

Issue Date: 07-24-2018  
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Renewal Date: 07-31-2021

**DIVISION: 05 00 00 - METALS**  
**Section: 05 52 00 – Metal Railings**

**REPORT HOLDER:**  
**Deckorators, Inc.**  
**68956 US Highway 131**  
**White Pigeon, MI 49099**  
**www.deckorators.com**

**REPORT SUBJECT:**  
**ALX Contemporary Guard Systems**

### 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)

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

**1.2** The ALX Contemporary Guard Systems have been evaluated for the following properties (see Table 1):

- Structural Performance

**1.3** The ALX Contemporary Guard Systems have been evaluated for the following uses (see Table 1):

- Guards (aka. guardrails) under the definitions of the referenced codes.
- Guard assemblies are provided as level guards for walking areas such as decks, balconies. Sloped guards are for open sides of stairways.

### 2.0 STATEMENT OF COMPLIANCE

The ALX Contemporary Guard Systems comply 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 6.0.

### 3.0 DESCRIPTION

**3.1** Level guards are provided with rail lengths up to 96 inches in length and installed heights of 42 inches measured from the top of the upper rail to the walking surface. See Table 2 for lengths and configurations.

**3.2** Stair guards are provided with rail lengths up to 76 inches along the sloping length between the inside of supports and an installed height of 42 measured vertically from the top of the upper rail to the leading edge of the stair tread or landing.

**3.3** The ALX Contemporary Guard Systems are an assemblage of extruded aluminum top rails, bottom rails, brackets, balusters and posts.

**3.4** The ALX Contemporary Rectangular and Cable Guard top rails are rectangular extruded aluminum profiles. See Figure 2. The ALX Contemporary Round Guard top rail is a round extruded aluminum profile. See Figure 1.

**3.5** The ALX Contemporary Rectangular and Round Guard bottom rail is a square extruded aluminum profile. ALX Contemporary Cable Guard Systems do not include a bottom rail. See Figure 3.

**3.6** Zinc die-cast collar brackets for various configurations. See Figures 4-8.

**3.7** Infill varies by guard system and configuration. See Tables 2, 3 or 4. Available infill described below and shown in Figures 9 and 10.

**3.7.1** Classic - aluminum 3/4 inch dia. round pickets, fit into routing in the top and bottom rails.

**3.7.2** Estate - aluminum 3/4 inch square pickets, fit into routing in the top and bottom rails.

**3.7.3** Aluminum, 3/4 inch square pickets, factory welded to the top and bottom rails with a 1/8-inch continuous fillet weld.



**3.7.4** Stainless steel horizontal cable infill, with intermediate 3/4-inch square pickets. Stair guard systems use two intermediate pickets and level guard systems use one intermediate picket.

**3.8** Posts consist of square aluminum extrusions welded to an aluminum base plate that is pre-drilled for anchoring to the supporting structure. See Figures 10 and 11.

**3.8.1** The heavy wall post is a 2-1/2-inch square by 0.15-inch wall aluminum extrusion.

**3.8.2** The light wall post is a 2-1/2-inch square by 0.080-inch aluminum extrusion.

**3.8.3** Heavy and light posts are attached to a 5-inch x 5-inch x 3/8-inch-thick aluminum base plate with a 1/4-inch continuous fillet weld.

**3.8.4** The base plates have four 3/8-inch diameter holes for attachment to the deck surface.

#### 4.0 PERFORMANCE CHARACTERISTICS

**4.1** The guard system described in this report has demonstrated capacity to resist design loading specified in Chapter 16 of the IBC and Section R301 of the IRC when tested in accordance with ICC-ES AC 273.

#### 5.0 INSTALLATION

**5.1** The ALX Contemporary Guard 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** Guards may be assembled in various configurations identified in Table 2. Refer to Tables 5, 6, or 7 for the fastening schedule of all system components.

**5.3** Posts are anchored to with (4) 3/8" bolts of the type and size suitable for the construction type and condition of the supporting structure. See Section 6.3 under Conditions of Use for additional requirements

#### 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** Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of ALX Contemporary Guard Systems. Other methods of attachment are outside the scope of this report.

**6.3** Anchorage of the structural post is not within the scope of this report and is subject to evaluation and approval by the building official. Anchors must satisfy the design load requirements specified in Chapter 16 of the building code and must meet the following minimum requirements:

**6.3.1** A minimum of four anchor bolts must be used and located in the four pre-drilled holes in the structural post base plate.

**6.3.2** The anchors must have a minimum nominal diameter of 3/8 inch.

**6.3.3** Where required by the building official, engineering calculations and details shall be provided. The calculations verify that the anchorage and supporting structure complies with the building code for the type and condition of the supporting structure.

**6.4** The ALX Contemporary Guard Systems are manufactured under an approved quality control system with third party inspections by Intertek.

#### 7.0 SUPPORTING EVIDENCE

**7.1** Drawings and installation instructions submitted by the manufacturer.

**7.2** Reports of testing and engineering analysis demonstrating compliance with the performance requirements of Acceptance Criteria for Handrails and Guards ICC-ES AC 273, revised June 2017.

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





**8.0 IDENTIFICATION**

The ALX Contemporary Guard Systems are identified with the manufacturer’s name (Deckorators, Inc.), address and telephone number, the product name (ALX Contemporary Guard Systems), when applicable “For Use in One-and Two-Family Dwellings Only.”, the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0280).



**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: PROPERTIES EVALUATED

PROPERTY	2015 IBC SECTION	2018 IBC SECTION	2015 IRC SECTION	2018 IRC SECTION
Guard Structural Performance	1607.8.1	1607.8.1	Table R301.5	Table R301.5

TABLE 2: CODE OCCUPANCY CLASSIFICATION – ALX CONTEMPORARY ROUND RAILING

GUARD TYPE	MAXIMUM DIMENSIONS	INFILL	SUPPORT POST	SUPPORT BLOCK	CODE OCCUPANCY CLASSIFICATION
Level / In-Line Application	97 in. by 42 in.	3/4 in Diameter Round Hollow Aluminum Picket	Heavy Wall	Two, 3 in. long sections of 3/4 in. dia. round picket	IRC - One- and Two-Family Dwellings
Stair Application	75.5 in. by 42 in.	3/4 in Diameter Round Hollow Aluminum Picket	Heavy Wall or Light Wall	Two, 3 in. long sections of 3/4 in. dia. round picket	
Stair Application	75.5 in. by 42 in.	3/4 in Diameter Round Hollow Aluminum Picket	Heavy Wall or Light Wall	Two, 3 in. long sections of 3/4 in. dia. round picket	IBC – All Use Groups





TABLE 3: CODE OCCUPANCY CLASSIFICATION – ALX CONTEMPORARY RECTANGULAR RAILING

GUARD TYPE	MAXIMUM DIMENSIONS	INFILL	SUPPORT POST	SUPPORT BLOCK	CODE OCCUPANCY CLASSIFICATION
Level / In-Line Application	73 in. by 42 in. <sup>(1)</sup>	3/4 in Square Hollow Aluminum Picket	Light Wall	Two, 3 in. long sections of 3/4 in. square picket	IRC - One- and Two-Family Dwellings
	93.5 in. by 42 in. <sup>(1)</sup>	3/4 in Square Hollow Aluminum Picket	Heavy Wall	Two, 3 in. long sections of 3/4 in. square picket	
	93.5 in. by 42 in. <sup>(2)</sup>	Welded 3/4 in Square Hollow Aluminum Picket	Heavy Wall	One, 3 in. long sections of 3/4 in. square picket	IBC - All Use Groups
	70.5 in. by 42 in. <sup>(2)</sup>	Welded 3/4 in Square Hollow Aluminum Picket	Heavy Wall	None	
Stair Application	97 in. by 42 in.	3/4 in Square Hollow Aluminum Picket	Heavy Wall	Two, 3 in. long sections of 3/4 in. square picket	IRC - One- and Two-Family Dwellings
		3/4 in Diameter Round Hollow Aluminum Picket	Heavy Wall	Two, 3 in. long sections of 3/4 in. dia. round picket	
	85.3 in. by 42 in.	3/4 in Square Hollow Aluminum Picket	Heavy Wall	Two, 3 in. long sections of 3/4 in. square Picket	IBC - All Use Groups
	75.5 in. by 42 in.	3/4 in Square Hollow Aluminum Picket	Heavy Wall or Light Wall	Two, 3 in. long sections of 3/4 in. square picket	

1. The usage of the angular brackets for 22° to 45° post to rail installation is limited to these assemblies.



TABLE 4: CODE OCCUPANCY CLASSIFICATION – ALX CONTEMPORARY CABLE RAILING

GUARD TYPE	MAXIMUM DIMENSIONS	INFILL	SUPPORT POST	CABLE SPACER SUPPORT BLOCK	CODE OCCUPANCY CLASSIFICATION
Level / In-Line Application	93.5 in. by 42 in.	12 horizontal 1/8 in Diameter 1x19 stainless steel cables equidistant between the top rail and deck surface. One intermediate 3/4 inch square aluminum picket at the midspan is utilized	Heavy Wall	One Under Top Rail	IRC - One- and Two-Family Dwellings
	90.5 in. by 42 in.	12 horizontal 1/8 in Diameter 1x19 stainless steel cables equidistant between the top rail and deck surface. One intermediate 3/4 inch square aluminum picket at the midspan is utilized.	Heavy Wall	One Under Top Rail	IBC – All Use Groups
Stair Application	96 in. by 42 in.	12 horizontal 1/8 in Diameter 1x19 stainless steel cables equidistant between the top rail and deck surface. Two intermediate 3/4 inch square aluminum pickets are utilized.	Heavy Wall	Two Under Top Rail	IRC - One- and Two-Family Dwellings
	86.6 in. by 42 in.	12 horizontal 1/8 in Diameter 1x19 stainless steel cables equidistant between the top rail and deck surface. Two intermediate 3/4 inch square aluminum pickets are utilized.	Heavy Wall	Two Under Top Rail	IBC – All Use Groups



TABLE 5: FASTENING SCHEDULE – ALX CONTEMPORARY ROUND RAILING

GUARD TYPE	CONNECTION	FASTENER <sup>1</sup>
Level Application	Top Rail Bracket to Post	Two 1/4-14 x 1 in hex-head, self-drilling sheet metal screws
	Top Rail Bracket to Rail	Four #8-18 x 1-1/2 in flat-head, machine screws
	Bottom Rail Bracket to Post	Two 1/4-14 x 1 in hex-head, self-drilling sheet metal screws
	Bottom Rail Bracket to Rail	Two #8-18 x 1-1/2 in flat-head, machine screws
	Support Block / Nylon Connector to Bottom Rail	One #8-14 x 1 in flat head, machine screw
	Angle Bracket to Post	Two #10-16 by 1-inch, self-drilling stainless steel screws
	Angle Bracket to Rail	Two #10-16 by 1-inch, self-drilling stainless steel screws
Stair Application	Top Rail Bracket to Post	Two #10-32 x 1 in flat-head, self-drilling sheet metal screws
	Top Rail Bracket to Rail	Two #10-16 x 1 in pan-head, self-drilling sheet metal screws
	Bottom Rail Bracket to Post	Two #10-32 x 1 in flat-head, self-drilling sheet metal screws
	Bottom Rail Bracket to Rail	Two #10-16 x 1 in pan-head, self-drilling sheet metal screws
	Swivel to Collar	1/4-28 x 1 in button head socket cap screw
	Support Block / Nylon Connector to Bottom Rail	One #8-14 x 1 in flat head, machine screw

1. All fasteners are 300 series stainless steel.



TABLE 6: FASTENING SCHEDULE – ALX CONTEMPORARY RECTANGULAR RAILING

GUARD TYPE	CONNECTION	FASTENER <sup>1</sup>
Level Application	Top Rail Bracket to Post	Two 1/4-14 x 1 in hex-head, self-drilling sheet metal screws
	Top Rail Bracket to Rail	Four #8-18 x 1-1/2 in flat-head, machine screws
	Bottom Rail Bracket to Post	Two 1/4-14 x 1 in hex-head, self-drilling sheet metal screws
	Bottom Rail Bracket to Rail	Two #8-18 x 1-1/2 in flat-head, machine screws
	Support Block / Nylon Connector to Bottom Rail	One #8-18 x 1 in flat head, machine screw
	Angle Bracket to Post	Two #10-16 by 1-inch, self-drilling stainless steel screws
	Angle Bracket to Rail	Two #10-16 by 1-inch, self-drilling stainless steel screws
Stair Application	Top Rail Bracket to Post	Two #10-16 x 1 in countersunk head, self-drilling, stainless steel screws
	Top Rail Bracket to Rail	Two #10-16 x 1 in pan-head, self-drilling stainless steel screws
	Bottom Rail Bracket to Post	Two #10-16 x 1 in countersunk head, self-drilling, stainless steel screws
	Bottom Rail Bracket to Rail	Two #10-16 x 1 in pan-head, self-drilling stainless steel screws
	Swivel to Collar	1/4-28 x 1 in button head socket cap screw
	Support Block / Nylon Connector to Bottom Rail	One #8-18 x 1 in countersunk head, self-drilling, stainless steel screw

1. All fasteners are 300 series stainless steel.



TABLE 7: FASTENING SCHEDULE – ALX CONTEMPORARY CABLE RAILING

GUARD TYPE	CONNECTION	FASTENER <sup>1</sup>
Level Application	Top Rail Bracket to Post	Two 1/4-14 x 1 in hex-head, self-drilling sheet metal screws
	Top Rail Bracket to Rail	Four #8-18 x 1-1/2 in flat-head, machine screws
	Bottom Rail Bracket to Post	Two 1/4-14 x 1 in hex-head, self-drilling sheet metal screws
	Bottom Rail Bracket to Rail	Two #8-18 x 1-1/2 in flat-head, machine screws
	Cable Infill Intermediate Picket / Nylon Connector to Top Rail and Deck Surface	One #8-18 by 1-inch, countersunk head, self-drilling stainless steel screw
	Cable Infill to Post	Pull-Lock® (Part No. PUL-4-12) fitting pulled through the width of the post to the opposite side, and tightened with brass lock nut and stainless-steel washer on threaded stud
Stair Application	Top Rail Bracket to Post	Two #10-16 x 1 in countersunk head, self-drilling, stainless steel screws
	Top Rail Bracket to Rail	Two #10-16 x 1 in pan-head, self-drilling stainless steel screws
	Bottom Rail Bracket to Post	Two #10-16 x 1 in countersunk head, self-drilling, stainless steel screws
	Bottom Rail Bracket to Rail	Two #10-16 x 1 in pan-head, self-drilling stainless steel screws
	Swivel to Collar	1/4-28 x 1 in button head socket cap screw
	Cable Infill Intermediate Picket / Nylon Connector to Top Rail and Deck Surface	One #8-18 by 1-inch, countersunk head, self-drilling stainless steel screw
	Cable Infill to Post	Pull-Lock® (Part No. PUL-4-12) fitting pulled through the width of the post to the opposite side, and tightened with brass lock nut and stainless-steel beveled washer on threaded stud

1. All fasteners are 300 series stainless steel.

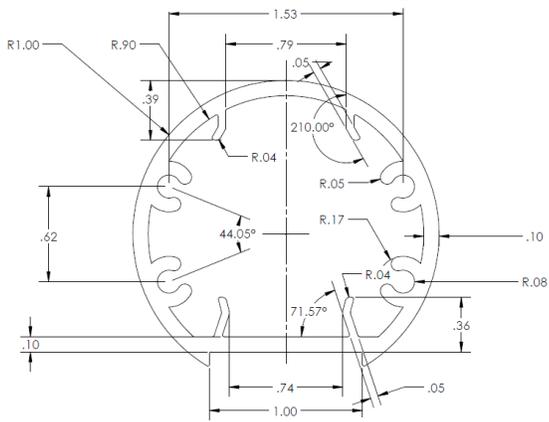


FIGURE 1 – ROUND TOP RAIL

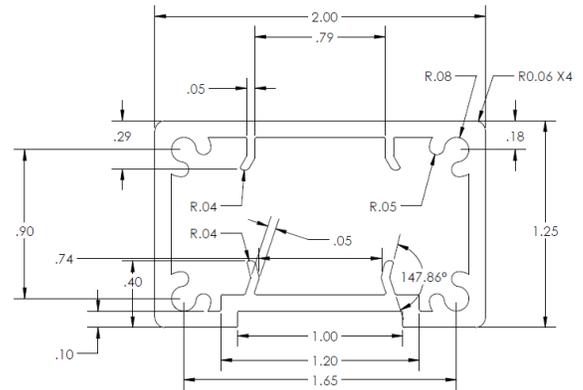


FIGURE 2 - RECTANGULAR TOP RAIL

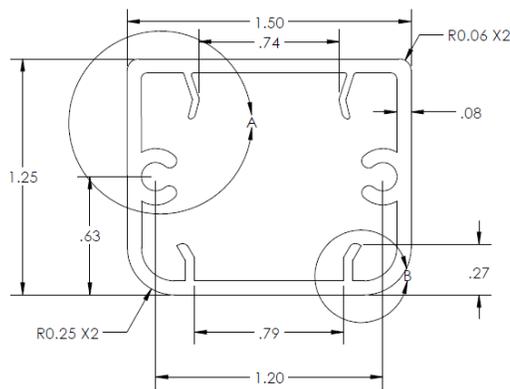


FIGURE 3 – SQUARE BOTTOM RAIL

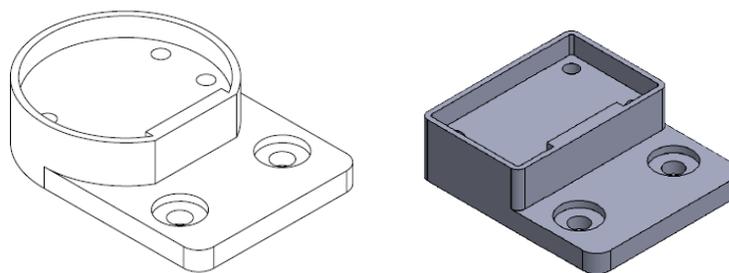
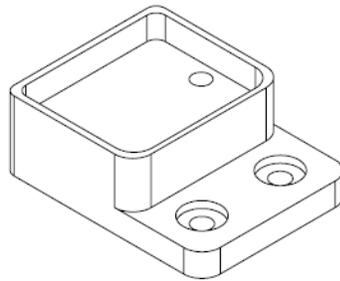
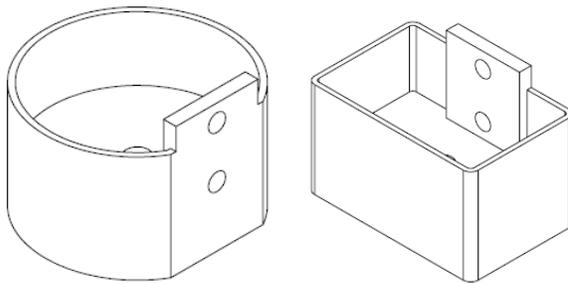


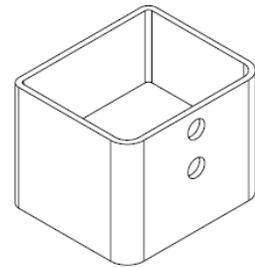
FIGURE 4 – LEVEL ROUND AND RECTANGULAR TOP RAIL BRACKETS



**FIGURE 5 – LEVEL SQUARE BOTTOM LEVEL RAIL BRACKET**



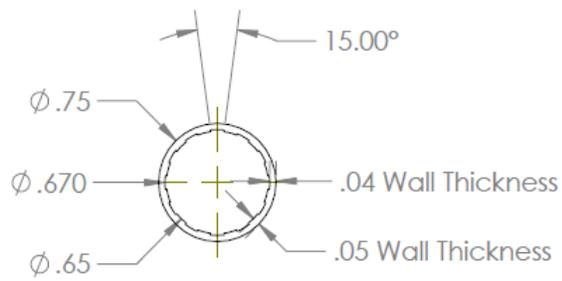
**FIGURE 6 – STAIR TOP ROUND AND RECTANGULAR BRACKETS**



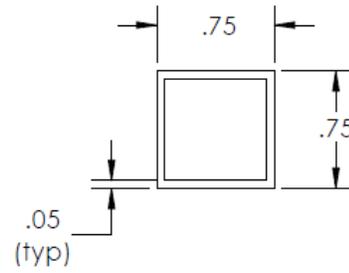
**FIGURE 7 – STAIR BOTTOM BRACKET**



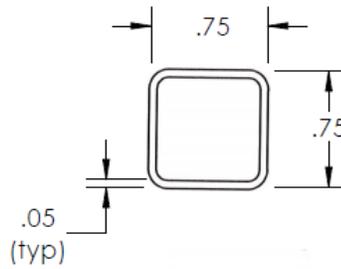
**FIGURE 8 – TOP AND BOTTOM STAIR BRACKET ASSEMBLY AND 22.5° TO 45° ANGLE BRACKETS IN LEVEL RAIL ASSEMBLIES**



Classic (3/4 inch dia.) Picket Profile



Estate (3/4 inch square) Picket Profile



Welded to Rails, 3/4 inch Square Picket Profile

FIGURE 9 – PICKET INFILL

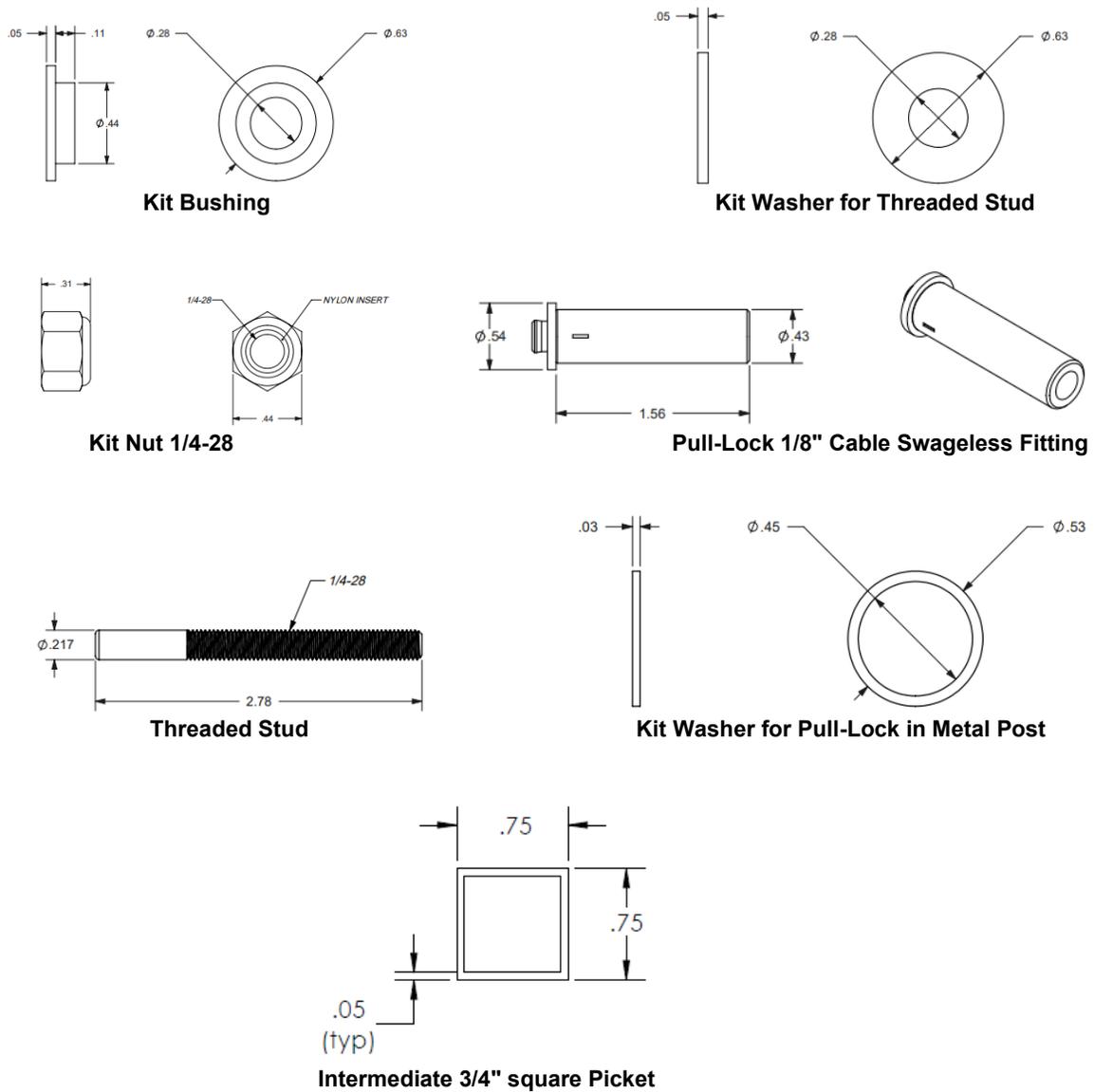
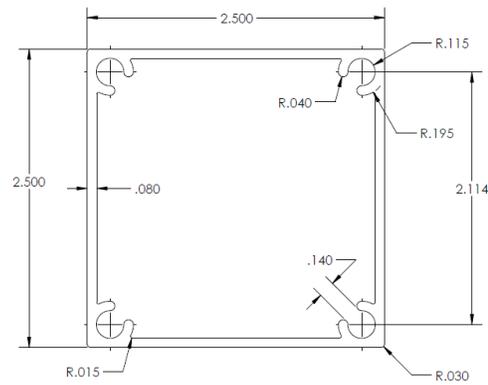
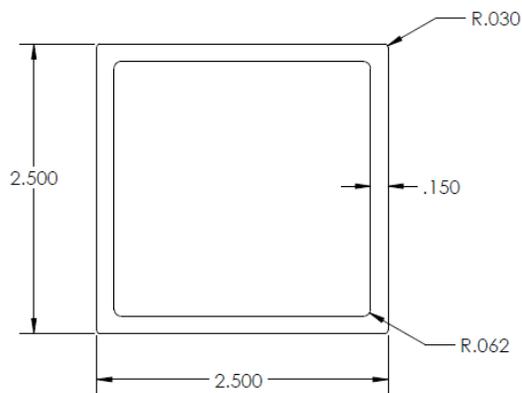


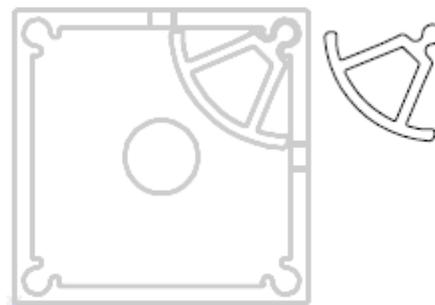
FIGURE 10 – CABLE RAIL INFILL COMPONENTS



**Light Wall Post**

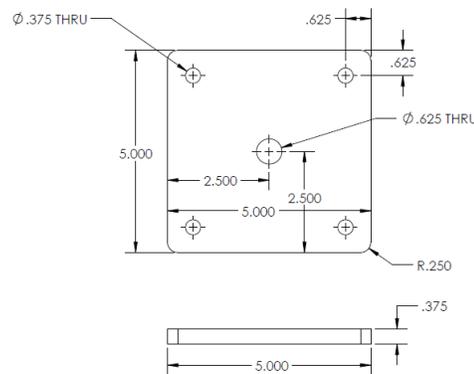


**Heavy Wall Post**



**Heavy Wall Post with Cable Corner**

**FIGURE 11 – SUPPORT POSTS**



**FIGURE 12 – SUPPORT POST BASE PLATE**