

BROMBAL ITALY

FARO & ALFA MULLION STIFFENER

(HVHZ)(IMPACT)

INSTALLATION NOTES:

- ONE (1) INSTALLATION ANCHOR IS REQUIRED AT EACH ANCHOR LOCATION SHOWN, UNLESS OTHERWISE STATED.
- THE NUMBER OF INSTALLATION ANCHORS DEPICTED IS THE MINIMUM NUMBER OF ANCHORS TO BE USED FOR PRODUCT INSTALLATION.
- INSTALL INDIVIDUAL INSTALLATION ANCHORS WITHIN A TOLERANCE OF ±1/2 INCH OF THE DEPICTED LOCATION IN THE ANCHOR LAYOUT DETAIL (I.E., WITHOUT CONSIDERATION OF TOLERANCES). TOLERANCES ARE NOT CUMULATIVE FROM ONE INSTALLATION ANCHOR TO THE NEXT.
- MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDE 1X BUCKING, SHEATHING, & WALL FINISHES, INCLUDING BUT NOT LIMITED TO STUCCO, FOAM, BRICK VENEER, AND SIDING.
- INSTALLATION ANCHORS AND ASSOCIATED HARDWARE MUST BE MADE OF CORROSION RESISTANT MATERIAL OR HAVE A CORROSION RESISTANT COATING.
- INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED BY THE ANCHOR MANUFACTURER.
- INSTALLATION ANCHOR CAPACITIES FOR PRODUCTS HEREIN ARE BASED ON SUBSTRATE MATERIALS WITH THE FOLLOWING PROPERTIES:
 - WOOD - MINIMUM SPECIFIC GRAVITY OF 0.55.
 - CONCRETE -MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
 - GROUT-FILLED CMU- UNIT STRENGTH CONFORMS TO ASTM C-90 WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AND GROUT CONFORMS TO ASTM C 476, MINIMUM GROUT COMPRESSIVE STRENGTH OF 2000 PSI.
 - HOLLOW BLOCK CMU - UNIT STRENGTH CONFORMS TO ASTM C-90 WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
 - STEEL - MINIMUM WALL THICKNESS OF 54 MILS (16 GA.) WHEN THROUGH GUSSET INSTALLATION.
 - ALUMINUM - 1/8" MINIMUM THICKNESS (6063-T5)

GENERAL NOTES:

- THE PRODUCT SHOWN HEREIN IS DESIGNED AND MANUFACTURED TO COMPLY WITH THE CURRENT FLORIDA BUILDING CODE (FBC) INCLUDING HVHZ, INTERNATIONAL BUILDING CODE & INTERNATIONAL RESIDENTIAL CODE. ALL PRODUCTS UNDER THE SCOPE OF THIS DOCUMENT HAVE BEEN EVALUATED TO THE FOLLOWING:
 - TAS 201-94
 - TAS 202-94
 - TAS 203-94
 - ASTM E1886-13
 - ASTM E1996-14
- ADEQUACY OF THE EXISTING STRUCTURAL CONCRETE/MASONRY, 2X AND METAL STUD FRAMING AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE FOUNDATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
- 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED AND ANCHORED TO PROPERLY TRANSFER ALL LOADS TO THE STRUCTURE. BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
- THE INSTALLATION DETAILS DESCRIBED HEREIN ARE GENERIC AND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIFIC SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIATE FROM THE REQUIREMENTS DETAILED HEREIN, A LICENSED ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE WITH THIS DOCUMENT.
- APPROVED IMPACT PROTECTIVE SYSTEM **IS NOT REQUIRED** TO PROTECT THIS PRODUCT IN AREAS REQUIRING IMPACT RESISTANCE IN WIND ZONES 4 OR LESS.
- MULLION MATERIAL:
 - CARBON STEEL (S235JRC, Min. Fy = 34 KSI, Fu = 52 ksi)
 - STAINLESS STEEL (AISI304/316, Min. Fy = 30 KSI, Fu = 75 KSI)
- DISSIMILAR METALS INCLUDING FASTENERS SHALL BE PROTECTED FROM GALVANIC CORROSION IN ACCORDANCE WITH FBC REQUIREMENTS.
- CUSTOM SIZES AVAILABLE UPON REQUEST. CUSTOM DESIGN PRESSURE WILL BE ASSIGNED EQUAL TO NEXT LARGER STANDARD SIZE.
- MULL ASSEMBLIES ARE QUALIFIED FOR TWO OR MORE UNITS PER OPENING IN THE FOLLOWING CONFIGURATION:
 - "ONE WAY" - RIBBON OR STACKED MULLIONS
 - "TWO WAY" - 'X' OR 'T' MULLIONS.

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2	MULL ASSEMBLY SECTIONS & INTERSECTION DETAILS
3	STANDARD INSTALLATION - WOOD & METAL STUD SUBSTRATES
4	STANDARD INSTALLATION - CONCRETE & GROUT FILLED CMU SUBSTRATES
5	WELD PLATE AND DEFLECTION ANCHOR INSTALLATIONS
6	160X15 ONE WAY DESIGN PRESSURE TABLE
7	160X15 TWO WAY DESIGN PRESSURE TABLE

MULLING INSTRUCTIONS:

- STEP 1: ESTABLISH MULL STIFFENER THICKNESS AND DEPTH.
- STEP 2: VERIFY MULL ASSEMBLY CONSTRUCTION FROM SHEET 2.
- STEP 3: DETERMINE ALLOWABLE LOAD OF MULL ASSEMBLY FROM APPLICABLE LOAD TABLE, REFER TO SHEETS 6-7.
- STEP 4: INSTALL MULLION BASED ON APPLICABLE SPECIFICATIONS & DETAILS SHOWN ON SHEETS 3-5.

WIND ZONE	MISSILE IMPACT RATING
WIND ZONE 4 OR LESS	IMPACT RATED



BROMBAL ITALY
VIA VALLA, 24
CASELLE DI ALTIVOLE (TV), ITALY
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FX: ++39 0423 919168

TITLE: BROMBAL ITALY
FARO & ALFA MULLION STIFFENERS
(HVHZ) (IMPACT)
GENERAL AND
INSTALLATION NOTES

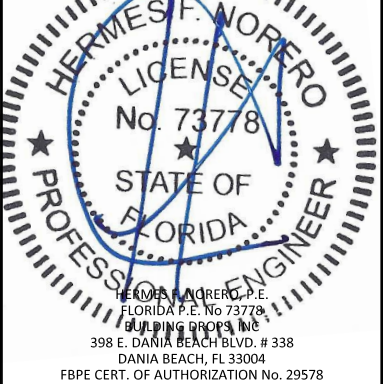
PREPARED BY: BUILDING DROPS, INC.
398 E. DANIA BEACH BLVD., STE. 338
DANIA BEACH, FL 33004
PH: (954)399-8478
FAX: (954)744-4738
WEB: www.buildingdrops.com



REMARKS	BY	DATE

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Reason: I am approving this document
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FL21041

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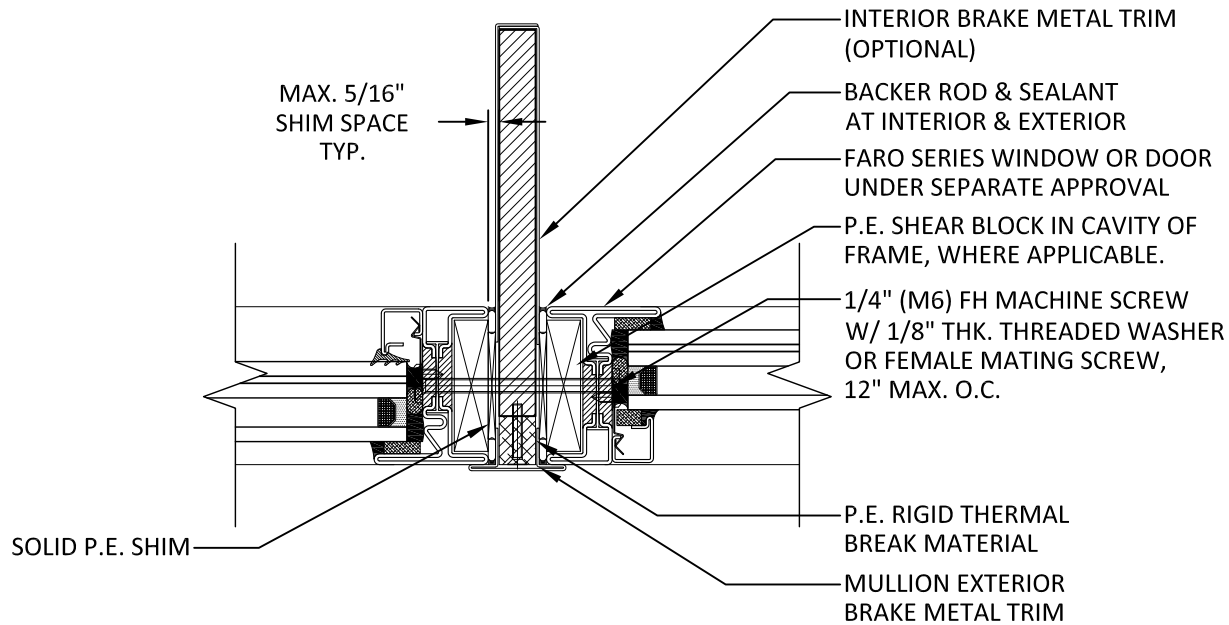
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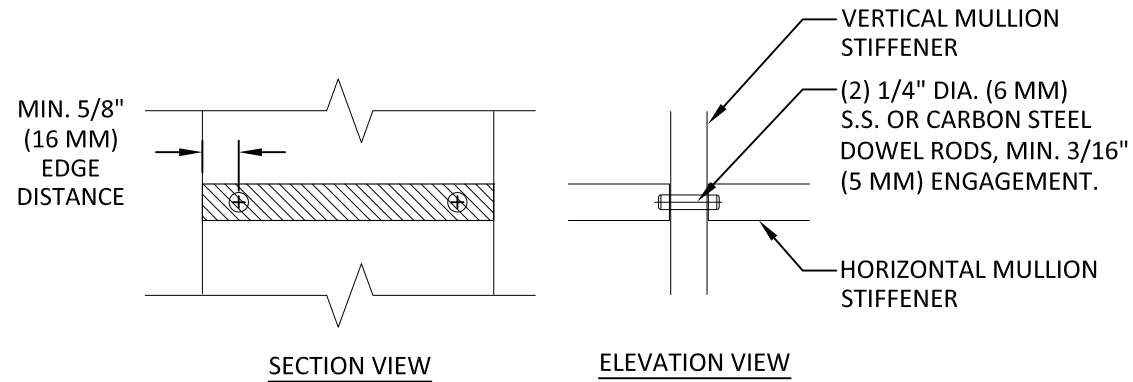
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A
2

FARO TO FARO

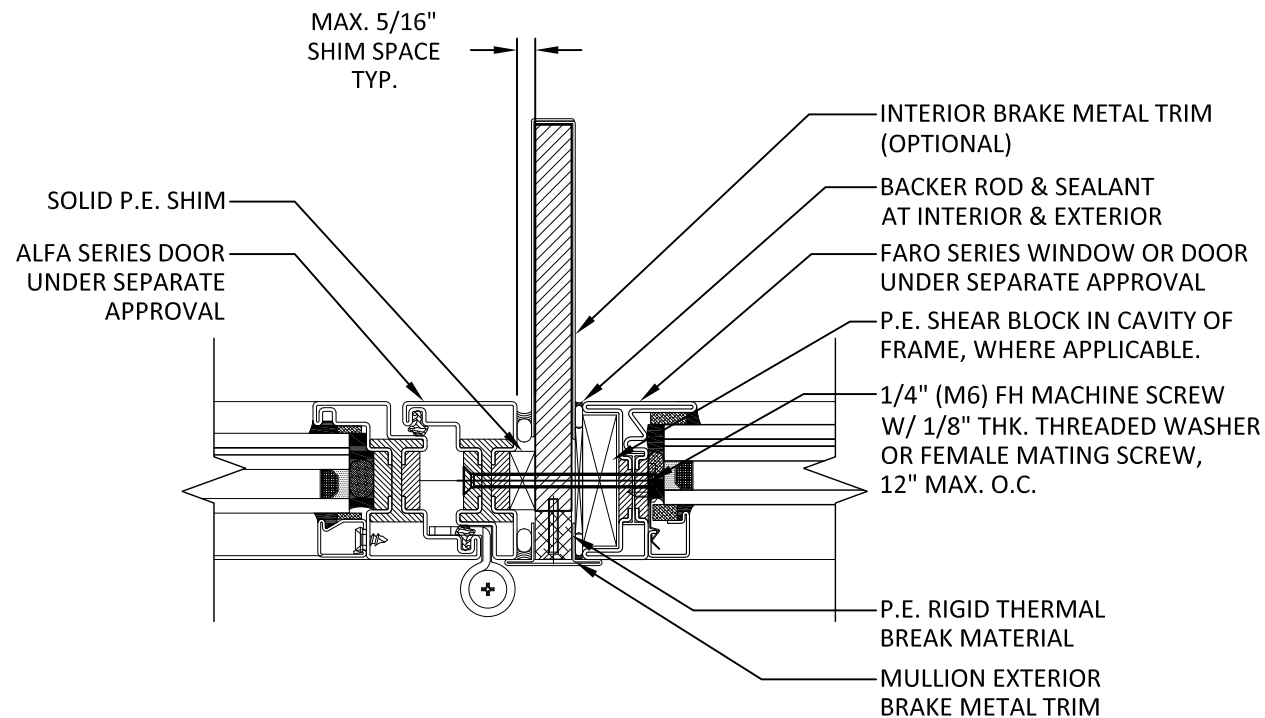
VERTICAL OR HORIZONTAL MULL
TYPICAL STIFFENER DETAIL



C
2

'X' CONNECTION

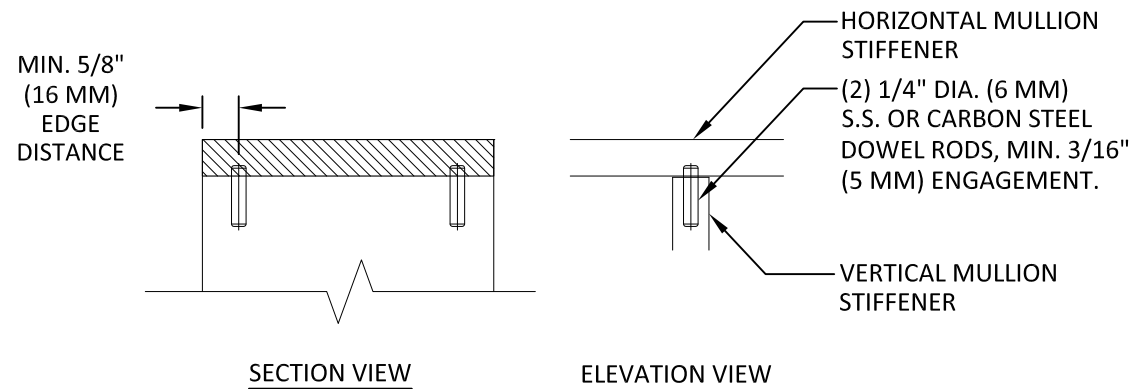
STIFFENER INTERSECTION
TYP. TWO WAY MULL JOINING DETAILS



B
2

ALFA TO FARO

VERTICAL OR HORIZONTAL MULL
TYPICAL STIFFENER DETAIL



D
2

'T' CONNECTION

STIFFENER INTERSECTION
TYP. TWO WAY MULL JOINING DETAILS



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MULL ASSEMBLY SECTIONS &
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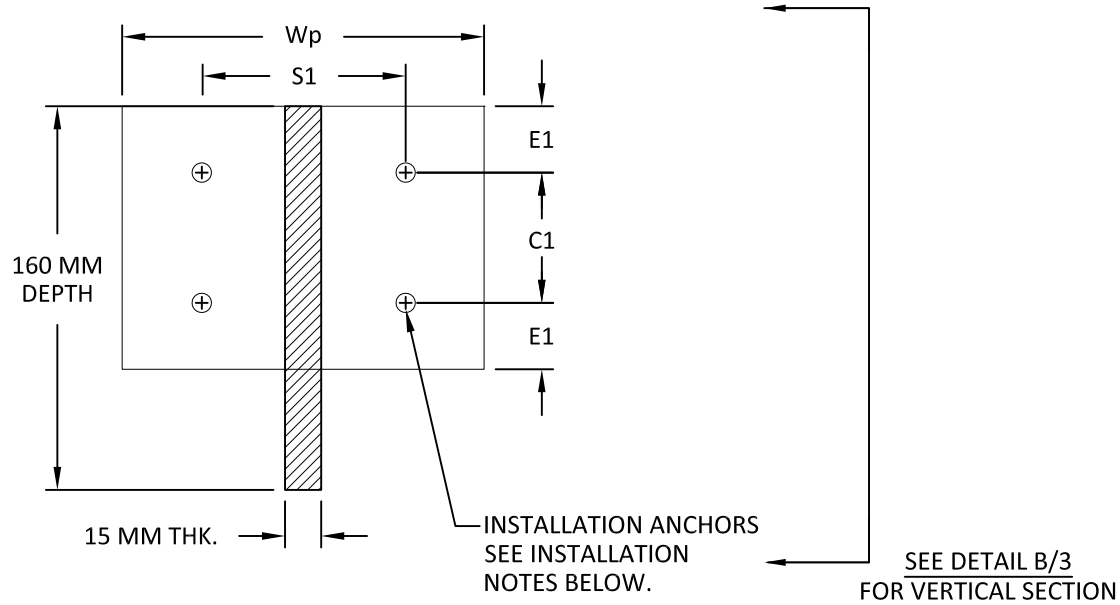
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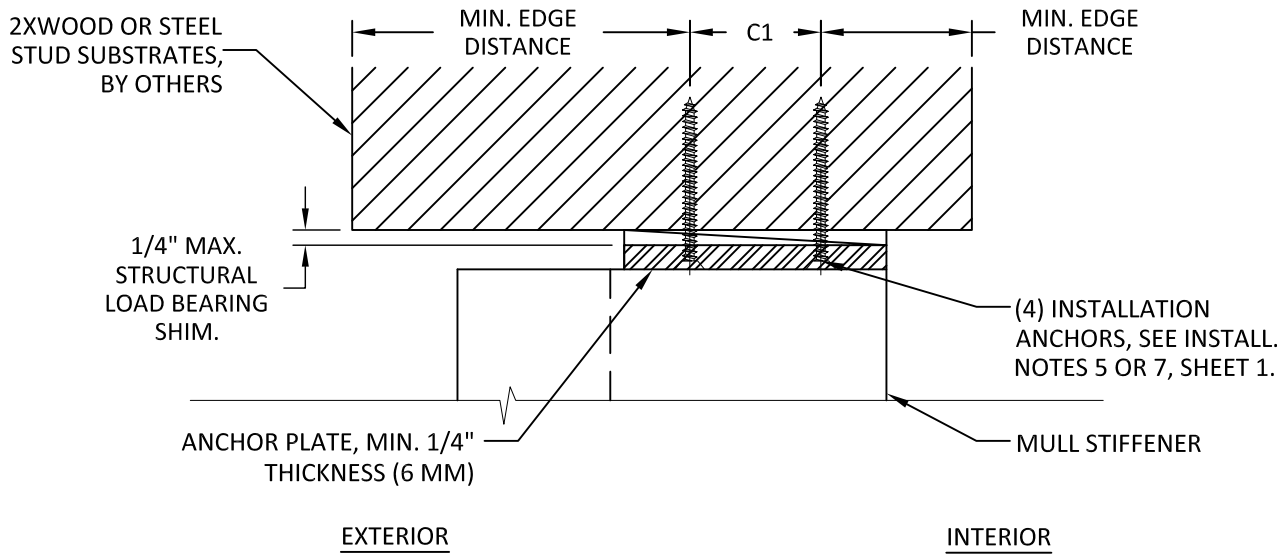
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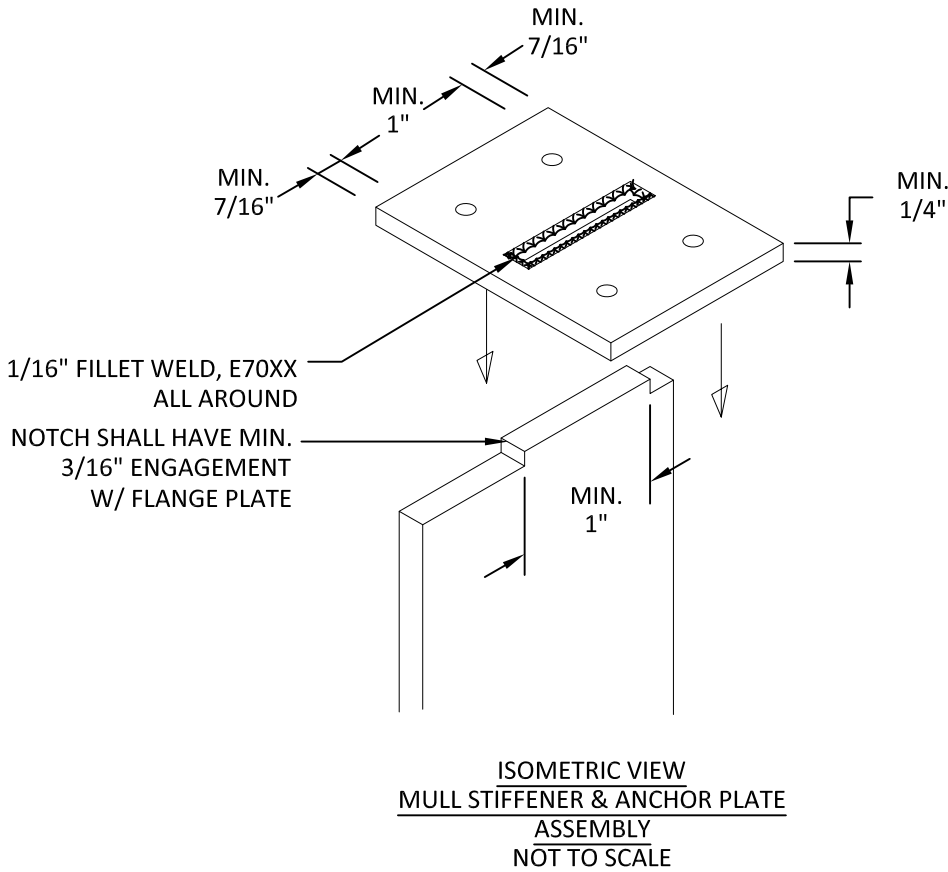


A
3 **HORIZONTAL SECTION**
TYP. ANCHOR DETAILS
WOOD/STEEL STUD SUBSTRATES



B
3 **VERTICAL SECTION**
TYP. ANCHOR DETAIL
WOOD/STEEL STUD SUBSTRATES

- INSTALLATION NOTES:**
- FOR INSTALLATION INTO 2X BUCK USE (4) #12 FH WOOD SCREWS. INSTALLATION SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - MINIMUM EMBEDMENT OF 1-1/2" INTO WOOD
 - MINIMUM EDGE DISTANCE OF 1"
 - FOR INSTALLATION THROUGH METAL FRAME USE (2) #12 FH SELF-DRILLING OR SELF-TAPPING, SAE GR. 5, TYPE SCREWS. INSTALLATION SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
 - THREE (3) THREADS MINIMUM PENETRATION BEYOND METAL FRAME WALL.
 - MINIMUM EDGE DISTANCE OF 3/4"
 - MINIMUM ANCHOR PLATE DIMENSIONS:
 - Wp = 5"
 - E1 = 1/2"
 - C1 = 1"
 - S1 = 3"
 - SEE SHEET 1, INSTALLATION NOTE 7 FOR SUBSTRATE MINIMUM PROPERTIES.



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STANDARD INSTALLATION -
WOOD & METAL STUD SUBSTRATES

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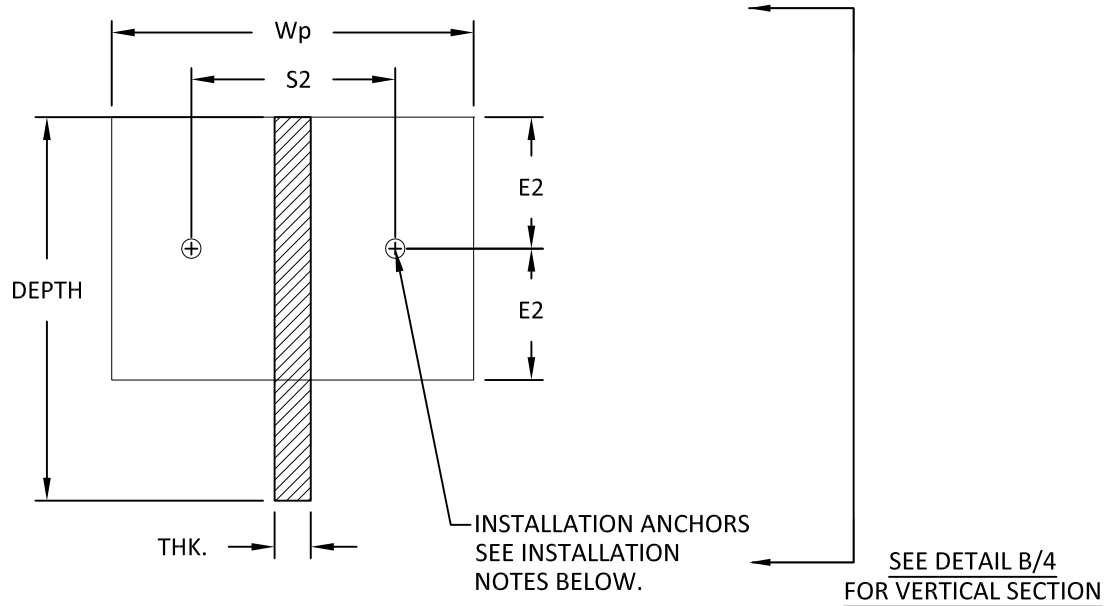


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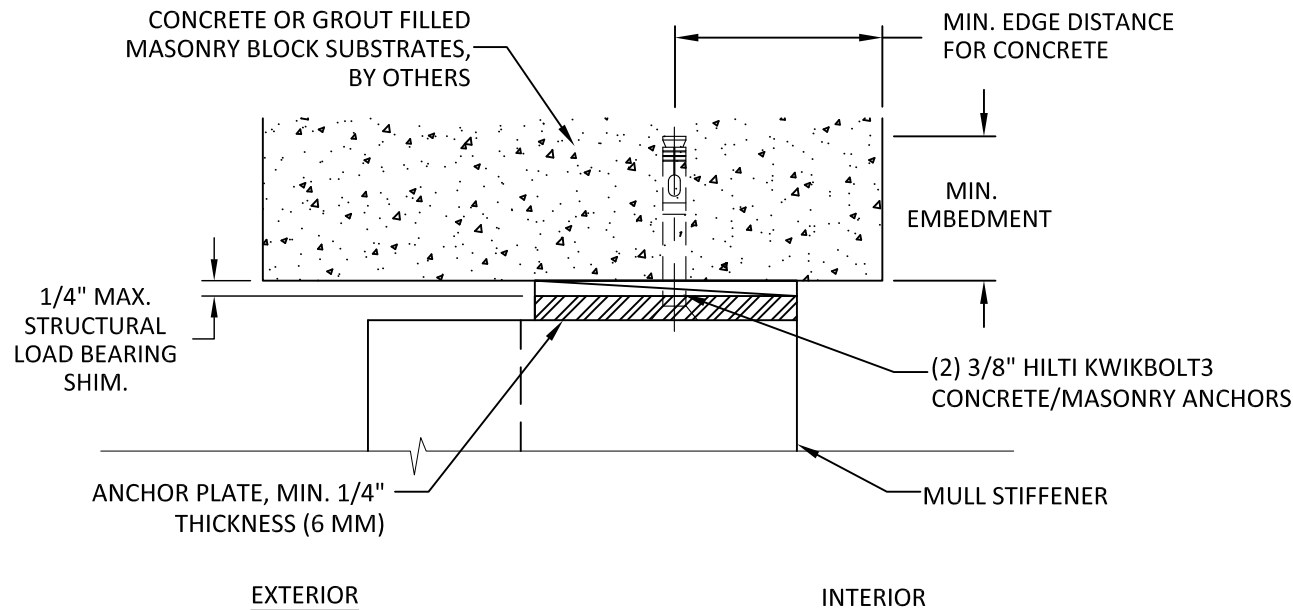
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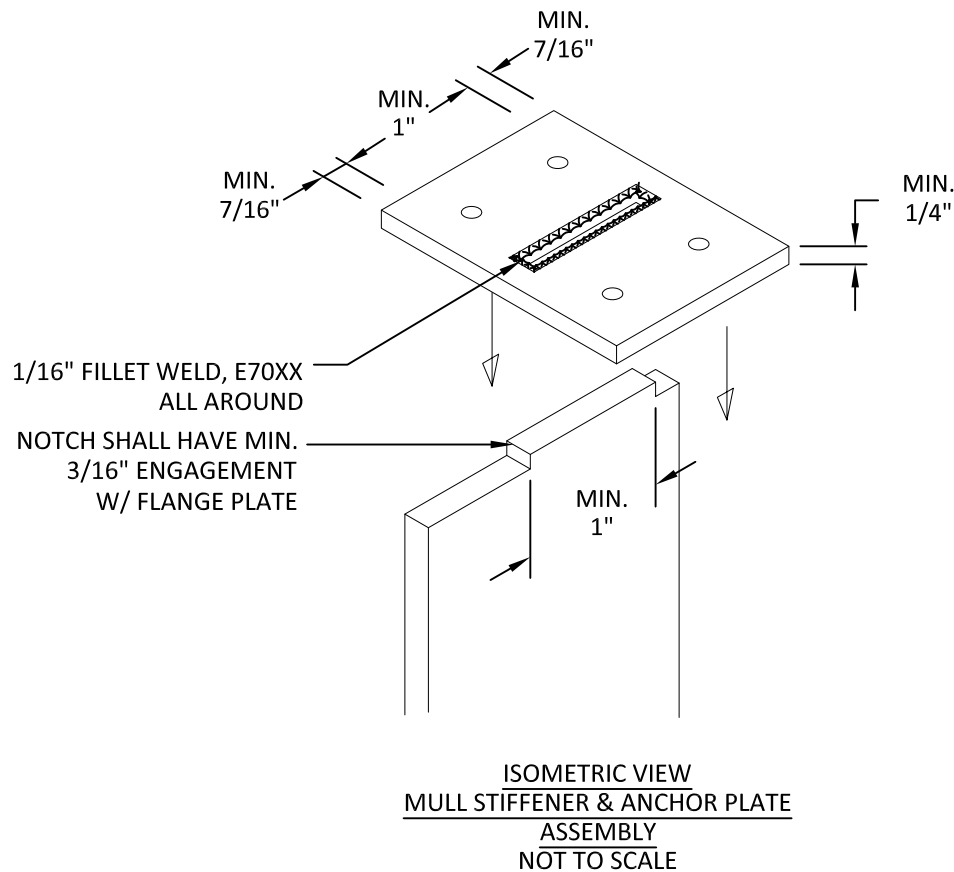


A
4 **HORIZONTAL SECTION**
TYP. ANCHOR DETAILS
CONCRETE/MASONRY SUBSTRATES



B
4 **VERTICAL SECTION**
TYP. ANCHOR DETAIL
CONCRETE/MASONRY SUBSTRATES

- INSTALLATION NOTES:**
- FOR INSTALLATION DIRECT TO CONCRETE/MASONRY OR THROUGH 1X INTO CONCRETE/MASONRY, USE (2) 3/8" HILTI KWIKBOLT 3 ANCHORS. INSTALLATION SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - 1.1. MINIMUM EMBEDMENT OF 2-1/2" INTO GROUT FILLED MASONRY
 - 1.2. MINIMUM EMBEDMENT OF 2-3/8" INTO CONCRETE
 - 1.3. MINIMUM EDGE DISTANCE OF 3"
 - MINIMUM ANCHOR PLATE DIMENSIONS:
 - 2.1. Wp = 6"
 - 2.2. E2 = 1"
 - 2.3. S2 = 4-1/2"
 - SEE SHEET 1, INSTALLATION NOTE 7 FOR SUBSTRATE MINIMUM PROPERTIES.



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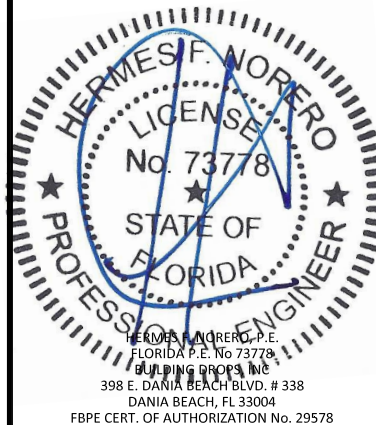
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STANDARD INSTALLATION -
CONCRETE & GROUT FILLED CMU

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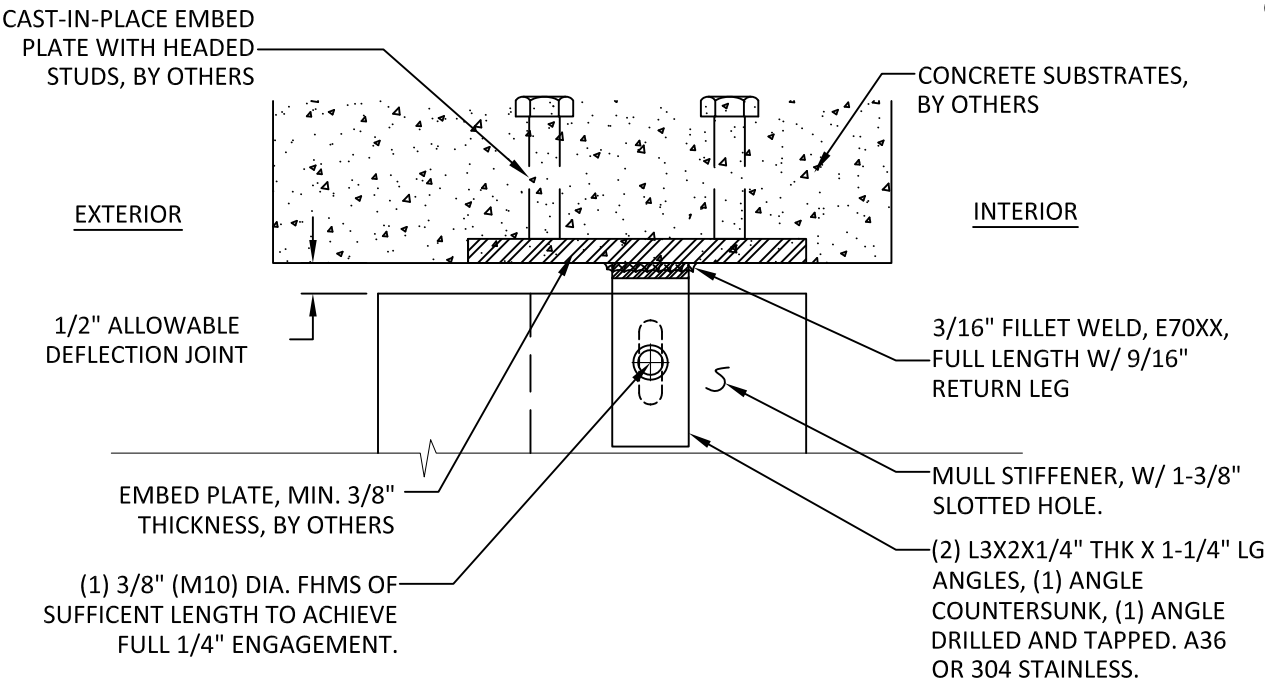
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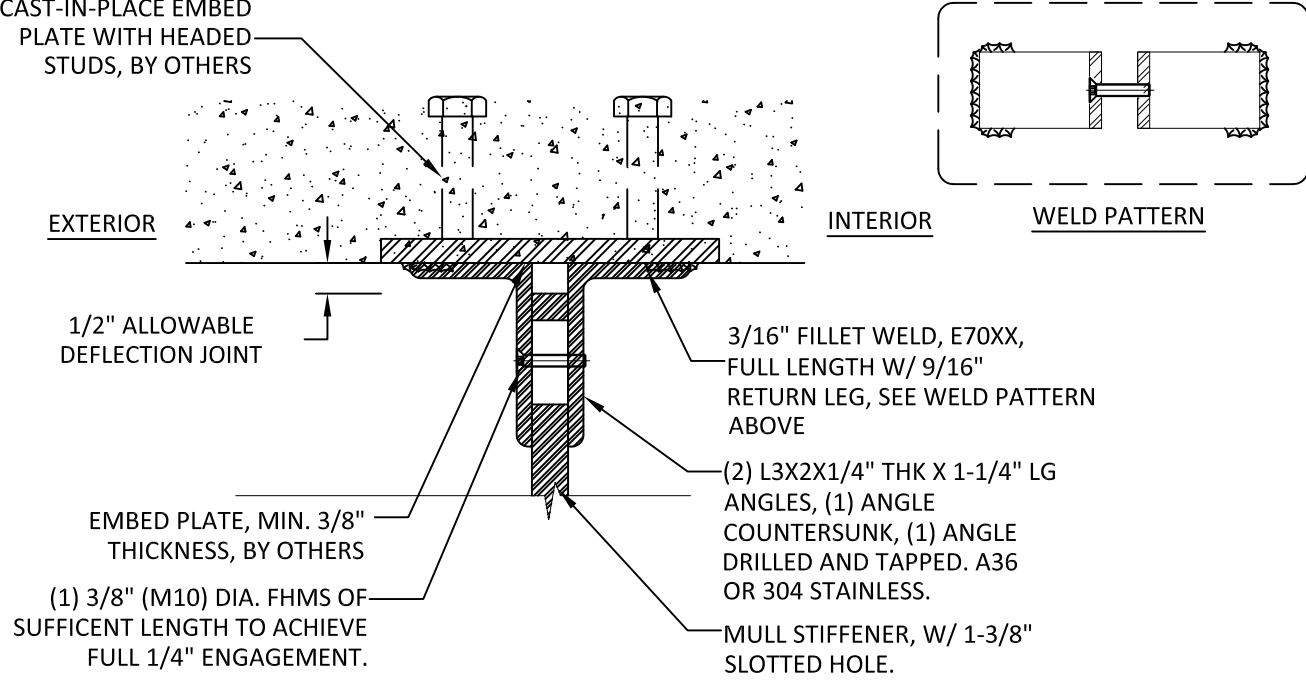
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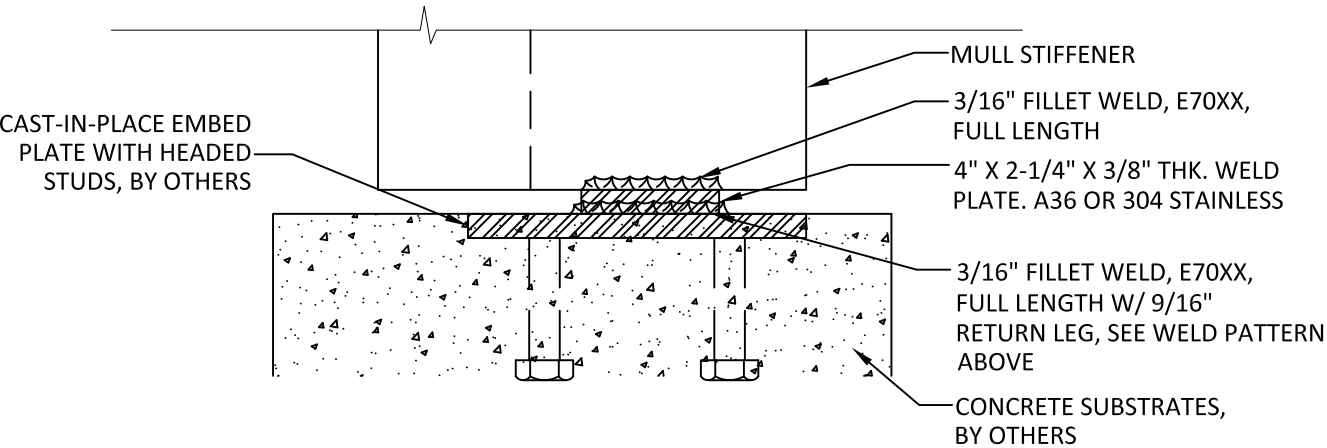
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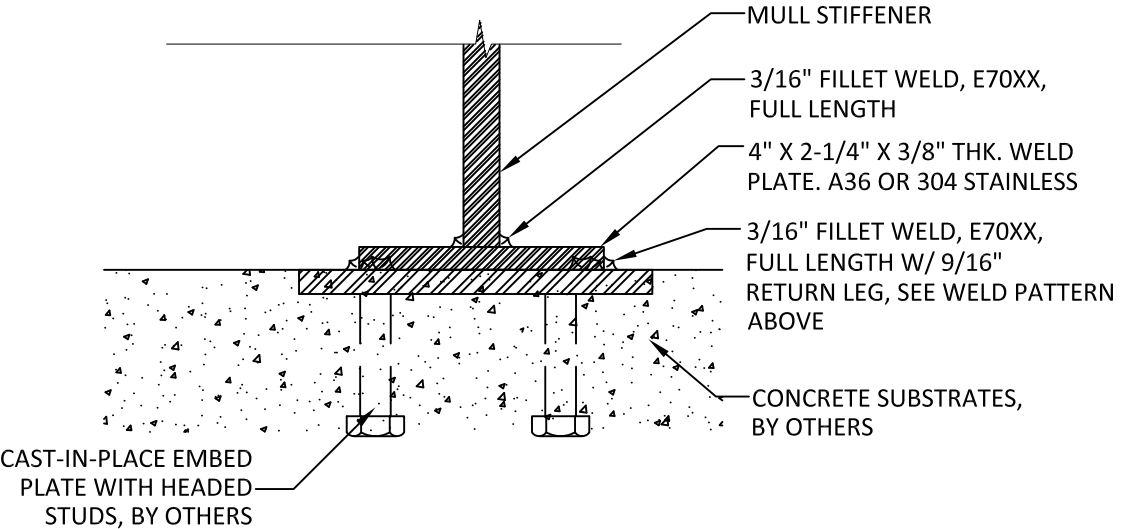
A
5 **VERTICAL SECTION**
DEFLECTION ANCHOR
CAST IN PLACE ANCHOR - CONCRETE



B
5 **ELEVATION VIEW**
DEFLECTION ANCHOR
CAST IN PLACE ANCHOR - CONCRETE



C
5 **VERTICAL SECTION**
WELD PLATE
CAST IN PLACE ANCHOR - CONCRETE



D
5 **ELEVATION VIEW**
WELD PLATE
CAST IN PLACE ANCHOR - CONCRETE



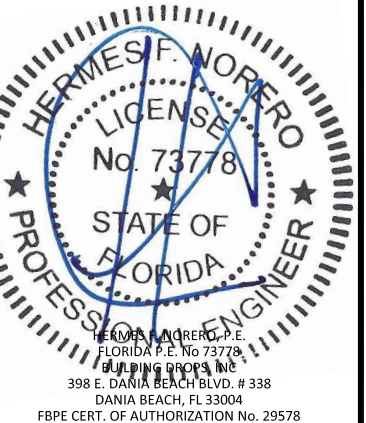
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FARO & ALFA MULLION STIFFENERS
(HVHZ) (IMPACT)
WELD PLATE AND DEFLECTION
ANCHOR INSTALLATION

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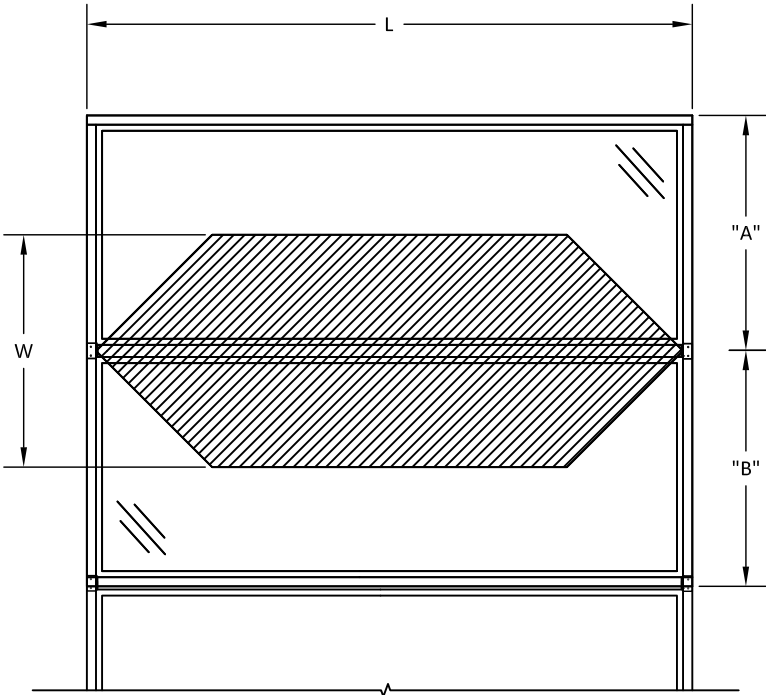
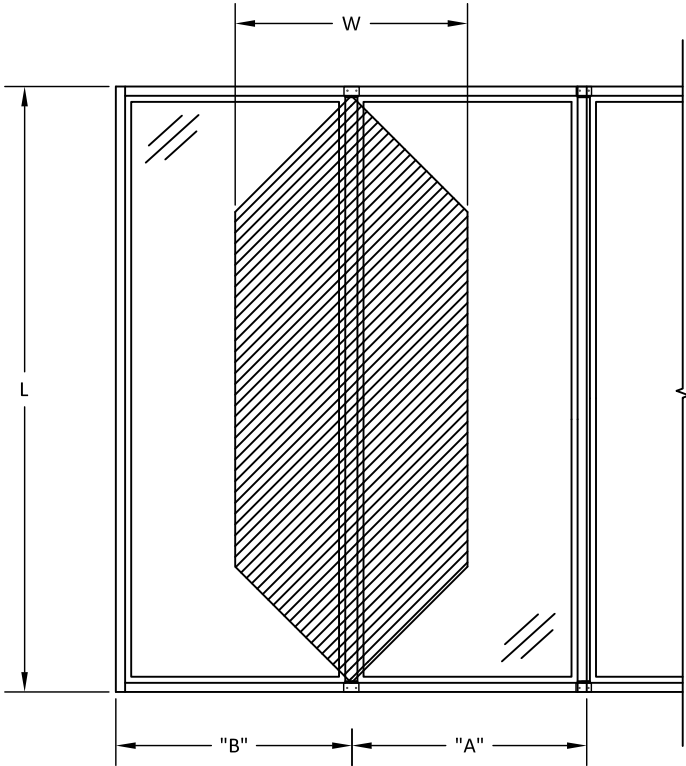
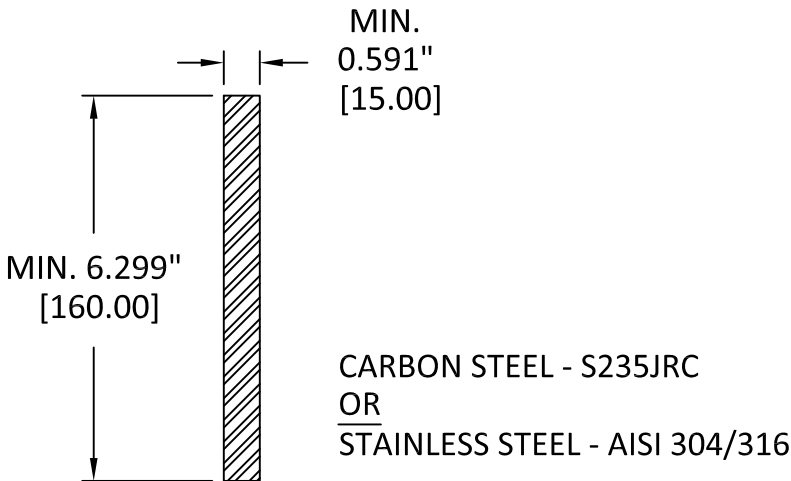
160x15 MM STIFFENER FOR FARO & ALFA SERIES PRODUCTS

DESIGN PRESSURE CAPACITIES FOR ONE-WAY CONFIGURATIONS

MAXIMUM DESIGN PRESSURE CAPACITY CHART (PSF)																			
L - Mullion Length (in)	W - Tributary Width (in)																		
	18.0	21.0	24.0	27.0	30.0	33.0	36.0	39.0	42.0	45.0	48.0	51.0	54.0	57.0	60.0	63.0	66.0	69.0	72.0
60.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
63.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
66.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
69.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
72.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
75.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
78.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
81.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
84.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
87.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.9	97.0	95.5	94.2
90.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.7	96.1	93.9	91.9	90.3	89.0
93.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.0	94.1	91.5	89.3	87.3	85.7	84.3
96.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.2	92.8	89.9	87.3	85.1	83.2	81.5	80.1
108.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.7	89.9	85.8	82.2	79.1	76.3	73.9	71.8	69.9	68.2	66.7
114.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	93.9	88.6	84.0	80.1	76.6	73.6	71.0	68.6	66.5	64.7	63.1	61.6
120.0	100.0	100.0	100.0	100.0	100.0	100.0	94.2	88.2	83.2	78.8	75.1	71.8	68.9	66.3	64.1	62.0	60.2	58.6	57.2
126.0	100.0	100.0	100.0	100.0	100.0	95.7	89.0	83.3	78.4	74.3	70.6	67.5	64.7	62.2	60.0	58.1	56.4	54.8	53.4
132.0	100.0	100.0	100.0	100.0	98.5	90.7	84.3	78.8	74.2	70.2	66.7	63.7	61.0	58.6	56.5	54.6	52.9	51.4	50.0
138.0	100.0	100.0	100.0	100.0	93.7	86.3	80.1	74.8	70.4	66.5	63.2	60.3	57.7	55.4	53.4	51.6	49.9	48.4	47.1
144.0	100.0	100.0	100.0	98.2	89.4	82.2	76.3	71.2	67.0	63.3	60.0	57.2	54.7	52.5	50.6	48.8	47.2	45.8	44.5

NOTE:

- MULLION CHART APPLIES TO ASSEMBLIES WHEN MULLED IN ONE-WAY, STACK OR RIBBON, CONFIGURATIONS. TYPICAL ELEVATIONS SHOWN AT RIGHT.
- DESIGN PRESSURE VALUES ARE POSITIVE AND NEGATIVE IN PSF.
- MAXIMUM DEFLECTION HAS BEEN LIMITED TO L/180.
- DESIGN PRESSURE OF ASSEMBLY IS LIMITED TO THE LESSER DESIGN PRESSURE OF THE MULLION ASSEMBLY OR THE INDIVIDUAL UNIT OF INSTALLATION. ADJACENT WINDOWS SHALL BE UNDER SEPARATE FL APPROVAL.
- TRIBUTARY WIDTH = W = (A+B)/2
- REFER TO SHEETS 3-5 FOR INSTALLATION DETAILS.
- WHEN WINDOWS ARE STACKED VERTICALLY, THE MANUFACTURER/INSTALLER SHALL ENSURE THAT THE WEIGHT OF UNITS ABOVE WILL NOT CAUSE DEFLECTIONS OR STRESSES WHICH WILL AFFECT OPERATION OR STRUCTURAL ADEQUACY OF UNITS BELOW.



BROMBAL ITALY
VIA VALLA, 24
CASELLE DI ALTIVOLE (TV), ITALY
PH: ++39 0423 566189
FX: ++39 0423 919168

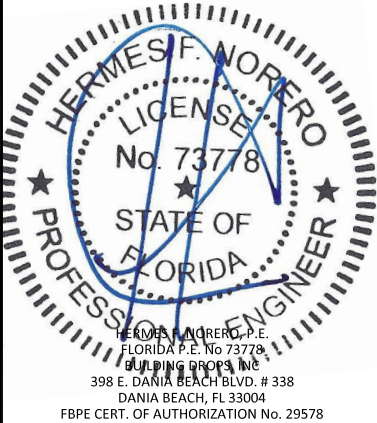
TITLE: BROMBAL ITALY
FARO & ALFA MULLION STIFFENERS
(HVHZ) (IMPACT)
160X15 ONE WAY
DESIGN PRESSURE TABLE

PREPARED BY: BUILDING DROPS, INC.
398 E. DANIA BEACH BLVD., STE. 338
DANIA BEACH, FL 33004
PH: (954)399-8478
FAX: (954)744-4738
WEB: www.buildingdrops.com



REMARKS	BY	DATE

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FL #:
FL21041

DATE: **09.28.22**

DWG. BY:
SM

CHK. BY:
HFN

SCALE: **NTS**

DWG. #: **BRB011**

SHEET: OF 7

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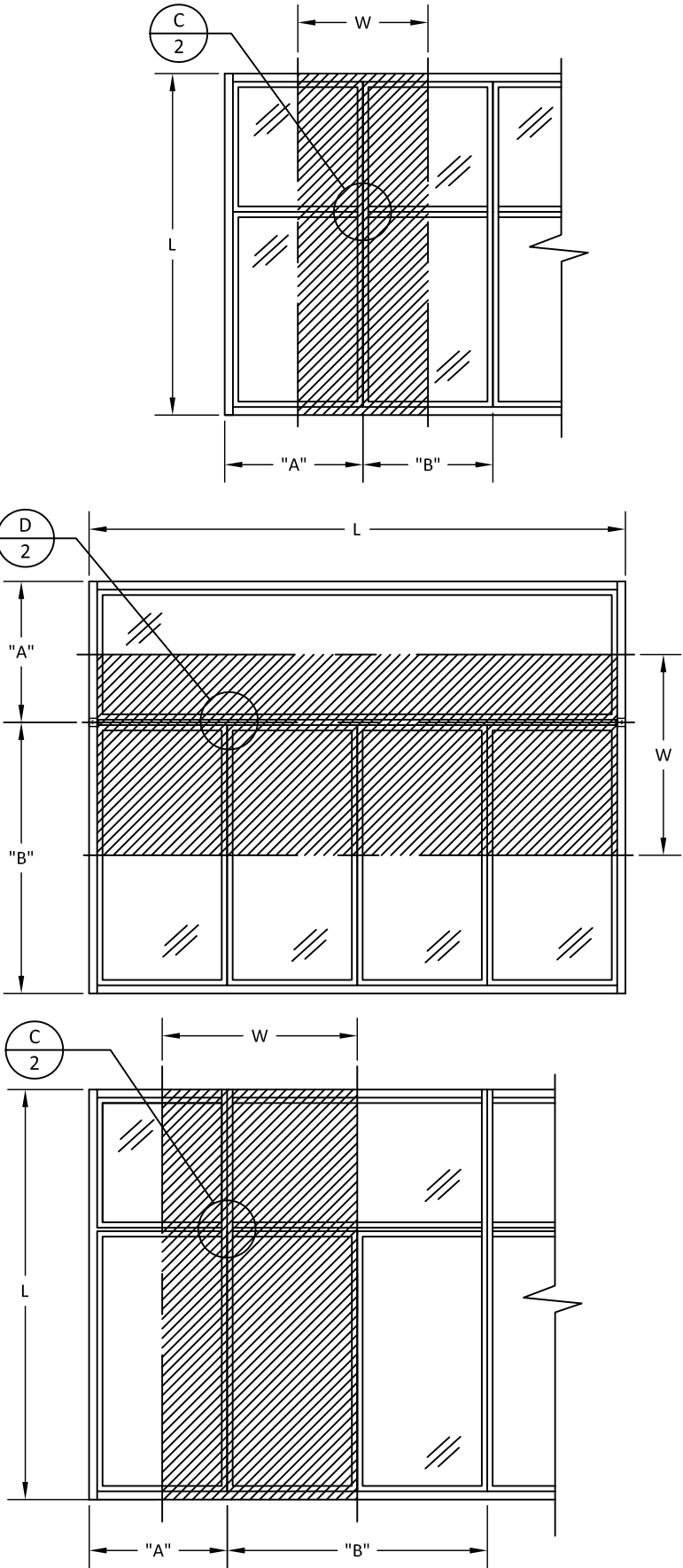
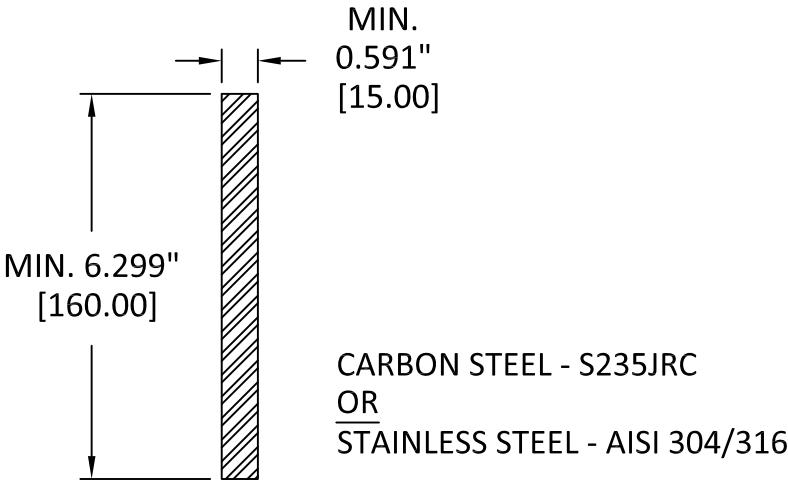
160x15 MM STIFFENER FOR FARO & ALFA SERIES PRODUCTS

DESIGN PRESSURE CAPACITIES FOR TWO-WAY CONFIGURATIONS

MAXIMUM DESIGN PRESSURE CAPACITY CHART (PSF)																			
L - Mullion Length (in)	W - Tributary Width (in)																		
	18.0	21.0	24.0	27.0	30.0	33.0	36.0	39.0	42.0	45.0	48.0	51.0	54.0	57.0	60.0	63.0	66.0	69.0	72.0
60.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.1	91.5	87.3	83.5	80.1
63.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.3	91.5	87.1	83.2	79.6
66.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.0	91.9	87.3	83.2	79.4	76.0
69.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.3	92.8	87.9	83.5	79.6	76.0	72.6	69.6
72.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.2	89.0	84.3	80.1	76.3	72.8	69.6	66.7
75.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.1	90.4	85.4	80.9	76.9	73.2	69.9	66.8	64.1
78.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.5	92.4	86.9	82.1	77.8	73.9	70.4	67.2	64.3	61.6
81.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.9	89.0	83.7	79.1	74.9	71.2	67.8	64.7	61.9	59.3
84.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.0	91.5	85.8	80.7	76.3	72.2	68.6	65.4	62.4	59.7	57.2
87.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.7	88.3	82.8	78.0	73.6	69.7	66.3	63.1	60.2	57.6	55.2
90.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.5	91.5	85.4	80.1	75.4	71.2	67.4	64.1	61.0	58.2	55.7	53.4
93.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.4	88.6	82.6	77.5	72.9	68.9	65.2	62.0	59.0	56.4	53.9	51.7
96.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	92.4	85.8	80.1	75.1	70.6	66.7	63.2	60.0	57.2	54.6	52.2	50.0
108.0	100.0	100.0	100.0	100.0	100.0	97.0	89.0	82.1	76.3	71.2	66.7	62.8	59.3	56.2	53.4	50.8	48.5	46.4	44.5
114.0	100.0	100.0	100.0	100.0	100.0	91.9	84.3	77.8	72.2	67.4	63.2	59.5	56.2	53.2	50.6	48.2	46.0	44.0	42.1
120.0	100.0	100.0	100.0	100.0	96.1	87.3	80.1	73.9	68.6	64.1	60.0	56.5	53.4	50.6	48.0	45.8	43.7	41.8	40.0
126.0	100.0	100.0	100.0	100.0	91.5	83.2	76.3	70.4	65.4	61.0	57.2	53.8	50.8	48.2	45.8	43.6	41.6	39.8	38.1
132.0	100.0	100.0	100.0	97.0	87.3	79.4	72.8	67.2	62.4	58.2	54.6	51.4	48.5	46.0	43.7	41.6	39.7	38.0	36.4
138.0	100.0	100.0	100.0	92.8	83.5	76.0	69.6	64.3	59.7	55.7	52.2	49.1	46.4	44.0	41.8	39.8	38.0	36.3	34.8
144.0	100.0	100.0	100.0	89.0	80.1	72.8	66.7	61.6	57.2	53.4	50.0	47.1	44.5	42.1	40.0	38.1	36.4	34.8	33.4

NOTE:

1. MULLION CHART APPLIES TO ASSEMBLIES WHEN MULLED IN TWO-WAY,'X' OR 'T' CONFIGURATIONS. TYPICAL ELEVATIONS SHOWN AT RIGHT.
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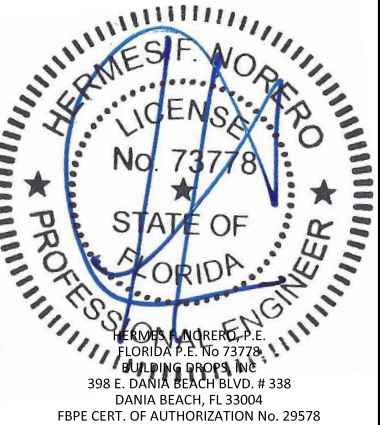
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FARO & ALFA MULLION STIFFENERS
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FL #:

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DATE: 09.28.22

DWG. BY: SM

CHK. BY: HFN

SCALE: NTS

DWG. #: BRB011

SHEET: OF 7