

CSI MASTERFORMAT SECTION 04225

FIBER REINFORCED AERATED CONCRETE CLADDING PANELS

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: FlexCrete Aerated Concrete Wall System, including:
 - 1. Fiber Reinforced Aerated Concrete Cladding Panels.
 - 2. Thin Bed Mortar.
 - 3. Mechanical Fasteners.
 - 4. Approved mortars, surface finishes and ancillary products.
- B. Related Sections: Coordinate AC construction system work with related work.

1.02 REFERENCES (INDUSTRY STANDARDS)

- A. General: Manufacturer to provide reference standards listed below for use of Fiber Reinforced Aerated Concrete panel.
 - 1. American Society for Testing and Materials (ASTM):
 - I. ASTM C 140-02a – Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
 - II. ASTM C 469-64 – Standard Test Method for Static Modulus of Elasticity and Poisson’s Ratio of Concrete in Compression.
 - III. ASTM C 42 / C 42M-99 – Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 - IV. ASTM C 177-97 – Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of Guarded-Hot-Plate Apparatus.
 - 2. ASTM E119-00 – Standard Methods of Fire Tests of Building Construction and Materials.
 - 3. UBC 21-17 – Test Method for Compressive Strength of Masonry Prisms.
 - 4. ICC Evaluation Services, Inc. Legacy Report ER-5766.
 - 5. Product Evaluation Report of FlexCrete Aerated Concrete elements dated 5/30/2007, Ferguson Structural Engineering Laboratory at the University of Texas, Austin.

1.03 DEFINITIONS

- A. Terms: Terms of the following as referenced:
 - 1. FRAC Panels: Fiber- reinforced Aerated Concrete Panels.
 - 2. FRAC Cladding Panels: Nominally rectangular face unit, 24” x 48”.
 - 3. AC: Aerated Concrete.

4. AC Wall Construction System: Combination of Fiber Reinforced Aerated Concrete Panels and approved mortar bonded together at all vertical and horizontal joints and fastened to wall studs with approved fasteners.
5. Strength Class: Classification that defines the physical properties of FRAC blocks, designated as Class 30 and Class 35.

1.04 REQUIREMENTS AND PERFORMANCE

- A. Performance Requirements: Conform to manufacturer's standards and recommendations.
- B. Performance Requirements Criteria:
 - a. FRAC Panels: Refer to ICC Evaluation Services, Inc. *Legacy Report ER-5766* for allowable values and/or conditions of use concerning materials presented in this document..
 - b. For fastener performance and in-plane and out-of plane testing, refer to Product Evaluation Report of FlexCrete Aerated Concrete elements dated 5/30/2007, Ferguson Structural Engineering Laboratory at the University of Texas, Austin.

1.05 SUBMITTALS

- A. Product Data: Manufacturers product data for AC Construction System.
- B. Samples: Typical FRAC Cladding Panel Wall system.
- C. Quality Control Submittals:
 1. Test Reports: Copies of fire certification tests complying with minimum 2 hour rating per ASTM E-119.
 2. Certificates: From FlexCrete Building Systems, LC prior to delivery of panels and wall system components to Project Site. Include on each certificate: Signature of authorized officer of manufacturing company, name and address of Contractor, project location, product identification number, and procedures in accordance with manufacturer's recommendation.

1.06 QUALITY ASSURANCE

- A. Regulatory Requirements: Fiber- reinforced Aerated Concrete Panels shall comply with the following:
 1. ICC Evaluation Services, Inc. - Legacy Report ER-5766 for FlexCrete formulation only.
- B. Manufacturer Qualifications: Furnish FRAC Panels from FlexCrete Building Systems, LC and one licensed production facility.
- C. Installer Qualifications: Engage an AC manufacturer – listed Installer who has the necessary tools, equipment and experience in FlexCrete and/or other AC system handling, placement and installation.

- D. Project site mock-up: Erect at project site a mock-up for approval.
1. Erect sample unit construction with FlexCrete FRAC Cladding Panels.
 2. Orient mock-up as directed by Architect and indicate the following if applicable:
 - I. Bonding and mechanical fastening.
 - II. Control joint with joint sealant installed.
 - III. Workmanship.
 - IV. Flexible flashing detail.
 - V. Exterior surface finish.
 3. Prepare a sample at least 14 days prior to commencement of work. Should sample be disapproved, prepare additional sample until approved.
 4. Maintain sample throughout work as standard FRAC block work sample. Do not destroy sample until directed by Architect.
- E. Pre-installation conference:
1. Prior to installation of FRAC blocks, conduct a pre-installation conference to review Scope of Work.
 2. Attendees shall include a representative from each subcontractor involved with FRAC Cladding Panel installation and finish, and with the installation of any adjacent and/or related materials/components.
 3. Architect shall coordinate and attend meeting.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Like all other construction materials, FlexCrete is susceptible to damage if mishandled. Less handling means lower potential for damage. In some instances, damage may occur from shipping.
1. Unload pallets using pallet forks (either on a forklift or crane-mounted).
 2. FlexCrete materials storage areas should be accessible to delivery trucks and convenient to material staging areas. If possible, drop-deliver materials right to the material staging areas.
 3. Panels should always be stored away from construction activities on flat areas that are not susceptible to standing water, erosion or settling. Placing AC units in direct contact with soil is prohibited.
 4. Keep AC materials covered until ready for installation to protect from chipping, staining and mechanical damage.

1.08 PROJECT CONDITIONS

A. Weather restrictions during construction:

- a. Cold Weather Installation Restrictions: Place AC material when temperature of surrounding air is 40°F and rising. Placing materials when temperature has dropped below this level and temperature of FlexCrete units is below 40°F is prohibited unless approved precautionary measures have been taken.
- b. Hot weather precautions: When ambient temperature is over 90°F with a 10MPH wind or exceeds 100°F, do not spread mortar beds more than 8'-0" ahead of Panel installation. Under these conditions, FlexCrete units must be installed within 2 minutes of spreading mortar bed.
- c. Consult Manufacturer for recommended procedures in temperatures exceeding the lows and highs mentioned above.

1.09 SCHEDULING OTHER CONSTRUCTION ACTIVITIES

A. Coordination of other construction activities to be built into walls:

1. Includes work required for applying required vapor barrier to wall, prior to installation of FRAC Cladding Panels.
2. As walls are completed, coordinate application of base coat and finish to FRAC Cladding Panels.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

A. Manufacturers:

1. FlexCrete Building Systems, L.C.; 16745 W. Hardy Road, Houston, TX 77060; Tel: 877-439-8774; Fax: 512-692-2982.
2. Palestine FlexCrete, L.P.; 2500 W. Reagan, Palestine, TX 75802; Tel: 903- 729-2217; Fax: 903-724-5021
3. Substitutions: No substitutions permitted.

2.02 MANUFACTURED PANELS

A. FRAC Cladding Panels

1. Composition: Aerated Concrete mixture consisting of fly ash and Portland cement with proprietary activators and poly-fibers.
2. Nominal dimensions: FRAC Cladding Panels: 2"; 3" nominal thickness by 24" nominal height by 48" nominal length. Strength Class 30 and 35.
3. Fire Ratings: In accordance with Intertek Spec Direct, per ASTM E-119.
4. Product Testing: *Legacy Report ER-5766* by ICC Evaluation Services, Inc. and Product Evaluation Report of FlexCrete Aerated Concrete elements dated 5/30/2007, Ferguson Structural Engineering Laboratory at the University of Texas, Austin

2.03 ACCESSORIES

A. Acceptable Mortar Materials:

1. AC Mortar: FlexCrete Thin Bed Mortar.

B. Related Accessories:

1. System fasteners: Approved fasteners for use in FRAC and Aerated Concrete. Consult with FlexCrete Building Systems, L.C. for recommended type and source. Must comply with pull-out requirements per Product Evaluation Report of FlexCrete Aerated Concrete elements dated 5/30/2007, Ferguson Structural Engineering Laboratory at the University of Texas, Austin.
2. Joint sealant: Elite Cement Products Inc, Atlanta, GA.

2.04 SURFACE FINISHES

A. Acceptable Base coat and Finish Manufacturers:

1. Elite Cement Products; Tel: 770-448-0856. www.elitecement.com.
2. BASF Wall Systems Inc; Tel: 800-221-9255. www.finestone.cc
3. Tecnocem USA; Tel: 561-655-8962. www.tecnocemusa.com

PART 3 - EXECUTION

3.01 PRE-QUALIFIED INSTALLATION CREWS AND TOOLS

- #### A. Project Contract Requirements: Comply with project contract requirements for pre-qualified installers and installation tools and equipment.

3.02 PREPARATION

A. Protection:

1. Protect partially completed walls with non-staining waterproof membrane until wall construction activities are completed.
2. Keep FRAC units clean throughout project.

- #### B. Cutting FRAC Units: Cutting of FR AC Cladding Panels on the jobsite is permitted.

3.03 INSTALLATION

A. Training sequence: Follow instructions on training video provided by FlexCrete Building Systems LC.

1. Install Cladding Panels units in running bond pattern, with 12” minimum head joint stagger.
2. Cut FRAC Cladding Panels with manufacturer recommended hand saws or electric band saw, specially designed for cutting Aerated Concrete units.
3. Install FRAC Cladding Panels for accurate spacing of surface bond patterns with uniform joint widths and for accurate location of opening, joints, returns and offsets. Install FRAC panels to comply with specified construction tolerances, with courses spaced and coordinated with other construction.

B. For Horizontal Assembly:

<u>Screw locations and spacing</u>	<u>Three screws per stud</u>	<u>16" O.C.</u>
Screw type	Type S3	For 2" panels
Wind-Lock	Type S5	For 3" Panels
Wind-Lock	Lath-Lock	1 1/4" plate

C. Control joints:

1. Provide control joints, 1/2" wide unless indicated otherwise; rake out control joints to a depth of 3/4" while mortar is still plastic.
2. Provide joints at 24'-0" O.O. unless otherwise indicated.
3. Leave joint open and clean for joint treatment in accordance with Division 7, Joint Treatment, by others.

D. Installation tolerances:

1. Maximum variation from plumb: 1/4" in 10'-0", not to exceed 3/8" in 20'-0".
2. Maximum variation from level: 1/4" in 20'-0", not to exceed 1/2" in 40'-0".
3. Maximum variation in linear building line from location indicated: 1/2" in 20'-0".

END OF SECTION 04225