



INTEX™
MILLWORK SOLUTIONS



Providence Rail Installation Instructions



Important Information about the Providence Rail System

The Providence Rail system utilizes pre-marked dimples to assist in locating the balusters for equal spacing. Dimples are used rather than pre-drilled holes to give you the flexibility to use the pre-marked standard locations or to determine your own baluster locations. In addition, an Assembly Jig kit is available to assist in locating the balusters and positioning them properly for attaching the screws.

Please take note that these pre-marked baluster locations are designed for Post Center to Post Center dimensions of 6', 8', & 10' respectively. If utilizing the pre-marked baluster locations, the maximum rail span will be 4.25" less than the post center dimension. For rail spans that are in excess of that dimension you will need to establish your own baluster locations or move up to the next size rail kit to meet spacing code requirements. The quantity of pre-marked dimples allows for either baluster-at-center or space-at-center layout and does not reflect the quantity of balusters included in the kit. **Note: The space between the end baluster and the newel post cannot exceed 4".**

Dark Paint Caution

If you choose to paint your INTEX Millwork Product, INTEX recommends the use of premium grade latex paints with solar reflective pigment. Preferably paints designed for use with PVC products. Please contact your local paint dealer for professional assistance. Due to the inherent expansion and contraction characteristics of PVC, INTEX PVC millwork products should only be painted colors with an LVR (light reflective value) greater than 55. Use of darker colors may cause damage due to excessive expansion/contraction, and will void the product warranty.

Cleaning Products for INTEX Millwork Products

Cleaning all INTEX Millwork Products is easy and fast with most major household cleaners. There are many cleaners on the market and the glass cleaners seem to be the best candidate for keeping the finish looking great. The cleaning solution should be applied and immediately wiped dry. As with any cleaning material, the cleaning solution should not be left to stand on the components for an extended period of time.

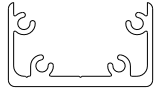
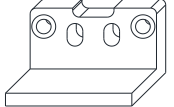
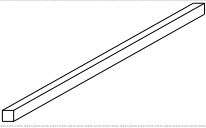

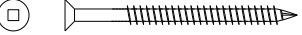
INTEX recommends the following cleaners:

Windex® 409 Glass and Surface Cleaner®
Spic & Span Cinch® Fantastik All-Purpose®
Fantastik Orange Action® Regency® (Glass and Surface)
Clorox Clean-Up® Glass Plus®
Fantastik Oxy Power Multi-Purpose Cleaner®

What to Avoid

Harsh cleaners with glycol ethers or ethanol type solvents and/or isopropyl alcohol are not recommended. Examples of these harmful cleaners are Goof Off®, Walmart "Great Value All Purpose Cleaner®" (glycol ether), 409 General Purpose® (2- Butoxyethanol) and Greased Lightning® (glycol ether), citrus cleaners, abrasive cleaners, and solvents such as acetone, paint remover and lacquer.

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Item		Quantity per Kit		
		6'	8'	10'
Rail Cap		1	1	1
Common Rail (as used at top & bottom of balusters)		2	2	2
Upper & Lower Reinforcement		2	2	2
Level Rail Brackets		4	4	4
Stair Rail Brackets - Upper (Included with Stair Rail Kits Only)		2	2	2
Stair Rail Brackets - Lower (Included with Stair Rail Kits Only)		2	2	2
Baluster 1-1/4" square 30" or 36" length		13	18	23
Crush Block 1-1/4" Square x 4"		1	2	3
A Rail Bracket Screws #8 x 1-1/4" Flat Head Square Drive		16	16	16
B Rail Attachment Screws #10 X 3" Slot Hex Washer Head		10	10	10
C Baluster Screws #8 x 2-1/2" Flat Head Square Drive		31	44	55
D Baluster Lock Screws #8 x 1-1/2" Flat Head Square Drive		13	18	23
E Rail Attachment Screws #12 X 4" Slot Hex Washer Head <i>For level sections greater than 8' long & all stair rails</i>		0	0	4

Level Rail Section Application (NOTE: for 3-Line Rail, read Section 5 first before starting at Section 1)

1. Measure to determine baluster layout, cut rail sections to length.

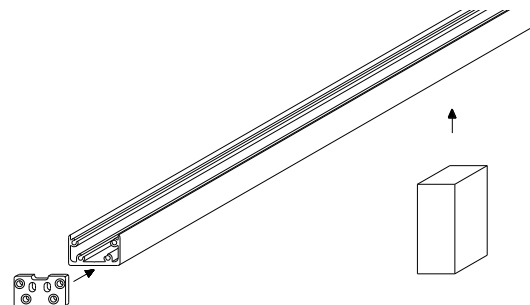
- a.** Ensure newels or columns to which rail will be mounted are plumb and sturdy enough to support rail. If newel/column covers are used, ensure they have blocking at each location where railing will be attached.
- b.** Measure span at top and bottom rail locations.
- c.** For standard baluster spacing (with the variable spaces at the ends of each rail section), a re-useable template/jig kit is available separately (Item # RS70BALJIG). Alternately the pre-marked locations inside the top/bottom common rail can be used. Hold one section of the Top/Bottom Common Rail at the bottom of the newels, and using the pre-marked locations as a reference, determine the best end baluster spacing by either locating a baluster directly at the center of the rail section, or the mid-point between two balusters as the center of the rail section. Once the best end baluster spacing is decided, mark both ends of the rail at the newels and square cut using a miter box. The Top and Bottom Common Rail must be cut with exactly the same spacing, to ensure that the balusters will be plumb. Cut the Rail Top Cap to the required length.
- d.** If equal spacing between all balusters and the newels/columns is desired, disregard section 'c' above and determine spacing based upon width and number of balusters (Note: check local building codes for maximum spacing allowed).

2. Drill and assemble rail/baluster section.

- a.** Using the decided upon spacing, at the center of the location for each Baluster, drill a 1/8" hole through the Top and Bottom Common Rail at the centerline.
- b.** Secure each Baluster with one *baluster screw* ● through the Top Common Rail, and one through the Bottom Common Rail. Ensure Balusters are straight and aligned and secure with one *baluster lock screw* Ⓧ through the Bottom Common Rail (offset from center) to preclude Baluster from rotating after installation.

3. Prepare aluminum reinforcements.

- a.** Cut the aluminum rail reinforcements to length, 1/4" shorter than the PVC rails.
- b.** Attach a mounting bracket to both ends of each Aluminum Rail Reinforcement, using four *rail bracket screw* Ⓐ. Lubricate the threads with soap to avoid binding and use a clutch type drill to avoid stripping screws.



- c.** Locate crush block(s) provided to the bottom Aluminum Rail Reinforcement, with spacing no greater than 36" from the end, or between Crush Blocks.
- d.** Drill a 3/16" hole through the Aluminum Rail Reinforcement and secure each crush block using one *baluster screw* ●.

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e. Drill one additional 3/16" hole at each end of the bottom Aluminum Rail Reinforcement for drainage.

4. Install rail

a. Position bottom Aluminum Rail Reinforcement, with crush block(s) attached, between newels or columns, centered in newel or column face, and secure each end with two *rail attachment screws* ⑤.

b. Position PVC rail/baluster assembly between newels or columns and seat fully down on bottom aluminum rail reinforcement.

c. Seat remaining aluminum reinforcement into Top Common Rail.

d. Ensure rail is centered on face of newel or column and secure each end with two *rail attachment screws* ⑤. NOTE: in order to maintain CCR rating for rail lengths in excess of 8', replace the 3" *rail attachment screws* ⑤ on the top rail with 4" *rail attachment screw* ⑥, which are included in 10' rail kits.

e. Drill a 3/16" hole through the aluminum reinforcement over every third baluster (note: offset to avoid the screw which attaches the Baluster to the Top Common Rail) and secure the aluminum reinforcement to the rail/baluster assembly using *baluster screws* ⑦.

f. Apply a bead of latex caulk at the contact areas where the Rail Top Cap seats on the Top Common Rail. Seat the Rail Top Cap fully onto the Top Common Rail.

5. 3-Line Rail

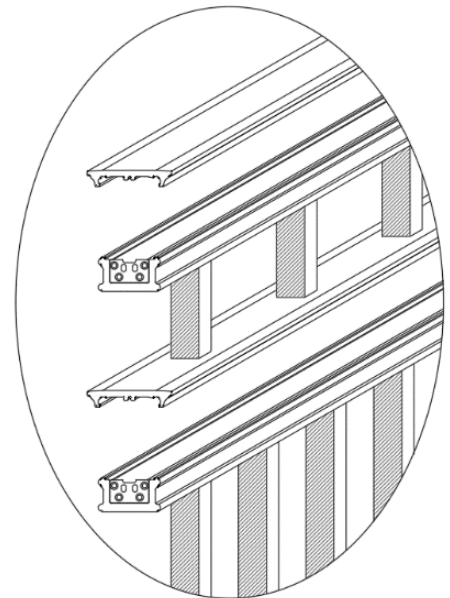
a. Cut all Balusters to height (24" for 36" finished rail height, 30" for 42" finished rail height). Cut the remaining short pieces of the balusters to 3-7/8". These will be the spacer balusters for the upper section, and can be aligned one over each longer baluster, or other spacing as desired (36" max).

b. Follow steps 1 through 4e above to install lower rail section.

c. 3-Line rail sections use the 'flat' Top Rail Cap as the bottom for the upper section. Determine the spacer baluster locations and mark this flat cap and the upper rail Top Common Rail at the desired locations. Secure the 3-7/8" spacer balusters as in section 2 above.

d. Install the lower rail section as described in Section 4b through 4f above.

e. Install the upper rail section as described in Section 4b through 4f above.



Level Rail Section Application with Glass Balusters.

Note: Glass Baluster application requires the RS70 Providence series rail sets specifically prepared for the Glass Balusters, along with the appropriate quantities of balusters (sold separately in packs of 5).

Measure to determine baluster layout, cut rail sections to length.

- a.** Ensure newels or columns to which rail will be mounted are plumb and sturdy enough to support rail. If newel/column covers are used, ensure they have blocking at each location where railing will be attached.
- b.** Measure span at top and bottom rail locations.
- c.** The slots for the Glass Balusters are set for standard baluster spacing (with the variable spaces at the ends of each rail section. Hold one section of the Top/Bottom Common Rail at the bottom of the newels, and using the pre-marked locations as a reference, determine the best end baluster spacing by either locating a baluster directly at the center of the rail section, or the mid-point between two balusters as the center of the rail section. Once the best end baluster spacing is decided, mark both ends of the rail at the newels and square cut using a miter box. The Top and Bottom Common Rail must be cut with exactly the same spacing, to ensure that the balusters will be plumb. Cut the Rail Top Cap to the required length.

2. Prepare aluminum reinforcements.

- a.** Cut the aluminum rail reinforcements to length, 1/4" shorter than the PVC rails.
- b.** Attach a mounting bracket to both ends of each Aluminum Rail Reinforcement, using four *rail bracket screw* Ⓐ. Lubricate the threads with soap to avoid binding and use a clutch type drill to avoid stripping screws.
- c.** Locate crush block(s) provided to the bottom Aluminum Rail Reinforcement, with spacing no greater than 36" from the end, or between Crush Blocks.
- d.** Drill a 3/16" hole through the Aluminum Rail Reinforcement and secure each crush block using one *baluster screw* Ⓒ.
- e.** Drill one additional 3/16" hole at each end of the bottom Aluminum Rail Reinforcement for drainage.

3. Install rail

- a.** Position bottom Aluminum Rail Reinforcement, with crush block(s) attached, between newels or columns, centered in newel or column face, and secure each end with two *rail attachment screws* Ⓑ.
- b.** Position the Bottom Common Rail between newels or columns and seat fully down on bottom aluminum rail reinforcement.
- c.** Place a Tempered Glass Baluster into each slot.
- d.** Position the Top Common Rail over the ends of the Glass Balusters.
- e.** Seat remaining aluminum reinforcement into Top Common Rail.

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f. Ensure rail is centered on face of newel or column and secure each end with two rail attachment screws ⑥.

g. Drill a 3/16" hole down through the aluminum reinforcement and the Top Common Rail between the first and second baluster at both ends and near the center of the span (all between balusters). Countersink holes from underside of the Top Common Rail for a #8 Screw to ensure that screw seats flush with PVC and to prevent stripping.

h. Apply a bead of latex caulk at the contact areas where the Rail Top Cap seats on the Top Common Rail. Seat the Rail Top Cap fully onto the Top Common Rail.

Stair or Rake Rail Application

Note: IBC code requires that finished stair rail heights be a minimum of 34" plumb off the nose of the tread. The standard RS70 Providence 36" rail kit's balusters will typically meet these requirements provided the rail is being installed with the bottom rail elevated above the stair treads. In the event that the railing is being installed directly at or slightly above the stair tread nose, INTEX recommends using the RS70 Providence Stair/Rake Rail kit, which will meet the minimum height requirement any scenario.

1. Determine angle, measure rail lengths and determine baluster layout/spacing

a. Ensure newels or columns to which rail will be mounted are plumb and sturdy enough to support rail. If newel/column covers are used, ensure they have blocking at each location where railing will be attached.

b. Determine and mark angle.

c. For standard baluster spacing (with the variable spaces at the ends of each rail section), use the pre-marked locations inside the Top and Bottom Common Rail. Determine best end spacing by either locating a baluster directly at the center of the rail section, or the mid-point between two balusters as the center of the rail section. Once Baluster spacing is determined, cut end(s) of Top and Bottom Common Rail to angle and length. Note: do not cut Rail Top Cap until section is assembled and secured at all 4 mounting points.

d. If equal spacing between all balusters and newels/columns is desired, disregard Section c above and determine spacing based upon width and number of balusters (Note: check local building codes for maximum spacing allowed).

2. Assemble rail/baluster section.

a. Trim Balusters to required length and angle.

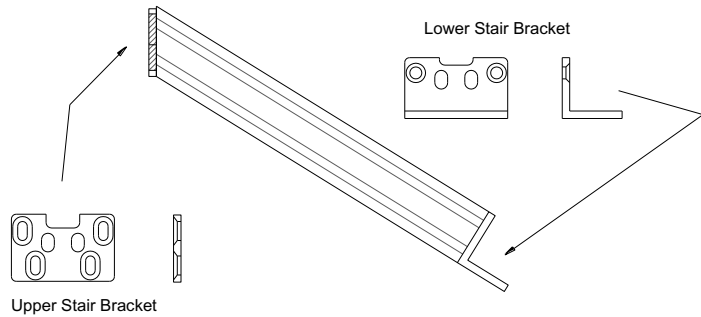
b. Using the decided upon spacing, at the center of the location for each Baluster, drill a 1/8" hole through the Bottom Common Rail at the centerline, at the angle of the Baluster attachment. Repeat this for process for the Top Common Rail, using the same spacing.

c. Secure each baluster with one *baluster screw* ⑦ through the Top Common Rail, and one through the Bottom Common Rail. Ensure balusters are straight and aligned and secure with one *baluster lock screw* ⑧ through the bottom rail (offset from center) to prevent the baluster from rotating after installation.

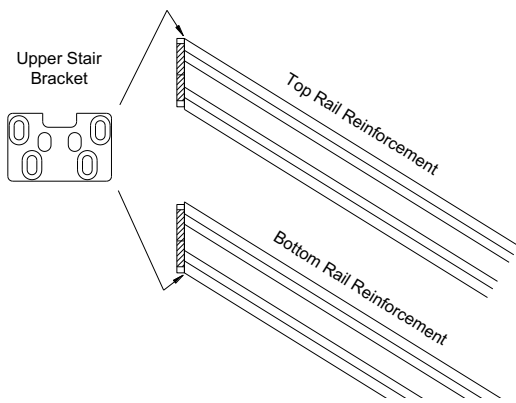
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3. Prepare aluminum reinforcements.

a. Attach a Lower Stair Bracket (90-degree bend) using two *rail bracket screw* Ⓐ to the lower end of each reinforcement. Lubricate the threads with soap to avoid binding and use a clutch type drill to avoid stripping screws. Note: Do not cut this end of the reinforcement to the rake angle.



b. Measure and cut the upper end of both reinforcements to the rail angle determined in Step 1, include the protruding portion of the lower bracket as part of the total length.



Attach an upper stair bracket to the angle cut end of the top rail reinforcement, with the bracket flush with the top of the reinforcement, using four *rail bracket screw* Ⓐ. Attach an upper stair bracket to the angle cut end of the bottom rail reinforcement, with the bracket flush with the bottom of the reinforcement, using four *rail bracket screw* Ⓐ. Lubricate the threads with soap to avoid binding and use a clutch type drill to avoid stripping screws.

c. Cut one end of Crush Block to angle of rail and locate to the bottom aluminum rail reinforcement, with spacing no greater than 32" from the end, or between Crush Blocks. Ensure that the Crush Block(s) will be located on a stair tread.

d. Drill a 3/16" hole through the Aluminum Rail Reinforcement and secure each Crush Block using one *baluster screw* Ⓒ.

4. Install rail

a. Position bottom aluminum rail reinforcement, with crush block(s) attached, between newels or columns, centered on newel or column face, and secure each end with two *rail attachment screws* Ⓑ.

b. Position PVC rail/baluster assembly between newels or columns and seat fully down on bottom aluminum rail reinforcement.

c. Seat remaining aluminum reinforcement into Top Common Rail.

d. Ensure rail is centered on face of newel or column and secure each end with two 4" *rail attachment screws* Ⓒ.

e. Drill a 3/16" hole through the aluminum reinforcement over every third baluster (note: offset to avoid the screw which is into the top of each baluster) and secure the aluminum reinforcement to the rail/baluster assembly using *baluster screw* Ⓒ.

f. Measure and cut Top Cap to required angle and length. Apply a bead of latex caulk at the contact areas where the Rail Top Cap seats on the Top Common Rail. Seat the Rail Cap fully onto the Top Common Rail.

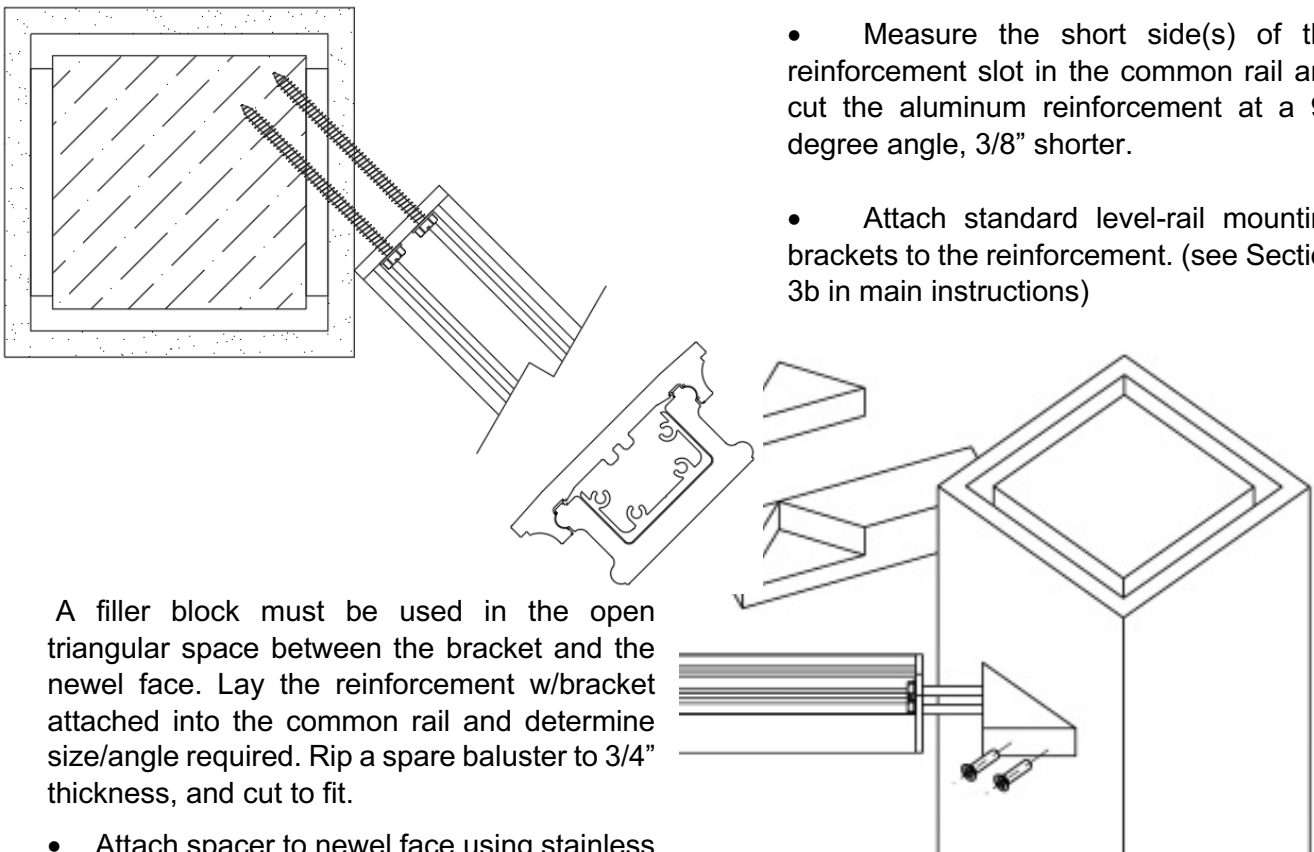
Special Applications/Situations.

Note: the following situations are not CCRR compliant.

Rail to Newel connections at an angle

This method can be used for angled rail connections to newels, up to a 45 degree angle.

- Determine length and angles for connections to newels at both ends. Cut PVC common rails to fit, remembering orientation of common rail before cutting (one up, one down). Insure that the centerline of the rail is aligned with the center of the newel cover.



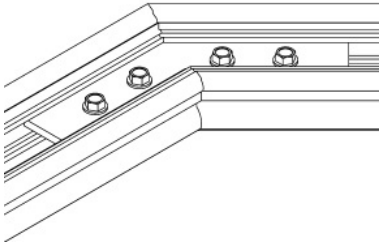
- Measure the short side(s) of the reinforcement slot in the common rail and cut the aluminum reinforcement at a 90 degree angle, 3/8" shorter.
- Attach standard level-rail mounting brackets to the reinforcement. (see Section 3b in main instructions)

A filler block must be used in the open triangular space between the bracket and the newel face. Lay the reinforcement w/bracket attached into the common rail and determine size/angle required. Rip a spare baluster to 3/4" thickness, and cut to fit.

- Attach spacer to newel face using stainless steel screws and PVC glue. (Place screws at the lower portion of the spacer, to avoid the screws that will attach the bracket to the newel, which will go through the upper portion.)
- Position and attach reinforcements to newels as in Sections 4a and 4d in the main instructions. Insure that attachment screws penetrate into structural newel.
- This method is also used for radius rail attachment to newels, but using the radius rail brackets.

Level Rail Direction Change, 45 degree or 90 degree, not at a Newel.

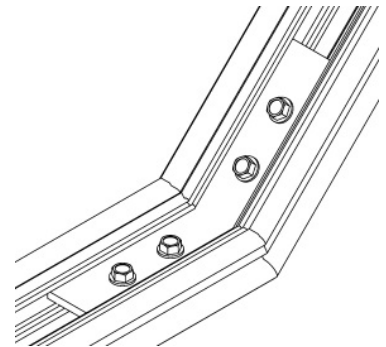
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- Intex offers 45 degree and 90 degree directional change brackets (sold separately). These can be used to change rail direction within the span, while leaving the connections to the newel(s) flush. Two brackets are required (one for the top rail, one for the bottom rail). Item #'s RS70-45BKT and RS70-90BKT.
- Reinforcements and PVC must be cut to the appropriate angle (for a 90 degree turn, cut to 45 degrees, for a 45 degree turn, cut to 22-1/2 degrees).
- Crush Block(s) must be used at, or near each turn.

In-Line Rail Elevation change, Adjustable, not at a Newel.

- Intex offers an inline elevation change bracket kit (sold separately). The brackets are adjustable by bending to the required angle, and will change the rail direction up or down. Two brackets are required (one for the top rail, one for the bottom rail). Item # RS70-180BKT
- Reinforcements and PVC must be cut to the appropriate angle.
- Crush Block(s) must be used at, or near each turn.



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