

METROPOLITAN UTILITIES DISTRICT OF OMAHA  
 OMAHA, NEBRASKA

CAST-IN-PLACE – CONCRETE

PART 1 – GENERAL

1.1 – The Contractor shall furnish all labor, materials, tools, and equipment necessary for cast-in-place concrete as shown on the drawings and specified herein.

2. QUALITY ASSURANCE – Unless otherwise shown or specified the work shall conform to the following sections of American Concrete Institute Manual of Concrete Practice:

ACI 347	Recommended Practice for Concrete Form Work
CRSI	Recommended Practice for Placing Reinforcing Bars
ACI 211.1	Recommended Practice for Selecting Proportions for Concrete
ACI 304	Recommended Practice for Measuring, Mixing, and Placing Concrete
ACI 306	Recommended Practice for Cold Weather Concreting
ACI 308	Recommended Practice for Curing Concrete

It is the intent of this specification that whenever a procedure or technique is not called out herein, that industry standard, as represented by ACI, ASTM or other appropriate recommendation, be used. Standards shall be those effective on date of advertisement of bid.

ACI and ASTM Standards: ACI publications are available from American Concrete Institute, P. O. Box 19150, Redford Station, Detroit, Michigan, and ASTM publications are available from American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania.

Where applicable, all concrete and concrete work shall conform to the City of Omaha “Standard Specifications for Public Works Construction”.

1.3 CONCRETE TESTS DURING CONSTRUCTION – Samples shall be taken during the progress of work for the determination of slump, air content and compressive strength.

All tests will be scheduled and paid by Owner. Contractor shall notify the Engineer 24 hours in advance of placing concrete.

Provide access for, and cooperate with, the inspector and testing laboratory.

PART 2 – PRODUCTS – 2.1 FORM MATERIALS

Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortions and defects.

Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.2 Reinforcing Materials – Reinforcing Bars – ASTM A615, Grade 60 deformed, unless otherwise shown on the drawings.

Welded Wire Fabric – ASTM A185, welded steel wire fabric.

Supports for Reinforcement – Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.

For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 Concrete Materials – Portland Cement – Portland cement shall conform to ASTM C-150, Type I, Type III high-early-strength cement may be used at option of Contractor without additional compensation. Use same brand and type of cement from same mill throughout work unless different brands or types are approved by Engineer.

Aggregates – Fine and coarse aggregates shall comply with the Nebraska State Department of Roads Specifications for aggregate used in Class 47B concrete.

Water – Clean and potable water shall be used.

Air Entraining Admixture – ASTM C260, certified by manufacturer to be compatible with other required admixtures. Air-entraining admixture shall not contain chloride salts.

Other Admixtures – Provide other materials, not specifically described but requested for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

Moisture Retaining Cover

One of the following, complying with ASTM C171.

Waterproof paper, polyethylene film, polyethylene-coated burlap.

Liquid Membrane-Forming Curing Compound

Liquid type membrane-forming curing compound complying with ASTM C309, Type II. Moisture loss not more than 0.055 gr./sq. cm. When applied at 200 sq. ft./gal.

Curing compound will be compatible with other sealers, and shall be approved by the Engineer.

2.4 Concrete Mix Design – It is the intent of these specifications to obtain high quality concrete made from materials normally used in the vicinity, providing they meet other requirements of these specifications.

For the work to be produced, the density, impermeability and low shrinkage are required qualities in addition to strength. Certain provisions of this specification are included to promote their attainment and the Construction shall follow them diligently, along with the workmanship required to successfully achieve these results.

Proportioning of ingredients shall be such as to produce necessary placeability, durability, strength and other required properties; and a mixture which will work readily into corners and angles of forms and around reinforcement when placed by methods to be employed in work without permitting materials to segregate or accumulation of an excess of free water on surface. Concrete for all parts of work shall be homogenous and when hardened, shall have required strength, durability, abrasion resistance, water tightness, appearance, and other specified properties.