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DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION

Section: 07 40 00 – Roofing and Siding Panels

KINGSPAN INSULATED PANELS, INC.
726 SUMMERHILL DRIVE
DELAND, FLORIDA 32724

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REPORT SUBJECT:

Kingspan Foam Core Panels (200/300) Series

1.0 SCOPE OF EVALUATION

This research report addresses compliance with the following Codes:

- 2012 International Building Code (IBC)

Kingspan Foam Core Panels have been evaluated for the following properties:

- Structural
- Fire Resistance

2.0 USES

Kingspan Foam Core Panels are intended for use as exterior non-load bearing wall cladding. The panels are used in locations where combustible, non-fire resistance rated building construction is permitted by the IBC and buildings of Type I, II, III or IV construction as further identified in Section 5.5.

3.0 DESCRIPTION

3.1. General – Kingspan Foam Core Panels are sandwich panels with metal facings and a foamed-in-place Polyurethane foam plastic core. The panels are 42 inches wide and up to 50 feet in length and are available in thicknesses of 2 to 6 inches. Panels are formed with straight ends and double tongue-in-groove interlocking edges along the length of the panels. See Figures 1 and 2.

3.2. Panel Core – The Polyurethane core is Kingspan Self-blend KSUSSB-01 produced by Kingspan and is continuously formed in the core of the panel. The core of the panel has a minimum density of 2.1 pcf.

3.3. Panel Facings – Panel facings are 26, 24, or 22 gage steel conforming to: ASTM A653 SS Grade 33 with a G90 galvanized coating, ASTM A792 SS Grade 33 with class AZ-50 Galvalume coating or ASTM A240 304-series stainless steel with a minimum yield strength of 35 ksi.

The panel facings are finished with Kynar™ ceramic polyester or Plastisol XL applied over a primer of epoxy.

Panel facings are available in Flat, Striate, Fluted, and Minor Rib profiles.

4.0 PERFORMANCE CHARACTERISTICS

4.1. Allowable Load Capacity – Allowable positive and negative out of plane panel transverse loads installed over a single span are based on panel thickness, stiffness, strength and fastener capacity as set forth in Table 2.

4.2. The foam plastic has a flame spread index and a smoke developed index not exceeding 25 and 450 respectively when tested in accordance with ASTM E84.

4.3. Panel finishes have a Class A flame spread and smoke density rating in accordance with IBC Section 803.1.

4.4. Wall assemblies constructed with Kingspan Foam Core Panels in accordance with Section 5.4 meet the conditions of acceptance of NFPA 285 in accordance with IBC Section 2603.5.5 for walls of any height in Type I, II, III or IV construction.

5.0 INSTALLATION

5.1. General Installation – Panels are installed in either a vertical or horizontal orientation. The panels are fastened to steel framing support members with clips and fasteners as described in Section 5.2. Structural



support members shall provide a minimum panel bearing width of 2-1/2 inches.

5.2. Fasteners – Panels are attached to the steel supports with 1/4-4 TEK 3 HWH corrosion-resistant screws, 1 to 6 inches long and panel clips fabricated from 14 gage, galvanized steel. See Figure 3.

5.3. Sealant - Panel joints and trim are sealed with non-skinning butyl sealant. The sealant is applied at temperatures ranging from 40°F to 120°F. All surfaces must be clean and dry.

A 1/4 inch bead of butyl sealant may be applied either in the factory or the field into one or both of the grooves of the panel side joints. Sealant is applied to side joints of adjacent panels before panel engagement. The panels are interlocked to make continuous sealant contact. Installation proceeds along the wall elevation with successive panels being in accordance with the manufacturer's installation instructions.

5.4. Flashing – Metal flashing shall be installed in accordance with Section 1405.4 of the IBC including, but not limited to, panel ends, eaves, openings and corners. The flashing and trim are attached to the panels with 14 TEK 1 HWH or No. 10 by 3/4 inch Philips pan-head, self-tapping, self-drilling screws. Pop rivets may also be used in accordance with the manufacturer's installation instructions.

5.5. Stack Joint - Vertical panels shall be installed in accordance with the stack joint detail, see Figure 7.

5.6. Use on Exterior Walls of Type I, II, III or IV Construction - Panels may be used on exterior walls of buildings of Type I, II, III or IV construction of any height, when the construction conforms with the NFPA 285 Design Assembly described in Figure 8.

6.0 SUPPORTING EVIDENCE

6.1. ICC-ES Evaluation Report ESR-1143 in accordance with ICC-ES Acceptance Criteria for Sandwich Panels AC04, Acceptance Criteria for Sandwich Panel Adhesives AC05, and Acceptance Criteria for Foam Plastic Insulation AC12.

6.2. Documentation of an Intertek approved quality control system.

6.3. FM Approval - FM Approvals Standard for Exterior Wall Systems, Class Number 4881 including FM Approval Standard 4880.

6.4. Test reports in conformance with ASTM E84, NFPA 259 and NFPA 285.

7.0 CONDITIONS OF USE

The Kingspan Foam Core Panels (200/300) Series described in this Research Report comply with the codes listed in Section 1.0 of this report, subject to the following conditions:

7.1. Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

7.2. Wall panel installation shall be limited to nonload bearing walls.

7.3. The foam core panels may be installed without the thermal barrier specified in 2603.4 of the IBC.

7.4. Panels may be installed in buildings of Type I, II, III and IV Construction as follows:

7.4.1. One-Story Buildings: Panels up to 4 inches thick in buildings equipped throughout with automatic sprinkler system in accordance with 903.3.1.1 of the IBC.

7.4.2. Buildings Of Any Height: Wall assemblies meeting the requirements of NFPA 285, described in Figure 8.

7.5. Details on wall framing must be approved prior to installation by the building code official.

7.6. Wind design loads determined from nominal design wind speeds (V_{asd}) in accordance with Section 1609.3.1 of the IBC shall not exceed the maximum allowable design pressure given in Table 2.

7.7. All construction plans and calculations for load conditions must be submitted to the code official for approval.

7.8. Kingspan Foam Core Panels (200/300) Series are manufactured by Kingspan Insulated Panels manufacturing facility in Deland, Florida with inspections by Intertek.





8.0 IDENTIFICATION

The Kingspan Foam Core Panels described in this Research Report are identified by a marking bearing the following:

8.1. Report holder's name (Kingspan Insulated Panels Inc.).

8.2. Intertek Mark, and Code Compliance Research Report number (CCRR-0228).



8.3. Approval Mark of FM Approvals.

8.4. Foam plastic insulation type.

8.5. Facing gage, flame spread and smoke developed rating.

8.6. Sealant manufacturer, product name, type, and expiration.

9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1. Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2. Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

Reference to the Intertek website address: whdirectory.intertek.com is recommended to ascertain the current version and status of this report.

This Code Compliance Research Report ("Report") is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Report. Only the Client is authorized to permit copying or distribution of this Report and then only in its entirety, and the Client shall not use the Report in a misleading manner. Client further agrees and understands that reliance upon the Report is limited to the representations made therein. The Report is not an endorsement or recommendation for use of the subject and/or product described herein. This Report is not the Intertek Listing Report covering the subject product and utilized for Intertek Certification and this Report does not represent authorization for the use of any Intertek certification marks. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.





TABLE 1 – (200/300) Series Panel Profiles

Panel Designation	Profile	
	Exterior	Interior
200	Inverted Rib (Fluted)	Minor Rib
300	Minor Rib, Striated, Flat	Minor Rib

TABLE 2 – (200/300) Series Allowable Positive and Negative Transverse Loads (L_{180}) (psf)^{1,2,3,4,5}

Panel Thickness (Inches)	Fascia/Liner Steel Thickness 26/26 Gage							
	Span (feet)							
	5	8	10	12	14	16	18	20
2	29	18	15	12	NP	NP	NP	NP
2-1/2	29	18	15	12	10	NP	NP	NP
3	29	18	15	12	10	NP	NP	NP
4	29	18	15	12	10	NP	NP	NP
5	29	18	15	12	10	NP	NP	NP
6	29	18	15	12	10	NP	NP	NP

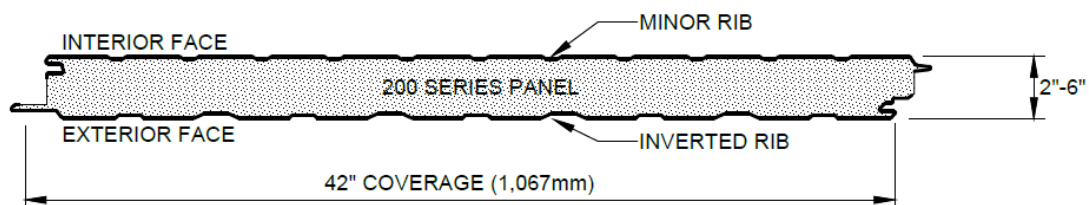
¹ Wind pressure values are based on panels having No. 26 gage steel facing liners on both faces² Wind pressure is based on a single-span condition and L_{180} deflection limitation³ The allowable loads are based on the lesser of deflection, and panel strength, with consideration of the effects of fastener location and fastener-to-panel connection on the allowable negative loads.⁴ See Figures 1 and 2 for panel profiles and fastening details⁵ NP=Not Permitted

Figure 1 – 200 Series

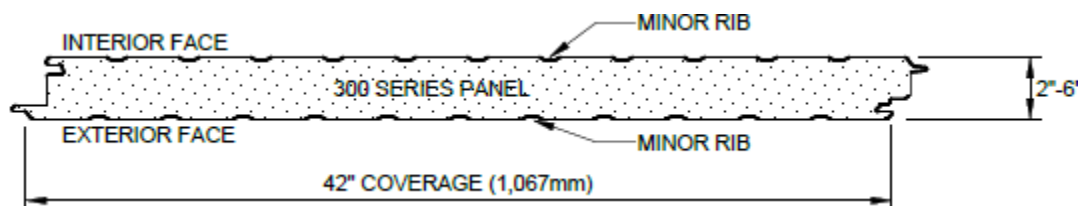


Figure 2 – 300 Series



Intertek



ACCREDITED

Product
Certification Agency

PCA-125

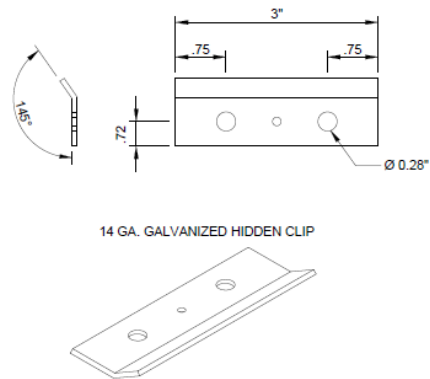


Figure 3 – Galvanized Hidden Clip

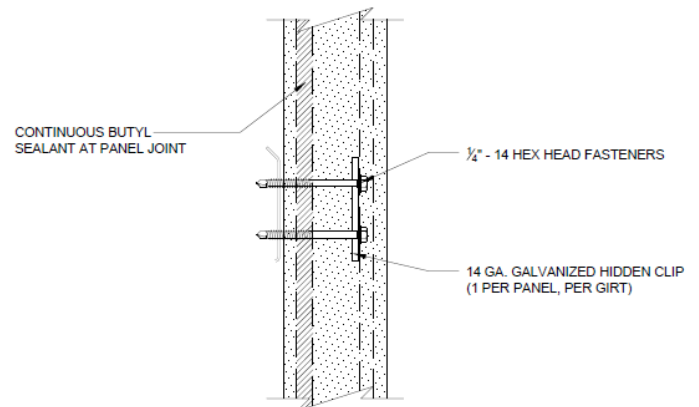


Figure 4 – Clip Usage Detail

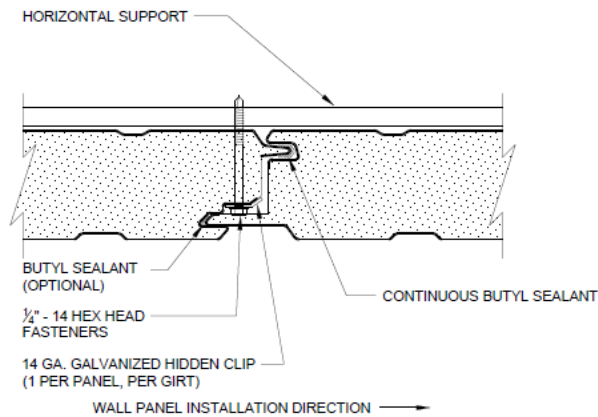


Figure 5 – Fastening Detail

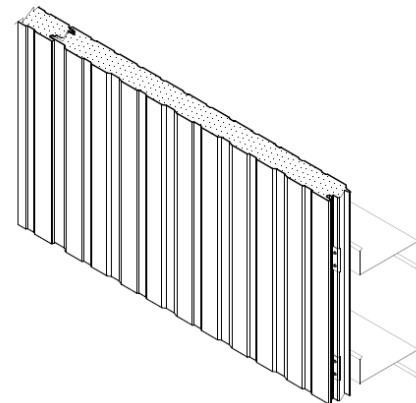


Figure 6 – Installed 200/300 Profiles

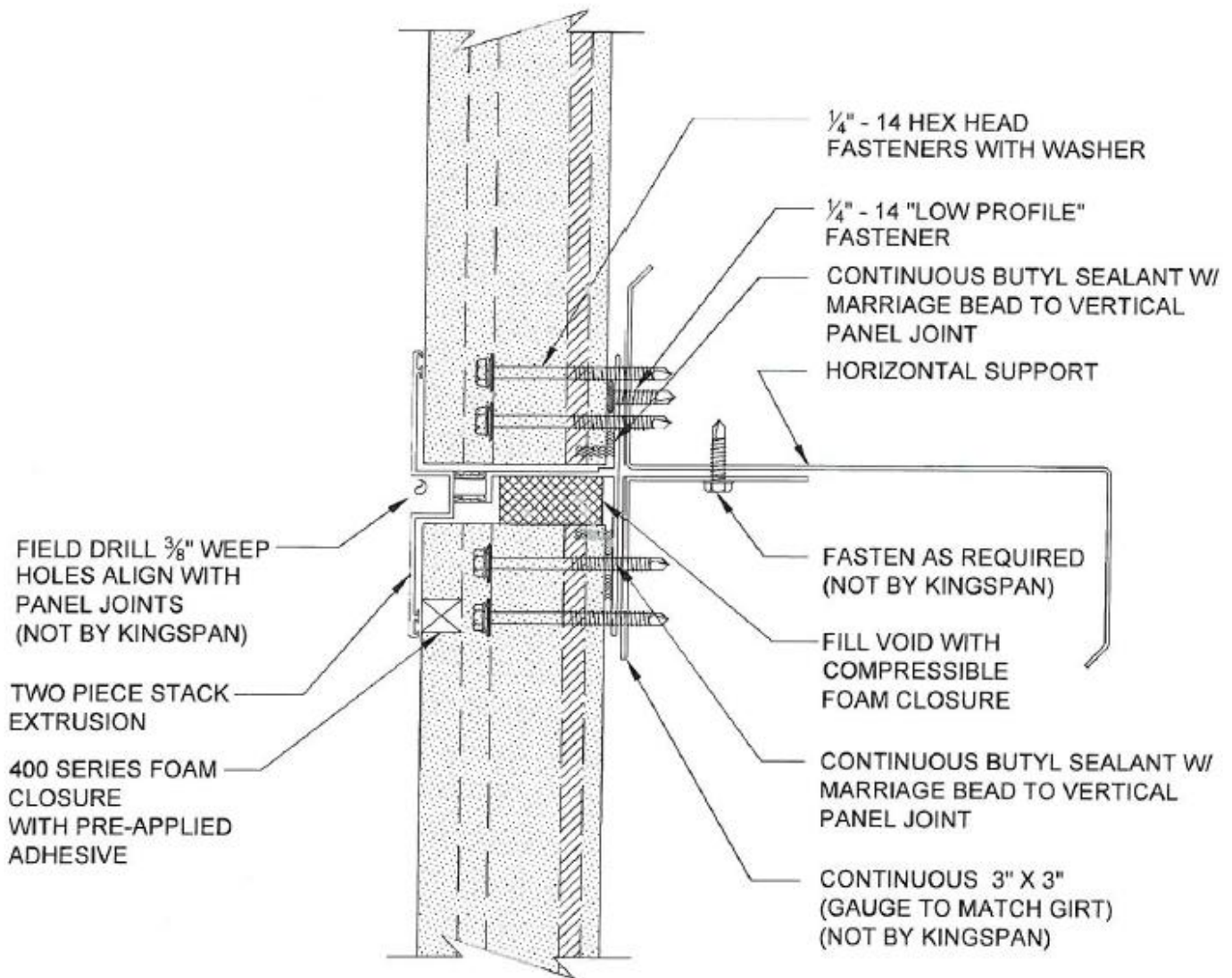
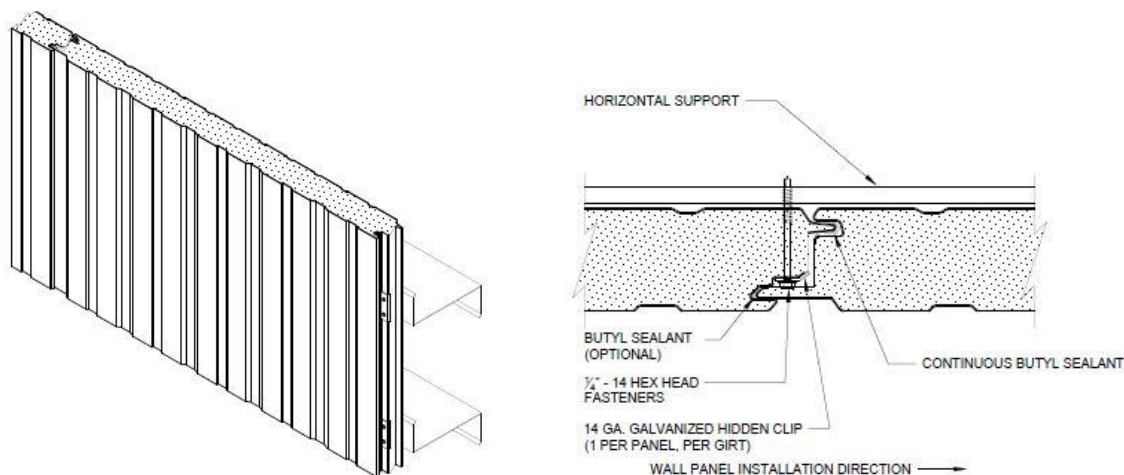


Figure 7 – Vertical Panel Installation Stack Joint

Figure 8 – NFPA 285 Wall Assembly

Kingspan Insulated Panels, Inc.
Insulated Metal Wall Panels
Kingspan Foam Core Panels (200/300) Series
NFPA 285 (2012)
Rating: Meets Requirements



1. **CERTIFIED MANUFACTURER:** Kingspan Insulated Panels Inc.

CERTIFIED PRODUCT: Insulated Metal Wall Panels

CERTIFIED MODEL: Kingspan Foam Core Panels (200/300) Series

Panels – Vertically oriented, 42" wide x 6" thick insulated metal panels installed to the exterior side of steel framing and attach at each panel joint to wall framing members using manufacturer's hidden fastener clips. Follow manufacturer's installation instructions.

- A. Panel Facings – Min 26 GA G90 zinc or AZ50 zinc/aluminum alloy coated steel.
- B. Polyurethane Foam Core – Cavity completely filled with Kingspan Self-blend KSUSSB-01 at a minimum density of 2.1 pcf.

2. **SEALANT:** – Apply nominal 1/4" bead of Kingspan non-skinning butyl sealant in the female panel joints. Exterior joint sealant is optional.

3. **FASTENER:** Attach panels to each steel framing member with two #14-18x8 HWHSDS zinc coated self-tapping screws.

4. **JOINTS AND SEAMS:** Vertically oriented 42 in. wide panels when installed over openings will be positioned with the joints a minimum of 21 inches away from the centerline of the opening. Horizontal joints or seams are not within the scope of this evaluation.

5. **FLASHING (Not Shown):** The inside perimeter of wall panel openings (cutouts) shall be wrapped with 26 Ga C shaped steel flashing.