**Section 370.330 Manholes**

a) Location

Except as noted in Section 370.123(d)(2), manholes shall be installed at the end of each line; at all changes in grade, size or alignment; at all sewer intersections; and at distances not greater than 400 feet for sewers 15 inches or less, and 500 feet for sewers 18 inches through 30 inches. Distances up to 600 feet may be approved in cases where adequate modern cleaning equipment for such spacing is provided. Greater spacing may be permitted in larger sewers and in those carrying a settled effluent. Lampholes may be used only for special conditions and shall not be substituted for manholes nor installed at the end of laterals greater than 150 feet in length.

b) Type

1) Drop Type

A pipe shall be provided for a sewer entering a manhole where its invert elevation is more than 24 inches above the manhole invert. If an inside drop pipe is used, the manhole diameter shall be large enough to provide a minimum clearance of 48 inches between the pipe and the opposite side of the manhole. Inside drip pipes shall be anchored to the manhole wall with corrosion-proof fasteners and bands. For sewers 36 inches in diameter or greater, the requirements for a drop pipe do not apply if the spring line of the incoming pipe is at or below the spring line of the main sewer. As a minimum, the diameter of the drop pipe shall be at least 2/3 as large as the diameter of the sewer tributary to the drop pipe.

2) Non Drop Type

Where the difference in elevation between the incoming sewer invert and the manhole invert is less than 24 inches, the manhole invert should be filleted to prevent solids deposition.

c) Diameter

1) For sewers 36 inches in diameter and smaller, the minimum diameter of manholes shall be 48 inches. For sewers larger than 36 inches in diameter, the manhole diameter at the invert shall be sufficiently large to accommodate the incoming pipes; and the riser barrel diameter shall be a minimum of 48 inches.

2) A minimum access lid diameter of 24 inches shall be provided.

d) Flow Channel

The flow channel through manholes should be made to conform in shape and slope to that of the sewers. A bench shall be provided which should have a minimum slope of 2 inches per foot.

e) Watertightness

1) Construction Requirements

Watertight manhole covers shall be used wherever the manhole tops may be flooded by surface runoff or high water or are below cover. Pickholes shall not be larger than 1 inch in diameter or shall be of the concealed type. Construction lifting holes on manhole rings shall be plugged from the outside and the exterior and joints of the manhole elements shall be waterproofed. Precast inlet and outlet connections fitted with "0" rings or other equally watertight connections shall be provided.

2) Inspection

The specifications shall include a requirement for inspection and leakage testing of all manholes for watertightness in accordance with ASTM C969-94 – "Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines", Vol. 04.05, Chemical Resistant Materials, Vitrified Clay, Concrete, Fiber-Cement Products; Mortars; Masonry (1996) (no later editions or amendments) or ASTM C1244-93 "Standard Test Method for Concrete Sewer Manholes by the Negative Pressure (Vacuum) Test", Vol. 04.05, Chemical Resistant Materials, Vitrified Clay, Concrete, Fiber-Cement Products; Mortars; Masonry (1996) (no later editions or amendments) prior to placing into service.

(Source: Amended at 21 Ill. Reg. 12444, effective August 28, 1997)