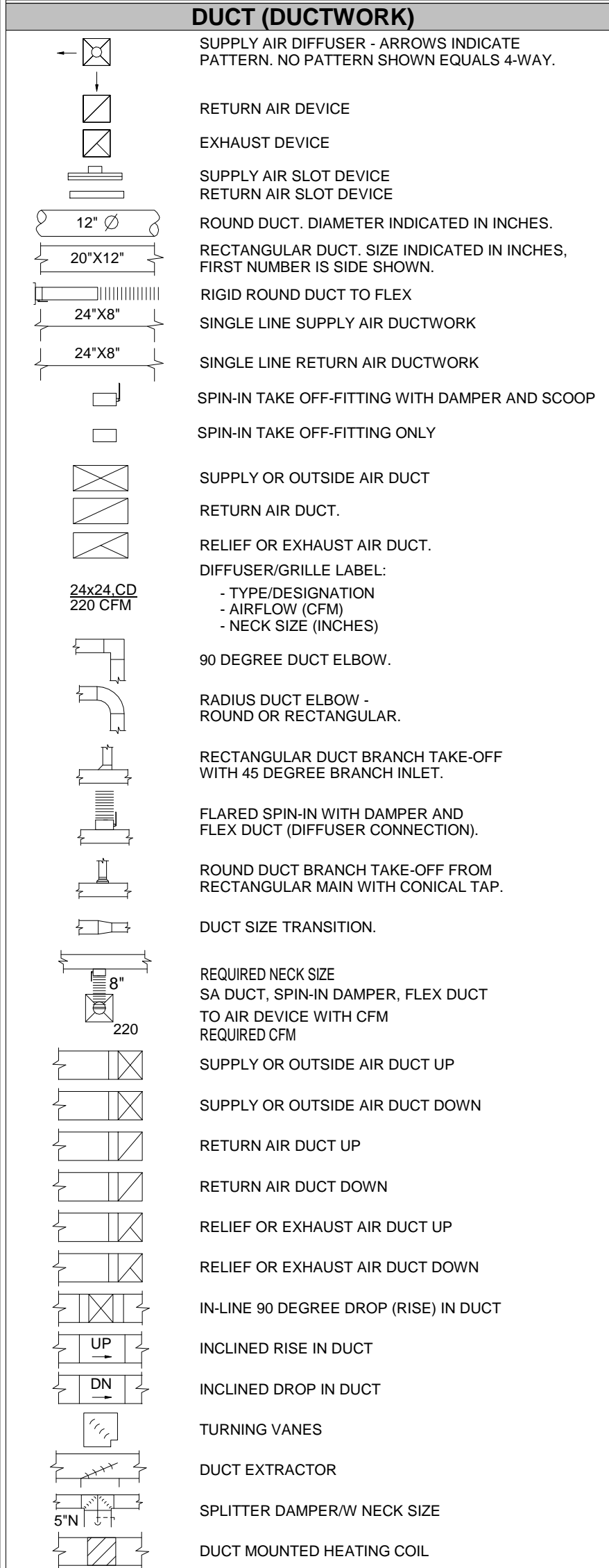
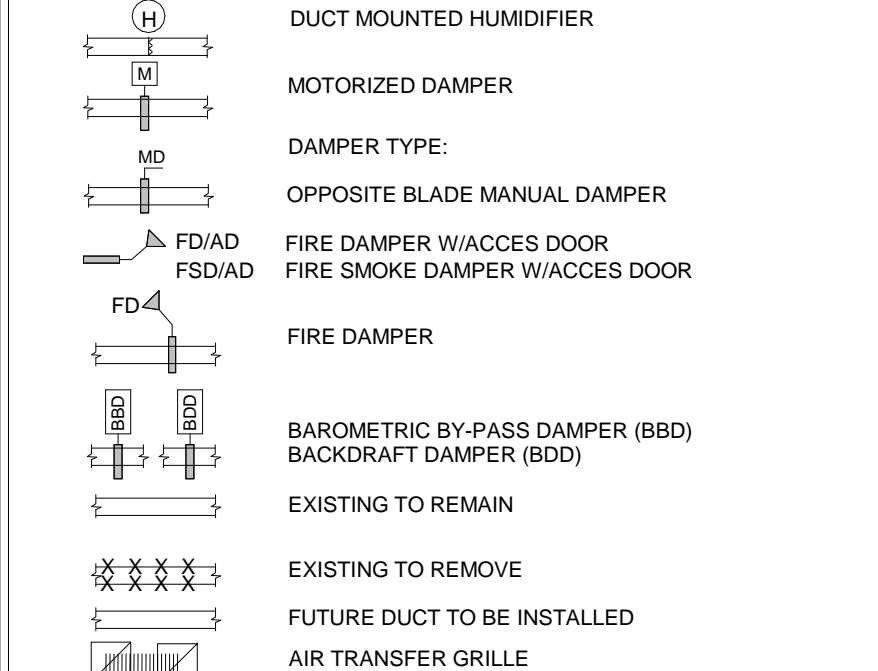


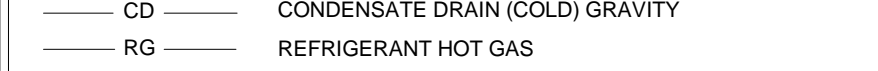
MECHANICAL SYMBOLS
(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)



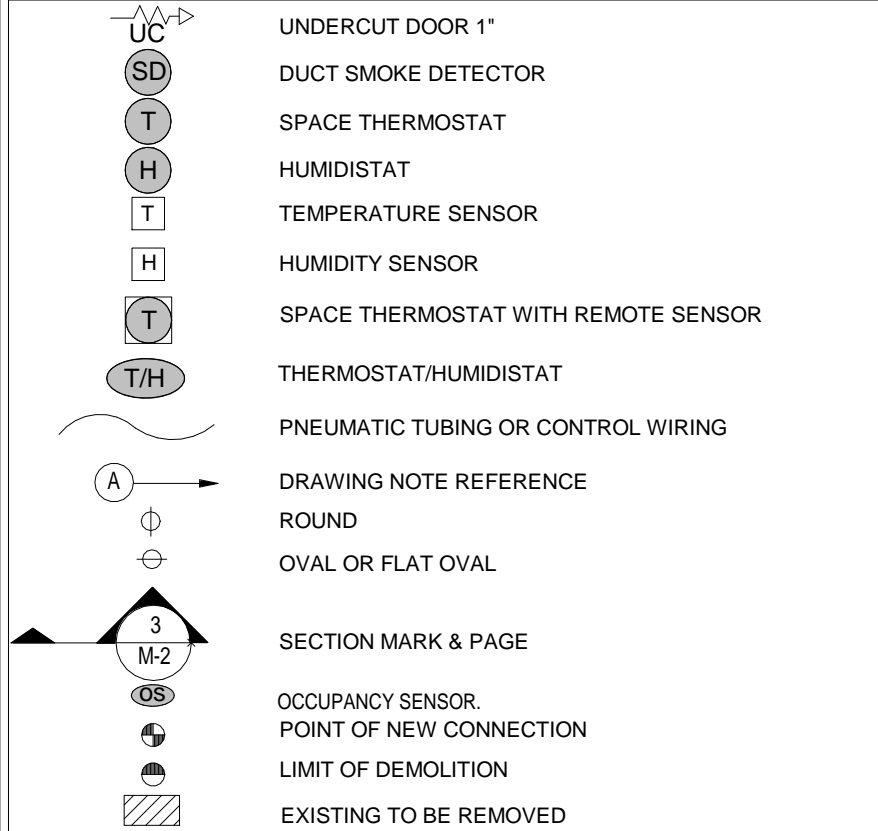
DUCT (DUCTWORK) CONT.



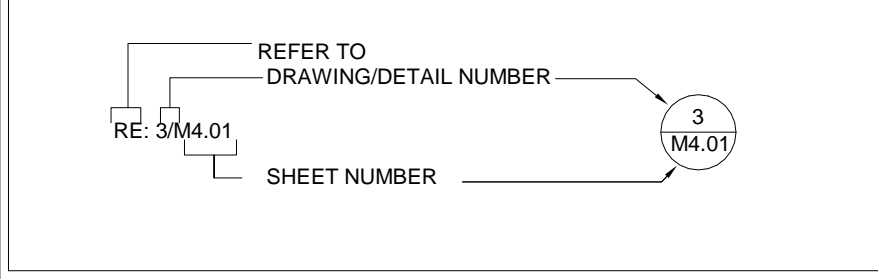
PIPING TYPES



MISCELLANEOUS



DRAWING/DETAIL REFERENCE KEY



BRANCH DUCT SIZE CHART

CFM	SUPPLY		RETURN	
	BRANCH DUCT SIZE(Ø")	BRANCH DUCT SIZE(Ø")	BRANCH DUCT SIZE(Ø")	BRANCH DUCT SIZE(Ø")
0-100	6		8	
101-150	8		10	
151-250	8		10	
251-380	10		12	
381-550	12		14	
551-750	14		16	
751-950	14		16	

INTERIOR HELIX SHALL BE ALUMINUM. TYPE FLEX-MASTER NI-35

THERMOSTAT SCHEDULE

MARK	SERVICE & LOCATION	OCCUPIED		UNOCCUPIED		%RH
		COOLING	HEATING	COOLING	HEATING	
11	RETAIL STORE	78	72	80	60	55
12	RETAIL STORE	78	72	80	60	55
13	RETAIL STORE	78	73	80	60	55

NOTES:
1. CONTRACTOR SHALL COORDINATE EXACT OPERATIONAL TIMES WITH OWNER/MANAGER PRIOR TO PROGRAMMING.

REFERENCE NOTES:

- PROVIDE THE PIPE SUPPORTS FOR ALL PVC CONDENSATE PIPING SPACING AT A MINIMUM 4'-0" ON CENTER PER FBCM SECTION 305.4. SUPPORTS EQUAL TO KNUCKLEHEAD WITH PIPE CLAMP.
- PROVIDE ALL NEW ROOFTOP UNITS WITH PRE-FABRICATED MINIMUM 14 INCH HIGH INSULATED ROOF CURBS.
- COORDINATE ALL RTU'S WITH THE APPROVED EQUIPMENT FURNISHED FOR LOCATIONS, AND OPENING SIZES REQUIRED IN THE ROOF BETWEEN THE STRUCTURAL MEMBERS AND EQUIPMENT CURBS.
- MAINTAIN 10 FOOT CLEARANCE FROM ANY FRESH AIR INTAKE. CONTRACTOR TO FIELD VERIFY AND MAINTAIN A 25 FOOT RADIUS FROM THE ADJACENT TENANT'S FRESH AIR INTAKE.
- CONDENSATE DRAIN SHALL BE DISPOSE TO PROPER LOCATION PER FBCP SECTION 314.2.1.
- OWNER SHALL COORDINATE WITH STRUCTURE ENGINEER FOR NEW LOAD WEIGHT PROVIDED ON PLAN & GET APPROVAL BEFORE PLACING ROOF TOP UNITS ON THE ROOF.

ROOF TOP A/C UNIT SCHEDULE

Mark	Manufacturer	Model No.	CFM Total	CFM O.A.	Total Capacity (MBH)	Sensible Capac. (MBH)	Ent. Air Temp.(F) (OB/WB)	Leav. Air Temp.(F)(DB/WB)	E.S.P. (W.G.)	System Power kW	Electric Heating kW	No. Compressors	VOL/PH/60	MCA	Comp. RLA No./Hz	MCCP	Minimum System SEER	Weight	Remarks
RTU-1	Carrier	50TC-A07A2B50A0	2400	200	73.20	56.25	77.5/65.1	55.7/55.1	0.5	5.05	4.9	1	208/3/60	33	19	50	11.4	637	1 TO 12
RTU-2	Carrier	50TC-A07A2B50A0	2400	200	73.20	56.25	77.5/65.1	55.7/55.1	0.5	5.05	4.9	1	208/3/60	33	19	50	11.4	637	1 TO 12
RTU-3	Carrier	50KCA06A2B50A0	2000	200	-	-	-	-	0.5	5.05	4.9	1	208/3/60	30	15.9	50	14	552	1/3/5/6/8/9/10/11/12

Remarks:
1. Provide 1" thick 30% throwaway filter. farr 30/30 or equal.
2. Provide smoke detector at supply duct in accordance to section 606 of FBCM 6th edition 2017. whenever the smoke detector senses products of combustion, shall initiate a supervisory signal to the building fire alarm control panel. the supply fan shall be de-energised via the fire control alarm panel. if building does not have alarm control system, smoke detector shall initiate supervisory signal to audible/visual signals for activation and troubles. must be located below ceiling not more than 6 feet off. comply with nipa 90a chapter 6, section 6.4.4.3. and FBCM 6th edition 2017 section 606.4.
3. Provide 24" v control for a programmable 24, 7-day time clock (stat) or combination of thermostat. control system shall have a 5" f deadband, set point overlap restriction, capability of setback to 55" f(heat) and 85" f(cool), 7 day clock, 2 hour occupant override; 10 hour back up. capability of proportional integral calculation to determine the number of stages required for heating or cooling to provide accurate temperature control. equal to 33cs2ppr-03 carrier.
4. N/A.
5. Outside air for ventilation are calculated using florida building code chapter 4 FBCM 6th edition 2017.
6. Provide factory insulated roof curb to match roof slope.
7. N/A.
8. Provide 5 minute time delay to prevent short cycling of compressor.
9. Provide phase loss protection for three phase units.
10. Water-level monitoring device shall be installed inside primary drain pan of down flow unit in accordance to section 307.2.3.1 of FBCM, if such unit does not have provisions for the installation of secondary or auxiliary drain.
11. Provide auto reset low pressure switch, manual reset high pressure switch, and low ambient head pressure control.
12. Model Number for AC units are provide to establish standard of quality and necessary specifications. Coordinate with manufacture for final Model numbers.

AIR DISTRIBUTION SCHEDULE
(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

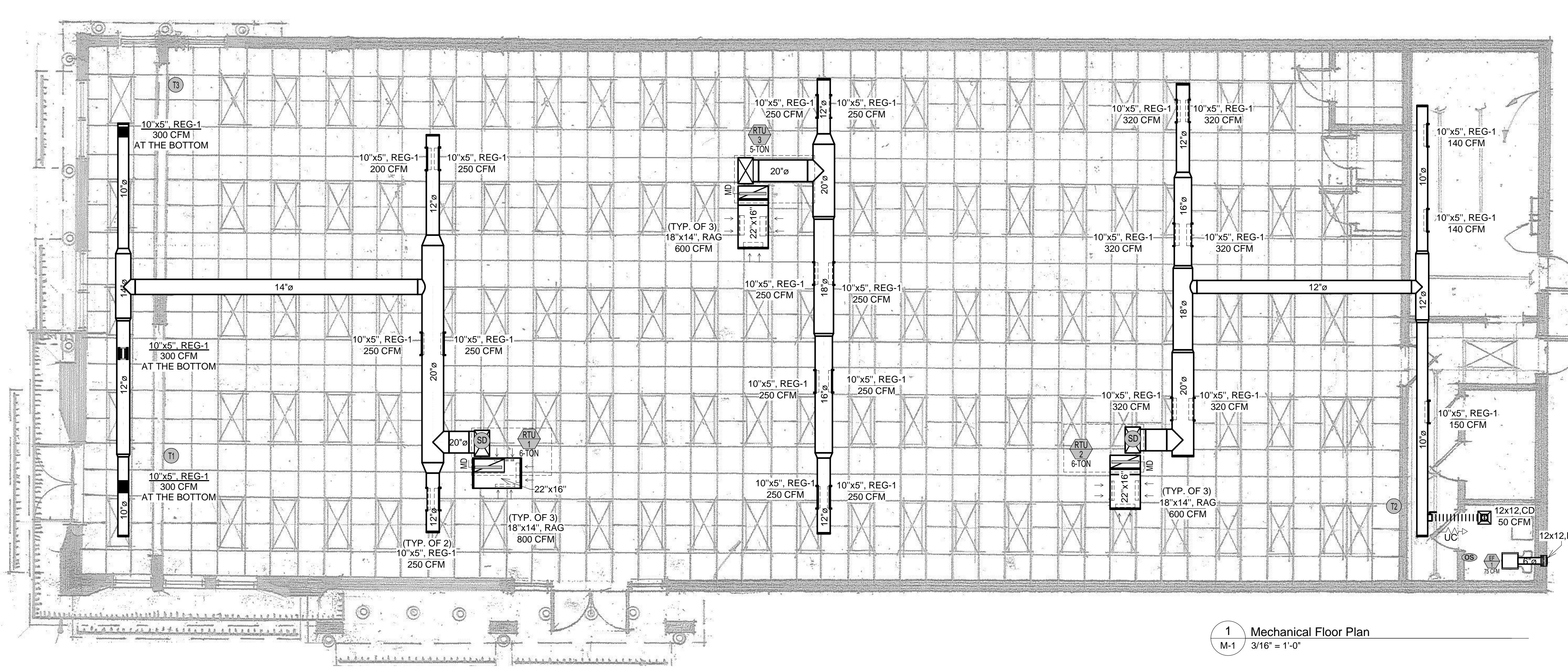
Mark	Description	Material	Finish	Manufacturer	Model	Remarks
CD	Ceiling Diffuser -Square and Rectangular with opposed blade volume damper.	Aluminum	Baked Off-White Enamel	PRICE	ASCD	2,3,5
DG	Transfer Grille, fixed 45° angle, Blade with 1/2" spacing.	Aluminum	Baked Off-White Enamel	PRICE	ATG1	1,2,3,5
EAL	Exhaust Air Louver, Flange Frame with Bird Screen, Wind Driven Rain type Louver	Aluminum	Aluminum	GREENHECK	EHH601D	-
RAG	Eggcrate Return	Aluminum	Baked Off-White Enamel	PRICE	85 Series	1,2,3,4,5
REG-1	Spiral Duct Grille Return	Aluminum	Baked Off-White Enamel	PRICE	SDGE Series	1,2,3,4,5

Remarks:
1. Paint flat black inside of ducts behind grilles. provide duct collar with all grilles.
2. Operate with Occupancy sensor and Overrides Switch.
3. Operate with timer switch.
4. Provide Speed Controllers.
5. Provide support Rods and Vibration Isolator.
6. Provide Bird Screen Protection.
7. Provide Weather Hood.
8. Provide Backdraft Damper (BDD).
9. Contractor shall coordinate voltage selection with this Project provide transformer if necessary.
10. Provide disconnect switch.

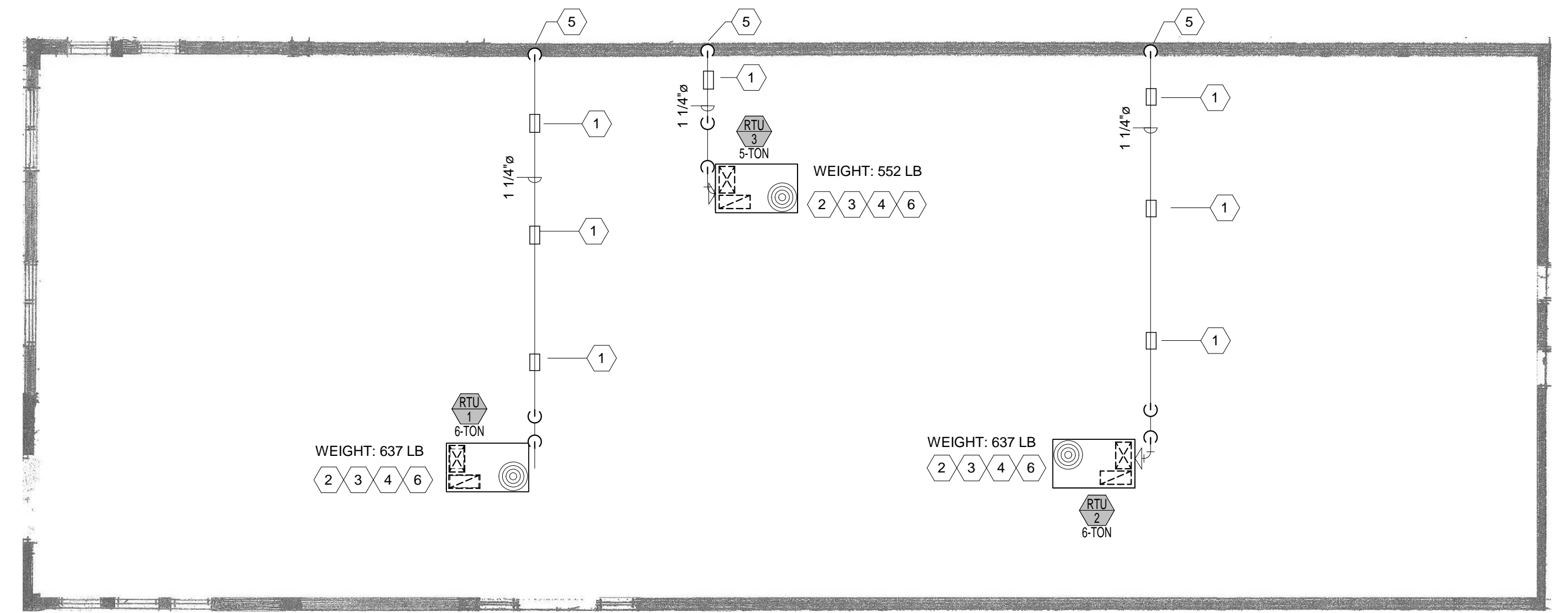
EXHAUST FAN SCHEDULE

Mark	Manufacturer	Model No.	Air Flow Rate	Location	S.P. inches of water	RPM	Motor HP/Watts	Voltage	Drive	Type	Weight (lb)	Remarks
EF-1	Greenheck	SP A90	75 CFM	RESTROOM	0.20	900	29 W	120 V	Direct	Ceiling	12 lb	2,4,5,6,8,9

Remarks:
1. Operate with wall switch.
2. Operate with Occupancy sensor and Overrides Switch.
3. Operate with timer switch.
4. Provide Speed Controllers.
5. Provide support Rods and Vibration Isolator.
6. Provide Bird Screen Protection.
7. Provide Weather Hood.
8. Provide Backdraft Damper (BDD).
9. Contractor shall coordinate voltage selection with this Project provide transformer if necessary.
10. Provide disconnect switch.



1 Mechanical Floor Plan
M-1 3/16" = 1'-0"



2 Mechanical Roof Plan
M-1 1/8" = 1'-0"

REQUIRED OUTDOOR VENTILATION AIR CALCULATION (PER FBCM403.3)

RTU-1 / RTU-2/RTU-3						
AREA CLASSIFICATION	SQ.FT	OCCUPANCY	Rp (CFM/PERSON)	Ra (CFM/SF)	EXHAUST RATE (CFM/SF)	VENTILATION REQUIRED (CFM)
SALE AREA	2400	36	7.5	0.12	-	36 PERSONS x 7.5 CFM/PERSON + 2400 SF x 0.12 CFM/SF
STORAGE	221	-	-	0.06	-	221 SF x 0.06 CFM/SF
TOTAL OUTSIDE AIR REQUIRED (CFM)						571.26
TOTAL OUTSIDE AIR PROVIDED (CFM) (RTU-1)+(RTU-2)+(RTU-3)						=600

PROJECT OUTDOOR DESIGN CONDITION

DESIGN LOCATION	SUMMER MAXIMUM TEMPERATURE (°F) DB	SUMMER MAXIMUM HUMIDITY (RH%)	WINTER MINIMUM TEMPERATURE (°F)
ORLANDO	93.8/76.5	53	38

PROJECT INDOOR DESIGN CONDITION

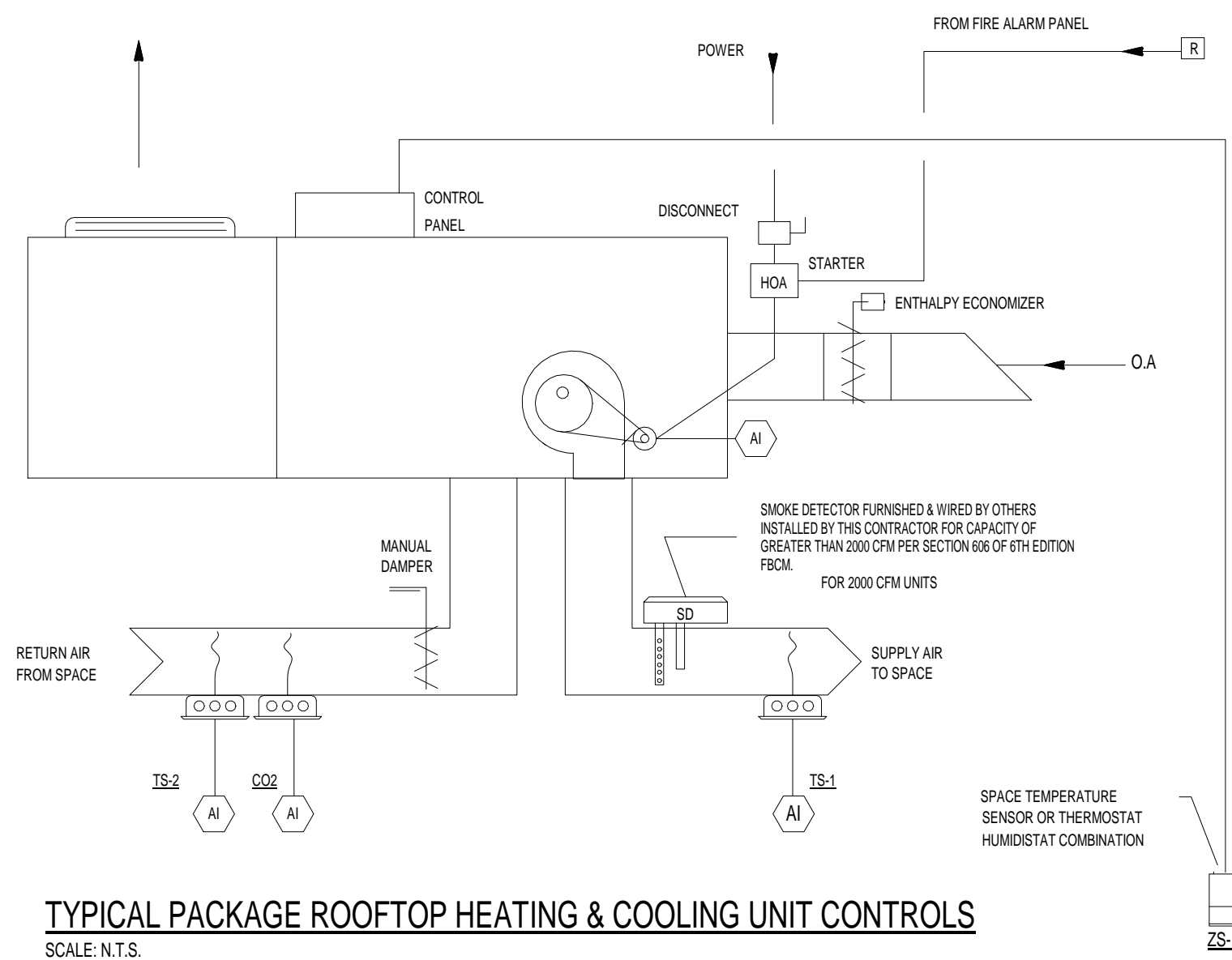
SPACE SERVED	DESIGN LOCATION	SUMMER MINIMUM TEMPERATURE (°F) DB	SUMMER MAXIMUM HUMIDITY (RH%)	WINTER MAXIMUM TEMPERATURE (°F)	REMARK
RETAIL SHOPS FOR SHORTER TERMS OCCUPANCY, BANK, BARBER SHOP, BEAUTY SHOP, DEPARTMENT STORE, SUPERMARKET, ETC	ORLANDO	77	55(+/-)	74	1,2

NOTES:
1. MINIMUM TEMPERATURE IN BUILDING MUST BE MAINTAINED AT 55° F EVEN WHEN UNOCCUPIED.
2. DRY BULB AND RELATIVE HUMIDITY ARE TO BE MAINTAINED 6 INCH TO 6 FEET ABOVE THE FLOOR.

M.T. FARAJI, PA
1325 S BUNBY AVENUE, ORLANDO, FLORIDA 32806
(407) 896-7411 FAX (407) 896-7412
EMAIL: EPGGroup@att.net CA#48126
Farshad Antikchi, P.E. # 72998

BUILDING RENOVATION FLORIDA GIFT OUTLET
7403 International Dr. Orlando, Florida 32819
MECHANICAL FLOOR PLAN

DATE: 08/10/2018
DRAWN: OC
CHKD: FA
SCALE: AS SHOWN
PROJECT No.: MTF18107
SHEET No.: M-1



TYPICAL PACKAGE ROOFTOP HEATING & COOLING UNIT CONTROLS
SCALE: N.T.S.

SEQUENCE OF OPERATION

1. GENERAL
 - A. THE UNIT SHALL BE STARTED AND STOPPED THROUGH THE BUILDING CONTROL SYSTEM OR THERMOSTAT UNITS SHALL BE INDEXED TO OCCUPIED MODE AND RUN CONTINUOUSLY.
 - B. WHENEVER THE SUPPLY FAN IS INDEXED TO START THE FOLLOWING SHALL OCCUR:
 1. THE SUPPLY AIR FAN FOR THE ROOFTOP UNIT (RTU) SHALL RUN.
 2. THE CONTROLS LOOPS FOR THE RTU SHALL BE ENERGIZED.
 3. UPON COMPLETION OF COOLDOWN/WARMUP PERIOD THE OUTSIDE AIR DAMPERS SHALL OPEN TO THEIR MINIMUM POSITIONS.
 4. WHENEVER THE UNIT IS DE-ENERGIZED THE REVERSE SHALL OCCUR.
2. SAFETY INTERLOCKS

OPTION 1: BUILDING HAS FIRE ALARM SYSTEM
WHENEVER THE SMOKE DETECTOR SENSES PRODUCTS OF COMBUSTION SHALL INITIATE A SUPERVISORY SIGNAL TO THE BUILDING FIRE ALARM CONTROL PANEL. THE SUPPLY FAN SHALL BE DE-ENERGIZED VIA THE FIRE CONTROL ALARM PANEL. THE SMOKE DETECTOR MUST BE MANUALLY RESET BEFORE STARTING THE SUPPLY FAN.

OPTION 2: BUILDING DOES NOT HAVE FIRE ALARM SYSTEM
WHENEVER THE SMOKE DETECTOR SENSES PRODUCTS OF COMBUSTION SHALL INITIATE A SUPERVISORY SIGNAL TO AUDIBLE/VISUAL SIGNALS FOR ACTIVATION AND TROUBLES. UNIT MUST BE LOCATED BELOW CEILING NOT MORE THAN 6 FEET AFF. NFPA 90A CHAPTER 6, SECTION 6.4.4.3.
THE SUPPLY FAN SHALL BE DE-ENERGIZED AND THE SMOKE DETECTOR MUST BE MANUALLY RESET BEFORE STARTING THE SUPPLY FAN.
3. COOLING

IF THE SPACE TEMPERATURE RISES ABOVE THE SPACE TEMPERATURE SET POINT THE SUPPLY FAN SHALL ENGAGE AND THE COOLING STAGE SHALL ENERGIZE IN STEPS TO MAINTAIN THE SPACE TEMPERATURE SET POINT.
4. HEATING

IF THE SPACE TEMPERATURE FALLS BELOW THE SPACE TEMPERATURE SET POINT THE SUPPLY FAN SHALL ENGAGE AND THE GAS HEAT VALVE SHALL MODULATE OR ELECTRICAL HEATER SHALL ENERGIZE IN STEPS TO MAINTAIN THE SPACE TEMPERATURE SET POINT.
5. SETPOINTS

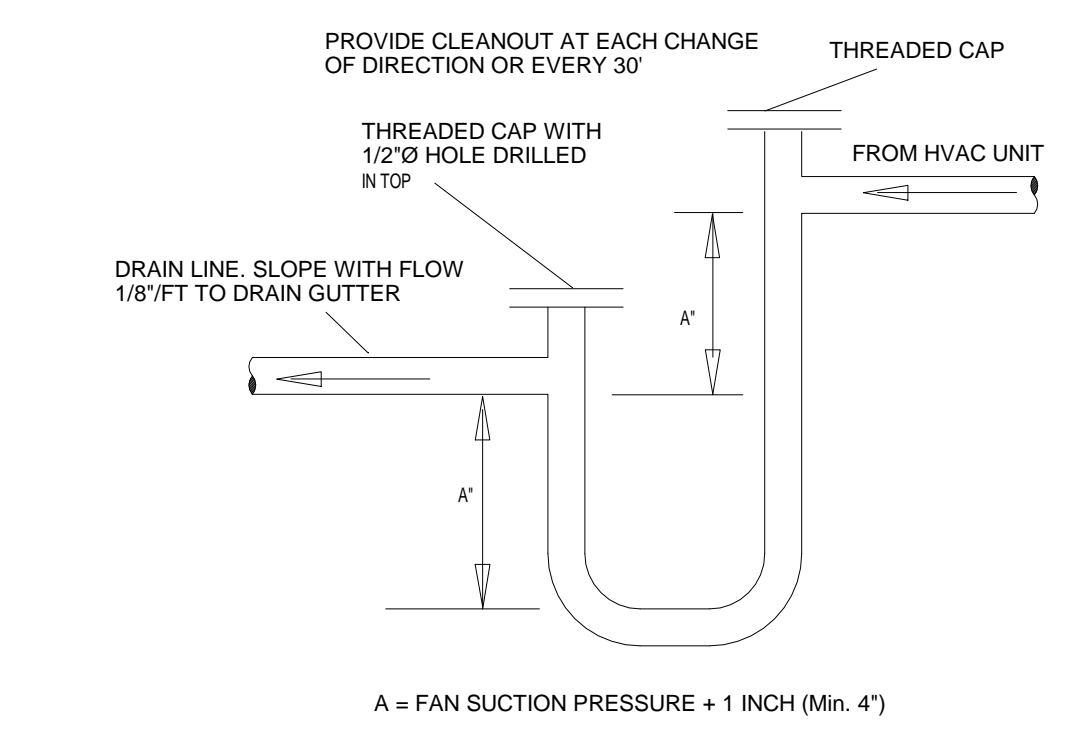
OCCUPIED SETPOINTS SHALL BE 75°F COOLING/70°F HEATING AND UNOCCUPIED SETPOINTS SHALL BE 85°F COOLING/80°F HEATING. ALL SPACE THERMOSTATS SHALL HAVE A MANUAL OVERRIDE BUTTON TO ADJUST SPACE TEMPERATURE SETTINGS FOR AN (ADJUSTABLE) PERIOD OF 1 HOUR.
6. OUTSIDE AIR CONTROL

THE OUTSIDE AIR DAMPER WILL BE MODULATE TO MAINTAIN THE OUTSIDE AIR REQUIREMENTS.
7. SHUTDOWN

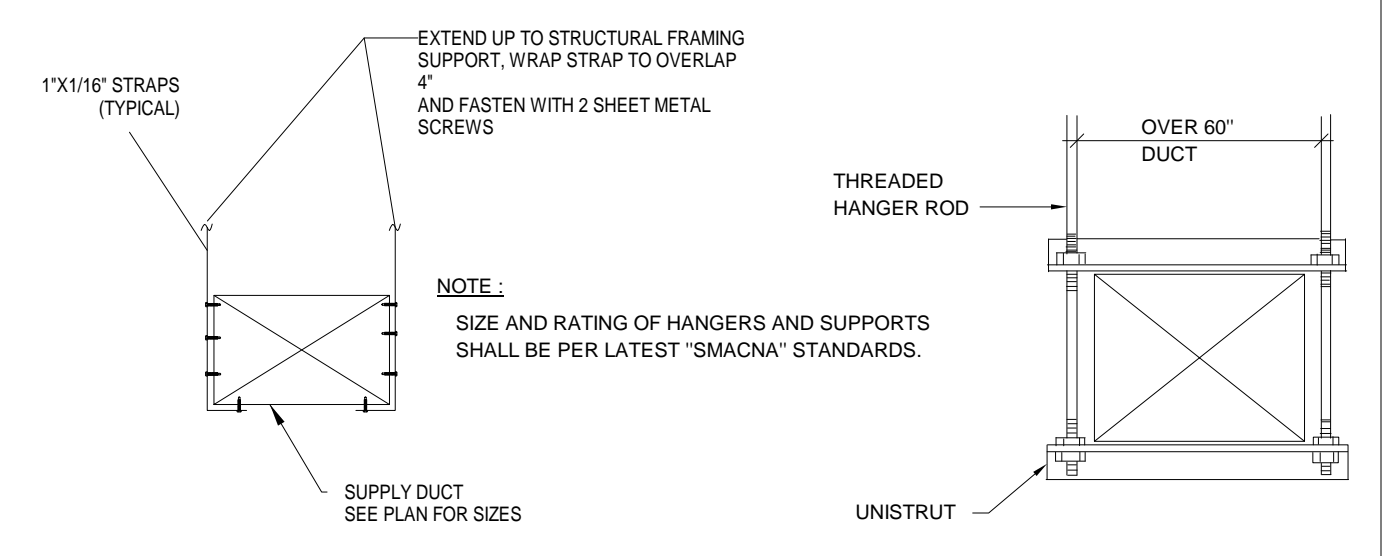
WHEN THE RTU IS SHUTDOWN, BY EITHER A STOP COMMAND OR A SYSTEM SAFETY THE UNIT WILL BE SET AS FOLLOWS:

 - SUPPLY FAN WILL BE OFF.
 - OUTSIDE AIR DAMPER WILL CLOSE.

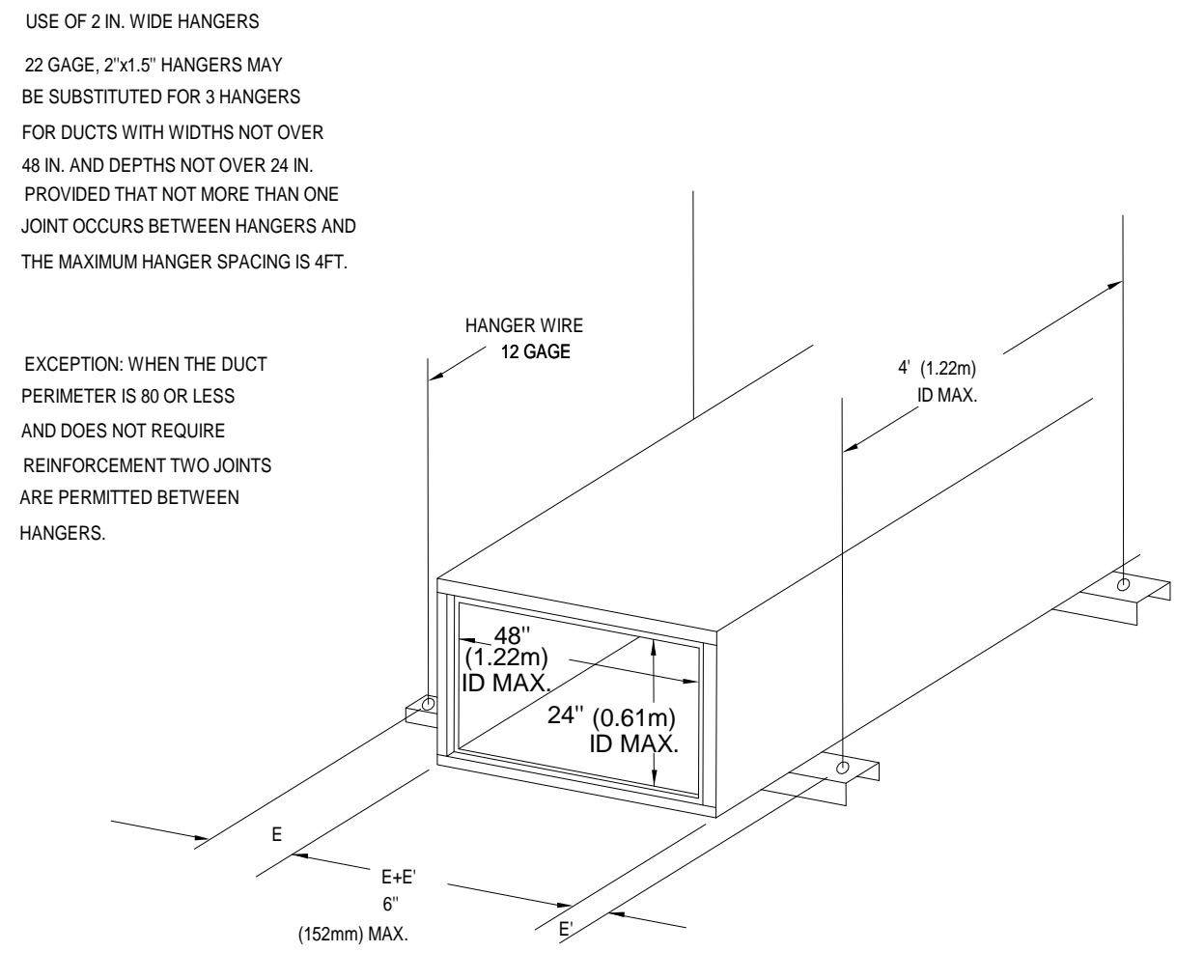
1
M-2
TYPICAL PACKAGE ROOF TOP HEATING & COOLING UNIT CONTROLS



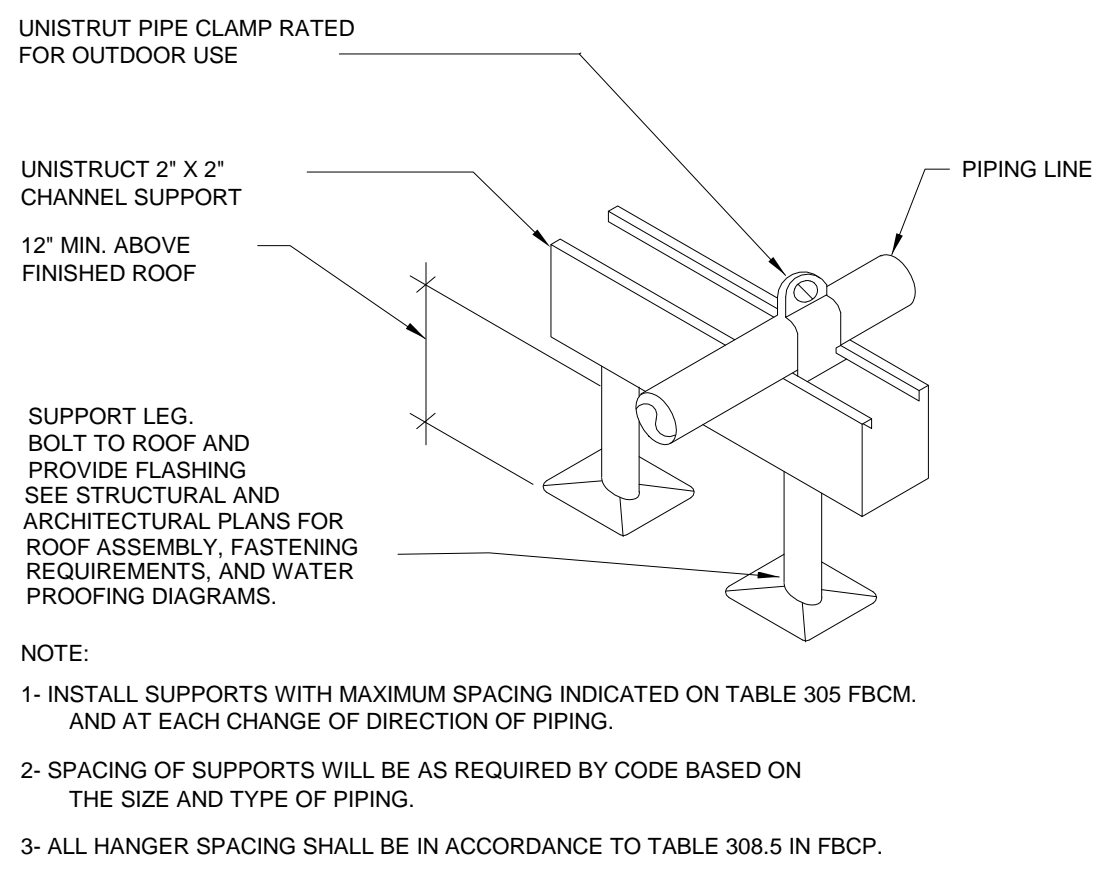
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TYPICAL RTU CONDENSATE TRAP DETAIL



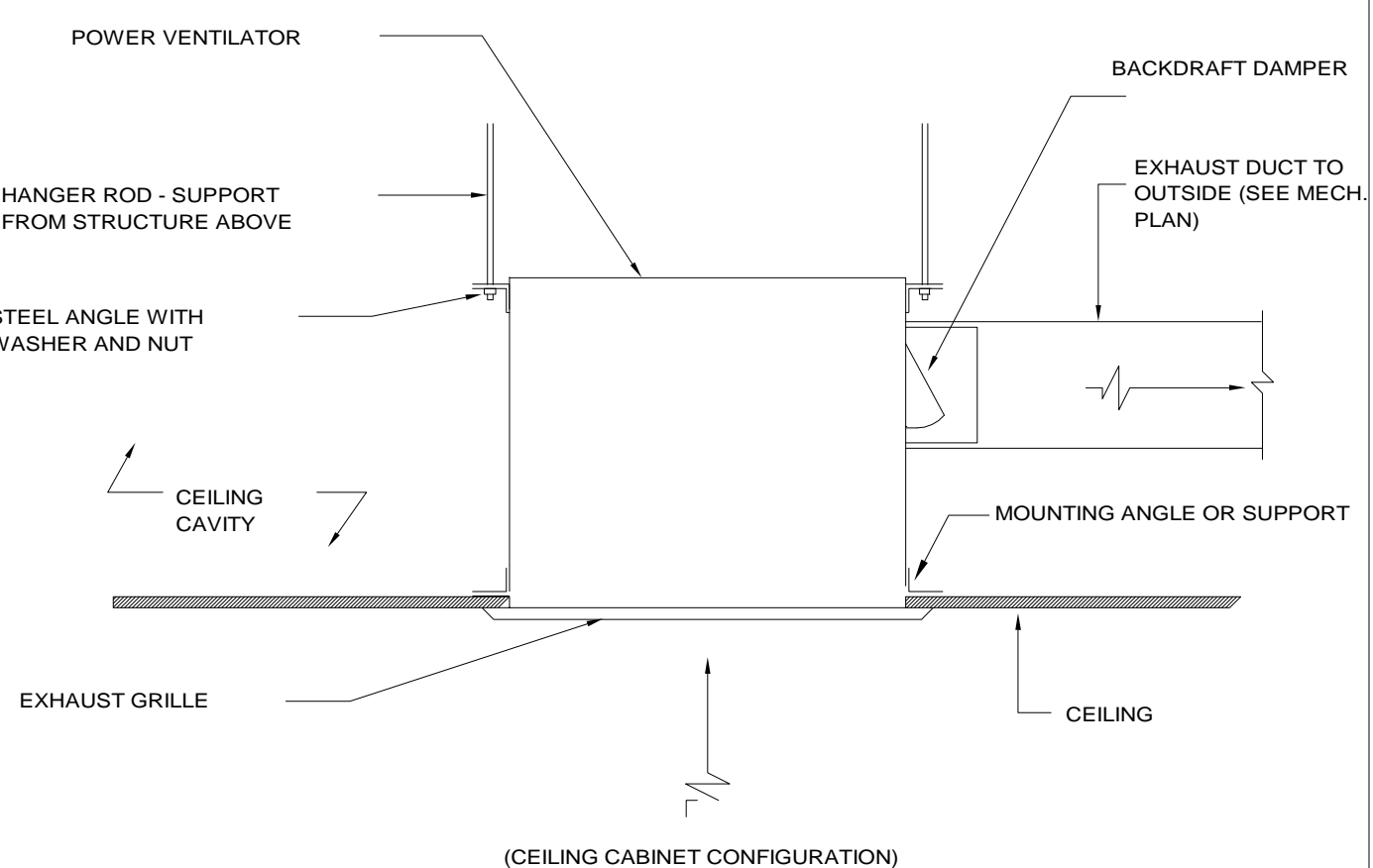
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RIGID DUCT HANGER



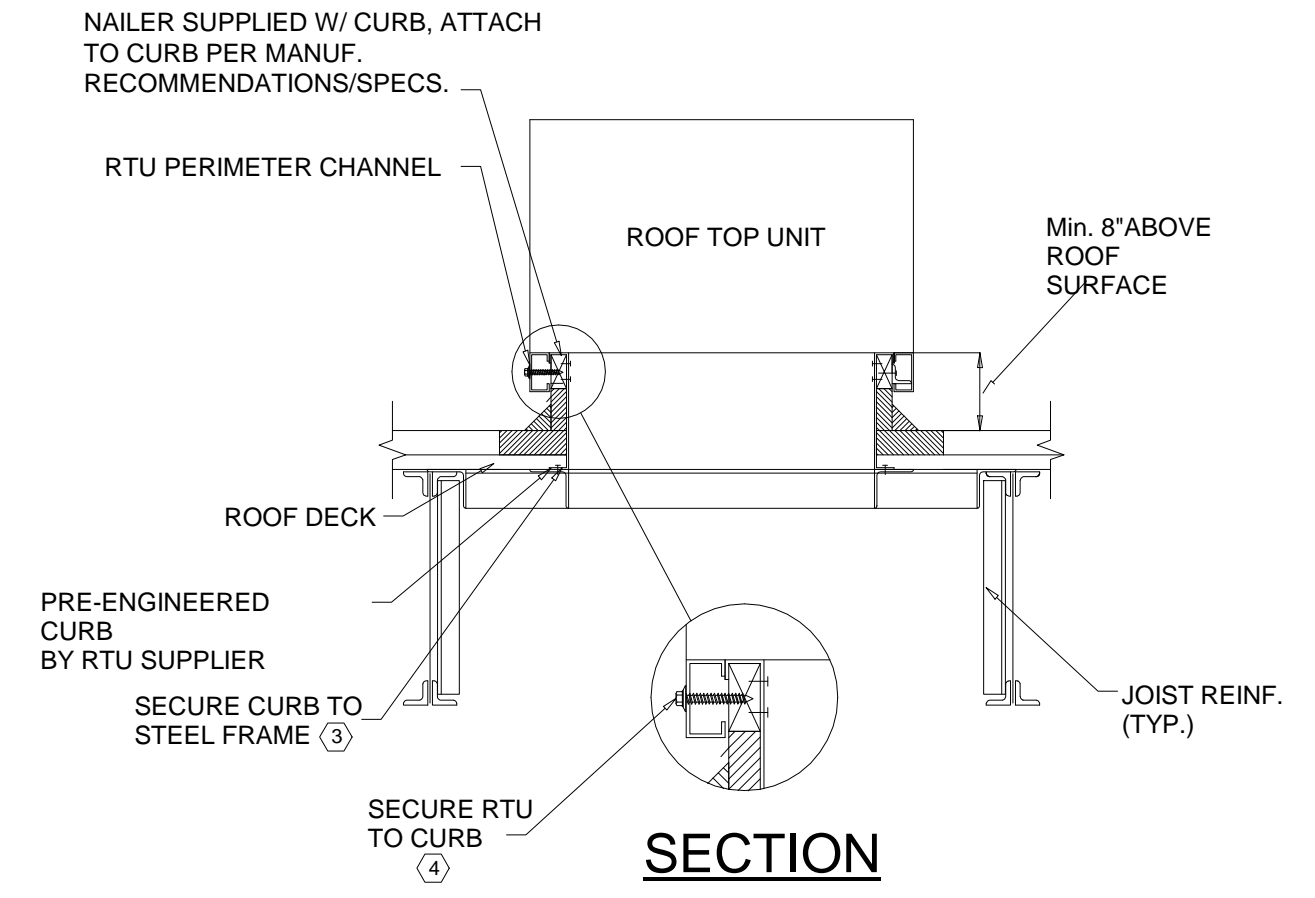
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FIBROUS GLASS DUCT SUPPORT DETAIL



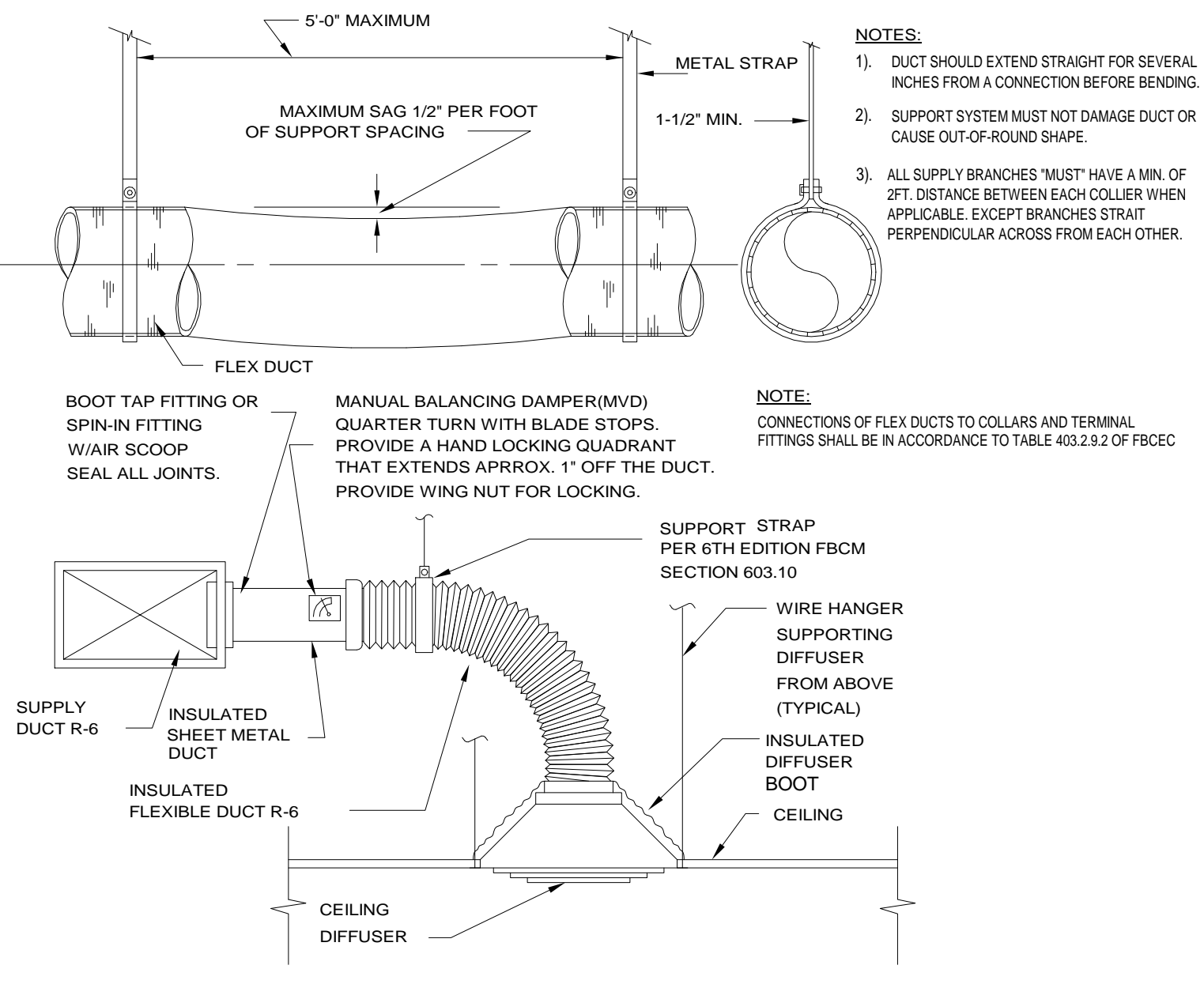
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ROOF PIPING SUPPORT



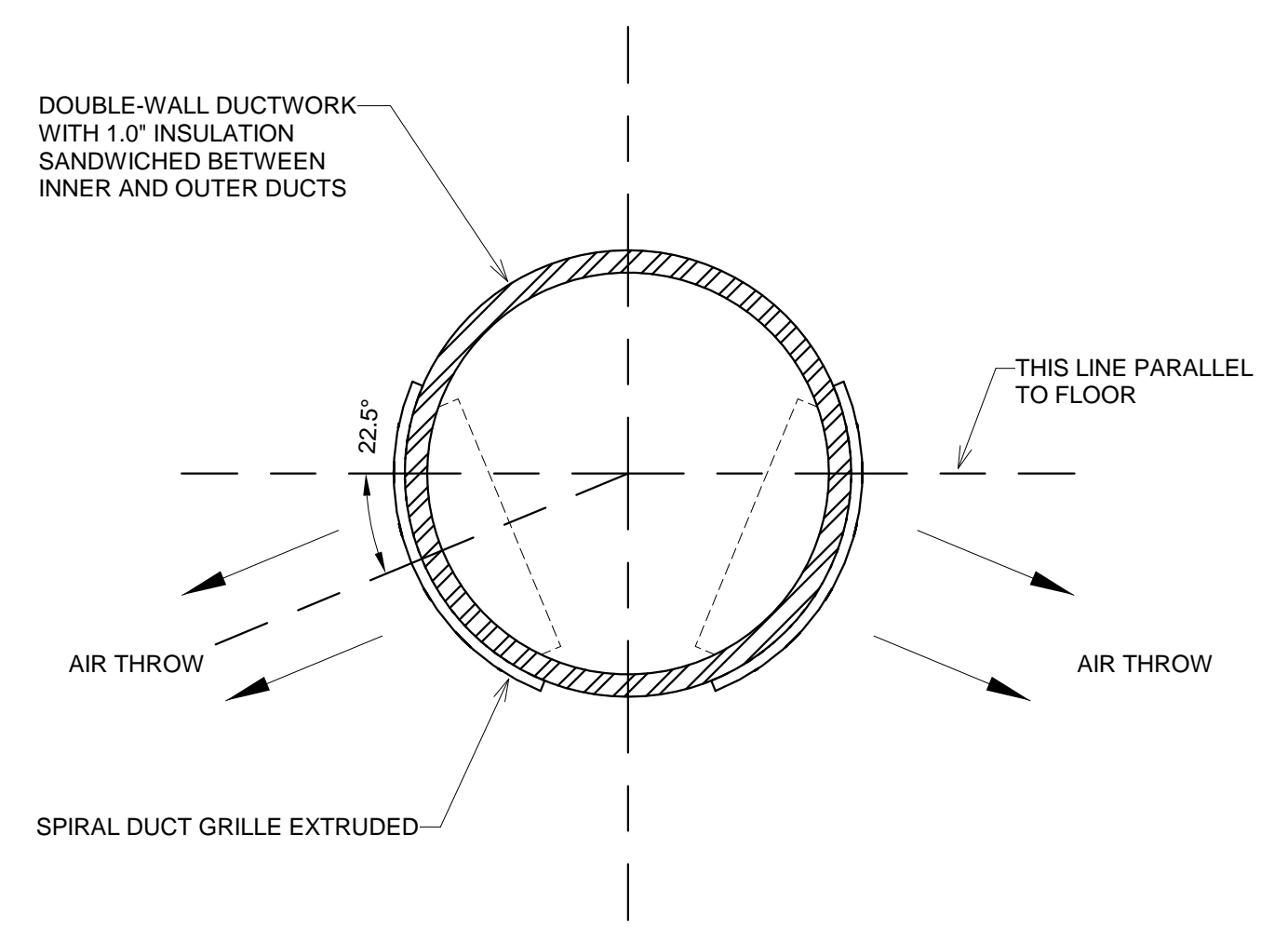
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M-2
POWER VENTILATION DETAIL



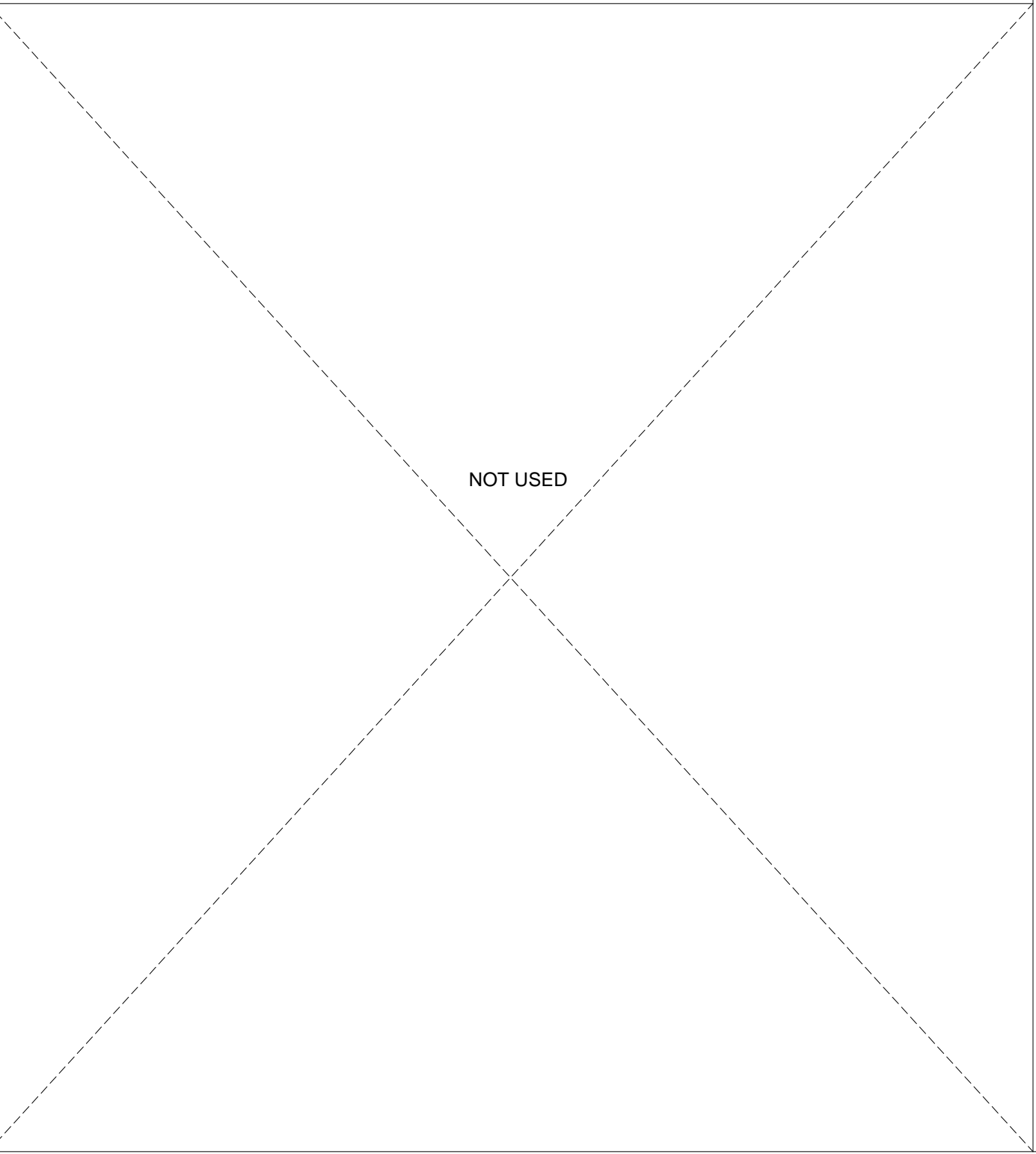
9
M-2
RTU TIE-DOWN DETAIL



7
M-2
TYPICAL DIFFUSER DETAIL



8
M-2
ROUND EXPOSE DUCT AIRFLOW CONFIGURATION



NOTE:
- SEE STRUCTURAL PLANS FOR FRAMING SIZE AND DETAILS.
- FOR WIND LOAD RESISTANCE 140 MPH (ULTIMATE) EXPOSURE \"C\".

- NOTES:**
- ① LOCATE ANGLES BELOW ALL EQUIPMENT CURBS AND AROUND ALL ROOF OPENINGS.
 - ② CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF OPENINGS PRIOR TO STEEL FABRICATION.
 - ③ SECURE CURB TO STEEL FRAME PER OPTION \"3A\" OR OPTION \"3B\":
3A. SECURE EQUIPMENT CURB TO STRUCTURAL FRAMING W/ #12 SDS @ 12\"/>

9
M-2
RTU TIE-DOWN DETAIL

DRWN / DATE	DATE	DESCRIPTION:			
E	08/10/2018	BUILDING RENOVATION FLORIDA GIFT OUTLET			
E	DATE	7403 International Dr. Orlando, Florida 32819			
E	AS SHOWN	M.T. FARAJI, PA			
E	PROJECT No.:	1325 S BUNBY AVENUE, ORLANDO, FLORIDA 32806			
E	MTF18107	(407) 896-7411 FAX (407) 896-7412			
E	SHEET No.:	EMAIL: EFG@mtf.com CA#48126			
E	M-2	Farshad Antikchi, P.E. # 72998			
E	MECHANICAL DETAILS	M-2			

