

SECTION 09 97 27

CEMENTITIOUS COATING FOR POOLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Perform work in accordance with Drawings and general provisions of Contract, including General Conditions of Contract, Supplementary Conditions, and Division 1 General Requirements.

1.2 REFERENCE

- A. Requirements in Addenda, Alternates and Conditions collectively apply to this work.

1.3 DESCRIPTION

- A. Principle Work Items Are:
 - 1. Swimming Pool Shell Waterproofing
 - 2. Swimming Pool White Plaster Finish
 - 3. Start-Up & Maintenance
- B. Related Work Elsewhere:
 - 1. 03 37 14 – Shotcrete for Pools
 - 2. 07 14 17 – Cold Fluid-Applied Waterproofing for Pools
 - 3. 09 30 14 – Tiling for Pools
 - 4. 13 11 33 – Elevated Swimming Pools

1.4 SUBMITTALS

- A. Samples: Prepare 12-inch square panel at site showing color and texture for White Plaster. Finished Cementitious Coating shall match approved sample panel.
- B. Certificates: Submit certificates attesting that materials furnished meet requirements specified herein.
- C. Test Report: Submit results of domestic water analysis.

1.5 PRODUCT DELIVERY AND STORAGE

- A. Deliver manufactured materials to site in manufacturers' original unbroken packages or containers bearing manufacturers' name and brand labels. Keep cementations materials dry until ready to be used and stored off ground, under cover, and away from damp surfaces.

PART 2 - PRODUCTS

2.1 WHITE PLASTER

A. Waterproofing

1. AQURON Concrete Pool Shell Protector (CPSP): Permanent, clear treatment, preservative, sealant solution for all shotcrete shells. Shall be applied prior to installation of interior shell finish. See Section 071417 Cold Fluid-Applied Waterproofing for Pools.

B. Materials

1. Portland cement: ASTM C150, Type I white Portland Cement, Hydrated Lime: ASTM C206, Type S.
2. Sand for Pool Plaster Finish Coat: White marble dust uniformly graded within the following limits: All passing the No. 30 sieve.
3. Water: Clean, fresh, from domestic potable source.
4. Percentage retained (by weight plus or minus 2%) on each sieve.
- 5.

<u>Sieve Size</u>	<u>Minimum</u>	<u>Maximum</u>
No. 30	0	30
No. 50	40	55
No. 100		70-80
No. 200		80-100

C. Plaster Proportions And Mixing

1. Materials are specified on a volume basis and shall be measured in approved containers that shall ensure that the specified proportions shall be controlled and accurately maintained during the progress of the work. Measuring materials with shovel blade ("shovel count") is not permitted.
2. White Marble Pool Plaster Finish Coat: Mix finish in proportion of one part by volume of white Portland Cement to not more than two parts by volume of sand (specified white marble dust).
3. Mixing: Perform mixing in approved mechanical mixers of the type in that quantity of water can be controlled accurately and uniformly. While mixer is in continuous operation, change approximately 90% of estimated quantity of water, half of sand, all cement, and the other one-half of the sand into the mixer in that sequence, and mix thoroughly with remainder of water until mixture is uniform in color and consistency. Avoid excess mixing to prevent hasty solution of cement resulting in accelerated set. Discard plaster that has begun to set before it is used
4. Re-tempering is not permitted. Do not use any caked or lumpy materials. Completely empty mixer and mixing boxes after each batch is mixed and keep free of old plaster.

D. PLASTER EXECUTION

1. Preparation of Surfaces

- a. Remove existing plaster surface (if applicable) down to the structural shell of the pool. Clean base surfaces of projections, dust, loose particles, grease, bond breakers, and foreign matter; make sufficiently rough to provide a strong mechanical bond. Thoroughly wash entire surface with 6,000 psi high pressure water immediately prior to plastering (if applicable). Wet cementitious base surfaces with a fine fog water spray to produce a uniformly moist condition and check screeds, pool equipment, and accessories for correct alignment before plastering is started. Do not apply plaster to base surfaces containing frost. Install temporary coverings as required to protect adjoining surfaces from staining or damage by plaster operation.

E. PLASTER APPLICATION

1. General: Apply finish plaster to minimum 5/8 inch thickness at any location. Apply finish plaster by hand or machine. If plastering machine is used, control fluidity of plaster to have a slump not exceeding 2-1/2 inches when tested using a 2" by 4" by 6" high slump cone. Do not add additional water to the mix subsequent to determining water content to meet this slump. Perform slump test according to the following procedure:
 - a. Place cone on level, dry, non-absorptive base plate.
 - b. While holding cone firmly against base plate, fill cone with plaster taken directly from the hose or nozzle of plaster machine, tamping with metal rod during filling to release all air bubbles.
 - c. Screed off plaster level with top of cone. Remove cone by lifting it straight up with a slow and smooth motion.
 - d. Place cone in a vertical position adjacent to freed plaster sample using care not to jiggle the base plate.
 - e. Lay straightedge across top of cone being careful not to vibrate cone; measure slump in inches from bottom edge of straightedge to the top of the slumped plaster sample.
2. Workmanship: Apply finish plaster in two coats by "double back" method with second coat applied as soon as first coat is tamped and initially floated. Apply plaster with sufficient pressure to provide a good hold on bond bases. Work plaster to screeds at intervals from 5 feet to 8 feet or closer as required on curved surfaces. Finish plaster to tolerance of -0 to +1/8 inch in thickness and to 1/8 inch in 8 feet of straight pits, crazing, discoloration, projections, or other imperfections. Form plaster carefully around curves and angles, well up to screeds. Take special care to prevent sagging and consequent drooping of applications. Produce surfaces free of visible junction marks in finish coat where one day's work adjoins another.
 - a. Curing: Fill the pool with local potable water supply. Water provided by owner. Prevent damage or staining of plaster by toweling of curing.

- b. Patching, pointing, and Cleaning-Up: Upon completion, cut out and patch loose, cracked damaged, or defective plaster; patches matching existing plaster in texture, color, and finish, flush with adjoining plaster. Perform pointing and patching of surface and plasterwork abutting or adjoining any other finish work in a neat and workmanlike manner. If 5 percent or more of the pool's plaster finish is found to be defective, the plaster shall be removed and replaced complete for the entire pool. Remove plaster droppings or spattering from all surfaces. Leave plaster surfaces in clean, unblemished condition ready for pool filling. Remove protective coverings from adjoining surfaces. Remove rubbish and debris from the site.

2.2 START-UP

- A. Contractor shall employ a qualified water-testing agency to analyze the domestic water that the pool is to be filled with within 2 weeks of the plastering date. The contractor shall also employ a swimming pool experienced water chemistry consultant to determine types and quantities of chemicals required to ensure balanced water, per Langelier Stability Index values, immediately upon the completion of water filling. Contractor shall employ the services of this consultant for follow up visits after the pool has been turned over to the owner. Contractor shall include four (4) additional visits from the consultant for training and follow up testing of the water chemistry.
 1. Have on-hand, quantities of the chemicals as determined above, plus 25% overage for follow-up treatment. These chemicals, typically including calcium chloride, bicarbonate of soda, and muriatic acid, are in addition to standard chlorine products and pH control products required elsewhere.
 2. It will be the responsibility of the owner to fill the pool.
 3. The pool shall not be plastered until the filtration system and chlorinating systems are complete and ready for start-up. Contractor shall notify the Owner in writing of start-up at least two weeks prior to the plaster date. The Owner is responsible for supplying chlorine products, and pH control products, for maintenance of the pool by automated treatment systems. Should these automated treatment systems fail or the Contractor fail to notify the Owner as required, the Contractor shall supply all chemicals required for the manual treatment of the pool water.
 4. Contractor shall maintain swimming pool for 14 consecutive, problem free, days in conjunction with the mechanical system operational test. This maintenance period shall be extended with the mechanical system operational test if required per specifications. During this time, brush the entire pool plaster surface daily starting immediately after filling the pool for a minimum of 5 days to remove plaster dust. Periodically clean grates until no further accumulation of foreign material occurs, and add chemicals as required for acceptable water quality. In addition to brushing, the pool shall be vacuumed throughout the 14-day period starting no sooner than 5 days after the date of plaster. After successful conclusion of the mechanical system operational testing, Contractor shall clean grates and tile, vacuum pool, and leave the pool ready for use.

5. Contractor shall provide two separate start-up/training sessions with the owner's maintenance staff. Contractor shall inform the owner a minimum of one week prior to each of the training sessions. The first session should occur once the mechanical system is operational and the water in both pools had been balanced. A second session shall be provided 2-3 weeks after the first session. Contractor shall provide the owner with a video record of each session.

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