

Material Specification – 28 for CONCRETE VAULTS

1. GENERAL

Materials used to construct the vault shall be in accordance with [MS-20](#) and [MS-21](#). Manholes, reducing sections, ladder rungs, and traffic lids shall be precast in accordance with ASTM C 478 with the following additional requirements or exceptions.

If Denver Water requires future access, the vaults shall be cast with a removable lid section. The vault and the individual components thereof (i.e., the lid, walls, and base slab) shall be adequately designed to handle applicable loads. Concrete vault design calculations shall be provided to Denver Water.

2. TRAFFIC LIDS AND ROOFS

Traffic lids and roofs shall be designed for AASHTO H20 loading. The roof slab shall be a minimum of 8 inches thick. The opening through the roof shall be 36 inches in diameter. Additional reinforcement shall be added around the opening at 45 degree angles to the edges and shall extend a minimum of 2 feet beyond the opening. However, when the placement of the lid precludes this extension, the ends of the reinforcing bars shall be standard 180 degree hooks.

If a removable lid is required, the lid shall be cast in sections. Sections shall be cast so that their individual weight does not exceed 7,500 pounds, assuming that the reinforced concrete weighs 150 pounds per cubic foot. Approved engineered lifting embeds shall be provided in the sections for lifting; embeds shall be perpendicular to the face of the lid surface. Embeds shall not displace any of the required reinforcement nor should they protrude from either face of the roof. Embeds shall be placed in such a manner that when lifting cables are being used there is an equal distribution of weight on the cables.

3. WALLS

All four walls on cast-in-place vaults shall be cast in one monolithic and continuous placement. Corners shall have added reinforcement. The walls shall be doweled into the floor. Precast vault walls shall be connected together by a plate and bolt type arrangement. Precast walls shall be appropriately secured to the floor slab.

The minimum wall thickness shall be 5 inches with the reinforcement being at least 1 inch from the inner face of the vault.

4. BASE SLAB

Slabs shall be cast-in-place or precast unless precast base sections are shown or specified. The manufacturer may cast vaults wherein the base slab is integral with the wall sections, except for butterfly valve assemblies.

5. ACCEPTABLE MANUFACTURERS

Copeland Precast, Inc.
Oldcastle Precast

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Concrete Vaults*