

## Product Evaluation

MC21 | 0520

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

**Evaluation ID:** MC-21

**Effective Date:** May 1, 2020

**Re-evaluation Date:** May 2024

**Product Name:** Ultralox Aluminum Guard Railing Systems

**Manufacturer:** Ultralox Interlocking™ Technology  
2955 Lone Oak Drive  
Suite 180  
Eagan, MN 55121  
(888) 685-4005

**General Description:**

The Ultralox Aluminum Guard Railing System is an aluminum guard rail system. This evaluation report includes the following configurations:

3" square aluminum posts  
69.43" maximum top rail span  
42" long pickets  
Concrete substrate

3" square aluminum posts  
91.3" maximum top rail span  
42" long pickets  
Wood substrate

2" square aluminum posts  
66" maximum top rail span  
42" long pickets  
Concrete substrate

The top rail height is 42-1/2". The on center spacing of the pickets is approximately 4-3/8" (3-7/8" between pickets). The guard rail system is comprised of the following components:

**H Channel:** 0.97" depth by 1.38" width 6063-T5 aluminum extrusion with a varying wall thickness between 0.065" to 0.083".

**Bottom Rail (Snap):** 1.50" depth by 1.50" width 6063-T6 aluminum extrusion with 0.055" wall thickness.

**Top Rail:** 6063-T6 aluminum extrusion; depending on series, the width ranges from a 2" minimum to a 2-1/2" maximum and a depth that ranges from 1.92" minimum to 2.35" maximum; a wall thickness of 0.055". The following top rails are available:

- Colonial Top Rail
- Mission Top Rail
- Victorian Top Rail
- Alta Top Rail

**Pickets:** 6063-T5 hollow extruded aluminum; wall thickness of 0.050"; a width of 0.50" and a depth of 3/4".

**Straight Attachment Clips:** 0.080" thick; 5052-H32 aluminum; 1" wide by 0.94" long by 0.060" deep; two (2) holes for securing into the post.

**Straight Attachment Clip Fasteners:** No. 8 x 3/4" stainless steel TEK screws; Four (4) per clip

**Posts:**

3" x 3" square; 6005A-T5 aluminum extrusion; wall thickness of 0.065".  
2" x 2" square; 6005A-T6 aluminum extrusion; wall thickness of 0.090".

**Post Base Plate:**

A369 aluminum alloy; 4.99" x 4.99" square (for 3" square posts).  
A369 aluminum alloy; 4.02" x 4.02" square (for 2" square posts).

**Post Cap:** A380 aluminum alloy; 3" x 3".

**Support Leg:** 1-1/2" x 1-1/2" square hollow extruded 6063-T5 aluminum; wall thickness of 0.052"

**Post Base Screws:** M8 x 80mm stainless steel lag screws. Four (4) required per post base; secure post based to post

**Allowable Load:** The maximum allowable load is a 200 lb. concentrated load at the mid-span and ends of the top rail.

**Installation:**

The top rail and the bottom rail snap-fit over the H-channels.

The pickets are interlocked into the pre-punched holes on the H-Channels.

The H-channels are secured to the posts with the straight attachment clips with No. 8 x 3/4" TEK screws. Four fasteners are required per clip (two on the inside and one on each side).

Each post is attached to a post base plate with four (4) M8 x 80mm stainless steel lag screws. The posts are secured to the based plate with the fasteners located on the underside of the post base plate.

Each post is secured to one of the following types of substrates:

**Wood Substrate:** Minimum Douglas Fir lumber. Each post is secured to the substrate with four (4) 5/16" x 6" GRK RSS corrosion resistant screws (for IRC applications) or four (4) 3/8" x 6" GRK RSS corrosion resistant screws (for IBC applications). Substrate must be deep enough for the full penetration of the fasteners into the wood.

**Concrete Substrate:** Minimum 3,500 psi compressive strength structural concrete. Each post is secured to the substrate with four (4) 1/4" x 3" Hilti KH-EZ corrosion resistant fasteners. The fasteners must be located a minimum of 4" from the edge of the concrete. The substrate must be deep enough for the full penetration of the fasteners.

**Note:** The railing system must be installed in accordance with the manufacturer's installation instructions and this product evaluation report. Keep the manufacturer's installation instructions available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.