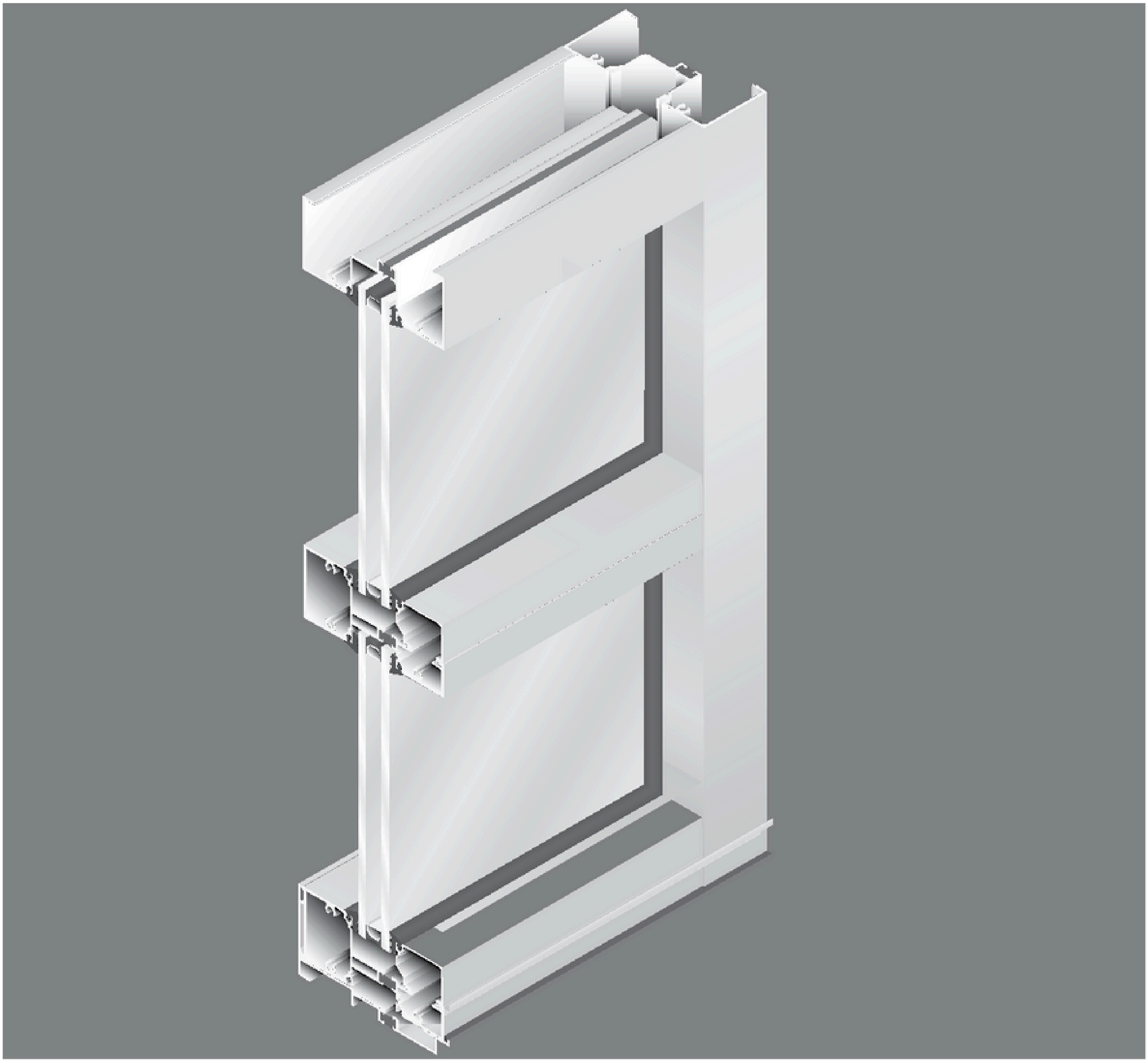
SECTION B1

SERIES T451 STOREFRONT SYSTEM
2" X 4 ½" for 1" GLAZING



SECTION B1

Series T451 (Thermal) **STOREFRONT SYSTEM**
2" X 4 ½" FOR 1" GLAZING

TABLE OF CONTENTS

SERIES T451 (Thermal)

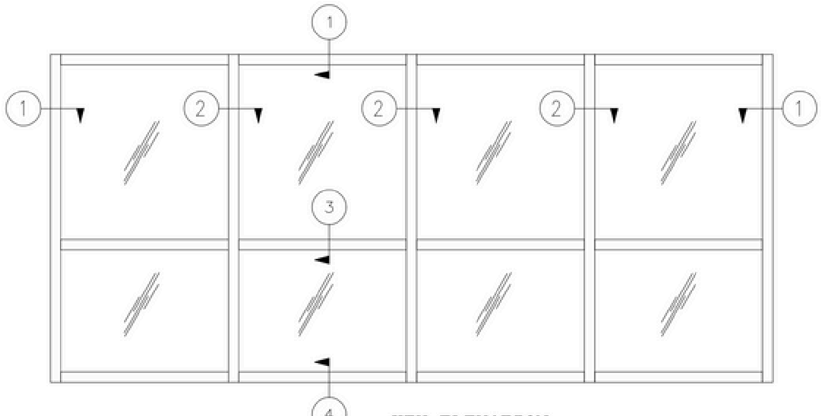
Series T451 Features:

Series **T451** is a commercial flush glazed system for exterior glazing ground floor applications or interior glazing when used as a low rise window wall system. The system is designed for the vertical mullions and filler plates to run through for optimum strength. All ACRO Aluminum framing is mechanically jointed using self-tapping screws into integral splines extruded within the body of the section. Jointing is by butt joints with applied sealant to protect against water egress and to reduce air infiltration.

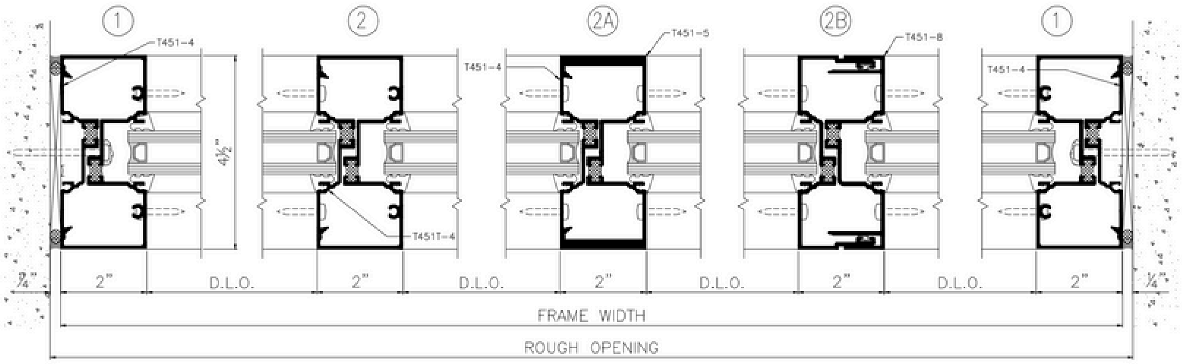
SYSTEM FEATURES:

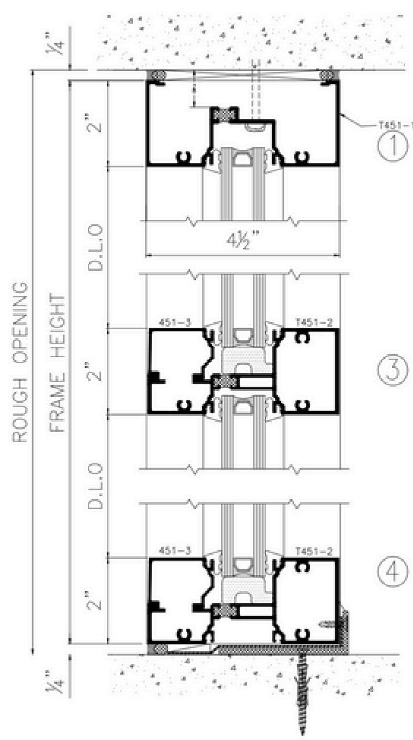
- Sightline 2" x 4 1/2" for 1" glazing infill
- May also be used for non-thermal applications (Series 450)
- EPDM glazing gaskets
- Shop fabrication and precision punch die fabrication for screw spline holes
- Ladder assembly for transportation to job site for quicker installation
- Heavy duty mullions to meet high wind velocity requirements
- Sill receptor allows for heads of structural fast
- Framing accepts Series 200 and 300 non thermal entrance doors and 300 series Acro thermal door

TYPICAL DETAILS

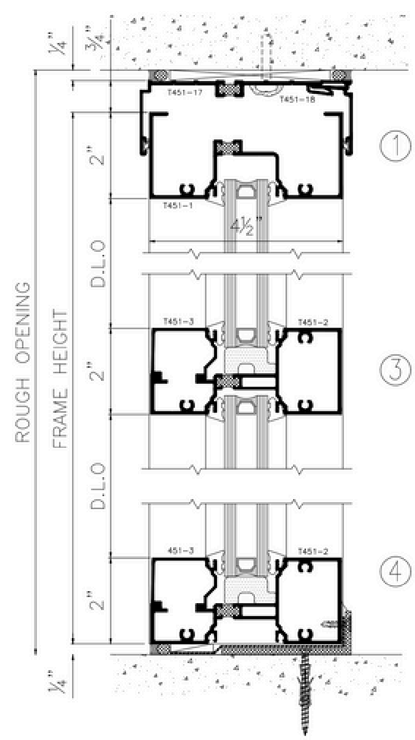


KEY ELEVATION



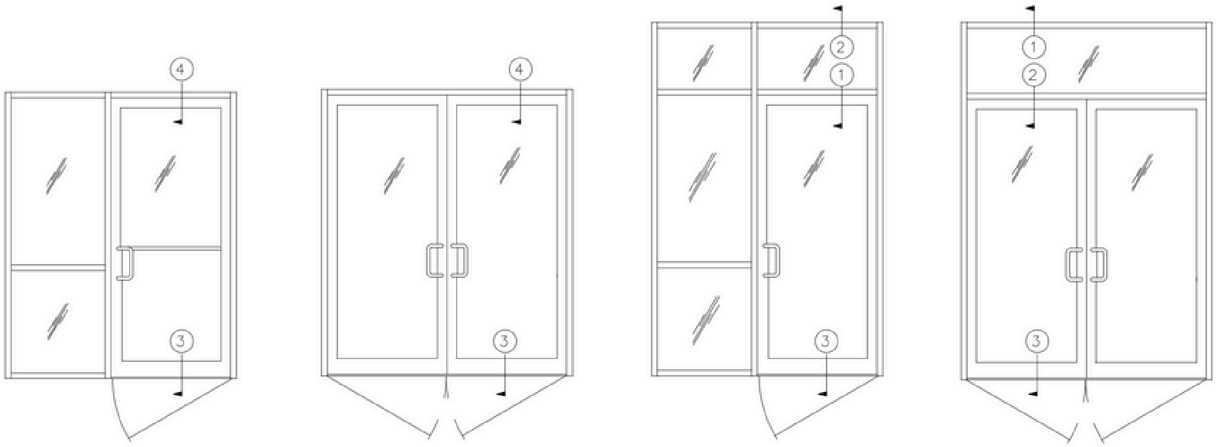


EXTERIOR GLAZE

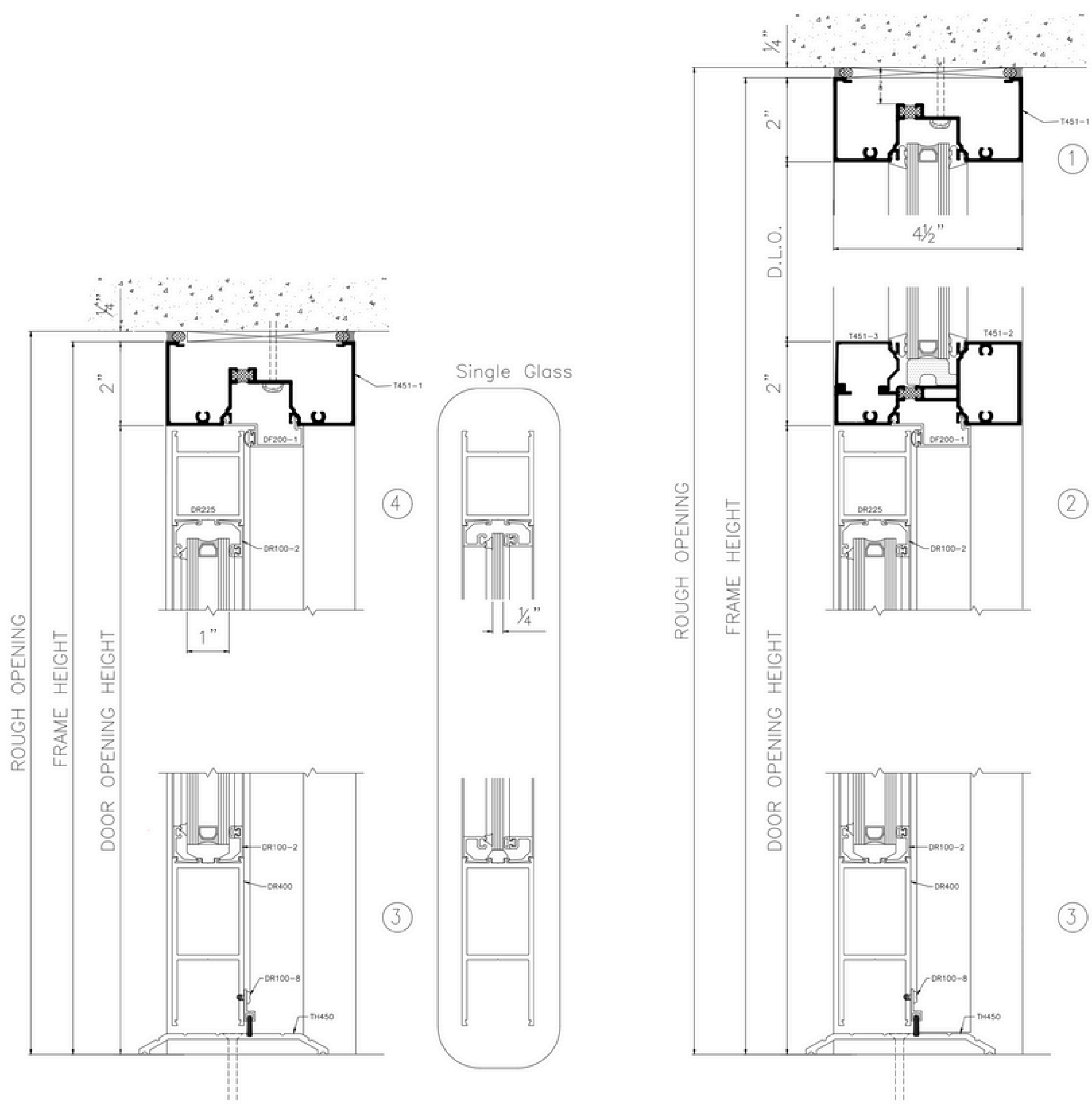


EXTERIOR GLAZE

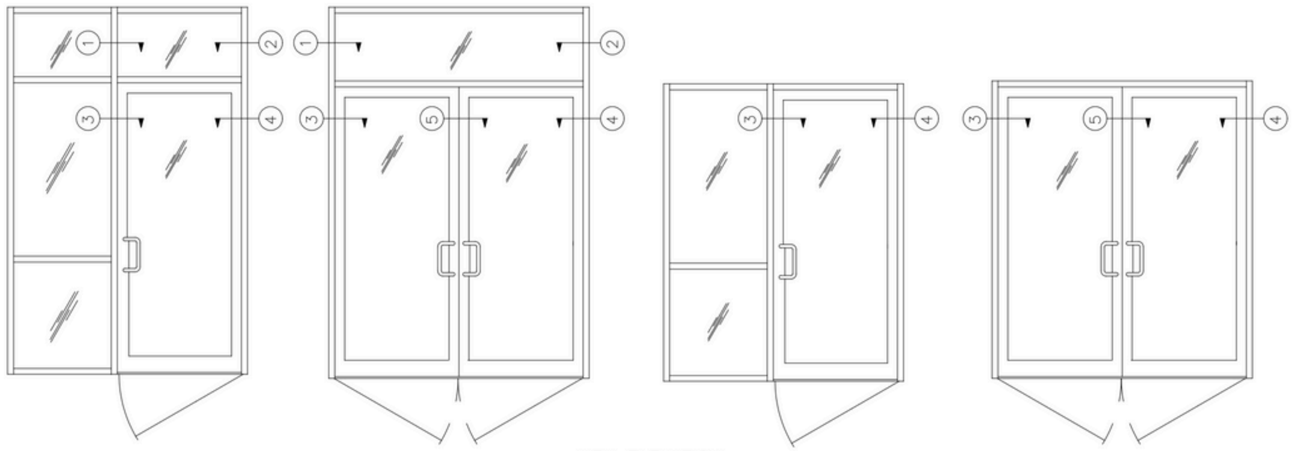
TYPICAL HORIZONTAL DETAILS WITH NON THERMAL DOOR



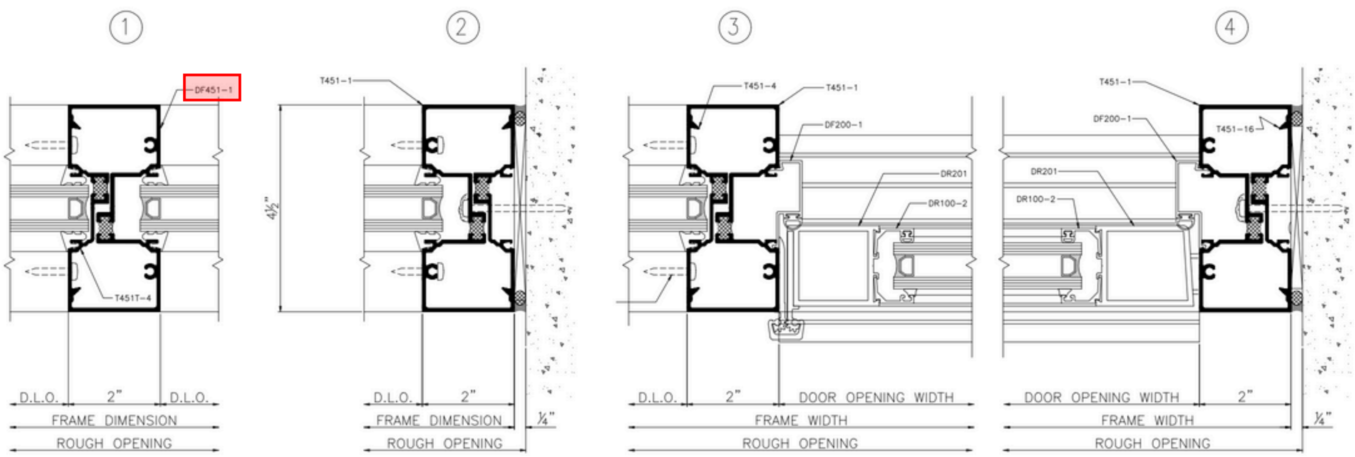
KEY ELEVATION
ENTRANCE

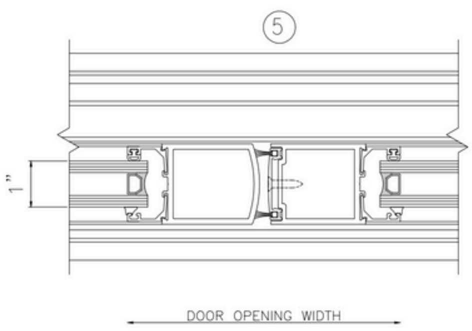


TYPICAL VERTICAL DETAILS WITH NON THERMAL DOOR

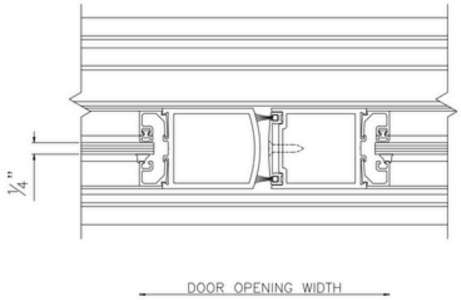


KEY ELEVATION
ENTRANCE

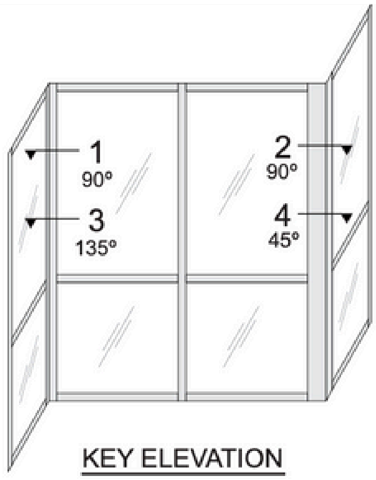




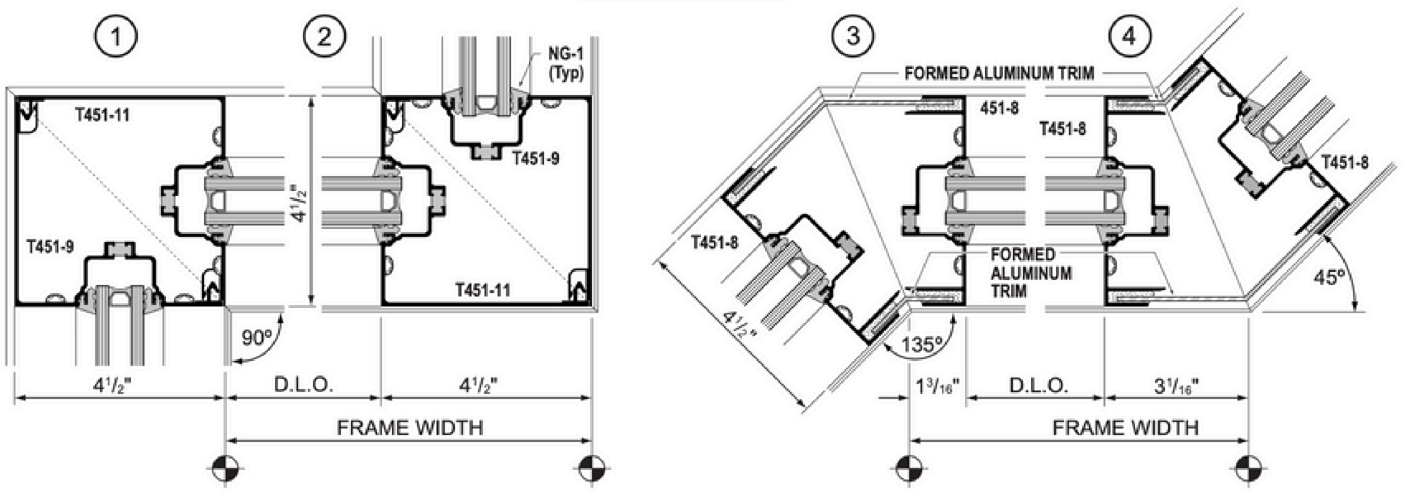
Double Glaze



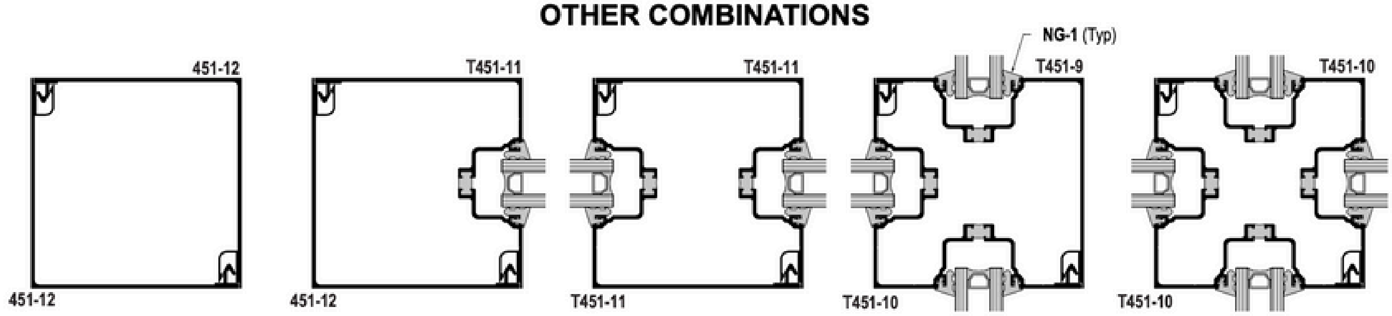
Single Glaze



KEY ELEVATION

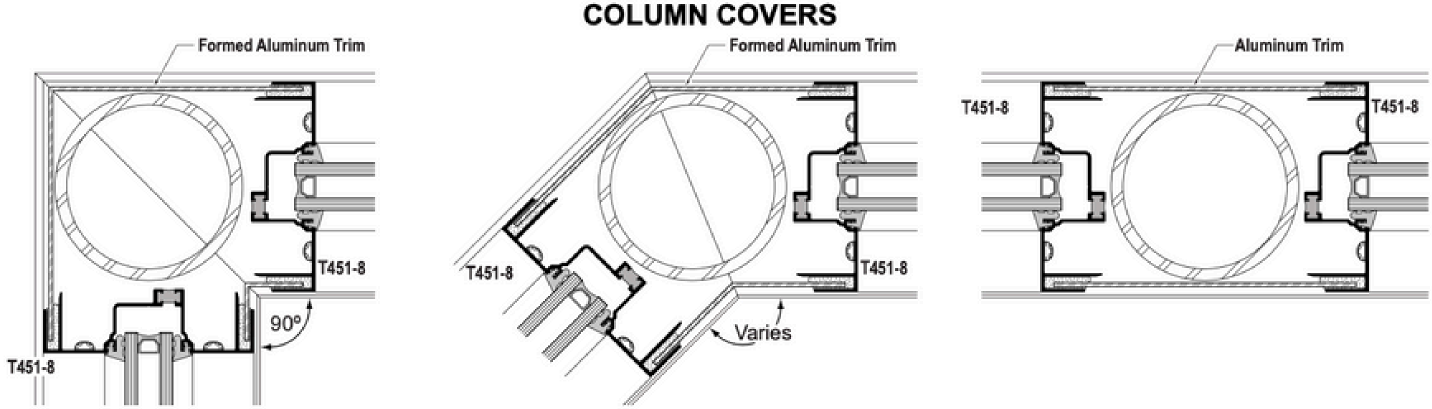


OTHER COMBINATIONS

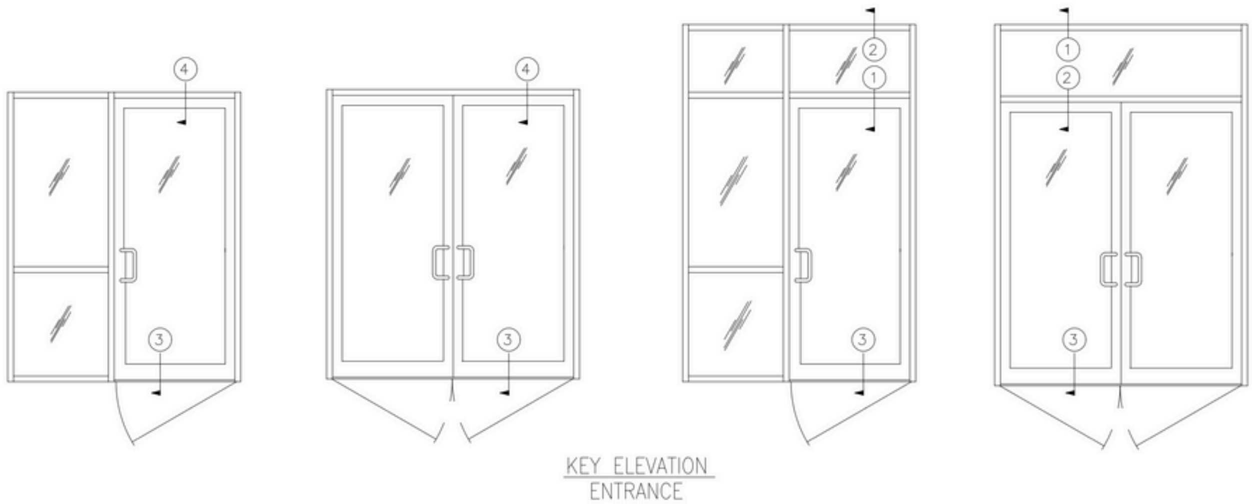


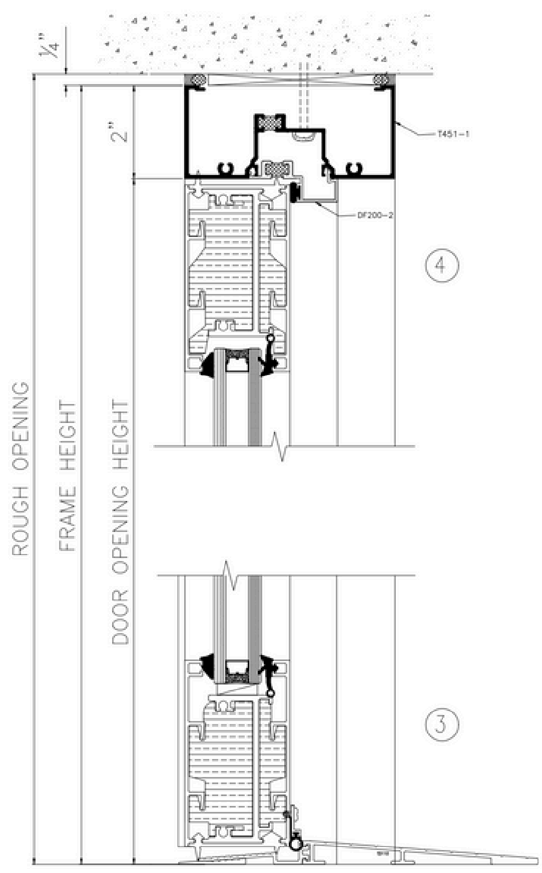
NO POCKETS (Post) | ONE POCKET (Terminating End) | TWO POCKETS (Straight Wall) | THREE POCKETS (Intersecting Walls) | FOUR POCKETS (Intersecting Walls)

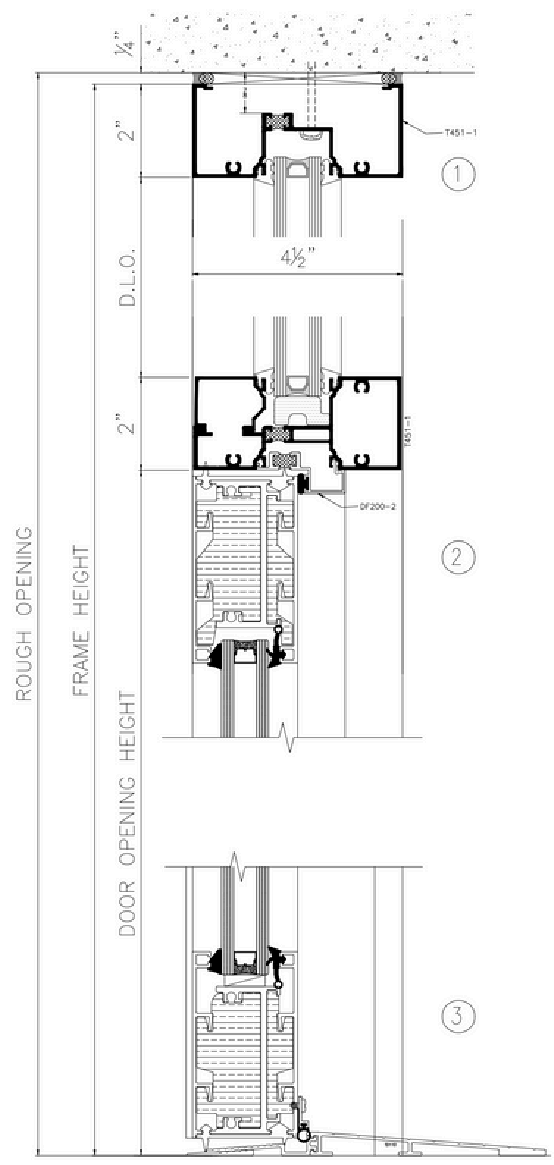
COLUMN COVERS



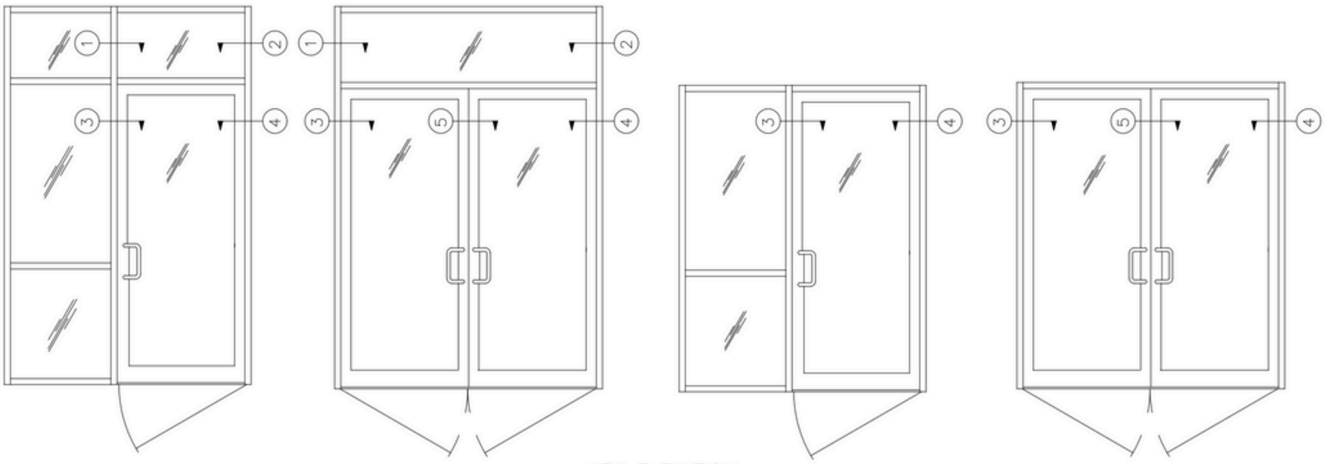
TYPICAL HORIZONTAL DETAILS WITH THERMAL DOOR AND SNAP IN STOP





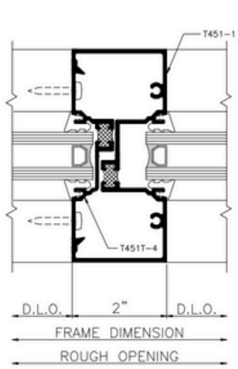


TYPICAL VERTICAL DETAILS WITH THERMAL DOOR



KEY ELEVATION
ENTRANCE

1



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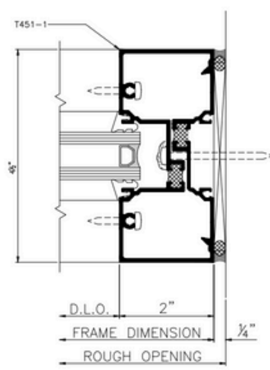

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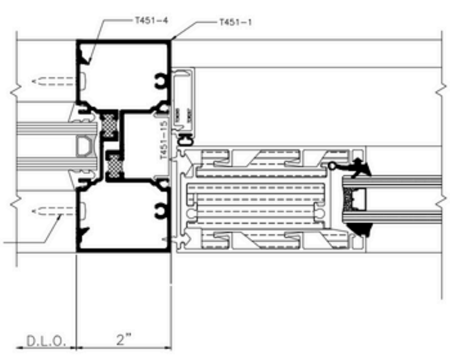

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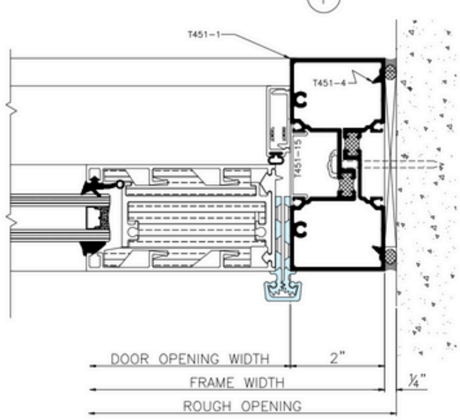

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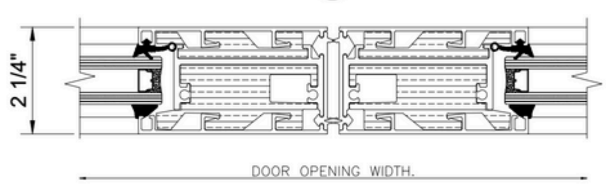
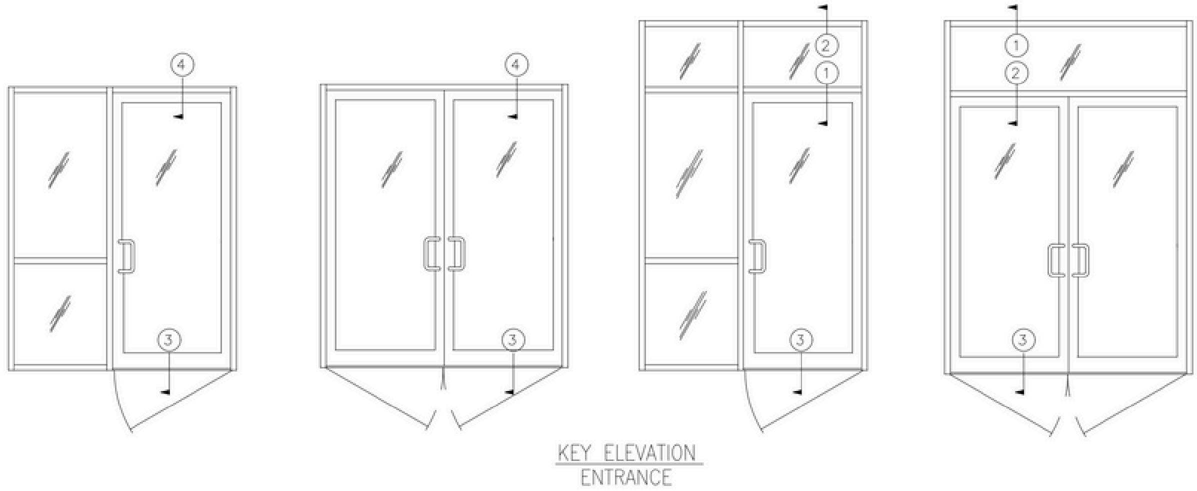
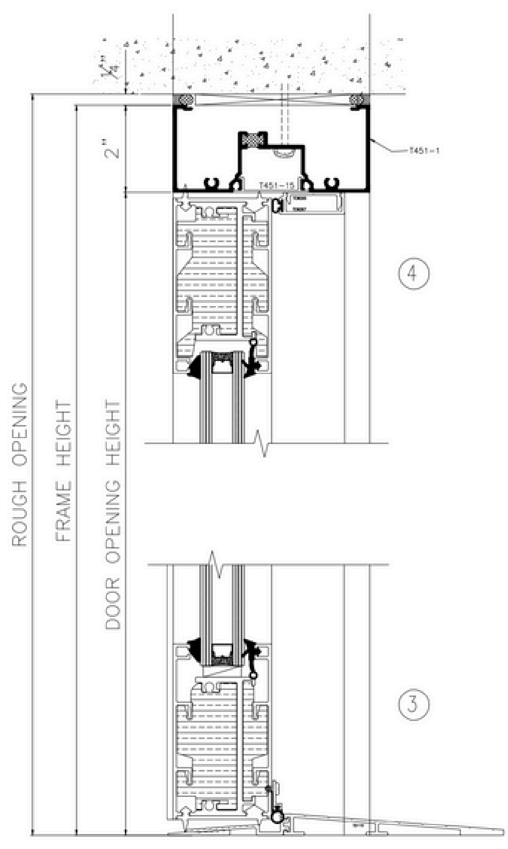
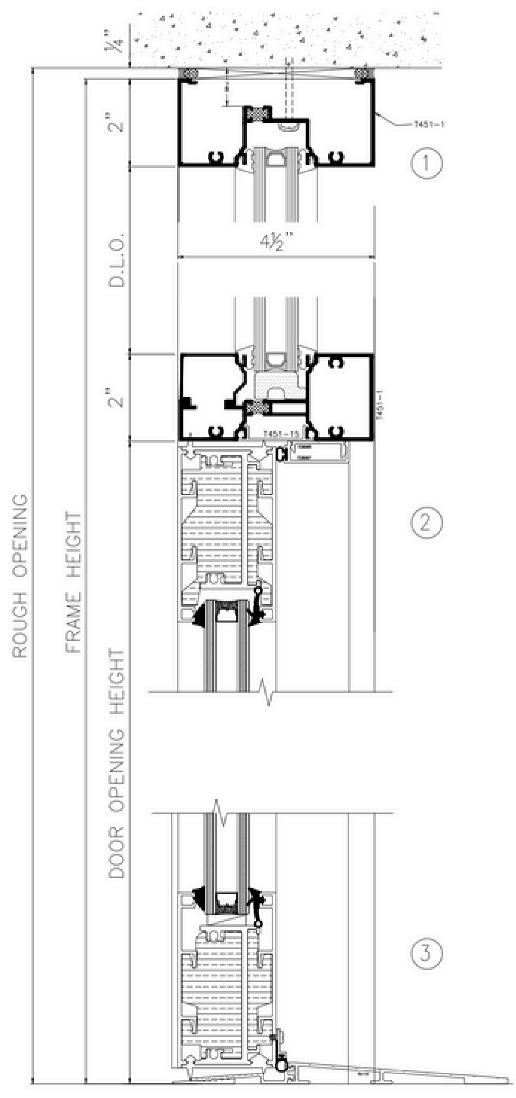


ACRO ALUMINUM INC.

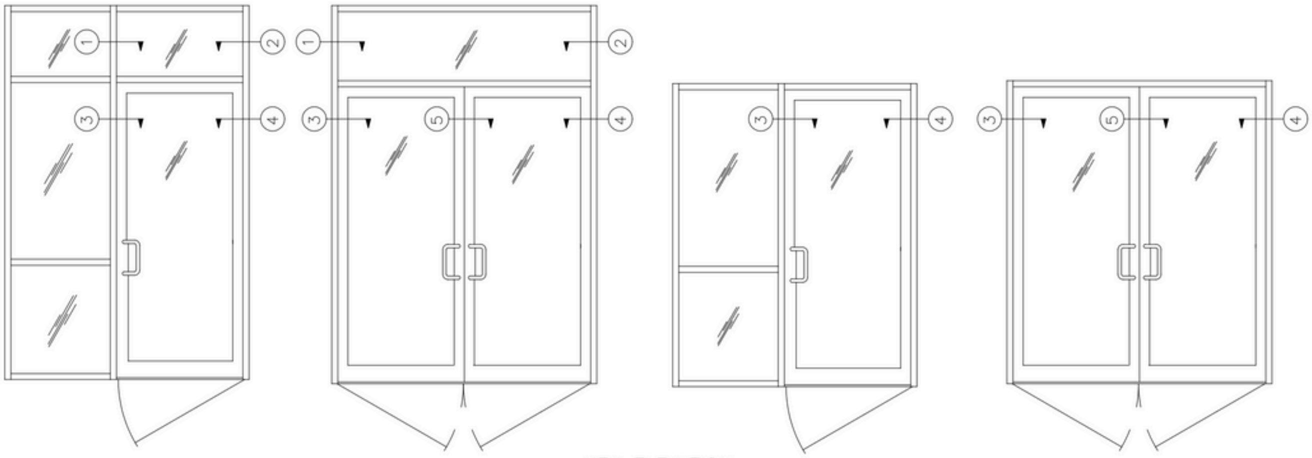
TYPICAL VERTICAL DETAILS WITH THERMAL DOOR AND SCREW ON STOP



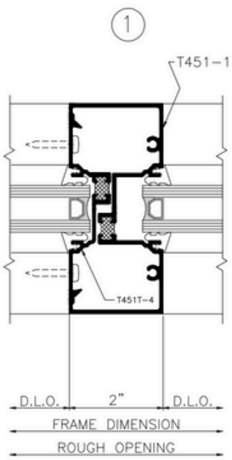


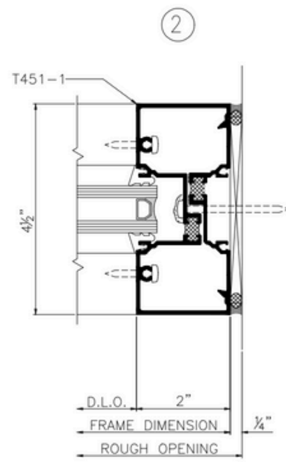


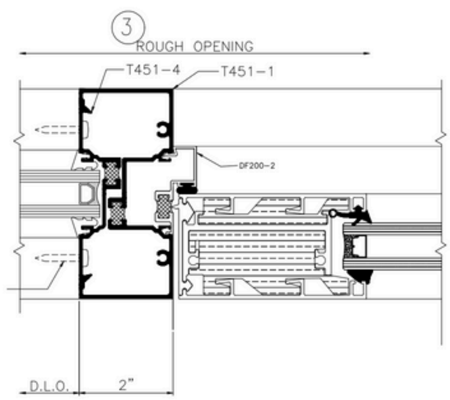
TYPICAL VERTICAL DETAILS WITH THERMAL DOOR AND SNAP IN STOP

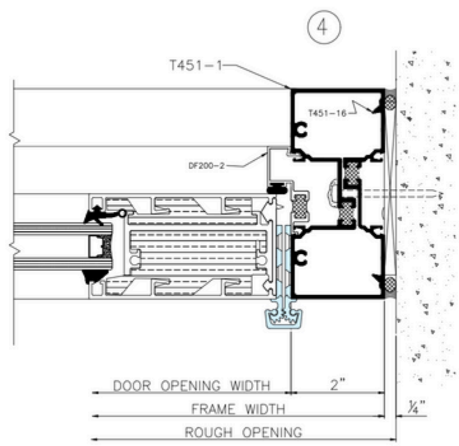


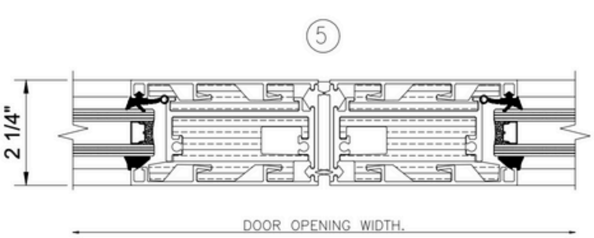
KEY ELEVATION
ENTRANCE











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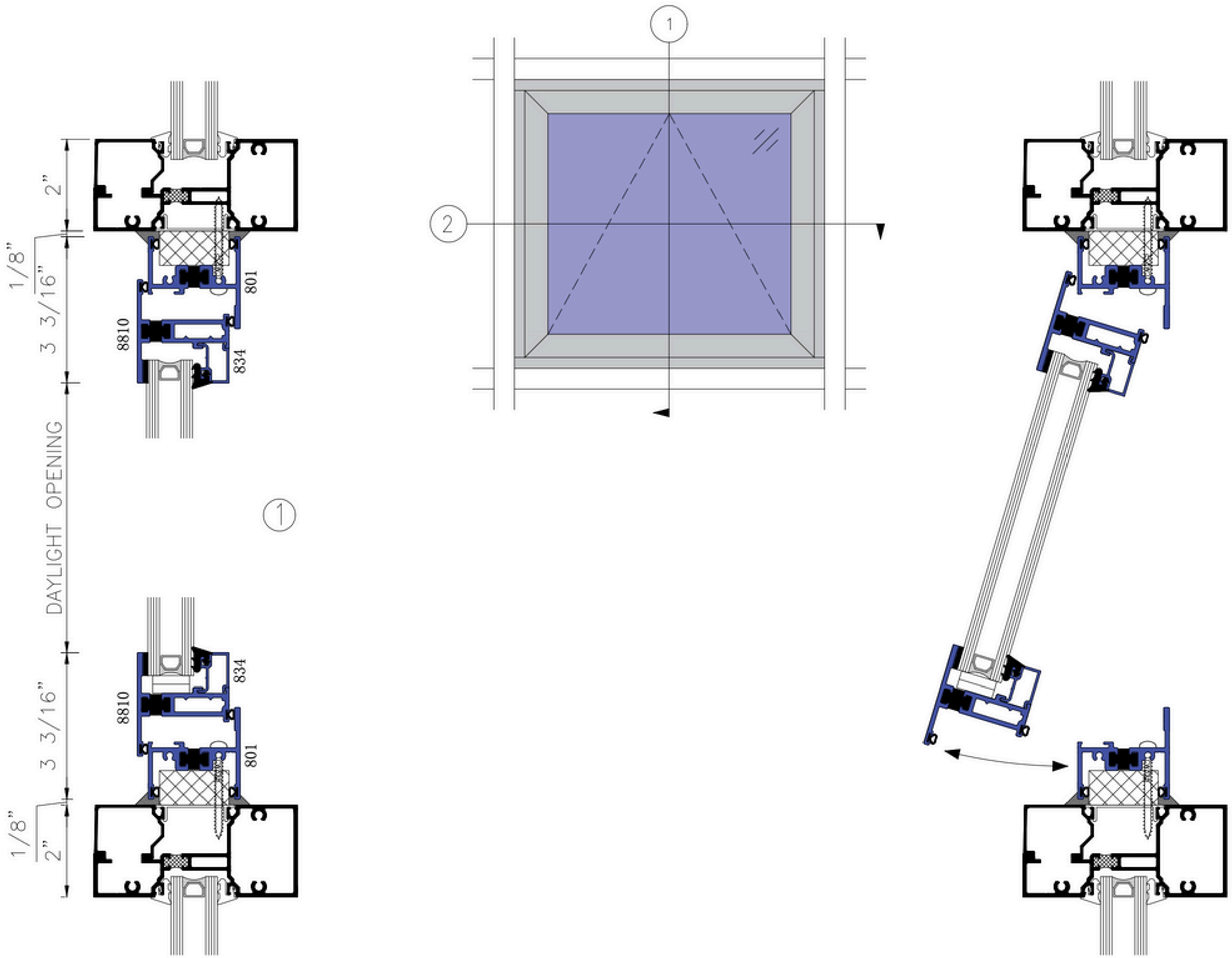
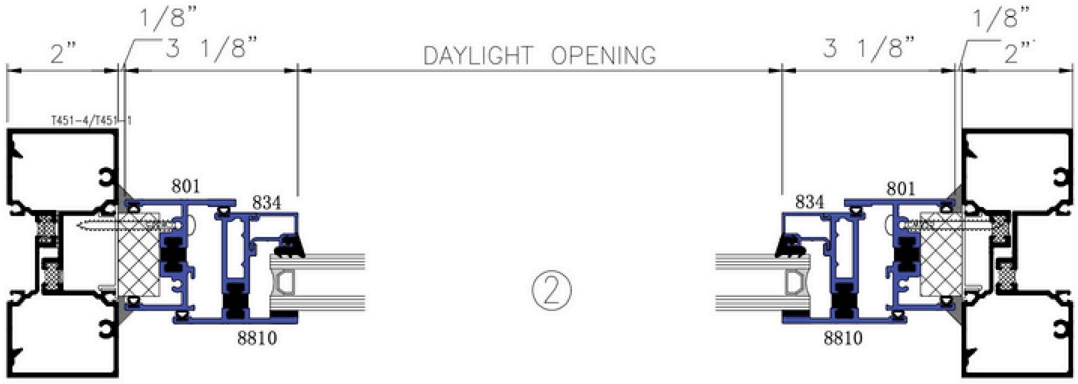
TYPICAL STOREFRONT AND 8000
SERIES VENT DETAILS - OPEN OUT





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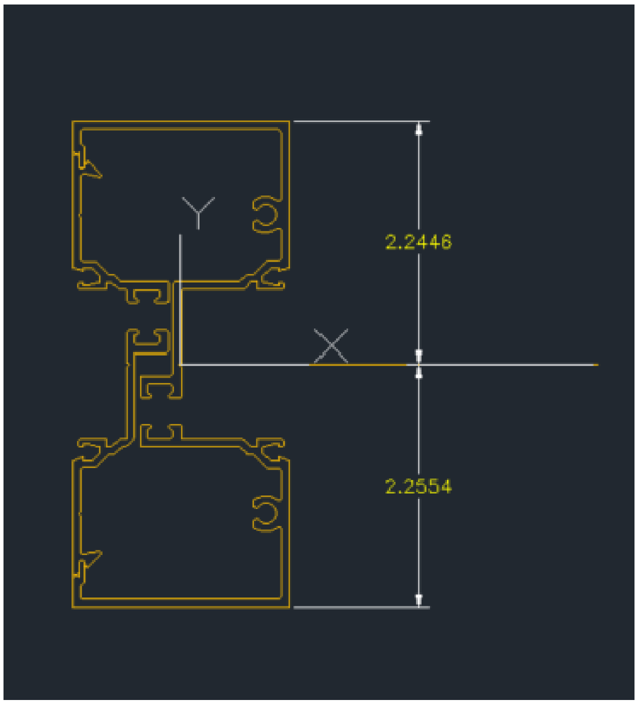
<u>I Value and S Value Calculation:</u>

I = Moment of Inertia
S = Section Modulus

<u>Storefront Profile #1 (Vertical Mullion):</u>



Wind direction:
Ix = 3.025 in^4
Sx = 1.344 in^3

Lateral direction:
Iy = 0.689 in^4
Sy = 0.682 in^3

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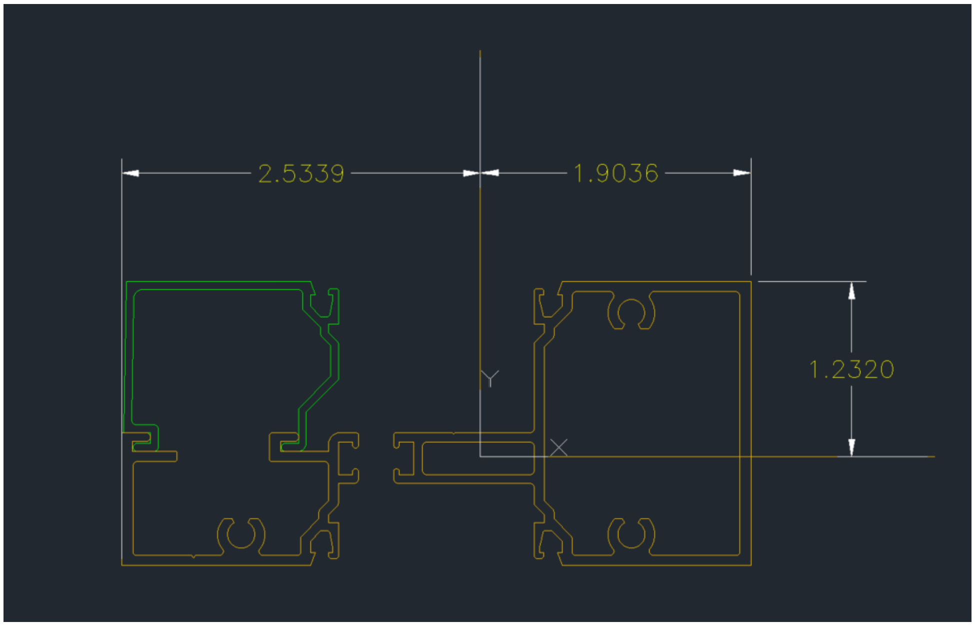
CONSULTING LTD
#233-18525 53 Avenue, Surrey, BC, Canada, V3S 7A4
Office: 604-530-6611 | www.laytonconsulting.com

Storefront Profile #2 (Horizontal Mullion):



Wind direction:
Iy = 2.340 in^4
Sy = 0.923 in^3

Dead load direction (weight):
Ix = 0.385 in^4
Sx = 0.313 in^3

Please note that the glazing stop (GREEN) was not included in the calculation.

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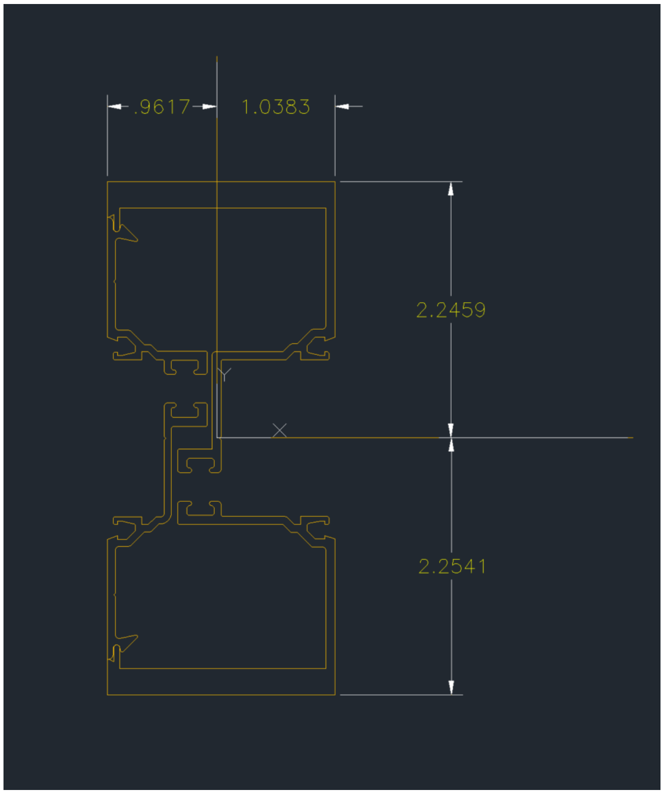
Storefront Profile #3 (Heavy Wall Vertical Mullion):

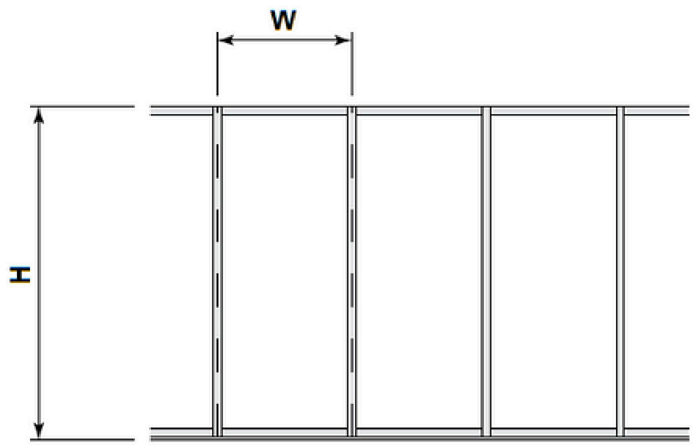


Wind direction:
Ix = 5.336 in^4
Sx = 2.367 in^3

Lateral direction:
Iy = 0.802 in^4
Sy = 0.772 in^3

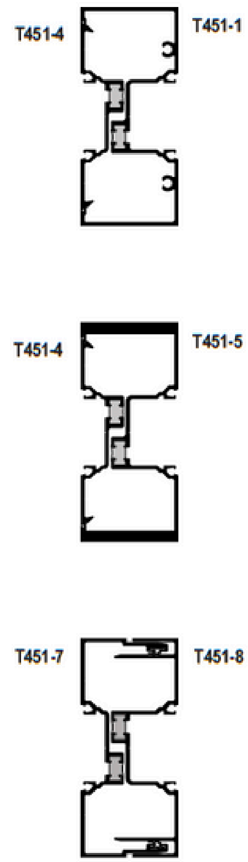
WIND LOAD CHARTS

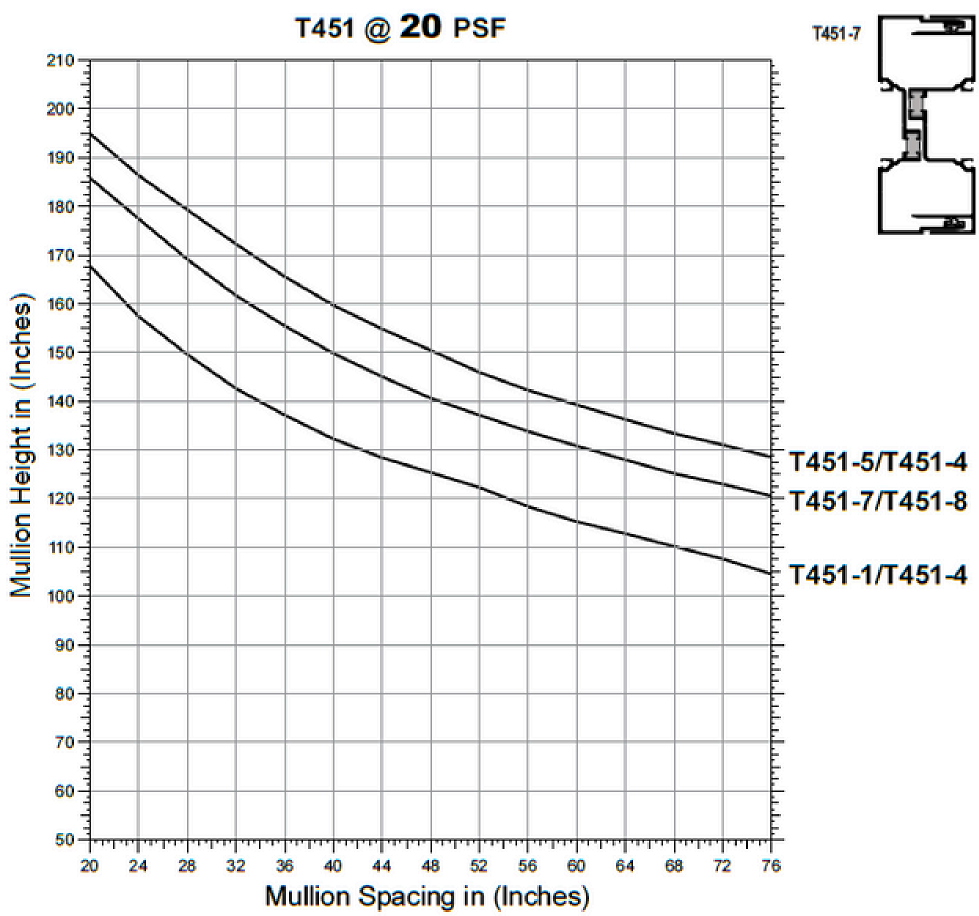
(Assumes Total Lateral Support of flanges)



EXAMPLE ELEVATION

H = Mullion Height
W = Mullion Spacing

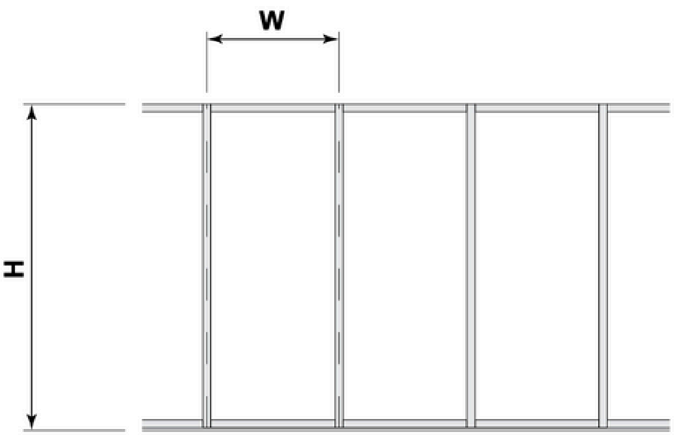




Curves are based on deflection limited to L/175 not to exceed 1" and total lateral support of flanges.

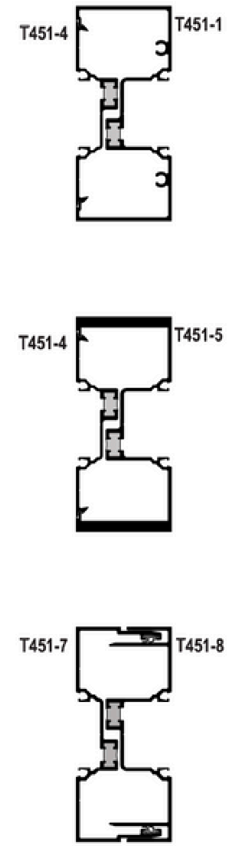
WIND LOAD CHARTS

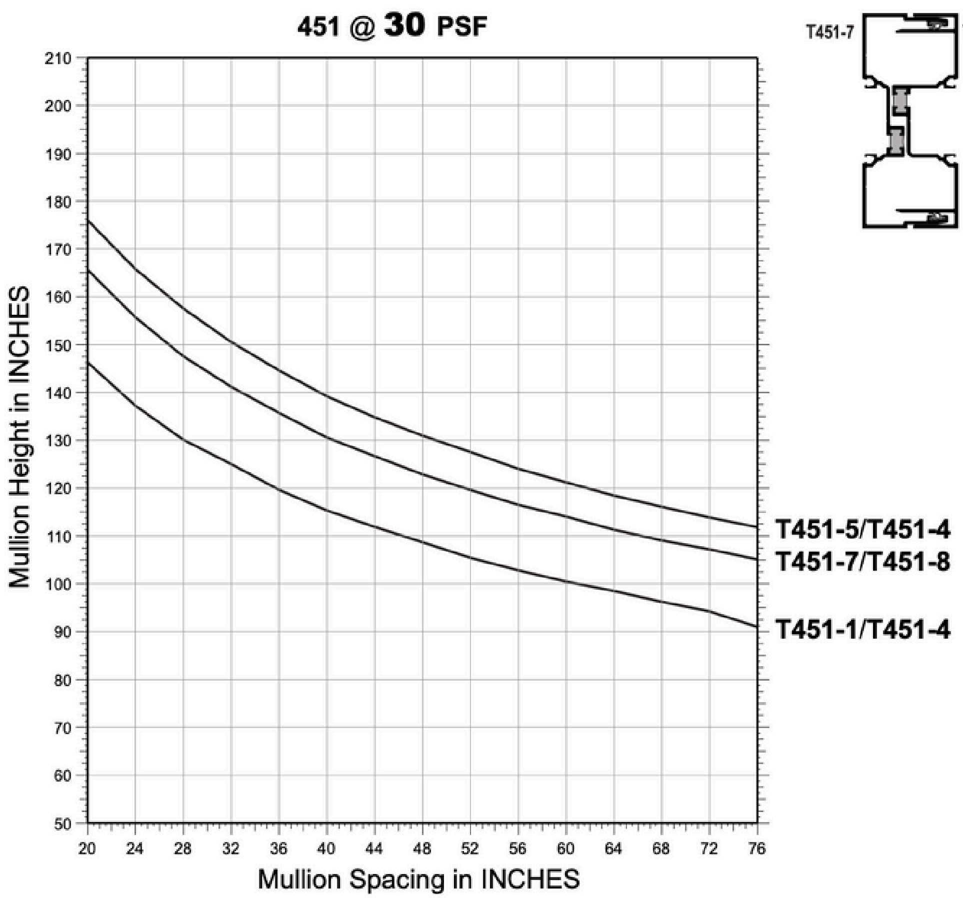
(Assumes Total Lateral Support of flanges)



EXAMPLE ELEVATION

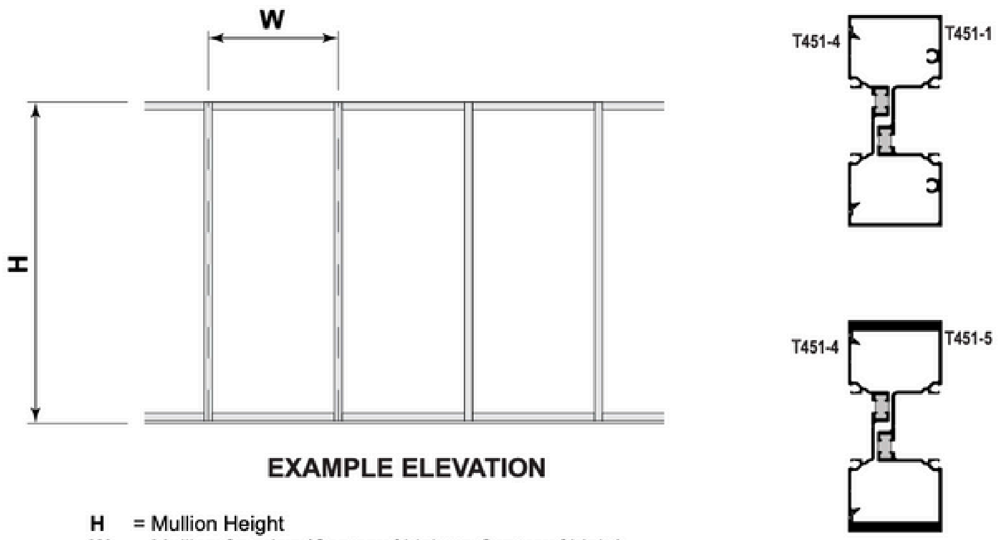
H = Mullion Height
W = Mullion Spacing (Center of Light to Center of Light)





Curves are based on deflection limited to L/175 not to exceed 1" and total lateral support of flanges.

WIND LOAD CHARTS
(Assumes Total Lateral Support of flanges)



EXAMPLE ELEVATION

H = Mullion Height
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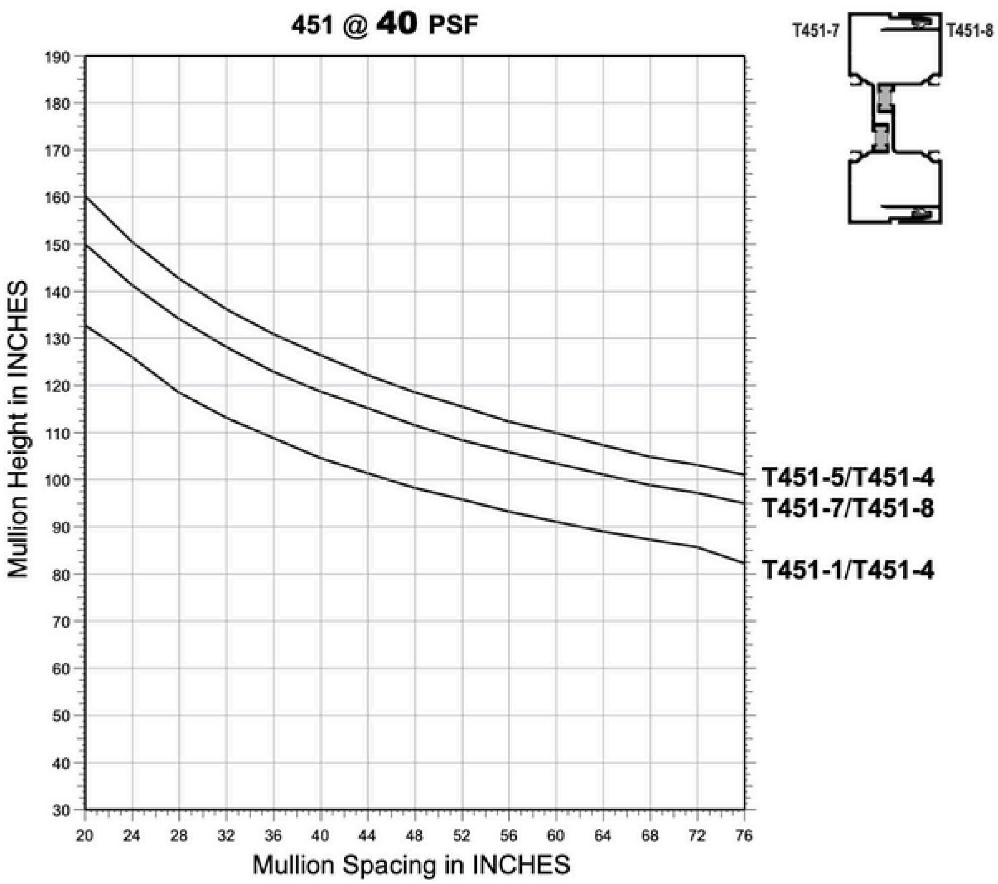
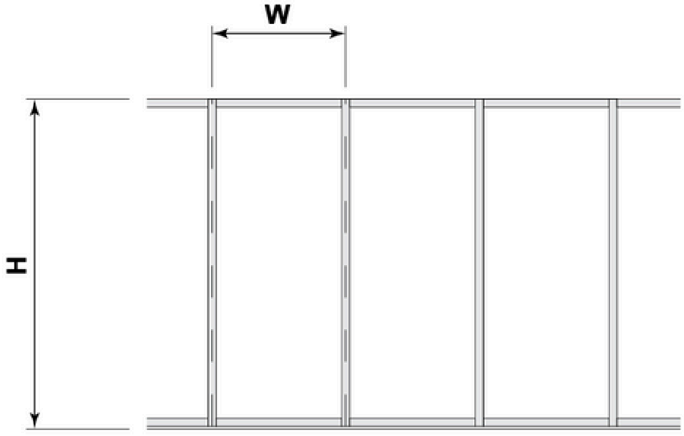


Curves are based on deflection limited to L/175 not to exceed 1" and total lateral support of flanges.

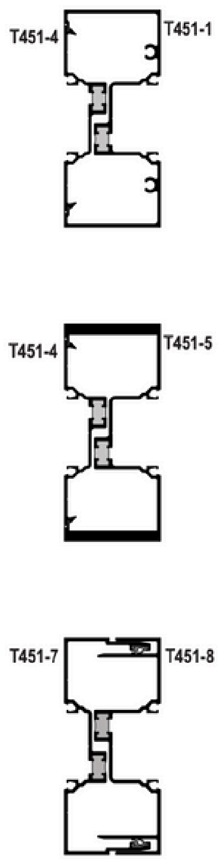
WIND LOAD CHARTS

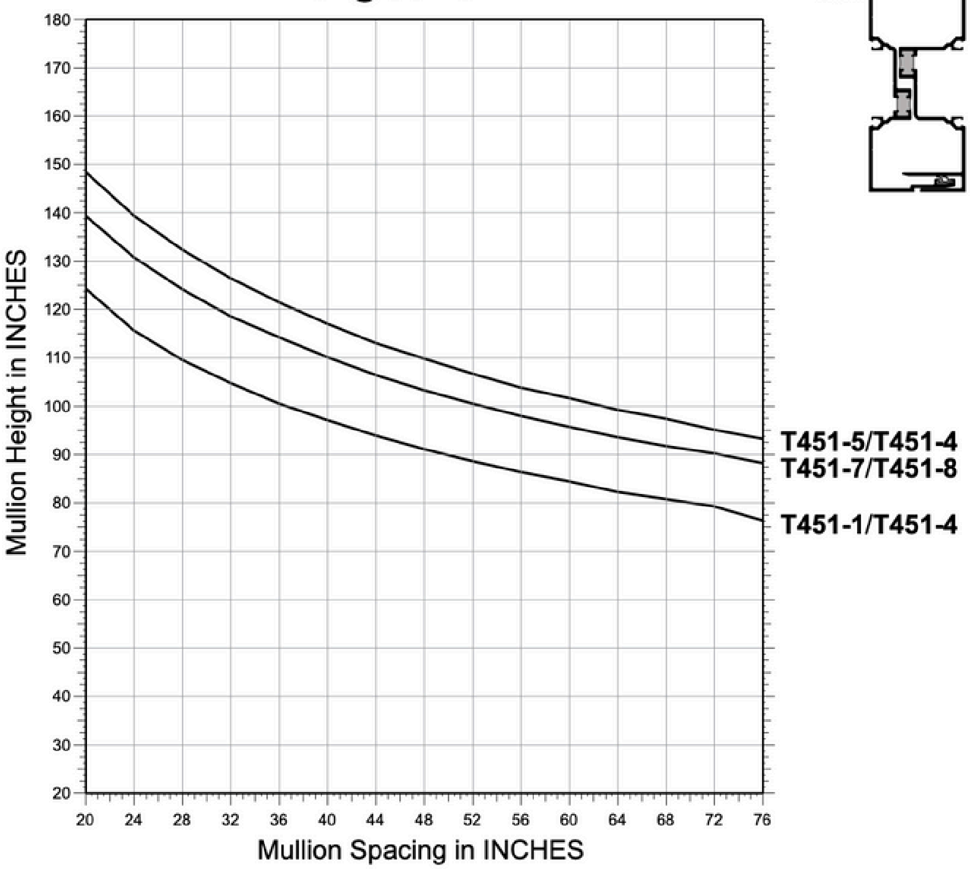
(Assumes Total Lateral Support of flanges)



EXAMPLE ELEVATION

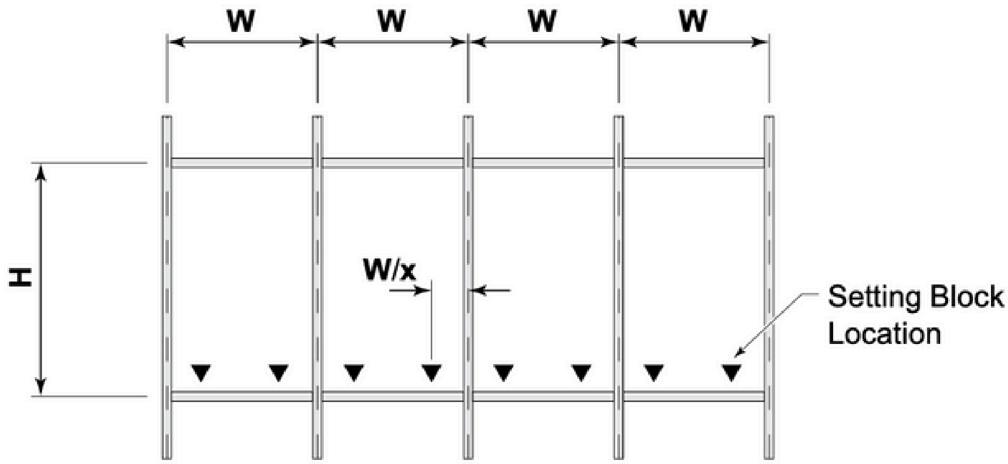
H = Mullion Height
W = Mullion Spacing (Center of Light to Center of Light)





Curves are based on deflection limited to L/175 not to exceed 1" and total lateral support of flanges.

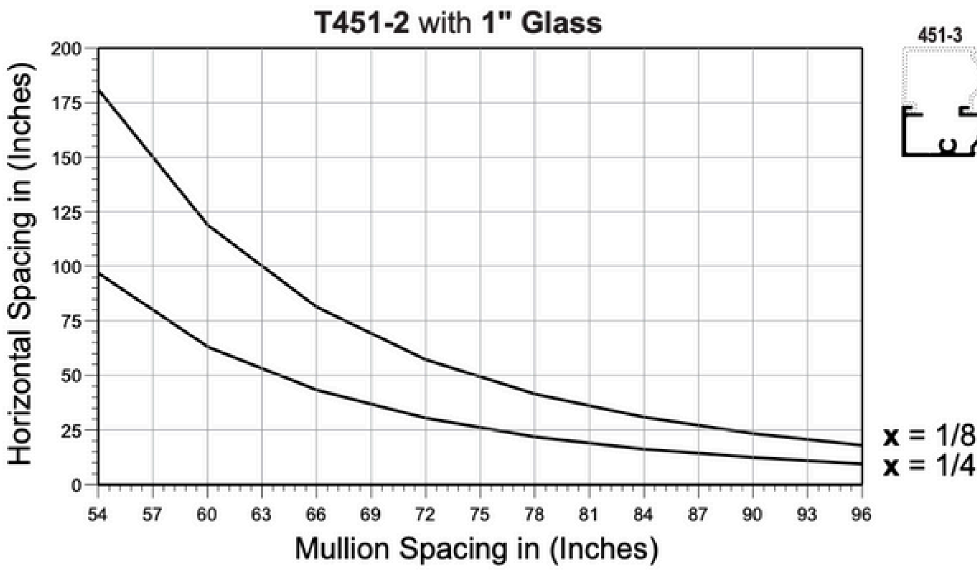
DEAD LOAD CHART

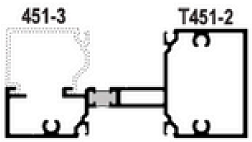


EXAMPLE ELEVATION

H = Distance between Horizontals
W = Mullion Spacing
x = Location of setting blocks as a fraction of **W**

NOTE: Curves are based on deflection limited to 1/8".





These charts are designed to help with the selection of a mullion for storefront applications given the height (H) of the glass and the width (W) of the mullion spacing.

THERMAL MODEL

AAMA 507 SIMULATIONS TO DETERMINE U-FACTOR, SOLAR HEAT GAIN COEFFICIENT, AND VISIBLE TRANSMITTANCE RATINGS

SIMULATION RESULTS

U-FACTOR CALCULATIONS (Storefront)		
Size Specific U-Factor Matrix*		
Glazing Option	Center-of-Glass U-Factor	Overall U-Factor
1	0.48	0.56
2	0.46	0.54
3	0.44	0.53
4	0.42	0.51
5	0.40	0.50
6	0.38	0.48
7	0.36	0.46
8	0.34	0.45
9	0.32	0.43
10	0.30	0.41
11	0.28	0.40
12	0.26	0.38
13	0.24	0.36
14	0.22	0.35
15	0.20	0.33
16	0.18	0.32
17	0.16	0.30
18	0.14	0.28
19	0.12	0.27
20	0.10	0.25

SIMULATION RESULTS

SHGC/VT CALCULATIONS (Storefront)			
Size Specific SHGC Matrix*		Size Specific VT Matrix*	
Center-of-Glass SHGC	Overall SHGC	Center-of-Glass VT	Overall VT
0.75	0.67	0.75	0.66
0.70	0.63	0.70	0.62
0.65	0.58	0.65	0.57
0.60	0.54	0.60	0.53
0.55	0.49	0.55	0.49
0.50	0.45	0.50	0.44
0.45	0.41	0.45	0.40
0.40	0.36	0.40	0.35
0.35	0.32	0.35	0.31
0.30	0.27	0.30	0.26
0.25	0.23	0.25	0.22
0.20	0.19	0.20	0.18
0.15	0.14	0.15	0.13
0.10	0.10	0.10	0.09
0.05	0.05	0.05	0.04

*The size specific SHGC and VT matrices are based on the Glazed Wall System NFRC specimen size of 2000mm x 2000mm (78.75 in x 78.75 in). This represents 88.2% Vision Area / Total Area.