



CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



URD/PULL BOX SPECIFICATIONS

Concast Pull Box Specifications

GENERAL SPECIFICATIONS FOR URD/PULL BOXES

1. TECHNICAL SCOPE

- 1-A.** These specifications cover precast Fibercrete® (G.F.R.C.) & Concrete pull boxes manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The pull boxes shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the boxes for truck shipment. Shipping and delivery responsibilities will be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval, field installation, and field identification; in PDF, SolidWorks, or AutoCAD format. Standard PDF format component drawings shall also be available online.
- 2-B.** The tolerances of the dimensions of each concrete unit shall not exceed $\pm 1/4"$. These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** The manufacturer's design dimensions must be approved by the Purchaser prior to fabrication.
- 2-D.** Provisions, such as cast-in threaded inserts, must be offered for lifting heavy pull boxes. Mounting holes must be adequately reinforced to avoid damaging the pull box, and to provide an ultimate strength of at least 5 times the part weight when the unit is lifted in accordance with the manufacturer's instructions.
- 2-E.** Bases shall have optional holes for adequate drainage or for attaching sump.
- 2-F.** Conduit/Cable entrances shall be supplied per job requirement, and will be made available in many sizes and configurations depending on the application.
- 2-G.** The pull box shall be designed and constructed so that it and any related hardware will not trap or hold water when required, and so that it will be able to withstand repeated freeze and thaw cycles.
- 2-H.** The box color shall be a natural concrete gray.
- 2-I.** If required, the box shall be manufactured with cover bolt-down accommodations.
- 2-J.** Boxes are all built to meet the heavy traffic requirements of AASHTO H-20 which is 32,000 lbs. axle load. Some of the smaller Pull Box covers can be made available with a pedestrian rating of 200 lbs./ft.
- 2-K.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".
- 3-C.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".

3-D. MICRO-CONCRETE

- 3-D.1 Precast solid concrete Vaults/Boxes shall be cast into steel forms using Type I/II Portland Cement.
- 3-D.2 Concrete shall contain 6% entrained air (plus or minus 1%)
- 3-D.3 Shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.

3-E. REINFORCEMENT

- 3-E.1 Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".
- 3-E.2 Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".
- 3-E.3 Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".

3-F. The pull box must not be affected by asphalt, road salts, fertilizers, oils, other common chemicals, weather, sunlight, or other normal service conditions that it might be exposed to.

3-G. The box must not warp, rust, be UV degradable, or sustain combustion.

3-H. With equipment installed; the pull box shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/C666M-03.

3-I. When required, site-specific, PE stamped, seismic calculations shall be provided.

3-J. Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.

3-K. METAL COMPONENT PERFORMANCE

3-K.1 All galvanized steel covers, hardware, and embedments shall meet the following requirements:

- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
- Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
- Galvanized Hardware - ASTM 153

3-K.2 All stainless steel hardware and embedments shall meet the following requirements:

- Stainless Steel Angles & Flats Type 304 - ASTM A276
- Stainless Steel Sheet Type 304 - ASTM A-240

3-K.3 All aluminum covers, hardware, and embedments shall meet the following requirements:

- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
- Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
- Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

Concast Pull Box Specifications

4. PULL BOXES

- 4-A. Pull boxes shall have 4 or 6 inch thick walls, optional interlocking extension rings, and removable cover sections assembled to form a completely enclosed unit.
- 4-B. For boxes with non-standard heights, extension rings shall be stacked vertically on the base ring to meet the desired depth requirement.

4. INSTALLATION REQUIREMENTS

- 4-A. When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 4-B. All pull box excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 4-C. All backfill material shall be a granular material as required by the soils engineer. URD/Pull box shall be designed to have no limitations of backfill height.
- 4-D. Installation guidelines shall be made available online.



P.O. Box 69
1010 North Star Drive
Zumbrota, MN 55992-0069



August 2013

