

Apr 09, 2024 - 12:32pm - rcl
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MECHANICAL ABBREVIATIONS

AB	ABOVE	LF	LINEAR FEET
AFF	ABOVE FINISHED FLOOR	LB, #	POUNDS
AFG	ABOVE FINISHED GRADE	LDB	LEAVING DRY BULB TEMP.
AHU	AUTHORITY HAVING JURISDICTION	LWB	LEAVING WET BULB TEMP.
ARCH	ARCHITECTURAL	LWT	LEAVING WATER TEMP.
BDD	BACK DRAFT DAMPER	MAX	MAXIMUM
BEL	BELOW	MBH	THOUSAND BTU PER HOUR
BF	BELOW FLOOR	MC	MECHANICAL CONTRACTOR
BJ	BETWEEN JOISTS	MCA	MINIMUM CIRCUIT AMPACITY
BOD	BOTTOM OF DUCT	MOD	MOTOR OPERATED DAMPER
BTM	BOTTOM	MFR	MANUFACTURER
BTU	BRITISH THERMAL UNIT	MIN	MINIMUM
CD	CEILING DIFFUSER	MTD, MTG	MOUNTED, MOUNTING
CFM	CUBIC FEET PER MINUTE	NC	NOISE CRITERIA
CLG	CEILING	NIC	NOT IN CONTRACT
CO	CLEANOUT	OA	OUTSIDE AIR
CONN	CONNECT/CONNECTION	OAC	OPEN ABOVE CEILING
CONT	CONTINUED/CONTINUATION	OAI	OUTSIDE AIR INTAKE
COORD	COORDINATE	OC	ON CENTER
CW	DOMESTIC COLD WATER	ORD	OVERFLOW ROOF DRAIN
DB	DRY BULB	PC	PLUMBING CONTRACTOR
DEG, °	DEGREE	PH	PHASE
DIA, ∅	DIAMETER	PRV	PRESSURE REDUCING VALVE/
DISC	DISCONNECT		PRESSURE RELIEF VENT
DN	DOWN	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	RA	RETURN AIR
EA	EXHAUST AIR	RD	ROOF DRAIN
EAT	ENTERING AIR TEMP.	RG	RETURN GRILLE
EC	ELECTRICAL CONTRACTOR	RPM	REVOLUTIONS PER MINUTE
EDB	ENTERING DRY BULB TEMP.	RWC	RAINWATER CONDUCTOR
EF	EXHAUST FAN	S	STORMWATER
ER	EXHAUST REGISTER	S&C	STUB AND CAP
ESP	EXTERNAL STATIC PRESSURE	SA	SUPPLY AIR
EWB	ENTERING WET BULB TEMP.	SAN	SANITARY
EWT	ENTERING WATER TEMP.	SF	SQUARE FEET
EX, (E)	EXISTING	SPEC	SPECIFICATIONS
FD	FIRE DAMPER/FLOOR DRAIN	SR	SUPPLY REGISTER
FLA	FULL LOAD AMPERES	TD	TRANSFER DUCT
FLEX	FLEXIBLE	TEMP	TEMPERATURE
FPM	FEET PER MINUTE	TG	TRANSFER GRILLE
FT	FOOT/FEET/FIN TUBE	THRU	THROUGH
FT HD	FEET OF HEAD	TJ	THROUGH JOISTS
GA	GAUGE/GAGE	TSP	TOTAL STATIC PRESSURE
GAL	GALLON	TSTAT	THERMOSTAT
GC	GENERAL CONTRACTOR	TYP	TYPICAL
GPH	GALLONS PER HOUR	UNO	UNLESS NOTED OTHERWISE
GPM	GALLONS PER MINUTE	VAV	VARIABLE AIR VOLUME
HCH	HVAC CONTRACTOR	VD	VOLUME DAMPER (MANUAL)
HD	HUB DRAIN	VFD	VARIABLE FREQUENCY DRIVE
HORZ	HORIZONTAL	VTR	VENT THROUGH ROOF
HP	HORSE POWER	W	WATTS/WASTE
HSTAT	HUMIDISTAT	W/	WITH
ID	INSIDE DIAMETER	W/O	WITHOUT
IN, "	INCH	WB	WET BULB
INS	INSULATION	WL	WEATHER LOUVER
INV	INVERT	WPD	WATER PRESSURE DROP
ISP	INTERNAL STATIC PRESSURE	WTD	WATER TEMP. DROP
IWG	INCHES WATER GAUGE	WTR	WATER TEMP. RISE
LAT	LEAVING AIR TEMP.	XFMR	TRANSFORMER

HVAC SYMBOL LEGEND

	EXHAUST OR RELIEF AIR DUCT RISER
	SUPPLY AIR DUCT RISER
	RETURN AIR DUCT RISER
	ROOFTOP EXHAUSTER
	EXHAUST GRILLE OR REGISTER
	RETURN GRILLE OR REGISTER
	4-WAY CEILING DIFFUSER OR REGISTER
	DUCT (1ST FIGURE, SIDE SHOWN; 2ND FIGURE, SIDE NOT SHOWN)
	INCLINED RISE(R) OR DROP(D) ARROW IN DIRECTION OF AIR FLOW
	STANDARD BRANCH FOR SUPPLY & RETURN (NO SPLITTER)
	MITERED ELBOW W/TURNING VANES
	FLEXIBLE CONNECTION
	HORIZONTAL FIRE DAMPER
	VERTICAL FIRE DAMPER
	MANUAL VOLUME DAMPER
	THERMOSTAT/ TEMP SENSOR
	HUMIDISTAT/ SENSOR
	MOTOR OPERATED DAMPER
	CONTROL SWITCH
	DUCT SMOKE DETECTOR
	DOOR LOUVER, SEE ARCH. DWGS.
	DOOR UNDERCUT, SEE ARCH. DWGS.

GRILLE, REGISTER
& DIFFUSER KEY

CD	0x0	000
(1)	(2)	(3)

- NOTES
- (1) ABBREVIATION FOR GRILLE, REGISTER OR DIFFUSER.
- (2) NECK SIZE, SEE GRILLE, REGISTER, OR DIFFUSER SCHEDULE WHERE OMITTED.
- (3) BALANCE AIRFLOW, SEE PLANS FOR AIRFLOW DIRECTION(S)

GRILLES & REGISTERS

CFM	SIZE	APD	NC
0-100	8x6	0.10	30
101-150	8x8	0.10	30
151-250	10x10	0.08	30
251-400	12x12	0.08	25
401-600	18x12	0.08	25
601-900	18x18	0.08	25
901-2000	24x24	0.10	30

CEILING DIFFUSER SCHEDULE

CFM	NECK	FLEX SIZE	MAX NC	THROW (FT) MAX. (50 FPM) - MIN. (100 FPM)			
				4-WAY	3-WAY	2-WAY	1-WAY
0-100	6x6	6	30	6-3	6/7 - 3/4	9-4	12-6
101-250	9x9	8	25	9-5	9/12 - 5/7	14-7	18-9
251-400	12x12	10	25	12-6	12/15 - 6/7	15-8	18-9
401-600	15x15	12	25	13-6	13/18 - 6/8	18-8	19-9
601-900	18x18	14	25	13-6	13/18 - 6/8	18-8	19-9

ELECTRIC UNIT HEATER SCHEDULE

TAG	TYPE	BERKO MODEL	WATTS	VOLTS/ PHASE	AMPS	DISC. SWITCH	MOUNTING	ACCESSORIES / REMARKS
EH-1	FAN-FORCED WALL HEATER	FRC4027F	4000	277/1	14.4	MFR	RECESS WALL MOUNT	INTEGRAL THERMOSTAT
EH-2 THRU 4	FAN-FORCED WALL HEATER	FRC4827F	4800	277/1	17.3	MFR	SURFACE WALL MOUNT	INTEGRAL THERMOSTAT
UH-1	WASHDOWN HORIZONTAL UNIT HEATER	BWD05712	5000	277/1	18.1	MFR	CEILING/ WALL BRACKET	INTEGRAL THERMOSTAT, DISCONNECT

FAN SCHEDULE

TAG	TYPE	GREENHECK MODEL	CFM	SP (IN WC)	RPM	HP (WATTS)	VOLTS/ PHASE	DRIVE	DISC. SWITCH	ROOF OPENING	DAMPER SIZE	FAN SIZE LxWxH	ACCESSORIES
EF-1	ROOF	G-090-VG	550	0.50	1662	1/10	115/1	D	MFR	12.5x12.5	10x10	22∅x27	CURB, BDD
EF-2	ROOF	G-095-VG	750	0.50	1679	1/6	115/1	D	MFR	12.5x12.5	10x10	22∅x27	CURB, BDD

MITSUBISHI SINGLE SPLIT SYSTEM AIR HANDLER / HEAT PUMPS, STANDARD HEAT

TAG	DESCRIPTION	MITSUBISHI MODEL	OA (CFM)	TOTAL (CFM)	FAN	COOLING (95°F AMBIENT)						HEATING @ 0°F AMBIENT (HEAT PUMP)			SIZE (LxWxH)	WEIGHT (LBS)	ELECTRICAL				REMARKS / OPTIONS	
					ESP IN WC	NOM TONS	TMBH	SMBH	EDB	EWB	LDB	ARI SEER	COMP MBH	LAT			HSPF	MCA	MOCP	VOLTS PHASE		DISC. SWITCH
AH-1 HP-1	AIR HANDLER HEAT PUMP	TPKA0A0241A70A TRUZH0241HA70NA	0	775	-	2.0	23.7	18.4	80.0	67.0	56.8	21.40	14.4	87.9	11.00	46x11.5x14.5 37x13x37	46 153	19	26	208/1	EC	7-DAY PROGRAMMABLE THERMOSTAT, DRAIN PAN HEATER, LOW AMBIENT COOLING

PACKAGED ROOFTOP HEAT PUMP SCHEDULE

TAG	LOCATION	DESCRIPTION	BASIS OF DESIGN CAPTIVEAIRE MODEL	OA CFM	SUPPLY/ EXHAUST FAN				GROSS DX COOLING (90°FDB/73°FWB AMBIENT)								HEAT PUMP (17°F / 47°F)				ELEC HEAT (0°F AMB)				ERV - SUMMER - SA/EA				ERV - WINTER - SA/EA		LxWxH WEIGHT	FEATURES (SEE NOTES BELOW)	ELECTRICAL (480V-3PH)					
					CFM	ESP	BHP	MHP	TMBH	SMBH	EDB	EWB	GR/LB	ENTH	LDB	LWB	IEER	EER	MBH	EAT	LAT	COP	MBH	EAT	LAT	AUX KW	EDB	EWB	LDB	LWB			EDB	LDB	FLA	MCA	MOCP	DISC
RTU-1	WEIGHT ROOM	PACKAGED ROOFTOP UNIT	CASRTU2-E.354-18- 8T	750	2550	1.00	1.38	2.0	104.6	75.8	79.4	65.8	73.7	30.6	52.4	52.1	20.2	12.0	38.8 67.2	53.9 62.6	68.0 87.0	2.3 3.7	118.4	49.4	92.4	35.0							81x82x61 2020	1,2,3,4,5,6,7,8,9,10,12 .13,14,15,16,17	59.8	67.3	70	MFR
RTU-2	LOCKERS	PACKAGED ROOFTOP DOAS	CASRTU1-E.304-18- 5T-ERV	1400	1400 1400	1.50 1.50	1.17	2.0 3.4	48.6	38.5	78.9	65.4	72.3	30.3	53.9	53.9	17.9	12.0	37.8	61.1	87.1	3.5	62.0	49.2	90.2	19.0	75.0	65.0	78.9	65.4	69.0	49.2	113x63x48 1750	1,2,3,4,5,6,7,8,9,11,12 .13,16,17,18,19,20	31.0	32.7	35	MFR
RTU-3	WOMEN	PACKAGED ROOFTOP DOAS	CASRTU1-E.304-16- 5T-ERV	1800	1800 1800	0.80 0.80	0.91	3.4 3.4	55.1	46.5	79.6	65.9	73.7	30.6	56.1	56.0	17.9	12.0	48.6	59.6	84.6	3.5	93.3	45.6	93.6	28.0	75.0	65.0	79.6	65.9	69.0	45.6	113x63x48 1700	1,2,3,4,5,6,7,8,9,11,12 .13,16,17,18,19,20,21	44.8	46.7	50	MFR
RTU-4	MEN	PACKAGED ROOFTOP DOAS	CASRTU1-E.304-11- 5T-ERV	700	700 700	0.50 0.50	0.27	1.0 3.4	21.5	17.9	77.4	64.3	69.4	29.4	54.1	54.0	17.9	12.0	20.4	64.0	91.0	3.5	29.5	56.4	95.4	9.0	75.0	65.0	77.4	64.3	69.0	56.4	113x63x48 1700	1,2,3,4,5,6,7,8,9,11,12 .13,16,17,18,19,20,21	18.8	20.2	25	MFR

FEATURES: (1) INVERTER SCROLL COMPRESSOR, (2) DIRECT DRIVE PLENUM SUPPLY FAN, (3) BMS INTERFACE, (4) REFRIGERANT PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE THROUGH DIGITAL INTERFACE, (5) EC MOTOR CONDENSING FAN, (6) ELECTRONIC EXPANSION VALVE, (7) SUCTION LINE ACCUMULATOR, (8) FACTORY COMMISSIONING W/ SYR PARTS WARRANTY, (9) AVERAGING INTAKE, EVAP & DISCHARGE TEMP SENSORS, (10) 2" R-13 FOAMED DOUBLE WALL CABINET, (11) TOTAL ENERGY RECOVERY WHEEL W/ SPEED CONTROL FOR DEFROST, (12) SUPPLY CFM MONITORING THROUGH DIGITAL INTERFACE, (13) FULL MODULATING HOT GAS REHEAT, (14) 0°F LOW AMBIENT HEATING, (15) ECONOMIZER, (16) BAROMETRIC RELIEF DAMPER, (17) DOWN DICHARGE & RETURN, (18) EXHAUST CFM MONITORING THROUGH DIGITAL INTERFACE, (19) SUPPLY AND EXHAUST FILTERS IN ERV MODULE, (20) 1" R-4.3 DOUBLE WALL CABINET, (21) DIRECT DRIVE ECM PLENUM BLOWER, (22) ROOF CURB, (23) DISCONNECT

MECHANICAL GENERAL NOTES

- ALL WORK SHOWN IS TO BE CONSIDERED NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY INDICATED AS EXISTING.
- CONNECT ALL DUCTS TO MECHANICAL EQUIPMENT BY FLEXIBLE DUCT CONNECTORS WITH NOT LESS THAN 3" SPACING BETWEEN DUCT AND EQUIPMENT.
- CONSTRUCT AND INSTALL ALL DUCTWORK IN ACCORDANCE WITH SMACNA.
- ALL DUCT DIMENSIONS ARE INSIDE DIMENSIONS.
- PROVIDE FUSIBLE LINK FIRE DAMPERS AT ALL DUCT PENETRATIONS OR GRILLE OPENINGS IN FIRE RATED WALLS OR FLOORS. PROVIDE DUCT ACCESS PANELS FOR ALL FIRE DAMPERS.
- INSTALL DUCT MOUNTED SMOKE DETECTOR(S) IN THE RETURN AIR STREAM OF AIR SYSTEMS OVER 2000 CFM, PER MANUFACTURER'S RECOMMENDATIONS, DOWNSTREAM OF ALL BRANCH CONNECTIONS, UPSTREAM OF ANY OUTSIDE AIR CONNECTIONS OR FILTERS, AND PROVIDE WIRING FOR FAN SHUTDOWN. FURNISH AND INSTALL DUCT SMOKE DETECTORS WIRED TO A REMOTE TEST STATION MANUFACTURED BY SIMPLEX, MODEL 4098-9842.
- INSTALL DUCTWORK, EQUIPMENT, AND PIPING CONCEALED IN CHASES OR ABOVE CEILINGS WHERE CEILINGS ARE INDICATED, UNLESS NOTED OTHERWISE, WHERE DUCTWORK OR PIPING IS INDICATED TO BE EXPOSED, INSTALL AS HIGH AS POSSIBLE. ELEVATIONS SHOWN ARE TO THE LOWEST POINT, UNLESS NOTED OTHERWISE.
- WALL MOUNTED THERMOSTATS/TEMPERATURE SENSORS SHALL BE INSTALLED 44" ABOVE THE FLOOR AND HANDICAPPED ACCESSIBLE.
- INSTALL ROOFTOP EQUIPMENT NOT LESS THAN 10FT FROM THE ROOF EDGE OR ANY CHANGE IN ROOF HEIGHT GREATER THAN 2FT.
- SEAL OR CAP OPENINGS IN PIPES OR DUCTS UNTIL FINAL CONNECTIONS ARE MADE.
- PROVIDE SUFFICIENT CLEARANCE FOR OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE SERVICE CLEARANCE FOR ELECTRICAL EQUIPMENT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE (NEC).
- COORDINATE LOCATIONS OF ALL PIPING, DUCTWORK, EQUIPMENT AND DEVICES BEFORE INSTALLATION, WITH THE WORK OF OTHER TRADES. WHERE A CONFLICT IN CLEARANCES OCCURS, OBTAIN CLARIFICATION FROM THE ENGINEER, ARCHITECT, OR OWNER. INSTALL ALL NECESSARY PIPING, DUCTWORK AND FITTINGS, ETC. THAT ARE REQUIRED FOR A COMPLETE SYSTEM WITHOUT ADDITIONAL COST TO THE CONTRACT.
- PROVIDE CONDENSATE DRAINS WITH P-TRAPS FOR FAN COILS AND ROOFTOP UNITS WITH DISCHARGE CONDENSATE TO ROOF OR GRADE.
- PROVIDE ACCESS PANELS FOR ALL CONCEALED DAMPERS, VALVES, CONTROLS, AND EQUIPMENT OF SUFFICIENT SIZE FOR SERVICE AND ADJUSTMENT.

NEW FIELDHOUSE FOR THE
MIDD - WEST SCHOOL DISTRICT
MIDDLEBURG, PA

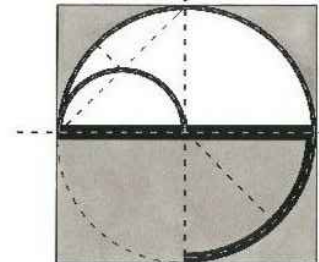
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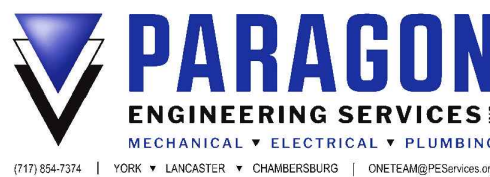
LEGENDS, SCHEDULES & DETAILS
H-1

PROJECT NO.: 1757-24-001
SCALE: AS NOTED
DATE: 04/09/24

DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: XXX



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