chemicals or expandable media.

C. Have built in spring return.

D. Approved Manufacturer & Model -

ZONE CONTROLLER SCHEDULE										
ZONE	EQUIP SERVED	NO. OF ZONES	BYPASS DAMPER SIZE	BYPASS DAMPER MFG. / MOD.	BYPASS DAMPER PRESS. SETTING	BYPASS CFM	ZONE DAMPER MANUF. / MODEL	ZONE THERMOSTAT MANUF. / MODEL	ZONEFIRST CONTROLLER MODEL	REMARKS
Z-1	RTU-1	3	12"Ø	ZONEFIRST / SPAD	0.30" - 0.60"	1,000	ZONEFIRST / RDP	VENSTAR / T2900	MZP4	WITH SPS PROBE - SET AT 0.3" PRESSURE



**ZONE CONTROLLER SCHEMATIC**

TYPICAL OF RTU-1

- Honeywell ML6175C1009
- Belimo

**CONTROL SEQUENCES**

**GENERAL**

A. Provide control systems to manage and manipulate mechanical equipment in a functional and energy conserving way.

B. Locate control panels in the furnace rooms with terminal block connections for interface of furnace/condensing system, etc.

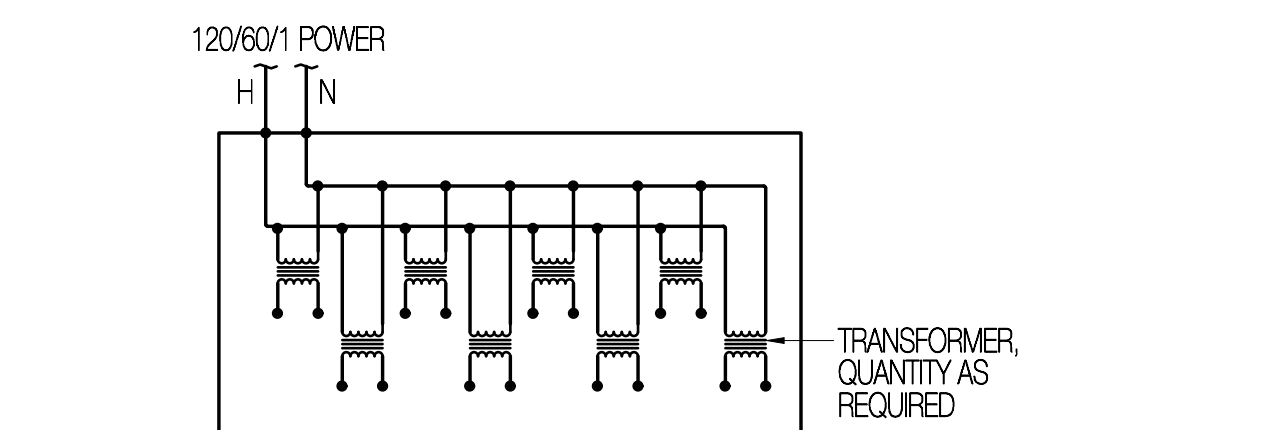
**ROOFTOP UNIT (RTU-1, and 2)**

A. ROOFTOP UNIT CONTROL: The zone controller energizes the fan section of the rooftop unit whenever the building is occupied based on a schedule dictated by the owner. Upon a drop in the average space temperature to below setpoint the zone controller energizes the rooftop equipment burner section and provides heat to the spaces. As the zone temperature reaches setpoint the zone controlled disengages the burner section while the fan section continues to run. Upon a rise in the average space temperature to above setpoint the zone controller energizes the rooftop equipment condensing section and provides cooling to the spaces. As the zone temperature reaches setpoint the zone controlled disengages the condensing section while the fan section continues to run.

B. SPACE CONTROL: Each individual space is equipped with a zone damper and zone thermostat. The zone thermostat shall open or close the zone damper depending on the heating or cooling setpoint and room temperature. As room temperatures drop below setpoint the zone controller energizes the burner section of the zone RTU and the space zone damper opens to allow heat into the space. In the event that an adjacent space is satisfied, and does not require additional heating, that zone damper shall remain closed and excess air shall be recirculated back to the rooftop unit through the bypass damper system. As room temperatures rises above setpoint the zone controller energizes the condensing section of the zone RTU and the space zone damper opens to allow cooling into the space. In the event that an adjacent space is satisfied, and does not require additional cooling, that zone damper shall remain closed and excess air shall be recirculated back to the rooftop unit through the bypass damper system. Once all zones are satisfied the zone controller disengages either the heating or cooling section while the fan continues to run.

**GENERAL NOTES**

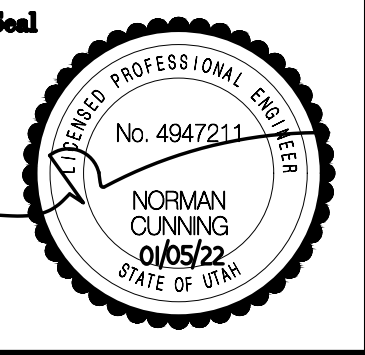
- 120 VAC ELECTRICAL POWER TO ZONE CONTROLLERS AND LOW VOLTAGE TRANSFORMER PANELS BY DIVISION 16000, DIVISION 15000 TO COORDINATE LOCATION AND QUANTITY.
- THE CONTROLS CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR CONTROL SYSTEM CIRCUITS.
- ANY QUESTION OF RESPONSIBILITY SHALL BE CLARIFIED BY THE GENERAL CONTRACTOR
- ALL WIRING SHALL BE 18 GA. MULTI CONDUCTOR WITH PLENUM RATED JACKET AND SHALL TERMINATE AT LABELED TERMINAL STRIPS.



**LOW VOLTAGE TRANSFORMER PANEL LVTP**

QUANTITY AS REQUIRED, LOCATION AS DIRECTED

Revisions	Date



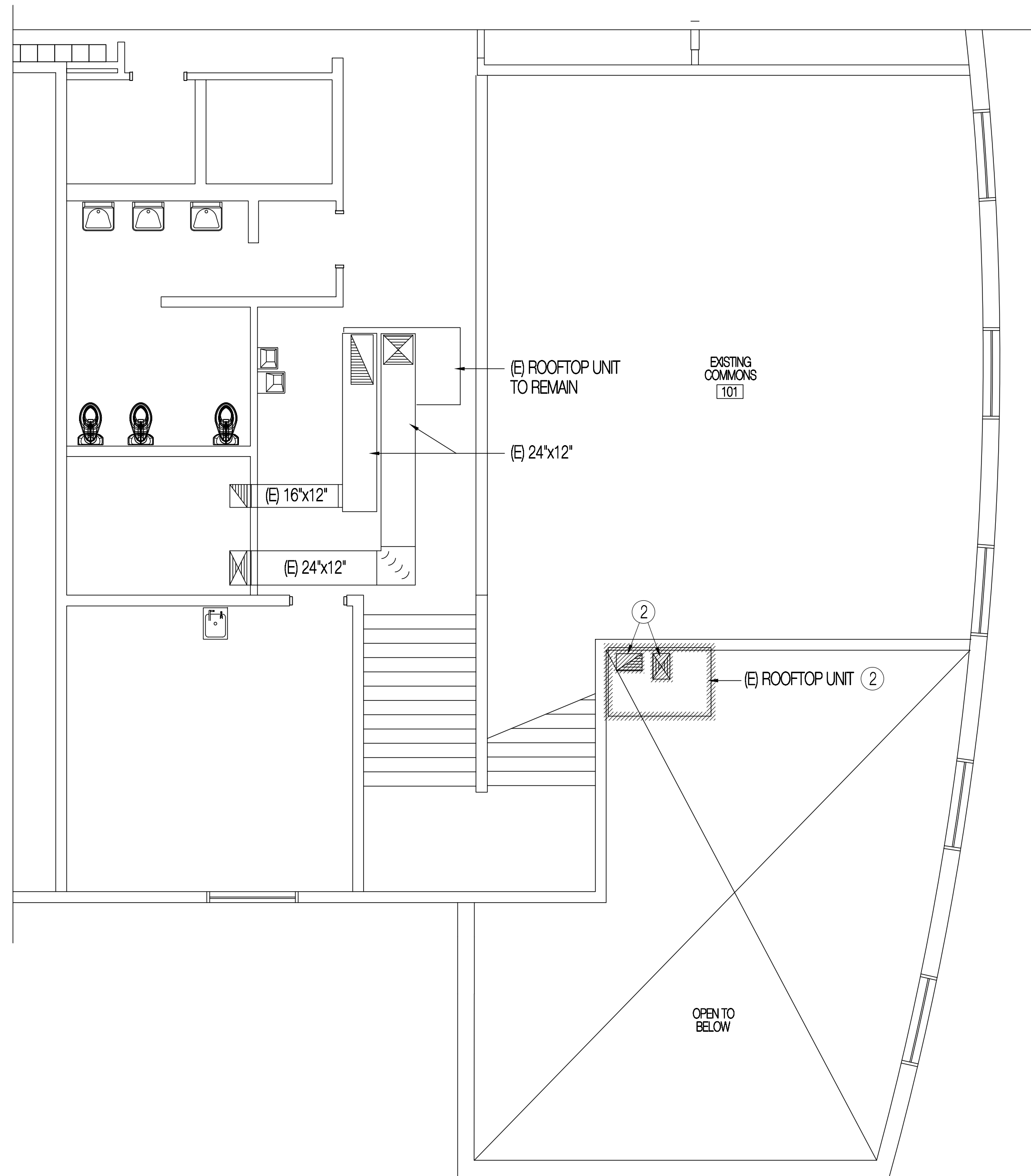
**Consultant:**  
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 Ph: (801) 726-5047

**Project Name**  
**DAVINCI ACADEMY REMODEL**  
**215 22ND. STREET**  
**OGDEN, UT**

Project Number	Issue Date
6221	01/05/21

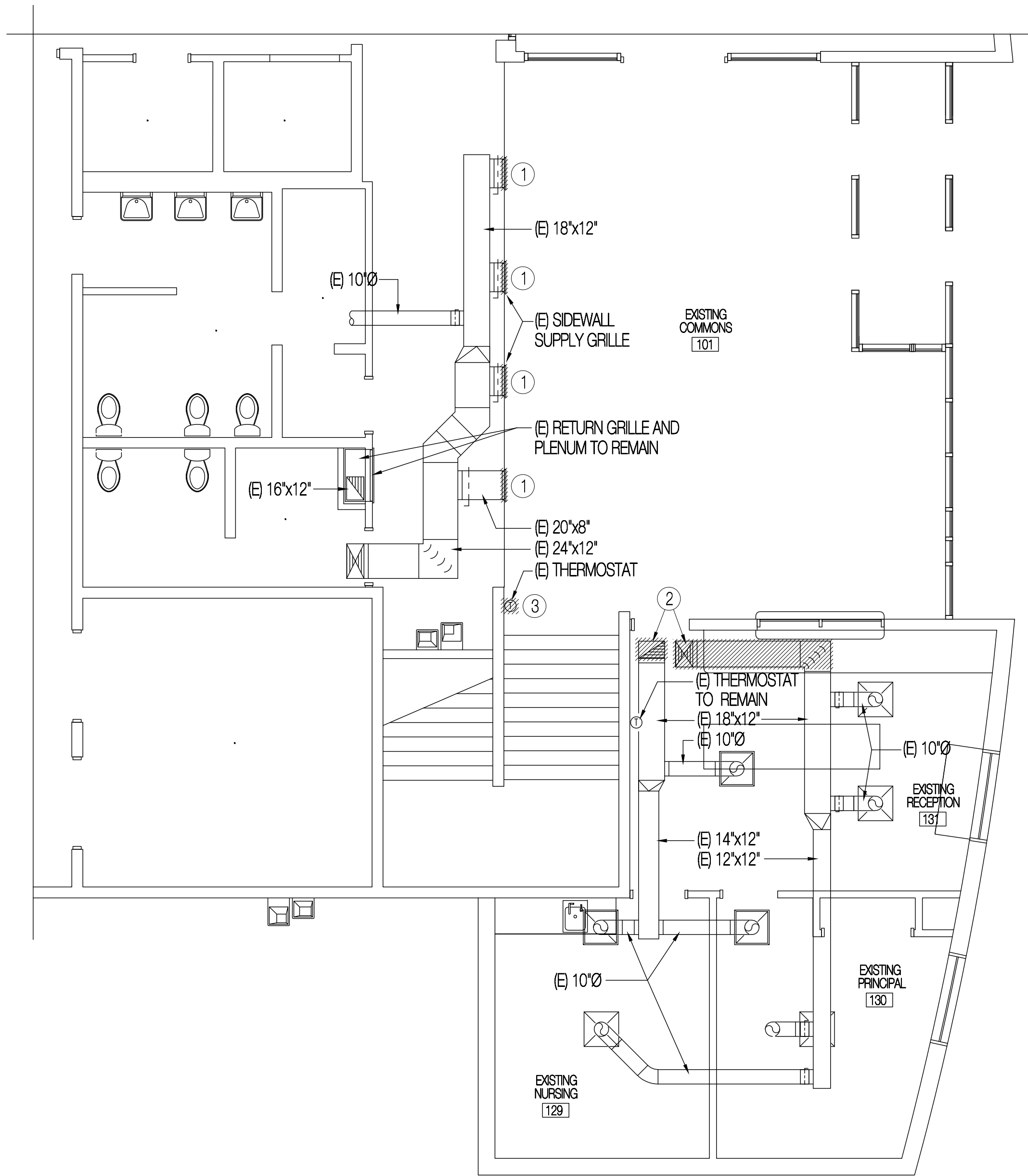
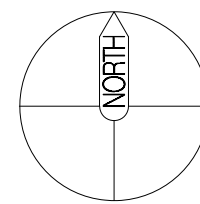
**Drawing Title**  
**MECHANICAL CONTROLS & SPECS / DET.**

**Sheet Number**  
**M-700**



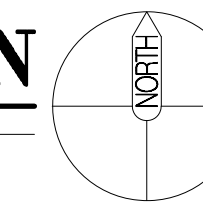
**SECOND FLOOR HVAC DEMO. PLAN**

SCALE 3/16" = 1'-0"



**MAIN FLOOR HVAC DEMO. PLAN**

SCALE 3/16" = 1'-0"



**DRAWING NOTES**

- ① REMOVE EXISTING SIDEWALL SUPPLY AIR GRILLES AND ASSOCIATED VOLUME DAMPERS PREPARATORY TO NEW WORK.
- ② REMOVE PORTIONS OF EXISTING SUPPLY AND RETURN DUCTWORK PREPARATORY TO NEW WORK.
- ③ REMOVE EXISTING THERMOSTAT AND ASSOCIATED CONTROL WIRING PREPARATORY TO NEW WORK.
- ④ REMOVE EXISTING ROOFTOP UNIT PREPARATORY TO NEW WORK. CONTRACTOR TO PROTECT EXISTING ROOF CURB AND EXISTING ELECTRICAL AND GAS INSTALLATIONS DURING REMOVAL AS THESE INSTALLATIONS WILL BE REUSED BY THE NEW ROOFTOP UNIT.

Revisions	Date



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**Project Name**  
 DAVINCI ACADEMY REMODEL  
 215 22ND. STREET  
 OGDEN, UT

Project Number	Issue Date
6221	01/05/21

**Drawing Title**  
 1ST. AND 2ND. FLOOR HVAC DEMO. PLANS

**Sheet Number**  
 MD  
 100