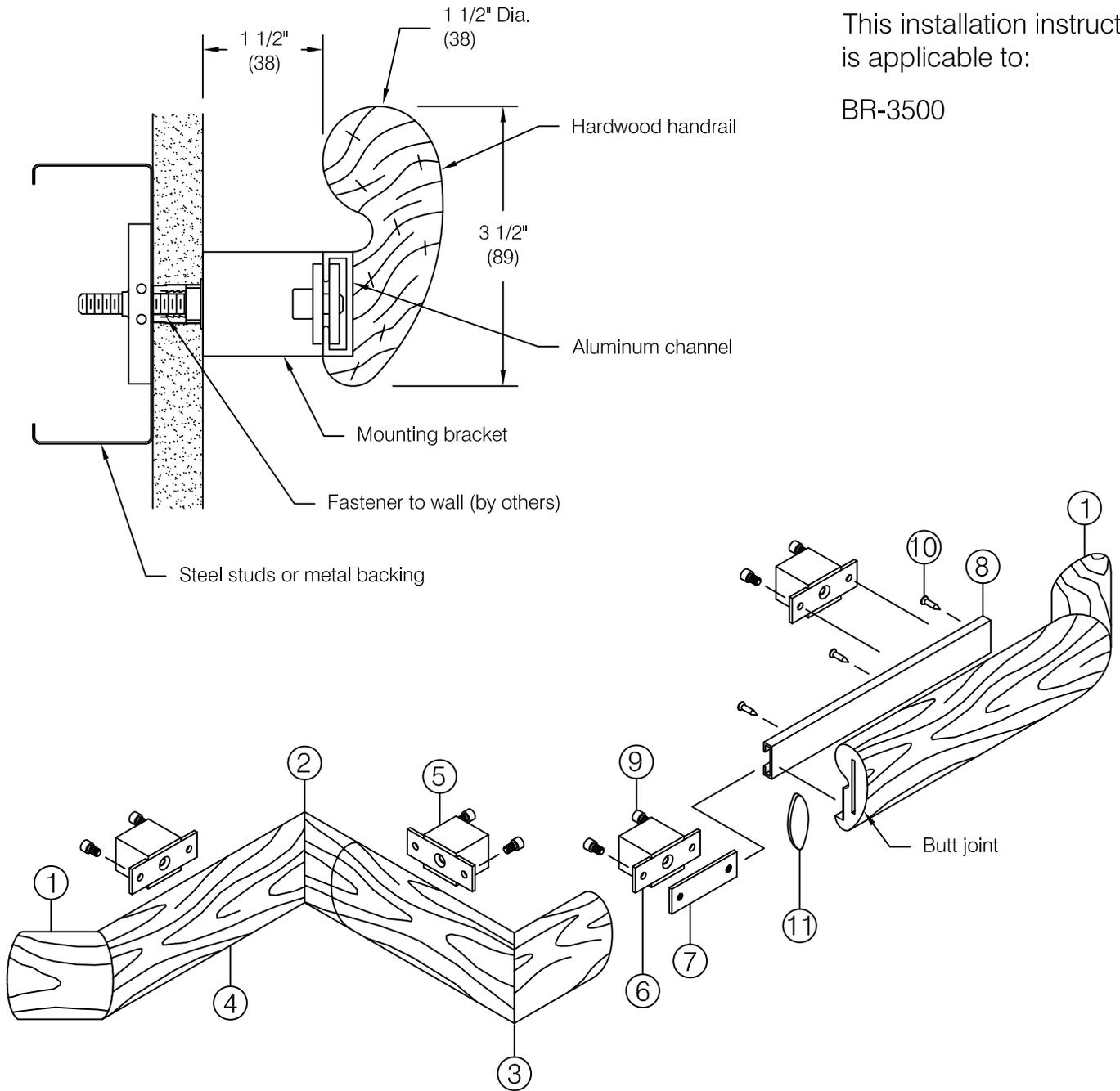


**BR-3500 Series Handrail - Field Miter**

This installation instruction is applicable to:

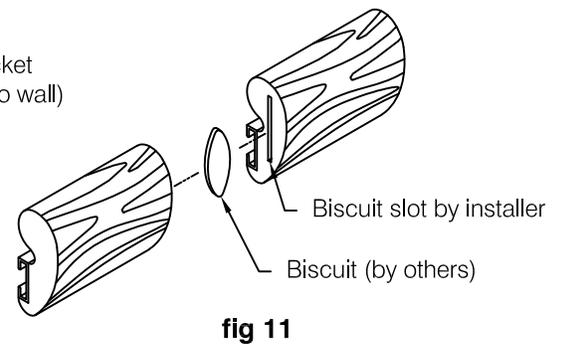
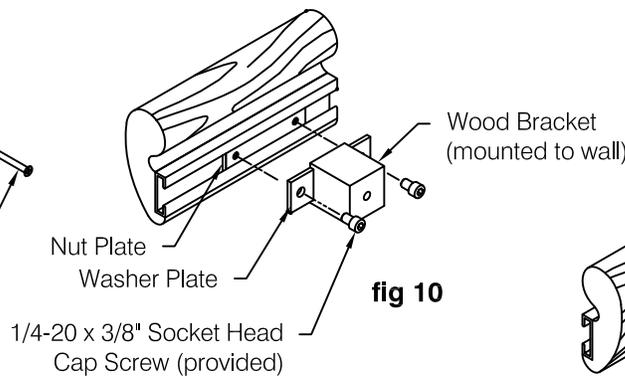
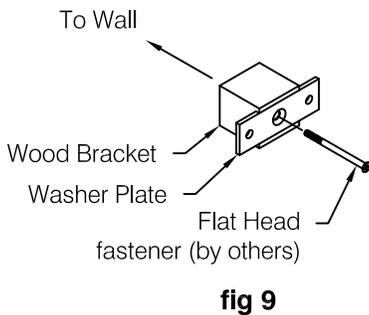
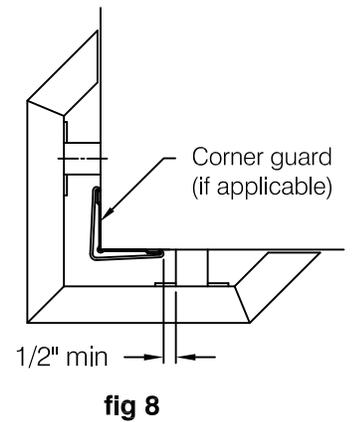
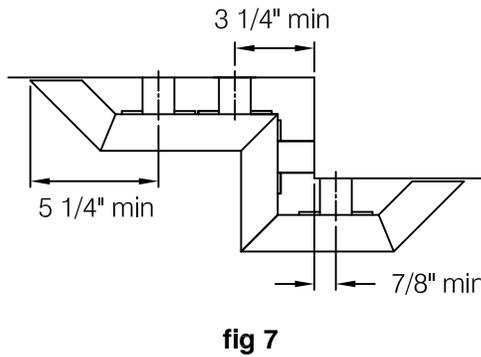
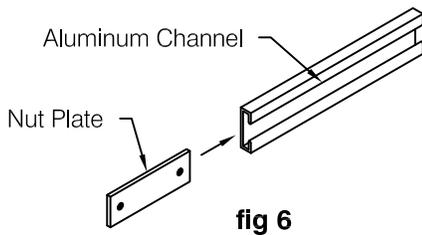
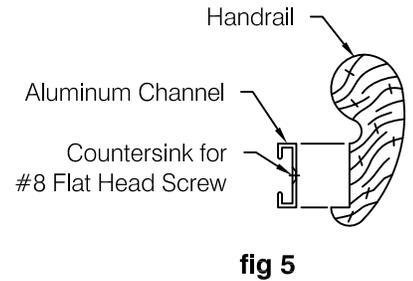
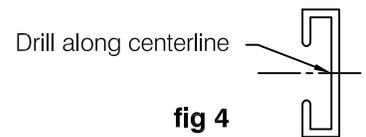
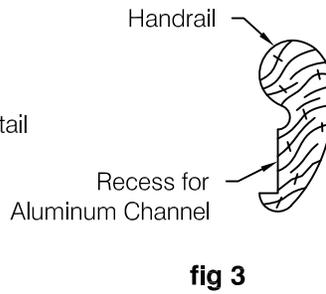
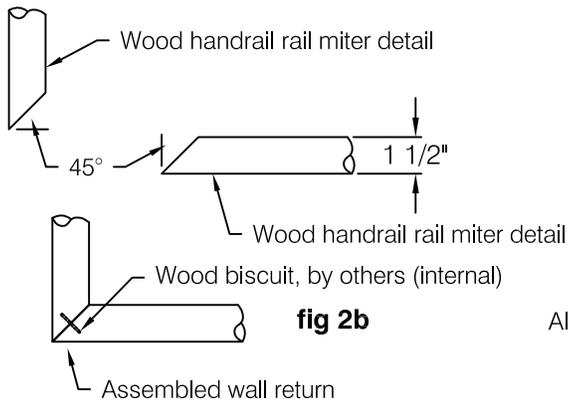
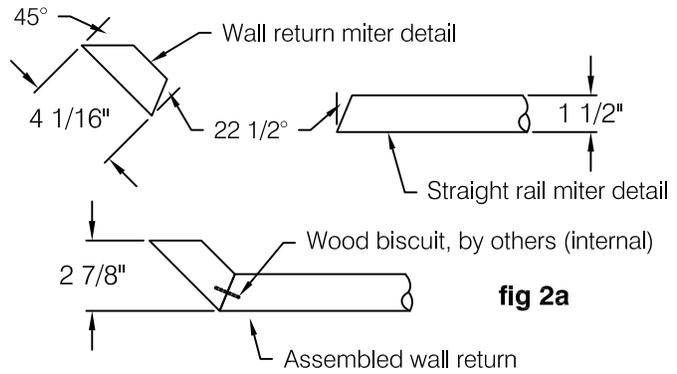
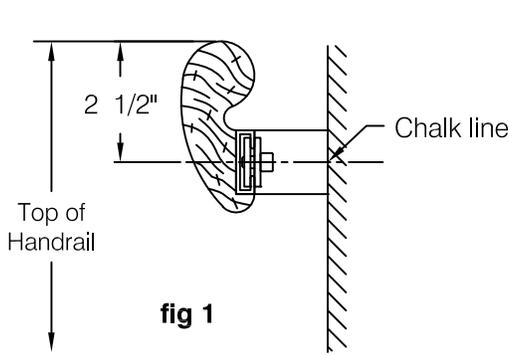
BR-3500



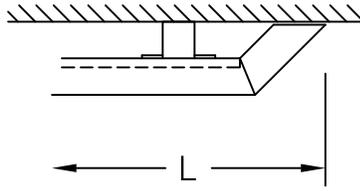
Component Part Numbers:

- |   |  |
|---|--|
| 1) Wall Return (fabricated by installer)    | 6) BKT-3500-WP Washer Plate                        |
| 2) Inside Corner (fabricated by installer)  | 7) BKT-3500-NP Nut Plate                           |
| 3) Outside Corner (fabricated by installer) | 8) BRA-3500 Aluminum Channel                       |
| 4) BRW-3500 Wood Handrail                   | 9) 1/4"-20 x 3/8" Socket head cap screw (provided) |
| 5) BKT-3500 Wood Bracket                    | 10) #8 x 3/4" Flat head screw (provided)           |
|   | 11) Wood Biscuit (by others)                       |

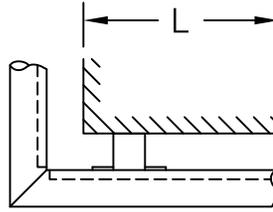
- Step 1:** Determine top of handrail height and snap a chalk line 2 1/2" below for centerline of mounting hardware, see **fig 1**.
- Important:** Store material in a clean dry place where the temperature is maintained above 50°F (10°C). Walls and rooms should be maintained at a minimum of 65°F (18°C) for at least 48 hours prior to installation. Acclimate materials to normal building conditions for at least 24 hours before cutting and installing.
- Step 2:** The handrail profile is supplied in straight sections of random length wood from 6' to 12'. All cutting, gluing, and assembly is performed in the field by the installer. Cut and miter the wood as required to provide the desired length handrail. Fabricate wall returns and corners as field conditions require. See **fig 2a** for standard wall return miter angles and cut length. See **fig 2b** for standard 90° corner miter angles. Adjust miter angles and cut lengths to accommodate field conditions as required.  
*Note:* Miter wood using a standard fine tooth, carbide tip, crosscut blade in a cut-off saw. Refer to **page 4** for information pertaining to minimum length configurations.
- Step 3:** Assemble the wood handrail using standard biscuit and glue joinery techniques. Cut a biscuit slot in each end of wood rail at butt joints. See **step 10** for butt joint assembly information.
- Step 4:** Cut aluminum mounting channel to fit in recess along back of handrail, see **fig 3**. The aluminum channel must be cut to fit between wall returns, corners, and butt joints. It is not necessary to install aluminum on the wall return. See **page 4** for cutting adjustments.
- Important:** Make sure the aluminum is cut to a length that will not interfere with handrail butting tightly at butt-joints. All cuts must be square and deburred.
- Step 3:** Layout aluminum channel "face up", mark and drill clearance holes (.177" diameter, #16 bit) for #8 flat head sheet metal screws provided. Locate holes along the centerline of the channel, see **fig 4**, approximately 8" on center. Countersink so that fastener is flush with aluminum channel, see **fig 5**. This will prevent interference when installing wall bracket nut plate, see **step 4**.
- Step 4:** Determine the number of handrail mounting brackets required for each section of handrail, see **step 6**. Slide that number of nut plates into the corresponding aluminum channel, see **fig 6**.
- Step 5:** Drill pilot holes (3/32" diameter) in wood handrail to align with holes in aluminum channel. Fasten aluminum channel to handrail using the #8 flathead sheet metal screws provided.
- Important:** When drilling pilot holes, use caution to avoid drilling through finished face of handrail. Make sure nut plates have been slid into channel before fastening aluminum to wood rail, see **step 4**.
- Step 6:** Locate and drill handrail bracket mounting holes in wall construction. Make sure spacing will not result in interference between the nut plate and pre-mitered wall returns and corners.  
**Bracket mounting holes must be spaced:**
- Not to exceed 32" on center
  - 5 1/4" to 7 3/8" on center from end of standard wall returns, see **fig 7**
  - 3 1/4" to 7 1/2" on center from inside corner of wall, see **fig 7**
  - 7/8" to 5" on center from outside corner of wall, or to leave 1/2" minimum clearance from optional corner guard, see **fig 7** and **fig 8**
  - To align with horizontal backer plate or vertical studs (metal or wood) in non-masonry wall construction
- Step 7:** Fasten wood bracket and washer plate to wall using 1/4" diameter flathead fasteners, see **fig 9**. Select hardware according to wall construction.  
**Suggested hardware:**
- Drywall: Toggler® brand toggle bolts with flathead machine screw fastener.
  - Masonry: Plastic Alligator® insert with flathead sheet metal or lag bolt thread fastener.
- Step 8:** Hold wood rail in place and align nut plate with bracket and washer plate assembly. Use 1/4"-20x3/8" socket head cap screws provided to secure nut plate to washer plate, see **fig 10**. Do not tighten until all nut plates have fasteners loosely installed. See **step 10** for installation of handrail at butt joints.
- Step 9:** Tighten cap screws with an Allen wrench using caution to avoid stripping threads in the aluminum nut plate.
- Step 10:** Install wood biscuit at butt joints using water soluble carpenter glue, see **fig 11**. Apply additional glue to adjoining ends of handrail using caution to prevent excess glue from squeezing out of the joint. Install the adjacent handrail section pressing firmly to keep the butt joint tightly together while the rail is secured. Wipe off any excess glue using a damp towel. Continue with installation of remaining sections as described above.



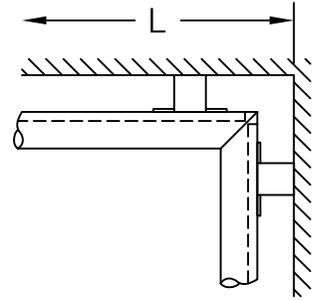
## Cutting Adjustment Diagrams and Schedule



Return



Outside Corner



Inside Corner

	Aluminum Channel	Wood
Return	L - 3 1/2"	Field Miter
Outside Corner	L + 1 3/8"	Field Miter
Inside Corner	L - 2"	Field Miter

## Minimum Layout Configurations

