

Precast Manhole Considerations

Why Precast Manholes?

Precast concrete manholes are a critical component to any sewer system and provide an access or observation point for pipe junctions. With a properly designed and sized precast manhole, it is possible to create a water-tight space that allows for inspection, maintenance and future upgrade of a sanitary or storm sewer system.

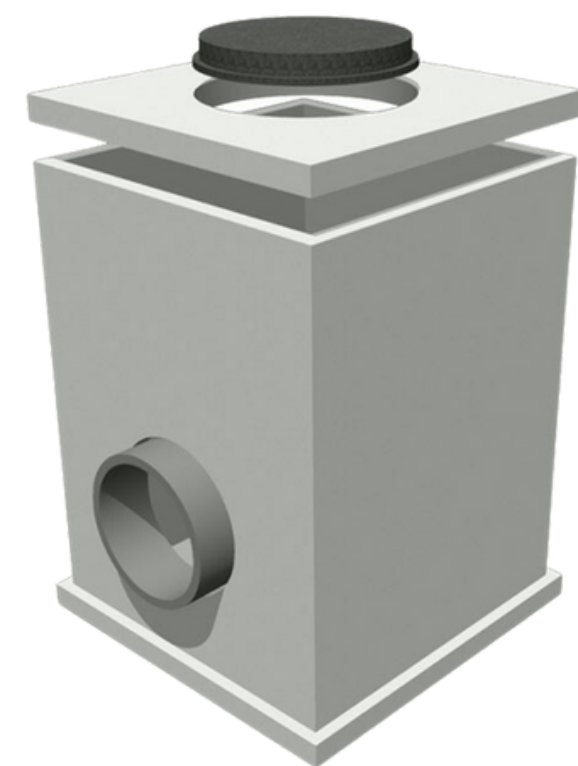
The advantage of using precast manholes is that installation is fairly simple. In contrast to poured in place structures, precast installation can be completed with simple machinery and a small group of professionals.

Manhole Options



Round Structures

Round manholes offer flexibility in the angle of intersecting pipes as well as design advantages. The wall thickness of round manhole structures doesn't increase nearly as much with increasing depth due to the inherently strong nature of round structures.



Rectangular / Square Structures

The primary advantage of square and rectangular manholes is the ability to accommodate larger pipes intersecting at 90 degree angles without significantly increasing the overall size of the structure.

Precast Manhole Installation

Basic Installation Steps

Installation of precast concrete manholes should be completed by qualified and knowledgeable contractors. Be sure to follow all local and project requirements.

- 1 Determine the location where the manhole is to be installed.**
Tip: Locations should be clearly marked on the project plans.
- 2 Excavate to the proper elevation as indicated on the project drawings.**
Tip: Be sure to account for additional depth as bedding material is generally required below manholes.
- 3 Install the bedding material to the proper thickness and compact.**
Tip: Proper compaction will prevent shifting and settling of the structure over time.
Tip: Be sure to excavate enough material around the structure's location to provide adequate space for the proper compaction equipment of the backfill material.
- 4 Install the manhole structure by lifting and setting it in place.**
Tip: The manhole should be located per the plans and installed level.
Tip: Stack additional sections as required, grouting or applying mastic strips per the project requirements.
- 5 Place the grate or lid on top of the manhole and cover as required to prevent soil from entering during the backfilling process.**
- 6 Backfill the structure in 12-inch lifts using a vibratory compactor for granular soils and a sheep's foot roller for cohesive material.**

Equipment Required

- Excavator or backhoe
- Vibratory compactor
- Any proper bracing that is required
- Sealants, grouts, and mastic
- All proper safety equipment & PPE

Precast Manhole Technical Resources

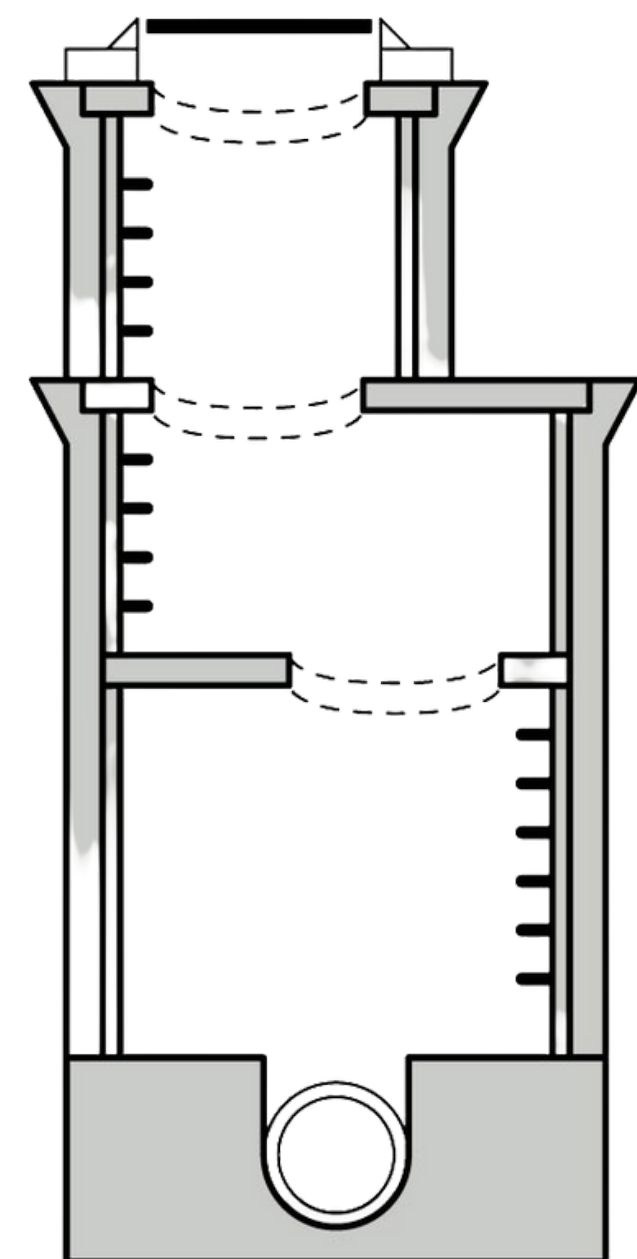
What is a Precast Concrete Manhole?

Manholes are a key element in a sewer system and provide a junction point for converging sewer pipes. They are also key avenues for accessing these junction points for maintaining, observing and servicing the sewer system.

A precast concrete manhole is a simple, round- or box-shaped structure, with an opening in the top that is covered with a slotted or perforated metal grate, rounded beehive grate, or a flat lid. These structures are often installed near a sewer branch or line, or near important utility features.

How It Works

Manholes are essentially a column consisting of a base, multiple sections, and one or more cones which affect the depth and circumference of the underground cavity and the surface opening. They are topped with one of several surface lid or grate options, depending on whether they are to collect and channel rainwater.



ASTM C478 Standard Specification

This specification covers the manufacture and purchase requirements of products used for the assembly and construction of circular vertical precast reinforced concrete manholes and structures used in sewer and water works.