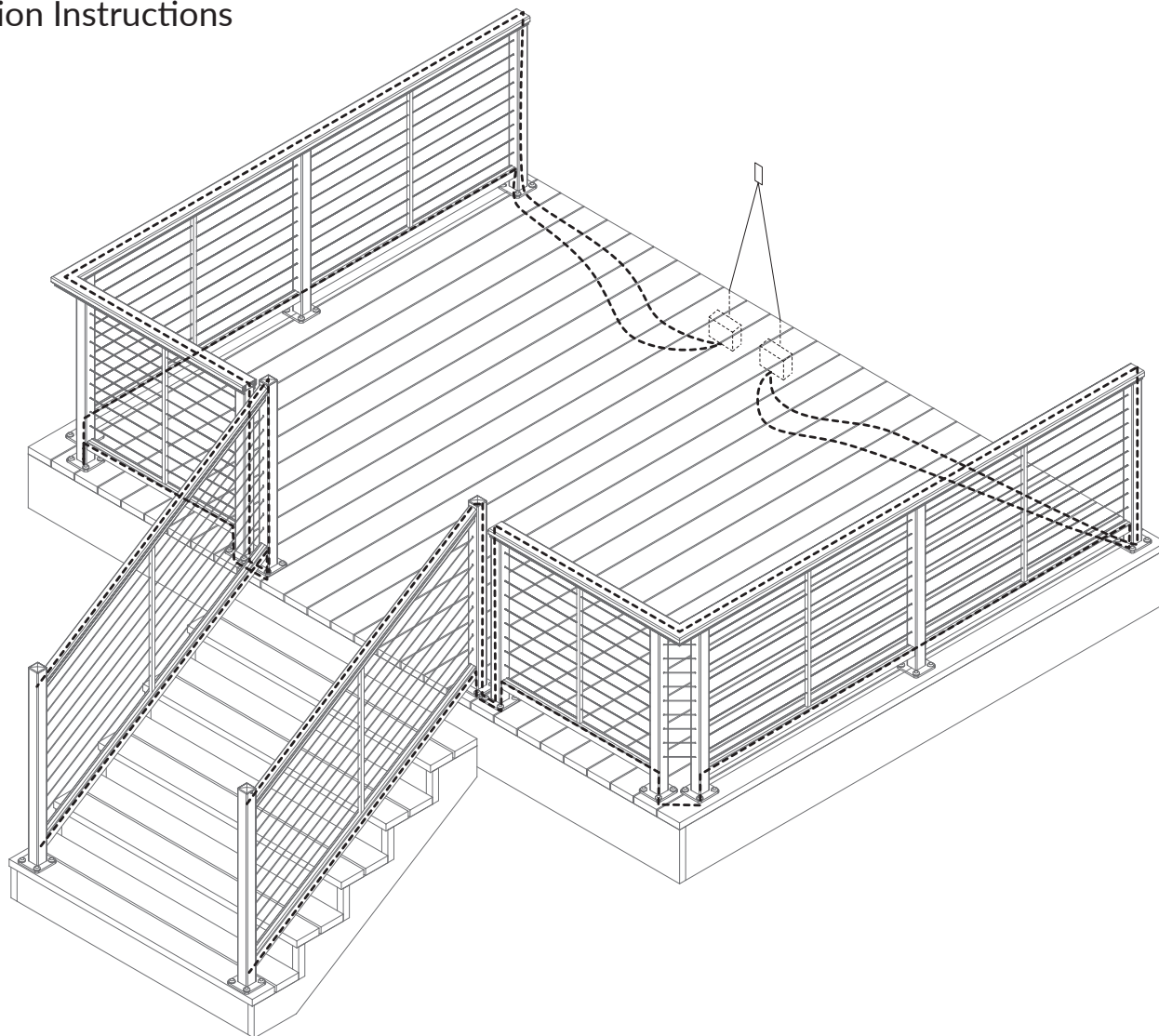


DesignRail® 24V LED Lighting (v2)

Installation Instructions



General Notes:

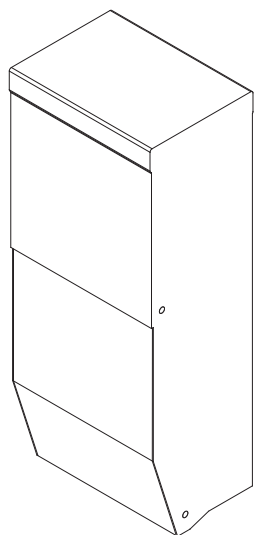
Drivers are available in a variety of wattages. In general a driver should not exceed more than 80% of its rated output capacity. (Example: 60W Driver = $60 \times 0.8 = 48\text{W Max}$).

Strip Lights require 1.44 watts per foot. After determining the necessary length of strip lighting, calculate the wattage and ensure the driver being used has adequate capacity (example: $10' = 10 \times 1.44 = 14.4\text{W}$). The maximum length of strip lighting that can be connected in one run is 55 feet.

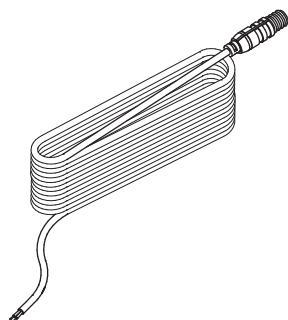
Building codes vary by location and jurisdiction. Consult all applicable codes before installing DesignRail® LED Lighting. DesignRail® LED Lighting may not be suitable for every application and it is the sole responsibility of the installer to ensure that DesignRail® LED Lighting is used for its intended purpose.

WARNING: ELECTRIC SHOCK IS ALWAYS POSSIBLE WHEN WORKING WITH ELECTRICITY. THIS CAN CAUSE SERIOUS PERSONAL INJURIES OR DEATH. ELECTRICAL SHORTS CAN ALSO CAUSE FIRES AND PROPERTY DAMAGE. ALWAYS MAKE SURE THE ELECTRICAL OUTLET YOU ARE PLUGGING INTO IS GROUNDED.

LED Lighting - Driver Kits



24V MAGNETIC DIMMABLE DRIVER
(SKU #LED : 40W, LED : 60W, LED : 96W)



LED STARTER CABLE (20')
(SKU #LED : STC)



ISOLATION BUSHING
(SKU #1114)



WIRE NUTS (PAIR)
(SKU #7670)

KIT CONTENTS

40W Driver Kit

(SKU #LED : 40W-DK)
1x 40 Watt Dimmable Driver
1x Starter Cable (20')
1x Wire Nuts (Pair)
1x Isolation Bushing

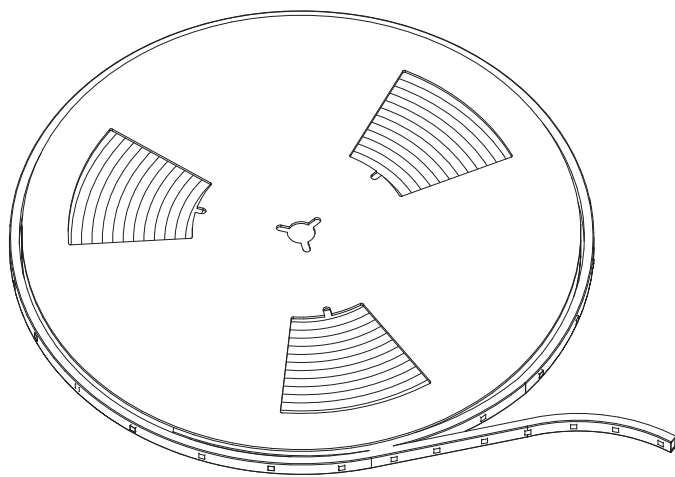
60W Driver Kit

(SKU #LED : 60W-DK)
1x 60 Watt Dimmable Driver
1x Starter Cable (20')
1x Wire Nuts (Pair)
1x Isolation Bushing

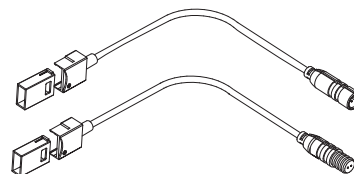
96W Driver Kit

(SKU #LED : 96W-DK)
1x 96 Watt Dimmable Driver
1x Starter Cable (20')
1x Wire Nuts (Pair)
1x Isolation Bushing

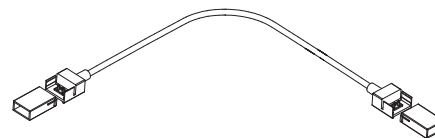
LED Lighting - Components



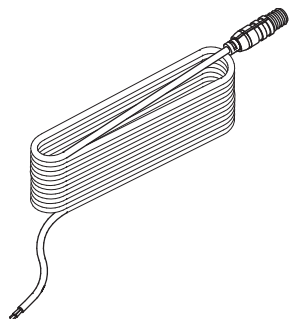
LED Light Strip
(SKU #LED : 05 to LED : 55)



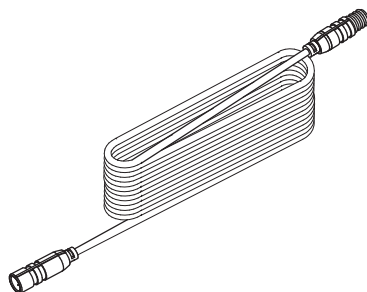
LED CONNECTOR PAIR (includes tube of silicone)
(SKU #LED : CONN)



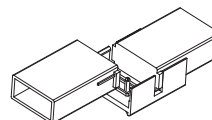
LED CRIMP CONNECTOR (8")
(SKU #LED : CC8)



LED STARTER CABLE (20')
(SKU #LED : STC)



LED EXTENSION CABLE (132')
(SKU #LED : EXT132)



LED SPLICE CONNECTOR (5-pack)
(SKU #LED : SPL)



LED END CAP (5-pack)
(SKU #LED : EC)

Step 1 - Install Drivers

Step 1A – Connect Source Power to Driver

IMPORTANT SAFETY NOTE: TO REDUCE RISK OF ELECTRICAL SHOCK, TURN OFF AC CIRCUIT BREAKER PRIOR TO COMMENCING ANY ELECTRICAL WORK AND CONNECTING DRIVER(S) TO AC POWER SOURCE. VERIFY THAT LIVE POWER IS NOT PRESENT AT JUNCTION BOX WHEN MAKING CONNECTIONS.

Determine location of driver.

Note: It is best to locate the drivers as close as possible to the lighting to reduce the possibility of voltage drop occurring. If possible, the driver should be within 15 feet of the post that will accept the 20' starter cable.

Route exterior rated wiring from compatible dimmer switch/AC power source to location of driver.

Connect drivers to dimmer switch/AC power source.

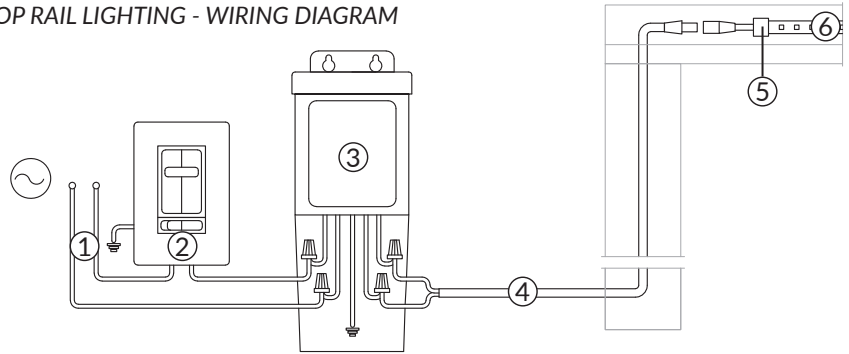
Connect 20' starter cable and route from driver to post using supplied wire nuts.

LIGHTING COMPONENTS:

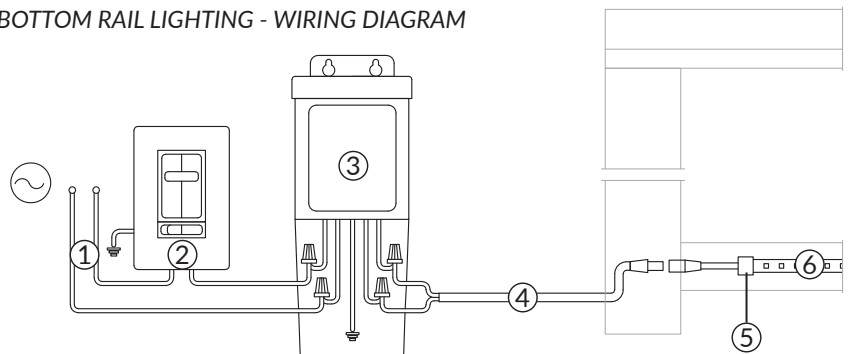
- ① Power (by customer)
- ② Light Switch (by customer) ¹
- ③ 24v Dimmable Driver ²
- ④ LED Starter Cable (20')
- ⑤ LED Connector Pair (Female Connector)
- ⑥ LED Light Strip

1. Mount vertically only. See Switch Compatibility Spec Sheet at www.feeneyinc.com
2. See Driver Spec Sheet at www.feeneyinc.com

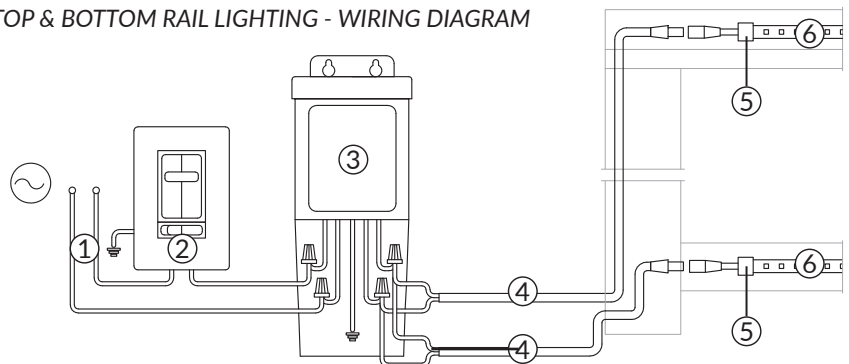
TOP RAIL LIGHTING - WIRING DIAGRAM



BOTTOM RAIL LIGHTING - WIRING DIAGRAM



TOP & BOTTOM RAIL LIGHTING - WIRING DIAGRAM



Note: If using both top and bottom rail lighting, run each with their own starter cable attached to the driver.

Alternatively, a separate driver may be supplied for top and bottom rail lighting, allowing for independent control of each circuit.

Step 1B - Drill Posts and Route Starter Cable

Determine the post that will act as the starting post, this will likely be designated on the lighting layout schematic received with the order. Installing the starter cable through the post is easiest when done prior to mounting the post.

Determine the location that the starter cable will enter the starting post.

Note: Depending on the post mounting method, and driver location relative to the post, the starter cable entrance point may vary. (See Figure 1.2 for typical recommendations)

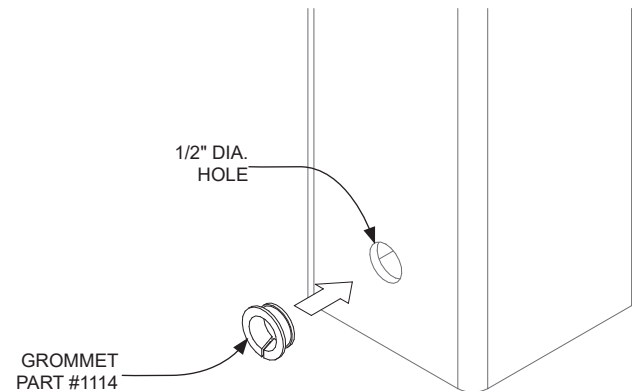


Figure 1.1

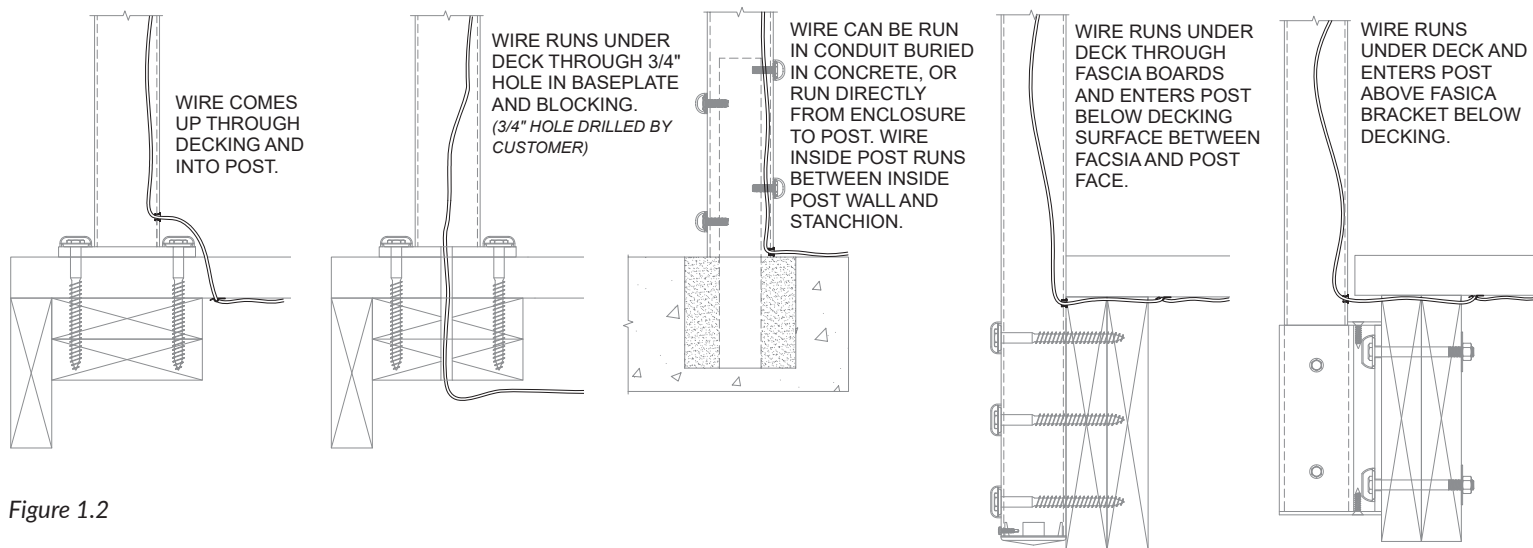


Figure 1.2

For systems with lighting installed into Series 200, 300, 350, or 450 top rail:

Fish the connector for the starter cable through the post and out of the top, and attach LED Connector (Female) to Starter Cable. (See Figure 1.3).

IMPORTANT NOTE: Maintaining the polarity at all connection points is critical. Constant alignment verification of the of the positive and negative signs will guarantee less problems and rework.

Use masking tape to temporarily secure starter cable to outside of post to prevent retracting back into post.

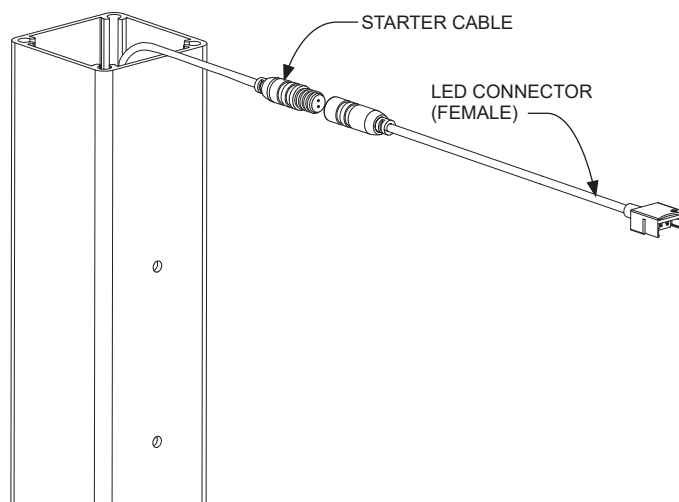
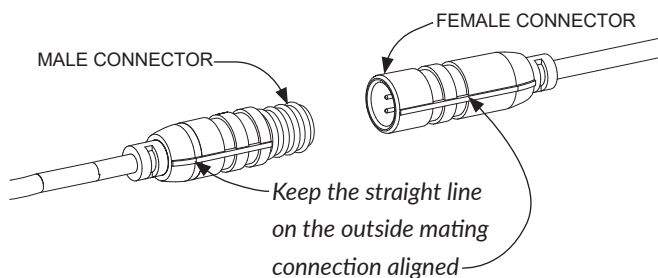


Figure 1.3

Step 1B - Continued

For systems with lighting installed into Series 150 top rail: Drill an 11/16" diameter hole vertically centered between the factory pre-drilled top rail RCB holes. This will allow the light strip and connector to pass through the RCB hollow (See Figure 1.4). Repeat this step for each post which will have light strips running through it. For stair posts, pre-drill top rail RCB holes as needed, and then pre-drill 11/16" diameter hole.

Pull starter cable out through drilled hole between RCB holes, and attach LED Connector (Female) to Starter Cable (See Figure 1.5).

IMPORTANT NOTE: Maintaining the polarity at all connection points is critical. Constant alignment verification of the of the positive and negative signs will guarantee less problems and rework.

Use masking tape to temporarily secure starter cable to outside of post to prevent retracting back into post.

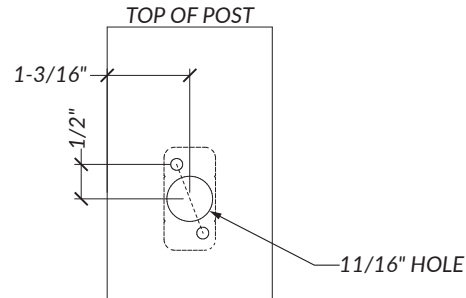


Figure 1.4

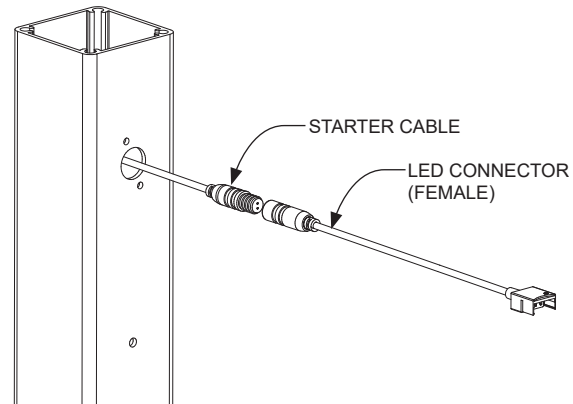
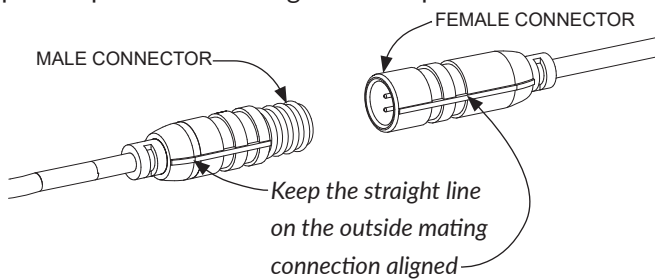


Figure 1.5



For systems with lighting installed into Bottom Rail: Drill an 11/16" dia. hole, at 9/16" below and centered between the bottom rail RCB holes (See Figure 1.6). Repeat this step for each post which will have light strips running through it. For stair posts, pre-drill bottom rail RCB holes as needed, and then pre-drill 11/16" diameter hole.

Pull starter cable out through drilled hole between RCB holes, and attach LED Connector (Female) to Starter Cable (See Figure 1.7).

IMPORTANT NOTE: Maintaining the polarity at all connection points is critical. Constant alignment verification of the of the positive and negative signs will guarantee less problems and rework.

Use masking tape to temporarily secure starter cable to outside of post to prevent retracting back into post.

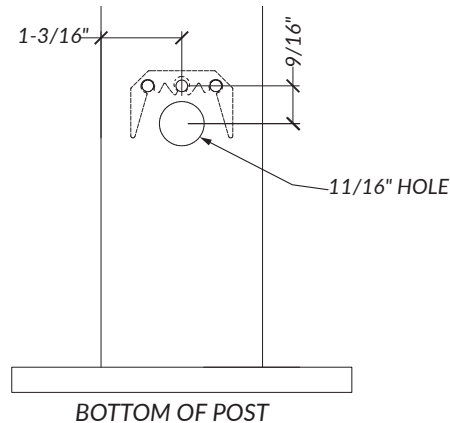


Figure 1.6

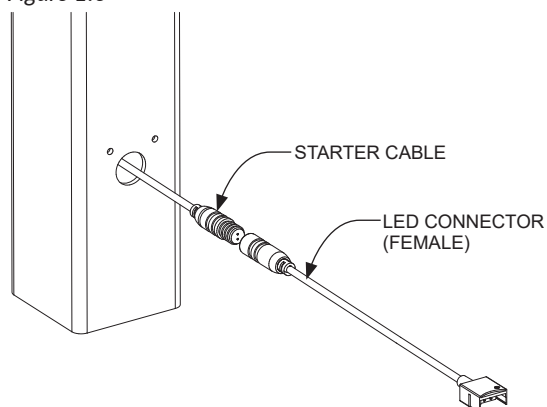
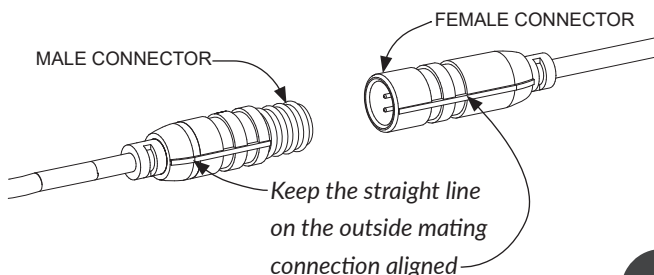


Figure 1.7



Step 2 - Prepare Railing Frame

Following driver installation, and after routing the starter cable, install all posts and top rail per DesignRail Installation Instructions.

For systems with lighting installed into Series 200, 300, 350, or 450 top rail:

Attach 3/4" wide piece of standard infill to top of intermediate pickets using #10 x 3/4" screw (See Figure 2.1).

Follow standard DesignRail installation instructions for attaching bottom rail, or picket base plate, and install picket sub-assembly panels.

Measure the opening between the picket and post face on each side of the picket (See Figure 2.2). These dimensions should be equal. Cut top rail insert for lighting, to fit on each side of the picket.

Install top rail insert on each side of picket. Avoid pinching starter cable by starting insert at a slight angle and rotating up and snapping into top rail (See Figure 2.3).

Secure intermediate picket to top rail using (2x) #8 x 1" self-tapping screws (See Figure 2.4).

For systems with lighting installed into Series 150 top rail:

Intermediate picket can be directly attached to flange of built-in channel. Light strips will install directly into top rail, without an additional insert

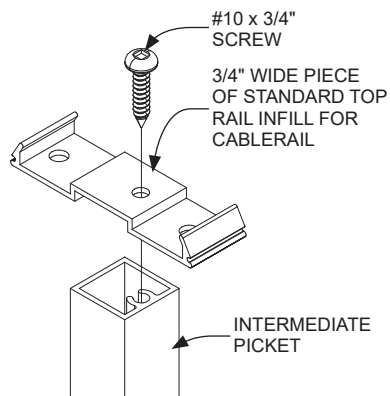


Figure 2.1

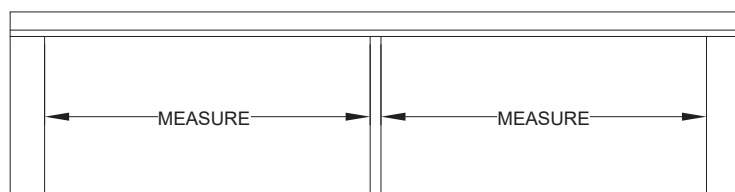


Figure 2.2

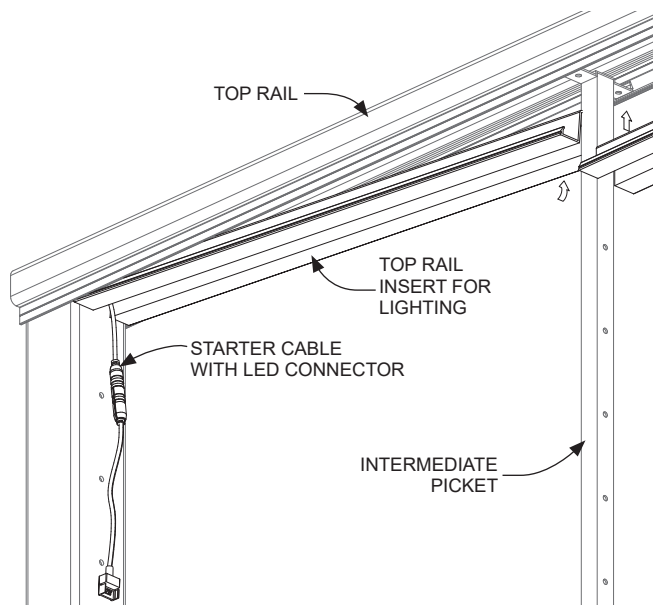


Figure 2.3

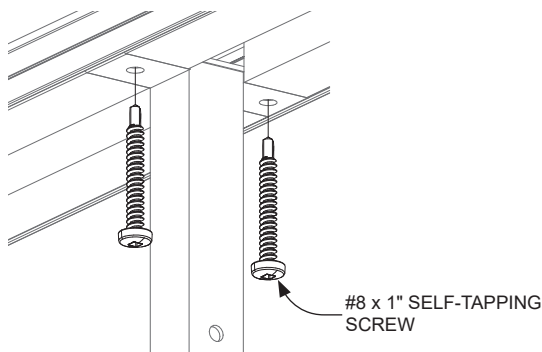


Figure 2.4

Step 2 - Continued

For systems with lighting installed into Bottom Rail:

Measure opening between the post faces beneath the bottom rail (See Figure 2.5).

Cut channeled bottom rail insert to fit between posts.

Trim channel portion of insert at both ends to clear RCBs. This can be done by cutting the 'top' of the channel to a point just above the flanges, then 'snipping' the sides to remove (See Figure 2.6).

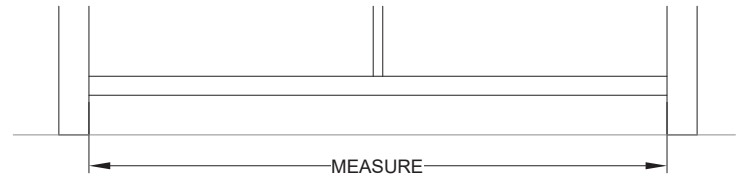


Figure 2.5

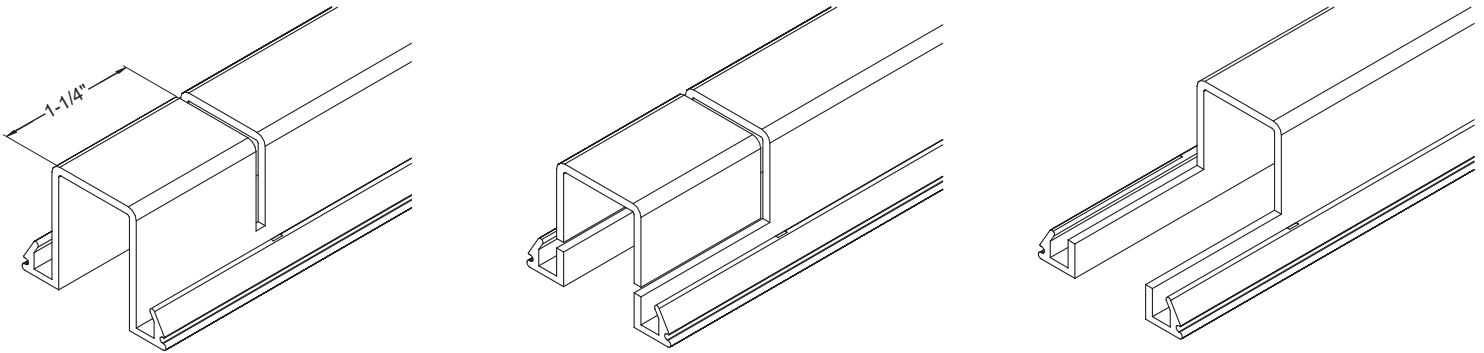


Figure 2.6

Install bottom rail insert between posts (See Figure 2.7).

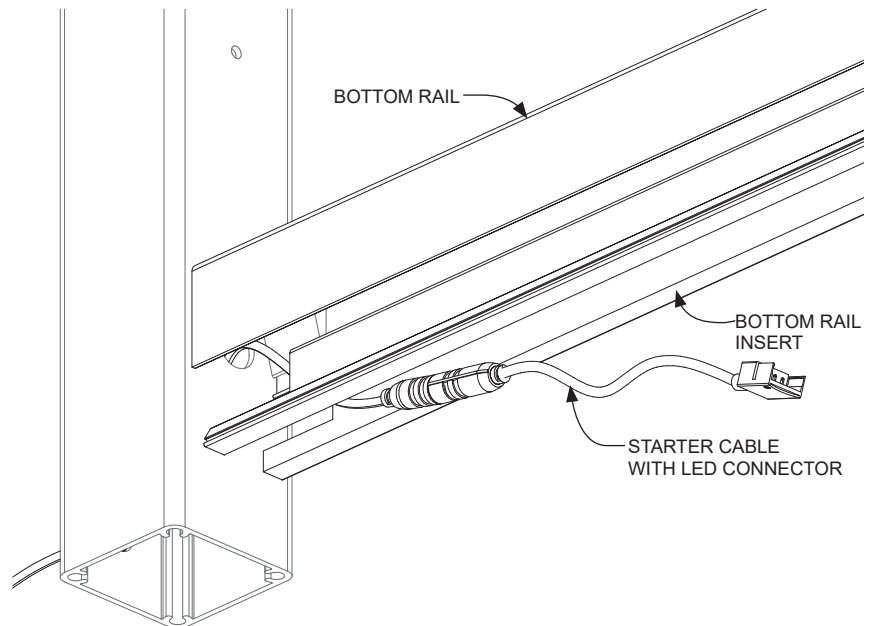


Figure 2.7

Step 3 - Install Light Strips

Measure length of strip light needed for run (face of post to face of post). Reference lighting layout for approximate light strip lengths.

Cut light strip to length at nearest cut mark. Cut marks are located approx. every 4-inches. Using scissors cut between the 4 copper dots (See Figure 3.1).

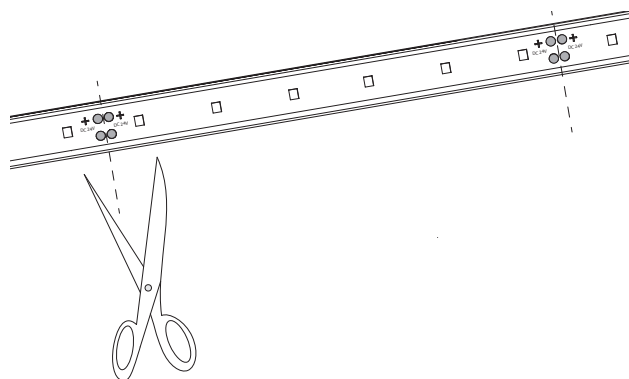


Figure 3.1

Determine which end of light strip will be used at starting post, by lining up the positive symbol on the light strip with the positive symbol on the LED Connector. Be sure to account for the back of the light strip (the side with the tape) needing to face upwards. The light strip may need to be flipped end for end in order to avoid twisting when properly oriented (See Figure 3.2).

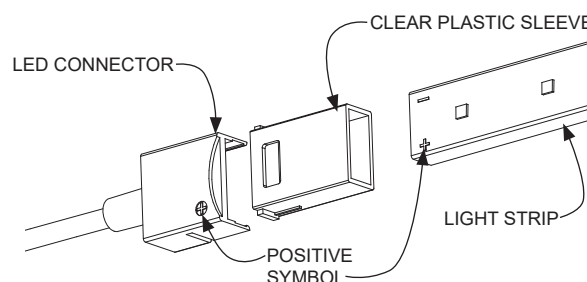


Figure 3.2

Roll back the adhesive tape at the end of the light strip just enough so that it is out of the way of where the connector will be placed. Use the provided silicone and affix the clear plastic sleeve to the end of the light strip, make sure window opening is oriented so that the copper dots are aligned in opening (See Figure 3.3). The end of the light strip is now ready to be snapped into the connector.

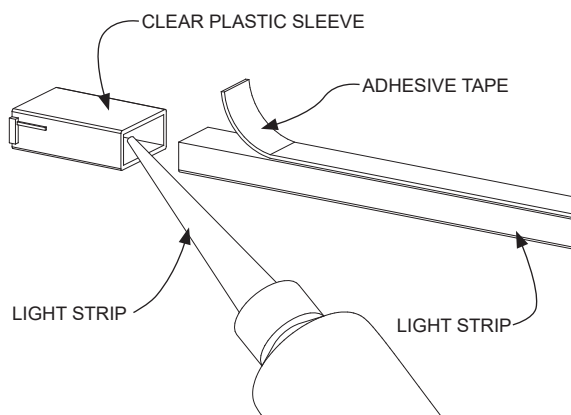


Figure 3.3

Snap the light strip onto the starter cable LED connector assembly by firmly pressing the clear plastic sleeve into the connector. The prongs of the LED connector will enter in through the opening in the clear plastic sleeve and pierce the light strip, contacting the copper dots (See Figure 3.4).

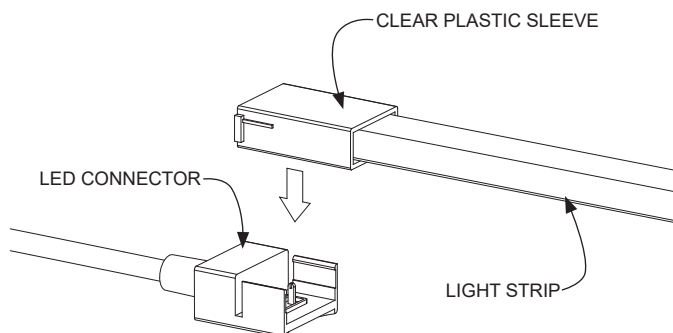


Figure 3.4

Step 3 - Continued

Peel back the adhesive tape protective layer about 6 to 12 inches, enough to begin sticking the light strip to the underside of the channel.

Stuff starter cable and connector back into post, so that light strip starts as close to the face of the post as possible. Push the light strip up and hold with firm pressure, allowing the adhesive to bond to the aluminum (*See Figure 3.5*). Continue peeling back the adhesive tape protective layer and adhering the light strip to the railing a few feet at a time.

For systems with lighting installed into Series 200, 300, 350, or 450 top rail:

Continue the entire light strip along the length of the top rail, passing the light strip over the top of the posts and pickets.

For systems with lighting installed into Series 150 top rail:

Continue the entire light strip along the length of the top rail, passing the light strip over the intermediate pickets, through the pre-drilled holes and RCBs in the channel of the Series 150 top rail.

For systems with lighting installed into Bottom Rail:

Continue the entire light strip along the length of the bottom rail, passing the light strip through the pre-drilled holes and RCBs in the channel of the bottom rail insert (*See Figure 3.6*).

Corner post conditions and newel post stair transitions may require additional connectors. See following details for specific installation condition solutions.

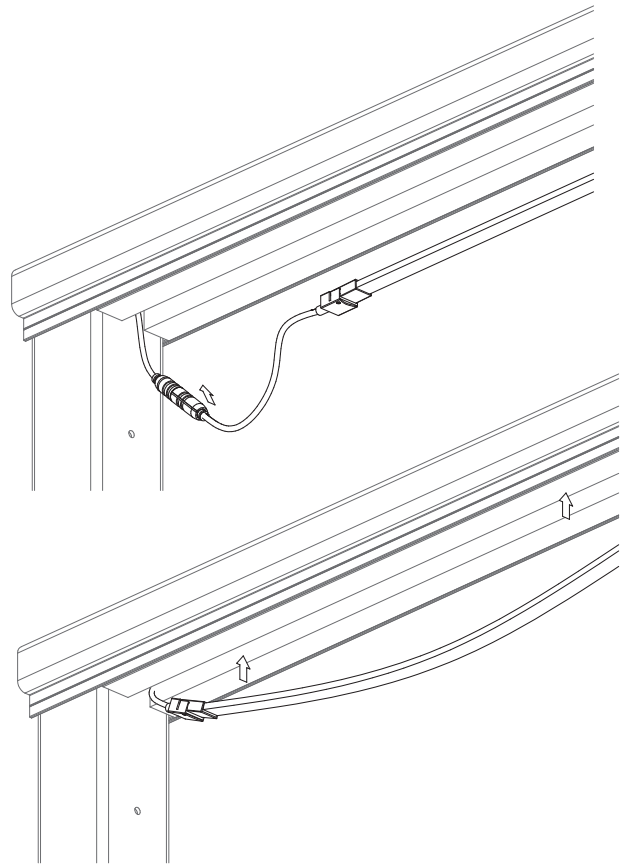


Figure 3.5

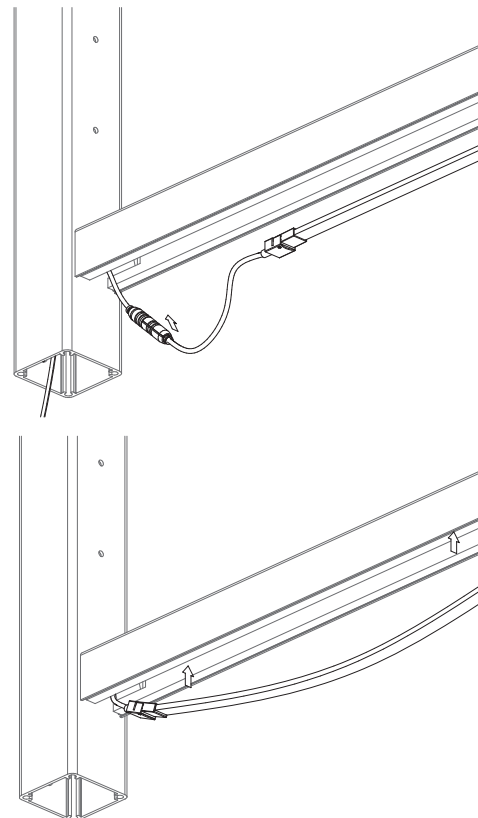
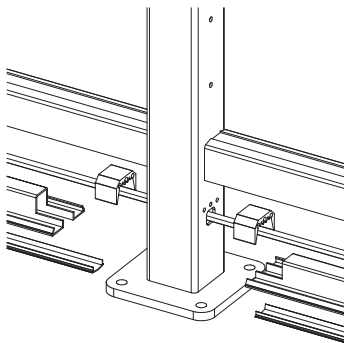
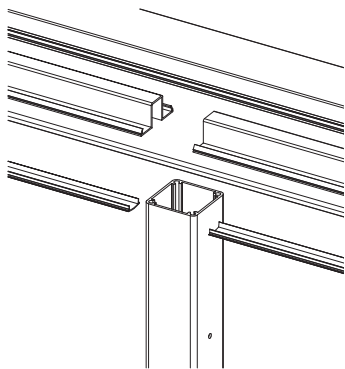
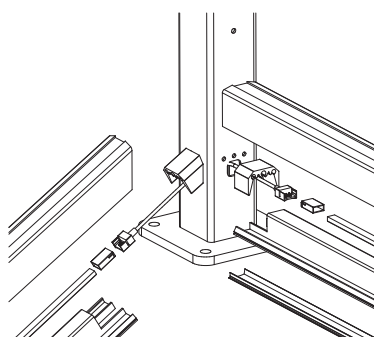
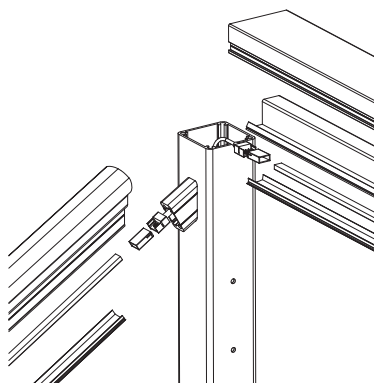


Figure 3.6

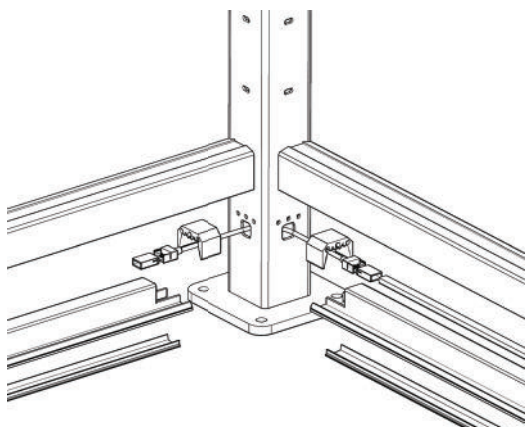
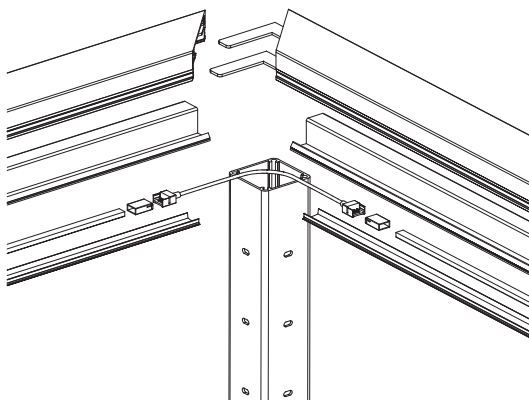
Lighting in Series 200, 300, 350 or 450 Top Rail and Bottom Rail Details



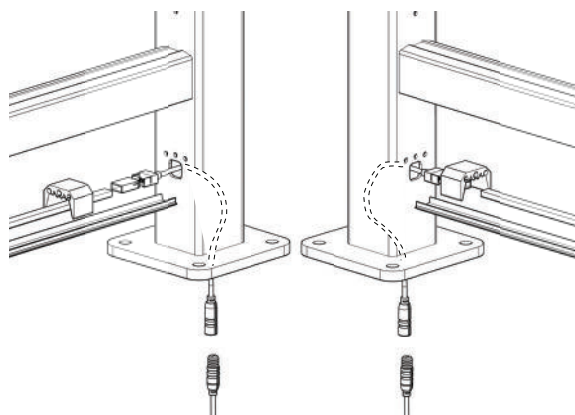
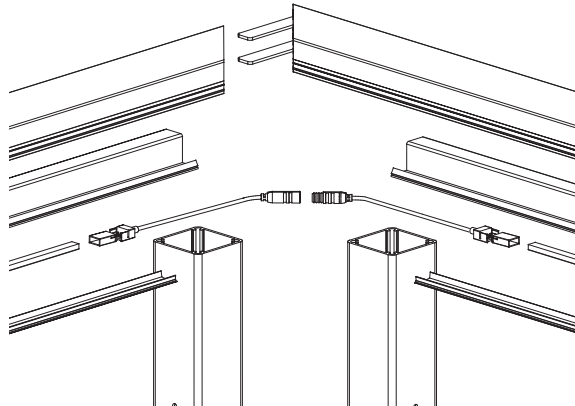
Intermediate Post with Series 200, 300, 350 or 450 top rail and bottom rail



Stair Newel Post with Series 200, 300, 350, 450 top rail and bottom rail on level and Series 150 and bottom rail on stairs

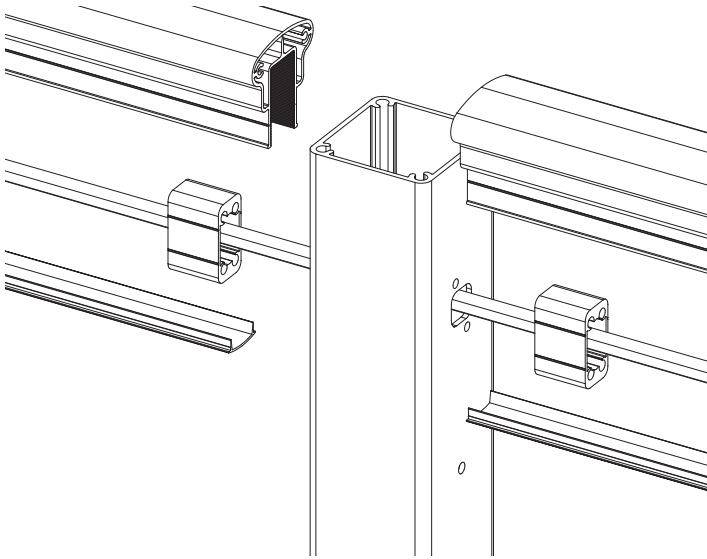


Single Corner Post with Series 200, 300, 350, 450 top rail and bottom rail

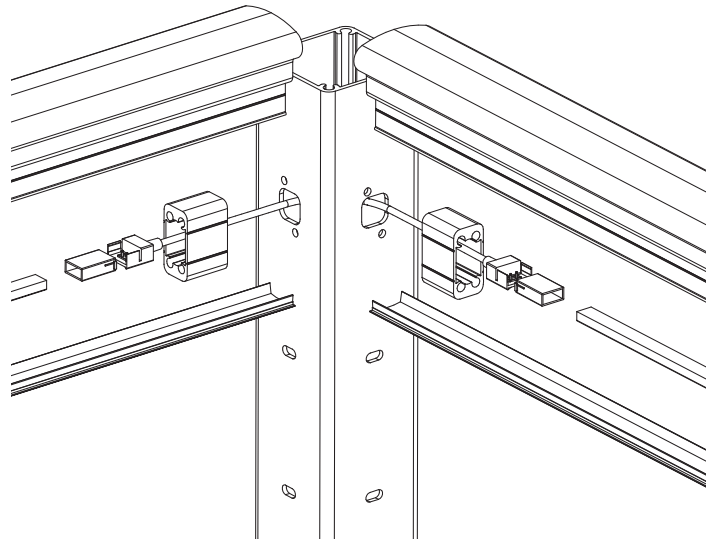


Double Corner Post with Series 200, 300, 350, 450 top rail and bottom rail

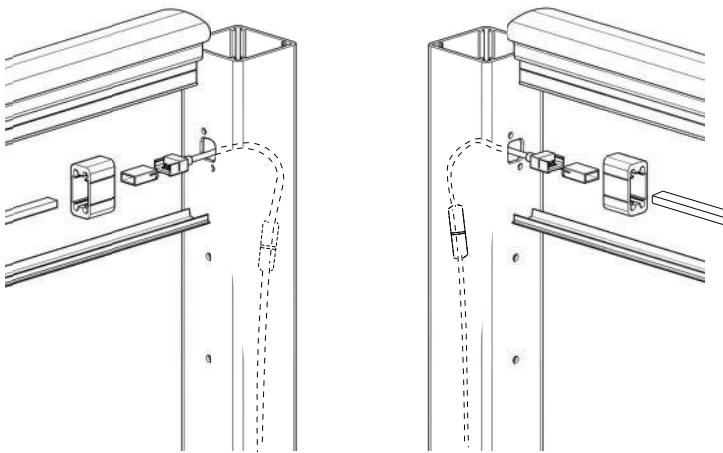
Lighting in Series 150 Top Rail Details



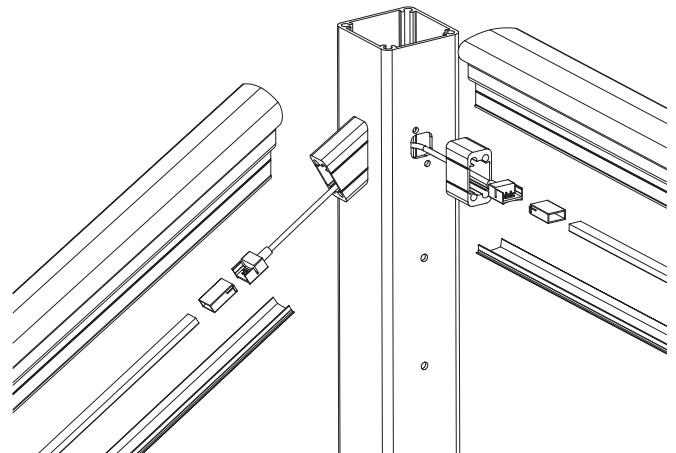
Intermediate Post with series 150 top rail



Single Corner Post with Series 150 top rail



Double Corner Posts with Series 150 top rail



Stair Newel Post with Series 150 top rail

At the exposed termination end of the light strip, where no more connections will be made roll back the adhesive tape. Use the provided silicone and affix an end cap. (See Figure 3.4).

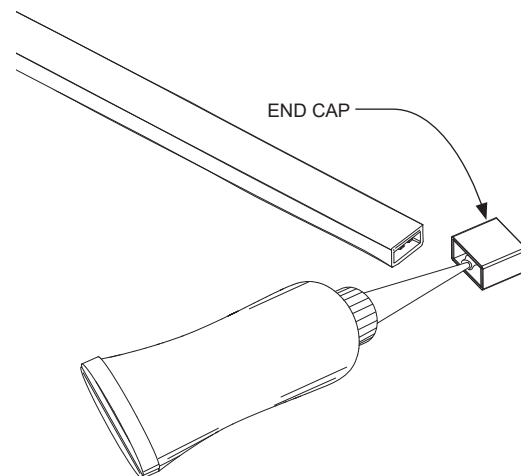


Figure 3.4

Step 4 - Install Diffuser Lens

For systems with lighting installed into Series 200, 300, 350, or 450 top rail:

Measure the opening between the picket and post face on each side of the picket (See Figure 4.1). These dimensions should be equal.

Cut diffuser lens to length to fit on each side of the picket, using a sharp utility knife, or heavy duty utility scissors/shears.

Insert diffuser lens into top rail insert, or top rail flanges, as shown. (See Figure 4.2).

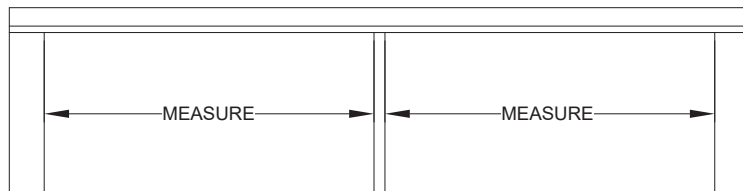


Figure 4.1

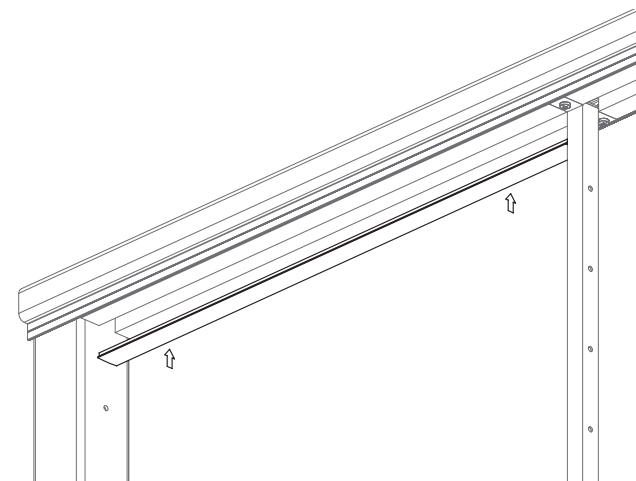


Figure 4.2

For systems with lighting installed into Series 150 top rail:

Follow the same instructions for measuring and cutting diffuser lens to length, as for other top rails (shown above).

Trim 1-1/4" of the 'tension flanges' at the end of the diffuser lens that will be under the top rail RCB. Trimming is best done with a small backsaw or sharp utility knife. This will keep the diffuser lens from interfering with the bottom of the RCB. (See Figure 4.3).

Insert diffuser lens into top rail insert, or top rail flanges, as shown. (See Figure 4.4).

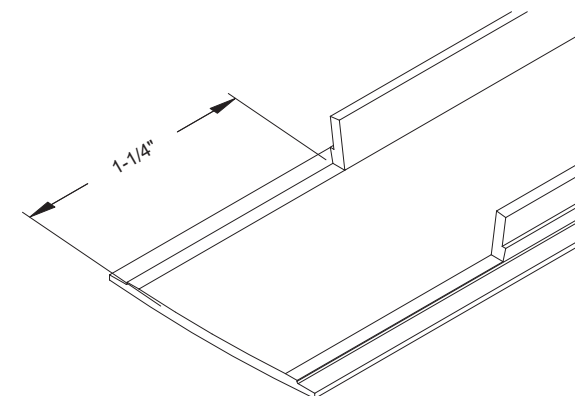


Figure 4.3

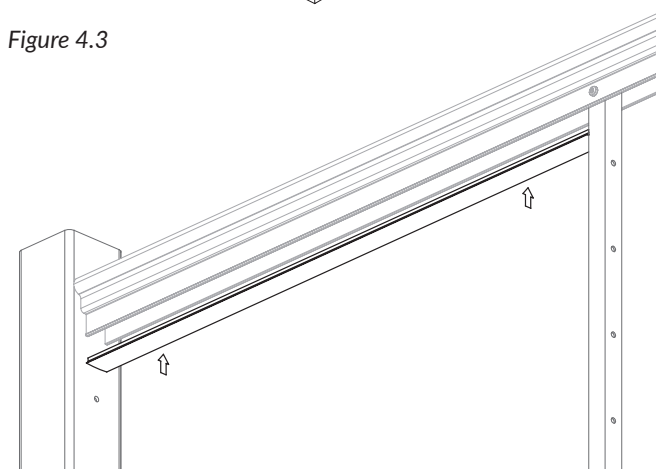


Figure 4.4

Step 4 - Continued

For systems with lighting installed into Bottom Rail:

Measure opening between the post faces beneath the bottom rail (See Figure 4.5).

Cut diffuser lens to length, using a sharp utility knife, or heavy duty utility scissors/shears.

Depending on the length of the bottom rail it may require more than one piece of diffuser lens to fill the entire length. In this case, insert the full 36" lens, then trim the second lens to fit the remainder of the opening.

Insert diffuser lens into bottom rail infill, as shown (See Figure 4.6).

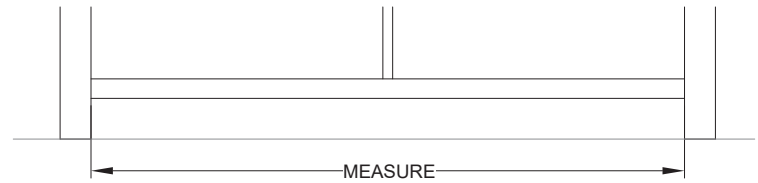


Figure 4.5

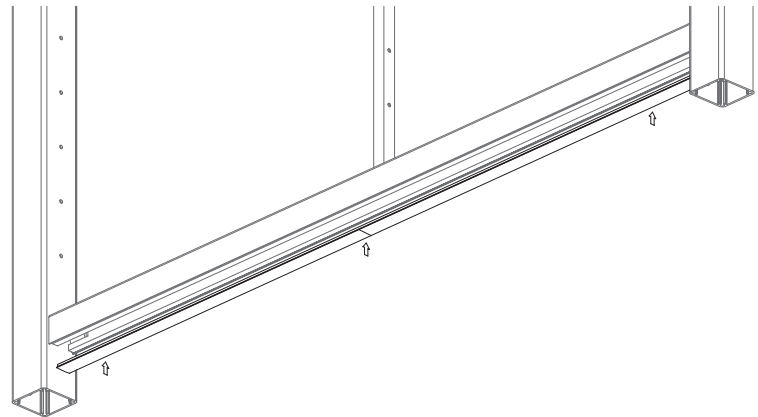


Figure 4.6

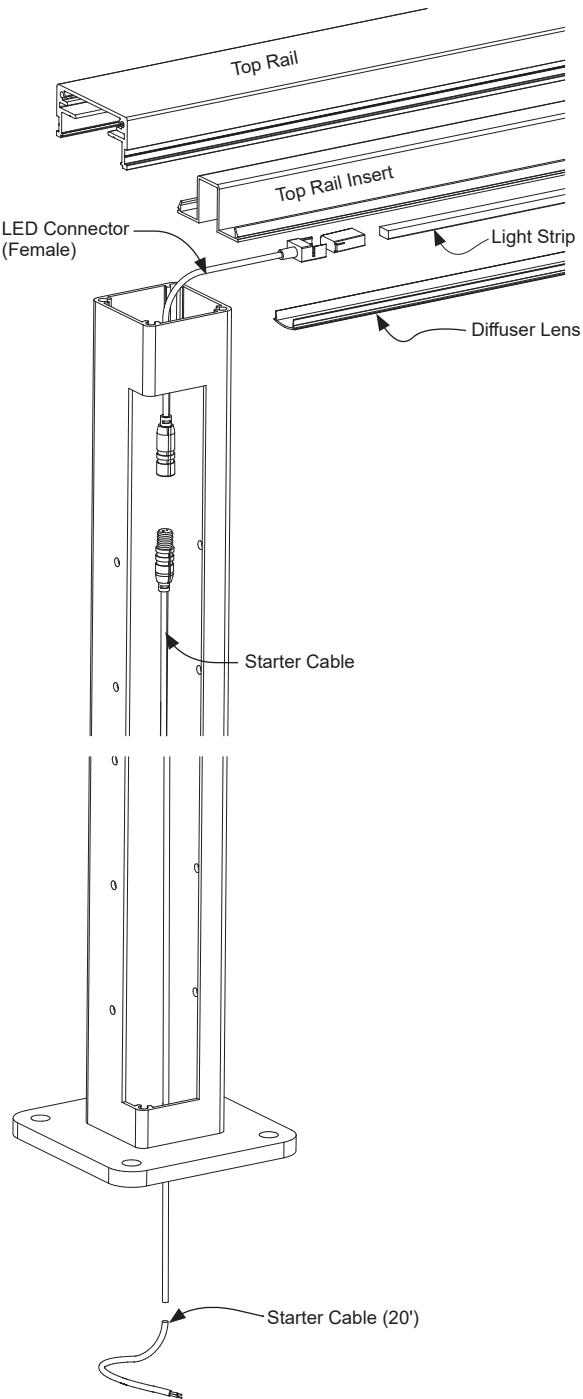
LED Lighting - Troubleshooting

Scenario #1 - If all locations do not illuminate, there could be a polarity issue

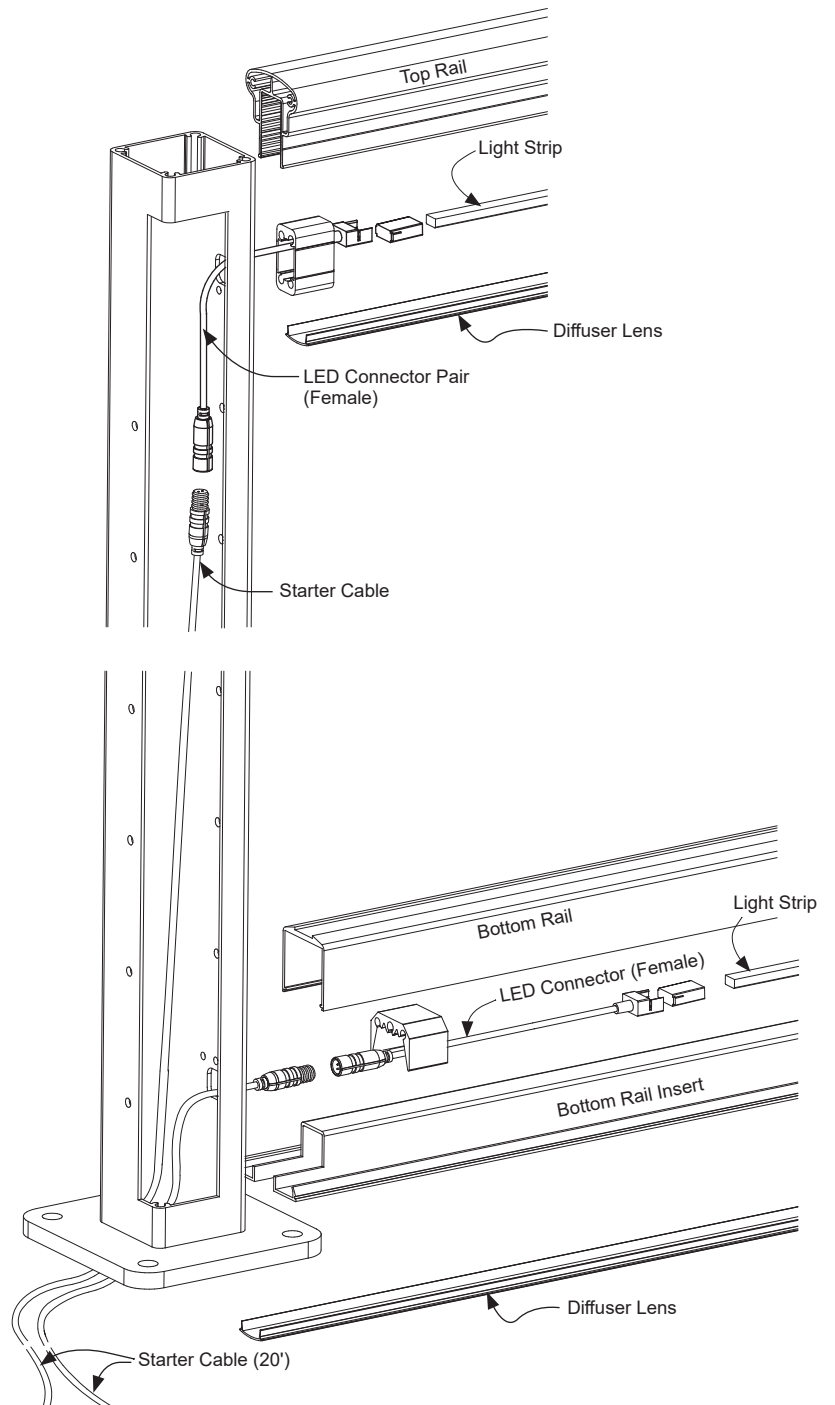
1. Turn off AC circuit breaker prior to continuing the next procedure.
2. Swap the wires at the driver terminals
3. Replace cover on driver unit
4. Turn on AC circuit breaker
5. Power up the driver and check all LED locations for illumination

Scenario #2 - Some LED locations are illuminated but others are not

1. Note which locations are not illuminating
2. Turn off AC circuit breaker prior to continuing to next procedure
3. Rotate the connector 180 degrees at each noted location where the light strip is not illuminating
4. Repeat at all noted locations that did not illuminate
5. Turn on AC circuit breaker
6. Power up the driver and check all locations for illumination



Starting Post with Top Rail Lighting, shown with series 450 top rail (Series 200, 300, and 350 top rail similar)



Starting Post with Top Rail and Bottom Rail Lighting, shown with series 150 top rail

EXPLODED ISOMETRIC VIEWS



www.feeneyinc.com
1-800-888-2418

©2021 Feeney, Inc. (09/21)