

## HVAC NOTES:

THESE MECHANICAL DRAWINGS CONFORM TO ALL REQUIREMENTS OUTLINED IN FMC 8th EDITION (2023).

A. THE HVAC CONTRACTOR SHALL INCLUDE THE FURNISHING OF ALL LABOR AND MATERIALS TO COMPLETE THE AIR CONDITIONING, HEATING, AND VENTILATING WORK AS SHOWN ON THE DRAWINGS TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- ALL PERMIT FEES
- ALL AIR CONDITIONING EQUIPMENT
- EXHAUST FANS AND SYSTEMS
- MOTORS AND STARTERS FOR EQUIPMENT FURNISHED UNDER THIS WORK
- SUPPLY AND RETURN DUCTWORK
- OUTSIDE AIR AND EXHAUST AIR DUCTWORK
- SUPPLY AND RETURN AIR GRILLES, REGISTERS, WEATHERPROOF LOUVERS AND DAMPERS.
- FILTERS AND STARTERS, ETC.
- CONDENSATE DRAIN PIPING.
- CONTROLS INCLUDING THERMOSTATS AND LOW VOLTAGE WIRING.
- EQUIPMENT SUPPORTS, HANGERS, ETC.
- TEST AND BALANCE OF ALL SYSTEMS.
- COMPLETE CHECKLIST PROVIDED IN PERMITTED ENERGY CALCULATIONS AND SUBMIT TO ENGINEER FOR REVIEW.

B. CONDENSATE PIPING:

- ALL AIR HANDLERS SHALL HAVE AUXILIARY DRAIN PANS WITH AUXILIARY DRAINS PIPED TO A CONSPICUOUS LOCATION AT THE EXTERIOR OF THE BUILDING. INSULATE CONDENSATE PIPE WITH 1/2" ARMAFLEX.
- CONDENSATE AND EMERGENCY CONDENSATE DRAINS SHALL BE SCHEDULE 40 PVC ASTM 2665
- SLOPE HORIZONTAL CONDENSATE DRAINS A MINIMUM OF 1/4" PER FOOT.

C. SUPPLY AND RETURN DUCTWORK:

- PROVIDE AND INSTALL ALL HEATING AND AIR CONDITIONING DISTRIBUTION DUCTWORK FABRICATED OF UL CLASS DUCT LISTING FOR UL TEST 181 AND MEETING NFPA 90A STANDARD. MADE OF RIGID DUCTBOARD WITH GLASS SCRIM REINFORCED VAPOR BARRIER FACING, WITH THERMAL CONDUCTIVITY OF 0.163 (R-6.0) AND 1 1/2" MINIMUM THICKNESS. DUCT SHALL BE EQUAL TO CertainTeed "ToughGuard" FIBERGLASS RECTANGULAR DUCT SYSTEM TYPE 800-FRK.
- ALL SUPPLY AND RETURN FLEXIBLE DUCT SHALL BE 1 1/2" R-6.0 VINYL VAPOR BARRIER.
- FRESH AIR INTAKE AND EXHAUST DUCT SHALL BE GALVANIZED SHEET METAL. PROVIDE 1-1/2" DUCT WRAP INSULATION ON ALL OUTDOOR AIR DUCT AND NO INSULATION EXCEPT AS NOTED IN THE EXHAUST FAN SCHEDULE FOR EXHAUST DUCT.
- ALL SUPPLY COLLARS OFF MAIN TRUNK LINES SHALL HAVE MANUAL VOLUME DAMPERS.
- ALL DUCT SHALL BE CONSTRUCTED AS PER THE LATEST ADDITION OF SMACNA FIBERGLASS DUCT MANUAL.
- ALL OUTSIDE AIR CONNECTIONS TO EACH SYSTEM SHALL BE PROVIDED WITH A VOLUME DAMPER.
- OUTSIDE AIR SHALL COMPLY WITH ASHRAE 62.

D. EXHAUST SYSTEMS:

- EXHAUST OUTLETS FOR DUCTS CONVEYING NOXIOUS GASES, FLAMMABLE VAPORS, CORROSIVE VAPORS, AND DUCTS SERVING COMMERCIAL, FOOD COOKING AND PROCESSING EQUIPMENT, SHALL TERMINATE OUTSIDE THE BUILDING AND SHALL BE LOCATED 10' FROM ANY ADJACENT BUILDING, PARKING AREA, ADJACENT PROPERTY LINE, WINDOW, DOOR OR AIR INTAKE OPENING AND SHALL BE LOCATED AT LEAST 10' ABOVE THE ADJOINING GRADE.
- ALL RESTROOM DOORS REQUIRE 3/4" UNDERCUT FOR PROPER TRANSFER OF AIR.

E. REFRIGERANT LINES:

- SIZE ALL REFRIGERANT LINES TO MEET THE MANUFACTURERS RECOMMENDATIONS.
- INSULATE ALL SUCTION LINES WITH 1/2" ARMAFLEX INSULATION, INSTALLED TO MEET THE MANUFACTURERS INSTRUCTIONS.
- ANY REFRIGERANT LINES RUNNING UNDERGROUND SHALL BE WITHIN A PVC PIPE CHASE.

F. CEILING AND WALL DIFFUSERS:

- ALL CEILING AND WALL SUPPLY AND RETURN AIR DIFFUSERS SHALL BE OF ALUMINUM CONSTRUCTION, EXCEPT WHEN PENETRATING A RATED WALL OR CEILING ASSEMBLY WHEN STEEL DIFFUSERS RATED FOR THE PARTICULAR APPLICATION ARE REQUIRED.
- ALL AIR DISTRIBUTION SHALL BE EQUAL TO THAT INDICATED ON THE DRAWINGS.

G. THERMOSTATS:

- EACH AIR CONDITIONING SYSTEM SHALL HAVE A 24 VOLT THERMOSTAT MOUNTED AT 5'-0" ABOVE FINISHED FLOOR. THERMOSTATS SHALL BE ONE STAGE COOL, ONE STAGE HEAT, WITH "AUTO-ON" FAN SWITCH AND "HEAT-OFF COOL" SYSTEM SWITCH. PROVIDE TWO STAGE COOL AND TWO STAGE HEAT THERMOSTATS FOR TWO STAGE UNITS, WHERE REQUIRED. PROVIDE LISTED THERMOSTATS THAT ARE SHOWN ON THE EQUIPMENT SCHEDULE.
- HVAC CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL WIRING AND CONDUIT AS REQUIRED.

H. TESTING AND BALANCING:

- HVAC SUBCONTRACTOR SHALL PROVIDE LABOR TO TEST AND ADJUST ALL AIR FLOW RATES AT THE TIME OF THE ORIGINAL COMMISSIONING OF THE SYSTEM AND PROVIDE A REPORT TO THE GENERAL CONTRACTOR. THEY HAVE THE ADDITIONAL RESPONSIBILITY FOR ONE ADDITIONAL VISIT TO THE PROJECT FOR COMFORT BALANCING WITHIN SIX MONTHS FROM THE TIME THE PROPERTY IS TURNED OVER TO THE OWNER.

## ABBREVIATIONS

Ø	ROUND
A/C	AIR CONDITIONING
AF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS
BDD	BACKDRAFT DAMPER
BTUH	BRITISH THERMAL UNITS PER HOUR
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CO	CORD OPERATED DAMPERS
CP	CONDENSATE PUMP
CU	CONDENSING UNIT
DPR	DAMPER
DWG	DRAWING
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
HVAC	HEATING VENTILATING AND AIR CONDITIONING
INSUL	INSULATION
KW	KILOWATT
MD	MOTORIZED DAMPER
MFG	MANUFACTURER
MECH	MECHANICAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
RA	RETURN AIR
REFG	REFRIGERANT
REQ'D	REQUIRED
SA	SUPPLY AIR
SBCCI	SOUTHERN BUILDING CODE CONGRESS INTERNATIONAL
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SP	STATIC PRESSURE
TMBH	TOTAL BTUH X 1000
TSTAT	THERMOSTAT
UL	UNDERWRITERS LABORATORIES
VOL	VOLUME
W/	WITH
W/O	WITHOUT

## HVAC SMOKE DETECTOR NOTES:

- SMOKE DETECTORS SHALL BE SUPPLIED DOWNSTREAM OF THE AIR FILTERS AND AHEAD OF ANY BRANCH CONNECTIONS IN AIR SUPPLY SYSTEMS HAVING A CAPACITY GREATER THAN 900 L/SEC (2000 CFM), PER NFPA 90A-6.4.2.1(1).
- THE FOLLOWING SYSTEMS REQUIRE SMOKE DETECTORS TO BE FURNISHED & INSTALLED ON THE SUPPLY SIDE OF THE AIR HANDLER:
  - AHU-6 (2000 CFM)
  - AHU-9 (2000 CFM)
- SMOKE DETECTORS SHALL BE SUPPLIED AT EACH STORY PRIOR TO THE CONNECTION TO A COMMON RETURN AND PRIOR TO ANY RECIRCULATION OR FRESH AIR INLET CONNECTION IN AIR RETURN SYSTEMS HAVING A CAPACITY GREATER THAN 7080 L/SEC (15,000 CFM) AND SERVING MORE THAN ONE STORY, PER NFPA 90A-6.4.2.1(2).
- THE FOLLOWING SYSTEMS REQUIRE SMOKE DETECTORS TO BE FURNISHED & INSTALLED ON THE RETURN SIDE OF THE AIR HANDLER:
  - NO SMOKE DETECTORS REQUIRED ON RETURN SIDE

ASHRAE 62.1 - 2019

$V_{bz} = R_p P_z + R_a A_z$

$V_{bz}$  = Breathing Zone Outdoor Airflow  
 $R_p$  = OA/Person from Table 6-1  
 $P_z$  = Zone Population - Default Table 6-1  
 $R_a$  = OA Flow rate / Unit Area  
 $A_z$  = Zone Floor Area  
 $E_z$  = Zone Effectiveness

Category	Rp	Pz	Ra	Az	Ez	Vbz
Category: Bunker 1,2,3,4,5,6,7,8,9,10,11,12 Units						
Sq. Footage	1272	(12)15	2	-	1.0	= 360 cfm
Category: Admin Conference						
Sq. Footage	220	5	12	0.06	220	1.0 = 73 cfm
Category: Conf. Rm (Code Enforcement)						
Sq. Footage	210	5	10	0.06	210	1.0 = 63 cfm
Category: Foyer/Office Area						
Sq. Footage	340	5	6	0.06	340	1.0 = 51 cfm
Category: Admin Foyer						
Sq. Footage	117	5	3	0.06	117	1.0 = 22 cfm
Category: Bay Storage						
Sq. Footage	100	-	-	0.06	100	1.0 = 6 cfm
Category: Reporting Office						
Sq. Footage	203	5	4	0.06	203	1.0 = 32 cfm
Category: Corridors						
Sq. Footage	1245	-	-	0.06	1245	1.0 = 75 cfm
Category: Batt Bunker						
Sq. Footage	120	15	2	-	1.0	= 30 cfm
Category: Batt Office						
Sq. Footage	230	5	2	0.06	230	1.0 = 24 cfm
Category: Day Room						
Sq. Footage	840	7.5	15	0.18	840	1.0 = 264 cfm
Category: Kitchen						
Sq. Footage	710	-	-	35/100	710	1.0 = 178 cfm
Category: Exercise Room						
Sq. Footage	627	-	8	0.30	627	1.0 = 188 cfm
Category: Transition						
Sq. Footage	293	5	6	0.06	290	1.0 = 47 cfm
Category: Treatment						
Sq. Footage	112	5	2	0.06	112	1.0 = 17 cfm
Category: Work Rooms						
Sq. Footage	132	5	1	0.06	132	1.0 = 17 cfm
Category: Gear Cleaning Bunker						
Sq. Footage	441	-	-	0.06	441	1.0 = 27 cfm
Notes:						
TOTAL REQUIRED OUTDOOR AIR						1470 cfm

## FAN SCHEDULE

MARK	---	EF-1	EF-2	EF-3	EF-4,5
MANUFACTURER	---	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL	---	SP-A90	SP-A90	SP-B11055	CUE-200VG
SERVICE	---	TOILET	TOILET	TOILET	APPARATUS BAY
AIR QUANTITY	CFM	50	80	100	3800
EXTERNAL STATIC PRESSURE	IN H <sub>2</sub> O	0.34	0.25	0.28	0.50
FAN TYPE	---	CEILING	CEILING	CEILING	WALL MOUNTED
MAXIMUM FAN SPEED	RPM	900	900	650	858
DRIVE	---	DIRECT	DIRECT	DIRECT	DIRECT
MOTOR	AMPS	0.7	0.17	0.27	8
ELECTRICAL	V/PH/Hz	115/1/60	115/1/60	115/1/60	208/1/60
CONTROLS	---	SWITCH W/ LIGHTS	SWITCH W/ LIGHTS	SWITCH W/ LIGHTS	WALL SWITCH
SONES	---	0.4	0.4	2.5	13
WEIGHT	LBS.	12	12	10	175
NOTES	---	1, 2, 3	1, 2, 3	1, 2, 3	1, 3, 4

NOTES

- PROVIDE WITH AUTOMATIC BACKDRAFT DAMPER.
- PROVIDE WALL CAP WITH BIRD/INSECT SCREEN.
- APPROVED ALTERNATE MANUFACTURER: COOK.
- PROVIDE BIRD SCREEN

### BUILDING AIR BALANCE

OUTSIDE AIR INTO BUILDING		EXHAUST AIR OUT OF BUILDING	
SOURCE	CFM	SOURCE	CFM
AHU-1 (OFFICES)	170	EF-1 (5) X 50	250
AHU-9 (BUNKER 1 & BATT BUNKER)	200	EF-2 (4) X 80	320
AHU-7&3 (BUNKER 2 & 3) (2)@150	300	EF-3 (4) X 100	350
AHU-2&4 (EXRC & DAY RM) (2)@240	480	DRYER VENT	100
AHU-5 (TREATMENT)	130	EF-4	3800
AHU-6 (KITCHEN)	300	EF-5 (EMERGENCY)	3800
AHU-10 (TRANSITION)	135		
AHU-8 (CONF/REPORT)	170		
AHU-11 (WORK AREA)	100		
AHU-12 (GEAR BUNKER)	60		
LOUVERS (BAY AREA)	7600		
TOTAL OUTSIDE AIR	9645	TOTAL EXHAUST AIR	8770
BUILDING BALANCE			(+) 875

### KITCHEN MAKEUP AIR CALCULATION

OUTSIDE AIR INTO KITCHEN		EXHAUST AIR OUT OF KITCHEN	
SOURCE	CFM	SOURCE	CFM
TRANSITION	135	KITCHEN (KEF-1)	1300
TREATMENT	85		
KITCHEN	300		
EXERCISE	240		
DAY ROOM	240		
CONFERENCE	180		
TOTAL OUTSIDE AIR	1180	TOTAL EXHAUST AIR	1300
BALANCE			(-) 120

KITCHEN IS MAINTAINED AT NEGATIVE PRESSURE TO PREVENT ODORS FROM MIGRATING TO OTHER AREAS.

### AIR DISTRIBUTION SCHEDULE

MARK	MFG.	MODEL	SIZE	DIRECTION	CFM	NOTES
1	TITUS	TMSA-AA	12 X 12 W/ 6" NK	4 WAY	100 MAX	1, 2, 4
2	TITUS	TMSA-AA	24 X 24 W/ 8" NK	4 WAY	100 - 250	1, 2, 4
3	TITUS	TMSA-AA	24 X 24 W/ 10" NK	4 WAY	251 - 400	1, 2, 4
4	TITUS	TMSA-AA	24 X 24 W/ 12" NK	4 WAY	401 - 500	1, 2, 4
5	TITUS	TMSA-AA	24 X 24 W/ 14" NK	4 WAY	501 - 750	1, 2, 4
6	TITUS	355FL	38 X 38 HORIZONTAL 0° DEFLECTION		3800	2, 4
7	TITUS	TMSA-AA	24 X 24 W/ 8" NK	2 WAY	100 - 250	1, 2, 4
A	TITUS	350FL	24 X 24	RETURN	---	1, 2, 3, 4
B	TITUS	350FL	12 X 12	RETURN	---	1, 2, 3, 4
C	TITUS	350FL	8 X 8	SOFFIT EXHAUST	---	2, 3, 4
D	TITUS	60FL	38 X 38	EXHAUST	---	2, 4
E	TITUS	60FL	36 X 20	EXHAUST	---	2, 4

NOTES:

- PROVIDE OBD.
- COORDINATE MOUNTING TYPE, TEXTURE, COLOR WITH OWNER/ARCHITECT.
- 350 FL WITH 35° DEFLECTION ALUMINUM
- PROVIDE ALL SUPPLY AND RETURN SELECTIONS < 25NC.

## AIRVAC 911® AUTOMATIC EXHAUST CONTROL SYSTEM AVC-6C (AIRVAC-1 THRU 6):

- OPERATOR CONTROLS:** EACH STANDARD AVC PANEL COMES WITH AN ON-OFF-AUTO SELECTOR AND AN ILLUMINATED PUSHBUTTON.
  - IN THE ON POSITION, THE AVC STARTUP SEQUENCE IS INITIATED AND AVC UNITS WILL REMAIN ENERGIZED.
  - IN THE OFF POSITION, ALL AVC UNITS WILL BE DE-ENERGIZED
  - IN THE AUTO POSITION, THE AVC STARTUP SEQUENCE IS INITIATED (BY AN EXTERNAL CONTACT CLOSURE OR BY PRESSING THE ILLUMINATED PUSH BUTTON) AND ALL AVC UNITS WILL REMAIN ON FOR 15 MINUTES (FACTORY SETTING) OR DESIRED TIME.
  - THE ILLUMINATED PUSHBUTTON WILL ILLUMINATE WHEN AVC UNITS ARE ON
- STARTUP SEQUENCE:** UPON INITIATION, TWO AIRVAC 911® UNITS WILL ENERGIZE. REMAINING AIRVAC 911® UNITS WILL ENERGIZE IN GROUPS OF TWO (AFTER 15 SECONDS DELAYS) UNTIL ALL AIRVAC 911® UNITS ARE ENERGIZED.
- 24V EXTERNAL SENSOR POWER:** EACH STANDARD AVC PANEL COMES WITH A 40W 120V TO 24V TRANSFORMER TO POWER SPECIFIC FIELD DEVICES AVAILABLE FROM AIR VAC TAKEEX (PB-30TK) PHOTO EYES, MACURCO/HONEYWELL E3 CO/NO2 GAS DETECTION SWITCHES, ETC.). PROVIDE 2 PAIR, SHIELDED AND COLOR CODED CABLE FOR LOW VOLTAGE WIRING. REFER TO THE APPROPRIATE STANDARD AVC PANEL FOR DETAILED WIRING INFORMATION.
- 120V EXTERNAL (SEQUENCE INITIATE IN AUTO) CONTACT WIRING:** EACH STANDARD AVC PANEL ALLOWS THE AVC STARTUP SEQUENCE TO BE INITIATED BY AN EXTERNAL CONTACT CLOSURE IN THE AUTO POSITION. REFER TO AVC PANEL DRAWINGS FOR DETAILED WIRING INFORMATION.

MACURCO/HONEYWELL E3 CO/NO2 GAS DETECTION SYSTEM:  
SEQUENCE OF OPERATION

- OCCUPIED OPERATION: E<sup>3</sup> SYSTEM ACTIVATES EF-5 AND OPENS LOUVER-1.
- UPON E<sup>3</sup> SENSING LEVELS OF CO/NO<sup>2</sup> AT MAX CODE REQUIREMENTS, E<sup>3</sup> SHALL ACTIVATE EF-4 AND OPEN LOUVER-2 WITH EF-5 ON AND LOUVER-1 OPEN UNTIL CO/NO<sup>2</sup> LEVELS ARE SENSED BELOW MINIMUM CODE REQUIREMENTS.
- ADDITIONAL WALL MOUNTED CO/NO<sup>2</sup> DETECTORS SHALL BE PROVIDED AND INTERCONNECTED WITH E<sup>3</sup> PANEL.

## AIRVAC SCHEDULE

MARK	---	AVC-1 THRU 6
MANUFACTURER	---	AIRVAC
MODEL	---	AIRVAC911
SERVICE	---	APPARATUS BAY
AIR QUANTITY	CFM	2000
FAN TYPE	---	CEILING
DRIVE	---	BELT
MOTOR	HP	3/4
ELECTRICAL	V/PH/Hz	208/1/60
CONTROLS	---	AVC AIRVAC CONTROL PANEL
POWER	AMPS	6.5 EA.
WEIGHT	LBS.	190 W/FILTERS
NOTES	---	1, 2, 3

NOTES

- PROVIDE EXTRA SET OF PRE-FILTERS, MAIN MEDIA FILTERS, GAS-PHASE CARBONEXTRACTOR
- ARCHITECT SHALL SPECIFY COLOR.
- PROVIDE CEILING MOUNTING ASSEMBLY PER MANUFACTURER.

## LEGEND

REVISION #		MOTORIZED DAMPER	
FLEXIBLE DUCT		WALL CAP	
THERMOSTAT		CEILING EXHAUST FAN	
SPEED REGISTER		IN-LINE EXHAUST FAN	
DIFFUSER, REGISTER, OR GRILLE SYMBOL, LETTER DENOTES TYPE, LOWER NUMBER INDICATES CFM		FLUSH MOUNT SUPPLY DIFFUSER	
FLUSH MOUNT SUPPLY DIFFUSER		SIDEWALL DIFFUSER	
DOOR UNDERCUT		FIRE DAMPER	

PROJECT NAME:  
**North Collier Fire Control  
& Rescue Station #49**  
 Coahatchee Road  
 Naples, FL 34110

**STAFFORD  
ENGINEERING,  
INC.**  
 3525 Bonita Beach Rd., Suite 111, Bonita Springs, FL 34134  
 239-948-5841 / 239-948-59

## AIR HANDLER DATA

MARK	----	AHU-1 (OFFICES)	AHU-2 (EXERCISE)	AHU-3 (BUNKER 3)	AHU-4 (DAY ROOM)	AHU-5 (TREATMENT)	AHU-6 (KITCHEN)
QUANTITY	----	1	1	1	1	1	1
MODEL NUMBER	----	BCHE036BBA0A3H04D10500AC0B0000000000000	BCVE048BBA0B6H04D10500AC0B0000000000000	BCVE036BBA0B6H02D10500AC0B0000000000000	BCHE054BBA0A3H04D10500AC0B0000000000000	BCVE036BBA0B6H02D10500AC0B0000000000000	BCHE036BBA0A3H04D10500AC0B0000000000000
UNIT MODEL	----	HORIZONTAL	VERTICAL	VERTICAL	HORIZONTAL	VERTICAL	VERTICAL
UNIT SIZE (CFM) (OA-CFM)	----	36 (1100 CFM) (170)	48 (1600 CFM) (240)	36 (800 CFM) (120)	54 (1600 CFM) (240)	36 (900 CFM) (130)	60 (2000 CFM) (300)
UNIT VOLTAGE	----	208/60/1	208/60/1	208/60/1	208/60/1	208/60/1	208/60/1
INSULATION TYPE	----	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL
FILTER TYPE	----	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13
MAIN COIL TYPE	----	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT
COIL CONNECTION SIDE	----	SST DRAIN PAN RIGHT HAND COIL	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN RIGHT HAND COIL	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN FRONT CONNECTION
UNIT COIL #1 FIRST COIL IN AIR STREAM	----	4R DX, 3/16" DIS	4R DX, 3/16" DIS	4R DX, 3/16" DIS	4R DX, 3/16" DIS	4R DX, 3/16" DIS	3R DX, 3/16" DIS
APD	IN H <sub>2</sub> O	0.455	0.622	0.324	0.496	0.324	0.420
COOLING EDB	F	77.90	78.40	77.30	78.40	77.30	80.00
COOLING EWB	F	65.90	66.40	65.30	66.40	65.30	68.00
COOLING FACE VELOCITY	FT/MIN	413	461	320	433	320	432
COOLING LDB	F	52.54	55.33	53.49	53.14	53.14	58.80
COOLING LWB	F	52.03	54.10	52.64	52.60	52.64	56.80
TOTAL COOLING CAPACITY	MBH	45.53	60.26	30.19	66.66	30.19	64.63
INLET LOCATION	----	BACK RETURN	FRONT RETURN	FRONT RETURN	BACK RETURN	FRONT RETURN	FRONT RETURN
CONTROL TYPE	----	CTSI	CTSI	CTSI	CTSI	CTSI	CTSI
ECM-NOMINAL HORSEPOWER	----	1 HP	1 HP	0.5 HP	1 HP	0.5 HP	1 HP
FAN ELECTRICAL POWER	W	728.0	949.0	349	981.0	349.0	1017.0
MOTOR MAX BHP	HP	1.003	0.998	0.555	1.012	0.555	0.990
ELEVATION	FT	0.00	0.00	0.00	0.00	0.00	0.00
DESIGN AIRFLOW	CFM	1100	1600	800	1600	800	1800
ESP	IN H <sub>2</sub> O	1.000	1.000	1.000	1.000	1.000	1.000
TSP	IN H <sub>2</sub> O	1.877	1.983	1.566	1.882	1.566	1.795
MAXIMUM OVERCURRENT PROTECTION	A	40.00	40.00	40.00	40.00	40.00	40.00
MIN CIRCUIT AMPACITY	A	39.71	39.71	35.37	39.71	35.37	39.71
ELECTRIC HEAT STAGES	----	1-STAGE	1-STAGE	1-STAGE	1-STAGE	1-STAGE	1-STAGE
ELECTRIC HEAT KW	----	5.0 KW	5.0 KW	5.0 KW	5.0 KW	5.0 KW	5.0 KW
ELECTRIC HEAT OPTIONS	----	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH
REHEAT TYPE	----	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT
REHEAT EAT	F	70.00	70.00	70.00	70.00	70.00	70.00
REHEAT LAT	F	84.37	79.88	89.76	79.88	89.76	78.78
12IN.X20IN. FILTER MEDIA QUANTITY	EACH	----	----	----	----	----	----
12IN.X24IN. FILTER MEDIA QUANTITY	EACH	1.00	----	----	----	----	1.00
12IN.X25IN. FILTER MEDIA QUANTITY	EACH	----	----	----	1.00	----	----
18IN.X20IN. FILTER MEDIA QUANTITY	EACH	----	1.00	----	----	----	----
18IN.X24IN. FILTER MEDIA QUANTITY	EACH	----	----	1.00	----	1.00	1.00
DRAIN PAN MATERIAL	----	SST	SST	SST	SST	SST	SST
TOTAL UNIT LENGTH	IN	33.10	24.45	22.95	35.80	22.95	27.45
TOTAL UNIT WIDTH	IN	42.00	34.80	29.80	46.00	29.80	34.80
TOTAL UNIT HEIGHT	IN	17.00	56.60	49.90	18.00	49.90	58.60
INSTALLED WEIGHT	LB	227.1	313.8	248.0	257.6	248.0	337.5

## CONDENSER UNIT DATA

MARK	----	CU-1	CU-2	CU-3	CU-4	CU-5	CU-6
MANUFACTURER	----	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL	----	STR4048	STR4060	STR4030	STR4060	STR4030	STR4060
REFRIGERANT	----	R-454B	R-454B	R-454B	R-454B	R-454B	R-454B
SEER	----	14	14	14	14	14	14
ELECTRICAL DATA	----	----	----	----	----	----	----
VOLTAGE	V/PH/HZ	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60
MCA/MOCP	AMPS	23/25	28/50	15/25	28/50	15/25	28/50

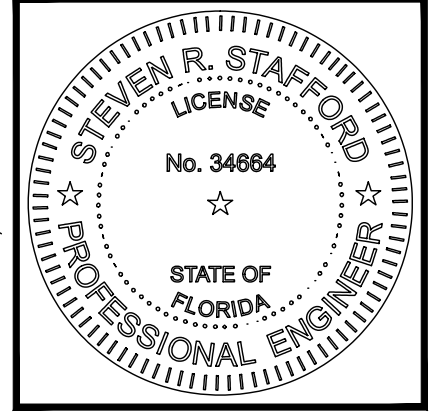
**NOTES:**

1. HVAC CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL ELECTRICAL COSTS WHICH MAY RESULT FROM SUBSTITUTED EQUIPMENT.
2. UNIT SHALL HAVE A SINGLE POINT ELECTRICAL CONNECTION.
3. PROVIDE TXV'S AND LOW AND HIGH PRESSURE SWITCHES.
4. PROVIDE LIQUID LINE FILTER-DRYERS.
5. IDENTIFY EACH UNIT WITH PERMANENT LABEL.
6. INSTALL FILTERS IN AIR HANDLER PRIOR TO START-UP AND PROVIDE NEW SET OF FILTERS AT COMPLETION OF CONSTRUCTION PRIOR TO TEST AND BALANCE.
7. APPROVED ALTERNATE MANUFACTURERS: CARRIER, JCI/YORK, AND LENNOX.
8. PROVIDE HONEYWELL MDL YTH94211RS05SHW PRESTIGE-JAO THERMOSTAT CONTROLLER. SET THE VENTILATION TO 15 MINUTES EACH HOUR.
9. PROVIDE MOTORIZED DAMPER IN THE OUTSIDE AIR SUPPLY DUCT THAT IS INTERLOCKED TO OPEN TO A PRESET POSITION ON THE VENTILATION SCHEDULE WITH THE SYSTEM FAN IN OPERATION. THE SYSTEM FAN IS TO OPERATE CONTINUOUSLY DURING HOURS OF OCCUPANCY. DAMPER TO CLOSE WHEN SYSTEM IS OFF.

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ISSUED FOR BID SEPTEMBER 30, 2025	ISSUED FOR PERMIT AUGUST 11, 2025
#	REVISION / DATE



DATE:	08/11/25
DRAWN BY:	R.A.M.
CHECKED BY:	S.R.S.
JOB NUMBER:	24080

M0.2

PROJECT NAME:  
**North Collier Fire Control & Rescue Station #49**  
 Cocohatchee Road  
 Naples, FL 34110

10/7/2025 12:21 PM C:\Working\Projects\24080\HWAC\24080\_HWAC.dwg  
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**AIR HANDLER DATA**

MARK	----	AHU-7 (BUNKER 2)	AHU-8 (CONFERENCE RM)	AHU-9 (BUNKER 1 & BATT OFF.)	AHU-10 (TRANSITION)	AHU-11 (WORK AREA)	AHU-12 (GEAR BUNKER)
QUANTITY	----	1	1	1	1	1	1
MODEL NUMBER	----	BCVE036BBA0B6H02D10500AC0B00000000000000	BCVE036BBA0B6H04D10500AC0B00000000000000	BCVE036BBA0B6H04D10500AC0B00000000000000	BCHE036BBA0A3G02D10500AC0B00000000000000	BCVE036BBA0B6H02D10500AC0B00000000000000	BCHE036BBA0A3G02D10500AC0B00000000000000
UNIT MODEL	----	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
UNIT SIZE (CFM) (OA CFM)	----	36 (800 CFM) (120)	36 (1200 CFM) (180)	60 (1800 CFM) (200)	36 (900 CFM) (135)	36 (800 CFM) (100)	36 (800 CFM) (60)
UNIT VOLTAGE	----	208/60/1	208/60/1	208/60/1	208/60/1	208/60/1	208/60/1
INSULATION TYPE	----	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL	DOUBLE WALL PANEL
FILTER TYPE	----	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13	2" PLEATED MERV 13
MAIN COIL TYPE	----	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT	DX - R410A REPLACEMENT
COIL CONNECTION SIDE	----	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN RIGHT HAND COIL	SST DRAIN PAN FRONT CONNECTION	SST DRAIN PAN RIGHT HAND COIL
UNIT COIL #1 FIRST COIL IN AIR STREAM	----	4R DX, 3/16" DIS	4R DX, 3/16" DIS	4R DX, 3/16" DIS	3R DX, 3/16" DIS	4R DX, 3/16" DIS	3R DX, 3/16" DIS
APD	IN H <sub>2</sub> O	0.302	0.602	0.452	0.254	0.324	0.254
COOLING EDB	F	77.30	77.70	78.00	79.50	77.30	79.50
COOLING EWB	F	65.30	65.70	65.90	67.50	65.30	67.50
COOLING FACE VELOCITY	FT/MIN	308	452	384	349	320	349
COOLING LDB	F	53.33	55.33	54.11	55.76	53.49	55.76
COOLING LWB	F	52.51	54.10	53.11	54.84	52.64	54.84
TOTAL COOLING CAPACITY	MBH	29.32	39.73	62.28	36.79	30.19	36.79
INLET LOCATION	----	FRONT RETURN	FRONT RETURN	FRONT RETURN	BACK RETURN	FRONT RETURN	BACK RETURN
CONTROL TYPE	----	CTSI	CTSI	CTSI	CTSI	CTSI	CTSI
ECM-NOMINAL HORSEPOWER	----	0.5 HP	1 HP	1 HP	0.5 HP	0.5 HP	0.5 HP
FAN ELECTRICAL POWER	W	326.0	658.0	831.0	508.0	349.0	508.0
MOTOR MAX BHP	HP	0.556	1.010	0.984	0.547	0.555	0.547
ELEVATION	FT	0.00	0.00	0.00	0.00	0.00	0.00
DESIGN AIRFLOW	CFM	770	1130	1600	930	800	930
ESP	IN H <sub>2</sub> O	1.000	1.000	1.000	1.000	1.000	1.000
TSP	IN H <sub>2</sub> O	1.533	2.010	1.760	1.571	1.566	1.571
MAXIMUM OVERCURRENT PROTECTION	A	40.00	40.00	40.00	40.00	40.00	40.00
MIN CIRCUIT AMPACITY	A	35.37	39.71	39.71	35.37	35.37	35.37
ELECTRIC HEAT STAGES	----	1-STAGE	1-STAGE	1-STAGE	1-STAGE	1-STAGE	1-STAGE
ELECTRIC HEAT KW	----	5.0 KW	5.0 KW	5.0 KW	5.0 KW	5.0 KW	5.0 KW
ELECTRIC HEAT OPTIONS	----	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH	INTERLOCKING DISCONNECT SWITCH
REHEAT TYPE	----	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT	ELECTRIC REHEAT
REHEAT EAT	F	70.00	70.00	70.00	70.00	70.00	70.00
REHEAT LAT	F	90.53	83.99	79.88	87.00	89.76	87.00
12IN.X20IN. FILTER MEDIA QUANTITY	EACH	----	----	----	----	----	----
12IN.X24IN. FILTER MEDIA QUANTITY	EACH	----	----	1.00	1.00	----	1.00
12IN.X25IN. FILTER MEDIA QUANTITY	EACH	----	----	----	----	----	----
18IN.X20IN. FILTER MEDIA QUANTITY	EACH	----	----	----	----	----	----
18IN.X24IN. FILTER MEDIA QUANTITY	EACH	1.00	1.00	1.00	1.00	1.00	1.00
DRAIN PAN MATERIAL	----	SST	SST	SST	SST	SST	SST
TOTAL UNIT LENGTH	IN	22.95	22.95	27.45	33.10	22.95	33.10
TOTAL UNIT WIDTH	IN	29.80	29.80	34.80	42.00	29.80	42.00
TOTAL UNIT HEIGHT	IN	49.90	49.90	58.60	17.00	49.90	17.00
INSTALLED WEIGHT	LB	248.0	253.0	348.3	216.2	248.0	216.2

**CONDENSER UNIT DATA**

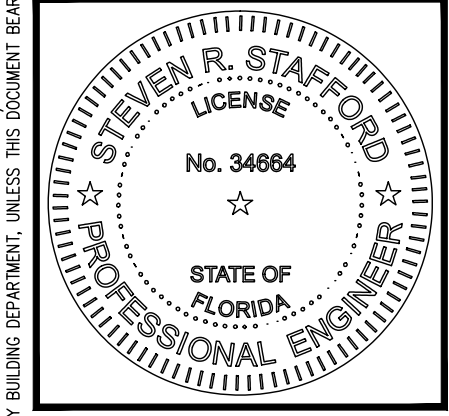
MARK	----	CU-7	CU-8	CU-9	CU-10	CU-11	CU-12
MANUFACTURER	----	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL	----	STR4030	STR4042	STR4060	4TR4036G1	STR4030	STR4036
REFRIGERANT	----	R-454B	R-454B	R-454B	R-454B	R-454B	R-454B
SEER	----	14	14	14	14	14	14
ELECTRICAL DATA	----	----	----	----	----	----	----
VOLTAGE	V/PH/HZ	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60
MCA/MOCP	AMPS	15/25	21/30	28/50	23/25	15/25	18/30

- NOTES:
- HVAC CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL ELECTRICAL COSTS WHICH MAY RESULT FROM SUBSTITUTED EQUIPMENT.
  - UNIT SHALL HAVE A SINGLE POINT ELECTRICAL CONNECTION.
  - PROVIDE TXV'S AND LOW AND HIGH PRESSURE SWITCHES.
  - PROVIDE LIQUID LINE FILTER-DRYERS.
  - IDENTIFY EACH UNIT WITH PERMANENT LABEL.
  - INSTALL FILTERS IN AIR HANDLER PRIOR TO START-UP AND PROVIDE NEW SET OF FILTERS AT COMPLETION OF CONSTRUCTION PRIOR TO TEST AND BALANCE.
  - APPROVED ALTERNATE MANUFACTURERS: CARRIER, JCI/YORK, AND LENNOX.
  - PROVIDE HONEYWELL MDL YTH94211RS055HW PRESTIGE-JAO THERMOSTAT CONTROLLER. SET THE VENTILATION TO 15 MINUTES EACH HOUR.
  - PROVIDE MOTORIZED DAMPER IN THE OUTSIDE AIR SUPPLY DUCT THAT IS INTERLOCKED TO OPEN TO A PRESET POSITION ON THE VENTILATION SCHEDULE WITH THE SYSTEM FAN IN OPERATION. THE SYSTEM FAN IS TO OPERATE CONTINUOUSLY DURING HOURS OF OCCUPANCY. DAMPER TO CLOSE WHEN SYSTEM IS OFF.

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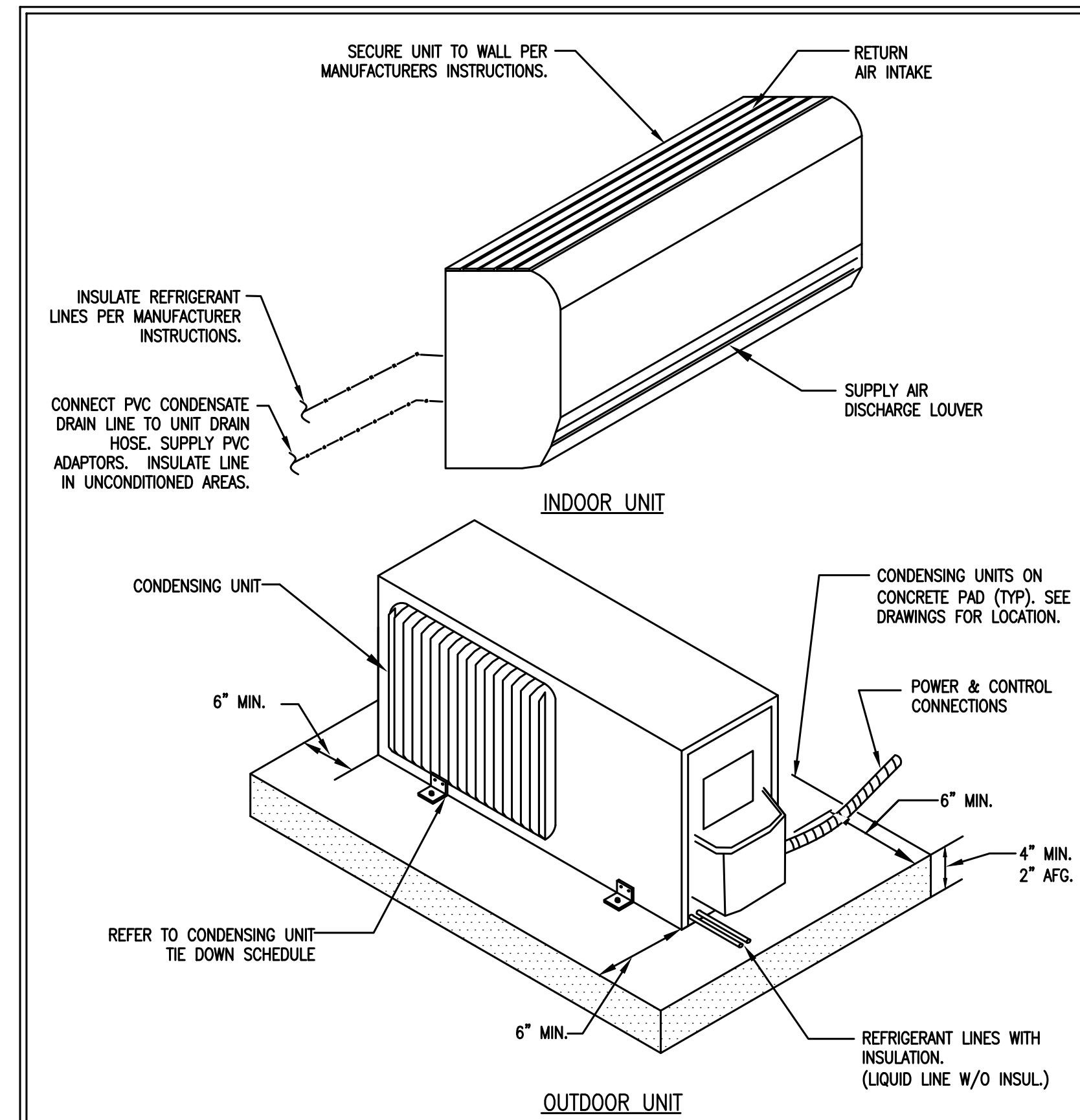
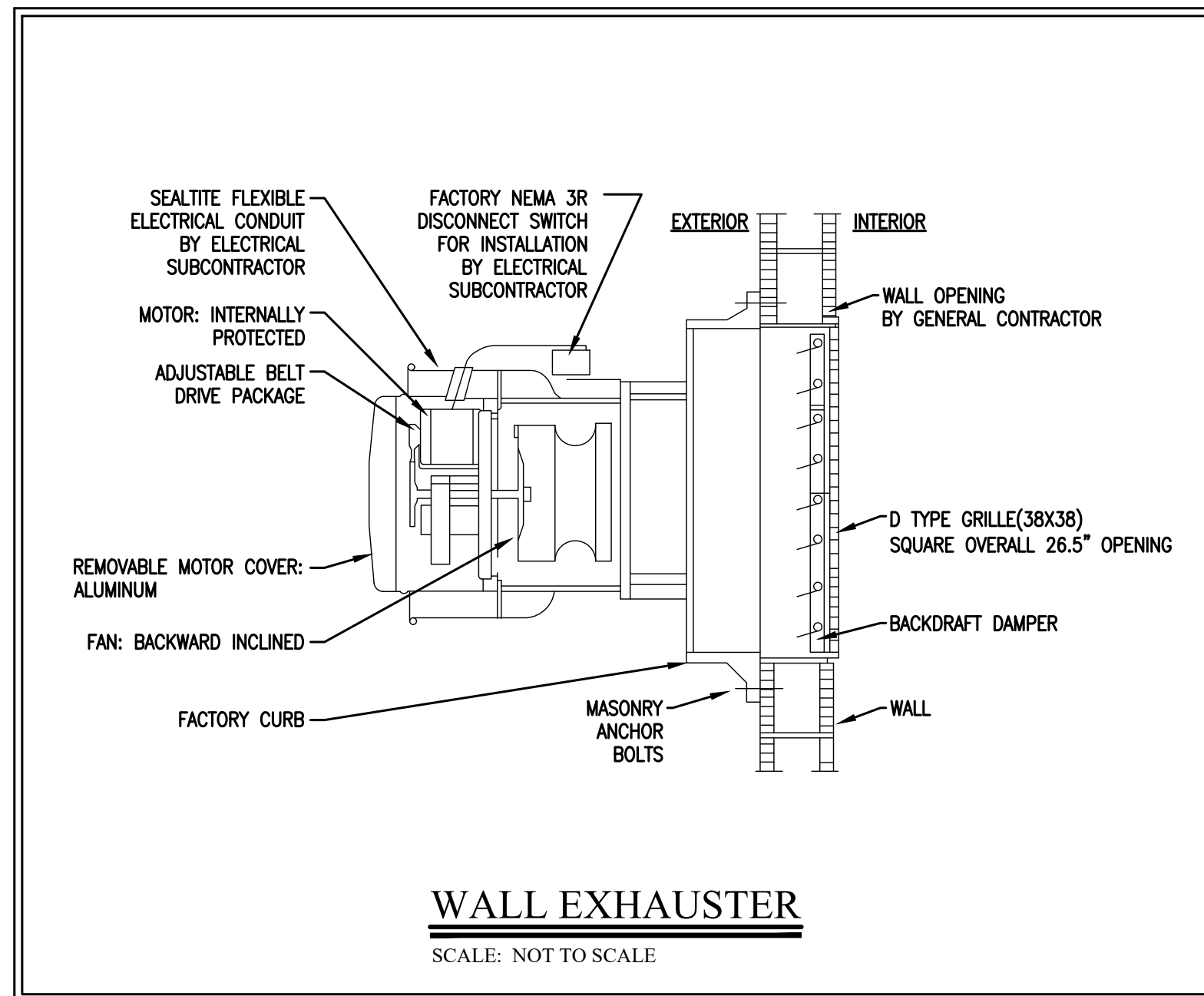


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CHECKED BY:	S.R.S.
JOB NUMBER:	24080

**M0.3**

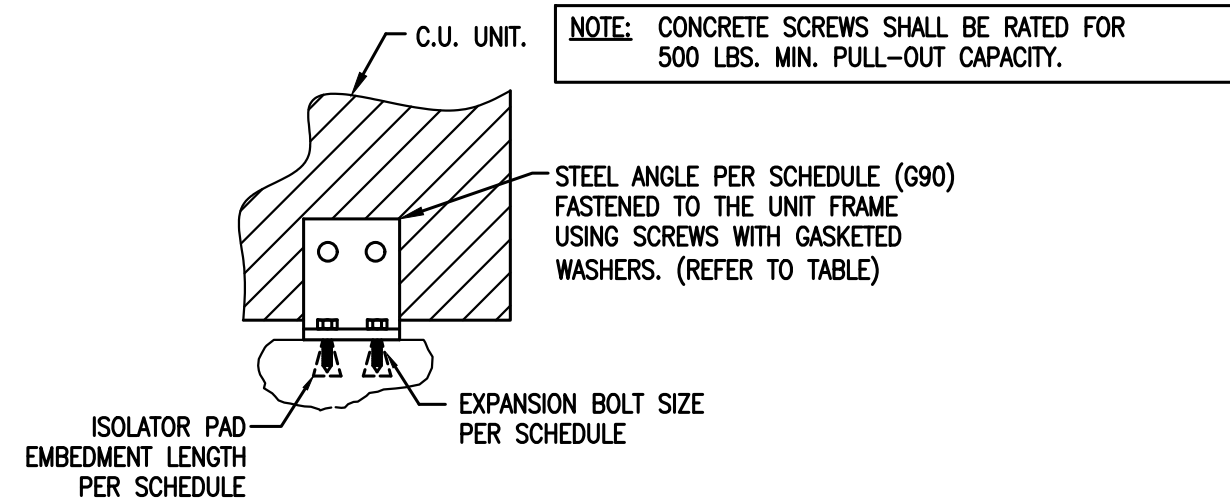
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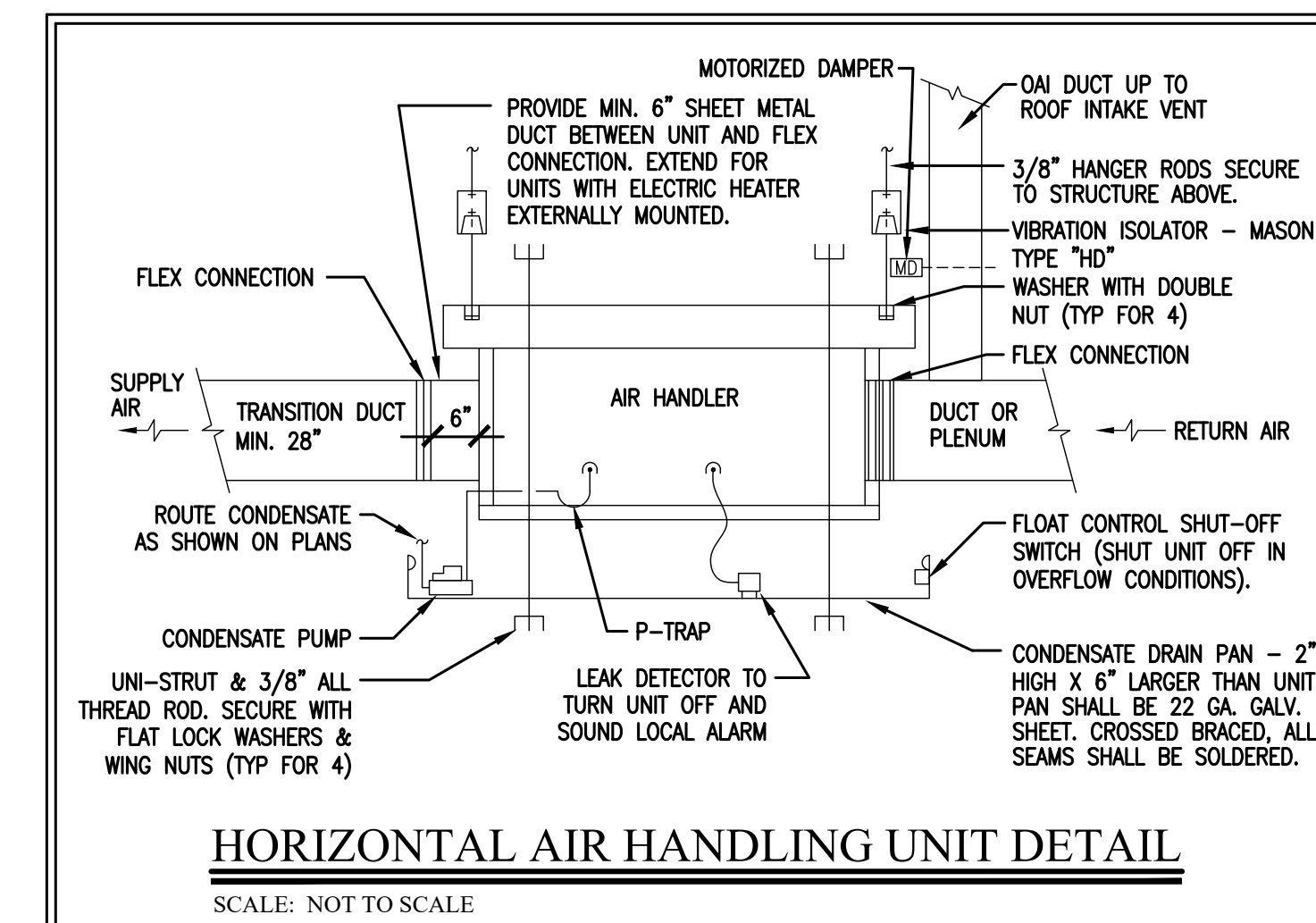
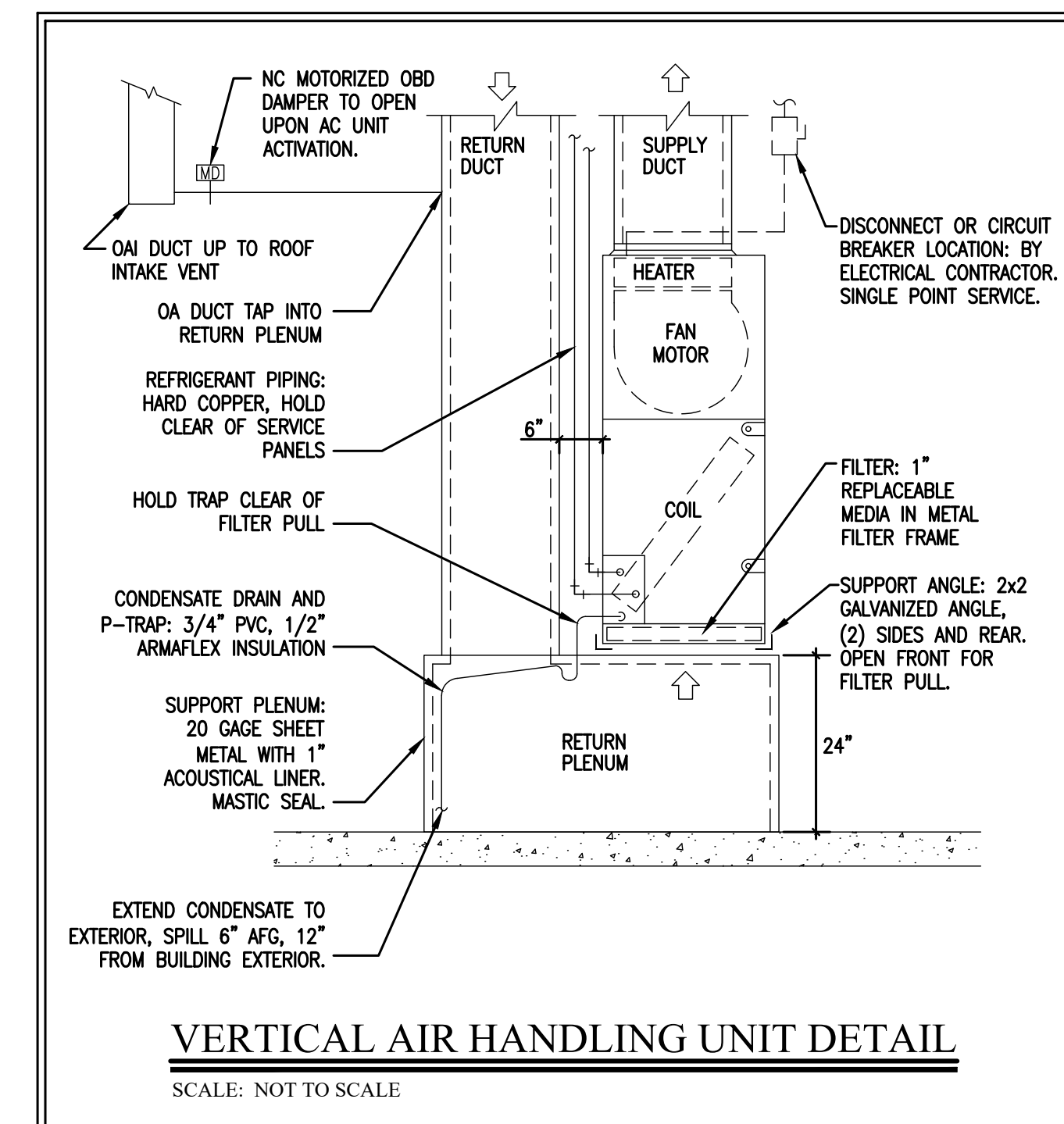
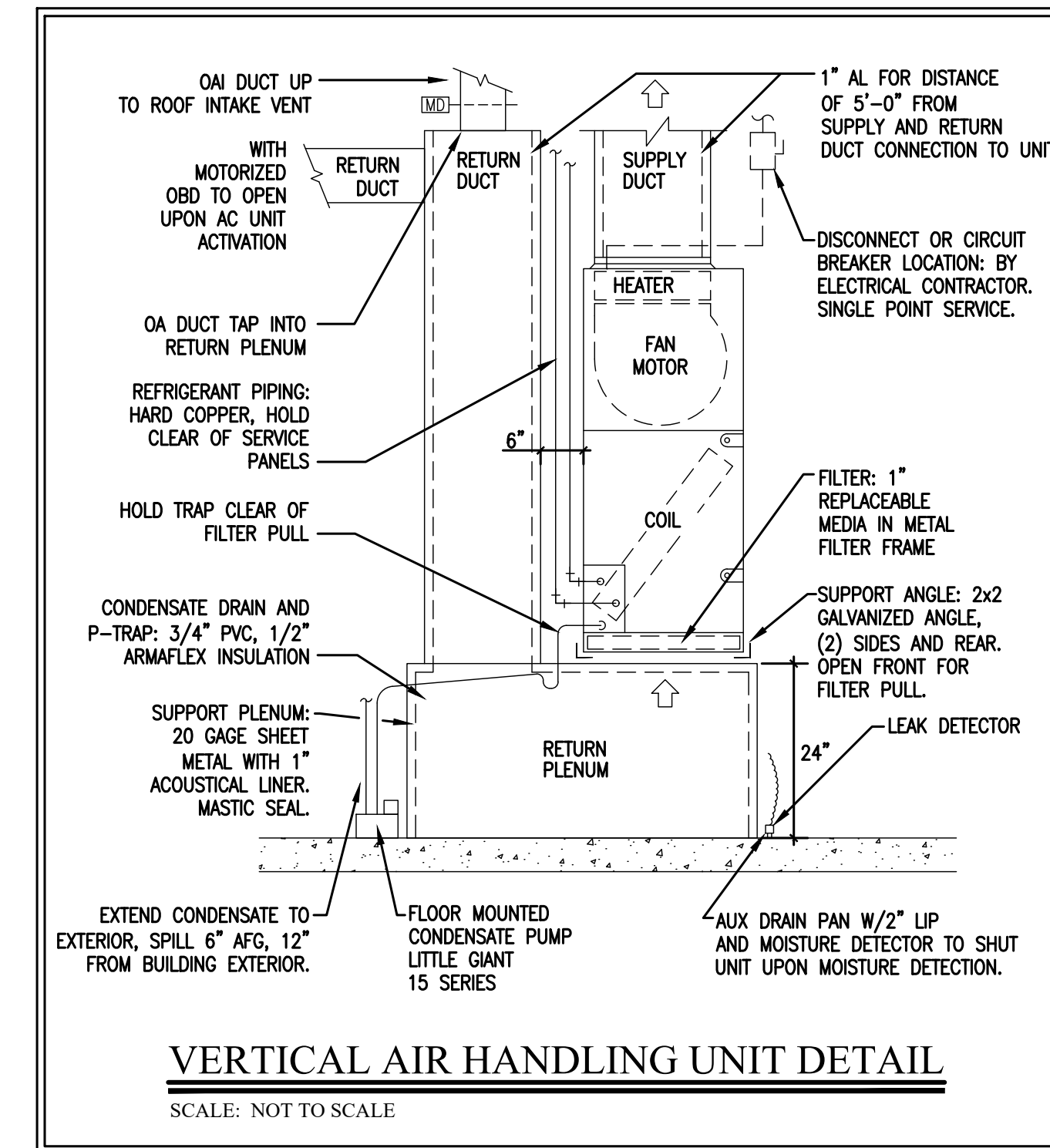
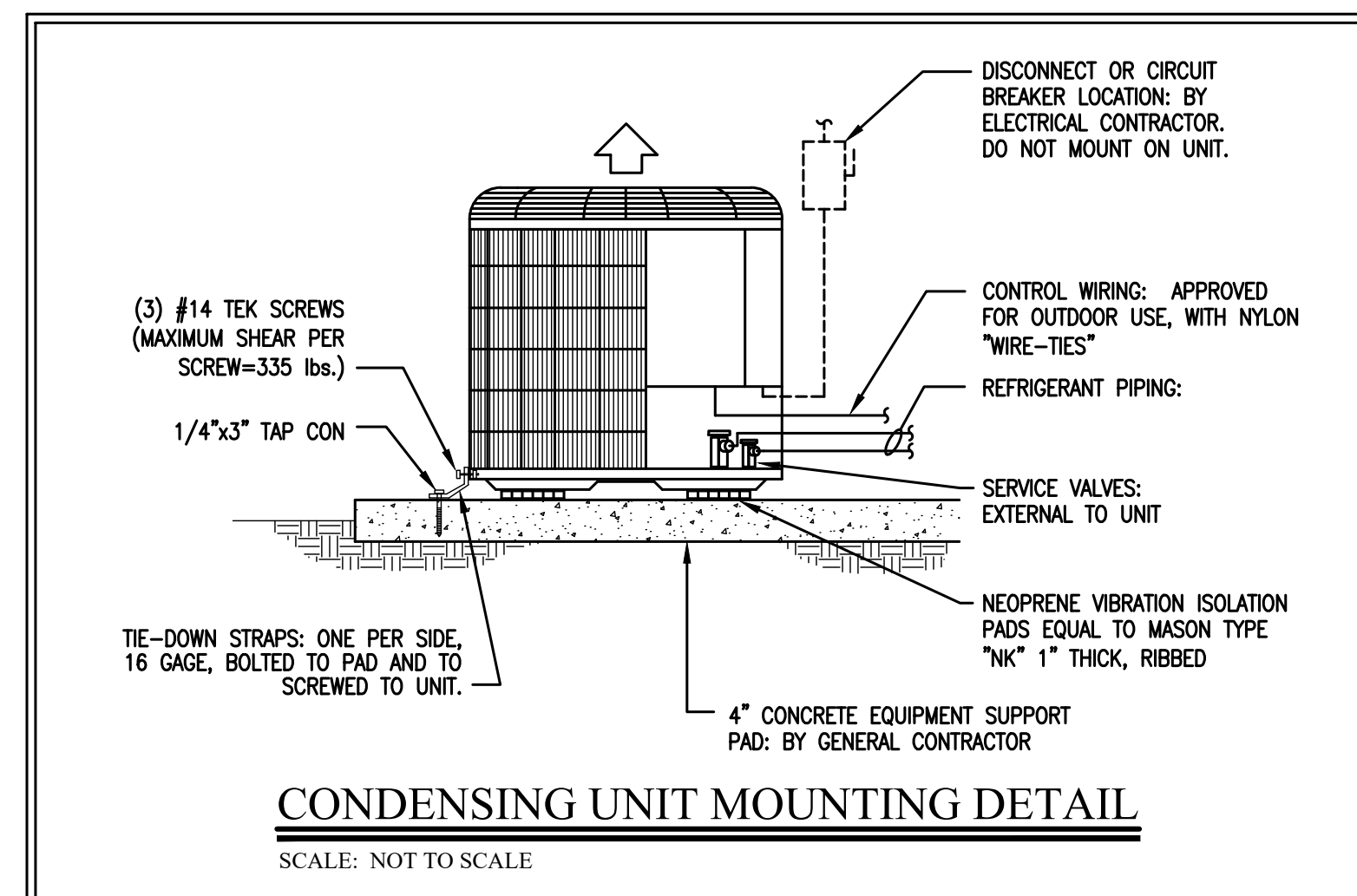


CABINET		CONCRETE PAD			
UNIT SIDE LENGTH	# SCREWS PER SIDES	SM SCREW DIAMETER	# CONCRETE EXPANS. BOLTS	EMBEDMENT	STEEL ANGLE
12"	1	3/16" DIA.	1/4"	1 1/4"	1"x1"x1/4"
12" THRU 24"	2	1/4" DIA.	1/4"	1 1/2"	2"x2"x1/4"
24" THRU 36"	3	1/4" DIA.	1/4"	1 1/2"	2"x2"x1/4"
36" OR 5 TON	4	1/4" DIA.	1/4"	1 3/4"	2"x2"x1/4"

MAXIMUM WIND SPEED OF 150 MILES PER HOUR.  
NOTE: CONDENSING UNITS TO BE MOUNTED ON CONCRETE PAD, PROVIDE ALL CLEARANCES FOR ACCESS AND AIR FLOW.



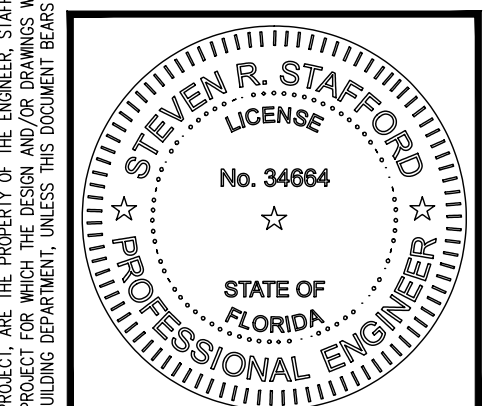
**TYPICAL DUCTLESS SPLIT SYSTEM DETAIL**  
SCALE: NOT TO SCALE



PROJECT NAME:  
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Naples, FL 34110

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**OVERALL MECHANICAL PLAN**

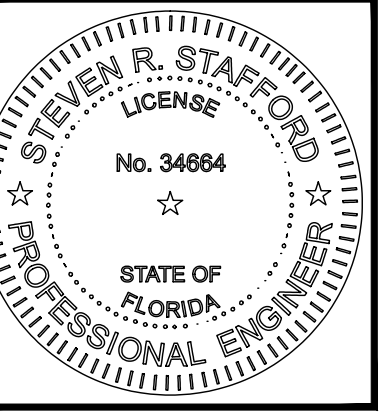
SCALE: 1/8" = 1'-0"



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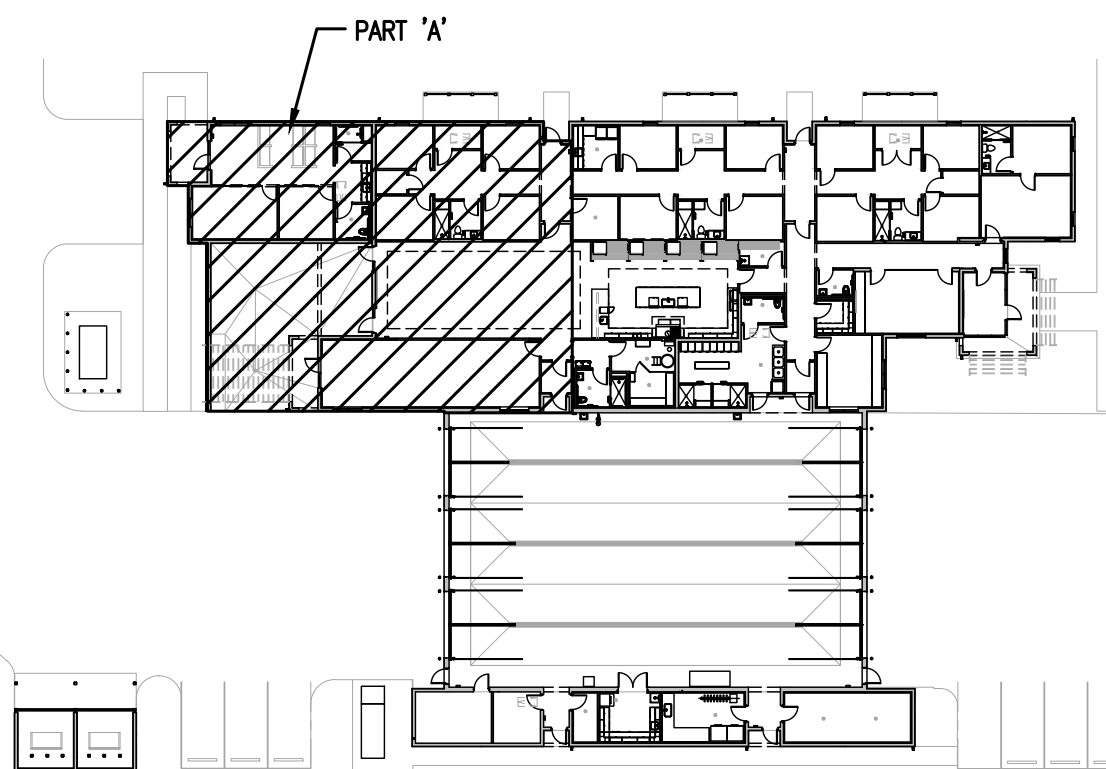
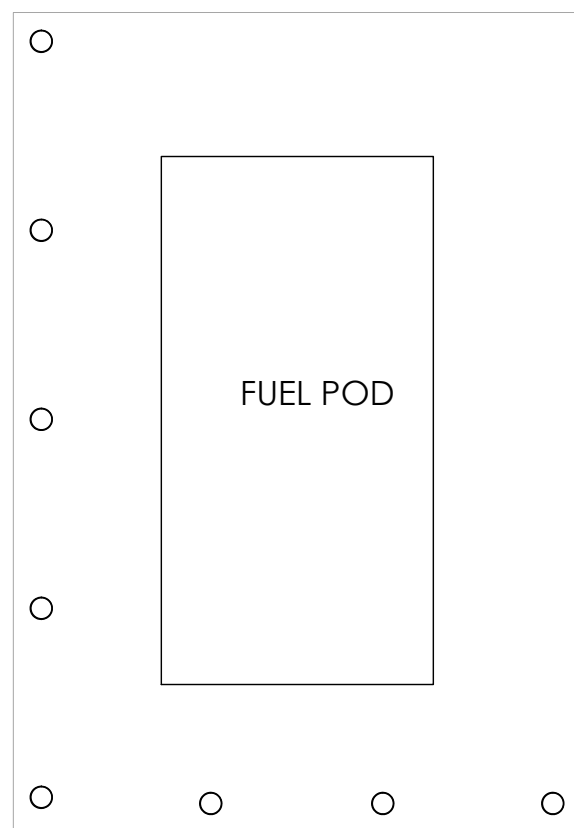
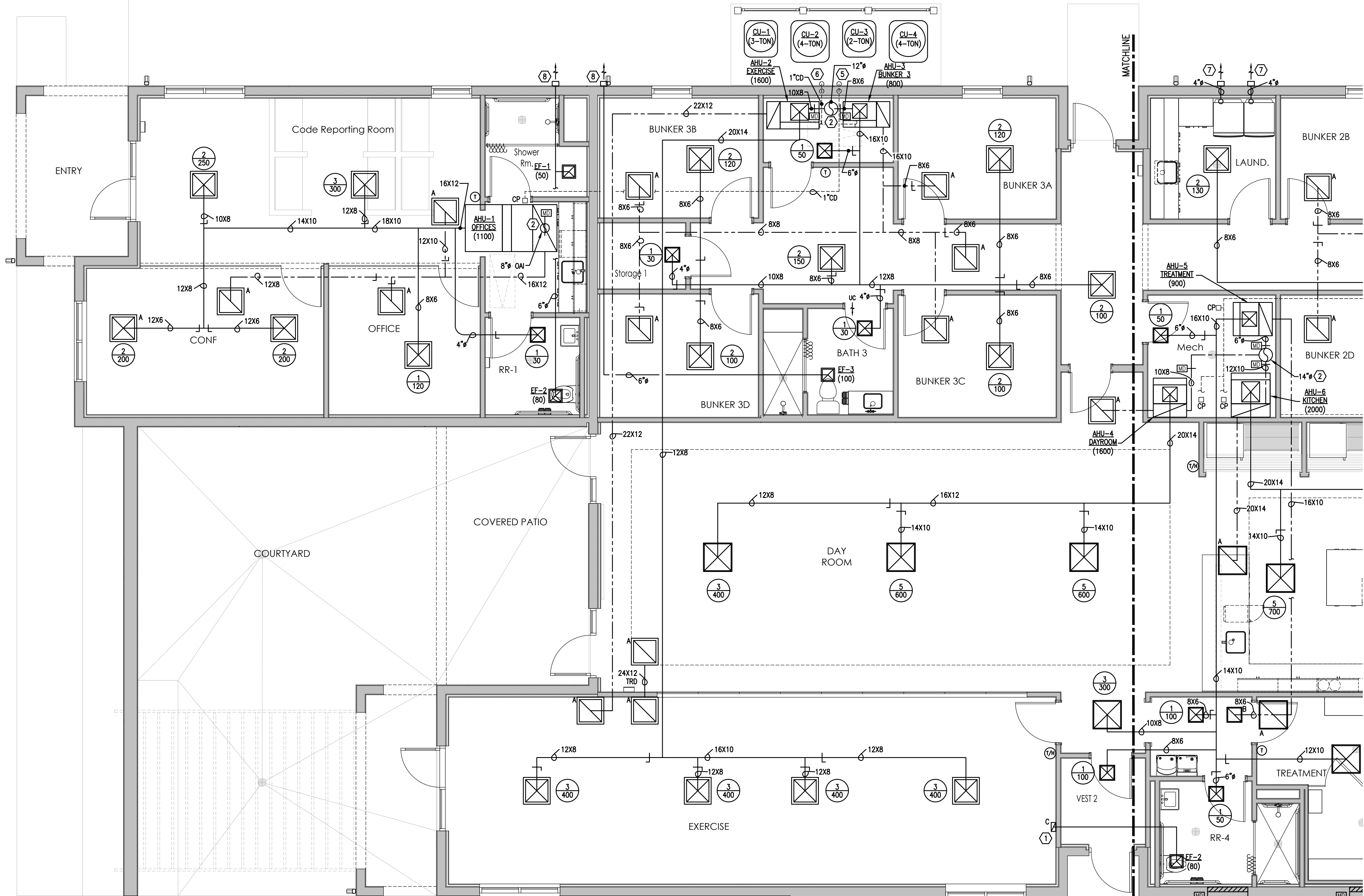
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**KEYED NOTES:**

- ① 'C' TYPE (SEE SCHEDULE) SOFFIT EXHAUST VENT WITH INSECT SCREEN.
- ② DUCT UP TO ROOF INTAKE VENT WITH INSECT SCREEN AND MOTORIZED DAMPER.
- ③ TOP DOOR GRILLE 12X8 LOCATE 3" BELOW TOP OF DOOR. BOTTOM DOOR GRILLE 12X4 LOCATED 3" ABOVE BOTTOM OF DOOR.
- ④ LOUVER: RUSKIN MODEL: E1E63750X0 WITH CD40 MOTORIZED OBD AND BIRD SCREEN (MOUNT HIGH).
- ⑤ 1" CONDENSATE DRAIN RUN PIPING FROM CEILING AND DOWN WITHIN PERIMETER WALL TO TERMINATE AT 6" AFG, 12" FROM PERIMETER WALL TO GRADE, STORM DRAIN SYSTEM OR DRY WELL.
- ⑥ 1" CONDENSATE DRAIN TO TERMINATE AT 6" AFG, 12" FROM PERIMETER WALL TO GRADE, STORM DRAIN SYSTEM OR DRY WELL.
- ⑦ EXHAUST DRYER WALL VENT WITH INSECT SCREEN
- ⑧ EXHAUST WALL VENT WITH BDD AND INSECT SCREEN.
- ⑨ COORDINATE EXACT LOCATIONS OF EXHAUST FANS AND LOUVERS IN THE APPARATUS BAY WITH ARCHITECTURAL PLANS.



**KEY PLAN**  
SCALE: NOT TO SCALE

**MECHANICAL PLAN - PART 'A'**  
SCALE: 1/4" = 1'-0"



MATCHLINE

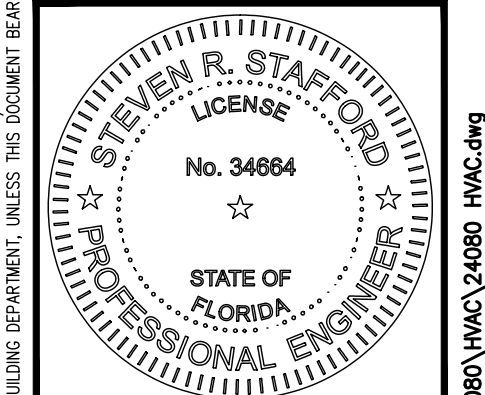
CO/NO<sub>2</sub> DETECTOR/AUDIO/VISUAL (TYP FOR 3)

AIRVAC-1  
AVC-1

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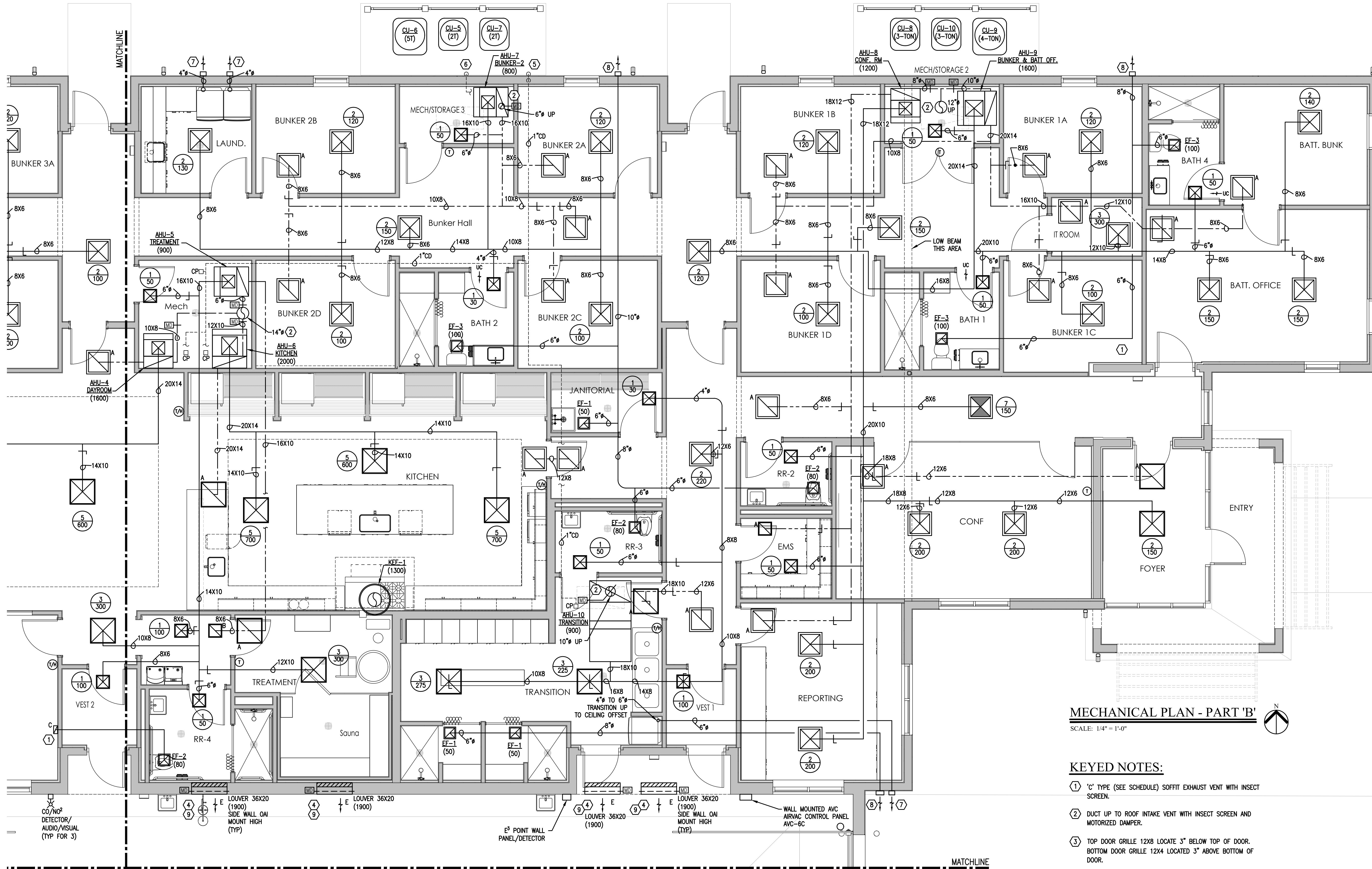
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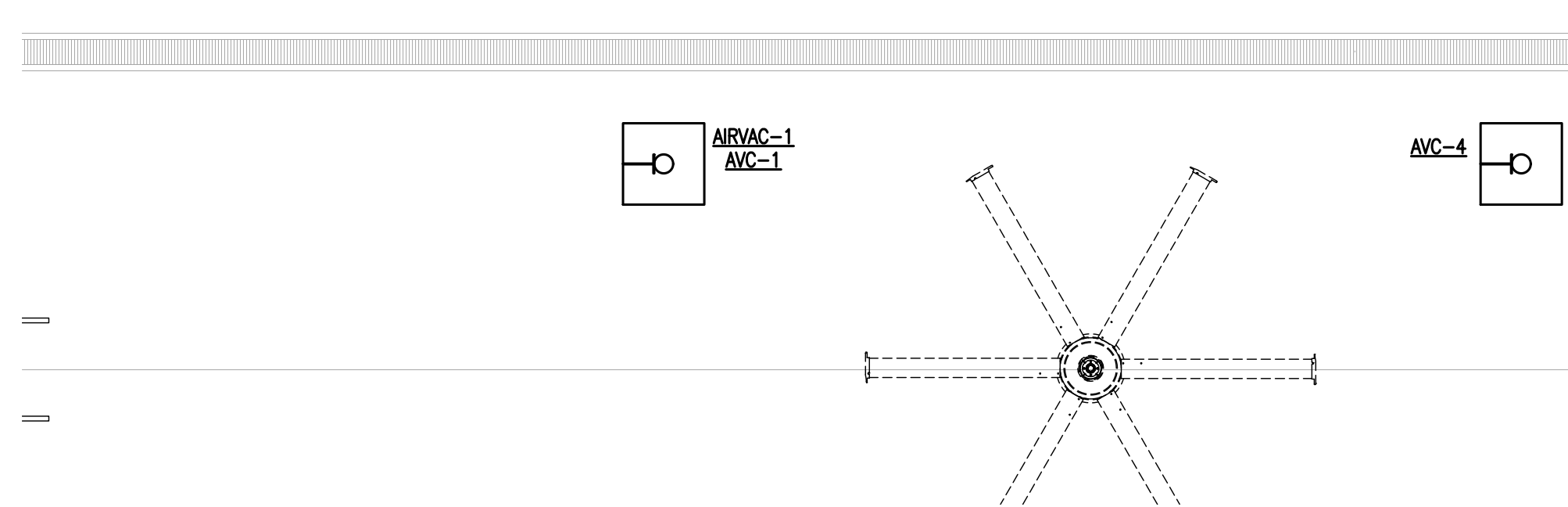
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**MECHANICAL PLAN - PART 'B'**  
SCALE: 1/4" = 1'-0"

**KEYED NOTES:**

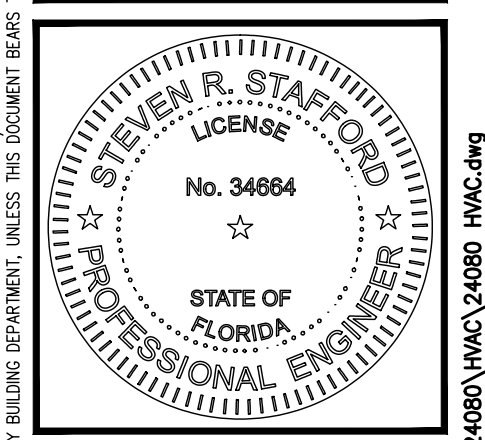
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- ③ TOP DOOR GRILLE 12X8 LOCATE 3" BELOW TOP OF DOOR. BOTTOM DOOR GRILLE 12X4 LOCATED 3" ABOVE BOTTOM OF DOOR.
- ④ LOUVER: RUSKIN MODEL: E1E63750XD WITH CD40 MOTORIZED OBD AND BIRD SCREEN (MOUNT HIGH).
- ⑤ 1" CONDENSATE DRAIN RUN PIPING FROM CEILING AND DOWN WITHIN PERIMETER WALL TO TERMINATE AT 6" AFG, 12" FROM PERIMETER WALL TO GRADE, STROM DRAIN SYSTEM OR DRY WELL.
- ⑥ 1" CONDENSATE DRAIN TO TERMINATE AT 6" AFG, 12" FROM PERIMETER WALL TO GRADE, STROM DRAIN SYSTEM OR DRY WELL.
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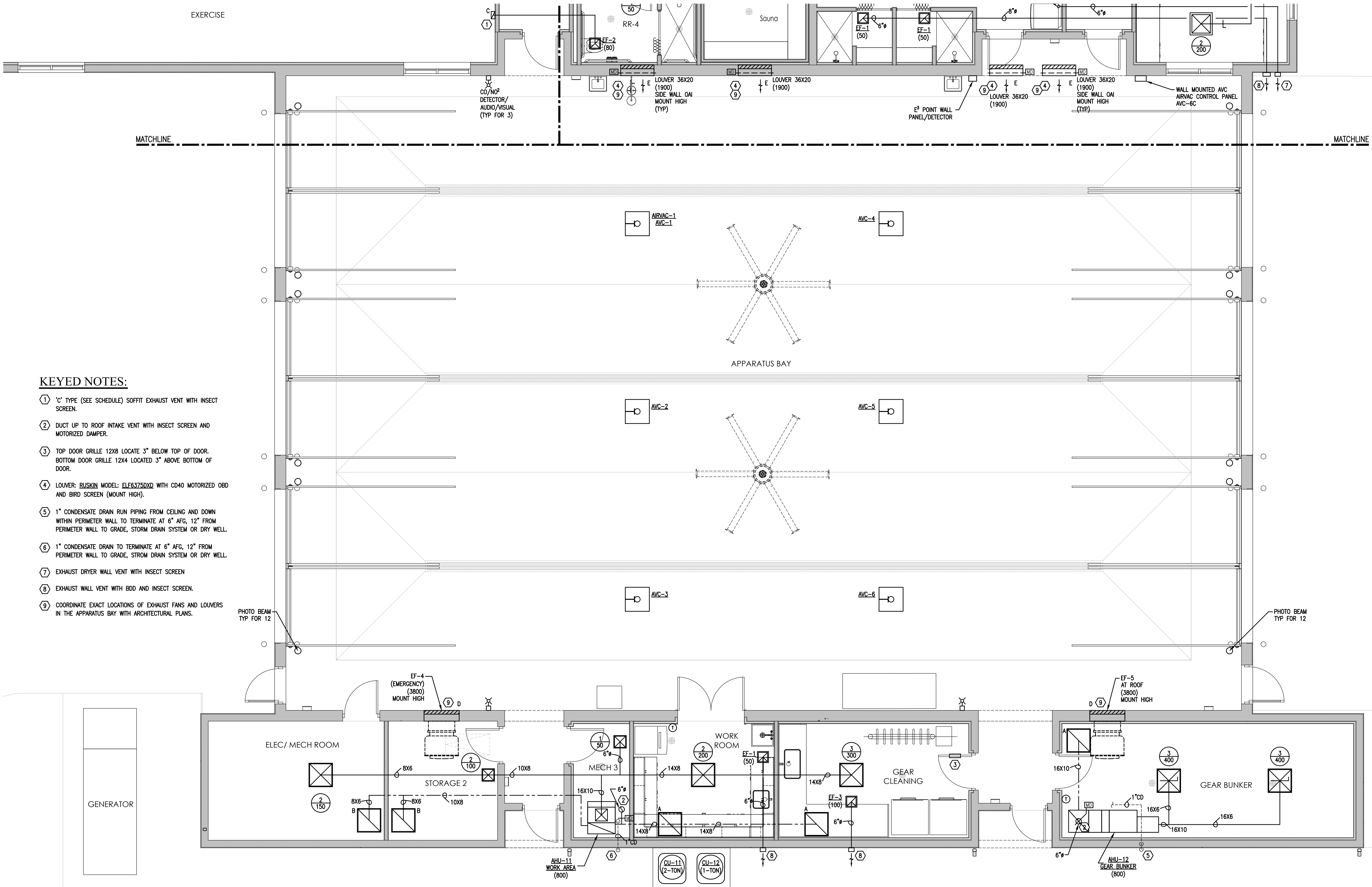


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JOB NUMBER:	24080

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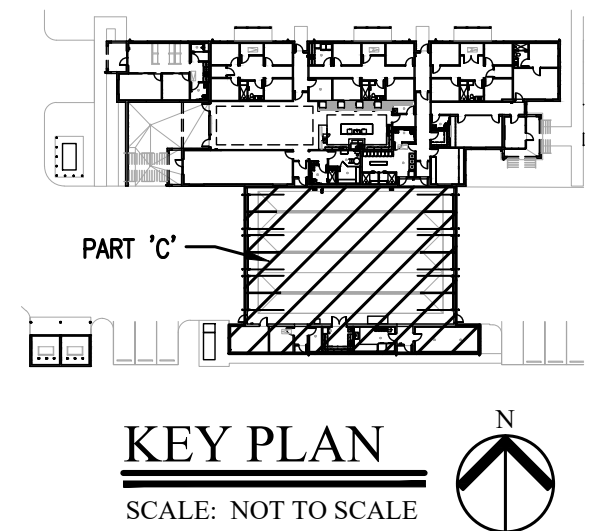
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**KEYED NOTES:**

- ① 'C' TYPE (SEE SCHEDULE) SOFFIT EXHAUST VENT WITH INSECT SCREEN.
- ② DUCT UP TO ROOF INTAKE VENT WITH INSECT SCREEN AND MOTORIZED DAMPER.
- ③ TOP DOOR GRILLE 12X8 LOCATE 3" BELOW TOP OF DOOR. BOTTOM DOOR GRILLE 12X4 LOCATED 3" ABOVE BOTTOM OF DOOR.
- ④ LOUVER: BUSKIN MODEL: EL6375DXD WITH CD40 MOTORIZED OBD AND BIRD SCREEN (MOUNT HIGH).
- ⑤ 1" CONDENSATE DRAIN RUN PIPING FROM CEILING AND DOWN WITHIN PERIMETER WALL TO TERMINATE AT 6" AFG, 12" FROM PERIMETER WALL TO GRADE, STORM DRAIN SYSTEM OR DRY WELL.
- ⑥ 1" CONDENSATE DRAIN TO TERMINATE AT 6" AFG, 12" FROM PERIMETER WALL TO GRADE, STORM DRAIN SYSTEM OR DRY WELL.
- ⑦ EXHAUST DRYER WALL VENT WITH INSECT SCREEN
- ⑧ EXHAUST WALL VENT WITH BDD AND INSECT SCREEN.
- ⑨ COORDINATE EXACT LOCATIONS OF EXHAUST FANS AND LOUVERS IN THE APPARATUS BAY WITH ARCHITECTURAL PLANS.

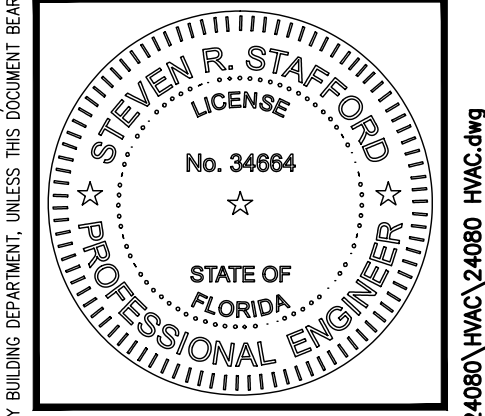
**MECHANICAL PLAN - PART 'C'**  
SCALE: 1/4" = 1'-0"



PROJECT NAME:  
**North Collier Fire Control  
& Rescue Station #49**  
Cocohatchee Road  
Naples, FL 34110

**STAFFORD  
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INC.**  
3525 Bonita Beach Rd., Suite 111, Bonita Springs, FL 34134  
239-948-5841 / 239-948-5990 FAX  
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Southwest Florida Office  
REGION 61  
PHONE: (813) 344 - 7857  
EMAIL: reg68@econair.com

PATENT NUMBERS  
EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) - CA PATENT 2520435 C.

**HOOD INFORMATION - JOB#7211437**

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST FLENUM RISERS(S)				HOOD CONSTRUCTION	HOOD CONFIG		
										WIDTH	LENG	HEIGHT	DIA		CFM	VEL	SP
1	KH-1	4224 EX-2	ECON-AIR	6' 8"	600 DEG	I	HEAVY	195	1300	4"	14"	1300	1216	-0.446'	430 SS WHERE EXPOSED	ALONE	ALONE

**HOOD INFORMATION**

HOOD NO	TAG	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WEIGHT	
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	TYPE	SIZE			ELECTRICAL MODEL #
1	KH-1	CAPTRATE SOLID FILTER	4	20"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	ND						YES	326 LBS

**HOOD OPTIONS**

HOOD NO	TAG	FIELD WRAPPER	18.00" HIGH	FRONT, LEFT, RIGHT.
1	KH-1	BACKSPLASH	80.00" HIGH X 80.00" LONG	430 SS VERTICAL.
		LEFT QUARTER END PANEL	23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH	430 SS.
		RIGHT QUARTER END PANEL	23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH	430 SS.

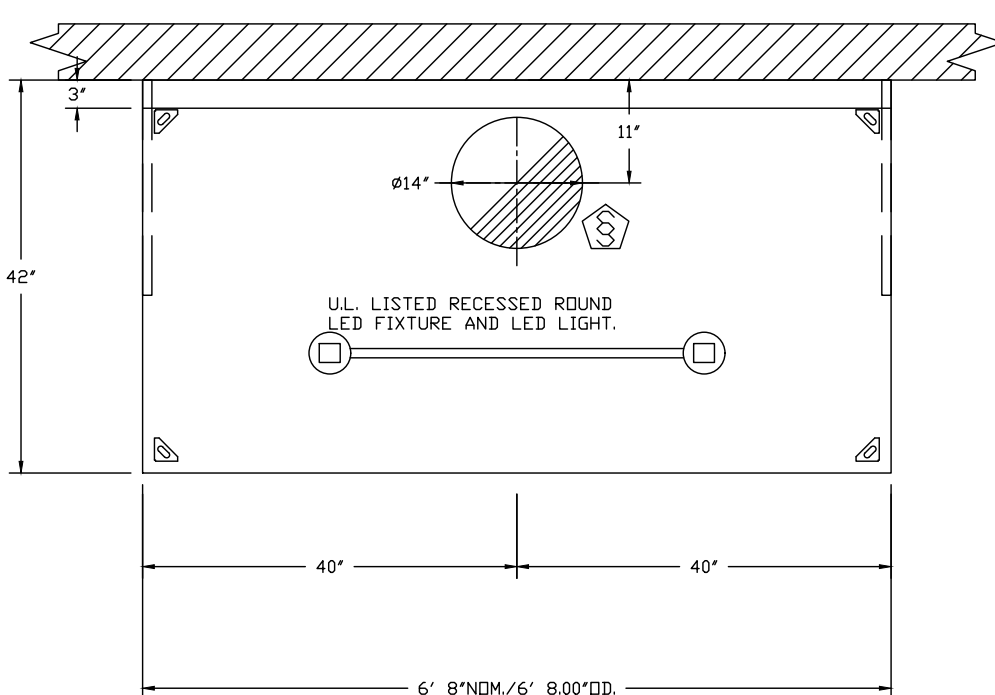
**CLEARANCE TO COMBUSTIBLES**

HOODS #	SURFACE	*CLEARANCE
1	TOP	18"
	FRONT	0"
	BACK	18"
	LEFT	18"
	RIGHT	18"

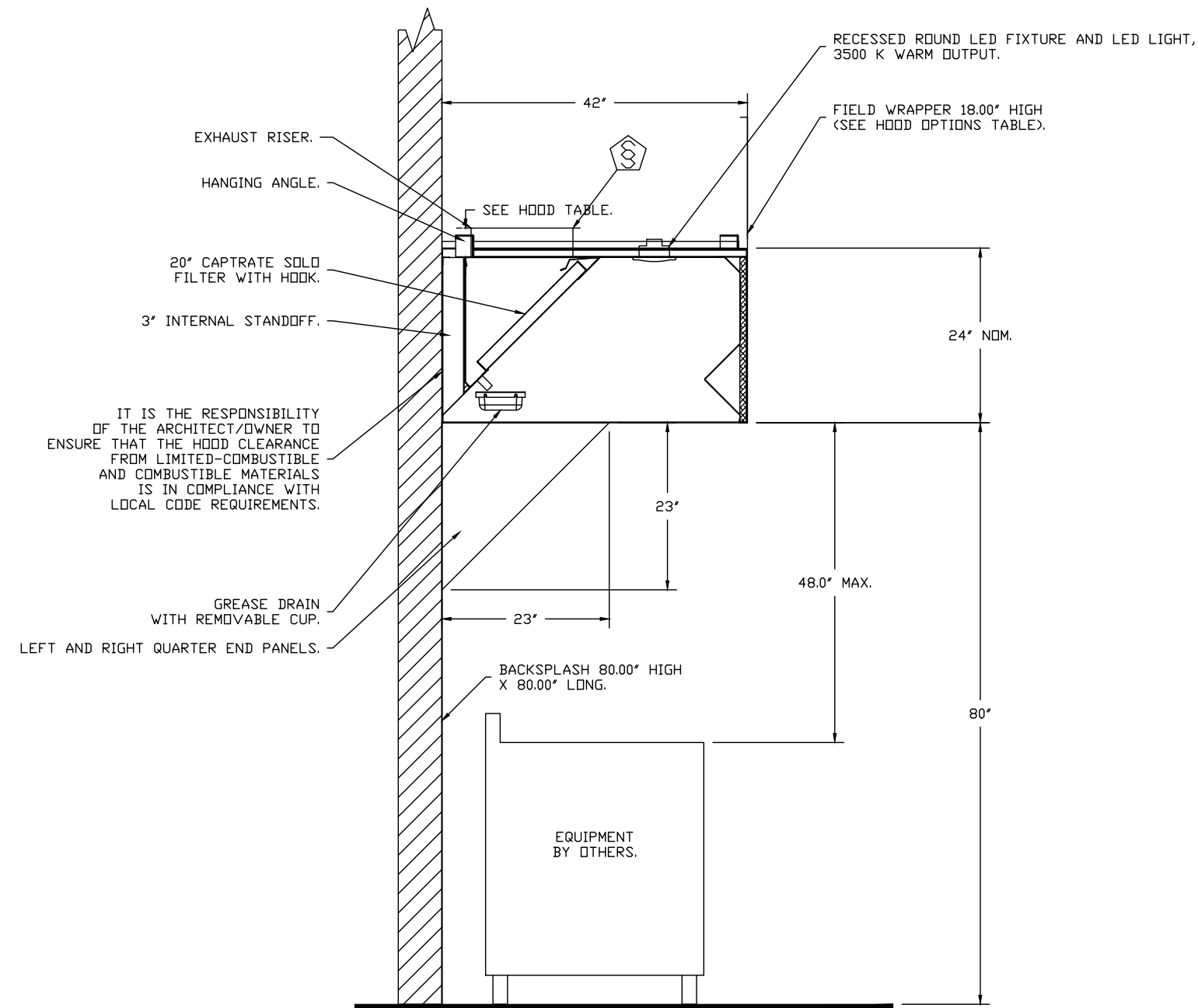
\* 0" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.

**WALL-MOUNT UTILITY CABINET**

HOOD NO	LOCATION	SIZE	TYPE	UTILITY CABINET(S)		WEIGHT
				FIRE SYSTEM	ELECTRICAL	
1	WALL MNT	12"x48"x30"	TANK FS	4.0/4.0	SC-110110MA 1 LIGHT 1 FAN	340.00 LBS

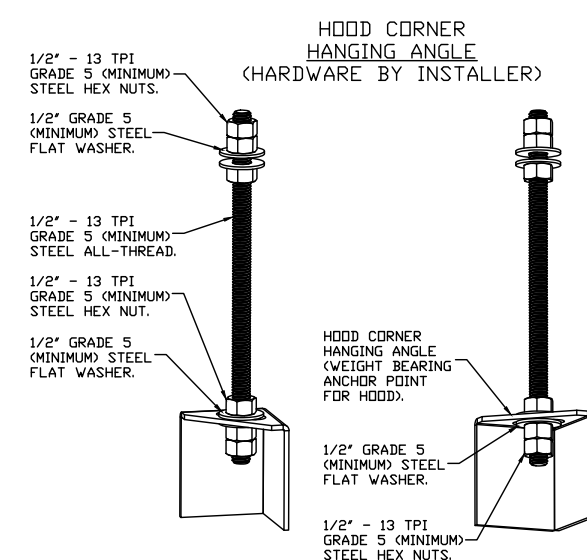
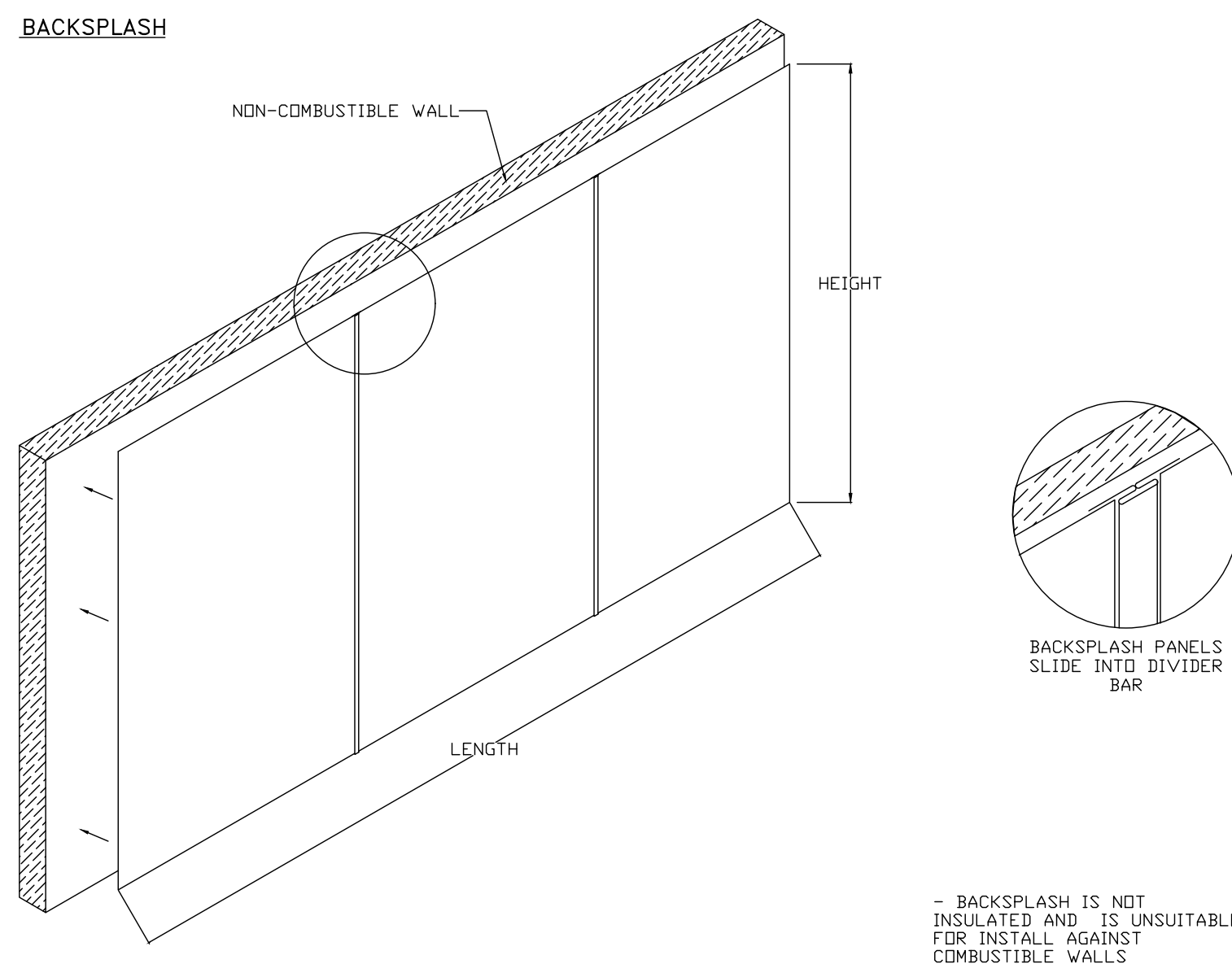


PLAN VIEW - HOOD #1 (KH-1)  
6' 8.00" LONG 4224EX-2



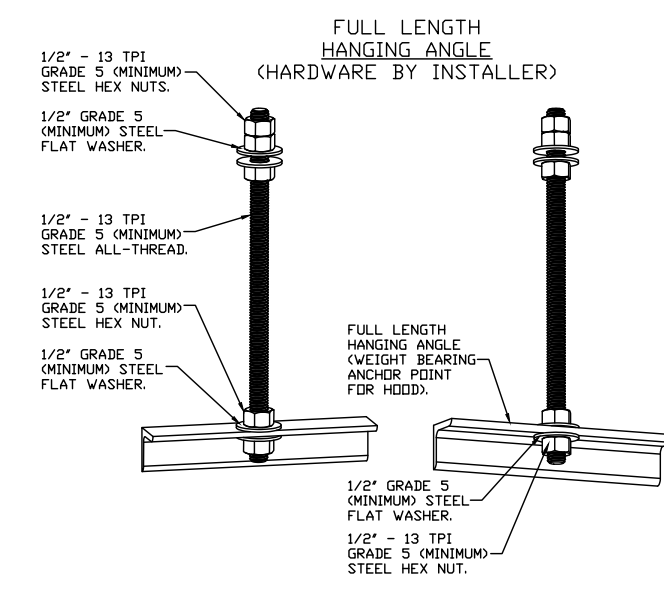
SECTION VIEW - MODEL 4224EX-2  
HOOD - #1 (KH-1)

**BACKSPLASH**



**ASSEMBLY INSTRUCTIONS**

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



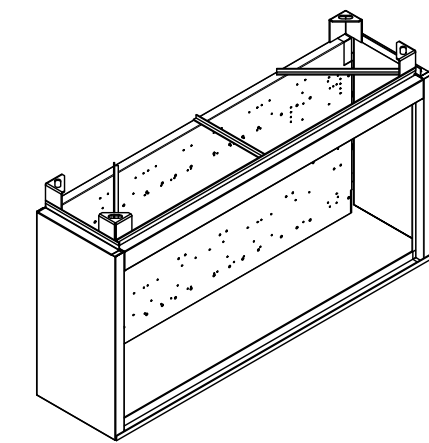
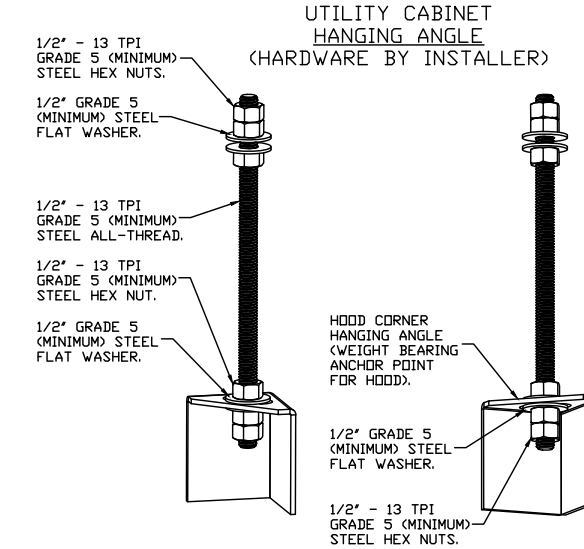
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**WALL-MOUNT UTILITY CABINET ASSEMBLY INSTRUCTIONS**

CABINET TO BE HUNG BY OTHERS. SEE UTILITY CABINET SCHEDULE FOR CABINET SIZE.

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH UTILITY CABINET HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



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PROFESSIONAL ENGINEER  
STATE OF FLORIDA

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CHECKED BY:	S.R.S.
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**M2.1**

PROJECT NAME:  
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Naples, FL 34110

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**FIRE SYSTEM INFORMATION - JOB#7211437**

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0	40	23	WALL UTILITY CABINET RIGHT	N/A

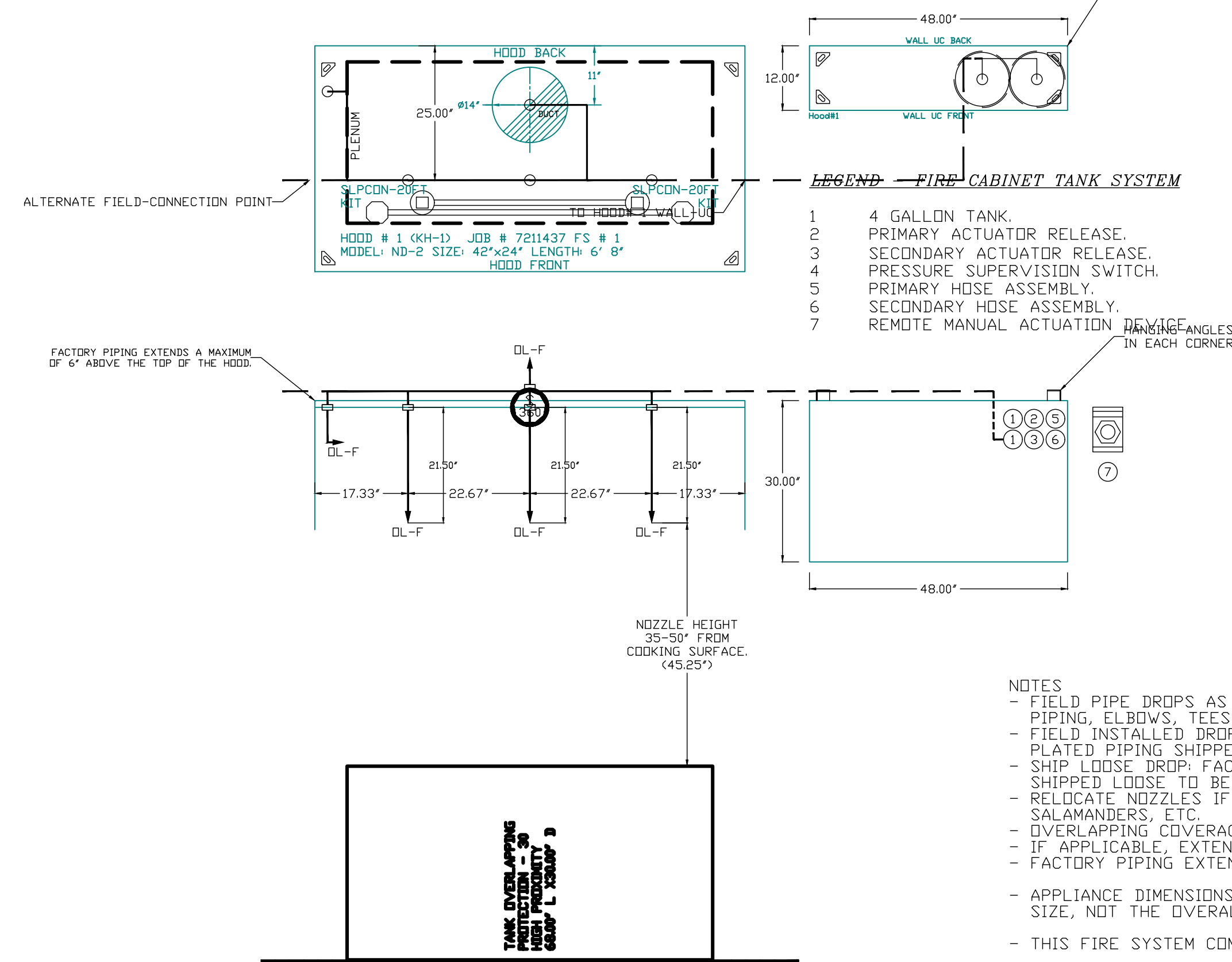
**GAS VALVE(S)**

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	2.000	ECCDN-AIR

**FIRE SYSTEM PARTS LIST KEY**

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
0	-	0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
0	-	0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
0	-	0 - 12-F28021-32144-01-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. ND, CLOSE ON TEMP RISE AT 360°F. (A0034310).	1	0
0	-	0 - 32-0002 DUJK SEAL - 1/2" (UL).	1	0
0	-	0 - 361091 3/8" BRASS PLUG.	3	0
0	-	0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	2	0
0	-	0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	1	0
0	-	0 - 79425 3/8" NPT FEMALE TO 1/2" MALE PRO-PRESS ADAPTER.	3	0
0	-	0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2"NPT FEMALE CONNECTION, VIEGA.	1	0
0	-	0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2"NPT FEMALE CONNECTION, VIEGA.	2	0
0	-	0 - B7-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	1	0
0	-	0 - B7-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5' BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	1	0
0	-	0 - B7-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	2	0
0	-	0 - B7-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
0	-	0 - B7-300033-001 DIN CONNECTOR, CANFIELD PART #5J960-201-EU0A, TANK FIRE SUPPRESSION, SUBMINATURE SOLENOID CONNECTION (CED VENDOR 30377).	1	0
0	-	0 - B7-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	8	0
0	-	0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	3	0
0	-	0 - 9097200PC PRO PRESS PG611 1/2 PRESS TEE LD.	5	0
0	-	0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	4	0
0	-	0 - A0034332 JUNCTION BDX FOR MANUAL PULL STATION. 1.5" DEEP BACK BDX, RED COLOR.	1	0
0	-	0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	1	0
0	-	0 - B1145 3/8" BLACK IRON 90 ELL.	2	0
0	-	0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
0	-	0 - SLPDCN-20FT SUPERVISED LDDP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LDDP BETWEEN HOODS WITH UP TO 19' GAP. KIT CONTAINS 22 FEET OF BLACK MG WIRE, 22 FEET OF TAN MG WIRE, 20 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	2	0
0	-	0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	6	0
0	-	0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
0	-	0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	2	0
16	-	16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	5	0
16	-	16 - 16 - DL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	5	0
26	-	26 - 26 - GSA-3/8 DUJK SEAL - 3/8" (UL).	5	0
34	-	34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT, RED COLOR.	1	0

- SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.3 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS



- NOTES**
- FIELD PIPE DROPS AS SHOWN
  - PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
  - FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
  - SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
  - RELOCATE NOZZLES IF FLDW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
  - OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION. IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
  - FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

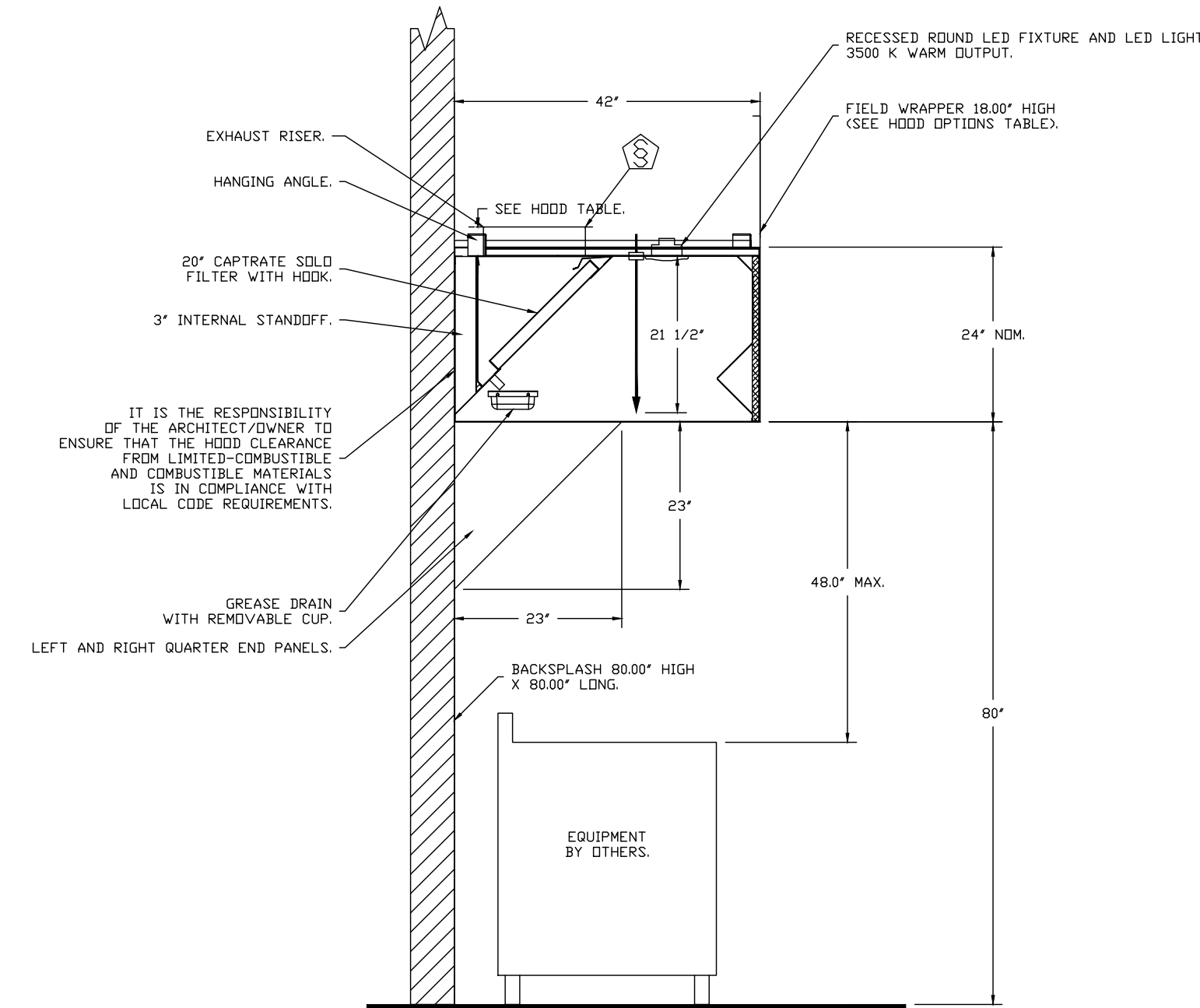
- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.
- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.
- DL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 7211437.  
 JOB NAME: NORTH COLLIER FIRE STATION #49.  
 SYSTEM SIZE: TANK-SP-2-WC DESIGN FP: 23. MAXIMUM FP: 40.  
 HOOD # 1 6' 8.00" LONG X 42" WIDE X 24" HIGH.  
 RISER # 1 SIZE: 14" DIA.  
 HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

AGENT DISTRIBUTION PIPING LIMITATIONS	
PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	42
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

INCLUDES: FIELD INSTALLATION AND HOOKUP DURING NORMAL BUSINESS HOURS BY CERTIFIED INSTALLERS ONLY IN THE LOCATION NOTED ABOVE. TWO SITE VISITS ONLY (ONE VISIT TO SET PULL STATION & SYSTEM HOOKUP AND ONE VISIT FOR ONE TEST). ADDITIONAL VISITS WILL RESULT IN ADDITIONAL CHARGES). ONE MECHANICAL OR ELECTRICAL GAS VALVE PER SYSTEM AT A MAXIMUM SIZE OF 2". PERMIT, AND SYSTEM TEST.  
 EXCLUDES: UNION LABOR & PREVAILING WAGE (LABOR & WAGES WILL BE ADDED IF APPLICABLE). GAS VALVE INSTALLATION, ELECTRICAL HOOKUP AND CONNECTIONS, HANGING OF FIRE CABINET, SHUNT TRIP, HANDHELD EXTINGUISHER(S), ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.



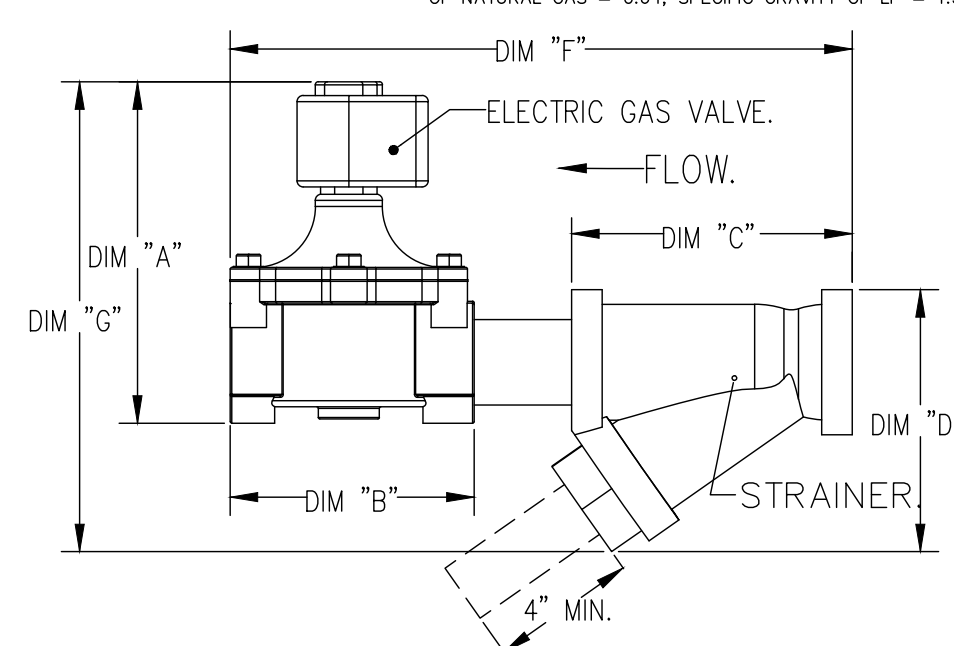
**SECTION VIEW - MODEL 4224EX-2 HOOD - #1**

GAS VALVE FOR FS#1	GAS VALVE SIZING		GAS VALVE DIMENSIONS							INSTALLATION	PART NUMBERS						
	TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	DIM "A"	DIM "B"		DIM "C"	DIM "D"	DIM "E"	DIM "F"	DIM "G"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER
ELECTRICAL	2"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (1.38 IN.W.C.)	2.940/300 BTU/HR	1.962/048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-18"	15-5/8"	13-15/16"	13-15/16"	HORIZONTAL	8214280	4417K68	(SCJEGVA2)

**ELECTRIC GAS VALVES ONLY:**  
 3/4"-2" 120VAC GAS VALVES CAN BE MOUNTED WITH THE SOLENOID IN ANY POSITION ABOVE HORIZONTAL.  
 2 1/2"-3" 120VAC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.  
 240V GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.

**ALL GAS VALVES/STRAINERS**  
 PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER. CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

**CALCULATIONS**  
 TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP  
 NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP<sup>3/2</sup>  
 TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY  
 NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)<sup>3/2</sup>



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**EXHAUST FAN INFORMATION - JOB#7211437**

FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL.	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF-1	1	EADU6SH	ECON-AIR	1300	1.000	1218	TEAD-ECM	0.750	0.3270	1	115	8.9	411 FPM	90	9.2

**FAN OPTIONS**

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	KEF-1	1	GREASE BOX
1	KEF-1	1	FAN BASE CERAMIC SEAL - DU/DRB8HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
1	KEF-1	1	MIAMI DADE CERTIFICATION - NDA-1 ALUMINUM UPBLAST
1	KEF-1	1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECM03 PREWIRE (TELECO MOTOR), CCW ROTATION
1	KEF-1	1	2 YEAR PARTS WARRANTY

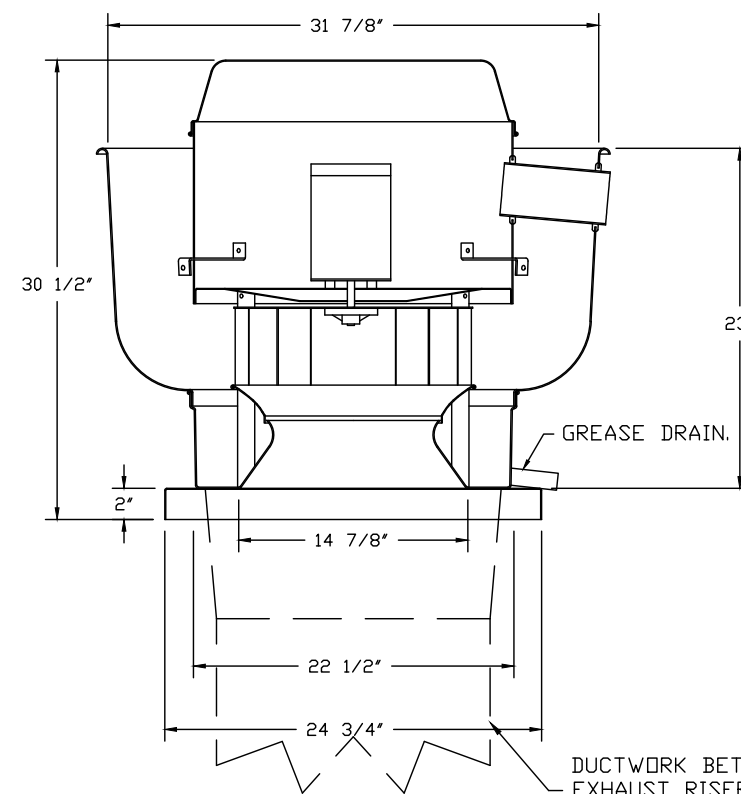
**FAN ACCESSORIES**

FAN UNIT NO.	TAG	EXHAUST			SUPPLY		
		GRAVITY CURB	WALL MOUNT	DISCHARGE DAMPER	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF-1	YES					

**CURB ASSEMBLIES**

NO.	DN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1	70 LBS	CURB	23.000"W X 23.000"L X 26.000"H VENTED HINGED 16 GAUGE.

**FAN #1 EADU6SH - EXHAUST FAN (KEF-1)**



**FEATURES:**

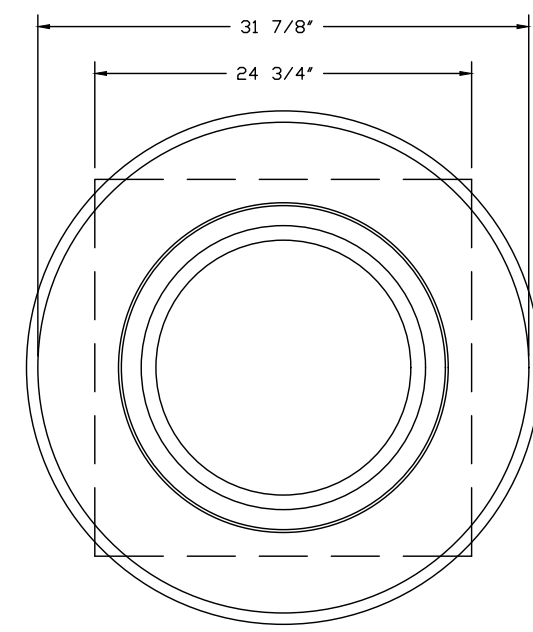
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND UL-C-3645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

**NORMAL TEMPERATURE TEST**  
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

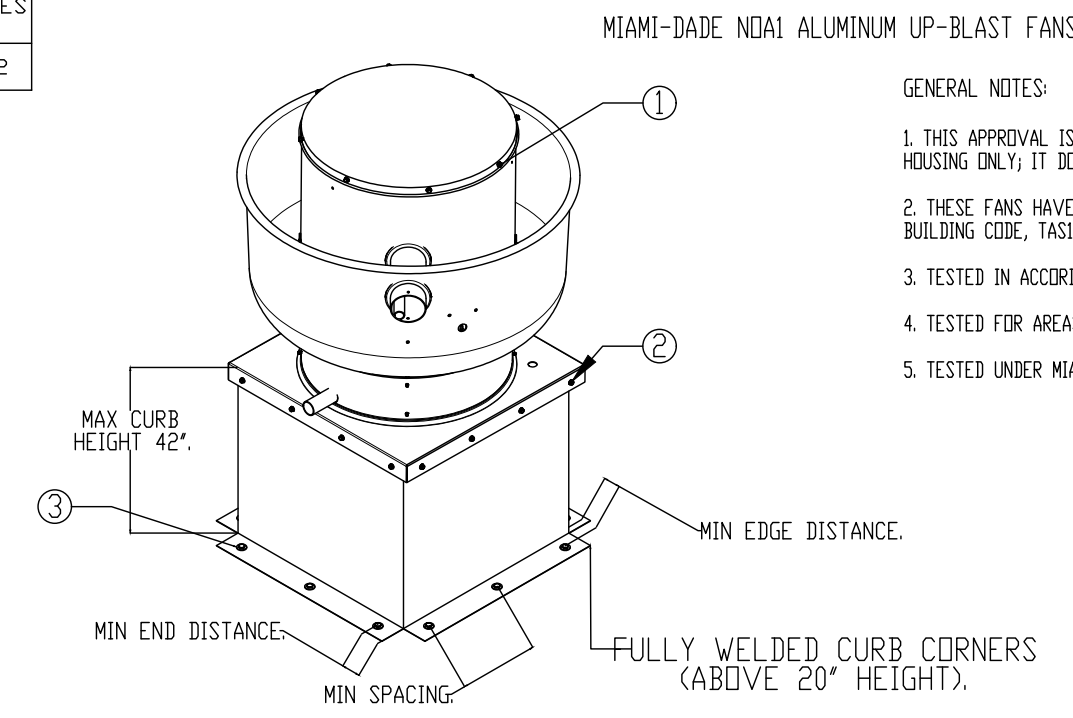
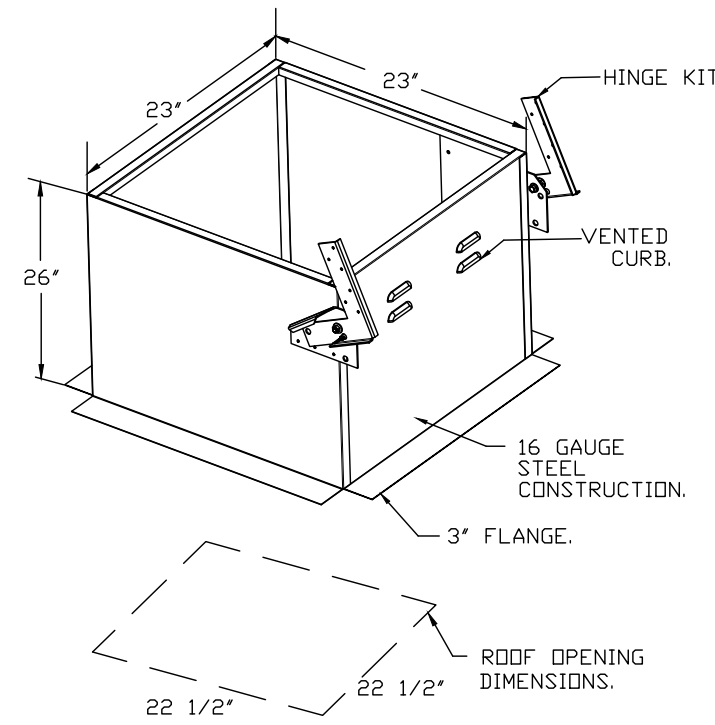
**ABNORMAL FLARE-UP TEST**  
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

**OPTIONS:**

- GREASE BOX
- FAN BASE CERAMIC SEAL - DU/DRB8HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
- MIAMI DADE CERTIFICATION - NDA-1 ALUMINUM UPBLAST
- ECM WIRING PACKAGE - PWM SIGNAL FROM ECM03 PREWIRE (TELECO MOTOR), CCW ROTATION
- 2 YEAR PARTS WARRANTY.



TOP VIEW



**GENERAL NOTES:**

1. THIS APPROVAL IS FOR THE STRUCTURAL CAPACITY AND IMPACT RATING OF THE EXTERIOR HOUSING ONLY; IT DOES NOT INCLUDE ANY INTERIOR MECHANISM OR ELECTRICAL PART.
2. THESE FANS HAVE NOT BEEN WIND TESTED FOR WIND DRIVEN RAIN TEST PER FLORIDA BUILDING CODE, TAS200 (A)-95.
3. TESTED IN ACCORDANCE TO FLORIDA BUILDING CODE TEST PROTOCOL, TAS201, TAS202, TAS203.
4. TESTED FOR AREAS INCLUDING HIGH VELOCITY HURRICANE ZONES.
5. TESTED UNDER MIAMI-DADE COUNTY NOTIFICATION NUMBER AT1-98033.

**INSTALLATION INSTRUCTIONS:**  
1. SECURE LID TO FAN USING (8) 1/4"-14 X 1" ZINC PLATED SELF DRILLING SHEET METAL SCREWS WITH RUBBER WASHER SPACED EVENLY AROUND LID.

2. SECURE FAN BASE TO CURB USING 1/4"-14 X 2" GALVANIZED SELF DRILLING SCREWS (A307 OR BETTER) THROUGH PRE-PUNCHED HOLES IN THE FAN BASE. (SEE TABLE BELOW FOR QTY).

3. SECURE CURB TO ROOF OR WALL BY DRILLING 1/4" DIA PILOT HOLES IN THE CURB FLANGE AT LOCATIONS SHOWN IN THE DIAGRAM. SEE TABLE BELOW FOR FASTENER TYPE. USE TABLE BELOW FOR FASTENER QTY.

CURB MATERIAL:  
20" HIGH & LESS = 20 GA STEEL.  
ABOVE 20" THRU 42" = 16 GA STEEL.

DESIGN PRESSURE: +1500 / -1500 PSF.  
LARGE MISSILE IMPACT RESISTANT.

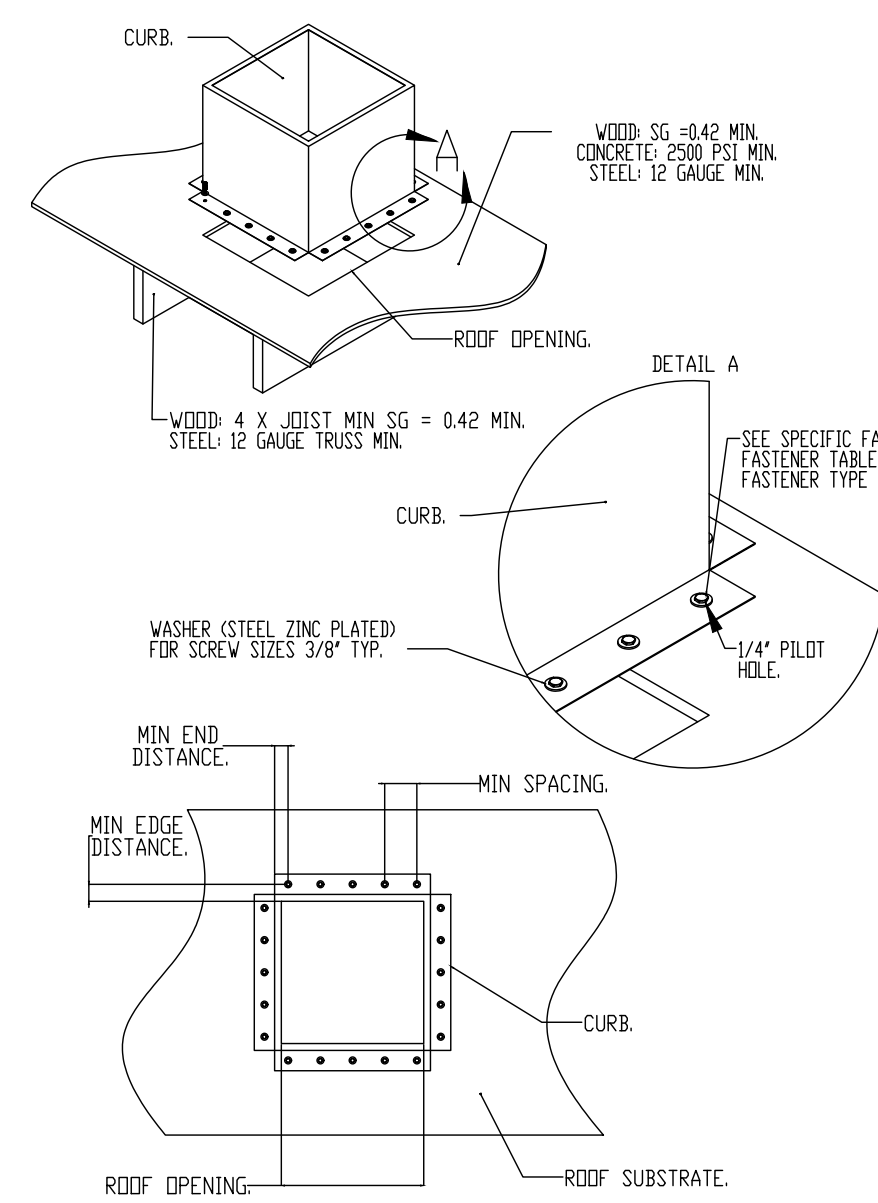
**INSTALLATION FASTENER TYPES**

	FAN TO CURB	WOOD (SG = 0.42 MIN.)	STEEL (12 GAUGE MIN.)	CONCRETE (2500 PSI MIN. CRACKED CONCRETE)
FASTENER	5/16"-18 X 2" SELF DRILLING SCREW (ELCO DRILL-FLEX OR BETTER)	3/8" DIA. ZINC PLATED LAG BOLT	1/4"-14 DRILL-FLEX SELF DRILLING SCREW	3/8" DIA. SS HILTI KWIK BOLT T2 EXPANSION ANCHOR
MINIMUM THREAD PENETRATION	N/A	2-1/2"	12 GAUGE	2"
MINIMUM EDGE DISTANCE	N/A	1-1/2"	3/8"	3"
MINIMUM END DISTANCE	N/A	2-5/8"	3/8"	3"
MINIMUM SPACING	N/A	1-1/2"	3/4"	5-1/2"

**INSTALLATION FASTENER QTY**

FAN MODEL	CURB TO FAN (ROOF)		CURB TO FAN (WALL)		WOOD (ROOF)		WOOD (WALL)		STEEL (ROOF)		STEEL (WALL)		CONCRETE (ROOF)		CONCRETE (WALL)	
	PER SIDE	TOTAL	PER SIDE	TOTAL	PER SIDE	TOTAL	PER SIDE	TOTAL	PER SIDE	TOTAL	PER SIDE	TOTAL	PER SIDE	TOTAL	PER SIDE	TOTAL
DUBS	3	12	3	12	4	16	4	16	5	20	5	20	4	16	4	16

**MIAMI-DADE COUNTY - CURB ROOF INSTALLATION GUIDE**



PROJECT NAME:  
**North Collier Fire Control & Rescue Station #49**  
Cochahatchee Road  
Naples, FL 34110

**STAFFORD ENGINEERING, INC.**  
3525 Bonita Beach Rd., Suite 111, Bonita Springs, FL 34134  
239-948-5841 / 239-948-5990 FAX  
www.staffordengineeringinc.com  
Steven R. Stafford - PE - Florida License # 34664  
Certificate Of Authorization No. 26464

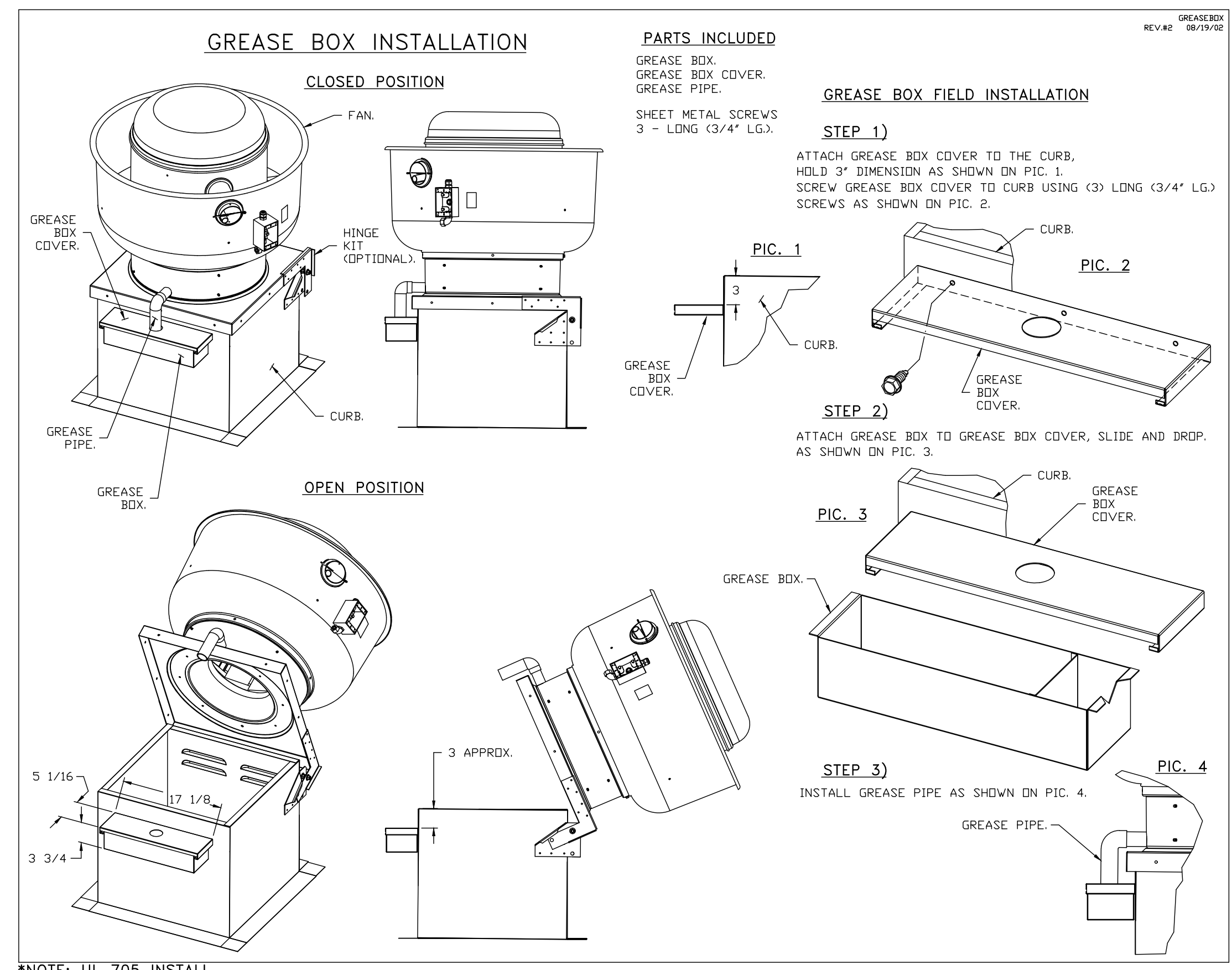
#	REVISION / DATE

ISSUED FOR BID  
SEPTEMBER 30, 2025  
ISSUED FOR PERMIT  
AUGUST 11, 2025

STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
No. 34664  
STEVEN R. STAFFORD

DATE:	08/11/25
DRAWN BY:	R.A.M.
CHECKED BY:	S.R.S.
JOB NUMBER:	24080

**M2.3**



\*NOTE: UL 705 INSTALL.

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