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DIVISION: 06 00 00 – WOOD, PLASTICS AND COMPOSITES
Section: 06 63 00 – Plastic Railings

REPORT HOLDER:

Nebraska Plastics, Inc.
700 West Highway 30
Cozad, Nebraska 69130
(800) 662-2936
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REPORT SUBJECT:

Country Estate Railing Systems
Also, identified as:
Country Estate Handrail or EZ Rail

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2018, 2015, 2012 *International Building Code*® (IBC)
- 2018, 2015, 2012 *International Residential Code*® (IRC)

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

1.2 *Country Estate Railing Systems* have been evaluated for the following properties (see Table 1):

- Structural Performance
- Durability
- Surface Burning

1.3 *Country Estate Railing Systems* have been evaluated for the following uses (see Table 1):

- *Country Estate Railing Systems* are guards under the definition of the referenced codes intended for use on elevated walking areas in buildings and walkways as required by the codes.
- Guardrail systems recognized in this report may be used in One- and Two-Family Dwellings regulated by the IRC and all construction types regulated by the IBC in accordance with IBC Section 705.2.3.1 [1406.3],

Exception 2. Guardrails less than 42 inches high are limited to use in One- and Two-Family Dwellings (IRC). See Table 1 for additional restrictions based upon Use and Occupancy classification.

2.0 STATEMENT OF COMPLIANCE

Country Estate Railing Systems 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 Railing systems are an assemblage of extruded and molded components utilizing Poly Vinyl Chloride (PVC) material with aluminum reinforcements and metal and PVC mounting brackets. Vinyl components are produced in four colors; white, oti tan, gray, almond and adobe. All systems consist of the following components:

3.1.1 Top rails are either a T-Rail 3.5" wide by 3.5" tall or a rectangular profile 2" wide by 3.5" tall (See Figure 1).

3.1.2 Bottom rails in all systems are a 2" wide by 3.5" tall rectangular profile.

3.1.3 Balusters are provided in five styles. Three picket styles are PVC 1.5" square, 1" by 2" rectangular, or 1.5" round throughout their length. Baluster styles also include PVC 1.5" square at the ends and thermo-formed to a turned spindle through the middle region of its length and a round 3/4" diameter aluminum extrusion. (See Figure 2).

3.1.4 Railing reinforcement inserts are 6063-T6 aluminum formed by extrusion. Two H-Channel inserts are used interchangeably (See Figure 5).



3.1.5 Guards are produced for installed heights equal to 42" and 36" from the top of the walking surface to the top of the top rail.

3.1.6 42" high guards utilize extruded aluminum inserts for reinforcement in the top rails. 42" high guards are recognized for use in all residential use groups.

3.1.7 36" high guards utilize extruded aluminum inserts for reinforcement in the top rail only. 36" high guards are recognized for use only in One- and Two-Family Dwellings.

3.2 Top and bottom rails are connected to supports with multiple metal and PVC bracket styles as shown in Figure 3 and Figure 4.

3.3 Railing systems are secured to and supported by conventional wood posts. A co-extruded PVC post sleeve that is non-structural is provided as a cladding over conventional 4x4 wood posts. Code compliance assessment of conventional wood posts is not within the scope of this report. See Figure 7.

4.0 PERFORMANCE CHARACTERISTICS

4.1 *Country Estate Railing Systems* described in this report have demonstrated the capacity to resist the design loads specified in Chapter 16 of the IBC, as well as Section R301 of the IRC when tested in accordance with ICC-ES AC174.

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

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

4.4 The PVC material used in the guardrail system has a flame spread index not greater than 200 when tested in accordance with ASTM E 84, as required by the reference criteria, ICC-ES AC174.

5.0 INSTALLATION

5.1 General:

Country Estate Railing Systems must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.

5.2 Railing assemblies consist of top and bottom rails with pre-routed holes to receive balusters. Aluminum railing reinforcements are inserted in the rails during assembly as specified for the series/model and length (See Table 1).

5.3 Rail brackets are secured to the support posts and rails as described in Table 3.

5.4 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.

6.0 CONDITIONS OF USE

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

6.2 Guardrail systems recognized in Table 2 are limited to exterior use in all construction types where wood is permitted in accordance with Section 1406.3 of the IBC and in One and Two Family Dwellings regulated by the IRC. Guards recognized in Table 1 are further limited to use in One- and Two-Family Dwellings (IRC).

6.3 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 must provide suitable material for anchorage of the rail brackets (See 5.4 under "Installation"). Where required by the building official, engineering calculations and details prepared by a licensed design professional shall be provided.



6.4 Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of the *Country Estate Railing Systems*; other methods of attachment are outside the scope of this report.

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

6.6 The *Country Estate Railing* is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Manufacturer's drawings and installation instructions.

7.2 Reports of testing and engineering analysis demonstrating compliance with ICC-ES AC174, Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails), revised December 2014; and ASTM D 7032-14 [10a], Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails).

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

8.0 IDENTIFICATION

Country Estate Railing Systems are identified with the manufacturer's name (Nebraska Plastics, Inc.), address and

telephone number, the product name (*Country Estate Railing Systems*), the statement "See CCRR-0105 at <https://bpdirectory.intertek.com> for uses and performance levels.", the phrase "For Use in One- and Two-Family Dwellings Only" for guardrail systems identified in Table 1, the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0105).



9.0 OTHER CODES

This section is not applicable.

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 <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

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TABLE 1 – GUARDRAIL SYSTEMS FOR IRC OCCUPANCIES ⁽¹⁾

Railing Style	Type	Maximum Guardrail Dimensions ⁽²⁾	Bracket	Aluminum Reinforcements	
				Top Rail	Bottom Rail
T-Rail	Level	120" x 36"	Zinc Die-Cast PVC Molded, or LMT PVC #1182	Aluminum H-Channel	None
		96" x 36"	LMT #1522		
2" x 3-1/2" Rail	Level	120" x 36"	Zinc Die-Cast, PVC Molded, or LMT PVC #1219	Aluminum H-Channel	None
		96" x 36"	LMT #1521 or LMT #1570 Deck Over PVC Bracket		

⁽¹⁾ The use of these products shall be limited to exterior use as a guard system for balconies and porches for one-and two family dwellings in accordance with the IRC.

⁽²⁾ Railing lengths are clear length between supports. Railing height is installed height from walking surface to top of top rail.

TABLE 2 – GUARDRAIL SYSTEMS FOR IBC OCCUPANCIES

Railing Style	Type	Maximum Guardrail Dimensions ⁽¹⁾	Bracket	Aluminum Reinforcements	
				Top Rail	Bottom Rail
T-Rail	Level	96" x 42"	Zinc Die-Cast, PVC Molded, LMT #1522, or LMT PVC #1182	Aluminum H-Channel	None
2" x 3-1/2" Rail	Level	96" x 42"	Zinc Die-Cast, PVC Molded, LMT #1521, or LMT PVC #1219	Aluminum H-Channel	None

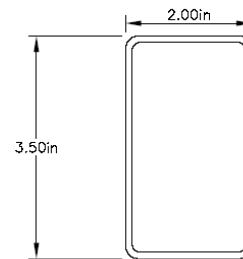
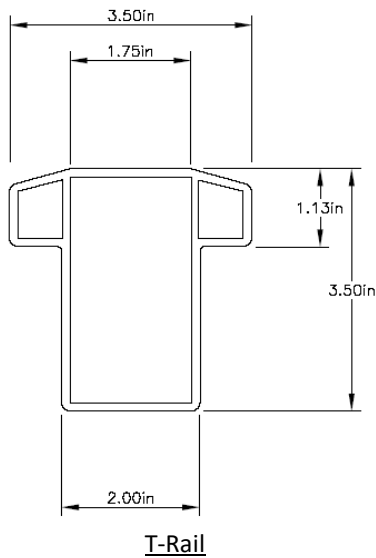
⁽¹⁾ Railing lengths are clear length between supports. Railing height is installed height from walking surface to top of top rail.





TABLE 3 – FASTENING SCHEDULE

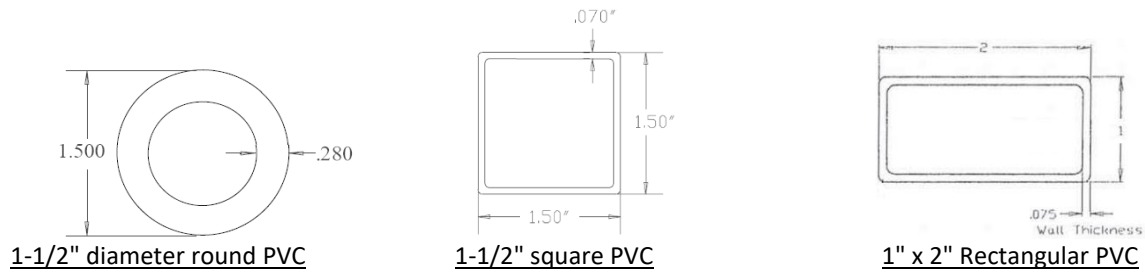
Brackets	Rail Bracket to Post		Rail Bracket to Rail	
	Fastener	Qty	Fastener	Qty
Zinc Die-Cast	#10 by 2" long stainless steel wood screws	6	#10 by 1" long stainless steel sheet metal screws	2
PVC Molded				
LMT Brackets #1522 (T-Rail) and #1521 (2 x 3-1/2")	#10 by 1-1/2" long stainless steel, pan-head, self-drilling screws	4	#10 by 1" long stainless steel, pan head, self-drilling screws	4
LMT Bracket #1182 (T-Rail)	Top: #10-10 x 1-1/2 in pan-head self-drilling screws	6	#10-12" x 1" pan-head, self-drilling screws	2
	Bottom: 10-10 x 1-1/2 in pan-head, self-drilling screws	4		
LMT Bracket #1219 (2 x 3/2")	#10-10 x 1-1/2 pan-head, self-drilling screws	4	#10-12" x 1" pan-head, self-drilling screws	2
LMT Deck-Over Bracket #1570	#10-10 x 1-1/2 in self-drilling screws	4	#10-16" x 1" pan-head self-drilling screws	4



2" x 3-1/2" Rail

FIGURE 1 - PVC RAIL PROFILES





PVC Extruded Thermo-Formed Spindle

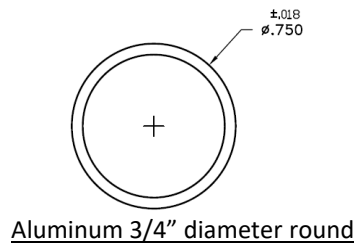
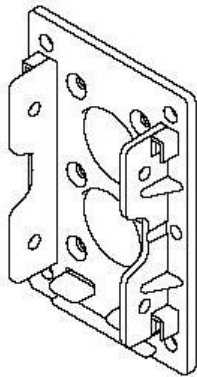
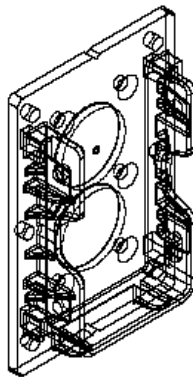


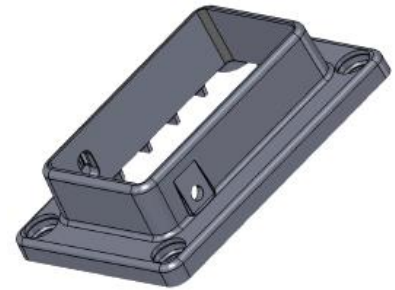
FIGURE 2 – BALUSTERS



Die-Cast Zinc

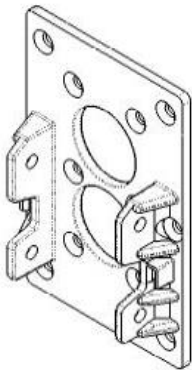


Molded PVC

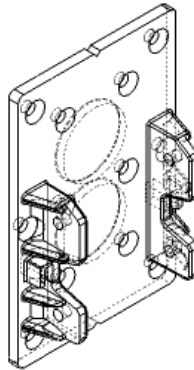


LMT PVC #1219

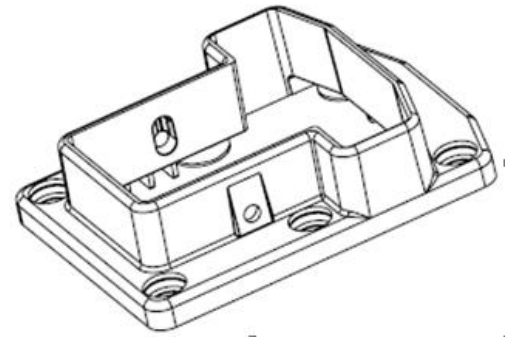
FIGURE 3 - 2" X 3-1/2" RAIL BRACKETS



Die-Cast Zinc

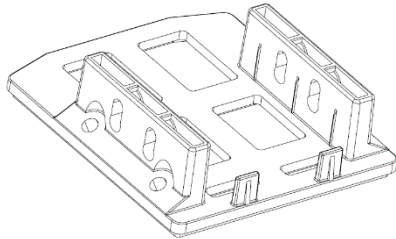


Molded PVC

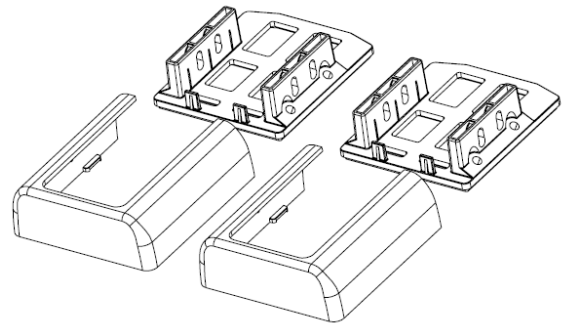


LMT PVC #1182

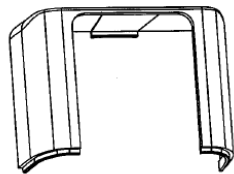
FIGURE 4 - T-RAIL BRACKETS



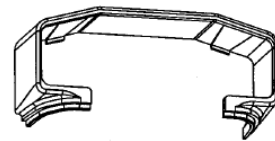
LMT #1521, #1522, and #1570
(Nylon Base Bracket for Covered Brackets)



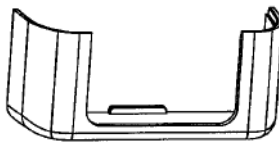
LMT #1570 PVC Deck Over
for use with 2" x 3-1/2" Base Bracket



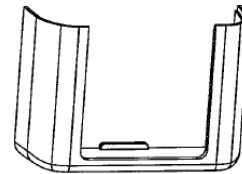
2 X 3-1/2 COVER TOP



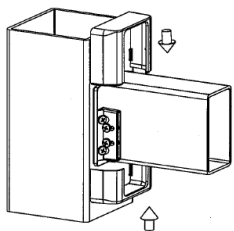
T-RAIL COVER TOP



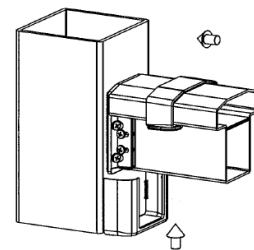
2 X 3-1/2 COVER BOTTOM



T-RAIL COVER BOTTOM



LMT #1521 PVC Covered
for use with 2" x 3-1/2 Base Bracket



LMT #1522 PVC Covered Bracket
for use with T-Rail Base Bracket

FIGURE 5: COVERED BRACKETS

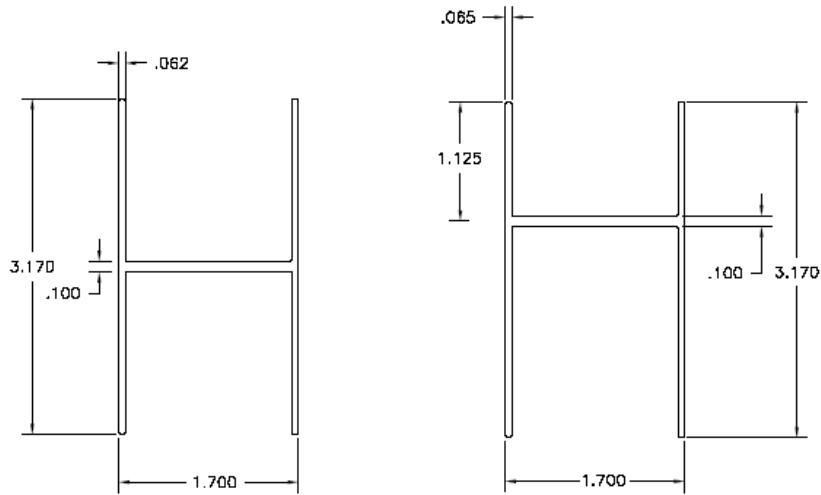


FIGURE 6 - ALUMINUM H-CHANNEL

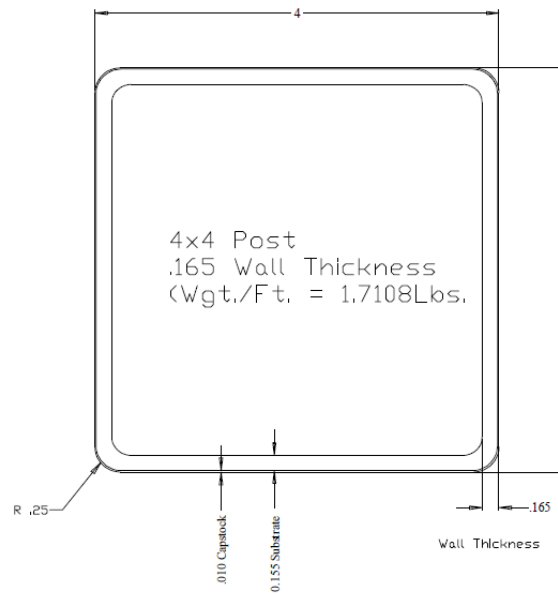


FIGURE 7 - 4X4 CO-EXTRUDED POST SLEEVE