



**DESIGN & CONSTRUCTION GUIDELINES**

**DIVISION 03 CONCRETE**

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**SECTION 03 05 00 GENERAL PROVISIONS****1.1 FLY ASH**

- A. Use of fly ash in structural concrete requires USF Facilities Management (USF-FM) approval. A/E to coordinate the USF-FM review with the USF Sustainability Manager when fly ash is considered as admixtures in reinforced concrete work in order to pursue (Leadership in Energy and Environmental Design) LEED credit.

**1.2 SLOPES & DIMENSIONS**

- A. The concrete floor on the inside and the outside of each doorway shall be level for a distance of not less than 5-feet in each direction. A 2% slope and cross slope is acceptable outside for drainage purposes and Americans with Disabilities Act (ADA) compliance.
- B. Sharp inclines and abrupt changes in level shall be avoided at doorsills. Allow for drainage at the outside of exterior doors.
- C. At an out-swinging door, the platform shall be not less than 5 X 5 feet and shall extend not less than 1-foot beyond each side of the door.
- D. At an in-swinging door, the platform shall be not less than 3 X 5 feet, and shall extend not less than 1-foot beyond each side of the door.

**1.3 TESTS**

- A. A minimum of four (4) test cylinders prepared in accordance with American Society for Testing and Materials (ASTM) C495 shall be taken during each day's placement and every 50 cu yd thereafter. Tests shall be made by a testing laboratory employed and approved by the Consultant. Written reports of the tests shall be sent directly to the Consultant with a copy to the University. Laboratory shall make tests for wet density, dry density, and compressive strength of each specimen.

**1.4 CODES AND STANDARDS**

- A. Comply with provisions of the following codes.
1. American Concrete Institute (ACI) 301, Specifications for Structural Buildings.
  2. American Concrete Institute (ACI) 318, Building Code Requirements for Reinforced Concrete.
  3. Concrete Reinforcing Steel Institute (CRSI), Placing Reinforcing Bars – Recommended Practices.
  4. American Concrete Institute (ACI) 305, Hot Weather Concrete.
  5. American Concrete Institute (ACI) 308, Standard Practice for Curing Concrete.
  6. American Concrete Institute (ACI) 309, Guide for Consolidation of Concrete.

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END OF SECTION 03 05 00

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**SECTION 03 30 00 CAST-IN-PLACE CONCRETE****1.1 TEST REPORTS**

- A. A copy of all concrete test reports shall be furnished to the USF-PM and USF Building Code Administrator (BCA).

**1.2 MISCELLANEOUS REQUIREMENTS**

- A. STRENGTHS: All concrete designs strength shall be determined by the project A/E, however, in no case shall the compressive strength be less than 3,000 psi in twenty-eight (28) days; except that 2,500 psi concrete may be specified for filling over-excavations for footings.
1. AIR ENTRAINED CONCRETE: An approved air-entraining admixture shall be used for all concrete exposed to weather. Minimum strength shall be 3,000 psi.
  2. HARDENER TREATMENT: All finished floors, which will be left exposed, shall receive hardener treatment applied when concrete is still green.
  3. PROTECTION FOR NOSINGS on concrete steps shall be provided by imbedded rounded metal cast nosing with non-slip surface.
  4. NON-SLIP SURFACING: Ramps, treads, and platform of stairs shall have non-slip surface when not covered with finish flooring materials.

**1.3. ARCHITECTURAL CONCRETE**

- A. A sample 4 X 8 feet in size shall be erected at the site when cast-in-place architectural concrete is to be used. Panel shall be protected from construction operations, but shall be left exposed to the elements. Panel shall be left in place until all architectural concrete has been approved by the USF-FM. Include samples of exposed built-in materials and finished openings.

**1.4 INSULATING CONCRETE ROOF DECKS**

- A. Concrete shall have the following characteristics:
1. Wet Density: 40-60 lbs / cu ft
  2. Dry Density: 20-30 lbs / cu ft
  3. Compressive Strength: 125-225 psi

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END OF SECTION 03 30 00

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**SECTION 03 38 00 CONCRETE CURING****1.1 CURING COMPOUNDS**

- A. Specify only non-staining type. It has been found that clear chlorinated rubber compounds cause staining, which cannot be removed. The Structural Engineer shall delineate specific methods of curing concrete.

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END OF SECTION 03 38 00

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**SECTION 03 40 00 PRECAST CONCRETE**

**1.1 PRECAST STRUCTURAL CONCRETE**

A. Base design and specifications on recommendations of the ACI/ASTM tests.

**1.2 PRECAST CONCRETE PANELS**

A. Base design and specifications on recommendations of the ACI/ASTM tests.

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END OF SECTION 03 40 00

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**SECTION 03 51 13 CEMENTITIOUS DECKS****1.1 GENERAL RQUIRMENTS**

A. Include the following general requirements in the specifications.

1. **CERTIFICATE FROM MANUFACTURER OF MATERIALS:** Upon completion of the installation, a certificate from the manufacturer of insulating materials used, stating that materials were installed by an approved applicator and that materials were installed in accordance with the drawings and specifications, shall be furnished to the Consultant.

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END OF SECTION 03 51 13

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**DIVISION 03 53 00 CONCRETE TOPPINGS****1.1 GENERAL REQUIREMENT**

This section includes concrete floor toppings applied over previously placed concrete slabs (hardened concrete).

- A. Comply with requirements of [Section 03 30 00, Cast-in-Place Concrete](#).
- B. Cement and Aggregates
  - 1. Portland Cement: [ASTM C150, Type 1](#)
  - 2. Normal Weight Aggregate: [ASTM C33](#)
  - 3. Reinforcement: [ASTM A185, Welded Steel Wire Fabric](#).

**1.2 STANDARD TOPPING**

- A. Design mix to produce topping materials with the following characteristics.
  - 1. Compressive Strength: [3,000 psi](#) at [28 days](#).
  - 2. Slump:
    - a. [8-inches](#) maximum with water reducing admixture.
    - b. [3-inches](#) maximum for other concrete.
  - 3. Use ready-mixed topping complying with [ASTM C94](#)

**1.3 PERFORMANCE**

- A. Failure of concrete topping to bond to substrate, disintegration or other failure of topping to perform as a floor finish will be considered failure of materials and workmanship. The Contractor shall replace toppings in areas of such failures, as directed.

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END OF SECTION 03 53 00