



Standard Drawing Report

Date: July 15, 2022

Technical Owner: William Lee Woods, PE
Senior Standards Engineer

Standard Drawing Number: RD356

Drawing Title: Manhole Covers and Frames



RENEWS: 06-30-2024

Original Report Date: July 8, 2013

Background Information, Including Reference Material:

Standard Drawing 2050's oldest version was in July 1940. It was revised in January 1953 and August 1956. The 1956 edition of the drawing contains the standard manhole cover and frame.

In July 1958 the manhole grate was added as an option.

In May 1975 the adjustment ring was added to the drawing.

With the 1996 metric drawings this drawing became RD324. The cover, frame, and adjustment rings remained unchanged from the 1956 and 1975 drawings.

In 2002 the Oregon Standard Drawings were created in a joint effort by ODOT and APWA members. The manhole covers, frames, and adjustment rings from ODOT were combined with the suburban frame, cover and the bolt-down detail to lock the cover to the frame.

Assumption Made:

No major assumptions made.



Standard Drawing Report

Design Narrative:

The standard manhole covers and frames have a proven track record from the 1940s to today. The covers and frames must pass the AASHTO M 306 specification, which includes a proof loading test, to make the QPL.

The 'mud ring', a flange that extends the frame into the cone section of the manhole, is an important component of the design. The 'mud ring' centers the frame onto the cone, ensuring the loading is properly placed onto the cone section. The flange can be between 1½" and 3" in height.

Corrections are made to the dimensions on the adjustment rings. When this specific detail was converted back into Imperial units from Metric units there were some errors made. In addition the adjustment rings reference ASTM A 48, class 35B, which is for gray iron castings. This is also a materials requirement of AASHTO M 306.

The graphics are modified to keep proportions within the boxes the same.

Updated: January 13, 2014

Included on the Bolt-Down Detail is a reference to a new general note to see the QPL for alternate bolt down products. There are some other options that are approved that are not specifically shown on the standard drawing.

Updated: July 14, 2014

Revised general note 4 to reference information for safety ladders on Oregon Standard Drawing number RD337.



Standard Drawing Report

Update: July 25, 2017

The general note that referenced RD337 for safety ladder is modified to reference RD336 for manhole steps instead.

Update: January 16, 2019

Removed all references to ladders from the drawing. There are no commercially available, permanently installed, ladders that meet OSHA requirements.

Update: June 21, 2019

Modified titles on the drawing to match ODOT CAD Standards for detail titles.

For general note 1, changed the abbreviation of the word required to match the ODOT standard abbreviations.

General drafting modifications for clarity.

Update: July 15, 2022

Updated drawing to current ODOT CAD standards, which required re-drawing of all details.

On STANDARD MANHOLE COVER AND FRAME DETAIL, changed dimension for frame top rim thickness from 1" to ½" min. to align with ODOT QPL-approved designs.

On CAST IRON SUBURBAN MANHOLE COVER & FRAME detail, changed outside dimension of frame top rim from 27" to 26" min.