

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.

CONFIGURATION: FLUSH MOUNT OR COSMETIC FLANGE (COSMETIC FLANGE IS THE FLUSH MOUNT CONFIGURATION WITH THE ADDITION OF NON-STRUCTURAL EXTERIOR PERIMETER FLANGES)

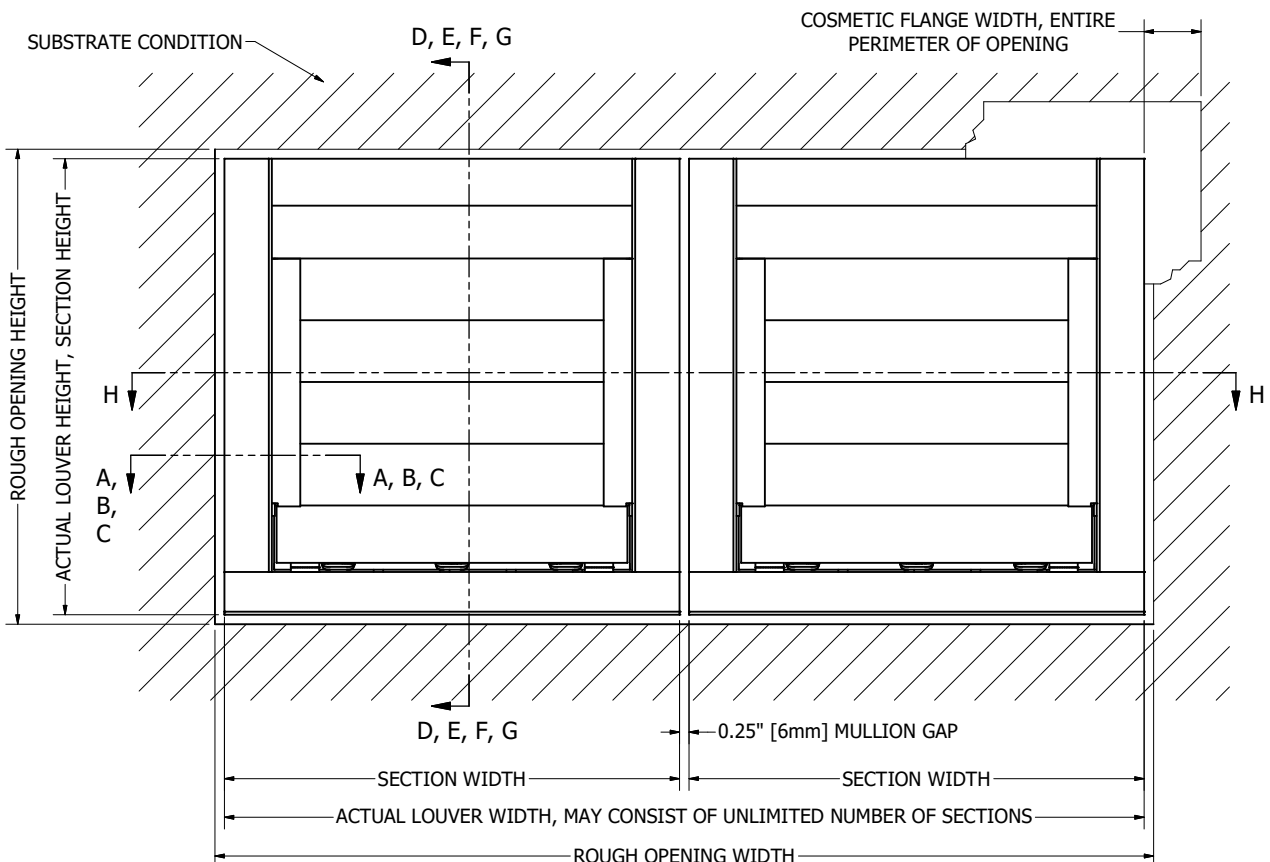
MOUNT LOCATION: REAR / INTERIOR

JAMB ANCHOR LOCATION: DETAILS A, B, C, D

HEAD & SILL ANCHOR LOCATION: DETAILS E, F, G, H
(BELOW IS VIEWED FROM EXTERIOR)

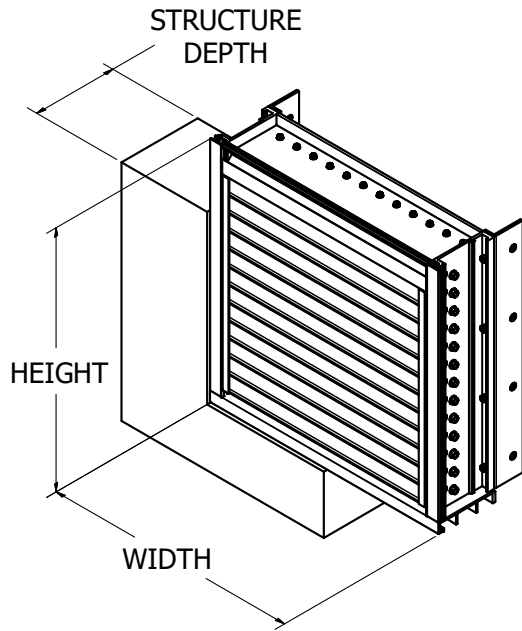
HEAD & SILL ANCHOR LOCATION REQUIRED FOR MULTI-SECTION WIDE ASSEMBLIES AND ARE OPTIONAL FOR SINGLE WIDE SECTIONS.

JAMB ANCHOR LOCATION ONLY AVAILABLE ON SINGLE WIDE SECTIONS.

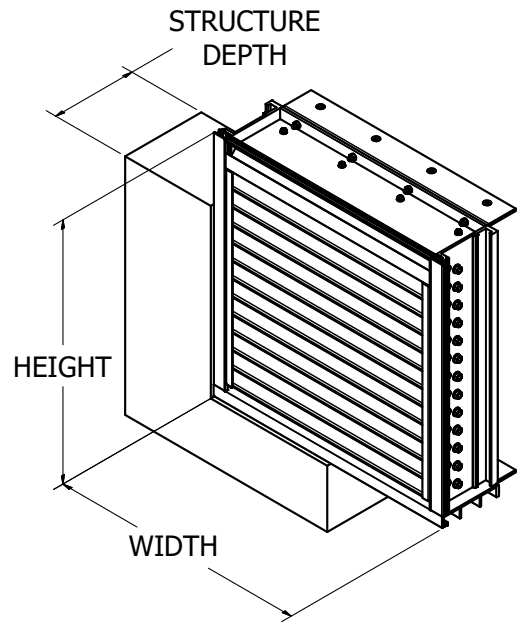


FIELD WORK: LOUVER HAS FACTORY SEALED EDGES AND JOINTS. THE SEALING NOTED HEREIN IS OPTIONAL AND MAY OR MAY NOT BE REQUIRED PER THE PROJECT'S SPECIFICATIONS. INSTALLER SHALL SEAL THE PRODUCT AND INTERFACES IN ORDER TO COMPLY WITH THE PROJECT'S SPECIFICATIONS (SUCH AS AMCA 550). INSTALLER SHALL SEPARATE DISSIMILAR MATERIALS AS REQUIRED PER PROJECT'S SPECIFICATIONS. ANCHORS, SEALANT, BACKER ROD, SHIMS, ITEMS TO SEPARATE DISSIMILAR MATERIAL, ARE NOT BY LOUVER MANUFACTURER. DESIGN OF SUBSTRATE IS NOT BY LOUVER MANUFACTURER, SEE ANCHOR TABLES FOR SUBSTRATE REQUIREMENTS.

STANDARD ANCHOR LOCATION: JAMB



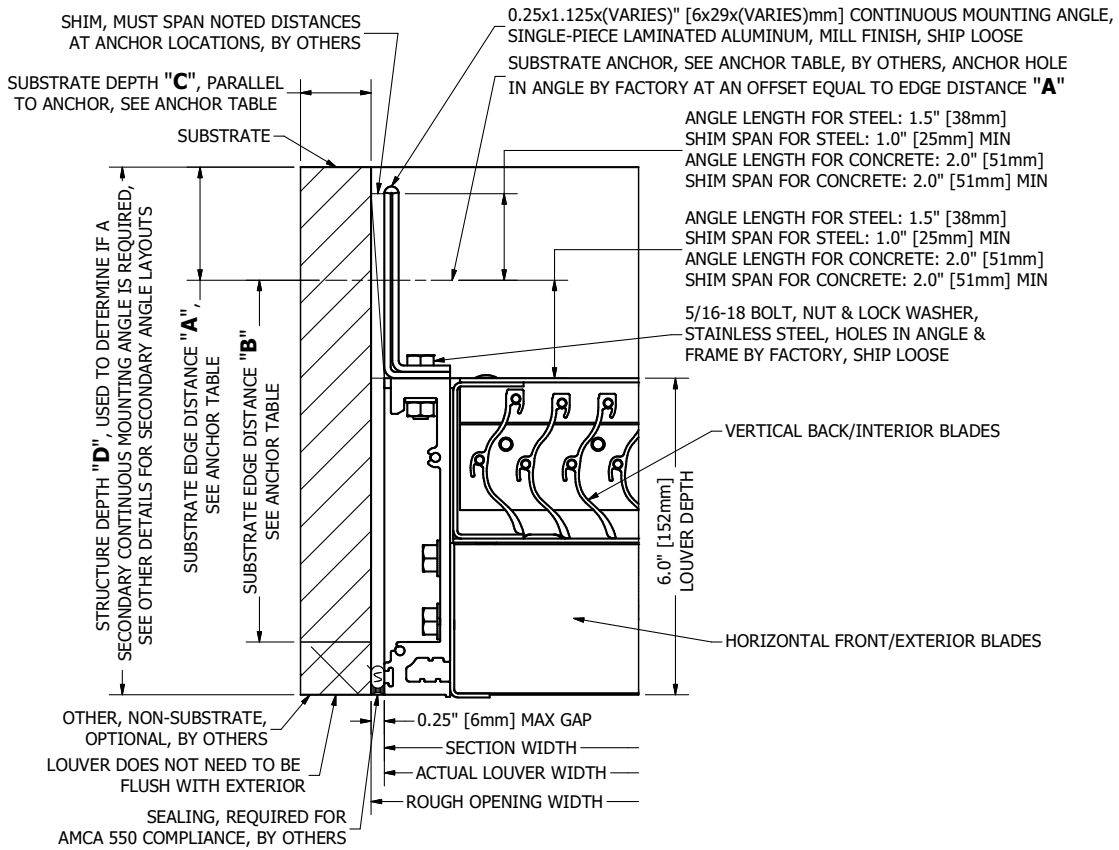
OPTIONAL ANCHOR LOCATION: HEAD AND SILL



FLUSH/RECESSED, ALLOWABLE SECTION SIZES				
SUBSTRATE	"D" OVERALL STRUCTURE DEPTH	ANCHOR LOCATION	MAX SECTION SIZE (MILL OR PAINTED)	NOTES
CRACKED CONCRETE	5" [127mm] OR MORE	JAMBS	48" x 96" [1.219m x 2.438m]	STRUCTURE DEPTH "D" LESS THAN 11" [279mm] REQUIRES THE SMALL SECONDARY MOUNTING ANGLE. MAX HEIGHT IS 84" [2.134m] IF STRUCTURE DEPTH "D" IS LESS THAN 13" [330mm]. STRUCTURE DEPTH "D" LESS THAN 13" [330mm] REQUIRES A SECONDARY MOUNTING ANGLE. MAX HEIGHT IS 64" [1.626m] FOR SMALL SECONDARY MOUNTING ANGLE. MAX HEIGHT IS 84" [2.134m] FOR LARGE SECONDARY MOUNTING ANGLE.
		HEAD & SILL		
GROUT FILLED CMU	8" [203mm] NOMINAL OR MORE	JAMBS	48" x 96" [1.219m x 2.438m]	LARGE SECONDARY MOUNTING ANGLE IS ALWAYS REQUIRED.
		HEAD & SILL	48" x 78" [1.219m x 1.981m]	
STEEL	5" [127mm] OR MORE	JAMBS	48" x 96" [1.219m x 2.438m]	STRUCTURE DEPTH "D" LESS THAN 9" [229mm] REQUIRES THE SMALL SECONDARY MOUNTING ANGLE.
	HEAD & SILL			
OTHER SUBSTRATES, STRUCTURE DEPTHS, AND SECTION SIZES (UP TO 48" x 96" [1.219m x 2.438m] MAX), ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.				

DETAIL A

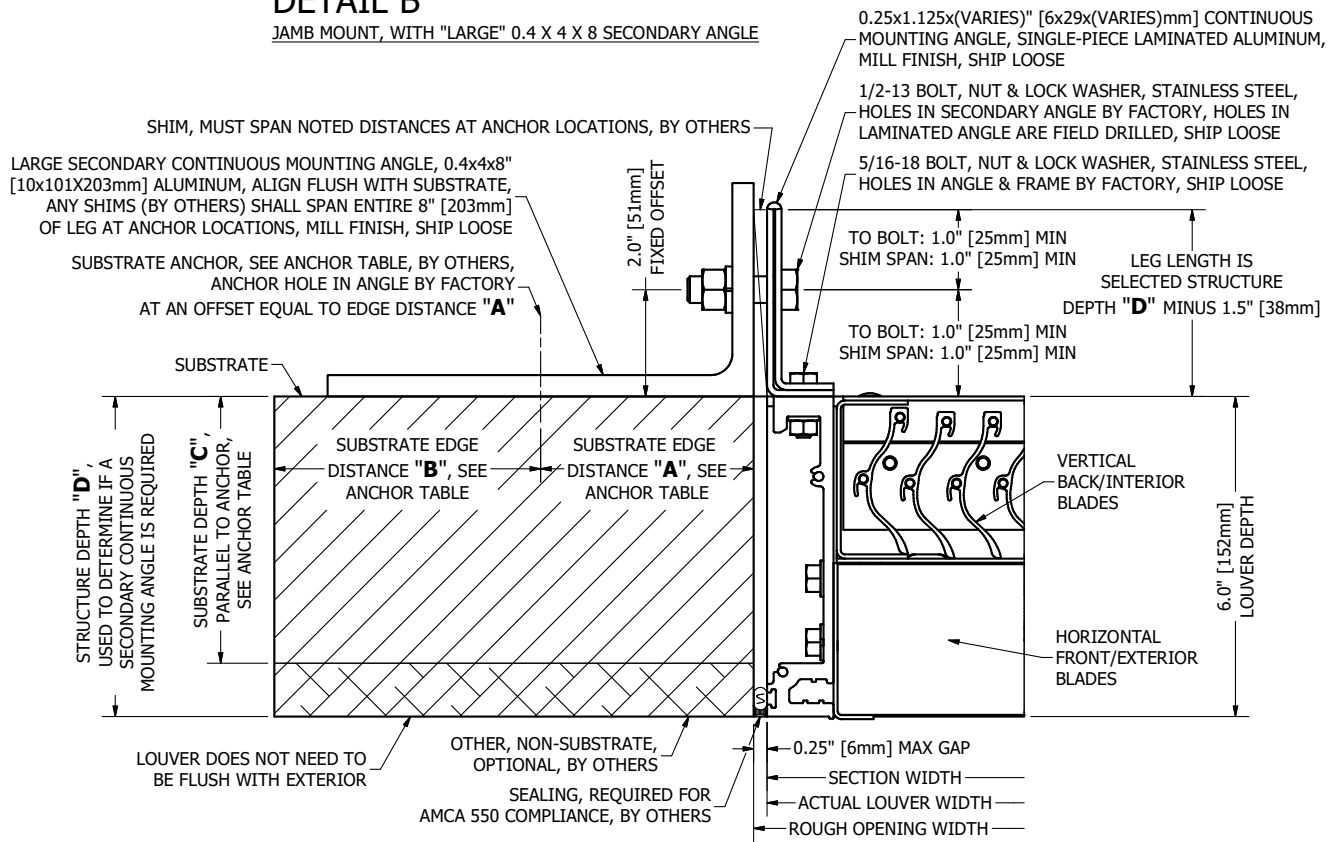
JAMB MOUNT, WITHOUT SECONDARY ANGLE



FLUSH/RECESSED, JAMB MOUNT, WITHOUT SECONDARY MOUNTING ANGLE, ANCHOR TABLE & INFORMATION					
SUBSTRATE (1)	"D" OVERALL STRUCTURE DEPTH (2)	MAX SECTION SIZE PER ANCHOR TYPE (3)	ANCHOR DETAILS (1)	"A" & "B" SUBSTRATE MIN EDGE DISTANCES, PICK ONE FOR "A" THEN "B" IS THE OTHER	"C" SUBSTRATE MIN DEPTH PARALLEL TO ANCHOR
CRACKED CONCRETE NORMAL WEIGHT, F'c 3 KSI [20.7 MPA], ANCHOR DIAMETERS ARE FIXED	11" [279mm] OR MORE	48" x 96" [1.219m x 2.438m]	1/2" Ø HILTI KB-TZ2 WEDGE, 300 SS, 3" [76mm] NOM, 10" [254mm] MIN OC	2.875" [73mm] & 6" [152mm]	5" [127mm]
			1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 3" [76mm] NOM, 10" [254mm] MIN OC"	2.875" [73mm] & 6" [152mm]	4.75" [121mm]
GROUT FILLED CMU	SEE LARGE SECONDARY MOUNTING ANGLE ANCHOR TABLES FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
STEEL A36	9" [229mm] OR MORE	48" x 96" [1.219m x 2.438m]	1/2-13 BOLT & NUT, 300 SS, 12" [305mm] MAX OC	1" [25mm] & 1" [25mm]	0.188" [5mm]
			1/2-13 BOLT & TAPPED HOLE, 300 SS, 12" [305mm] MAX OC		0.25" [6mm]
1) OTHER SUBSTRATES, ANCHOR TYPES, DIAMETERS, ALLOYS, EMBEDMENTS, ETC, ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
2) DEPTHS LESS THAN SHOWN REQUIRE THE LARGE OR SMALL SECONDARY ANGLE MOUNTING CONFIGURATION.					
3) MAX POSSIBLE SECTION SIZE IS 48" x 96" [1.219m x 2.438m].					
DIMENSIONS & MATERIAL STRENGTHS ARE MINIMUMS UNLESS OTHERWISE INDICATED. FOR CONCRETE/CMU, CONTINUOUS MOUNTING ANGLES HAVE A MAXIMUM 3" [76mm] END OFFSET, WHICH MEANS FOR VERY SHORT MOUNTING ANGLE LENGTHS, THE MINIMUM ON CENTER IS REDUCED FROM THAT SHOWN ABOVE. FOR EXAMPLE, AN 11.5" SECTION WILL HAVE AT MINIMUM A 5.5" ON CENTER SPACING (FROM 11.5"-3"-3").					

DETAIL B

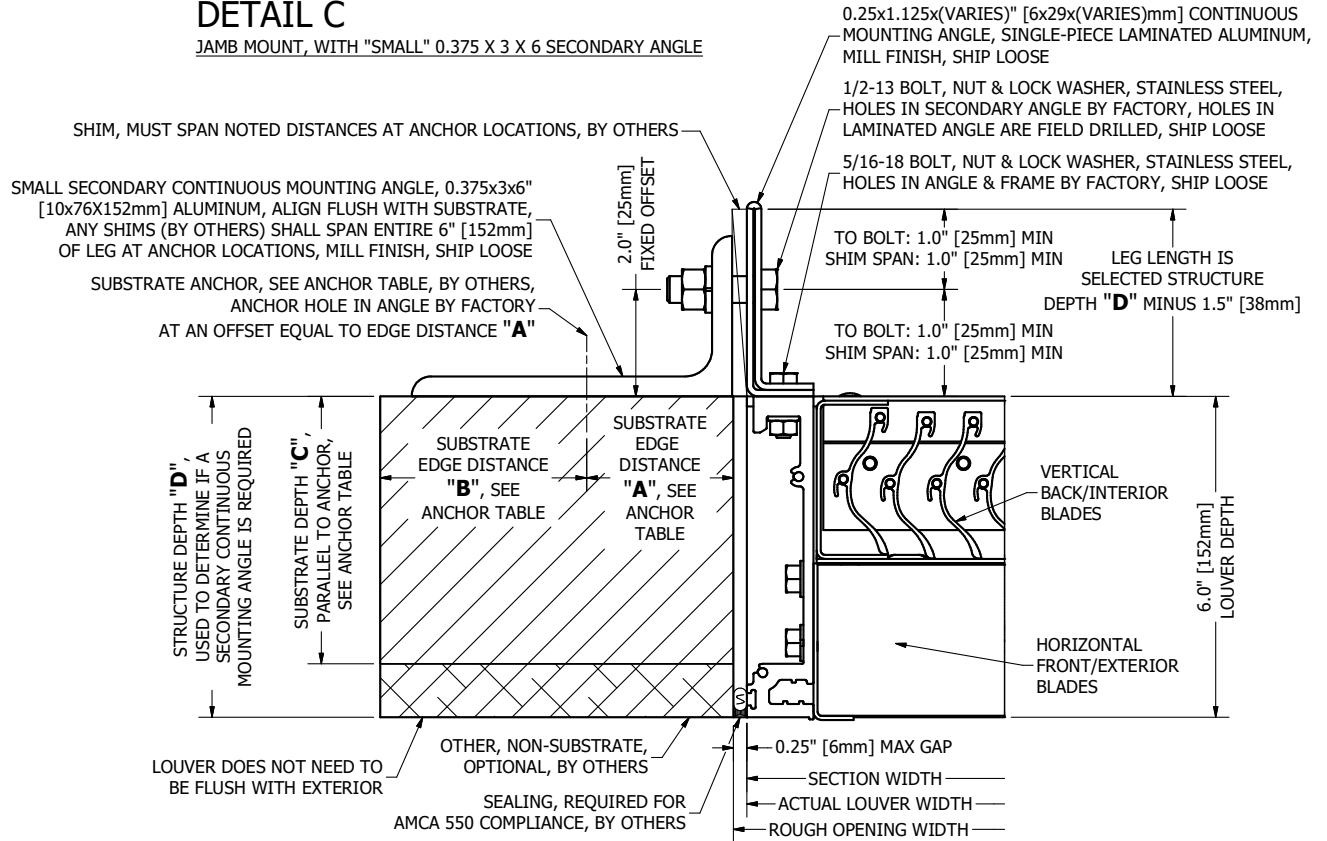
JAMB MOUNT, WITH "LARGE" 0.4 X 4 X 8 SECONDARY ANGLE



FLUSH/RECESSED, JAMB MOUNT WITH LARGE 8" [203mm] SECONDARY MOUNTING ANGLE, ANCHOR TABLE & INFORMATION					
SUBSTRATE (1)	"D" OVERALL STRUCTURE DEPTH	MAX SECTION SIZE PER ANCHOR TYPE (2)	ANCHOR DETAILS (1)	"A" & "B" SUBSTRATE MIN EDGE DISTANCES	"C" SUBSTRATE MIN DEPTH PARALLEL TO ANCHOR
CRACKED CONCRETE	SEE SMALL MOUNTING ANGLE ANCHOR TABLE FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
GROUT FILLED CMU 8" [203mm] NOM, ASTM C90, TYPE N, F'm 2 KSI [13.8 MPA], ANCHOR DIAMETERS ARE FIXED	7.625" [194mm] OR MORE	48" x 96" [1.219m x 2.438m]	1/2" Ø THREADED ROD, 300 SS, HILTI HIT-HY 100 EPOXY, 4.5" [114mm] EFF, 8.625" [219mm] MIN OC	A & B: 4" [102mm]	7.625" [194mm]
		36" x 96" [0.914m x 2.438m]	5/8" Ø HILTI KB-T22 WEDGE, 300 SS, 3.25" [83mm] NOM, 8.625" [219mm] MIN OC 1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 4.25" [108mm] NOM, 8.625" [219mm] MIN OC		
STEEL	SEE SMALL MOUNTING ANGLE ANCHOR TABLE FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
1) OTHER SUBSTRATES, ANCHOR TYPES, DIAMETERS, ALLOYS, EMBEDMENTS, ETC, ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
2) MAX POSSIBLE SECTION SIZE IS 48" x 96" [1.219m x 2.438m].					
DIMENSIONS & MATERIAL STRENGTHS ARE MINIMUMS UNLESS OTHERWISE INDICATED. FOR CONCRETE/CMU, CONTINUOUS MOUNTING ANGLES HAVE A MAXIMUM 3" [76mm] END OFFSET, WHICH MEANS FOR VERY SHORT MOUNTING ANGLE LENGTHS, THE MINIMUM ON CENTER IS REDUCED FROM THAT SHOWN ABOVE. FOR EXAMPLE, AN 11.5" SECTION WILL HAVE AT MINIMUM A 5.5" ON CENTER SPACING (FROM 11.5"-3"-3").					

DETAIL C

JAMB MOUNT, WITH "SMALL" 0.375 X 3 X 6 SECONDARY ANGLE

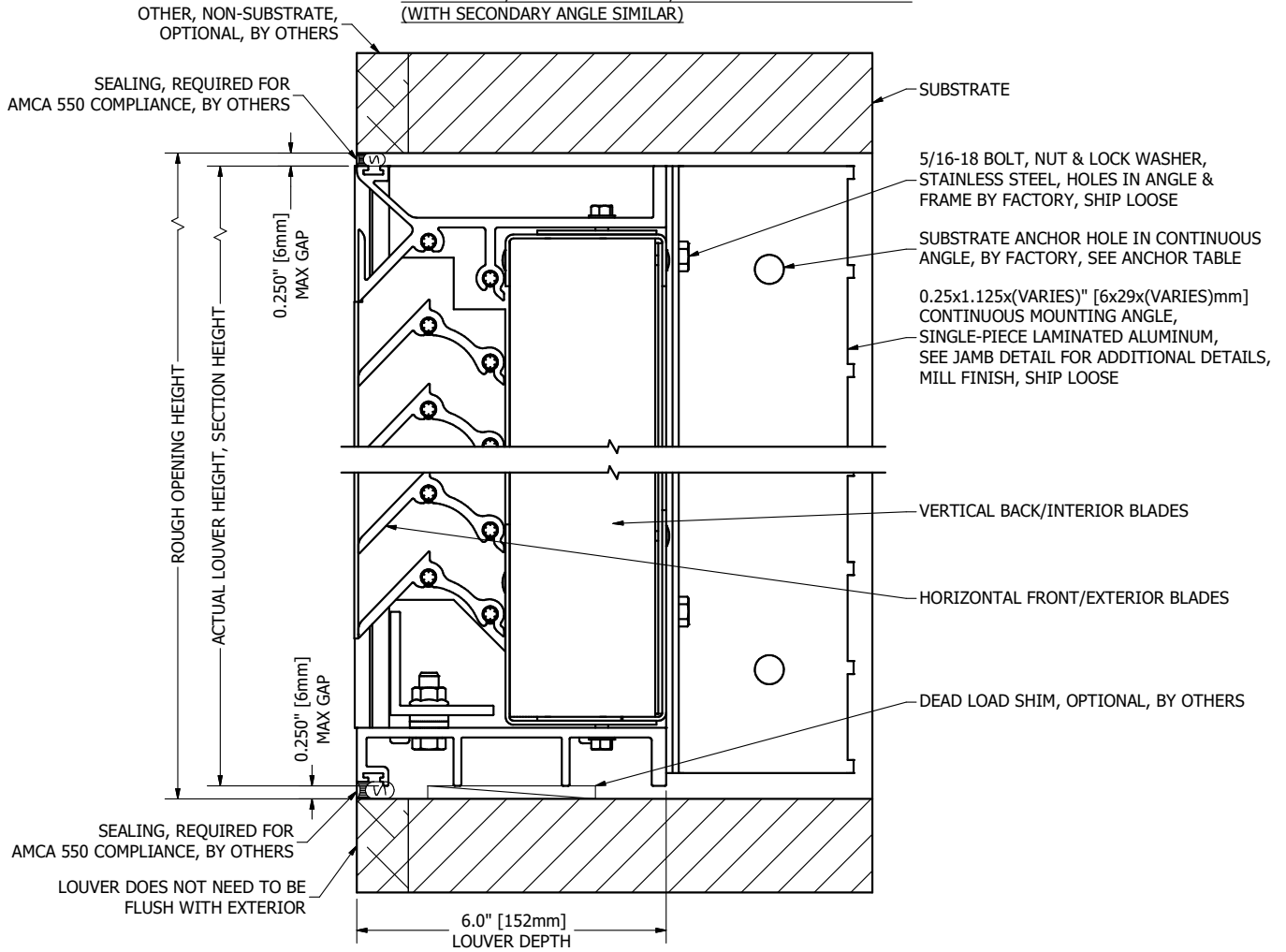


FLUSH/RECESSED, JAMB MOUNT WITH SMALL 6" [152mm] SECONDARY MOUNTING ANGLE, ANCHOR TABLE & INFORMATION

SUBSTRATE (1)	"D" OVERALL STRUCTURE DEPTH (2)	MAX SECTION SIZE PER ANCHOR TYPE (3)	ANCHOR DETAILS (1)	"A" & "B" SUBSTRATE MIN EDGE DISTANCES	"C" SUBSTRATE MIN DEPTH PARALLEL TO ANCHOR
CRACKED CONCRETE NORMAL WEIGHT, F'c 3 KSI [20.7 MPA], ANCHOR DIAMETERS ARE FIXED	5" [127mm] OR MORE AND LESS THAN 11" [279mm]	48" x 96" [1.219m x 2.438m]	1/2" Ø HILTI KB-T22 WEDGE, 300 SS, 3" [76mm] NOM, 8.625" [219mm] MIN OC	A: 2.75" [70mm] B: 3.25" [83mm]	5" [127mm]
			1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 4.25" [108mm] NOM, 8.625" [219mm] MIN OC	A: 2.75" [70mm] B: 3.875" [98mm]	6.75" [171mm]
GROUT FILLED CMU	SEE LARGE MOUNTING ANGLE ANCHOR TABLE FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
STEEL A36	5" [127mm] OR MORE AND LESS THAN 9" [229mm]	48" x 96" [1.219m x 2.438m]	1/2-13 BOLT & NUT, 300 SS, 12" [305mm] MAX OC	A & B: 1" [25mm]	0.188" [5mm]
			1/2-13 BOLT & TAPPED HOLE, 300 SS, 12" [305mm] MAX OC		0.25" [6mm]
1) OTHER SUBSTRATES, ANCHOR TYPES, DIAMETERS, ALLOYS, EMBEDMENTS, ETC, ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
2) FOR STRUCTURE DEPTHS MORE THAN SHOWN, SEE ANCHOR TABLE FOR WITHOUT THE SECONDARY MOUNTING ANGLE.					
3) MAX POSSIBLE SECTION SIZE IS 48" x 96" [1.219m x 2.438m].					
DIMENSIONS & MATERIAL STRENGTHS ARE MINIMUMS UNLESS OTHERWISE INDICATED. FOR CONCRETE/CMU, CONTINUOUS MOUNTING ANGLES HAVE A MAXIMUM 3" [76mm] END OFFSET, WHICH MEANS FOR VERY SHORT MOUNTING ANGLE LENGTHS, THE MINIMUM ON CENTER IS REDUCED FROM THAT SHOWN ABOVE. FOR EXAMPLE, AN 11.5" SECTION WILL HAVE AT MINIMUM A 5.5" ON CENTER SPACING (FROM 11.5"-3"-3").					

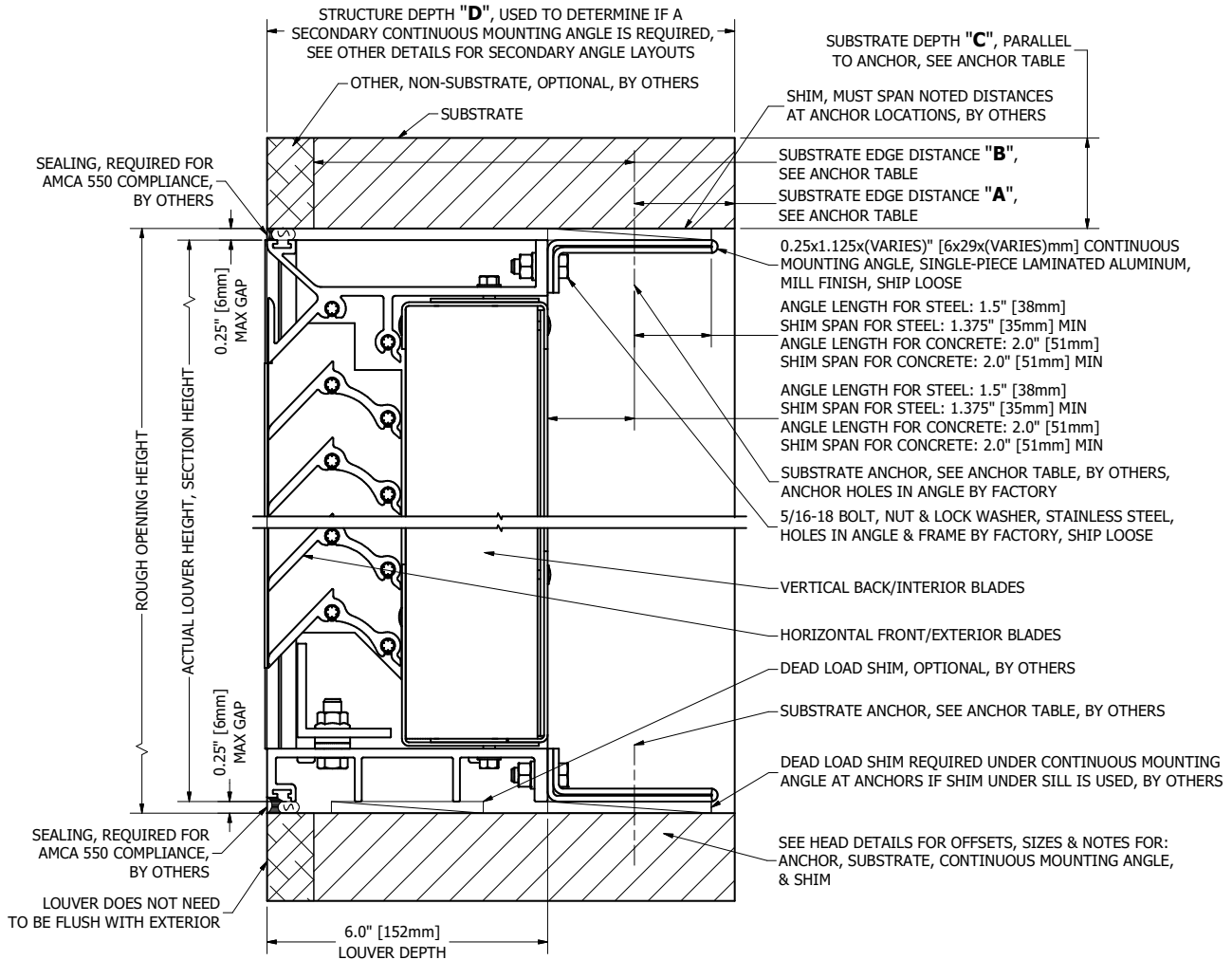
DETAIL D

JAMB MOUNT, HEAD & SILL VIEWS, WITHOUT SECONDARY ANGLE
(WITH SECONDARY ANGLE SIMILAR)



DETAIL E

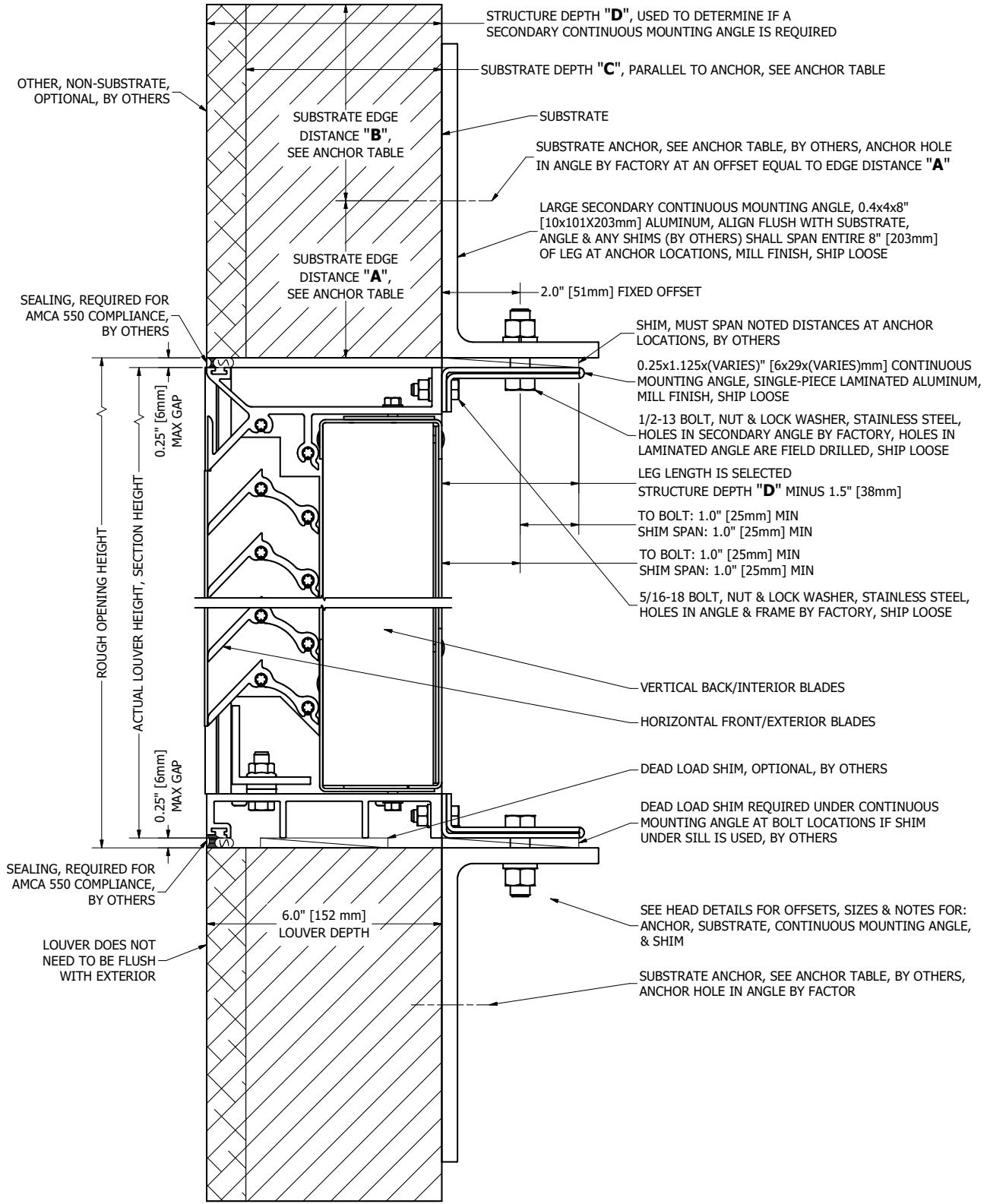
HEAD & SILL MOUNT, WITHOUT SECONDARY ANGLE



FLUSH/RECESSED, HEAD & SILL MOUNT, WITHOUT SECONDARY MOUNTING ANGLE, ANCHOR TABLE & INFORMATION					
SUBSTRATE (1)	"D" OVERALL STRUCTURE DEPTH (2)	MAX SECTION SIZE PER ANCHOR TYPE (3)	ANCHOR DETAILS (1)	"A" & "B" SUBSTRATE MIN EDGE DISTANCES, PICK ONE FOR "A" THEN "B" IS THE OTHER	"C" SUBSTRATE MIN DEPTH PARALLEL TO ANCHOR
CRACKED CONCRETE NORMAL WEIGHT, F'c 3 KSI [20.7 MPA], ANCHOR DIAMETERS ARE FIXED	13" [330mm] OR MORE	48" x 96" [1.219m x 2.438m]	5/8" Ø HILTI KB-TZ2 WEDGE, 300 SS, 4.5" [114mm] NOM, 8" [203mm] MIN OC	4.125" [105mm] & 6" [152mm]	6" [152mm]
		48" x 72" [1.219m x 1.829m]	1/2" Ø HILTI KB-TZ2 WEDGE, 300 SS, 3.75" [95mm] NOM, 8" [203mm] MIN OC	3.625" [92mm] & 6" [152mm]	5.5" [140mm]
		48" x 57" [1.219m x 1.448m]	1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 4.25" [108mm] NOM, 8" [203mm] MIN OC	4.125" [105mm] & 4.125" [105mm]	6.75" [171mm]
GROUT FILLED CMU	SEE LARGE SECONDARY MOUNTING ANGLE ANCHOR TABLES FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
STEEL A36	9" [229mm] OR MORE	48" x 96" [1.219m x 2.438m]	1/2-13 BOLT & NUT, 300 SS, 11" [305mm] MAX OC	1" [25mm] & 1" [25mm]	0.188" [5mm]
			1/2-13 BOLT & TAPPED HOLE, 300 SS, 11" [305mm] MAX OC		0.375" [10mm]
1) OTHER SUBSTRATES, ANCHOR TYPES, DIAMETERS, ALLOYS, EMBEDMENTS, ETC, ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
2) DEPTHS LESS THAN SHOWN REQUIRE THE LARGE OR SMALL SECONDARY ANGLE MOUNTING CONFIGURATION.					
3) MAX POSSIBLE SECTION SIZE IS 48" x 96" [1.219m x 2.438m].					
DIMENSIONS & MATERIAL STRENGTHS ARE MINIMUMS UNLESS OTHERWISE INDICATED. FOR CONCRETE/CMU, CONTINUOUS MOUNTING ANGLES HAVE A MAXIMUM 3" [76mm] END OFFSET, WHICH MEANS FOR VERY SHORT MOUNTING ANGLE LENGTHS, THE MINIMUM ON CENTER IS REDUCED FROM THAT SHOWN ABOVE. FOR EXAMPLE, AN 11.5" SECTION WILL HAVE AT MINIMUM A 5.5" ON CENTER SPACING (FROM 11.5"-3"-3").					

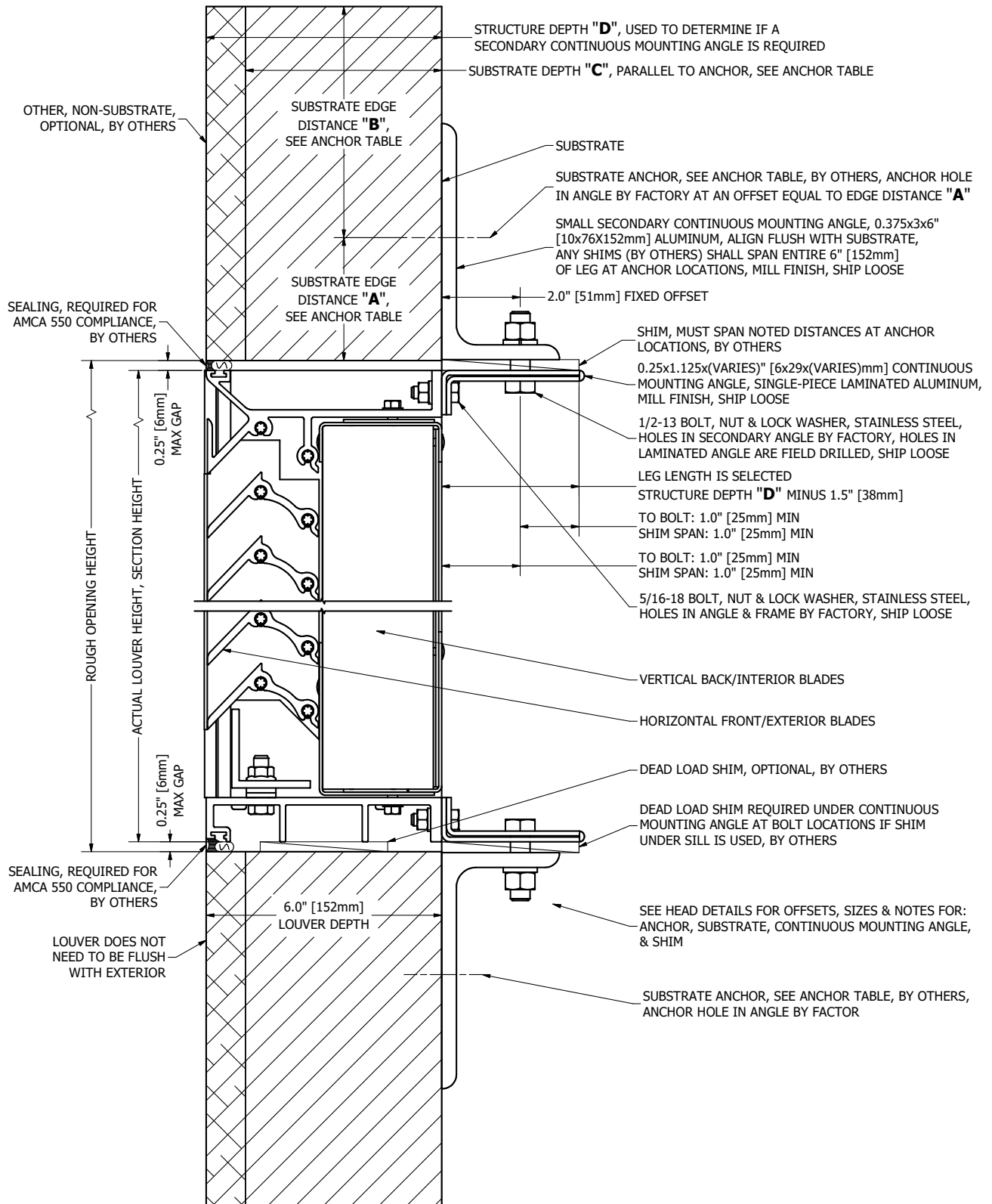
DETAIL F

HEAD & SILL MOUNT, WITH "LARGE" 0.4 X 4 X 8 SECONDARY ANGLE



DETAIL G

HEAD & SILL MOUNT, WITH "SMALL" 0.375 X 3 X 6 SECONDARY ANGLE

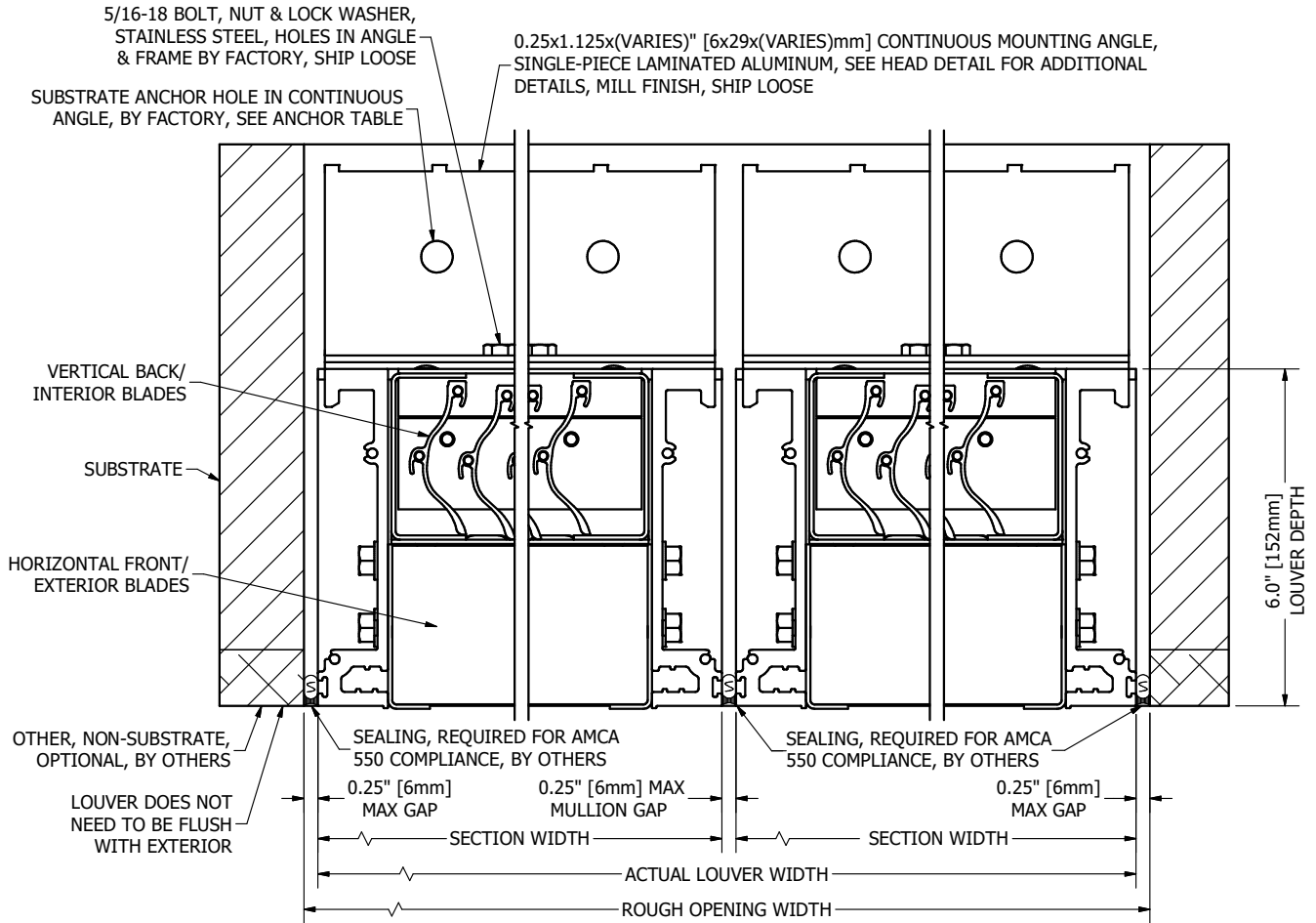


FLUSH/RECESSED, HEAD & SILL MOUNT WITH LARGE 8" [203mm] SECONDARY MOUNTING ANGLE, ANCHOR TABLE & INFORMATION					
SUBSTRATE (1)	"D" OVERALL STRUCTURE DEPTH (2)	MAX SECTION SIZE PER ANCHOR TYPE (3)	ANCHOR DETAILS (1)	"A" & "B" SUBSTRATE MIN EDGE DISTANCES	"C" SUBSTRATE MIN DEPTH PARALLEL TO ANCHOR
CRACKED CONCRETE	5" [127mm] OR MORE AND LESS THAN 13" [330mm]	48" x 84" [1.219m x 2.134m]	1/2" Ø HILTI KB-TZ2 WEDGE, 300 SS, 3" [76mm] NOM, 8" [203mm] MIN OC	A: 3.125" [79mm] B: 4.875" [124mm]	5" [127mm]
		48" x 65" [1.219m x 1.651m]	1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 3" [76mm] NOM, 8" [203mm] MIN OC		4.75" [121mm]
GROUT FILLED CMU 8" [203mm] NOM, ASTM C90, TYPE N, F'm 2 KSI [13.8 MPA], ANCHOR DIAMETERS ARE FIXED	7.625" [194mm] OR MORE	48" x 78" [1.219m x 1.981m]	5/8" Ø THREADED ROD, 300 SS, HILTI HIT-HY 100 EPOXY, 5.625" [143mm] EFF, 10" [254mm] MIN OC	A & B: 4" [102mm]	7.625" [194mm]
		48" x 54" [1.219m x 1.372m]	5/8" Ø HILTI KB-TZ2 WEDGE, 300 SS, 3.25" [83mm] NOM, 10" [254mm] MIN OC		
		48" x 47" [1.219m x 1.194m]	1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 4.25" [108mm] NOM, 10" [254mm] MIN OC		
STEEL	SEE SMALL MOUNTING ANGLE ANCHOR TABLE FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
1) OTHER SUBSTRATES, ANCHOR TYPES, DIAMETERS, ALLOYS, EMBEDMENTS, ETC, ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
2) FOR CRACKED CONCRETE STRUCTURE DEPTHS MORE THAN SHOWN, SEE ANCHOR TABLE FOR WITHOUT THE SECONDARY MOUNTING ANGLE.					
3) LARGER SECTION SIZES OF UP TO 48" x 96" [1.219m x 2.438m] ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
DIMENSIONS & MATERIAL STRENGTHS ARE MINIMUMS UNLESS OTHERWISE INDICATED. FOR CONCRETE/CMU, CONTINUOUS MOUNTING ANGLES HAVE A MAXIMUM 3" [76mm] END OFFSET, WHICH MEANS FOR VERY SHORT MOUNTING ANGLE LENGTHS, THE MINIMUM ON CENTER IS REDUCED FROM THAT SHOWN ABOVE. FOR EXAMPLE, AN 11.5" SECTION WILL HAVE AT MINIMUM A 5.5" ON CENTER SPACING (FROM 11.5"-3"-3").					

FLUSH/RECESSED, HEAD & SILL MOUNT WITH SMALL 6" [152mm] SECONDARY MOUNTING ANGLE, ANCHOR TABLE & INFORMATION					
SUBSTRATE (1)	"D" OVERALL STRUCTURE DEPTH (2)	MAX SECTION SIZE PER ANCHOR TYPE (3)	ANCHOR DETAILS (1)	"A" & "B" SUBSTRATE MIN EDGE DISTANCES	"C" SUBSTRATE MIN DEPTH PARALLEL TO ANCHOR
CRACKED CONCRETE NORMAL WEIGHT, F'c 3 KSI [20.7 MPA], ANCHOR DIAMETERS ARE FIXED	5" [127mm] OR MORE AND LESS THAN 11" [279mm]	48" x 63" [1.219m x 1.600m]	1/2" Ø HILTI KB-TZ2 WEDGE, 300 SS, 3" [76mm] NOM, 10" [254mm] MIN OC	A: 3.125" [79mm] B: 2.875" [73mm]	5" [127mm]
		48" x 64" [1.219m x 1.626m]	1/2" Ø HILTI HUS-EZ (KH-EZ) SCREW, 300 SS, 4.25" [108mm] NOM, 10" [254mm] MIN OC		6.75" [171mm]
GROUT FILLED CMU	SEE LARGE MOUNTING ANGLE ANCHOR TABLE FOR OPTIONS, OR USE P.E. ANALYSIS (BY OTHERS).				
STEEL A36	5" [127mm] OR MORE AND LESS THAN 9" [229mm]	48" x 96" [1.219m x 2.438m]	1/2-13 BOLT & NUT, 300 SS, 10" [254mm] MAX OC	A: 2.125" [54mm] B: 3.875" [98mm]	0.188" [5mm]
			1/2-13 BOLT & TAPPED HOLE, 300 SS, 10" [254mm] MAX OC		0.25" [6mm]
1) OTHER SUBSTRATES, ANCHOR TYPES, DIAMETERS, ALLOYS, EMBEDMENTS, ETC, ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
2) FOR STRUCTURE DEPTHS MORE THAN SHOWN, SEE ANCHOR TABLE FOR WITHOUT THE SECONDARY MOUNTING ANGLE.					
3) LARGER SECTION SIZES OF UP TO 48" x 96" [1.219m x 2.438m] ARE ALLOWED PER ICC-500 BY P.E. ANALYSIS & STAMPING, BY OTHERS.					
DIMENSIONS & MATERIAL STRENGTHS ARE MINIMUMS UNLESS OTHERWISE INDICATED. FOR CONCRETE/CMU, CONTINUOUS MOUNTING ANGLES HAVE A MAXIMUM 3" [76mm] END OFFSET, WHICH MEANS FOR VERY SHORT MOUNTING ANGLE LENGTHS, THE MINIMUM ON CENTER IS REDUCED FROM THAT SHOWN ABOVE. FOR EXAMPLE, AN 11.5" SECTION WILL HAVE AT MINIMUM A 5.5" ON CENTER SPACING (FROM 11.5"-3"-3").					

DETAIL H

HEAD & SILL MOUNT, JAMB & MULLION VIEWS, WITHOUT SECONDARY ANGLE
(WITH SECONDARY ANGLE SIMILAR)



Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Product warranties can be found online at Greenheck.com, either on the specific product page or in the literature section of the website at Greenheck.com/Resources/Library/Literature.

