

ARGETON
Manufacturers Specification
SECTION 07417
TERRACOTTA RAINSCREEN TILE CLADDING SYSTEM

PART 1-GENERAL

1.1 RELATED DOCUMENTS

- A. This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements.

1.2 SUMMARY

- A. Section includes: Exterior wall cladding system consisting of flat, double-skin, terracotta panels installed with aluminum panel clips attached to aluminum vertical framing sections anchored to structural wall substrate and utilizing the rainscreen principle.
- B. Related sections:
1. Section 03300 – Cast-in-Place Concrete
 2. Section 05400 – Light Gauge Cold Formed Steel Framing
 3. Section 07210 – Building Insulation: Batt thermal insulation installed behind terracotta cladding system.
 4. Section 07270 – Air Barriers: Sheet air infiltration barrier installed in cavity behind terracotta cladding panels.
 5. Section 07600 – Flashing and Sheet Metal: Sheet metal air cavity flashings, wall transitions, sills, trim, parapet cap and other sheet metal components.
 6. Section 06100 – Rough Carpentry
 7. Section 09250 – Gypsum Board

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM) Publications:
1. ASTM C97-02 – Absorption and Bulk Specific Gravity of Dimension Stone.
 2. ASTM C880-96-Standard Test Method for Flexural Strength of Dimension Stone.
 3. ASTM E330 – Structural Performance of Exterior Window, Curtain Walls, and Doors Under the Influence of Wind Loads.
 4. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
 5. ASTM E 1105 – Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference
- B. European Standards:
1. EN ISO 539.2 METHOD C -.
 2. NFP 13.304 -.

1.4 DEFINITIONS

- A. Rainscreen Principle: Method for controlling rain penetration through wall cladding system. Open joints allow air pressure in cavity behind cladding to equal outside air pressure thus resisting wind driven rain. Rainscreen system includes:
1. Drained and vented wall cladding.

2. Air barrier on cladding substrate.
3. Compartmentalization of cavity behind cladding into sealed compartments.
4. Flashings and weep holes to drain water from cavity.

B. SYSTEM DESCRIPTION

1. General: The Argeton terracotta tile system is non combustible wall façade with a rainscreen, pressure equalized design consisting of double skinned terracotta tiles of varying sizes with an aluminum supporting sub framing.
2. Methods of Installation
 - Field Applied: The Argeton System is applied to the framing on site.
 - Panelized: The Argeton System is shop applied to structural steel panels.
3. Acceptable Substrates:
 - Exterior Grade Gypsum Sheathing – ASTM 1396
 - Exterior Sheathing with water resistant core with fiberglass facers – ASTM 1177
 - Structurally Sound Brick, Masonry, CMU

1.5 DESIGN AND PERFORMANCE REQUIREMENTS

A. Design and install terracotta cladding and attachment system to:

1. Provide in conjunction with wall substrate and air barrier a weathertight wall assembly utilizing rainscreen principle.
2. Withstand design loads as required by applicable codes for Project location.
3. Comply with applicable seismic requirements for Project location as defined by International Building Code.
4. Adequately resist wind forces and uplift for Project location for wall surface, for parapet and corner panels tested in accordance with ASTM E330.
5. Accommodate movement of cladding components without undue stress on fasteners or other detrimental effects, when subjected to seasonal temperature range of:
 - a. Ambient: [120 degrees F] [67 degrees C].
 - b. Cladding surface: [180 degrees F] [100 degrees C].
6. Accommodate tolerances of support structure.
7. Assure non combustibility of all components including tiles, sub support frame and all components therein.

1.6 SUBMITTALS

A. Provide in accordance with Section 01330 – Submittal Procedure:

1. Product data describing materials and fabrication for terracotta panels and attachment components.
2. Shop drawings showing:
 - a. Profiles and dimensions for tiles, special shapes, and trim pieces.
 - b. Installation details: Attachment methods, fasteners, joints, corners, openings, intersections with adjacent materials, flashings, closures, trim and other critical conditions.
 - c. Layout of terracotta panels on wall and locations of special pieces and trim.
3. Structural and pressure differential calculations.
4. Copies of certificates, reports, and other data showing compliance with design and performance requirements specified in Paragraph [1.4].
5. Samples:
 - a. [12 inches] [305 mm] minimum length of terracotta panel in selected color and surface finish.
 - b. [3 inches] [76 mm] minimum length of attachment rail.
6. Manufacturer's installation and maintenance instructions.
7. Copy of warranty required by Paragraph [1.11] for review by Architect.

1.7 QUALITY ASSURANCE

- A. Installer qualifications: Company experienced in installing exterior wall cladding systems and acceptable to terracotta cladding supplier.
- B. Attachment details shall be designed under direct supervision of licensed professional structural engineer. Calculations and shop drawings shall bear seal of supervising engineer.
- C. In accordance with Section 01400 – Quality Requirements, supplier’s field representative shall inspect wall substrate and air barrier prior to installation, observe terracotta cladding installation, and submit report of observations and findings to Architect.
- D. System Manufacturer: Shall be Argeton. All materials and components shall be manufactured and sold by Argeton or its authorized distributor.

1.8 MOCK - UP

- A. In accordance with Section 01400 – Quality Control, prepare separate mock-up illustrating wall substrate with attached terracotta cladding. Mock-up shall demonstrate wall performance and establish standard of quality and workmanship. Illustrate terracotta panels, attachment method, thermal insulation, furring, sheathing, air barrier, joints, flashings, corner conditions, parapet, sills, flashings and workmanship.
- B. Mock-up shall be wall segment with corner & opening constructed with:
 - i. Slab or foundation support.
 - ii. Wall substrate with thermal insulation, sheathing, and air barrier.
 - iii. Terracotta panels installed with framing section, wall brackets, and panel clips.
- C. Approximate size: [10 by 10 feet] [3 by 3 m].
- D. Accepted sample may remain as part of work and will be used as basis for acceptance of remaining cladding. Unacceptable samples shall be removed.
- E. Test mock-up with water hose and other means to verify performance.

1.9 WARRANTY

- A. Manufacturer’s Warranty: Warrant that the terracotta tiles and aluminum substructure shall be free of material defects for a period of five (5) years. Failure or defects are to be determined by representatives of the manufacture.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers:
 - 1. Basis of Design: Argeton Terracotta Rainscreen, www.terracotta-rainscreen.com, VF Mueller
 - 2. Accordance with Section 01630 – Product Substitution Procedures. Architect reserves right to reject substitution request based on available sizes, color or surface finish even though fabrication, materials, and performance are equivalent.

2.2 TERRACOTTA PANEL CLADDING SYSTEM

- A. Type: Exterior wall cladding system utilizing the rainscreen principle consisting of flat, double-skin, terracotta panels hung on vertical aluminum framing sections
- B. Cladding support: Terracotta panels installed with aluminum clips attached to aluminum vertical framing sections anchored with brackets to wall substrate.

2.3 TERRACOTTA PANELS

- A. Type: Double-skin, unglazed, extruded terracotta panels with flat front and back faces and horizontal cellular cavities which are open at panel ends
- B. Profile: Top edge of panel is formed with horizontal projecting flange which fits into continuous notch along bottom edge of adjacent panel.
- C. Material: Unglazed, frost proof, fired clay complying with EN539.2 Method C –NFP 13.304.
 - 1. Compressive strength tested in accordance with ASTM C880-96: **[] PSI.**
 - 2. Absorption tested in accordance ASTM C97 for average of 5 panels: 3.5 percent after 24 hours cold water soak.
- D. Overall panel size (height by length by thickness): as selected from manufacture’s full range of sizes
- E. Surface finish: as selected from manufacturers full range of finishes
- F. Color: as selected from manufacturers full range of colors

2.4 SUPPORT COMPONENTS AND ACCESSORIES

- A. Clips: Formed from extruded aluminum with pre-drilled holes along top for screw attachment to framing sections
 - a. Standard clip:
 - i. Application: Designed to support and retain terracotta tiles above and hook and retain in place cladding panel below.
 - b. Top clip:
 - i. Application: Designed to hook and retain top of uppermost tiles where support of a tile above is not required.
 - c. Bottom clip:
 - i. Application: Designed to hook and retain top of bottom most tile where support of a tile below is not required
- B. Vertical hat channel sections: Extruded aluminum members anchored to structural substrate with brackets and designed to support terracotta panels with aluminum clips screw attached to framing sections:
 - a. Standard type framing section: Hat channel shaped with two projecting flanges
 - i. Application: Designed to be positioned were terracotta panels join. Panel clips are riveted into pre-drilled holes engineered for exact tiles sizes in order to support two abutting cladding panels.
 - ii. Joint Profile: Aluminum, T-shaped joint profile screw attached to channel framing section and projecting between two abutting cladding panels. Joint Profiles conceal openings in ends of cladding panels.
- C. Wall attachment brackets: Horizontal L-shaped aluminum profile attaches to vertical framing sections and is received by attachment brackets for framing sections to structural wall substrate. Provided with clamping springs with slotted holes and other means to allow adjustment and vertical alignment. Attachment brackets shall be securely anchored to wall substrate with fasteners of type, size and spacing as required to meet performance requirements specified in Paragraph [1.4] and as indicated on approved shop drawings.
 - a. Fasteners: Corrosion resistant fasteners and anchors of type, size and spacing required for type of substrate and project conditions, to meet performance requirements specified in Paragraph [1.4] and as indicated in design calculations and shop drawings.
 - b. Sheet metal: Provide sheet metal flashings and trim as required for cladding system in accordance with Section 07620-Sheet Metal Flashing and Trim

PART 3 – EXECUTION

3.1 INSPECTION

- A. Examine walls to receive terracotta cladding. Ensure substrate is structurally sound, clean and

free of contaminants which inhibit bond of air barrier.

1. Maximum substrate deflection: $L/360$
 2. Maximum substrate surface variation: [1/8 inch in 10 feet] [3mm in 3m]
 3. Stud construction with gypsum exterior sheathing: Verify stud framing is adequately braced without deflection and sheathing is properly secured with edges over firm bearing. Ensure proper framing and supports are provided and located for secure attachment of terracotta support rails.
- B. Do not proceed with terracotta cladding installation until deficiencies have been addressed.

3.2 PREPARATION

- A. Air/Vapor barrier: (If specified) Install air/vapor barrier to wall sheathing as specified in Section 07260-Vapor Retarders are detailed on drawings and approved shop drawings.
- B. Framing sections: (If specified) Anchor vertical, aluminum framing sections with attachment brackets using engineered fasteners and anchors to accomplish performance requirements specified in Paragraph [1.4].
- C. Install rigid board thermal insulation as specified in Section 07212-Board and Batt Insulation between vertical framing members as detailed on drawings and approved shop drawings.
- D. Flashings: Install sheet metal flashings, pressure compartment dividers and trim as specified in Section 07620-Sheet Metal Flashing and Trim and as positioned and detailed on drawings and approved shop drawings. Ensure flashings at bottom of wall and pressure compartments properly drain water from air cavity to exterior through weep holes. Turn up flashings [4 inches] [102mm] minimum and seal to substrate. Lap flashing end joints [6 inches] [152 mm] and seal watertight.

3.3 CLADDING INSTALLATION

- C. Install terracotta cladding in accordance with manufacturer's instructions and approved shop drawings.
- D. Establish level lines for panel coursing. Accurately determine and mark locations of vertical framing members.
- E. Framing sections: Attach vertical framing sections to wall substrate with engineered fasteners and anchors to accomplish performance requirements specified in Paragraph [1.4].
 - i. Attach framing sections with pairs of wall attachment brackets spaced manufacturer's minimum spacing required
 - ii. Secure framing sections to wall attachment brackets with two self-tap con fasteners. Adjust connection to ensure framing sections are plumb.
- F. Terracotta panels: Starting at bottom of wall, hang panels with aluminum clips screwed to framing sections using two self-taping fasteners. Clips shall engage and support upper cladding panel and hook and retain lower cladding panel. Ensure clips are accurately positioned such that cladding panels are level.
 - i. Layout work so as to avoid or minimize cuts. Site cut terracotta panels using power, wet masonry saw with diamond type blade. Prevent broken corners, edges and chips.
 - ii. Install panels with open vertical joints [3/8 inch] [9.525 mm]
 - iii. Tolerances: Shim and align terracotta panels to provide these tolerances:
 1. Deviations from level or plumb alignment: [1/4 inch in 20 feet] [6 mm in 6 m] maximum, non accumulative.
 2. Offset of adjoining faces and alignment of matching profiles: [1/8 inch] [3 mm] maximum.

3.4 CLEANING AND PROTECTION

- A. Remove and replace broken, chipped, stained or otherwise damaged panels.
- B. Immediately after installing, wash cladding with clean water and stiff bristle fiber brushes. Do not use wire brushes, metallic tools or abrasives for cleaning.
- C. Protect cladding from roof run-off, splashed water, mud, sealants, bitumen and other contaminants from remaining construction activities.

- D. Without damaging completed work, provide protective boards at exposed external corners, which may be damaged by construction activities.

END OF SECTION