

INSTALLATION MANUAL

SERIES MG-150 (UNCLIPPED MULLION)



INDEX

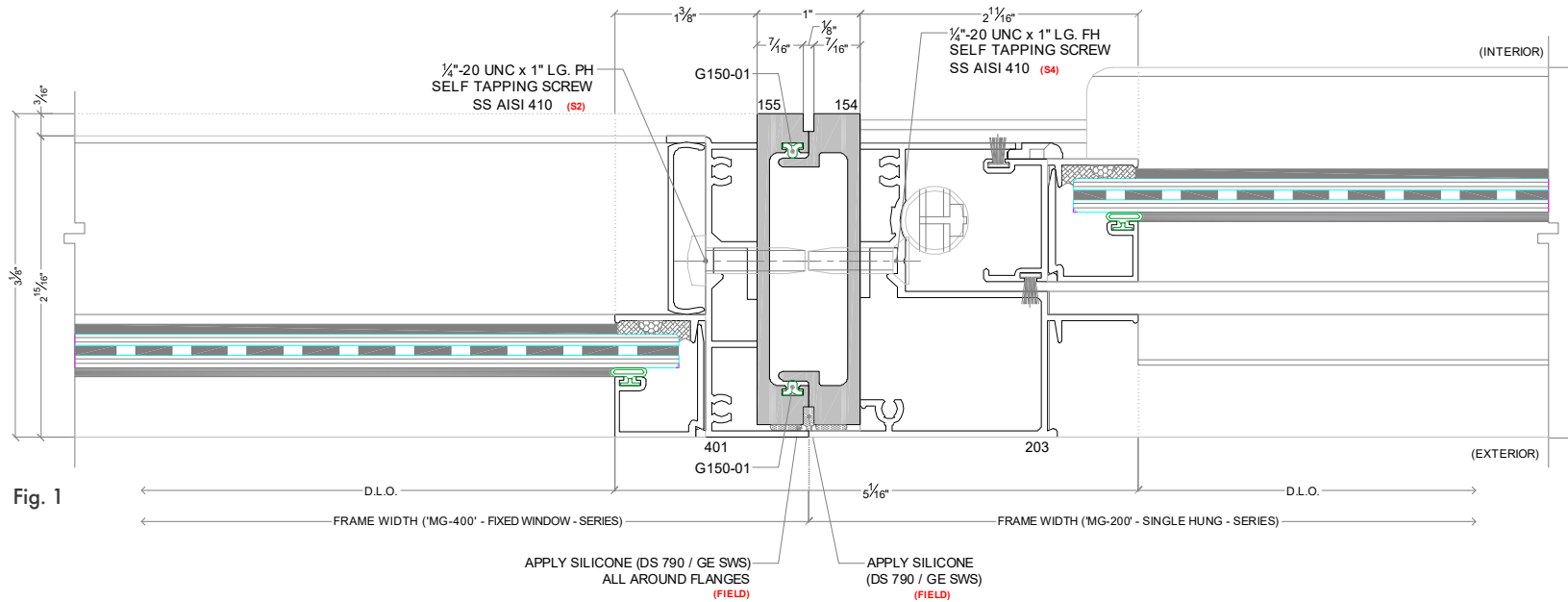
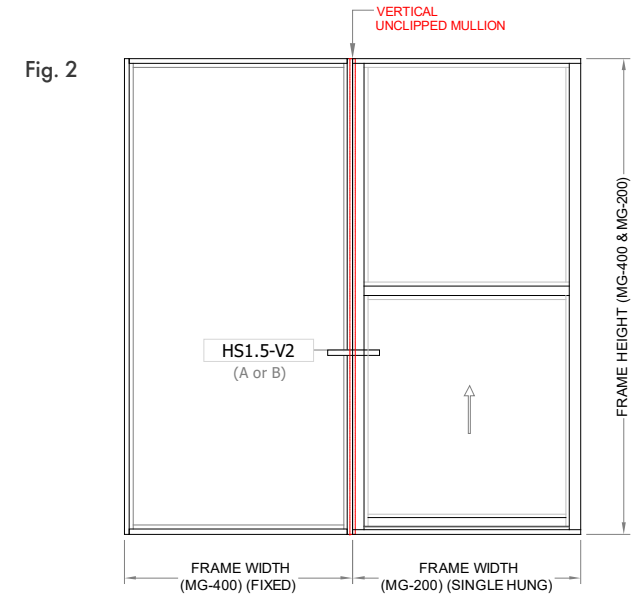
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HORIZONTAL SECTION POSSIBLE COMBINATIONS					

INTRODUCTION

MG-150 Unclipped Mullion has been designed with the installer in mind. The goal is to reduce the installation time by eliminating the anchoring clips.

As an added benefit, the unclipped mullion takes advantage of the extrusions of the systems that it's connecting by increasing the inertia of the resulting composition mullion. This means that with an equivalent mullion (in weight and inertia) you will have considerably better values of design pressures as well as mullion span and load width.

Below is an example where an unclipped mullion is joining an MG400 fix window and a MG200 single hung. Note, there are no clips at mullion ends.

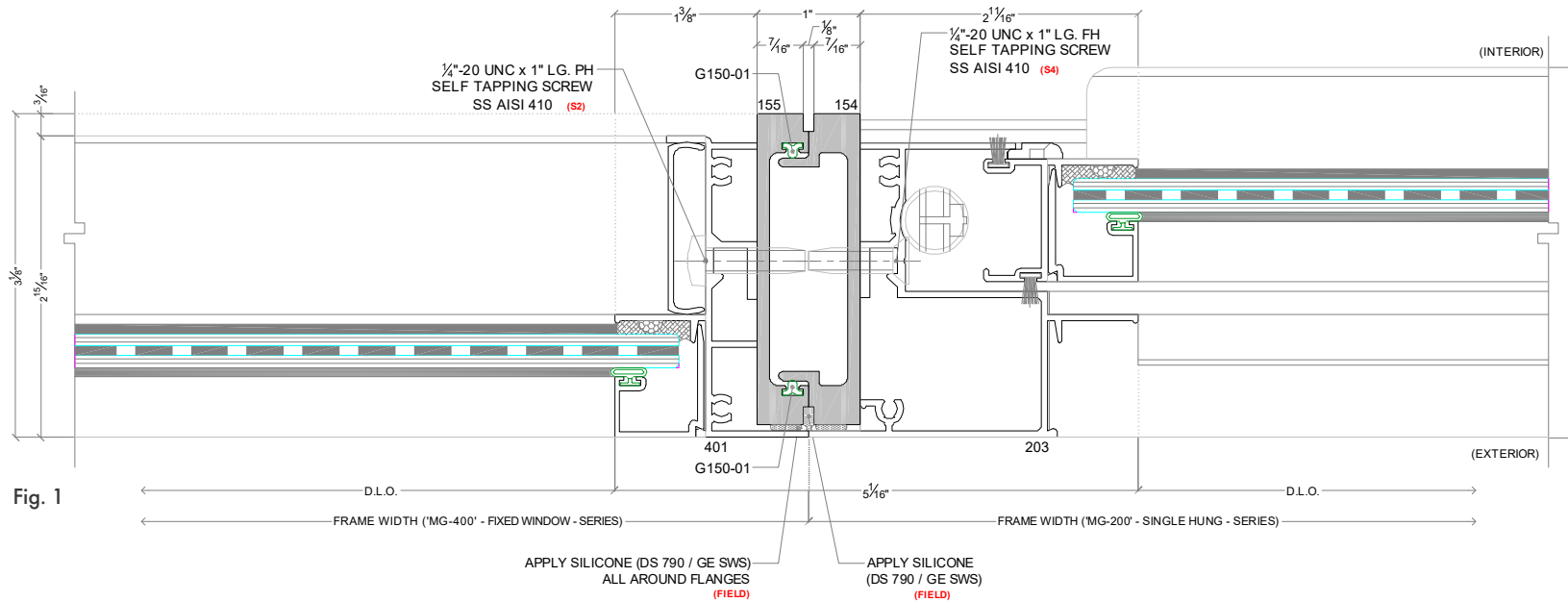
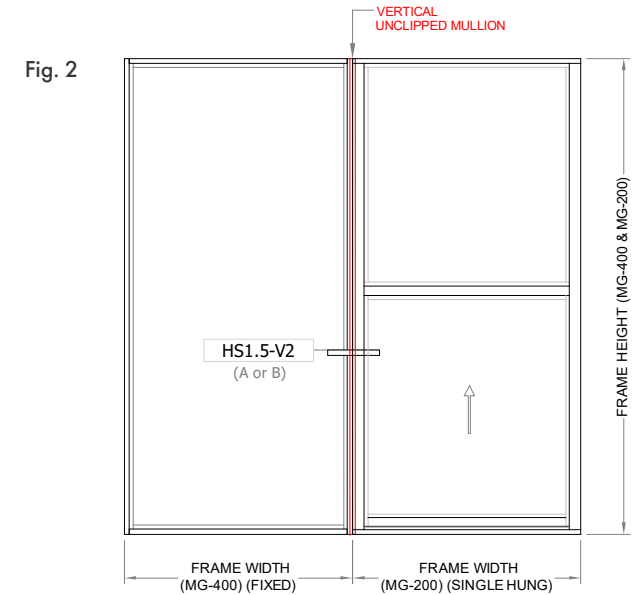


INTRODUCTION (CONT.)

MG-150 Unclipped Mullion has been designed with the installer in mind. The goal is to reduce the installation time by eliminating the anchoring clips.

As an added benefit, the unclipped mullion takes advantage of the extrusions of the systems that it's connecting by increasing the inertia of the resulting composition mullion. This means that with an equivalent mullion (in weight and inertia) you will have considerably better values of design pressures as well as mullion span and load width.

Below is an example where an unclipped mullion is joining an MG400 fix window and a MG200 single hung. Note, there are no clips at mullion ends.



INTRODUCTION (CONT.)

The unclipped mullion is split in two: one side is male and the other is female. The windows are attached to one part of the mullion (male or female, it makes no difference) with the same anchor quantity and with the same spacing required in the Florida Approval of the window. These holes are pre-drilled in the window. They need to be transferred to the mullion using a 7/32" diameter drill.

The actual anchorage of the mullion is made via the anchors at head and sill of the windows and are adjacent to the window jambs. The amount and spacing should follow the Florida Approval of the mullion. See example below:

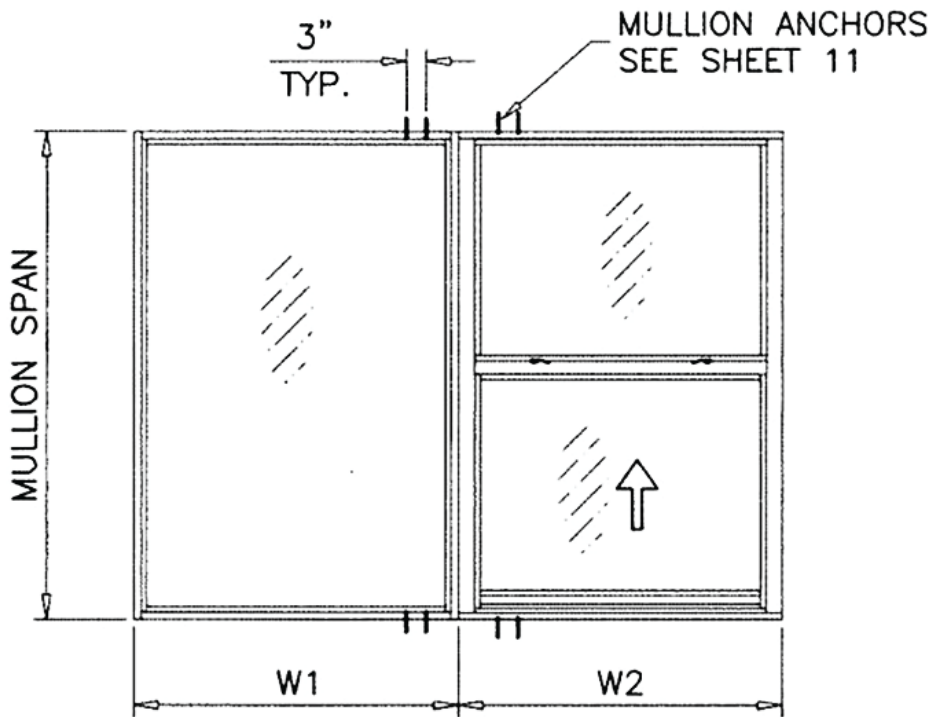


Fig. 3

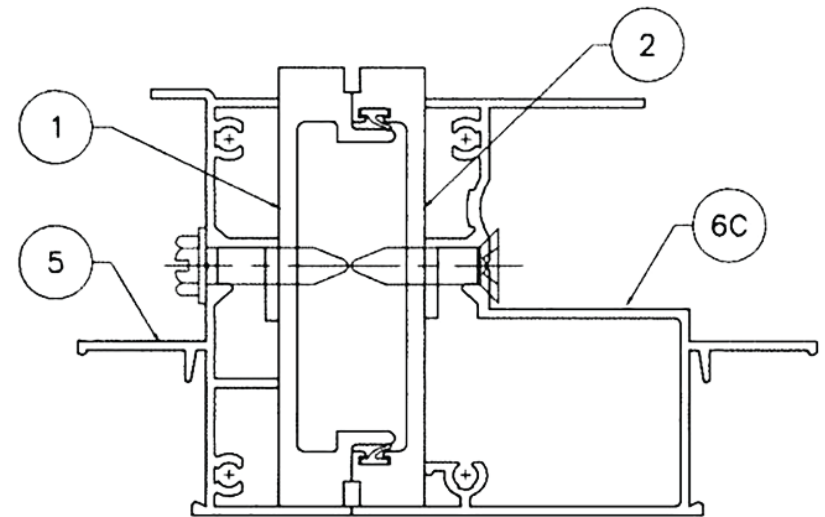


Fig. 4

INTRODUCTION (CONT.)

The mullions can be used both vertically and horizontally.

See below example of the mullion connecting a MG-450 and a MG-300 horizontally.

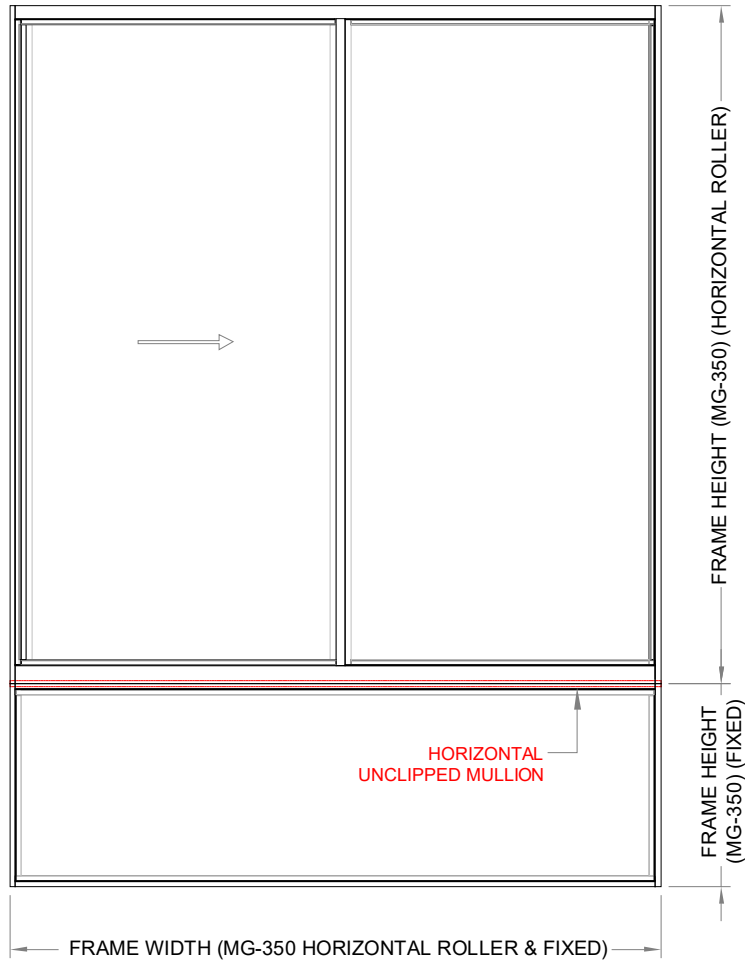


Fig. 5

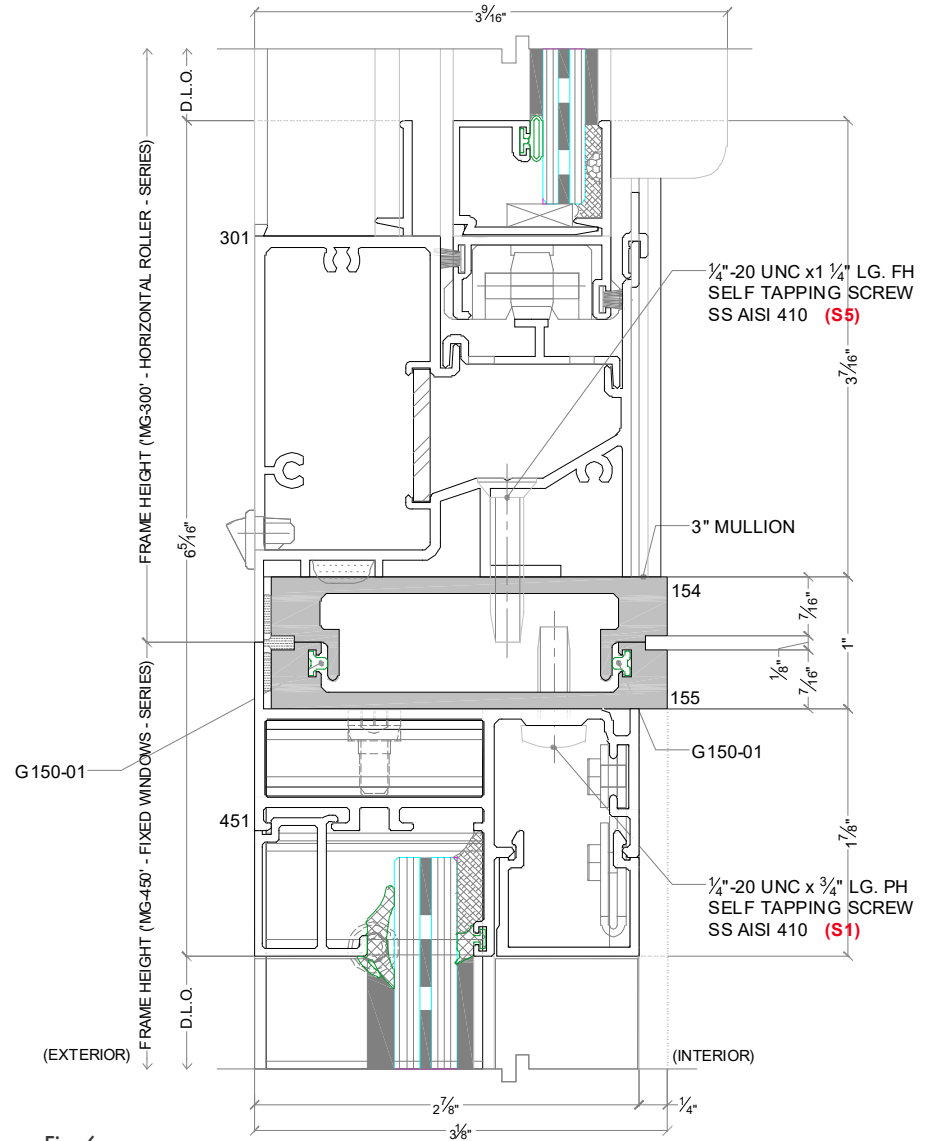


Fig. 6

INTRODUCTION (CONT.)

- A. TMG-150 Unclipped mullion is presented in two sizes: 1" x 3" and 1" x 4" to accommodate different spans, configurations, and pressures.
- B. The specific screws to be used with each system are shown in the table on page 6. These screws can be purchased in small quantity packages from Mr-Glass when you order your mullion.
- C. The sealing between the flanged windows and the mullions is performed in the same way that you do with a regular mullion:
- D. Make sure that the surface is clean. To clean the inner part of window flanges and mullion surface, use alcohol and a clean cloth.
- E. Apply a generous silicone bead along the flange of the window and on the mullion surface
- F. Connect the mullion part (male or female) with the appropriate screws
- G. Prior to connecting the male and female mullion, fill the mullion

cavity with silicone. Once the male and female mullions are connected, the silicone will overflow between flanges. Next, clean the surface.

See drawings with installation procedure in pages 36 to 39.

On pages 7 to 34 the possible combinations are shown as described in the Florida Approval. We have designated the combinations in the same fashion as the Florida Approval.

If you have questions, please contact Mr-Glass Windows and Doors Manufacturing. We will be happy to assist you.

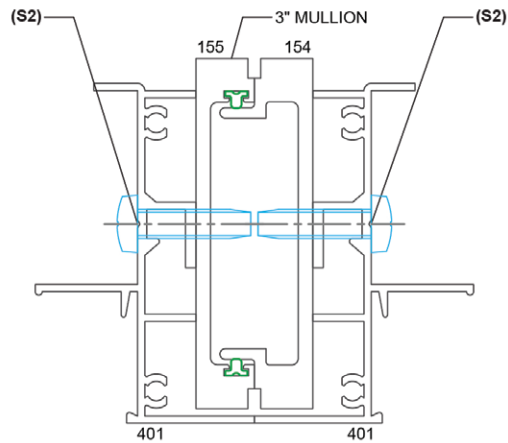
TYPICAL ANCHORS

SCREWS					
PART NUMBER	DESCRIPTION	FOR SYSTEM	QUANTITY	MATERIAL	SUPPLIER
S1	¼"-20 UNC PH SELF TAPPING SCREW SS AISI 410. LG ¾"	MG-450	AS PER NOA	STAINLESS STEEL	AMERICAN FASTENERS
S2	¼"-20 UNC PH SELF TAPPING SCREW SS AISI 410. LG 1"	MG-400	AS PER NOA	STAINLESS STEEL	AMERICAN FASTENERS
S3	¼"-20 UNC FH SELF TAPPING SCREW SS AISI 410. LG ¾"	MG-350	AS PER NOA	STAINLESS STEEL	AMERICAN FASTENERS
S4	¼"-20 UNC FH SELF TAPPING SCREW SS AISI 410. LG 1"	MG-200 MG-300 MG-350 (ONLY AT SILL)	AS PER NOA	STAINLESS STEEL	AMERICAN FASTENERS
S5	¼"-20 UNC FH SELF TAPPING SCREW SS AISI 410. LG 1 ¼"	MG-300 (ONLY AT SILL)	AS PER NOA	STAINLESS STEEL	AMERICAN FASTENERS

Table 1. Screws used to join the windows and mullions.

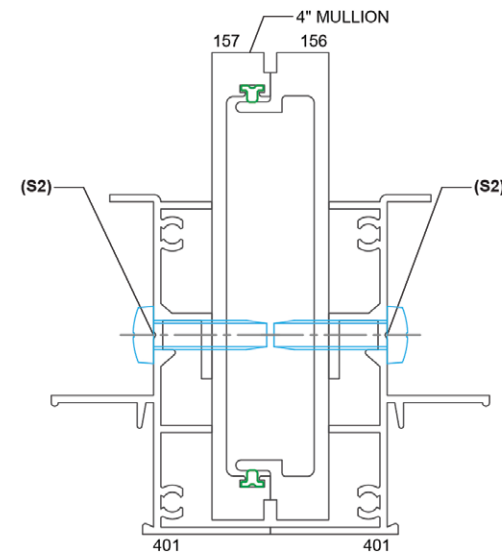
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-400 / MG-400



GROUP V1A
TOTAL PROPERTIES
Ix = 2.396 in⁴
Sx = 1.560 in³

Fig. 7

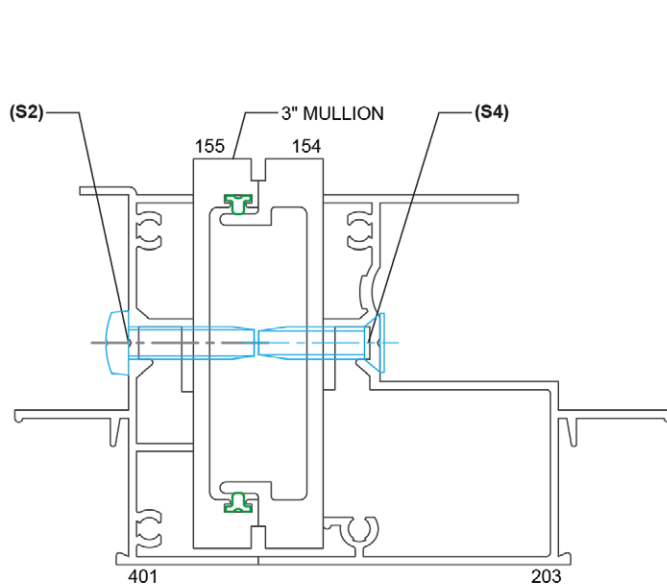


GROUP V1B
TOTAL PROPERTIES
Ix = 4.041 in⁴
Sx = 2.018 in³

Fig. 8

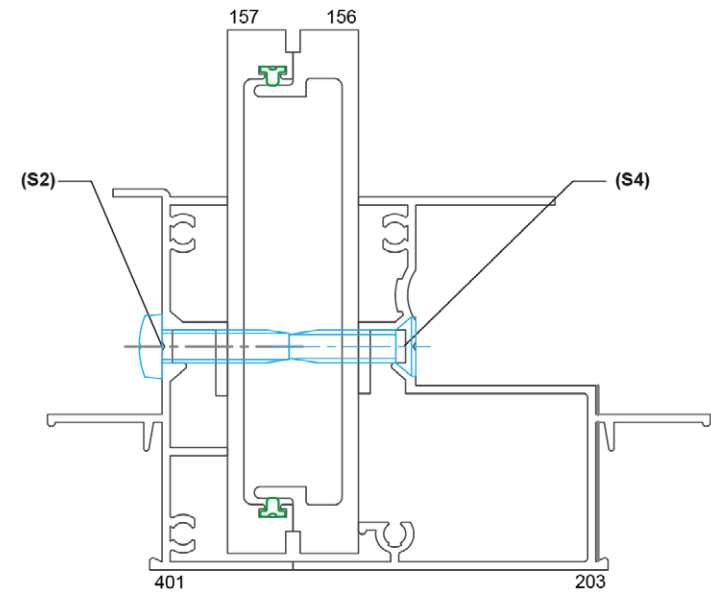
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-400 / MG-200



GROUP V2A
TOTAL PROPERTIES
Ix = 2.634 in⁴
Sx = 1.683 in³

Fig. 9

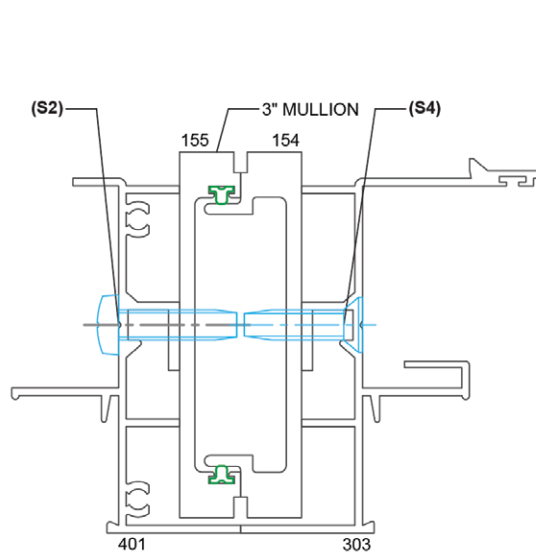


GROUP V2B
TOTAL PROPERTIES
Ix = 4.279 in⁴
Sx = 2.137 in³

Fig. 10

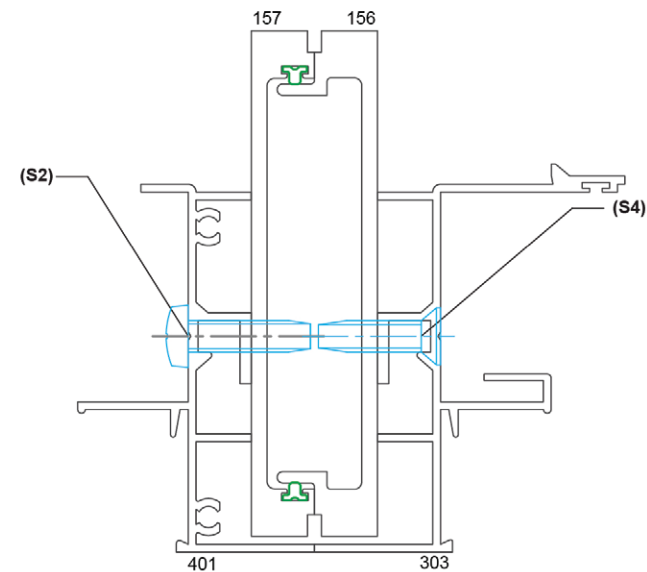
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-300



GROUP V3A
TOTAL PROPERTIES
Ix = 2.521 in⁴
Sx = 1.566 in³

Fig. 11

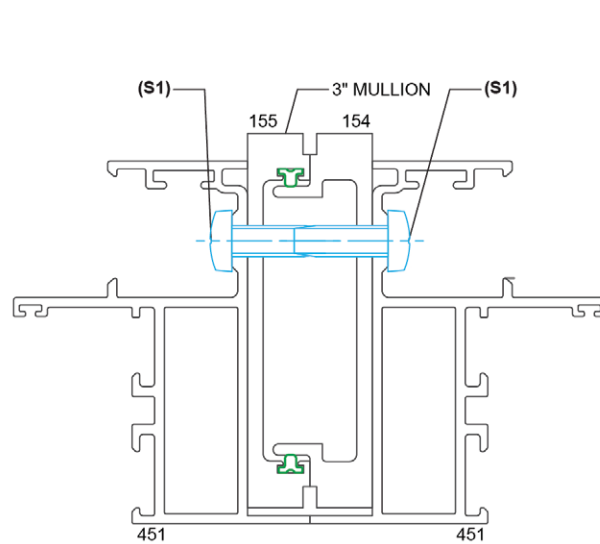


GROUP V3B
TOTAL PROPERTIES
Ix = 4.166 in⁴
Sx = 2.081 in³

Fig. 12

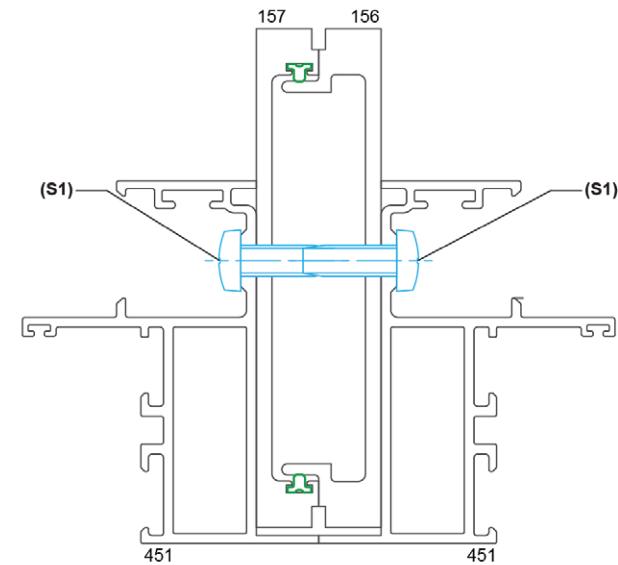
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-450



GROUP V4A
TOTAL PROPERTIES
Ix = 2.848 in⁴
Sx = 1.899 in³

Fig. 13

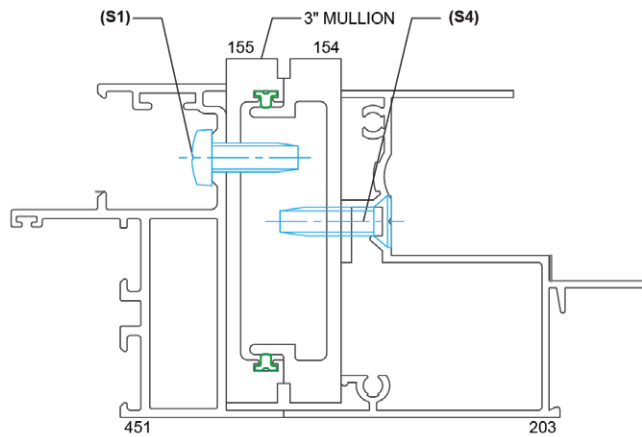


GROUP V4B
TOTAL PROPERTIES
Ix = 4.493 in⁴
Sx = 2.244 in³

Fig. 14

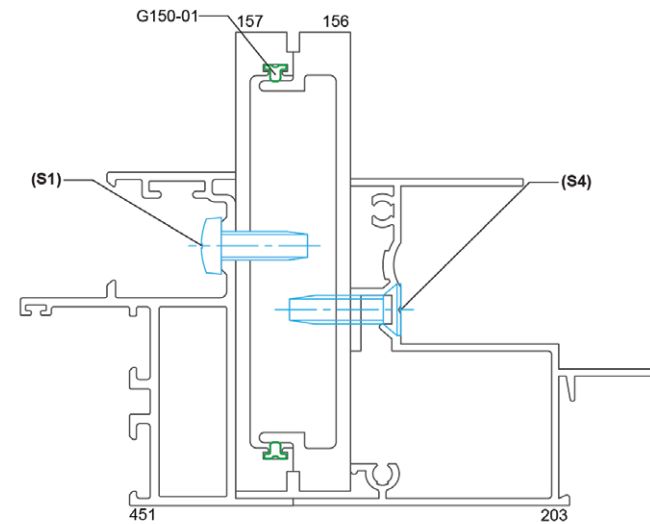
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-200



GROUP V5A
TOTAL PROPERTIES
Ix = 2.860 in⁴
Sx = 1.827 in³

Fig. 15

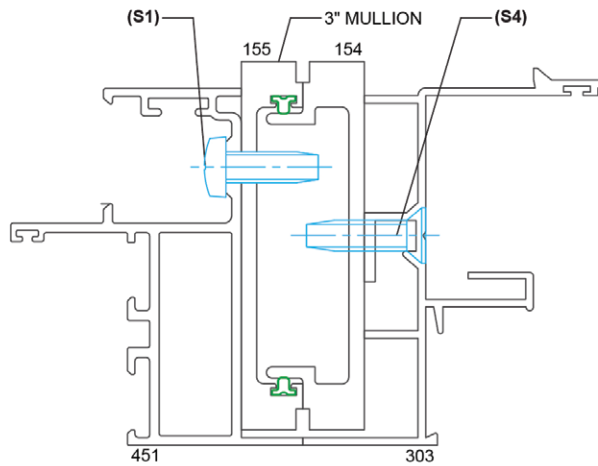


GROUP V5B
TOTAL PROPERTIES
Ix = 4.505 in⁴
Sx = 2.250 in³

Fig. 16

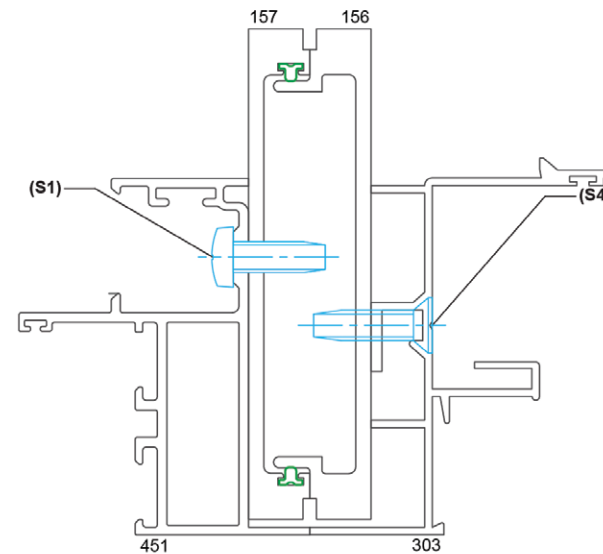
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-300



GROUP V6A
TOTAL PROPERTIES
Ix = 2.747 in⁴
Sx = 1.706 in³

Fig. 17

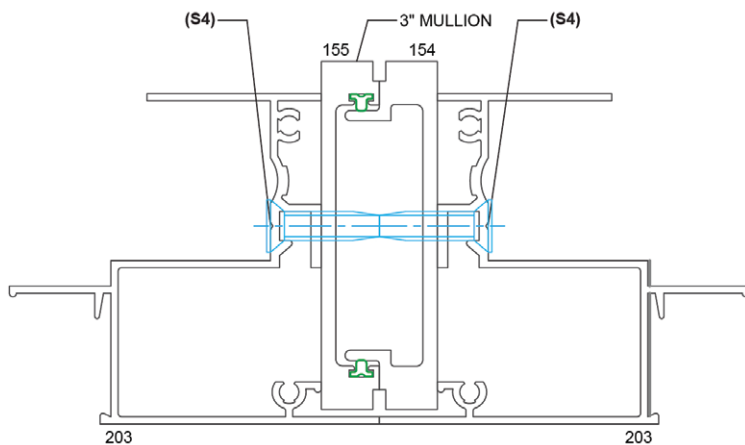


GROUP V6B
TOTAL PROPERTIES
Ix = 4.392 in⁴
Sx = 2.194 in³

Fig. 18

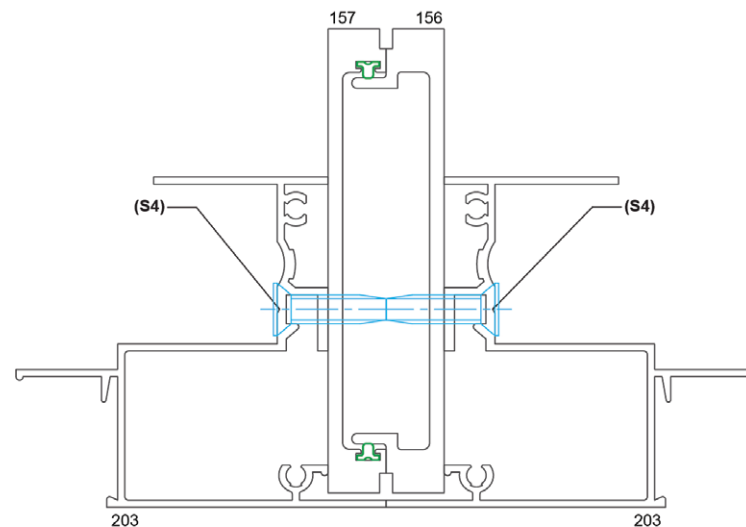
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-200 / MG-200



GROUP V7A
TOTAL PROPERTIES
Ix = 2.872 in⁴
Sx = 1.835 in³

Fig. 19

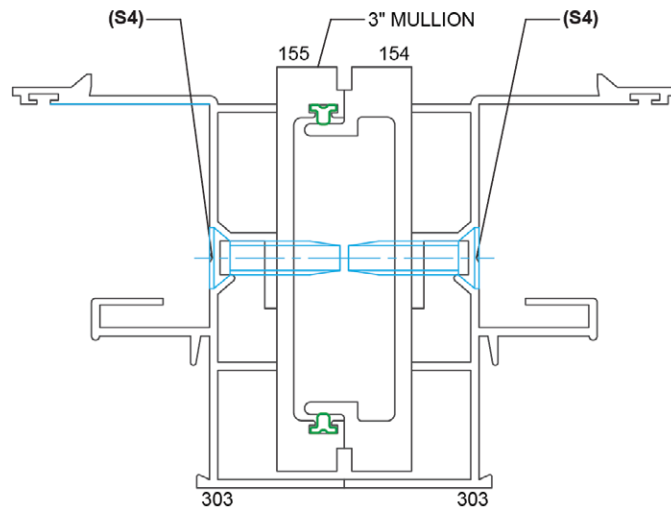


GROUP V7B
TOTAL PROPERTIES
Ix = 4.517 in⁴
Sx = 2.256 in³

Fig. 20

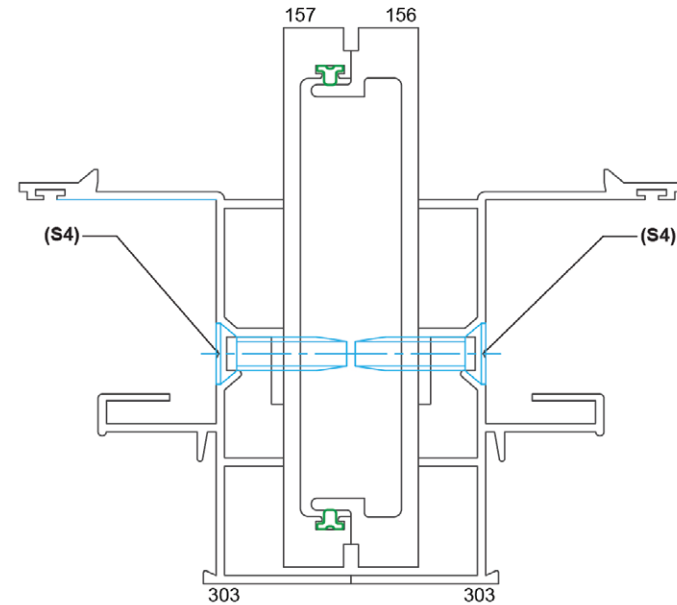
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-300 / MG-300



GROUP V8A
TOTAL PROPERTIES
Ix = 2.646 in⁴
Sx = 1.643 in³

Fig. 21

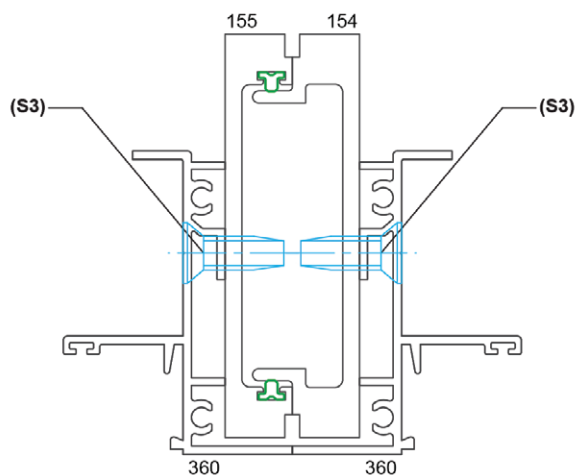


GROUP V8B
TOTAL PROPERTIES
Ix = 4.291 in⁴
Sx = 2.143 in³

Fig. 22

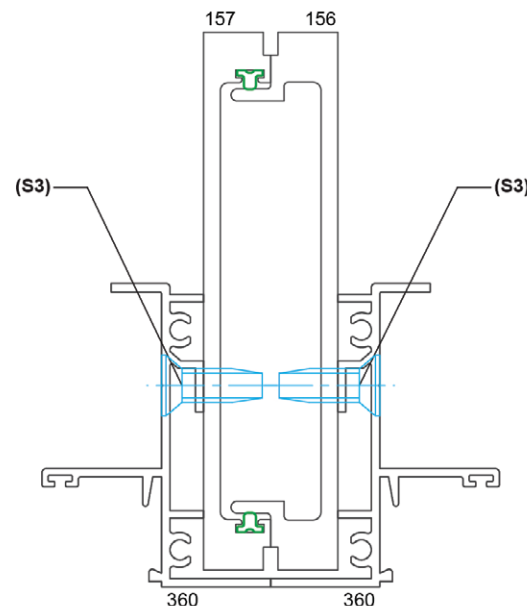
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-350 (FO) / MG-350 (FO)



GROUP V9A
TOTAL PROPERTIES
Ix = 1.992 in⁴
Sx = 1.281 in³

Fig. 23

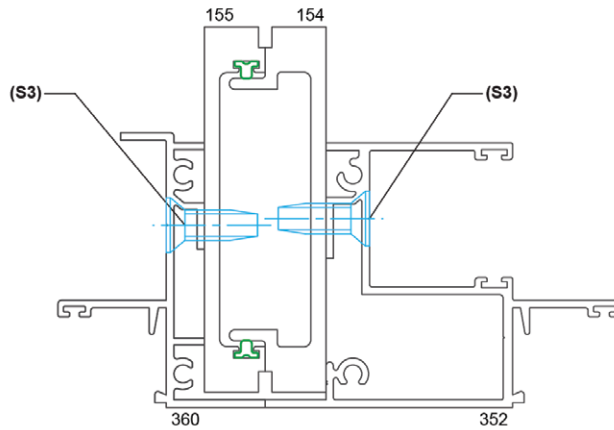


GROUP V9B
TOTAL PROPERTIES
Ix = 3.565 in⁴
Sx = 1.782 in³

Fig. 24

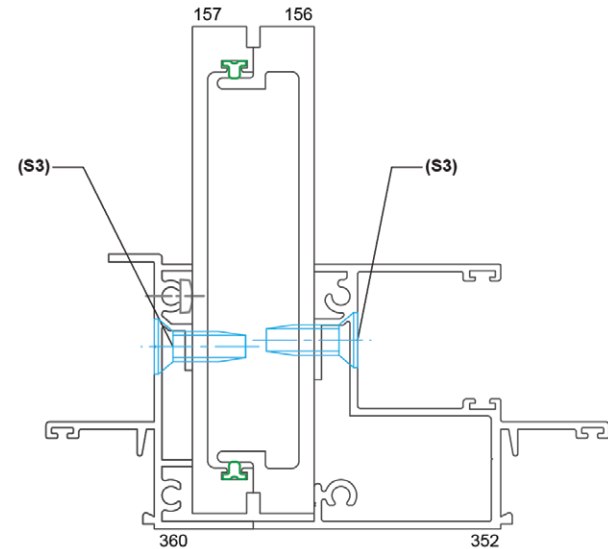
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-350 (FO) / MG-350 (SH)



GROUP V10A
TOTAL PROPERTIES
Ix = 2.089 in⁴
Sx = 1.393 in³

Fig. 25

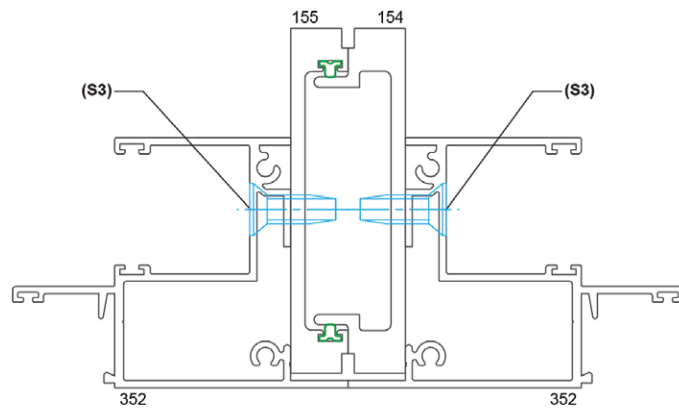


GROUP V10B
TOTAL PROPERTIES
Ix = 3.733 in⁴
Sx = 1.866 in³

Fig. 26

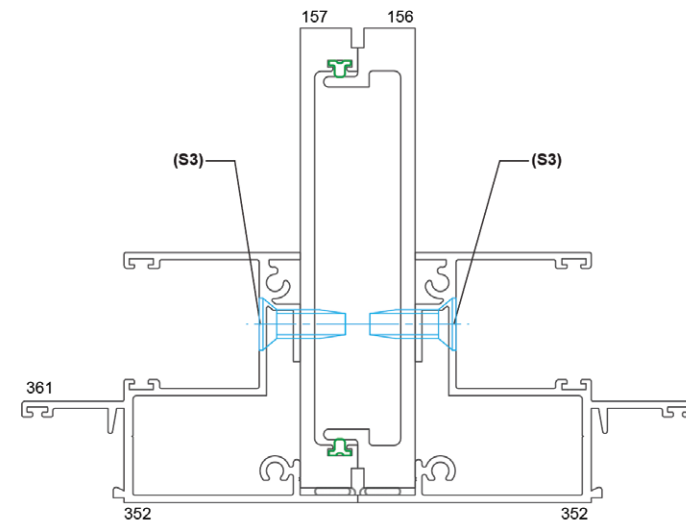
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-350 (SH) / MG-350 (SH)



GROUP V11A
TOTAL PROPERTIES
Ix = 2.257 in⁴
Sx = 1.505 in³

Fig. 27

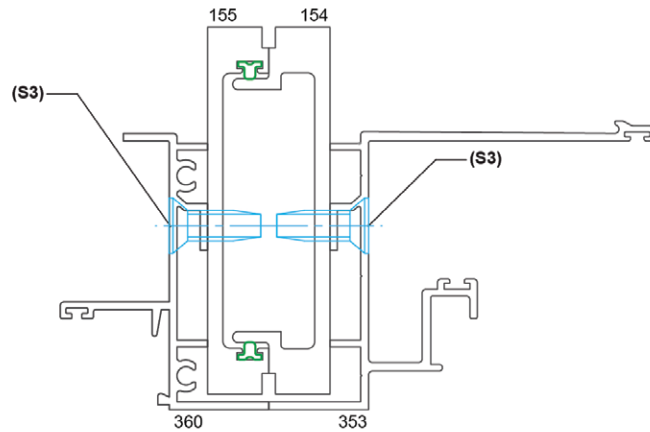


GROUP V11B
TOTAL PROPERTIES
Ix = 3.900 in⁴
Sx = 1.950 in³

Fig. 28

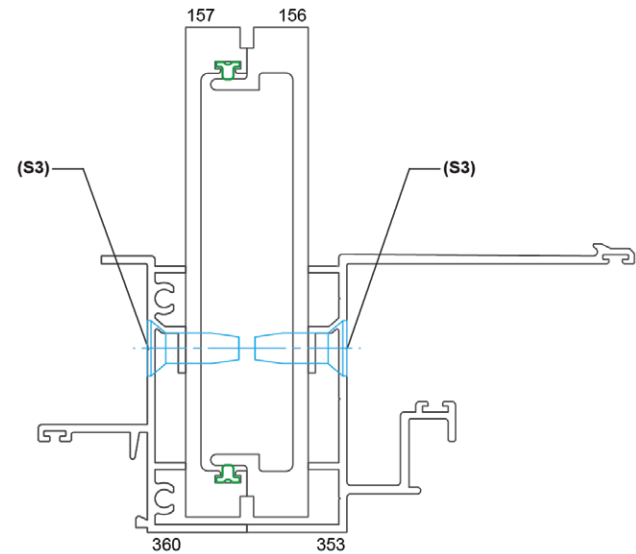
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-350 (FO) / MG-350 (HR)



GROUP V12A
TOTAL PROPERTIES
Ix = 2.089 in⁴
Sx = 1.393 in³

Fig. 29

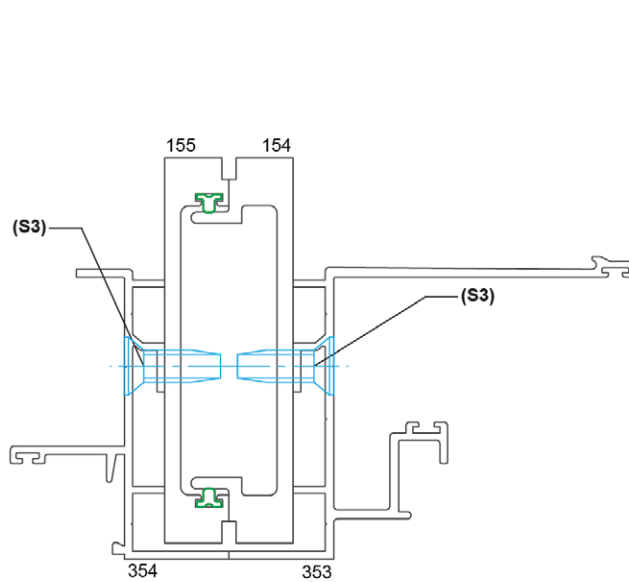


GROUP V12B
TOTAL PROPERTIES
Ix = 3.733 in⁴
Sx = 1.866 in³

Fig. 30

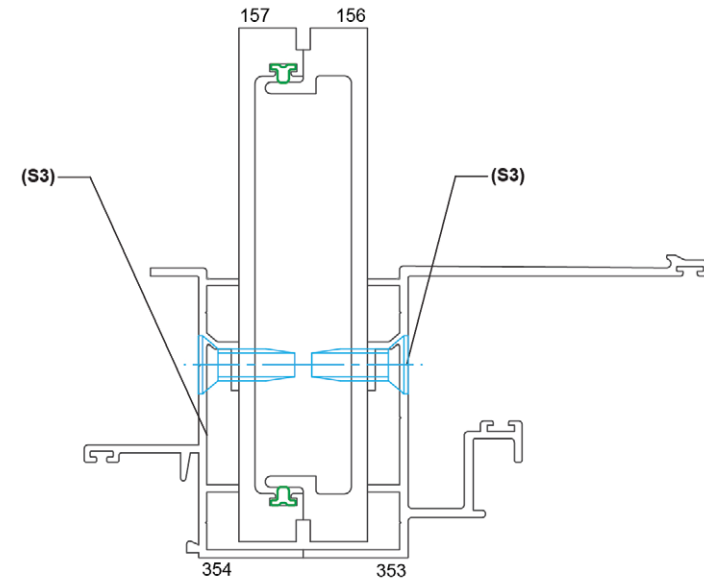
HORIZONTAL SECTION POSSIBLE COMBINATIONS

MG-350 (HR) / MG-350 (HR)



GROUP V13A
TOTAL PROPERTIES
Ix = 2.064 in⁴
Sx = 1.376 in³

Fig. 31

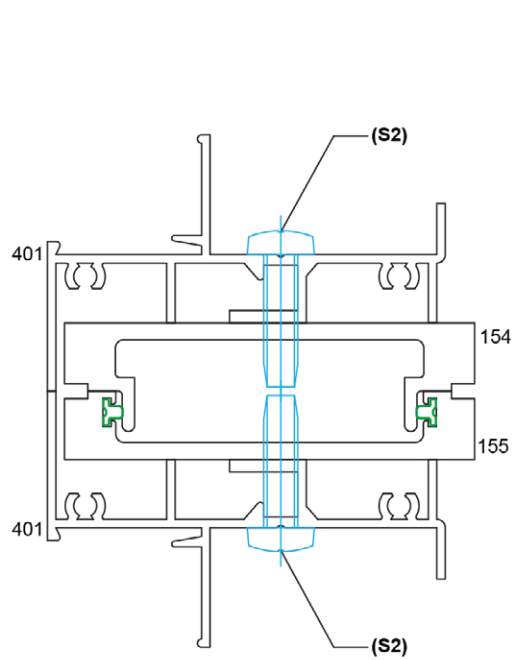


GROUP V13B
TOTAL PROPERTIES
Ix = 3.707 in⁴
Sx = 1.853 in³

Fig. 32

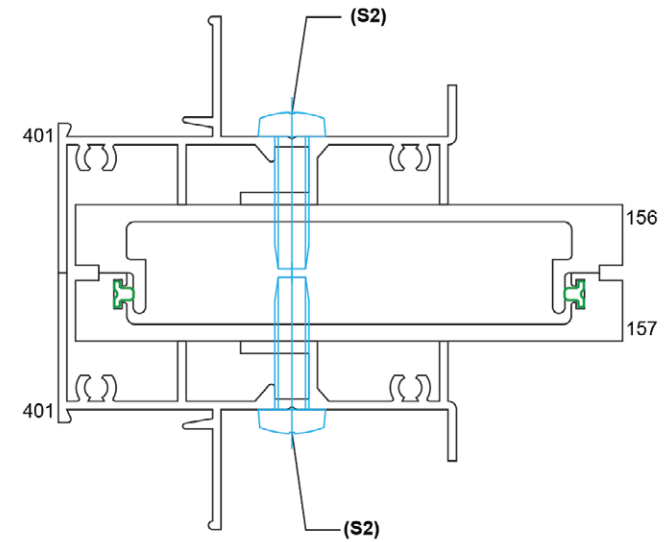
**VERTICAL SECTION
POSSIBLE COMBINATIONS**

MG-400 / MG-400



GROUP H1A
TOTAL PROPERTIES
 $I_y = 2.396 \text{ in}^4$
 $S_y = 1.560 \text{ in}^3$

Fig. 33

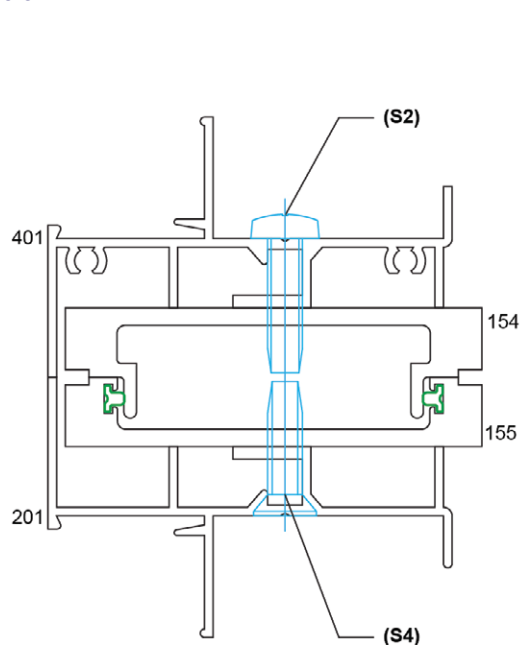


GROUP H1B
TOTAL PROPERTIES
 $I_y = 4.041 \text{ in}^4$
 $S_y = 2.018 \text{ in}^3$

Fig. 34

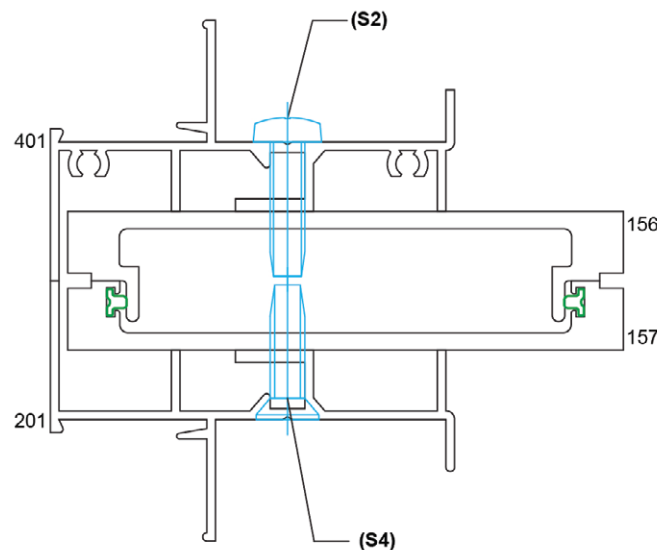
VERTICAL SECTION POSSIBLE COMBINATIONS

MG-400 / MG-200



GROUP H2A
TOTAL PROPERTIES
Iy = 2.326 in⁴
Sy = 1.508 in³

Fig. 35



GROUP H2B
TOTAL PROPERTIES
Iy = 3.971 in⁴
Sy = 1.984 in³

Fig. 36

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-200 / MG-400

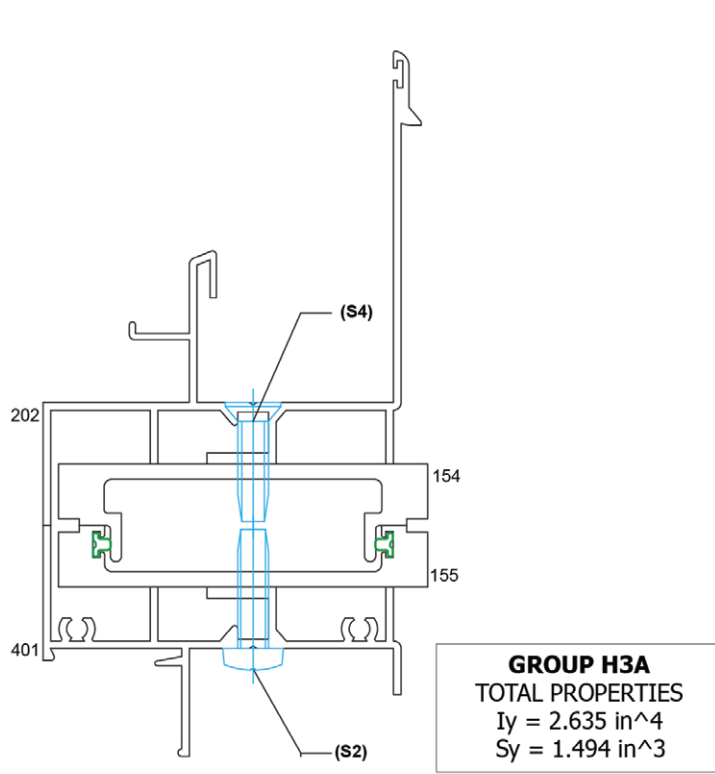


Fig. 37

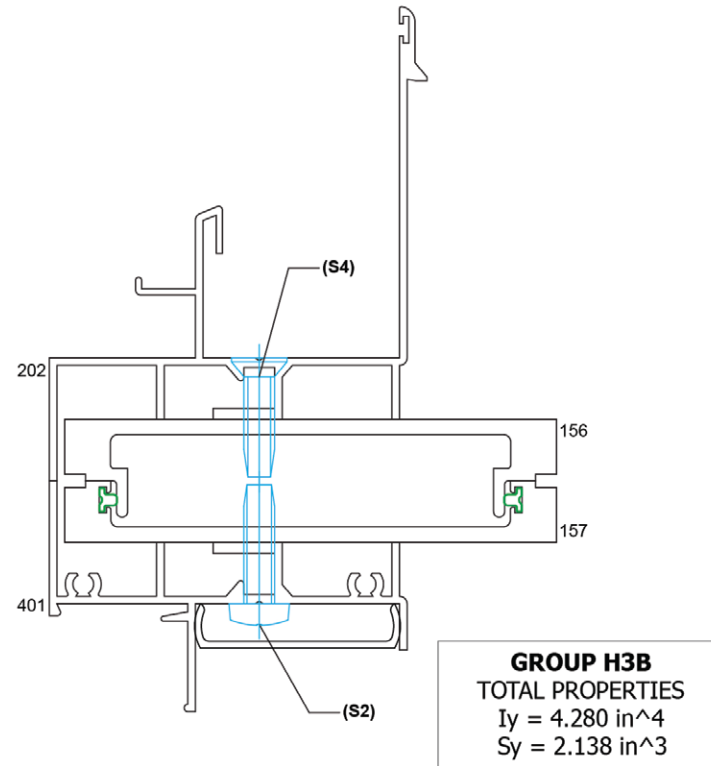


Fig. 38

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-400 / MG-300

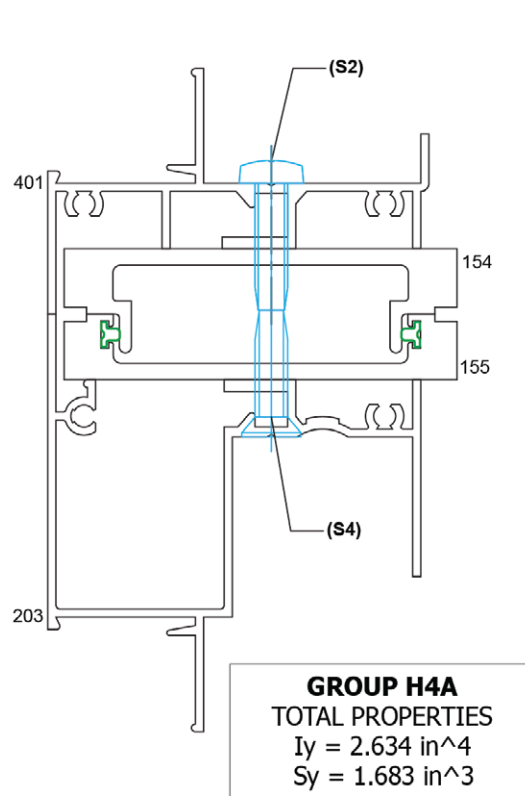


Fig. 39

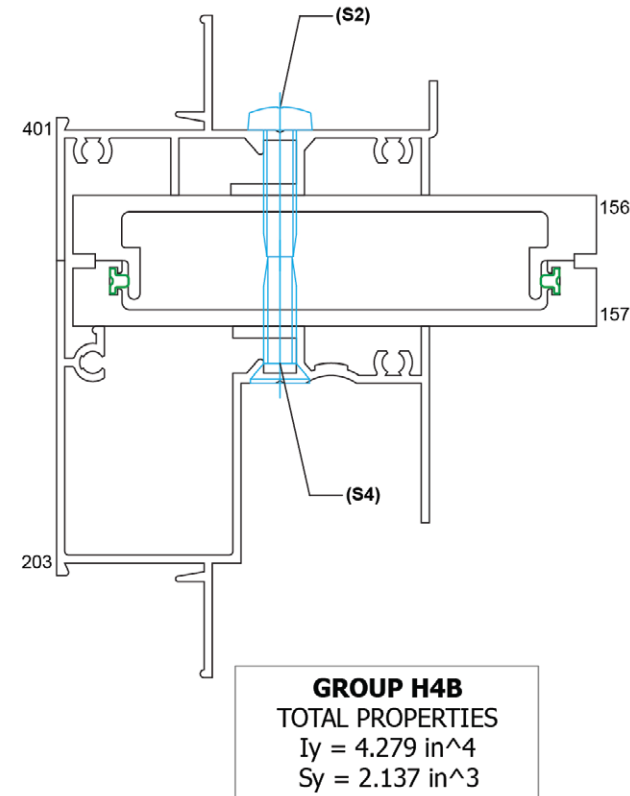


Fig. 40

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-400 / MG-300

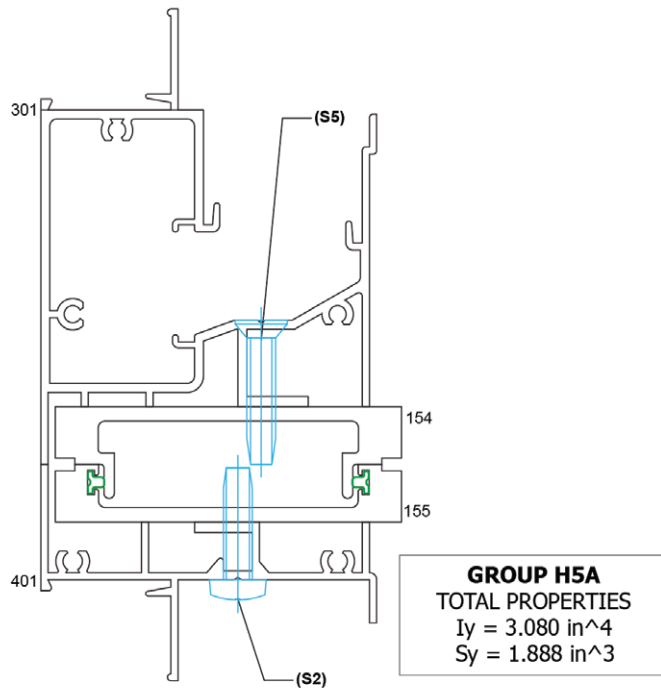


Fig. 41

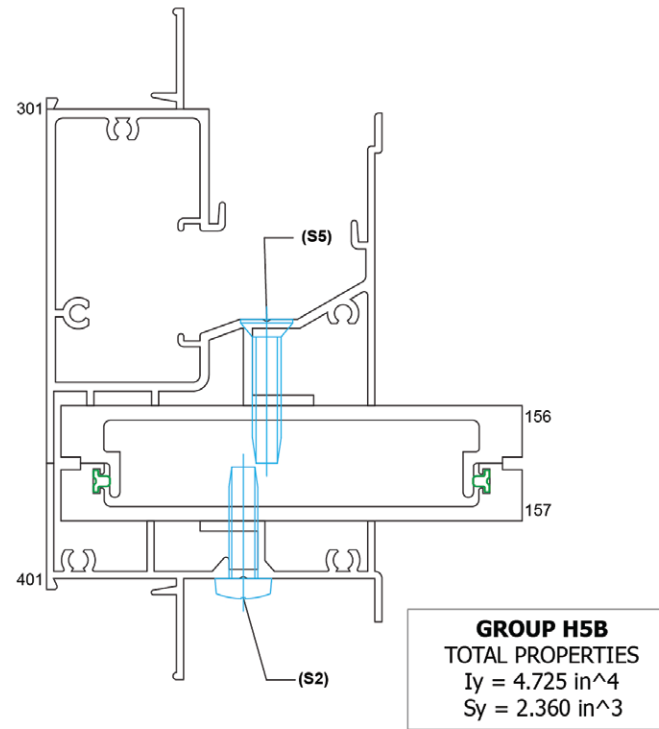
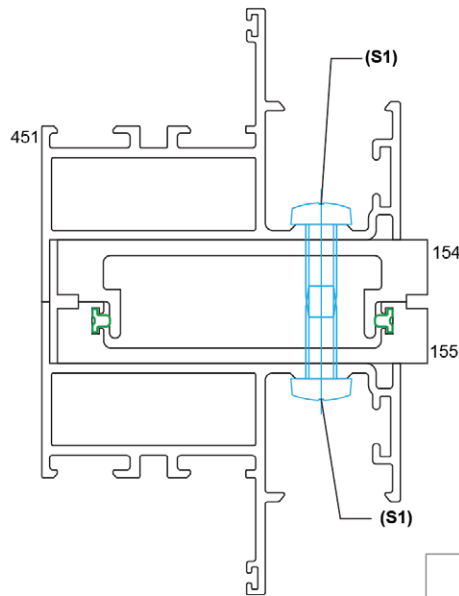


Fig. 42

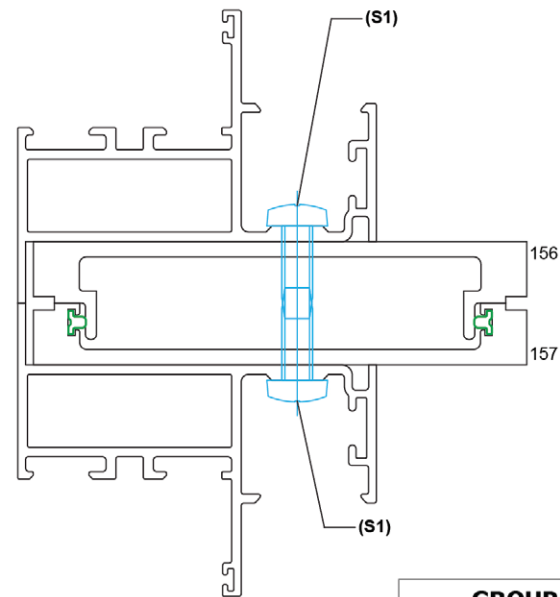
VERTICAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-450



GROUP H6A
TOTAL PROPERTIES
 $I_y = 2.848 \text{ in}^4$
 $S_y = 1.899 \text{ in}^3$

Fig. 43

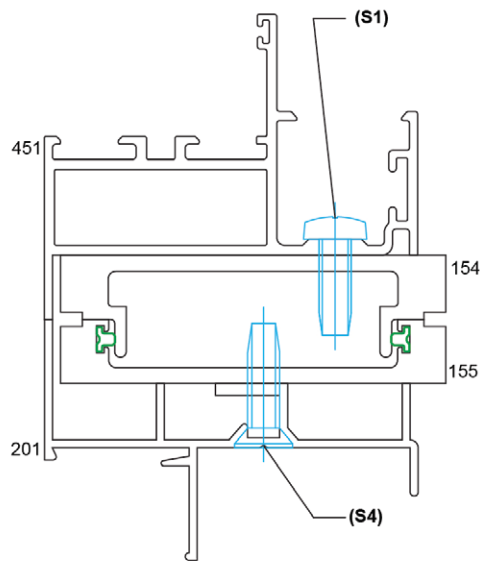


GROUP H6B
TOTAL PROPERTIES
 $I_y = 4.493 \text{ in}^4$
 $S_y = 2.244 \text{ in}^3$

Fig. 44

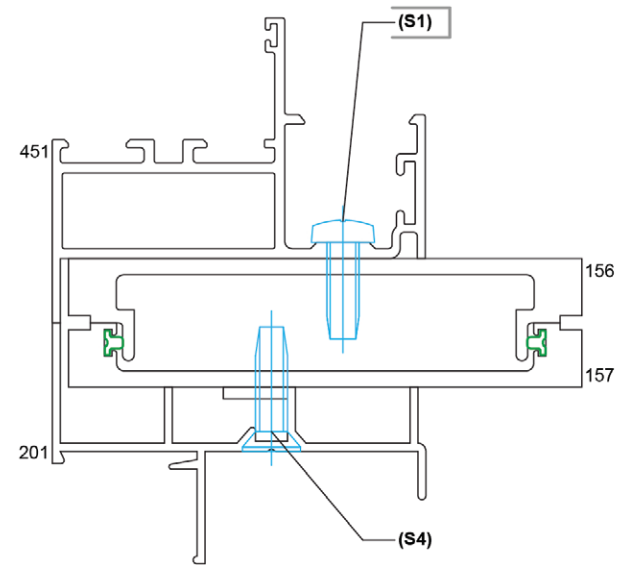
VERTICAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-200



GROUP H7A
TOTAL PROPERTIES
 $I_y = 2.552 \text{ in}^4$
 $S_y = 1.655 \text{ in}^3$

Fig. 45



GROUP H7B
TOTAL PROPERTIES
 $I_y = 4.197 \text{ in}^4$
 $S_y = 2.096 \text{ in}^3$

Fig. 46

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-200 / MG-450

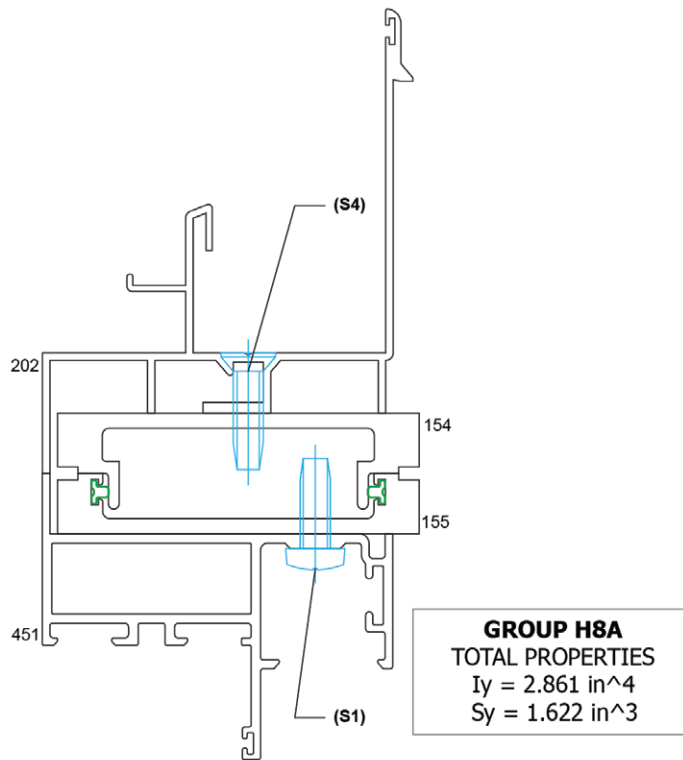


Fig. 47

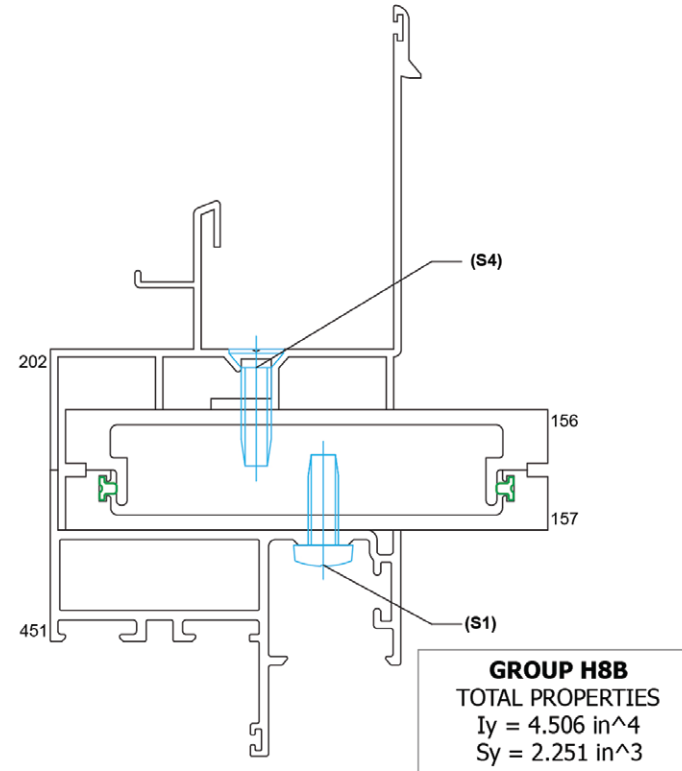


Fig. 48

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-450 / MG-300

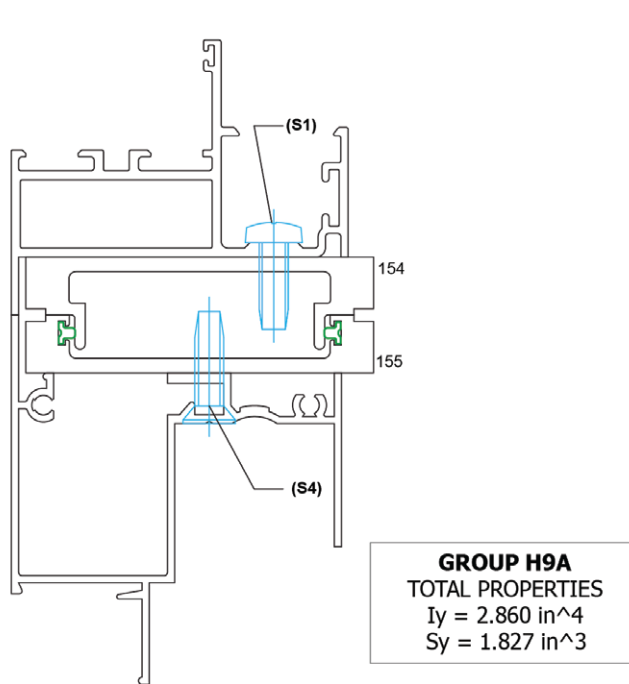


Fig. 49

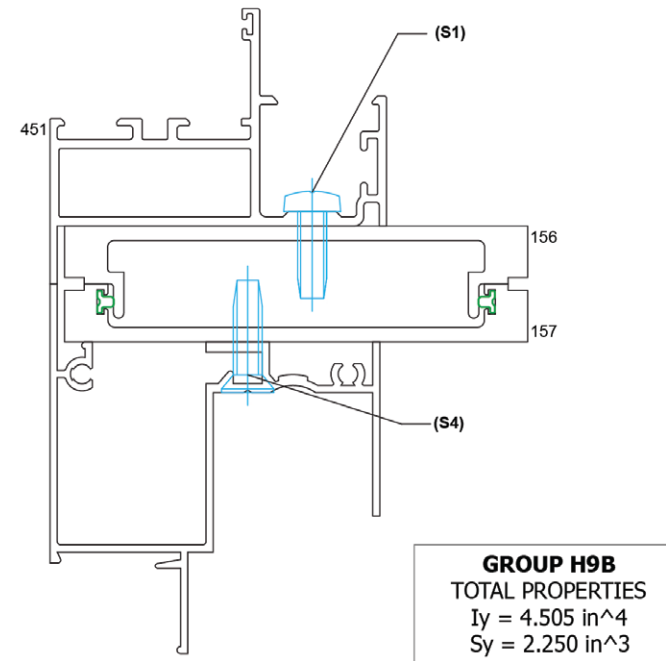


Fig. 50

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-300 / MG-450

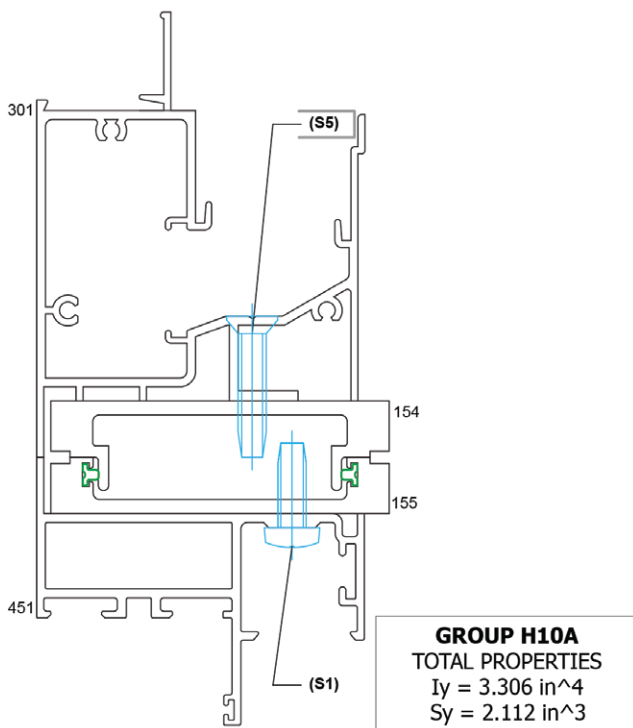


Fig. 51

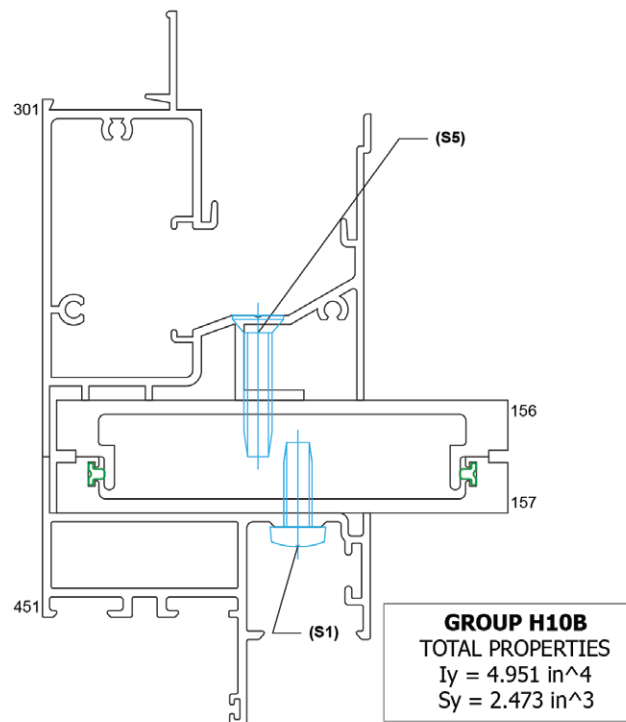
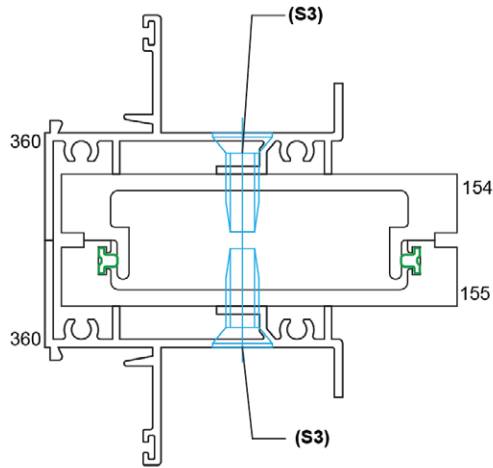


Fig. 52

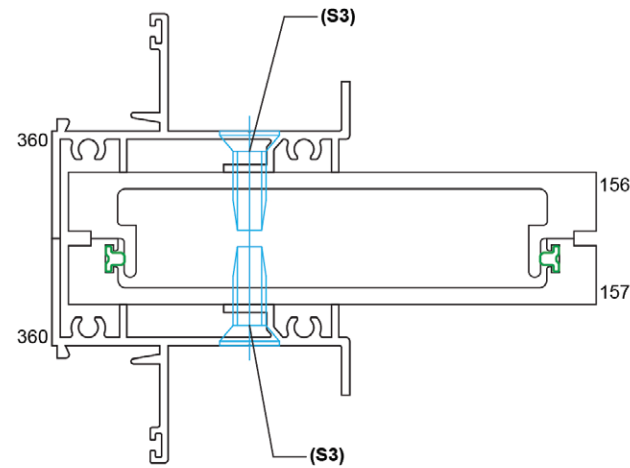
VERTICAL SECTION POSSIBLE COMBINATIONS

MG-350 (FO) / MG-350 (FO)



GROUP H11A
TOTAL PROPERTIES
Ix = 1.922 in⁴
Sx = 1.281 in³

Fig. 53

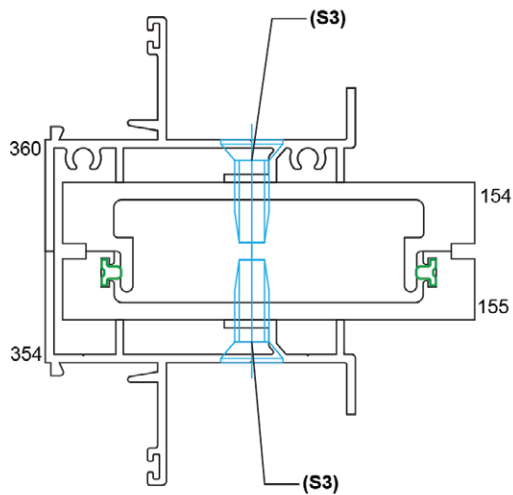


GROUP H11B
TOTAL PROPERTIES
Iy = 3.565 in⁴
Sy = 1.783 in³

Fig. 54

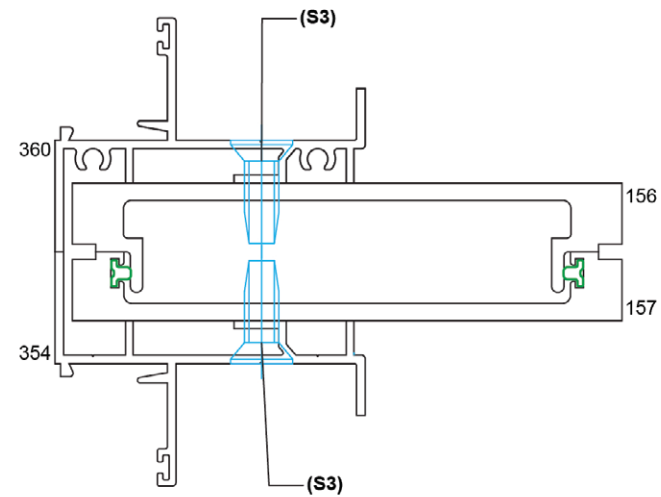
VERTICAL SECTION POSSIBLE COMBINATIONS

MG-350 (FO) / MG-350 (SH)



GROUP H12A
TOTAL PROPERTIES
 $I_x = 1.896 \text{ in}^4$
 $S_x = 1.264 \text{ in}^3$

Fig. 55



GROUP H12B
TOTAL PROPERTIES
 $I_y = 3.54 \text{ in}^4$
 $S_y = 1.77 \text{ in}^3$

Fig. 56

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-350 (SH) / MG-350 (FO)

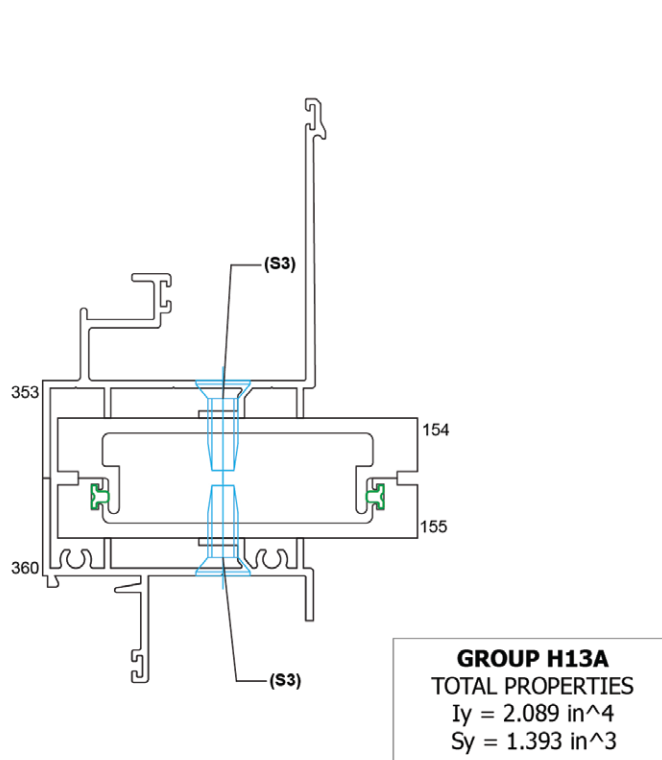


Fig. 57

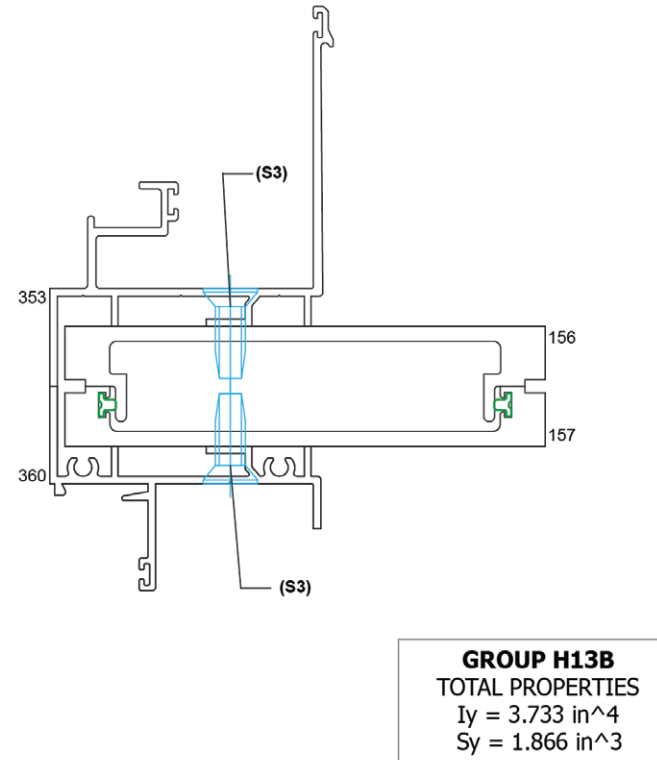


Fig. 58

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-350 (FO) / MG-350 (HR)

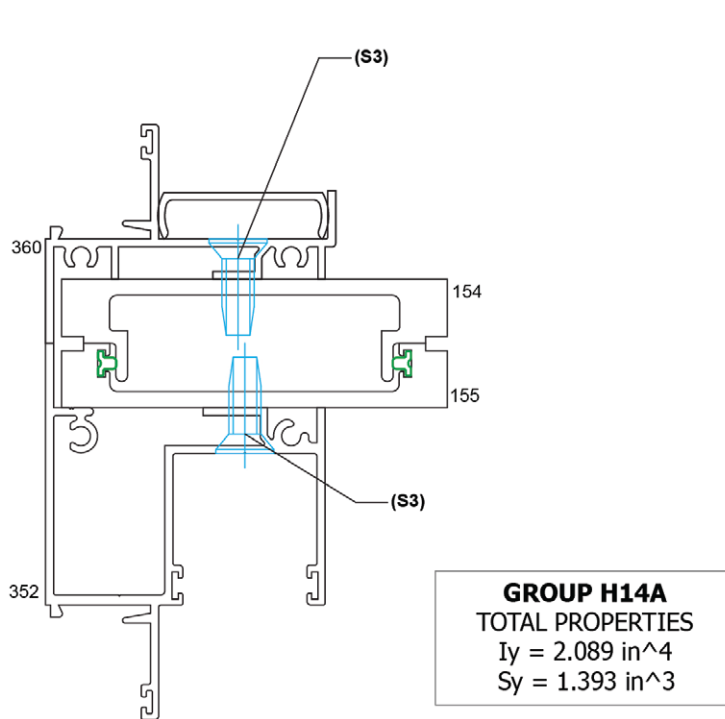


Fig. 59

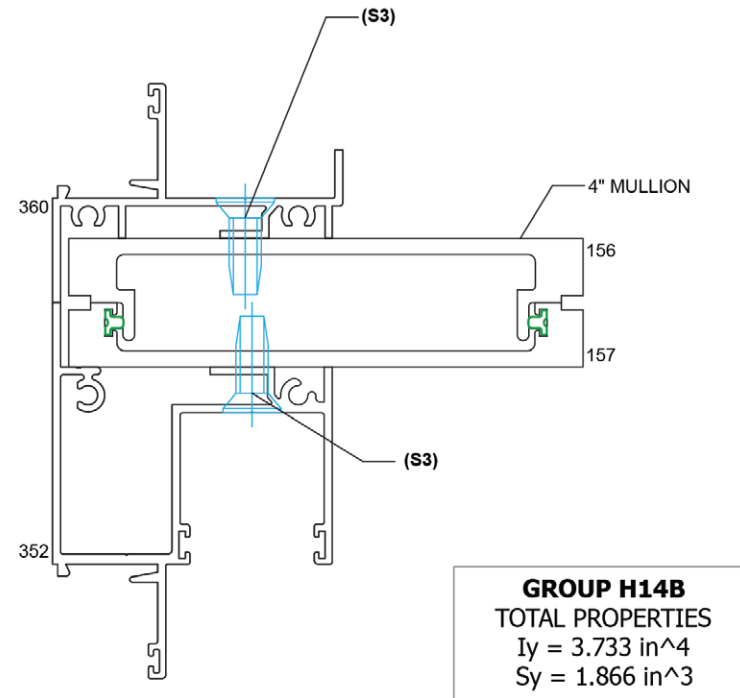


Fig. 60

VERTICAL SECTION POSSIBLE COMBINATIONS

MG-350 (HR) / MG-350 (FO)

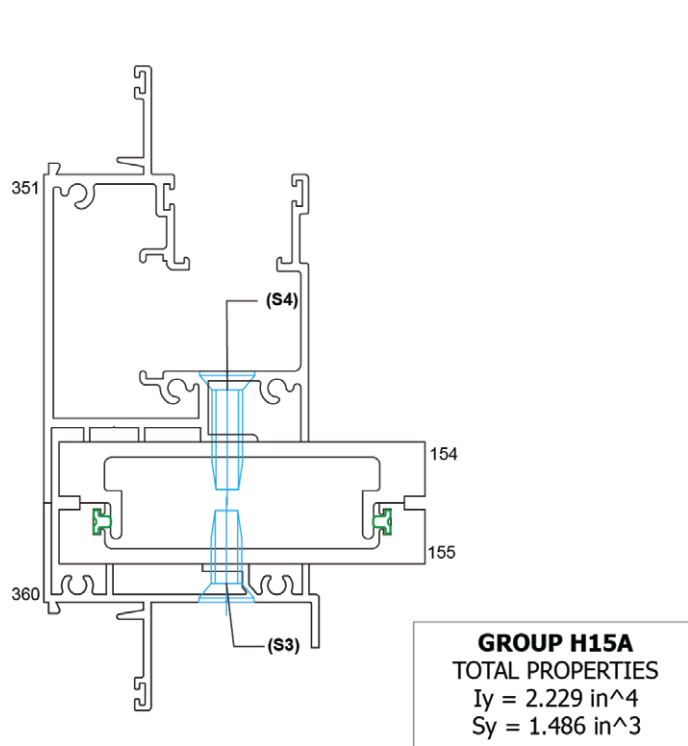


Fig. 61

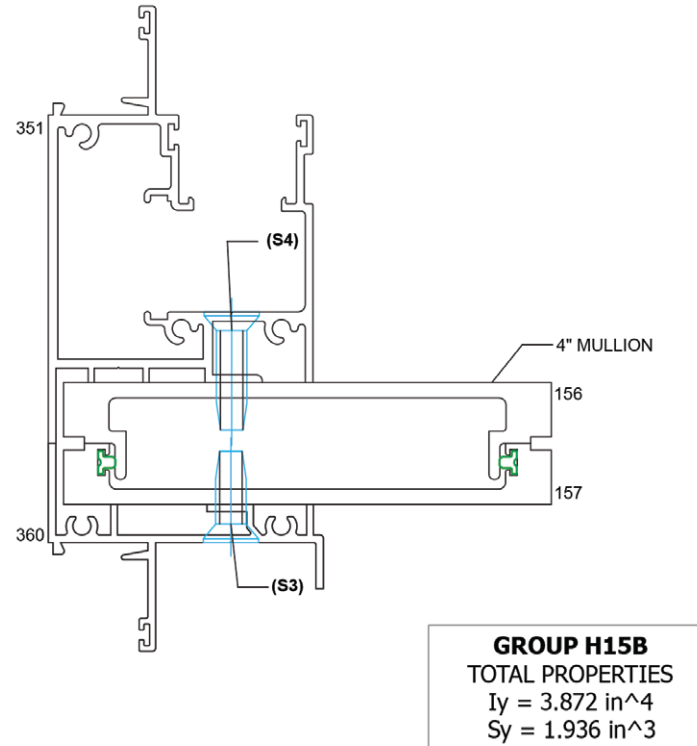


Fig. 62

COMPONENTS

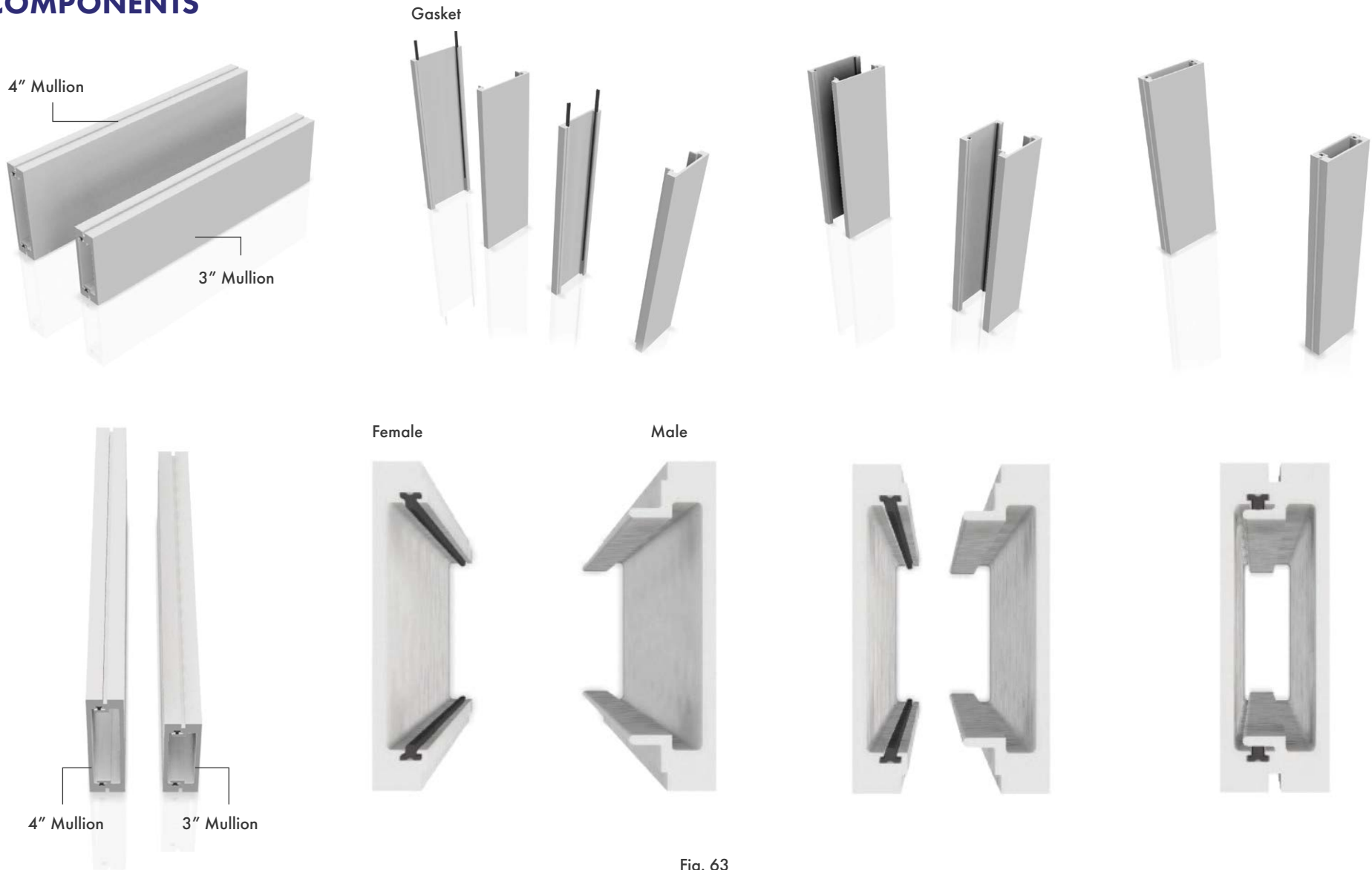


Fig. 63

SILICONE APPLICATION STEP 1

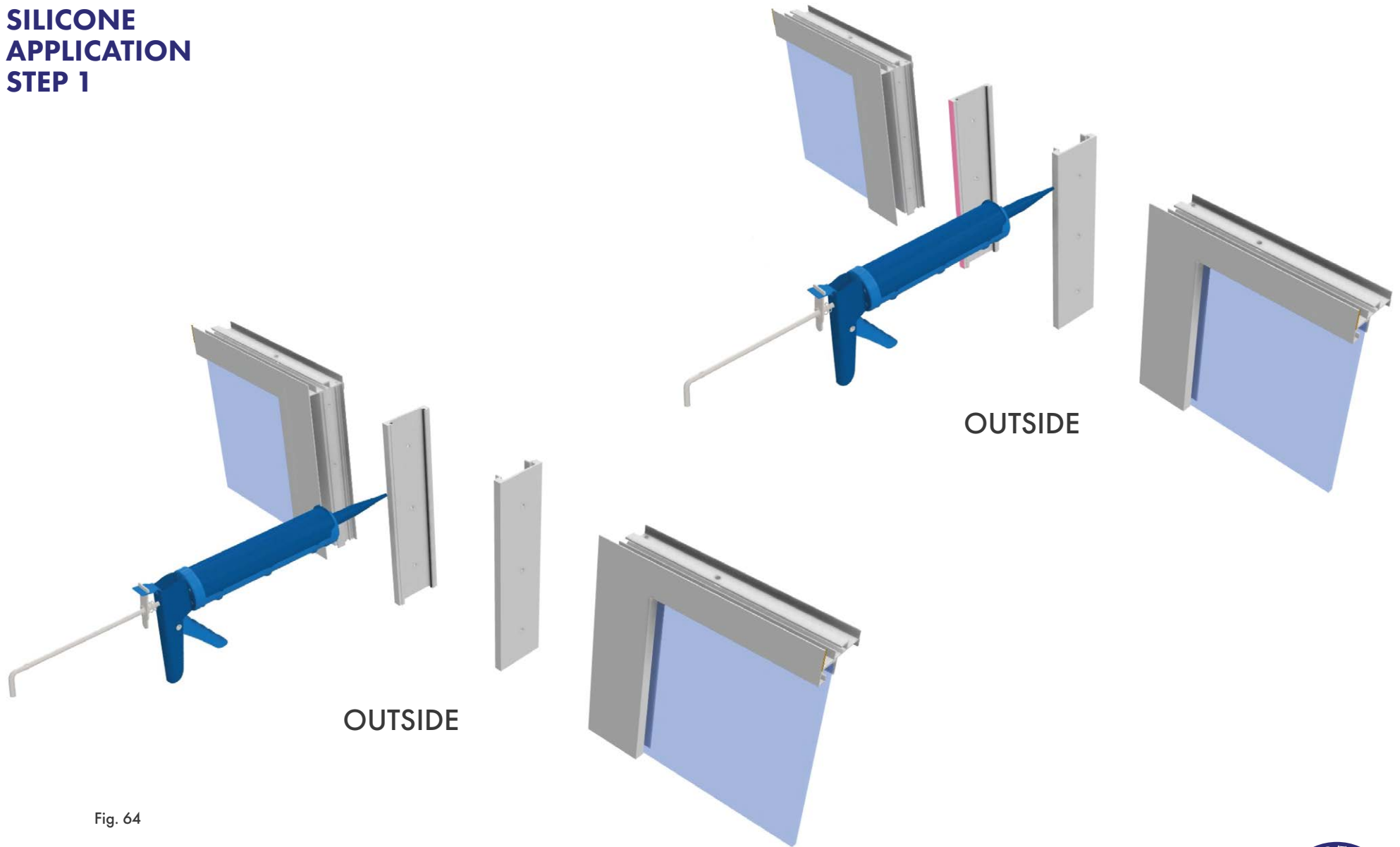


Fig. 64

SILICONE APPLICATION STEP 2

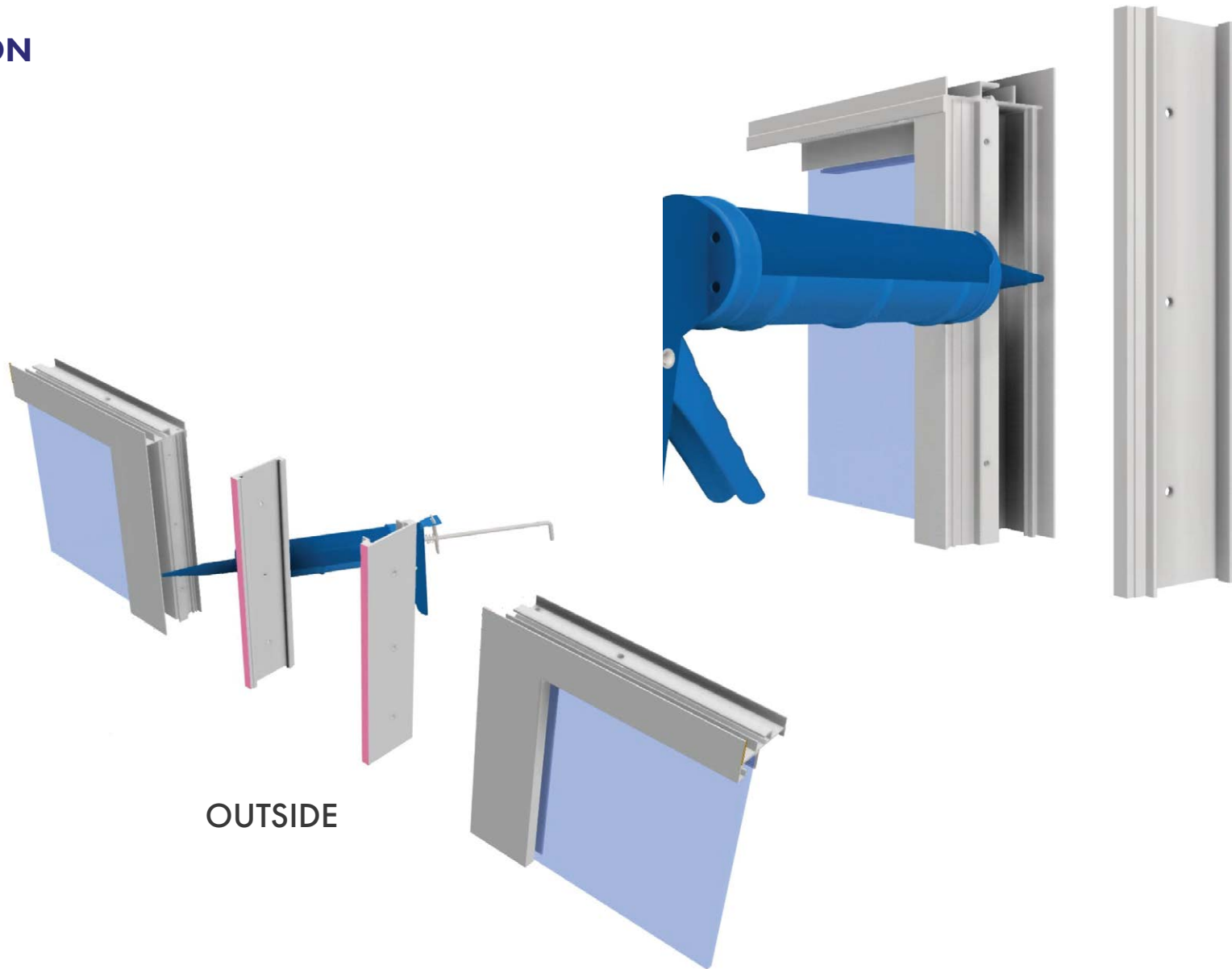


Fig. 65

MULLION / WINDOW ASSEMBLY

Note:
See screw type
on Table 1 in page 8.

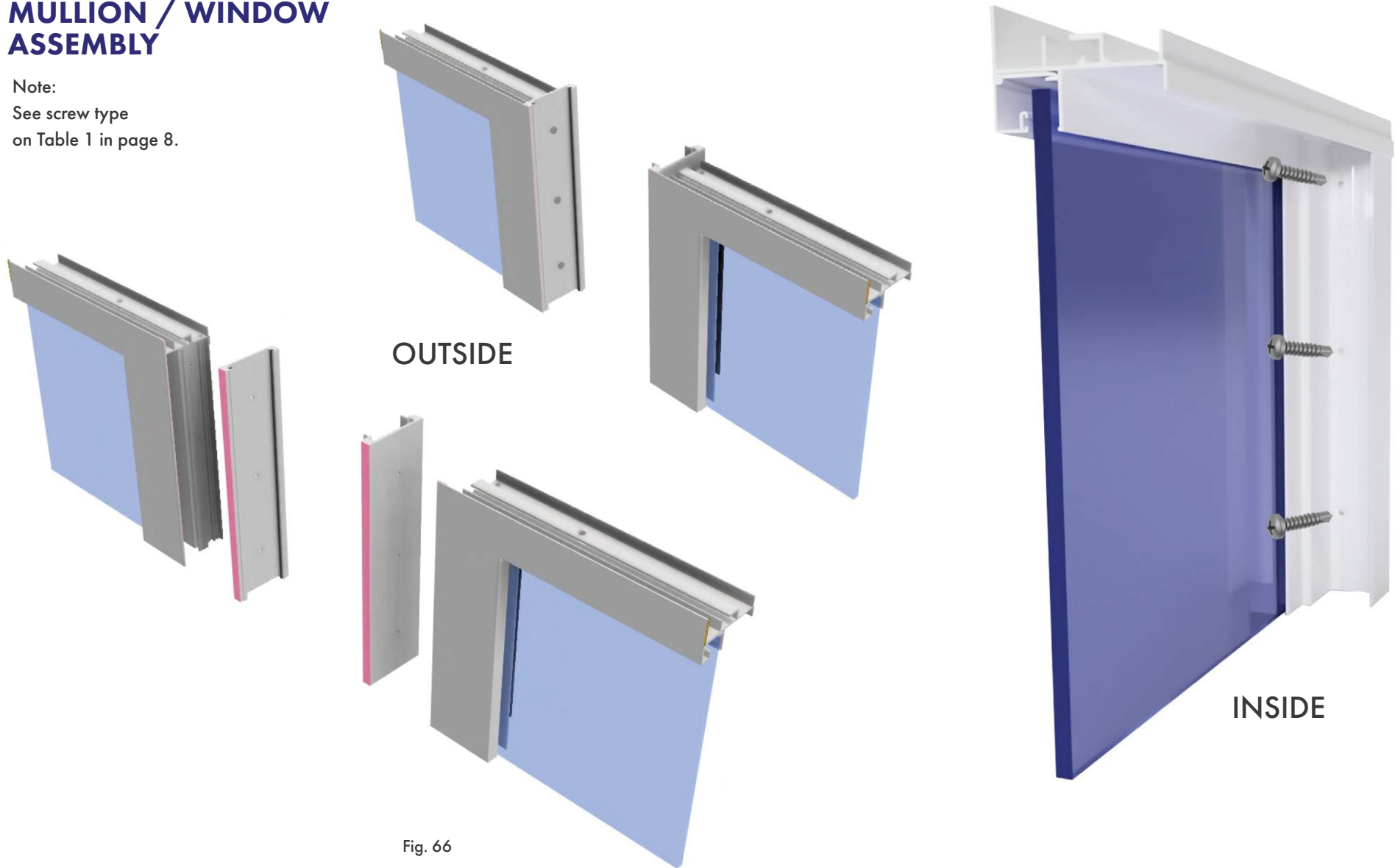


Fig. 66

SILICONE APPLICATION STEP 3

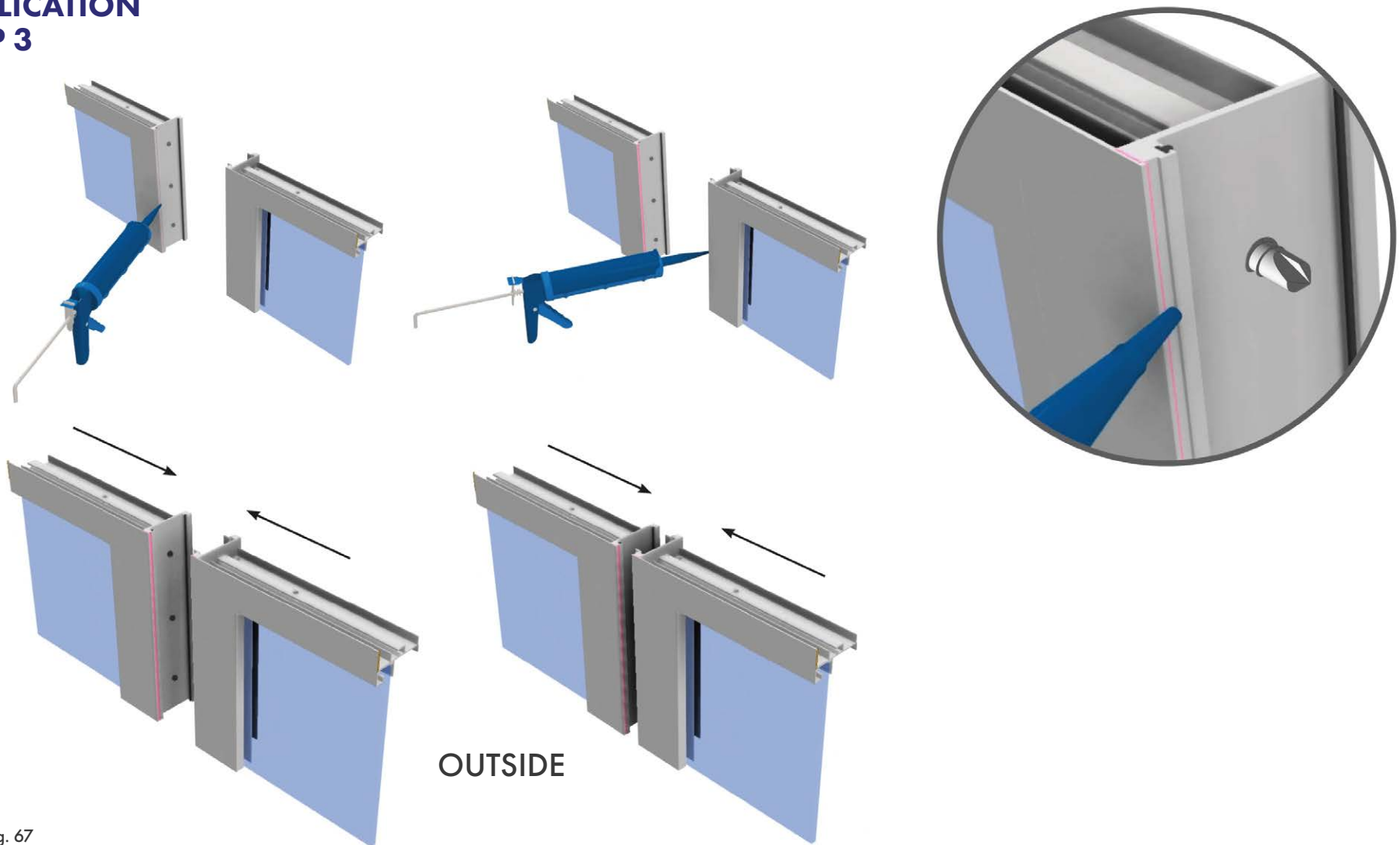


Fig. 67

VERTICAL/ HORIZONTAL ASSEMBLY

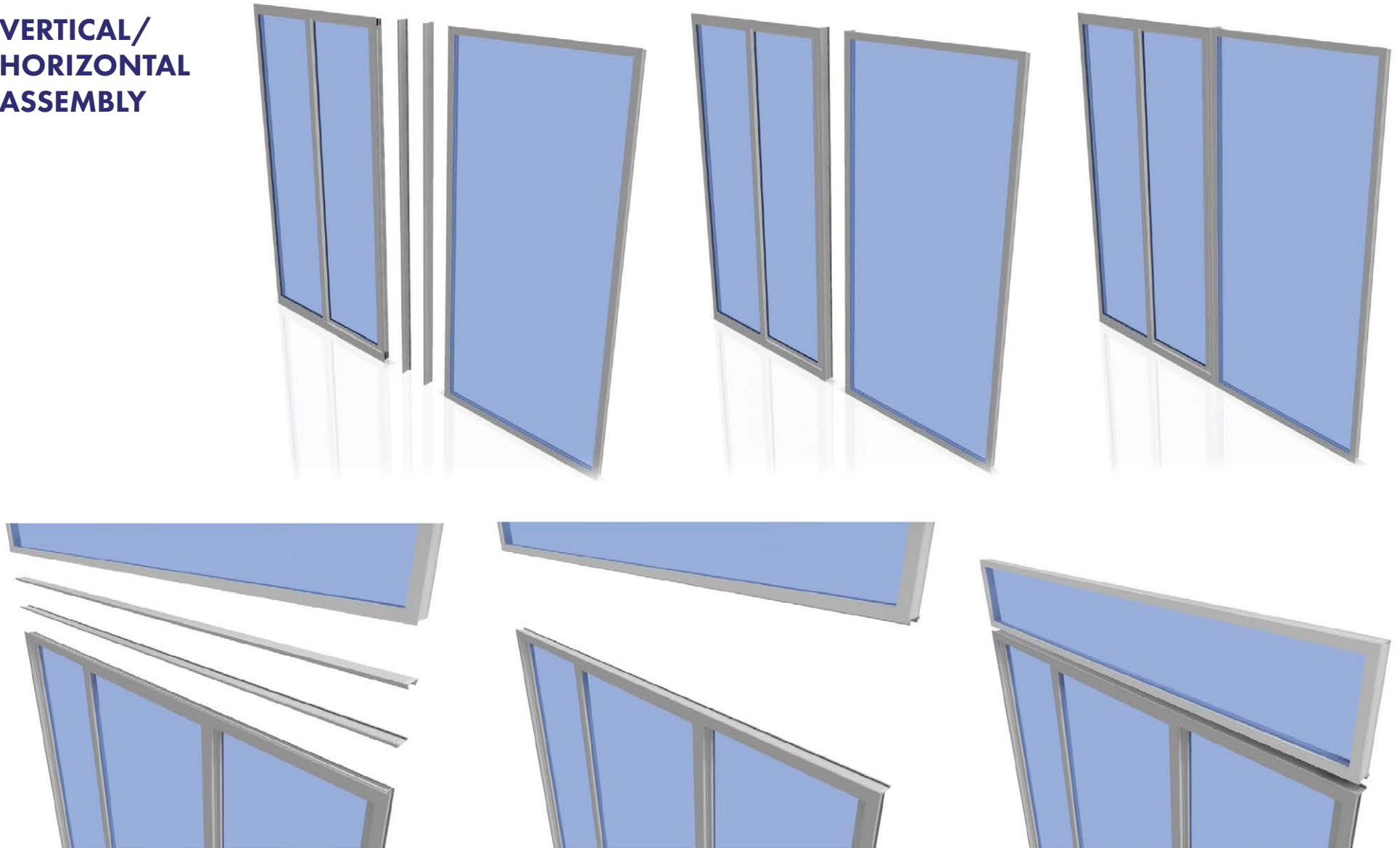


Fig. 68