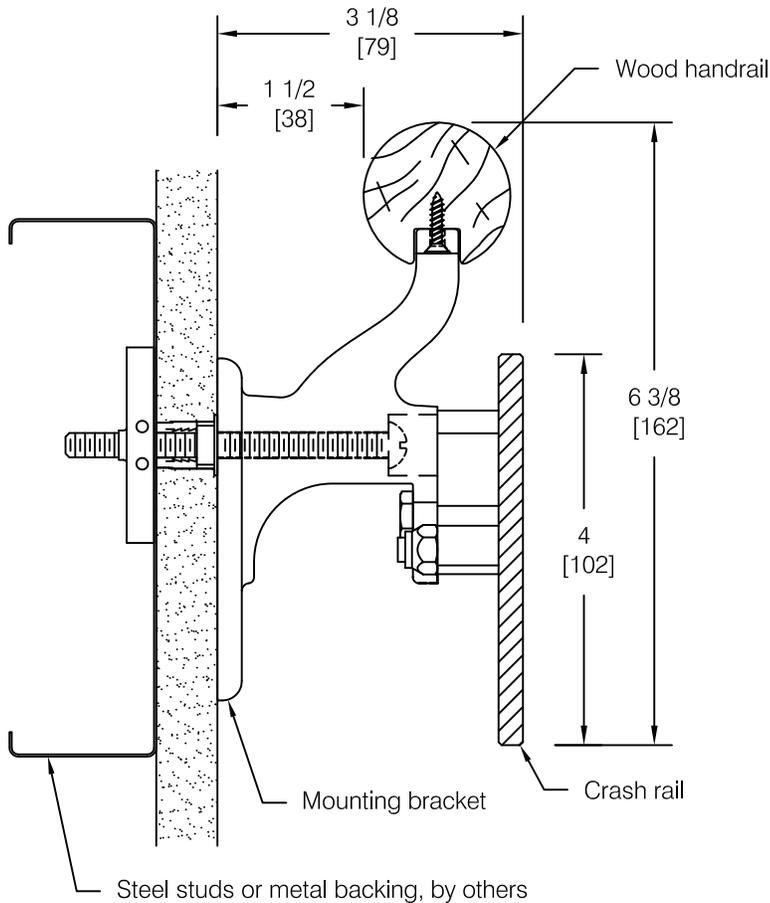
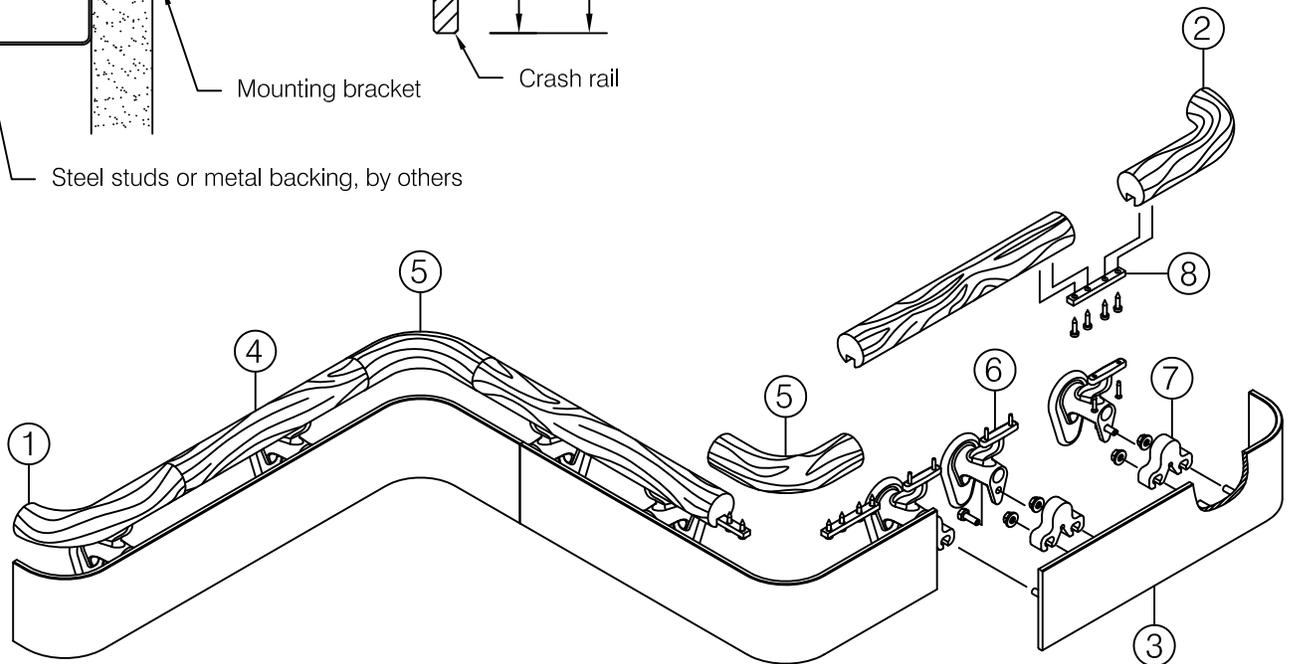


BR-4RWS Series Handrail



(*) Wood type
 A - Ash
 M - Maple
 O - Oak

All hardwoods have their own "personality" or special characteristics. Variations in color, grain pattern, and texture are to be expected, they are natural aspects of these materials.

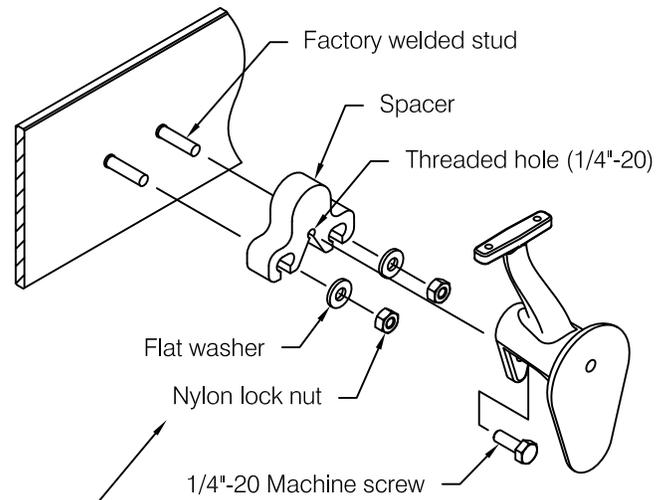
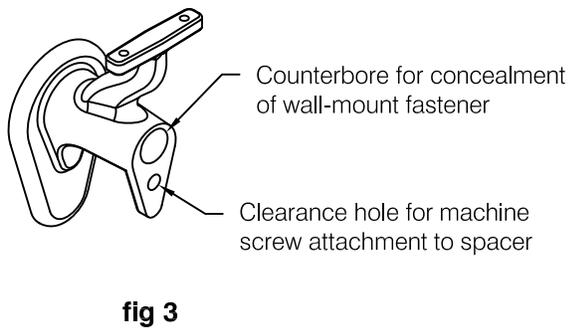
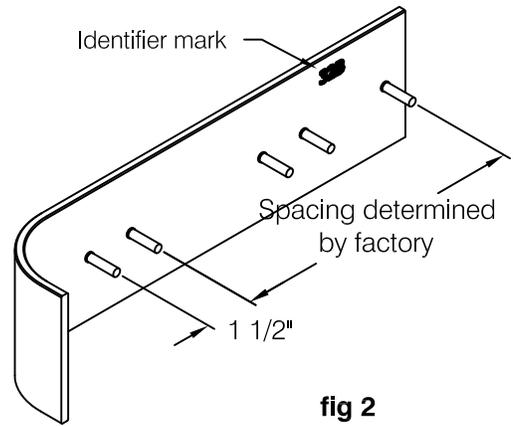
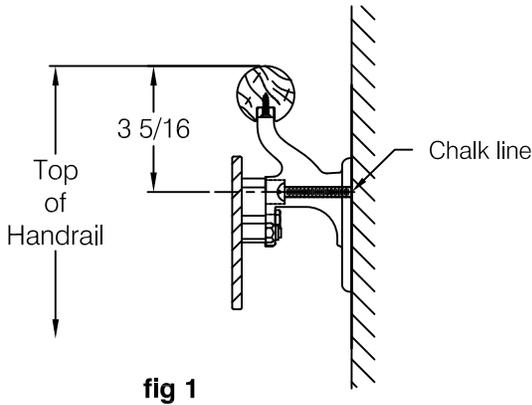


Component Part Numbers:

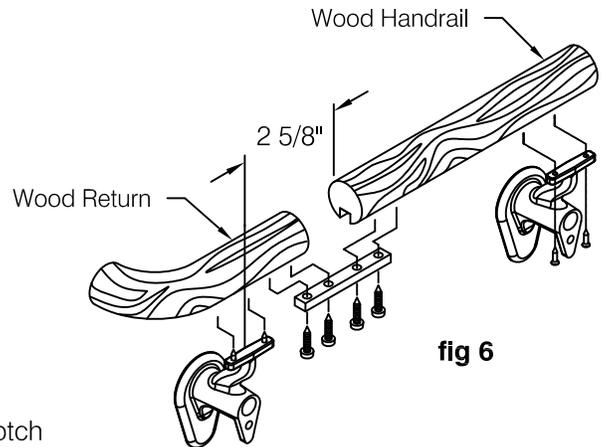
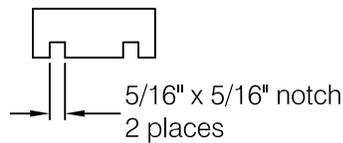
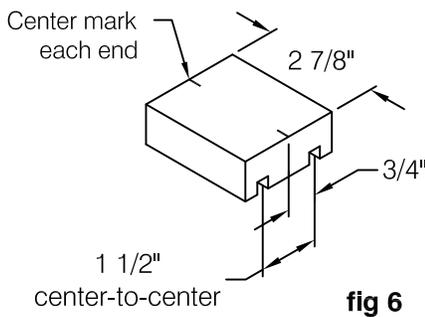
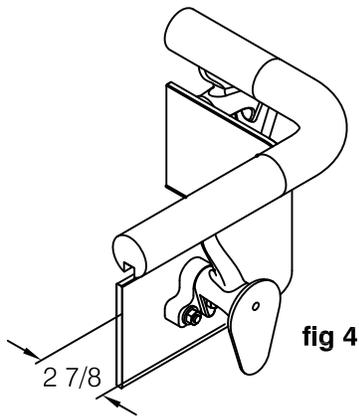
- | | |
|--------------------------------|--------------------------|
| 1) BRL(*)-4RW Left return top | 5) IOC(*)-4RW Corner top |
| 2) BRR(*)-4RW Right return top | 6) BR-406 Bracket |
| 3) CRS-100 Crash rail | 7) Spacer |
| 4) BRTW(*)-4R Wood handrail | 8) Splice |

- Step 1:** Determine top of handrail height and snap a chalk line 3 5/16" below for centerline of mounting hardware, see **fig 1**.
- Important:** Store the material in a clean dry place where the temperature is maintained between 50°F (10°C) and 100°F (38°C). Walls and rooms should be maintained at a minimum of 65°F (18°C) for at least 48 hours prior to installation. Acclimate materials to normal building conditions for at least 24 hours before cutting and installing.
- Note:** This product consists of a 1/4"x4" stainless steel crash rail mounted below a 1 1/2" diameter hardwood handgrip. The metal crash rail is pre-cut and pre-formed at the factory in accordance with customer supplied field dimensions. The crash rail should require no further modification. Consult factory if adjustments are necessary.
- Step 2:** An alphanumeric identification is provided on each section of crash rail, see **fig 2**. This identification also appears on the layout drawings provided with the shipment. Use the drawing and identification markings to facilitate placement of the crash rail.
- Step 3:** Threaded studs are factory welded to the rear face of the crash rail at each wall bracket location. The studs occur in pairs, spaced 1 1/2" center-to-center, see **fig 2**. Each bracket is counterbored to conceal the bracket-to-wall mounting hardware, see **fig 3**. Locate bracket mounting holes on the chalk line placed in **step 1** by careful measurement, using the crash rail for reference. When marking mounting hole locations for rails that involve a corner condition, be sure to account for the 2 7/8" bracket/spacer "standoff" between the wall and crash rail, see **fig 4**.
- Hint:** The crash rail may be used as a template for marking bracket locations by fabricating locating jigs as shown in **fig 6**. The jig is designed to position itself on the welded studs with a center mark to identify the bracket mounting location. The length of the fixture must be 2 7/8", the equivalent thickness of a bracket and spacer, see **fig 4**. This fixture will ensure the rail is held from the wall at the correct distance for accurately determining mounting hole locations involving corner conditions.
- Critical:** For sections of handrail that include corners, begin layout and marking of bracket locations from the corners outward. This is to ensure that butt-joints between crash rail sections are tight end-to-end. If desired, fully install corner portions of crash rail according to the instructions that follow, and then continue with marking bracket locations from the mounted sections outward, finishing with wall returns. All crash rail should be removed from the brackets for ease of installing the wood handrail, see **step 6** and **step 7**.
- Step 4:** Mount brackets to wall using the appropriate hardware according to wall construction. Drill holes at locations determined in **step 3** using a drill diameter as specified in the hardware manufacturer's instructions. For drywall applications, continuous metal backing should be installed behind the drywall during wall construction. The backing plate should be located so that bracket mounting hardware will pass through the approximate midpoint of the backing.
- Suggested hardware:**
- Drywall: Toggler® brand toggle bolts with 1/4"-20 machine screws
 - Masonry: Plastic Alligator® insert with #14 fasteners
- Step 5:** Install wood handrail beginning with inside and outside corners. Work from corners outward toward wall returns. Before cutting rail, consider which of the following condition exists.
- Condition A: Short handrail between two corners that will be installed in one piece
 - Condition B: Long handrail between two corners that requires multiple sections of rail
 - Condition C: Short handrail between a corner and wall return that will be installed in one piece
 - Condition D: Long handrail between a corner and wall return that requires multiple sections of rail
- For multi-section rails, review **step 9** for information pertaining to positioning and splicing at joints. For single section rails, use extreme care in completing an accurate length cut. Correct positioning of the rail is critical to proper alignment of corner accessories. The corner must align with rail from each direction before the rail is secured to mounting brackets.
- Important:** All handrail must be cut square prior to installation. Inspect ends and remove enough material to ensure a clean square cut, free of damage or defects. Deburr cuts using 120 grit sandpaper being careful not to damage the finish.
- Step 6:** Fasten corner accessories to rail using the metal splices provided. Center the splice over the rail-to-corner joint in the channel provided in the bottom of the wood components. Drill pilot holes with a 1/8" drill bit using caution not to drill through the finished surface of the wood. While maintaining alignment of wood components secure the splice to the corner accessory and rail using four #8 x 3/4" pan head screws provided.
- Note:** Rail may be pre-attached to both sides of each corner. For ease of handling and to prevent damage to the rail-corner joint, one side should be disassembled before moving the corner/rail assembly and proceeding with **step 7**.
- Step 7:** Position rail on wall brackets to ensure correct alignment with other rails, corners, and wall returns. Reattach rail at splice joint that may have been unassembled for ease of handling (**step 6**). Fasten rail and corner assemblies to wall mount brackets. Drill pilot holes using a 7/64" drill bit in the rail through the holes in the bracket mounting-tee. Use caution not to drill through the finished surface of the wood rail. Secure the rail to the bracket using two #6 x 3/4" flat head screws provided. Continue installation of rail and terminate with a square cut 2 5/8" from the centerline of wall return mounting brackets. Leave at least one bracket nearest the end of the rail unattached to rail until wall return has been attached.
- Critical:** Handrail that adjoins a wall return must be cut to end 2 5/8" before the centerline of the wall return mounting bracket, see **fig 7**. This will ensure proper alignment of the wall return with the crash rail below. Installing the return with the rail in place simplifies obtaining a tight and well aligned joint. Every wall return is supported and fixed in place by a wall bracket and splice, see **fig 7**.
- Step 8:** Position wall returns by butting and aligning to rail that is already in position. Attach wall returns to rail with splice provided. While maintaining alignment, position one end of the splice against the bracket mounting-tee and drill pilot holes through splice holes into the return. Drill pilot holes using a 1/8" drill bit using caution not to drill through the finished surface of the wood. Secure the splice to the wall return and rail using four #8 x 3/4" pan head screws provided. Drill pilot holes using a #21 drill bit in the returns through the holes in the bracket mounting-tee. Use caution not to drill through the finished surface of the wood. Secure the wall returns to the bracket using two #6 x 3/4" flat head screws provided.
- Step 9:** Position butt-joints in multi-section rails so joint occurs between 2 1/2" and 6" from the centerline of a wall bracket. Install a splice at each butt-joint with the splice centered on the joint. Drill pilot holes in the rail using a 1/8" drill bit using caution to avoid drilling through the finished surface of the rail. Secure the splice to the rail using four #8 x 3/4" pan head screws provided.
- Step 10:** Secure rails to any brackets that are unattached. Drill pilot holes using a 7/64" drill bit through the holes in the bracket mounting-tee. Use caution not to drill through the finished surface of the rail. Secure the rail to the bracket using two #6 x 3/4" flat head screws provided.
- Step 11:** Install metal crash rail. Begin by loosely fastening the spacer to the treaded studs using 1/4"-20 nylon lock nuts and flat washers provided, see **fig 5**. Mount the crash rail with spacers loosely attached to the wall-mount bracket using the 1/4"-20 machine screw provided. Adjust the position of the crash rail as desired and tighten nuts and machine screws.
- Critical:** Overtightening nuts will result in broken fasteners or welds. Tighten to point of contact and then 1/4 turn (equivalent torque 15 in-lb maximum).

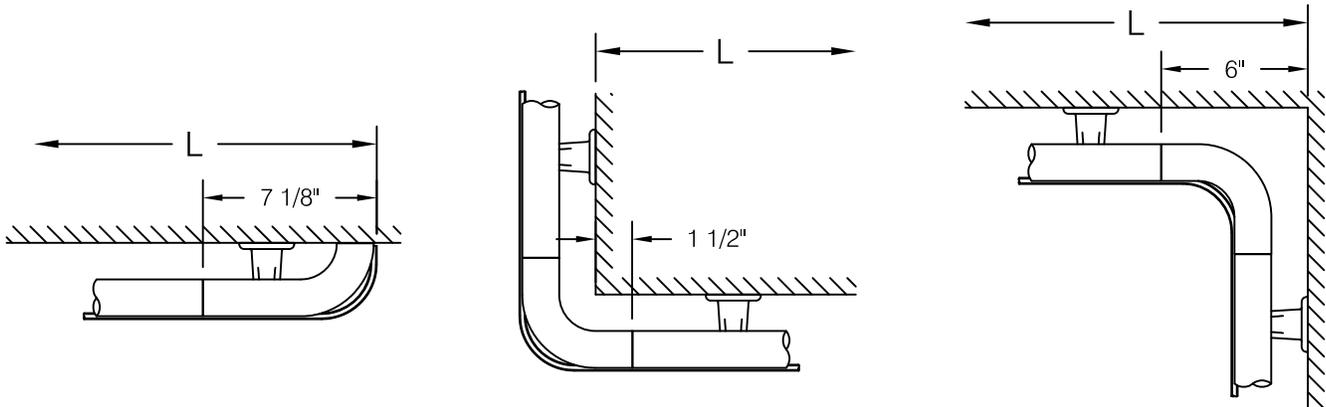
BR-4RWS Handrail Installation Instructions



Important!
 Overtightening nuts will result in broken fasteners or welds. Tighten to point of contact and then 1/4 turn (equivalent to 15 in-lb maximum).



Cutting Adjustment Diagrams and Schedule



Return

Outside Corner

Inside Corner

	Stainless Base	Wood Handrail
Return	Pre-fabricated to size	$L - 7 \frac{1}{8}''$
Outside Corner	Pre-fabricated to size	$L - 1 \frac{1}{2}''$
Inside Corner	Pre-fabricated to size	$L - 6''$

Important: Wood handrail to be cut to fit after brackets are fully mounted. Welded studs on crash rail determine bracket location. Crash rail should be removed from brackets to maximize access to handgrip mounting hardware.

Minimum Layout Configurations

