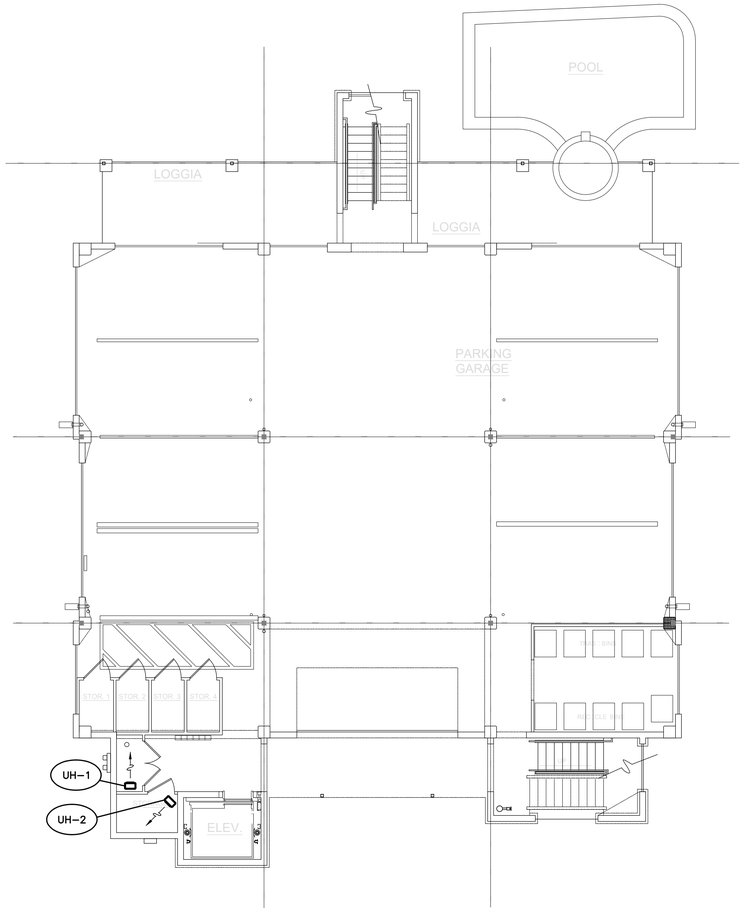
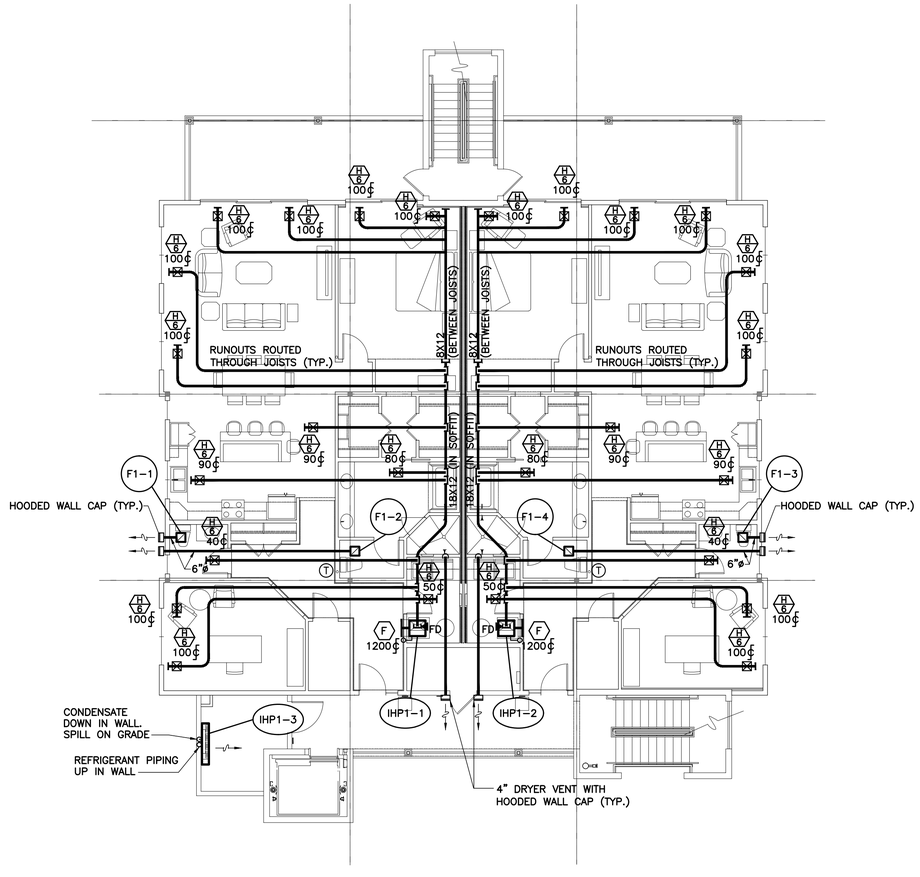


1 M1.0 **HVAC PLAN - GROUND FLOOR**
SCALE: 1/8" = 1'-0"



2 M1.0 **HVAC PLAN - FIRST FLOOR**
SCALE: 1/8" = 1'-0"

USSERY/RULE ARCHITECTS P.C.
1804-A FREDERICA ROAD
ST. SIMONS ISLAND, GEORGIA 31522
www.urarch.com
PH. 912-638-6688
Architecture . Land Planning . Interior Design

VIEWPOINT CONDOMINIUM
LOT 6 & 7, BLOCK B, ARNOLD SUBDIVISION
1124 POSTELL AVENUE
ST. SIMONS ISLAND, GA.

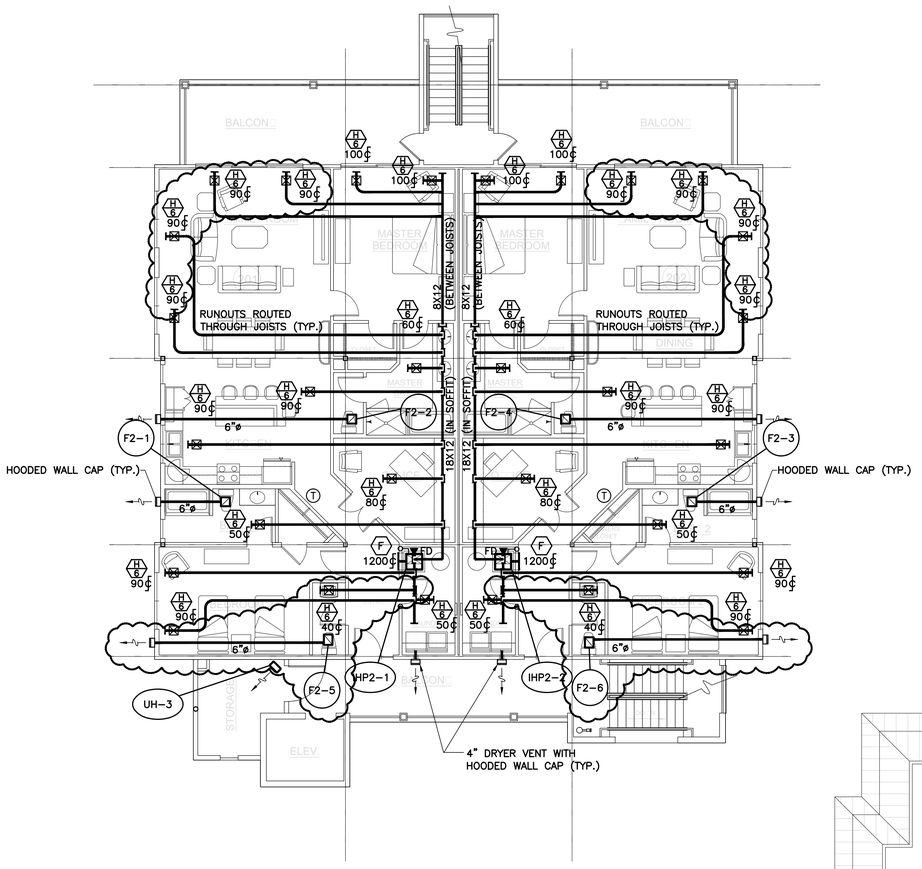
1515

08-23-17	
06-08-18	

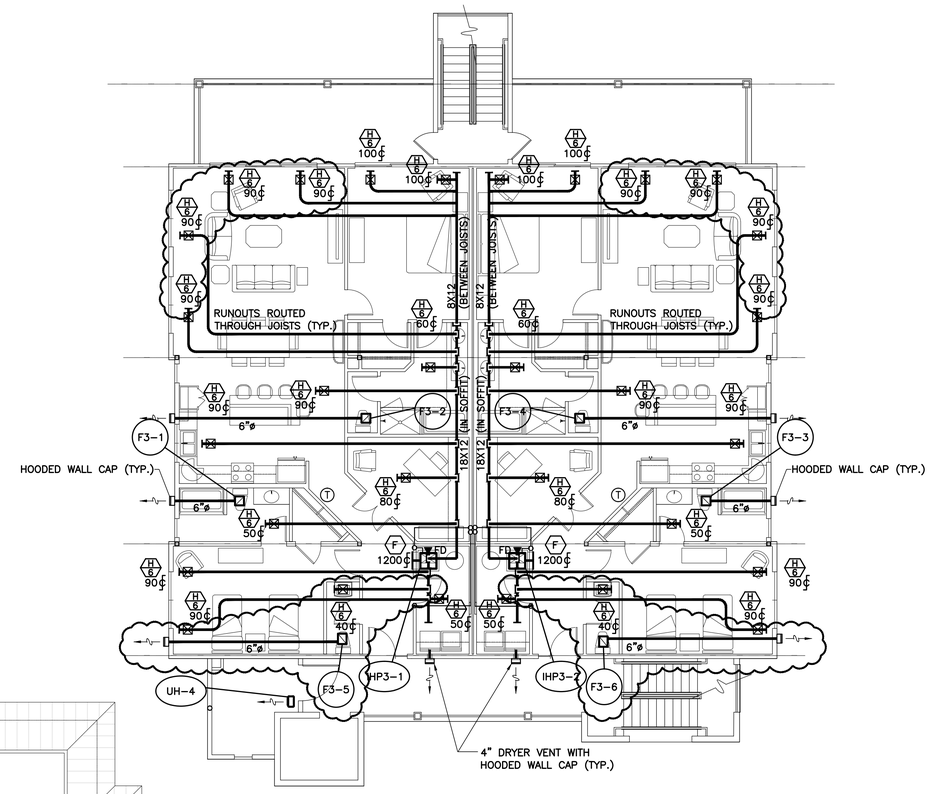
M1.0

1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 06/14/18
FILENAME: 17039M1
BASESHT:
PLOT SCALE: 1 = 96
WGC



1 M1.1 **HVAC PLAN - SECOND FLOOR**
SCALE: 1/8" = 1'-0"



2 M1.1 **HVAC PLAN - THIRD FLOOR**
SCALE: 1/8" = 1'-0"

3 M1.1 **HVAC PLAN - ROOF**
SCALE: 1/8" = 1'-0"

USSERY/RULE ARCHITECTS P.C.
1804-A FREDERICA ROAD
ST. SIMONS ISLAND, GEORGIA 31522
www.urarch.com
PH. 912-638-6688
Architecture . Land Planning . Interior Design

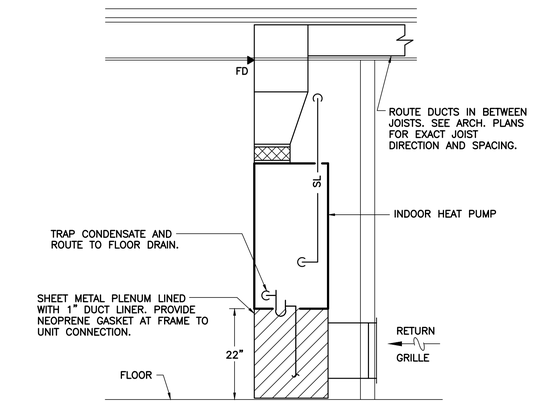
VIEWPOINT CONDOMINIUM
LOT 6 & 7, BLOCK B, ARNOLD SUBDIVISION
1124 POSTELL AVENUE
ST. SIMONS ISLAND, GA.

1515	
08-23-17	
06-08-18	

M1.1

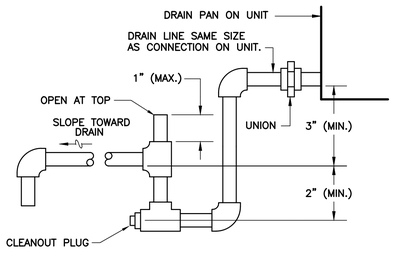
1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 06/14/18
FILENAME: 17039M1
BASESHT:
PLOT SCALE: 1 = 96
WGC



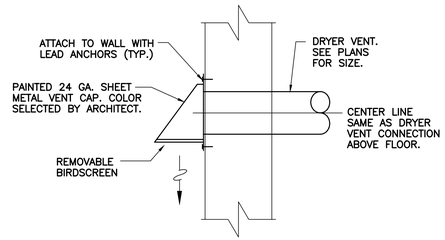
1 M1.2 SECTION ⊙ INDOOR HEAT PUMP

NOT TO SCALE (TYPICAL)



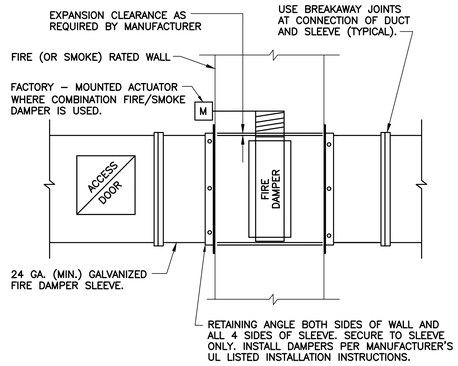
2 M1.2 CONDENSATE DRAIN TRAP DETAIL

NOT TO SCALE



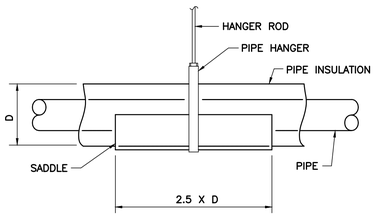
3 M1.2 DRYER VENT WALL CAP DETAIL

NOT TO SCALE



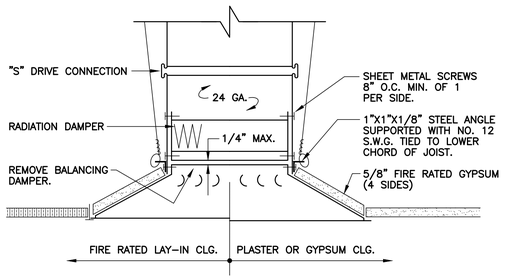
4 M1.2 FIRE DAMPER & SLEEVE DETAIL

NOT TO SCALE (SIMILAR FOR SMOKE DAMPER)



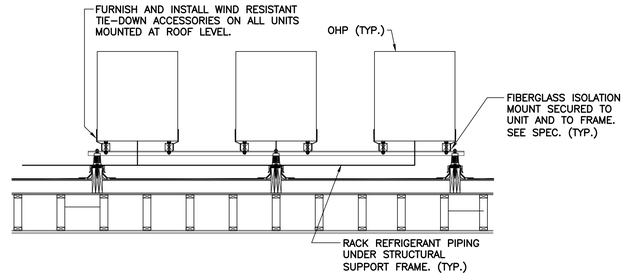
5 M1.2 PIPE HANGER SADDLE DETAIL

NOT TO SCALE



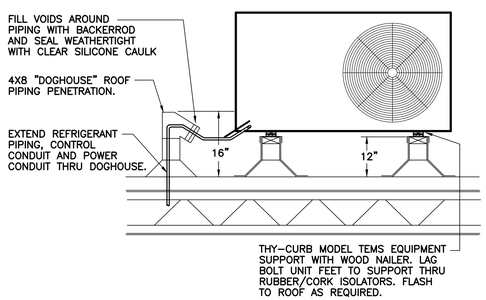
6 M1.2 CEILING RADIATION DAMPER DETAIL

NOT TO SCALE



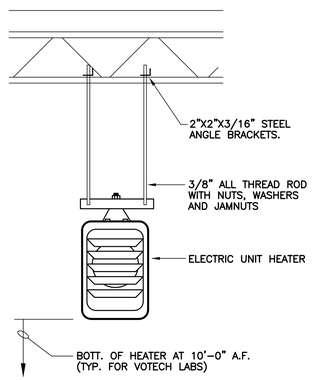
7 M1.2 DETAIL AT ROOFTOP OHP'S

NOT TO SCALE



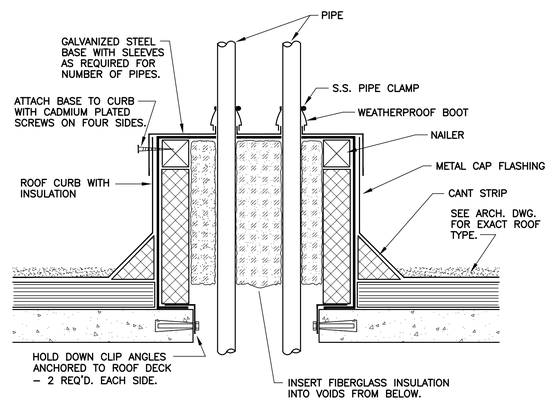
8 M1.2 SECTION ⊙ OUTDOOR UNIT ON ROOF

NOT TO SCALE



9 M1.2 ELECTRIC UNIT HEATER MOUNTING DETAIL

NOT TO SCALE (SUSPENDED)



10 M1.2 PIPE PENETRATION DETAIL

NOT TO SCALE

1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 06/14/18
FILENAME: 17039M1
BASESHT:
PLOT SCALE: 1 = 96
WGC

USSERY/RULE ARCHITECTS P.C.
1804-A FREDERICA ROAD
ST. SIMONS ISLAND, GEORGIA 31522
www.urarch.com PH. 912-638-6688
Architecture . Land Planning . Interior Design

VIEWPOINT CONDOMINIUM
LOT 6 & 7, BLOCK B, ARNOLD SUBDIVISION
1124 POSTELL AVENUE
ST. SIMONS ISLAND, GA.

1515	
08-23-17	

M1.2

-- FAN SCHEDULE --

ITEM	LOCATION	C.F.M.	S.P.	WATTS	R.P.M.	SONES	GREENHECK MODEL NO.	REMARKS
F1-1	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F1-2	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F1-3	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F1-4	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F2-1	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F2-2	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F2-3	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F2-4	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F2-5	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F2-6	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F3-1	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F3-2	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F3-3	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F3-4	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F3-5	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)
F3-6	TOILET	70	0.25	6	935	0.6	SP-80-VG	(1)

(1) CEILING EXHAUST FAN WITH BACKDRAFT DAMPER, CEILING RADIATION DAMPER AND DISCONNECT MEANS. CONTROL WITH WALL SWITCH. FAN WIDTH AND LENGTH SHALL NOT EXCEED 12" BY 12".

-- INDOOR HEAT PUMP SCHEDULE --

ITEM	SUPPLY C.F.M.	EXT. S.P. (IN.) W.C.	O.A. C.F.M.	FAN HP.	DRIVE	COOLING CAP. BTUH (1)		AUX. HEAT		TRANE MODEL NO.	REMARKS
						SENSIBLE	TOTAL	K.W.	STGS.		
IHP1-1	1200	0.5	–	–	DIRECT	–	36,000	4.8	1	GAM7A0B36	--
IHP1-2	1200	0.5	–	–	DIRECT	–	36,000	4.8	1	GAM7A0B36	--
IHP1-3	215	--	–	1.0 A	DIRECT	--	12,000	--	--	MITSUBISHI MSZ-GE12NA	--
IHP2-1	1200	0.5	–	–	DIRECT	–	36,000	4.8	1	GAM7A0B36	--
IHP2-2	1200	0.5	–	–	DIRECT	–	36,000	4.8	1	GAM7A0B36	--
IHP3-1	1200	0.5	–	–	DIRECT	–	36,000	4.8	1	GAM7A0B36	--
IHP3-2	1200	0.5	–	–	DIRECT	–	36,000	4.8	1	GAM7A0B36	--

(1) RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 240.

-- OUTDOOR HEAT PUMP SCHEDULE --

ITEM	COOLING CAP. BTUH (1)	E.E.R. MIN.	HEATING CAP. M.B.H. (1)		C.O.P. (1)		TRANE MODEL NO.
			HI	LO	HI	LO	
OHP1-1	36,000	17.0 SEER	–	–	–	–	4TWR7036 (2)
OHP1-2	36,000	17.0 SEER	–	–	–	–	4TWR7036 (2)
OHP1-3	12,000	20.5 SEER	14.4	8.8	10 HSPF	--	MITSUBISHI MUZ-GE12NA (2)
OHP2-1	36,000	17.0 SEER	–	–	–	–	4TWR7036 (2)
OHP2-2	36,000	17.0 SEER	–	–	–	–	4TWR7036 (2)
OHP3-1	36,000	17.0 SEER	–	–	–	–	4TWR7036 (2)
OHP3-2	36,000	17.0 SEER	–	–	–	–	4TWR7036 (2)

(1) RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 240.

(2) FURNISH COASTAL TIE-DOWN KIT AND COASTAL PROTECTION COATING FOR OUTDOOR COILS.

-- REFRIGERATION PIPE SCHEDULE --

ITEM	SUCTION LINE O.D.	LIQUID LINE O.D.	REMARKS
IHP/OHP1-1	7/8"	3/8"	(1)
IHP/OHP1-2	7/8"	3/8"	(1)
IHP/OHP1-3	3/8"	1/4"	(1)
IHP/OHP2-1	7/8"	3/8"	(1)
IHP/OHP2-2	7/8"	3/8"	(1)
IHP/OHP2-1	7/8"	3/8"	(1)
IHP/OHP2-2	7/8"	3/8"	(1)

(1) REFRIGERANT PIPE SIZES INDICATED ARE FOR ESTIMATING PURPOSES ONLY. EXACT SIZES AND ACCESSORIES REQUIRED SHALL BE DETERMINED BY EQUIPMENT MANUFACTURER FROM FIELD OBTAINED DIMENSIONS.

-- ELECTRIC HEATER SCHEDULE --

ITEM	LOCATION	WATTS	Q-MARK MODEL NO.
UH-1	SEE PLAN	3000	MUH 03 (1)
UH-2	SEE PLAN	3000	MUH 03 (1)
UH-3	SEE PLAN	3000	MUH 03 (1)
UH-4	SEE PLAN	3000	MUH 03 (1)

(1) WITH HANGING BRACKET AND INTEGRAL THERMOSTAT.

-- AIR DISTRIBUTION SCHEDULE --

MARK	TYPE	NECK CONNECTION (1)	FINISH	OBD	PRICE NO. UNLESS NOTED	REMARKS (2)
F	RETURN GRILLE	SEE PLANS	OFF WHITE	NO	535	45° DEFLECTION 1/2" BLADE SPACING
H	CEILING DIFFUSER	6" X 6"	OFF WHITE	YES	SCVD	(3)

(1) DUCT RUNOUT SIZE SAME AS NECK CONNECTION SIZE, UNLESS NOTED OTHERWISE.

(2) REFER TO ARCHITECTURAL FINISH SCHEDULE FOR CEILING TYPES.

(3) FURNISH PRICE MODEL VCS4 COMBINATION FIRE DAMPER AND VOLUME CONTROLLER.

H.V.A.C. SPECIFICATION

GENERAL: Entire system shall be installed to meet applicable Local, State and National Codes, current requirements of NFPA, State Heating and Air Conditioning Code and National Electric Code.

All equipment shall be installed in accordance with the manufacturer's instructions. Installing contractor shall furnish fully functioning systems.

ELECTRICAL: All line and low voltage control wiring shall be provided by the HVAC Contractor. Provide and submit complete wiring diagrams and all switches, starters, controls, relays, etc. necessary for a complete system. Run all wiring in EMT raceways.

Voltage and phase of mechanical equipment requiring power is designated under the Electrical division. Model numbers listed in mechanical equipment schedule shall not be construed to indicate electrical characteristics. Furnish written documentation that all electrical characteristics of mechanical equipment have been coordinated with and confirmed by the electrical subcontractor.

Power wiring and disconnects shall be provided under another Division.

SHOP DRAWINGS: Submit 5 sets of Shop Drawings for approval before ordering equipment.

DUCTWORK:

1. Low Pressure, Metal: Fabricate of galvanized steel as per SMACNA Manual for HVAC Duct Construction Standards for 1" W.C., with transverse joints, branch connections and tap-ins sealed.
2. Duct sealant shall be water-Based Joint and Seam Sealant: Flexible, adhesive sealant, resistant to UV light when cured, UL 723 listed, and complying with NFPA requirements for class 1 ducts. Duct tape shall not be used.
3. Flexible Ducts shall be factory-fabricated, insulated, round duct, with an outer jacket enclosing 1-1/2-inch-thick, glass fiber insulation around a continuous inner liner. Reinforcement: Steel-wire helix encapsulated in the inner liner. Outer Jacket: Glass-reinforced, silver mylar. Inner Liner: polyethylene film. Pressure Rating: 10-inches wg, positive. R value = 6.0 Flexible duct shall not exceed 4 feet in length and shall be supported 3 feet maximum on center with 3" wide by 26 gauge galvanized hangers. Duct shall be secured to branch ducts and outlets with stainless steel worm drive strap or nylon self-locking strap around the inner liner only.
4. All ductwork shall be supported in accordance with SMACNA Standards.

DUCT ACCESSORIES:

1. Turning Vanes: Fabricate turning vanes according to SMACNA HVAC Duct Construction Standards, Figures 2-2 through 2-7.
2. Manual Dampers: For rectangular duct: Opposed blade, constructed with galvanized gauge steel blades and equal to SMACNA DCS Fig. 2-15. End of damper operating rod shall be square to accommodate damper operator. Manual dampers 12" or smaller in height may be single blade type equal to SMACNA DCS Fig 2-14 constructed of galvanized sheet metal. Round damper shall be SMACNA DCS Fig 2-14 with blade gauge as follows: 8" and smaller = 22 gauge, 9" - 12" - 20 gauge 13" and larger = 18 gauge.
3. Access Doors: Provide construction and airtightness suitable for duct pressure class. Frame: Galvanized sheet steel. Provide with bend-over tabs and foam gaskets. Door: Double-wall, galvanized sheet metal construction with insulation fill and thickness, number of locks as indicated for duct pressure class. Provide cam latches. Seal around frame attachment to duct and door to frame with neoprene or foam rubber seals. Insulation: 1-inch-thick fiber glass or polystyrene foam board.
4. Fire dampers shall be dynamically rated and UL labeled in accordance with UL Standard 555 for the fire resistance required by the partition rating. Damper shall have blades out of the airstream.

INSULATION:

1. Ductwork: Insulate lined and unlined supply and return ductwork with 3/4 lb. 2" thick fiberglass blanket insulation with FSK jacket. Lap all vapor barrier joints 2" minimum, staple 4" o.c. and seal with vapor barrier mastic reinforced with fiber glass mesh ("glas-fab and mastic"). Use Stik-clips 24" o.c. on bottom of 30" wide and larger ducts. Cover top of all air device shells with insulation.
2. Refrigerant and Condensate Drainage Pipe: Insulate with flexible elastomeric insulation (Armaflex or equivalent). Thickness: ¾" for refrigerant suction and hot gas piping, 3/8" for condensate drainage piping. Seal all joints with compatible adhesive. Slip whole sections of insulation on piping before pipe joints are made. Miter all elbows in insulation. Paint outdoor insulation two brush coats of exterior latex enamel in color selected by the Owner.

CONCRETE PADS: Provide 3000 psi concrete pad for all ground and floor mounted HVAC equipment. Pads outdoors on grade shall be 6" thick and extend 4" above the adjacent grade. Pads indoors shall be nominally 4" thick. Pads shall be re-enforced with 6" x 6" 1010 wire and shall have chamfered edges. Concrete pads shall extend 6" beyond all sides of unit.

PIPING:

1. Refrigerant piping shall be ACR nitrogen charged tubing with joints made with high temperature (1200 degrees F.) brazing compound. Bleed dry nitrogen through piping during brazing process. After satisfactory leak test, piping and system shall be evacuated and charged in accordance with the manufacturer's printed instructions.
2. Condensate drain piping shall be type "L" hard temper tubing with soldered fittings.
3. Support pipe from structure above with clevis type hanger, all thread rod and upper attachment devices appropriate for the structural type. Provide supplementary steel for upper attachment as required. Hangers shall fit around insulated pipe and shall have 24 gauge galvanized sheet metal saddle between the support and the insulation jacket.

TESTS:

1. Refrigerant Piping: Charge system per industry accepted standards for systems utilizing R-410A, or manufacturer's recommended procedures if more stringent than industry standards. The following is an outline of the triple evacuation method.

   a. Pull initial vacuum on the line set testing for a leak. If it holds then pressure test with Nitrogen at 300 psi minimum.
   b. Pump system down, recharge with Nitrogen to 2 psi. Perform this step two times.
   c. Pump system down, re-pressurize with Nitrogen and then evacuate system to 500 microns. Hold for 30 minutes.
   d. Break vacuum with refrigerant and charge per manufacturer's directions.

2. Heat and Cooling Units: Record all motor and heater nameplate amps and running amps during Heating and Cooling cycle (below 60 degrees F. cooling). Record all fan motor amps for motors ½ HP and larger.
3. Air Side Systems: Record air quantities at supply outlets, return grille and outside air duct. All airflow quantities shall be balanced to be within + or - 10% of design air quantity.

ELECTRIC HEAT PUMP: Unit shall be of size, type and capacity as indicated on the Drawings and shall be manufactured by Trane. Equal units by Johnson Controls, Lennox or Carrier will be acceptable.

The following accessories shall be provided:

Condenser Coil Guard
5-minute Anti-Recycle Timer
Hard Start Kit for Single Phase Units
Crankcase Heater
Outdoor Thermostat for each Auxiliary Heat Stage
Defrost Thermostat for Indoor Coil
Coastal protection coating for outdoor coils
Coastal tie-down kit

Auxiliary electric heaters shall be of size and capacity as indicated on the Drawings and meet the requirements of the National Electric Code and Underwriters Laboratories.

EXHAUST FANS: Exhaust fans shall be of size, type and capacity as shown on the drawings and shall be manufactured by Greenheck. Equal products by Cook, Penn, Acme, and Hartzell are acceptable.

1. Ceiling-mounted fans shall include integral disconnect, aluminum ceiling grille, and backdraft damper. Furnish discharge accessories as indicated on the fan schedule.

OPERATING AND MAINTENANCE MANUALS: Provide Owner 3 bound copies of Operating and Maintenance Instructions on each piece of HVAC equipment.

INSTRUCTION TO OWNER: Provide formal instruction period to familiarize the Owner in the operation and maintenance of the HVAC System. Document attendance and material covered for each instruction session.

CONTROLS: Control system consists of sensors, indicators, actuators, microprocessors, final control elements, interface equipment, other apparatus, and accessories connected to controllers to operate mechanical systems according to sequences of operation indicated or specified. Installation shall be in accordance with HVAC equipment manufacturer's wiring diagrams. Control components shall form a fully functional system.

1. Thermostats: Manufacturer's standard 7-day programmable thermostat.
2. Sequence of Operation: Manufacturer's standard sequence.

H.V.A.C. LEGEND

SYMBOL	DESCRIPTION
SL	REFRIGERANT SUCTION / LIQUID
D	CONDENSATE DRAIN
ED	EMERGENCY DRAIN
T	THERMOSTAT 4'-6" A.F. (HONEYWELL PROGRAMMABLE)
OBD	OPPOSED BLADE DAMPER
BDD	BACKDRAFT DAMPER
¢ or C.F.M.	CUBIC FEET PER MINUTE
1 / M-1	DETAIL NO. → 1/M-1 ← SHEET NO.
	SUPPLY DIFFUSER
	RETURN OR EXHAUST GRILLE
or MVD	MANUAL VOLUME DAMPER
	FLEXIBLE DUCT CONNECTION
	LINED DUCT (SIZE SHOWN IS METAL SIZE)
	SQUARE ELL WITH SINGLE THICK TURNING VANES
A / B	AIR DEVICE ← NECK CONNECTION SIZE
N/E	NEW TO EXISTING CONNECTION
A.F.	ABOVE FLOOR
RET.	RETURN (AIR – DUCT)
CONN.	CONNECTION
EXH.	EXHAUST
Ø	DIAMETER
TYP.	TYPICAL

HVAC NOTES:

INSTALL PIPING AND DUCTWORK IN EQUIPMENT ROOMS ADJACENT TO WALLS AND CEILINGS, WHERE POSSIBLE, TO PROVIDE MAXIMUM ROOM CLEARANCE.

THE BEST ARRANGEMENT OF PIPING, DUCTWORK, AND EQUIPMENT. REFER TO PLUMBING AND ELECTRICAL DRAWINGS.

PIPING, DUCTWORK, AND EQUIPMENT IS SHOWN IN ITS GENERAL LOCATION, UNLESS DIMENSIONED. EXACT LOCATION SHALL BE DETERMINED BY THE LOCATION OF OTHER EQUIPMENT, AND TO PROVIDE SERVICE CLEARANCE.

ARRANGE PIPING AND DUCTWORK TO CLEAR STRUCTURAL MEMBERS, PLUMBING, PIPING AND LIGHT FIXTURES.

EXACT LOCATION OF GRILLES AND CEILING OUTLETS SHALL BE DETERMINED ON THE JOB. COORDINATE WITH LIGHTS AND ARCHITECTURAL REQUIREMENTS TO PROVIDE A UNIFORM AND SYMMETRICAL APPEARANCE. REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS AND DETAILS.

ALL PIPING SHALL BE CONCEALED, UNLESS NOTED OTHERWISE.

PROVIDE FLEXIBLE DUCT CONNECTIONS TO ALL AIR HANDLING EQUIPMENT.

PROVIDE ACCESS DOORS IN DUCTWORK FOR ALL FIRE AND SMOKE DAMPERS, AND DUCT-MOUNTED COILS AND CONTROL DEVICES.

SLOPE DRAIN LINES TOWARD DRAIN WITH A MINIMUM SLOPE OF 1/4" PER FOOT.

FURNISH EMERGENCY DRAIN PANS WITH FLOAT SWITCHES UNDER ALL INDOOR HEAT PUMP UNITS.

1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 06/14/18
FILENAME: 17039M1
BASESHT:
PLOT SCALE: 1 = 96
WGC

USSERY/RULE ARCHITECTS P.C.
1804-A FREDERICA ROAD
ST. SIMONS ISLAND, GEORGIA 31522
www.urarch.com
PH. 912-638-6688
Architecture . Land Planning . Interior Design

VIEWPOINT CONDOMINIUM
LOT 6 & 7, BLOCK B, ARNOLD SUBDIVISION
1124 POSTELL AVENUE
ST. SIMONS ISLAND, GA.

1515

08-23-17	
06-08-18	

M1.3