**P-RAAN HANDRAIL**

**WITH OPTIONAL S.S. END CAPS**

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**PLEASE READ**

PLEASE READ THESE INSTRUCTIONS THOROUGHLY PRIOR TO BEGINNING THE P-RAAN HANDRAIL INSTALLATION!

THIS INSTRUCTION SHEET IS INTENDED TO PROVIDE A SPECIFIC GUIDE TO FOLLOW FOR THE INSTALLATION OF THIS P-RAAN HANDRAIL. CONTAINED WITHIN IS THE TECHNICAL INFORMATION AND INSTALLATION TECHNIQUES REQUIRED TO COMPLETE AN EFFICIENT, NEAT AND LONG-LASTING INSTALLATION.

INSPECT ALL MATERIALS FOR DAMAGE OR MISSING PARTS. IF YOU DISCOVER DAMAGED OR MISSING MATERIALS, IN THE USA PLEASE NOTIFY THE FACTORY AT (800) 233-8493, AND IN CANADA (888) 895-8955 FOR CUSTOMER SERVICE.

P-RAAN HANDRAIL MUST BE INSTALLED IN ACCORDANCE WITH THESE INSTRUCTIONS! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID ANY PRODUCT WARRANTIES AND RESULT IN AN UNSUCCESSFUL INSTALLATION. FOR SPECIFIC QUESTIONS REGARDING THE INSTALLATION OF THIS P-RAAN HANDRAIL PLEASE CALL THE FACTORY IN THE USA AT (800) 233-8493 OR EMAIL IWPTECHSUPPORT@C-SGROUP.COM. IN CANADA CALL (888) 895-8955.

**IMPORTANT NOTES**

1. ALL LINEAL MATERIAL TO BE SUPPLIED IN STOCK LENGTHS. ALUMINUM AND ACROVYN IN LENGTHS UP TO 20'-0". THIS MATERIAL IS TO BE FIELD CUT USING QUALITY EQUIPMENT TO INSURE THAT ALL CUTS ARE SQUARE. WHEN CUTTING MATERIAL SECTIONS, C/S RECOMMENDS USING AN 80-100 TOOTH CARBIDE TIPPED SAW BLADE OR EQUIVALENT, TO MINIMIZE CHIPPING AND MAINTAIN JOINT ALIGNMENT.

2. ALL DIMENSIONS ARE TYPICAL.

3. FOR DRYWALL/PLASTER WALL CONSTRUCTION, IT IS RECOMMENDED FOR FASTENERS TO BE ENGAGED INTO METAL/WOOD STUDS TO MAINTAIN MAXIMUM PULLOUT STRENGTH.

4. INSTALL OUTSIDE CORNERS FIRST.

5. INSTALL LONGEST RUN OF HANDRAIL FIRST.

6. ALUMINUM RETAINER SPLICE SHOULD NOT EXCEED 3" [76.2mm] DISTANCE FROM A BRACKET.

7. THE DISTANCE BETWEEN AN ACROVYN SPLICE JOINT AND AN ALUMINUM RETAINER SPLICE JOINT SHOULD NOT BE LESS THAN 12" [304.8mm].

8. MATERIAL MUST REACH 65°F MIN. TO 75°F MAX. 24 HOURS PRIOR TO INSTALLATION. THIS IS ESSENTIAL TO MINIMIZE EXPANSION AND CONTRACTION OF MATERIAL.

9. MAY REQUIRE USE OF FIRE PUTTY WHEN INSTALLED ON FIRE WALL WITH TOGGLE BOLTS. REFERENCE INSTRUCTIONS 24FIREPUTTY FOR FIRE PUTTY INSTALLATION.

10. THIS HANDRAIL REQUIRES A MINIMUM OF 2 MOUNTING BRACKETS PER UNIT. THE MINIMUM END CAP-TO-END CAP HANDRAIL LENGTH IS 13 3/4" [349.3mm].

11. FOR OSHPD USE 20 GA. STEEL STUD, 20 GA. INTERMEDIATE HORIZONTAL STUD AND 5/8" GYPSUM WALLBOARD.

## Components & Wall Fasteners

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<th>Wall Condition</th>
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<th>Drill Diameters</th>
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<tr>
<td>Steel Stud/Gypsum Wall</td>
<td>1/4-20 x 3&quot; S/S Flat Head Bolt with Toggle</td>
<td>3/4&quot; N/A</td>
<td>90H184002</td>
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<tr>
<td>Concrete/Concrete Block</td>
<td>1/4&quot; x 1 3/4&quot; S/S Flat Head Masonry Anchor</td>
<td>3/16&quot; N/A</td>
<td>90H390000</td>
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<tr>
<td>Wood Stud/Gypsum Wall</td>
<td>#14 x 3&quot; S/S Phillips Flat Head Wood Screw</td>
<td>7/32&quot; N/A</td>
<td>90H538004</td>
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<tr>
<td>20 ga. Steel Stud/Gypsum Wall (OSHPD)</td>
<td>1/4-20 x 3&quot; S/S Flat Head Bolt</td>
<td>1/2&quot; N/A</td>
<td>90H033002</td>
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P-RAAN HANDRAIL

LAYOUT VIEW

- End Cap: 4 1/16" [104.0mm]
- Standard End Cap
- Cushion Length: 5/8" [15.8mm]
- Aluminum Handrail Retainer Length
- Standard Outside Corner: 3" [76.2mm]
- Optional Stainless Steel Splice
- Retainer Splice
- RC-10 Cushion Length
- Aluminum Crash Rail Retainer Length
- Fasteners: 32" O.C. Max. [812.8mm]
- See "Step 8" for Acrovyn Handrail Cover Cutting Instructions
- See "Step 14" for Acrovyn Crash Rail Cover Cutting Instructions
- Field Dimension (Typical All Walls)
- 3" [76.6mm]
- 1 1/2" [38.5mm]
TYPICAL HANDRAIL ASSEMBLY

FIGURE 1.
END CAP ALIGNMENT PLUG ASSEMBLY
P-RAAN HANDRAIL

TYPICAL HANDRAIL ASSEMBLY

1. USING "LOCAL CODE" REQUIREMENTS, ESTABLISH HANDRAIL ABOVE FINISH FLOOR. DEDUCT 3 3/4" [95.3mm] AND SNAP A CHALK LINE AT THAT HEIGHT. THIS MARKS THE LOCATION OF THE HOLE FOR THE MOUNTING BRACKET FASTENERS.

2. DRILL CLEARANCE HOLES IN WALL SURFACE FOR MOUNTING HARDWARE. REFERENCE CHART ON PAGE 2 FOR CORRECT DRILL DIAMETERS.

3. INSTALL MOUNTING BRACKETS USING APPROPRIATE FASTENERS. USE A LEVEL TO ENSURE THAT THE BRACKETS ARE LEVEL.

NOTE: SEE LAYOUT VIEW TO AID IN MOUNTING BRACKET LOCATION.

4. CUT THE CONTINUOUS ALUMINUM RETAINER TO LENGTH USING THE REQUIRED DEDUCTIONS (SEE LAYOUT VIEW).

NOTE: IT IS RECOMMENDED THAT THE ACROVYN COVER AND ALUMINUM RETAINER BE CUT WITH AN 80-100 TOOTH CARBIDE TIPPED SAW BLADE OR EQUIVALENT.

5. ATTACH END CAPS AND INSIDE/OUTSIDE CORNERS (A FLAT SURFACE IS REQUIRED):
   - LOOSELY ASSEMBLE THE END CAP ALIGNMENT PLUG AS SEEN IN FIGURE 1.
   - INSERT END CAP ALIGNMENT PLUG INTO THE RETAINER AND ALIGN THE END CAP SPLINE WITH THE END OF THE RETAINER. ONCE ALIGNED TIGHTEN THE END CAP ALIGNMENT PLUG ASSEMBLY.
   - ATTACH END CAP ALIGNMENT PLUG TO RETAINER WITH THE ABOVE MENTIONED SCREW, UP THROUGH THE BOTTOM OF THE RETAINER.
   - TO PROTECT FINISHED SURFACES FROM ADHESIVE DURING ASSEMBLY APPLY MASKING TAPE TO EXTERIOR SURFACE OF END CAP (OR INSIDE/OUTSIDE CORNER).
   - USING 100 GRIT SANDPAPER, SAND THE INTERIOR SURFACE OF THE END CAP. CLEAN THE INTERIOR SURFACE OF END CAP WITH ISOPROPYL (RUBBING) ALCOHOL.
   - DRY FIT THE ALUMINUM SPLINE BEFORE APPLYING ADHESIVE. ONCE TESTED REMOVE AND APPLY 1/8" BEAD OF ADHESIVE TO Sanded, INTERIOR SURFACE (REFERENCE CAULKING GUN CONVERSION KIT FIGURES 4 & 5) AND PERMANENTLY ATTACH TO ALUMINUM SPLINE. CAUTION: SERRATED LOCK WASHER MUST BE SECURELY TIGHTENED AND EMBEDDED INTO ALUMINUM SPLINE TO PREVENT ATTACHED END CAP FROM ROTATING.
   - THE ADHESIVE ONLY ALLOWS FOR 8 TO 12 MINUTES OF WORKING TIME. INSTALL END CAP (OR INSIDE/OUTSIDE CORNER) OVER ALUMINUM SPLINE. FOR A PROPER SEAM, STAINLESS STEEL END CAP (OR INSIDE/OUTSIDE CORNER) MUST BE Tightly FITTED TO THE HANDRAIL.
   - PARTS CAN BE HANDLED IN 1 1/2 HOURS AND WILL BE FULLY CURED AFTER 24 HOURS.
   - OPTIONAL STAINLESS STEEL SPLICE WILL BE INSTALLED IN THE SAME MANNER.

NOTE: TO AID IN LOCATING THE END CAPS CORRECTLY, CUT A 4" [101.6mm] SECTION OF COVER FROM SCRAP AND SNAP IT ON THE RETAINER. LOCATE THE CAP SO IT ALIGNS FLUSH WITH TOP AND BOTTOM OF THE COVER.

6. DRILL 1/16" PILOT HOLES INTO THE RETAINER FOR MOUNTING BRACKET ATTACHMENT. MOUNTING BRACKETS ARE TO BE LOCATED 3" [76.2mm] FROM EACH END OF THE RETAINER AND 32" [812.8mm] ON CENTER ALONG LENGTH, AS REQUIRED.

7. FASTEN THE ALUMINUM RETAINER TO THE WALL BRACKETS IN SUCCESSION BY INSERTING TWO #6 X 5/8" S/S PHILLIPS FLAT HEAD SHEET METAL SCREWS THROUGH THE UNDERSIDE OF BRACKET INTO THE RETAINER. CAUTION: OVER-TORQUEING MAY CAUSE THE FASTENERS TO STRIP.

8. CUT THE ACROVYN COVER TO THE PROPER LENGTH. THE COVER LENGTH IS DETERMINED BY MEASURING THE DISTANCE BETWEEN THE INSTALLED END CAPS AND/OR INSIDE/OUTSIDE CORNER ASSEMBLIES.

NOTE: IT IS RECOMMENDED THAT THE ACROVYN COVER BE CUT SLIGHTLY LONGER (1/32" [0.8mm] UP TO 5'-0" [1.5m], 1/16" [1.6mm] OVER 5'-0" [1.5m]) THAN THE MEASURED DISTANCE. THIS ADDITIONAL LENGTH WILL PROVIDE FOR A TIGHTER COVER-TO-END CAP FIT.

9. STARTING AT ONE END, SNAP THE ACROVYN COVER ONTO THE RETAINER ALONG THE LENGTH OF THE HANDRAIL.

NOTE: MANUFACTURING RECOMMENDS ALL PRINTED "PRODUCT IDENTIFICATION" ON THE REAR OF THE ACROVYN PROFILE SHALL BE ORIENTED IN THE SAME DIRECTION DURING INSTALLATION TO ENSURE PROPER ALIGNMENT AT SPLICE BUTT JOINTS.

FIGURE 2.

FIGURE 3.
10. Cut the continuous aluminum crash rail retainer to length using the required deductions (reference layout view). Trim the RC-10 cushion back 1" [25.4mm] from the ends of the crash rail retainer for end cap clearance.

11. Cut RC-10 cushion to length noting required deductions (see layout view) and install onto aluminum retainer.

**Note:** It is recommended that the Acrovyn cover and aluminum retainer be cut with an 80-100 tooth carbide tipped saw blade or equivalent.

12. Attach crash rail end caps and outside corners:
   - Slide 1/4-20 x 3/4" hex head bolts in receiver slot of the crash rail retainer for all wall brackets.
   - Use crash rail end cap as a template to drill clearance holes in retainer.
   - Attach end cap/outside corners by sliding the end cap onto the end of the aluminum retainer and securing into position using two (2) #10-24 x 1/2" rd hd slotted machine screw with lock washer and #10 hex nut at each end cap and four (4) at each outside corner.

**Note:** To aid in locating the end caps correctly, cut a 4" [101.6mm] section of cover from scrap and snap it on the retainer. Locate the cap so it aligns flush with top and bottom of the cover.

13. Attach the aluminum crash rail retainer to the wall brackets by aligning the hex head bolt with the mounting brackets and inserting the hex head bolt into the mounting bracket hole. Place a 1/4" flat washer and 1/4-20 hex nut onto the hex head bolt and tighten as required.

14. Cut the Acrovyn cover to the proper length. The cover length is determined by measuring the distance between the installed end caps and/or outside corner assemblies.

**Note:** It is recommended that the Acrovyn cover be cut slightly longer (1/32" [0.8mm] up to 5'-0" [1.5m], 1/16" [1.6mm] over 5'-0" [1.5m]) than the measured distance. This additional length will provide for a tighter cover-to-end cap fit.

15. Starting at one end, snap the Acrovyn cover onto the retainer along the length of the crash rail.

**Note:** Manufacturer recommends all printed "product identification" on the rear of the Acrovyn profile shall be oriented in the same direction during installation to ensure proper alignment at splice butt joints.
OUTSIDE CORNER ASSEMBLY

1. ATTACH ALL OUTSIDE CORNERS:
   - USE OUTSIDE CORNER AS A TEMPLATE TO DRILL 7/32" PILOT HOLES IN RETAINER.
   - ATTACH OUTSIDE CORNERS BY SLIDING THE CORNER ONTO THE END OF THE ALUMINUM RETAINER AND SECURING INTO POSITION USING FOUR (4) #10-24 X 1/2" RD HD SLOTTED MACHINE SCREWS WITH LOCK WASHER AND #10 HEX NUT AT EACH OUTSIDE CORNER.

NOTE: TO AID IN LOCATING THE OUTSIDE CORNERS CORRECTLY, CUT A 4" [101.6mm] SECTION OF COVER FROM SCRAP AND SNAP IT ON THE RETAINER. LOCATE THE CORNER SO IT ALIGNS FLUSH WITH THE TOP AND BOTTOM OF THE COVER.

NOTE: SOLID PORTION OF OUTSIDE CORNER FLANGE MOUNTS TO THE BACK OF THE RETAINER WHILE THE SPLIT FLANGE MOUNTS TO THE INSIDE OF THE RETAINER. SEE ILLUSTRATION ABOVE.
EPOXY CARTRIDGE AND MIXING NOZZLE. REFER TO FIGURE 4.

1. REMOVE CAP AND GASKET FROM THE END OF EPOXY CARTRIDGE BY TWISTING 90°.
2. INSTALL MIXING NOZZLE ON THE FRONT OF EPOXY CARTRIDGE AND LOCK IN PLACE BY TWISTING 90°.

CAULKING GUN CONVERSION KIT. REFER TO FIGURE 5.

1. INSERT EPOXY CARTRIDGE AND MIXING NOZZLE INTO OVAL OPENING OF SLEEVE. NOTE THE LOCATION OF OPEN END.
2. PLACE PLUNGER IN THE BACK END OF CARTRIDGE.
3. PLACE THE CONVERSION KIT, WITH MIXER NOZZLE AND EPOXY CARTRIDGE, IN A STANDARD 10 OZ CAULKING GUN AS SHOWN IN FIGURE 5. PLUNGER WILL ATTACH TO CIRCULAR PUSH PLATE ON CAULKING GUN.