



# 48" Diameter Manhole Specifications

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*Revised: January 22, 2001*

This specification covers precast reinforced concrete manhole base sections, riser sections, eccentric cone sections, flat slab tops and grade rings. All sections are manufactured according to ASTM C-478-90b which may be referred to for more detailed specifications.

## Concrete

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1. Concrete shall have a minimum 28 day compressive strength of 4000 psi.
2. Unless otherwise specified, Type I cement shall be used.
3. Air content shall be 6%, plus or minus 2%.

## Reinforcing Steel

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1. Cone circumferential reinforcement is .276 BRT wire with concentric rings not more than 6" apart with extra rings at top and bottom of cone. In no case will the total steel area per vertical foot be less than .12 square inches. Longitudinal wires are used as necessary to hold the circumferential wires in shape and position.
2. Riser and cone reinforcement is one layer of 3x8-W3/W2.1 (.12/.03) placed in the center third of the wall. In no case will the total steel area per vertical foot be less than .12 square inches.
3. Flat slab tops are reinforced with two layers of 3x8-W3/W2.1 welded wire fabric running in opposite directions. The wire shall be located 1" from the lower side of the top. In no case will the total steel area per vertical foot be less than .12 square inches in both directions.
4. Grade rings have circumferential reinforcement of one ring of .276 BRT wire or equivalent. In no case will the total steel area have an equivalent area of less than 0.07 square inches / vertical foot and not less than 0.024 square inches in any one grade ring.
5. Precast base sections: Walls and base monolithically poured. Reinforcement for walls is one layer of 3x8-W3/W2.1 (.12/.03) placed in the center third of wall. Bottom section has two layers of 3x8-W3/W2.1 at 90° of each other placed above the midpoint.

## Dimensions

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1. Inside diameter of riser and cones shall be 48".
2. Risers are manufactured in vertical heights of 12", 24", 36" and 48".
3. Bases are manufactured in vertical heights of 12", 24" and 36"
4. Cones are manufactured in vertical height of 36". Cones have access openings of either 24" or 30".

## Manhole Steps

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1. American Step Company, Inc. ML-10 high impact copolymer polypropylene steps with .5" diameter ASTM A 496 D20 deformed steel bar or equal.
2. Steps are attached to riser or conical sections so as to form a continuous ladder of rungs spaced vertically at 12". Installer must align sections so as to form a continuous ladder.

## Joints

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1. The base, riser, and cone (excepting grade rings) shall be formed with male and female ends, so when the base, riser and top are assembled they will make a continuous and uniform manhole. Conforms to ASTM C443 specifications.
2. The joints shall be sealed with Concrete Sealant's ConSeal CS-102 Controlled Expansion Waterstop Sealant.

## Other Specifications

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3. When required, inverts or flow channels will be placed by a secondary pour of the base. The concrete at the lowest point of the flow channel shall be a minimum of 2" for the sanitary manholes and 1" for the storm manholes.
4. When required for sanitary sewer, pipe to manhole gasket systems will be Press-Seal Gasket Corporation PSX positive seal gasket with power sleeve expansion or equal.