

**P-RWS HANDRAIL**  
WITH OPTIONAL S.S. END CAPS

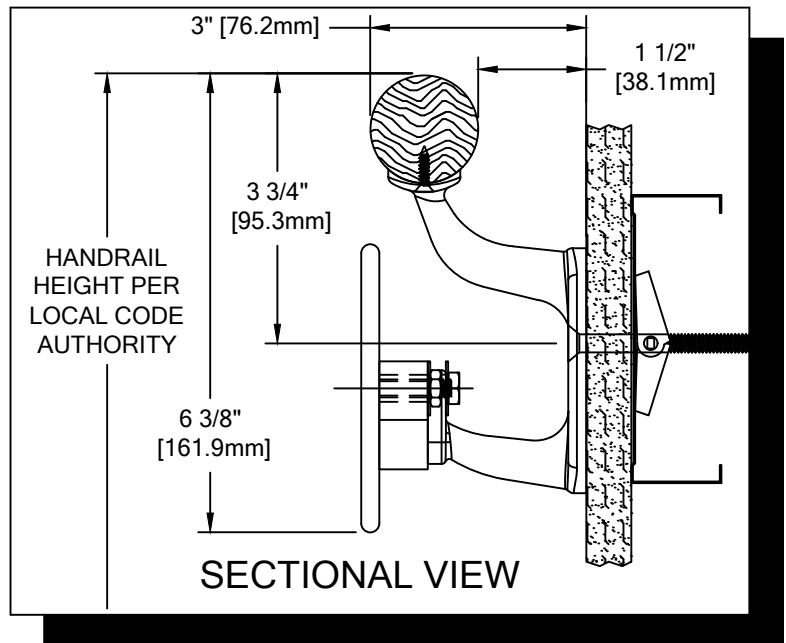
PLEASE READ

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

THIS INSTRUCTION SHEET IS INTENDED TO PROVIDE A SPECIFIC GUIDE TO FOLLOW FOR THE INSTALLATION OF THIS P-RWS 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-RWS 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-RWS 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

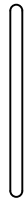
1. DUE TO WOOD BEING A NATURAL PRODUCT, COMPONENTS MAY GROW AND SHRINK AT DIFFERENT RATES. BECAUSE OF THIS, CS HAS DESIGNED THIS HANDRAIL TO UTILIZE A BEVEL AS SHOWN IN THESE INSTRUCTIONS (SEE FIGURE 1). THIS BEVEL MUST BE APPLIED AT ALL WOOD JOINTS.
2. THIS HANDRAIL HAS BEEN MANUFACTURED TO CUSTOMER SPECIFIED DIMENSIONS AND CAN NOT BE CUT OR MODIFIED ON SITE. TO DO SO COULD VOID THE WARRANTY.
3. ALL DIMENSIONS ARE TYPICAL.
4. FOR DRYWALL/PLASTER WALL CONSTRUCTION, IT IS RECOMMENDED FOR FASTENERS TO BE ENGAGED INTO METAL/WOOD STUDS TO MAINTAIN MAXIMUM PULLOUT STRENGTH. IF DURING INSTALLATION YOU ENCOUNTER SPECIAL WALL CONDITIONS THAT DO NOT ALLOW FOR DIRECT ATTACHMENT TO THE STUDS PLEASE CONSULT THE LOCAL AUTHORITY HAVING JURISDICTION.
5. INSTALL OUTSIDE CORNERS FIRST.
6. INSTALL LONGEST RUN OF HANDRAIL FIRST.
7. WOOD HANDRAIL SPLICE SHOULD NOT EXCEED 3" [76.2mm] DISTANCE FROM A BRACKET.
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 15 1/4" [387mm].
11. FOR MORE INFORMATION ON P-RWS HANDRAIL SEE OUR WEBSITE AT [www.c-sgroup.com](http://www.c-sgroup.com).

**P-RWS HANDRAIL**

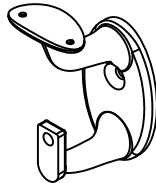
COMPONENTS & WALL FASTENERS



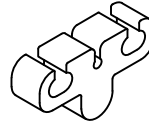
WOOD HANDRAIL  
(24W354xxx)



STAINLESS STEEL  
CRASH RAIL



STAINLESS STEEL  
MOUNTING BRACKET  
(24S157000)



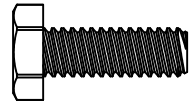
BRACKET ADAPTER PLATE  
(24F230003)



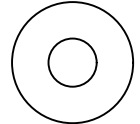
WOOD DOWEL PIN  
(24W507037)



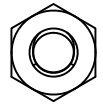
END CAP SPLINE  
(24F194000)



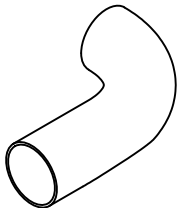
**FASTENER #1**  
1/4"-20 X 3/4" HEX HEAD  
MACHINE SCREW  
(90H008002)



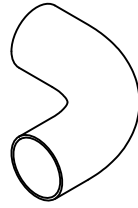
**FASTENER #2**  
1/4" FLAT WASHER  
(90H007003)



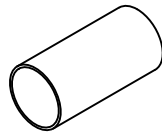
**FASTENER #3**  
1/4"-20 HEX NUT  
(90H010001)



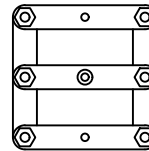
STAINLESS STEEL END CAP  
(24S193000)



STAINLESS STEEL  
OUTSIDE CORNER  
(24S120000)



OPTIONAL STAINLESS  
STEEL SPLICE  
(24S122000)



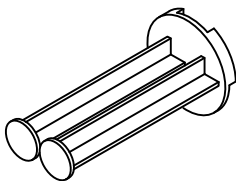
END CAP DRILL JIG  
(90F010004)



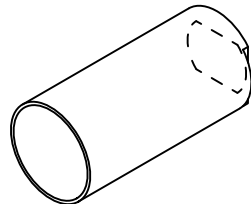
END CAP DRILL JIG  
CENTER ARM FOR  
WOOD SPLICE  
(90H165010)



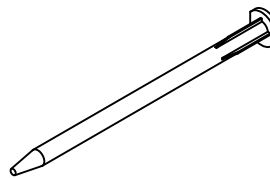
**FASTENER #4**  
#6 X 5/8" S/S PHILLIPS  
FLAT HEAD SMS  
(90H231004)



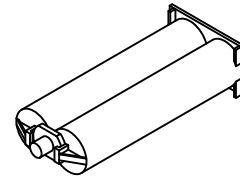
CAULKING GUN  
CONVERSION KIT  
PLUNGER  
(90M023000)



CAULKING GUN  
CONVERSION KIT  
SLEEVE  
(90M023000)



MIXING NOZZLE  
(90M022000)



EPOXY  
(90M089001)



**FASTENER #5**  
SERRATED LOCK WASHER  
(90H043003)

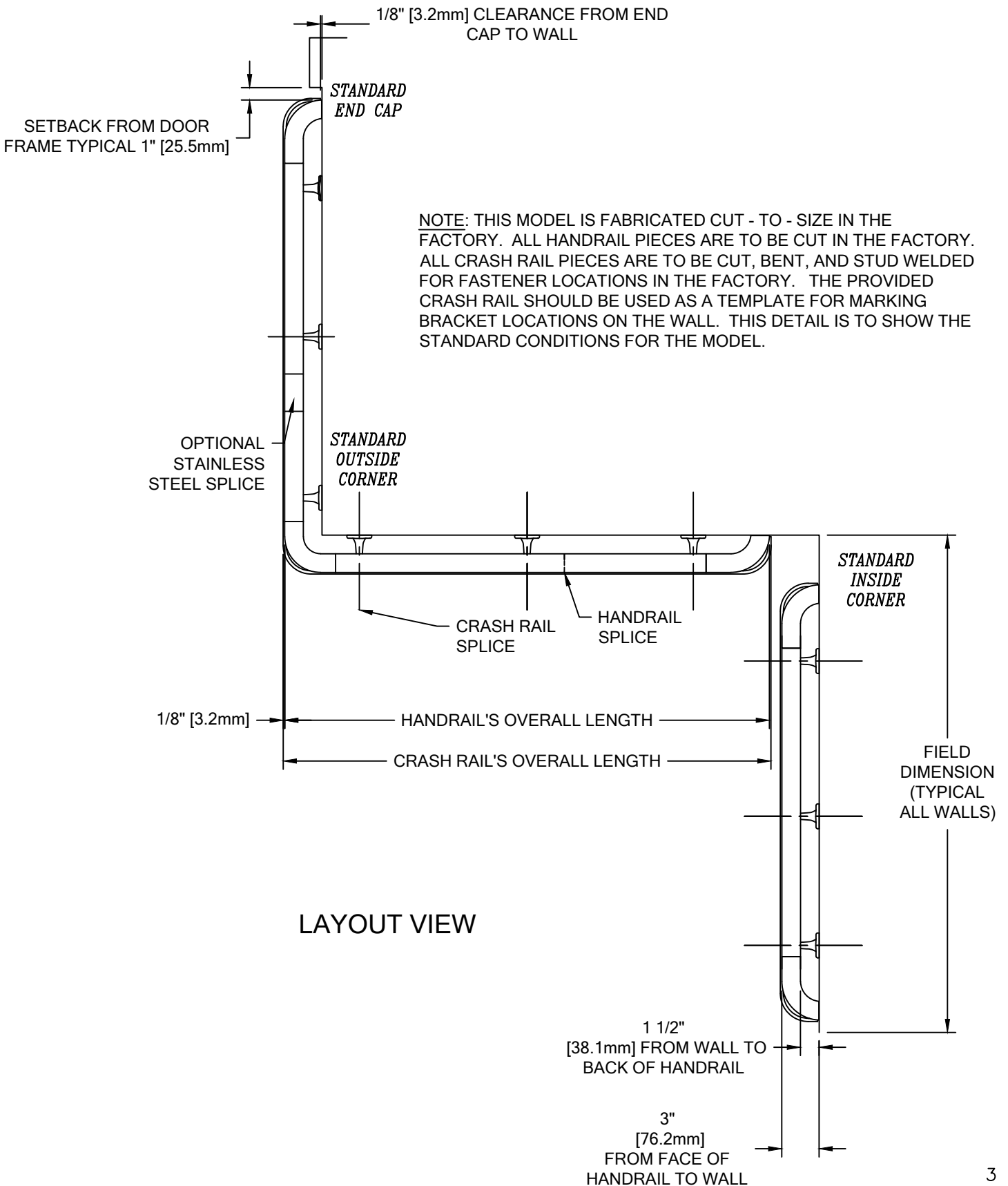


**FASTENER #6**  
#14 X 2 1/2"  
HEX WASHER HEAD  
SHEET METAL SCREW  
(90H437002)

| WALL CONDITION                        | SPECIFIED FASTENER                                                              | DRILL DIAMETERS |          | CS PART NUMBER                      |
|---------------------------------------|---------------------------------------------------------------------------------|-----------------|----------|-------------------------------------|
|                                       |                                                                                 | WALL            | RETAINER |                                     |
| STEEL STUD/GYPSUM WALL                | 1/4-20 X 3" S/S FLAT HEAD BOLT WITH TOGGLE                                      | 3/4"            | N/A      | 90H184002                           |
| CONCRETE/CONCRETE BLOCK               | 1/4" X 1 3/4" S/S FLAT HEAD MASONRY ANCHOR                                      | 3/16"           | N/A      | 90H390000                           |
| WOOD STUD/GYPSUM WALL                 | #14 X 3" S/S PHILLIPS FLAT HEAD WOOD SCREW                                      | 7/32"           | N/A      | 90H538004                           |
| 20 GA. STEEL STUD/GYPSUM WALL (OSHPD) | 1/4 - 20 X 3" S/S FLAT HEAD BOLT<br>1/4" TOGGLER WING<br>3M MOLDABLE FIRE PUTTY | 1/2"            | N/A      | 90H063002<br>90H062004<br>90M012000 |

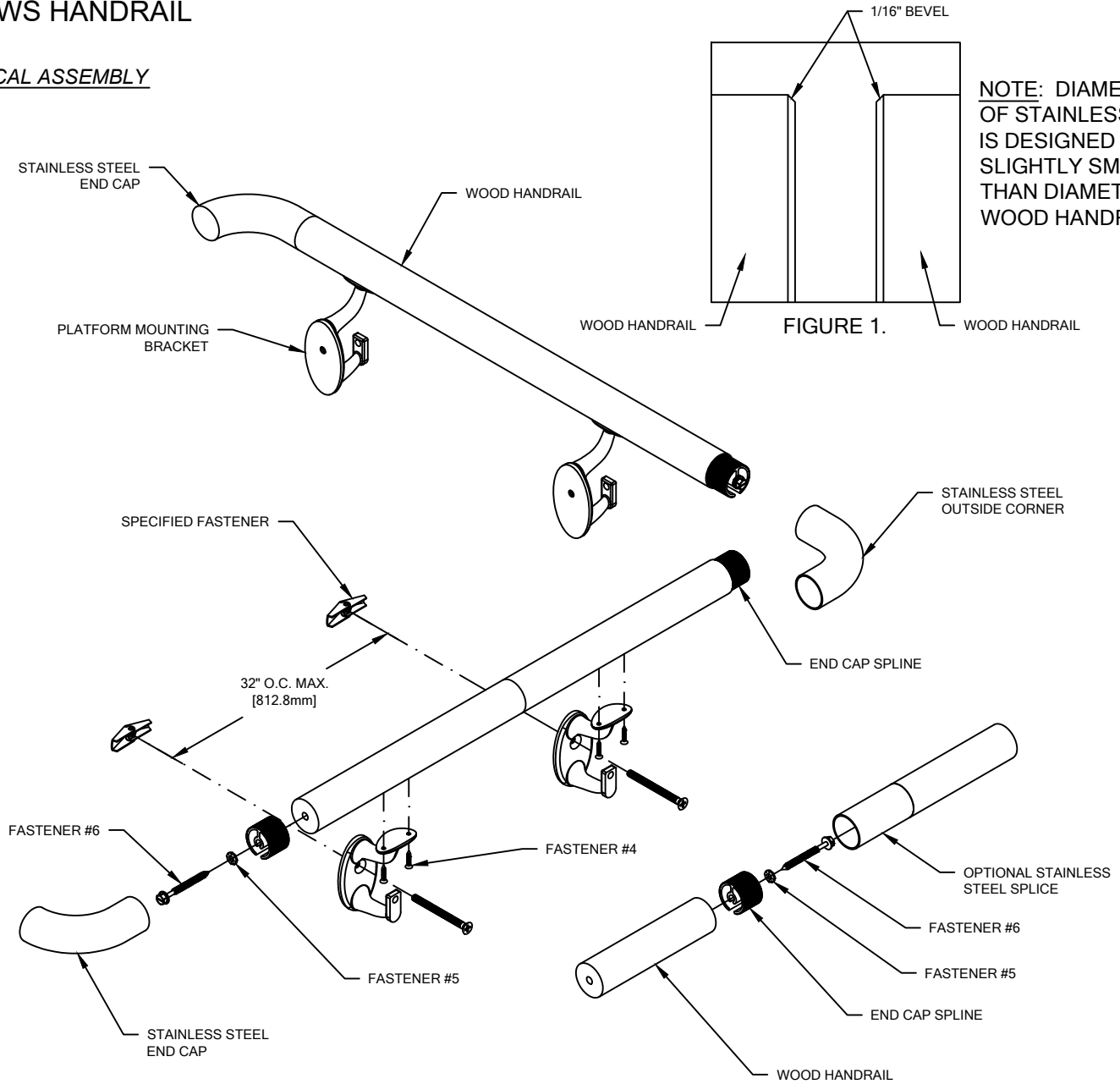
P-RWS HANDRAIL

LAYOUT VIEW



**P-RWS HANDRAIL**

TYPICAL ASSEMBLY



NOTE: DIAMETER OF STAINLESS STEEL IS DESIGNED TO BE SLIGHTLY SMALLER THAN DIAMETER OF WOOD HANDRAIL

FIGURE 1.

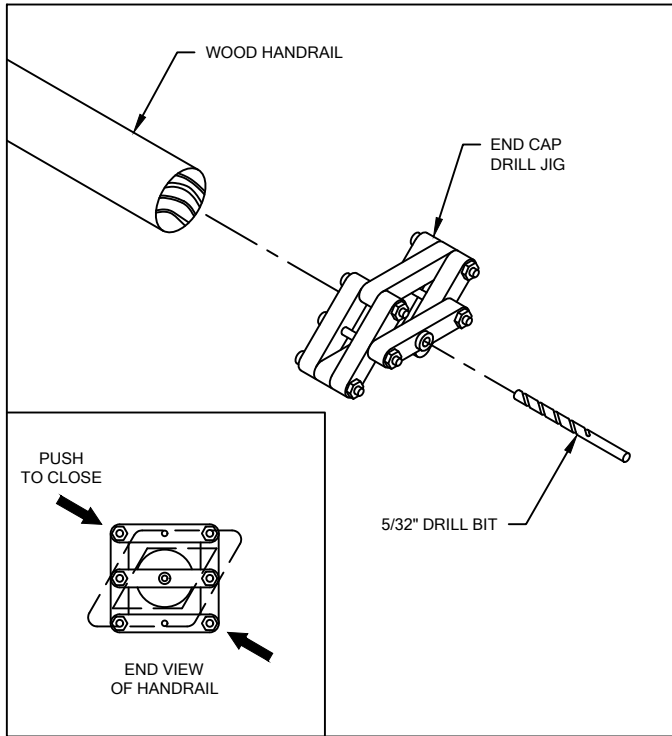
NOTE: THIS MATERIAL HAS BEEN MANUFACTURED TO CUSTOMER SPECIFIED DIMENSIONS AND CAN NOT BE CUT OR MODIFIED ON SITE. TO DO SO COULD VOID WARRANTY.

1. USING "LOCAL CODE" REQUIREMENTS, ESTABLISH HANDRAIL HEIGHT 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 FOR CORRECT DRILL DIAMETERS, USE CRASH RAIL WITH ATTACHED BRACKETS AS A TEMPLATE TO MARK BRACKET LOCATIONS ON THE WALL, REFERENCE STEP 8.

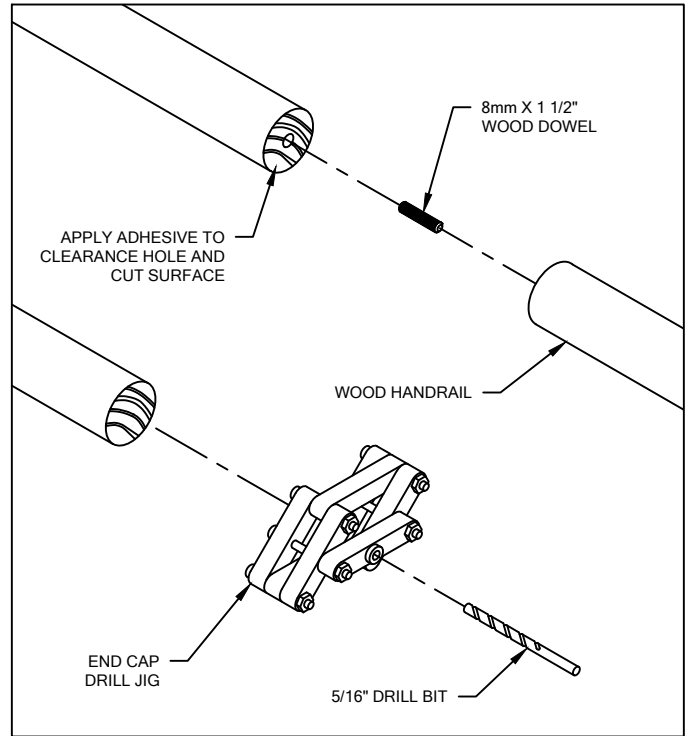
NOTE: SEE LAYOUT VIEW TO AID IN MOUNTING BRACKET LOCATION.

3. INSTALL MOUNTING BRACKETS USING APPROPRIATE FASTENERS. USE A LEVEL TO ENSURE THAT THE BRACKETS ARE LEVEL. WARNING: MOUNTING BRACKET LOCATIONS MUST BE IDENTICAL TO THE FACTORY INSTALLED STUDS ON THE BACKSIDE OF THE CRASH RAIL.
4. TO ENSURE PROPER ALIGNMENT OF HANDRAIL TO END CAP, USE THE END CAP DRILL JIG TO DRILL A PILOT HOLE FOR END CAP ATTACHMENT IN EACH END OF THE HANDRAIL. (SEE FIGURE 2)
  - LOCATE END CAP DRILL JIG OVER END OF WOOD HANDRAIL. POSITION END OF HANDRAIL TIGHT AGAINST BOTTOM OF DRILL JIG'S CENTER BAR.
  - CLOSE THE DRILL JIG TIGHT AGAINST THE OUTSIDE EDGE OF THE HANDRAIL.
  - DRILL A 5/32" PILOT HOLE (1 1/8" DEEP) IN END OF HANDRAIL.

**P-RWS HANDRAIL**



**FIGURE 2.  
END CAP/CORNER DRILL  
JIG AND OPTIONAL SPLICE**



**FIGURE 3.  
WOOD DOWEL SPLICE  
ASSEMBLY**

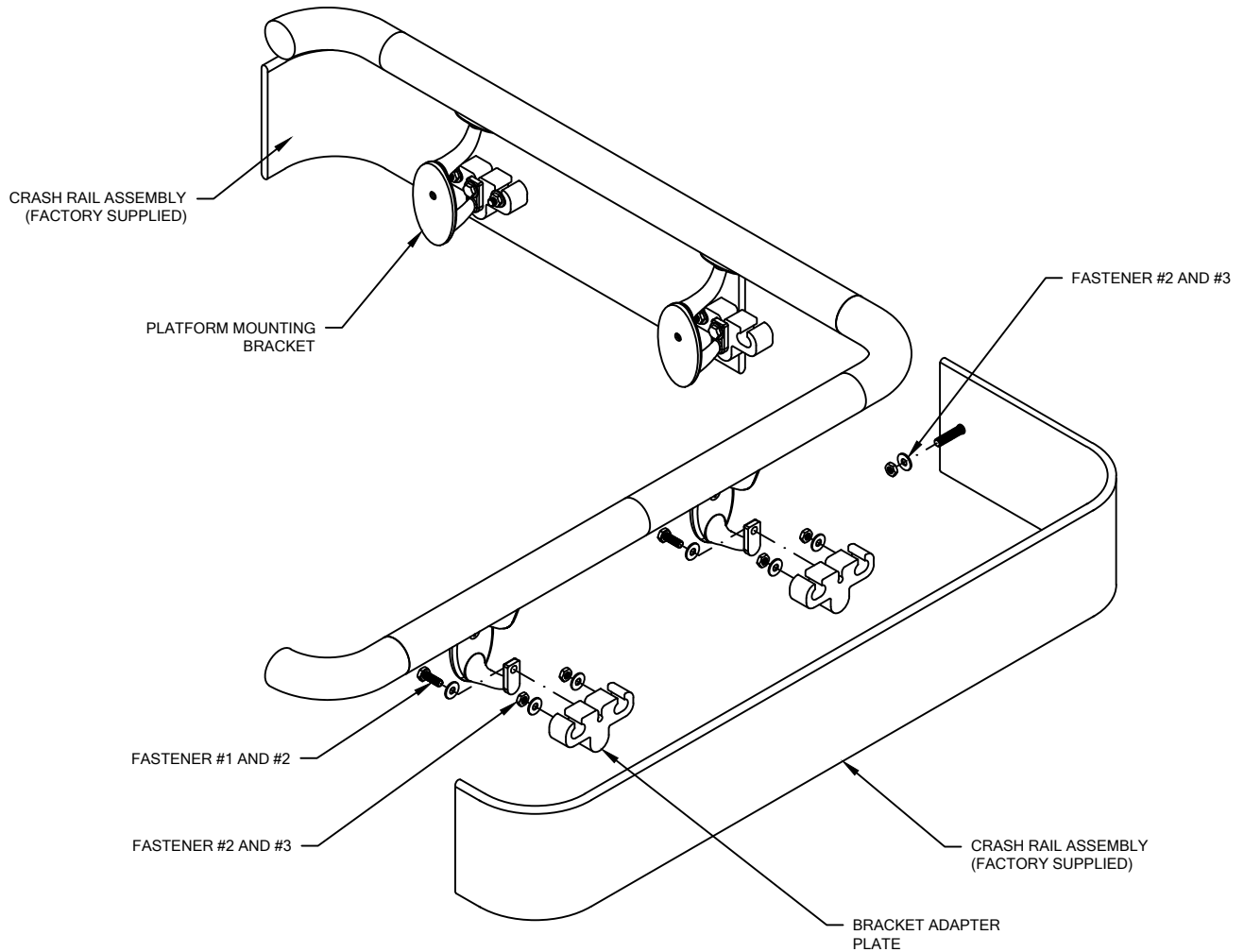
5. ATTACH STAINLESS STEEL END CAPS AND OUTSIDE CORNERS (A FLAT SURFACE IS REQUIRED):
  - TO PROTECT FINISHED SURFACES FROM ADHESIVE DURING ASSEMBLY APPLY MASKING TAPE TO END OF HANDRAIL'S FINISHED WOOD SURFACE AND EXTERIOR SURFACE OF END CAP (OR OUTSIDE CORNER).
  - CLEAN OUTER SURFACE OF ALUMINUM SPLINE WITH ISOPROPYL (RUBBING) ALCOHOL. ATTACH SPLINE TO THE END OF THE HANDRAIL USING THE #14 X 2 1/2" HEX WASHER HEAD SHEET METAL SCREW AND SERRATED LOCK WASHER. DRY FIT HANDRAIL TO END CAP (OR OUTSIDE CORNER) AND CHECK FOR A SEAMLESS TRANSITION BETWEEN WOOD AND METAL COMPONENTS.
  - ONCE TESTED, FILL THE PILOT HOLE WITH ADHESIVE (REFERENCE CAULKING GUN CONVERSION KIT FIGURES 4 & 5) AND PERMANENTLY ATTACH ALUMINUM SPLINE. **CAUTION: SERRATED LOCK WASHER MUST BE SECURELY TIGHTENED AND EMBEDDED INTO ALUMINUM SPLINE TO PREVENT ATTACHED END CAP FROM ROTATING.**
  - USING 100 GRIT SANDPAPER, SAND THE INTERIOR SURFACE OF THE END CAP. CLEAN THE INTERIOR SURFACE OF THE END CAP WITH ISOPROPYL (RUBBING) ALCOHOL.
  - THE ADHESIVE ONLY ALLOWS FOR 8 TO 12 MINUTES OF WORKING TIME. INSTALL END CAP (OR OUTSIDE CORNER) OVER ALUMINUM SPLINE. FOR PROPER SEAM, STAINLESS STEEL END CAP (OR 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.
6. DRILL 1/16" PILOT HOLES INTO THE WOOD HANDRAIL FOR MOUNTING BRACKET ATTACHMENT. MOUNTING BRACKETS ARE TO BE LOCATED 3" [76.2mm] FROM EACH END OF THE RAIL AND 32" [812.6mm] ON CENTER ALONG LENGTH, AS REQUIRED.
7. FASTEN THE WOOD HANDRAIL TO THE WALL BRACKET IN SUCCESSION BY INSERTING TWO #6 X 5/8" PHILLIPS FLAT HEAD SHEET METAL SCREWS THROUGH THE UNDERSIDE OF THE BRACKET INTO THE WOOD HANDRAIL. **CAUTION: OVER-TORQUING MAY CAUSE THE FASTENERS TO STRIP.**

**HANDRAIL SPLICE ASSEMBLY WITH DOWEL**

1. TO ENSURE PROPER ALIGNMENT OF HANDRAIL SPLICE, USE THE END CAP DRILL JIG TO DRILL A CLEARANCE HOLE FOR SPLICE ASSEMBLY IN EACH END OF THE HANDRAIL. (SEE FIGURE 3)
  - LOCATE SPLICE DRILL JIG OVER END OF WOOD HANDRAIL. POSITION END OF HANDRAIL TIGHT AGAINST BOTTOM OF DRILL JIG'S CENTER BAR.
  - CLOSE THE DRILL JIG TIGHT AGAINST THE OUTSIDE EDGE OF THE HANDRAIL.
  - DRILL A 5/16" CLEARANCE HOLE (7/8") DEEP IN END OF EACH HANDRAIL.
2. ASSEMBLE HANDRAIL SPLICE WITH WOOD DOWEL. (SEE FIGURE 3)
  - BEVEL THE HANDRAIL EDGES SLIGHTLY WITH 150 GRIT SANDPAPER. **TOUCH UP SANDED EDGES WITH STAIN MARKER.** (SEE FIGURE 1)
  - LOCATE HANDRAIL ON FLAT WORKING SURFACE AND INSERT 8mm WOOD DOWEL IN THE END OF EACH HANDRAIL THAT WILL CREATE A SPLICE. BEFORE APPLYING WOOD GLUE, DRY FIT COMPONENTS TOGETHER TO DOUBLE CHECK FIT. APPLY WOOD GLUE INTO THE HOLE AND CUT SURFACE OF THE HANDRAIL PRIOR TO HANDRAIL INSERTION. TITEBOND WOOD GLUE IS RECOMMENDED FOR THIS APPLICATION. WIPE OFF ANY EXCESS GLUE.

P-RWS HANDRAIL

TYPICAL CRASH RAIL ASSEMBLY



8. ATTACH CRASH RAIL TO THE WALL MOUNTING BRACKETS:
- DISTRIBUTE MATERIAL. MATCH THE NUMBER ON THE BACK OF THE RAIL TO THE MARK NUMBER ON THE DRAWING. SOME LARGE RUNS REQUIRE MORE THAN ONE PIECE OF CRASH RAIL. THESE ARE NOTED WITH A MARK NUMBER AND A LETTER, I.E., 2001A, 2001B.
  - LOCATE A BRACKET ADAPTER PLATE ON EACH SET OF THREADED STUDS ON THE BACKSIDE OF THE CRASH RAIL.
  - SECURE THE BRACKET ADAPTER PLATE BY INSTALLING A 1/4" WASHER AND 1/4-20 NUT ONTO EACH THREADED STUD.
  - ALIGN EACH MOUNTING BRACKET WITH THE BRACKET ADAPTER PLATE'S THREADED HOLE.
  - INSERT 1/4-20 HEX HEAD BOLT AND 1/4" WASHER THROUGH THE MOUNTING BRACKET AND INTO THE MOUNTING BRACKET'S THREADED HOLE. THE BRACKET ADAPTER PLATE IS SLOTTED TO ACCOMMODATE ANY SLIGHT MISALIGNMENT.
  - FASTENERS MUST BE TORQUED TO 150 IN/LBS.

P-RWS HANDRAIL

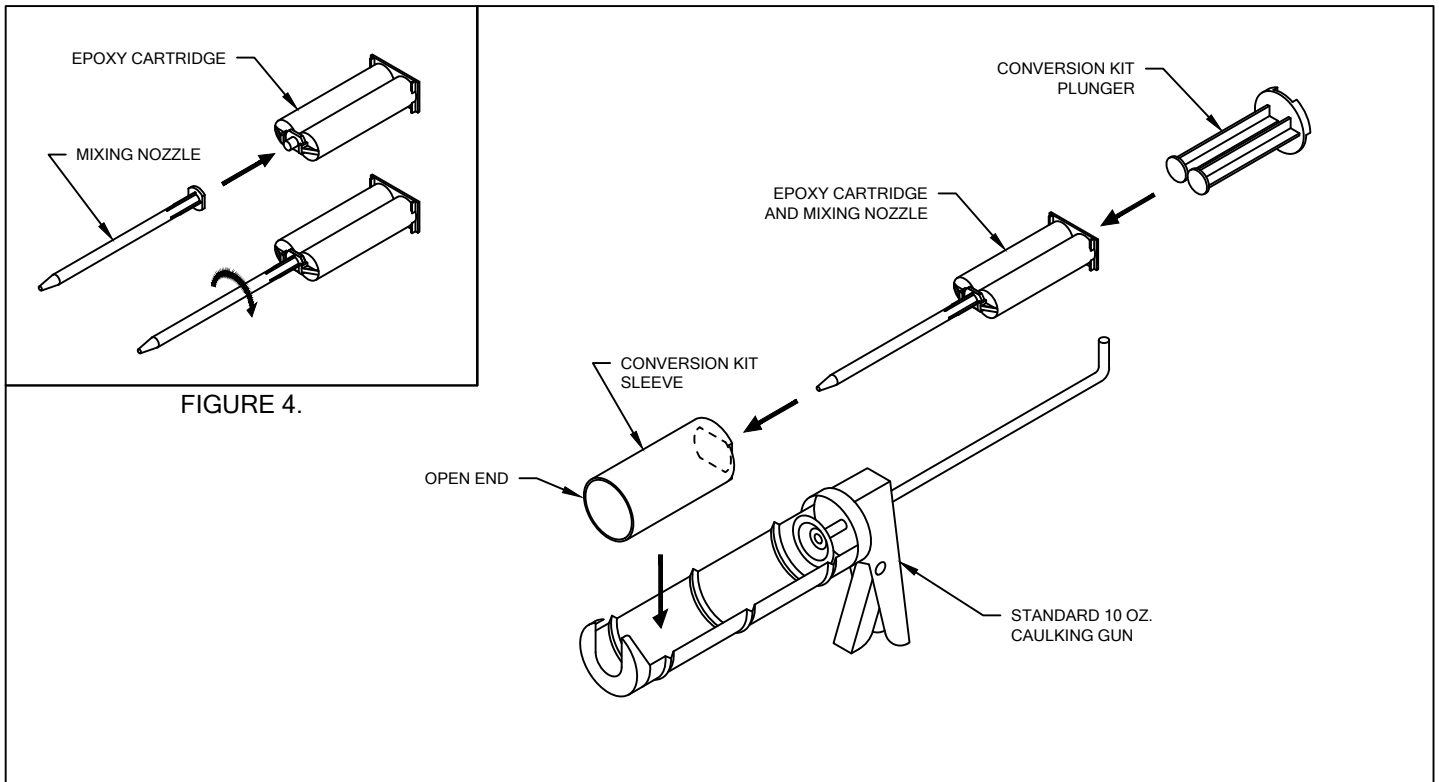


FIGURE 4.

FIGURE 5.

**CAULKING GUN CONVERSION KIT**

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.