

The Mary Ruth Place – a Town of Frisco Work Force Housing Community

Mechanical and Plumbing Narrative

DIV. 15 Mechanical: HVAC	
15.10 HVAC General Requirements	Equipment shall operate safely without leakage, noise, or vibration. All penetration of building components shall be neat, sleeved and fire stopped and shall not compromise structural integrity. Contractor shall submit a diagram showing equipment selection and proposed layout of distribution system within 10 days of bid award.
15.10 Ventilation General Requirement	Ventilation system to meet ASHRAE 62.2-2016 Standard: Ventilation and Acceptable Indoor Air Quality in Residential Buildings.
15.10 Load Sizing General Requirements	Use the Air Conditioning Contractors of America (ACCA) 8th Edition of their Manual J Heat loss calculation tool http://www.acca.org/tech/manualj/ , and use ACCA's Manual S for equipment selection. Provide Manual J & S reports with first Draw documents. Size furnace, air conditioner and ventilation to the living unit including areas which may be added or subtracted from plan.
15.10 Dryer Vent	Install 4" rigid aluminum vent tubing from the specified dryer location to a 4" wall mounted dryer vent hood with a back-flow preventer and NO screening. Do not fasten with nails, screws or other fasteners that protrude into the interior of the exhaust duct. Seal all seams in the system with duct mastic or aluminum foil tape, not duct tape. Secure duct and hood to framing. Equivalent length of dryer vent shall not exceed 35' or manufacturer's recommendations. Maintain clearance from combustibles according to manufacturer's recommendations.
15.10 Duct Sealing	Seal joints, collars, flex duct connections and seams in ductwork and plenums with fiberglass mesh and a 1/16 th inch coating of duct mastic (about the thickness of a nickel). Duct tape or metal tape is not an acceptable method for sealing ductwork.
15.10 Exhaust Fan	Furnish and install an exhaust fan in the bathroom sized at not less than 1cfm/sf for moisture removal. Exhaust fan shall be direct ducted to the exterior following manufacturer installation guidelines. Furnish and install a plastic snap-on interior exhaust fan cover. Coordinate color selection with the architect.
15.10 Furnace	Furnish and install a complete natural gas fired forced air furnace with a minimum AFUE of 98% on 2" patio blocks. The furnace shall have a variable speed ECM motor, stainless steel heat exchanger and be fully insulated, 20 gauge steel cabinet

	and doors. Provide minimum warranties of 10 years on all parts, lifetime on heat exchanger, and 1 year of labor. Venting shall be PVC in accordance with manufacturer's specification. Natural gas piping shall be schedule 40 black pipe. Pipe sealant of Teflon tape or dope shall be used on all screw threads. Condensation drain shall be PVC and piped to the nearest floor drains. (Basis of Design: Carrier Infinity Series)
15.10 Air Conditioning	Furnish and install a complete air conditioning system including packaged condensing unit with 21 SEER rating. Refrigerant shall be R-410a. Condensing unit shall have variable speed rotary, or two stage scroll compressors. Provide a minimum warranty of 10 years on all parts and 1 year on labor. Condensing unit shall be mounted a minimum of 3" above grade on manufacturer recommended pad. Evaporator coil shall be matched to the outside unit and contain factory installed thermostatic expansion valve in an aluminum cased coil with drain pan. The drain shall be PVC piped to the nearest floor drain. Refrigeration lines shall be copper joined with minimum of 15% silver brazing rods including liquid dryer according to the manufacturer specifications. Provide a UV lamp in the ductwork above the evaporator coil to inhibit biological growth on the evaporator. (Basis of Design Condenser: Carrier Infinity Series 21, Basis of Design Evaporator: Carrier Performance Series Cased N)
15.10 Air Purifier	Furnish and install integral electronic air purifier on return air to the furnace. Purifier performance shall be MERV15; electrostatic ionization and filtration. (Basis of Design: Carrier Infinity Series)
15.10 Humidifier	Furnish and install fan powered humidifier in supply ductwork at the furnace installation. Supply line shall have a line filter installed with a minimum 5 micron carbon filter. The humidifier supply water line shall be connected to the water supply with soldered copper connection and a shutoff valve. Self-taping valves are not acceptable. The humidifier drain line shall be PVC and routed to the nearest floor drain. (Basis of Design: Carrier Performance Series)
15.10 Thermostat	Furnish and install programmable thermostat with 7-day, 5/2-day and 1-day options. The thermostat shall be wall-mounted and low-voltage. Thermostat shall control temperature and humidity. Internal memory shall save settings for an unlimited time and the clock continues to run for at least 24 hours.
15.10 Grilles, Registers, Diffusers	Furnish and install grilles, registers, and diffusers in each space according to load calculation sizing requirements. Material shall be steel baked enamel color selected by the architect. Diffuser throw shall be multi-directional. Install grilles, registers and diffusers with airtight connection.
15.10 Ductwork	Furnish and install supply and return ductwork to each room. Returns shall be ducted. Include volume balancing damper at each takeoff on the main trunks. Ducts shall be construction

	with rigid sheet metal with gauge thickness and supports in accordance with SMACNA HVAC Duct Construction Standards. Provide motorized low leakage damper for outside air duct. Damper shall be wired to open when the fan is on and close with the furnace fan is off.
15.15 Ductwork Insulation	Furnish and install fiberglass duct insulation wrap with foil scrim R-4 insulation. Secure and seal all seams with duct foil tape. Internally lined ducts are not acceptable. Ensure ductwork insulation is continuously applied and sealed without gaps.
15.15 Piping Insulation	Furnish and install piping insulation on refrigeration lines according to the manufacturer's recommendations.
DIV. 15 Mechanical: Plumbing	
15.40 Plumbing General Requirements	Unless otherwise specified, all materials shall be copper. All items shall operate without leakage, noise, vibration or hammering. All penetration of building components shall be neat, sleeved, & fire stopped. No solder containing lead shall be used in any pipe or fixture. Damage to structural members from drilling or notching shall be repaired to the acceptance of the owner and the Agency.
15.40 Commode	Furnish and install a 2 piece, close coupled, white, vitreous china, commode with a maximum 1.6 gallons per flush. Include plastic or pressed wood white seat, supply pipe, shut-off valve, flap valve and wax seal.
15.40 Disposal	Install a 1/2 horsepower, PVC chambered, quick disconnect, garbage disposal with reset button and hand crank, as manufactured by ISE, model Badger 333. Include plumbing and electrical connections.
15.40 Drain, Waste, Vent	Drain, waste and vent shall be piped with PVC throughout. Furnish and install sump pumps in sump pits and coordinate discharge locations with the architect. Drain and waste lines shall be pitched from point of use a minimum of 1/4" per foot run. Vents shall be provided within 12 inches of each drain/waste connection.
15.40 Faucet – Kitchen	Furnish and install a metal kitchen sink faucet with spray, dual controls, 15 year drip-free warranty and maximum flow of 2 gallons per minute.
15.40 Faucet – Lavatory	Furnish and install a metal lavatory faucet, two handle control, 15 year drip-free warranty and maximum flow of 1.2 gallons per minute.
15.40 Tub Faucet and Showerhead	Metal, dual control, tub fill faucet with 15 year drip-free warranty. Showerhead shall be 1.5 gallons per minute low flow. Coordinate color and finish selection with the architect.
15.40 Water Piping	Water piping shall be Type L Hard Temper sized for distribution and end usage. Install with 95/5 lead free solder. Furnish and install shutoff valve at each end use device and at the main.
15.45 Pipe Insulation	Insulate exposed hot and cold water mains with closed cell

	polyethylene slip-on pipe insulation, sized to fit the pipe's diameter. Seal seams with either 5 mil Pipe Insulation sealing tape or Closure Clips designed for pipe insulation placed every 4 inches. Seal all butt joints between sections of pipe with 5 mil Pipe Insulation sealing tape. Neatly miter all angled junctions.
15.45 Water Heater	Size appropriate for house. Glass lined, 90+ efficient power vented, insulated to R-7, natural gas water heater with a 10 year warranty. Include pressure & temperature relief valve, discharge tube to within 6" of floor, condensate pump, owner's manual & all duct work to power vent to exterior. Provide separate electrical circuit & new gas piping from shut-off valve to fixture. If the HWH is located in a basement with a floor drain the discharge tube shall be directed to the drain. If it is located on an upper floor or if there is no floor drain, install a catch pan drained to the exterior. Recycle the existing HWH.
