

# Division 3

- A. Reference Standards: The latest publication of the following standards shall establish the minimum requirements when not otherwise specified in this Section:
  - 1. American Concrete Institute (ACI) Standard 347, "Recommended Practice for Concrete Formwork".
- B. Forms for exposed concrete shall be constructed of metal or smooth A-A plywood, or other material to provide a smooth surface finish.
- C. All forms shall be cleaned and treated each time they are used.

## 03 200 CONCRETE REINFORCEMENT

- A. Reference Standards: The latest publication of the following standards shall establish the minimum requirements when not otherwise specified in this Section:
  - 1. Concrete Reinforcing Steel Institute (CRSI) for placing reinforcing bars.
  - 2. American Concrete Institute (ACI) Standard 315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures".
- B. Epoxy coated rebar and applicable installation techniques are recommended for exterior concrete with no further coatings or sealers, especially in areas subject to salt exposure.
- C. Wire, bar, and chair-type reinforcement supports shall be corrosive resistant, hot dipped galvanized, or plastic coated in accordance with CRSI recommendations.
- D. Generally, at control joints, reinforcement shall be held 1-1/2" short of the joint. This should be reviewed with the Structural Engineer on a project-to-project basis. Reinforcement will be covered by a minimum of 1-1/2 bar diameters of concrete; however, the minimum will be one inch of cover in concrete against grade, and 1-1/2 inches of cover in concrete exposed to road salt.

## 03 300 CAST-IN-PLACE CONCRETE

- A. Reference Standards: The latest publication of the following standards shall establish the minimum requirements when not otherwise specified in this Section:
  - 1. Portland Cement Association publication, "Design and Control of Concrete Mixtures."
- B. Site concrete (pavement, curb, and walks) shall be specified in Division 2. Sections 02620 and 02630 shall not be incorporated into Division 3 in any way.

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- C. Testing: The Contractor shall be required to retain and pay for the services of a State approved laboratory to perform all concrete testing and inspections in accordance with applicable ASTM standards.
1. Tests will be required to determine whether the concrete being produced complies with the standard of quality and strength as specified.
  2. Additional Tests: The Contractor may have the testing service make additional tests of in-place concrete when test results indicate that specified concrete strengths and other characteristics have not been attained. The testing inspection agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or such non-destructive testing methods that may be approved by the University. Contractor shall pay for all such tests conducted. Any holes made shall be patched by the Contractor at his expense.
  3. Concrete Replacement: Failure of any test or to follow proper installation procedures will require that the concrete be removed and properly replaced at Contractor's expense.
- D. Air-entrained concrete shall be used where concrete is exposed to the weather. No antifreeze or other admixtures are permitted.
- E. Newly placed concrete for surfaces exposed to the public should be placed during the morning hours to insure that the concrete will be fully set and free of graffiti. Freshly placed concrete with graffiti shall be removed and replaced by the Contractor at no additional cost to the University.
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- F. All concrete floors which will be exposed within the finished building and which are not scheduled to receive an applied finish, shall be sealed.
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- G. All concrete additives, where required, must contain no more chloride ions than allowed under the American Concrete Institute's Building Code Requirements and shall be certified as such by the Contractor.
- H. Do not use calcium chloride in any admixture.
- I. Foam expansion joint materials will generally be used at all building expansion and control joints. Asphalt impregnated joint fillers may be used at joints with minimum design movement.
- J. Install all expansion joint fillers slightly below the finished surface. Foam expansion joint fillers will be placed to allow for a well designed bead of sealant. Asphalt impregnated joint fillers will not be caulked over.
- K. All below grade construction joints in concrete not otherwise protected by waterproof membranes shall have waterstops.

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- L. Waterstops shall be highly resistant to alkalis, acids, oxygen, ozone, and waterborne chemicals.
- M. Specify latex or acrylic bonding agents when placing new concrete against existing concrete.
- N. The concrete mix shall be designed by a licensed professional engineer to meet the project design conditions.
- O. Retempering of concrete will not be allowed.
- P. Mechanical steel troweling and a minimum of one hand troweling shall be used to bring slabs to a true hard surface.
- Q. Exterior slabs will have a broomed finish.
- R. All interior floors, including areas to receive sheet vinyl, vinyl tile or carpet shall have a smooth troweled finish; unless other finish is required by finished flooring materials.
- S. Concrete surfaces on interior or exterior loading docks shall have a broom finish to provide a non-skid surface.
- T. Floor surfaces shall not vary from a true plane more than 1/8 inch in 10 ft. In areas of door opening and swing, the floor shall be completely level.
- U. Damp curing is preferred over using curing compounds to avoid incompatibility with the many finish materials, hardeners, and sealers. Sodium Silicate curing compounds will be used where required by weather, approved construction schedules, and construction that is not adaptable to damp curing.
- V. Specify other curing compounds as approved by the manufacturer of the finish materials to be installed. Curing compounds should contain a fugitive dye, or when hot weather conditions dictate, a fugitive heat reflecting pigment.
- W. The use of surface hardeners should be considered for special areas but the incidental hardening of most curing compounds and sealers is generally adequate. Magnesium zinc fluoresilicate hardener is compatible with sodium silicate curing compounds, but is not recommended for finished areas because the surface is often rough and mottled.
- X. All interior floors and stairs not receiving additional finishes shall receive a sodium silicate sealer to provide a smooth non-dusting surface for ease of maintenance. Air plenum chamber floors and areas to receive carpet will also be sealed.