

## **DIVISION 3 CONCRETE**

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### SECTIONS:

#### 3.1 CONCRETE

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#### 3.1 A General:

1. Standards – all concrete work shall be in conformance with the following standards:

ACI 301 "Specification for Structural Concrete for Buildings."

ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete."

ACI 305 "Hot Weather Concreting."

ACI 306 "Cold Weather Concreting."

ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures."

ACI 318 "Standard Building Code Requirements for Reinforced Concrete."

ACI 347 "Recommended Practice for Concrete formwork."

#### 3.1 B Products:

1. Reinforcing rods – ASTM A305 and ASTM A615, grade 60
2. Wire Fabric – ASTM A185
3. Portland Cement – type I, ASTM C150
4. Aggregate – 3/4 inch Stone, ASTM C303, clean sharp sand free of clay, silt, loam or organic materials.
5. Water – clean, potable
6. Grout – Premixed, non-shrink type.
7. All concrete shall be 3000 psi minimum compressive strength at 28 days, except for walkways, non-structural slabs and footings for which 2500 psi concrete shall be acceptable.

#### 3.1 C Execution:

1. Concrete Mix –
  - a. All concrete shall be plant mixed in conformance with ASTM C-94. No salts or additives shall be added to the mix once it leaves the plant. All concrete shall be certified and each delivery ticket shall state: strength of concrete; percent of air entrainment; additives included; and time of departure from plant.
  - b. Random slump test(s) shall be performed at the Project Inspector's discretion.

- c. One core test per truckload shall be submitted after 28-day curing cycle (location of test(s) to be determined by Project Inspector).
2. Placing Concrete –
  - a. Assure that excavations and formwork are completed and that no ice or water are present.
  - b. Convey concrete from mixer to final position by method which will prevent separation of material. Deposit in continuous operation until panel or section is complete.
3. Basement and Crawlspace Floors –
  - a. Basement floor slabs shall be 3 inches thick minimum. Crawl space slabs shall be 2 inches thick minimum.
  - b. Install continuous 6 mil. polyethylene moisture barrier under concrete in basements, crawl spaces, and slabs-on-grade.
  - c. Install moisture barrier carefully; do not puncture.
  - d. Finish new basement slabs with smooth steel-troweled finish and provide tooled crack joints to control maximum 400 sq. ft. of unrelieved area. Crack joints shall be straight and evenly spaced. Floors shall be level within 1/4 inch in 10 ft. In addition to crack joints specified above, provide control joints through the short dimension of the floor at all offsets and changes in floor configuration; provide isolation joints around support post footings.
4. Steps –
  - a. Steps shall be of size shown in plan, with minimum 8-inch thick back and cheek walls and minimum 8 inch throat dimension. Construct on footings 24 inches deep (minimum) or use monolithic pour extending at least 24 inches below grade.
  - b. Bullnose all step nosings and provide vertical riser, or slope risers one inch out at top of riser.
  - c. Comply with building code stair requirements.
5. Footings –
  - a. All footings shall be a minimum of 36 inches below adjacent grades and shall be a minimum of 12 inches deep by 24 inches wide unless otherwise indicated. Configuration of footings adjacent to an existing footing shall be designed by an engineer.
  - b. Formwork shall be used where trench will not retain firm shape or is subject to cave-in or collapse.

- c. Inspect footing bottoms, clean and remove any water prior to pour. Do not place concrete on wet or frozen soil.
6. Porches –
- a. Where porches are contiguous with existing neighboring wood framed porch floors, the Contractor shall provide a suitable joint detail at the dividing property line and shall repair all damage to the neighboring porch floor including piers, pilasters and replacement of railing.
  - b. New concrete porch floors shall be formed and braced from below, and shall rest on masonry walls on all sides or on approved lintel. Top surface shall slope 1/8-inch per foot toward direction of proper drainage.
  - c. Concrete slabs shall be a minimum of 4 inches thick with #4 reinforcing rods at 12-inch spacing each way. Steel rods shall be tied at intersections and lifted off form.
  - d. Concrete porch floors shall have smooth steel trowel finish and shall be cured by wet methods or by the use of a curing compound.
  - e. All openings below new porch slab shall have steel or precast concrete lintels.
  - f. All new porch slabs shall have a bullnosed 3-inch overhang along front and exposed side edges.