

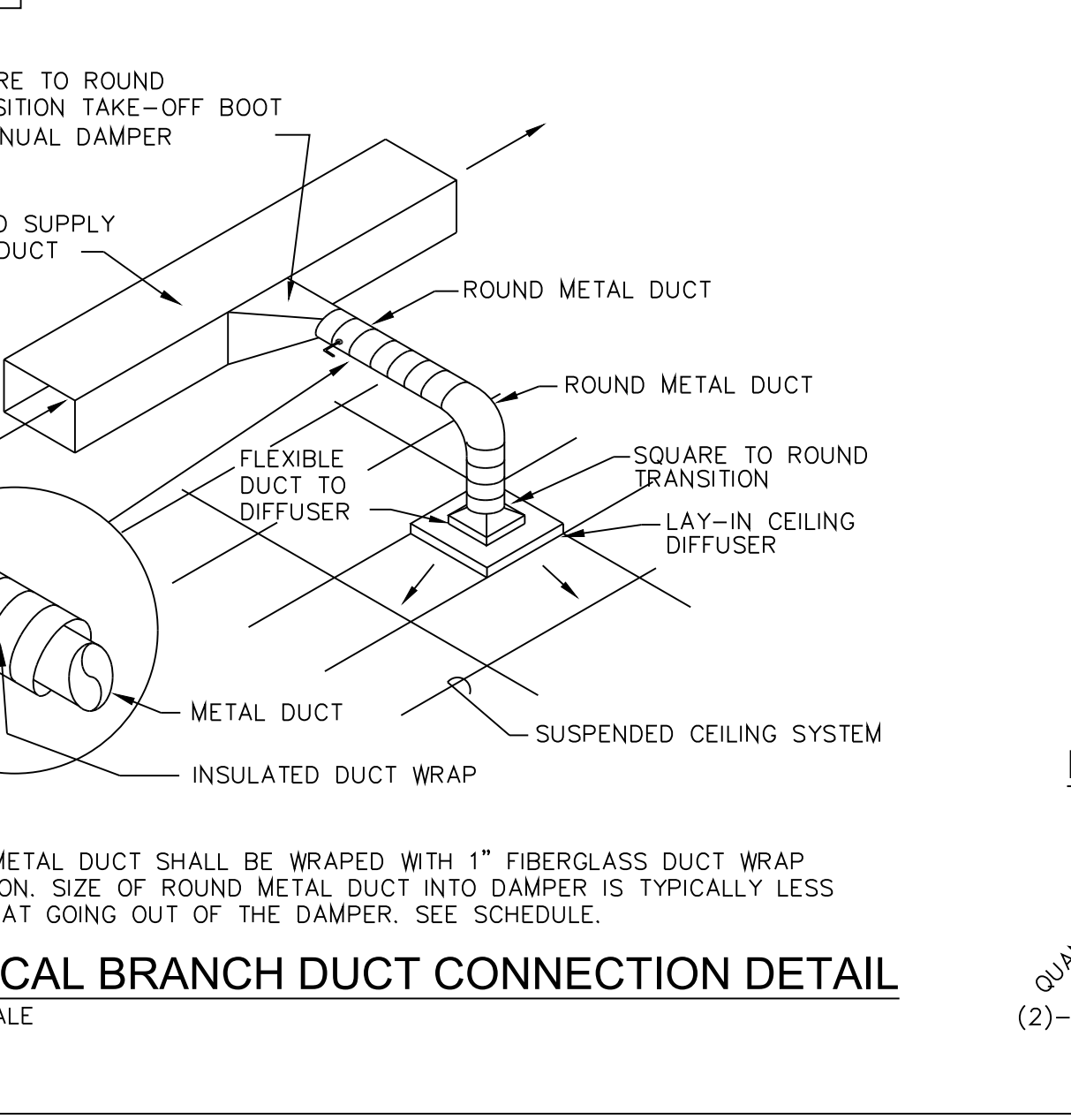
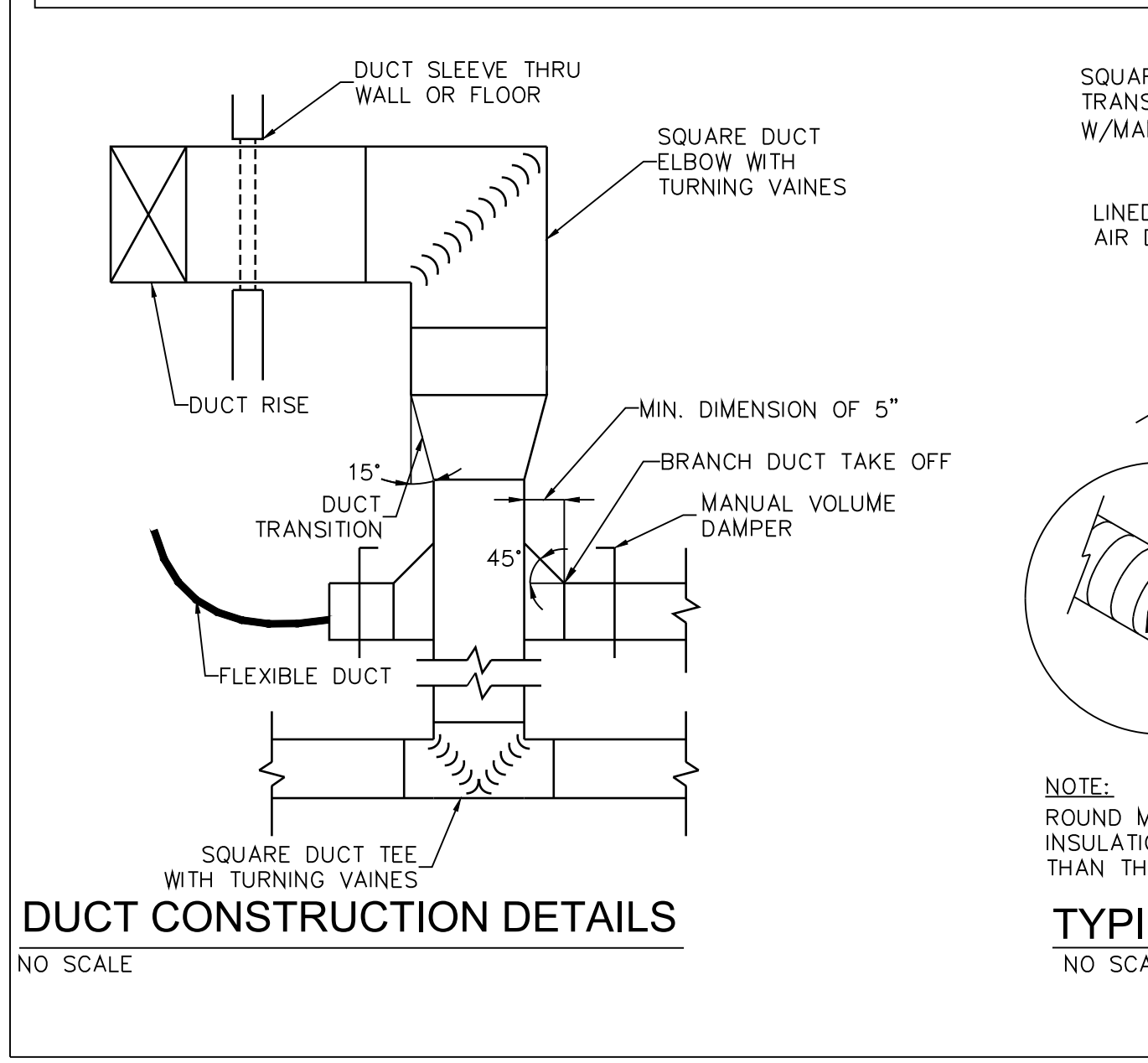
BUILDING MANAGEMENT SYSTEM - CONTROLS

- PROVIDE BUILDING MANAGEMENT SYSTEM (BMS) CONTROL PANEL. SYSTEM SHALL BE AUTOMATED LOGIC CONTROLS (ALC) AND BE AN EXTENSION OF THE EXISTING BASE-WIDE BUILDING MANAGEMENT SYSTEM.
- CONTACT RANDY ROBERTSON AT ALC: 717-798-4066
- BMS WILL INTERFACE TO HVAC SYSTEMS FOR REMOTE MONITORING. BMS CONTRACTOR WILL FURNISH GAS SUBMETER MODEL AL-800 AND IMAC PULSMATIC TRANSMITTER (WATER SUBMETER).

ABBREVIATIONS

AB	ABOVE	HZ	HERTZ
AC	AIR CONDITIONING	ID	INSIDE DIAMETER
ADJ	ADJUSTABLE	IN	INCHES
AF	ABOVE FINISHED FLOOR	IWC	INCHES OF WATER COLUMN
AFG	ABOVE FINISHED GRADE	LAT	LEAVING AIR TEMPERATURE
AHU	AIR HANDLING UNIT	LRA	LOCKED ROTOR AMPS
ATC	AUTO TEMP CONTROL	MAX	MAXIMUM
AUTO	AUTOMATIC	MBH	THOUSAND BTU'S PER HOUR
AWT	AVERAGE WATER TEMP.	MCA	MINIMUM CIRCUIT AMPS
BTU	BRITISH THERMAL UNITS	MCH	MECHANICAL
BTUH	BRITISH THERMAL UNITS PER HOUR	MFG	MANUFACTURER
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CLG	CEILING	MOT	MOTOR OPERATED DAMPER
CLEANOUT	CLEANOUT	NC	NORMALLY CLOSED
CO	CONCRETE	NOT IN CONTRACT	NOT IN CONTRACT
COND	CONDENSATE	NIC	NOMINAL
CONN	CONNECT OR CONNECTION	NO	NORMALLY OPEN
CONT	CONTINUATION	OA	OUTSIDE AIR
CONTD	CONTINUED	%	PERCENT
CONTR	CONTRACTOR	PC	PLUMBING CONTRACTOR
CW	COLD WATER	PH OR	PHASE
DB	DRY BULB	QTY	QUANTITY
DEG	DEGREE	RA	RELIEF/RETURN AIR
DIA	DIAMETER	RD	ROUND
DN	DOWN	REG	REGISTER
DPR	DAMPER	RL	REFRIGERANT LIQUID PIPING
DWG	DRAWING	RLA	RUNNING LOAD AMPS
DX	DIRECT EXPANSION	RM	REVOLUTIONS PER MINUTE
EA	EXHAUST AIR	RS	REFRIGERANT SUCTION PIPING
EAT	ENTERING AIR TEMPERATURE	RN	RETURN
EC	ELECTRICAL CONTRACTOR	SA	SUPPLY AIR
EER	ENERGY EFFICIENCY RATING	SD	SMOKE DETECTOR
EF	EXHAUST FAN	SEER	SEASONAL ENERGY EFFICIENCY RATING
ELECT	ELECTRICAL	SENS	SENSIBLE
ESP	EXTERNAL STATIC PRESSURE	SHT	SHEET
EWT	ENTERING WATER TEMP	SP	STATIC PRESSURE
EXH	EXHAUST	SS	STAINLESS STEEL
EXIST	EXISTING	STAT	THERMOSTAT
EXT	EXTERNAL	STD	STANDARD
FA	FAHRENHEIT	SUSP	SUSPENDED OR SUSPENDED
F	FRESH AIR	TEMP	TEMPERATURE
FD	FIRE DAMPER	TOT	TOTAL
FL	FLOOR	TSP	TYPICAL
FLA	FULL LOAD AMPS	TYP	TYPICAL
CC	GENERAL CONTRACTOR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VOL	VOLUME
HG	HEATING CONTRACTOR	VR	VENT RISER
HORZ	HORIZONTAL	VTR	VENT-THRU-ROOF
HUH	HORIZONTAL UNIT HEATER	W	WATTS
HVAC	HEATING VENTILATING AIR CONDITIONING	WB	WET BULB
HP	HORSE POWER	WCO	WALL CLEANOUT
HW	HOT WATER	WP	WEATHER PROOF

NOTE: THE ABOVE SCHEDULE IS A STANDARD. THE ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THE DRAWINGS FOR THIS PROJECT.



SYMBOL LEGEND

⊕	THERMOSTAT	↕	SUPPLY AIR DIFFUSER
⊖	CONTROL TRANSFORMER	↕	RETURN AIR CEILING REGISTER
→	AIR FLOW DIRECTION	↕	ELECTRIC WALL INSERT HEATER
↔	MANUAL BALANCING DAMPER	↕	BALL VALVE
↕	CEILING EXHAUST FAN	↕	CHECK VALVE
↕	SUPPLY DUCT RISER	↕	GATE VALVE
↕	RETURN DUCT RISER	↕	
↕	8" INSULATED FLEXIBLE DUCT	↕	
↕	REFRIGERANT PIPING	↕	
↕	MAKEUP AIR UNIT SWITCH	↕	
↕	EXHAUST FAN SWITCHES, CARBON MONOXIDE AND CARBON DIOXIDE SENSOR	↕	
↕	PIPE RISE	↕	
↕	PIPE DROP	↕	

LIQUID PROPANE GAS FIRED INFRARED HEATER SCHEDULE

SYMBOL	BASIS OF DESIGN		SERVING		INPUT (MBH)		TUBE		ELECTRICAL DATA		MOUNTING HEIGHT	WEIGHT (LBS.)	REMARKS
	MFG.	MODEL	HIGH	LOW	LENGTH	TYPE	AMPS	VOLTAGE					
IH-1,2,3,4	RE-VERBER-RAY	HL3-SS-40-100	MAINTENANCE	100	65	40'-0"	STRAIGHT	4.8	120V-1ϕ	20'	195	①②③	
IH-5	RE-VERBER-RAY	HL3-SS-40-100	MAINTENANCE	100	65	60'-0"	STRAIGHT	4.8	120V-1ϕ	20'	195	①②③	

REMARKS

- INFRARED HEATER SHALL HAVE FULLY AUTOMATIC, 3-TRY, 100% SHUT-OFF, DIRECT SPARK ELECTRONIC IGNITION CONTROL.
- PROVIDE COMBINATION RELAY TRANSFORMER, DUAL POLE 13.8 RESISTIVE AMPS EACH POLE. DETROIT RADIANT PRODUCTS COMPANY PART NO. R82858
- PROVIDE LuxPro TWO-STAGE PROGRAMMABLE THERMOSTAT. DETROIT RADIANT PRODUCTS COMPANY PART NO. TH-P721
- INFRARED HEATER SHALL HAVE STAINLESS STEEL PARABOLIC REFLECTOR AND END CAPS.
- HVAC CONTRACTOR SHALL PROVIDE AND INSTALL LIQUID PROPANE (LP) REGULATOR (2 PSI INLET) TO PROVIDE INFRARED HEATER MANUFACTURER'S RECOMMENDED LP PRESSURE TO INFRARED HEATER.
- ANGLE REFLECTOR AS INDICATED AT EACH HEATER AND IN THE DIRECTION OF THE ARROWS

ELECTRIC WALL HEATER SCHEDULE

SYMBOL	LOCATION	BASIS OF DESIGN	TYPE	BTU OUTPUT	C.F.M.	TOTAL WATTS	VOLTAGE	AMPS	MOUNTING HEIGHT	DEPTH X WIDTH X HEIGHT	REMARKS
FWH-1,2,3	RESTROOM/JC	QMARX CWH1151DS	SM	2560	65	750	120V-1ϕ	6.25	18"	4" x 9" x 11"	1

REMARKS

- UNIT SHALL BE PROVIDED WITH SELF CONTAINED THERMOSTAT, BUILT-IN POWER DISCONNECT, FAN DELAYS SURFACE MOUNT COMMERCIAL GRADE STEEL GRILLE.

SPLIT SYSTEM AIR HANDLER SCHEDULE

SYMBOL	SERVES	TOTAL CFM	ELECTRICAL DATA		LIQUID PROPANE GAS FURNACE DATA		
			FAN VOLTAGE	MCA	INPUT	OUTPUT	AFUE
AHU-1	ROOMS	1,700	120/1	120/42	116/40	98.0	45-75/25-55

SPLIT SYSTEM CONDENSING UNIT SCHEDULE

SYMBOL	COOLING CAPACITY - 80/67°		COOLING DATA		ELECTRICAL DATA		REMARKS
	TOTAL MBH	SENSIBLE MBH	NOM. TONS	EER	COND. EAT	CU. VOLTAGE	
CU-1	58.0	41.0	5.0	12.5	95	208/1/60	①②

REMARKS

- BASIS OF DESIGN: YORK MODEL #Y9C120020MP12C FURNACE / #YCG60821S CU / CF/CM640 COIL OR APPROVED EQUAL. MOUNT AIR HANDLER ON A MAINTENANCE PAD ON THE FLOOR AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE MAINTENANCE PAD, SUPPORTS AND VIBRATION ISOLATION AS REQUIRED.
- FURNISH AND INSTALL UNIT WITH THE FOLLOWING ACCESSORIES:
 - CONDENSATE DRAIN WITH 2" DEEP TRAP.
 - WEATHERPROOF DISCONNECT SWITCH FOR C.U.
 - DISCONNECT FOR AIR HANDLER.
 - PROVIDE WITH LOW AMBIENT KIT.
 - UV LIGHT.
 - SYSTEM PROVIDED WITHOUT CONTROLS. BACnet CONTROLS SHALL BE PROVIDED BY THE ALC.

OVERHEAD FAN SCHEDULE

TAG	BASIS OF DESIGN		DIAMETER (FT)	# OF AIRFOLDS	WEIGHT (LBS)	SOUND LEVEL (DBA)	MOTOR (HP)	RPM	CONTROL	VOLT/PH	FULL LOAD CURRENT	CIRCUIT SIZE (AMPS)	REMARKS
	MFG.	MODEL											
CF-1,2,3	BIG ASS FANS	BASIC 6	14	6	192	<55	1.5	191	ONBOARD VFD	200-240V/3	9.0	15	1,2,3,4

REMARKS

- VERIFY EXTENSION TUBE LENGTH AND MOUNTING BRACKET WITH MANUFACTURER PRIOR TO ORDERING
- FAN TO BE TIED INTO FIRE SUPPRESSION SYSTEM
- PROVIDED WITH BACnet CONTROLLER WITH BACnet INTERFACE
- FACTORY WARRANTY EQUAL TO 7 YEARS MECHANICAL, 3 YEARS ELECTRICAL, 1 YEAR LABOR. SEE THE COMPLETE WARRANTY FOR MORE DETAILS.

DUCTLESS A/C FAN COIL UNIT SCHEDULE (ARI CAPACITIES)

SYMBOL	BASIS OF DESIGN		SUPPLY FAN		COOLING CAPACITY DATA		HEATING CAPACITY DATA		ELECTRICAL CHARACTERISTICS		REMARKS	
	MFG.	MODEL NO.	TOTAL C.F.M.	E.A.T.	TOTAL M.B.H.	D.B.	W.B.	E.A.T.	POWER SUPPLY	VOLTAGE		
FC-1	YORK	DHP18NBW21S	471	20.0	80	67	23.4	70	70	3.15	208/60/1	1,2

REMARKS

- PROVIDE LITTLE GIANT YCMA-15 SERIES CONDENSATE PUMP
- PROVIDE SELF CONTAINED CONTROLS

LIQUID PROPANE GAS FIRED UNIT HEATER SCHEDULE

SYMBOL	BASIS OF DESIGN		TYPE	C.F.M.	F.P.M.	DISCHARGE AREA SF	R.P.M.	ELECTRICAL DATA		HEATING DATA - NATURAL GAS		REMARKS					
	MFG.	MODEL NO.						H.P.	F.L.A.	M.O.P.	VOLTAGE		COMBUSTION AIR INLET DIA.	EXH DIA.	INPUT (M.B.H.)	OUTPUT (M.B.H.)	TEMP RISE
IUH-1,2	REZNR	UDZ-100	IDF	1345	668	2.01	1050	1/30	4.3	15	120V-1ϕ	4	4	105	87.12	60	①

REMARKS

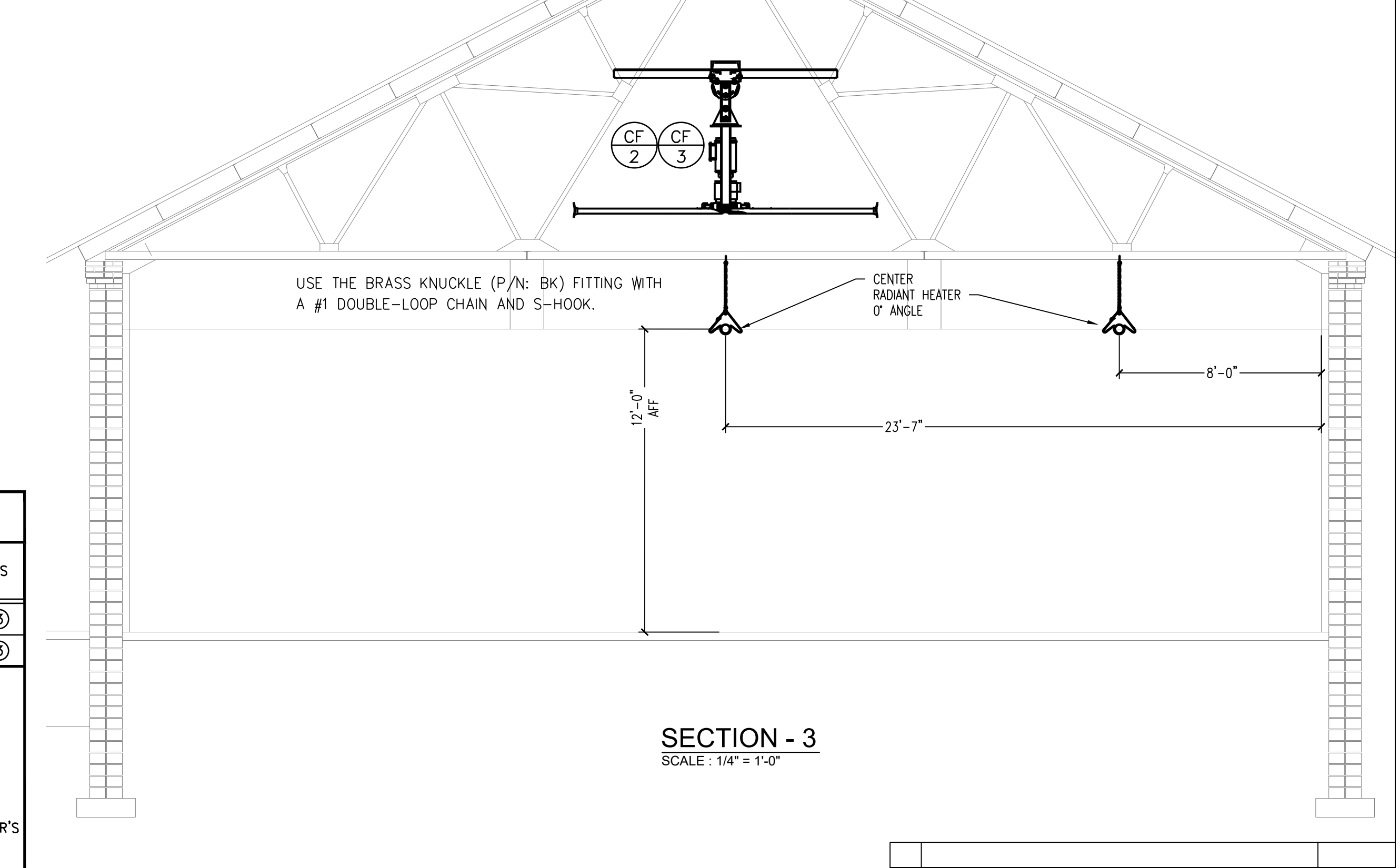
- PROVIDE WITH CONCENTRIC SEPARATED VENTING/COMBUSTION UNIT AS INDICATED.

EXHAUST FAN SCHEDULE

SYMBOL	SERVING	BASIS OF DESIGN		TYPE	C.F.M.	E.S.P.	FAN MOTOR		ELECTRICAL DATA		REMARKS
		MFG.	MODEL NO.				M.O.P.	VOLTAGE			
EF-1,2	TOILET ROOM	GREENHECK	SP-A90	C	100	0.10	15	115V-1ϕ		1	2

REMARKS

- PROVIDE WITH INTERNAL BACKDRAFT DAMPER, DISCONNECT SWITCH, HANGING ISOLATORS AND SQUARE TO ROUND DUCT TRANSITION.
- PROVIDE WITH GREENHECK MODEL 5WSSC SPEED CONTROL (OR APPROVED EQUAL) FOR BALANCING TO SCHEDULED CFM.



REVISIONS

NO.	DESCRIPTION	DATE
1	ADDED GAS FIRED HEATING EQUIPMENT, GAS PIPING, AND PROPANE TANKS WITH CONCRETE PAD	5/3/2023

Professional's Signature _____ Date _____

COMMONWEALTH OF PENNSYLVANIA
DEPT. OF MILITARY & VETERAN'S AFFAIRS
ANNVILLE, PENNSYLVANIA

DESIGN PROFESSIONALS:
OFFICE OF FACILITIES AND ENGINEERING
BUREAU OF DESIGN AND PROJECT MANAGEMENT
BLDG. 0-10, FORT INDIANTOWN GAP
ANNVILLE, LEBANON COUNTY, PENNSYLVANIA

PROJECT NO.: 42190066

RENOVATIONS TO FT. MIFFLIN BLDG. 57
PHILADELPHIA
PHILADELPHIA COUNTY, PENNSYLVANIA

HVAC DETAILS

DRAWN BY: B. TOEVS
DATE: 18 MAR 2022
SCALE: AS NOTED

DRAWING NO.: H.2.1

DIFFUSER KEY

QUANTITY	SYMBOL	NECK SIZE	CFM	TYPE
(2)	LCD	12" DIA.	50-A	OR 12"x12"

LEGEND

CD	= CEILING DIFFUSER	A	= TUTTLE & BAILEY MODEL AGITAIR RC
ER	= EXHAUST REGISTER	B	= TUTTLE & BAILEY MODEL CRE500 W/TUTTLE & BAILEY MODEL A45 MOUNTING FRAME
LCD	= LAY-IN CEILING DIFFUSER	C	= TUTTLE & BAILEY MODEL A110 W/TUTTLE & BAILEY MODEL SDB
LRR	= LAY-IN RETURN REGISTER		

