

MECHANICAL LEGEND	
DAH#	DUCTLESS AIR HANDLING UNIT NUMBER
DHP#	DUCTLESS HEAT PUMP UNIT NUMBER
E#	EXHAUST GRILLE NUMBER
EDH#	ELECTRIC DUCT HEATER UNIT NUMBER
EUH#	ELECTRIC UNIT HEATER NUMBER
PV#	POWER VENTILATOR UNIT NUMBER
HP#	HEAT PUMP UNIT NUMBER
HU#	HUMIDIFIER UNIT NUMBER
L#	LOUVER NUMBER
R#	RETURN GRILLE NUMBER
RTU#	ROOF TOP UNIT NUMBER
RV#	ROOF VENTILATOR UNIT NUMBER
S#	SUPPLY DIFFUSER NUMBER
T#	TRANSFER GRILLE NUMBER
FD	FIRE DAMPER
FSD	FIRE/SMOKE DAMPER
	ACCESS DOOR
ⒶH	THERMOSTAT
Ⓗ	HUMIDISTAT
Ⓟ	PRESSURE SWITCH
C	CONDENSATE PIPING
R	REFRIGERANT PIPING

VENDOR EQUIPMENT NOTES

1. THE OWNER FURNISHED EQUIPMENT (VENDOR) DOCUMENTS ARE AN INTEGRAL PART OF THESE CONTRACT DOCUMENTS FOR THIS PROJECT. ANY MATERIALS, LABOR, OR COORDINATION LISTED IN THE VENDOR DOCUMENTS AND SPECIFICALLY NOTED TO BE INCLUDED BY THE CONTRACTOR ARE TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT. REFER TO VENDOR DRAWINGS AND OWNER FURNISHED EQUIPMENT BROCHURES TO COORDINATE SIZE AND LOCATION OF ALL ROUGH-IN AND FINAL CONNECTION REQUIREMENTS FOR VENTING, EXHAUST CONNECTIONS, STEAM PIPING, CONDENSATE PIPING, TRAPS, VALVES, DRAINS, AND WATER CONNECTIONS.
2. COORDINATE ROUGH-IN SIZES AND REQUIREMENTS WITH ACTUAL PURCHASED EQUIPMENT.

SEISMIC RESTRAINT NOTES

1. SEISMIC: INSTALL MECHANICAL WORK IN A MANNER TO BE FULLY COMPLIANT WITH THE SEISMIC RESTRAINT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE (NCSBC). THE CONTRACTOR SHALL PROVIDE ANY AND ALL SEISMIC RESTRAINT DETAILS AND CALCULATIONS THAT MAY BE REQUIRED BY THE NCSBC AND/OR THE AUTHORITY HAVING JURISDICTION. REQUIREMENTS FOR RESTRAINTS ARE DETAILED IN THE NCSBC. ALL TABLES AND REFERENCES SHALL CONFORM TO BUILDING'S LOCATION. RESTRAINTS SHALL BE PER SEISMIC PERFORMANCE CATEGORY STATED ON ARCHITECTURAL AND STRUCTURAL SHELL BUILDING DRAWINGS.

ENERGY SUMMARY

ENERGY REQUIREMENTS:	
THE FOLLOWING DATA SHALL BE CONSIDERED MINIMUM AND ANY SPECIAL ATTRIBUTE REQUIRED TO MEET THE ENERGY CODE SHALL ALSO BE PROVIDED. EACH DESIGNER SHALL FURNISH THE REQUIRED PORTIONS OF THE PROJECT INFORMATION FOR THE PLAN DATA SHEET. IF PERFORMANCE METHOD, STATE THE ANNUAL ENERGY COST FOR THE STANDARD REFERENCE DESIGN VS ANNUAL ENERGY COST FOR THE PROPOSED DESIGN.	
CLIMATE ZONE:	3
METHOD OF COMPLIANCE:	
X	PREScriptive (ENERGY CODE)
	PERFORMANCE (ENERGY CODE)
	PREScriptive (ASHRAE 90.1)
	PERFORMANCE (ASHRAE 90.1)
THERMAL ENVELOPE	
ROOF CEILING ASSEMBLY (EACH ASSEMBLY)	
DESCRIPTION OF ASSEMBLY:	
INSIDE SURFACE RESISTANCE, METAL DECKING, R-13 BOARD INSULATION, MEMBRANE, OUTSIDE SURFACE RESISTANCE	
U-VALUE OF TOTAL ASSEMBLY:	0.039 BTU/HR/SF/F
R-VALUE OF INSULATION:	25 (HR-SF-F)/BTU
SKYLIGHTS IN EACH ASSEMBLY:	-
U-VALUE OF SKYLIGHT:	-
TOTAL SQ.FT OF SKYLIGHTS IN EA. ASSEMBLY:	-
EXTERIOR WALLS (EACH ASSEMBLY)	
DESCRIPTION OF ASSEMBLY:	
INSIDE SURFACE RESISTANCE, 5/8" GYPSUM BOARD, R-13 BATT INSULATION, AIR SPACE, CONCRETE TILT-UP PANEL, OUTSIDE SURFACE RESISTANCE	
U-VALUE OF TOTAL ASSEMBLY:	0.66 BTU/HR/SF/F
R-VALUE OF INSULATION:	13 (HR-SF-F)/BTU
OPENINGS (WINDOWS OR DOORS WITH GLAZING)	
U-VALUE OF TOTAL ASSEMBLY	0.27 BTU/HR/SF/F
SHADING COEFFICIENT:	0.26
PROJECTION FACTOR:	<0.5
DOOR R-VALUES:	1.5 (HR-SF-F)/BTU
WALLS BELOW GRADE (EACH ASSEMBLY)	
DESCRIPTION OF ASSEMBLY:	
U-VALUE OF TOTAL ASSEMBLY:	N/A
R-VALUE OF INSULATION:	N/A
FLOORS OVER UNCONDITIONED SPACE (EACH ASSEMBLY)	
DESCRIPTION OF ASSEMBLY:	
U-VALUE OF TOTAL ASSEMBLY:	N/A
R-VALUE OF INSULATION:	N/A
FLOORS SLAB ON GRADE	
DESCRIPTION OF ASSEMBLY:	
U-VALUE OF TOTAL ASSEMBLY:	0.9 BTU/HR/SF/F
R-VALUE OF INSULATION:	N/A
HORIZONTAL/VERTICAL REQUIREMENT	HORIZONTAL
SLAB HEATED:	NO

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT	
CLIMATE ZONE	
3A - WARM/HUMID	
WINTER DRY BULB:	
23°F	
SUMMER DRY BULB	
95°F	
INTERIOR DESIGN CONDITIONS	
WINTER DRY BULB	70°F
SUMMER DRY BULB	75°F
RELATIVE HUMIDITY	60% RH
BUILDING HEATING LOAD:	
692.1 MBH	
BUILDING COOLING LOAD:	
792.9 MBH	
MECHANICAL SPACING CONDITIONING SYSTEM	
SEE SCHEDULES	
UNITARY	
DESCRIPTION OF UNIT:	
SEE SCHEDULES	
HEATING EFFICIENCY:	
SEE SCHEDULES	
COOLING EFFICIENCY:	
SEE SCHEDULES	
SIZE CATEGORY OF UNIT:	
SEE SCHEDULES	
BOILER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	
N/A	
CHILLER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	
N/A	
LIST EQUIPMENT EFFICIENCIES:	
SEE SCHEDULES	

ABBREVIATIONS

TERM	ABBREVIATION	TERM	ABBREVIATION
ABOVE FINISHED FLOOR	AFF	INCH OF WATER GAUGE	INWG
ABOVE GROUND	AG	INDOOR UNIT	IDU
ABOVE SEA LEVEL	ASL	IRON PIPE SIZE	IPS
ACROSS THE LINE	ACL	KILOVOLT-AMP	KVA
AIR ADMITTANCE VALVE	AAV	KILOWATT	KW
AIR CONDITION(-ING, -ED)	AIR COND	KILOWATT HOUR	KWH
AIR HANDLING UNIT	AHU OR AH	LEAVING AIR TEMPERATURE	LAT
AIR FLOW MEASURING STATION	AFMA	LEAVING WATER TEMPERATURE	LWT
AMBIENT	AMB	LENGTH	LG
AMPERE (AMP, AMPS)	AMP	LINEAR FEET	LF
ANALOG INPUT	AI	MAXIMUM	MAX
ANALOG OUTPUT	AO	MAXIMUM OVERCURRENT PROTECTION	MOCP
AND	&	MEDIUM-PRESSURE STEAM	MPS
APPARATUS DEW POINT	ADP	MILES PER HOUR	MPH
APPROXIMATE	APPROX	MINIMUM	MIN.
ARCHITECT	ARCH	MINIMUM CIRCUIT AMPERES	MCA
ATMOSPHERE	ATM	MINUTE	MIN
AVERAGE	AVG	MANUFACTURER	MFR
BRAKE HORSEPOWER	BHP	MOTOR CONTROL CENTER	MCC
BROWN & SHARPE WIRE GAGE	B&S	NOISE CRITERIA	NC
BRITISH THERMAL UNIT	BTU	NON-STANDARD PART LOAD	NPLV
BRITISH THERMAL UNIT PER HOUR	BTUH	NORMALLY OPEN	NO
1000 BRITISH THERMAL UNIT	MBH	NORMALLY CLOSED	NC
BUILDING	BLDG	NOT APPLICABLE	N/A
BUILDING AUTOMATION SYSTEM	BAS	NOT IN CONTRACT	N I C
CELSIUS	°C	NOT TO SCALE	NTS
CHILLED WATER RETURN	CHWR	NUMBER	NO
CHILLED WATER SUPPLY	CHWS	ON CENTER	OC
COEFFICIENT, VALVE FLOW	CV	OUNCE	OZ
COEFFICIENT OF PERFORMANCE FACTOR	COP	OUTDOOR UNIT	ODU
COMPRESSOR	COMP	OUTSIDE AIR	OA
CONCRETE	CONC	PACKAGE UNIT	PU
CONDENS(ER, -ING, -ATION)	COND	PACKAGE TERMINAL AIR CONDITIONER	PTAC
CONNECTION	CONN	PARTS PER MILLION	PPM
CONTINUATION	CONT	PERCENT	%
COOLING LOAD	CLG LOAD	PHASE	PH
CUBIC FEET	CU FT	POUNDS	LBS
CUBIC INCH	CU IN	POUNDS PER SQUARE FOOT	PSF
CUBIC FEET PER MINUTE	CFM	POWER VENTILATOR	PV
CFM, STANDARD CONDITIONS	SCFM	PRESSURE	PRESS
DECIBEL	DB	PRESSURE REDUCING VALVE	PRV
DEGREE	DEG OR °	PRESSURE SAFETY VALVE	PSV
DEDICATED OUTDOOR AIR SYSTEM	DOAS	PUMPED CONDENSATE	PC
DEGREES FAHRENHEIT	DEG. F	QUANTITY	QTY
DETAIL	DET	RATED LOAD AMPS	RLA
DEW-POINT TEMPERATURE	DPT	RECIRCULATE	RECIRC
DIAMETER	DIA	REDUCED PRESSURE BACKFLOW PREVENTER	RPZ
DIAMETER, INSIDE	ID	REFRIGERANT (12, 22, ETC.)	R22, R410
DIAMETER, OUTSIDE	OD	REFRIGERANT LIQUID	RL
DIFFERENCE OR DELTA	DIFF	REFRIGERANT SUCTION	RS
DIGITAL INPUT	DI	REQUIRED	REQD OR REQ'D
DIGITAL OUTPUT	DO	RELATIVE HUMIDITY	RH
DOMESTIC HOT WATER	DHW	RETURN AIR	RA
DOMESTIC HOT WATER RECIRCULATION	DHWR	REVOLUTIONS PER MINUTE	RPM
DRY-BULB TEMPERATURE	DBT	REVOLUTIONS PER SECOND	RPS
DUCTLESS SPLIT SYSTEM AIR HANDLER	DAH	ROOF VENTILATOR	RV
DUCTLESS SPLIT SYSTEM HEAT PUMP	DHP	ROOF TOP UNIT	RTU
ENERGY EFFICIENCY RATING	ERR	SAFETY FACTOR	SF
EFFICIENCY	EFF	SEASONAL ENERGY EFFICIENCY RATIO	SEER
ELECTRIC UNIT HEATER	EUH	SECOND	S
ELEVATION	EL	SHADING COEFFICIENT	SC
ENTERING	ENT	SPECIFICATION	SPEC
ENTERING WATER TEMPERATURE	EWI	SQUARE	SQ
ENTERING AIR TEMPERATURE	EAT	STANDARD	STD
EXISTING	(X)	STATIC PRESSURE	SP
EXTERNAL AMBIENT TEMPERATURE	EAT	SUPPLY	SPLY
EXTERNAL STATIC PRESSURE	ESP	SUPPLY AIR	SA
EXHAUST AIR	EA	TEMPERATURE	TEMP
EXHAUST FAN	EF	TEMPERATURE DIFFERENCE	TD
FACE VELOCITY	FVEL	THERMOSTAT	T STAT
FAHRENHEIT	°F	TONS OF REFRIGERATION	TONS
FIRE DAMPER	FD	TO BE DETERMINED	TBD
FIRE/SMOKE DAMPER	FSD	TOP OF STEEL	TOS
FEET PER MINUTE	FPM	TOTAL DYNAMIC HEAD	TDH
FEET PER SECOND	FPS	TYPICAL	TYP
FULL LOAD AMPS	FLA	U-FACTOR	U
GAGE OR GAUGE	GA	UNDER GROUND	UG
GALLONS	GAL	UNLESS OTHERWISE NOTED	UNO
GALLONS PER HOUR	GPH	UNIT HEATER - ELECTRIC	UH
GALLONS PER MINUTE	GPM	VARIABLE AIR VOLUME	VAV
GALLONS PER DAY	GPD	VARIABLE FREQUENCY DRIVE	VFD
GAS UNIT HEATER	GUH	VELOCITY	VEL
GRAINS	GR	VENTILATION, VENT	VENT
HEAD	HD	VENT THRU ROOF	VTR
HEAT EXCHANGER	HX	VERTICAL	VERT
HEATING AND VENTILATION UNIT	HV	VOLT	V
HEATING, VENTILATION AND AIR CONDITIONING	HVAC	VOLT AMPERE	VA
HEIGHT	HGT	VOLUME	VOL
HERTZ	HZ	WATER PRESSURE DROP	WPD
HIGH DENSITY POLYPROPYLENE	HDPE	WATER GAUGE	WG
HIGH-PRESSURE STEAM	HPS	WATT	W
HORSEPOWER, HEAT PUMP	HP	WATT-HOUR	WH
HOT WATER COIL	HWC	WITH	W/
HOUR(S)	HR	WEIGHT	WT
HUMIDITY, RELATIVE	RH	WET BULB	WB
INTEGRATED PART LOAD VALUES	IPLV	YARD	YD
INCH	IN	YEAR	YR

NOTE: ALL ABBREVIATIONS MAY NOT BE USED IN PROJECT.

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NCB P-6596



ADAMS
SOUTHEASTERN
CONSTRUCTION

PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

NO.	BY	DESCRIPTION	DATE
1	DMH	ISSUE FOR REVIEW	07.10.20

KEY PLAN

DATE 07-10-2020 DRAWN BY GRM

PROJECT NO. 20190431 SCALE AS NOTED

DHSR NO. AS-422 FID NO.

DRAWING NAME

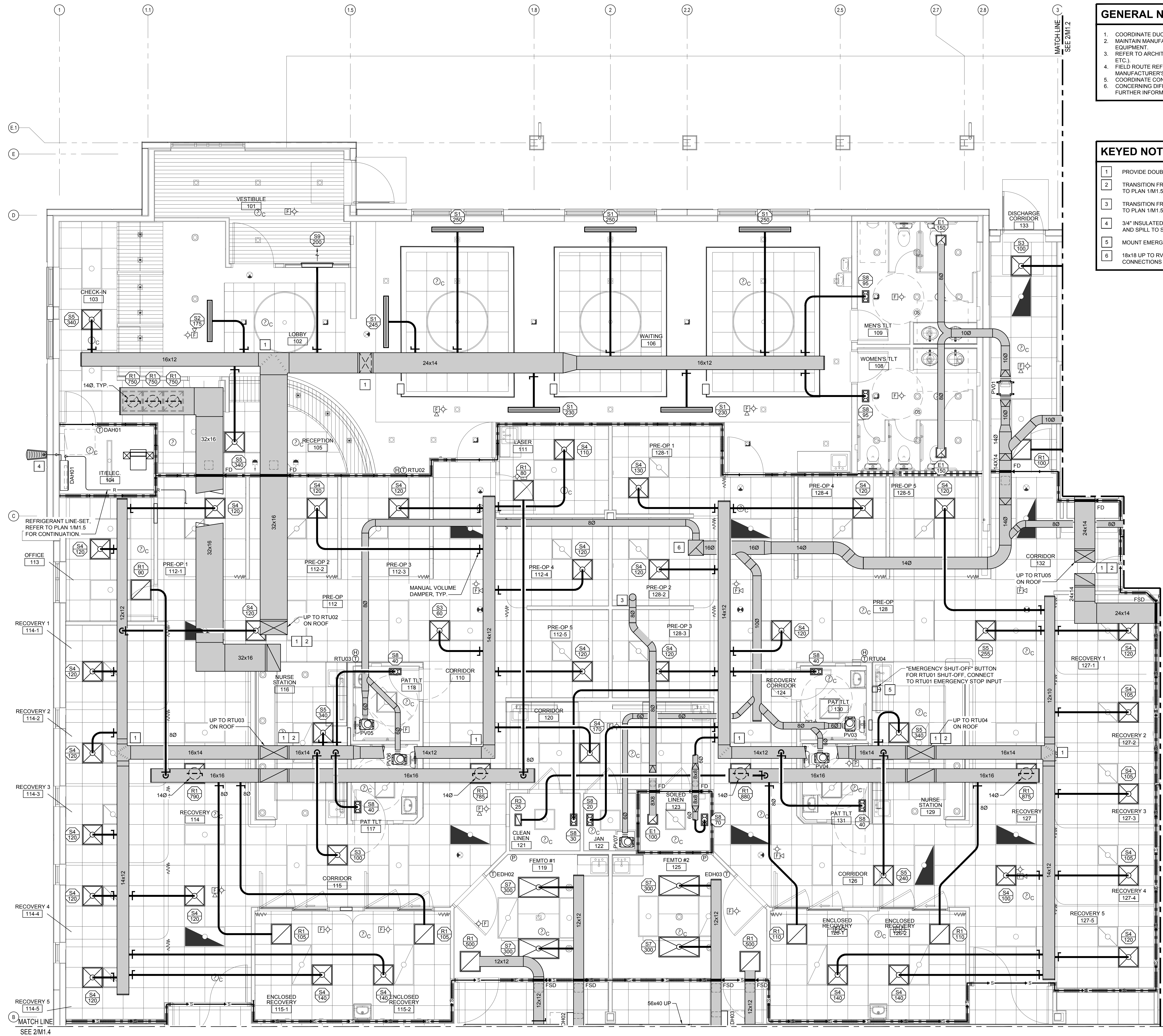
LEGEND, ABBREVIATIONS, NOTES AND
MECH / ENERGY SUMMARIES

FLOOR/SECTION PHASE

DRAWING NO.

CD

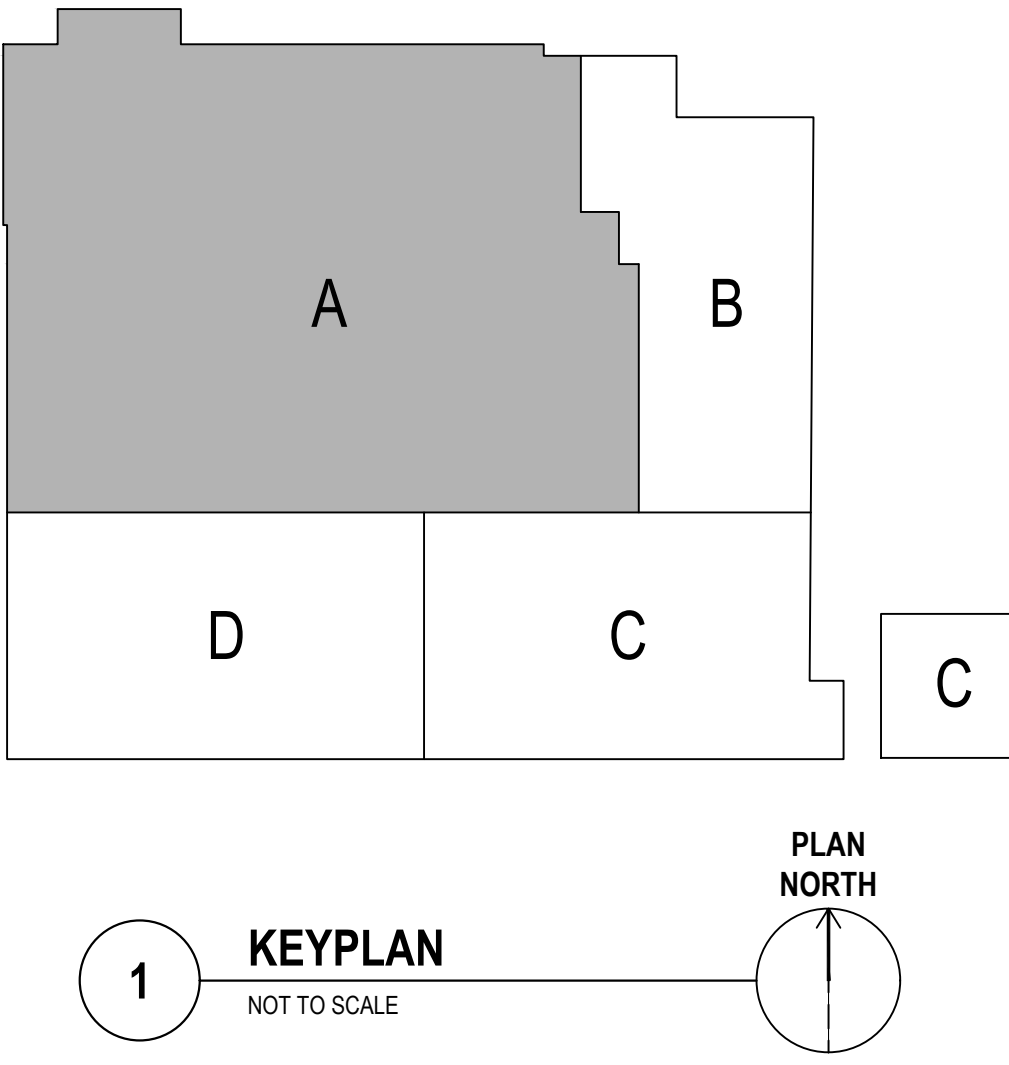
MO.1



2 FLOOR PLAN
1/4" = 1'-0"

- GENERAL NOTES**
- COORDINATE DUCT ELEVATIONS AND ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
 - MAINTAIN MANUFACTURER'S CLEARANCE REQUIREMENTS FOR INDOOR AND OUTDOOR EQUIPMENT.
 - REFER TO ARCHITECTURAL DRAWINGS FOR RATED UL NUMBERS (WALLS, FLOOR / CEILINGS, ETC.).
 - FIELD ROUTE REFRIGERANT PIPING IN A PROFESSIONAL MANNER FOLLOWING THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - COORDINATE CONDENSATE PIPE ROUTING WITH GENERAL CONTRACTOR AND OWNER, TYPICAL. CONCERNING DIFFUSER LAYOUT AND CEILING TYPE, REFER TO ARCHITECTURAL PLANS FOR FURTHER INFORMATION.

- KEYED NOTES**
- PROVIDE DOUBLE THICKNESS TURNING VANES IN ALL NON-RADIUS ELBOWS.
 - TRANSITION FROM DUCT SIZES SHOWN TO ROOF TOP UNIT DUCT CONNECTIONS. REFER TO PLAN 1/M1.5 FOR ROOF TOP UNIT LOCATIONS.
 - TRANSITION FROM DUCT SHOWN TO POWER VENTILATOR PV09 DUCT CONNECTION. REFER TO PLAN 1/M1.5 FOR POWER VENTILATOR LOCATION.
 - 3/4" INSULATED, TRAPPED CONDENSATE PIPING, PENETRATE 12" ABOVE FINISHED GRADE AND SPILL TO SPLASH BLOCK. SEAL PENETRATION WEATHER TIGHT, TYP.
 - MOUNT EMERGENCY STOP AS SHOWN AT 48" ABOVE FINISHED FLOOR.
 - 18x18 UP TO RV01 ON ROOF. REFER TO PLAN 1/M1.5. OFFSET EXHAUST DUCT CONNECTIONS INTO 18x18 RISER, ANGLE CONNECTIONS AT 45° VERTICAL.



FIRE WALL LEGEND

1-HOUR RATED FIRE BARRIER	—
1-HOUR RATED SMOKE BARRIER	—S—
1-HOUR RATED SMOKE PARTITION	—SP—

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FINAL DRAWING
NOT RELEASED FOR
CONSTRUCTION
DAVID M. HARRIS

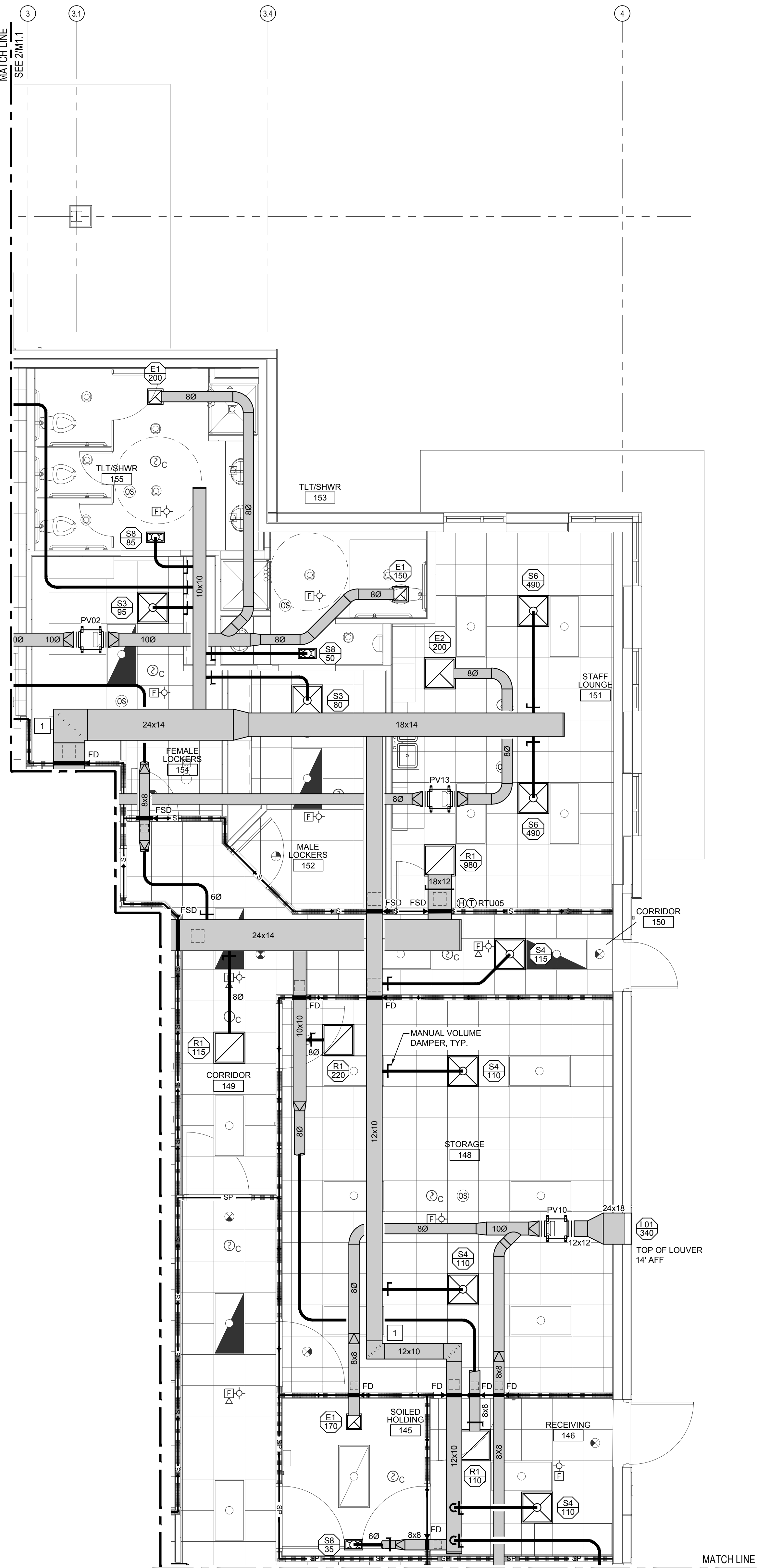
ADAMS SOUTHEASTERN CONSTRUCTION
PRINCIPAL: DMH
PROJECT MANAGER: DMH

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2	KEY PLAN	

DATE 07-10-2020 DRAWN BY GRM
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DRAWING NAME
FLOOR PLAN - HVAC
FLOOR/SECTION PHASE
CD
DRAWING NO. M1.1



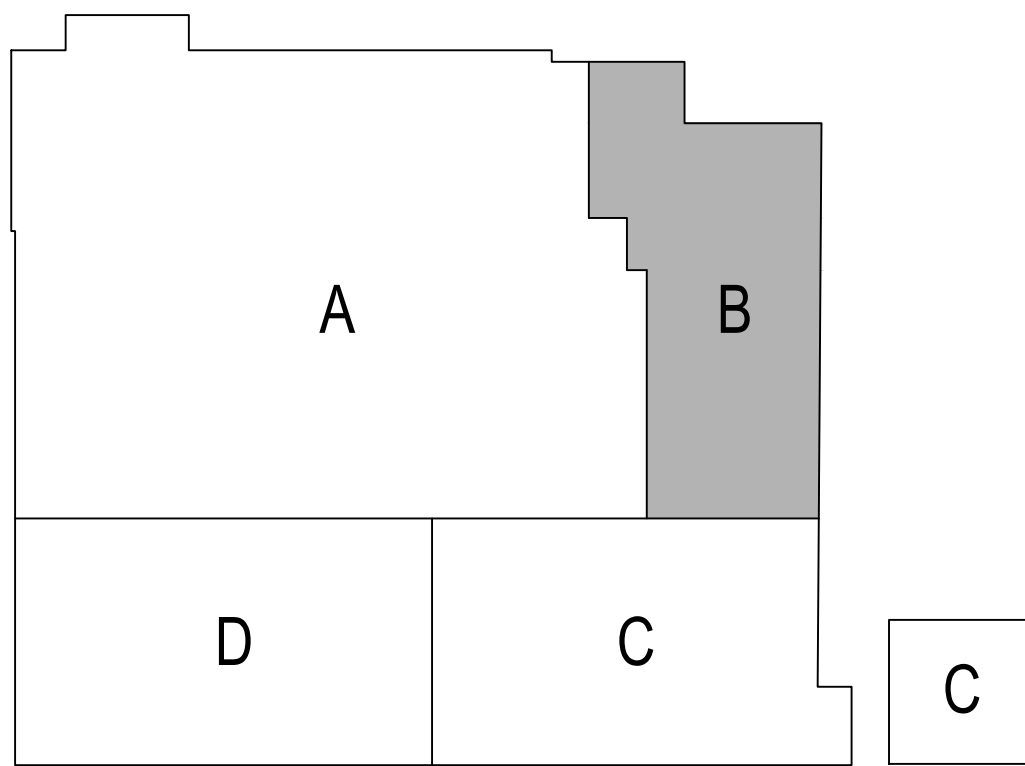
2 FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

- COORDINATE DUCT ELEVATIONS AND ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
- MAINTAIN MANUFACTURER'S CLEARANCE REQUIREMENTS FOR INDOOR AND OUTDOOR EQUIPMENT.
- REFER TO ARCHITECTURAL DRAWINGS FOR RATED UL NUMBERS (WALLS, FLOOR / CEILINGS, ETC.).
- FIELD ROUTE REFRIGERANT PIPING IN A PROFESSIONAL MANNER FOLLOWING THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- COORDINATE CONDENSATE PIPE ROUTING WITH GENERAL CONTRACTOR AND OWNER, TYPICAL.
- CONCERNING DIFFUSER LAYOUT AND CEILING TYPE, REFER TO ARCHITECTURAL PLANS FOR FURTHER INFORMATION.

KEYED NOTES

- 1 PROVIDE DOUBLE THICKNESS TURNING VANES IN ALL NON-RADIUS ELBOWS.



1 KEYPLAN
NOT TO SCALE

FIRE WALL LEGEND

- 1-HOUR RATED FIRE BARRIER
- 1-HOUR RATED SMOKE BARRIER
- 1-HOUR RATED SMOKE PARTITION

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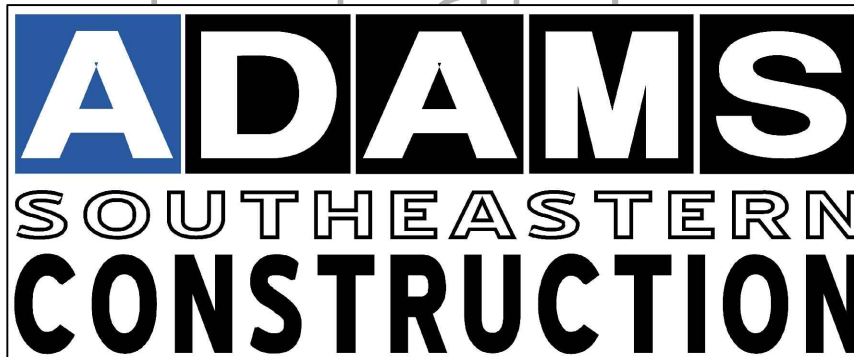


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1 DMH ISSUE FOR REVIEW 07-10-20
2 DMH KEY PLAN 07-10-20

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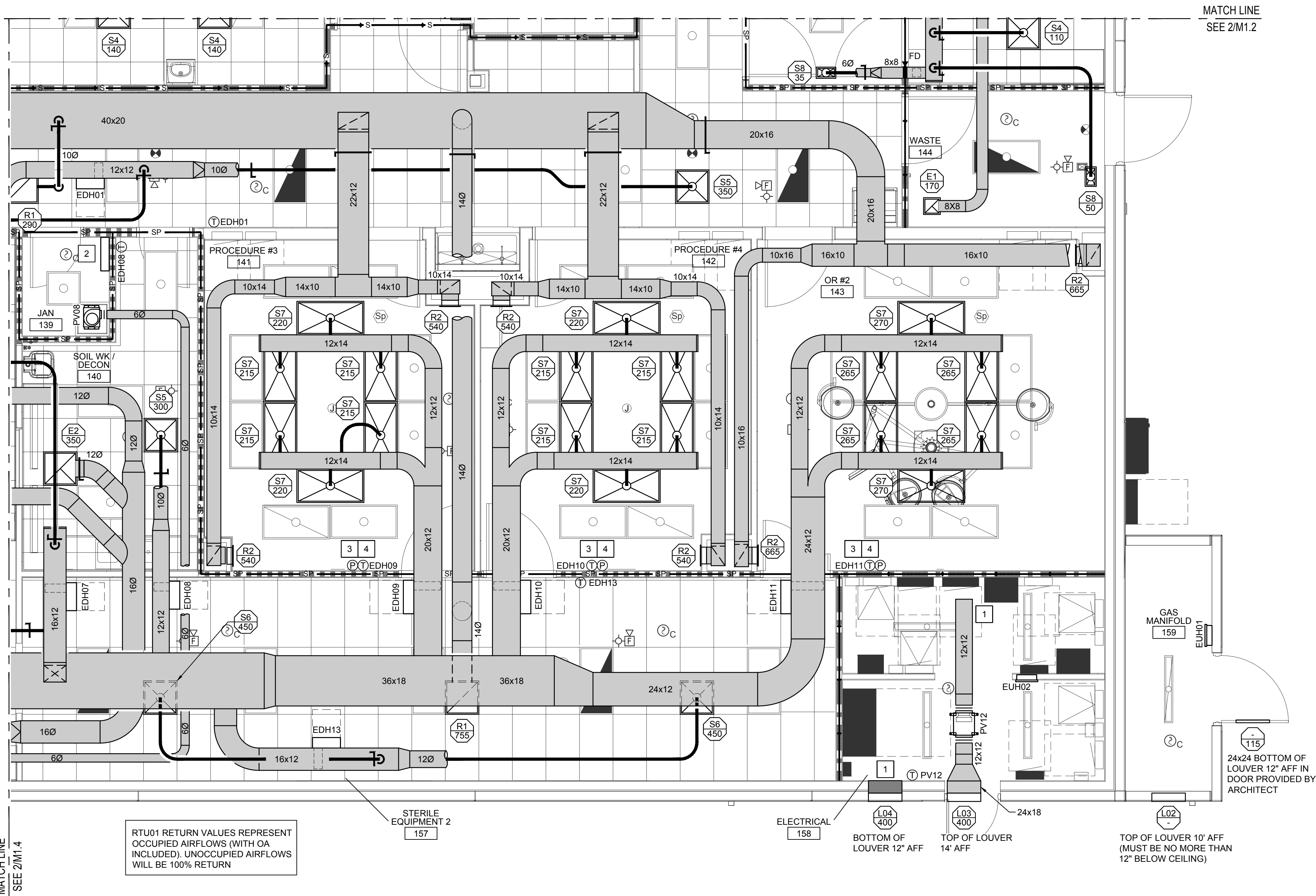
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FLOOR PLAN - HVAC

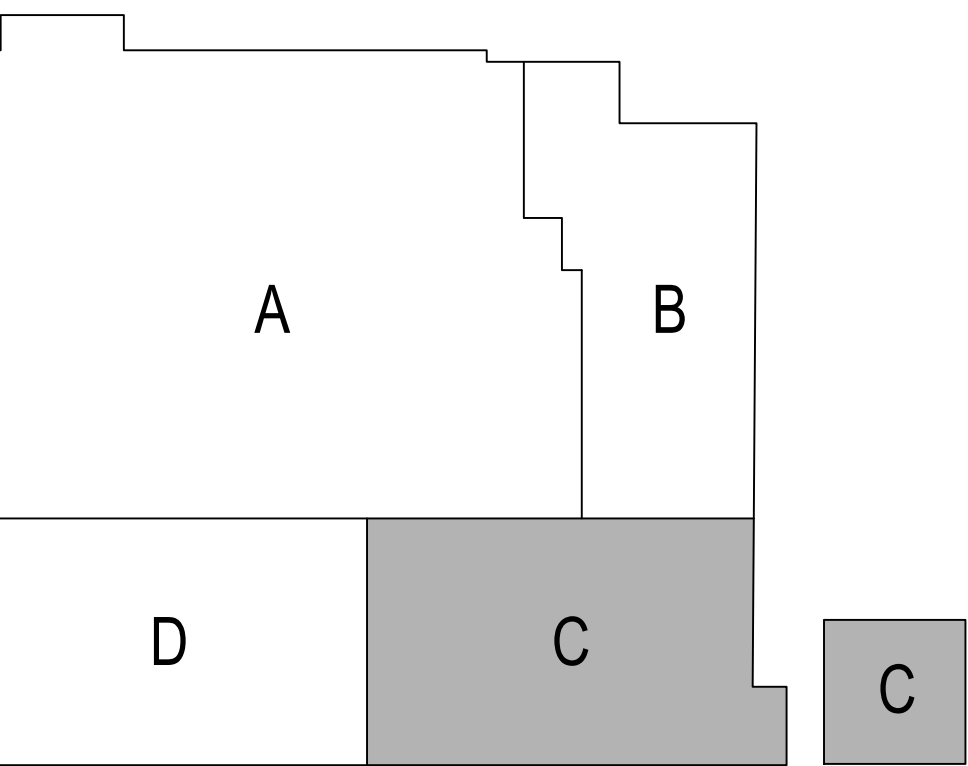
FLOOR/SECTION PHASE DRAWING NO.

CD

M1.2



2 FLOOR PLAN
1/4" = 1'-0"



1 KEYPLAN
NOT TO SCALE

FIRE WALL LEGEND	
1-HOUR RATED FIRE BARRIER	---
1-HOUR RATED SMOKE BARRIER	---
1-HOUR RATED SMOKE PARTITION	---

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PROJECT MANAGER: DMH

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NO. BY DESCRIPTION DATE

KEY PLAN

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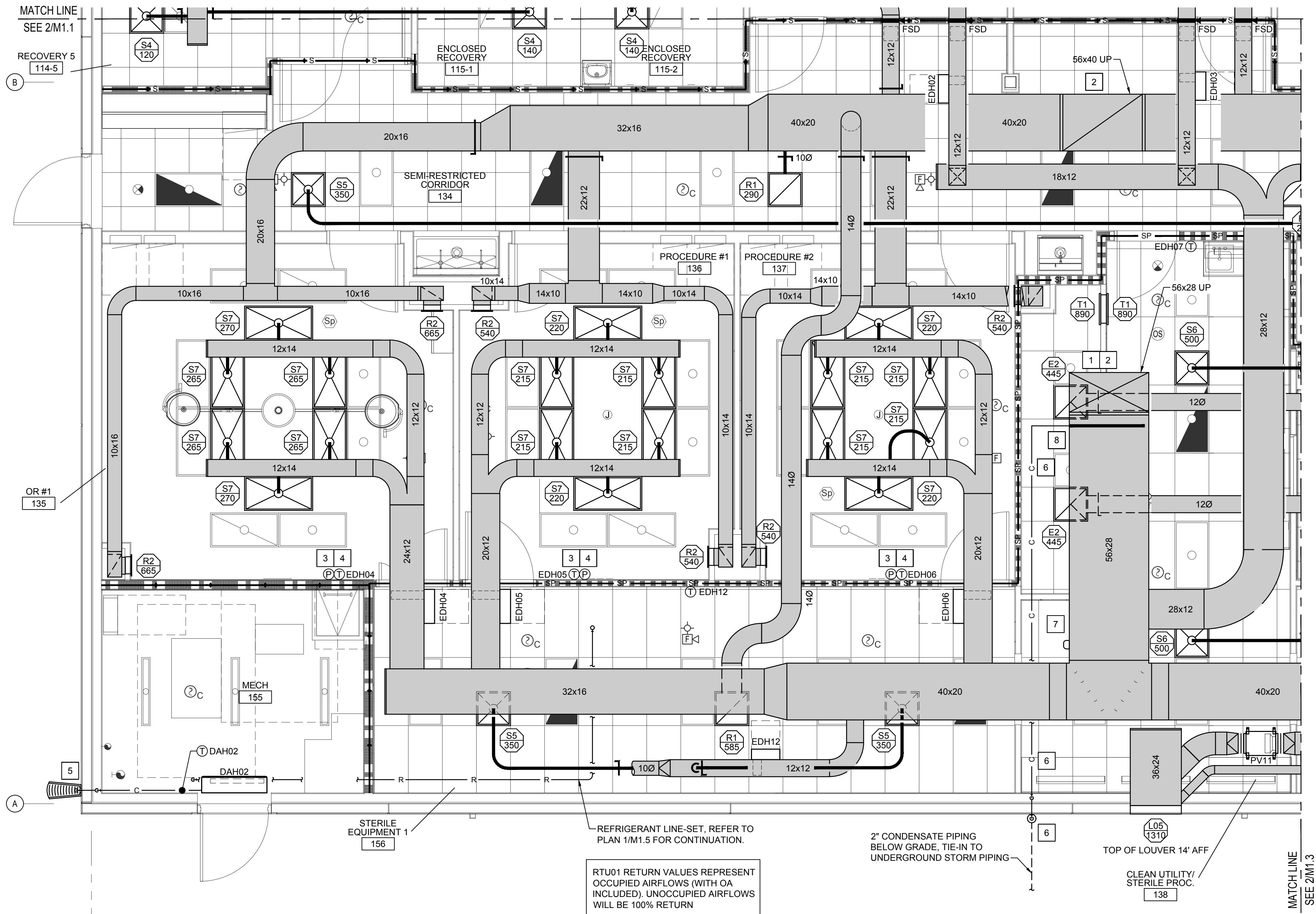
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FLOOR PLAN - HVAC

FLOOR/SECTION PHASE

CD

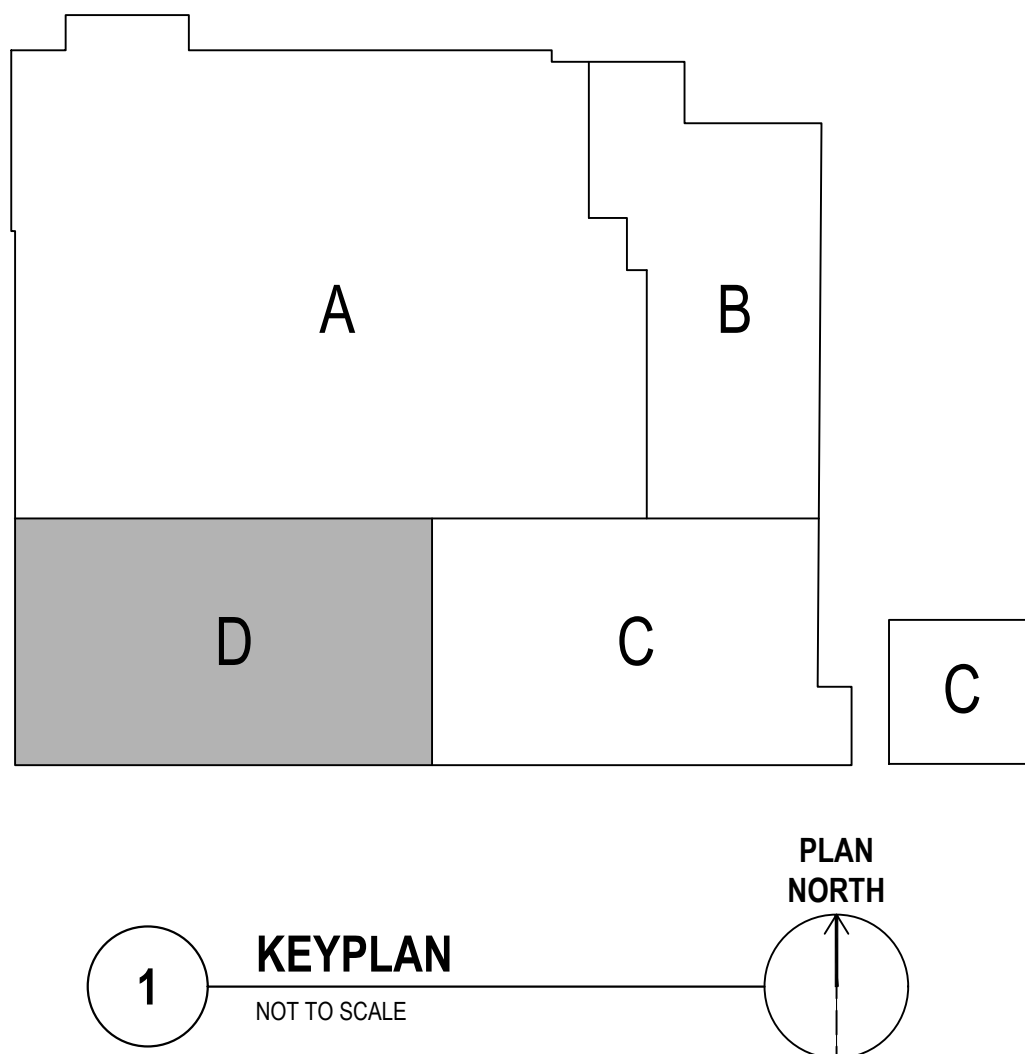
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2 FLOOR PLAN
1/4" = 1'-0"

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 - REFER TO ARCHITECTURAL DRAWINGS FOR RATED UL NUMBERS (WALLS, FLOOR / CEILINGS, ETC.).
 - FIELD ROUTE REFRIGERANT PIPING IN A PROFESSIONAL MANNER FOLLOWING THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - COORDINATE CONDENSATE PIPE ROUTING WITH GENERAL CONTRACTOR AND OWNER, TYPICAL. CONCERNING DIFFUSER LAYOUT AND CEILING TYPE, REFER TO ARCHITECTURAL PLANS FOR FURTHER INFORMATION.

- KEYED NOTES**
- PROVIDE DOUBLE THICKNESS TURNING VANES IN ALL NON-RADIUS ELBOWS.
 - TRANSITION FROM DUCT SIZES SHOWN TO ROOF TOP UNIT DUCT CONNECTIONS. DUCT MUST FIT BETWEEN TRUSSES WITH NO INSULATION COMPRESSION. REFER TO PLAN 1/M1.5 FOR ROOF TOP UNIT LOCATIONS.
 - MOUNT TEMPERATURE SENSOR AS SHOWN AT 54" ABOVE FINISHED FLOOR.
 - MOUNT ROOM PRESSURE MONITOR AS SHOWN AT 54" ABOVE FINISHED FLOOR.
 - 3/4" INSULATED, TRAPPED CONDENSATE PIPING, PENETRATE 12" AFF AND SPILL TO SPLASH BLOCK. SEAL PENETRATION WEATHER TIGHT, TYP.
 - 3/4" INSULATED, COPPER CONDENSATE PIPING FROM HU01 DISTRIBUTOR, ROUTE AS SHOWN, PENETRATE 12" AFF AND SPILL TO HUB DRAIN WITH GRATE AS SHOWN. SEAL PENETRATION WEATHER TIGHT, TYP.
 - SUPPLY AIR DEW POINT SENSOR (OR SUITE HUMIDITY CONTROL). FOLLOW MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
 - HU01 DISTRIBUTOR SHOWN IN HORIZONTAL DUCT. FOLLOW MANUFACTURE'S RECOMMENDED INSTALLATION INSTRUCTIONS.



FIRE WALL LEGEND

1-HOUR RATED FIRE BARRIER	—
1-HOUR RATED SMOKE BARRIER	—
1-HOUR RATED SMOKE PARTITION	—

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PROJECT MANAGER: DMH

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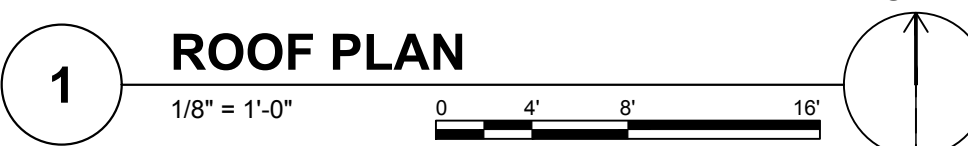
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FLOOR PLAN - HVAC

FLOOR/SECTION PHASE

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DRAWING NO. M1.4

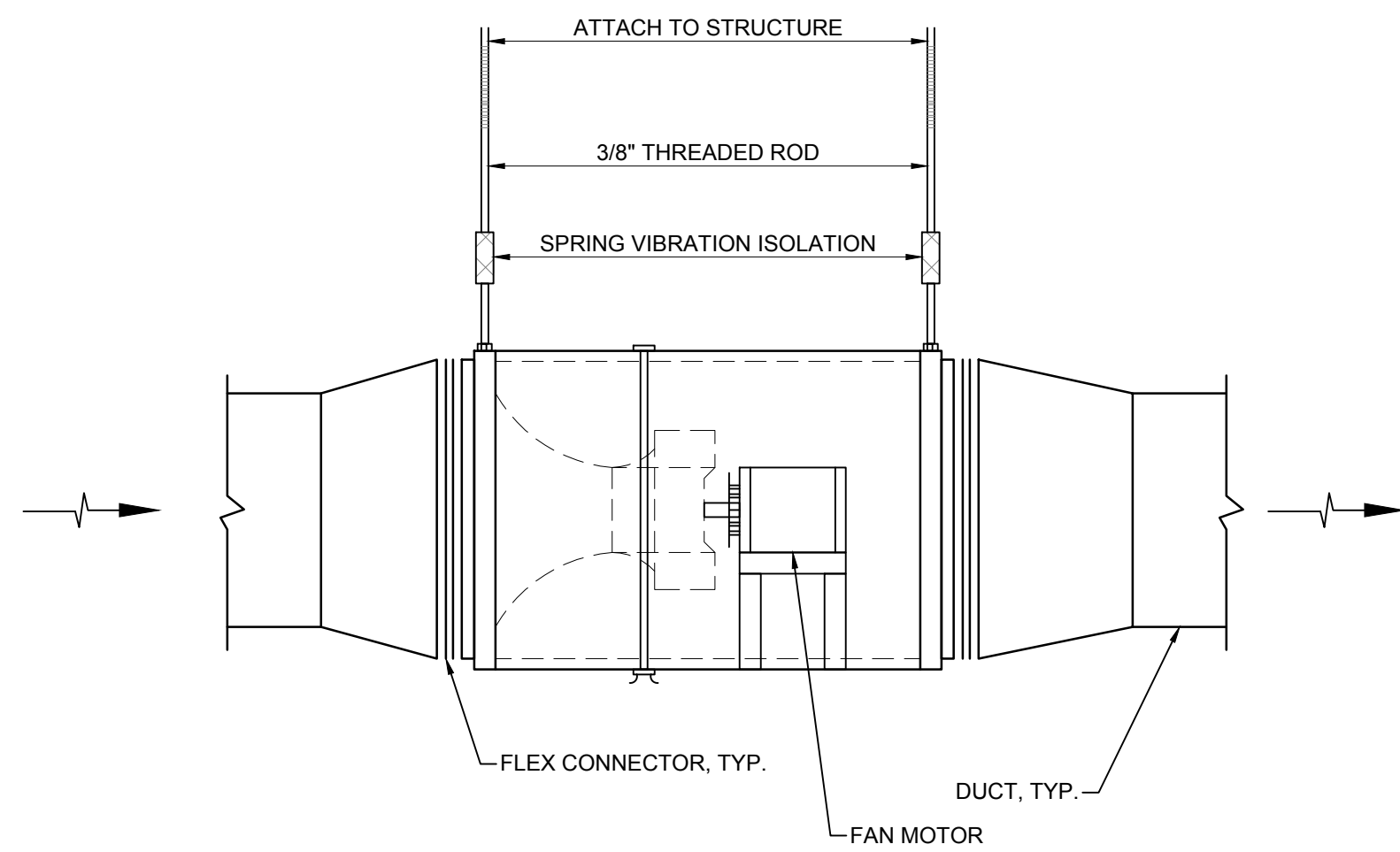


1-HOUR RATED FIRE BARRIER ————— ◆ —————

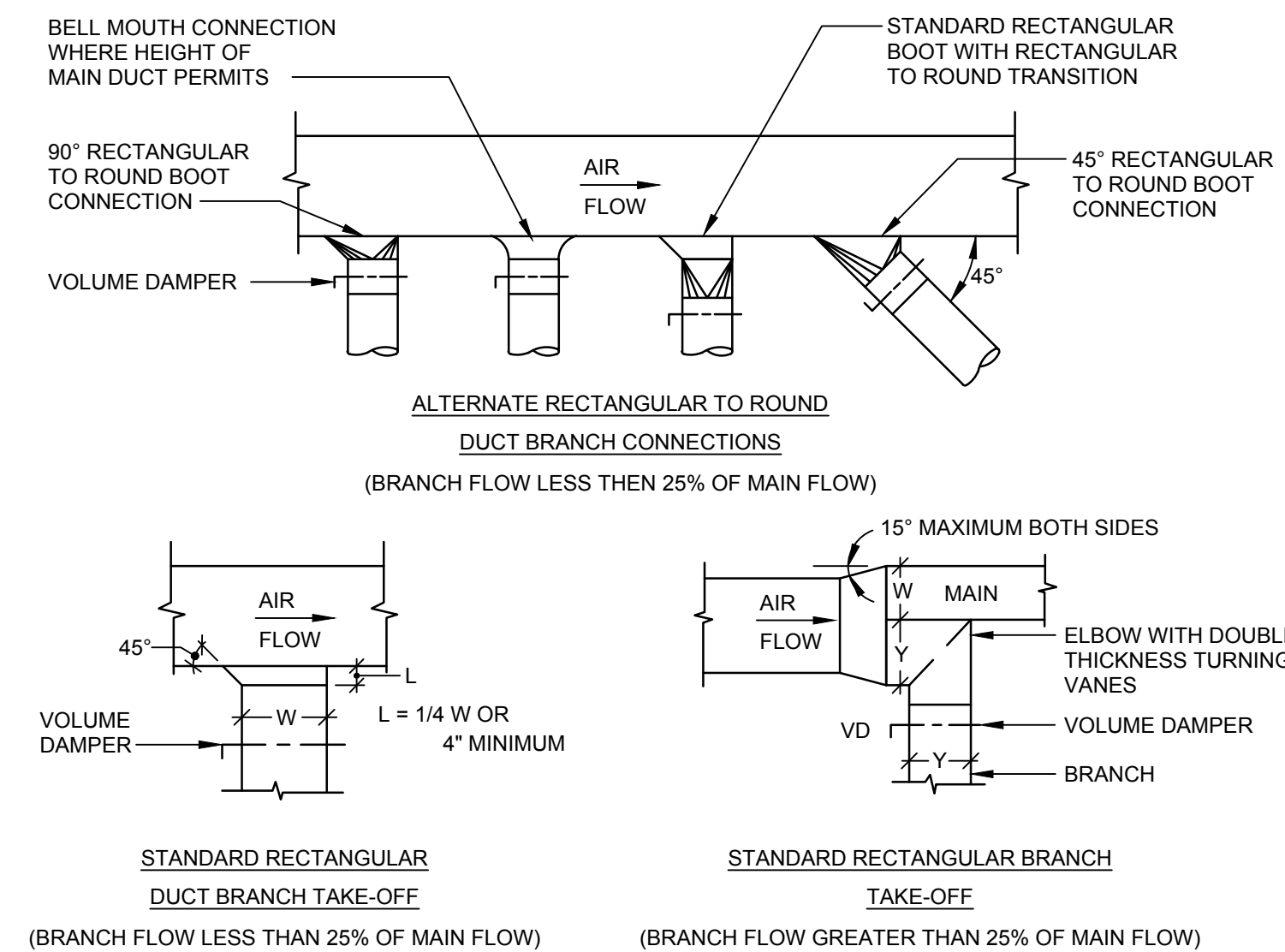
1-HOUR RATED SMOKE BARRIER ————— ◆ S —————

1-HOUR RATED SMOKE PARTITION ————— SP —————

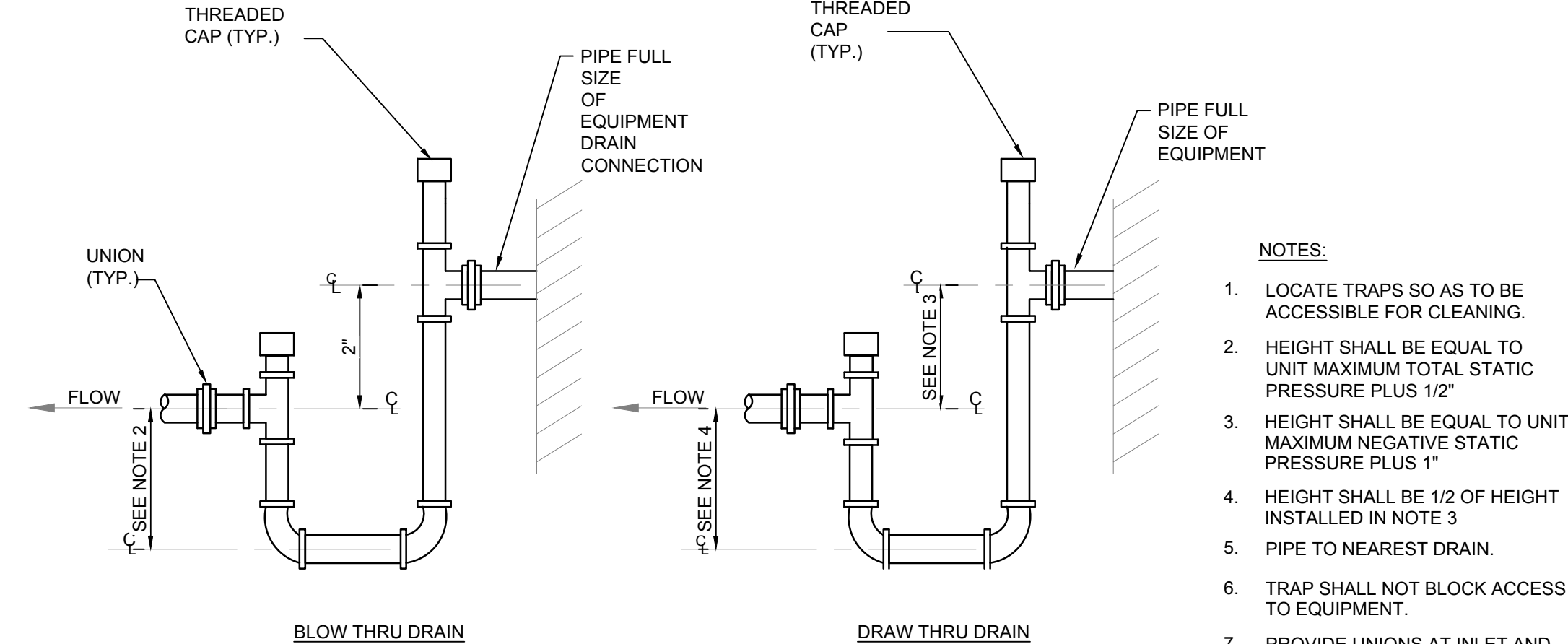
M1.5



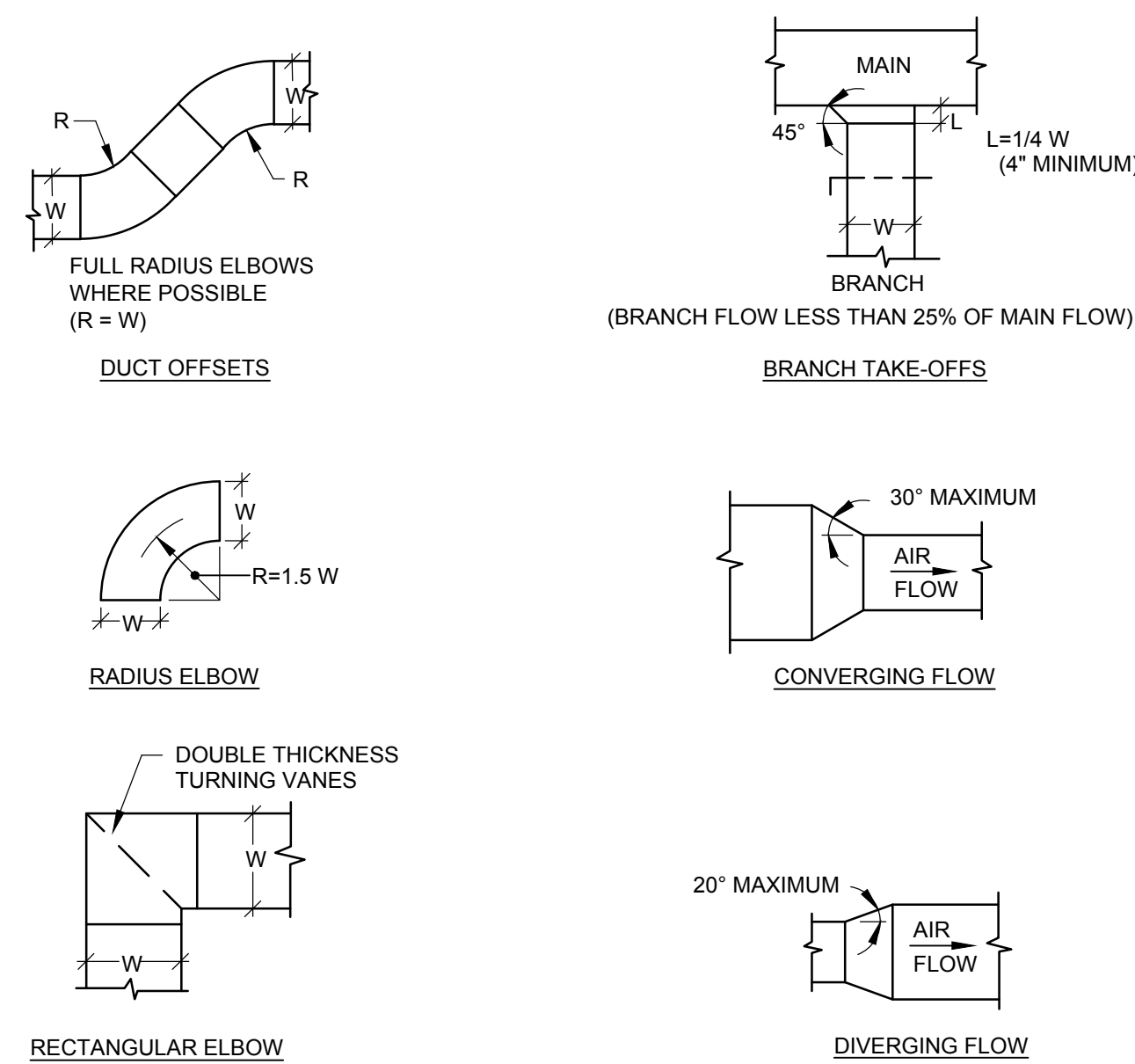
1 TYPICAL INLINE POWER VENTILATOR DETAIL
NOT TO SCALE



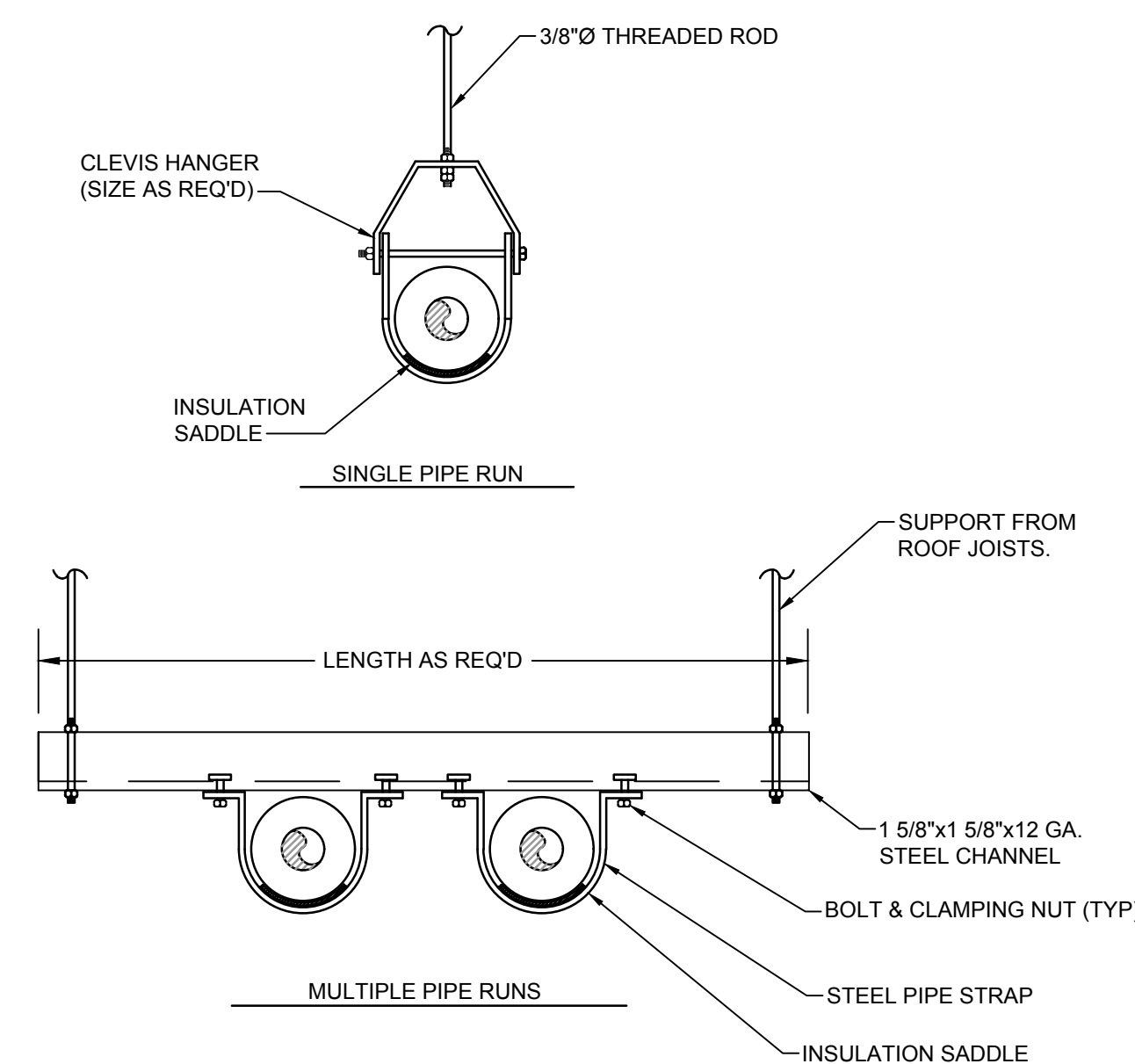
2 DUCT FITTING DETAILS
NOT TO SCALE



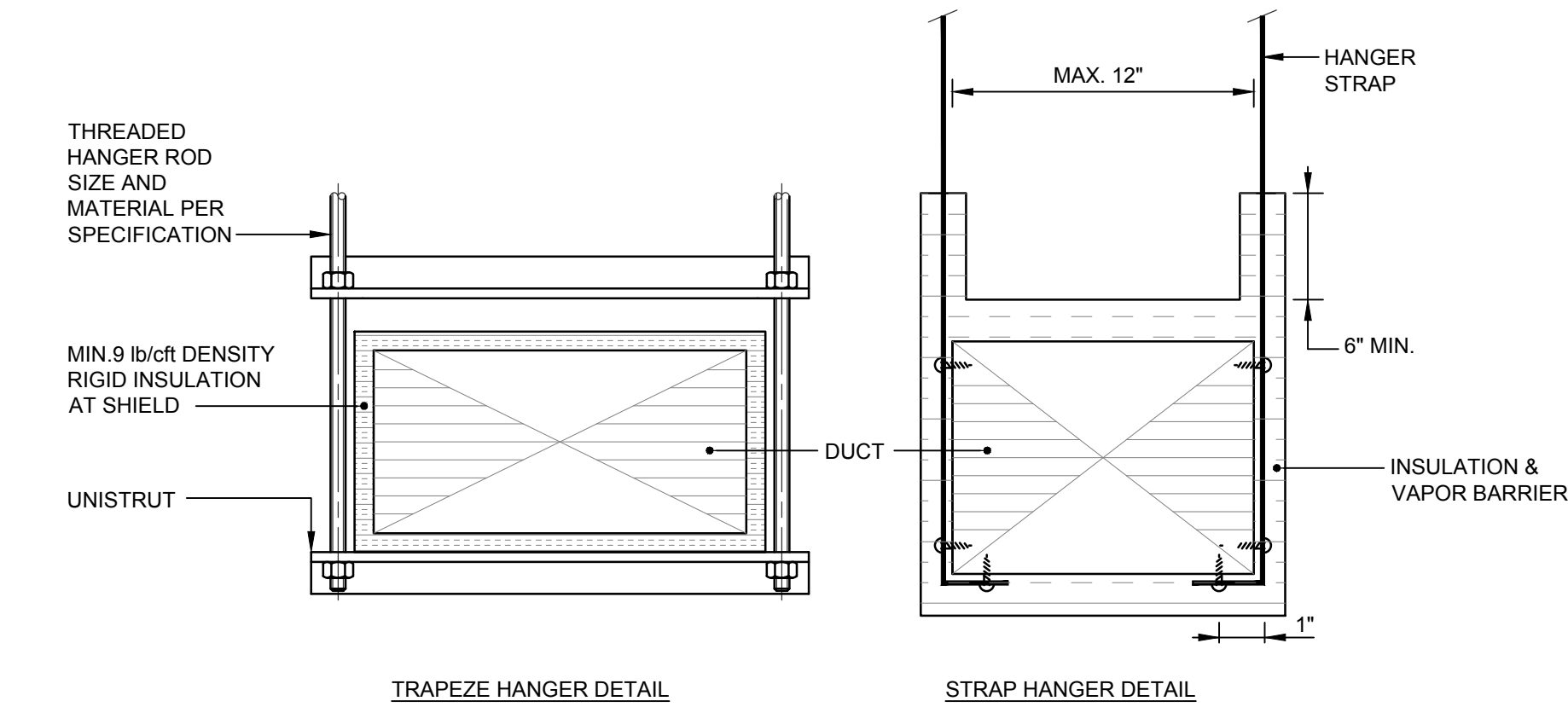
3 CONDENSATE DRAIN TRAP AND PIPING DETAIL
NOT TO SCALE



4 RECTANGULAR DUCT FITTING DETAILS
NOT TO SCALE

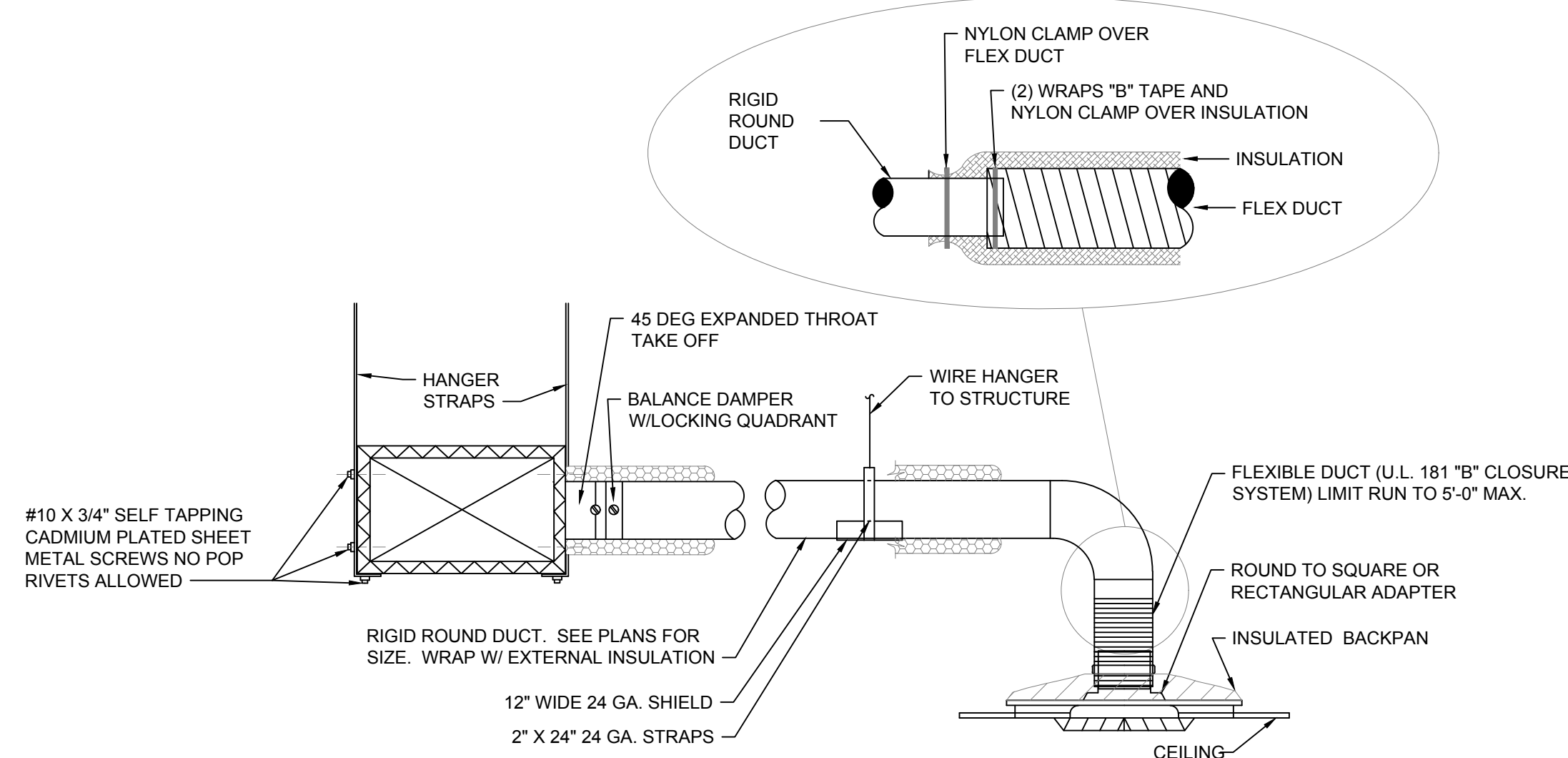


5 PIPE SUPPORT DETAIL
NOT TO SCALE

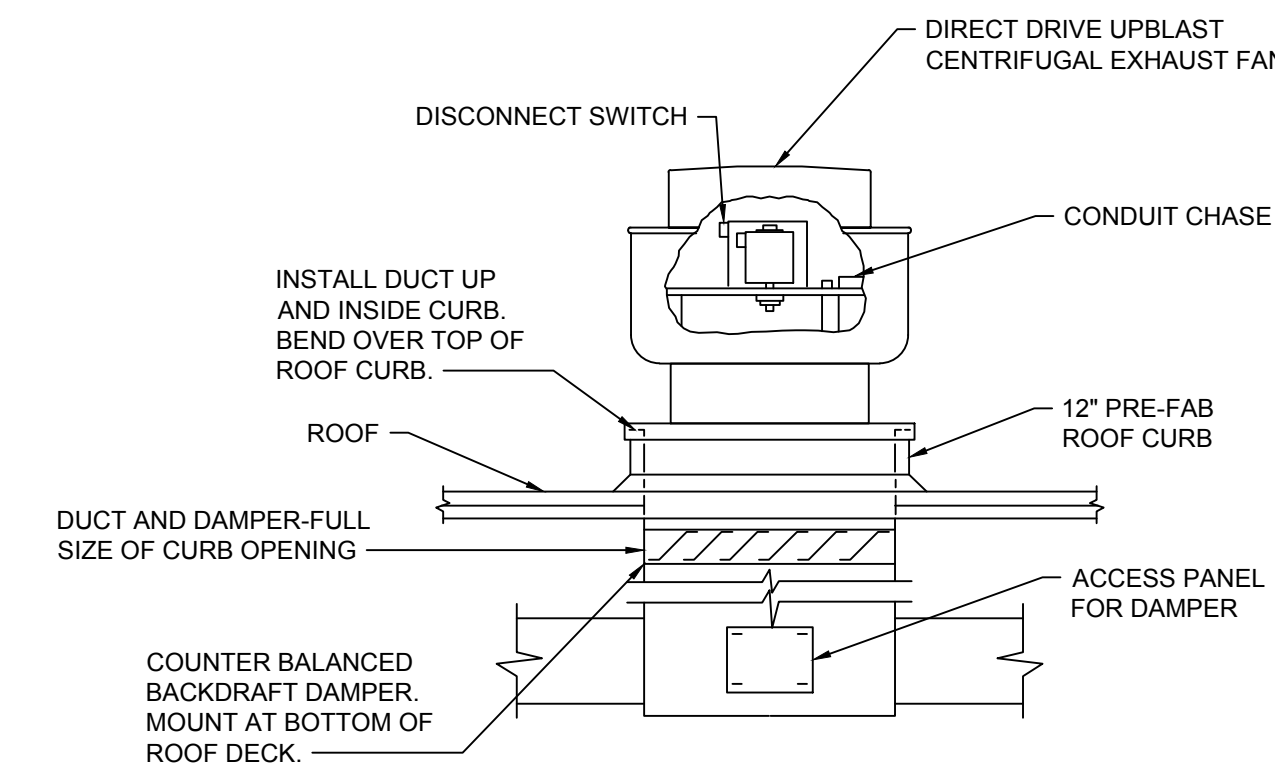


- NOTES:
1. TRAPEZE HANGERS SHALL BE PROVIDED FOR ALL DUCT WORK. TRAPEZE HANGERS CANNOT BE USED FOR BRANCH DUCT WORK 12" IN WIDTH AND SHORTER REFER TO STRAP HANGER DETAIL.
 2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SPECIFICATIONS.
 3. RIGID INSULATION SHALL EXTEND MINIMUM OF 3" BEYOND STRUT ON BOTH SIDES. MAINTAIN VAPOR BARRIER ACROSS STRUT.

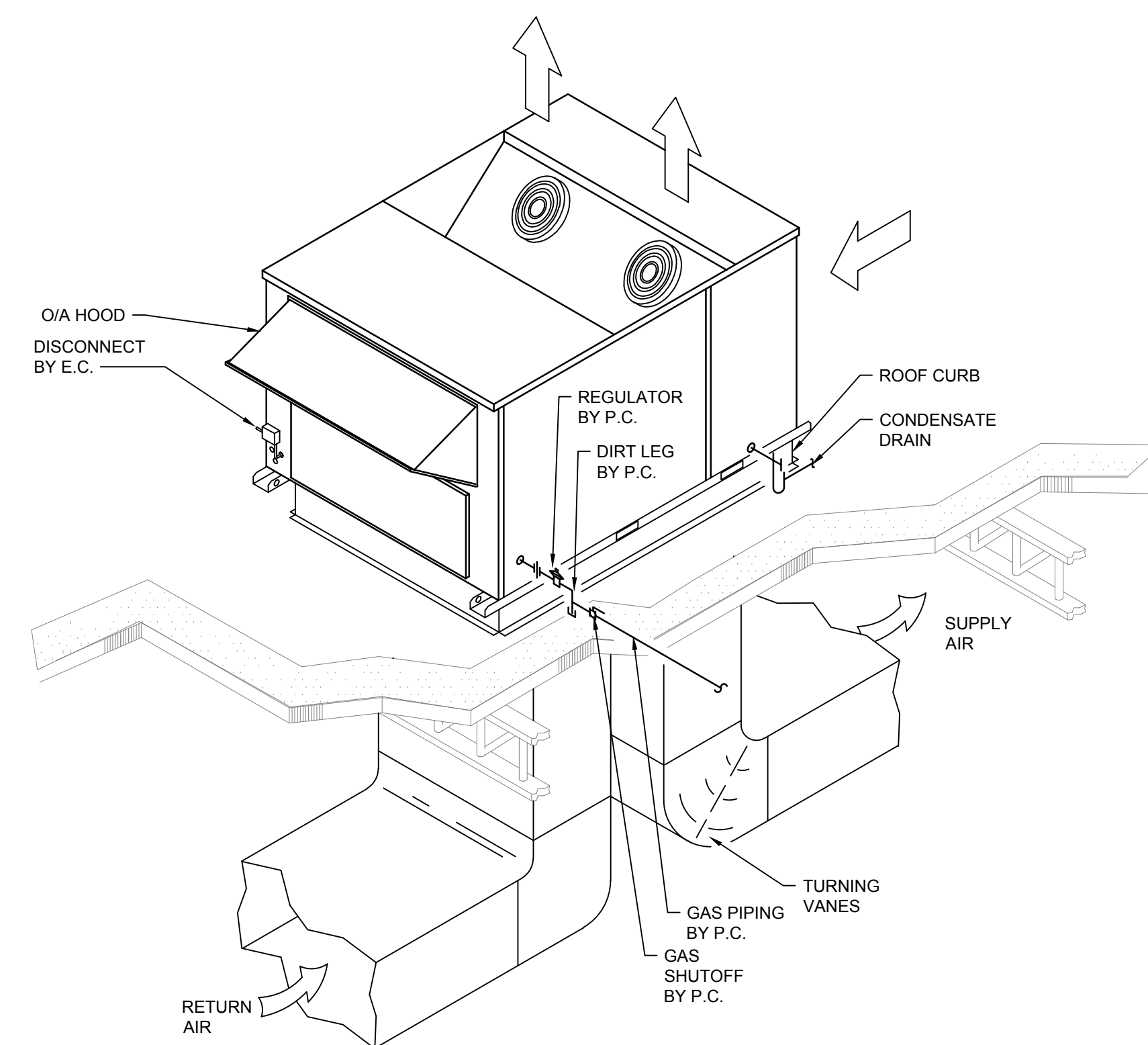
6 DUCT SUPPORT DETAIL
NOT TO SCALE



7 DIFFUSER CONNECTION DETAIL
NOT TO SCALE



8 ROOF POWER VENTILATOR DETAIL
NOT TO SCALE



9 ROOF MOUNTED GAS PACKAGED UNIT DETAIL
NOT TO SCALE

CLIENT

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1915 & 1919 S. 16th STREET, WILMINGTON, NC 28403

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NCE P-6596

FINAL DRAWING
NOT RELEASED FOR
CONSTRUCTION

ADAMS
SOUTHEASTERN
CONSTRUCTION

PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

ISSUE FOR REVIEW 07.10.20
NO. BY DESCRIPTION DATE
KEY PLAN

DATE 07-10-2020 DRAWN BY GRM

PROJECT NO. 20190431 SCALE AS NOTED

DHSR NO. AS-422 FID NO.

DRAWING NAME

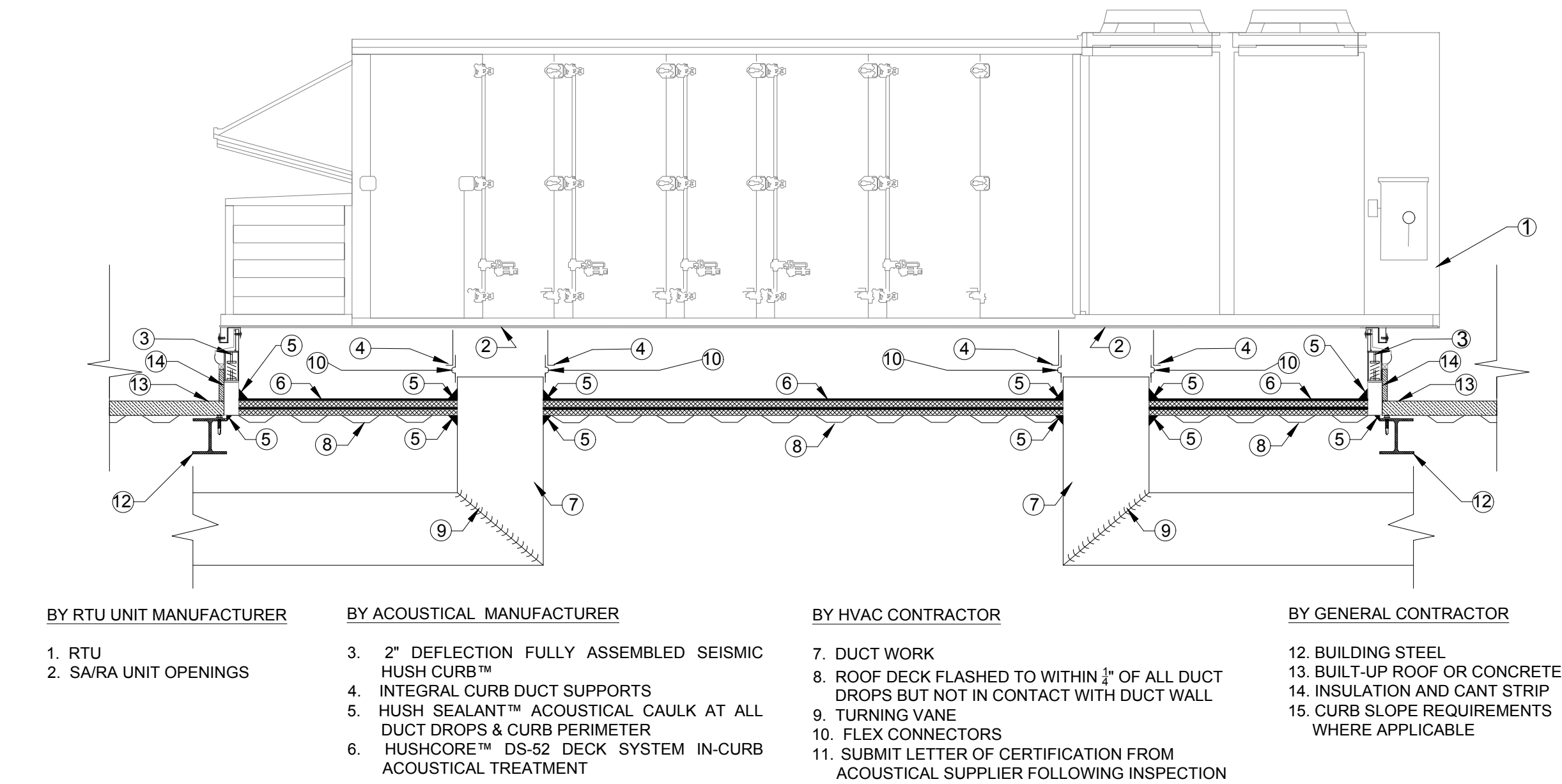
DETAILS

FLOOR/SECTION PHASE

DRAWING NO.

CD

M5.1



RTU NOISE REDUCTION SYSTEM

HUSHCORE™ **PLUS**™ MODEL **HSIC-DS-52** SYSTEM SHALL BE A SEISMIC ISOLATION, 2" DEFLECTION, FULLY ADJUSTABLE AND FULLY ASSEMBLED CURB SYSTEM. THE COMPLETELY ISOLATED TOP AND BOTTOM STEEL STRUCTURAL FRAMES SHALL HAVE A CONTINUOUS FLEXIBLE WEATHERSEAL. THE SYSTEM SHALL BE CAPABLE OF SERVING AS A BLOCKING DEVICE DURING INSTALLATION. THE SPRINGS SHALL HAVE BUILT-IN LIMIT STOPS TO SNUG OUT WIND RESISTANCE. THE HUSH CURB™ SHALL BE DESIGNED AND CERTIFIED AS PER SPECIFIED WIND AND SEISMIC LOADS BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA. THE HUSH CURB™ SHALL BE 24" HIGH AND SHIPPED COMPLETELY ASSEMBLED. FACTORY CURBS WITH A SECONDARY VIBRATION RAIL KIT ARE NOT ACCEPTABLE. THE HUSH CURB™ SHALL HAVE A FIELD INSTALLED IN-CURB **DS-52** SOUND PACKAGE FOR RADIATED NOISE. MATERIALS SHALL MEET CLASS "A" PER ASTM E84 FOR FLAMMABILITY. THE MULTILAYER COMPOSITE SYSTEM SHALL HAVE A MAXIMUM INSTALLED HEIGHT OF 12" WITH TRANSMISSION LOSS RATINGS AS LISTED BELOW IN ACCORDANCE WITH ASTM-E-90-10. HUSH SEALANT™ MODEL HSAC-100 ACOUSTICAL GRADE CAULK SHALL BE USED AROUND ALL CURB PERIMETER EDGES AND AROUND ALL CURB OPENINGS AS DETAILED ABOVE AFTER DECKING IS FLASHED TO WITHIN 1" WITHOUT CONTACTING THE DUCT WALL. FAN NOISE SOUND ATTENUATION SHALL BE AS SCHEDULED ON THE DRAWINGS OR AS LISTED IN THE SPECIFICATIONS. A LETTER OF CERTIFICATION SHALL BE ISSUED BY THE ACOUSTICAL SYSTEM SUPPLIER STATING THE COMPLETE SYSTEM HAS BEEN PROPERLY INSTALLED PRIOR TO SETTING THE UNITS. BASIS OF DESIGN: BRD NOISE AND VIBRATION CONTROL, INC., WIND GAP, PA - (610) 863-6300, WWW.HUSHCORE.NET, ALTERNATE APPROVED: VMC, MASON INDUSTRIES.

PERFORMANCE

TO ASSURE OPTIMIZED AERODYNAMIC AND ACOUSTIC PERFORMANCE AS WELL AS PROPER INTEGRATION AND COORDINATION OF THE FINAL INSTALLATION, THE HUSHCORE™ SYSTEM SHALL BE SUPPLIED BY THE ROOFTOP UNIT MANUFACTURER AS PART OF A COMPLETE PACKAGE. THE HUSH CURB™ SHALL PROVIDE MINIMUM 85% VIBRATION ISOLATION EFFICIENCY. HUSHCORE™ MODEL **HSIC-DS-52** IN-CURB ACOUSTICAL TREATMENT PERFORMANCE SHALL BE TESTED IN ACCORDANCE WITH PROCEDURE ASTM E-90-10. THE ASSEMBLY SHALL BE RATED AT NOT LESS THAN STC-52 WITH 1/3 OCTAVE PERFORMANCE VALUES AS LISTED BELOW FOR SOUND RADIATION THROUGH THE DECK INSIDE THE CURB.

HUSHCORE™ In-Curb Composite DS-52 (Transmission Loss) in accordance with ASTM E-90-10														
Freq. (Hz)	80	100	125	160	200	250	315	400	500	630	800	1K	1.25K	1.6K
Transmission Loss (dB)	26	27	33	32	35	42	45	45	50	56	59	60	62	63
	2K	2.5K	3.15K	4K	5K	6.3K	8K	STC						
	64	65	67	71	74	78	80	52						

1 ROOF-TOP UNIT RTU01 ACOUSTICAL DETAIL

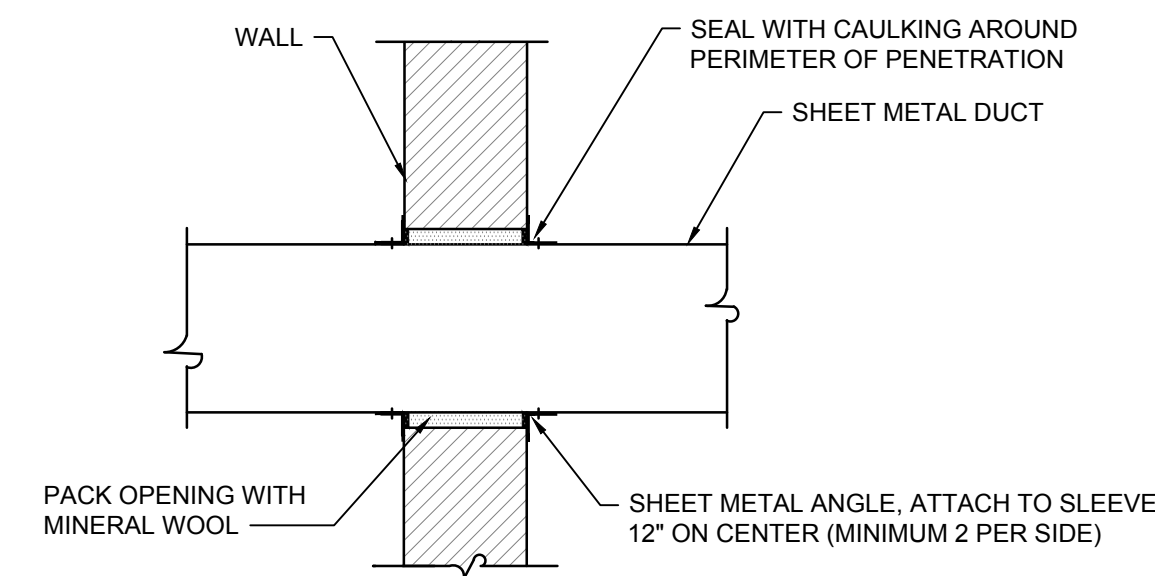
NOT TO SCALE

2 TYPICAL ROOF-TOP PIPE SUPPORT DETAIL

NOT TO SCALE

3 TYPICAL DUCTLESS SPLIT SYSTEM DETAIL

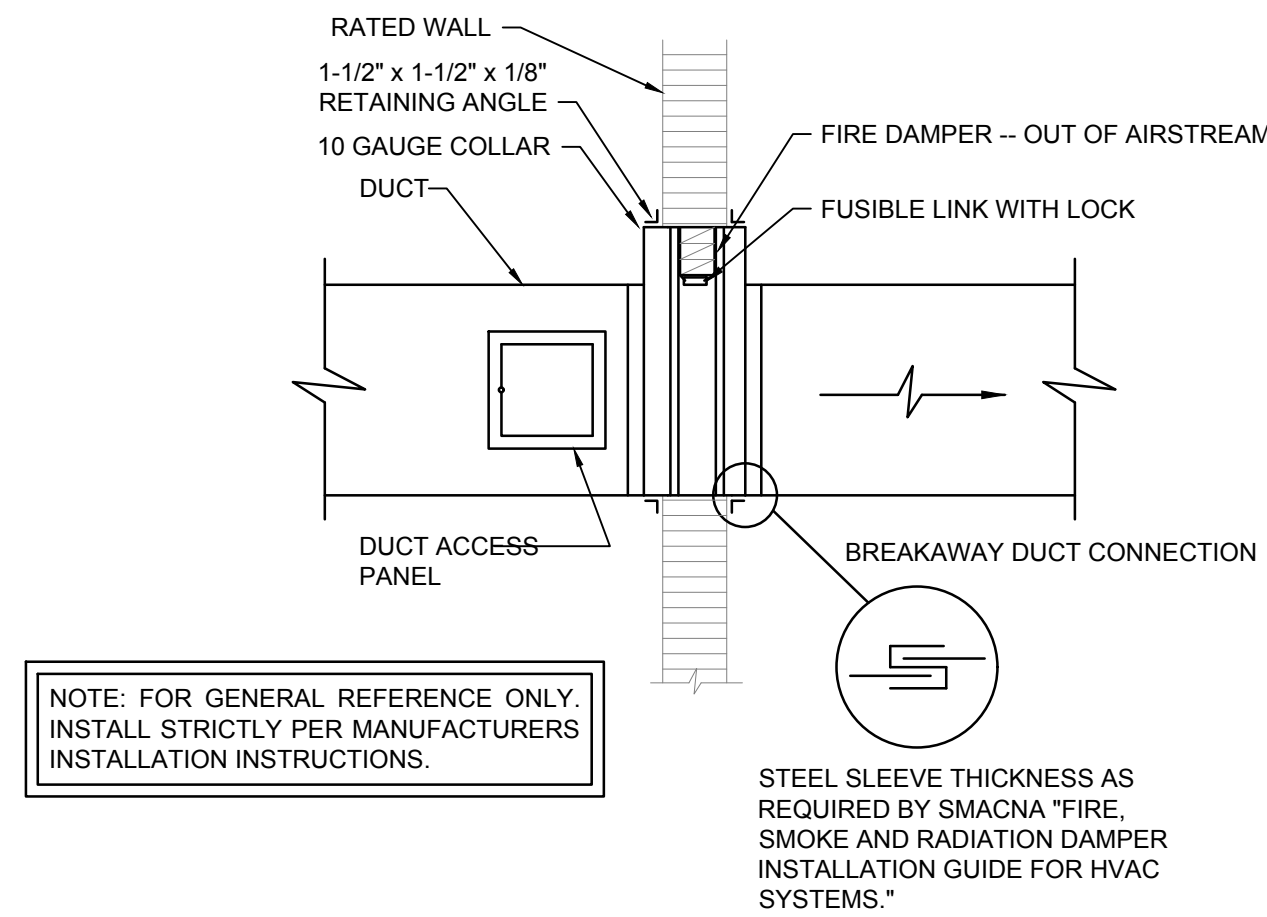
NOT TO SCALE



NOTE: EXTERNALLY WRAPPED DUCT INSTALLED SIMILARLY. BLANKET INSULATION SHALL BE INSTALLED OVER ANGLES AND SEALED TO WALL BARRIER.

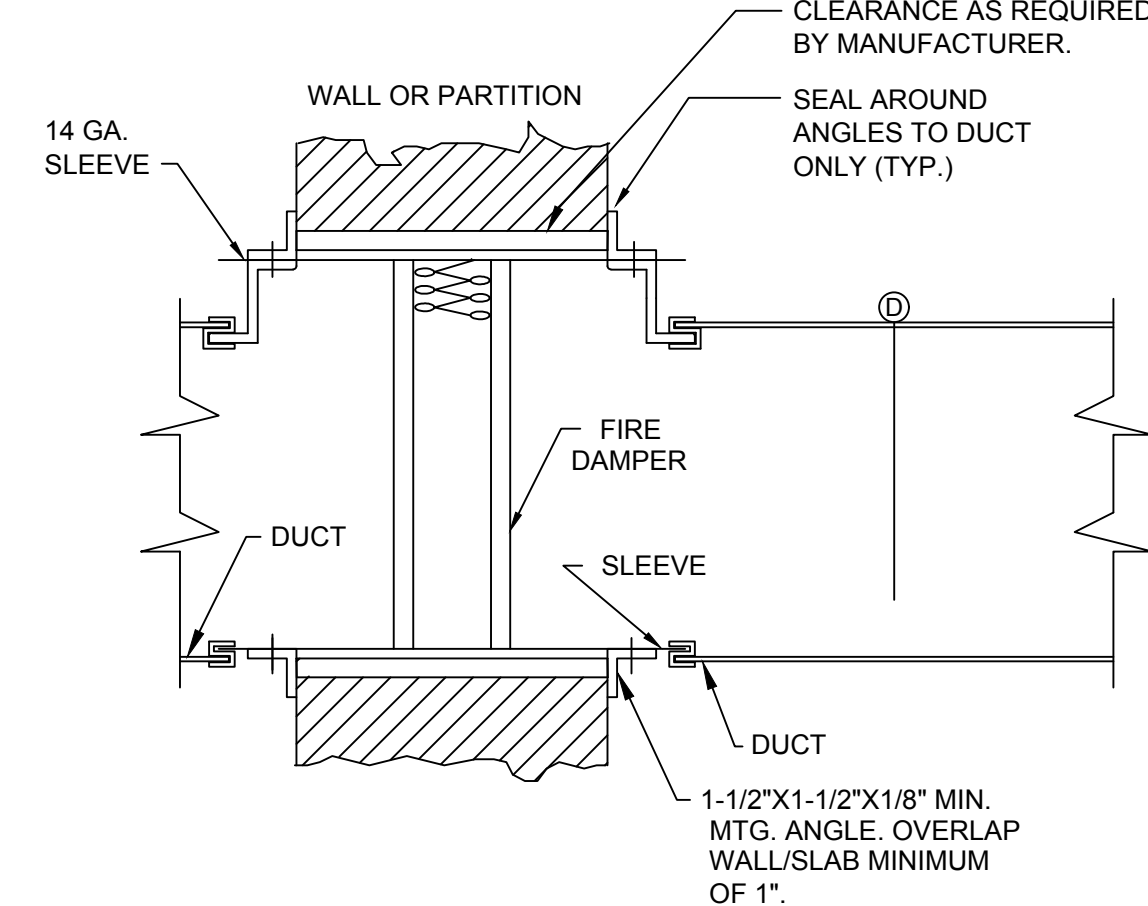
4 TYPICAL THROUGH NON-RATED WALL DETAIL

NOT TO SCALE



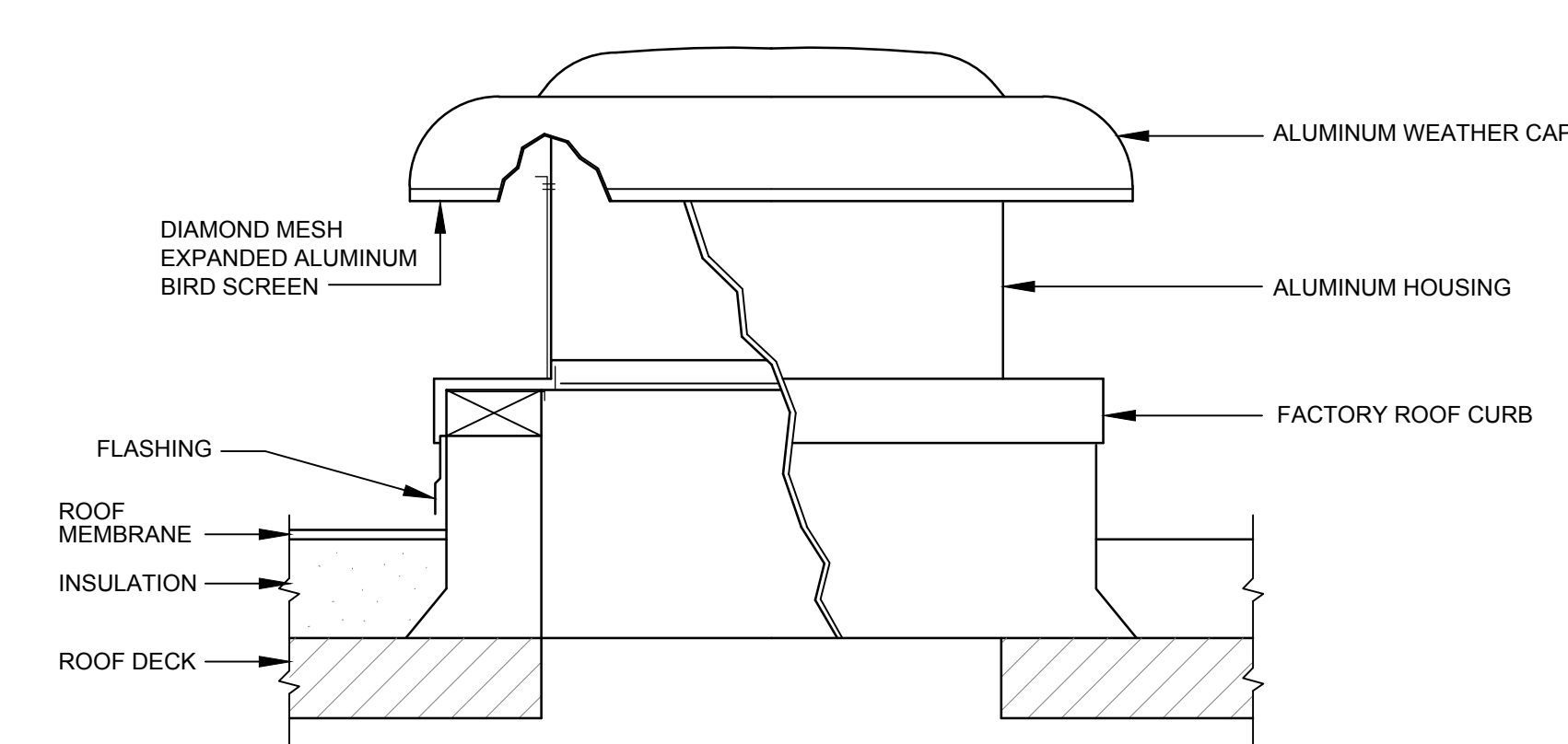
5 FIRE DAMPER DETAIL

NOT TO SCALE



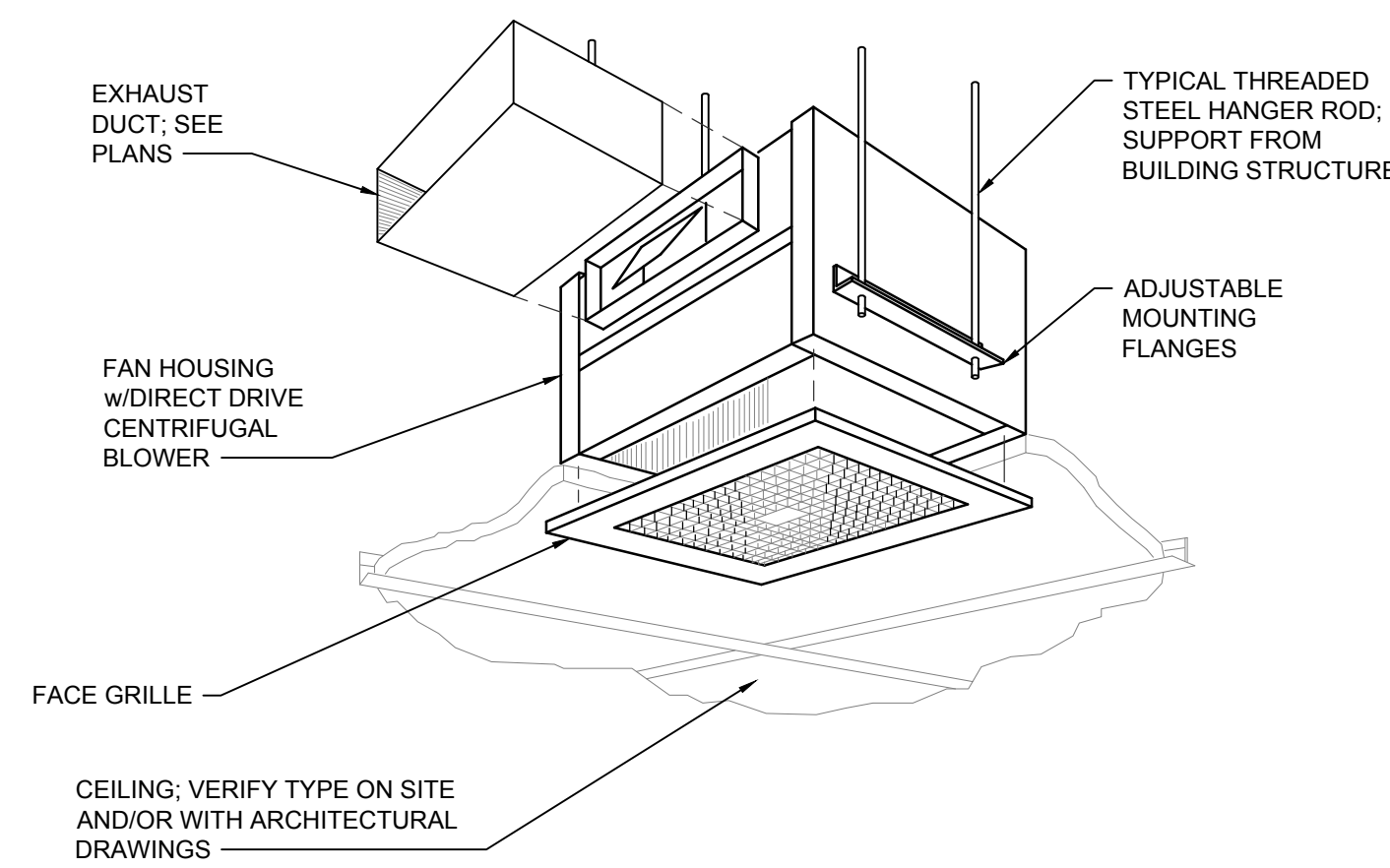
6 HORIZONTAL FIRE / SMOKE DAMPER DETAIL

NOT TO SCALE



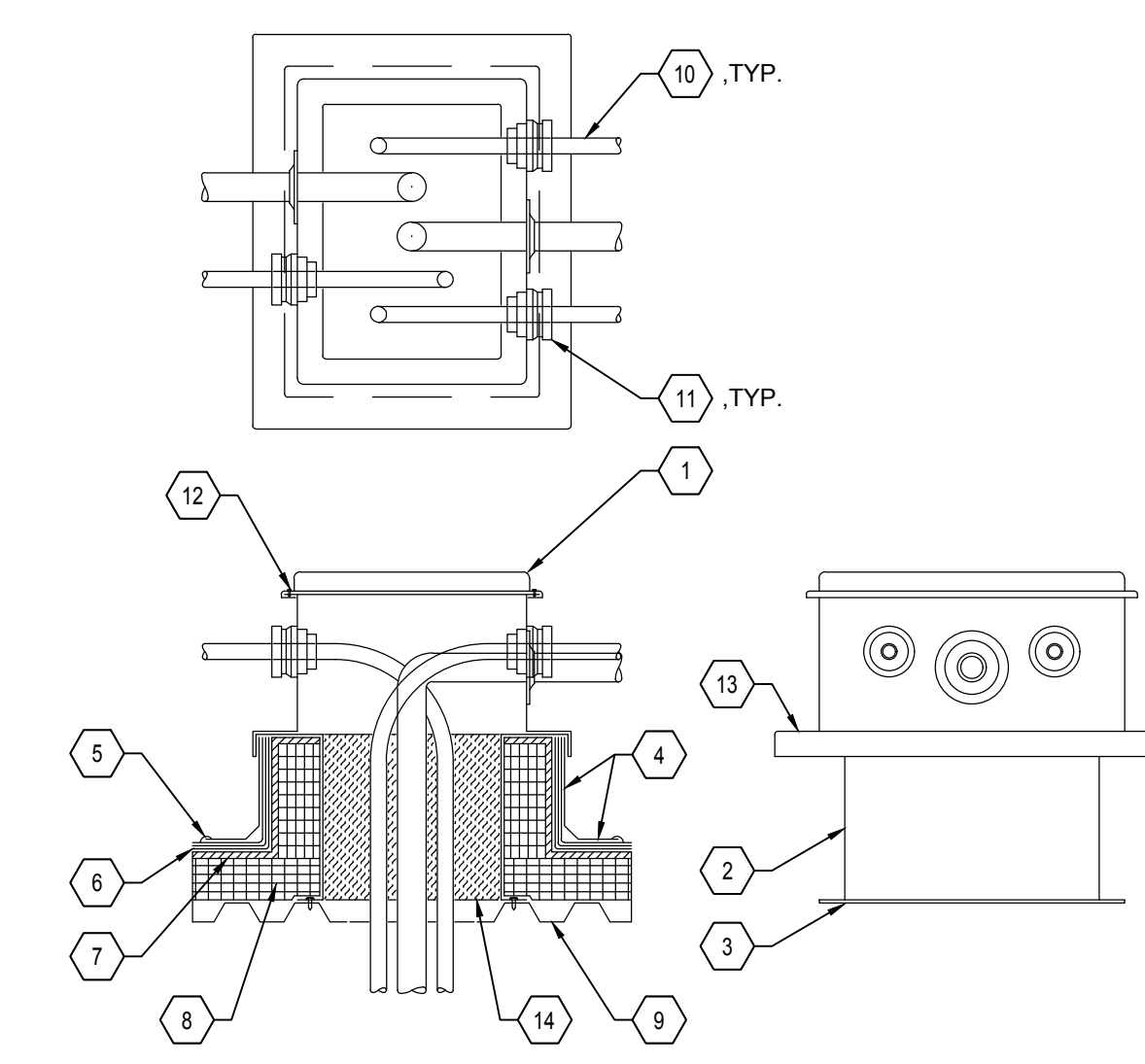
7 TYPICAL ROOF VENTILATOR DETAIL

NOT TO SCALE



8 TYPICAL CEILING MOUNTED POWER VENTILATOR DETAIL

NOT TO SCALE



- NOTE:
- PROVIDE "ROOF PENETRATION HOUSING" MODEL AWI SERIES OR APPROVED EQUAL.
 - ANCHOR TO CURB WITH STAINLESS STEEL HARDWARE.

9 ROOF VAULT DETAIL

NOT TO SCALE

- NOTE:
- PROVIDE FIRE DAMPERS IN ALL 1HR. THRU 4HR. WALLS, SLABS, AND PARTITIONS SHOWN ON ARCH. AND MECH. DRAWINGS.
 - PROVIDE SMOKE DAMPERS IN ALL SHAFT ENCLOSURES SHOWN ON ARCH. AND MECH. DRAWINGS.
 - PROVIDE DUCT ACCESS DOOR.
 - PROVIDE ALL CEILING/FLOOR AND WALL ACCESS DOORS NECESSARY FOR ACCESS TO FIRE DAMPER.
 - SMOKE DAMPERS AND COMBINATION FIRE-SMOKE DAMPERS INSTALLED SIMILARLY.
 - INSTALLATION SHALL COMPLY WITH SMACNA, NFPA-90A, SBC, UL555 AND LOCAL AUTHORITIES.
 - BLANKET INSULATION SHALL BE INSTALLED OVER ANGLES AND SEALED TO WALL.
 - DAMPER SHALL BE LOCATED OUT OF AIR STREAM.
 - DUCT SMOKE DETECTOR SHALL BE INSTALLED WITHIN 5FT OF COMBINATION FIRE/SMOKE DAMPERS. DETECTOR SHALL BE FURNISHED BY FIRE ALARM CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR.

- WIND RATED ALUMINUM COVER
- ALUMINUM CURB 14" HIGH MIN. CURB MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- CURB FLANGE, FASTEN TO ROOF DECK
- FLASHING MEMBRANE
- CONTINUOUS CAULK WITH RUBBERIZED ASPHALT SEALANT
- ROOFING SYSTEM
- RECOVERY BOARD
- RIGID INSULATION
- METAL ROOF DECK
- CONDUIT, PIPE, REFRIGERANT LINE, ETC.
- EXIT SEAL
- VANDAL RESISTANT STAINLESS SCREWS
- INSULATED CURB EXTENSION
- CURB TO BE INSULATED TO MATCH R-RATING OF ROOF ASSEMBLY

CLIENT

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DESIGNER

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NCB P-6086



ADAMS
SOUTHEASTERN
CONSTRUCTION

PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

ISSUE FOR REVIEW 07.10.20
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KEY PLAN

DATE 07-10-2020 DRAWN BY GRM
PROJECT NO. 20190431 SCALE AS NOTED
DHSR NO. AS-422 FID NO.

DRAWING NAME

DETAILS

FLOOR/SECTION PHASE

DRAWING NO.

CD

M5.2

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www.cbhifengineers.com
NC# P-050

The logo for Adams Southeastern Construction features the word "ADAMS" in large, bold, black capital letters, with the "A" highlighted in blue. Below "ADAMS" is the word "SOUTHEASTERN" in a smaller, black, sans-serif font. At the bottom is the word "CONSTRUCTION" in a large, bold, black, sans-serif font.

PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

ISSUE FOR REVIEW

07.10.20

NO.	BY	DESCRIPTION
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DATE _____

KEY PLAN

DATE 07-10-2020 DRAWN BY GRM

PROJECT NO. 20190431 SCALE AS NOTED

DHSR NO. AS-422 FID NO

DRAWING NAME


UL-DETAILS

FLOOR/SECTION PHASE

DRAWING NO.

CD

M5.3



 Classified by
 Underwriters Laboratories, Inc.
 to UL 1479 and CANULC-3115


System No. W-L-5028

W-L-5028

ANSI/UL1479 (ASTM E814)	CANULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0, 3/4 and 1 Hr (See Item 3)	FT Ratings — 0, 3/4 and 1 Hr (See Item 3)
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Ratings — 0, 3/4 and 1 Hr (See Item 3)
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft

SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly must be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 7-1/2 in. (191 mm).
 - The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants — One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
 - A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
 - B. Copper Tubing — Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - C. Copper Pipe — Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.



Hilti Firestop Systems

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 January 27, 2015

Page: 1 of 2

WL 5028

System No. W-L-5028

3. Tube Insulation — Plastics* — Min 1/2 in. (13 mm) to max 1 in. (25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. An annular space of min 0 in. (point contact) to max 1-1/2 in. (38 mm) is required within the firestop system. The T, FT and FTH Ratings are 1 hr when the 1 in. (25 mm) thick tube insulation is used and 3/4 hr when the 3/4 in. (19 mm) thick tube insulation is used. When tube insulation thickness is less than 3/4 in. (19 mm), the T, FT and FTH Ratings are 0 Hr.
See Plastics* (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 34 Flammability Classification of 94-5VA may be used.
4. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus. Flush with both surfaces of wall. At the point contact location between pipe covering and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface on both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

The logo for Hilti Firestop Systems. It features a stylized 'HILTI' in a bold, blocky font. The 'H' and 'I' are connected, as are the 'L' and 'T'. Below this, the words 'Hilti Firestop Systems' are written in a smaller, sans-serif font.

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January 27, 2015

Page 2 of 2

PACKAGED UNIT SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	SYSTEM TYPE	SUPPLY AIR FANS			SUPPLY AIR REFRIGERANT COIL										EFFICIENCY		ELECTRICAL			WEIGHT (LBS.)	NOTES	ACCESSORIES		
				TOTAL AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	NO. OF FANS	ESP (IN. WG.)	TSP (IN. WG.)	MOTOR (HP)	LAT (F DB)	LAT (F WB)	LAT (F WB)	NET TOTAL (MBH)	NET SENSIBLE (MBH)	EAT (F DB)	EAT (F WB)	LAT (F DB)	LAT (F WB)	EER	IEER	POWER SUPPLY (V/PH/Hz)				MCA	MOC
RTU01	TRANE	RX50	AIR CONDITIONER	13,200	3,300	2	3.00	5.36	10	52.5	50.6	515.5	273.1	70.9	63.9	49.04	48.99	11.1	16.9	460/60/3	126.1	150	8,430	1,2,3		A - N
NOTES:																										
1. REFER TO SPECIFICATION SECTION 237416.13 - PACKAGED, LARGE-CAPACITY, ROOFTOP AIR-CONDITIONING UNITS FOR ADDITIONAL INFORMATION.																										
2. AMBIENT DESIGN TEMPERATURE: 95F DB.																										
3. OUTSIDE AIRFLOW SHALL REMAIN CONSTANT AS SCHEDULED DURING OCCUPIED SCHEDULE.																										
ACCESSORIES:																										
A. DOUBLE WALLED CONSTRUCTION WITH HINGED ACCESS DOORS.																										
B. PLEATED MEDIA TYPE, 2 INCH THICKNESS, MERV 8.																										
C. DIRECT DRIVE PLENUM FAN MOUNTED ON RUBBER VIBRATION ISOLATORS.																										
D. SUPPLY FAN VFD WITH SHAFT GROUNDING RING.																										
E. PROVIDE DOWNFLOW-TO-HORIZONTAL INSULATED PLENUM CURB. PROVIDE FILTERS, QUANTITY (6) 24" X 24" X 4" MERV 15.																										
F. DOUBLE SLOPING STAINLESS STEEL DRAIN PAN.																										
G. DIGITAL SCROLL COMPRESSOR ON BOTH CIRCUITS.																										
H. VARIABLE SPEED CONDENSER FAN WITH HEAD PRESSURE CONTROL.																										
I. CONDENSER COIL GUARDS.																										
J. FACTORY MOUNTED AIRFLOW MEASUREMENT STATION TO MAINTAIN CONSTANT OUTSIDE AIR.																										
K. LOW LEAK ECONOMIZER DAMPERS HAVING A LEAKAGE RATE OF 1% AT 1.0 IN WC PRESSURE DIFFERENTIAL.																										
L. FACTORY DDC MICROPROCESSOR CONTROLS WITH BACNET MS/TP CONTROL INTERFACE TO BMS																										
M. PROVIDE UV LIGHTS.																										
N. PROVIDE 1 YEAR PARTS & LABOR WARRANTY. PROVIDE 5 YEAR COMPRESSOR PARTS WARRANTY.																										

PACKAGED UNIT SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	ALTERNATE APPROVED MANUFACTURER	BASIS OF DESIGN MODEL	SYSTEM TYPE	COOLING (AHRI STANDARD)			HOT GAS REHEAT		NATURAL GAS HEATING			EVAPORATOR FAN		ELECTRICAL			WEIGHT (LBS.)	NOTES	ACCESSORIES		
					TOTAL (MBH)	SENSIBLE (MBH)	EFFICIENCY (EER)	REHEAT CAPACITY (MBH)	COOLING LDB W/ REHEAT (°F)	GAS INPUT (MBH)	GAS OUTPUT (MBH)	STAGES	SUPPLY AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	ESP (IN. WG.)	POWER SUPPLY (V/PH/Hz)	MCA (A)				MOC (A)	
RTU02	TRANE	YORK, CARRIER	YHC092	GAS-PACK	88.1	64.8	EER	12.6	70.2	80.4	120	96	1	2,700	450	0.75	460/60/3	20.0	25	1291	1.2	A,B,C,D,E,F
RTU03	TRANE	YORK, CARRIER	YHC092	GAS-PACK	88.1	64.8	EER	12.6	70.2	80.4	120	96	1	2,700	745	0.75	460/60/3	20.0	25	1291	1.2	A,B,C,D,E,F
RTU04	TRANE	YORK, CARRIER	YHC092	GAS-PACK	88.1	64.8	EER	12.6	70.2	80.4	120	96	1	2,700	700	0.75	460/60/3	20.0	25	1291	1.2	A,B,C,D,E,F
RTU05	TRANE	YORK, CARRIER	YHC060	GAS-PACK	54.8	40.7	EER	11.9	40.3	72.4	80	64	1	1,920	160	0.75	460/60/3	12.0	15	999	1.2	A,B,C,D,E,F
NOTES: 1. REFER TO SPECIFICATION SECTION 237416.11 - PACKAGED, SMALL-CAPACITY, ROOFTOP AIR-CONDITIONING UNITS FOR ADDITIONAL INFORMATION. 2. COILS TO BE COATED FOR EXPOSURE TO ASTM B117-90 3000 HOUR SALT SPRAY RESISTANCE TEST WITH NO DEGRADATION.																						
ACCESSORIES: A. PROVIDE WITH HOT GAS RE-HEAT FOR DEHUMIDIFICATION CYCLE. B. STAINLESS STEEL GAS HEAT EXCHANGER. C. PROVIDE DIGITAL TEMPERATURE SENSOR AND WALL MOUNTED HUMIDITY SENSOR. D. COIL GUARDS. E. EQUIPMENT SPECIFIC SEISMIC/WIND RATED CURB, RESTRAINT AND FASTENERS w/ ENGINEER CERTIFICATION. F. STANDARD MOTOR																						

POWER VENTILATOR SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MANUFACTURERS	FAN TYPE	SERVICE	CAPACITIES			ELECTRICAL										SONES	WEIGHT (LBS.)	NOTES	ACCESSORIES
						AIRFLOW (CFM)	ESP (IN. WG.)	DRIVE ARRANGEMENT	FAN RPM	MOTOR RPM	MOTOR TYPE	MOTOR SIZE (HP)	MOTOR SIZE (W)	V/PH/Hz	FLA	MOC						
PV01	GREENHECK	SQ-80-VG	TWIN CITY, PENNBARRY	IN-LINE CENTRIFUGAL FANS	EXHAUST	300	0.38	DIRECT	1,595	1,725	ECM	1/10	-	115/60/1	2.08	15	7.6	60	1.4	B,C,D		
PV02	GREENHECK	SQ-80-VG	TWIN CITY, PENNBARRY	IN-LINE CENTRIFUGAL FANS	EXHAUST	350	0.38	DIRECT	1,717	1,725	ECM	1/10	-	115/60/1	2.08	15	8.5	60	1.4	B,C,D		
PV03	GREENHECK	SP-B110	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	80	0.38	DIRECT	809	-	PSC	-	80	115/60/1	1.14	15	1.0	15	1.2	A,B,C,F		
PV04	GREENHECK	SP-B110	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	80	0.38	DIRECT	809	-	PSC	-	80	115/60/1	1.14	15	1.0	15	1.2	A,B,C,F		
PV05	GREENHECK	SP-B110	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	80	0.38	DIRECT	809	-	PSC	-	80	115/60/1	1.14	15	1.0	15	1.2	A,B,C,F		
PV06	GREENHECK	SP-B110	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	80	0.38	DIRECT	809	-	PSC	-	80	115/60/1	1.14	15	1.0	15	1.2	A,B,C,F		
PV07	GREENHECK	SP-A50-90-VG	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	70	0.38	DIRECT	838	-	ECM	-	80	115/60/1	0.29	15	1.4	15	1.2	A,B,C,F		
PV08	GREENHECK	SP-A50-90-VG	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	70	0.38	DIRECT	838	-	ECM	-	80	115/60/1	0.29	15	1.4	15	1.2	A,B,C,F		
PV09	GREENHECK	CUE-060-VG	TWIN CITY, PENNBARRY	CENTRIFUGAL ROOF VENTILATORS	EXHAUST	100	0.38	DIRECT	1,650	1,725	ECM	1/15	-	115/60/1	1.30	15	4.9	30	1	B,C,E,G,H		
PV10	GREENHECK	SQ-80-VG	TWIN CITY, PENNBARRY	IN-LINE CENTRIFUGAL FANS	EXHAUST	340	0.38	DIRECT	1,692	1,725	ECM	1/10	-	115/60/1	2.08	15	8.3	60	1.4	B,C,D		
PV11	GREENHECK	SQ-100-VG	TWIN CITY, PENNBARRY	IN-LINE CENTRIFUGAL FANS	EXHAUST	1,240	0.38	DIRECT	1,671	1,725	ECM	1/4	-	115/60/1	5.80	15	10.8	60	1.3	B,C,D,E		
PV12	GREENHECK	SQ-90-VG	TWIN CITY, PENNBARRY	IN-LINE CENTRIFUGAL FANS	EXHAUST	400	0.38	DIRECT	1,474	1,725	ECM	1/10	-	115/60/1	2.08	15	6.8	60	1	B,C,D,I		
PV13	GREENHECK	SQ-80-VG	TWIN CITY, PENNBARRY	IN-LINE CENTRIFUGAL FANS	EXHAUST	200	0.38	DIRECT	1,386	1,725	ECM	1/10	-	115/60/1	2.08	15	6.0	60	1	B,C,D,E		
NOTES:																						
1. REFER TO SPECIFICATION SECTION 233423 - HVAC POWER VENTILATORS FOR FURTHER INFORMATION.																						
2. INTERLOCK WITH ROOM LIGHTING CONTROLS.																						
3. INTERLOCK WITH RTU01.																						
4. RUN CONTINUOUS DURING OCCUPIED TIME.																						
ACCESSORIES:																						
A. DESIGNER GRILLE.																						
B. GRAVITY BACKDRAFT DAMPER.																						
C. HIGH-EFFICIENCY MOTOR.																						
D. ISOLATORS, BRACKETS AND SPRING HANGING KIT.																						
E. ON/OFF SWITCH LOCATED PER ELECTRICAL PLANS.																						
F. 120V TO 277V TRANSFORMER, FIELD INSTALLED.																						
G. ROOF CURB.																						
H. HIGH WIND RATED (+/- 150 PSF RATED).																						
I. PROVIDE LINE VOLTAGE THERMOSTAT CONTROL.																						

ELECTRIC STEAM HUMIDIFIER SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MANUFACTURERS	HUMIDIFICATION RATE - MAX (LBS/HR)	HUMIDIFICATION RATE - MIN (LBS/HR)	AIR TEMPERATURE BEFORE HUMIDIFICATION (DB°F/%RH)	NUMBER OF MANIFOLDS	MAKEUP WATER SUPPLY PRESSURE - MIN / MAX (PSIG)	ELECTRIC RESISTANCE HEATER CONTAINER		ELECTRICAL			WEIGHT (LBS)	NOTES	ACCESSORIES
									TOTAL POWER INPUT (KW)	NUMBER OF CYLINDERS	VOLTAGE (V/PH/Hz)	MCA (AMP)	MOP (AMP)			
HU01	CONDAIR	EL OC 100	CAREL USA-LLC, ARMSTRONG INTERNATIONAL, INC.	100.0	20.0	52.0 / 70.0	1	30 / 80	37.9	1	460/3/60	45.6	60.0	236	1.2,3	A,B,C,D,E
NOTES: 1. REFER TO SPECIFICATION SECTION 238413 - HUMIDIFIERS FOR ADDITIONAL INFORMATION. 2. HUMIDIFIER SHALL BE DESIGNED FOR EXTERIOR INSTALLATION. 3. PROVIDE 12" HIGH ROOF CURB TO SUPPORT HUMIDIFIER. ACCESSORIES: A. REMOTE FAULT INDICATION BOARD. B. AIR PROVING SWITCH, DUCT, MTD.. C. DISTRIBUTION MANIFOLD. D. STEAM TUBE, SAM-E, 48-IN. E. FACTORY INSULATION ON DUCT-MOUNTED STEAM MANIFOLD.																

ELECTRIC DUCT HEATER SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MANUFACTURERS	AREA SERVED	KW	HEATER DIMENSIONS		STEPS	AIR SIDE		ELECTRICAL	AMPS	MOC (AMPS)	NOTES	ACCESSORIES
						HEIGHT (IN)	WIDTH (IN)		FLOW RATE (CFM)	STATIC PRESSURE DROP (IN. WG.)					
EDH01	WARREN TECHNOLOGY	CBK-12x12-8-460-3-SCR	INDEECO, GREENHECK	134 STERILE CORRIDOR AREA	6.0	12.0	12.0	SCR	700	0.05	460/3/60	7.2	15	1.2,3	A - K
EDH02	WARREN TECHNOLOGY	CBK-12x12-8-460-3-SCR	INDEECO, GREENHECK	119 FEMTO #1	6.0	12.0	12.0	SCR	600	0.05	460/3/60	7.2	15	1.2,3	A - K
EDH03	WARREN TECHNOLOGY	CBK-12x12-8-460-3-SCR	INDEECO, GREENHECK	125 FEMTO #2	6.0	12.0	12.0	SCR	600	0.05	460/3/60	7.2	15	1.2,3	A - K
EDH04	WARREN TECHNOLOGY	CBK-24x12-12-460-3-SCR	INDEECO, GREENHECK	135 OR #1	12.0	24.0	12.0	SCR	1,600	0.05	460/3/60	14.4	20	1.2,3	A - K
EDH05	WARREN TECHNOLOGY	CBK-20x12-10-460-3-SCR	INDEECO, GREENHECK	136 PROCEDURE #1	10.0	20.0	12.0	SCR	1,300	0.05	460/3/60	12.0	20	1.2,3	A - K
EDH06	WARREN TECHNOLOGY	CBK-20x12-10-460-3-SCR	INDEECO, GREENHECK	137 PROCEDURE #2	10.0	20.0	12.0	SCR	1,300	0.05	460/3/60	12.0	20	1.2,3	A - K
EDH07	WARREN TECHNOLOGY	CBK-16x12-11-460-3-SCR	INDEECO, GREENHECK	138 STERILE	11.0	16.0	12.0	SCR	1,000	0.05	460/3/60	13.2	20	1.2,3	A - K
EDH08	WARREN TECHNOLOGY	CBK-12x12-8-460-3-SCR	INDEECO, GREENHECK	140 SOIL	3.0	12.0	12.0	SCR	300	0.05	460/3/60	3.6	15	1.2,3	A - K
EDH09	WARREN TECHNOLOGY	CBK-20x12-10-460-3-SCR	INDEECO, GREENHECK	141 PROCEDURE #3	10.0	20.0	12.0	SCR	1,300	0.05	460/3/60	12.0	20	1.2,3	A - K
EDH10	WARREN TECHNOLOGY	CBK-20x12-10-460-3-SCR	INDEECO, GREENHECK	142 PROCEDURE #4	10.0	20.0	12.0	SCR	1,300	0.05	460/3/60	12.0	20	1.2,3	A - K
EDH11	WARREN TECHNOLOGY	CBK-24x12-12-460-3-SCR	INDEECO, GREENHECK	143 OR #2	12.0	24.0	12.0	SCR	1,600	0.05	460/3/60	14.4	20	1.2,3	A - K
EDH12	WARREN TECHNOLOGY	CBK-12x12-8-460-3-SCR	INDEECO, GREENHECK	156 STERILE EQUIPMENT #1	8.0	12.0	12.0	SCR	700	0.05	460/3/60	9.6	15	1.2,3	A - K
EDH13	WARREN TECHNOLOGY	CBK-16x12-9-460-3-SCR	INDEECO, GREENHECK	157 STERILE EQUIPMENT #2	9.0	16.0	12.0	SCR	900	0.05	460/3/60	10.8	15	1.2,3	A - K
NOTES: 1. REFER TO SPECIFICATION SECTION 23 82 16.14 - ELECTRIC RESISTANCE AIR-COILS FOR ADDITIONAL INFORMATION. 2. OPEN COIL SLIP-IN DUCT SIZE. 3. POSITIVE PRESSURE SYSTEM. ACCESSORIES: A. SCR CONTROL WITH DUCT MOUNTED DISCHARGE AIR TEMPERATURE SENSOR. B. CONTROL TRANSFORMER CLASS 2 - 24V. C. DISCONNECTING CONTACTOR. D. MAGNETIC CONTACTOR. E. UNFUSED DOOR INTERLOCKING DISCONNECT. F. 100% SCR CONTROLLER. G. INSULATED CONTROL PANEL. H. STAINLESS STEEL TERMINALS. I. HINGED COVER. J. AIRFLOW SWITCH. K. UL LISTED.															

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NCI P-6596



PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

NO. BY DESCRIPTION DATE
KEY PLAN

ISSUE FOR REVIEW 07.10.20
DATE

DATE 07-10-2020 DRAWN BY GRM

PROJECT NO. 20190431 SCALE AS NOTED

D

ROOF VENTILATOR SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	APPROVED MANUFACTURERS	TYPE	CONSTRUCTION MATERIAL	ROOF CURB		SCREENING		FINISH	CAPACITIES AND CHARACTERISTICS						NOTES	ACCESSORIES
						CONFIGURATION	HEIGHT (IN.)	TYPE	MATERIAL		HEIGHT (IN.)	WIDTH (IN.)	LENGTH (IN.)	FREE AREA (SQ. FT.)	AIR VELOCITY (FPM)	PRESSURE DROP (IN. WG.)		
RV01	GREENHECK	FGI - 18x18	CARNES, LOREN COOK	EXHAUST	ALUMINUM	FLAT	12	BIRD	GALVANIZED	ALUMINUM	16	28	36	2	551	0	1	A,B,C,D,E
NOTES: 1. REFER TO SPECIFICATION 23 37 23 - HVAC GRAVITY VENTILATORS FOR FURTHER INFORMATION.																		
ACCESSORIES: A. LOW LEAKAGE SEA-COAST CONSTRUCTION DAMPER. B. HIGH WIND RATED. C. BIRD SCREEN, ALUMINUM NOMINAL 86% FREE AREA. D. ROOF CURB. E. COATED WITH PERMATECTOR, CONCRETE GRAY OR APPROVED SEA-COAST PROTECTION.																		

DUCTLESS SPLIT SYSTEM SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MANUFACTURERS	ARI COOLING 60/67/95		ARI HEATING 70/47		MIN SEER	MIN HSPF	INDOOR UNIT FAN	ELECTRICAL		WEIGHT (LBS)	OUTDOOR UNIT			REFRIGERANT PIPING	NOTES	ACCESSORIES
				TOTAL (MBH)	MIN. (MBH)	TOTAL (MBH)	MIN. (MBH)				VOLTAGE (V/PH/Hz)	MCA (AMPS)		VOLTAGE (V/PH/Hz)	MCA (AMPS)	MOCP (AMPS)	MAXIMUM LENGTH (FT.)		
DAH01 / DHP01	MITSUBISHI	PKA-A12HA7 / PUZ-A12NKA7-BS	DAIKIN, LG	12.0	5.8	14.0	20.8	10.2	320-425	208/1/60	1	30	208/1/60	11	15	95	100	1	A,B,C,D
DAH02 / DHP02	MITSUBISHI	PKA-A24KA7 / PUZ-A24NHA7-BS	DAIKIN, LG	24.0	10.0	26.0	21.4	11.0	635-775	208/1/60	1	46	208/1/60	19	25	153	165	1	A,B,C,D
NOTES: 1. REFER TO SPECIFICATION SECTION 238126 - SPLIT SYSTEM AIR CONDITIONERS FOR FURTHER INFORMATION.																			
ACCESSORIES: A. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT AND CONDUCTOR FROM OUTDOOR UNIT TO INDOOR UNIT. B. SEA-CAST COATING PROTECTION ON OUTDOOR UNIT. C. CONCRETE MOUNTING PAD. D. WIRED WALL-MOUNTED REMOTE CONTROLLER.																			

LOUVER SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	TYPE	FRAME	DESCRIPTION	MATERIAL	LOUVER DEPTH (IN.)	SIZE (W x H) (IN.)	SERVICE	AIRFLOW (CFM)	PERFORMANCE RATINGS			NOTES	ACCESSORIES
											FREE AREA (SF)	S.P. LOSS (IN.H2O)	WATER PENETRATION (OZ./SF)		
L01	RUSKIN	EME632SD	FIXED	BOX	HORIZONTAL, WIND-DRIVEN-RAIN-RESISTANT	ALUMINUM	6	24 x 18	EXHAUST	340	0.53	0.06	-	1,2,3	A
L02	RUSKIN	EME632SD	FIXED	BOX	HORIZONTAL, WIND-DRIVEN-RAIN-RESISTANT	ALUMINUM	6	18 x 24	EXHAUST	-	0.79	0.00	-	1,2,3	A
L03	RUSKIN	EME632SD	FIXED	BOX	HORIZONTAL, WIND-DRIVEN-RAIN-RESISTANT	ALUMINUM	6	24 x 18	EXHAUST	400	0.68	0.05	-	1,2,3	A
L04	RUSKIN	EME632SD	FIXED	BOX	HORIZONTAL, WIND-DRIVEN-RAIN-RESISTANT	ALUMINUM	6	24 x 18	INTAKE	400	0.68	0.05	-	1,2,3	A
L05	RUSKIN	EME632SD	FIXED	BOX	HORIZONTAL, WIND-DRIVEN-RAIN-RESISTANT	ALUMINUM	6	36 x 24	EXHAUST	1,310	1.85	0.08	-	1,2,3	A
NOTES: 1. REFER TO SPECIFICATION SECTION 238119 - LOUVERS. 2. FINISH AS SELECTED BY GENERAL CONTRACTOR FROM MANUFACTURER'S FULL RANGE OF COLOR AND GLOSS. 3. MIAMI-DADE APPROVED.															
ACCESSORIES: A. BIRD SCREENING (MATERIAL TO MATCH LOUVER MATERIAL).															

ELECTRIC HEATER SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	LOCATION	DESCRIPTION			ELECTRIC COIL CAPACITY (KW)	STEPS	SUPPLY AIR AIRFLOW (CFM)	ELECTRICAL			WEIGHT (LBS)	MOUNTING HEIGHT (FT)	NOTES	ACCESSORIES
				TYPE	FAN	DISCHARGE				POWER (V/PH/Hz)	FLA	MOCP				
EUH01	INDEECO	932U02000C	159 GAS MANIFOLDS	WALL HEATER	PROPELLER	HORIZONTAL	2.0	1	160.0	208/1/60	10.0	15	24	3.0	1	A,B,C
EUH02	INDEECO	932U04000V	158 ELECTRICAL	WALL HEATER	PROPELLER	HORIZONTAL	3.0	1	160.0	208/1/60	14.8	20	24	3.0	1	A,B,C
NOTES: 1. REFER TO SPECIFICATION SECTION 238239 19 - WALL UNIT HEATERS FOR ADDITIONAL INFORMATION. 2. THE HEATER ELEMENT SURFACE MUST NOT EXCEED 130°C(266°F) (2018 NFPA 99 5.1.3.3.2).																
ACCESSORIES: A. SURFACE MOUNTING FRAME. B. 14 GAUGE SECURITY FRONT COVER. C. INTEGRAL THERMOSTAT.																

DIFFUSERS, REGISTERS AND GRILLES SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MANUFACTURERS	TYPE	SERVICE	NECK SIZE (IN.)	MODULE SIZE (IN.)	MATERIAL	FINISH	MOUNTING	NOTES	ACCESSORIES
S1	METALAIRE	6610	PRICE, TITUS	LINEAR SLOT DIFFUSER, 2 SLOT, 1.0" WIDE	SUPPLY	60	60 X 5	ALUMINUM	WHITE	T-BAR	1,2	A,C
S2	METALAIRE	6610	PRICE, TITUS	LINEAR SLOT DIFFUSER, 2 SLOT, 1.0" WIDE	SUPPLY	60	48 X 5	ALUMINUM	WHITE	T-BAR	1,2	A,C
S3	METALAIRE	5750 AL	PRICE, TITUS	SQUARE PLAQUE CEILING DIFFUSER	SUPPLY	60	24 X 24	ALUMINUM	WHITE	T-BAR	1,2	A,B
S4	METALAIRE	5750 AL	PRICE, TITUS	SQUARE PLAQUE CEILING DIFFUSER	SUPPLY	80	24 X 24	ALUMINUM	WHITE	T-BAR	1,2	A,B
S5	METALAIRE	5750 AL	PRICE, TITUS	SQUARE PLAQUE CEILING DIFFUSER	SUPPLY	100	24 X 24	ALUMINUM	WHITE	T-BAR	1,2	A,B
S6	METALAIRE	5750 AL	PRICE, TITUS	SQUARE PLAQUE CEILING DIFFUSER	SUPPLY	120	24 X 24	ALUMINUM	WHITE	T-BAR	1,2	A,B
S7	METALAIRE	HPL-CL-AL-1	PRICE, TITUS	PERIFLOW LAMINAR FLOW DIFFUSER	SUPPLY	120	24 X 48	ALUMINUM	WHITE	CEILING SURFACE	1,2	B
S8	METALAIRE	4004-AF	PRICE, TITUS	LOUVER FACE DIFFUSER	SUPPLY	12 X 6	-	ALUMINUM	WHITE	CEILING SURFACE	1,2	A,B
S9	METALAIRE	2300	PRICE, TITUS	LINEAR BAR DIFFUSER	SUPPLY	36 X 4	-	ALUMINUM	WHITE	WALL SURFACE	1,2	A,B
R1	METALAIRE	RH	PRICE, TITUS	FIXED FACE GRILLE	RETURN	20 X 20	24 X 24	ALUMINUM	WHITE	T-BAR	1,2	-
R2	METALAIRE	454SSS	PRICE, TITUS	FIXED FACE GRILLE, HEAVY DUTY	RETURN	12 X 28	-	STAINLESS STEEL	-	WALL SURFACE	1,2	B
R3	METALAIRE	RH	PRICE, TITUS	FIXED FACE GRILLE	RETURN	12 X 6	-	ALUMINUM	WHITE	WALL SURFACE	1,2	-
E1	METALAIRE	RH	PRICE, TITUS	FIXED FACE GRILLE	EXHAUST	12 X 12	-	ALUMINUM	WHITE	CEILING SURFACE	1,2	B
E2	METALAIRE	RH	PRICE, TITUS	FIXED FACE GRILLE	EXHAUST	20 X 20	24 X 24	ALUMINUM	WHITE	T-BAR	1,2	-
T1	METALAIRE	RH	PRICE, TITUS	FIXED FACE GRILLE	TRANSFER	20 X 20	-	ALUMINUM	WHITE	WALL SURFACE	1,2	-
NOTES: 1. REFER TO SPECIFICATION SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES FOR FURTHER INFORMATION. 2. DUCT BRANCH CONNECTION SIZE TO BE EQUAL TO THE NECK SIZE OF DIFFUSER UNLESS NOTED OTHERWISE ON PLANS.												
ACCESSORIES: A. VOLUME DAMPER. B. OPPOSED BLADE DAMPER. C. PLENUM BOX												

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ADAMS
SOUTHEASTERN
CONSTRUCTION

PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

ISSUE FOR REVIEW 07.10.20
NO. BY DESCRIPTION DATE
KEY PLAN

DATE 07-10-2020 DRAWN BY GRM
PROJECT NO. 20190431 SCALE AS NOTED
DHSR NO. AS-422 FID NO.

DRAWING NAME

SCHEDULES

FLOOR/SECTION PHASE

CD

DRAWING NO.

M6.2

EXHAUST RATE SCHEDULE

ROOM NAME	GOVERNING CODE/STANDARD	ROOM FUNCTION	PRESSURE (+/-)	EXHAUST RATE (CFM/FIXTURE)	FIXTURE (QTY)	ALL ROOM AIR EXHAUSTED TO OUTSIDE	EXHAUST RATE (CFM/SF)	ROOM AREA (SF)	EXHAUST RATE (CFM)	REQUIRED	DESIGN
108 WOMEN'S TOILET	2012 NC MECHANICAL CODE	BATHROOM	-	50	3	YES	-	-	150	-	150
109 MEN'S TOILET	2012 NC MECHANICAL CODE	BATHROOM	-	50	3	YES	-	-	150	-	150
117 PAT TOILET	2012 NC MECHANICAL CODE	BATHROOM	-	70	1	YES	-	-	70	-	80
118 PAT TOILET	2012 NC MECHANICAL CODE	BATHROOM	-	70	1	YES	-	-	70	-	80
122 JAN	2012 NC MECHANICAL CODE	BATHROOM	-	-	-	YES	-	-	-	-	70
130 PAT TOILET	2012 NC MECHANICAL CODE	BATHROOM	-	70	1	YES	-	-	70	-	80
131 PAT TOILET	2012 NC MECHANICAL CODE	BATHROOM	-	70	1	YES	-	-	70	-	80
139 JAN	2012 NC MECHANICAL CODE	BATHROOM	-	-	-	YES	-	-	-	-	70
152 MALE LOCKERS	2012 NC MECHANICAL CODE	LOCKER / DRESSING ROOMS	-	0.25	0.25	YES	0.25	155	39	-	60
153 TOILET / SHOWER	2012 NC MECHANICAL CODE	BATHROOM	-	50	3	YES	-	-	100	-	100
154 FEMALE LOCKERS	2012 NC MECHANICAL CODE	LOCKER / DRESSING ROOMS	-	0.25	0.25	YES	0.25	197	49	-	50
155 TOILET / SHOWER	2012 NC MECHANICAL CODE	BATHROOM	-	50	3	YES	-	-	150	-	150

EXHAUST RATE SCHEDULE

ROOM NAME	ROOM FUNCTION	EXHAUST AIRFLOW (CFM)	PRESSURE (+/-)	ALL ROOM AIR EXHAUSTED TO OUTSIDE	ROOM AREA (SF)	CEILING HEIGHT (FT)	ROOM VOLUME (CF)	EXHAUST AIR CHANGES REQUIRED	DESIGN
123 SOILED LINEN	SOILED LINEN SORTED AND STORAGE	80	-	YES	47.0	10.00	470	10.0	10.2
140 DECONTAMINATION	SOILED OR DECONTAMINATION ROOM	350	-	YES	186.0	10.00	1,860	6.0	11.3
144 WASTE	LINEN AND TRASH CHUTE ROOM	170	-	YES	101.0	10.00	1,010	10.0	10.1
145 SOILED HOLDING	SOILED LINEN SORTED AND STORAGE	170	-	YES	100.0	10.00	1,000	10.0	10.2

NOTES:

1. ROOM FUNCTION DEFINED USING ASHRAE STANDARD 170-2013.

RTU01 AIR CHANGE RATE SCHEDULE

ROOM NAME	ROOM FUNCTION (NOTES 1 AND 2)	PRESSURE RELATIONSHIP TO ADJACENT SPACES	MINIMUM TOTAL AIR (CFM)	DESIGN TOTAL AIR (CFM)	MINIMUM OUTSIDE AIR (CFM)	DESIGN OUTSIDE AIR (CFM)	ALL ROOM AIR EXHAUSTED TO OUTDOORS	ROOM AREA (SF)	CEILING HEIGHT (FT)	ROOM VOLUME (CF)	TOTAL AIR CHANGES (ACH) REQUIRED	DESIGN	OUTSIDE AIR CHANGES (ACH) REQUIRED	DESIGN
119 FEMTO #1 ROOM	OPERATING ROOM (CLASS B AND CLASS C)	+	450	600	90	150	NO	179.0	10.00	1,790	15.0	20.1	3.0	5.0
125 FEMTO #1 ROOM	OPERATING ROOM (CLASS B AND CLASS C)	+	450	600	90	150	NO	179.0	10.00	1,790	15.0	20.1	3.0	5.0
134-W SEMI-RESTRICTED CORRIDOR	CORRIDOR	NR	140	240	35	60	NO	550.0	10.00	5,500	-	2.6	0.4	0.7
134-E SEMI-RESTRICTED CORRIDOR	CORRIDOR	NR	220	400	55	100	NO	888.0	10.00	8,880	-	2.7	0.4	0.7
135 OR #1	OPERATING ROOM (CLASS B AND CLASS C)	+	1,400	1,600	280	400	NO	419.0	10.00	4,190	20.0	22.9	4.0	5.7
136 PROCEDURE #1 (OR)	PROCEDURE ROOM (CLASS A SURGERY)	+	1,100	1,300	220	325	NO	329.0	10.00	3,290	20.0	23.7	4.0	5.9
137 PROCEDURE #2 (OR)	PROCEDURE ROOM (CLASS A SURGERY)	+	1,150	1,300	230	325	NO	338.0	10.00	3,380	20.0	23.1	4.0	5.8
138 CLEAN UTIL STER PROC	CLEAN WORKROOM OR CLEAN HOLDING	+	360	1,000	170	250	YES	533.0	10.00	5,330	4.0	11.3	2.0	2.5
140 SOIL WK / DECON	DECONTAMINATION ROOM	-	190	300	65	75	YES	186.0	10.00	1,860	6.0	9.7	2.0	2.4
141 PROCEDURE #3 (OR)	PROCEDURE ROOM (CLASS A SURGERY)	+	1,100	1,300	220	325	NO	328.0	10.00	3,280	20.0	23.8	4.0	5.9
142 PROCEDURE #4 (OR)	PROCEDURE ROOM (CLASS A SURGERY)	+	1,100	1,300	220	325	NO	328.0	10.00	3,280	20.0	23.8	4.0	5.9
143 OR #2	OPERATING ROOM (CLASS B AND CLASS C)	+	1,450	1,600	290	400	NO	428.0	10.00	4,280	20.0	22.4	4.0	5.6
144 WASTE	WASTE	NR	40	60	10	15	NO	101.0	10.00	1,010	-	3.6	0.6	0.9
156 STERILE EQUIPMENT	CLEAN WORKROOM OR CLEAN HOLDING	+	320	700	160	175	NO	468.0	10.00	4,680	4.0	9.0	2.0	2.2
157 STERILE EQUIPMENT	CLEAN WORKROOM OR CLEAN HOLDING	+	410	900	205	225	NO	602.0	10.00	6,020	4.0	9.0	2.0	2.2
TOTAL	STERILE AREA SYSTEM	+	9,880	13,200	2,340	3,300	NO	5,856.0	10.00	58,560	-	-	-	-

NOTES:

1. ROOM FUNCTION FOR NON-CORRIDOR SPACES DEFINED USING ASHRAE STANDARD 170-2017.

2. CORRIDOR VENTILATION RATES DEFINED USING 2018 NC MECHANICAL CODE.

RTU02 AIR CHANGE RATE SCHEDULE

ROOM NAME	MULTIPLIER	SUPPLY AIR (CFM)	SPACE FLOOR AREA (ft²)	AREA OUTDOOR AIR RATE (CFM/ft²)	TIME AVERAGED OCCUPANCY (OCCUPANTS)	PEOPLE OUTDOOR AIR RATE (CFM/person)	AIR DISTRIBUTION EFFECTIVENESS (Ez)	SPACE OUTDOOR AIR (CFM)	BREATHING ZONE OUTDOOR AIR (CFM)	SPACE VENTILATION EFFICIENCY (Evz)
101 VESTIBULE	1	200	167	0.06	0	5	0.8	13	10	1.083
102 LOBBY	1	177	386	0.06	3	5	0.8	48	39	0.876
106 WAITING	1	1455	1012	0.06	48	5	0.8	376	301	0.887
103-105 CHKN RECEPT	1	679	324	0.06	5	5	0.8	56	44	1.064
109 MENS TLT	1	96	152	0	3	0	0.8	0	0	1.146
108 WOMENS TLT	1	94	154	0	3	0	0.8	0	0	1.146
TOTALS (incl. Space Multipliers)		2700						449	393	0.876

RTU03 AIR CHANGE RATE SCHEDULE

ROOM NAME	ROOM FUNCTION (NOTES 1 AND 2)	PRESSURE RELATIONSHIP TO ADJACENT SPACES	MINIMUM TOTAL AIR (CFM)	DESIGN TOTAL AIR (CFM)	MINIMUM OUTSIDE AIR (CFM)	DESIGN OUTSIDE AIR (CFM)	ALL ROOM AIR EXHAUSTED TO OUTDOORS	ROOM AREA (SF)	CEILING HEIGHT (FT)	ROOM VOLUME (CF)	TOTAL AIR CHANGES (ACH) REQUIRED	DESIGN	OUTSIDE AIR CHANGES (ACH) REQUIRED	DESIGN
110 CORRIDOR	CORRIDOR	NR	80	80	15	15	NO	174.0	10.00	1,740	-	2.1	-	0.5
112-4 PRE-OP	PATIENT ROOM	NR	60	120	30	30	NO	86.0	10.00	860	4.0	8.4	2.0	2.1
112-5 PRE-OP	PATIENT ROOM	NR	60	120	30	30	NO	86.0	10.00	860	4.0	8.4	2.0	2.1
111 LASER	CONFERENCE / MEETING	NR	40	110	10	30	NO	91.0	10.00	910	-	7.3	-	1.8
112 PRE-OP CORRIDOR	CORRIDOR	NR	60	120	15	30	NO	197.0	10.00	1,970	-	3.7	-	0.9
112-1 PRE-OP	PATIENT ROOM	NR	60	120	30	30	NO	85.0	10.00	850	4.0	8.5	2.0	2.1
112-2 PRE-OP	PATIENT ROOM	NR	60	120	30	30	NO	85.0	10.00	850	4.0	8.5	2.0	2.1
112-3 PRE-OP	PATIENT ROOM	NR	60	120	30	30	NO	85.0	10.00	850	4.0	8.5	2.0	2.1
113 OFFICE	OFFICE	NR	80	120	20	20	NO	112.0	10.00	1,120	-	6.4	-	1.6
114 RECOVERY CORRIDOR	CORRIDOR	NR	80	120	20	30	NO	291.0	10.00	2,910	-	2.5	-	0.6
114-1 RECOVERY	RECOVERY ROOM	NR	90	120	30	30	NO	88.0	10.00	880	6.0	8.2	2.0	2.0
114-2 RECOVERY	RECOVERY ROOM	NR	80	120	30	30	NO	80.0	10.00	800	6.0	9.0	2.0	2.3
114-3 RECOVERY	RECOVERY ROOM	NR	80	120	30	30	NO	80.0	10.00	800	6.0	9.0	2.0	2.3
114-4 RECOVERY	RECOVERY ROOM	NR	80	120	30	30	NO	80.0	10.00	800	6.0	9.0	2.0	2.3
114-5 RECOVERY	RECOVERY ROOM	NR	90	120	30	30	NO	83.0	10.00	830	6.0	8.7	2.0	2.2
115 RECOVERY CORR	CORRIDOR	NR	80	100	20	25	NO	283.0	10.00	2,830	-	2.1	-	0.5
115-1 ENCLOSED RECOVERY	RECOVERY ROOM	NR	110	140	35	35	NO	101.0	10.00	1,010	6.0	8.3	2.0	2.1
115-2 ENCLOSED RECOVERY	RECOVERY ROOM	NR	110	140	35	35	NO	101.0	10.00	1,010	6.0	8.3	2.0	2.1
116 NURSE STATION	OFFICE	NR	340	340	85	85	NO	139.0	10.00	1,390	-	14.7	-	3.7
117 PATIENT TLT	TOILET ROOM	-	80	40	-	10	YES	48.0	10.00	480	10.0	5.0	0.0	1.3
118 PATIENT TLT	TOILET ROOM	-	80	40	-	10	YES	48.0	10.00	480	10.0	5.2	0.0	1.3
120 CORRIDOR	CORRIDOR	NR	40	170	10	45	NO	111.0	10.00	1,110	-	9.2	-	2.3
TOTAL			1,700	2,700	490	595		2,186.0	10.00	21,860	-	-	-	-

NOTES:

1. ROOM FUNCTION FOR OUTPATIENT SPACES DEFINED USING ASHRAE STANDARD 170-2017.

2. NON-OUTPATIENT VENTILATION RATES DEFINED USING 2018 NC MECHANICAL CODE.

3. TOILET ROOM TOTAL AIR CHANGES BASED UPON EXHAUST ASHRAE STANDARD 170-2017 RATE.

RTU04 AIR CHANGE RATE SCHEDULE

ROOM NAME	ROOM FUNCTION (NOTES 1 AND 2)	PRESSURE RELATIONSHIP TO ADJACENT SPACES	MINIMUM TOTAL AIR (CFM)	DESIGN TOTAL AIR (CFM)	MINIMUM OUTSIDE AIR (CFM)	DESIGN OUTSIDE AIR (CFM)	ALL ROOM AIR EXHAUSTED TO OUTDOORS	ROOM AREA (SF)	CEILING HEIGHT (FT)	ROOM VOLUME (CF)	TOTAL AIR CHANGES (ACH) REQUIRED	DESIGN	OUTSIDE AIR CHANGES (ACH) REQUIRED	DESIGN
121 CLEAN LINEN	CLEAN LINEN STORAGE	+	20	30	-	10	NO	38	10	380	2.0	4.7	-	1.2
122 JANITOR	TOILET ROOM	-	80	20	-	5	NO	48	10	480	10.0	2.5	-	0.6
123 SOILED LINEN	SOILED HOLDING	-	70	70	15	20	YES	38	10	380	10.0	11.1	2.0	2.8
126 CORRIDOR	CORRIDOR	NR	80	120	20	30	NO	312	10	3,120	-	2.3	-	0.6
128-1 PRE-OP	PATIENT ROOM	NR	100	130	35	35	NO	93	10	930	4.0	8.4	2.0	2.1
128-2 PRE-OP	PATIENT ROOM	NR	100	120	30	30	NO	86	10	860	4.0	8.4	2.0	2.1
128-3 PRE-OP	PATIENT ROOM	NR	100	120	30	30	NO	86	10	860	4.0	8.4	2.0	2.1
126 RECOVERY CORR	CORRIDOR	NR	40	240	10	60	NO	144	10	1,440	-	10.0	-	2.5
126-1 ENCLOSED RECOVERY	RECOVERY ROOM	NR	150	140	35	35	NO	101	10	1,010	6.0	8.3	2.0	2.1
126-2 ENCLOSED RECOVERY	RECOVERY ROOM	NR	150	140	35	35	NO	101	10	1,010	6.0	8.3	2.0	2.1
127 RECOVERY CORRIDOR	CORRIDOR	NR	100	100	25	25	NO	381	10	3,810	-	1.6	-	0.4
127-1 RECOVERY	RECOVERY ROOM	NR	80	120	30	30	YES	77	10	770	6.0	9.4	2.0	2.3
127-2 RECOVERY	RECOVERY ROOM	NR	80	105	25	30	YES	75	10	750	6.0	8.4	2.0	2.1
127-3 RECOVERY	RECOVERY ROOM	NR	80	105	25	30	YES	74	10	740	6.0	8.5	2.0	2.1
127-4 RECOVERY	RECOVERY ROOM	NR	80	105	25	30	YES	74	10	740	6.0	8.5	2.0	2.1
127-5 RECOVERY	RECOVERY ROOM	NR	90	120	30	30	YES	83	10	830	6.0	8.7	2.0	2.2
128 PRE-OP CORRIDOR	CORRIDOR	NR	40	255	10	65	NO	144	10	1,440	-	10.6	-	2.7
128-4 PRE-OP	PATIENT ROOM	NR	100	120	30	30	NO	85	10	850	4.0	8.5	2.0	2.1
128-5 PRE-OP	PATIENT ROOM	NR	100	120	30	30	NO	86	10	860	4.0	8.4	2.0	2.1
129 NURSE STATION	OFFICE	NR	340	340	85	85	NO	142	10	1,420	-	14.4	-	3.6
130 PATIENT TLT	TOILET ROOM	-	100	40	-	10	NO	48	10	480	10.0	5.0	-	1.3
131 PATIENT TLT	TOILET ROOM	-	100	40	-	10	NO	49	10	490	10.0	4.9	-	1.2
TOTAL			2,180	2,700	525	695		2,365	10	23,650	-	-	-	-

NOTES:

1. ROOM FUNCTION FOR OUTPATIENT SPACES DEFINED USING ASHRAE STANDARD 170-2017.

2. NON-OUTPATIENT VENTILATION RATES DEFINED USING 2018 NC MECHANICAL CODE.

3. TOILET ROOM TOTAL AIR CHANGES BASED UPON EXHAUST ASHRAE STANDARD 170-2017 RATE.

RTU05 AIR CHANGE RATE SCHEDULE

		SUPPLY AIR (CFM)	SPACE FLOOR AREA (ft²)	AREA OUTDOOR AIR RATE (CFM/ft²)	TIME AVERAGED OCCUPANCY (OCCUPANTS)	PEOPLE OUTDOOR AIR RATE (CFM/person)	AIR DISTRIBUTION EFFECTIVENESS	SPACE OUTDOOR AIR (CFM)	BREATHING ZONE OUTDOOR AIR (CFM)	SPACE VENTILATION EFFICIENCY
ROOM NAME	MULTIPLIER	(Vp2)	(A2)	(R4)	(P2)	(Rp)	(Ez)	(Voz)	(Vbz)	(Ev2)
133 DISCHARGE CORRIDOR	1	86	162.0	0.06	-	5.00	0.8	12	10	0.918
155 TLT-SHWR	1	114	174.0	-	3.0	-	0.8	0	0	1.059
153 TLT-SHWR	1	52	101.0	-	1.0	-	0.8	0	0	1.059
154 FEMALE LOCKERS	1	96	197.0	-	2.0	-	0.8	0	0	1.059
152 MALE LOCKERS	1	81	155.0	-	2.0	-	0.8	0	0	1.059
151 STAFF LOUNGE	1	973	354.0	0.06	4.0	5.00	0.8	52	41	1.006
149-150 CORRIDOR	1	112	285.0	0.06	-	-	0.8	21	17	0.868
148 STORAGE	1	211	545.0	0.06	-	5.00	0.8	41	33	0.865
145 SOILED HOLDING	1	36	100.0	-	-	-	0.8	0	0	1.059
146 RECEIVING	1	108	123.0	0.06	1.0	5.00	0.8	15	12	0.915
144 WASTE	1	51	101.0	-	-	-	0.8	0	0	1.059
Totals (incl. Space Multipliers)		1920						131	113	0.865

RTU01 / HU01 / EDH0#

RUN CONDITIONS - SCHEDULED:
RTU01 SHALL RUN BASED UPON AN OPERATOR ADJUSTABLE SCHEDULE.

EMERGENCY SHUTDOWN:
RTU01 SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL.

SMOKE DETECTION:
RTU01 SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SMOKE DETECTOR STATUS.

RTU01 OUTSIDE AIR DAMPER:
THE OUTSIDE AIR DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE SUPPLY FAN SHALL START ONLY AFTER THE DAMPER STATUS HAS PROVEN THE DAMPER IS OPEN.

RTU01 SUPPLY FAN:
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

RTU01 SUPPLY AIR TEMPERATURE SETPOINT - FIXED:
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A FIXED SUPPLY AIR TEMPERATURE SETPOINT OF 52°F (ADJ.).

COOLING STAGES:
THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE COOLING SHALL BE ENABLED WHENEVER:
• THE SUPPLY AIR TEMPERATURE IS ABOVE COOLING SETPOINT.
• AND THE FAN STATUS IS ON.

RTU01 MINIMUM OUTSIDE AIR VENTILATION:

WHEN IN THE OCCUPIED MODE, THE CONTROLLER SHALL MEASURE THE OUTSIDE AIRFLOW AND MODULATE THE OUTSIDE AIR DAMPERS TO MAINTAIN THE PROPER MINIMUM OUTSIDE AIR VENTILATION, OVERRIDING NORMAL DAMPER CONTROL. ON DROPPING OUTSIDE AIRFLOW, THE CONTROLLER SHALL MODULATE THE OUTSIDE AIR DAMPERS OPEN TO MAINTAIN THE OUTSIDE AIRFLOW SETPOINT (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• HIGH OUTSIDE AIR VENTILATION: IF THE OUTSIDE AIR VENTILATION IS GREATER THAN 35% (ADJ.) THAN SCHEDULED.
• LOW OUTSIDE AIR VENTILATION: IF THE OUTSIDE AIR VENTILATION IS LOWER THAN 35% (ADJ.) THAN SCHEDULED.

RTU01 SUPPLY AIRFLOW:
THE CONTROLLER SHALL MEASURE THE SUPPLY AIRFLOW.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• HIGH SUPPLY AIRFLOW: IF SUPPLY AIRFLOW IS GREATER THAN 20% (ADJ.) THAN SCHEDULED.
• LOW SUPPLY AIRFLOW: IF SUPPLY AIRFLOW IS LOWER THAN 20% (ADJ.) THAN SCHEDULED.

HU01 HUMIDIFIER CONTROL (BACNET INTERFACE):

THE CONTROLLER SHALL MEASURE THE SUPPLY DEWPOINT AND MODULATE THE HUMIDIFIER TO MAINTAIN A SETPOINT OF 48°F (ADJ.). THE HUMIDIFIER SHALL BE ENABLED WHENEVER THE SUPPLY FAN STATUS IS ON.

THE HUMIDIFIER SHALL TURN OFF WHENEVER:
• THE RELATIVE HUMIDITY IN THE SUPPLY DUCT EXCEEDS 95%RH AS MEASURED BY A SECONDARY MODULATING HIGH LIMIT SAFETY SENSOR.
• OR ON LOSS OF SUPPLY FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• HIGH SUPPLY AIR DEWPOINT: IF THE SUPPLY AIR DEWPOINT IS GREATER THAN 55°F (ADJ.).
• LOW SUPPLY AIR DEWPOINT: IF THE SUPPLY AIR DEWPOINT IS LESS THAN 45°F (ADJ.).

RTU01 EVAPORATOR AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE EVAPORATOR AIR TEMPERATURE.

RTU01 PREFILTER DIFFERENTIAL PRESSURE MONITOR:
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE PREFILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• PREFILTER CHANGE REQUIRED: PREFILTER DIFFERENTIAL PRESSURE EXCEEDS UNIT MANUFACTURERS PRE-DEFINED LIMIT.

RTU01 FINAL FILTER DIFFERENTIAL PRESSURE MONITOR:
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FINAL FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• FINAL FILTER CHANGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

RTU01 SUPPLY AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 80°F (ADJ.).
• LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

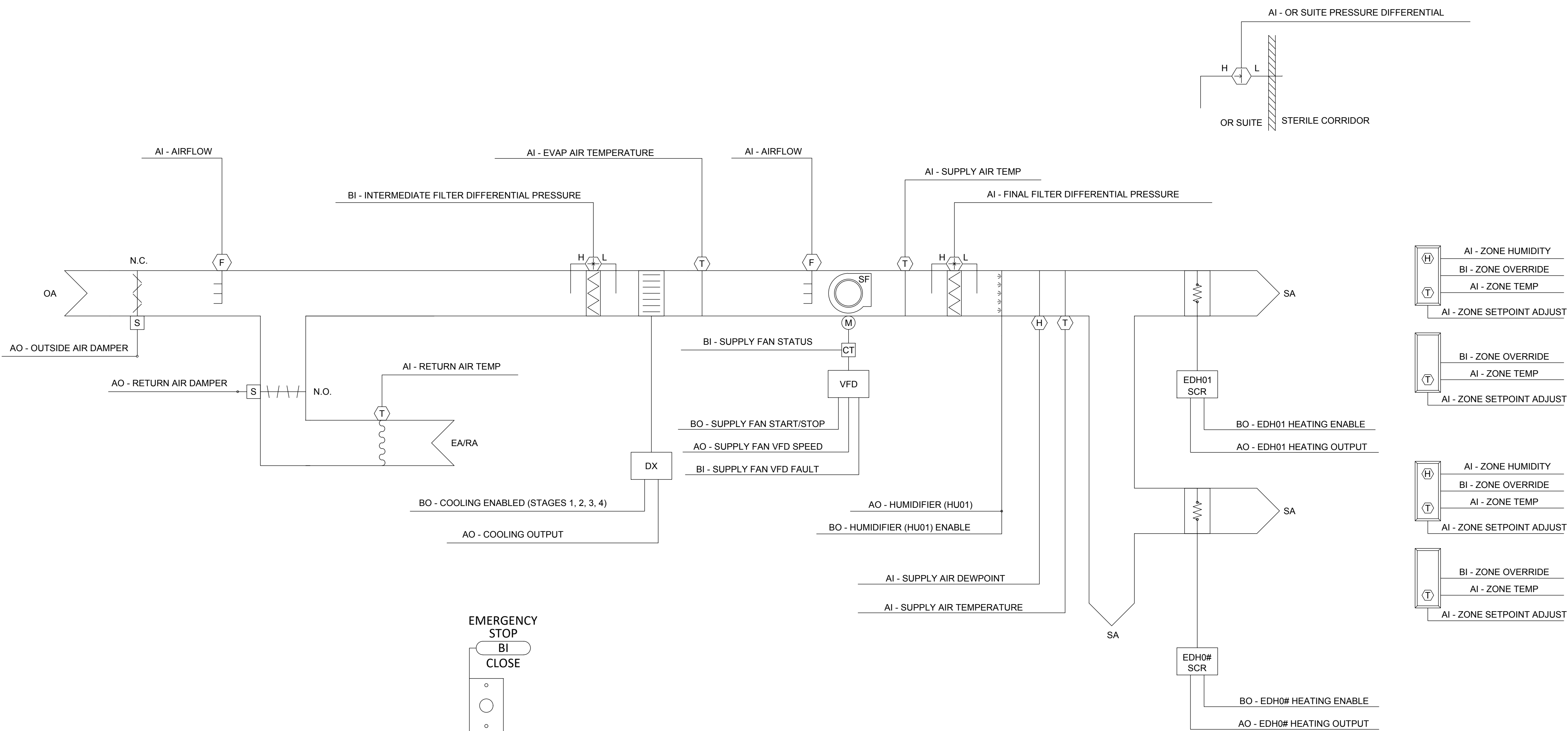
EDH0# REHEATING DUCT HEATERS:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE REHEATING COIL ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT.

EDH0# REHEATING DUCT HEATERS DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
• LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F (ADJ.).

EDH0# ZONE HUMIDITY:
THE CONTROLLER SHALL MONITOR THE ZONE HUMIDITY.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
• HIGH ZONE HUMIDITY: IF THE ZONE HUMIDITY IS GREATER THAN 70% (ADJ.).
• LOW ZONE HUMIDITY: IF THE ZONE HUMIDITY IS LESS THAN 40% (ADJ.).



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ADAMS
SOUTHEASTERN
CONSTRUCTION

PRINCIPAL: DMH

PROJECT MANAGER: DMH

REVISIONS

NO.	BY	DESCRIPTION	DATE
1	DMH	ISSUE FOR REVIEW	07.10.20

KEY PLAN

DATE 07-10-2020 DRAWN BY GRM

PROJECT NO. 20190431 SCALE AS NOTED

DHSR NO. AS-422 FID NO.

DRAWING NAME

CONTROLS

FLOOR/SECTION PHASE

CD

DRAWING NO.

M6.4