

MANHOLES

EQUIPPING

NOTES CONCERNING THIS ADDENDUM

This addendum is being reissued to include information on placing cable racks and other manhole hardware as well as to cancel information on the 30 inch frames which will no longer be used in this area for new construction.

The following Paragraphs should be marked "See Addendum" and treated as indicated:

- Paragraphs 1.03, 1.06, and 1.07 -Supplemented
- Paragraphs 1.10, 1.11, and 1.12 -Added
- Paragraphs 2.02 and 3.04 -Supplemented
- Paragraphs 5.01 and 5.02 -Supplemented ←
- Paragraph 5.04(a) -Cancelled ←
- Paragraphs 5.04(b) and 5.04(c) -Replaced ←
- Paragraphs 5.06 and 6.05 -Supplemented
- Paragraphs 6.06 and 6.07 -Replaced

1. CABLE RACKS AND CABLE RACK SUPPORTS

1.03 Number of Racks

The second line of the first table in Paragraph 1.03, and the note by the asterisk, should be changed to read as follows:

*Headroom	Number of Racks		
	14 Hole Racks	18 Hole Racks	37 Hole Racks
5 ft. 6 in.	1	1	or 1

*In loading manholes - the headroom measurement refers only to that portion of the headroom required for cable racking and does not include the lower part of the manhole just above the floor reserved for placing loading coil cases.

1.06, 1.07 On the drawings in these paragraphs, cross out the wording "Space for racking stubs," "Hook positions for cables" and the 12 inch, 6 inch and 18 inch measurements associated with that wording. For cable racking space see the section on Manholes, under Headroom.

1.10 Loading Manholes

In loading manholes the bottom of the cable racks should be placed 36 inches above the manhole floor.

1.11 Location of Racks Where Duct Levels Vary

Where there is a considerable difference in the levels of the main duct structures entering the manhole, the cable racks should be located on the walls at a height equidistant between the two duct levels so as to minimize the amount of setting up operations required.

1.12 Excessive Headroom Due to Depth of Conduit.

Where substructures or grading necessitates placing the conduit below normal depth, cable racks should be placed on the lower part of the manhole wall for the required headroom only.

2. I - BEAM UPRIGHTS

2.02 Note: Use a 1/2 in. x 1-3/4 in. Galvanized Machine Bolt instead of the 1/2 in. x 2 in. referred to in the illustration.

3. PULLING-IN IRONS

3.04 There should be at least one pulling-in iron placed below each duct run of 2 or more ducts to facilitate the cable pulling operation.

5. FRAMES AND COVERS

Types and Uses

5.01 In the table on page 13 covering Type B Frames the row of figures opposite and including 24 inches shall be deleted.

5.02(a) A 27 inch Ring Type Manhole Cover per Drawing CS-1610 is provided for use where it is necessary that the cover match the existing sidewalk material.

(1) The cover shall be filled with cement of the same texture and design as that of the sidewalk; and in the case of sidewalks having special designs or decorative finish, the finish of the cover filling shall be so arranged that it will harmonize with that of the surrounding surface, and will coincide as exactly as possible with the pattern of the rest of the decoration when the cover is in place. Where special composition, rubber or other material is used for surfacing the sidewalk, similar material shall be used in finishing the cover filling.

(2) If the sidewalk is under construction at the same time that the manhole is being built, it will generally be advisable to make arrangements with the sidewalk contractor for filling and surfacing the manhole covers involved. Where manholes are built under existing sidewalks, similar arrangements may be made in connection with the replacement of the sidewalk subject to local requirements or regulations.

5.02(b) If a driveway is constructed across a sidewalk at a location where there is an existing manhole equipped with an R or sidewalk frame and cover, the frame and cover shall be replaced with a standard manhole casting. This shall also apply to any condition or circumstance occurring which might create any probability of vehicles or other traffic passing over the manhole.

5.02(c) During the war period, 27-inch and 30-inch Concrete manhole Frames and Covers were made available as substitutes for the standard Type "R" cast iron manhole frame and cover. Their use was restricted to locations where they would not be subjected to vehicular traffic.

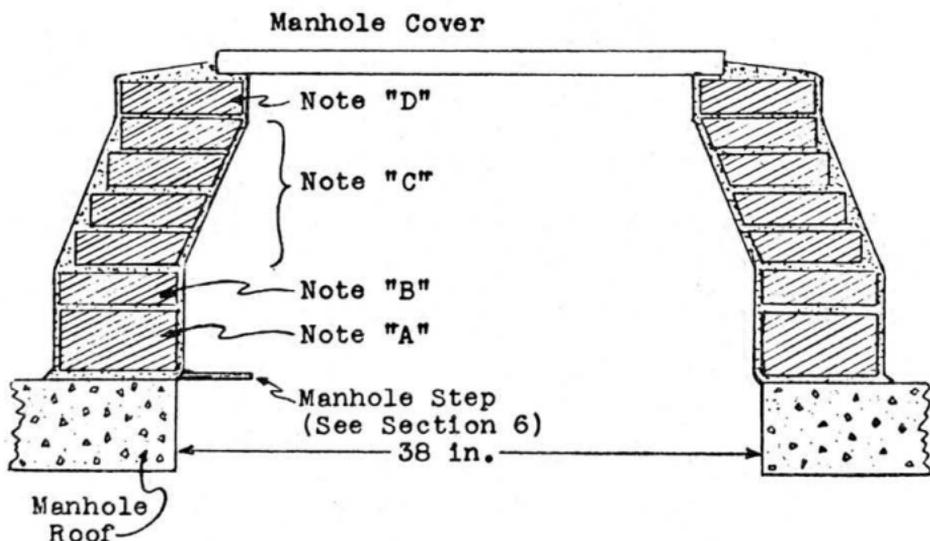
Note: The concrete manhole frame and cover is no longer standard in this area. In the event any are removed from plant they shall not be re-used.

5.04(a) This Paragraph in the main Section is cancelled.

5.04(b) The 27-inch frame is for use in general construction on all types of manholes.

- 5.04(c) The **minimum** size manhole frame used in California shall be 27 inches.
- 5.06(a) Where manholes are constructed in parkways and there is a possibility that future street improvements may include the manhole location and subject the cover to vehicular loads, the roof of the manhole should be located sufficiently below the existing grade to permit placing a manhole frame and cover that is capable of supporting the load after the new grade is established without rebuilding the roof of the manhole. In most cases this can be accomplished by locating the roof of the manhole 10 to 14 inches below the existing gutter grade.
- 5.06(b) Where the vertical distance between the top of the manhole frame and the ceiling of the manhole exceeds 24 inches the width of the manhole opening shall not be less than 38 inches as indicated in Paragraph 2.03 of Addendum G43.126.1.
- 5.06(c) Where a 38 inch manhole opening is required and Ring Type (DWG. CS-1610), Type R or 27 inch Type A, SA or SB manhole frames are to be used it will be necessary to construct a tapered manhole neck as illustrated below:

TAPERED COLLAR CONSTRUCTION



Note "A": This brick can be corbelled if necessary.

Note "B": This brick can be eliminated or several bricks added, if required.

Note "C":

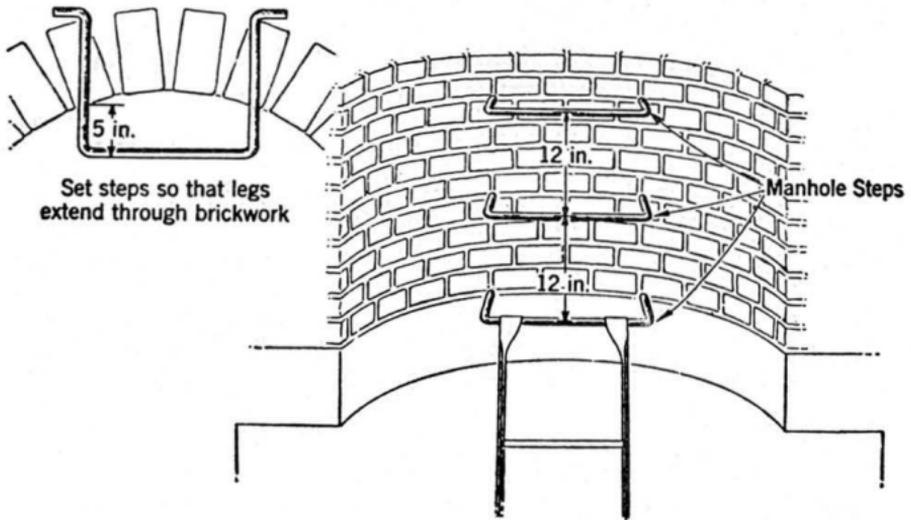
- (1) For 27 in. Ring Type (Dwg. CS-1610) and R Type manhole castings corbel 4 bricks 1-1/4 in. each.
- (2) For 30 in. Ring Type (Dwg. CS-1610) and R Type manhole castings, corbel 4 bricks 7/8 in. each.
- (3) For 27 in. Type A, Type SA and Type SB manhole castings, corbel 4 bricks 1/2 in. each or 2 bricks 1 in. each.

Note "D": Partial brick can be placed or brick can be eliminated, as required.

6. LADDERS AND STEPS

6.05 Where a tapered collar is constructed and a step is required in the tapered section, this step shall not extend any further into the opening than it would if placed in the vertical section.

6.06(a) In situations where the brick chimney of the manhole is so deep that the step or top rung of the ladder is more than 24 inches from the top of manhole casting, place additional steps at intervals of one foot (as shown in the following illustration) until a step is located not more than 24 inches below the top of the casting. Make certain that the legs of the steps are solidly embedded in the mortar of the brickwork.



6.06(b) The following table indicates the maximum allowable distance between the top of the manhole frame and the ceiling of the manhole without placing permanent manhole steps and hook ladders.

<u>Headroom of Manhole</u>	<u>Maximum Length of Neck without permanent steps</u>
5'	34"
5-1/2'	28"
6	22"
6-1/2'	27"
7'	21"
7-1/2'	39"
8'	33"
8-1/2'	27"
9'	21"
9-1/2'	38"
10'	32"
10-1/2'	26"
11	20"

Note: Place at least one permanent step in all manholes that have over 11' headroom.

6.07 Where unsatisfactory climbing conditions involving manhole ladders are encountered in existing manholes, correct the condition by one of the following methods:

- (a) Substitute a manhole ladder longer than the normal ladder for the manhole involved, if this will bring the top step 24 inches or less from the top of the manhole casting and allow the workmen to safely enter and leave the manhole.
- (b) Install steps as covered in Paragraph 6.06 of this addendum by cutting away the brick at the point where the step is to be placed. Insert the legs of the step to the required depth and anchor them securely with brick and cement mortar.