UNIVERSITY OF SOUTHERN CALIFORNIA HEALTH SCIENCES CAMPUS NORRIS HEALTHCARE CENTER LOS ANGELES, CALIFORNIA

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Provide all labor, materials, and equipment necessary for cast-in-place concrete where shown on the Contract Drawings, and specified herein, and as needed for a complete and proper installation. Materials used shall preferably be of 25% post consumer recycle content and fabricated or assembled within a 500 mile radius of the project site and including the following:
 - 1. Cast-In-Place Concrete.
 - 2. Floors and slabs on grade and on moisture barrier.
 - 3. Equipment pads, thrust blocks and any miscellaneous concrete indicated on the Contract Drawings.
 - 4. Concrete Splash Blocks.
- B. Related Work:
 - 1. Work of this Section shall comply with the Contract Documents including, but not necessarily limited to, General Conditions and the General Requirements.
 - 2. Earthwork in Section 02 2200.
 - 3. Storm Drain System in Section 02 7200.
 - 4. Masonry Work in Division 04.

1.2 QUALITY ASSURANCE

- A. Codes and Standards: (As Applicable)
 - 1. Los Angeles City Building Code, Section 91.2601 and latest C.B.C. Supplements thereto.
 - 2. Standard Specifications for Public Works Construction Latest Edition and Amendments thereto.
 - 3. ACI 301 Specifications for Structural Concrete for Buildings.
 - 4. ACI 318 Building Code Requirements for Reinforced Concrete.
 - 5. Concrete Reinforcing Steel Institute "Manual of Standard Practice".
 - 6. ASTM C33 Specifications for Concrete Aggregates.
- B. Laborer's: Use adequate number of skilled laborers who are thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. Concrete Manufacturer: Licensed Commercial Ready-Mix Concrete Plant, conforming to ASTM C94 and approved by the Los Angeles City Building Department.
- D. Allowable Tolerances: Conform to ACI-301 as applicable unless exceeded by requirements

of regulatory agencies or otherwise indicated or specified.

- E. Inspection: Provide access to concrete work and fully cooperate with the Inspector and Testing Laboratory as described in the GENERAL REQUIREMENTS of these Specifications.
- F. Quality Control: Concrete materials which by previous tests or actual service have shown conformance may be used without testing, when approved by the Engineer. Conformance testing shall be done by the Testing Laboratory.

1.3 SUBMITTALS

- A. General: Comply with provisions of SHOP DRAWINGS/SUBMITTALS SECTION of DIVISION 1 GENERAL REQUIREMENTS of these Specifications.
- B. Portland Cement Mill Certificate: Submit to the Engineer showing conformance with specified requirements, otherwise the Testing Laboratory shall test each 250 barrels of cement as per ASTM C150.
- C. Mix Design: Submit to the Engineer for review and approval. Distribute approved mix design(s) to Testing Laboratory, Batch Plant; job-site and Governmental Agency having jurisdiction.
- D. Product Data: If requested by the Engineer, submit data on proprietary materials, items, reinforcing, forming accessories, admixtures, patching and curing compounds etc. for approval.
- E. Recycled content provide manufacturer's date, indicating recycled content of reinforcement.
- F. Provide evidence of compliance with standards endorsed by the Forest Stewardship Council including certified status of Forest of Origin and Chain of Custody from Forest of Origin through fabrication.
- G. Regional Materials: Contractor to submit to the ENGINEER a listing identifying all materials manufactured, extracted, and harvested within a 500 mile radius of the project site for all materials used in the work of this Section.

1.4 PRODUCT HANDLING

- A. Delivery: Concrete, reinforcing and forming materials to be delivered to the job-site in timely manner to ensure uninterrupted work progress.
- B. Storage: Store materials and equipment at the job-site where directed by the Engineer, by methods that prevent damage and permit ready access for inspection, identification and installation.

1.5 PROTECTION

- A. Required:
 - 1. Protect finished concrete surfaces from stains, abrasions and any other damage as necessary by the City approved methods.
 - 2. Exercise care to protect concrete from damage during other construction and/or alteration operations until receipt of other equipment and/or until final acceptance by the City.

B. <u>Methods</u>: Cover adjacent concrete surfaces and other surfaces during concrete work operations with polyethylene sheet material and leave in place until poured concrete has set or as otherwise directed by the Engineer.

1.6 RECORD DRAWINGS

A. <u>Required</u>: Clearly mark changes, deletions and/or additions to the work of this Section conforming to Provisions in the GENERAL REQUIREMENTS in these Specifications.

PART TWO - PRODUCTS

2.1 MATERIALS

- A. <u>Cement</u>:
 - 1. Type: Portland cement, ASTM C150, Type I or II, in accordance with Los Angeles City Building Code; other types to be approved in writing by the Engineer prior to use.
 - 2. Concrete design mixes may be replaced by 15% or less by weight of the Portland cement used by a mineral admixture (flyash) conforming to ASTM C618.
 - 3. Alkali Content: Total amount of sodium or potassium oxide in the cement not to exceed 0.6 percent when the aggregates contain opalescent silica or are reactive to alkalies.
- B. Aggregates:
 - 1. Standard Weight Aggregates: Los Angeles Building Code, aggregates shall be from San Gabriel Valley sources.
 - a. Do not use aggregate known to cause excessive shrinkage.
 - b. Use white silica sand for white concrete.
 - 2. Maximum Size:
 - a. General: Not larger than 3/4 of the clear space between reinforcing bars, and between reinforcing bars and forms. Size limitation to conform to Los Angeles City Building Code.
 - b. In Slabs: 3/4-inch maximum size, except as otherwise noted.
 - c. Pea Gravel: 3/8-inch maximum size for cement fill.
 - d. In Walls: 3/4-inch maximum size.
 - e. In Grade Beams: 3/4-inch maximum size.

C. Reinforcement:

- 1. See Section 03200 CONCRETE REINFORCEMENT for additional requirements.
- 2. Bars: Billet Steel, ASTM A615, grades as follows as called for on the Contract Drawings.
- 3. Reinforcing bars shall preferably be of 90% post consumer recycle content.
- 4. Wire: Cold drawn steel, 16-gage ASTM A82.
- 5. Wire Mesh: Electric-welded steel wire fabric, ASTM A185, sizes as noted in the Contract Drawings.
- 6. Tie Wire: Annealed, not less than 16-gage.
- 7. Reinforcement Supports and Accessories: Conform to Concrete Reinforcing Steel Institute recommendations. Galvanized or plastic-tipped adjacent to surfaces subsequently exposed to view or moisture in completed structure. The Contractor's

selection subject to the approval of the Engineer.

- D. Miscellaneous Materials: (As Applicable)
 - 1. Water: From a supply distributed for domestic purposes.
 - 2. Admixtures: Permitted only upon written approval of the Engineer; must conform to Los Angeles City Building Code, and Department of Building and Safety Rules of General Application RTA27-69.
 - 3. Curing Paper: Sisalkraft No. SK-30 (ASTM C171) as manufactured by the Sisalkraft Division, St. Regis Paper Co., or 6 or 4 mil polyethylene.
 - 4. Clear Membrane Curing Compound: Hunt Process Clear, Hunt Process Company, Inc., Los Angeles, California.
 - 5. Expansion Joint Fiber Filler: Homex No. 300, manufactured by Homasote Company, distributed by Concrete Tie Co., Los Angeles, California; thickness as indicated on the Contract Drawings; not less than 2-inch.
 - 6. Expansion Joint Asphaltic Sealer: Burke's No. 400 Sealing Compound, Enoco No. 3074 (Polyflex), or Hunt's Seal-Flex 37.
 - 7. Asphaltic Membrane Curing Compound: Hunt's Process Black.
 - 8. Caulking for Expansion and Control Joints: As specified in Section 07920.
 - 9. Anti-Bonding Agent: "Thompson's Water Seal" as manufactured by E.A. Thompson, Inc., San Francisco, California.
 - 10. Non-Shrink Grout: "Embeco" pre-mixed grout as manufactured by Master Builders Company, Los Angeles, California.
 - 11. Plastic Control Joint: "Quick Joint" as manufactured by J. A. Crawford Co., Santa Fe Springs, California. Joint material shall be "T" shaped plastic strip 1/16-inch thick by at least 1-inch deep, with suitable anchor to prevent vertical movement and with membrane 3/4-inch wide pull-top stiffener.
 - 12. Floor Curing, Hardening, and Sealing Compound (For All Exposed Interior Concrete Floors): "Terratite A/C", manufactured by Nelson Technical Coating Co., El Monte, California, and distributed by R.E. Bauman Co., Los Angeles, California.
 - 13. Abrasive Aggregates (For Non-Slip Finish): Carborundum or aloxide grains, uniformly graded, passing a No. 14 and 20 sieve.

PART THREE - EXECUTION

3.1 SURFACE CONDITIONS

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until detrimental conditions are corrected.

- 3.2 PREPARATION: (As Applicable)
 - A. Carefully locate the required area for concrete, and break out the existing concrete floor as needed.
 - 1. Make initial break by saw-cutting through the existing concrete, taking care to maintain straight lines and to prevent overcutting at corners.
 - 2. Excavate to the required depth, using hand tools and achieving a smooth and level bottom ready to receive the new concrete.
 - 3. Existing concrete surfaces to receive new concrete slab to be roughened, wetted and coated with neat cement grout.
 - B. Remove foreign matter accumulated within formed areas.

- C. Rigidly close openings in form work.
- D. Wet wood forms sufficiently to tighten up cracks and other materials to maintain the work ability of the concrete.

3.3 FORM WORK:

- A. General: Conform to the Los Angeles City Building Code. Design, erect, support, brace and maintain form work to safely support vertical and lateral loads which might be applied until such loads can be supported.
 - 1. True to line and grade; mortar tight; sufficiently braced, tied, and adequately nailed to prevent displacement, bulging, or deflection, with braces and ties regularly spaced and in even rows; with provisions for anchorage or ties, sleeves, and other installations; subject to approval by the Engineer; Contractor responsible for adequacy.
 - 2. Provide the prefabricated steel decking shown on the Contract Drawings.
 - 3. Construction forms suitable for removal without hammering or prying against the concrete.
 - 4. Form exposed angles in concrete with neat 3/4-inch chamfers or fillets, as approved by the Engineer and as detailed on the Contract Drawings.
 - 5. Set embedded piping and rough hardware in forms to be embedded in concrete in a manner so that the required strength of the structure will not be reduced.
 - 6. Place conduit in conformance with Los Angeles City Building Code.
- B. Removal of Forms:
 - 1. In accordance with Los Angeles City Building Code.
 - 2. Vertical forms and bracing to main undisturbed for 24-hours after concrete is deposited.
 - 3. Remove forms with care not to mar or damage concrete surfaces.

3.4 REINFORCEMENT

- A. Placing: In accordance with Los Angeles City Building Code, and A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete" (ACI 318 Section 7.0).
- B. Dowels: Set in place with specified "Embeco" pre-mixed grout.
- C. Supports: Use galvanize steel bars.
- D. Protection of Reinforcement: Protect by a thickness of concrete indicated on the Contract Drawings, set according to Los Angeles City Building Code.
- E. Wire Fabric: Set fabric with a minimum side and end lap of one full mesh and lace with 16gage tie wire.

3.5 EMBEDDED ITEMS

Set in place, accurately secured in precise locations needed or indicated so as not to be displaced prior to placement of concrete.

3.6 CONCRETE MIX DESIGN

- A. "Standard 3000 and 2500" Pound Concrete:
 - 1. Minimum Ultimate Compressive Strength at 28 Days: 3000 and 2500 pounds per square inch as noted on the Contract Drawings.
 - 2. Water Content:
 - a. To be the minimum necessary for proper placing of concrete and for specified slump and finish; not to exceed 8 gallons per sack of cement, including any moisture in the aggregate or on the surface.
 - b. Laboratory design mix and controls required when water content exceeds 7 gallons per sack of cement; certificates then required from an approved testing agency with respect to quality and volume of aggregates and water content ratio at start of each day's pour and whenever character of materials or source of supply is changed; certificate to be delivered to the Inspector at the site of work.
 - 3. Proportions of cement and aggregates shall conform to Table No. 04.2.4 of the Los Angeles Building Code. Combined aggregate graduation shall conform to the limit specified in Table No. 04.2.2 of the Los Angeles City Building Code.
- B. Grout: Unless otherwise specified, 1 part cement to 2-1/2 parts sand by volume, with only sufficient water for mixture to flow under its own weight.
- C. Dry Pack: Unless otherwise directed, 1 part cement to 2 parts sand by volume, with only sufficient water for proper packing use. White portland cement to be substituted for part of the gray cement as necessary to match color of surrounding concrete.
- D. Lean Concrete: 1 part portland cement to 15 parts sand, the amount of water added subject to the approval of the Engineer.
 - 1. Reinforced Concrete 4-inches maximum slump
- E. Waterproof Concrete Mix: In accordance with waterproofing additive manufacturer's specifications for job-mixed concrete; one (1) sack of portland cement to two (2) cubic feet of sharp washed sand and one-half (2) cubic feet of clean well graded pea gravel, plus 7 gallons of water with one (1) part Anti-Hydro added to 15 parts of water or one quart of Anti-Hydro added to each sack of cement.

3.7 MIXING CONCRETE

- A. Transit Mixing: In accordance with provisions of ASTM C94.
- B. Water Content:
 - 1. At the Batch Plant withhold water at rate of 2-1/2 gallons per cubic yard of concrete.
 - 2. Upon arrival at the job-site, replace the above noted withheld water (as required for proper slump) before the concrete is discharged from the mixer.
 - 3. Mix the concrete not less than 5 minutes after the withheld water was added and not less than one minute prior to discharge. Mixing time shall total 15 minutes after the water has been added.
 - 4. Do not use concrete that has stood for over 30 minutes after leaving the mixer or that has not been placed within 60 minutes after water was placed into the mix.

3.8 PLACING CONCRETE

- A. Conveying and Deposition: In accordance with Los Angeles City Building Code.
 - 1. As rapidly as practicable; by methods to prevent segregation or loss of ingredients, and to avoid rehandling.
 - 2. Keep poured concrete surfaces level; prevent flow from one portion of work to another.
 - 3. Use tremie where vertical drop exceeds 5-feet.
- B. Placing Concrete Into Forms: Place in horizontal layers not deeper than 24-inches and avoid inclined horizontal construction joints. When concrete has reached the level of temporary form spreaders, remove the spreaders.
- C. Vibration and Tamping: As necessary to thoroughly compact the concrete, completely fill forms, and encase reinforcement and inserts; by mechanical and hand equipment as suitable and as approved.
- D. Compaction of Slab Concrete:
 - 1. Tamp to compact the concrete throughout slab depth; with iron tampers unless otherwise approved.
 - 2. Screed to bring the concrete surfaces to required grades; with straight edge screeds and scrapers as necessary.
 - 3. Float to compact the surfaces evenly; with power float unless otherwise authorized. Remove any excess surface water before floating; use no mortar for leveling the surfaces.
- E. Joints: In conformance with Los Angeles City Building Code, subject to the approval of the Engineer before placing concrete.
 - 1. Construction Joints: Don't use horizontal construction joints except where indicated on the Contract Drawings. If additional joints are required, secure the Engineer's approval of joint design and location prior to start of placing concrete.
 - 2. Expansion Joints: 2-inch thickness, except as otherwise indicated on the Contract Drawings or specified. Fill expansion joints with City approved joint materials to the full joint depth, set in place and held upright by suitable means prior to placement of adjoining concrete. After completion of the joint construction and concrete has cured and dried apply a poured or extruded in place sealant over the joint material and make flush with the exposed concrete surfaces both sides of the joint.

3.9 CONCRETE FINISHES

- A. Smooth Steel-Trowel Finish: To be applied to all interior floor slabs that will receive resilient floor covering or carpeting. To produce a smooth surface free from defects and blemishes, employ at least two separate troweling operations in which long-handle Fresno Trowels will not be permitted; use of mechanical trowels of approved type permissible only in first troweling; hand-troweling required after initial operation; no dry cement or cement-sand mixtures to be sprinkled on surfaces to absorb moisture or stiffen the concrete; no water to be used in troweling operations.
- B. Miscellaneous Finishes: (As Applicable)
 - 1. Floor Slabs to Receive Quarry Tile Pavers and Ceramic Tile Flooring: Brush concrete surfaces with wire broom to remove laitance and leave surfaces rough.
 - 2. Floor Slabs to Receive Resilient Flooring: Apply trowel finish.

Barrier Clarification

- 3. On All Walking Surfaces: Apply specified abrasive aggregates and broom finish.
- C. Slab Surfaces Testing: Test with a 10-foot straight-edge to detect high and low spots; maximum 1/4-inch in 10-feet permitted; deviations to be eliminated, surfaces to be approved by the Engineer; make any necessary corrections as directed.

3.10 CURING

- A. Required: For all concrete in accordance with Los Angeles City Building Code and ACI 308 "Standard Practice for Curing Concrete", keep concrete moist for at least 14 days.
- B. Methods:
 - 1. Floor slabs to be left exposed, after final troweling and surface water has disappeared, to receive an approved clear sealer such as Nelson's "Terratite A/C" or approved equal in accordance with manufacturer's printed instructions.
 - 2. Floor Slabs To Be Exposed: Cover with curing paper or keep continuously wet with clean water during curing period.
 - 3. Floor Slabs To Be Covered With Resilient Flooring: Coat with asphaltic membrane curing compound.
 - 4. Floor Slabs To Be Covered With Ceramic Tile: Cover with curing paper or keep continuously wet with clean water during curing period.
 - 5. Other Formed Concrete: Keep continuously wet by frequent spraying with clean water.
- C. Membrane Curing Compound: In accordance with manufacturer's directions, apply as soon as possible after finishing of concrete, without marring the concrete.
- D. Curing Paper: Lay as recommended by the manufacturer, lap and seal joints immediately after finishing of concrete; remove paper after specified curing period to permit concrete to dry; take necessary precautions to prevent damage or discoloration to floor surfaces which will be left exposed.

3.11 GROUTING

A. Construction Joints: Coat vertical contact surfaces (except construction joints in slabs) with neat cement grout. Cover horizontal contract surfaces with a layer of mortar (cement-same ratio used in concrete to 1- to 2-inch thickness.

3.12 DRY PACKING

- A. Required: Where indicated on the Contract Drawings and as required.
- B. Material Mix: As hereinbefore specified in this Section.
- C. Placement: Thoroughly fill space and solidly tamp in place. Where required, smooth trowel finish exposed surfaces. RFI 220 - Moisture

3.13 MOISTURE BARRIER

A. Required: Provide under concrete slabs on grade having tile floor finish.
B. Material: 10-mil thick polyethylene sheeting and pressure sensitive tape. (Fed. Spec. PPP-T-60D)

C. Location: On top subgrade under floor slab where shown on the Contract Drawings.

3.14 CONCRETE SPLASH BLOCKS

- A. Type: Precast concrete or poured-in-place concrete units.
- B. Size: As indicated on the Contract Drawings with recessed and sloped top surface.
- C. Materials:
 - 1. Concrete: 2500 psi at 28 days.
 - 2. Reinforcing: Electric welded steel wire mesh ASTM A185, size as indicated on the Contract Drawings.
- D. Construction:
 - 1. Forms and reinforcing in conformance with requirements of this Section; units to be fully cured for 28 days prior to delivery of precast units.
 - 2. Construct and fully reinforce to shape indicated, finish to simulate poured-in-place concrete, without rock pockets, broken corners, exposed reinforcing or other defects. Top surface to be recessed and sloped as indicated, with smooth finish and exposed edges tooled to 1/4-inch radius.

3.15 STREET WORK

- A. Required: For all work outside of the property line and shall include all required demolition of sidewalks, driveway curbs and gutters and the construction of new driveways, sidewalks, curbs and gutters as indicated on the Contract Drawings.
- B. Permits:
 - 1. Provisions of GENERAL CONDITIONS, Section 00719, effective, except that permits for street work (not including surveys, grade sheets and street-use permits) will be furnished free by the City to the Contractor.
 - 2. Obtain necessary "Permits to Use Street Space of Deposit Building Materials", at no cost.
 - 3. Obtain and pay for any surveys and grade sheets required by the City Bureau of Contract Administration, "Standard Specifications" or the Engineer.
- C. Methods: Applicable sections of the "Standard Specifications" for Public Works Construction 2002 edition and latest amendments thereto and Los Angeles City Bureau of Engineering Standard Details noted on the Contract Drawings.
- D. Inspection: By the City Bureau of Contract Administration. The Contractor shall notify the Engineer at least 72 hours prior to proposed time of doing street work, to arrange for required inspections at no charge to the Contractor.

3.16 DEFECTIVE MATERIALS AND CONCRETE

- A. Materials: To be removed from the site.
- B. Concrete, Before Placing: To be removed from the site.
- C. Concrete, After Placing: Any concrete not formed in accordance with requirement indicated

on the Contract Drawings, or not true to intended lines, grade or plane, or which has sand streaks, unauthorized or objectionable construction joints, or excessive pitting or dusting, or with voids or rock pockets detrimental to structure or finish, or which is deficient in strength, or which shows other irregularities, marking, or deficiency, to be considered defective concrete not conforming to the intent of the Contract Drawings and Specifications to be removed and replaced with new concrete acceptable to the Engineer, unless suitable correction of defects or strengthening of defective structure is authorized by the Engineer.

D. Responsibility: Removal, replacement, correction, and strengthening to be done by and at the expense of the Contractor.

3.17 PATCHING CONCRETE WORK

- A. Concrete topping:
 - 1. Description: Cement-based, polymer-modified product that can be applied in thicknesses from 1/2 in (12 mm) to 2 in (50 mm). Consult manufacturer for thickness exceeding 2 in (50 mm).
 - 2. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 3. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 4. Aggregate: Well-graded, washed gravel, 1/8 in (3 mm) to 3/8 in (10 mm) or coarse sand as recommended by topping manufacturer for specific application thickness. No coarse aggregate permitted for thicknesses of 1 in (25 mm) or less.
 - 5. Compressive Strength: 5,000 psi minimum at 28 days when tested according to ASTM C 109.
 - 6. Substrate Preparation: As recommended by product manufacturer.
 - 7. Manufacturers: (Consult manufacturer for specific product and compatibility with substrate conditions. Subject to Architect's and Engineer's review and approval).
 - a. Ardex, Inc.
 - b. BASF
 - c. Euclid Chemical Co.
 - d. Sika Corp.
- B. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. After concrete has cured at least 14 days, correct high areas by removal with mechanical equipment and procedures which will not cause cracking, microcracking, or bruising of sound concrete.
 - 2. Correct low interior areas scheduled to receive floor coverings with self-leveling concrete underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 3. Correct low interior areas scheduled to remain exposed with self-leveling concrete topping. Cut out low areas to ensure a minimum repair topping depth of 1/2 in (12 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - 4. Correct low exterior areas to remain exposed with overlay or repair mortar suitable for application. Cut out defective areas to ensure minimum repair mortar depth of 1/2

in (12 mm) surface profile. Prepare, mix, apply, and cure repair mortar and primer according to manufacturer's written instructions

- 5. Repair defective areas which cannot be satisfactorily repaired, by cutting out defective area in its entirety and replacing with fresh concrete. Remove defective areas with clean, square cuts. Preserve and expose steel reinforcement with at least 1 in (25 mm) clearance all around. Dampen concrete surfaces in contact with fresh concrete and apply bonding agent. Mix fresh concrete of same materials and mix as original concrete unless smaller coarse aggregate necessary for application. Place, compact, and finish blending with adjacent finished concrete. Cure in same manner as adjacent concrete.
- 6. Repair single holes 1 in (25 mm) or less in diameter with patching mortar. Cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- 7. Repair cracks exceeding limitations (0.016 in) by high or low pressure epoxy injection procedure acceptable to Architect/Engineer. Gravity flow techniques for epoxy resin repair of cracks not permitted.
- C. Concrete or Masonry Wall Surfaces that are rough, gouged, exposed aggregate, spalls, dented, chipped, uneven formwork shall be repaired to a smooth surface suitable for painting or wall finishes specified in the Contract Documents.
 - 1. Prepare the surfaces by removing all items that act as a bond breaker including the removal of form release, sealers, weak or loose surfaces, dust, dirt or oils, etc. If necessary, mechanically clean the surfaces with sand blasting or grinding down to solid material.
 - 2. Apply Ardex TWP or an approved equal in strict compliance with the manufacturers written instructions.

END OF SECTION 03 3000

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