ICC EVALUATION SERVICE
In Cooperation with Innovation RESEARCH LABS

Most Widely Accepted and Trusted

ICC-ES Evaluation Report

ESR-3793

ICC-ES | (800) 423-6587 | (562) 699-0543 | www.icc-es.org

Issued 03/2018
This report is subject to renewal 03/2019.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 44 16—PORCELAIN ENAMELED FACED PANELS

REPORT HOLDER:

STONEPEAK CERAMICS

314 WEST SUPERIOR AVENUE
CHICAGO, ILLINOIS 60654

EVALUATION SUBJECT:

PORCELAIN TILES VENTILATED FAÇADE SYSTEM

Look for the trusted marks of Conformity!

"2014 Recipient of Prestigious Western States Seismic Policy Council (WSSPC) Award in Excellence"

A Subsidiary of INTERNATIONAL CODE COUNCIL

ICC-ES Evaluation Report

ESR-3793

Issued March 2018

This report is subject to renewal March 2019.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 44 16—Porcelain Enameled Faced Panels

REPORT HOLDER:

STONEPEAK CERAMICS
314 WEST SUPERIOR AVENUE
CHICAGO, ILLINOIS 60654
(312) 506-2800
www.stonepeakceramics.com

EVALUATION SUBJECT:

PORCELAIN TILES VENTILATED FAÇADE SYSTEM

ADDITIONAL LISTEE:

GRANITIFIANDRE S.P.A
VIA RADICI NORD, 112
42014 CASTELLARANO (REGGIO EMILIA) ITALY
+39 0536 819611
www.granitifiandre.com

1.0 EVALUATION SCOPE

Compliance with the following codes:

2015 and 2012 *International Building Code*® (IBC)

Properties evaluated:

- Physical properties
- Weather resistance
- Wind load resistance
- Noncombustible construction

2.0 USES

The Porcelain Tiles Ventilated Façade System is used as a nonload-bearing exterior wall covering on nonfire-resistance-rated buildings of all construction types under the IBC. The Porcelain Tiles Ventilated Façade System may be used on the exterior face of exterior walls of buildings required to be Type I, II, III or IV construction that are not greater than 40 feet (12.2) in height above grade in accordance with IBC 1403.5.

3.0 DESCRIPTION

3.1 General:

The Porcelain Tiles Ventilated Façade System is an open-jointed exterior wall covering system of porcelain panels with a substructure that allows air to circulate between the panels and the exterior face of the installed water-resistive barrier. The panels are mounted on the substructure of extruded aluminum attachment brackets, aluminum framing members and rivets, with stainless steel visible fixing clips (GHV exposed anchoring system) or Keil anchors (GHS concealed fastening system). The system weighs a maximum of 5.85 pounds per square foot (280 N/m^2).

3.2 Components:

3.2.1 Porcelain Tiles: The porcelain panels comply with the requirements for rectified and porcelain panels in ANSI A137.1. The tiles measure nominally 2 feet wide by 4 feet long (610 mm by 1219 mm) and are nominally 8 millimeters thick (0.31 inch). The panels contain a 5.5 mm deep (0.22 inch) predrilled hole for the installation with the GHS anchoring system (concealed fastening system). The porcelain panels are classified as noncombustible in accordance with ASTM E136.

3.2.2 Substructure: The substructure is a system of aluminum T-profile and horizontal rail framing members with L-brackets and C-bracket attachment brackets. The T-profiles are 2.56 inches (65 mm) wide and have a 2.17-inch (55 mm) leg. The L-brackets are 1.57 inches (40 mm) wide by 1.97 inches (50 mm) deep. The C-brackets (top and bottom clamps) are 1.20 inches (30.4 mm) wide by 2.26 inches (57.3 mm) deep. See Figure 1.

3.2.3 Fastening Systems: The connection to the porcelain panels is made by either an exposed GHV anchoring system or a GHS Keil concealed undercut anchor.

3.2.3.1 Exposed Fastening System (GHV System): For the exposed anchoring system, the porcelain panels are attached to framing members using the GHV anchor hooks. There are three different GHV anchors; GHV cross exposed anchors, GHV vertical side anchors or GHV top or bottom anchors. See Figure 2.

3.2.3.2 Concealed Fastening System (GHS System): For the concealed anchoring system, C-brackets are attached to the panels through 5.5 mm (0.22-inch) pre-drilled holes in the panels with Keil anchors. Keil anchors consist of a crosswise slotted anchor sleeve with an M6 internal thread, at the upper edge of which a hexagon is formed to it and a respective hexagon screw with a tooth lock washer formed to it, made of stainless steel. See Figure 4.

4.0 DESIGN AND INSTALLATION

4.1 General:

The Porcelain Tiles Ventilated Façade System must be installed in accordance with the manufacturer's published installation instructions, the project-specific structural calculations and details, and this report. A copy of the installation instructions must be available on the jobsite during construction.

4.2 Design:

The allowable wind loads for the Porcelain Tiles Ventilated Façade System given in Table 1, are for the attachment of the substructure to the underlying wall, and must equal or exceed the design uniform transverse wind loads determined in accordance with IBC Chapter 16. The attachment of the brackets to the supporting structure or exterior wall framing to withstand gravity and transverse forces must be designed by a licensed design professional in accordance with the IBC, and the details must be submitted to the code official for approval. The allowable loads must be reduced to the capacity of the attachment system connections if these are less than the allowable load values for the wall cladding system.

4.3 Installation:

The Porcelain Tiles Ventilated Façade System must be installed over wall assemblies complying with IBC Section 1403.3, capable of supporting the imposed loads, including, but not limited to, transverse wind loads. The substructure L-brackets must be securely fastened to the supporting wall with corrosion-resistant fasteners that are compatible with the substructure materials and wall assembly substrate.

Exterior wall assemblies on which the system is to be installed must include flashing, a water-resistive barrier, a means of draining water, and protection against condensation in accordance with IBC Section 1403.2. When use is on Type I, II, III and IV construction, the exterior wall must be covered with a water-resistive barrier recognized in a current ICC-ES evaluation report, that has a flame-spread rating of 25 or less and a smoke developed rating of 450 or less in accordance with ASTM E84 (UL723). The water-resistive barrier must be installed in accordance with the manufacturer's installation instructions.

4.3.1 Substructure System Installation: The system must be installed over wall assemblies complying with IBC Section 1403.3, using the substructure components described in Section 3.2.2 of this report. The L-brackets must be fastened to the building substrate according to the design at a maximum spacing of 32 inches (812 mm) on center, both vertically and horizontally. The vertical T-profiles must be attached to the L-brackets using $^{3}/_{16}$-inch-diameter-by-$^{1}/_{2}$-inch-long (4.8 mm by 12 mm) stainless steel rivets. The horizontal rails must be attached to the T-profiles at every intersection in accordance with the manufacturer's published installation instructions.

For the concealed fastening system, the aluminum C-brackets must be attached to the panels at a maximum spacing of 20 inches (508 mm) on center horizontally and 16 inches (406 mm) on center in the horizontal position and at a maximum of 16 inches on center horizontally and 20 inches (508 mm) on center vertically when the longest side of the tile is in the vertical position.

4.3.2 Panel Fastening:

4.3.2.1 Exposed Fastening System (GHV Anchors): For the exposed fastening systems, the porcelain panels must be attached to the substructure using GHV anchors. The appropriate GHV anchor is fastened to the vertical T-profile framing member using $^{1}/_{8}$-inch-diameter stainless steel rivets and porcelain panels are attached to framing members using GHV anchors hooks. See Figure 3.

4.3.2.2 Concealed Fastening System (GHS Keil Anchor): For the concealed fastening systems the panels must be attached to the substructure using GHS Keil anchors. The C-brackets are attached to the back of the porcelain panels through the 5.5 mm (0.22-inch) pre-drilled holes in the panels with the Keil anchors. The top adjusting C-brackets with leveling screws must be installed in the upper holes of the panels and the bottom C-bracket must be installed into the lower holes of the panel. See Figure 5.

5.0 CONDITIONS OF USE

The Porcelain Tiles Ventilated Façade System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. If there is a conflict between the manufacturers' published installation instructions and this report, this report governs.

5.2 The underlying substructure and wall must be adequate to resist the design positive and negative transverse wind loads and the gravity loads of the system.

5.3 Drawings, design details and calculations verifying compliance with this report and adequacy of the connections to the substrate, must be submitted to the code official for approval. The drawings and calculations must be prepared by a registered design professional where required by the statues of the jurisdiction in which the project is constructed.

5.4 The maximum allowable wind pressures for the Porcelain Tiles Ventilated Façade System are shown in Table 1. The design wind pressures must not exceed the allowable capacities shown in Table 1. The capacity of the supporting wall and substrate, and the capacity of the connections used to attach the system to the wall, must exceed the demands of gravity forces and design wind pressure.

5.5 A water-resistive barrier complying with IBC Section 1404.2 must be installed behind the wall cladding system.

5.6 The panels are manufactured in Crossville, Tennessee under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Reports of panel properties testing in accordance with ANSI A137.1.

6.2 Reports of panel resistance to temperature cycling testing.

6.3 Reports of panel flexural strength testing in accordance with ASTM C880-09.

6.4 Reports of anchorage strength testing in accordance with ASTM C1354-09.

6.5 Reports of transverse wind load testing of the system in accordance with ASTM E330, Procedure B.

6.6 Reports of panel noncombustibility testing in accordance with ASTM E136.

7.0 IDENTIFICATION

The StonePeak Ceramics Porcelain Tiles Ventilated Façade System panels are labeled with the manufacturer's name (StonePeak Ceramics) or the name of the additional listee (GranitiFiandre S.P.A.), the product name (Porcelain Tiles Ventilated Façade System), the panel punch number, production year, and the evaluation report number (ESR-3793).

TABLE 1—MAXIMUM SPACING AND ALLOWABLE TRANSVERSE LOAD

FASTENING SYSTEM TYPE	PANEL THICKNESS	MAXIMUM FASTENER SPACING	ALLOWABLE TRANSVERSE LOAD[1] (psf)	
			POSITIVE	NEGATIVE
Kiel Anchor (Concealed)	8 mm	20 inches	78	62
GHV (Exposed)	8 mm	20 inches	73	37

For SI: 1 inch = 25.4 mm; 1 psf=0.0479 kPa

Notes:
[1]Design of the attachment to the building structure must be in accordance with Section 4.3 of this report.

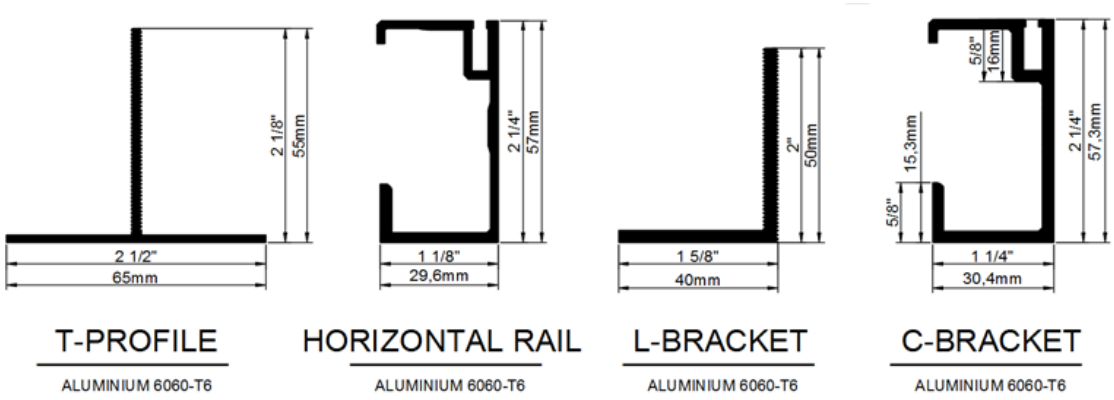

FIGURE 1—ALUMINUM SUBSTRUCTURE COMPONENTS

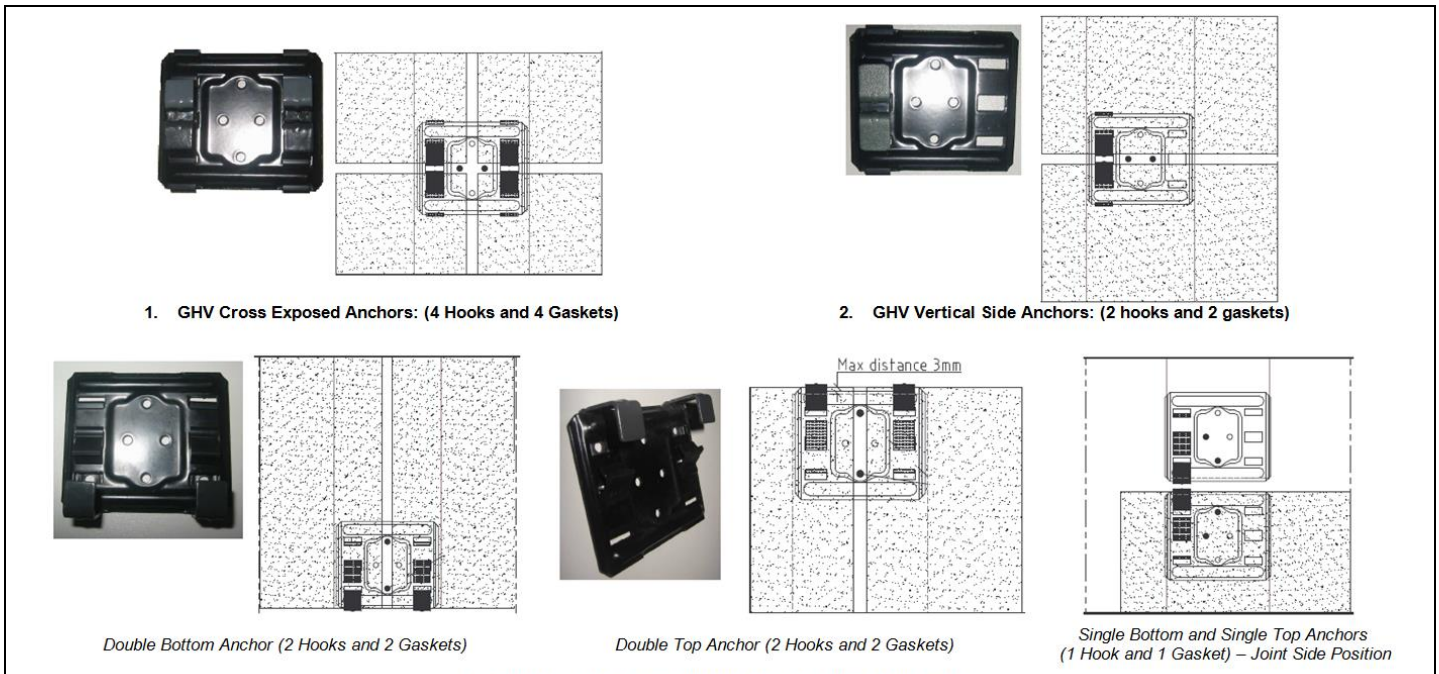

FIGURE 2—GHV EXPOSED ANCHORING SYSTEM COMPONENTS

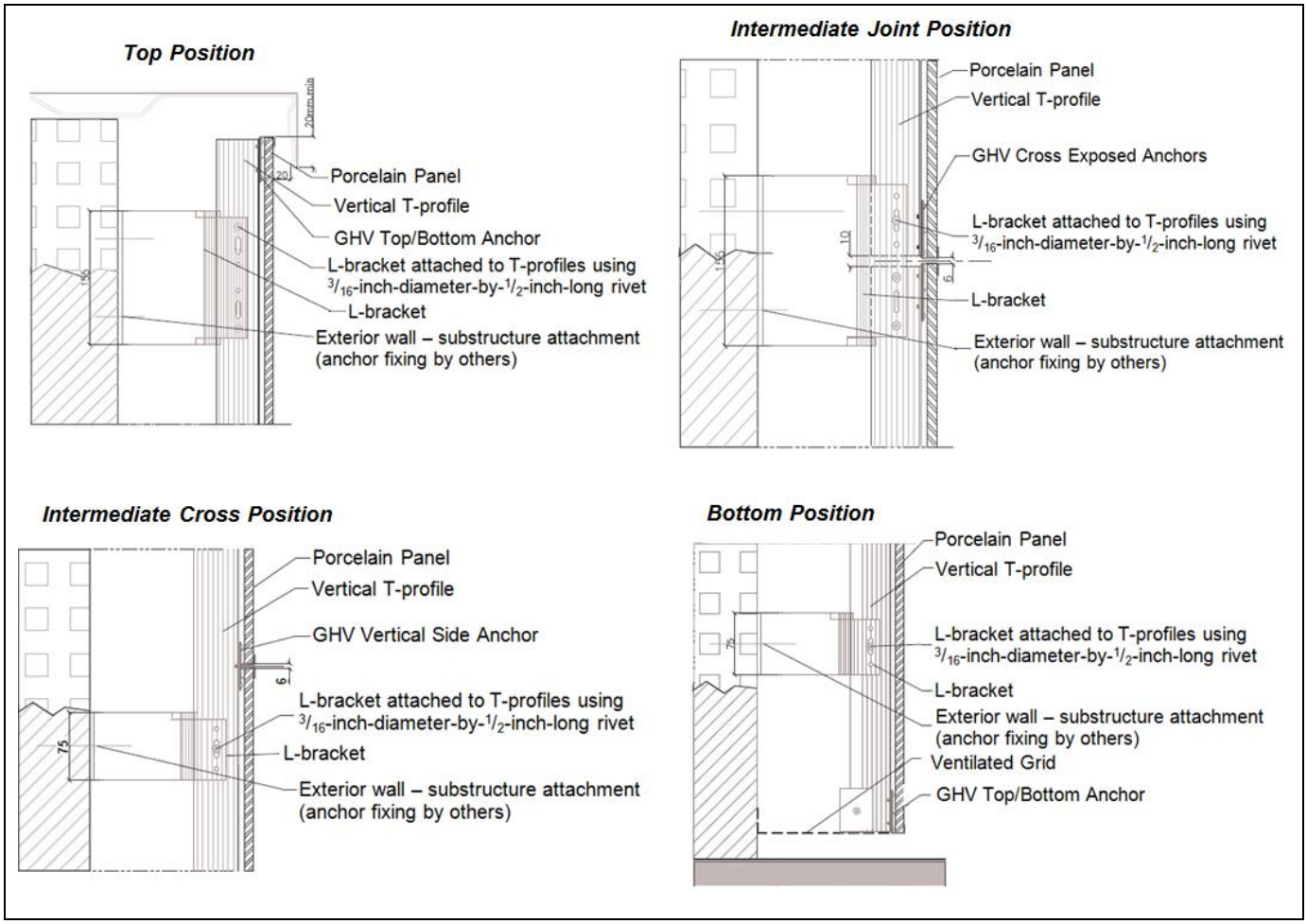

FIGURE 3—GHV EXPOSED ANCHORING SYSTEM TYPICAL SYSTEM INSTALLATION DETAILS

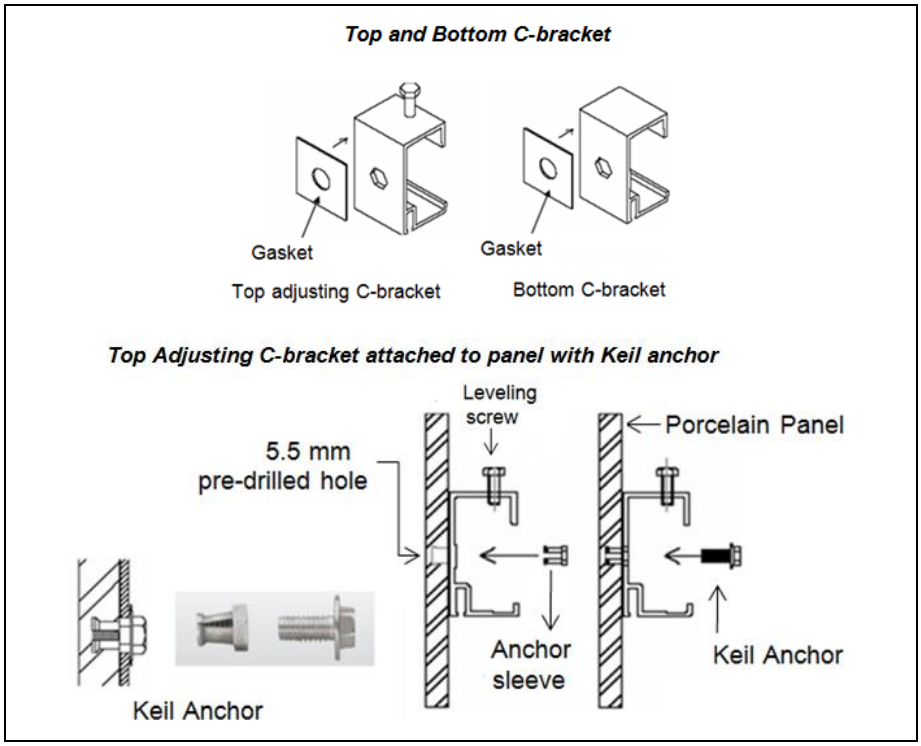

FIGURE 4—GHS CONCEALED ANCHORING SYSTEM KEIL ANCHOR ASSEMBLY

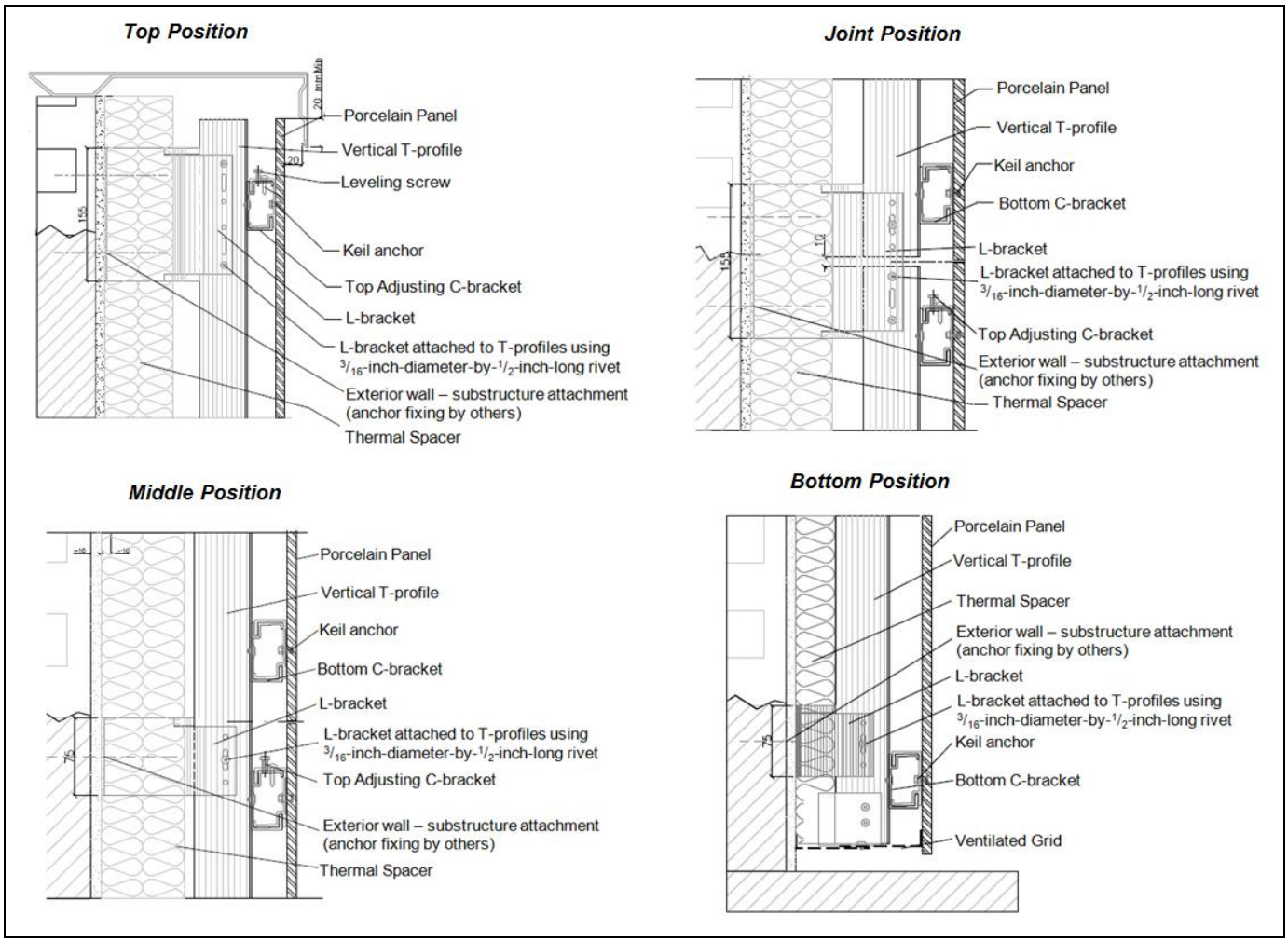

FIGURE 5—GHS CONCEALED ANCHORING SYSTEM TYPICAL SYSTEM INSTALLATION DETAILS