

## **Drain and Sump Pump requirements for Elevator Pits**

Due to the history of an amendment in Chapter 30 of the FBC to an ASME A17.1 requirement there has been confusion of what is to be enforced in regards to sumps and pumps in elevator pits. This paper is written to describe what this amendment states, how it affects these codes and then discuss the definitions and the plumbing requirements of FBC in an endeavor to clear some of the misunderstandings.

FBC Chapter 30, Section 3008 Serial Numbers subsection 3008,(1)(3)(e) contains an amendment to ASME A17.1, Requirement 2.2.2.4 that prohibits drains to be directly connected to sewers and where a drain is not provided requires that a sump of adequate size and depth to accommodate a pump is to be provided with or without a pump.

Examination of this amendment will reveal that as it is worded it neither contradicts nor amends ASME A17.1, Requirement 2.2.2.5 which requires elevators provided with Firefighters' Emergency Operation to be provided with a drain or a sump pump in the pit. Further, this amendment does not state any exemption of plumbing code requirements; it is solely an amendment to ASME A17.1.

Chapter 29 of FBC, Bldg requires all plumbing systems and equipment to be constructed, installed and maintained in accordance with the FBC, Plumbing. From the FBC definition of plumbing it is clearly identifiable that the piping, fixtures and appurtenances in connection with sanitary drainage or storm water drainage are plumbing.


Sump definition states clearly that a sump is a tank or pit that receives sewage or liquid waste. Examination of Sewage and Waste definitions leads to the obvious conclusion that the water which will enter the elevator pit sump from sprinklers or fire fighters hoses (or ground water) is not sewage, it is liquid waste.


In the definition of Drainage System it describes the system as one that conveys sewage, rainwater, or other liquid wastes to a point of disposal. There are three types of Drainage Systems listed, one is the sanitary drainage system which carries sewage and another is the storm drain system which carries rainwater, surface water, subsurface water and similar liquid wastes. As already determined in the previous paragraph, the water that will enter the pit from sprinklers or fire fighters hoses is not sewage, it is liquid waste. This liquid waste is similar to rainwater, surface water and subsurface water in that they all are not sewer liquids nor are they potable water. These definitions lead to the evident end conclusion that the drainage system provided by elevator pit sumps and pumps is a Storm Drainage System.


Having concluded that the water which will enter the pit from sprinklers or fire fighters hoses is a liquid waste similar to rainwater, surface water and subsurface water, and that the drainage system is a storm drainage system it is simple to recognize that FBC Section 1113 contains the requirements for sumps and pumping systems in elevator pits.

## **DEFINITIONS**

**DRAINAGE SYSTEM.** Piping within a public or private premise that conveys sewage, rainwater or other liquid wastes to a point of disposal. A drainage system does not include the mains of a public sewer system or a private or public sewage treatment or disposal plant.

 **Building gravity.** A drainage system that drains by gravity into the building sewer.

 **Sanitary.** A drainage system that carries sewage and excludes storm, surface and ground water.

 **Storm.** A drainage system that carries rainwater, surface water, subsurface water and similar liquid wastes

**NONPOTABLE WATER.** Water not safe for drinking, personal or culinary utilization

**PLUMBING.** The practice, materials and fixtures utilized in the installation, maintenance, extension and alteration of all piping, fixtures, plumbing appliances and plumbing appurtenances, within or adjacent to any structure, in connection with sanitary drainage or storm drainage facilities; venting systems; and public or private water supply systems

**POTABLE WATER.** Water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming to the bacteriological and chemical quality requirements of the Public Health Service Drinking Water Standards or the regulations of the public health authority having jurisdiction

**SEWAGE.** Any liquid waste containing animal or vegetable matter in suspension or solution, including liquids containing chemicals in solution.

**SUMP.** A tank or pit that receives sewage or liquid waste, located below the normal grade of the gravity system and that must be emptied by mechanical means.

**SUMP PUMP.** An automatic water pump powered by an electric motor for the removal of drainage, except raw sewage, from a sump, pit or low point

**WASTE.** The discharge from any fixture, appliance, area or appurtenance that does not contain fecal matter.

## **FBC, Plumbing requirements for elevator pit sumps and pumps**

### **SECTION 1113 SUMPS AND PUMPING SYSTEMS**

**1113.1 Pumping system.** The sump pump, pit and discharge piping shall conform to Sections 1113.1.1 through 1113.1.4.

**1113.1.1 Pump capacity and head.** The sump pump shall be of a capacity and head appropriate to anticipated use requirements.

**1113.1.2 Sump pit.** The sump pit shall not be less than 18 inches (457 mm) in diameter and 24 inches (610 mm) deep, unless otherwise approved. The pit shall be accessible and located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, steel, plastic, cast-iron, concrete or other approved material, with a removable cover adequate to support anticipated loads in the area of use. The pit floor shall be solid and provide permanent support for the pump.

**1113.1.3 Electrical.** Electrical service outlets, when required, shall meet the requirements of the Chapter 27 of the *Florida Building Code, Building*.

**1113.1.4 Piping.** Discharge piping shall meet the requirements of [Section 1102.2](#), [1102.3](#) or [1102.4](#) and shall include a gate valve and a full flow check valve. Pipe and fittings shall be the same size as, or larger than, pump discharge tapping.

**Exception:** In one- and two-family dwellings, only a check valve shall be required, located on the discharge piping from the pump or ejector.

### **Oil separator requirement for hydraulic elevator pits**

#### **SECTION 1003 INTERCEPTORS AND SEPARATORS**

**1003.1 Where required.** Interceptors and separators shall be provided to prevent the discharge of oil, grease, sand and other substances harmful or hazardous to the building drainage system, the public sewer, the private sewage disposal system or the sewage treatment plant or processes.

**1003.2 Approval.** The size, type and location of each interceptor and of each separator shall be approved by the plumbing official. Where the interceptor or separator is located within a private sewage disposal system, such interceptor or separator shall be approved by the health official. The interceptor or separator shall be designed and installed in accordance with the manufacturer's instructions and the requirements of this section. Wastes that do not require treatment or separation shall not be discharged into any interceptor or separator.

**1003.4 Oil separators required.** At repair garages, car-washing facilities, at factories where oily and flammable liquid wastes are produced and in hydraulic elevator pits, separators shall be installed into which all oil-bearing, grease-bearing or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal.

**Exception:** An oil separator is not required in hydraulic elevator pits where an approved alarm system is installed