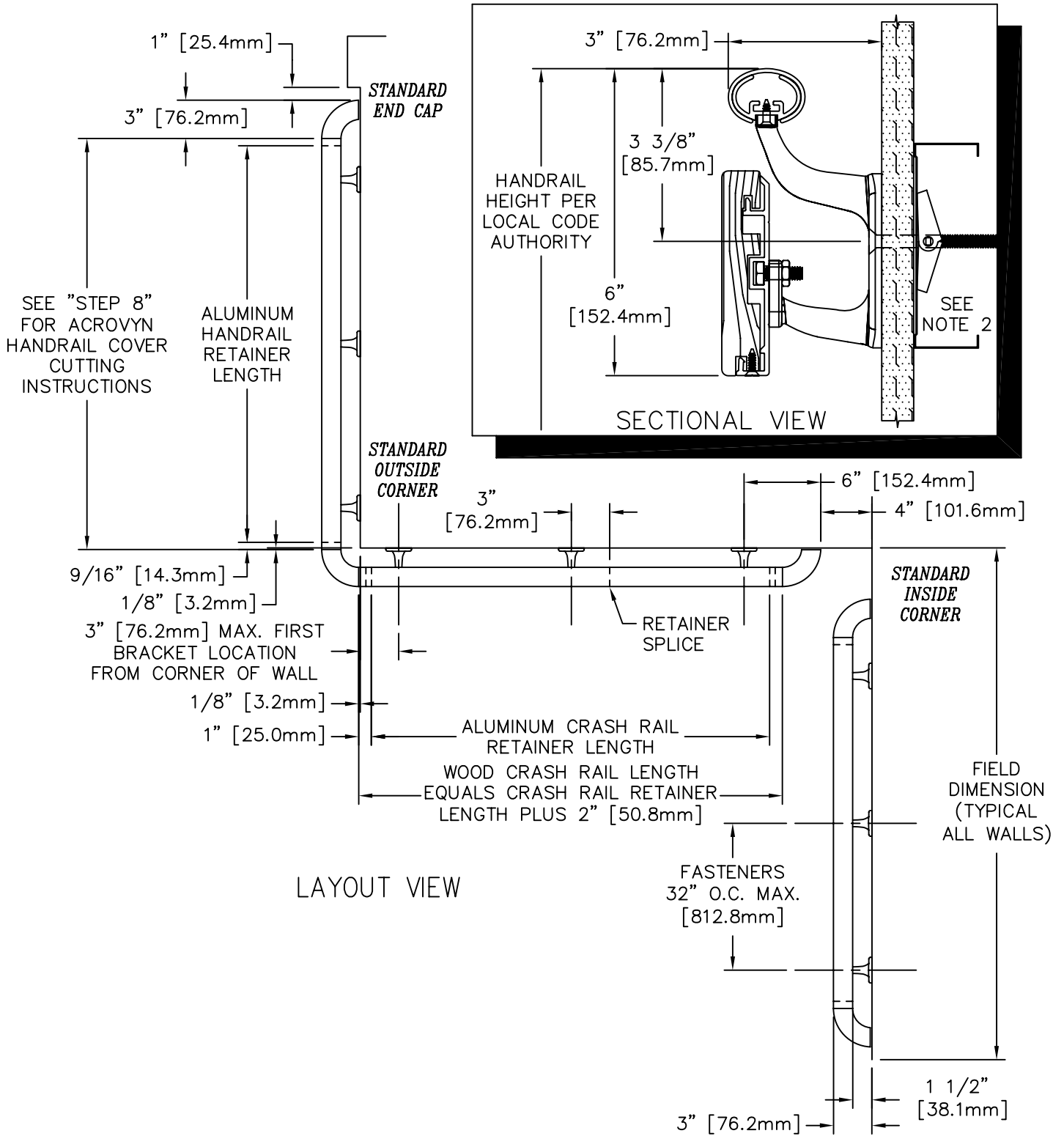


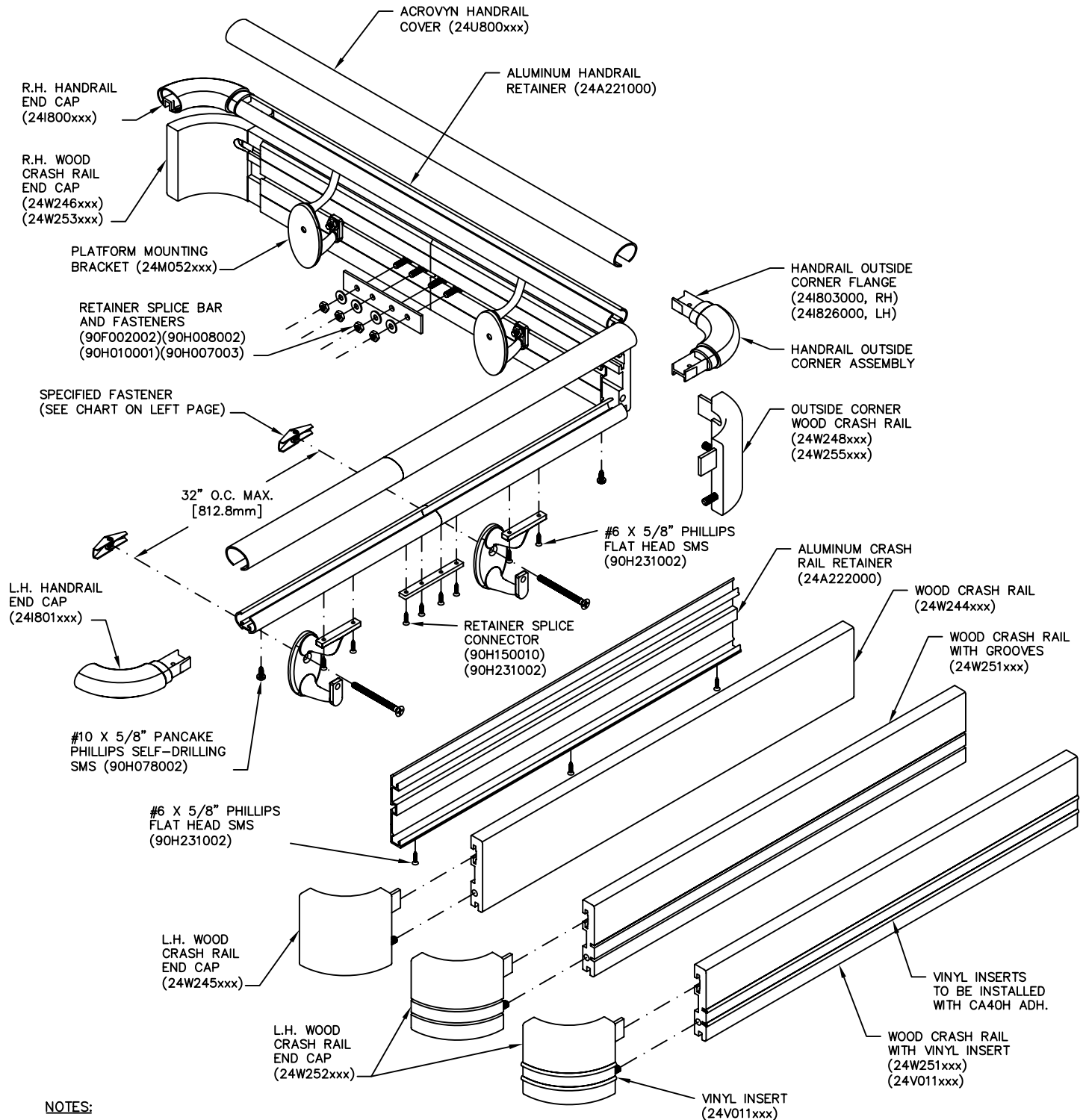
CSGROUP Model: P-OAW, P-OAWG, P-OAWV HANDRAIL 24CA



| WALL CONDITION | SPECIFIED FASTENER | DRILL DIAMETERS | | C/S PART NUMBER |
|------------------------|--|-----------------|----------|-----------------|
| | | WALL | RETAINER | |
| STEEL STUD/GYPSUM WALL | 1/4-20 X 3" FLAT HEAD BOLT/TOGGLE WING | 3/4" | 9/32" | 90H138004 |
| CONCRETE/CONC. BLOCK | 1/4" X 1 3/4" FLAT HEAD MASONRY ANCHOR | 3/16" | 9/32" | 90H037004 |
| WOOD STUD/GYPSUM WALL | #14 X 3" PHILLIPS FLAT HEAD WOOD SCREW | 7/32" | 9/32" | 90H536002 |

INSTALLATION INSTRUCTIONS

P-OAW, P-OAWG, P-OAWV HANDRAILS

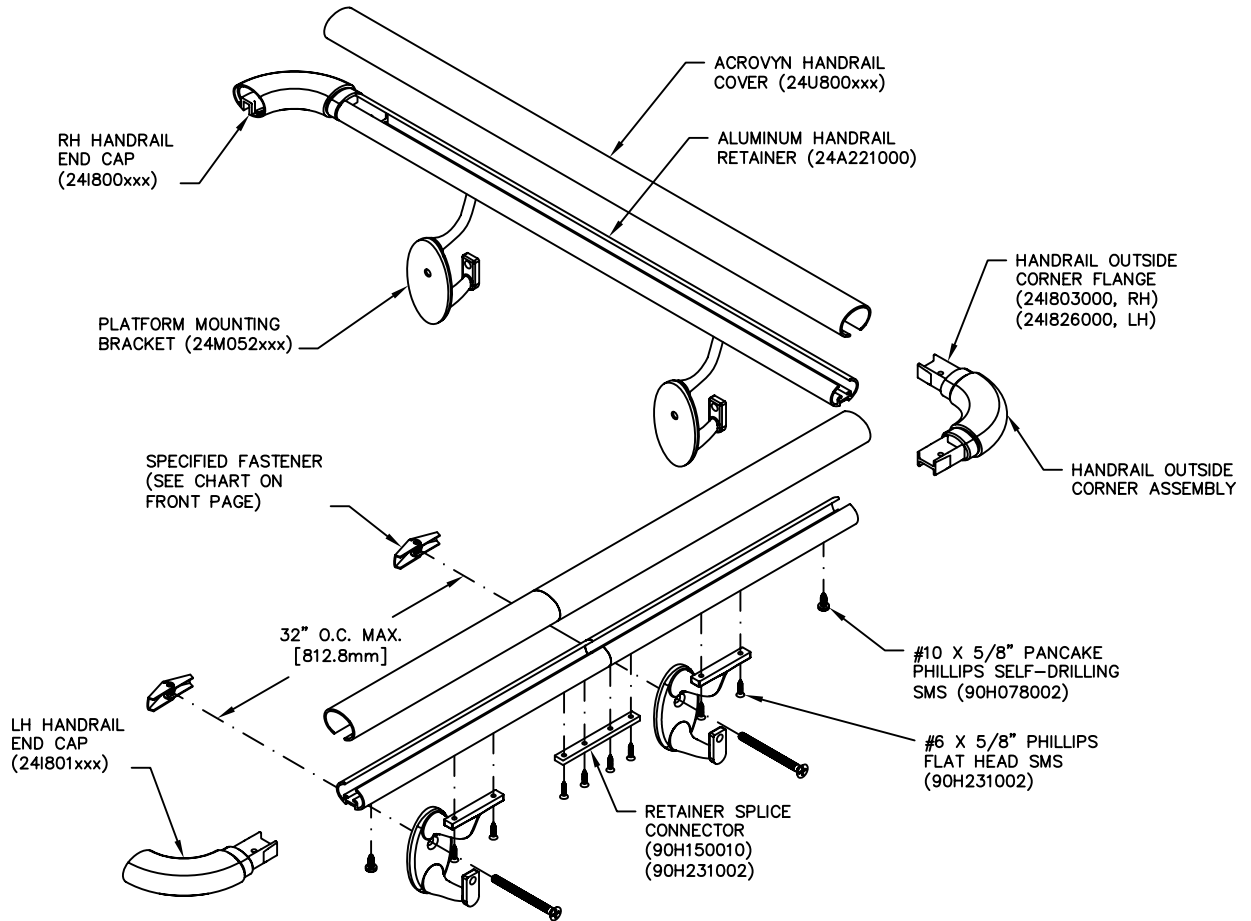


NOTES:

1. ALL DIMENSIONS ARE TYPICAL.
2. FOR DRYWALL/PLASTER WALL CONSTRUCTION, IT IS RECOMMENDED FOR FASTENERS TO BE ENGAGED INTO METAL/WOOD STUDS TO MAINTAIN MAXIMUM PULLOUT STRENGTH.
3. INSTALL OUTSIDE CORNERS FIRST.
4. ALUMINUM RETAINER SPLICE SHOULD NOT EXCEED 3" [76.2mm] DISTANCE FROM A BRACKET.
5. THE DISTANCE BETWEEN AN ACROVYN SPLICE JOINT AND AN ALUMINUM SPLICE JOINT SHOULD NOT BE LESS THAN 12" [304.8mm].
6. MATERIAL MUST REACH 65°F MIN. TO 75°F MAX. 24 HOURS PRIOR TO INSTALLATION. THIS IS ESSENTIAL TO MINIMIZE EXPANSION AND CONTRACTION OF THE MATERIAL.

INSTALLATION INSTRUCTIONS

P-OAW, P-OAWG, P-OAWV HANDRAILS



1. USING "LOCAL CODE" REQUIREMENTS, ESTABLISH HANDRAIL HEIGHT ABOVE FINISH FLOOR. DEDUCT 3 3/8" [85.7mm] 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 BELOW LAYOUT VIEW FOR CORRECT DRILL DIAMETERS.
3. INSTALL MOUNTING BRACKETS USING APPROPRIATE FASTENERS. USE A LEVEL TO ENSURE THAT THE BRACKETS ARE LEVEL.
4. CUT THE CONTINUOUS ALUMINUM RETAINER TO LENGTH USING THE REQUIRED DEDUCTIONS (REFERENCE LAYOUT VIEW).

5. ATTACH END CAPS AND OUTSIDE CORNERS:
 - * INSERT THE END CAP INTO THE RETAINER.
 - * ATTACH END CAP TO RETAINER WITH A #10 X 5/8" PHILLIPS PAN CAKE SHEET METAL SCREW, UP THROUGH THE BOTTOM OF THE RETAINER.

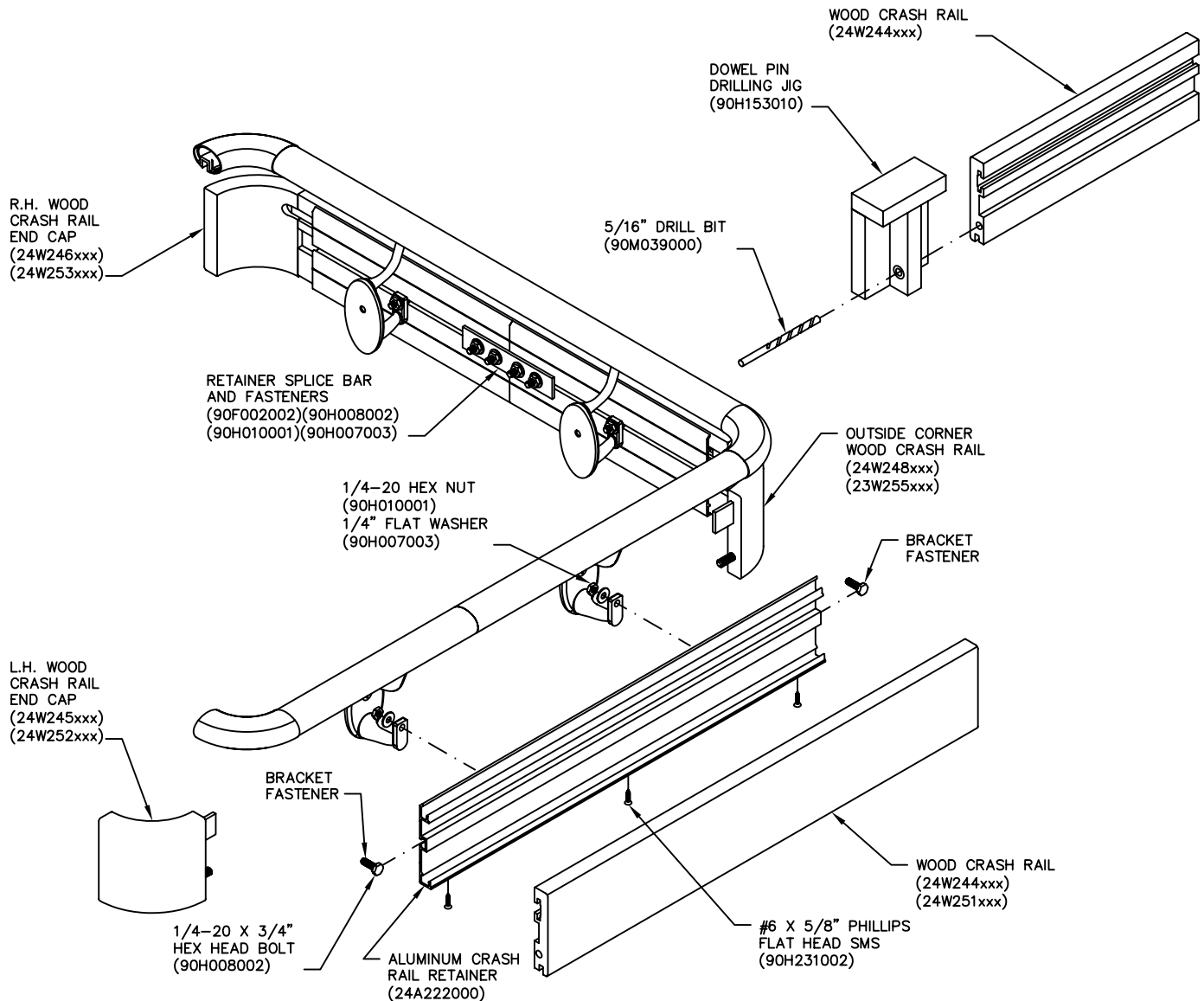
NOTE: TO AID IN LOCATING THE END CAPS CORRECTLY, CUT A 4" [101.6mm] SECTION OF GUARD FROM SCRAP AND SNAP IT ON THE RETAINER. LOCATE THE CAP SO IT ALIGNS FLUSH WITH TOP AND BOTTOM OF THE GUARD.

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" [812.6mm] ON CENTER ALONG LENGTH, AS REQUIRED.
7. FASTEN THE ALUMINUM RETAINER TO THE WALL BRACKETS IN SUCCESSION BY INSERTING TWO #6 X 5/8" 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 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 GUARD-TO-END CAP FIT.

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

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.



10. CUT THE CONTINUOUS ALUMINUM CRASH RAIL RETAINER TO LENGTH USING THE REQUIRED DEDUCTIONS (REFERENCE LAYOUT VIEW).
11. MARK FASTENER LOCATIONS ALONG V-GROOVE ON BOTTOM OF RETAINER. FASTENERS START 1" [25.4MM] FROM THE ENDS OF THE RETAINER AND ARE 24" [609.6MM] ON CENTER. USE THE SUPPLIED STEP OR COUNTERSINKING DRILL FOR HOLES ALONG V-GROOVE WHERE WOOD CRASH RAIL FASTENS TO RETAINER. THIS WILL ALLOW SCREW HEADS TO BE FLUSH WITH RETAINER WHEN ASSEMBLED.
12. CUT THE WOOD CRASH RAIL TO LENGTH USING THE REQUIRED DEDUCTIONS (REFERENCE LAYOUT VIEW). ALL ENDS ARE TO BE CUT SQUARE. EASE FIELD CUT EDGES OF ALL WOOD COMPONENTS AND TOUCHUP USING ENCLOSED TOUCHUP KIT.
13. 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.
 - * AN END CAP ALIGNMENT HOLE MUST BE DRILLED AT EACH END USING THE SUPPLIED JIG (SEE ILLUSTRATION). **DO NOT DRILL THIS HOLE WITHOUT THE JIG.** USE DRILL JIG TO PRE-DRILL CLEARANCE HOLES 7/8" DEEP INTO HANDRAIL USING A 5/16" DRILL BIT (90M039000).
 - * CONTINUALLY CLEAN OUT WOOD CHIPS AS THE PILOT HOLE IS BEING DRILLED.
 - * APPLY WOOD GLUE INTO THE HOLES AND CUT SURFACE OF CRASH RAIL (TITEBOND IS RECOMMENDED).
 - * ATTACH WOOD END CAPS TO CRASH RAIL BY SLIDING THE END CAP TAB AND DOWEL INTO MATING CRASH RAIL CLEARANCE HOLES. WIPE OFF ANY EXCESS GLUE.
 - * CHECK SEAM FOR TIGHT FIT BETWEEN CRASH RAIL AND END CAP.
14. ATTACH WOOD CRASH RAIL ONTO ALUMINUM CRASH RAIL RETAINER. USING THE PREVIOUSLY DRILLED COUNTERSUNK HOLE IN THE RETAINER AS A GUIDE, DRILL 3/32" DIAMETER PILOT HOLE 3/8" DEEP IN THE BOTTOM WOOD CRASH RAIL TO ACCEPT THE #6 X 5/8" SCREWS.
15. ATTACH THE ASSEMBLED CRASH RAIL TO THE WALL BRACKETS BY ALIGNING THE HEX HEAD BOLTS 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.

12/16/05

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