**Wood Hand Rails and Crash Rails**

**Important Notes:**

1. Locate and install Crash Rail in accordance with architectural drawings and specifications. When required, shop drawings should be used in conjunction with these documents
2. Locate the packing slip(s) and inspect all material for damages or missing parts. If products are damaged, notify the factory immediately and leave the products in their packaging. If products are signed and received without reporting damages, you waive your right to a freight claim and will be responsible for their replacement cost.
3. Materials shipped unassembled. Store vertically or on a flat horizontal surface
4. Store material vertically or on a flat horizontal surface in a clean, dry location at room temperature between 65° F (18° C) and 77° F (25° C).
5. Begin installation only after finish construction has been completed and building interior has been within temperature range intended for continued use for at least 24 hours. Cut vinyl and aluminum components to fit only after they have been at temperature intended for continued use for 24 hours.
6. Read the instructions thoroughly before beginning installation.

**Models: WCRB-4, WCRB-6**

**Installation**

1. Measure and mark centerline of crash rail on wall or partition. Locate this centerline by subtracting 2-7/8" [73mm] from the desired finished height of the crash rail.
2. Measure and mark crash rail section and points on wall or partition (See standard plan detail).
3. Measure and mark fastener holes. Locate holes on fastener centerline 32"[812.8mm] O.C. maximum, unless otherwise specified, and at distances from ends of sections as shown on standard plan detail.
4. Measure and plan crash rail lengths. Since crash rail is furnished in random lengths, it is important to plan carefully to obtain maximum yield. Where splices are necessary, for maximum strength and appearance we recommend mitering both pieces to be joined at 45°. Glue and connect splice as shown on the assembly detail. Allow extra stock on crash rail sections requiring these miter joints.
5. Glue end plugs at both ends of each crash rail section.
6. Install aluminum bumper retainer. Cut retainer 2"[50.8mm] shorter than crash rail lengths. Locate joints so they do not align with splices in crash rail. Secure to crash rail with the #8 x 9/16" screws provided.
7. Pre-drill fastener holes in wall or partition. Make hole diameter as small as possible allowing for fasteners. For most applications, we recommend 1/4-20 round head machine screws and alligator anchors
8. Pre-drill holes in crash rail sections to align with holes in wall or partition. Make hole through the aluminum bumper retainer and crash rail as small as possible allowing for fasteners.
9. Secure rail assemblies to wall or partition.
10. Install vinyl bumper. Cut bumper to length from coils provided. For corners, notch the back of the vinyl bumper to allow it to bend around the corner, or miter the vinyl bumper and glue ends with PVC cement.
11. Finish ends of crash rail with stain provided.
12. Clean soiled surfaces, and touch up any joints.

**Models: WCRS-4, WCRSBT-4**

**Installation**

1. Measure and mark fastener centerline on wall or partition. Locate this centerline 1 1/2" below the desired height of top of crash rail.
2. Measure and mark endpoints of crash rail on wall or partition.
3. Measure and mark end cap locations and retainer lengths on wall or partition. End caps extend in 4" from end of railing. Retainer is cut 2 1/2" in from each end of railing.
4. Plan retainer and crash rail lengths and mark on fastener centerline. Since the crash rail is furnished in random lengths, planning is essential to minimize joints. Because of the natural variations that occur in wood, sort wood components and match parts by color. Offset crash rail and retainer joints, if any, to maximize crash rail strength.
5. Measure and mark fastener holes on wall or partition. Locate holes on fastener centerline 32"O.C. maximum, unless otherwise specified, and at distances from retainer ends and butt joints as shown.
6. Measure and cut retainer lengths. Use longest practical lengths to minimize joints. Verify that cut lengths conform exactly to lengths marked on wall or partition.
7. Pre-drill fastener holes in wall or partition at locations marked. Make hole diameter as small as possible, allowing for fasteners. For most drywall or masonry applications, we recommend ¼" lag screws and size "BB" Toggler brand alligator anchors by Mechanical Plastics.
8. Pre-drill fastener holes in retainer lengths to align with holes in wall or partition. Make hole diameter as small as possible, allowing for fasteners.
9. Secure retainers to wall or partition. Insert fasteners through holes in retainer and into holes in wall or partition, and secure per fastening conditions shown on the reverse side.
10. Install one end return. Slide return into position on aluminum retainer, and attach by drilling a 5/32" hole through the bottom of the retainer up into the wood end cap. Secure in place with one of the #8x3/8" screws provided.
11. Install crash rail. Slide onto retainer and locate tight against end return. Secure every 18" with the #8x3/8" screws up through the retainer from below.
12. Install remaining end cap.
13. Touch up wood surfaces. Using the touch-up sticks or stain provided, go over any nicks or joints on the finished rail.
14. For BT models: Starting at one end, press the bumper cushion in to the grooves on the return, crash rail, and opposite return take care not to stretch the cushion when pressing it in. It will shrink back to its original size, leaving a gap. Trim the bumper to length.

**Model: WHR-20**

**Installation**

1. Measure and mark vertical centerline for handrail bracket screws on wall or partition. This line should be 2-3/8"[60.33mm] below the desired finished height of the railing.
2. Measure and mark handrail section end points on wall or partition. (See Standard Plan Detail.)
3. Measure and plan handrail lengths. Since the handrail is furnished in random lengths, it is important to plan carefully to obtain maximum yield. Remember to allow for returns and corners, per the Standard Plan Detail.
4. Assemble handrail sections and returns. Using the fixture provided, drill 5/16" [8mm] holes for dowels in the ends of the handrail sections for returns or corners, or where splicing is necessary. We recommend breaking the adjoining edges of the railing and returns slightly with sandpaper to hide minor alignment problems. Assemble with a good quality wood glue to insure a solid joint.
5. Mark horizontal centerline of handrail mounting brackets. Locate brackets a maximum of 32" O.C. [812.8mm] unless otherwise specified, and at distances from the ends of sections so shown on the Standard Plan Detail. Drilling into wall studs provides maximum support. A bracket is also required below the center of all handrail splices.
6. Measure and mark location of holes for mounting bracket screws. Using a bracket as a template, center the bracket on the horizontal centerlines (#5 above), and mark the two upper screw holes on the vertical centerline drawn in #1 above. The third screw will be 2” [50.8mm] below these.
7. Drill fastener holes for brackets in wall or partition. Use a strong anchor for brackets that do not line up on studs.
8. Attach brackets to the wall using the screws provided.
9. Attach handrail to brackets. Lay the handrail sections on the installed wall brackets, and mark locations of bracket strap holes. Make sure the distance between the handrail and the wall does not exceed 1-1/2" [38.1mm]. Use a 7/64" [2.8mm] drill bit for the attachment screws. To prevent drilling through the handrail, use a piece of tape to mark the depth required for the screws. Attach railing to the brackets using the screws provided.
10. Clean the handrail and wall.
11. Touch up joints or nicks in the wood with the touch up pen provided.

**Model: WHRB-55**

**Installation**

1. Measure and mark centerline of handrail mounting brackets on wall or partition. Locate this centerline by subtracting 3 ½ inches from the desired finished height of the railing.
2. Measure and mark handrail section end points on wall or partition. (See Standard Plan Detail on the reverse side.
3. Measure and mark mounting bracket fastener holes. Locate holes on fastener centerline 32" O. C. maximum, unless otherwise specified, and at distances from ends of sections as shown on Standard Plan Detail.
4. Measure and plan handrail lengths. Since handrail is furnished in random lengths, it is important to plan carefully to obtain maximum yield. Remember to allow enough stock (4 ½") on each end of handrail to cut a matching end return. Where splices are necessary, for maximum strength and appearance we recommend mitering both pieces to be joined at 45 degrees. Do not splice where mounting bracket will be located. Allow extra stock on handrail sections requiring these miter joints.
5. Cut handrail sections and returns. Cut the returns first by making 45-degree cuts on both ends of the railing, and then the 22-½ degree cuts to form the returns. Trim the handrail to finished length with 22-½ degree cuts as shown on the Standard Plan Detail.
6. Assemble handrail sections. Attach returns with glue and biscuits. Stretch duct tape over the joints to hold them in position until the glue sets.
7. Install aluminum bumper retainer. Cut retainer for handrail lengths and returns, locating joints so they do not align with handrail splices. Secure to handrail with the 6 x 5/8" screws provided.
8. Pre drill fastener holes in wall or partition. Make hole diameter as small possible, allowing for fasteners. For most drywall applications, we recommend ¼ -20 round head machine screws and ¼" size BB strap type anchors by Mechanical Plastics. IMPORTANT: THE ATTACHING FASTNERS MUST EXTEND THROUGH BLOCKING IN THE WALL OR STUDS TO PROPERLY SUPPORT THE HANDRAIL.
9. Pre-drill holes in handrail sections to align with holes in wall or partition. Make hole through the aluminum bumper retainer and the handrail as small as possible, allowing for fasteners.
10. Secure rail assemblies to wall or partition. Assemble fasteners, insert through handrail and into the holes in wall or partition, and secure per fastener manufacturers printed instructions.
11. Clean soiled surfaces, and touch up any joints with the stain provided.
12. Install vinyl bumper. Cut bumper to length from coils provided. At corners or at end returns, cut away retaining fingers on the back of bumper to allow the vinyl to conform to the handrail bend.

**Model: WHRC-625**

**Installation:**

1. Measure and mark fastener centerline on wall or partition. Locate this centerline by subtracting 4-1/8" (104.8mm) from height of top of rail on wall or partition.
2. Measure and mark aluminum retainer ends and joints between abutting retainer lengths, if any, on wall or partition (see Standard Plan Detail on reverse side).
3. Measure and mark fastener holes on wall or partition. Locate holes on fastener centerline 32" (812.8mm) O.C. max., unless otherwise specified, and at distances from retainer ends and butt joints as shown (see Standard Plan Detail on reverse side).
4. Measure and cut retainer lengths. Use longest practical lengths to minimize number of joints. Carefully cut to achieve hairline joints between abutting lengths. Verify that cut lengths conform exactly to lengths marked on wall or partition.
5. Pre-drill fastener holes in wall or partition at locations marked. Make hole diameter as small as possible, allowing for fasteners. For most drywall applications, we recommend 1/4"-20 bolts and 1/4" size BB strap-types. For most masonry applications, we recommend 1/4" lag screws and “alligator" anchors.
6. Pre-drill holes in retainer lengths to align with holes in wall or partition. Make hole diameter as small as possible, allowing for fasteners.
7. Assemble retainers. Splice abutting retainer lengths, if any, using manufacturer-provided splices and screws; abut tightly to achieve hairline joints.
8. Secure rail assemblies to wall or partition. Assemble fasteners, insert through holes in retainer and brackets and into holes in wall or partition, and secure per fastener manufacturer's printed instructions.
9. Install wood top rail. Measure lengths needed and select wood pieces to minimize waste. Cut rails to size as shown on the Standard Plan Detail. Locate rail joints so they are not directly over retainer joints to minimize alignment problem. Place plastic retainer clips in the top of the aluminum retainer, and press the wood railing into place.
10. Install accent strip. Cut strips to the same length as retainer, and slide into place.
11. Install returns and corners. Drill out the end of the wood railing with a 3/32"[2.38mm] drill to receive the spring pins on the returns. Insert spring pins on wood returns into the wood rail, and the tab on the return or corner into aluminum retainer. Clamp into place, and secure with the manufacturer provided #8x1/2" sheet metal screws or 1/8" pop rivets.
12. Install crash rail cover. Locate cover joints so they are not directly over retainer splices to minimize alignment problems. Measure and cut cove lengths to fit tightly between return and corners. Secure the cover in place by hooking the top flange into the same groove as the accent groove and then snapping it over the retainer bottom. Make all joints neat and hairline tight.
13. Using a mild detergent, clean soiled surfaces. Do not use powdered cleaners as they may leave residue embedded

**Model: WHRO-55, WHROBT-55**

**Installation**

1. Measure and mark vertical centerline for handrail mounting brackets on the wall or partition. Locate this centerline by subtracting 3 1/4" from the desired finished height of handrail.
2. Measure and mark handrail section endpoints on the wall or partition.
3. Measure and mark handrail lengths and location of returns or splices on the wall or partition. Because the handrail is furnished in random lengths, it is important to plan carefully to obtain maximum yield. Because of the natural variations that occur in wood, sort wood components and match parts by color.
4. Attach returns to handrail sections. Insert aluminum attachment bracket into handrail until all the barbs are in the handrail groove. Screw in place with #8x3/8" screws provided. Slide wood peg on return into handrail. The peg can be sanded to adjust alignment. Ease the edges of the handrail and return with fine sand paper before final assembly. Secure the bracket to handrail with the screws provided. Wood glue may be used to increase structural integrity and the tightness of the joint.
5. Mark the location of the handrail mounting brackets on the vertical centerline on wall. Locate brackets a maximum 32"(812.8mm) O.C., unless otherwise specified, at distances from the end of sections as shown on the Standard Plan Detail.
6. Install mounting bracket anchors on wall or partition to receive 1/4" x 20 mounting screws.
7. Install mounting brackets on wall or partition. Put the 1/4" x 20 machine screws provided through the metal cup, and insert the assembly into the recess in the mounting bracket as shown on detail sheet. Tighten the screws, making sure the brackets are all orientated properly.
8. Install mounting hardware. Assemble the 1/2" T-bolt, washer, and nut as shown on detail. Nut should be screwed on to the bolt to within 5/16"[7.3mm] of the 'T'. Screw the assembly into the cups in the mounting brackets. Turn the screws finger tight, then use a wrench to rotate all the bolts clockwise so the Ts are horizontal.
9. Install the handrail sections. Slide the handrail sections over the T-bolts. Using a wrench, turn the T-bolts clockwise 1/4 turn in to the groove in the rail. Tighten the attachment nut.
10. Clean the handrail and wall. Touch up any exposed wood surfaces with the touch up pen or stain provided.
11. For BT models: Starting at one end, press the bumper cushion in to the grooves on the return, handrail, and opposite return. Take care not to stretch the cushion when pressing it in. It will shrink back to its original size, leaving a gap. Trim the bumper to length.

**EnvironWOOD Handrail**

**Model WHR-20**

Installation:

1. Measure and mark vertical centerline for handrail bracket screws on wall or partition. This line should be 23/8"[60.33mm] below the desired finished height of the railing.
2. Measure and mark handrail section end points on wall or partition. (See Standard Plan Detail.)
3. Measure and plan handrail lengths. Since the handrail is furnished in random lengths, it is important to plan carefully to obtain maximum yield. Remember to allow for returns and corners, per the Standard Plan Detail.
4. Assemble handrail sections and returns. Using the fixture provided, drill 5/16" [8mm] holes for dowels in the ends of the handrail sections for returns or corners, or where splicing is necessary. We recommend breaking the adjoining edges of the railing and returns slightly with sandpaper to hide minor alignment problems. Assemble with a good quality wood glue to insure a solid joint.
5. Mark horizontal centerline of handrail mounting brackets. Locate brackets a maximum of 32" O.C. [812.8mm] unless otherwise specified, and at distances from the ends of sections so shown on the Standard Plan Detail. Drilling into wall studs provides maximum support. A bracket is also required below the center of all handrail splices.
6. Measure and mark location of holes for mounting bracket screws. Using a bracket as a template, center the bracket on the horizontal centerlines (#5 above), and mark the two upper screw holes on the vertical centerline drawn in above. The third screw will be 2" [50.8mm] below these.
7. Drill fastener holes for brackets in wall or partition. Use a strong anchor for brackets that do not line up on studs.
8. Attach brackets to the wall using the screws provided.
9. Attach handrail to brackets. Lay the handrail sections on the installed wall brackets, and mark locations of bracket strap holes. Make sure the distance between the handrail and the wall does not exceed 1-1/2" [38.1mm]. Use a 7/64" [2.8mm] drill bit for the attachment screws. To prevent drilling through the handrail, use a piece of tape to mark the depth required for the screws. Attach railing to the brackets using the screws provided.
10. Clean the handrail and wall.
11. Touch up joints or nicks in the wood with the touch up pen provided.

**Model: WHRB-55**

**Installation:**

1. Measure and mark centerline of handrail mounting brackets on wall or partition. Locate this centerline by subtracting 3 ½ inches from the desired finished height of the railing.
2. Measure and mark handrail section end points on wall or partition.
3. Measure and mark mounting bracket fastener holes. Locate holes on fastener centerline 32" O. C. maximum, unless otherwise specified, and at distances from ends of sections as shown on Standard Plan Detail.
4. Measure and plan handrail lengths. Since handrail is furnished in random lengths, it is important to plan carefully to obtain maximum yield. Remember to allow enough stock (4 ½") on each end of handrail to cut a matching end return. Where splices are necessary, for maximum strength and appearance we recommend mitering both pieces to be joined at 45 degrees. Do not splice where mounting bracket will be located. Allow extra stock on handrail sections requiring these miter joints.
5. Cut handrail sections and returns. Cut the returns first by making 45-degree cuts on both ends of the railing, and then the 22-½ degree cuts to form the returns. Trim the handrail to finished length with 22-½ degree cuts as shown on the Standard Plan Detail.
6. Assemble handrail sections. Attach returns with glue and biscuits. Stretch duct tape over the joints to hold them in position until the glue sets.
7. Install aluminum bumper retainer. Cut retainer for handrail lengths and returns, locating joints so they do not align with handrail splices. Secure to handrail with the 6 x 5/8" screws provided.
8. Pre drill fastener holes in wall or partition. Make hole diameter as small possible, allowing for fasteners. For most drywall applications, we recommend ¼ -20 round head machine screws and ¼" size BB strap type anchors. IMPORTANT: THE ATTACHING FASTNERS MUST EXTEND THROUGH BLOCKING IN THE WALL OR STUDS TO PROPERLY SUPPORT THE HANDRAIL. For most masonry applications, we recommend ¼" lag screws and alligator anchors, size A6.
9. Pre-drill holes in handrail sections to align with holes in wall or partition. Make hole through the aluminum bumper retainer and the handrail as small as possible, allowing for fasteners.
10. Secure rail assemblies to wall or partition. Assemble fasteners, insert through handrail and into the holes in wall or partition, and secure per fastener manufacturers printed instructions.
11. Clean soiled surfaces, and touch up any joints with the stain provided.
12. Install vinyl bumper. Cut bumper to length from coils provided. At corners or at end returns, cut away retaining finger

**WHRC-625**

**Installation**

1. Measure and mark fastener centerline on wall or partition. Locate this centerline by subtracting 4-1/8" (104.8mm) from height of top of rail on wall or partition.
2. Measure and mark aluminum retainer ends and joints between abutting retainer lengths, if any, on wall or partition.
3. Measure and mark fastener holes on wall or partition. Locate holes on fastener centerline 32" (812.8mm) O.C. max., unless otherwise specified, and at distances from retainer ends and butt joints as shown
4. Measure and cut retainer lengths. Use longest practical lengths to minimize number of joints. Carefully cut to achieve hairline joints between abutting lengths. Verify that cut lengths conform exactly with lengths marked on wall or partition.
5. Pre-drill fastener holes in wall or partition at locations marked. Make hole diameter as small as possible, allowing for fasteners. For most drywall applications, we recommend 1/4"-20 bolts and 1/4" size BB strap-type. For most masonry applications, we recommend 1/4" lag screws and "alligator" anchors, size A6.
6. Pre-drill holes in retainer lengths to align with holes in wall or partition. Make hole diameter as small as possible, allowing for fasteners.
7. Assemble retainers. Splice abutting retainer lengths, if any, using manufacturer-provided splices and screws; abut tightly to achieve hairline joints.
8. Secure rail assemblies to wall or partition. Assemble fasteners, insert through holes in retainer and brackets and into holes in wall or partition, and secure per fastener manufacturer's printed instructions.
9. Install wood top rail. Measure lengths needed and select wood pieces to minimize waste. Cut rails to size as shown on the Standard Plan Detail. Locate rail joints so they are not directly over retainer joints to minimize alignment problem. Place plastic retainer clips in the top of the aluminum retainer, and press the wood railing into place.
10. Install accent strip. Cut strips to the same length as retainer, and slide into place.
11. Install returns and corners. Drill out the end of the wood railing with a 3/32"[2.38mm] drill to receive the spring pins on the returns. Insert spring pins on wood returns into the wood rail, and the tab on the return or corner into aluminum retainer. Clamp into place, and secure with the manufacturer provided #8x1/2" sheet metal screws or 1/8" pop rivets.
12. Install crash rail cover. Locate cover joints so they are not directly over retainer splices to minimize alignment problems. Measure and cut cove lengths to fit tightly between return and corners. Secure the cover in place by hooking the top flange into the same groove as the accent groove and then snapping it over the retainer bottom. Make all joints neat and hairline tight.
13. Using a mild detergent, clean soiled surfaces. Do not use powdered cleaners as they may leave residue embedded in a cover surface. Touch up joints or nicks in the wood with the touch up pen provided.