

# Mission Series Glass Railing

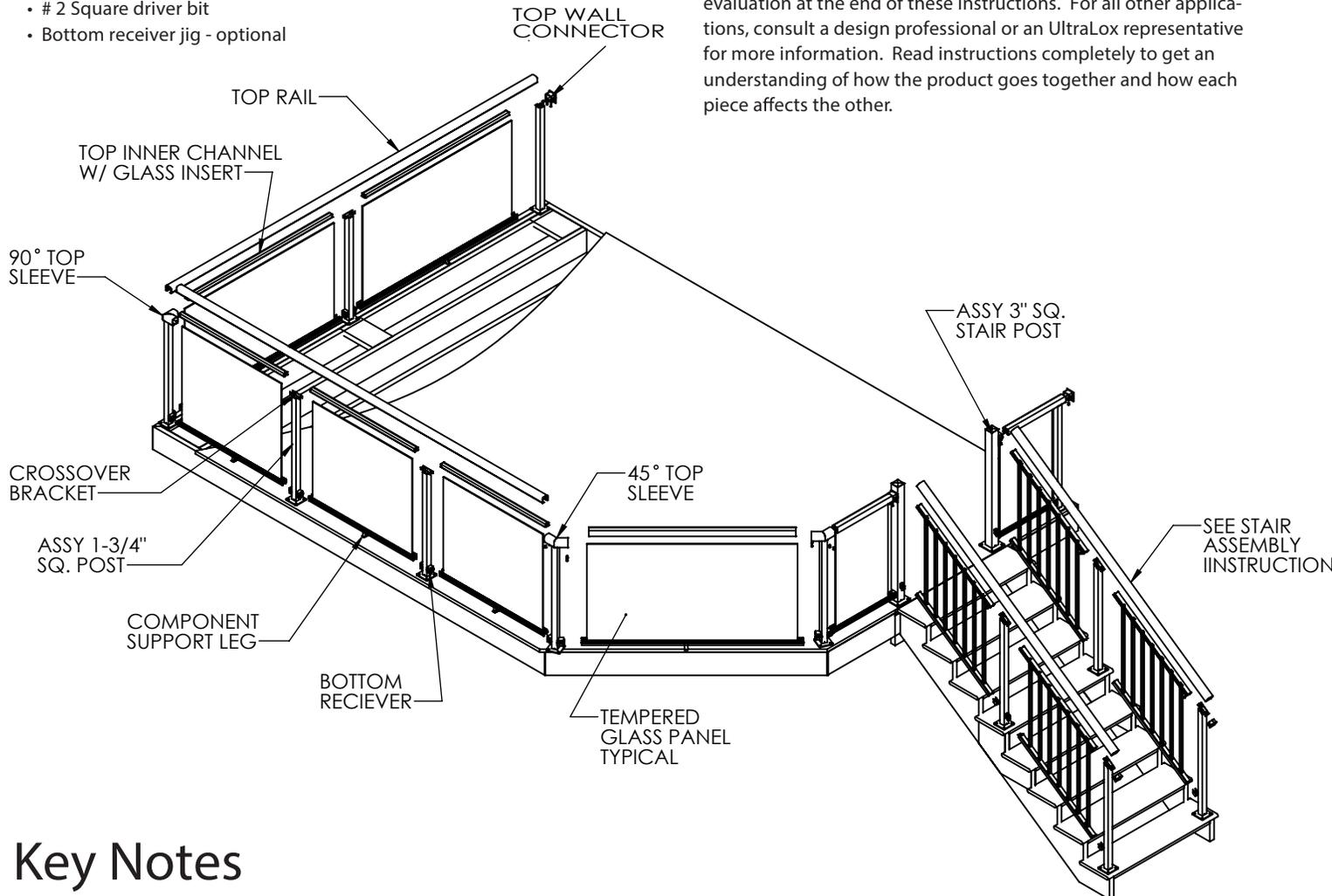
## Installation Instructions - Deck Application

### Items Required for Installation

- Appropriate fasteners for mounting posts
- Miter saw with carbide-tipped non-ferrous blade
- Cordless drill
- Tape measure
- Level
- Power cords, drop sheets and safety glasses
- Metal drill bits ( 1/8" and 3/16")
- # 2 Square driver bit
- Bottom receiver jig - optional

For the most recent installation instructions, go to our Web site at [www.ultralox.com](http://www.ultralox.com)

Prior to construction, check with your local regulatory agency for special code requirements in your area. Common railing height is 36" or 42". Maximum post spans will vary depending on job site conditions. Never span more than 6' on-center between railing posts. Railings longer than 12' in length will require reduced post spans. Refer to the system evaluation at the end of these instructions. For all other applications, consult a design professional or an UltraLox representative for more information. Read instructions completely to get an understanding of how the product goes together and how each piece affects the other.



### Key Notes

- Review materials and UltraLox installation instructions to ensure all necessary materials are present prior to beginning installation.
- On wood structures, review outer deck framing and determine post placement. Solid, structural blocking is required at all post locations. Typical rail centerline is 3" from deck edge; however, rail centerline can be adjusted to suit the application.
- Review and confirm a solid, structural mounting surface is present at building/column locations where railing ends connect to the structure. Refer to Figure 12A.
  - Posts may require shimming to ensure all posts are plumb and level in all directions.
  - For installations into wood framing, drill pilot holes through deck boards to prevent splitting.
- Refer to Mission Series Stair Installation for stair installation instructions.
- Use appropriate stainless steel fasteners to attach the railing system to the structure. Refer to the system evaluation at the end of these instructions. For all other applications, consult a design professional or a UltraLox representative for more information.
- When installing posts, ensure drain holes face outwards from deck surface. This allows for any water that may get trapped inside of posts to drain to the deck exterior. This will also ensure correct screw port orientation inside of posts.
- It is necessary to trim all posts requiring top sleeves to maintain uniform rail height. Refer to steps 5, 6 and 7.
- Consult your UltraLox representative for installation methods not covered in this instruction guide.

# Mission Series Glass Plan View

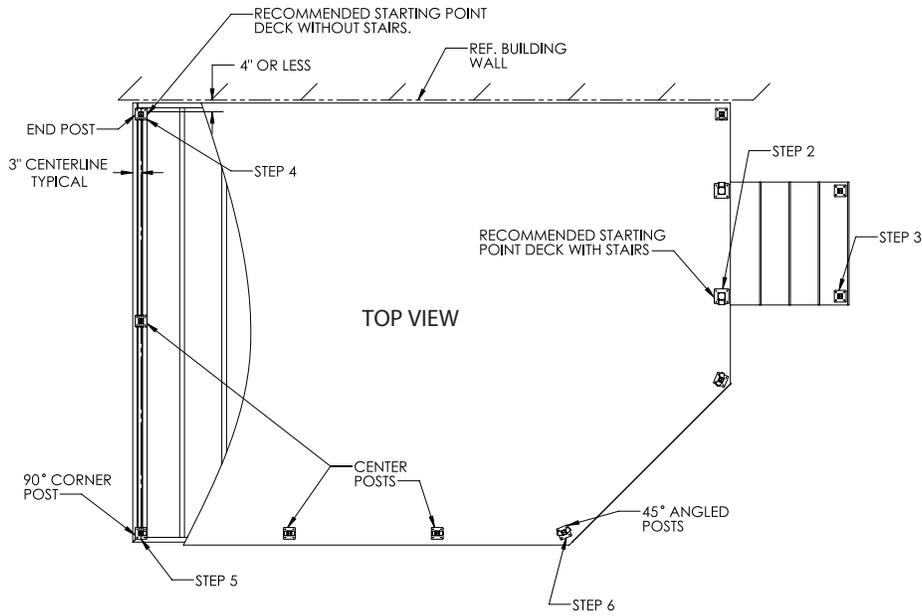


Figure 1

## Step 1

### Installation of bottom receivers

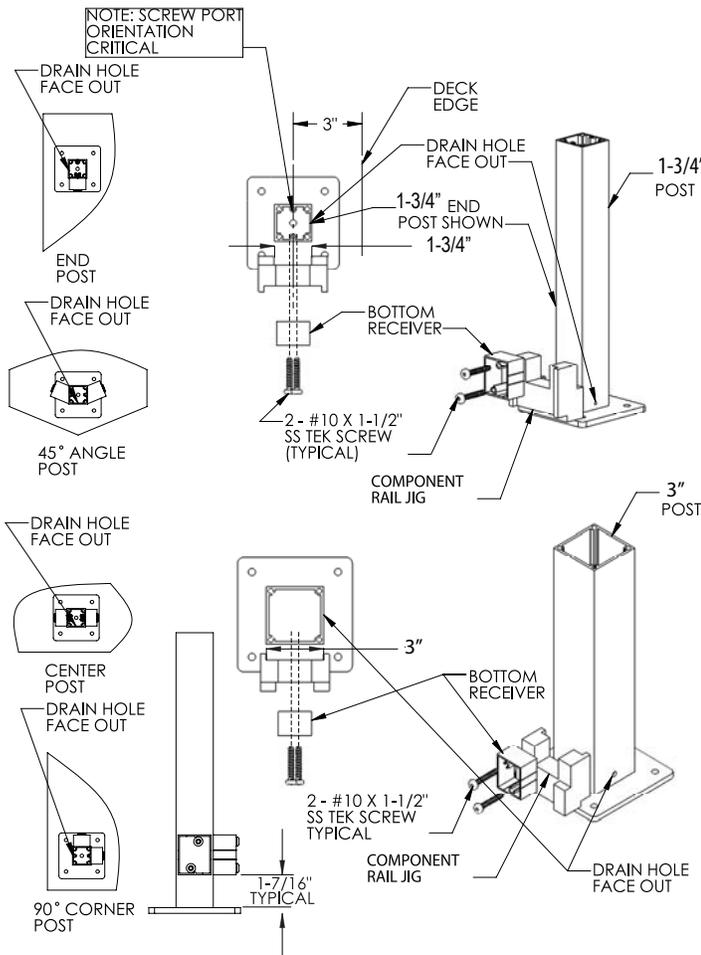
Determine deck post types (i.e. end, center, corner, etc.). Install bottom receivers to the appropriate post face using UltraLox component rail jig. **\*\*NOTE\*\*** When installing bottom receivers, ensure drain holes face outward from deck surface. This allows for any water that may get trapped inside of posts to drain to deck exterior; this will also ensure correct screw port orientation inside of posts, which is critical for stair mount plate/post mount installations (refer to steps 3, 4 and 8).

## Step 2

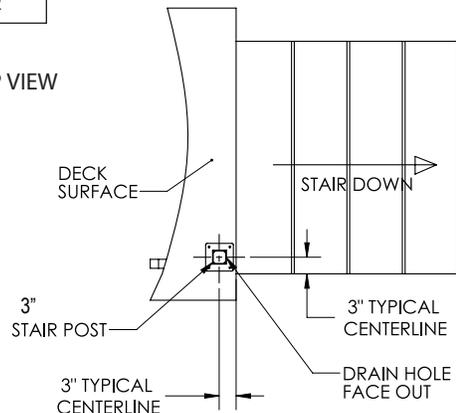
### Installation of top stair posts (If applicable)

On decks with stairs present, begin by installing post at top of stair locations to ensure proper transitional alignment between deck rail and stair rail meeting points. (See Figure 2,) Locate center of top stair post, 3" from edge in each direction, so post will align with bottom stair post. (See Step 3 / Figure 3A.)

Figure 2



TOP VIEW



## Step 3

### Installation of stair end posts (if applicable)

Temporarily install end stair post so rail centerline aligns with top stair posts installed in Step 1 (if applicable). Recommended post installation locations are as shown.

Return to completing deck railing installation; upon completion of deck railing, refer to UltraLox Stair railing installation instructions  
Return to completing deck railing installation; upon completion of deck railing, refer to UltraLox stair rail installation instructions.

Figure 3A

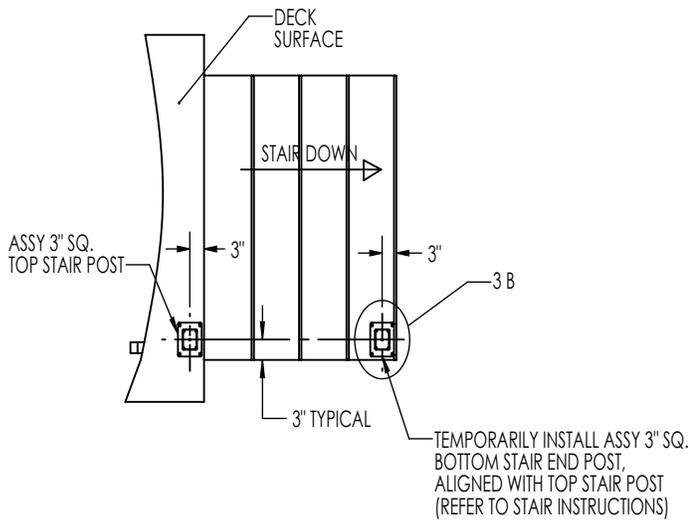
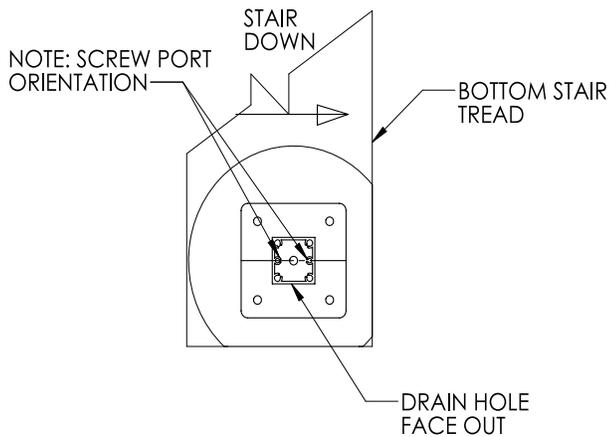


Figure 3B



## Step 4

### Installation of end posts

Install posts at all end locations with maximum gap between post and wall to be less than 4" opening.

Install component post mounts to top of end posts using 2-#8 X 3/4" stainless steel screws as shown. (See Figure 4B.)

Figure 4A

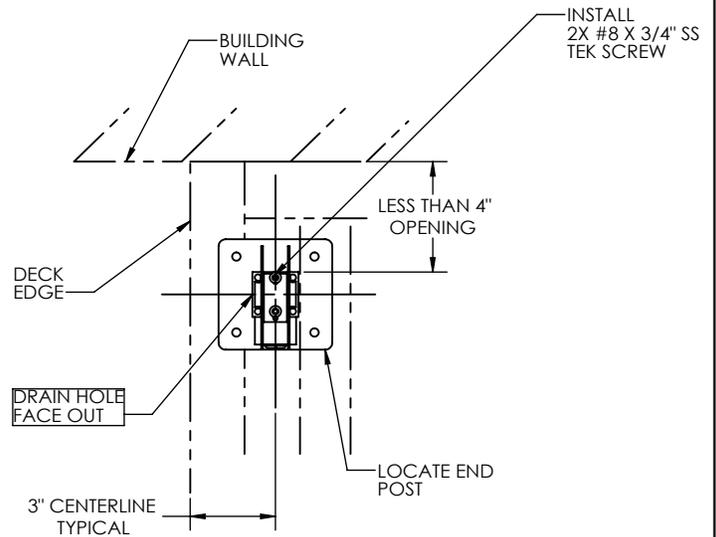
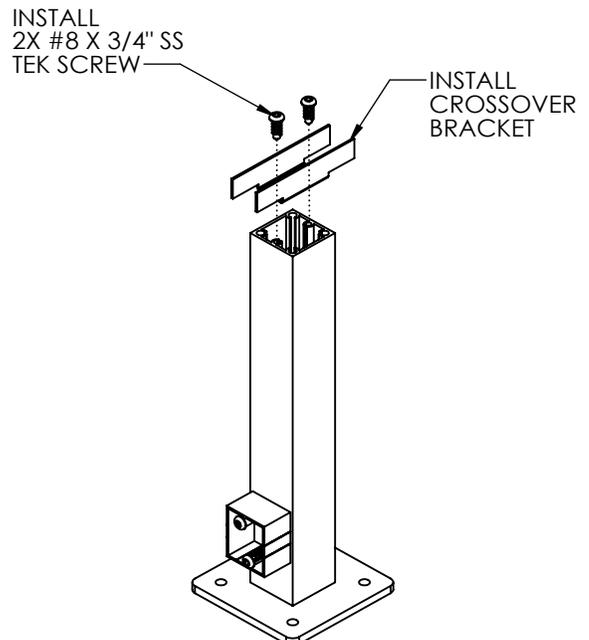


Figure 4B



## Step 5

### Installation of 90-degree corner posts

Trim 90 degree corner posts to proper height as noted. (See Figure 5B.) Position post on same 3" centerline (typical) and temporarily fasten using a single fastener through base plate mounting hole. (See Figure 5B.) Loosely install 90-degree top corner sleeves into top end of post. Do not fasten 90-degree top sleeve to posts to allow for installation of top rail in Step 13.

Figure 5A

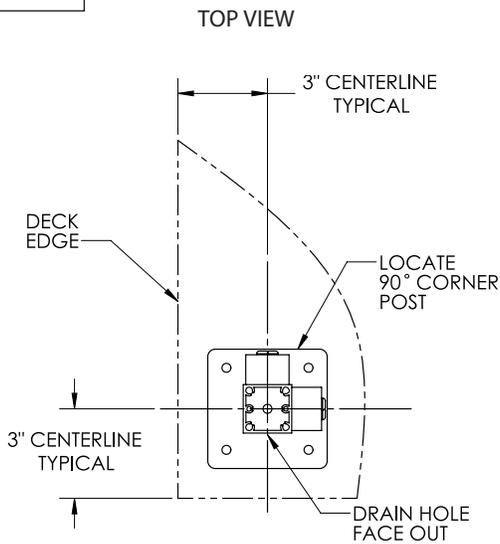
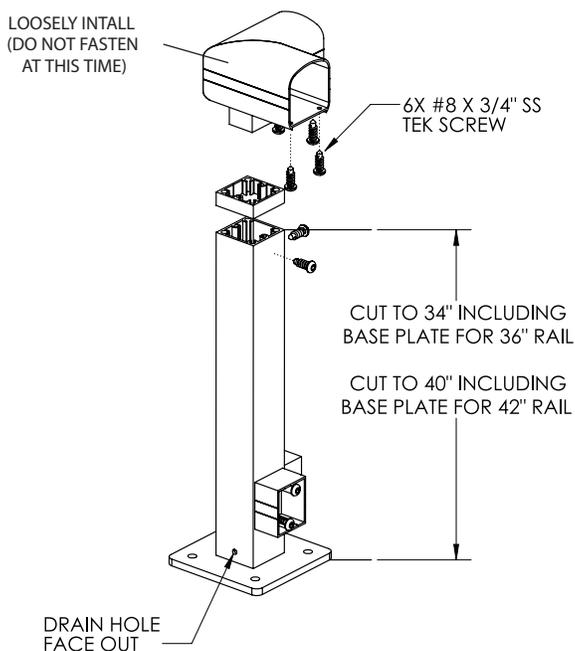


Figure 5B



## Step 6

### Installation of 45-degree corner posts

Trim corner posts to proper height as noted (See Figure 6B). Position post on same 3" centerline (typical) and temporarily fasten. Loosely install 45-degree top corner sleeves into top end of post. Do not fasten 45-degree top sleeve to post to allow for installation of top rail in Step 13.

\*\*\*NOTE\*\*\* 45-degree corner post is installed bisecting corner angle as shown\*\*\* Same instructions above apply for any custom angle posts.

Figure 6A

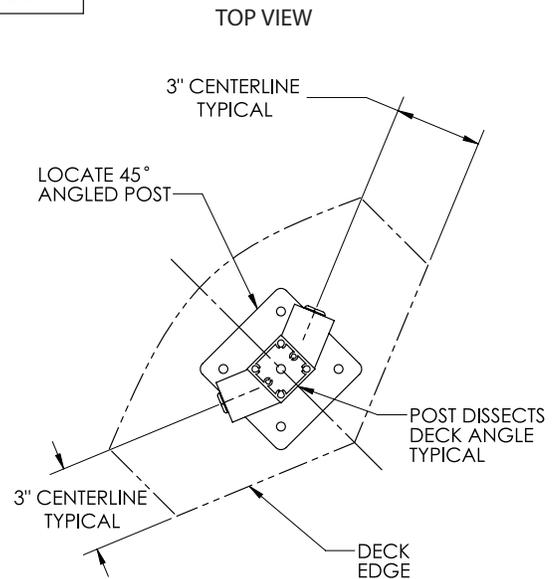
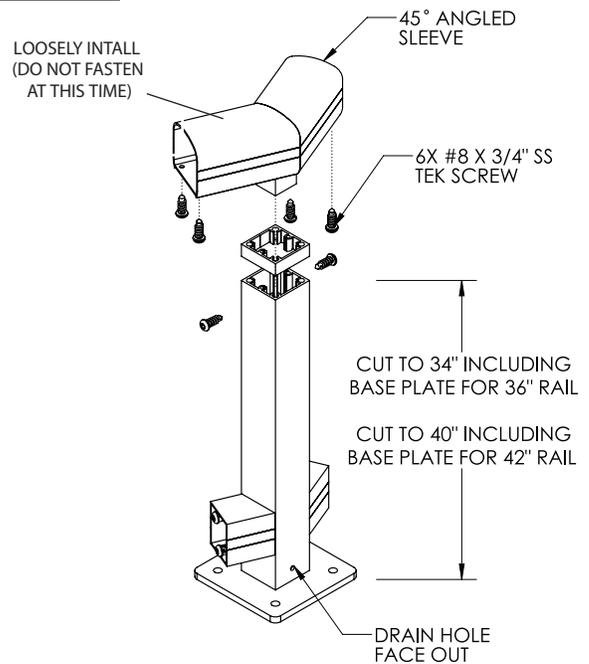


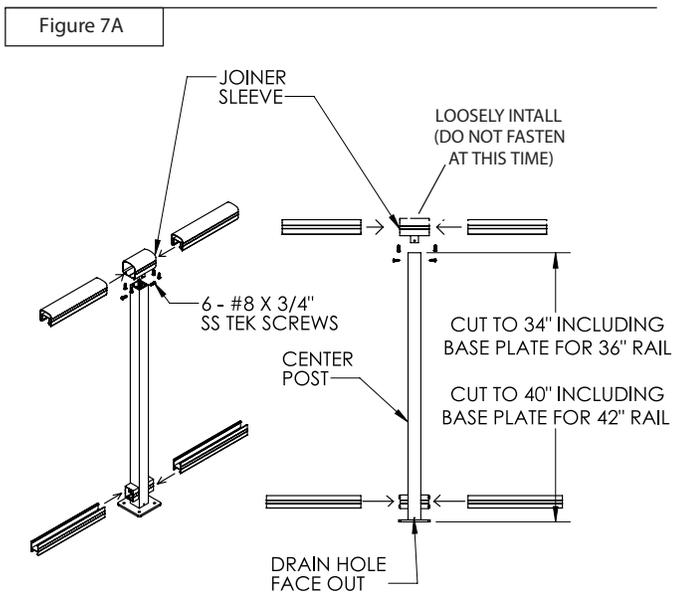
Figure 6B



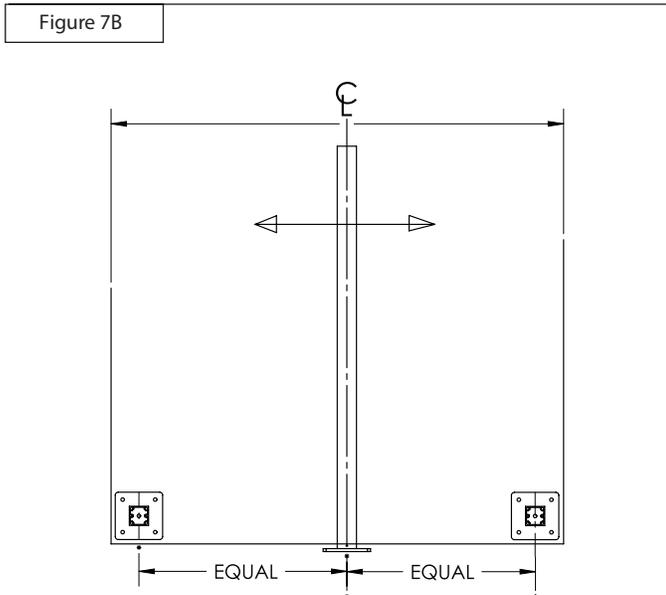
## Step 7

### Installation of joiner sleeve post (If applicable)

Rail sections over 20' will require a joiner sleeve to join top rail sections (See Figure 7A). If possible, coordinate placement of joiner sleeve at a center post in middle of span opening between end and corner posts to create a symmetrical, aesthetically pleasing look. Joiner sleeve posts will need to be trimmed to required height to allow for uniform rail height. Loosely install top joiner sleeves into top end of all required joiner posts. Do not fasten joiner sleeves to posts to allow for installation of top rail in Step 13. Temporarily fasten post to deck substrate using a single fastener through base plate mounting hole. **\*\*TIP\*\*** You may wish to loosely lay post over deck edge (see Figure 7B). This method is similar to determining center post location shown in Step 9.



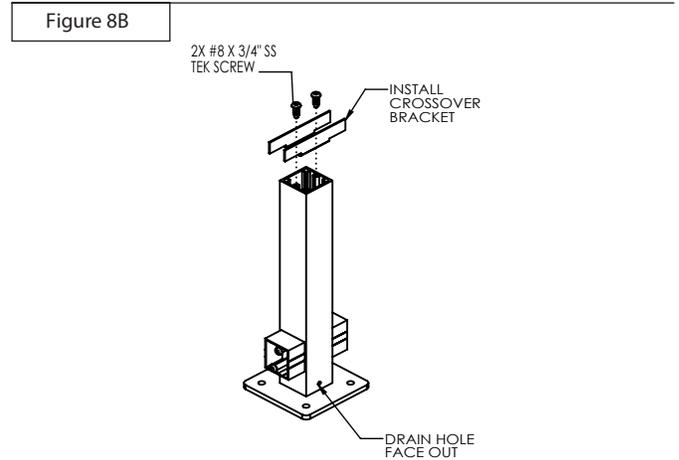
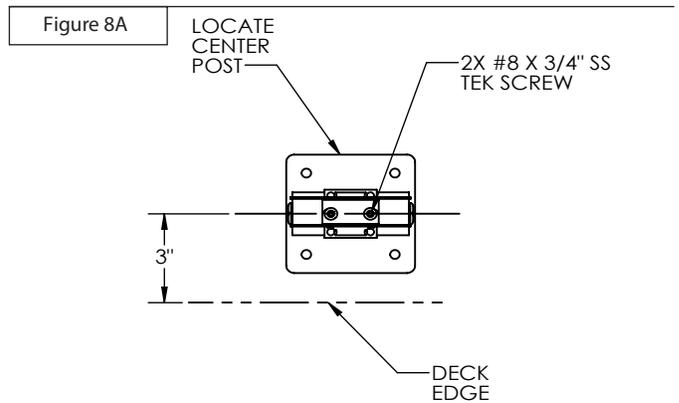
\*NOTE\*: DECKS 20' OR LONGER REQUIRE JOINER SLEEVE.



## Step 8

### Installation of post mounts to center posts

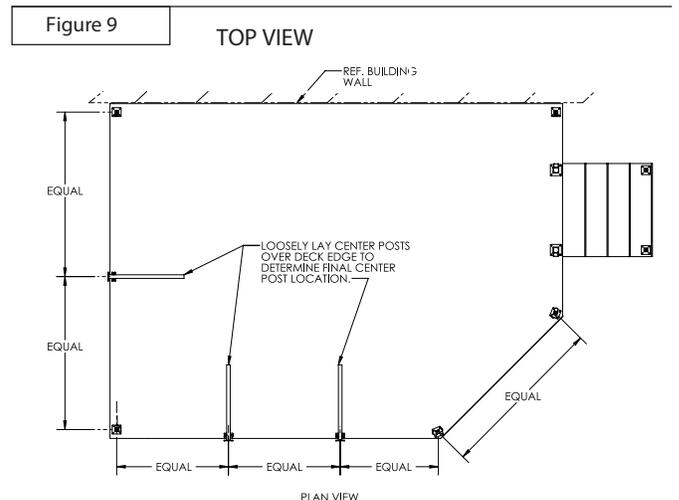
Install component post mount to top of all center posts using 2-#8 X 3/4" stainless steel screws as shown. (See Figure 8A.)



## Step 9

### Determining center post locations

Loosely lay center post over deck edge and adjust as required to determine final center post mounting locations. (See Figure 9.)



## Step 10

### Cut bottom rail assemblies

Measure and cut bottom rail assemblies to fit between post locations. (See Figure 10A.)

Snap component bottom support leg into bottom rail assembly so mounting hole faces inward to deck surface. (See Figure 10B.)

Figure 10A

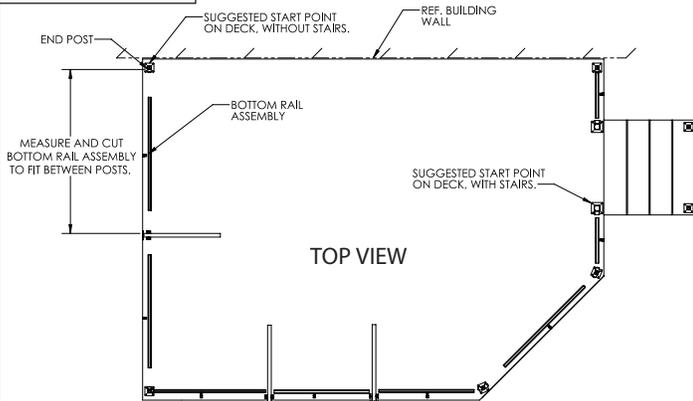
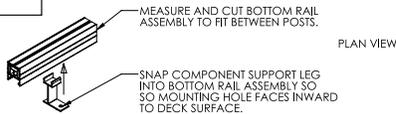


Figure 10B

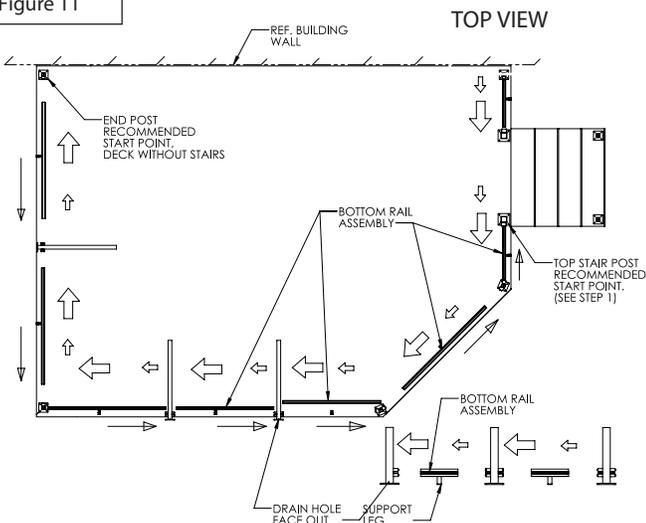


## Step 11

### Installation of bottom rail

Starting at one end, install the bottom rail assembly into the bottom receiver of the first post. Install the next post over the opposite end of the bottom rail assembly (with drain hole facing outward). Continue working from one end to the other. Install next piece of bottom rail and continue the alternating sequence of installing post/bottom rail, until all bottom rails and posts are installed on the deck. (See Figure 11.) Center bottom support leg between posts and fasten to deck using stainless steel fastener. (See Figure 10B.)

Figure 11



## Step 12

### Installation of top connectors

Install any top connectors as shown to allow for attachment of top rail to the building structure and deck rail termination points at top stair posts (if applicable).

When fastening top connectors to building structure, ensure the mounting surface is structurally sound and adequate fastener type and length is used. (See Figure 12A.) Location of top connector should align with post centerlines.

Fasten top rail connectors to top stair post locations using 2-#12 X 3/4" stainless steel Tek screws. (See Figure 12B.)

Use 2-#8 X 3/4" stainless steel Tek screws to attach top connectors to top rail. (See Figure 12C.)

Figure 12A

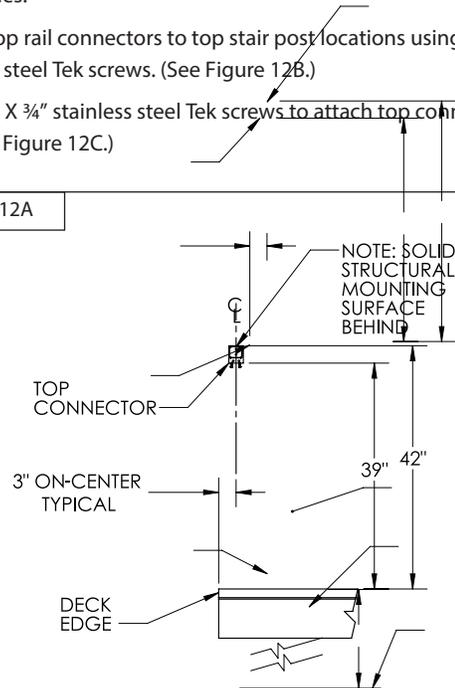


Figure 12B

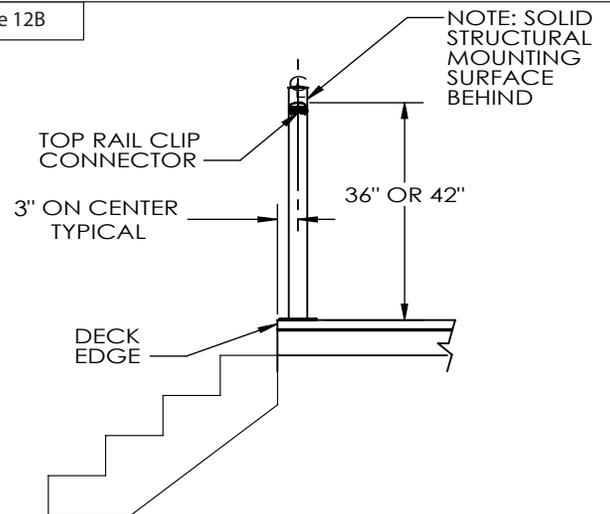
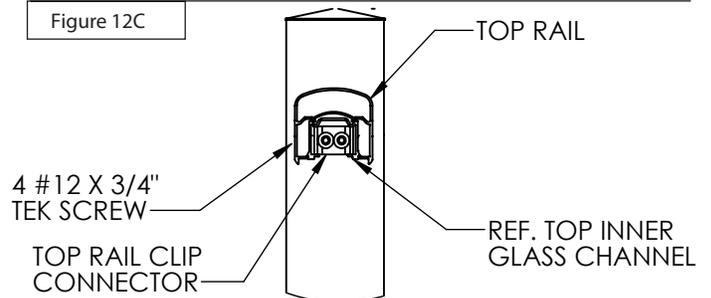


Figure 12C

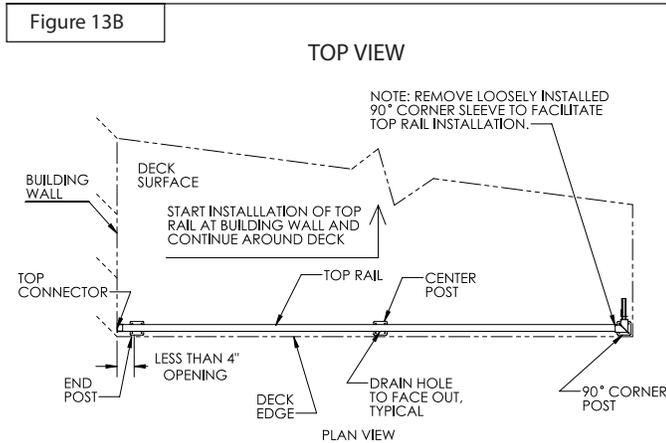
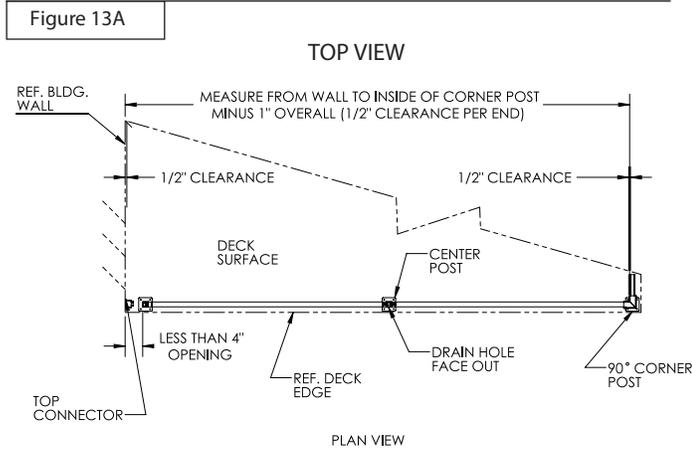


# Step 13

## Installation of top rail

Remove any glass insert that is installed in aluminum top rail prior to cutting and installing top rail. Measure top rail lengths required and cut to size. Allow approximately 1/2" clearance inside of all top rail sleeves and top connectors to allow for final plumbing and adjustment of posts. (See Figure 13A.)

Start installation of top rail at wall locations. Insert top rail into top connectors installed to the building structure. Remove any loosely installed top rail corner sleeves to allow for installation of top rail as needed and continue working from one end to another around the deck until top rail is loosely installed. (See Figure 13B.) Once top rail is loosely installed, fasten all top connectors and top sleeves to posts and top rails as shown in Step 14.



# Step 14

## Secure railing components

Install all fasteners to all top connectors and top sleeves as shown (see Figure 14).

Refer to Step 7A for fasteners types and locations for top joiner sleeves.

Install all remaining stainless steel fasteners through post base plates and support leg mounting holes to decking substrate.

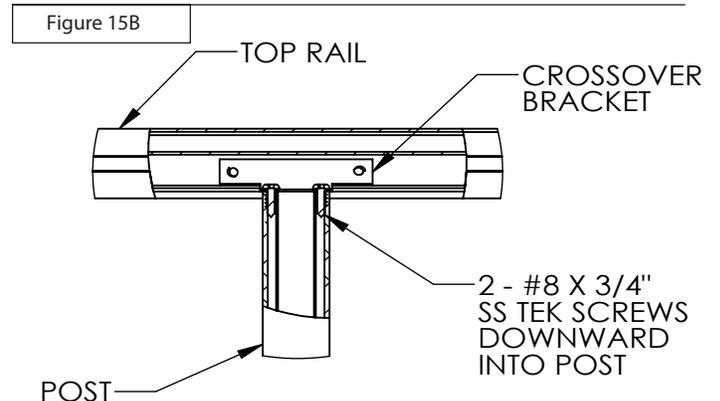
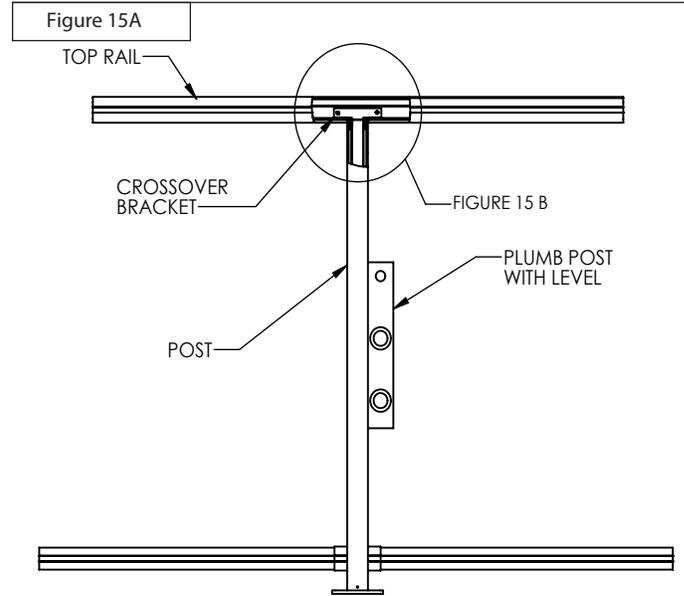
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Figure 14

# Step 15

## Fasten post mounts to top rail

Plumb all end and center posts with level (see Figure 15A) and fasten component post mounts to top rail using 2- #8 x 3/4" stainless steel screws as shown. (See Figure 15B.)



## Step 16

### Installation of top glass inserts

Measure and miter cut top glass insert as shown to provide clearance at post mount locations and install into top rail. (See Figure 16A/16B.) **\*\*TIP\*\*** Placing glass insert into scrap piece of rail will ease cutting of glass insert and facilitate a cleaner cut.

Figure 16A

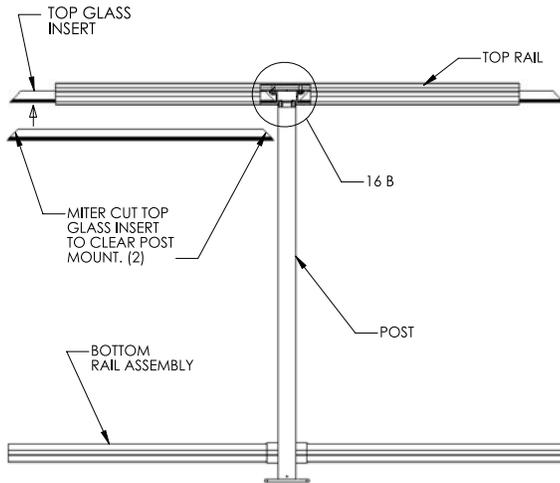
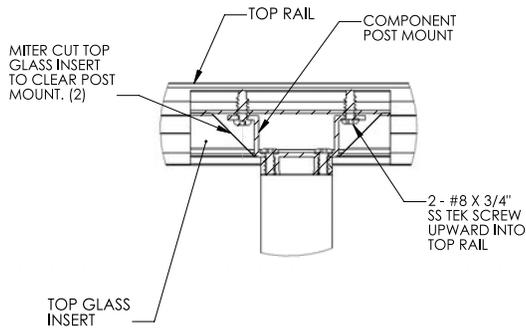


Figure 16B



## Step 17

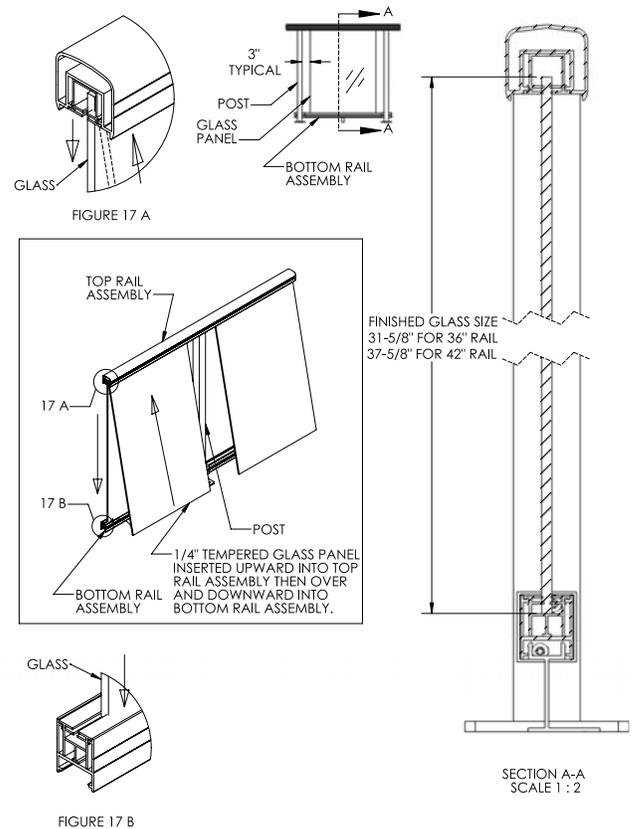
### Installation of glass panels

Position glass so gap between panel edge and post is equal on both ends. Glass gap at ends is typically 3" but can vary depending on application. Maximum gap must be less than 4". Insert glass panels upward into glass insert (see Figure 17A) and swing panel over opening in bottom rail glass insert. Pull panel downward until panel is resting firmly inside of bottom glass insert. (See Figure 17B.) Continue until all glass panels are installed.

**\*\*TIP\*\*** Window cleaner may ease glass installation into top and bottom rail assemblies.

The diagrams and instructions in this brochure are for illustration purposes only and are not meant to replace a licensed professional. Any construction or use of the product must be in accordance with all local zoning and/or building codes. The consumer assumes all risks and liability associated with the construction or use of this product. The consumer or contractor should take all necessary steps to ensure the safety of everyone involved in the project, including, but not limited to, wearing the appropriate safety equipment. Except as contained in the written limited warranty, UltraLox does not provide any other warranty, either express or implied, and shall not be liable for any damages, including consequential damages.

Figure 17



## Step 18

### Final inspection

Once deck railing is complete, do a final inspection to ensure all required fasteners are correctly installed.

#### System Evaluation:

1. UltraLox railing products have been evaluated for structural integrity by an independent laboratory through full-scale assembly testing. UltraLox 42" high Missoin railing system was evaluated with a total railing span of 144" in a complete assembly. A center post was located midway in the railing assembly (72" center-to-center from the corner post). Return railing sections were provided at each end of the 144" span, with the return connected to wood framing using a "Top Connector" (6063-T5 aluminum). The system has been evaluated with the 1/4" tempered glass panels (ANSI Z 97.1 tempered glass); the post base plates (6061-T6) have been evaluated for anchorage into both concrete substrate and wood substrate. ITW Red Head anchor LDT-3824 with a 2-1/2" nominal embedment were used in the concrete substrate condition. Screw-Products Bronze Star CCTX-516600 5/16"x6" was used on southern pine for the wood substrate condition. The concrete substrate shall be designed by a registered engineer to properly receive the load from the railing system. When the guardrail is installed in configurations other than described above, the fasteners must be specified by a design professional.
2. When UltraLox systems are assembled under the conditions described above, the railing meet the guardrail requirements of 2012 International Building Code (IBC).
3. When UltraLox guardrail is installed in configurations other than described above, each installation shall be designed using numerical methods by a registered professional engineer licensed in the state in which the project is constructed. Sealed shop drawings shall be made available to interested parties to demonstrate compliance with applicable building codes.
4. If UltraLox railing is installed contrary to the specific assembly described above and sealed engineering drawings are not then available then the railing is intended for decorative purposes only and cannot be used in applications where a structural railing system is required by building code.