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DIVISION 06 00 00 – Wood, Plastics and Composites
Section: 06 50 00 – Structural Plastics
Section: 06 63 00 – Plastic Railings

REPORT HOLDER:

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REPORT SUBJECT:

Kingston Railing System

1.0 SCOPE OF EVALUATION

1.1. This research report addresses compliance with the following Codes:

- 2018, 2015 *International Building Code*® (IBC)
- 2018, 2015 *International Residential Code*® (IRC)
- 2017 Florida Building Code (FBC) See Section 9.
(*Excluding High Velocity Hurricane Zone*)

NOTE: This report references 2018 Code sections with [2015] Code sections shown in brackets where they differ.

1.2. The *Kingston Railing System* has been evaluated for the following properties:

- Structural Performance
- Durability
- Surface Burning

1.3. The *Kingston Railing System* has been evaluated for the following uses:

- Guardrail systems recognized in this report may be used in One- and Two-Family Dwellings regulated by the IRC.
- The Kingston Railing Systems are guards and guardrails under the definitions of the referenced codes. They are intended for exterior use at or near the open sides

of elevated walking areas of buildings and walkways as required by the referenced codes.

- Guard systems are provided as level guards for level walking areas such as decks, balconies and porches, and sloped guards for open sides of stairways. See Table 1 for qualified lengths and configurations.

2.0 STATEMENT OF COMPLIANCE

The *Kingston Railing System* complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2 and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.

3.0 DESCRIPTION

3.1. The *Kingston Railing System* is an assemblage of extruded and molded poly vinyl chloride (PVC) components with aluminum inserts and brackets. PVC components are provided in five colors: Almond, Clay, Rustic Rose, Warm Spice White and Black.

3.1.1. Railing systems include a top and bottom rail, vertical balusters, post sleeves, rail-to-post brackets, crush blocks and decorative moldings.

3.1.1.1. The top and bottom rails are extruded PVC, with overall dimensions of 3.25 inches wide and 1.5 inches tall. See Figure 3.

3.1.2. Balusters are supplied in the two styles identified below. Rails are routed to the shape of the baluster profile to receive balusters.

3.1.2.1. Blow-molded PVC spindles have a 1.5 inch square cross-section at the ends with a molded turned spindle through the middle of its length. See Figure 4.



3.1.2.2. Extruded PVC pickets have a 1.5 inch square cross-section along the entire length of the picket. See Figure 5.

3.1.3. Post sleeve is a 4 inch square profile. See Figure 6.

3.1.4. Top and bottom rails are connected to posts using external aluminum brackets, as identified in Figure 7 for straight and stair rail applications.

3.1.5. An extruded aluminum insert provides reinforcement in the top and bottom rails. See Figure 8.

4.0 PERFORMANCE CHARACTERISTICS

4.1. The guard systems described in this report have demonstrated the capacity to resist the design loadings specified in Chapter 16 of the IBC and Section R301 of the IRC when tested in accordance with ICC-ES AC174 and ASTM D 7032.

4.2. Structural performance has been demonstrated for a temperature range from -20°F to 125°F.

4.3. Materials used are deemed equivalent to preservative treated or naturally durable wood for resistance to weathering effects, decay, and attack from termites.

4.4. The materials used for the CertainTeed railing systems have a flame spread index less than 200 when tested in accordance with ASTM E 84.

5.0 INSTALLATION

Installation shall be in accordance with the manufacturer's installation instructions and this report. Where differences occur between this report and the manufacturer's installation instructions, this report shall govern.

5.1. Railing assemblies consist of top and bottom rails with pre-routed holes to receive balusters. Aluminum railing reinforcements are inserted in the top and bottom rails during assembly. Aluminum insert lengths must be the same length as the PVC railings to assure bracket screws penetrate the aluminum inserts.

5.2. Railings are secured to sleeved 4x4 wood posts with aluminum brackets and stainless steel screws. The wood in the supporting structure including support posts shall have a specific gravity of 0.50 or greater (Southern Yellow Pine or better) and a minimum thickness to allow full penetration of the bracket mounting screws. Rail attachment shall be in accordance with Table 2.

6.0 SUPPORTING EVIDENCE

6.1. Drawings and installation instructions submitted by the manufacturer.

6.2. The reports of testing and engineering analysis demonstrating compliance with the performance requirements of ICC-ES AC174 Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails), revised December 2014.

6.3. The reports of testing and engineering analysis demonstrating compliance with the performance requirements of ASTM D 7032-14 [10a].

6.4. Within the scope of this report, the following versions of referenced standards are deemed equivalent.

| Standard | Version(s) | |
|------------|------------|----|
| ASTM D7032 | 10a | 14 |

6.5. Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

7.0 CONDITIONS OF USE

The guard assemblies identified in this report are deemed to comply with the intent of the provisions of the referenced building codes subject to the following conditions.

7.1. Guards recognized in this report are limited to exterior use in buildings as permitted in Table 1.

7.2. Conventional wood supports including support posts for guards are not within the scope of this report and are subject to evaluation and approval by the building official. Supports must satisfy the design load requirements





specified in Chapter 16 of the IBC and FBC. Supports and framing must provide suitable material for anchorage of the rail brackets. Where required by the building official, engineering calculations and details shall be provided.

7.3. Any component or configuration not identified in this report has not been evaluated for performance and/or compliance to the referenced codes. Identification of such components with the CCRR program mark or number is prohibited.

7.4. Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of the products listed in Section 1.0; other methods of attachment are outside the scope of this report.

7.5. Compatibility of fasteners and other metallic components with the supporting structure, including chemically treated wood, is not within the scope of this report.

7.6. The *Kingston Railing Systems* are manufactured in accordance with the manufacturer's approved quality control system with inspections by Intertek Testing Services NA, Inc.

8.0 IDENTIFICATION

The *Kingston Railing Systems* are identified with the manufacturer's name (CertainTeed Corporation), address and telephone number, the product name (*Kingston Railing Systems*), the statement "See CCRR-0211 at <https://bpdirectory.intertek.com> for uses and performance levels.", the phrase "For Use in One- and Two-Family Dwellings Only", the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0211).



9.0 FLORIDA BUILDING CODE

9.1. Scope of Evaluation:

The Kingston Railing Systems were evaluated for compliance with the 2017 *Florida Building Code – Building* and *Florida Building Code – Residential*.

9.2. Conclusion:

The Kingston Railing Systems described in Sections 2.0 through 7.0 of this Research Report, comply with the 2017 *Florida Building Code*, subject to the following conditions:

- Use of the Kingston Railing Systems for compliance with the High-Velocity Hurricane Zone provisions of the 2017 *Florida Building Code – Building* and the *Florida Building Code – Residential* has not been evaluated, and is outside the scope of this Research Report.
- Intertek is a quality assurance entity approved by the Florida Building Commission.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1. 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.

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

10.3. Reference to the Intertek web site address at <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.





TABLE 1 – KINGSTON RAILING SYSTEM BUILDING CODE RECOGNITION

| Type of System | Guard System Dimensions | | Code Recognition |
|------------------------------|-------------------------------|-------------------------------|--|
| | Maximum length ⁽¹⁾ | Minimum height ⁽²⁾ | |
| Level with straight brackets | 116.25 in. ⁽³⁾ | 36 in. | Limited to exterior use as a guard system for balconies and porches for One- and Two-Family Dwellings. |
| Stair | 90.5 in. | 36 in. | |

⁽¹⁾ Level rail lengths are maximum clear length between supports. Stair rail lengths are the sloping clear distance between supports.

⁽²⁾ Level rail heights are minimum installed height from walking surface to top of top rail. Stair rail heights are minimum installed height as measured vertically from the leading edge of the stair nose.

⁽³⁾ Level configurations utilize one intermediate crush block located at the mid-span of the bottom rail.

TABLE 2 – RAIL/BACKET FASTENING SCHEDULE

| Railing System | Connection | Fastener |
|--------------------------------|-----------------------------|---|
| Kingston Level and Stair Rails | Top Rail Bracket to Post | Two #8 x 2" stainless steel, self-starting screws in the top rail bracket's bottom holes |
| | Bottom Rail Bracket to Post | Two #8 x 2" stainless steel, self-starting screws in the bottom rail bracket's top holes |
| | Rail to Rail Bracket | Two #8 x 3/4" stainless steel or zinc-coated self-starting screws (once on each side of the rail) |

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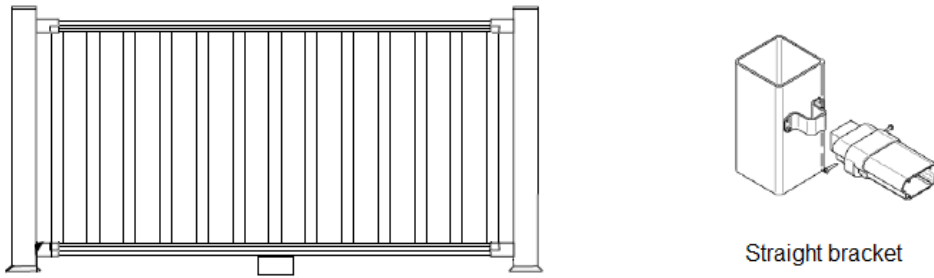


FIGURE 1 – LEVEL *KINGSTON* RAIL CONFIGURATION

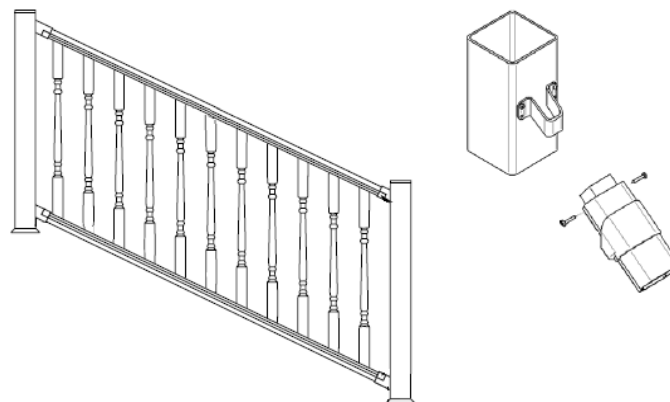


FIGURE 2 – STAIR *KINGSTON* RAIL CONFIGURATION

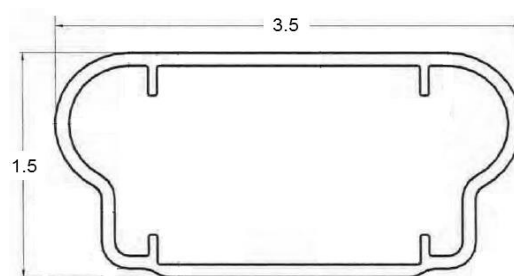


FIGURE 3 – *KINGSTON* TOP AND BOTTOM RAIL

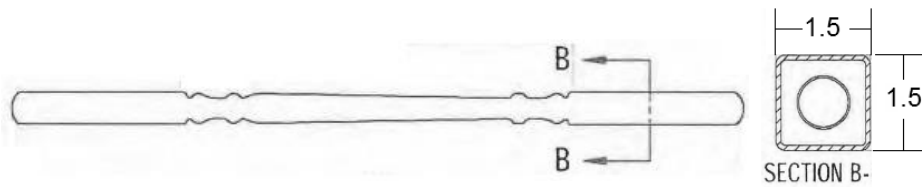


FIGURE 4 – KINGSTON SPINDLES

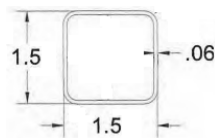


FIGURE 5 – KINGSTON PICKETS

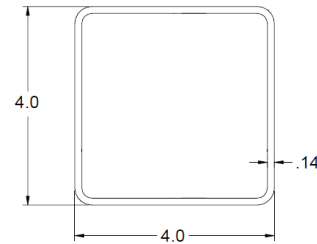
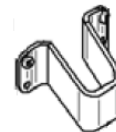


FIGURE 6 – POST SLEEVE



Straight



Stair

FIGURE 7 – KINGSTON ALUMINUM BRACKETS

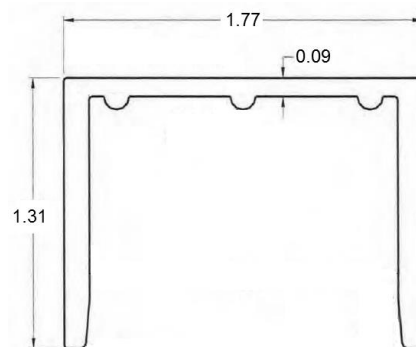


FIGURE 8 – KINGSTON ALUMINUM INSERT FOR TOP AND BOTTOM RAILS