# **Craft-Bilt Structural Railing**

# **Installation - Posts With Starter Pickets**





### INTRODUCTION

Thank you for choosing Craft-Bilt Aluminum Railing.

The railing must be installed on a deck or slab built to applicable building codes. Proper post spacing, fasteners and blocking should be used as per this guide and Craft-Bilt test reports. You are responsible to obtain any required permits, to comply with local building codes, and any cost associated with that compliance.

Please follow these instructions exactly and use all the components and fasteners as described.

Always wear eye protection and follow the safety instructions that came with your tools.

Craft-Bilt can provide a test report to demonstrate compliance with local building codes however you are responsible to ensure that the system will comply in your area and to install your project in compliance with those codes. Craft-Bilt is not responsible for acceptance or permit approval by your local building department.

Cast aluminum post bases are powder coated for protection in most circumstances. For additional protection from concrete slabs that are rough or more corrosive, or if you desire extra protection from pressure treated wood, apply bituminous coating (roofing tar), ice & water shield, doublebond or similar to bottom of post base.

# **RECEIVING YOUR SHIPMENT**

DO NOT SIGN for the shipment until your have checked it for damage or shortage. Follow our shipping instructions at craft-bilt.com/shipping-instructions

### **UNPACKING**

Be careful not to scratch any parts when cutting away the wrapping.

### **TOOL LIST**

#### **Power Tools:**

Cordless variable speed drill
Cordless impact driver
Miter saw with carbide tip blade for non-ferrous metal
SDS hammer drill (for concrete slab)
Impact wrench (for concrete slab)
Sufficient length & gauge extension cords

### **Impact Driver Bits:**

#2 Robertson \*

T-40 Torx bit (for 2½" & 3" posts on wood deck)
T-30 Torx bit (for 5½" posts on wood deck)
#3 Philips (for Wall Brackets on masonry)

Craft-Bilt part #0386459 Craft-Bilt part #0386453

#### **Drill Bits:**

2 - 5/32" diameter (for pre-drilling Starter Pickets)

3/8" Powers Wedge Bit (for 21/4" & 3" posts on concrete)

1/4" Powers Wedge Bit (for 51/2" posts on concrete)

1/4" Powers Tapper Bit (for Wall Brackets on masonry)

part #03-1318 (SDS), #03-1380 (smooth) part #03-1314 (SDS), #03-1372 (smooth) Craft-Bilt part #03-02895

#### **Hand Tools:**

white rubber mallet utility knife channel lock pliers hammer hacksaw

### **Measurement Tools:**

25 foot tape measure 2 foot level

### Miscellaneous:

safety glasses

lacquer thinner & white rags for cleaning up scuff marks on aluminum channels

### For installing LED Sconce lights:

Grinder with thin wheel suitable for aluminum extrusions (hack saw or strong aviation snips will also work) caulking gun silicone wire cutter/stripper

#### **TERMINOLOGY**

*End posts* are located at the corners of your deck, top & bottom of stairs and at the house wall.

Note: Instead of using an End Post at the house wall you also have the option of End Brackets, refer to Parts List below.

**Line Posts** fill in the spaces between the **End Posts**. Maximum post spacing is 84" on center for single family buildings up to three floors high. Contact Craft-Bilt for other scenarios.

**Cross Over** posts are **Line Posts** but the Hand Rail passes continuously over top. This provides four key advantages: Strength, Straightness, Beauty (no joints) and No obstructions.

**Double Top Rail** is accomplished by placing a second Bottom Rail approximately 4" below the Hand Rail.

CROSS OVER END POST

**36"** Railing – for decks less than 6 feet above grade the top of the handrail will be 36" (900mm) above the deck. All stairs, no matter what height above grade, will use 36" Railing.

**42"** Railing – for decks over 6 feet above the grade the top of the Hand Rail will be 42" (1070mm) above the deck.

**Starter Picket** – The Starter Picket is fastened to the posts. The Hand Rail and Bottom Rail will be fastened to the Starter Pickets.

# **PARTS LIST**

	21/4" Cross Over Post
	Includes: Post with connected base, 2 - Starter Pickets, Bracket Cover
	Short code = "CO"
1	21/4" Line Post / End Post
	Includes: Post with connected base, 2 - Starter Pickets, Post Cap, Bracket Cover
	Short code = "RE"
	3" Line Post / End Post
	Includes: Post with connected base, 2 - Starter Pickets, Post Cap, Bracket Cover
	Short code = "3x3"
	3/6 x 7" GRK Engineered Wood Screw
	³⁄₅ x 4" Powers Wedge Bolt Masonry Screw
	4 are required for each 2¼" or 3" post.
	5½" Line Post / End Post
	Includes: Post with connected base, 2 - Starter Pickets, Post Cap, Bracket Cover
-	Short code = "6x6"
<b>(</b>	5/16" x 6" Engineered Wood Screw
	1/4" x 3" Powers Wedge Bolt Masonry Screw
	6 are required for each 5½" post.
	2¼" Hand Rail
	When purchasing a kit from Craft-Bilt, the supplied length is usually slightly longer than necessary to allow precise trimming on site.
	#7707
	1½" Bottom Rail
	When purchasing a kit from Craft-Bilt, the supplied length is usually slightly longer than necessary to allow precise trimming on site.
	#7706
	Hand Rail Splicer
	Required when a straight railing section with Cross Over posts is over 20' long. Also used with Welded Corners. #7709

Cast Aluminum End Bracket Two sizes to fit Hand Rail and Bottom Rail. Each requires 2 - #12 flat head screw, min 2" embedment in to load bearing framing or masonry.  #7702-16 %" Square Picket #7702-16 %" x 11/2" Picket #7702-15 Starter Picket length is 31/3" long for 36" railing, 37/6" long for 42" railing, except for Cross Over posts which use standard length picket above, starter Pickets are included with posts.  #7702-16 Picket Spacer 3/4" long. The last Picket Spacer (against the post) will be trimmed as necessary. For stairs the Picket Spacer is 41/2" long.  #7715  Snap Cap 12 foot lengths. Hides the screws in the Hand & Bottom Rails. Snap Cap does not have to be continuous, butting pieces together is OK.  #7705  Hand Rail Glass Adapter  Bottom Rail Glass Adapter  #7718  Bottom Rail Glass Adapter  #7718  Welded Hand Rail Corner For a totally flush Hand Rail, use Cross Over posts at the corners of the deck and as line posts. The Welded Corner provides a finished corner with no sharp edges, Requires Hand Rail Splicer.  #7710	
2" embedment in to load bearing framing or masonry.  #7703  %" Square Picket  #7702-16  %" x 1½" Picket  #7702-15  Pickets length is 31½" long for 36" railing, 37½" long for 42" railing.  Starter Picket length is 33" long for 36" railing, 39" long for 42" railing, except for Cross Over posts which use standard length picket above, starter Pickets are included with posts.  #7702-16  Picket Spacer  3½" long. The last Picket Spacer (against the post) will be trimmed as necessary. For stains the Picket Spacer is 4½" long.  #7715  Snap Cap  12 foot lengths. Hides the screws in the Hand & Bottom Rails. Snap Cap does not have to be continuous, butting pieces together is OK.  #7705  Hand Rail Glass Adapter  #7719  Bottom Rail Glass Adapter  #7719  Bottom Rail Glass Adapter support  Placed in the Bottom Rail near the ends. Provides additional security to support the glass.  #7724  Welded Hand Rail Corner  For a totally flush Hand Rail, use Cross Over posts at the corners of the deck and as line posts. The Welded Corner provides a finished corner with no sharp edges. Requires Hand Rail Splicer.	Cast Aluminum End Bracket
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Sconce Light  2½" wide. Fits all Craft-Bilt railing posts. Use with our silicone filled wire connectors, cable and transformer. See separate install guide.  #7755
Hand Rail Wall Bracket  Use for Hand Rail mounted to wall. Can also be mounted to Craft-Bilt posts for special circumstances including disability rail.  #7717
End Knob  Use with Wall Bracket above, two required for each Hand Rail.  #7716
Bottom Rail Support  Used to support bottom rail when distance between posts exceeds 60"

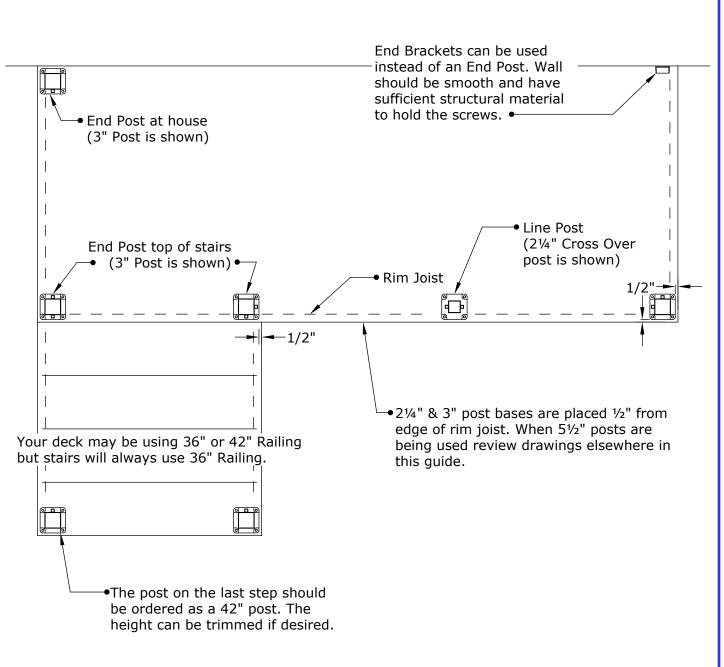
The parts above are the main components, for a full list of parts refer to our catalog, available on request.

# **Cleaning Up Gaps and Scratches**

Most often any marks that appear as scratches can actually be removed using a clean white rag and lacquer thinner. Touch up paint is available for actual scratches. You will make your cuts as tight as possible, but if you need to fill any gaps Craft-Bilt has colour matched silicone (except black).

# **Installation Steps**

The following pages provide the steps required to install Craft-Bilt railing. If your situation is not covered please inquire, site specific engineering may be required.



Unpack your posts and determine their position on the deck. Refer to your company's sketch, the quote from Craft-Bilt or the packing list insert. Post heights (not incl. post cap)

36" railing: Line/End Post 37½" Cross Over 33¾" 42" railing: Line/End Post 43½" Cross Over 39¾"

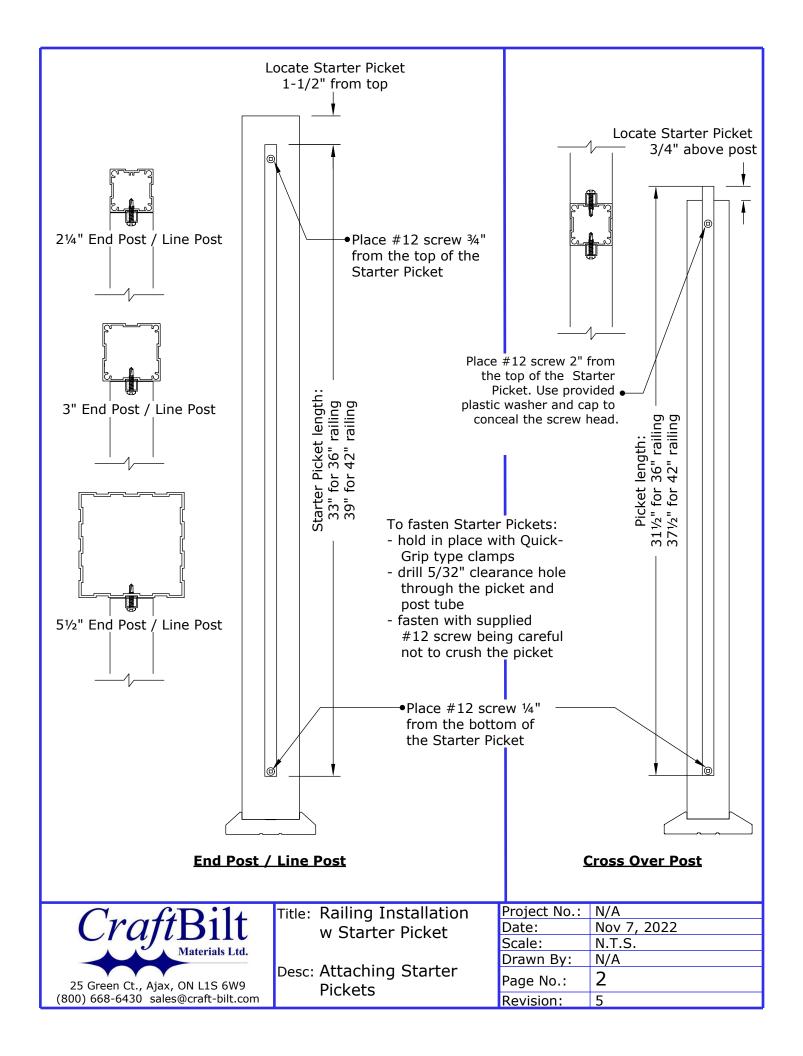
In the next step you will be attaching Starter Pickets to your posts. Line posts have two Starter Pickets on opposite faces, End Posts have a Starter Picket on one face except at corners where they are on adjacent faces.

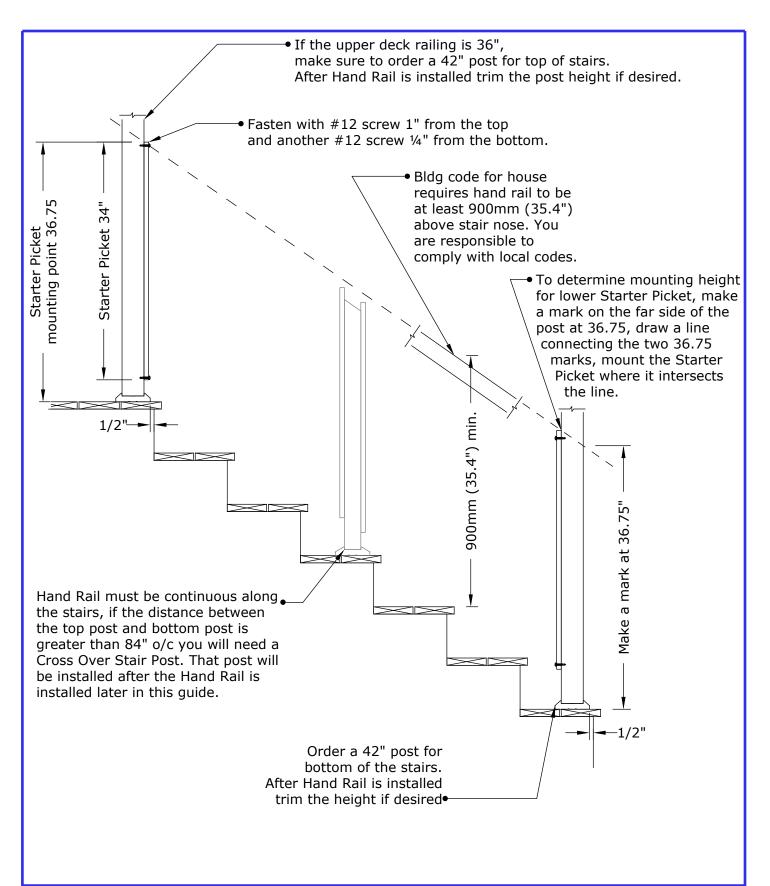


Title: Railing Installation w Starter Picket

Desc: Typical Floor Plan

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	1
Revision:	5



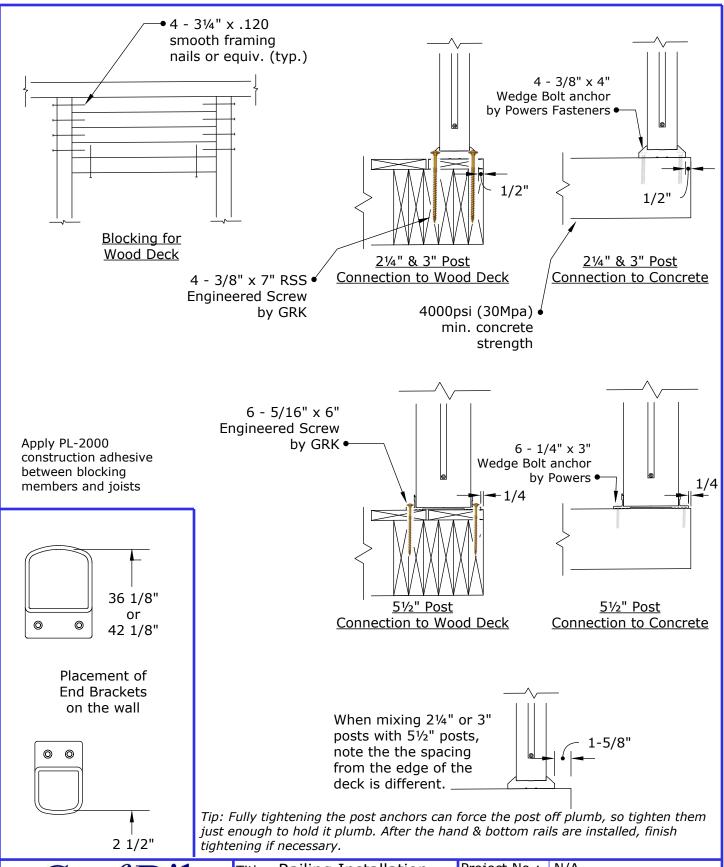




25 Green Ct., Ajax, ON L1S 6W9 (800) 668-6430 sales@craft-bilt.com Title: Railing Installation w Starter Picket

Desc: Attaching Starter
Pickets - Stair Posts

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Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	3
Revision:	5

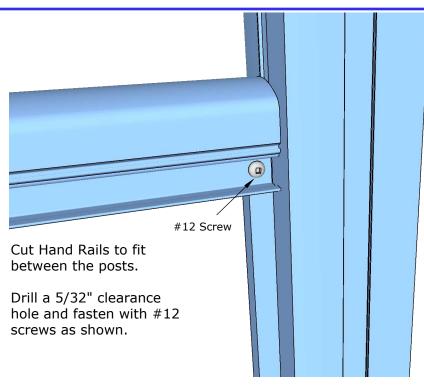


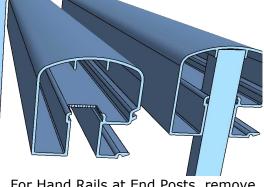


Title: Railing Installation w Starter Picket

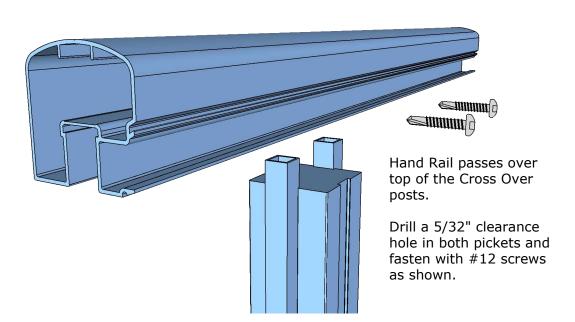
Desc: Fastening Posts to the Deck

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	4
Revision:	5





For Hand Rails at End Posts, remove approx. 3/4" of material as shown to provide clearance for the Starter Picket. Grasp with channel lock pliers and work up & down, material will snap out easily.



Tip: To cut aluminum extrusions use a carbide tip blade for non-ferrous metal.

Always wear eye protection when operating cutting tools and follow manufacturers safety instructions.

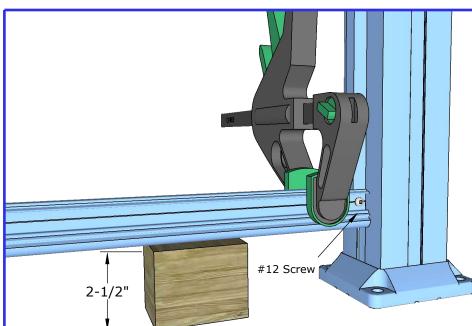


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Title: Railing Installation w Starter Picket

Desc: Attaching Hand Rails

Project No.:	N/A
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Scale:	N.T.S.
Drawn By:	N/A
Page No.:	5
Revision:	5



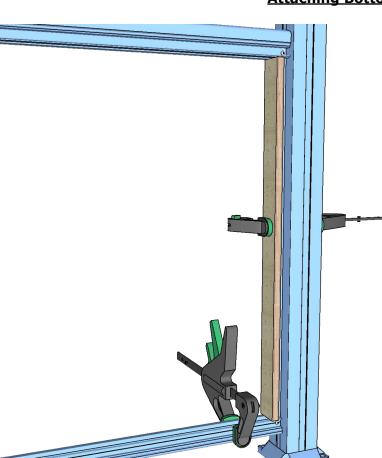
Cut Bottom Rails to fit between posts.

Drill a 5/32" clearance hole and fasten with #12 screws as shown.

Tip: For picket railing, make 2 wooden blocks 2½" high. Use them to support the Bottom Rail while you are fastening to Starter Pickets.

Tip: As the #12 screw is threaded into the hole the parts can spread apart slightly, a clamp will ensure a snug joint.

# Attaching Bottom Rails - Picket



For glass railing it is important that the Hand & Bottom Rails are parallel and spaced properly so the glass can be lifted into place without issue.

Make 2 wooden templates with plywood. Clamp them to the post, pressed up to the bottom of the Hand Rail. Hold the Bottom Rail up against the templates, clamp in place, drill a 5/32" clearance hole and fasten to Starter Picket with # 12 screw.

Template length: Glass Height: 36" railing 29-7/8" 30-1/2" 42" railing 35-7/8" 36-1/2"

# **Attaching Bottom Rails - Glass**



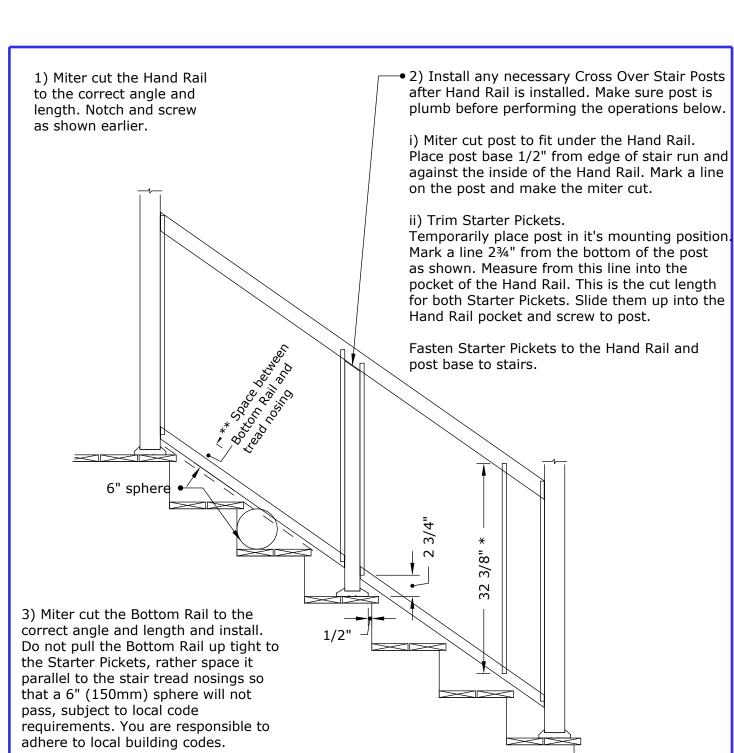
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Title: Railing Installation w Starter Picket

Desc: Attaching Bottom

Rails

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	6
Revision:	5



the end of this guide for suggested spacing between Bottom Rail and tread nosing that will prevent the passing of a 6" sphere.

\* In-fill provides the sphere in the spher

\* In-fill pickets are cut to 32 3/8". For steeply sloped stairs Starter Pickets and In-fill pickets may need to be trimmed.



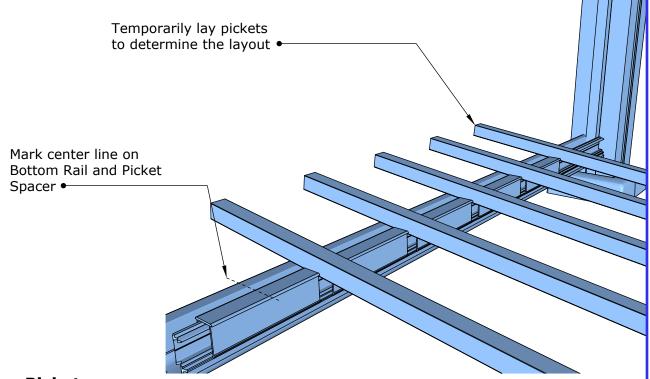
\*\* Refer to example stair layouts at

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Title: Railing Installation w Starter Picket

Desc: Attaching Hand & Bottom Rails - Stairs

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Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	7
Revision:	5



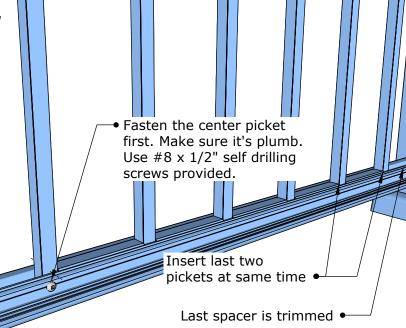
# **Installing Pickets:**

Start in the center of the opening and work towards the ends. The center of your opening will either have a Picket or a Picket Spacer. Mark a center line on the Bottom Rail and on a Picket Spacer as shown. Temporarily lay the spacer on the center line and add more pickets and spacers until you get near the end. If the last space is less than 2" then try a layout with a Picket in the center.

Plumb the center picket (or just off center as the case may be) and screw to the Hand & Bottom Rails. Add the rest of the pickets and spacers working from the center, keeping them packed tightly towards the center.

Insert the last 2 pickets together (at each end). Then snap in a spacer between them. If you do not do this you will have difficulty inserting the last picket. The last spacer at the ends will need to be trimmed.

Screw all pickets to hand and bottom rails using provided #8 x 1/2" self drilling screws.

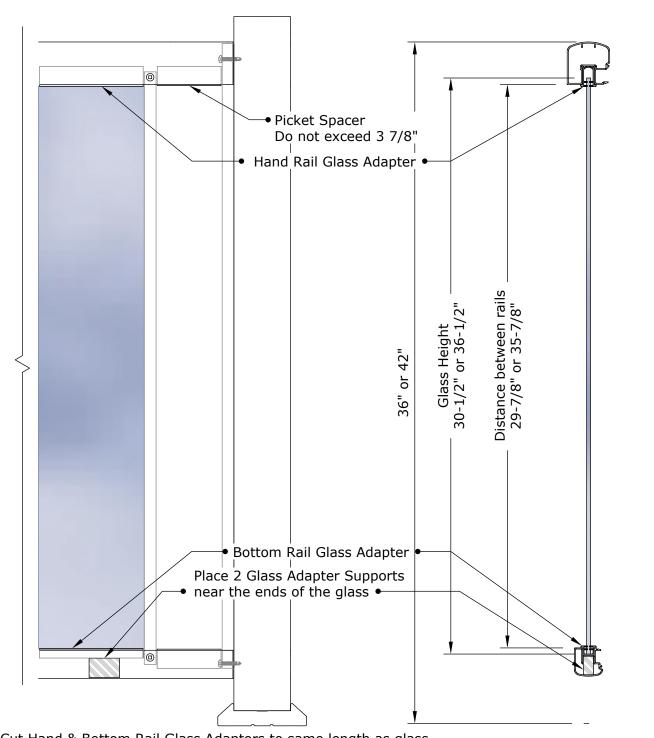




Title: Railing Installation w Starter Picket

Desc: Pickets

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Drawn By:	N/A
Page No.:	8
Revision:	5



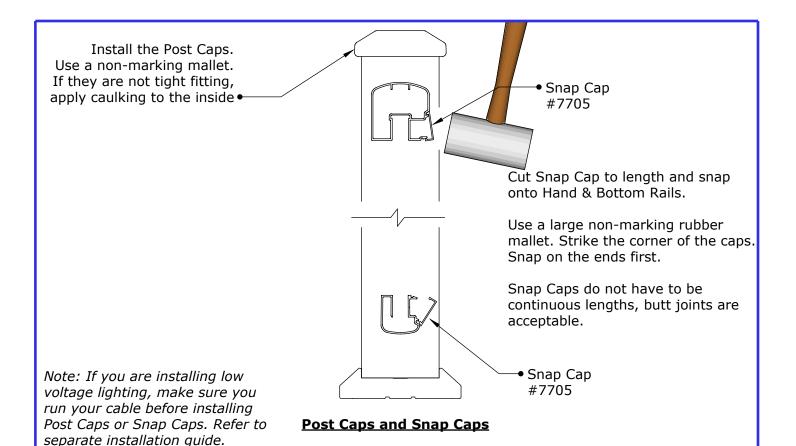
- 1) Cut Hand & Bottom Rail Glass Adaptors to same length as glass.
- 2) Snap them into the Hand & Bottom Rails.
- 3) Insert the pickets that will protect the edge of the glass and leave them loose against the posts.
- 4) Lift the glass into the Hand Rail Glass Adaptor and Lower into the Bottom Rail Glass Adaptor.
- 5) Check that the glass is centered.
- 6) Slide the pickets against the glass and fasten with #12 screws provided (pre-drill with 5/32").
- 7) Trim Picket Spacers and snap into place.



Title: Railing Installation w Starter Picket

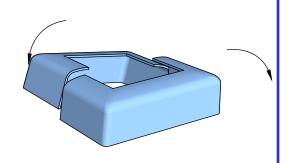
Desc: Glass

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	9
Revision:	5



• Drop Leg mating

Hold the 5½" covers about half an inch off the deck and connect the mating pins and holes, then drop onto the post base. Note the orientation, the covers have a drop leg that is held by the post base.



2¼" & 3" covers connect with a scissor action.

# Post base covers.



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Title: Railing Installation

w Starter Picket

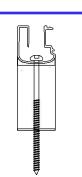
Desc: Caps, Covers & Wall

Bracket

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	10
Revision:	5

# **Bottom Rail Support:**

Supports are sent for glass openings where distance between posts is greater than 60". The support consists of a 5/8" x  $1\frac{1}{2}$ " aluminum tube with plastic inserts at the top & bottom. Trim the tube so the assembly fits snugly between the Bottom Rail and the floor. Drill a  $\frac{1}{4}$ " hole in the center of the Bottom Rail. Use the supplied #12 screw to go through the bottom rail, tube and floor flange, as shown.



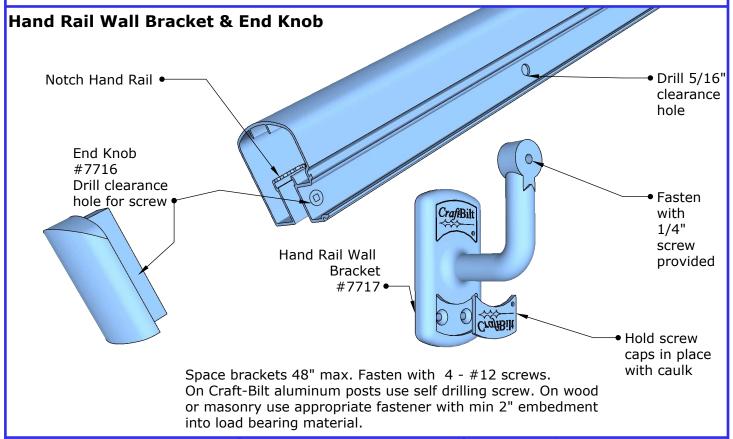
# **Hand Rail Splicer:**

If you are using Cross Over posts, the Hand Rail will be a continuous length between the End Posts. If the distance between the End Posts is longer than the Hand Rail stock supplied, a splice is required. The Hand Rail must be cut so that the splice occurs within 6" to 18" of a Crossover Post



If you are also using Cross Over post as End Posts you will be using our welded Hand Rail Corners. Two Hand Rail Splicers are required for each Welded Corner.



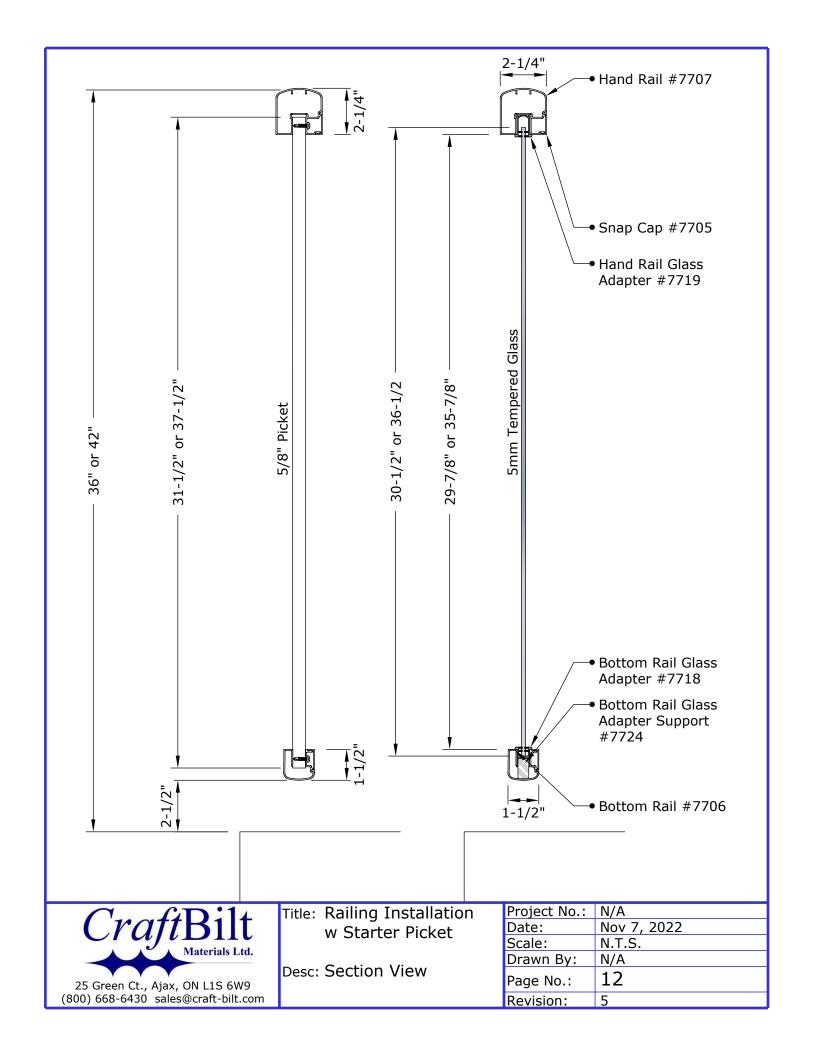


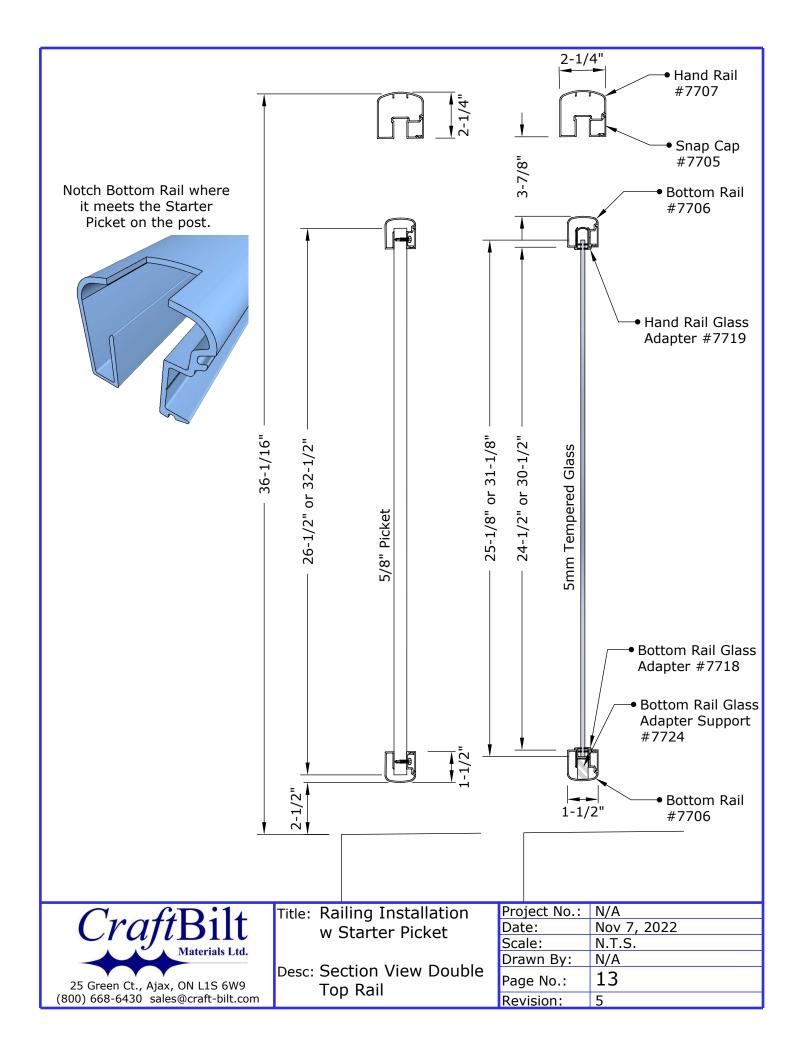


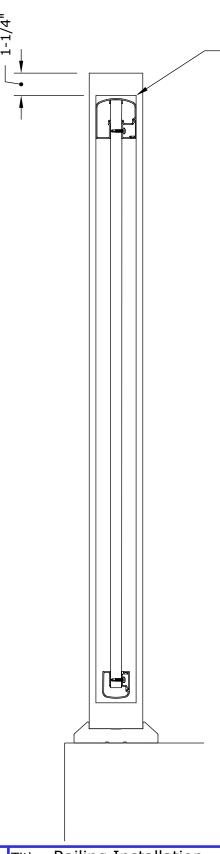
Title: Railing Installation w Starter Picket

Desc: Miscellaneous

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	11
Revision:	5







• 22.5 Degree Adapter Part No 7781-02

Sold in pairs. Fasten to post with 4 - #10 screws (provided)

Make sure painted end is facing up.

Adapter is 40" long. Mount 1¼" from tip of post (not incl post cap). It will extend past the hand and bottom rails by approx. ¼"

For 36" high railing, trim 6" from the adapters



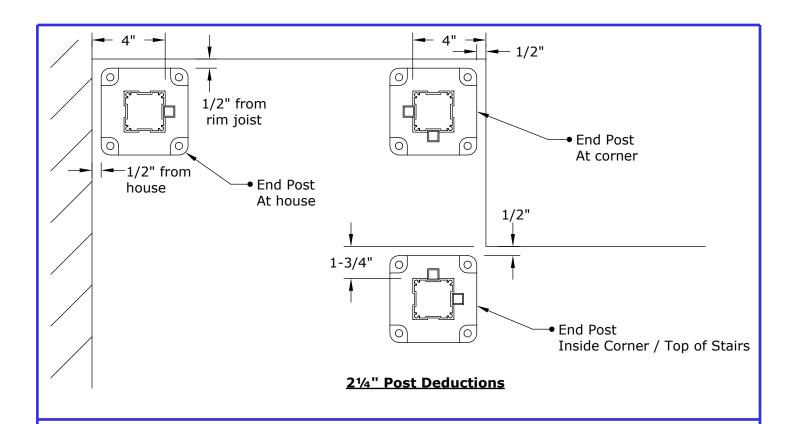
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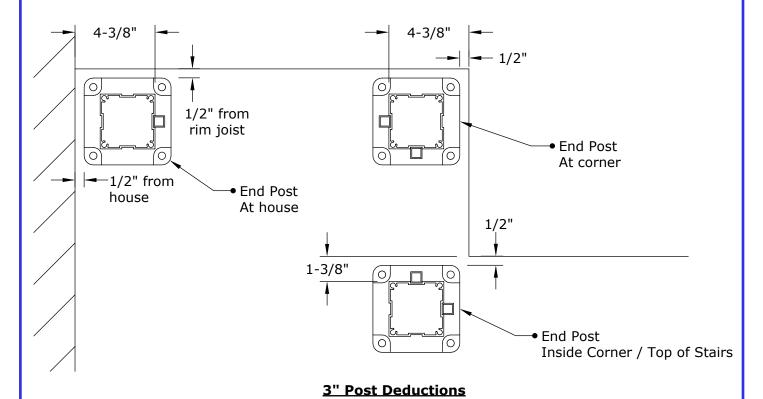
Title: Railing Installation w Starter Picket

Desc: Section View Angled

Post

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	14
Revision:	5



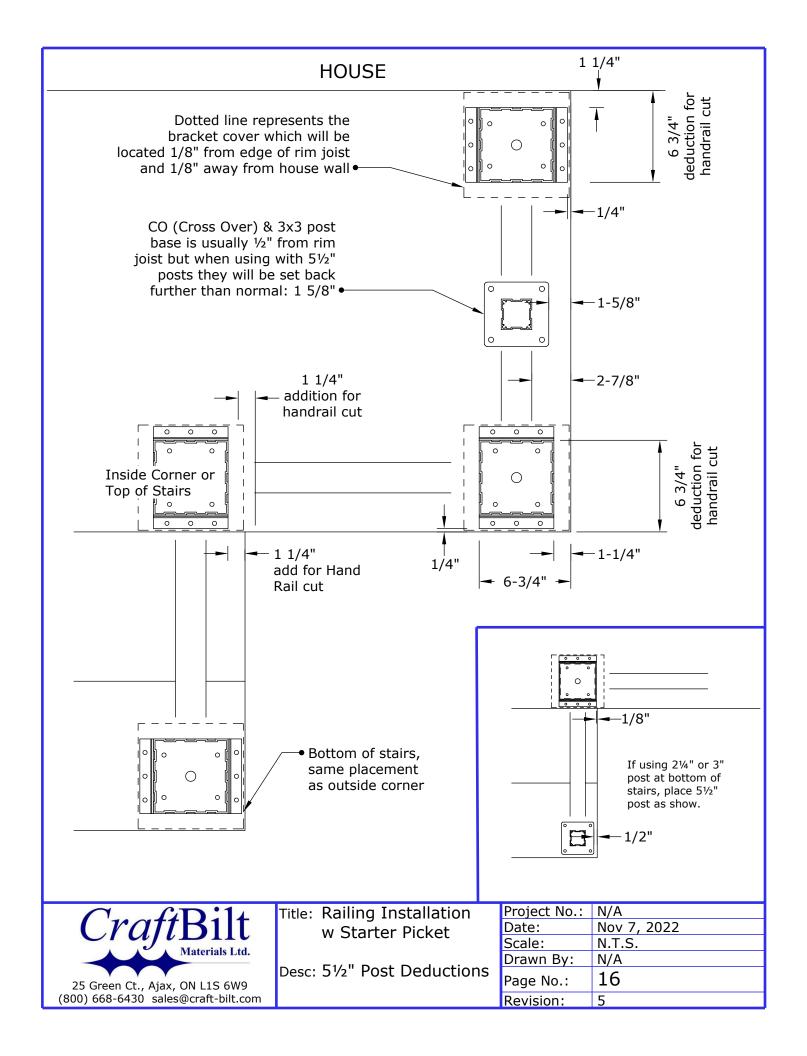


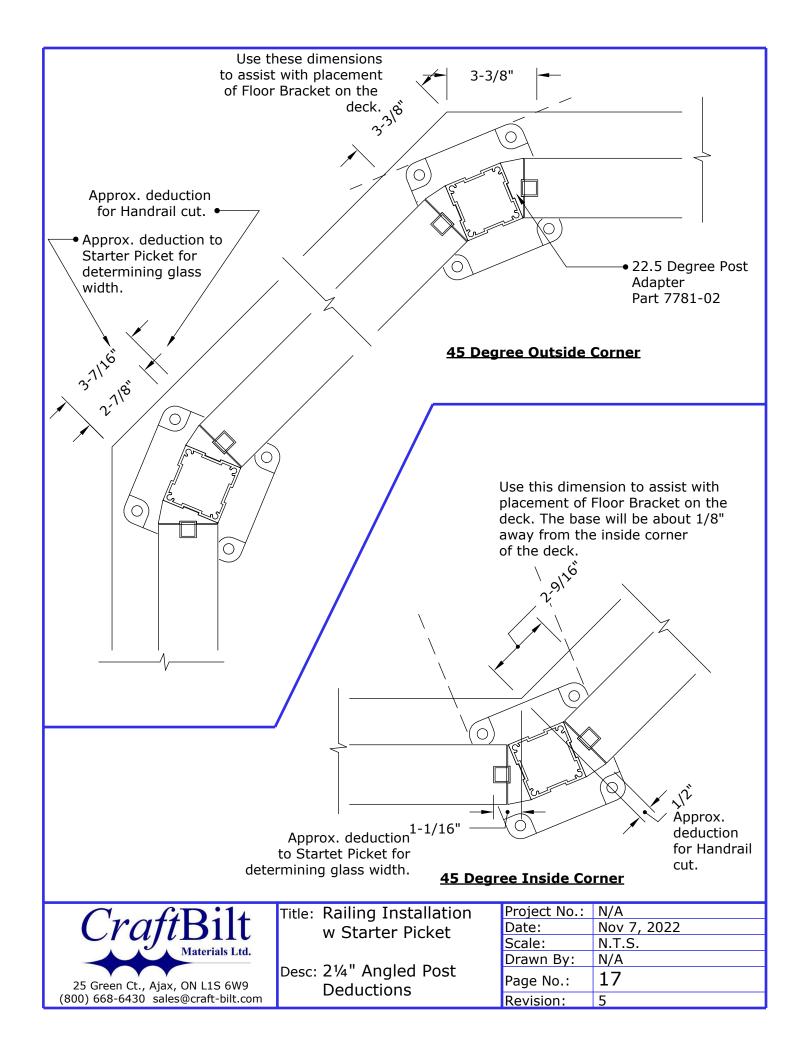


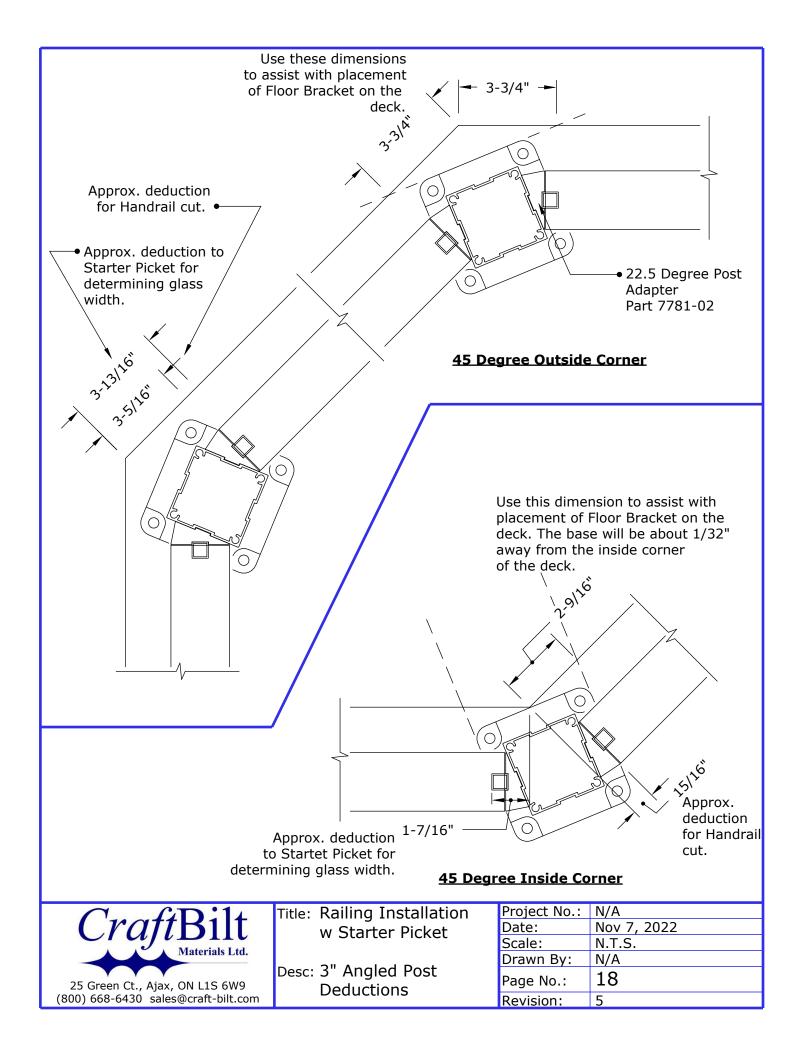
Title: Railing Installation w Starter Picket

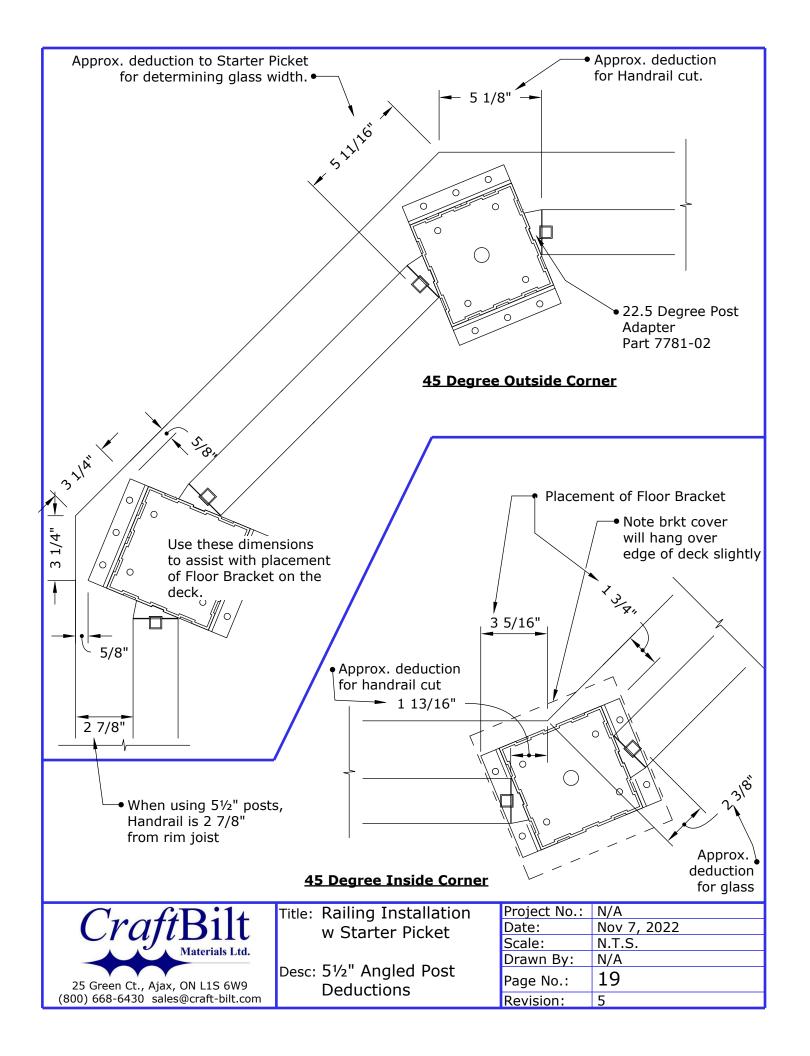
Desc: 2¼" & 3" Post Deductions

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	15
Revision:	5

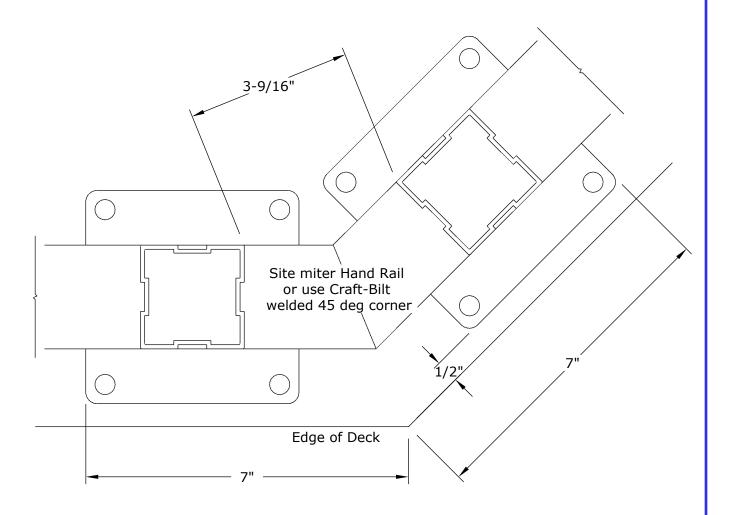








If you are using Cross Over posts as End Posts, you can handle a 45 degree corner with 2 posts. When placed as shown, no Bottom Rail or Pickets are required since the space between the posts is less than 4"



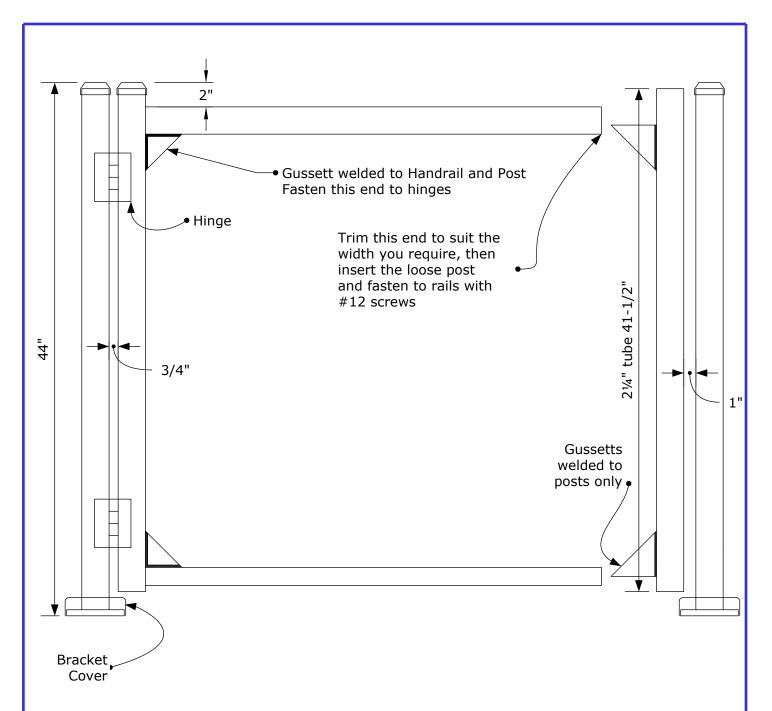


Title: Railing Installation w Starter Picket

Desc: 2¼" Angled CO Post

Deductions

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	20
Revision:	5



- Hand and Bottom rails are approx. 47" long. They are only welded on one side which allows them to be trimmed to desired width.
- After trimming the rails and attaching the loose post, install the Pickets and Spacers. Then mount the gate.
- Make sure welded gussets are on the same side as the hinges.
- Depending on which way the gate is swinging, the Snap Cap may be facing the outside.
- Dimensions shown are for 42" railing, for 36" railing deduct 6".

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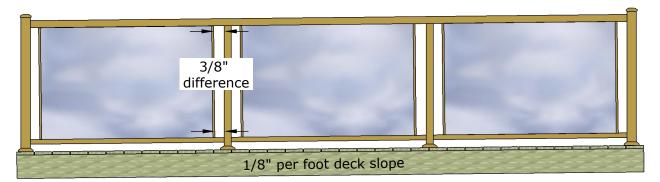
Title: Railing Installation w Starter Picket

w Starter Picket

Desc: Gate

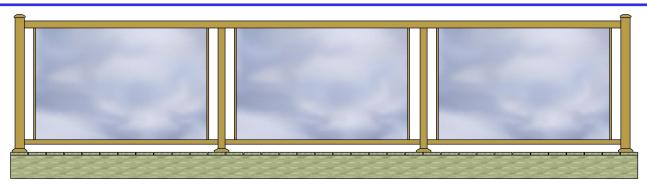
Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	21
Revision:	5

If your deck has a slope the glass on the sides of your deck will not be parallel to the posts.

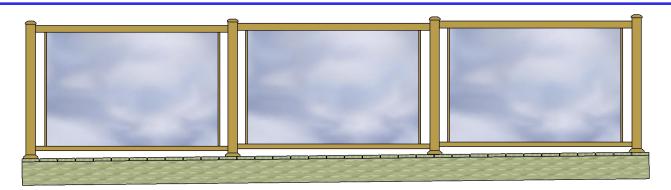


The posts are always installed plumb, but the rails will be parallel to the deck. Based on a typical deck slope of 1/8" per foot and a glass height of 3', that means the glass will be off plumb by 3/8". This is visually acceptable. If your deck is sloped more than 1/8" per foot, you might consider one of the options below.

# **Typical Sloped Deck**



### **Level Your Deck**



**Use End Posts Between The Glass, with Cascading Hand & Bottom Rails** 

Another way to eliminate this is to install glass on the front of your deck (which should be level) and install pickets on the sides.



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Title: Railing Installation

w Starter Picket

Desc: Glass On Sloped

Decks

Project No.:	N/A
Date:	Nov 7, 2022
Scale:	N.T.S.
Drawn By:	N/A
Page No.:	22
Revision:	5

