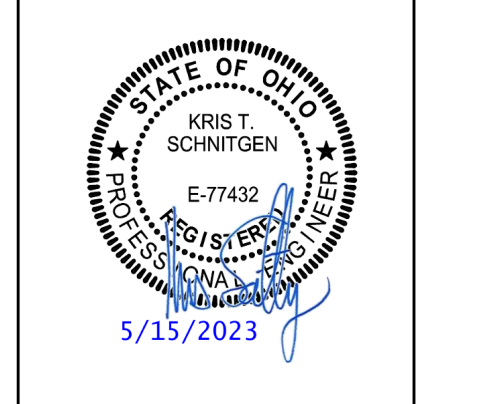


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MECHANICAL ELECTRICAL ENGINEERS  
**EKLH ENGINEERS**  
 KOHRS LOHMEYER HELL ENGINEERS, INC.  
 158 ALEXANDRIA PIKE, SUITE 111  
 FT THOMAS, KENTUCKY 40105  
 855-446-8558 FAX

**THE FORMICA BLDG.**  
 SUITE 205 & 205: OFFICES  
 120 EAST 4TH STREET  
 CINCINNATI OH 45202

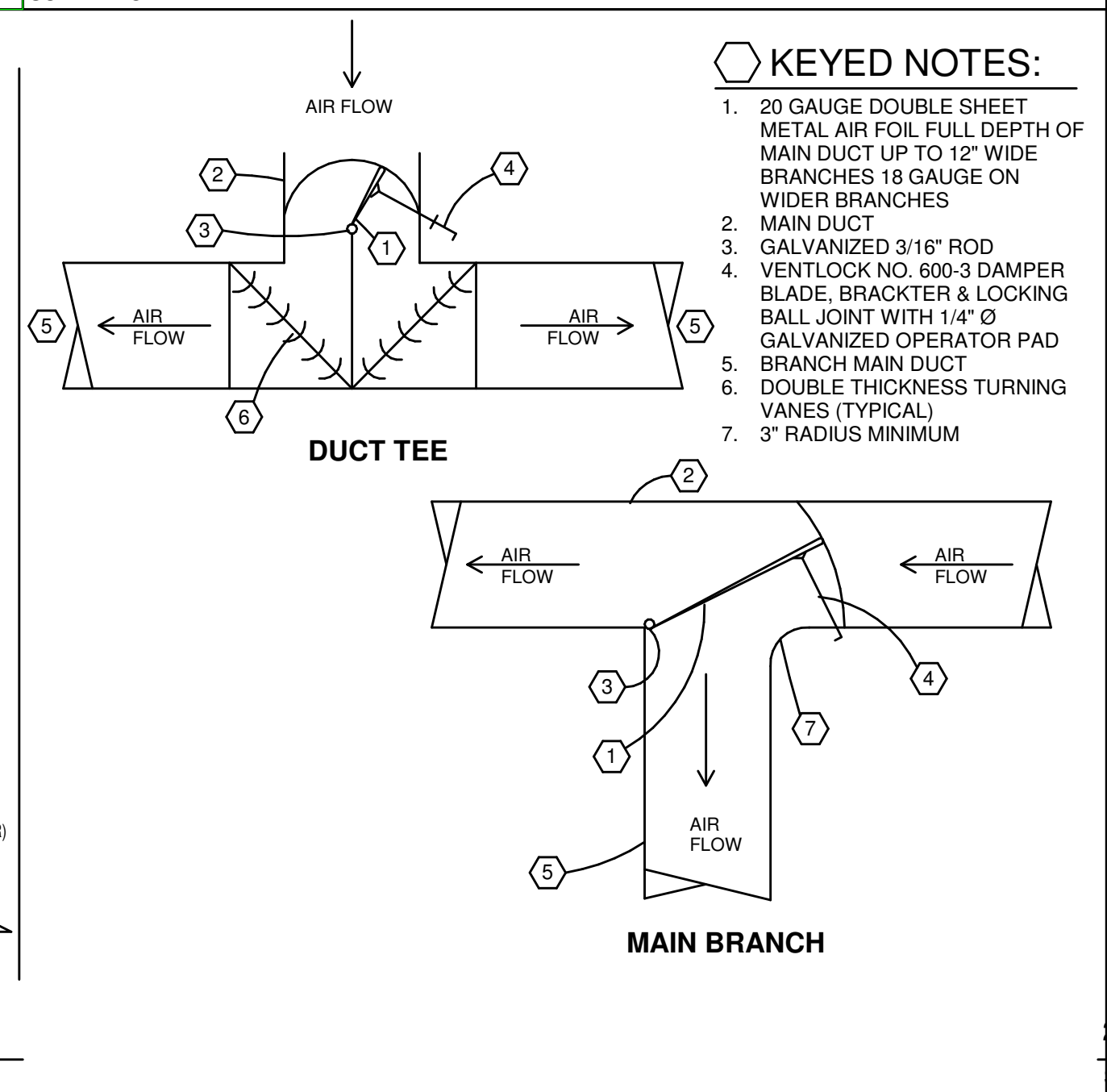
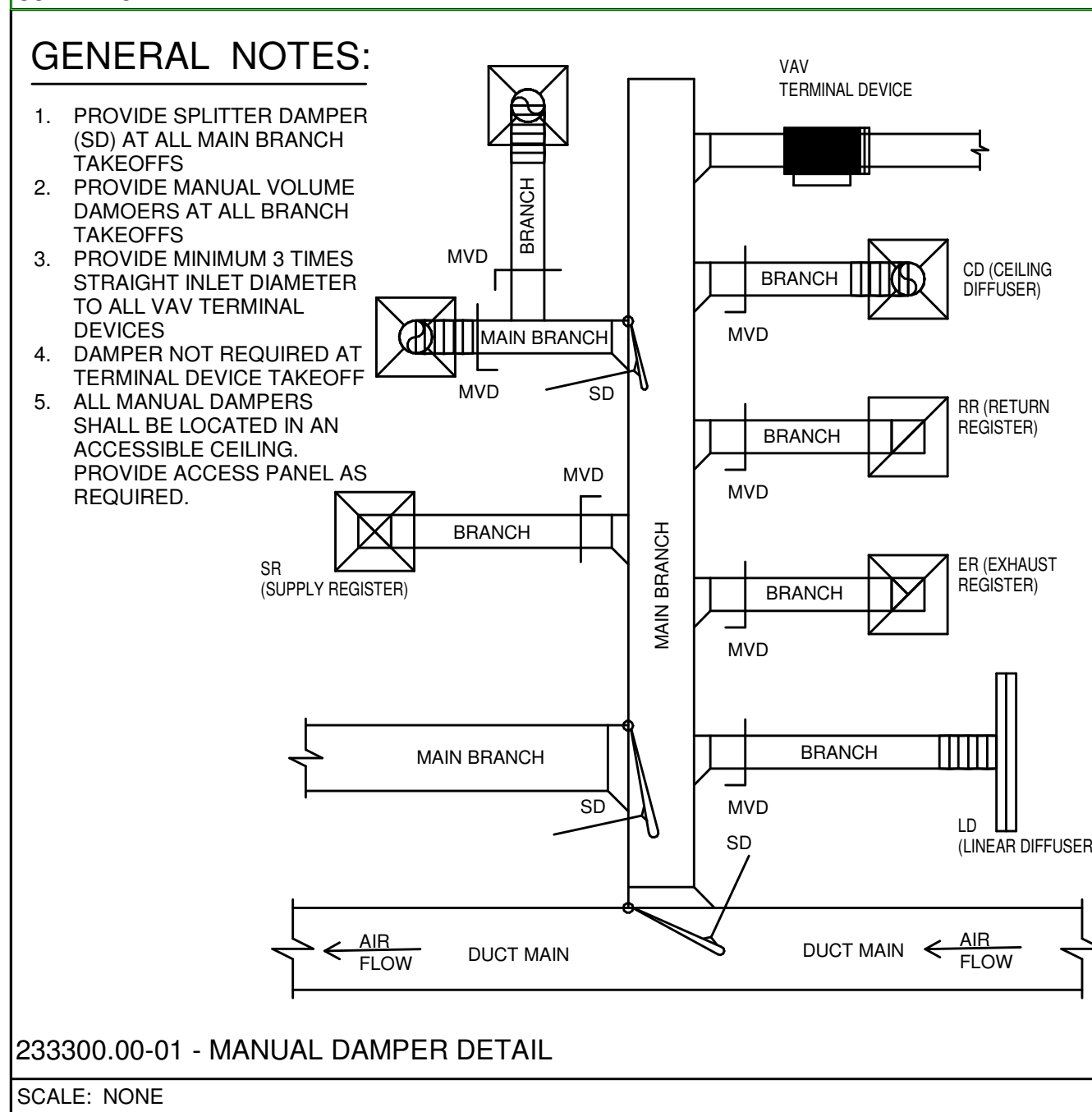
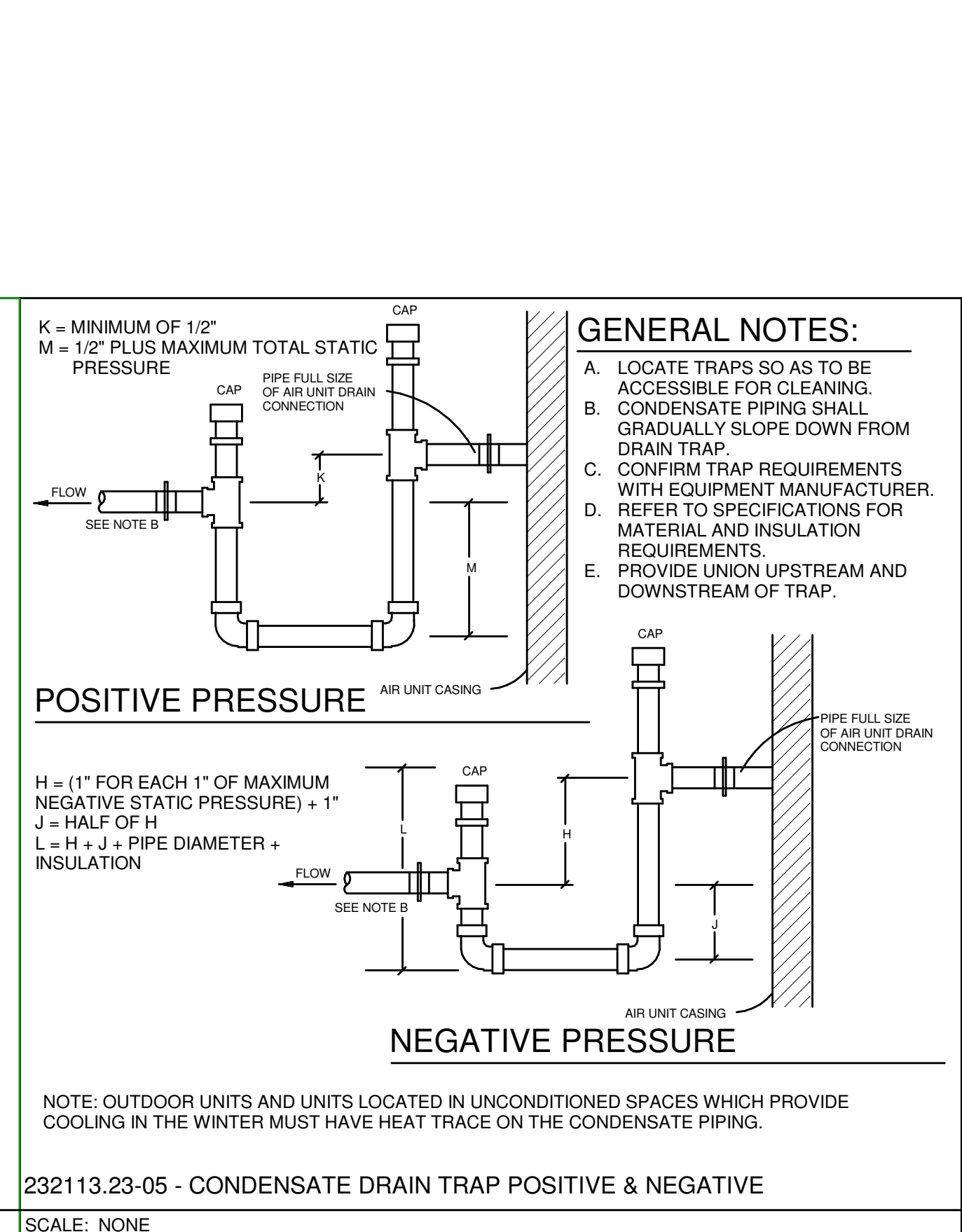
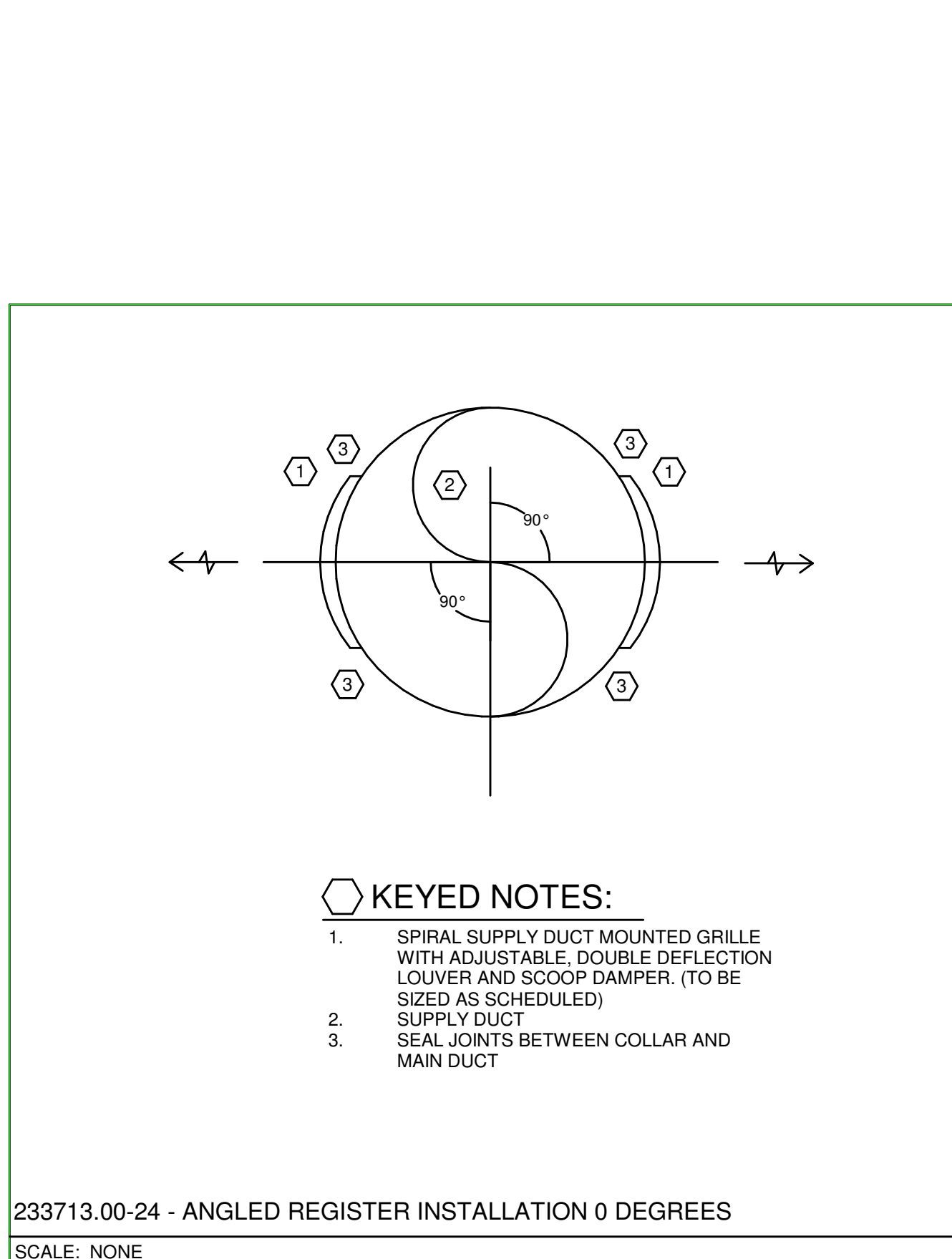


**REVISIONS**

NO.	DATE	DESCRIPTION
04.26.23	PERMIT	

DWN: PRF CHK: KTS  
 DATE: 04/14/23  
 PROJECT #: 24166.00  
**TOM JAMES MECHANICAL PLANS**

**M3-101**  
 1" REFERENCE  
 KLH PROJECT # 24166



**HVAC VENTILATION SCHEDULE**

NUMBER	NAME	AREA	LEVEL	PEOPLE	OA PER PERSON	OA PER SQ FT	REQ SUP	ACT SUP	REQ OA	ACT OA	ACT RET	ACT EXH	CRIT OA	PRESSURE	PCT OPERABLE	NATURAL VENTILATION
580	STOCK ROOM	498 SF	Level 2	2	5	0.06	160	400	80	94	400	0	12.5	Neutral	0	False
581	OPEN OFFICE	983 SF	Level 2	16	5	0.06	540	725	145	152	725	0	24	Neutral	0	False
582	DISPLAY ROOM	189 SF	Level 2	3	7.5	0.12	275	250	50	52	250	0	22.6	Neutral	0	False
583	ENTRY	300 SF	Level 2	3	5	0.06	125	250	50	52	250	0	16.5	Neutral	0	False
584	CORRIDOR	199 SF	Level 2	0	0	0.06	45	75	15	16	75	0	16.9	Neutral	0	False
585	FITTING ROOM	106 SF	Level 2	2	7.5	0.12	175	150	30	32	150	0	23.1	Neutral	0	False
586	FITTING ROOM	106 SF	Level 2	2	7.5	0.12	175	150	30	32	150	0	23.1	Neutral	0	False
587	FUTURE OFFICE	158 SF	Level 2	12	5	0.06	360	1500	187	380	1500	0	10.4	Neutral	0	False
588	CORRIDOR	190 SF	Level 2	1	1	0	0	0	0	0	0	0	0	E	0	0
TOTAL		4169 SF														

**HVAC ROOFTOP UNITS SCHEDULE**

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	KLH Equipment Electric Connection Summary	CFM (cfm)	ESP (in WC)	OACFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT DB (Deg F)	LAT CLG WB (Deg F)	MAT HTG (Deg F)	HTG MBH (mbh)	MIN HTG AFUE	GAS HTG IN (mbh)	GAS HTG OUT (mbh)
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	NEW	574	CARRIER	48FC6A06A25-0A0A0	NO	RTU-1: 208V/3PH, 29 MCA, 45A OCP	2000	0.5	420	5	79	66	67	50	55	54	59	44	80	110	88
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	NEW	574	CARRIER	48FC6A06A25-0A0A0	NO	RTU-2: 208V/3PH, 29 MCA, 45A OCP	1900	0.5	380	5	79	66	67	50	55	54	59	38	80	110	88

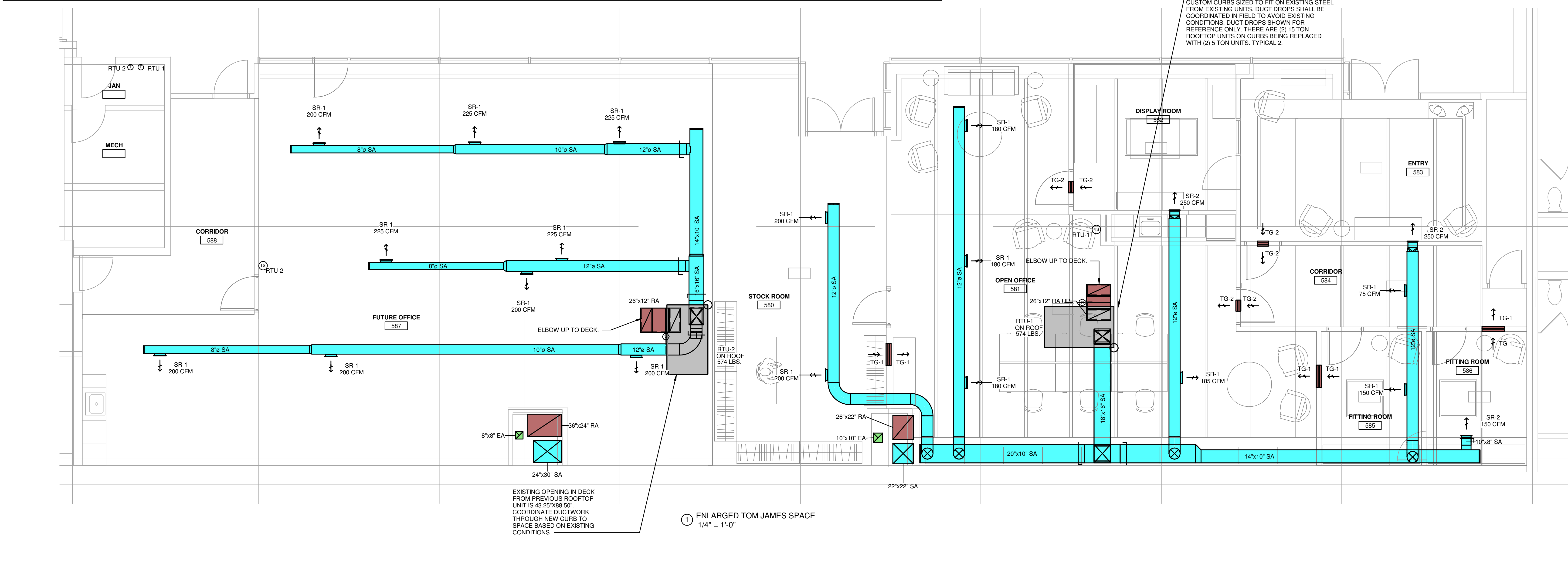
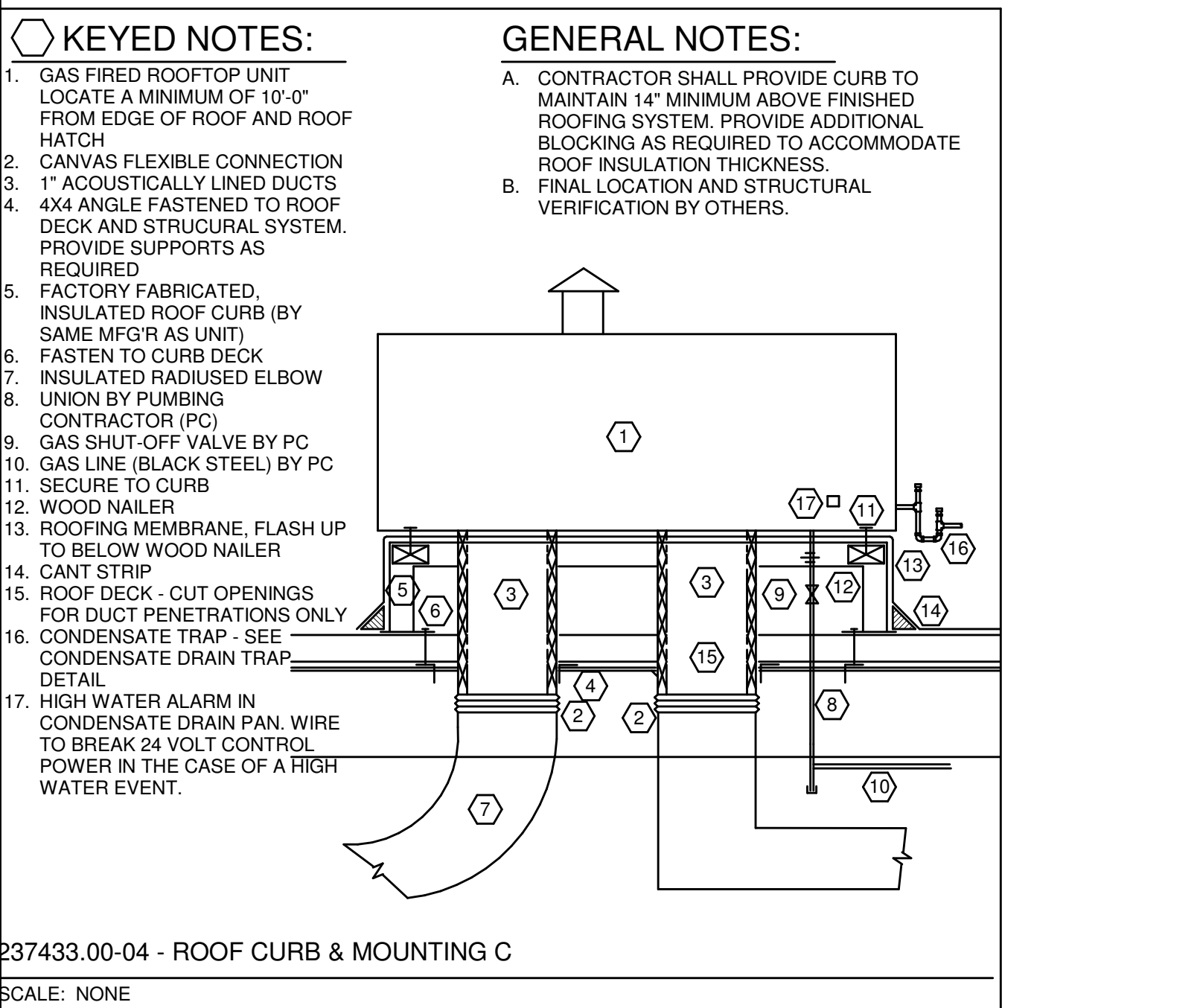
**HVAC DIFFUSERS AND REGISTERS SCHEDULE**

TAG	MANUFACTURER	MODEL	FACE	MOUNTING	MATERIAL	FINISH	DAMPER TYPE	BORDER STYLE	REMARKS	DESCRIPTION
SR-1	TITUS	S300FL	12"x8"	DUCT	STEEL	METAL ESSENT ALUM. BAKED ENAMEL	SCOOP DAMPER	SURFACE MOUNT		
SR-2	TITUS	S300RL	10"x6"	SIDEWALL	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT		
TG-1	TITUS	S300RL	24"x12"	SIDEWALL	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT		
TG-2	TITUS	S300RL	12"x12"	SIDEWALL	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT		

**HVAC LOAD SCHEDULE**

THE HEATING AND COOLING LOAD CALCULATIONS ARE BASED ON THE CLTD/CLF (COOLING LOAD TEMPERATURE DIFFERENCE-COOLING LOAD FACTOR) METHOD. ASSUMPTIONS AND EXECUTION OF THESE METHODS ARE PER ASHRAE 189-2007 STANDARD FOR PEAK COOLING AND HEATING LOAD CALCULATIONS IN BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS.

EQUIPMENT MARK	COOLING LOAD BREAKDOWN													HEATING LOAD BREAKDOWN										
	CROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CPSENS	CSSENS	CFAN	COAS	CTSENS	CPLAT	COAL	CTLAT	CTOT	HROOF	HWALL	HPART	HGLASS	HSPACE	HSLAB	HOA	HTOT
RTU-1	7.71	0	0	0.93	7.49	16.01	0	9.87	42.01	0.5	7.64	50.15	5.6	11.51	17.11	67.25	12	0	0	4.22	18.86	0	28.1	44.31
RTU-2	8.4	0	0	0	0	13.46	13.23	5.82	38.91	0.48	6.91	49.3	2.4	10.41	12.81	59.11	12.28	0	0	0	23.15	0	25.42	37.7



OWNERSHIP OF INSTRUMENTS OF SERVICE

KLH ENGINEERS



COMcheck Software Version 4.1.5.0  
**Mechanical Compliance Certificate**

**Project Information**

Energy Code: 90.1 (2010) Standard  
 Project Title:  
 Location: Cincinnati, Ohio  
 Climate Zone: 4a  
 Project Type: New Construction

Construction Site: 225 East Fifth Street, Suite 205 & Office 205, Cincinnati, OH 45202  
 Owner/Agent:  
 Designer/Contractor:

**Mechanical Systems List**

**Quantity System Type & Description**  
 2 RTU's (2 Single Zone)  
 Heating: 1 each, Central Furnace, Gas, Capacity = 110 kBtu/h  
 Proposed Efficiency = 80.0% EI, Required Efficiency: 80.0% EI (or 78% AFUE)  
 Cooling: 1 each, Single Package DX Unit, Capacity = 62 kBtu/h, Air-Cooled Condenser, Air Economizer  
 Proposed Efficiency = 16.00 SEER, Required Efficiency: 13.00 SEER  
 Fan System: FAN SYSTEM - Compliance (Motor nameplate HP method) - Passes  
 Fans:  
 FAN 1 Supply, Constant Volume, 1900 CFM, 0.7 motor nameplate hp

**Mechanical Compliance Statement**

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 4.1.5.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 1 of 9  
 Report\ARCADE COMCHECK.cck

Section # & Req-ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.4.2.1 [ME10]	Ducts and plenums sealed based on static pressure and location.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.2.2 [ME11]	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.1.6.5.1.1.6.5.1 [ME12]	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.2.3 [ME19]	Dehumidification controls provided to prevent reheating, recirculating, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.3.3 [ME21]	Multiple zone VAV systems with DOC of individual zone boxes have static pressure setpoint reset controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply. See the Mechanical Systems list for values.
6.5.4.1 [ME25]	HVAC pumping systems >10 hp designed for variable fluid flow.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Minimum flow is less than required for proper operation and pump power >75 hp.
6.5.6.1 [ME56]	Exhaust air energy recovery on systems meeting Table 6.5.6.1.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.7.1.1 [ME32]	Kitchen hoods >5,000 cfm have make up air >=50% of exhaust air volume.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.5.7.1.2 [ME46]	Conditioned supply air to space with a kitchen hood shall not exceed the greater of a) supply flow required to meet space heating or cooling, or b) hood exhaust flow minus the available air transfer from available spaces.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.5.7.1.5 [ME49]	Approved field test used to evaluate design air flow rates and demonstrate proper capture and containment of kitchen exhaust systems.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.5.7.2 [ME33]	Fume hoods exhaust systems >=15,000 cfm have VAV hood exhaust and supply systems, direct make-up air or heat recovery.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 5 of 9  
 Report\ARCADE COMCHECK.cck

COMcheck Software Version 4.1.5.0  
**Inspection Checklist**

Energy Code: 90.1 (2010) Standard

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req-ID	Plan Review	Complies?	Comments/Assumptions
4.2.2.4.4.2.1.4.7 [PR2]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2.4.4.2.1.4.1.1.8.4.1.2.8.7 [PR4]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder conductors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.4 [PR5]	Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.

**Additional Comments/Assumptions:**

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 2 of 9  
 Report\ARCADE COMCHECK.cck

Section # & Req-ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.8.1 [ME34]	Unenclosed spaces that are heated use only radiant heat.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.5.9 [ME35]	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 6 of 9  
 Report\ARCADE COMCHECK.cck

Section # & Req-ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
6.4.3.8 [FO9]	Freeze protection and snow/ice melting system sensors for future connection to controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 3 of 9  
 Report\ARCADE COMCHECK.cck

Section # & Req-ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
6.4.2 [EL10]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
10.4.1 [EL9]	Electric motors meet requirements where applicable.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 7 of 9  
 Report\ARCADE COMCHECK.cck

Section # & Req-ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.1.4.6.4.1.5 [ME1]	HVAC equipment efficiency verified. Not N/A-MECA HVAC equipment labeled as meeting 90.1.	Efficiency: _____	Efficiency: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
6.4.3.4.1 [ME3]	Stair and elevator shaft vents have motorized dampers that automatically close.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.4.3.4.2.6.4.3.4.3 [ME4]	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.4.5 [ME39]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.4.3.4 [ME5]	Ventilation fans >0.75 hp have automatic controls to shut off fan when not required.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.9 [ME6]	Demand control ventilation provided for spaces >500 ft2 and >=40 people/1,000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.10 [ME40]	Single zone HVAC systems with fan motors >=5 hp have variable airflow controls. Air conditioning equipment with a cooling capacity >=110,000 Btu/h has variable airflow controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply. See the Mechanical Systems list for values.
6.4.4.1.1 [ME7]	Insulation exposed to weather protected from damage, insulation outside of the conditioned space and associated with cooling systems is vapor retardant.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.2 [ME8]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	R_____	R_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.3 [ME9]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> null.
6.4.4.1.4 [ME41]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.

Project Title: Report date: 05/15/23  
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 Report\ARCADE COMCHECK.cck

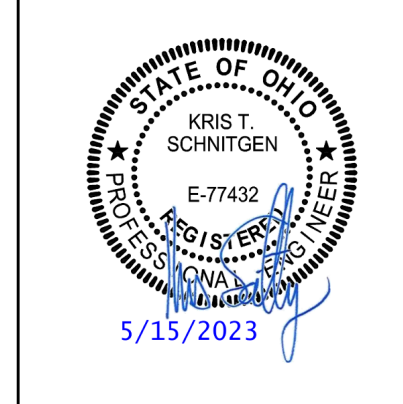
Section # & Req-ID	Final Inspection	Complies?	Comments/Assumptions
6.4.3.1.2 [F13]	Thermostatic controls have a 5°F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.2 [F120]	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.1 [F121]	HVAC systems equipped with at least one automatic shutdown control.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.2 [F122]	Setback controls allow automatic restart and temporary operation as required for maintenance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.7 [F16]	When humidification and dehumidification are provided to a zone, simultaneous operation is prohibited.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.1 [F17]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.2 [F18]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.3 [F19]	An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft2 of conditioned area.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.
6.7.2.4 [F110]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
10.4.3 [F124]	Elevators are designed with the proper lighting, ventilation power, and standby mode.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<b>Exception:</b> Requirement does not apply.

**Additional Comments/Assumptions:**

Project Title: Report date: 05/15/23  
 Data filename: G:\24000-24999\24100-24199\24166\Project Data\Energy\Compliance\Mechanical Page 8 of 9  
 Report\ARCADE COMCHECK.cck



**THE FORMICA BLDG.**  
 SUITE 205 & 205: OFFICES  
 120 EAST 4TH STREET  
 CINCINNATI OH 45202



**REVISIONS**

NO.	DATE	DESCRIPTION
04.26.23	PERMIT	

DWN: PRF CHK: KTS  
 DATE: 04/14/23  
 PROJECT #: 24166.00  
 MECHANICAL - COMCHECK

**M6-602**  
 1" REFERENCE  
 KLH PROJECT # 24166

OWNERSHIP OF INSTRUMENTS OF SERVICE: This certificate and other documents and instruments prepared by the Consultant as indicated on this certificate shall remain the property of the Consultant. The Consultant shall retain all common law, statutory and other reserved rights, including, without limitation, the copyright therein.