

PRECAST CONCRETE MANHOLES

PROVEN PERFORMANCE THROUGHOUT THE WORLD

Buried throughout the world in watersheds that affect groundwater and surface water quality, precast concrete manholes are successfully helping to convey sewer and stormwater while maintaining water quality. This proven performance demonstrates why precast concrete is the material of choice for manholes.

WHY PRECAST?

- Modularity and design flexibility
- Produced in a quality-controlled plant environment
- Ready to install immediately upon arrival at a job site
- Excellent strength and durability
- Weight helps resist buoyant forces
- Watertight
- Low susceptibility to damage during backfill
- Environmentally friendly



QUALITY | VALUE | PERMANENCE

PRECAST CONCRETE MANHOLES

Precast concrete manholes have many advantages over competing materials:

EASE OF INSTALLATION

Precast concrete manholes are desirable over cast-in-place concrete or brick manholes due to ease of installation.

Precast concrete manholes can be easily installed on demand and immediately backfilled – there is no need to wait for concrete or mortar to cure at the job site. The degree of soil compaction around the manhole and remaining trenches is never a problem, making installation easier. Contractors are familiar with how to handle precast concrete manholes and can easily install them. Standard sealants and flexible joints are vital to watertightness.

QUALITY

Because precast concrete products typically are produced in a controlled environment, they exhibit high quality and uniformity. Variables affecting quality typically found on a job site – temperature, curing conditions, material quality and craftsmanship – are nearly eliminated in a precast plant.

FIRE RESISTANCE

Precast concrete manholes are noncombustible. The manhole is not compromised at 200 F, the temperature at which fiberglass loses its structural integrity. At 266 F, high-density polyethylene melts.

STRENGTH

The strength of precast concrete gradually increases with time. Other materials can deteriorate, experience creep and stress relaxation, lose strength and/or deflect over time. The load-carrying capacity of precast concrete is derived from its own structural qualities and does not rely on the strength or quality of the surrounding backfill materials.



BUOYANCY

With a specific gravity of 2.40 and superior frictional resistance, precast concrete manholes resist buoyant forces better than all other manhole materials. Fiberglass has a specific gravity of 1.86 and HDPE has a specific gravity of 0.97, requiring the use of tie downs and ultimately increasing project costs.

DURABILITY

Studies have shown that precast concrete products can provide a service life in excess of 100 years. For severe service conditions, additional design options are available that can extend the life of the precast concrete product. This is extremely important when calculating life-cycle costs for a project.

REDUCED WEATHER DEPENDENCY

Precast concrete increases efficiency because weather will not delay production of the manholes. In addition, weather conditions at the job site do not significantly affect the schedule because less time is required to install precast compared with other construction materials, such as cast-in-place concrete or brick.

ENVIRONMENTALLY FRIENDLY

Besides water, concrete is the most-used material on earth. It is nontoxic, environmentally safe and made from natural materials.

WATERTIGHTNESS

Precast concrete manholes are produced to be watertight. ASTM C 478, “Standard Specification for Precast Concrete Manhole Sections,” specifies the proper manufacture of quality, watertight precast concrete manholes. Standard watertight sealants and gaskets are available that are specially designed for use with precast concrete, making multiple-seam precast concrete manholes very easy to construct. Vacuum testing is an easy means of verifying watertightness, either in the plant or in the field, as detailed in ASTM C 1244, “Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test.”

With the many advantages over alternative products, precast concrete manholes are clearly the material of choice for long-term maintenance-free conveyance of sewer and stormwater.

For more information on precast concrete manholes, contact:



NPCA

Precast ... The Concrete Solution