



## PLUMBING

### Water System

Water will be brought to the building from the main located adjacent to the front property line.

Underground piping will be schedule 40 PVC. A service isolating valve with curb box will be provided downstream of the meter, if not provided in the meter box, Planned water service size is 6 inch on a 3 inch meter.

Piping above grade is CPVC. Piping subject to freezing will be insulated.

Each building will have a shutoff. Pressure reducing valves will be provided as required to maintain water pressure levels.

Shut-off valves will be provided to isolate areas of the distribution system. Hose bibbs are provided around the building exterior.

Two Electric water heaters are to be provided in each building at locations convenient to each fixture grouping. All temperature and pressure relief from water heaters will terminate 6 inches above drip pan.

Wall penetrations will have approved fire stop fill and apparatus to provide the required one- hour separation where required.

### Sanitary Drainage System

Sanitary waste and vent piping will be provided for all plumbing fixtures. Piping will be schedule 40 PVC with solvent welded joints.

### Plumbing Fixtures

Fixtures will be standard builders grade, white vitreous china. Exposed trim and supply valves will be chrome plated.

- Water closet: Floor-mounted low consumption vitreous china, elongated bowl, tank type with solid white elongated closed front seat with cover.

- Water closet (handicapped): Floor mounted vitreous china, elongated bowl, tank type with 17" high bowl and solid white plastic closed front seat with cover.
- Lavatories: Oval self-rimming vitreous china with single handle faucet and pop-up drain.
- Cultured synthetic marble countertops with integral bowls.
- Bathtubs: Cast iron construction 60" x 30" x 15" tall.
- Showers: flush habdicapp with tile floor and walls.
- Kitchen sink: three compartment stainless steel with single handle faucet and garbage disposal.
- Faucets and hardware will he standard builders grade Delta or American Standard.

#### **FIRE PROTECTION**

The building will be fully sprinklered with an Automatic (wet pipe) sprinkler system and a Class I wet standpipe system. The system will be designed, installed, tested and certified in accordance with the Standard Building Code, National Fire Protection Association (NFPA) Standards 13, 14, 20 and 24 along with all requirements of the Authority Having Jurisdiction (AHJ).

The sprinkler system shall be designed to Light Hazard Occupancy requirements for a majority of the living spaces, with Equipment, Storage, Mechanical, and similar spaces being designed to Ordinary Hazard Occupancy (Group 1) requirements.

The fire service entrance piping will be connected to the cities municipal water supply fire main. The service entrance piping will be protected from backflow with a double detector check valve assembly. The valves for the detector check will be OS & Y with weatherproof tamper switches.

Two sprinkler zones will be provided for building. Each zone will contain a supervised control valve and a flow switch wired into the building fire alarm system. The system will be provided for inspector test and drain

connections to facilitate annual and periodic testing of the system.

Pressure reducing valves shall be installed on any portion of the sprinkler system where the pressure will be in excess of 175 psi and where listed components are only rated for 175 psi or less. A relief valve of not less than 1/2" will be installed on the discharge side of the pressure reducing valve set to operate at a pressure not exceeding 175 psi.

A fire department siamese connection will be located on the street side of the building, fully visible and recognizable from the street or nearest point of fire department access.

Fire Service Piping: Buried piping shall be ductile iron or PVC (AWWA C900) properly braced and anchored.

Fire sprinkler mains and branches (above ground) will be as follows:

- ASTM A 53 Schedule 40 in sizes 8 inches and smaller when joined by threaded fittings, and with fittings used with cut-grooved piping.
- ASTM 135, schedule 10 for sizes up to 10 inches when joined by welding or by rolled-grooved pipe and fittings and conforming with NFPA 13 wall thickness guidelines.
- CPVC plastic piping will be used where approved by the authority having jurisdiction (AHJ).

All interior sprinkler piping will be installed with the proper slope, hanger and floor supports so as to comply with NFPA.

The sprinkler heads will be concealed pendent type in the entrance lobby, elevator lobby or other places open to public display. Sidewall sprinkler heads will be used where possible in condominium units and corridors without suspended ceilings.



Where sidewall heads cannot be installed to meet proper coverage requirements, recessed pendent heads will be used instead. Sprinklers in equipment rooms, areas without suspended ceilings (exposed) or drywall type ceilings will have upright heads with brass finishes. Heads will be installed within 2 inches of the center of tile where tile ceilings are installed. Service areas with no ceilings or drywall type ceilings will, have upright heads with brass finishes.

Sprinkler system will be installed in a manner to permit draining of the entire system. Inspector test drains will be piped to within 3 feet of grade beyond exterior wall.

Sprinkler contractor shall provide shop drawings and hydraulic calculations and obtain local Fire Marshall approval.

**HVAC**

**Energy Envelope Calculations**

The building envelope energy calculations are based on ASHRAE 90.1 and the Florida Mechanical Code 2001 Edition:

Outside summer	92F dry bulb / 78F wet bulb
Outside winter	37F
Inside summer	75F, 50% humidity
Inside winter	70F

**Heating and Cooling Calculations**

From the figures and tables in ASHRAE, the following R-values are calculated as the minimum to be used for the envelope design:

<u>Component</u>	<u>R-value</u>	<u>U value</u>
Slab on grade	0.0	-
Walls	13.3	0.075
Roof	17.2	0.058
Double glazed insulated glass	-	1.15 to 0.82

The building heating and cooling load calculations are based on 1997 ASHRAE Chapter 27, Residential Cooling



and Heating Load Calculations and the 1977 Standard Building Code:

Outside summer	92F dry bulb / 78F wet bulb
Outside winter	31F
Inside summer	75F +/- 3F
Inside winter	70F +/- 3F

### **Heating Ventilating and Cooling**

Variable speed air-handling units will be located in ceilings areas of each building. The air-handling unit will incorporate outside air, auxiliary electric heat, direct drive 3-speed fan, 1" pleated filters, and a direct expansion-cooling coil. Heat pump units will be located on the ground and operate on 208 volts, single phase. Refrigerant pipes shall be sized for the length of run following Manufacturer's Long Line Application Guide. SEER 10 Minimum to comply with Florida Energy Code Requirements. Each unit will be provided with a thermostat.

Ceiling exhaust fans will be provided in each toilet room. Fans will be ducted horizontally to the building exterior. As well as the dryer exhaust.

### **General Ventilation**

All ductwork will be fiberglass fabricated and supported in accordance with SMACNA Duct Construction Standards.

Insulated flexible ducts will be used to connect air distribution devices to trunk ducts. Dryer vents will be ducted with galvanized sheet metal or aluminum to the building exterior and provided with an aluminum flapper vent outlet. Back draft dampers will be provided as necessary.

Supply registers will be equal to Hart & Cooley Model A600 series. Return registers to be equal to Hart & Cooley Model RHD45. All inlets and outlets will be aluminum. Exposed surfaces of devices to have white painted finish.

### **Project Completion**

Operating and maintenance manuals will be provided covering installation, maintenance instructions and warranties.