

## SECTION 035216 - LIGHTWEIGHT CONCRETE TOPPING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes cast-in-place vermiculite aggregate lightweight concrete topping.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, sections, and details showing slopes, lightweight concrete topping thicknesses, control and expansion joints, and transitions to adjacent materials and finishes.
- C. Design mixtures.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Material test reports.
- C. Research/evaluation reports.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An Installer who employs and retains, throughout the project, supervisors who are trained and approved by manufacturer.
- B. Fire-Resistance Ratings: Where indicated, provide lightweight concrete identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency and with light weight aggregates produced by manufacturers accepted by UL for use in assemblies listed on the drawings.
- C. Provide vermiculite aggregates containing no detectable asbestos as determined by method specified in 40 CFR 763, Subpart E, Appendix E, Section 1, "Polarized Light Microscopy."
- D. Preinstallation Conference: Conduct conference at Project site.

- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5 and Section 7, "Lightweight Concrete."

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cementitious Material: Portland cement, ASTM C 150, Type I. Supplement with fly ash, ASTM C 618, Class C or F not to exceed 20 percent.
- B. Lightweight Mineral Aggregate: ASTM C 332, Group I, vermiculite.
- C. Foaming Agent: ASTM C 869.
- D. Water: Clean, potable.
- E. Air-Entraining Admixture: ASTM C 260.
- F. Joint Filler: ASTM C 612, Class 2, glass-fiber type; compressing to one-half thickness under a load of 25 psi (172 kPa).
- G. Fiber Reinforcing: Synthetic monofilament or fibrillated micro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, 1/2 to 1 1/2 inches (13 to 38 mm) long.

### 2.2 AGGREGATE LIGHTWEIGHT CONCRETE TOPPING

- A. Produce lightweight concrete topping using the minimum amount of water necessary to produce a workable mix.
  1. Do not exceed maximum air content recommended by aggregate manufacturer.
- B. Vermiculite Aggregate Mix: Lightweight concrete topping produced from cementitious materials, water, air-entraining admixture, and vermiculite mineral aggregates.
  1. Compressive Strength: Minimum 2,500 psi (17.3 MPa), at 28 days.
  2. Cement-to-Aggregate Ratio, by Volume: **1:6.**

### 2.3 LIGHTWEIGHT CONCRETE TOPPING AGGREGATES

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Elastizell Corporation of America.
- b. Palmetto Vermiculite
- c. Vermiculite Products.
- d. W R Grace
- e. Siplast.

## 2.4 FIBER REINFORCEMENT

- A. Fiber reinforcement material for use in lightweight concrete floor topping applications only.
- B. Synthetic Micro-Fiber: Monofilament or fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Fibrillated Micro-Fibers:
      - 1) Axim Italcementi Group, Inc.; Fibrasol F.
      - 2) Euclid Chemical Company (The), an RPM company; Fiberstrand F.
      - 3) Grace Construction Products, W. R. Grace & Co.; Grace Fibers.
      - 4) Nycon, Inc.; ProConF.
      - 5) Propex Concrete Systems Corp.; Fibermesh 300.
      - 6) Sika Corporation; Sika Fiber PPF.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Control Joints: Install control joints at perimeter of deck and at junctures with vertical surfaces, including curbs, walls, and vents, for full depth of lightweight concrete topping. Fill control joints with joint filler.

### 3.2 MIXING AND PLACING

- A. Mix and place lightweight concrete topping according to manufacturer's written instructions, using equipment and procedures to avoid segregation of mixture and loss of air content.
- B. Deposit and screed lightweight concrete topping in a continuous operation until an entire panel or section of floor area between control joint locations is completed. Do not vibrate or work mix except for screeding or floating. Place to depths and slopes indicated.
- C. Finish top surface smooth, free of ridges and depressions, and maintain surface in condition to receive subsequent applied finishes where indicated.

- D. Begin curing operations immediately after placement and air cure for not less than three days, according to manufacturer's written instructions.
- E. If ambient temperature falls below 32 deg F (0 deg C), protect lightweight concrete topping from freezing and maintain temperature recommended by manufacturer for 72 hours after placement.

END OF SECTION 035216