

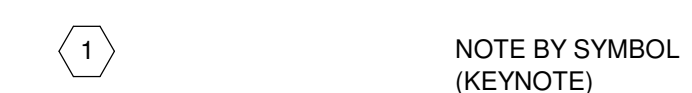
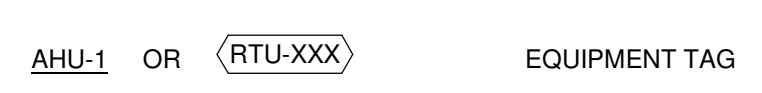
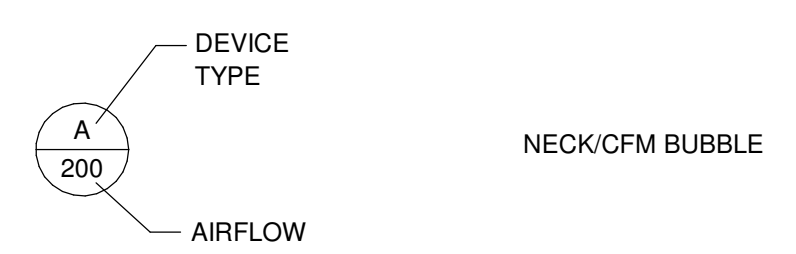
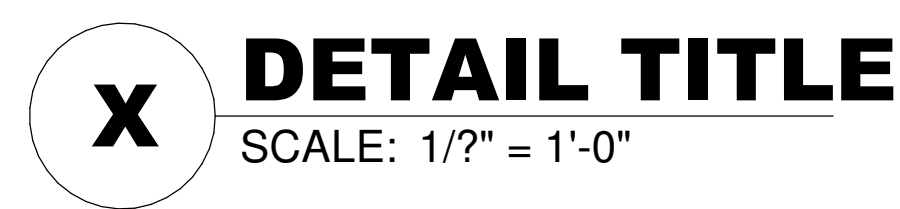
MECHANICAL SYMBOLS ABBREVIATIONS

(SOME SYMBOLS MAY NOT BE USED ON THE DRAWINGS)

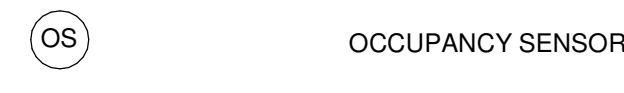
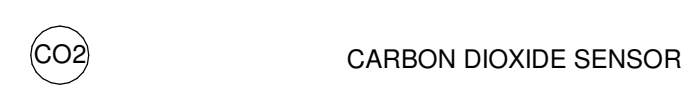
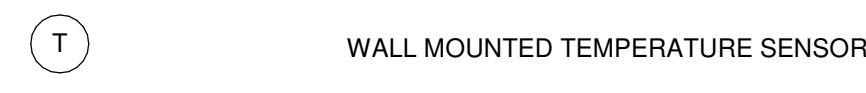
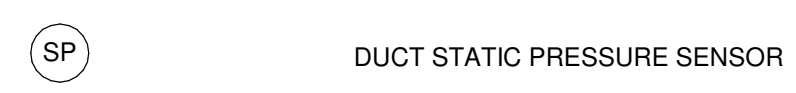
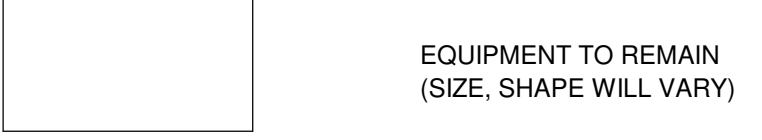
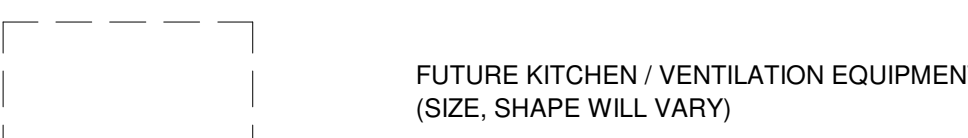
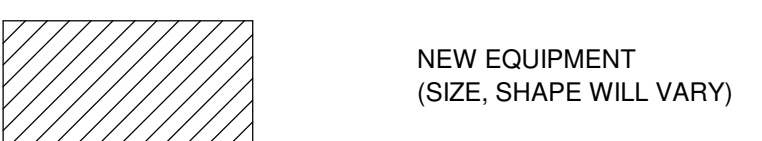
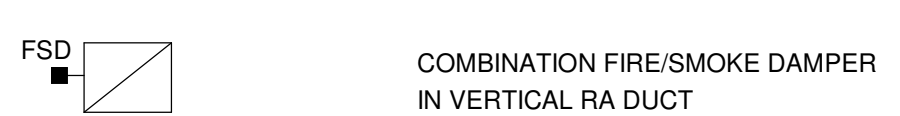
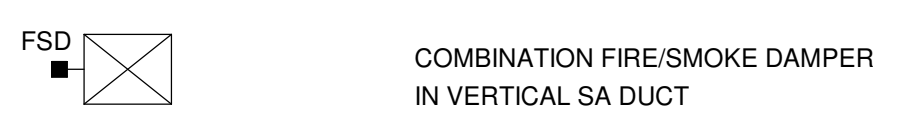
%	PERCENT
ABS	ABSOLUTE
ACC	AIR-COOLED CHILLER
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTITUDE
AMB	AMBIENT
AMCA	AIR MOVEMENT AND CONTROL ASSOCIATION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARI	AIR-CONDITIONING AND REFRIGERATION INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
AVG	AVERAGE
B	BOILER
BD	BACKDRAFT DAMPER
BG	BELOW GRADE
BEMCS	BUILDING ENERGY MANAGEMENT AND CONTROL SYSTEM
BHP	BRAKE HORSEPOWER
BI	BACKWARD INCLINED
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CD	COLD DECK
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CHET	CHILLED WATER EXPANSION TANK
CMPR	COMPRESSOR
COND	CONDENSER
CRAC	COMPUTER ROOM AIR CONDITIONER
CT	COOLING TOWER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CU IN	CUBIC INCH
dB	DECIBEL
DB	DRY BULB
DCP	DISTRIBUTED CONTROL PANEL
DEG	DEGREE
DIA	DIAMETER
DWG	DRAWING
DX	DIRECT-EXPANSION
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFF	EFFICIENCY
EL	ELEVATION
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
EXP	EXPANSION
F	FAHRENHEIT
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FH	FUME HOOD
FLEX	FLEXIBLE
FS	FLOW SWITCH
FSD	COMBINATION FIRE-SMOKE DAMPER
FT	FEET OR FOOT
FTU	FAN TERMINAL UNIT
GA	GAUGE OR GAGE
GAL	GALLONS
GALV	GALVANIZED
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRAINS
H	ENTHALPY
HD	HEAD
HD	HOT DECK
HG	HEAT GAIN OR MERCURY
HGT	HEIGHT
HP	HORSEPOWER
HPS	HIGH PRESSURE STEAM
HR	HOUR
HTHW	HIGH TEMPERATURE HEATING WATER
HVAC	HEATING/VENTILATING/AIR-CONDITIONING
HVU	HEATING AND VENTILATING UNIT
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HZ	FREQUENCY
ID	INSIDE DIAMETER
IPS	INTERNATIONAL PIPE STANDARD
ips	IRON PIPE SIZE
K	THERMAL CONDUCTIVITY
KH	KITCHEN HOOD
KW	KILOWATT

LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAR FEET
LG	LENGTH
LPS	LOW PRESSURE STEAM
LTHW	LOW TEMPERATURE HOT WATER
LWT	LEAVING WATER TEMPERATURE
MCA	MINIMUM CIRCUIT AMPACITY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSAND)
MIN	MINIMUM
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
PD	PUMPED DISCHARGE
PBD	PARALLEL BLADE DAMPER
PH	PHASE (ELECTRICAL)
PPM	PARTS PER MILLION
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAGE
R	RANKINE
R-22	REFRIGERANT (NUMBER INDICATES TYPE)
RA	RETURN AIR
RAF	RELIEF AIR FAN
RECIRC	RECIRCULATE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SCFM	CUBIC FEET PER MINUTE-STANDARD CONDITIONS
SD	SMOKE DAMPER
SEC	SECOND
SF	SQUARE FEET
SG	SPECIFIC GRAVITY
SHG	SENSIBLE HEAT GAIN
SHR	SENSIBLE HEAT RATIO
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
SSD	SUB-SOIL DRAINAGE
STD	STANDARD
SUCT	SUCTION
t	TIME
T	TEMPERATURE SENSOR
TD	TEMPERATURE DIFFERENCE
TEMP	TEMPERATURE
TOC	TOP OF CONCRETE
TOD	TOP OF DUCT
TONS	TONS OF REFRIGERATION
TOP	TOP OF PIPE
TOS	TOP OF STEEL
TSP	TOTAL STATIC PRESSURE
T-STAT	THERMOSTAT
TU	TERMINAL UNIT
TYP	TYPICAL
U	HEAT TRANSFER COEFFICIENT
UH	UNIT HEATER
UF	UNDER FLOOR
V	VOLT
VA	VOLT AMPERE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VP	VELOCITY PRESSURE
W	HUMIDITY RATIO OR WATT
W.C.	WATER COLUMN
W.G.	WATER GAUGE
WB	WET BULB
WT	WEIGHT
YR	YEAR

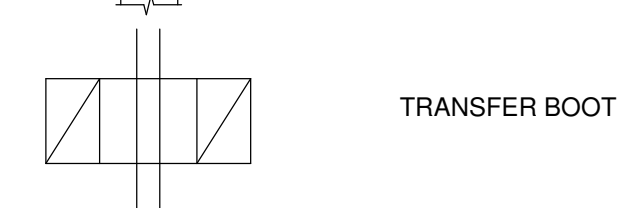
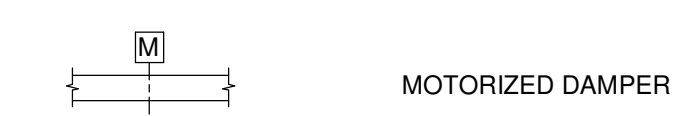
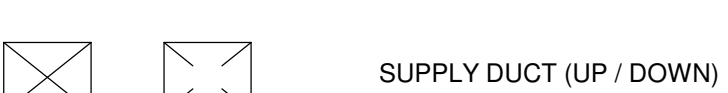
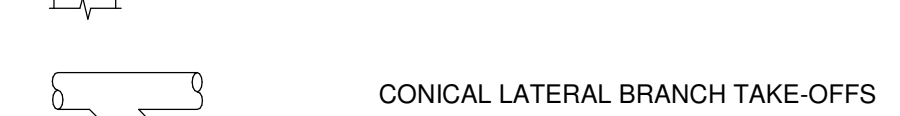
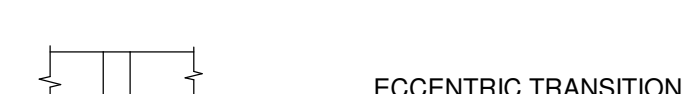
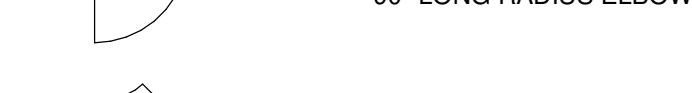
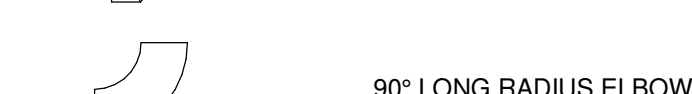
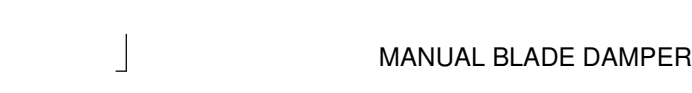
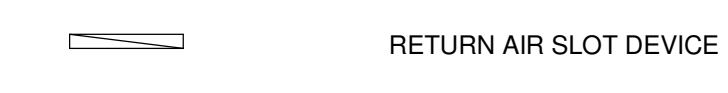
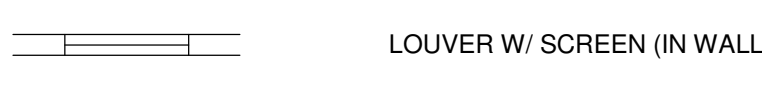
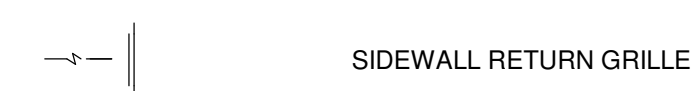
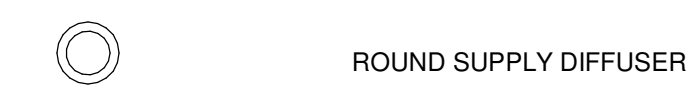
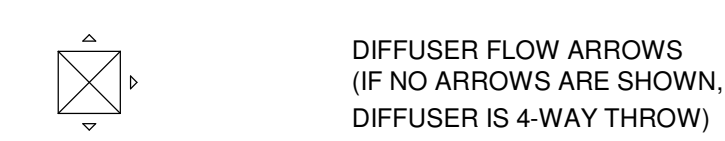
SHEET SYMBOLS



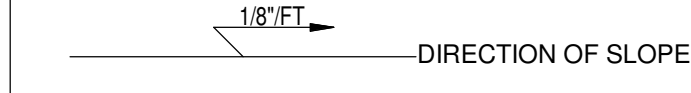
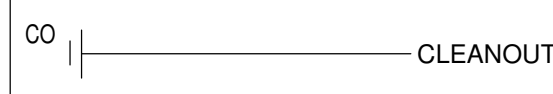
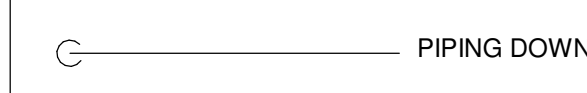
MECHANICAL EQUIPMENT



DUCTWORK



PIPING SYMBOLS



HVAC DESIGN CRITERIA

<u>ASHRAE FUNDAMENTALS - 2017:</u>	<u>SUMMER COOLING DESIGN (0.4%):</u>
WEATHER STATION - Albuquerque, NM	94 °F DRY BULB
ELEVATION: 5312' LATITUDE	61 °F MEAN COINCIDENT WET BULB
<u>WINTER HEATING DESIGN (99.6%):</u>	<u>DESIGN CODES:</u>
16 °F DRY BULB	2021 New Mexico Mechanical Code
	2018 IECC

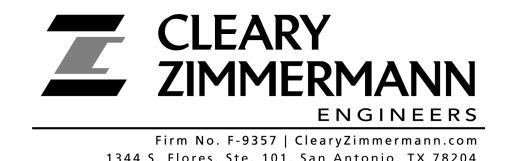
GENERAL NOTES

- REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.
- DUCTWORK SIZES SHOWN ARE FREE AIR STREAM DIMENSIONS.
- INSTALL DUCTWORK AND PIPING TO PROVIDE THE MAXIMUM POSSIBLE CLEAR HEIGHT UNDERNEATH. (BETWEEN STRUCTURE OR CEILING AND TOP OF DUCT).
- WHERE APPROVAL CODES HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITER'S LABORATORY, AMERICAN CODES, ANSI, ASME, ASA, ASHRAE, ASTM, ARI, NEL, NFPA, SMACNA, OR THE STATE FIRE INSURANCE REGULATORY BODY, FOLLOW THESE STANDARDS WHETHER OR NOT INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
- PROVIDE THE ENTIRE SYSTEM AND ITS COMPONENT ITEMS OF EQUIPMENT IN OPERATING CONDITION FREE OF OBJECTIONABLE VIBRATION OR NOISE.
- PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
- COORDINATE WORK SO THAT INTERFERENCES BETWEEN PIPING, DUCTWORK, EQUIPMENT, PLUMBING WORK, ELECTRICAL WORK, AND BUILDING STRUCTURE WILL BE AVOIDED.
- FURNISH ACCESS DOORS FOR INSTALLATION IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED MECHANICAL EQUIPMENT, VALVES, CONTROLS AND OTHER DEVICES.
- COORDINATE THE EXACT LOCATION OF DRAIN AND MECHANICAL EQUIPMENT LOCATIONS WITH MECHANICAL, ARCHITECTURAL, AND STRUCTURAL DRAWINGS PRIOR TO INSTALLATION.
- RECTANGULAR ELBOWS SHALL BE LONG-RADIUS ELBOWS UNLESS OTHERWISE SHOWN OR NOTED. SUPPLY AIR STANDARD NON-RADIUS 90° ELBOWS SHALL HAVE TURNING VANES.
- AIR CONDITIONING LOAD CALCULATIONS BASED ON LOCAL CLIMATE DATA. ADJUST UNIT SIZES, AIRFLOW, DUCT SIZES AND AIR DEVICES TO HVAC LOAD CALCULATIONS BASED ON STORE LOCATION. COORDINATE RTU LOCATIONS, DIMENSIONS, AND WEIGHTS WITH STRUCTURAL ENGINEER AND ARCHITECT.



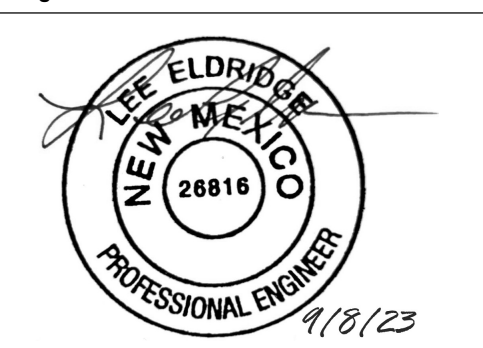
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Project Name ABQ ALAMEDA_PT22S

SWC ALAMEDA & SAN PEDRO DR., ALBUQUERQUE, NM

Project Number

122.0088.430

Description

GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

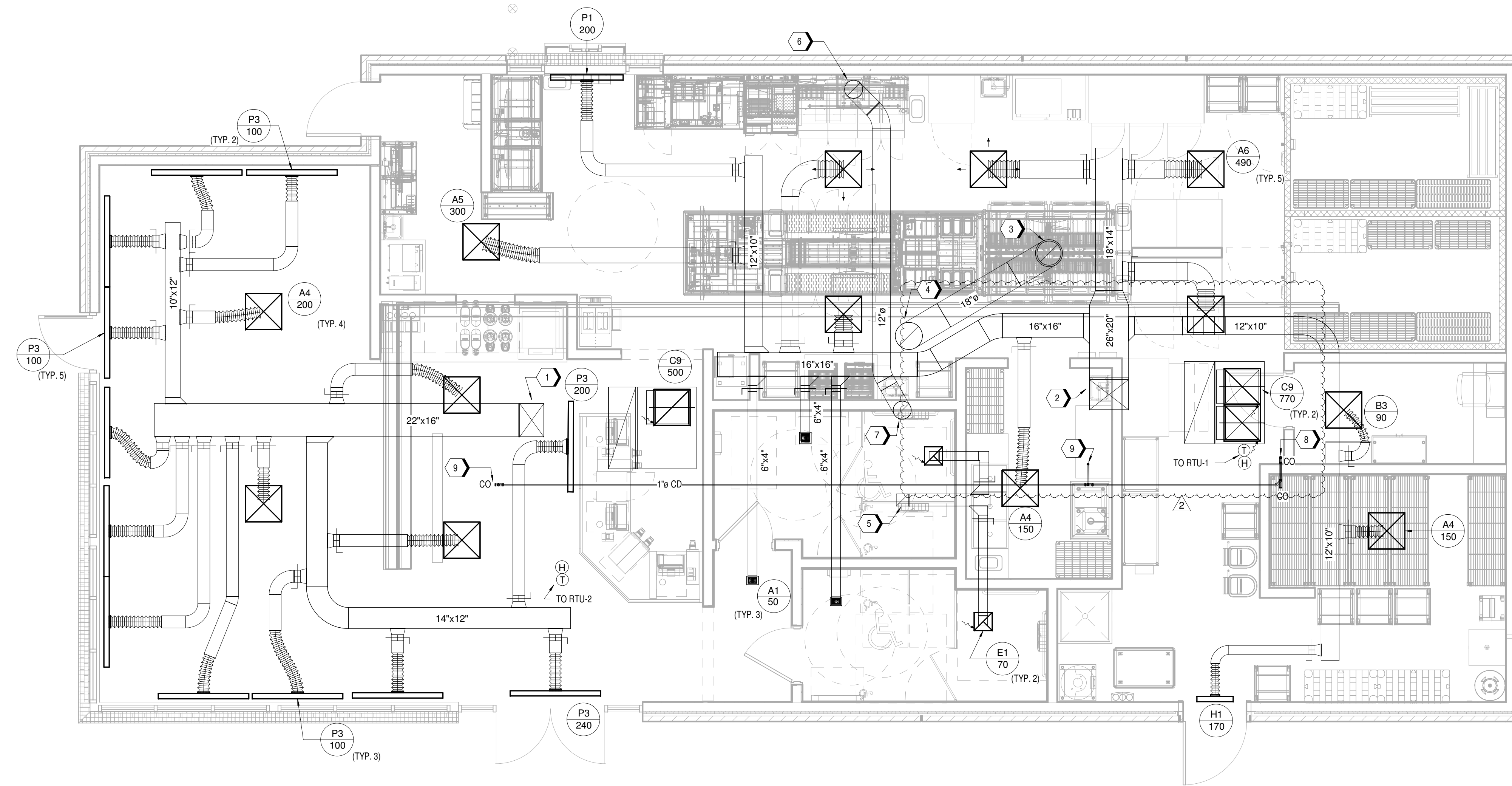
Scale

N.T.S.

M0.1

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B1 MECHANICAL FLOOR PLAN - LEVEL 1
1/4" = 1'-0"

GENERAL NOTES

- A. REFER TO M0.1 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- B. SMOKE DETECTORS SHALL BE INSTALLED IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE WIRING FOR SHUTDOWN WITH ELECTRICAL SCOPE. MOUNT SMOKE DETECTORS IN ACCESSIBLE LOCATIONS. REFERENCE M0.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU.
- C. THE EMERSON SITE SUPERVISOR DISPLAY AND CONTROLLER PANEL SHALL BE MOUNTED AND INSTALLED FLUSH IN THE MANAGER'S OFFICE AT 5' AFF TO CENTER.
- D. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED.
- E. TEMPERATURE SENSORS "T" AND HUMIDITY SENSORS "H" ARE TO BE CEILING MOUNTED AND TIED INTO THE BUILDING CONTROL SYSTEM.
- F. SLOT DIFFUSERS IN DINING AREA WILL COME INSTALLED IN PRE-MADE SOFFIT. AIR DEVICES SHOWN ON DRAWINGS FOR REFERENCE ONLY.

KEYNOTES

1. 22/16 SUPPLY DUCT UP TO RTU-2. PROVIDE DUCT TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.
2. 26/20 SUPPLY DUCT UP TO RTU-1. PROVIDE DUCT TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.
3. CONNECT KITCHEN EXHAUST HOOD ABOVE GRILL UP TO KEF-1 WITH 18" DIA. PRE-FABRICATED UL 1978 LISTED AND LABELED GREASE DUCT. PROVIDE TRANSITIONS ABOVE CEILING AS REQUIRED.
4. 18" EXHAUST DUCT UP TO KEF-1 ON ROOF. RE: A1/M2.1
5. 8"x8" EXHAUST DUCT UP TO EF-1.
6. CONNECT KITCHEN EXHAUST HOOD ABOVE FRYER UP TO KEF-2 WITH 12" DIA. PREFABRICATED UL 1978 LISTED AND LABELED GREASE DUCT. PROVIDE TRANSITIONS ABOVE CEILING AS REQUIRED.
7. 12" EXHAUST DUCT UP TO KEF-2 ON ROOF. RE: A1/M2.1
8. CONDENSATE DOWN TO FLOOR SINK. TERMINATE WITH 1" AIR GAP.
9. FULLY INSULATED COPPER CONDENSATE UP THROUGH ROOF. RE: B4/M5.2



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Project Name ABQ ALAMEDA_PT225
SWC ALAMEDA & SAN PEDRO
DR., ALBUQUERQUE, NM

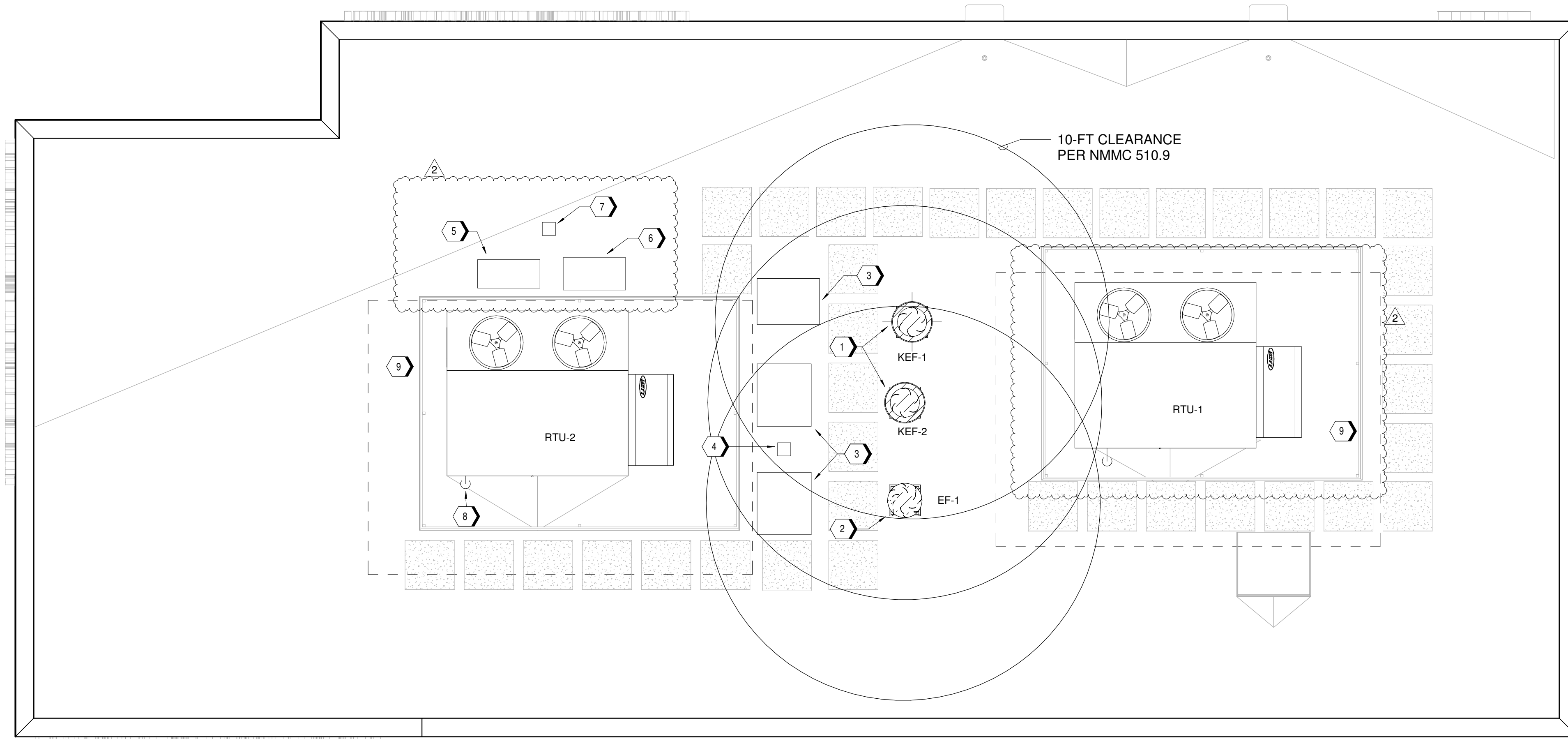
Project Number
122.0088.430

Description
MECHANICAL FLOOR PLAN

Scale
1/4" = 1'-0"

M1.1

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A1 MECHANICAL ROOF PLAN
1/4" = 1'-0"

GENERAL NOTES

- A. REFER TO M0.1 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- B. SMOKE DETECTORS SHALL BE INSTALLED IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE WIRING FOR SHUTDOWN WITH ELECTRICAL SCOPE. MOUNT SMOKE DETECTORS IN ACCESSIBLE LOCATIONS. REFERENCE M6.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU.
- C. THE EMERSON SITE SUPERVISOR DISPLAY AND CONTROLLER PANEL SHALL BE MOUNTED AND INSTALLED FLUSH IN THE MANAGER'S OFFICE AT 5' AFF TO CENTER.
- D. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED.

KEYNOTES

- 1. CENTRIFUGAL UPBLAST GREASE HOOD EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A2/M5.1
- 2. CENTRIFUGAL DOWNBLAST HOOD EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A1/M5.1
- 3. KITCHEN ICEMAKER CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER. COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION PIPING THROUGH ROOF PENETRATION (BY OTHERS).
- 4. REFRIGERATION PIPING ROOF PENETRATION (BY OTHERS).
- 5. KITCHEN FREEZER CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER. COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION PIPING THROUGH ROOF PENETRATION (BY OTHERS).
- 6. REFRIGERATION FREEZER CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER. COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION PIPING THROUGH ROOF PENETRATION (BY OTHERS).
- 7. REFRIGERATION PIPING ROOF PENETRATION (BY OTHERS).
- 8. ROUTE CONDENSATE LINE DOWN THROUGH ROOF, RE: A1/M1.1 FOR CONTINUATION.
- 9. REFER TO PREFAB SHEET PF1.06 FOR MECHANICAL SCREENS.



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Seal / Signature



Project Name ABQ ALAMEDA_PT225

SWC ALAMEDA & SAN PEDRO DR., ALBUQUERQUE, NM

Project Number

122.0088.430

Description

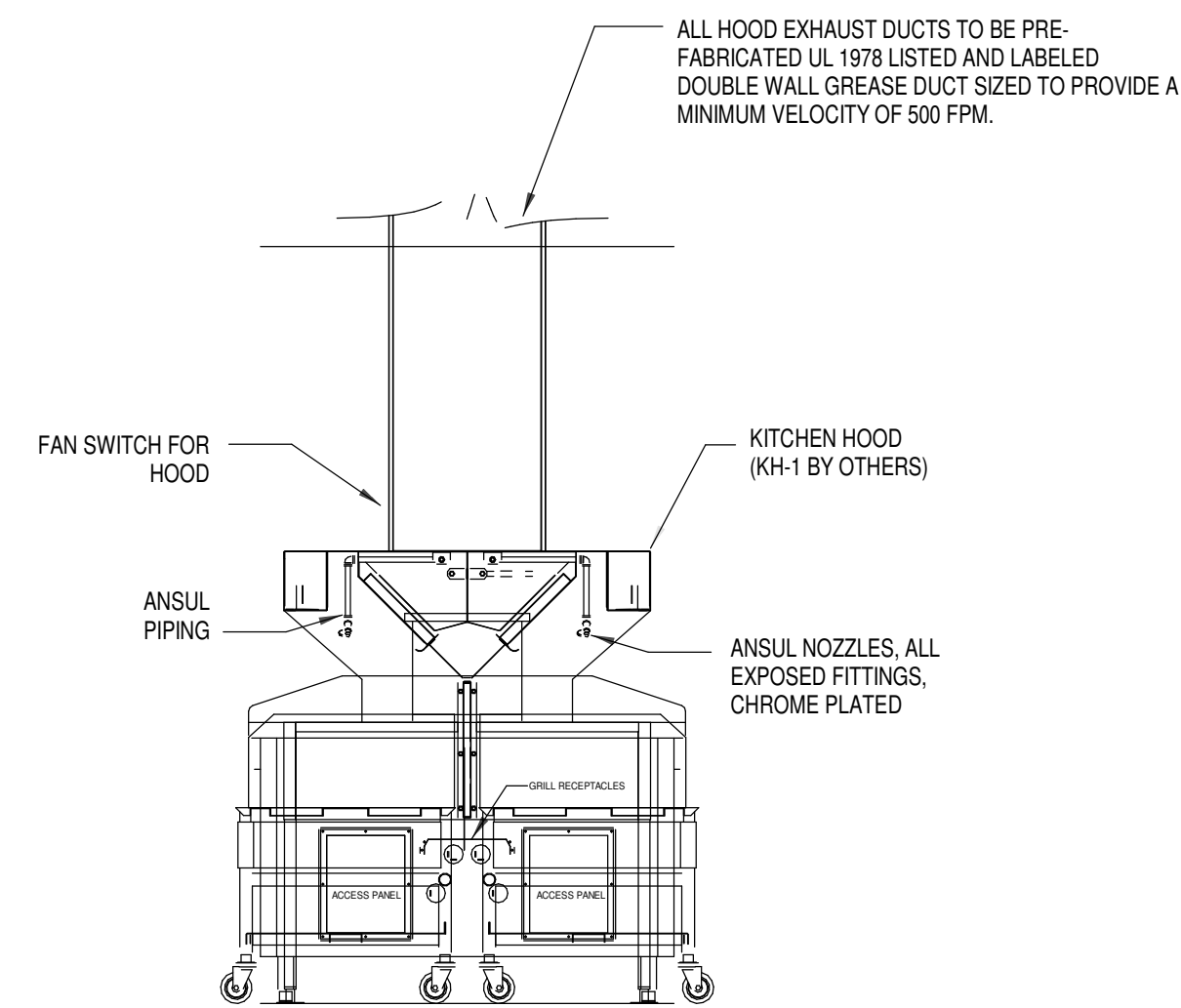
MECHANICAL ROOF PLAN

Scale

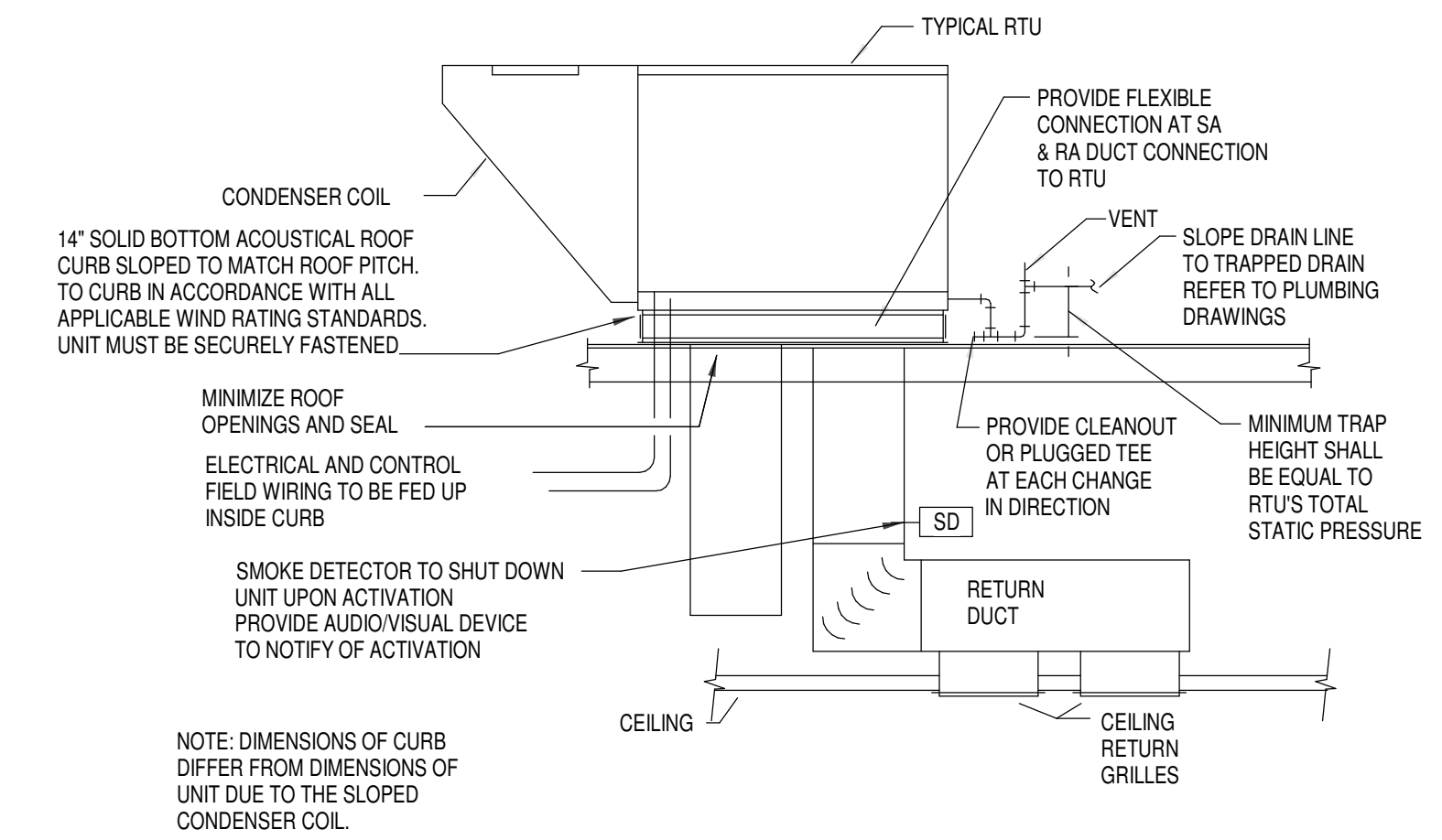
1/4" = 1'-0"

M2.1

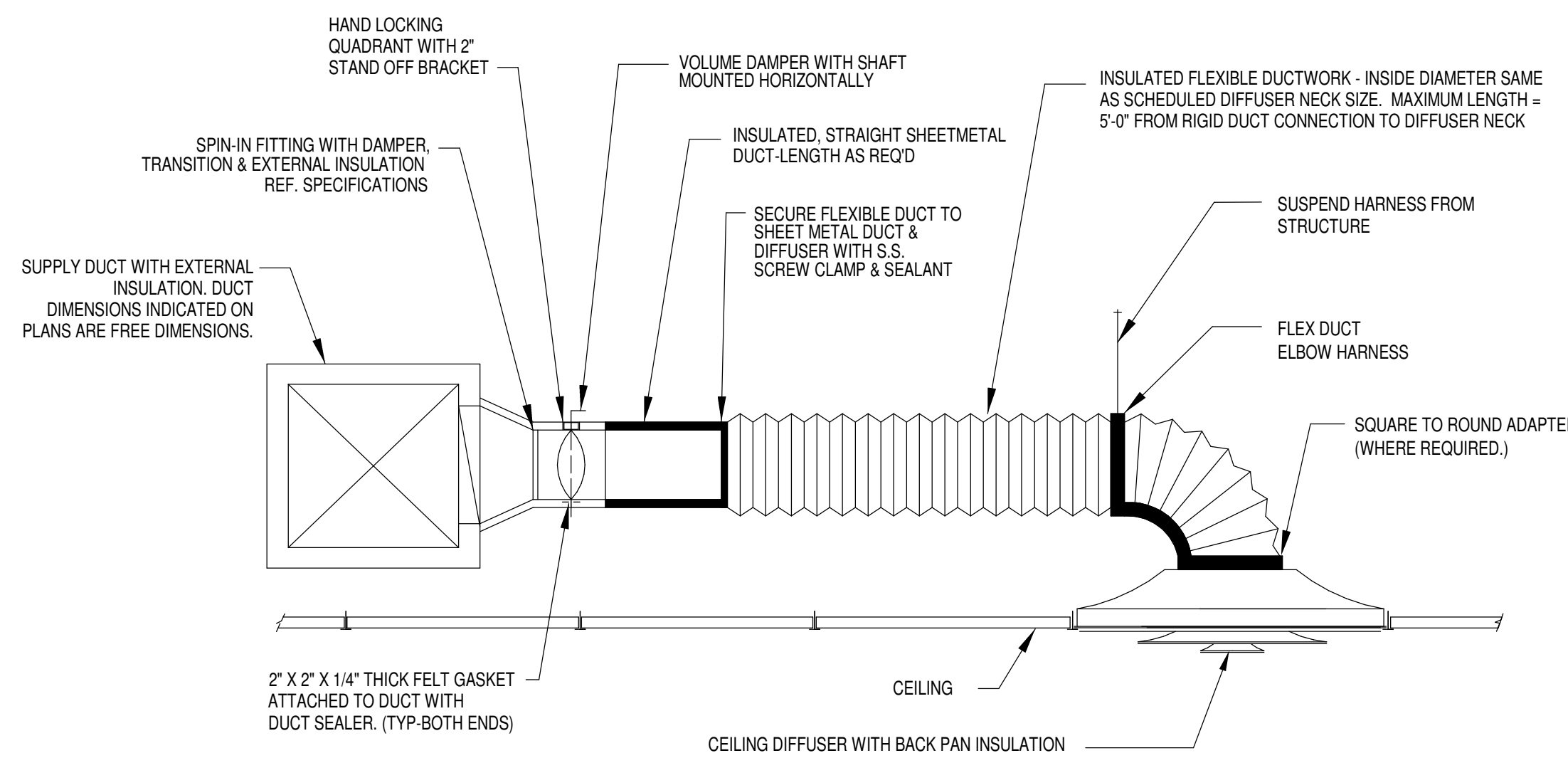
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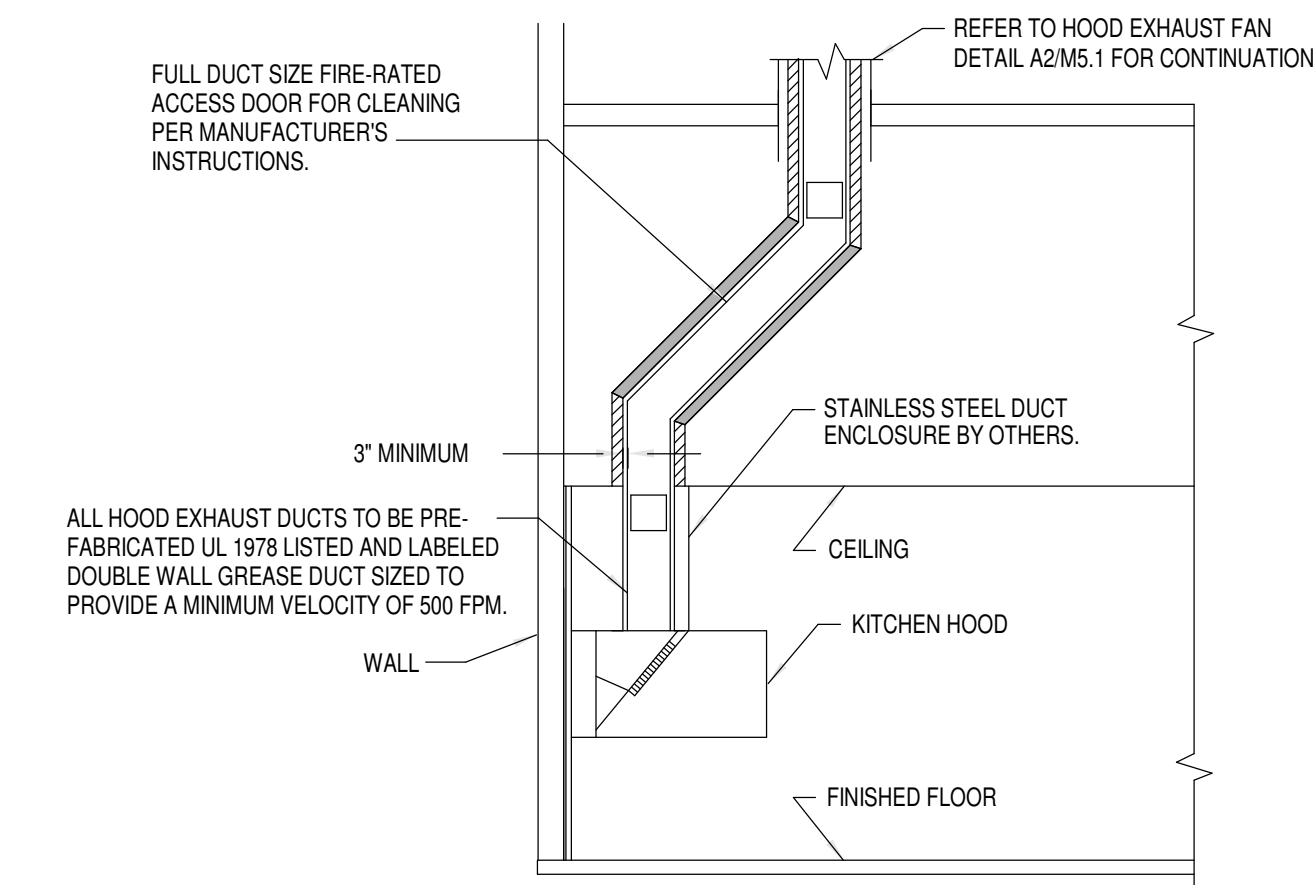
C3 LOW PROFILE HOOD DETAIL
N.T.S.



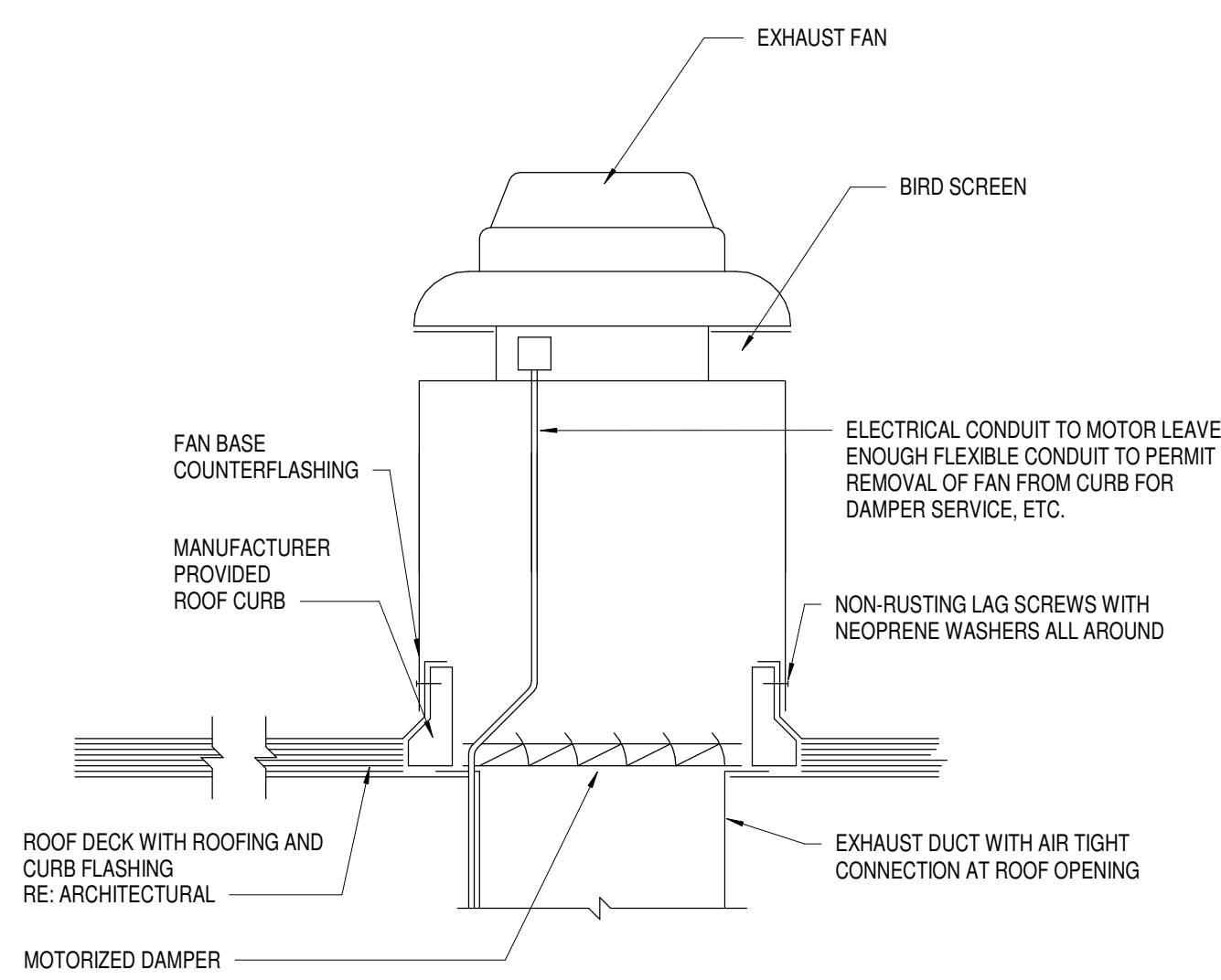
C4 ROOFTOP HVAC UNIT DETAIL
N.T.S.



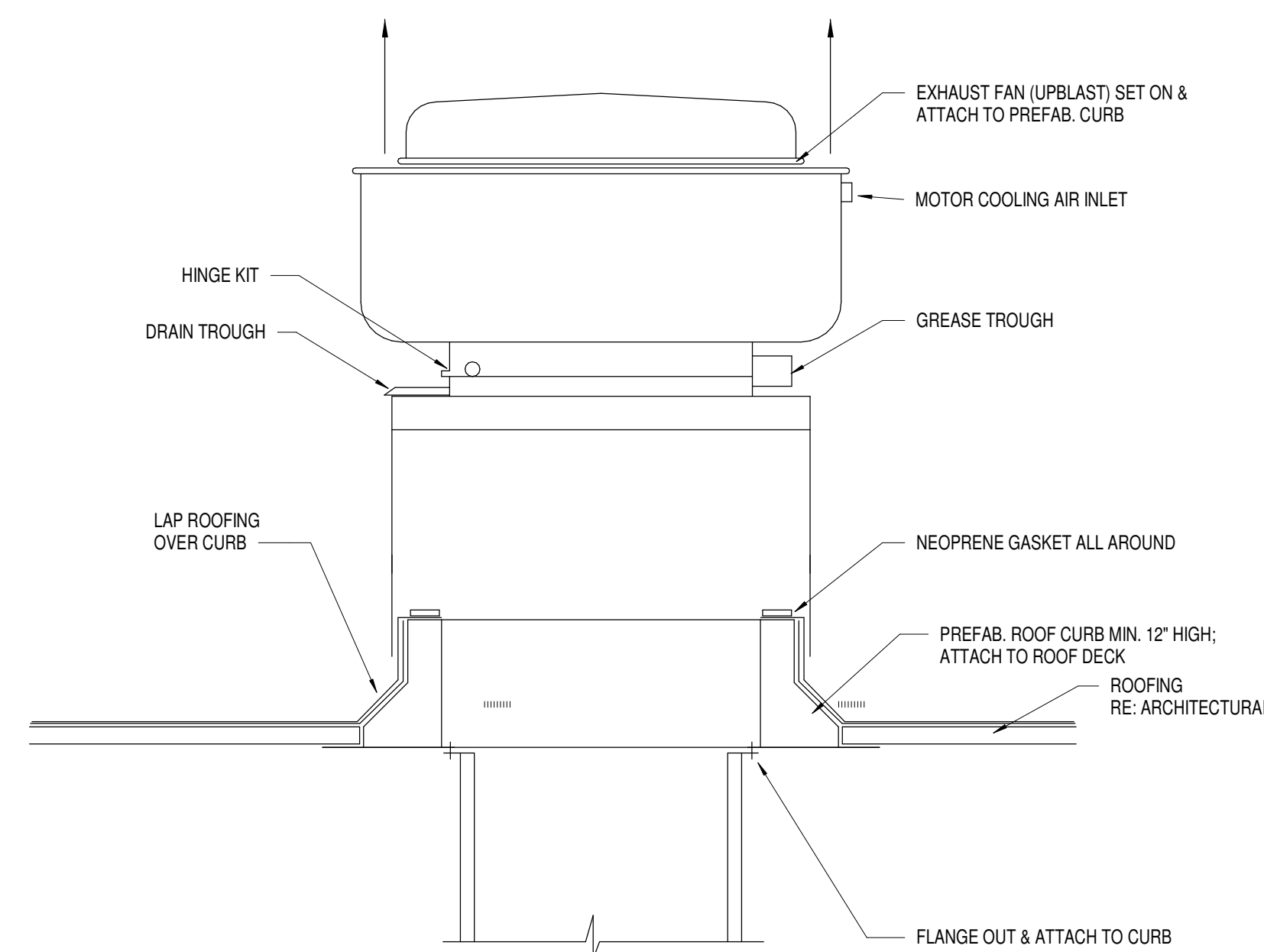
B2 DIFFUSER CONNECTION DETAIL
N.T.S.



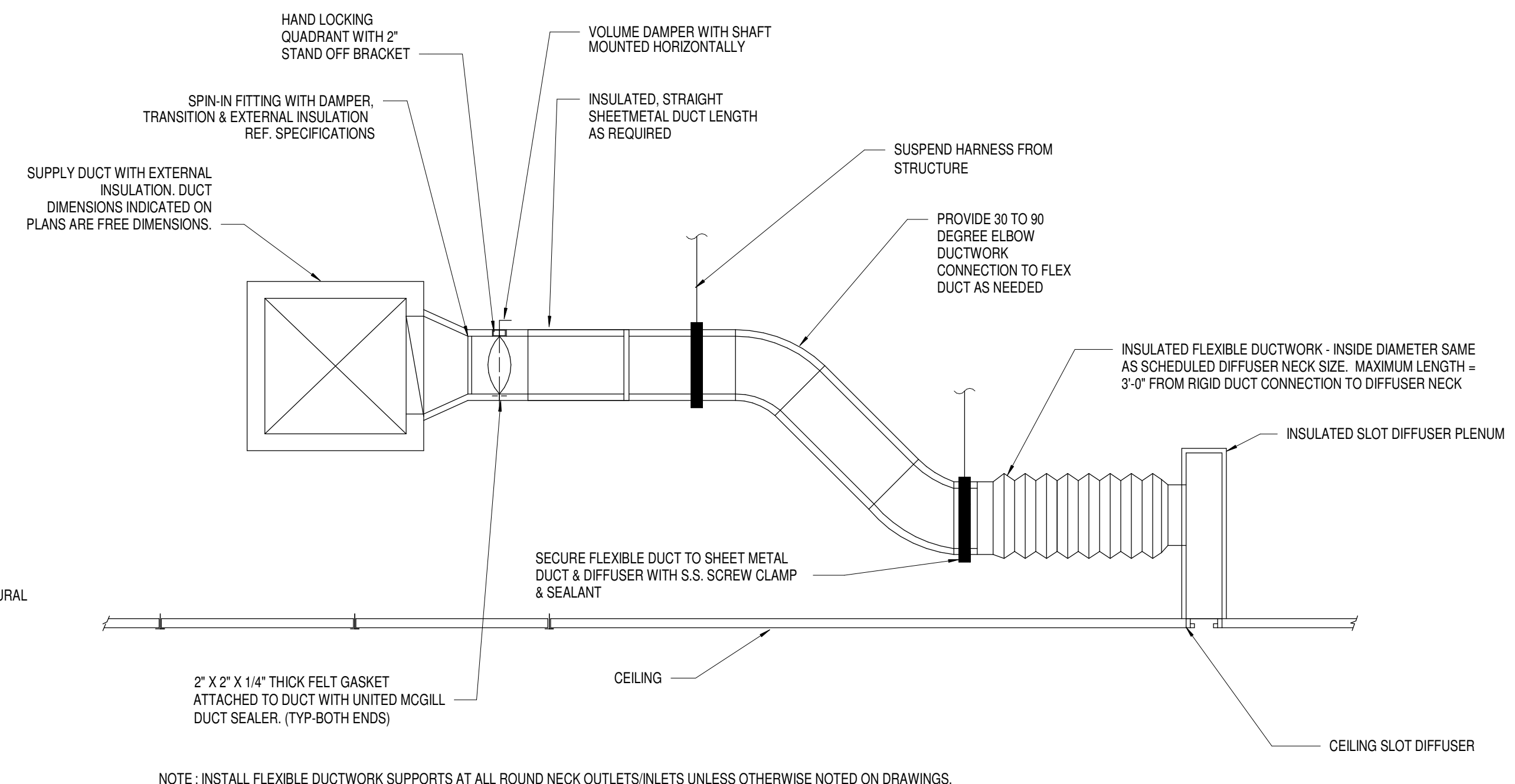
B4 HOOD EXHAUST DUCT DETAIL
N.T.S.



A1 ROOF MOUNTED EXHAUST FAN AND CURB DETAIL
N.T.S.



A2 ROOFTOP GREASE EXHAUST FAN DETAIL
N.T.S.



A3 PLENUM SLOT DIFFUSER DETAIL
N.T.S.



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Project Name **ABQ ALAMEDA_PT225**
SWC ALAMEDA & SAN PEDRO DR., ALBUQUERQUE, NM

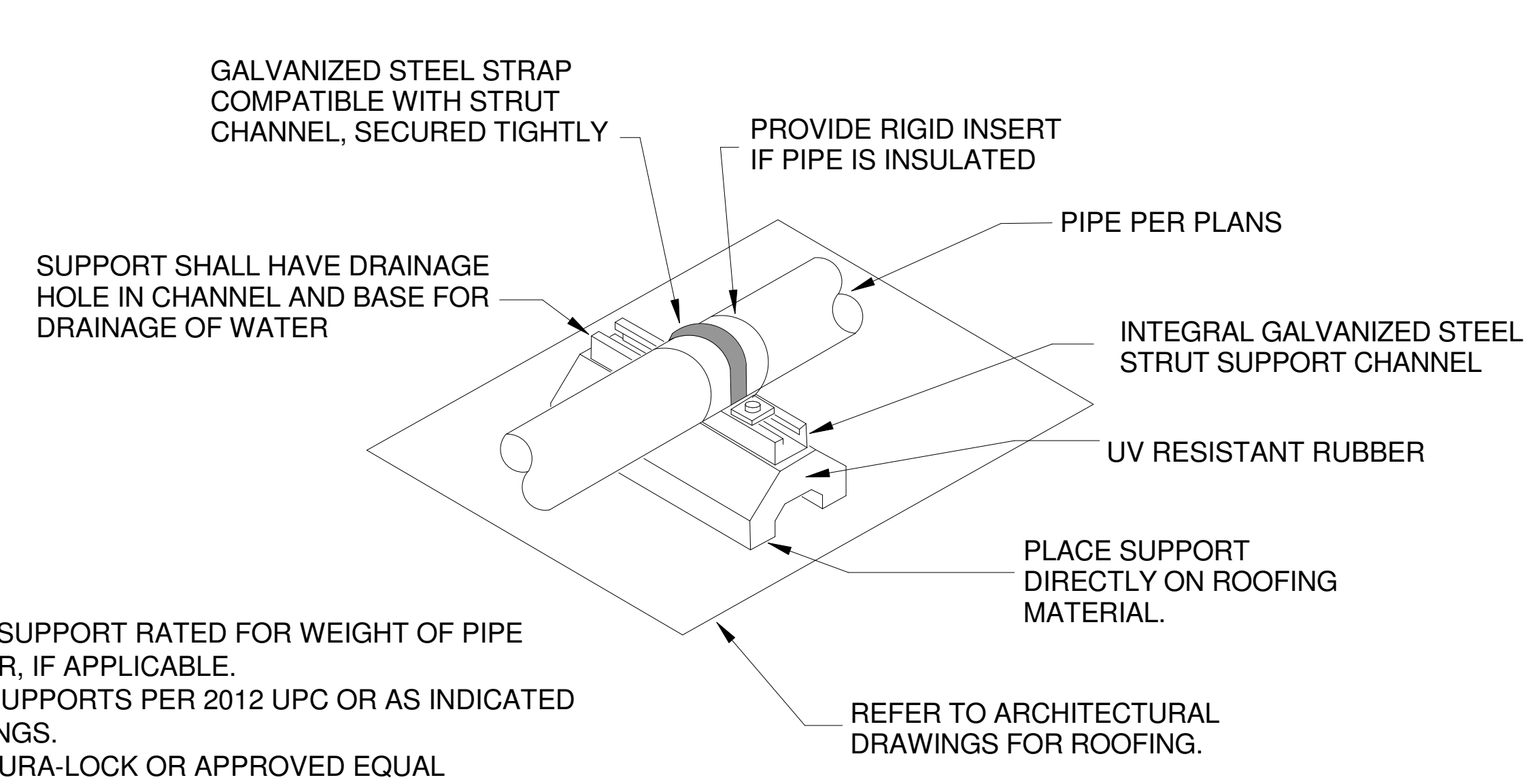
Project Number
122.0088.430

Description
MECHANICAL DETAILS

Scale
N.T.S.

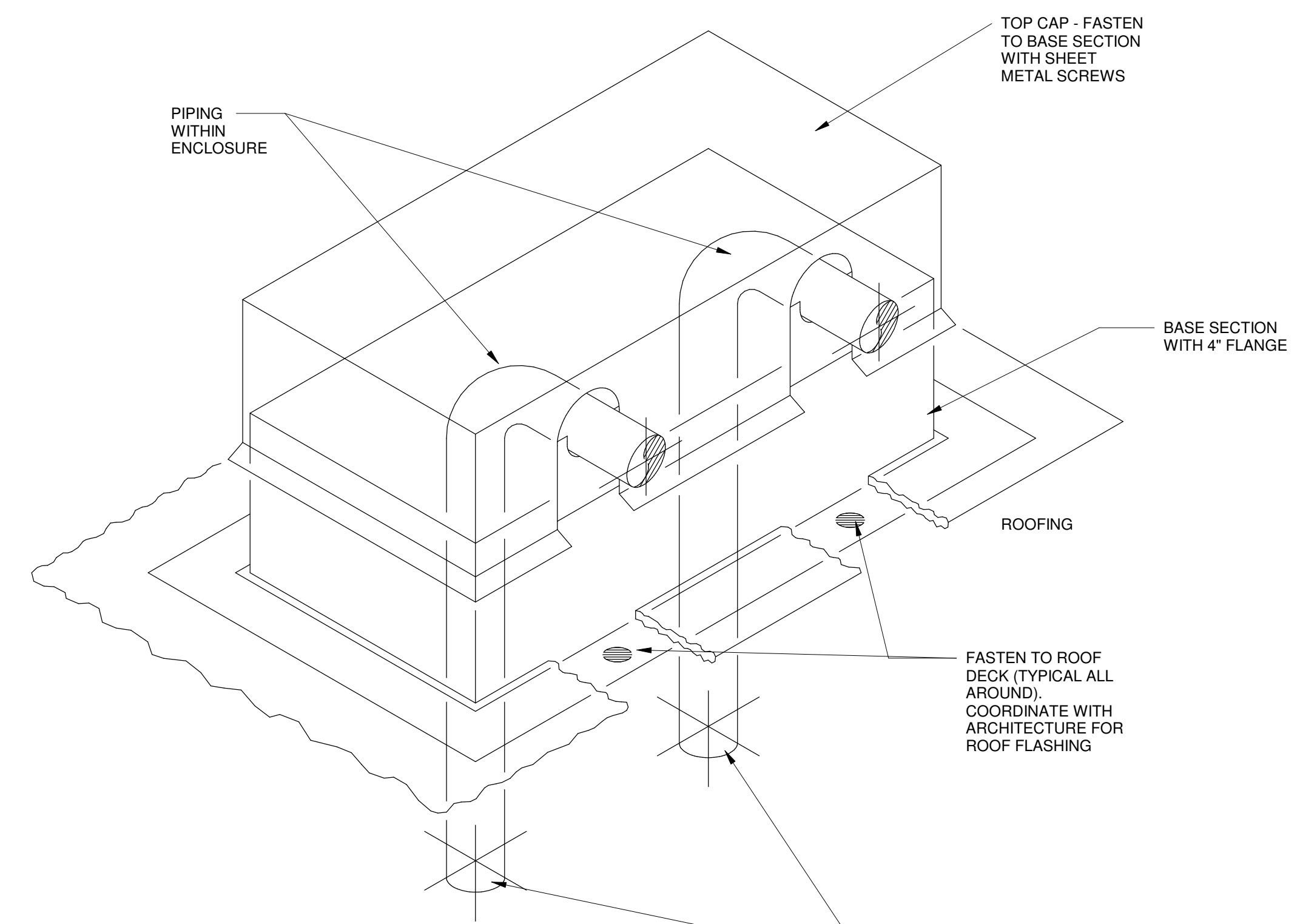
M5.1

△ Date	Description
02.24.2023	ISSUE FOR PERMIT
1 03.24.2023	ISSUE FOR PERMIT REVISION
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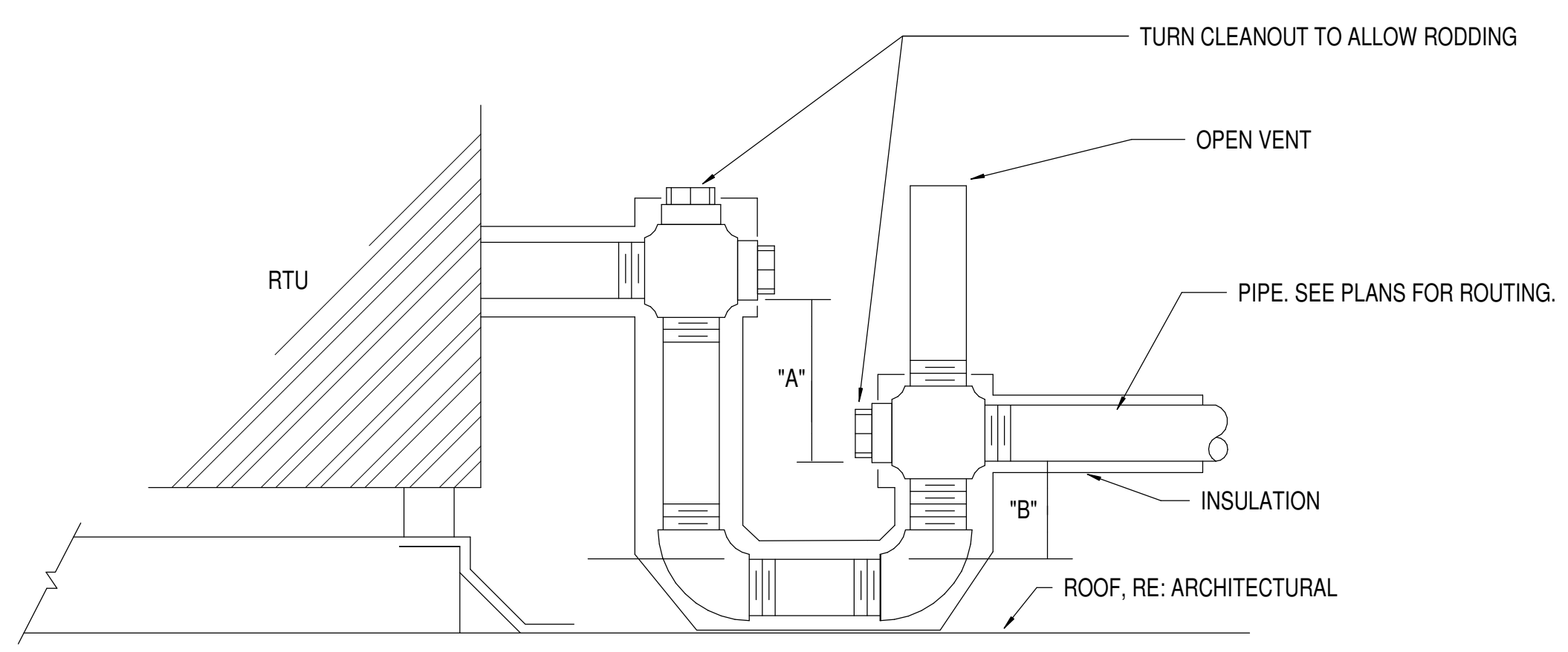


- NOTES:**
1. SELECT SUPPORT RATED FOR WEIGHT OF PIPE AND WATER, IF APPLICABLE.
 2. SPACE SUPPORTS PER 2012 UPC OR AS INDICATED ON DRAWINGS.
 3. B-LINE DURA-LOCK OR APPROVED EQUAL

A5 DURA-BLOCK SUPPORT
 N.T.S.

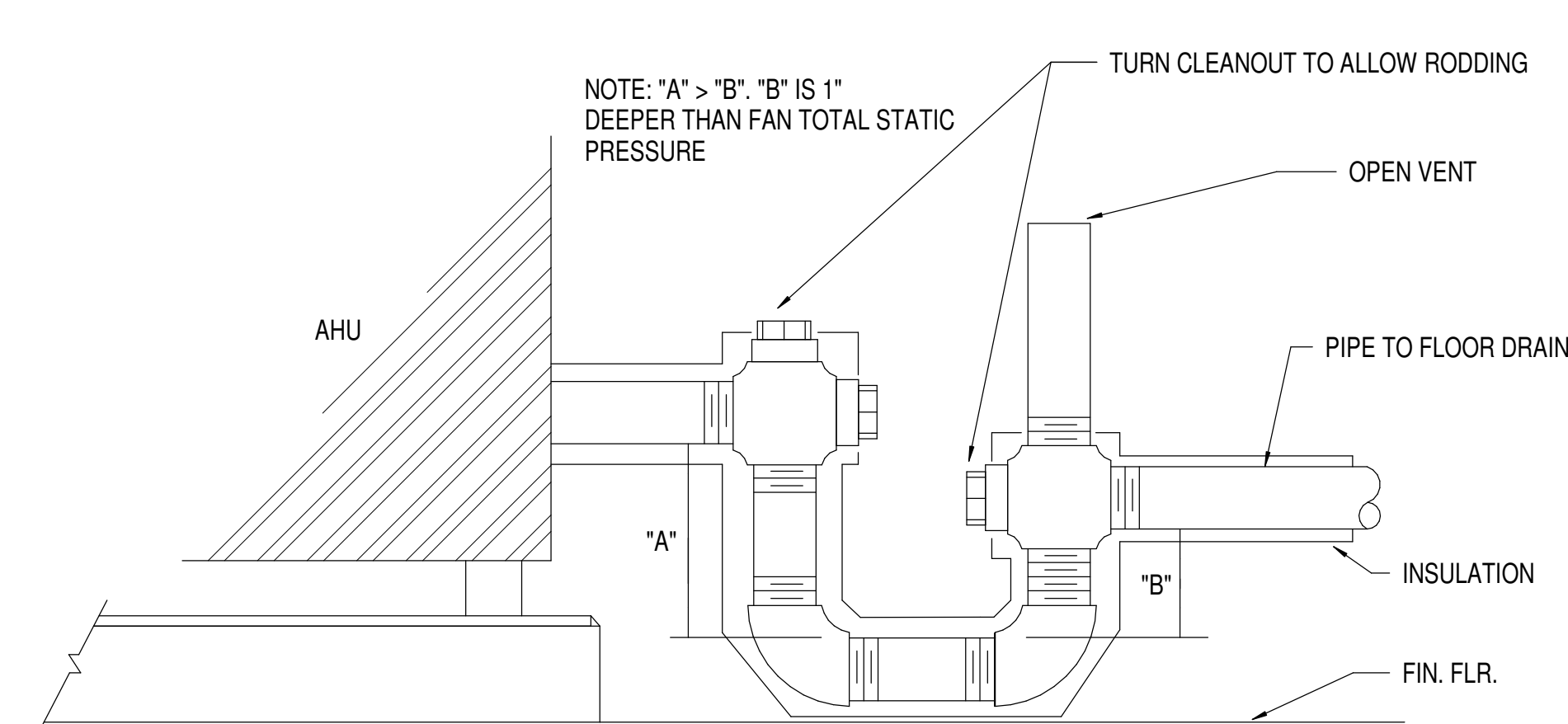


B4 PIPING THROUGH ROOF DETAIL
 N.T.S.



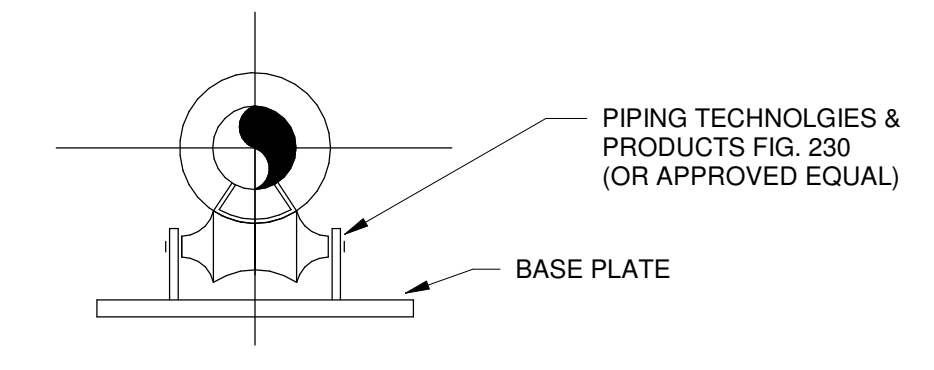
NOTE: "A" = TSP+1
 "B" = 1/2TSP+1

A1 DRAW-THRU AHU CONDENSATE DRAIN DETAIL
 N.T.S.



NOTE: "A" > "B". "B" IS 1" DEEPER THAN FAN TOTAL STATIC PRESSURE

A3 BLOW-THRU AHU CONDENSATE DRAIN DETAIL
 N.T.S.



A4 PIPE SUPPORT ROLLER STAND
 N.T.S.

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Project Name ABQ ALAMEDA_PT22S
 SWC ALAMEDA & SAN PEDRO DR., ALBUQUERQUE, NM

Project Number
 122.0088.430

Description
 MECHANICAL DETAILS

Scale
 As indicated

M5.2

ROOFTOP UNIT SCHEDULE

MARK	RTU-1	RTU-2
SERVES	KITCHEN	DINING
TOTAL AIR (CFM)	3650	2240
OUTSIDE AIR (CFM)	2110	1740
APPROX. EXT S.P. ("WG) *	0.50	0.50
FAN MOTOR (MIN. HP)	3.00	2.00
AMBIENT TEMP. (F)	105	105
COOLING SECTION		
TYPE	DX	DX
REFRIG. TYPE	R-410A	R-410A
FAN RPM	768	1210
ENT. AIR TEMP (DB/WB)	92.2/71.6	99.3/75.1
LEA. AIR TEMP (DB/WB)	53.5/53.5	52.5/52.3
OUTPUT-TOTAL (MBH)	195.6	146.68
OUTPUT-SENS (MBH)	138.7	97.6
HEATING SECTION		
TYPE	GAS	GAS
STAGES	3-1	3-1
ENT. AIR TEMP (DB)	33.0	29.5
LEA. AIR TEMP (DB)	88.4	96.6
INPUT (MBH)	270.0	195.0
OUTPUT (MIN. MBH)	218.0	156.0
ELECTRICAL		
UNIT VOLTS / PHASE	208/3	208/3
MCA	90	68
MOCP	110	80
WEIGHT	2469	1935
FILTER	MERV 8	MERV 8
REFERENCE	AAON	AAON
MODEL NO.	RN-018-8-0-GB04-349	RN-013-9-0-GB04-3F9
NOTES	1-13	1-13

- NOTES:
- PROVIDE WITH PREMIUM EFFICIENCY MOTORS IN ACCORDANCE WITH NEMA MG-1.
 - PROVIDE WITH SUPPLY AND RETURN SMOKE DETECTORS TO SHUT DOWN UNIT UPON SMOKE DETECTION.
 - PROVIDE WITH TERMINAL STRIP FOR FIELD INSTALLED CONTROLS.
 - UNITS TO BE 2" DOUBLE WALL R-13 CONSTRUCTION WITH 2500 HOUR SALT SPRAY RESISTANT PAINT.
 - UNIT TO HAVE MODULATING HOT GAS REHEAT AND MODULATE HEAT CONTROL.
- MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLING (2) FACTORY PROVIDED SUPPLY AIR TEMPERATURE SENSORS.
- PROVIDE FACTORY INSTALLED HAIL GUARDS
 - PROVIDE 6 ROW DX COIL AND STAINLESS STEEL DRAIN PAN.
 - PROVIDE ULTRA LOW LEAKAGE ECONOMIZER WITH BAROMETRIC RELIEF DAMPER, AND FAULT DETECTION AND DIAGNOSTIC.
 - PROVIDE FACTORY MOUNTED AND WIRED CONDENSATE FLOW SWITCH.
 - PROVIDE STAINLESS STEEL GAS HEAT EXCHANGER WITH MODULATING CONTROL.
 - PROVIDE FACTORY POWERED GFCI CONVENIENCE OUTLET AND NONFUSED DISCONNECT.
 - PROVIDE 18" INSULATED, SOLID BOTTOM CURBED FOR PITCHED ROOF. MECHANICAL CONTRACTOR TO FIELD CUT SUPPLY AND RETURN OPENINGS AS REQUIRED.
 - AAON UNITS PROVIDED BY WHATABURGER. FACTORY STARTUP IS INCLUDED. CONTACT AARON HUMPHRIES @ 210-954-6657 OR aaron.humphries@texasairsystems.com TO COORDINATE STARTUP.

FLEX DUCT SCHEDULE

CFM RANGE	SIZE (DIAMETER) *
< 50	5
51 - 100	6
101 - 250	8
251 - 400	10
401 - 650	12
651 - 900	14
901 - 1300	16
1301 - 1800	18
1801 - 2300	20

* ALL FLEX DUCT SHALL BE SIZED IN ACCORDANCE W/ FLEX DUCT SCHEDULE. PROVIDE RIGID REDUCER AT NECK OF AIR DEVICE, VAV INLET DUCT, ETC. TO TRANSITION FROM FLEX DUCT SIZE TO DIFFUSER INLET AND/OR EQUIPMENT CONNECTION SIZE. FLEX DUCT NOT TO EXCEED 5ft.

EXHAUST FAN SCHEDULE

TAG	TYPE	Manufacturer	Manufacturer Model Name	AIR FLOW (CFM)	E.S.P. (IN WG)	MOTOR RPM	FAN RPM	BHP	MOTOR HP	VOLTAGE	PHASE	WEIGHT (LBS)	NOTES
EF-1	ROOF-MOUNTED CENTRIFUGAL DOWNBLAST	GREENHECK	CUE-080-VG	140	0.38	1550	1550	0.05	0.05	120	1	17	1,2
KEF-1	ROOF-MOUNTED CENTRIFUGAL UPBLAST	GREENHECK	CUE-140-VG	1995	1.00	1550	1517	0.66	0.75	208	1	119	2,3,4,6
KEF-2	ROOF-MOUNTED CENTRIFUGAL UPBLAST	GREENHECK	CUE-120-VG	1216	0.75	1725	1415	0.26	0.50	208	1	96	2,3,5,6

NOTES:
1. PROVIDE INSULATED 17" ROOF CURB.
2. PROVIDE WITH INTEGRAL DISCONNECT SWITCH.
3. PROVIDE GREASE BOX.
4. PROVIDE INSULATED AND VENTED 26" SQUARE ROOF CURB.
5. PROVIDE INSULATED AND VENTED 22" SQUARE ROOF CURB.
6. PROVIDE HINGED ACCESS KIT.

AIR DEVICE SCHEDULE

Type Mark	MANUFACTURER	MODEL	Max Flow (CFM)	FACE SIZE (IN)	NECK SIZE (IN)	MAX NC	PATTERN	SLOT LENGTH (IN)	SLOT WIDTH (IN)	SLOT QTY	SYSTEM CLASSIFICATION	COMMENTS
	TITUS	TMS	550	24 X 24	10	30	4-WAY	-	-	-	SUPPLY AIR	1
A1	Titus	300FS	100	6 X 6	6 X 6	30	4-WAY	-	-	-	SUPPLY AIR	
A4	TITUS	TMS	400	24 X 24	8	30	4-WAY	-	-	-	SUPPLY AIR	1
A6	TITUS	TMS	725	24 X 24	12	30	4-WAY	-	-	-	SUPPLY AIR	1
B3	TITUS	TMS	250	24 X 24	6	30	4-WAY	-	-	-	SUPPLY AIR	1,2
C9	TITUS	350FLF-1	2800	24 X 24	22 x 22	30	4-WAY	-	-	-	RETURN AIR	2
E1	TITUS	50F	180	12 X 12	6 X 6	30	4-WAY	-	-	-	EXHAUST AIR	2
H1	TITUS	FBPI	105	24 X 3-1/2	6	30	2-WAY	24	3/4	1	SUPPLY AIR	3
P1	TITUS	FBPI	250	48 X 3-1/2	8	30	-	48	1	1	SUPPLY AIR	
P3	TITUS	FBPI	420	60 X 3-1/2	10	28	-	60	2-1/2	1		

NOTES:
1. PROVIDE BACK PAN INSULATION.
2. PROVIDE PLASTER FRAME FOR MOUNTING IN GYP. CEILING.
3. PROVIDE INSULATED PLENUM.
4. CONTINUOUS LINEAR SLOT DIFFUSER TO BE INSTALLED IN GYP. CEILING. PROVIDE INSULATED SUPPLY AIR PLENUMS AS SCHEDULED FOR A COMPLETE SYSTEM.

AIR BALANCE AND VENTILATION CALCULATION:

TOTAL OUTSIDE AIR INTAKE = 3850 CFM
TOTAL GREASE HOOD EXHAUST = 3165 CFM
TOTAL RESTROOM EXHAUST = 140 CFM

OUTSIDE AIRFLOW - (GREASE HOOD EXHAUST AIRFLOW + RESTROOM EXHAUST AIRFLOW) = NET POSITIVE AIRFLOW

3850 CFM - (3165 + 140) = 545 CFM

OA BY AREA = 0.18 x 1058 + 0.12 x 1258 = 342 CFM
OA BY PEOPLE = 7.5 x 72 = 540 CFM
TOTAL OA REQUIRED = 882 CFM

DESIGN CODE: NIMC 2021



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MECHANICAL SCHEDULES

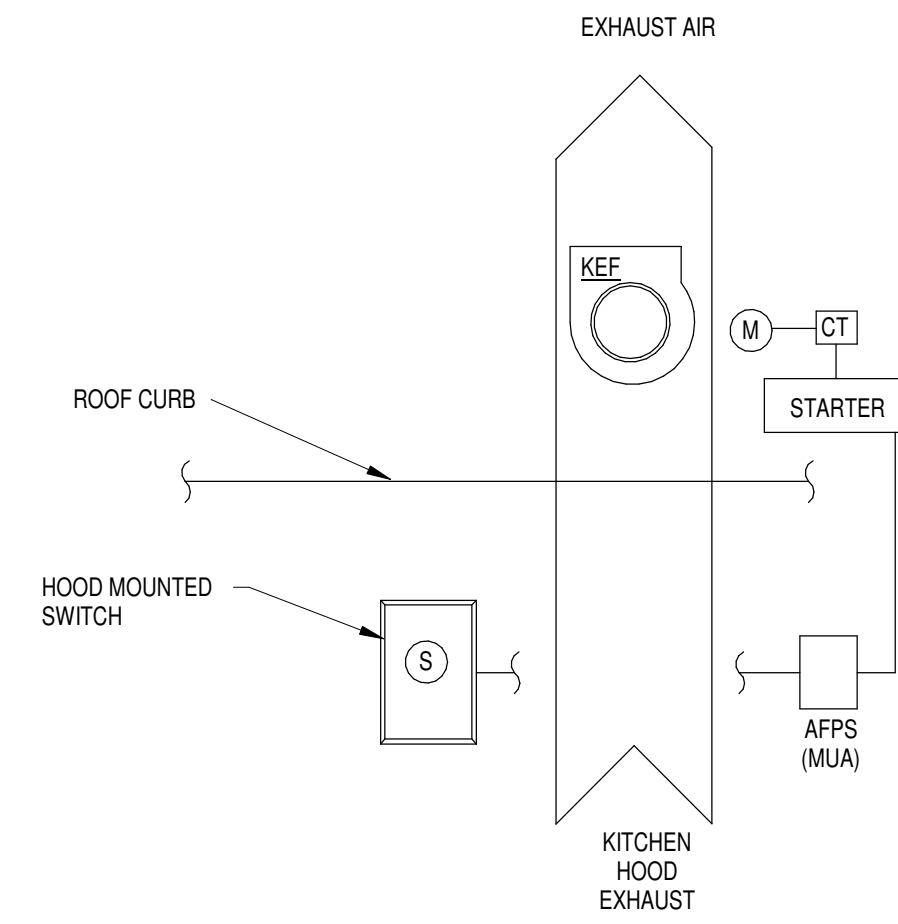
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M6.1

CONTROL SYMBOLS

AE	ANALYZER ELEMENT	CO	CARBON MONOXIDE SENSOR
DDC	DIRECT DIGITAL CONTROL	←	COMMUNICATION SIGNAL
BMS	BUILDING MANAGEMENT SYSTEM	HPS	HIGH STATIC PRESSURE SENSOR
RDC	ROOFTOP UNIT DDC CONTROLLER	DA	DAMPER ACTUATOR
FACP	FIRE ALARM CONTROL PANEL	CV	CONTROL VALVE
DPI	DIFFERENTIAL PRESSURE INDICATOR	DX	DX COOLING COIL
DPS	DIFFERENTIAL PRESSURE SWITCH	HGR	HOT GAS REHEAT
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	HC	NATURAL GAS HEATING COIL
EDH	ELECTRIC DUCT HEATER	SF	SUPPLY AIR FAN
EF	EXHAUST FAN		
FE	FLOW ELEMENT		
FLTR	FILTER		
FS	FLOW SWITCH		
H	HUMIDISTAT		
HL	HIGH TEMPERATURE LIMIT SWITCH		
M	MOTOR		
PCV	PRESSURE CONTROL VALVE		
PT	PRESSURE TRANSMITTER		
SMK	SMOKE DETECTOR		
T	TEMPERATURE SENSOR		
TCV	TEMPERATURE CONTROL VALVE		
TSL	LOW LIMIT THERMOSTAT (FREEZESTAT)		
TT	TEMPERATURE TRANSMITTER		
VFD	VARIABLE FREQUENCY DRIVE		
STARTER	MOTOR STARTER (PROVIDE CONTROL RELAY)		
CT	CURRENT TRANSDUCER		
OS	OCCUPANCY SENSOR		
AFPS	AIR FLOW PROVING STATION		



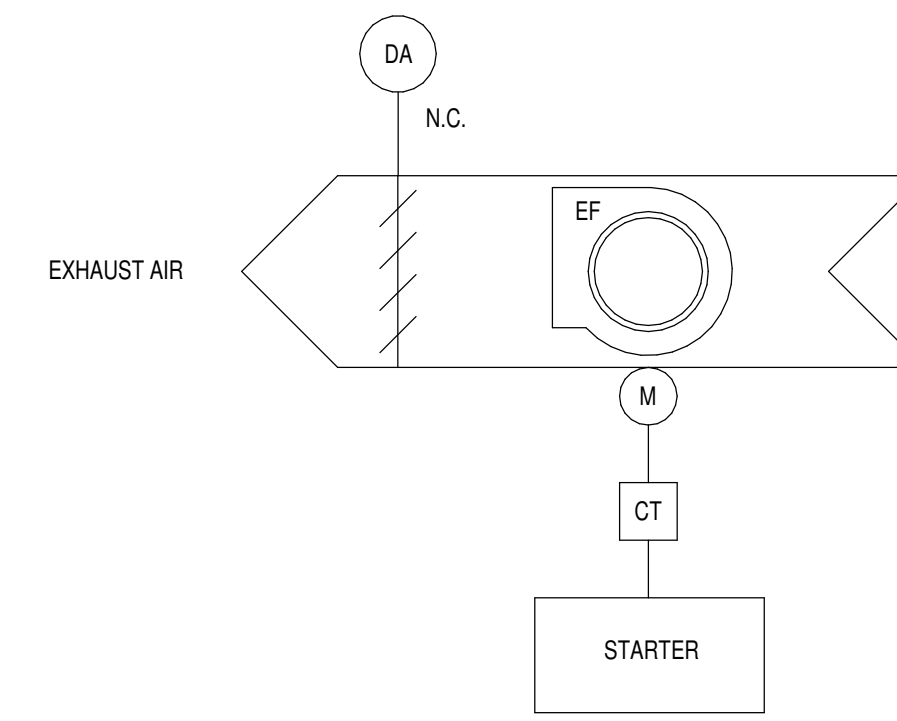
SEQUENCE OF OPERATION

OPERATING CONDITIONS - CONTINUOUS 24/7:
THE KITCHEN HOOD EXHAUST FAN SHALL RUN CONTINUOUSLY WHEN THE KITCHEN HOOD MOUNTED SWITCH IS ON.

INTEGRATED ANSUL FIRE SUPPRESSION SYSTEM:
UPON ACTIVATION OF THE INTEGRATED ANSUL FIRE SUPPRESSION SYSTEM DURING NORMAL KITCHEN OPERATION, THE KITCHEN HOOD EXHAUST FAN SHALL REMAIN ENERGIZED.

FIRE/SMOKE CONTROL:
UPON SMOKE DUCT DETECTION, THE KITCHEN EXHAUST FAN SHALL BE CYCLED OFF. FAN STATUS SHALL BE REPORTED TO THE BAS.

C3 KITCHEN EXHAUST CONTROLS
N.T.S.

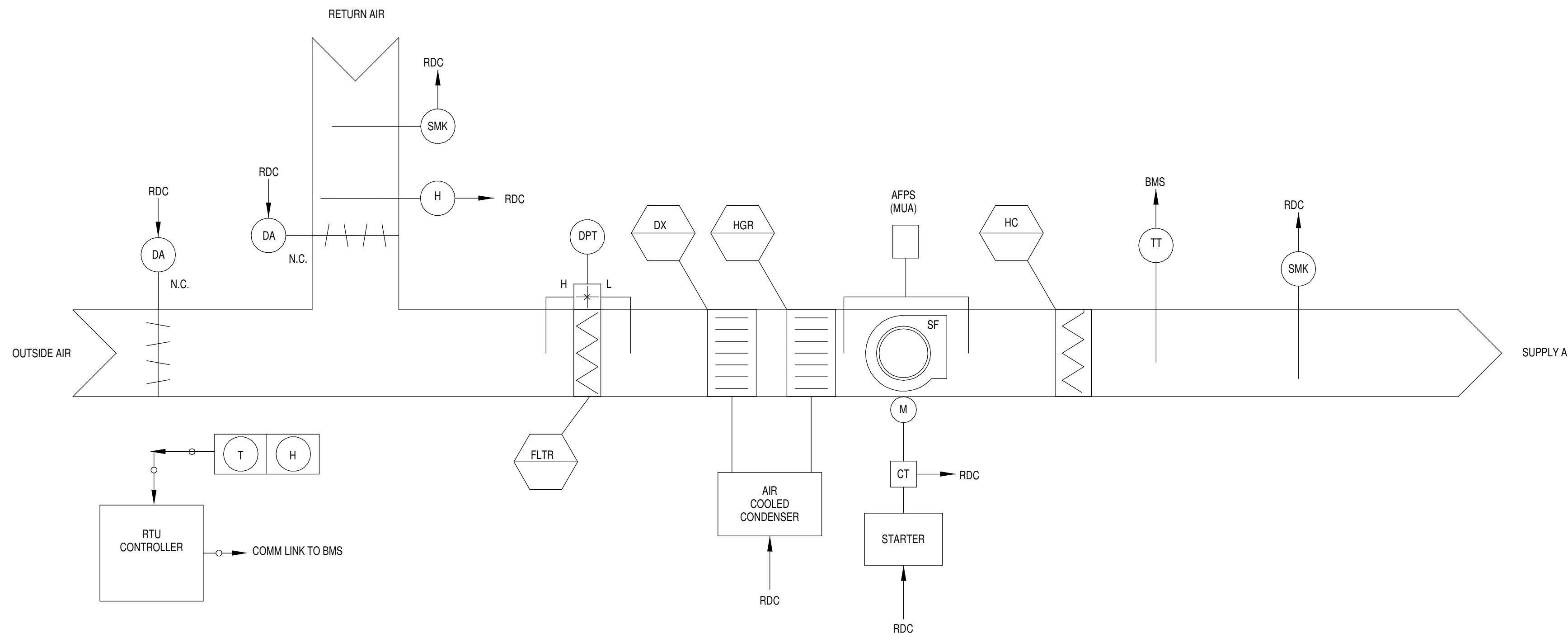


SEQUENCE OF OPERATION

OPERATING CONDITIONS:
THE GENERAL EXHAUST FAN SHALL BE INTERLOCKED TO RESTROOM OCCUPANCY SENSORS. THE EXHAUST FAN SHUT OFF DAMPER SHALL BE INTERLOCKED WITH THE EXHAUST FAN TO OPEN WHEN THE FAN IS ENERGIZED AND CLOSE WHEN THE FAN IS DE-ENERGIZED.

ALARMS:
ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. FAN FAILURE: FAN COMMANDED ON BUT STATUS IS OFF.
2. FAN IN HAND: FAN COMMANDED OFF BUT STATUS IS ON.
3. FAN BELT FAILURE: MOTOR AMPERAGE READS ZERO AS MEASURED BY CURRENT TRANSDUCER.

C4 GENERAL EXHAUST CONTROLS
N.T.S.



SEQUENCE OF OPERATION

OPERATING CONDITION - CONTINUOUS 24/7

THE RTU CONTROLLER (RDC) SHALL PERFORM ALL CONTROL, SAFETY AND INTERLOCKS AS DESCRIBED IN THE SEQUENCE OF OPERATION. THE BMS SHALL MONITOR THE RTU DDC CONTROLLER VIA BMS PROTOCOL COMMUNICATION AND/OR COMBINATION OF DISCRETE INPUT/OUTPUT POINTS. THE BMS SHALL OPERATE THE UNIT CONTINUOUS 24/7. WHEN THE UNIT IS DE-ENERGIZED BY THE BMS, THE FAN SHALL SHUT DOWN, THE OA DAMPER SHALL CLOSE, THE REFRIGERATION SYSTEM SHALL ALSO BE DE-ENERGIZED AND THE HEATING SYSTEM LOCKED OUT OF HEATING MODE.

TEMPERATURE CONTROL:
OCCUPIED MODE - THE BMS WILL MAINTAIN THE FOLLOWING SPACE TEMPERATURE SETPOINTS:
• COOLING: 75°F (ADJUSTABLE)
• HEATING: 70°F (ADJUSTABLE)

HUMIDITY CONTROL:
IF THE RELATIVE HUMIDITY OF THE RETURN AIR EXCEEDS 60% (ADJUSTABLE) AND THERE IS NO CALL FOR COOLING IN THE SPACE, THE RDC SHALL ENABLE DEHUMIDIFICATION MODE OF THE RTU BASED ON ITS OWN INTERNAL CONTROLS UTILIZING HOT GAS REHEAT.

ECONOMIZER OPERATION:
BASED ON THE RTU INTERNAL CONTROLS, THE RDC SHALL VARY THE OUTSIDE AIR DAMPER POSITION, BASED ON CALL FOR COOLING IN THE SPACE. THERE SHALL BE ONE FAN SPEED, THE RDC SHALL LOAD AND UNLOAD COMPRESSORS BASED ON THE UNIT INTERNAL CONTROLS TO CONDITION OR DEHUMIDIFY THE SPACE AS NEEDED.

SEQUENCE OF OPERATION (CONTINUED)

THE BMS SHALL BE PROGRAMMED SO THAT THE HEATING AND COOLING SYSTEMS SHALL NEVER OPERATE SIMULTANEOUSLY.

UNIT SHUTDOWN:
UNIT SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE IN DUCT OR BUILDING FIRE ALARM.

ALARMS:
THE BMS SHALL MONITOR ALL SAFETIES ON THE REFRIGERATION SYSTEM AND THE HEATING SYSTEM THROUGH THE RDC COMMUNICATION PROTOCOL. ALL ABNORMAL CONDITIONS SHALL BE ALARMED AT THE BMS.

- FILTERS:**
THE RDC SHALL MONITOR THE STATIC PRESSURE DROP ACROSS THE FILTER BANK AND ALARM ON HIGH STATIC PRESSURE DROP. A DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTER SHALL INITIATE FILTER ALARM WHEN THE PRESSURE DROP ACROSS THE FILTER REACHES THE SETPOINT OF 1.0 INCHES W.C. (ADJUSTABLE).
- FIRE/SMOKE CONTROL:**
UPON ACTIVATION OF A DUCT SMOKE DETECTOR, THE BMS AND THE FIRE ALARM CONTROL PANEL SHALL RECEIVE AN ALARM.
- GENERAL ALARM:**
ANY TROUBLE ALARM OR FAULT WITHIN THE UNIT ONBOARD CONTROLS WILL GENERATE A GENERAL ALARM TO THE BMS.

A2 PACKAGED ROOFTOP UNIT CONTROLS DIAGRAM
N.T.S.



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Project Number: 122.0088.430

Description: MECHANICAL CONTROLS

Scale: As indicated

M7.1