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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:

- 2021, 2018, 2015 *International Building Code*® (IBC)
- 2021, 2018, 2015 *International Residential Code*® (IRC)

NOTE: This report references the most recent Code editions cited. Sections numbers in earlier editions may 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 Figure 4.

3.7 Infill varies by guard system and configuration. See Tables 2, 3 or 4. Available infill described below and shown in Figures 5 and 6.

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 Figure 7.

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.

7.4 Intertek Listing Report "[Deckorators, Inc - ALX Contemporary Guardrail Systems](#)", on the [Intertek Directory of Building Products](#).

8.0 IDENTIFICATION

The ALX Contemporary Guard Systems are identified with the manufacturer's name (Deckorators, Inc.), the product name (ALX Contemporary Guard Systems), when applicable "For Use in One-and Two-Family Dwellings Only.", the Intertek Mark as shown below, the Intertek Control Number, 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. ⁽¹⁾ | 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. ⁽¹⁾ | 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. ⁽²⁾ | 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. ⁽²⁾ | Welded 3/4 in Square Hollow Aluminum Picket | Heavy Wall | None | |
| Level Over-The-Post Brackets | 93 in. by 42 in. | 3/4 in Square Hollow Aluminum Picket | Light Wall | Two Square Pickets | IRC - One- and Two-Family Dwellings |
| 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 | |
| Stair Over-The-Post Brackets | 96 in. by 42 in. | 3/4 in Square Hollow Aluminum Picket | Light Wall | Two Square Pickets | IRC - One- and Two-Family Dwellings |

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. | | Heavy Wall | One Under Top Rail | IBC – All Use Groups |
| Level Over-The-Post Brackets | 91 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 picket at the midspan is utilized. | Heavy Wall | Two Under Top Rail | IRC - One- and Two-Family Dwellings |
| | 88 in. by 42 in. | | Heavy Wall | Two 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. | | Heavy Wall | Two Under Top Rail | IBC – All Use Groups |
| Stair Over-The-Post Brackets | 89 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 |
| | 83 in. by 42 in. | | Heavy Wall | Two Under Top Rail | IBC – All Use Groups |



TABLE 5: FASTENING SCHEDULE – ALX CONTEMPORARY ROUND RAILING

| GUARD TYPE | CONNECTION | FASTENER ¹ |
|-------------------|--|---|
| 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 ¹ |
|-------------------|--|--|
| 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 |
| | Over the Post Bracket to Post | Four 1/4-14 by 1" (0.182 in minor diameter), pan-head, self-drilling, galvanized carbon steel screws (installed in screw chases in post) |
| | Over the Post Bracket to Rail | Two #8-18 by 3/4" (0.122 in minor diameter), countersunk head, self-drilling, galvanized carbon steel 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 |
| | Swivel Over the Post Bracket to Post | Four 1/4-14 by 1" (0.182 in minor diameter), pan-head, self-drilling, galvanized carbon steel screws (installed in screw chases in post) |
| | Swivel Over the Post Bracket to Rail | Two #8-18 by 3/4" (0.122 in minor diameter), countersunk head, self-drilling, galvanized carbon 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 |
| | Original Swivel to Collar | 1/4-28 x 1 in button head socket cap screw Swivel secured using Barrel Bolt with 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 ¹ |
|-------------------|---|---|
| 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 |
| | Over the Post Bracket to Post | Four 1/4-14 by 1" (0.182 in minor diameter), pan-head, self-drilling, galvanized carbon steel screws (installed in screw chases in post) |
| | Over the Post Bracket to Rail | Two #8-18 by 3/4" (0.122 in minor diameter), countersunk head, self-drilling, galvanized carbon steel 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 |
| | Swivel Over the Post Bracket to Post | Four 1/4-14 by 1" (0.182 in minor diameter), pan-head, self-drilling, galvanized carbon steel screws (installed in screw chases in post) |
| | Swivel Over the Post Bracket to Rail | Two #8-18 by 3/4" (0.122 in minor diameter), countersunk head, self-drilling, galvanized carbon 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 |
| | Original Swivel to Collar | 1/4-28 x 1 in button head socket cap screw Swivel secured using Barrel Bolt with 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 stainless steel fasteners are 300 series stainless steel.



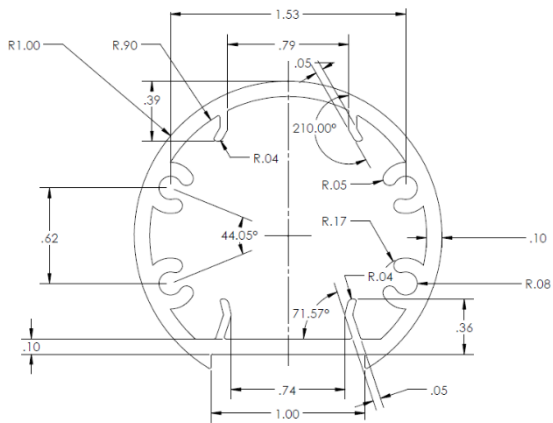


FIGURE 1 – ROUND TOP RAIL

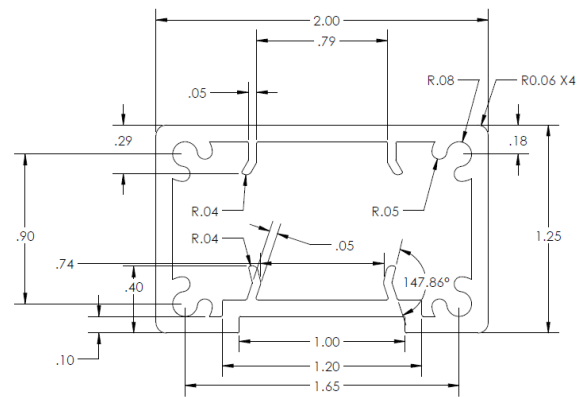


FIGURE 2 - RECTANGULAR TOP RAIL

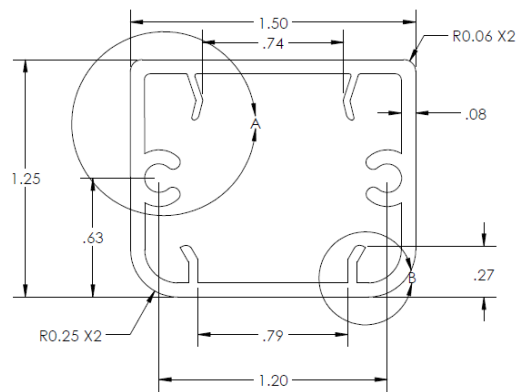
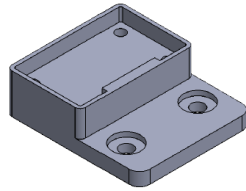
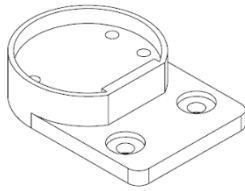
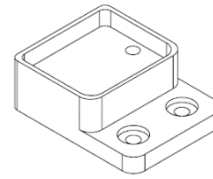


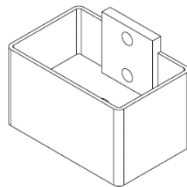
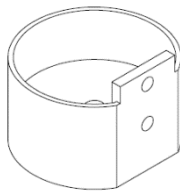
FIGURE 3 – SQUARE BOTTOM RAIL



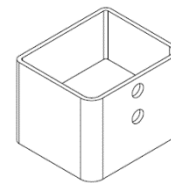
**LEVEL ROUND AND RECTANGULAR
TOP RAIL BRACKETS**



**LEVEL SQUARE
BOTTOM RAIL BRACKET**



STAIR ROUND AND RECTANGULAR TOP RAIL BRACKETS



STAIR BOTTOM RAIL BRACKET

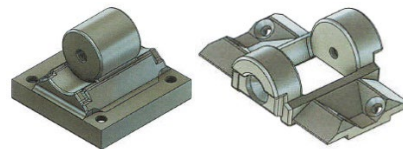


Bracket

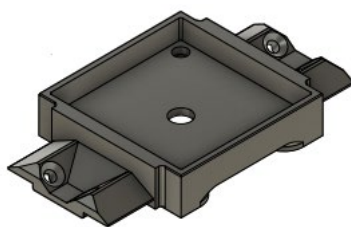


Fasteners

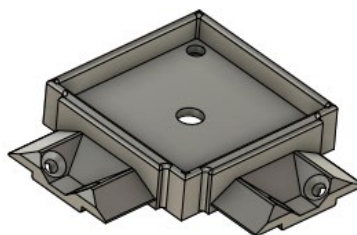
**ORIGINAL SWIVEL BRACKET FOR STAIR ASSEMBLY
AND 22.5° TO 45° ANGLE BRACKETS IN LEVEL ASSEMBLIES**



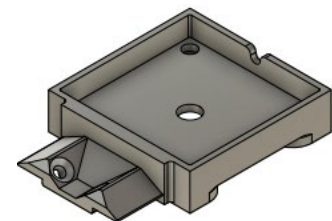
**OVER THE TOP SWIVEL BRACKET
FOR STAIRS ONLY**



Continuous (Level/In-Line)



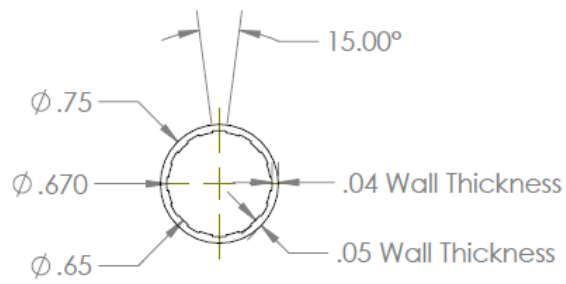
Corner



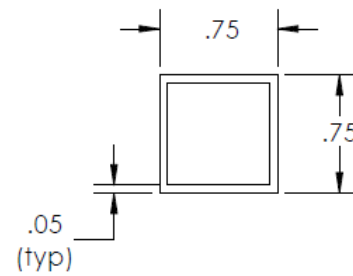
End

OVER THE POST RECTANGULAR BRACKET

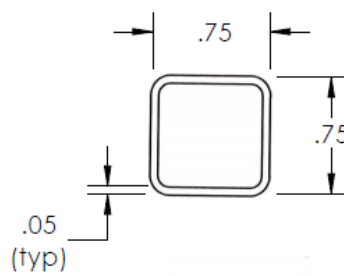
FIGURE 4 – RAIL BRACKETS



Classic (3/4 inch dia.) Picket Profile



Estate (3/4 inch square) Picket Profile



Welded to Rails, 3/4 inch Square Picket Profile

FIGURE 5 – PICKET INFILL

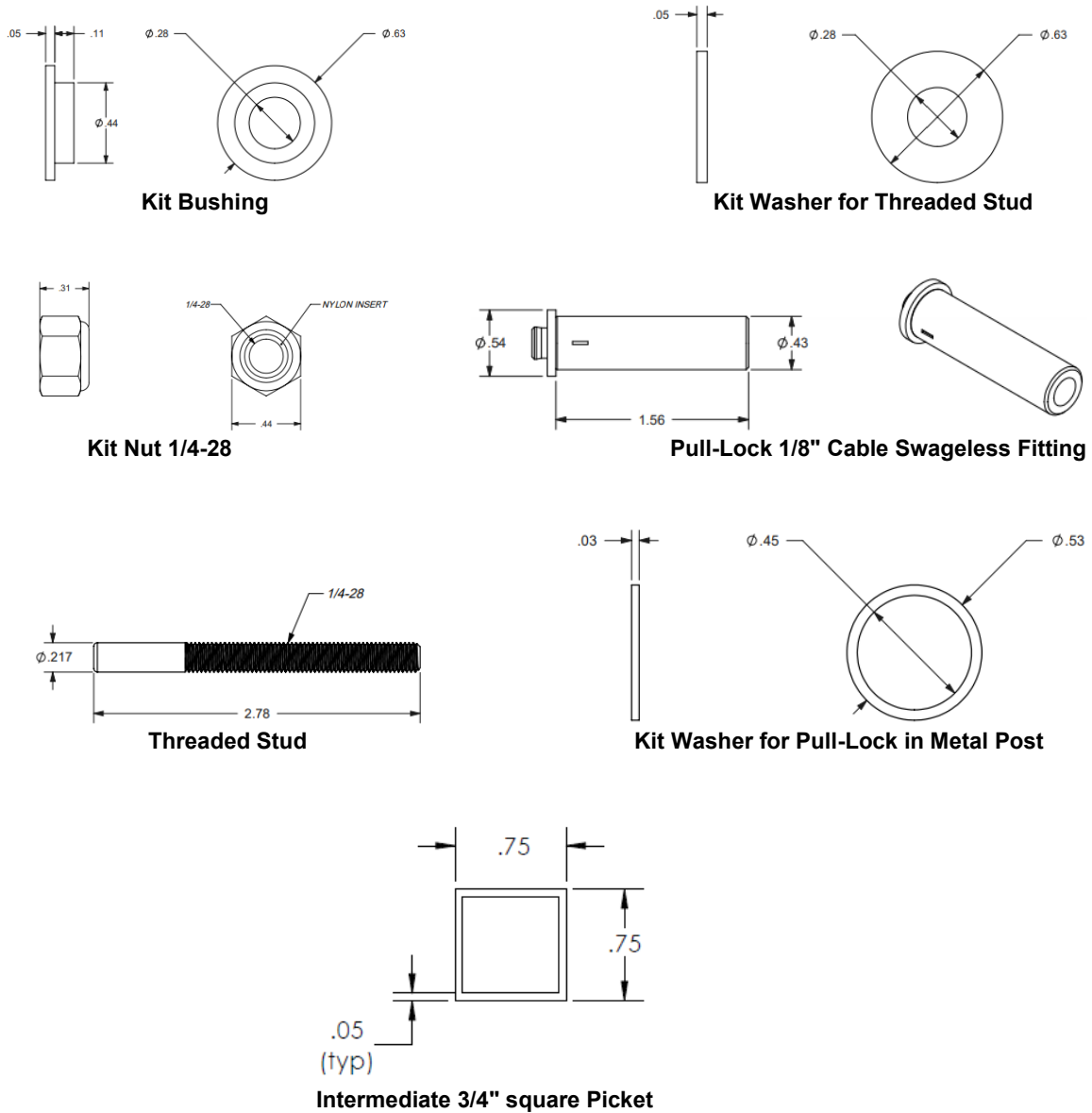
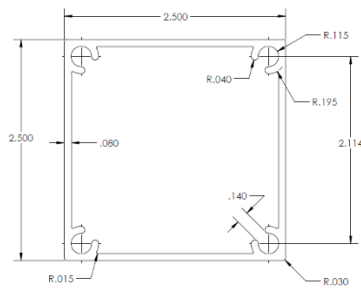
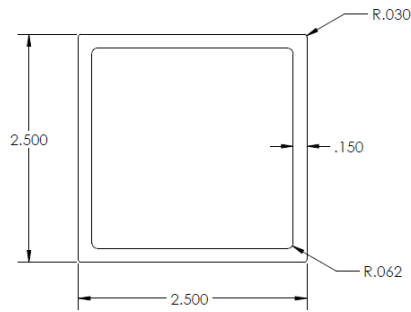


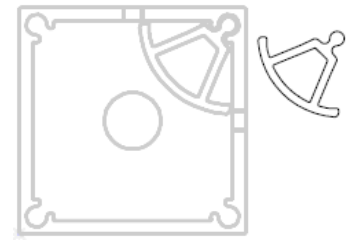
FIGURE 6 – CABLE RAIL INFILL COMPONENTS



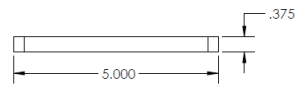
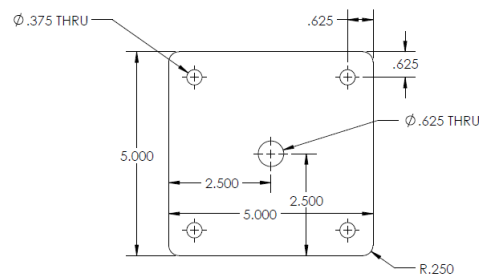
Light Wall Post



Heavy Wall Post



Heavy Wall Post with Cable Corner



Support Post Plate

FIGURE 7 – SUPPORT POSTS