

## SECTION 161

### GRAY IRON CASTINGS

#### 161.1 GENERAL

161.1.1 Gray iron castings shall be as shown on the construction plans or the Standard Detail Drawings, and shall be as specified herein. The castings may include: rockers, rocker plate bearings, bearing plates, manhole frames and covers, water valve frames and covers, railings, railing posts, wheel guards, gratings, etc.

161.1.2 The castings shall be true to patterns in form and dimension and free from pouring faults, sponginess, cracks, blowholes, or other defects in locations affecting their strength and value for the service intended. Castings shall be filleted at angles, and risers shall be sharp and true.

#### 161.2 REFERENCES

##### 161.2.1 ASTM

A 48  
A 438

#### 161.3 TEST SPECIMENS

161.3.1 The number of tension test specimens and their machined dimensions shall be as specified in ASTM A 48.

161.3.2 Depending on the configuration and use of the castings, the ENGINEER may specify that transverse tests of the casting material shall be made in accordance with ASTM A 438. These tests shall be made in addition to the tensile tests.

161.3.3 The manufacturer shall furnish a notarized certificate of compliance which states that the casting material meets or exceeds the requirements for the specified class of material. Test results shall be included with the certificate. The CONTRACTOR shall forward the manufacturer's certificate of compliance and test results to the ENGINEER for each project on which the castings are installed. The CONTRACTOR shall also furnish the ENGINEER with a copy of the manufacturer's shop drawing at the time the certificate of compliance is submitted.

#### 161.4 MANHOLE FRAMES AND COVERS

161.4.1 Castings shall conform to ASTM A 48, Class 30B.

161.4.2 The frame and cover dimensions shall conform to the dimensions shown on the Standard Detail Drawing.

161.4.3 The bearing surfaces of the frames and covers shall be machined or ground to provide a uniform, flat, non-rocking seat for the cover on the frame.

161.4.4 The contact sides of the frame and cover shall be tapered as shown on the Standard Detail Drawing.

161.4.5 Manhole frame shall weigh a minimum of 140 pounds and cover shall weigh a minimum of 170 pounds.

161.4.6 The word "WATER", "SEWER", or "STORM" shall be cast on the manhole cover to indicate the respective system and the name of the city. The letter size shall be 1 inch in height. The words shall be placed as shown in the Standard Detail Drawing. In addition the name of the foundry shall be cast on the top of the cover, either in the center or within one of the inner concentric circles.

#### 161.5 WATER VALVE FRAME AND COVER

161.5.1 Castings shall conform to ASTM A 48, Class 30B.

161.5.2 The frame and cover dimensions shall conform to the dimensions shown on the Standard Detail Drawing.

161.5.3 The bearing surfaces of the frames and covers shall be machined or ground to provide a uniform, flat, non-rocking seat for the cover on the frame.

161.5.4 The word, "WATER", shall be cast on the cover. The letter size shall be 1 inch in height and shall be placed as shown on the Standard Detail Drawing. In addition the initials of the foundry shall be cast on the top of the cover opposite the word, "WATER".

#### 161.6 RAILINGS, RAILING POSTS, AND WHEEL GUARDS

Castings shall conform to ASTM A 48, Class 40B.

## 161.7 ROCKERS, ROCKER PLATE BEARINGS, AND BEARING PLATES FOR BRIDGES

161.7.1 Castings shall conform to ASTM A 48, Class 50B.

161.7.2 Castings shall be machined and finished as specified on the plans. Tool marks on sliding contact surfaces shall run in the direction of plate movement, and in case of rocker plate bearings marks shall be perpendicular to the rocker movement.

## 161.8 UNCLASSIFIED CASTINGS

All castings, not specifically classified, shall conform to the minimum requirements of ASTM A 48, Class 30.

## 161.9 COATINGS

Manhole frames and covers, and other castings will show bare metal. If specifically required, the castings shall be painted with or dipped in commercial quality asphaltum paint.

## 161.10 ORIGIN OF MANUFACTURE

To ensure that the specified quality of castings will be guaranteed, only castings manufactured in the United States of America will be acceptable.

## 161.11 MEASUREMENT AND PAYMENT

Measurement and payment shall be per unit price per defined unit in the bid proposal, or the cost of the castings may be included in major construction item unit cost, such as manhole frame and cover may be included in the cost of the manhole.