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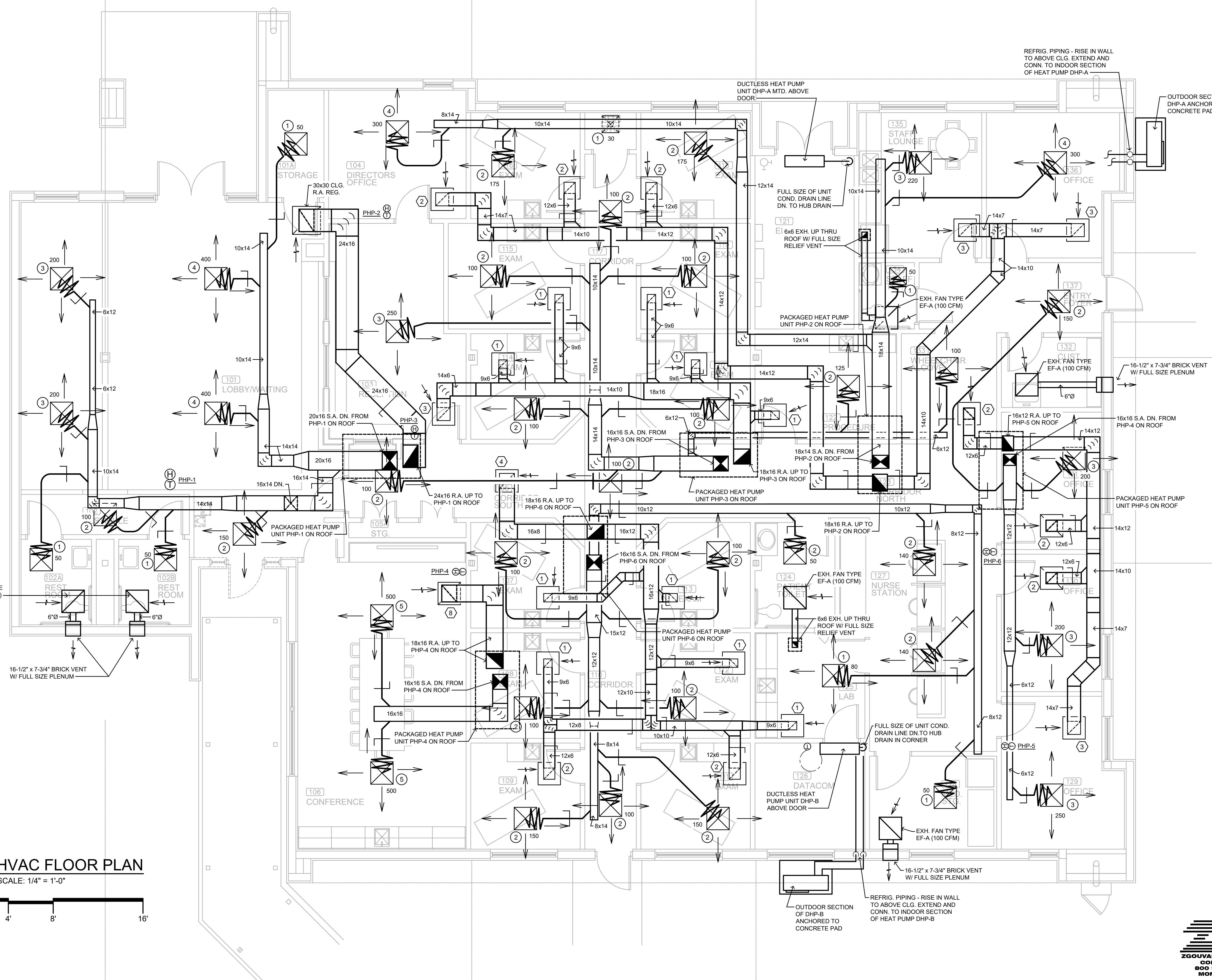
DONOFRO ARCHITECTS
P.O. BOX 861
MARIANNA, FL 32447
OFFICE: (850) 482-5261
2910 CALEDONIA ST.
MARIANNA, FL 32446
OFFICE: (850) 482-5261



DOCTORS MEMORIAL HOSPITAL
2000 HOSPITAL DR. BONIFAY, FLORIDA

JOB NUMBER: M-2022-03
DATE: JULY 19, 2024
DRAWN BY: C. WARD
CHECKED BY: T. ZGOUVAS

SHEET No.
M1



HVAC FLOOR PLAN
SCALE: 1/4" = 1'-0"
0' 1' 2' 4' 8' 16'

ZGOUVAS, EIRING & ASSOCIATES
CONSULTING ENGINEERS
800 S. MCDONOUGH STREET
MONTGOMERY, AL 36104
334.263.4406
ZEA PROJECT NUMBER 23-13

PHP-1 OUTDOOR AIR AND EXHAUST CALCULATIONS															
	Area	Peo/1000SF	# People	CFM/SF	Area CFM	CFM/Person	People CFM	Voz	Ez	# Fixtures	CFM/Fixt	CFM/SF	Min Exhaust	Supply Air	Zp EQ 4-5
LOBBY/ WAITING 101	785	30	24	0.06	48	5	120	210	0.8				0	1450	0.144828
RESTROOMS 102a & 102b										2	70		140	100	0
storage 101a	50	0	0	0.12	6	0	0	7.5	0.8				0	50	0.15
Total			24		54		120								

Cumulative CFM		217.5
Max "Zp"	0.15	
"Ev"	1	
"Vou" Total OSA EQ 4-6	217.5	
Total Building Occupancy	3	
Zone Occupancy	24	
"D" from EQ 4-7	0.125	
"Vot" Equation 4-8	217.5	
TOTAL OSA	217.5	

PHP-2 OUTDOOR AIR AND EXHAUST CALCULATIONS															
	Area	Peo/1000SF	# People	CFM/SF	Area CFM	CFM/Person	People CFM	Voz	Ez	# Fixtures	CFM/Fixt	CFM/SF	Min Exhaust	Supply Air	Zp EQ 4-5
DIRECTORS OFFICE 104	140	5	1	0.06	9	5	5	17.5	0.8				0	300	0.058333
EXAM 116	100	5	1	0.06	6	5	5	13.75	0.8				0	175	0.078571
STORAGE 117A	15	5	1	0.06	1	5	5	7.5	0.8				0	30	0.25
EXAM 118	100	5	1	0.06	6	5	5	13.75	0.8				0	175	0.078571
STAFF LOUNGE 135	150	25	4	0.06	9	5	20	36.25	0.8				0	220	0.164773
OFFICE 136	150	5	1	0.06	9	5	5	17.5	0.8				0	300	0.058333
Total			9		16		45								

Cumulative CFM		106.25
Max "Zp"	0.25	
"Ev"	0.9	
"Vou" Total OSA EQ 4-6	106.25	
Total Building Occupancy	3	
Zone Occupancy	3	
"D" from EQ 4-7	1	
"Vot" Equation 4-8	118.0556	
TOTAL OSA	118.0556	

PHP-3 OUTDOOR AIR AND EXHAUST CALCULATIONS															
	Area	Peo/1000SF	# People	CFM/SF	Area CFM	CFM/Person	People CFM	Voz	Ez	# Fixtures	CFM/Fixt	CFM/SF	Min Exhaust	Supply Air	Zp EQ 4-5
RECEPTION 103	210	5	2	0.06	13	5	10	28.75	0.8				0	250	0.115
EXAM 114	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
EXAM 115	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
EXAM 119	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
EXAM 120	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
PROCEDURE 122	115	5	1	0.06	7	5	5	15	0.8				0	125	0.12
PATIENT TOILET 124										1	70		70	50	0
CORRIDOR NORTH 123	140	5	1	0.06	9	5	5	17.5	0.8				0	250	0.07
Total			8		37		40								

Cumulative CFM		116.25
Max "Zp"	0.1375	
"Ev"	1	
"Vou" Total OSA EQ 4-6	116.25	
Total Building Occupancy	8	
Zone Occupancy	8	
"D" from EQ 4-7	1	
"Vot" Equation 4-8	116.25	
TOTAL OSA	116.25	

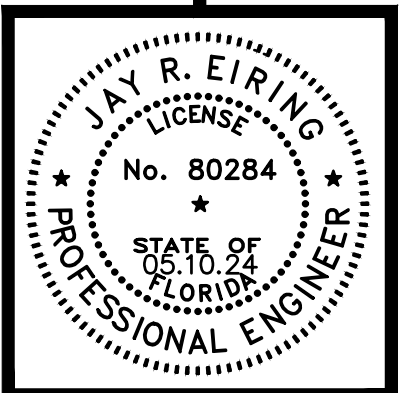
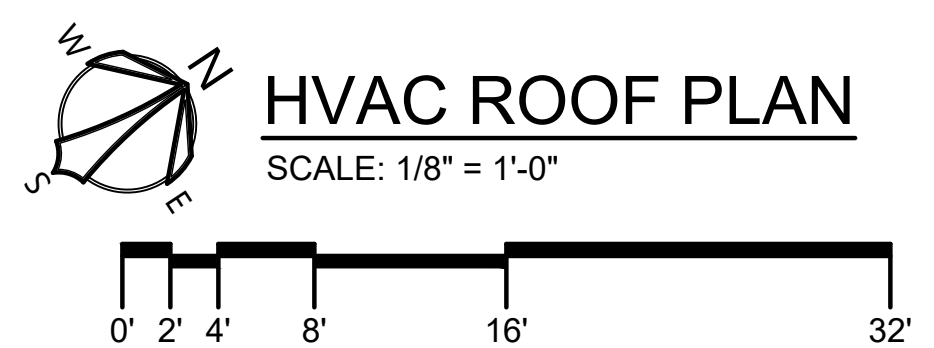
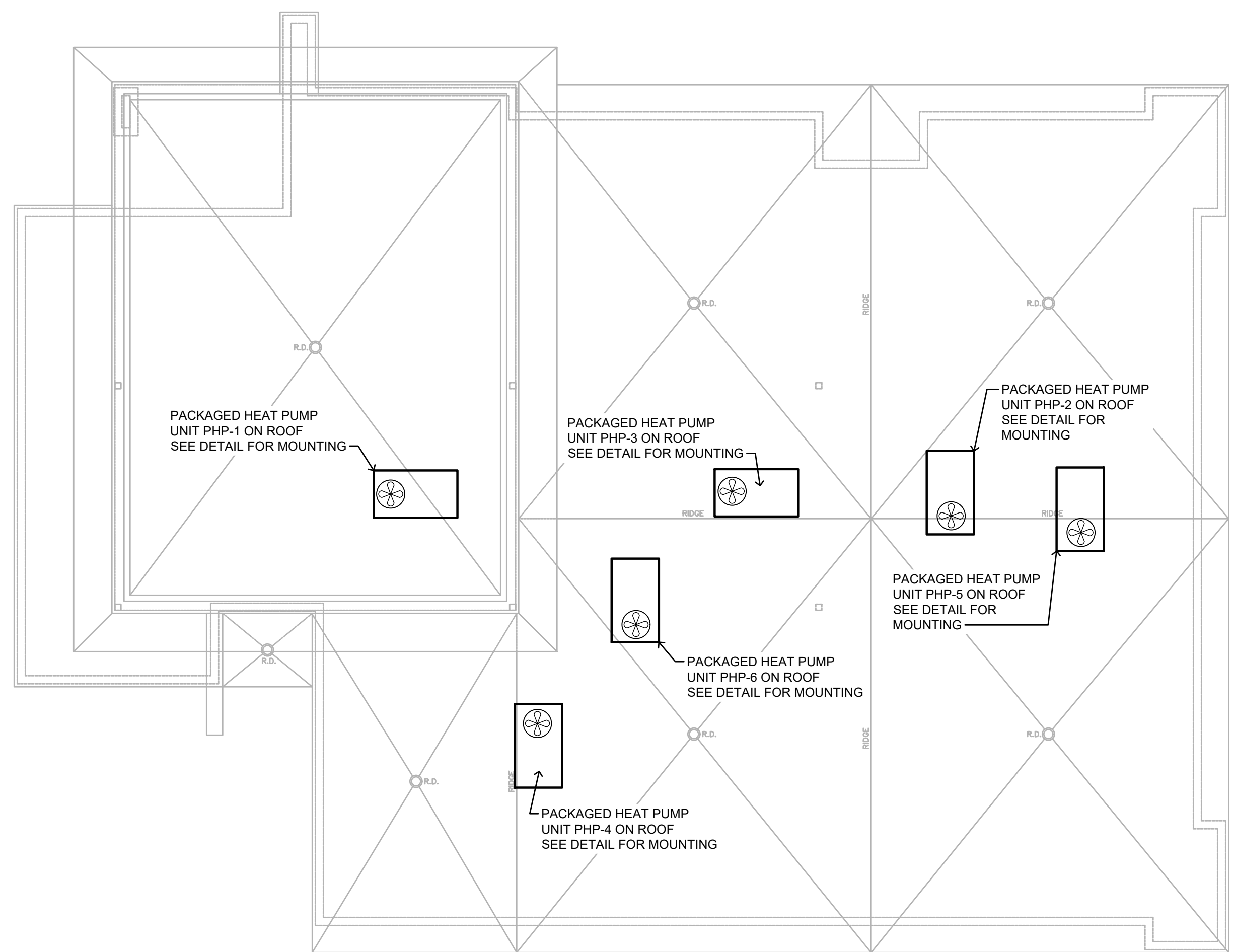
PHP-4 OUTDOOR AIR AND EXHAUST CALCULATIONS															
	Area	Peo/1000SF	# People	CFM/SF	Area CFM	CFM/Person	People CFM	Voz	Ez	# Fixtures	CFM/Fixt	CFM/SF	Min Exhaust	Supply Air	Zp EQ 4-5
CONFERENCE 106	400	50	20	0.06	24	5	100	155	0.8				0	1000	0.155
Total			20		24		100								

PHP-5 OUTDOOR AIR AND EXHAUST CALCULATIONS															
	Area	Peo/1000SF	# People	CFM/SF	Area CFM	CFM/Person	People CFM	Voz	Ez	# Fixtures	CFM/Fixt	CFM/SF	Min Exhaust	Supply Air	Zp EQ 4-5
BNRYFOYER 137	140	5	1	0.06	9	5	5	17.5	0.8				0	150	0.116667
CUSTODIAL 132										1	70		70	0	0
OFFICE 131	110	5	1	0.06	7	5	5	15	0.8				0	200	0.075
OFFICE 130	110	5	1	0.06	7	5	5	15	0.8				0	200	0.075
OFFICE 129	140	5	1	0.06	9	5	5	17.5	0.8				0	250	0.07
Total			4		16		20								

Cumulative CFM		65
Max "Zp"	0.116667	
"Ev"	1	
"Vou" Total OSA EQ 4-6	65	
Total Building Occupancy	3	
Zone Occupancy	2	
"D" from EQ 4-7	1.5	
"Vot" Equation 4-8	65	
TOTAL OSA	65	

PHP-6 OUTDOOR AIR AND EXHAUST CALCULATIONS															
	Area	Peo/1000SF	# People	CFM/SF	Area CFM	CFM/Person	People CFM	Voz	Ez	# Fixtures	CFM/Fixt	CFM/SF	Min Exhaust	Supply Air	Zp EQ 4-5
EXAM 109	100	5	1	0.06	6	5	5	13.75	0.8				0	150	0.091667
EXAM 108	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
EXAM 107	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
EXAM 111	100	5	1	0.06	6	5	5	13.75	0.8				0	150	0.091667
EXAM 112	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
EXAM 113	100	5	1	0.06	6	5	5	13.75	0.8				0	100	0.1375
PATIENT TOILET 124										1	70		70	50	0
LAB 125	91	5	1	0.06	6	5	5	13.75	0.8				0	80	0.171875
MED STORAGE 128	140	5	1	0.06	9	5	5	17.5	0.8				0	50	0.35
NURSE STATION 127	235	5	2	0.06	15	5	10	31.25	0.8				0	280	0.111607
Total			10		36		50								

Cumulative CFM		145
Max "Zp"	0.35	
"Ev"	0.8	
"Vou" Total OSA EQ 4-6	145	
Total Building Occupancy	10	
Zone Occupancy	10	
"D" from EQ 4-7	1	
"Vot" Equation 4-8	181.25	
TOTAL OSA	181.25	



THE DESIGN & CONSTRUCTION OF THIS PROJECT IS THE SOLE RESPONSIBILITY OF THE ENGINEER. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED AND IS SUBJECT TO LOCAL ACTS. DONOFRO ARCHITECTS

DONOFRO ARCHITECTS
 2910 CALEDONIA ST.
 MARIANNA, FL 32446
 OFFICE: (850) 482-5261
 P.O. BOX 861
 MARIANNA, FL 32447
 FAX: (850) 482-8609



SHEET TITLE: HVAC ROOF PLAN & O.A. CALCULATIONS
 FOR: NEW MEDICAL OFFICE BUILDING
DOCTORS MEMORIAL HOSPITAL
 2600 HOSPITAL DR. BONIFAY, FLORIDA

JOB NUMBER: M-2022-03
 DATE: JULY 19, 2024
 DRAWN BY: C. WARD
 CHECKED BY: T. ZGOUVAS

SHEET No.
M2



PACKAGED ROOF MOUNTED HEAT PUMP UNITS SCHEDULE

UNIT TYPE	MINIMUM TOTAL AIR CFM	OUTSIDE AIR CFM			APPROX. EXT. STATIC PRESS.- INCHES OF WATER COL.	FAN MOTOR				MINIMUM COOLING CAPACITY AT AHRI CONDITIONS - TOTAL BTU/HR	MINIMUM HEATING CAP. (COMPRESSOR ONLY) AT 22°F AMBIENT & 70°F INDOOR TEMP. - BTU/HR	COMPRESSOR MOTOR				OUTDOOR UNIT FAN(S)			AUXILIARY RESISTANCE HEATER				APPROX. MCA	APPROX. MOC	MINIMUM HSPF/COP AT AHRI CONDITIONS	MIN. EFFICIENCY AT AHRI CONDITIONS		
		MINIMUM SETPOINT	MAXIMUM SETPOINT	MAXIMUM SETPOINT (ECONOMIZER)		APPROX. H.P.	VOLTS	PHASE	HZ.			APPROX. F.L.A.	VOLTS	PH.	HZ.	APPROX. F.L.A.	VOLTS	PH.	HZ.	K.W.	CONTROL STEPS	VOLTS					PH.	HZ.
PHP-1	1600	275	N/A	N/A	0.68	3/4	240	1	60	48,000	32,000	21.0	240	1	60	2.5	240	1	60	15.0	TWO	240	1	60	78.0	80.0	8.2 HSPF	14.0 SEER
PHP-2	1200	120	N/A	N/A	0.50	1/2	240	1	60	36,000	24,000	17.0	240	1	60	2.0	240	1	60	15.0	TWO	240	1	60	78.0	80.0	8.2 HSPF	14.0 SEER
PHP-3	1200	125	N/A	N/A	0.50	1/2	240	1	60	36,000	24,000	17.0	240	1	60	2.0	240	1	60	15.0	TWO	240	1	60	78.0	80.0	8.2 HSPF	14.0 SEER
PHP-4	1000	175	N/A	N/A	0.60	1/2	240	1	60	30,000	20,000	15.0	240	1	60	1.5	240	1	60	15.0	TWO	240	1	60	78.0	80.0	8.2 HSPF	14.0 SEER
PHP-5	800	100	N/A	N/A	0.80	1/2	240	1	60	24,000	16,000	14.0	240	1	60	1.0	240	1	60	8.0	ONE	240	1	60	41.0	45.0	8.2 HSPF	14.0 SEER
PHP-6	1200	110	N/A	N/A	0.50	1/2	240	1	60	36,000	24,000	17.0	240	1	60	2.0	240	1	60	15.0	TWO	240	1	60	78.0	80.0	8.2 HSPF	14.0 SEER

NOTES:

- ALL INDOOR UNITS SHALL BE FACTORY WIRED FOR SINGLE POINT POWER CONNECTIONS (FAN AND HEATER).
- PHP-1 SHALL BE PROVIDED WITH A REFRIGERANT HOT GAS REHEAT COIL COMPLETE WITH REFRIGERANT PIPING, PIPE INSULATION, VALVES, CONTROLS, ETC. REQUIRED FOR HUMIDITY CONTROL - PROVIDE MANUAL REFRIGERANT ISOLATION VALVES FOR HOT GAS AND LIQUID LINES - FURNISH FOR APPROVAL DETAILED REFRIGERANT PIPING CONN. DIAGRAM AND CONTROL WIRING DIAGRAM - PRIOR TO SUBMITTING THE DIAGRAM, OBTAIN EQUIPMENT MANUFACTURER'S APPROVAL. SEE SPECS FOR ADDITIONAL REQUIREMENTS
- 240 VOLT, 1 PHASE POWER IS BEING PROVIDED BY ELECTRICAL TO THE HEAT PUMP UNIT. UNIT MANUFACTURER SHALL PROVIDE FACTORY INSTALLED RELAYS, TRANSFORMERS, ETC., AS REQUIRED TO OPERATE EQUIPMENT AT POWER REQUIREMENTS SPECIFIED ABOVE.
- SEER RATINGS BASED ON AHRI 210/240
- HSPF RATING BASED ON AHRI 210/240

FANS SCHEDULE

FAN TYPE	EF-A
C.F.M.	100
MINIMUM FAN SIZE - INCHES	8.0
APPROX. FAN ROOF/WALL OPENING - INCHES	N/A
MAXIMUM FAN SPEED - RPM	1050
APPROX. EXTERNAL STATIC PRESSURE - IN. OF WATER	.30
MINIMUM FAN MOTOR H.P. - POWER	84 WATTS - 120V, 1PH., 60 HZ.
CONTROL INTERLOCK	LIGHTING CIRCUIT
DESCRIPTION	CEILING MOUNTED, CENTRIFUGAL, DIRECT DRIVEN

CEILING DIFFUSER SCHEDULE

SYMBOL	CFM RANGE	NECK SIZE INCHES	FACE SIZE INCHES	BRANCH DUCT SIZE	MAXIMUM NC VALUE	BASIS OF DESIGN
①	10 - 95	6" ROUND	24x24	6"Ø	20	TITUS TMS
②	100 - 180	8" ROUND	24x24	8"Ø	20	TITUS TMS
③	185 - 270	10" ROUND	24x24	10"Ø	20	TITUS TMS
④	275 - 400	12" ROUND	24x24	12"Ø	20	TITUS TMS
⑤	405 - 530	14" ROUND	24x24	14"Ø	20	TITUS TMS

NOTES

- RUNOUTS/BRANCH DUCTS SHALL BE AS SCHEDULED ABOVE UNLESS NOTED OTHERWISE ON THE PLANS
- CONTRACTOR SHALL INSULATE THE EXTERIOR (BACK SIDE OF DIFFUSER PANEL) WITH 1" THICKNESS EXTERNAL DUCT INSULATION WITH CHARACTERISTICS SPECIFIED FOR EXTERNAL DUCT INSULATION.

WALL MOUNTED DUCTLESS HEAT PUMP UNIT SCHEDULE

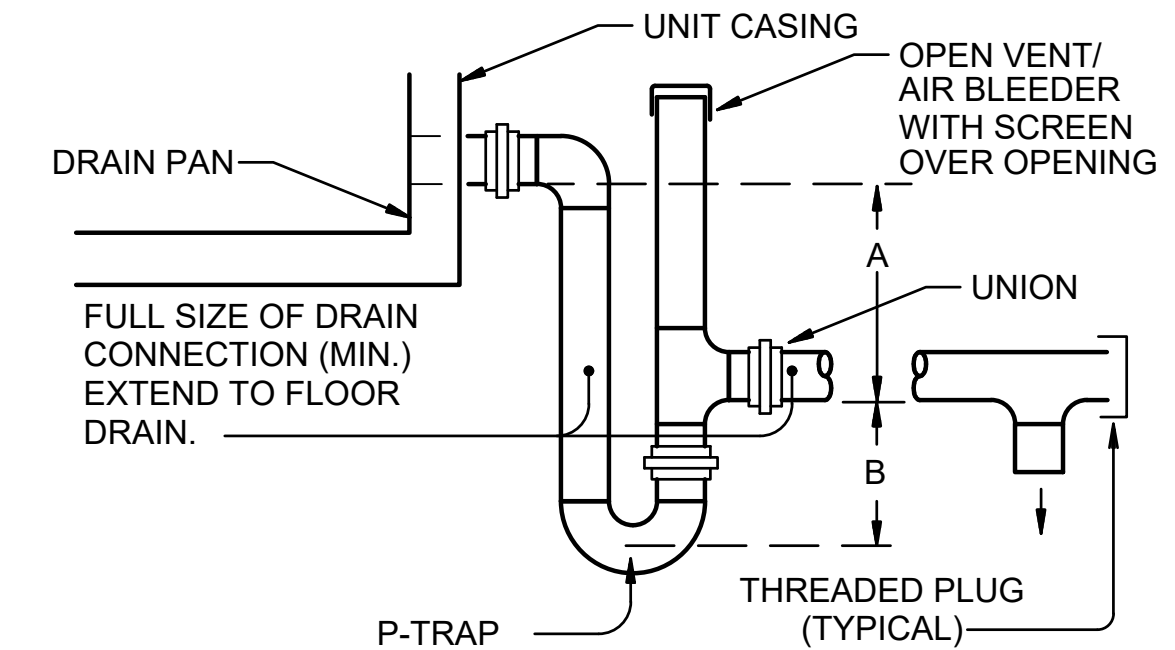
UNIT TYPE	DHP-A	DHP-B
MINIMUM TOTAL COOLING CAP. AT A.R.I. CONDITIONS - BTU/HR	9,000	12,000
MINIMUM HEATING CAP. (COMPRESSOR ONLY) AT 70°F INDOOR & 47°F AMBIENT - BTU/HR	9,600	14,000
INDOOR FAN CFM AT HIGH SPEED (WET COIL)	325	380
INDOOR UNIT MCA - POWER	1.5 A - 208 V., 1 PH., 60 HZ.	1.5 A - 208 V., 1 PH., 60 HZ.
OUTDOOR UNIT MCA (COMPRESSOR AND COND. FAN) - POWER	10.0 A - 208 V., 1 PH., 60 HZ.	11.0 A - 208 V., 1 PH., 60 HZ.
OUTDOOR UNIT MOP (COMPRESSOR AND COND. FAN) - POWER	15.0 A - 208 V., 1 PH., 60 HZ.	28.0 A - 208 V., 1 PH., 60 HZ.
MINIMUM HSPF AT AHRI 210/240 CONDS.	13.5	10.2
MINIMUM S.E.E.R. AT AHRI 210/240 CONDS	27.5	20.8
BASIS OF DESIGN	MITSUBISHI MSZ / MUZ	MITSUBISHI PKA / PUZ

EXHAUST/RETURN AIR REGISTER SCHEDULE

SYMBOL	CFM RANGE	SIZE - IN. x IN.	DESCRIPTION	MAXIMUM NC RATING	BRANCH DUCT SIZE
①	0 - 140	9x9	CEILING EXH. OR RETURN REG.	20	9x6
②	141 - 240	12x12	CEILING EXH. OR RETURN REG.	20	12x7
③	241 - 340	14x14	CEILING EXH. OR RETURN REG.	20	14x7
④	341 - 460	16x16	CEILING EXH. OR RETURN REG.	20	16x9
⑤	461 - 600	18x18	CEILING EXH. OR RETURN REG.	20	18x10
⑥	601 - 760	20x20	CEILING EXH. OR RETURN REG.	20	20x12
⑦	761 - 940	24x24	CEILING EXH. OR RETURN REG.	20	24x12
⑧	941 - 1200	30x24	CEILING EXH. OR RETURN REG.	20	24x14
⑨	1201 - 1400	36x24	CEILING EXH. OR RETURN REG.	20	28x14

NOTES

- RUNOUTS/BRANCH DUCTS SHALL BE AS SCHEDULED ABOVE UNLESS NOTED OTHERWISE ON THE PLANS.
- ⑧ & ⑨ SHALL BE IN INTEGRAL 48x24 METAL CEILING PANEL AS SPECIFIED. ALL OTHERS SHALL BE IN INTEGRAL 24x24 METAL CEILING PANEL AS SPECIFIED.
- CONTRACTOR SHALL INSULATE THE BACK SIDE OF CEILING MOUNTED EXHAUST & RETURN AIR GRILLES/REGISTERS WITH 1" THICKNESS EXTERNAL DUCT INSULATION WITH CHARACTERISTICS SPECIFIED FOR EXTERNAL DUCT INSULATION.



UNIT TYPE	A	B
DRAW-THRU	2" PLUS "X"	"X" PLUS 1"
BLOW-THRU	1" MINIMUM	2X PLUS 1"

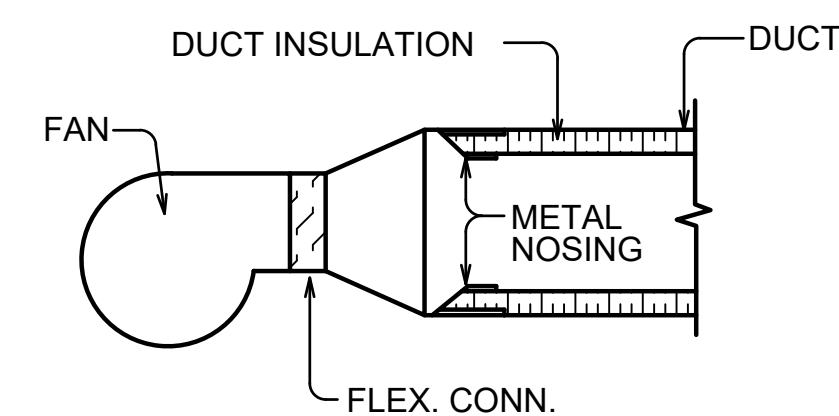
WHERE "X" = UNIT STATIC PRESSURE

TYPICAL AIR HANDLING UNIT CONDENSATE DRAIN DETAIL

NOT TO SCALE

NOTES:

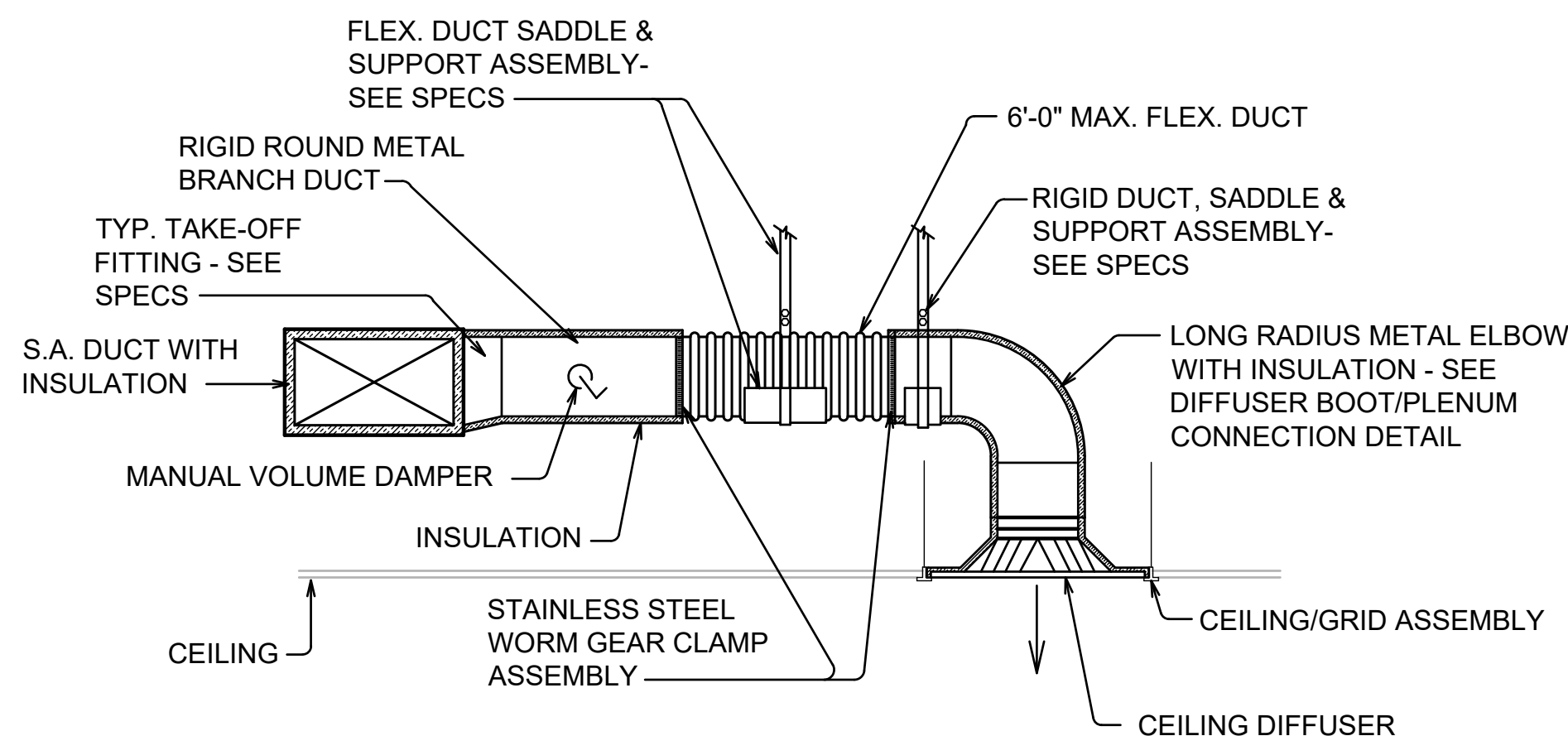
- CONTRACTOR SHALL PROVIDE DRAIN ARRANGEMENT AS REQUIRED BY THE UNIT MANUFACTURER. IN ABSENCE OF THOSE REQUIREMENTS, CONTRACTOR SHALL PROVIDE DRAIN AS DETAILED ABOVE
- CONTRACTOR SHALL RAISE THE RESPECTIVE UNIT AS REQUIRED TO ALLOW FOR INSTALLATION OF THE DRAIN AS DETAILED ABOVE
- PROVIDE AN ELECTRIC SWITCH IN THE AUXILIARY CONDENSATE DRAIN LINE ON THE UNIT, THAT CONFORMS TO UL 508, TO SHUT DOWN THE UNIT AND ALARM TO THE BUILDING ENERGY MANAGEMENT SYSTEM (BAS) OPERATOR CONSOLE (IF APPLICABLE) SHOULD THE LINE BECOME OBSTRUCTED



TYPICAL DUCT LINER INTERRUPTION DETAIL

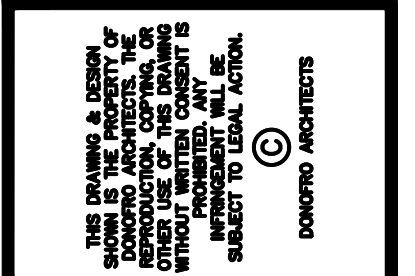
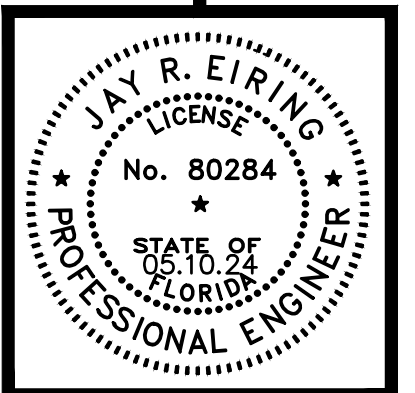
NOT TO SCALE

- NOTE !! THIS DETAIL APPLIES TO FIRE DAMPER INSTALLATION, WHERE DUCTS CONNECT TO FAN SECTION, ANYWHERE BARE DUCT LINER PROTRUDES INTO THE AIRSTREAM, ANY POINT WHERE LINED DUCT IS PRECEDED BY UNLINED DUCT, BARE DUCT INSULATION EDGES THAT ARE EXPOSED IN THE RETURN AIR PLENUM, ETC. - SEE SPECS FOR ADDITIONAL REQUIREMENTS



TYPICAL DIFFUSER RUN-OUT CONN.

NOT TO SCALE



DONOFRO ARCHITECTS

P.O. BOX 861
MARIANNA, FL 32447
OFFICE: (850) 482-5261
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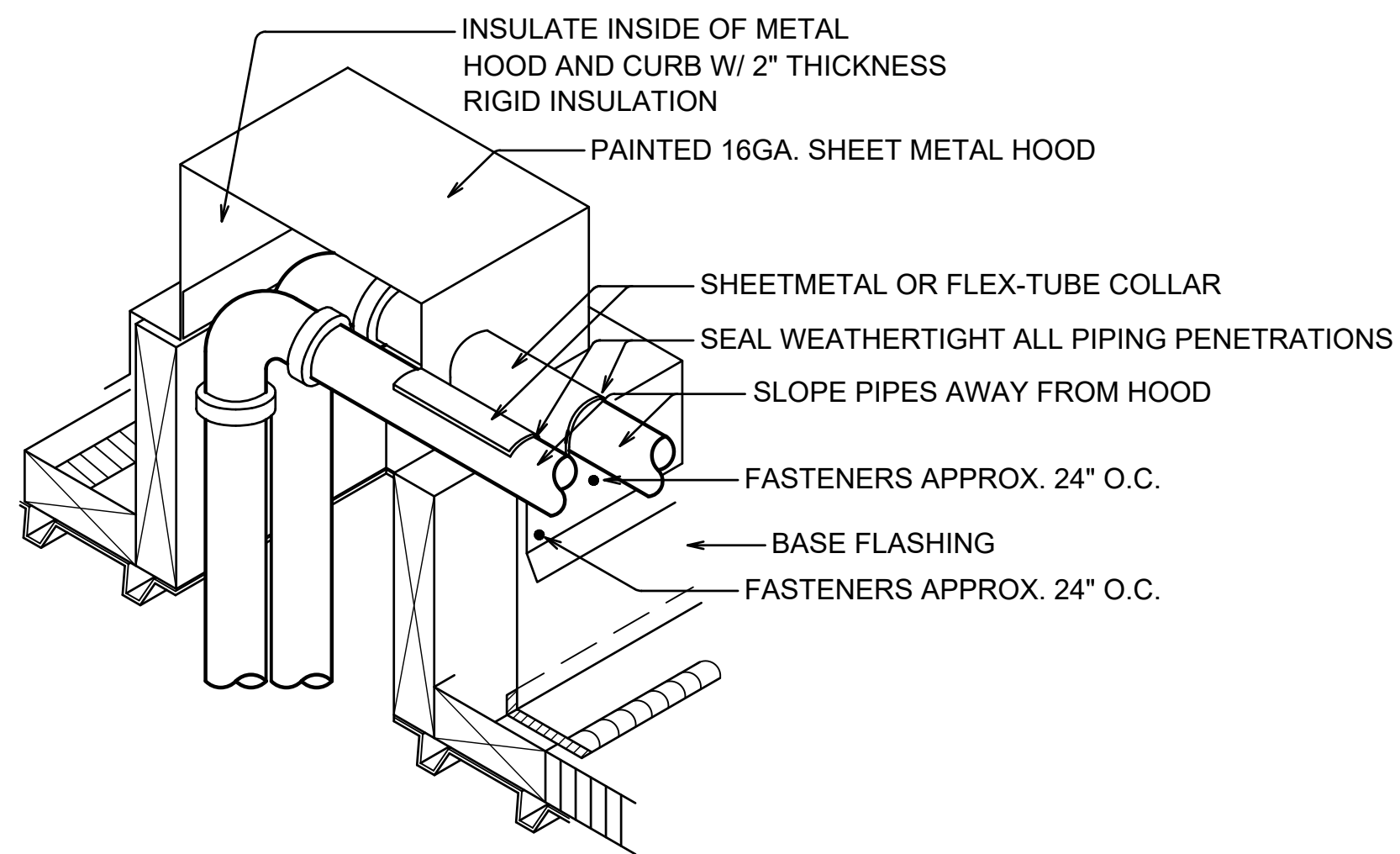
FOR
NEW MEDICAL OFFICE BUILDING
DOCTORS MEMORIAL HOSPITAL
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SHEET No.

M3

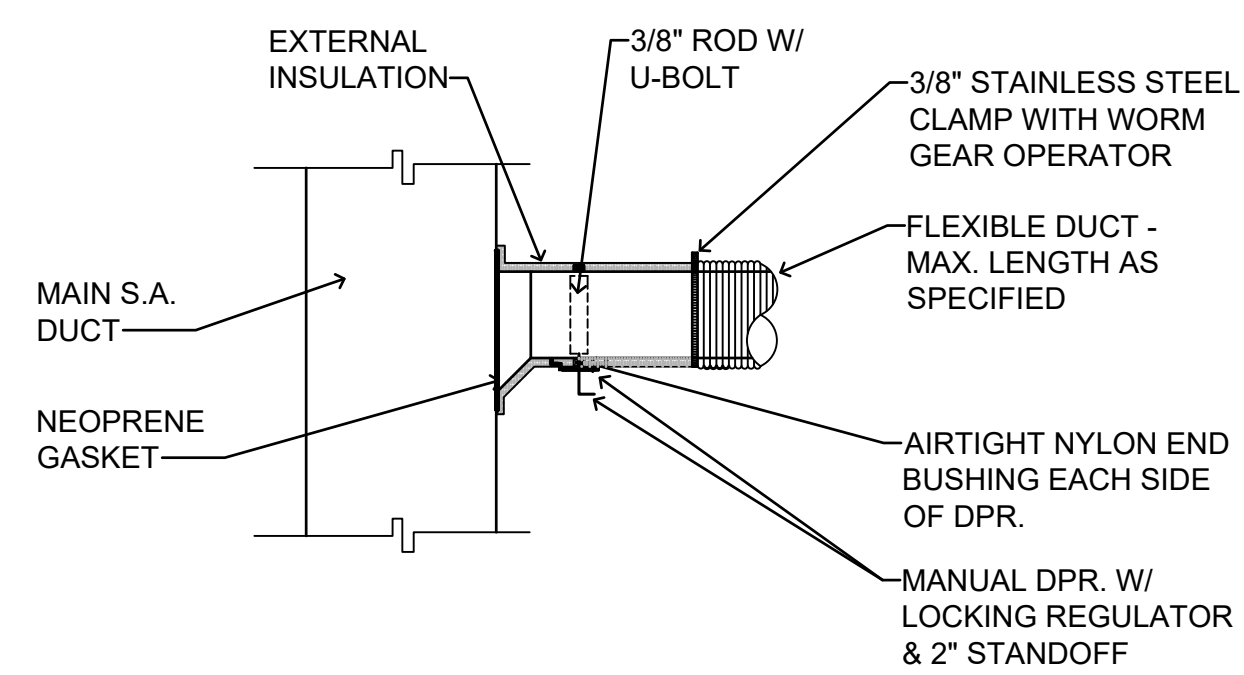
ZGOUVAS, EIRING & ASSOCIATES
CONSULTING ENGINEERS
800 S. MCDONOUGH STREET
MONTGOMERY, AL 36104
334.263.4406
ZEA PROJECT NUMBER 23-13



TYPICAL PIPING ROOF PENETRATION

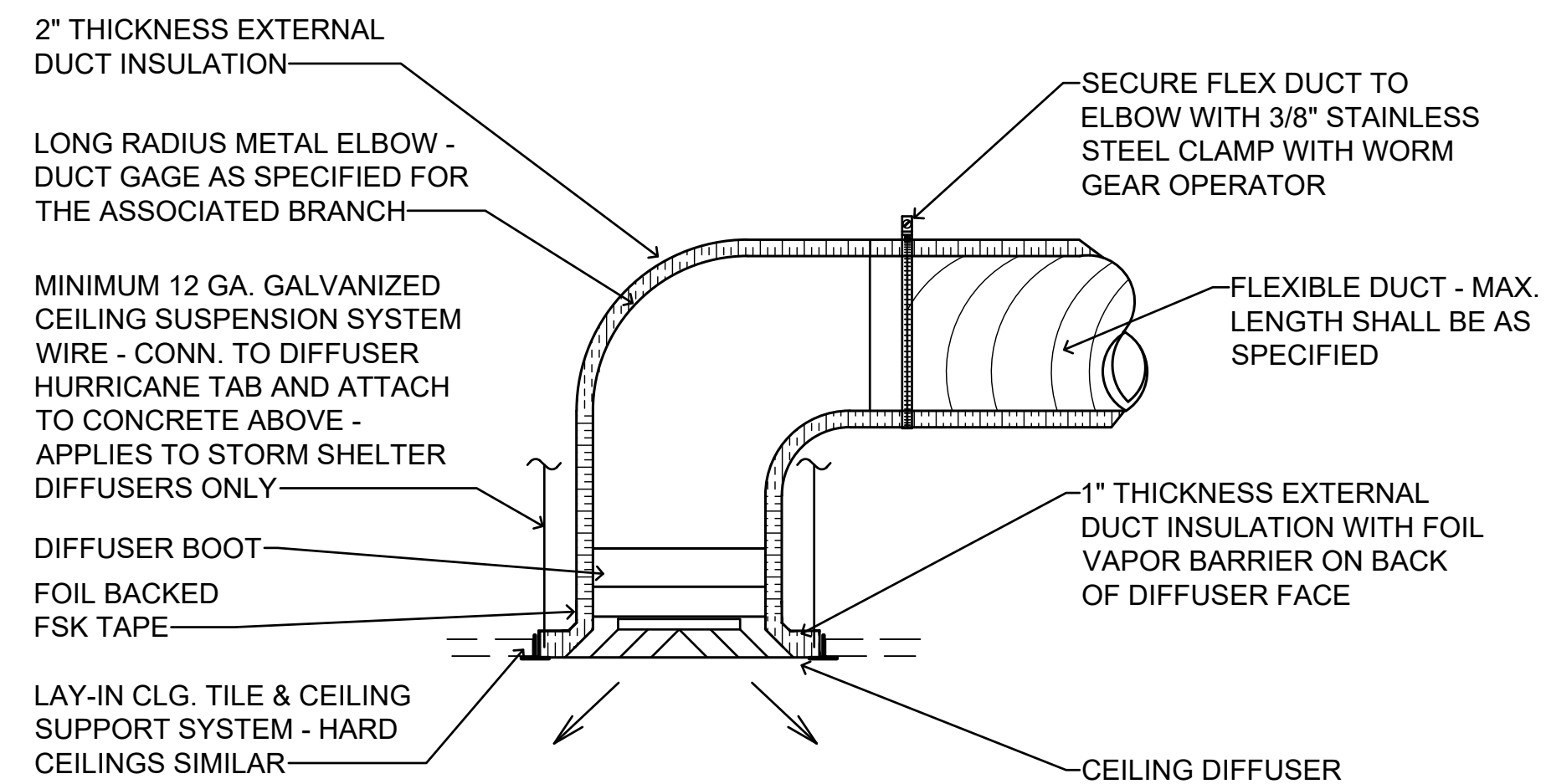
CURB / FLASHING DETAIL

NOT TO SCALE
CONTRACTOR MAY SUBSTITUTE FACTORY FABRICATED ASSEMBLY IN LIEU OF FIELD FABRICATED ASSEMBLY SHOWN PROVIDED THAT IT IS SIMILAR IN CONSTRUCTION



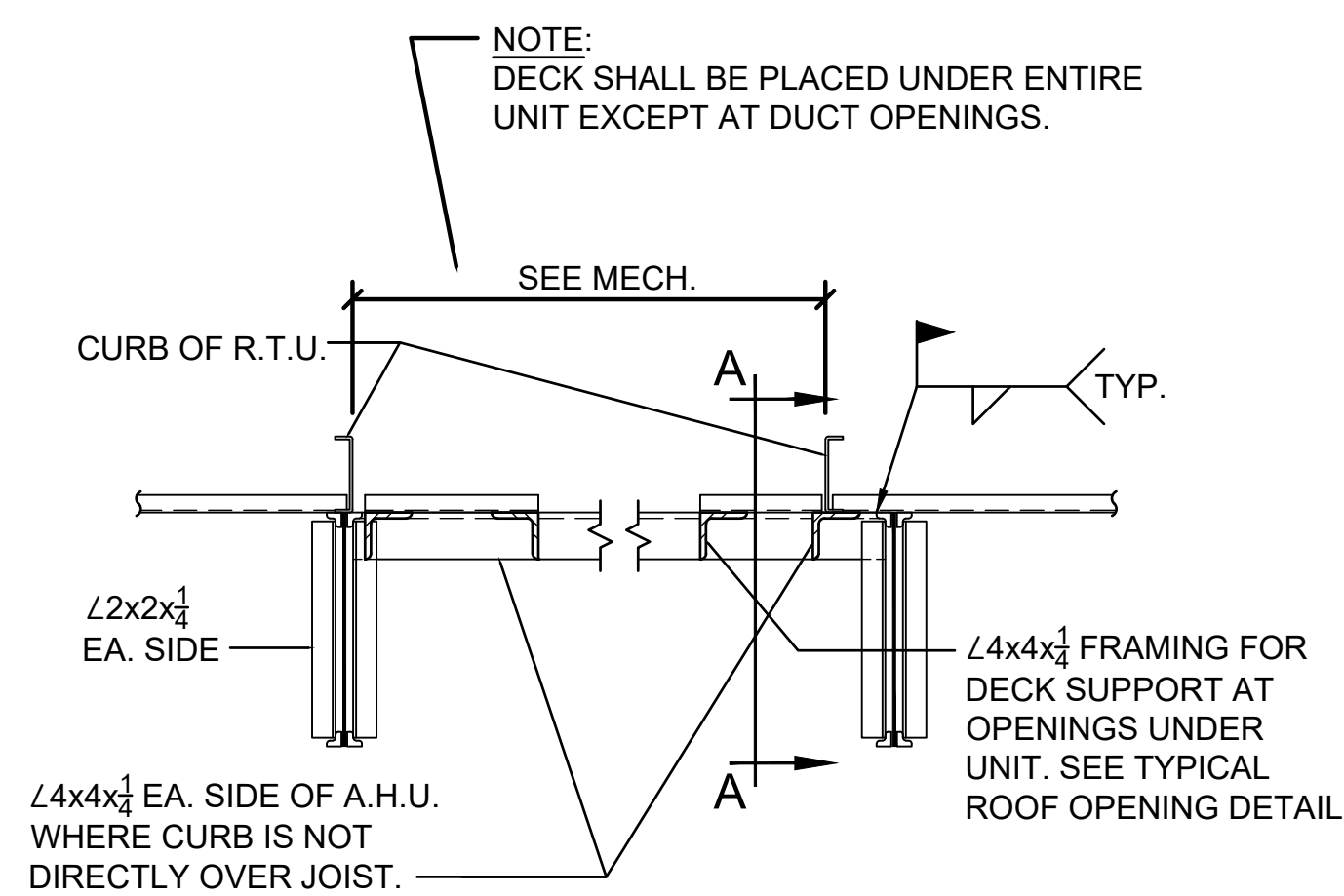
ROUND BRANCH DUCT TAKE-OFF DETAIL

NOT TO SCALE
RECTANGULAR RUNOUTS SAME EXCEPT WITH RECTANGULAR DUCT

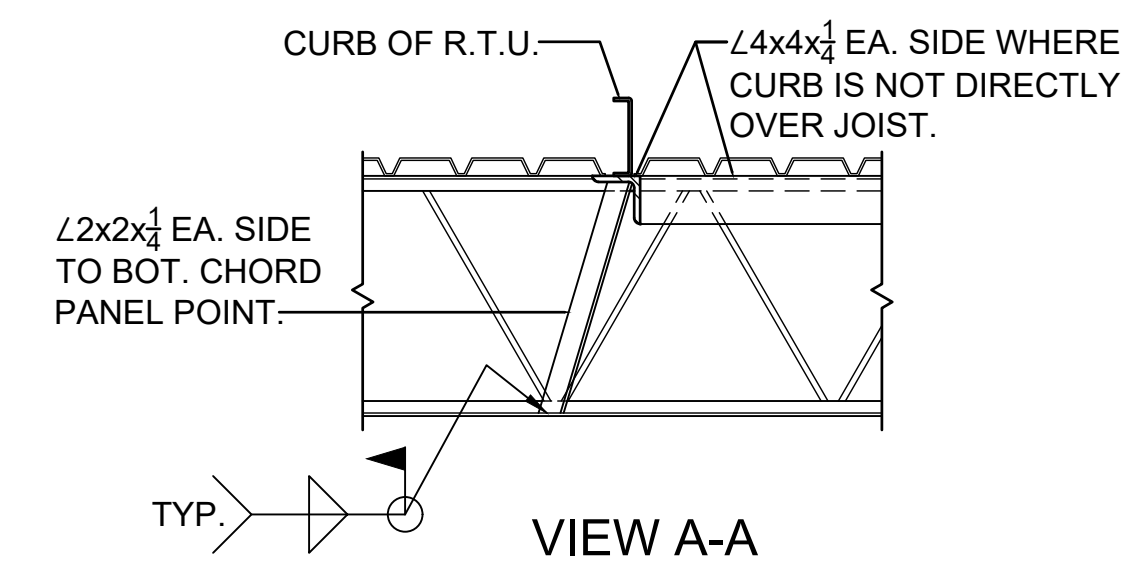


DIFFUSER BOOT/PLENUM CONNECTION DETAIL

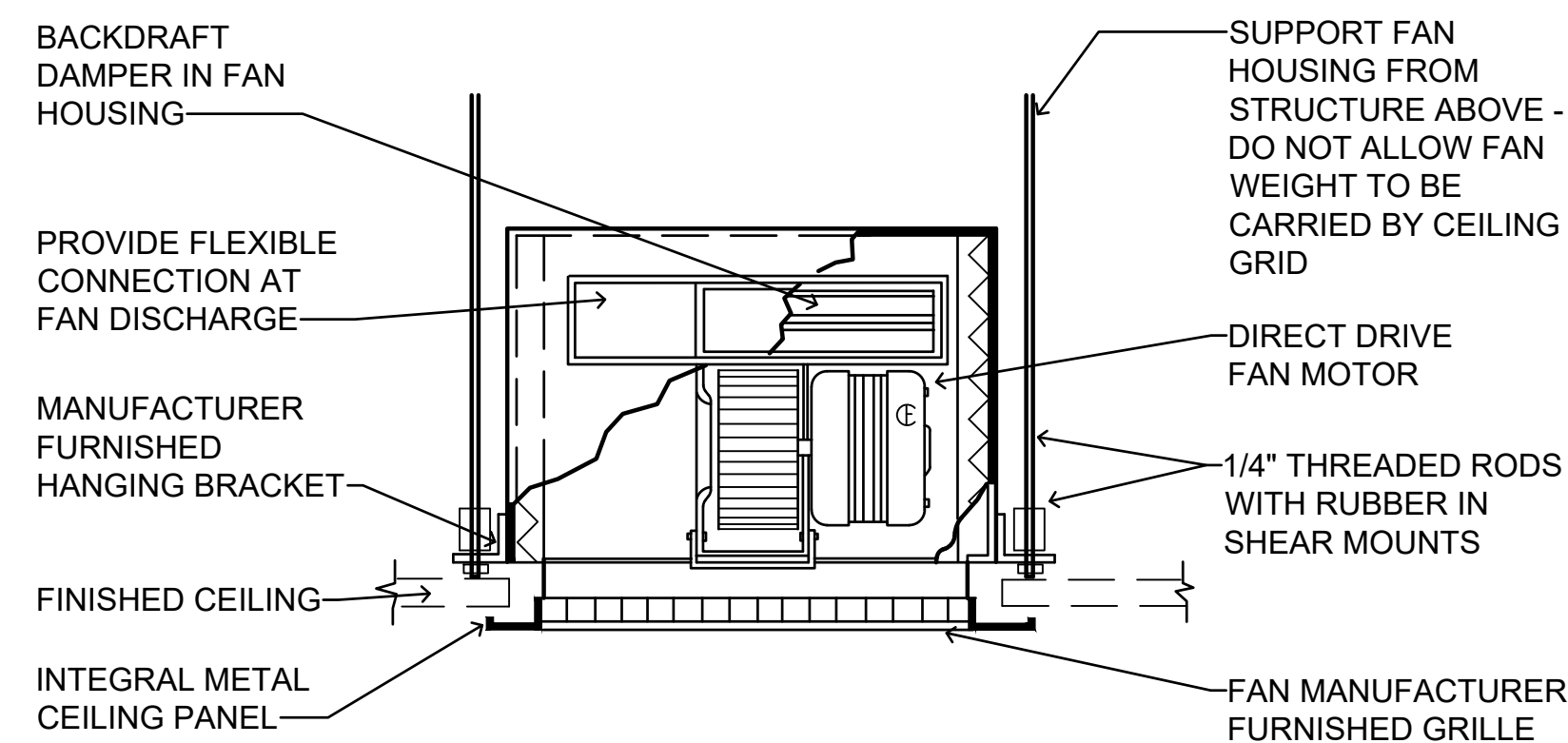
- NOT TO SCALE
- DIFFUSERS PANELS SHALL BE INSULATED PRIOR TO INSTALLING INTO THE CEILING GRID
 - DO NOT COVER STAINLESS STEEL BAND AND WORM GEAR OPERATOR UNTIL ENGINEER HAS INSPECTED THE INSTALLATION.



TYPICAL RTU CURB DETAIL

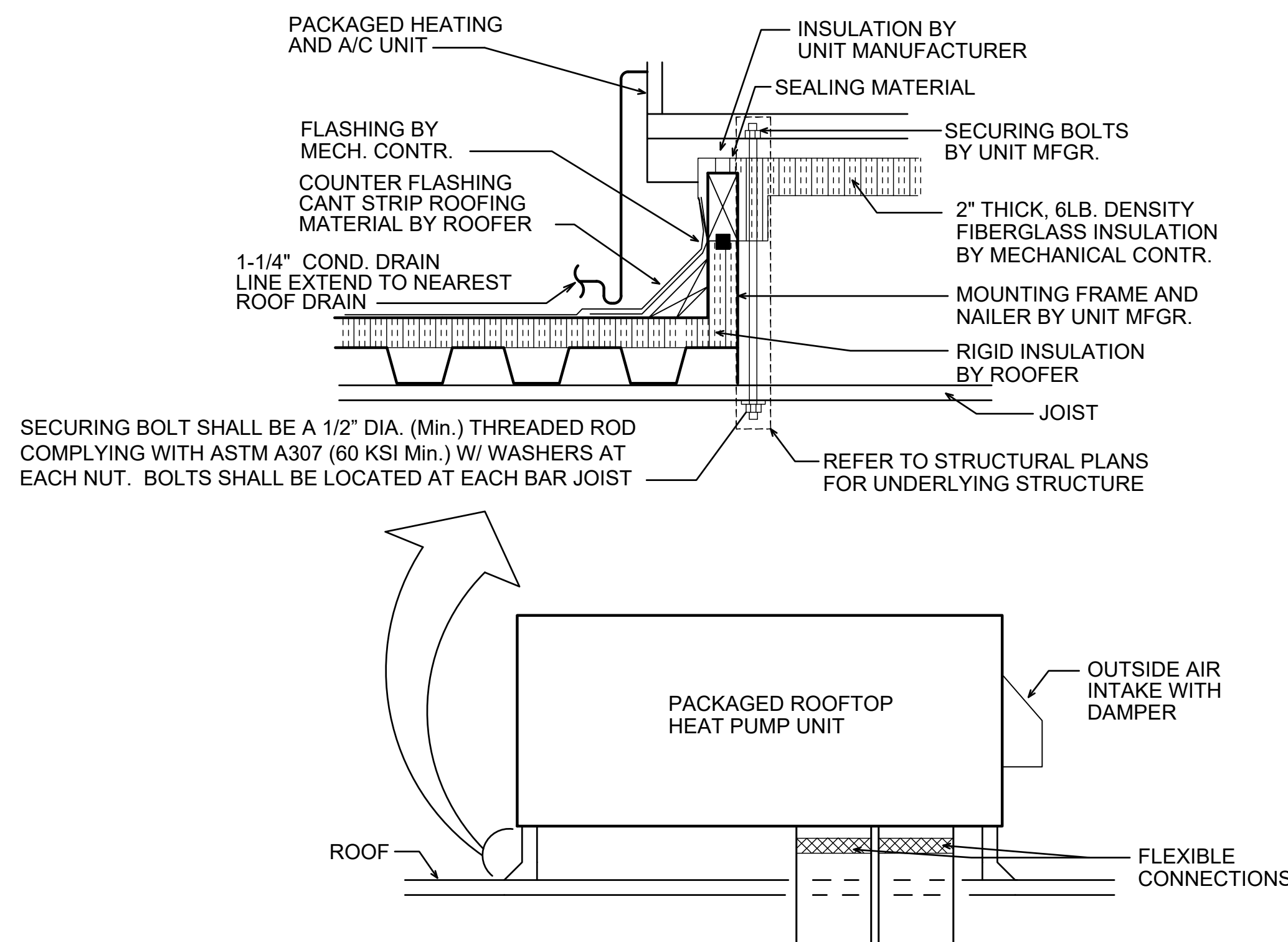


NOTE:
DETAIL ABOVE IS SHOWN TO INDICATE INTENT ON HOW THE ROOFTOP UNITS ARE TO BE ANCHORED - REQUIREMENTS ABOVE ARE BY THE GENERAL CONTRACTOR - REFER TO STRUCTURAL PLANS FOR SPECIFIC REQUIREMENTS



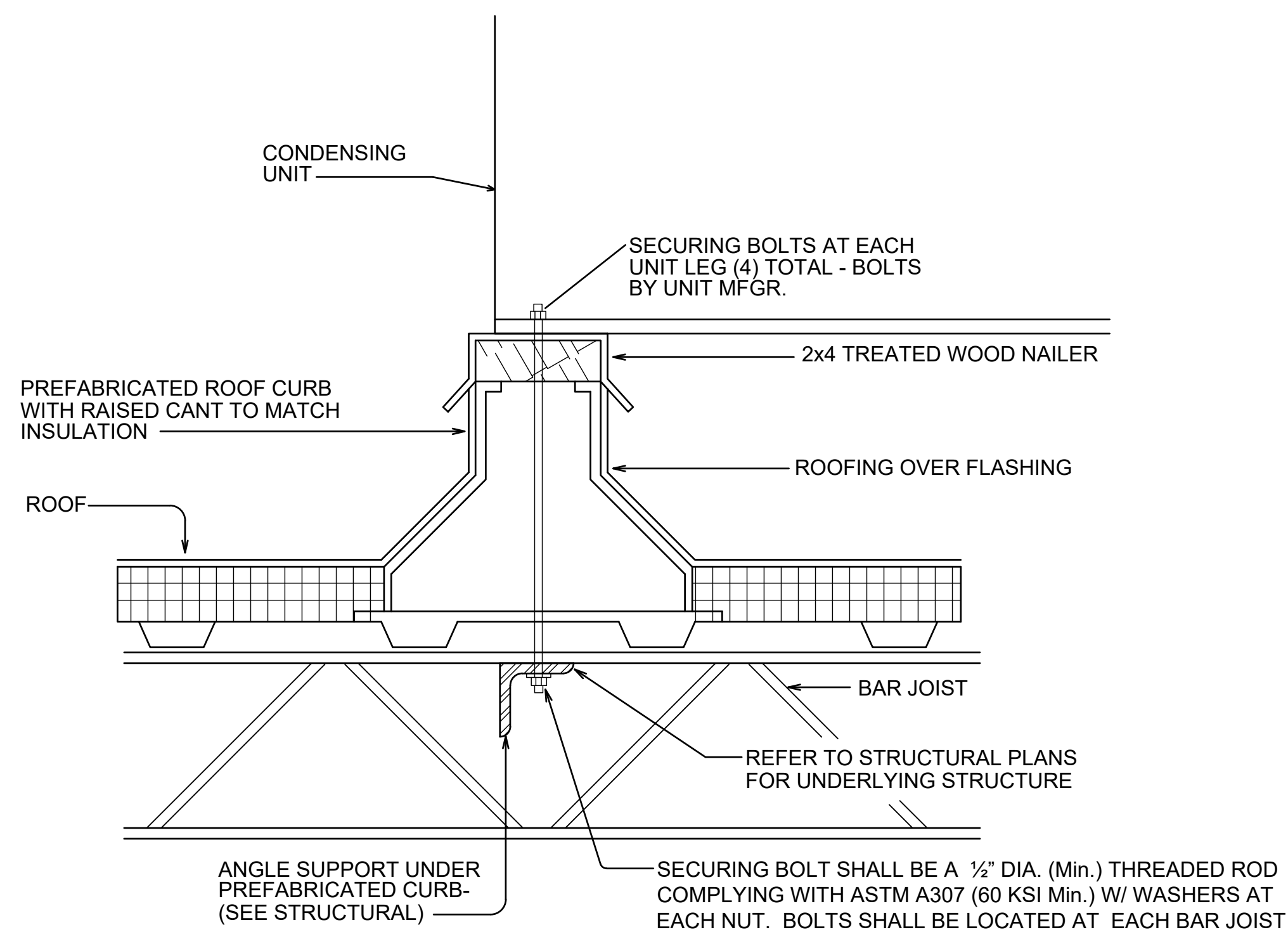
CEILING MOUNTED EXHAUST FAN CONN. DETAIL

NO SCALE



PACKAGED ROOFTOP HEAT PUMP UNIT CONNECTION DETAIL

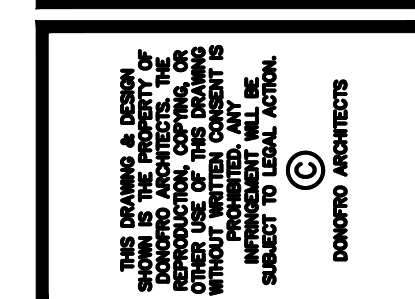
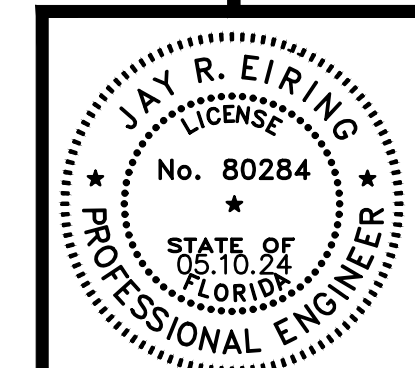
- NOT TO SCALE
- NOTES:
- HORIZONTAL DISCHARGE UNITS SIMILAR
 - SEE PLANS FOR SMOKE DETECTOR LOCATIONS



TYPICAL EQUIPMENT SUPPORT

ROOF CURB DETAIL

NO SCALE



DONOFRO ARCHITECTS

2910 CALEDONIA ST.
MARIANNA, FL 32446
OFFICE: (850) 482-5261



SHEET TITLE: HVAC DETAILS

FOR: NEW MEDICAL OFFICE BUILDING

FOR: **DOCTORS MEMORIAL HOSPITAL**

2600 HOSPITAL DR. BONIFAY, FLORIDA

JOB NUMBER: M-2022-03

DATE: JULY 19, 2024

DRAWN BY: C. WARD

CHECKED BY: T. ZGOUVAS

SHEET No.

M4

