### 3.03 JOINTS IN CONCRETE

A. **Construction Joints.** Unless otherwise shown, all construction joints shall be provided with suitable keyways or other keying methods. Clean and roughen contact surfaces of construction joints by removing entire surface and exposing clean aggregate solidly embedded in mortar matrix. Use mechanical chipping, sandblasting, or application of surface mortar retarder followed by washing and scrubbing with stiff broom. Cover and protect waterstops and other inserts from damage. **The hardened concrete shall be watered and kept wet for at least 24 hours before placing new concrete.** Where construction joints are not indicated on the Drawings, provide slabs and walls with construction joints at intervals not greater than 30 feet.

### 3.17 WATERTIGHTNESS OF CONCRETE STRUCTURES

B. **The total loss of water-level in any basin or flume shall not exceed** \( \frac{1}{2} \) inch depth in 24 hours. Leakage shall be located and stopped and the structure again tested until this requirement is met. If the structure does not meet the test, the Contractor shall repair or replace at his own expense, such part of the work as may be necessary to secure the desired results, as approved by the District.
### 3.03 JOINTS IN CONCRETE

**A. Construction Joints.** Unless otherwise shown, all construction joints shall be provided with suitable keyways or other keying methods. Clean and roughen contact surfaces of construction joints by removing entire surface and exposing clean aggregate solidly embedded in mortar matrix. Use mechanical chipping, sandblasting, or application of surface mortar retarder followed by washing and scrubbing with stiff broom. Cover and protect waterstops and other inserts from damage. The hardened concrete shall be watered and kept wet for at least 24 hours before placing new concrete. Provide sealant for construction joints where shown on the shop drawings and/or which will be immersed or intermittently immersed in water or sewage. Sealant shall be per Section 03300, Part 2, 2.01, H. Where construction joints are not indicated on the Drawings, provide slabs and walls with construction joints at intervals not greater than 30 feet.

### 2.01 MATERIALS

**Q. Floor Hardener.** Use hardened, non-metallic aggregate dust-on type floor hardener consisting of a single manufacturer's system equal to L. M. Scofield Company's natural gray "Lithochrome Hardener" applied uniformly at rate of 100 lbs. per 100 sq. ft. of floor space, or Master Builders' natural gray "Premixed Mastercron" applied at rate of one pound per sq. ft. of floor space. For use with air-entrained concrete, use Burke Company Non-metallic Floor Hardener Group Order #326 applied at a rate of 75 lbs. per 100 square feet. Burke Sparten Cote Cure-Seal-Hardener shall be used with Burke Non-Metallic Floor Hardener #326.
### 3.02 WATERSTOPS

Heat fuse joints and connections in strict compliance with manufacturer’s instructions including heating tools and devices. Waterstops shall be continuous in joints, following offsets and angles in joints until spliced to waterstops at intersecting joints, completely sealing the structure. Waterstops shall be aligned and centered in joints. Secure flanges of waterstops to reinforcing bars with 18 gage wire ties spaced maximum 18 inch center. All waterstops, splices, joints, intersections, and welds shall be tested with an approved holiday spark tester before concrete is placed. **Locate waterstops where shown on drawings and in all water-bearing walls and slabs where common to: earth-bearing or earth-support; occupied areas; or above-grade exposed surfaces. The contract drawings do not indicate every location that is to have waterstop. Waterstop shall be located in all water bearing structure walls and slabs.**

### 3.04 CONVEYING AND PLACING CONCRETE

**a). Walls.** Pour walls of water-containing structures, including tank exterior walls, as one continuous operation from footing to top of wall between indicated construction joints at the specified pour rate.

Each section of wall shall be in place at least seven (7) days before the adjoining wall section is cast. Shear walls and columns within tanks and other walls may have horizontal construction joints at approved locations.

**b). Slabs.** Pour slabs as one continuous operation between indicated or approved construction joints. Cure in-place slabs not less than seven (7) days prior to pouring alternate slabs. Then continue to cure until required curing time is attained.

**a) Walls and Slabs.** In order to minimize the effects of shrinkage, concrete shall be placed in units bounded by construction joints. The placing of units shall be done by placing alternate units in a manner such that each unit placed shall have cured at least 7 days for hydraulic structures and 3 days for all other structures before the contiguous unit or units are placed. The exception is corner sections of vertical walls, which shall not be placed until the adjacent wall panels have cured at least 14 days for hydraulic structures and 4 days for all other structures.
### 09/10/08  3.09 FINISHING FORMED CONCRETE

**C.** All formed concrete within water bearing structures and not subject to Item 3.09.B shall be brush-off cleaned (SSPC-SP7) to open all paste and air holes and to remove curing compound and dust. Alternatively, a high-pressure water spray may be used if the method is demonstrated by the Contractor to be effective in removing the curing compound and opens all defects. The high-pressure water spray alternative must be approved by the Inspector.

All defects greater than \( \frac{1}{4} \) inch in depth are to be filled. Prep defects by applying by brush, a neat cement/water/latex bonding agent paste. Defects shall then be filled by immediately applying and scrubbing in a thick 60-grit sand/cement mortar paste with a sponge rubber float. The mortar is to fill defects only and all excess material shall be cut from the surface with the edge of a steel trowel. Apply curing compound to all repairs.

### 2/15/08  3.03 JOINTS IN CONCRETE

**A. Construction Joints.** Unless otherwise shown, all construction joints shall be provided with suitable keyways of other keying methods. Clean and roughen contact surfaces of construction joints by removing entire surface and exposing clean aggregate solidly embedded in mortar matrix. Use mechanical chipping, sandblasting, or application of surface mortar retarder followed by washing and scrubbing with stiff broom. Cover and protect waterstops and other inserts from damage. The hardened concrete shall be watered and kept wet for at least 24 hours before placing new concrete. At construction joints not containing waterstops, the coarseness amplitude of the prepared surface shall be 1/4 inch minimum in accordance with the latest edition of ACI 318, Section 11.7.9. Provide sealant for construction joints where shown on the shop drawings and/or which will be immersed or intermittently immersed in water or sewage. Sealant shall be per Section 03300, Part 2, 2.01, H. Where construction joints are not indicated on the Drawings, provide slabs and walls with construction joints at intervals not greater than 30 feet.

**Change Legend:**

- **Added**
- **Strike-out**

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