

SECTION 03100  
CONCRETE FORMWORK

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED:

- A. Wood formwork for cast-in-place concrete, with shoring, bracing and anchorage.
- B. Openings for other affected work.
- C. Form accessories.
- D. Stripping forms.

1.2 RELATED REQUIREMENTS:

- A. Division 2.
- B. Division 3.
- C. Division 4.
- D. Division 5.

1.3 REFERENCES:

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 347 - Recommended Practice for Concrete Formwork.
- C. PS 1 - Construction and Industrial Plywood.

1.4 SYSTEM DESCRIPTION:

- A. Design, engineer and construct formwork, shoring, and bracing to meet design and code requirements, so that resultant concrete conforms to required shapes, lines and dimensions.

1.5 QUALITY ASSURANCE:

- A. Construct and erect concrete formwork in accordance with ACI 301 and 347.

1.6 DELIVERY, STORAGE AND HANDLING:

- A. Deliver, store and handle materials under provisions of Division 1.
- B. Deliver form materials in manufacturer's packaging with installation instructions.

- C. Store off ground in ventilated and protected area to prevent deterioration from moisture or damage.

## PART 2 - PRODUCTS

### 2.1 WOOD FORM MATERIALS:

- A. Plywood: Yellow Pine or Douglas Fir species; solid one side sound, undamaged sheets with straight edges.
- B. Utility grade or better; with grade stamp clearly visible.

### 2.3 FORMWORK ACCESSORIES:

- A. Form Ties: Snap-off metal of adjustable length with waterproofing washer, and free of defects so as to leave holes not larger than one inch diameter in concrete surface.
- B. Form Release Agent: Colorless material which will not stain concrete or absorb moisture.
- C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required; of strength and character to maintain formwork in place while placing concrete.

## PART 3 - EXECUTION

### 3.1 INSPECTION:

- A. Verify lines, levels and measurements before proceeding with formwork.

### 3.2 PREPARATION:

- A. Hand-trim sides and bottoms of earth forms; remove loose dirt prior to placing concrete.
- B. Minimize form joints. Symmetrically align joints and make watertight to prevent leakage of mortar.
- C. Arrange and assemble formwork to permit dismantling or stripping so that concrete is not damaged during its removal.
- D. Arrange forms to allow stripping without removal of principal shores, where required to remain in place.

### 3.3 FORMWORK ERECTION:

- A. Verify lines, levels and centers before proceeding with formwork. Insure that dimensions agree with drawings.
- B. Construct formwork, shoring and bracing to meet design and code requirements, so that resultant finished concrete conforms to required shapes, lines and dimensions.

- C. Arrange and assemble formwork to permit dismantling and stripping so that concrete is not damaged during its removal and to allow principal shores to remain in place where required.
- D. Align joints and make watertight, to prevent leakage of mortar that disfigures appearance of concrete. Keep form joints to minimum.
- E. Obtain Architect's or Engineer's review before framing openings in structural members which are not indicated on drawings.
- F. Provide bracing to insure stability of formwork. Prop or strengthen previously constructed formwork that may be overstressed by construction loads.
- G. Apply form release agent onto formwork in accordance with manufacturer's recommendations. Apply prior to placing reinforcing steel, anchoring devices, and embedded items.
- H. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces wet prior to placing concrete.
- I. Form slabs and beams to conform to the tolerances required or permitted by ACI 301.

#### 3.4 INSERTS, EMBEDDED PARTS AND OPENINGS:

- A. Provide formed openings where required for pipes, conduits, sleeves, and other work to be embedded in and passing through concrete members.
- B. Locate and set in place items which will be cast directly into concrete.
- C. Coordinate work of other sections and cooperate with trades involved in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts. Do not perform work unless specifically indicated on drawings or reviewed prior to installation.
- D. Install concrete accessories in accordance with manufacturer's recommendations; straight, level, and plumb. Insure items are not disturbed during concrete placement.
- E. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close temporary ports or openings with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be apparent in exposed concrete surfaces.

#### 3.5 FIELD QUALITY CONTROL:

- A. Inspect completed formwork, shoring, and bracing to insure that work is in accordance with formwork design and that supports, fastenings, wedges, ties, and other parts are secure.
- B. Inform Architect when formwork is complete and has been cleaned, to allow for inspection. Complete review prior to placing concrete.

### 3.6 CLEANING:

- A. Clean forms as erection proceeds, to remove foreign matter. Remove cuttings, shavings, and debris from within forms. Flush with water or use compressed air to remove remaining foreign matter. Insure that water and debris drain to exterior through clean-out ports.
- B. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out completed forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

### 3.7 FORM REMOVAL:

- A. Notify Architect prior to removing formwork.
- B. Do not remove forms, shores and bracing until concrete has gained sufficient strength to carry its own weight and construction and design load which may be imposed upon it. Verify strength of concrete by compressive test results.
- C. Remove formwork progressively and in accordance with code requirements and so that no shock loads or unbalanced loads are imposed on structure.
- D. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against concrete surfaces.
- E. Leave forms loosely in place, against vertical surfaces, for protection until complete removal is reviewed by Architect.
- F. Reshore structural members where required due to design requirements or construction conditions and as required to permit progressive construction. Remove load supporting forms only when concrete has attained 75 percent of required 28 day compressive strength, provided construction is reshored.
- G. Remove forms not directly supporting weight of concrete as soon as stripping operations will not damage concrete.

END OF SECTION

## SECTION 03200

## CONCRETE REINFORCEMENT

## PART 1 - GENERAL

## 1.1 REQUIREMENTS INCLUDED:

- A. Reinforcing steel bars, fabricated steel bars, welded wire mesh, and rod mats for cast-in-place concrete, complete with tie-wire, as shown on the drawings.
- B. Support chairs, bolsters, bars supports, and spacers for reinforcing.

## 1.2 RELATED REQUIREMENTS:

- A. Section 03100 - Concrete Formwork.
- B. Section 03300 - Cast-In-Place Concrete.

## 1.3 QUALITY ASSURANCE:

- A. Perform concrete reinforcing work in accordance with CRSI Manual of Standard Practice and Documents 63 and 65.
- B. Conform to ACI 315 and 318.

## 1.4 SOURCE QUALITY CONTROL:

- A. Submit certified copies of mill test reports of supplied concrete reinforcing, indicating physical and chemical analyses.

## 1.5 REFERENCE STANDARDS:

- A. ACI 318 - Building Code Requirements for Structural Concrete.
- B. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.
- C. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.
- D. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- E. Concrete Reinforcing Steel Institute - Manual of Standard Practice.

## 1.6 SHOP DRAWINGS:

- A. Submit shop drawings in accordance with Division 1.
- B. Indicate bar sizes, spacings, locations, and quantities of reinforcing steel, bending and cutting schedules, and supporting and spacing devices.

## PART 2 - PRODUCTS

### 2.1 REINFORCING:

- A. Reinforcing Steel: ASTM A615 Grade 60 billet steel deformed bars.
- B. Welded Steel Wire Fabric: ASTM A185 Plain type, in flat sheets.
  - 1. Sidewalks (except those at street curb): 6" x 6" - W1.4 x W1.4 wire mesh.
  - 2. Street Curb Sidewalks: 12" x 12" - W3 x W3 wire mesh.

### 2.2 ACCESSORY MATERIAL:

- A. Tie Wire: Minimum 16 gage annealed type, or patented system accepted by Architect and/or Engineer.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcing during construction conditions.

### 2.3 FABRICATION:

- A. Fabricate concrete reinforcing in accordance with ACI 315, providing concrete cover specified in Section 03300.
- B. Locate reinforcing splices not indicated on drawings at points of minimum stress. Indicate splice locations on shop drawings.

## PART 3 - EXECUTION

### 3.1 PLACEMENT:

- A. Place reinforcing supported and secured against displacement. Do not deviate from true alignment.
- B. Before placing concrete, insure reinforcing is clean, free of loose scale, dirt, and other foreign coatings which would reduce bond to concrete.

END OF SECTION

## SECTION 03300

## CAST-IN-PLACE CONCRETE

## PART 1 - GENERAL

## 1.1 REQUIREMENTS INCLUDED:

- A. Cast-in-place concrete for foundations, structures, sidewalks, curbs, and miscellaneous cast-in-place concrete as shown on the drawings.

## 1.2 RELATED REQUIREMENTS:

- A. Division 2.
- B. Division 3.

## 1.3 QUALITY ASSURANCE:

- A. Reference Standards: Comply with all applicable federal, state and local codes and safety regulations, Portland Cement Association standards, Texas Ready Mixed Concrete Association standards, Texas Aggregates Association standards and others referred to herein.
- B. Tests and Submittals in accordance with Division 1.
  - 1. Mix Design and Tests: The mix design for all concrete shall be established by a testing laboratory selected by the Owner. The mix shall have been designed within six (6) months of the beginning of placement of concrete. All tests, as herein specified, shall be performed by the testing laboratory selected by the Owner. All tests shall be performed in accordance with standard ASTM procedures as follows:
    - a. ASTM C172 Standard Method of Sampling Fresh Concrete.
    - b. ASTM C31 Standard Method of Making and Curing Concrete Compressive and Flexural Strength Test Specimens in the Field.
    - c. ASTM C143 Standard Method of Test for Slump of Portland Cement Concrete.
    - d. ASTM C39 Standard Method of Test for Compressive Strength of Molded Concrete Cylinders.
  - 2. Access: The Architect shall have access to all places where materials are stored, proportioned or mixed.
  - 3. Proportions: The testing laboratory shall submit, prior to the start of concrete work, contemplated portions and the results of preliminary 7 day compression tests. Submit a separate set of proportions and test results for pumpcrete, if used.
  - 4. Slump test shall be made by the testing laboratory of concrete delivered to the site for each set of test cylinders.
  - 5. Standard test cylinders of all concrete placed in the work shall be made by the testing laboratory. One (1) set of four (4) cylinders shall be taken for each 100 cubic yards or fraction thereof poured on each day.
  - 6. Two (2) cylinders of each set shall be tested at 7 days and two (2) cylinders at 28 days.

7. Reports of above tests and field quality control tests: Provide copies of test reports:
  - a. 1 copy to Engineer
  - b. 1 copy to Architect
  - c. 1 copy to Contractor
  - d. 1 copy to Owner
8. Mill Reports: The Contractor shall furnish mill test reports of cement showing compliance with specifications.
9. All expenses for concrete testing shall be paid by the Owner.

C. Inspection of Reinforcing Steel and Concrete Placing: Before any concrete is placed on any particular portion of project, reinforcing steel will be observed by Architect and Engineer. Correct any errors or discrepancies before concrete is placed. Such checking and approval shall not relieve Contractor from his responsibility to comply with the Contract requirements.

#### 1.4 REFERENCE STANDARDS:

- A. ASTM C33 - Concrete Aggregates.
- B. ASTM C150 - Portland Cement.
- C. ACI 318 - Building Code Requirements for Structural Concrete.
- D. ASTM C494 - Chemical Admixtures for Concrete.
- E. ASTM C94 - Ready-Mixed Concrete.
- F. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- G. ACI 305 - Recommended Practice for Hot Weather Concreting.
- H. ACI 306 - Recommended Practice for Cold Weather Concreting.
- I. ACI 301 - Specifications for Structural Concrete for Buildings.

#### 1.5 SUBMITTALS:

- A. Submit product data in accordance with Division 1.
- B. Provide product data for specified products.
- C. Submit manufacturers' instructions in accordance with Division 1.
- D. Provide Shop Drawings showing construction joints.
- E. Provide schedule of placing operations for review before concreting operations begin.

#### 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Store materials delivered to the job and protect from foreign matter and exposure to any element which would adversely affect the properties of the material.

#### 1.7 COORDINATION:

- A. Obtain information and instructions from other trades and suppliers in ample time to schedule and coordinate the installation of items furnished by them to be embedded in concrete so provisions for their work can be made without delaying the project.
- B. Perform at no cost to Owner any cutting and patching made necessary by failure or delay in complying with these requirements.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS - STANDARD STRUCTURAL CONCRETE:

- A. Portland Cement: Type I, which shall conform to "Standard Specifications for Portland Cement" (ASTM C150) and shall be of domestic manufacture. Use only one brand of cement unless otherwise authorized by Architect.
- B. Sand: Clean hard natural sand or manufactured sand, or a combination of both and conforming to ASTM C33.
- C. Coarse Aggregate: Standard Concrete: Clean, hard, durable particles of close grained crushed rock, gravel or crushed gravel conforming to ASTM C33. Coarse aggregate shall range from 1/4" to 1 1/4" and shall be well graded between the size limits.
- D. Water: Potable.
- E. Use of Flyash is expressly prohibited where finished concrete surfaces will receive an architectural finish product such as VCT, carpet, etc. Submit mix design proportions (Flyash/Cement Ratio) to Engineer for review and approval prior to concrete placement.

#### 2.2 MATERIALS - NON-SHRINKING CEMENT GROUT:

- A. Non-Shrinking Cement Grout: For locations noted on the drawings.
- B. Mixing and setting of the non-shrinking cement grout shall be as recommended by the manufacturer for the purpose intended.

#### 2.3 MATERIALS - MISCELLANEOUS:

- A. Concrete Sealers: Where scheduled by room number/name and in accordance with Section 03346.

#### 2.4 CONCRETE STRENGTH:

- A. Standard Structural Concrete: Compressive strengths of standard structural concrete shall be as shown on the drawings.

- B. Non-Structural Concrete: All non-structural concrete used for drives, approaches, walks, curbs, drains, etc., shall have a strength of at least 3,000 psi after 28 days.

## 2.5 CONCRETE PROPORTIONING:

- A. Standard Structural Concrete:
  - 1. The testing laboratory shall establish exact proportions of constituent materials required to produce specified concrete.
  - 2. In addition to minimum strength, the concrete shall meet the following requirements:
    - a. It shall have a maximum slump of 5 1/2" unless otherwise called for on drawings.
    - b. It must work readily into corners and angles of forms and reinforcement without excessive vibration and without permitting materials to segregate or free water to collect on surface.
    - c. In general, workability should be improved by adjusting gradation of aggregates rather than by adding water.

## 2.6 CONCRETE MIXING:

- A. Mixing Standard Structural Concrete: Use ready-mixed concrete complying with ASTM C94 and with the requirements of Contract Documents.

## 2.7 VAPOR BARRIER PRODUCTS:

- A. Stego Wrap 15 mil Vapor Barrier by STEGO INDUSTRIES LLC, San Juan Capistrano, CA (877) 464-7834 [www.stegoindustries.com](http://www.stegoindustries.com)
- B. Barrier Bac VB350 (16 mil) Vapor Retarder by BARRIER BAC INC. Calhoun, Georgia (706) 629-4425 [www.barrierbac.com](http://www.barrierbac.com)
- C. W.R. Meadows Premoulded Membrane with Plasmatic Core.

## PART 3 - EXECUTION

### 3.1 INSPECTION:

- A. Do not place concrete in any unit of work until all formwork has been completely constructed, all reinforcement is secured and supported in place, all items to be built into concrete are in place, and form ties at construction joints are tightened.
- B. Verify that steel and accessories are so placed as to permit proper flow of largest aggregate in concrete, before placing any concrete.
- C. Before placing, clean mixing and conveying equipment, clean forms and space to be occupied by concrete, and wet forms.
- D. Notify Engineer at least 48 hours before placing any concrete and obtain the Engineer's review before placing.

### 3.2 WEATHER CONDITIONS:

- A. Protection: Unless adequate protection is provided and/or approval is obtained from the Architect, concrete shall not be placed during rain, hail, sleet, or snow.
- B. Cold Weather:
  - 1. Comply with American Concrete Institute's ACI 306 "Recommended Practice for Cold Weather Concreting" and as herein specified.
  - 2. When the temperature is below 40 degrees F. or is likely to fall below 40 degrees F. during the 24 hour period after placing, equipment meeting the approval of the Architect/Engineer shall be provided for heating the concrete materials. No frozen materials or materials containing ice shall be used in cold weather. Temperatures of the separate materials, including the mixing water, when placed in the mixer shall not exceed 100 degrees F.
  - 3. Do not use calcium chloride, salt, and other materials containing anti-freeze agents or chemical accelerators, unless approval in writing is obtained from the Architect/Engineer.
- C. Hot Weather: Comply with American Concrete Institute's ACI 305 "Recommended Practice for Hot Weather Concreting".

### 3.3 MOISTURE BARRIER FILM:

- A. Install moisture barrier film between miscellaneous concrete slabs for equipment, etc. and the fill.
- B. Lay film over the fill and onto both sides and bottom of beams.
- C. Lap edges of film at least six inches. Seal with waterproof tape all joints and cuts in the film, such as where pipes extend through the film.
- D. Keep pockets below film to a minimum, as approved by Engineer.
- E. After reinforcing steel and other items have been installed, and immediately prior to placing concrete, repair all tears and punctures with waterproof tapes.

### 3.4 CONVEYING AND PLACING:

- A. Structural Concrete:
  - 1. Keep a record open to inspection of Architect on the site of the time and date of placing concrete in each portion of the structure.
  - 2. Carry on concreting, once started, as a continuous operation until the section of approved size and shape is completed. Make pour cut-offs of approved detail and location.
  - 3. Handle concrete as rapidly as practicable from mixer to place of deposit by methods which prevent separation or loss of materials. Deposit as nearly as practicable in final position to avoid rehandling or flowing. Do not drop concrete freely where reinforcing bars will cause segregation, nor drop freely more than six feet. Deposit to maintain a plastic surface approximately horizontal. In placing thin sections of considerable heights, use openings in forms, elephant trunks, tremies, or other approved devices which permit concrete to be placed

without segregation or accumulation of hardened concrete on forms or metal reinforcement above the level of the concrete.

4. Concrete that has partially hardened shall not be deposited in the work.
5. Compact thoroughly using approved mechanical vibrators. Provide pour holes in forms to the extent necessary to insure filling or to allow necessary inspection.
6. Use mechanical vibrator at each point of dump. A stand-by vibrator in good working order shall be kept on the job until all concrete is placed.
7. Contractor shall provide runways or supports for pump concrete hose at all times during pouring. At no time shall hose be allowed to rest or drag on forms and reinforcing.
8. Set continuous expansion joint strips where edge of slab abuts vertical surfaces and where shown on the drawings. Allow for sealant application.

B. Concrete on Fill:

1. Miscellaneous concrete slabs and beams for equipment and similar uses shall be placed as indicated on the drawings.
2. Place concrete of required thickness and strike off at proper levels to receive finishes shown on drawings. Provide wood runways where wheeled equipment is used for transporting concrete.
3. Set continuous expansion joint strips where edge of slab abuts vertical surfaces and where shown on the drawings. Allow for sealant application.

3.5 CONSTRUCTION JOINTS:

- A. Contractor shall submit location and details of construction joints to Engineer for review and approval.
- B. Roughen and clean entire surface of joint. Clean forms and steel of drippings. Wet and slush roughed concrete surfaces with neat cement. Place new concrete before grout initially sets.

3.6 PROTECTION AND CURING:

- A. Protect finished concrete surfaces from injurious action of elements and defacement of any nature during operations.
- B. Keep forms sufficiently wet to prevent drying out of concrete.
- C. Immediately after finishing concrete surfaces, cover with clear sheet plastic with all edges lapped six inches and fastened together with water resistant adhesive. Covering shall remain for a minimum of 7 days. NOTE: ALL HORIZONTAL CONCRETE SURFACES (FLOOR AREAS) SHALL BE WET CURED.
- D. Protect slabs and exposed corners of concrete from traffic or damage.

3.7 PATCHING AND CLEANING:

- A. Immediately after forms are removed, remove projecting fins, bolts, form ties, nails, etc., that are not necessary for the work. Patch by filling all voids, chipped areas, etc. Repaired surfaces shall match appearance of unpatched work.

### 3.8 FINISHING:

- A. In accordance with Section 03346.

### 3.9 MISCELLANEOUS ITEMS OF CONCRETE:

- A. Equipment Foundations: Provide concrete bases for electrical and mechanical equipment as shown on the drawings. Anchor bolts shall be provided and set by the equipment contractor.
- B. Sidewalks: In accordance with Division 2, unless otherwise indicated, place 1/2" prefabricated compressible type expansion joints at curbs, at juncture of walks and buildings and/or other vertical surfaces, and not over 30 feet apart in run of walk. Slope surface 1/4" per foot, or crown as required. Provide false joint markings spaced equal to the width of the walk unless otherwise shown on drawings. The outer edges of joints shall be rounded with approved tools to a radius of 1/4".
- C. Curbs: In accordance with Division 2, construct new concrete curbs, as directed, to conform to local laws and ordinances. Trowel finish smooth with corners rounded. Install 1/2" prefabricated compressible type expansion joints in all curbs as shown on drawings but not to exceed spacing of 30'-0" on center.

### 3.10 CLEAN-UP:

- A. Clean-up all concrete and cement work upon completion of this portion of the work, except that curing blankets/visqueen shall remain for 7 days.

END OF SECTION



## SECTION 03346

## FINISHING CONCRETE SURFACES

## PART 1 - GENERAL

## 1.1 REQUIREMENTS INCLUDED:

- A. Finish all new concrete surfaces.
- B. Apply concrete sealers where scheduled by room number/name.
- C. Wet cure finished surfaces in accordance with Section 03300.

## 1.2 RELATED WORK:

- A. Division 2.
- B. Division 3.

## 1.3 REFERENCE STANDARDS:

- A. ACI 302 - Recommended Practice for Concrete Floor and Slab Construction.
- B. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.

## 1.4 DELIVERY OF MATERIALS:

- A. Furnish concrete hardeners, sealers, and other admixtures in manufacturer's packaging complete with application instructions.

## PART 2 - PRODUCTS

## 2.1 SEALER FOR CONCRETE FLOORS:

- A. Master Builders or approved equal. Submit manufacturer's literature for review and approval.

## PART 3 - EXECUTION

## 3.1 CONCRETE FINISHING:

- A. Finish concrete surfaces in accordance with ACI 302 and ACI 304.
- B. Uniformly spread, screed, and float concrete. Do not use grate tampers or mesh rollers. Do not spread concrete by vibration.
- C. Maintain surface flatness, with maximum variation of 1/8 inch in 10 feet.

- D. Steel trowel horizontal surfaces which will be left exposed, unless another surface is noted, scheduled or specified.
- E. Concrete Curbs: Construct to conform to local ordinances. Trowel finish smooth all exposed surfaces. Provide 3/4 inch radius on outside corner and 1/8 inch radius at edge toward sidewalk, except where "rolling" edge is to be provided.
- F. Sidewalks: Shall be floated and troweled to a uniform smooth surface, then finished with a camel hair brush or wood float to a gritty texture.
- G. Monolithic Concrete Floors, whether to remain exposed or to receive another floor material:
  - 1. Screed the floors to a plane surface, level or sloped as indicated, free from excess water and laitance, using a special tool to tamp the surface and bring the fines to the surface. Float with a wood float to the level of preset screeds.
  - 2. Trowel by machine or hand trowels to a smooth, finished surface, without dusting of cement.
  - 3. Give a final burnishing coat by hand with a steel trowel.
  - 4. Typically, surfaces shall be true to established levels within a tolerance of 1/4 inch in the length of a ten-foot straight edge when straight edge is placed in any direction.
- H. Rubbed Concrete: Exposed concrete surfaces shall be rubbed with Carborundum stone and water. The rubbing shall be continued sufficiently to bring the surface to a paste, a smooth dense surface without pits, voids or irregularities. The use of cement to form a surface paste will not be permitted. The surfaces shall be left with a clean, neat, and uniform appearance and shall be uniform in color.
- I. Sealers: Apply sealer where scheduled by room number/name, in accordance with manufacturer's recommendations.

END OF SECTION