PACKAGED DUCTLESS MINI SPLIT SYSTEM HEAT PUMP SCHEDULE

SYMBOL	MFG.	MODEL NO.	CFM	COOLING CAPACITY		ELECTRICAL CHARACTERISTICS							REMARKS
				TOTAL MBH	S.E.E.R.	COMPRESSOR R.L.A.	COMPRESSOR L.R.A.	O.D. FAN H.P.	O.D. FAN F.L.A.	POWER SUPPLY MCA	POWER SUPPLY MFA	VOLTAGE	
CC–1	* MITSUBISHI	NTXCKS12A112A	335	12.0	–	–	–	––	–	0.3	–	230–1ø	①②④⑤
CC–2	* MITSUBISHI	NTXCKS12A112A	335	12.0	–	–	–	––	–	0.3	–	230–1ø	①②④⑤
HP–1	* MITSUBISHI	NTXMPH24A132CA	–	23.6	17.25	–	–	––	–	31.5	40	230V–1ø	①③

REMARKS

* OR APPROVED EQUAL

① UNIT SHALL BE PROVIDED WITH THE FOLLOWING ACCESSORIES: TIME DELAY RELAY, LOW AMBIENT CONTROLLER, WINTER START CONTROL EVAPORATOR DEFROST CONTROL KIT, HIGH LOW PRESSURE CUT–OUT SWITCH AND WALL BRACKET.

② REFRIGERANT LINE SETS SHALL BE SIZED PER MANUFACTURERS RECOMMENDATIONS AND SHALL BE INSULATED WITH 1" AP ARMAFLEX .

③ WIRED AND INTERLOCKED WITH INDOOR UNITS CC–X.

④ WALL MOUNTED THERMOSTAT WITH REMOTE CONTROL.

⑤ INDOOR UNIT POWERED BY OUTDOOR UNIT. WIRED BY E.C.

EXHAUST FAN SCHEDULE

SYMBOL	SERVING	TYPE *	C.F.M.	E.S.P.	R.P.M.	WATTS OR HP	VOLTAGE	REFERENCE MFG.	REFERENCE MODEL NO.	WEIGHT LBS.	REMARKS
CEF–1	RESTROOM/JAN. CL.	C	125	.25	975	115	115/60/1	GREENHECK	SP–B125	12	NOTE 1, 3, 4
CEF–2	RESTROOM/BREAK RM.	C	150	.25	1050	150W	115/60/1	GREENHECK	SP–B150	12	NOTE 1, 3, 4
CEF–3	TOOL STORAGE	C	450	.25	1050	108W	115/60/1	GREENHECK	SP–A290	25	NOTE 2, 3, 4
ILF–1	MECHANICS SHOP	IL	740 *2630	.50	VAR.	1 HP	115/60/1	GREENHECK	SQ–160–VG	167	NOTE 5, 6, 8
ILF–2	WASH BAY	IL	875 *1450	.50	VAR.	2 HP	230/60/1	GREENHECK	SQ–160–VG	176	NOTE 5, 6, 8
ILF–3A	GARAGE BAY #1 OCCUPIED FAN/EM.VENT	IL	1600	.50	1103	1/2 HP	230/60/1	GREENHECK	BSQ–140	127	NOTE 5
ILF–3B	GARAGE BAY #1 EM.VENT/HEAT REMOV.	IL	5850	.50	724	2 HP	230/60/1	GREENHECK	BSQ–240	256	NOTE 5, 6, 7, 8
ILF–4A	GARAGE BAY #2 OCCUPIED FAN/EM.VENT	IL	2120	.50	958	3/4 HP	230/60/1	GREENHECK	BSQ–160	151	NOTE 5
ILF–4B	GARAGE BAY #2 EM.VENT/HEAT REMOV.	IL	7760	.50	543	2 HP	230/60/1	GREENHECK	BSQ–300	453	NOTE 5, 6, 7, 8

* C = CEILING MOUNTED RT = ROOF TOP WM = WALL MOUNTED IL = IN–LINE

NOTES:
1. CONTROLLED BY LIGHTING CONTROL FOR TOILET ROOMS/SHOWER RM. REFER TO ELECTRICAL DRAWING FOR INFORMATION.
2. CONTROLLED BY REVERSE ACTING THERMOSTAT IN UTILITY ROOM.
3. CONTROLLED BY DEDICATED SWITCH IN BREAK ROOM, JANITORS CLOSET AND TOOL STORAGE ROOM.
4. PROVIDE WITH BACKDRAFT DAMPER, INSECT SCREEN AND WALL CAP OR BRICK VENT AS SPECIFIED BY ARCHITECT. MANUFACTURED BY GREENHECK.
5. CONTROLLED BY OCCUPANCY SENSOR, CO SENSOR, NOX SENSOR, REVERSE ACTING THERMOSTAT & DEDICATED SWITCH. PROVIDE WITH LOUVER, BACKDRAFT DAMPER, INSECT SCREEN AND WALL CAP OR BRICK VENT AS SPECIFIED BY ARCHITECT. MANUFACTURED BY GREENHECK.
6. TWO STAGE OPERATION FIRST STAGE OCCUPIED VENTILATION, SECOND STAGE EMERGENCY & HEAT REMOVAL VENTILATION. FAN CONTROLS REQUIRE 0–10V INPUT FOR STAGING.
7. PROVIDE WITH VFD FOR 230V–1ø POWER SUPPLY TO CONVERT TO 230V–3ø FOR FAN POWER.
8. FAN CONTROL BY 0–10V CONTROL INPUT FOR FIRST STAGE – OCCUPIED VOLUME AND EMERGENCY/HEAT REMOVAL – SECOND STAGE CONTROL, ONCE STAGES ARE SET, BALANCE.

* OR APPROVED EQUAL

HORIZONTAL UNIT HEATER SCHEDULE

SYMBOL	TYPE *	MFG.	MODEL NO.	C.F.M.	GAS CAPACITIES (MBH) INPUT	GAS CAPACITIES (MBH) OUTPUT	ELECTRICAL DATA. FAN MOTOR H.P.	ELECTRICAL DATA. FAN MOTOR AMPS	ELECTRICAL DATA. VOLTAGE	REMARKS
HUH–1	H	* MODINE	HDS–45	720	45	36.9	1/15	3.75	120V–1ø	MOUNT TOP OF UNIT 18" MIN. FROM CEILING. CONCENTRIC VENT ARRANGEMENT THROUGH THE WALL.
HUH–2	H	* MODINE	HDS–60	1650	60	49.2	1/12	3.3	120V–1ø	MOUNT TOP OF UNIT 18" MIN. FROM CEILING. CONCENTRIC VENT ARRANGEMENT THROUGH THE WALL.
HUH–3	H	* MODINE	HDS–100	1650	100	82.0	1/6	5.05	120V–1ø	MOUNT TOP OF UNIT 18" MIN. FROM CEILING. CONCENTRIC VENT ARRANGEMENT THROUGH THE WALL.

* H= HORIZONTAL C= CABINET

NOTE : PROVIDE WITH WALL MONUNTED THERMOSTAT, MOUNTED AT 42" ABOVE FINISHED FLOOR. PROVIDE WITH 2 STAGE GAS VALVE.

* OR APPROVED EQUAL

EXHAUST GRILL SCHEDULE

SYMBOL	DESCRIPTION	C.F.M. RANGE	NECK SIZE	MANUFACTURER	MODEL	MATERIAL	FINNISH	REMARKS
EG–1	EXHAUST GRILLE	1570 / 2400	22X22	TUTTLE & BAILEY	CRE500	ALUMINUM	WHITE	① ②
EG–1	EXHAUST GRILLE	2400 / 3500	24X24	TUTTLE & BAILEY	CRE500	ALUMINUM	WHITE	① ②

NOTES:
① PROVIDE WITH FRAME TO SECURE TO DUCTWORK.
② PROVIE ALL ALUMINUM CONSTRUCTION.
③ PROVIDE WITH INTEGRAL OPPOSED BLADE BALANCING DAMPER.

DRAWING KEY
CD– = DIFFUSER, GRILLE & REGISTER TYPE
250 = AIR QUANITY IN CFM

* OR APPROVED EQUAL

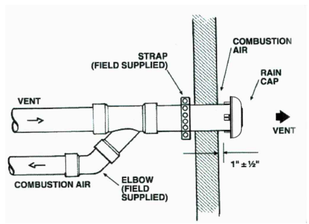
ELECTRIC HEAT SCHEDULE

NOTE: ALL ELECTRIC HEATERS SHALL HAVE POSITIVE SHUT–OFF AND OFF POSITION.

SYMBOL	SERVING	TYPE *	KW	VOLTAGE	REFERENCE MFG.	REFERENCE MODEL NO.	REMARKS
WIH–1	RESTROOM	W	1.5	115/60/1	* QMARK	CWH3150F	INTEGRAL THERMOSTAT POSITIVE SHUT–OFF
WIH–2	RESTROOM	W	2.0	230/60/1	* QMARK	CWH3404F	INTEGRAL THERMOSTAT POSITIVE SHUT–OFF

* C = CEILING MOUNTED R = ROOF TOP W = WALL MOUNTED F = FLOOR MOUNTED

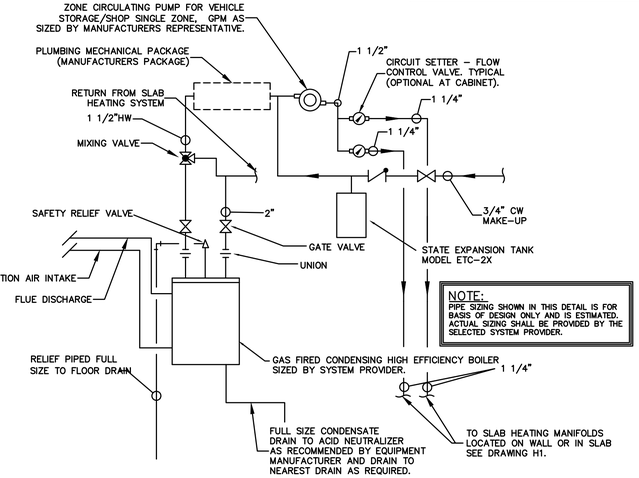
* OR APPROVED EQUAL



THRU WALL

TYPICAL THRU THE WALL CONCENTRIC VENT/FLUE KIT DETAILS

SCALE: NONE



NOTE:
1. FURNISH AND INSTALL VIESSMANN/RENNAI TUBE CONDENSING TYPE HIGH EFFICIENCY GAS BOILER WITH ALL APERTENANCES AS REQUIRED BY APPLICABLE CODES AND MANUFACTURE'S RECOMMENDED INSTALLATION REQUIREMENTS.
2. PROVIDE PLUMBING MECHANICAL PACKAGE AS REQUIRED BY RADIANT SYSTEM MANUFACTURER.
3. PROVIDE BALANCING VALVES ON ALL LOOPS.
4. VERIFY ALL PIPING SIZING AND MANIFOLD SUPPLY PIPING SIZE WITH SYSTEM MANUFACTURER PRIOR TO BIDDING.
5. ARCHITECT SHALL PROVIDE INSULATED SLAB AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL DRAWINGS.
6. LOOP MANIFOLDS SHALL BE INSTALLED ON THE WALL OR IN THE FLOOR AS RECOMMENDED BY SYSTEM MANUFACTURER AND OWNERS DIRECTION. SEE APPROXIMATE LOCATIONS ON DRAWING H1. VERIFY INSTALLATION LOCATION WITH OWNER AND MANUFACTURERS REPRESENTATIVE PRIOR TO INSTALLATION AND CONSTRUCTION.
7. THIS DETAIL IS A SCHEMATIC OF A TYPICAL INSTALLATION AND MAY NOT INCLUDE ALL ITEMS REQUIRED FOR A COMPLETE INSTALLATION FOR EACH APPLICATION. THE CONTRACTOR SHALL VERIFY ALL REQUIREMENTS WITH THE MANUFACTURERS REPRESENTATIVE FOR A COMPLETE AND FUNCTIONAL SYSTEM TO MEET THE DESIGN INTENT FOR THIS PROJECT.
8. THE CONTRACTOR SHALL PROVIDE SHUT–OFF VALVES AT LOCATIONS REQUIRED FOR MAINTENANCE OF ALL ITEMS.
9. CONTRACTOR SHALL PROVIDE ALL CONTROLS, SENSORS, LOW VOLTAGE WIRING, VALVES, ETC. TO PROVIDE THE HYDRONIC HEATING COIL WITH REQUIRED TEMPERATURE FLUID AND RADIANT SLAB SYSTEM MIXED DOWN TO TEMPERATURE AS RECOMMENDED BY THE SYSTEM MANUFACTURER FOR SLAB HEATING AND SNOW MELTING SYSTEMS AS REQUIRED.

TYPICAL SLAB HEATING SYSTEM SCHEMATIC DETAIL

NO SCALE

GAS FIRED INFRARED RADIANT HEATING UNIT SCHEDULE

SYMBOL	MFG.	MODEL NO.	CAPACITY INPUT MBH	CAPACITY UNIT AMPS	VOLTAGE	UNIT WEIGHT	REMARKS
RT–1	MODINE	IPT50	75	5.5	120V–1ø	–	30'–0" – 4" TUBE CONTROLLED BY SPACE STAT USED IN GARAGE

REMARKS:
COORDINATE REFLECTOR DIRECTIONS WITH ALL CONSTRUCTION AFTER INSTALLATION.
PROVIDE WITH 4" TYPE 'B' GAS VENT THROUGH WALL WITH VENT HOOD.
PROVIDE WITH REMOTE THERMOSTAT, HONEYWELL DIGITAL ROUND HEAT ONLY. MOUNT AT 42" A.F.F.
PROVIDE DIRECT CONNECTED COMBUSTION AIR INTAKE KIT THROUGH THE WALL.

* OR APPROVED EQUAL

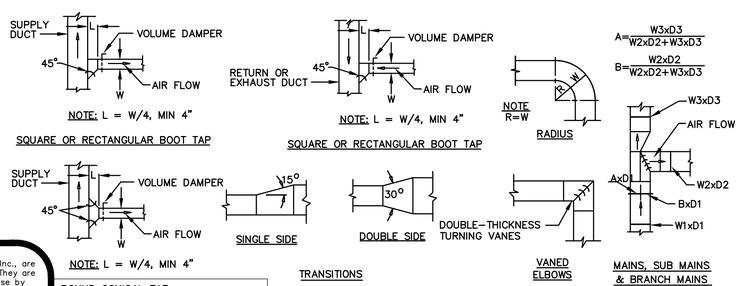
SYMBOLS

(T)	THERMOSTAT
	AIR FLOW DIRECTION
	MANUAL BALANCING DAMPER
	TURNING VANES OR RADIUS ELBOW

ABBREVIATIONS

AC	AIR CONDITIONING	HZ	HERTZ
AFF	ABOVE FINISHED FLOOR	IN	INCHES
AHU	AIR HANDLING UNIT	LRA	LOCKED ROTOR AMPS
APPROX	APPROXIMATELY	MAX	MAXIMUM
BLD'G	BUILDING	MBH	THOUSAND BTU'S PER HOUR
BTU	BRITISH THERMAL UNITS	MCA	MINIMUM CIRCUIT AMPS
BTUH	BRITISH THERMAL UNITS PER HOUR	MECH	MECHANICAL
CAP	CAPACITY	MFG	MANUFACTURER
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CL'G	CEILING	MT'D	MOUNTED OR MOUNTING
CONT'D	CONTINUED	NIC	NOT IN CONTRACT
DB	DRY BULB	OA	OUTSIDE AIR
DEG	DEGREE	PC	PLUMBING CONTRACTOR
DIA	DIAMETER	PH OR ø	PHASE
DN	DOWN	QTY	QUANTITY
DWG	DRAWING	REQU'D	REQUIRED
EAT	ENTERING AIR TEMPERATURE	RG	REGISTER
EC	ELECTRICAL CONTRACTOR	RLA	RUNNING LOAD AMPS
EER	ENERGY EFFICIENCY RATING	RPM	REVOLUTIONS PER MINUTE
EF	EXHAUST FAN	SA	SUPPLY AIR
ESP	EXTERNAL STATIC PRESSURE	SEER	SEASONAL ENERGY EFFICIENCY RATING
EXH	EXHAUST	SENS	SENSIBLE
EXIST	EXISTING	SP	STATIC PRESSURE
F	FAHRENHEIT	STAT	THERMOSTAT
FD	FIRE DAMPER	STD	STANDARD
FL	FLOOR	TEMP	TEMPERATURE
FLA	FULL LOAD AMPS	TSP	TOTAL STATIC PRESSURE
GC	GENERAL CONTRACTOR	TYP	TYPICAL
HC	HEATING CONTRACTOR	W	WATTS
HVAC	HEATING VENTILATING AIR CONDITIONING	WB	WET BULB
HP	HORSE POWER		

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



DUCTWORK CONNECTION DETAILS

NO SCALE

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NO.	REVISION NOTES	DATE
1	ADDEND#1 – ADD (2) EX. FANS	09/06/23

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NOT FOR CONSTRUCTION – ISSUED FOR BID AND PERMIT 08–21–23

EQUIPMENT BUILDING
CONSTRUCTION DRAWING
FOR
PROPOSED FIRST FLOOR PLAN
SOUTHAMPTON TWP. CUMBERLAND COUNTY, PA

Drawn By:	LEC
Designed By:	LEC
Checked By:	LEC
File:	2022–SH–009
Date:	08/18/2023
Scale:	3/16"=1'–0"
Drawing No.	H–2