U-Max™ THERMAL BREAK SG150 Structural Glazed
U-Max Framing Systems: USG150 - 1

U-MAX™ Structural Glazed 150 Framing

FEATURES:

- 150mm frame depth
- Same frame depth as 150 Front, Centre & Offset glaze
- 50mm face dimensions on mullions & transoms
- Reduced head & sill sight lines to maximize the "all glass" appearance
- Accepts 24mm to 28mm IGU's
- Accepts 3M VHB structural glazing tape
- Designed for factory glazing & easy site installation
- Optional frame detail for site glazing
- Outer frame designed for Thermal Break applications
- Minimal external face on frame reduces energy loss
- Provides for vertical movement with deep sub head
- Can be installed from inside or outside the building

Structural glazed awning sash option

FABRICATION:

- Square cut manufacture
- Simple panelized assembly

PRODUCT APPLICATIONS:

Factory & office facades structurally glazed

LIMITATIONS:

- External glazed only
- Limited to a stock length, nominally 6.5 metres

- **The** use of 4 sided structural glazing requires great attention to detail in the glazing of frames. Ideally frames are factory glazed in a clean, controlled atmosphere & dust free environment
- Glazing methodology, class cover & silicone bite should be referred to tape & silicone suppliers for suitability to the application

The Clarence Reardon Centre, Springvale Botanic Cemetery
U-MAX™ 150mm Structural Double Glazed thermally broken frames

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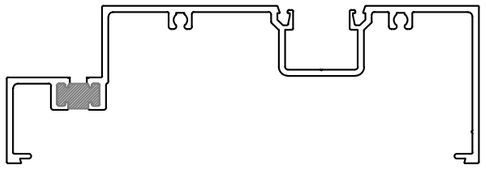
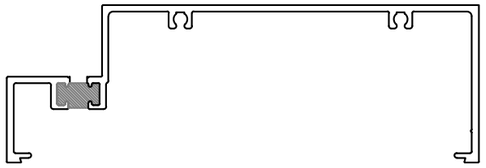
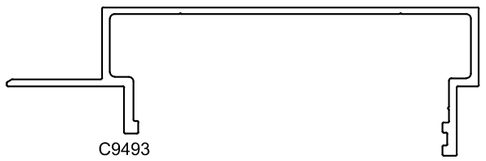
U-Max™ THERMAL BREAK SG150 Structural Glazed
U-Max Framing Systems: USG150 - 2
Extrusion ID



C9469U
SG150 Pocketed Jamb

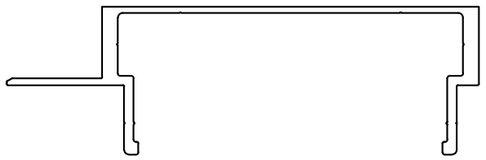


C9476U
SG150 Alternate Jamb / Head / Sill



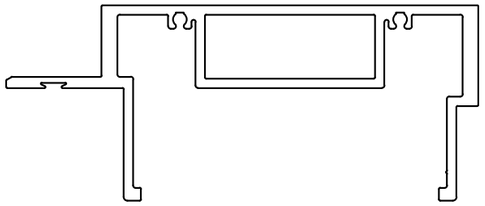
C9493
150 x 50 Light Male Mullion

C9494
150 x 50 Light Female Mullion

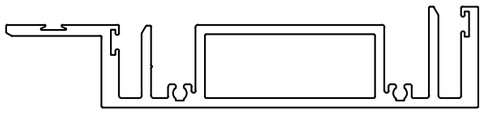


C9470
Male Mullion

C9471
Female Mullion



C9483
150 x 56 Male Sunshade Mullion



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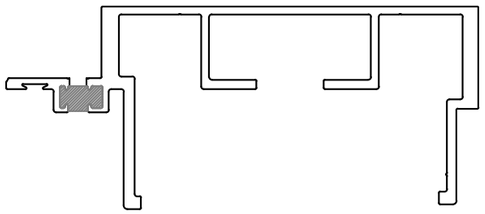
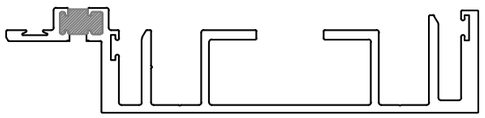
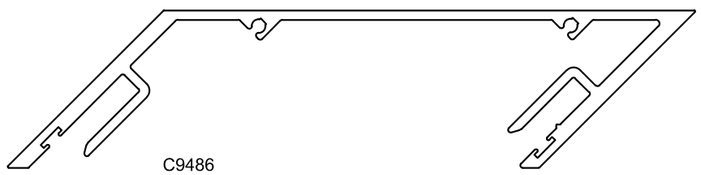
150 x 56 Female Sunshade Mullion



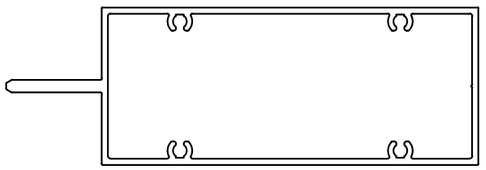
C9488U
150 Male Sunshade Mullion



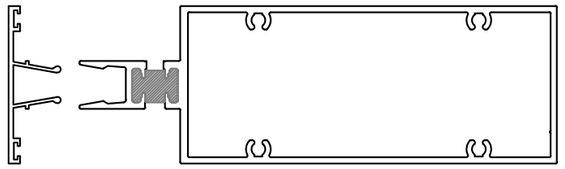
C9489U
150 Female Sunshade Mullion



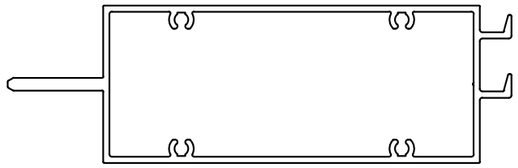
C9486
150 x 100 S/M Corner Mullion



C9473
Transom

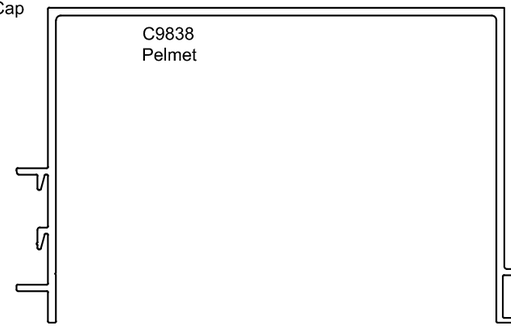


C9499U
150 Capped Transom



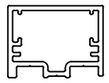
C9461
Pelmet Transom

C243
Flat Cap

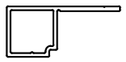


C9838
Pelmet

C9619
SG150 Pocket Filler



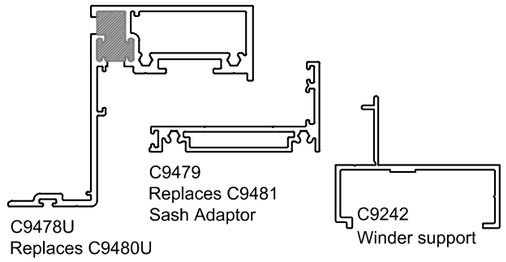
C9477
Rebate Adaptor



C9767
Plant on
Spandrel Adaptor
(14mm rebate)

SCH0161615
Channel as
Spandrel Adaptor
(14mm rebate)

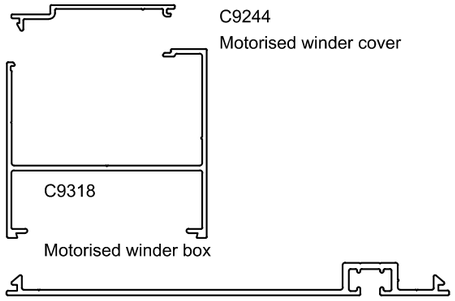
SCH0202015
Channel as
Spandrel Adaptor
(10mm rebate)



C9478U
Replaces C9480U
Structural Sash

C9479
Replaces C9481
Sash Adaptor

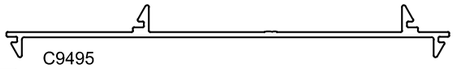
C9242
Winder support



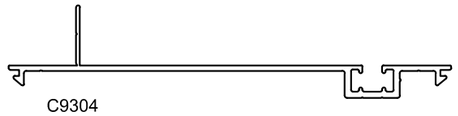
C9244
Motorised winder cover

C9318
Motorised winder box

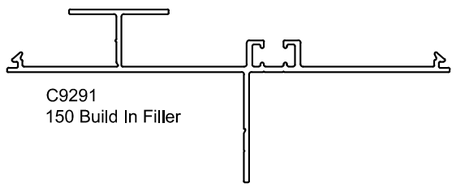
C9303
150 Flat Filler



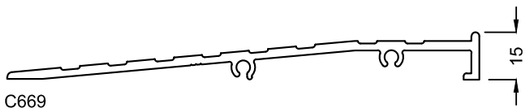
C9495
SG150 / 150 Frame Coupler
(non visible)



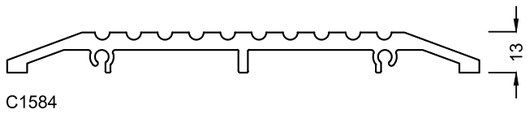
C9304
150 Nailing Fin Adaptor



C9291
150 Build In Filler



C669
150 x 13 Wheelchair Threshold



C1584
150mm Ramp Threshold

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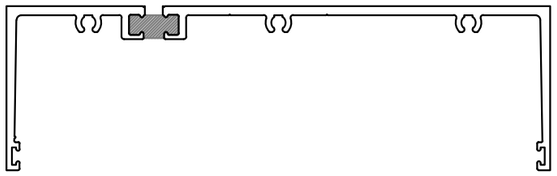
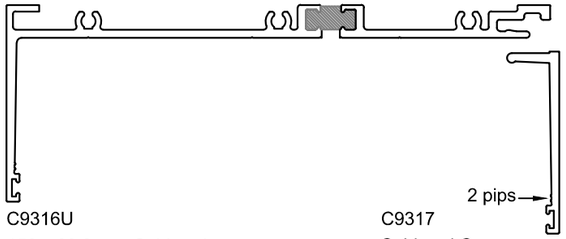
U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 3

Extrusion ID

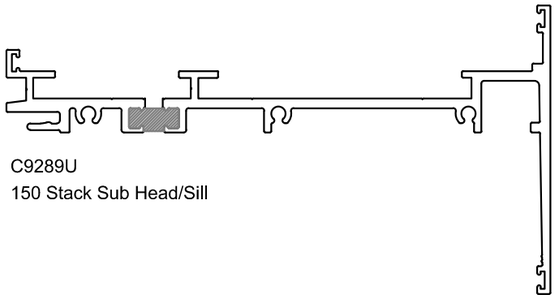


C9311U
150 x 50 Subhead

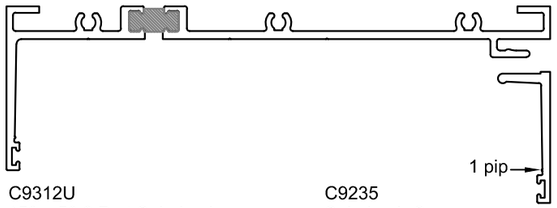


C9316U
150 x 60 2 part Subhead

C9317
Subhead Cover

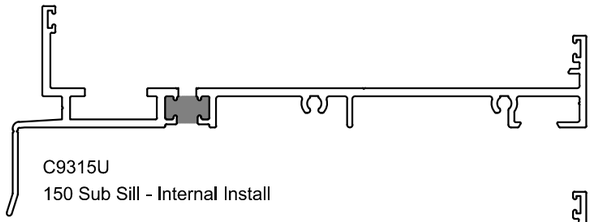


C9289U
150 Stack Sub Head/Sill

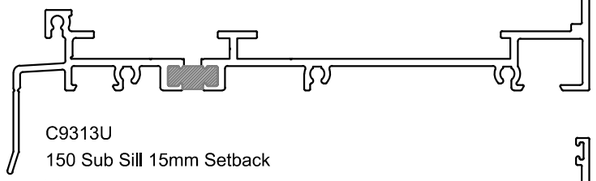


C9312U
150 x 50 2 Part Sub Jamb

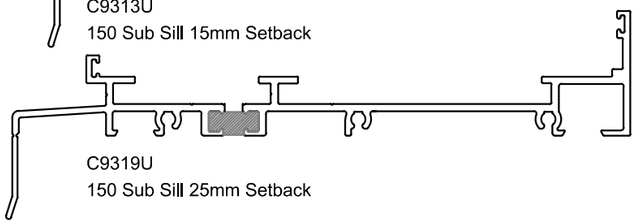
C9235
Sub Jamb Cover



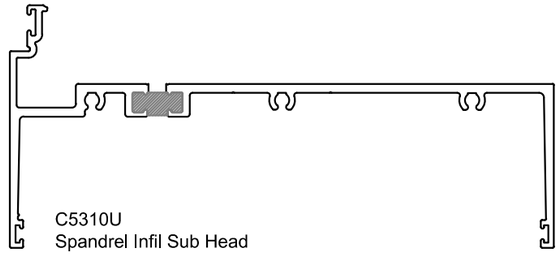
C9315U
150 Sub Sill - Internal Install



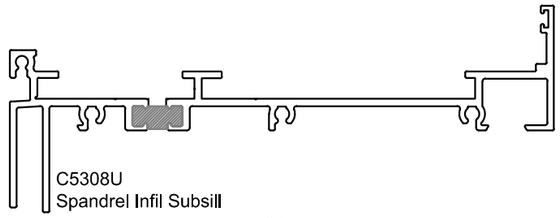
C9313U
150 Sub Sill 15mm Setback



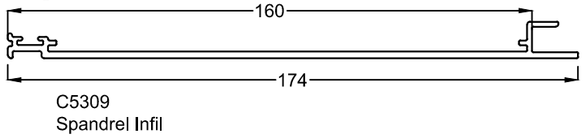
C9319U
150 Sub Sill 25mm Setback



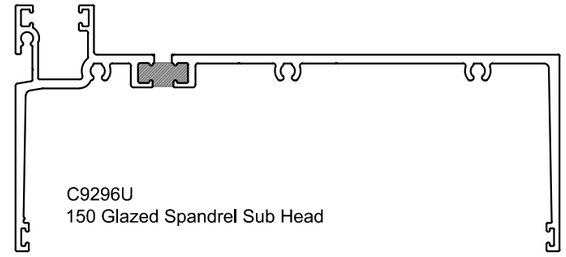
C5310U
Spandrel Infil Sub Head



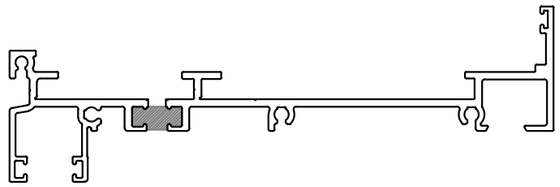
C5308U
Spandrel Infil Subsill



C5309
Spandrel Infil

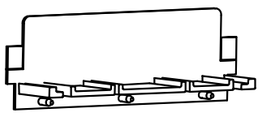


C9296U
150 Glazed Spandrel Sub Head



C9297U
150 Glazed Spandrel Subsill

Component ID



CH9571
Max 150 Subsill Stop end (non handed)

CH9520
Subsill captive wedge

CH9526
Expansion Seal

CH13
Sash Bulb Seal

CH9627BLK (Black)
CH9627GRY (Grey)
Sushade Mullion Seal

CH9580
Sash Gusset

CH1928337
Corner stake suit C9478, C9832U

CH9659BLK (Black)
CH9659GRY (Grey)
Dual Bulb Expansion Seal

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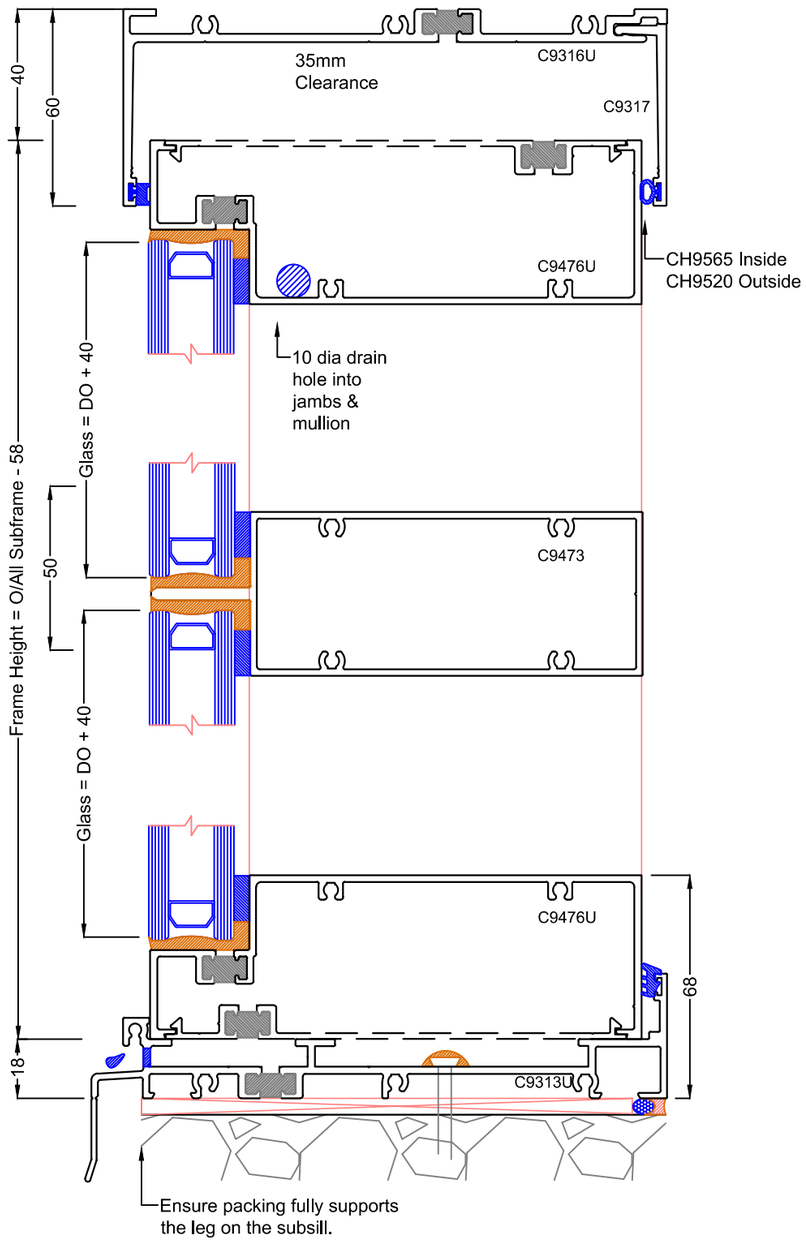
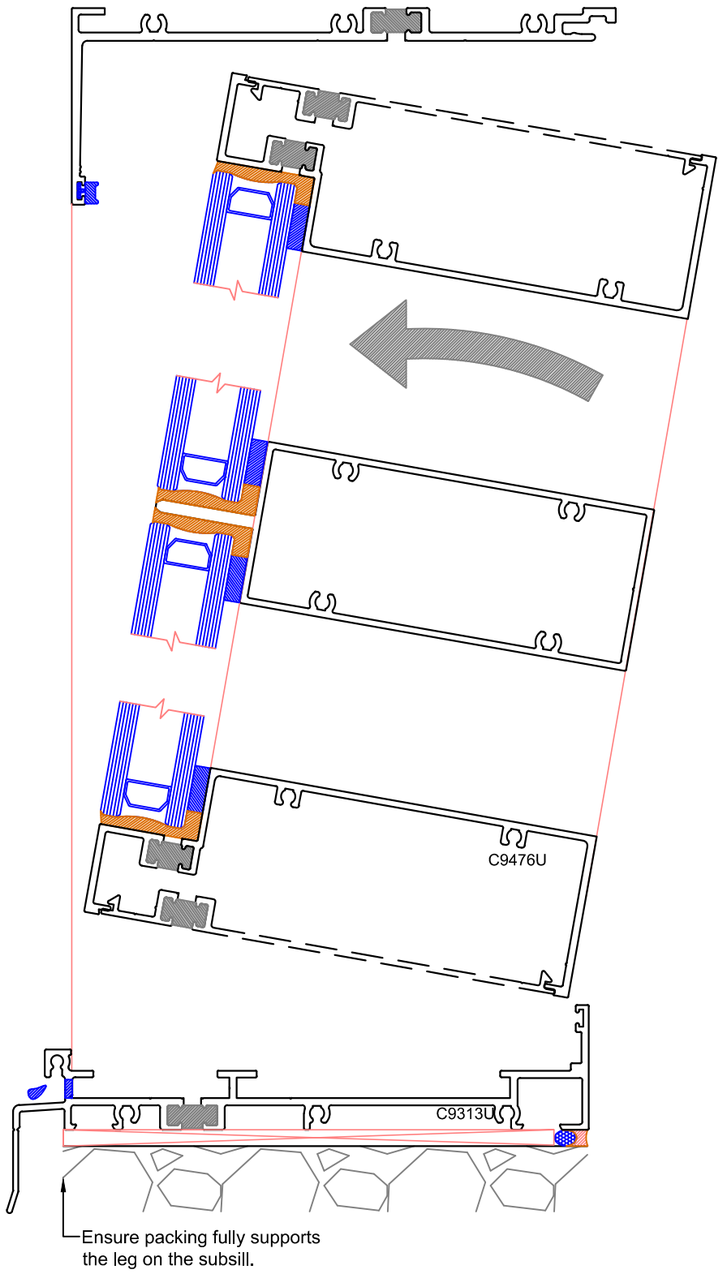
U-Max™ THERMAL BREAK SG150 Structural Glazed
U-Max Framing Systems: USG150 - 4
Detail using Standard Subsill & 2 part Sub Head



Head & Sill Detail, Internal Sub Head cover

Detail showing a pre-glazed frame being installed from inside. The frame is located into the subsill & lifted to vertical, where the internal sub head cover is fitted to captivate the frame.



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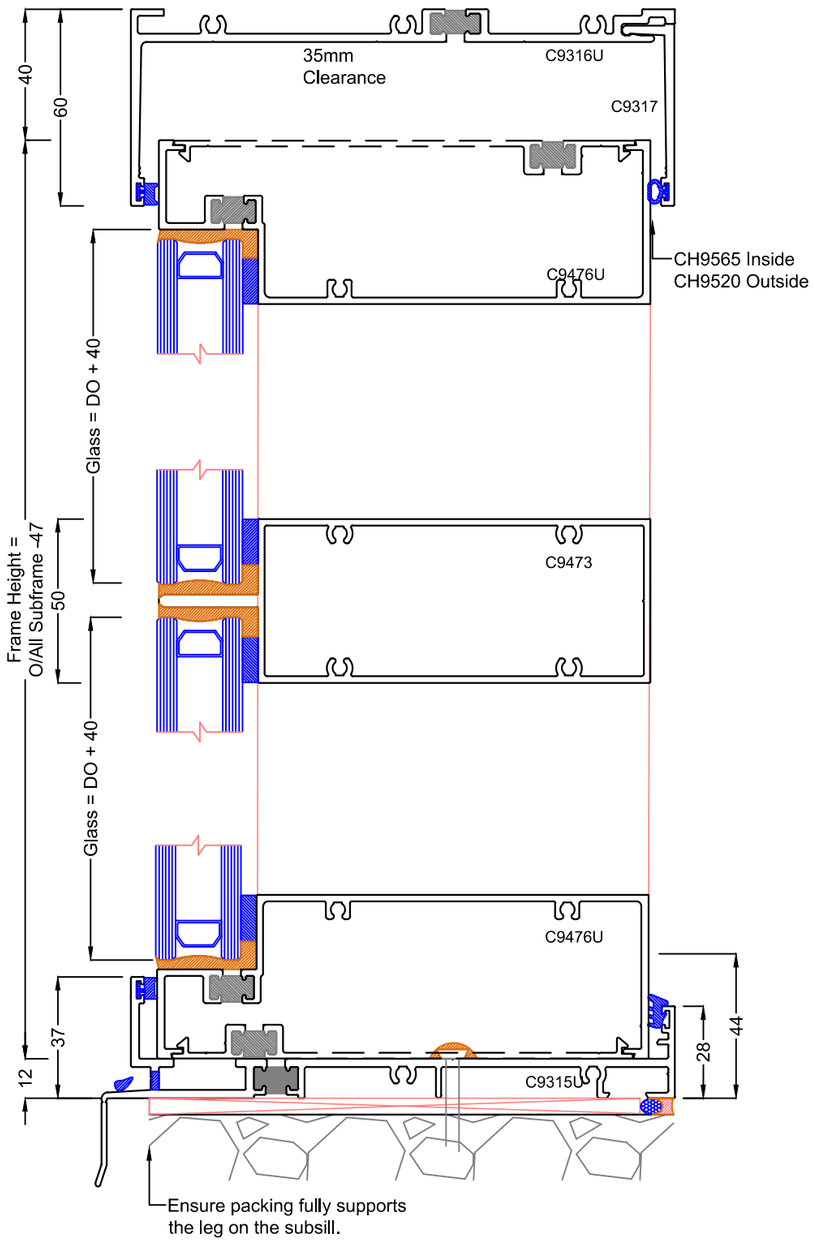
U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 5

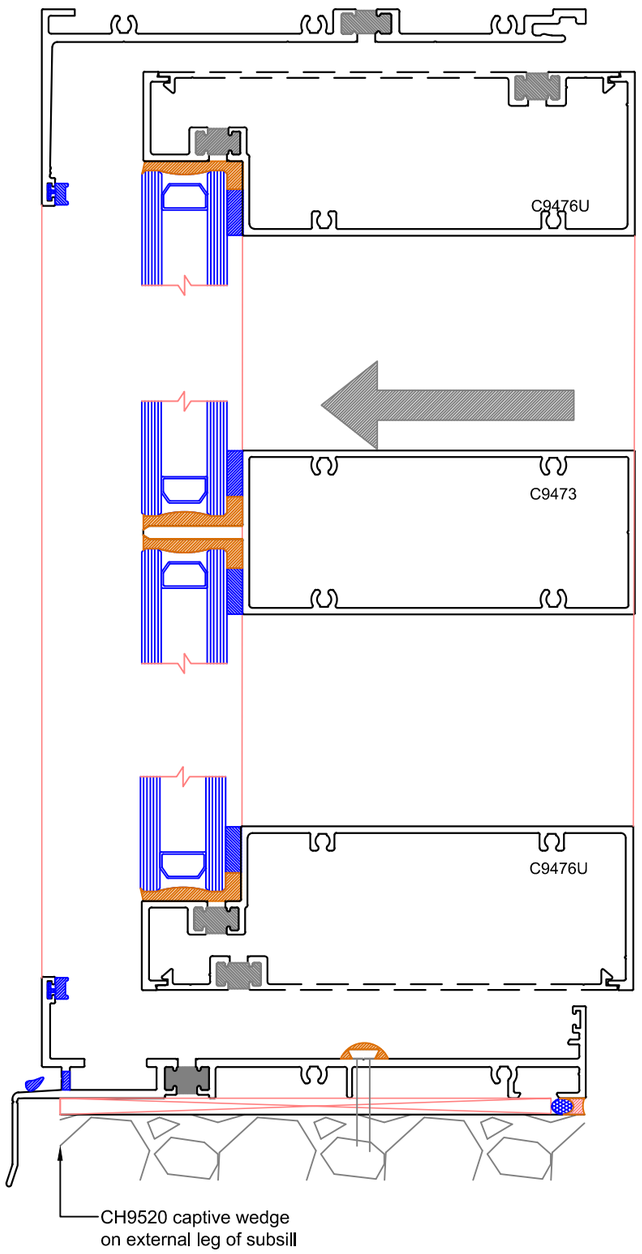
Alternative detail with Head & Sill, Internal Install Subsill & 2 part Sub Head

Detail showing sub head & sub sill details based on pre-glazed panels installed from inside. Note the removable sub head cover must be on the inside.



Internal Sub Sill & 2 Part Sub Head

Detail showing a pre-glazed frame being installed from inside.
If the frame is being fitted from inside the building it doesn't need to be angled as much as when using a conventional subsill.



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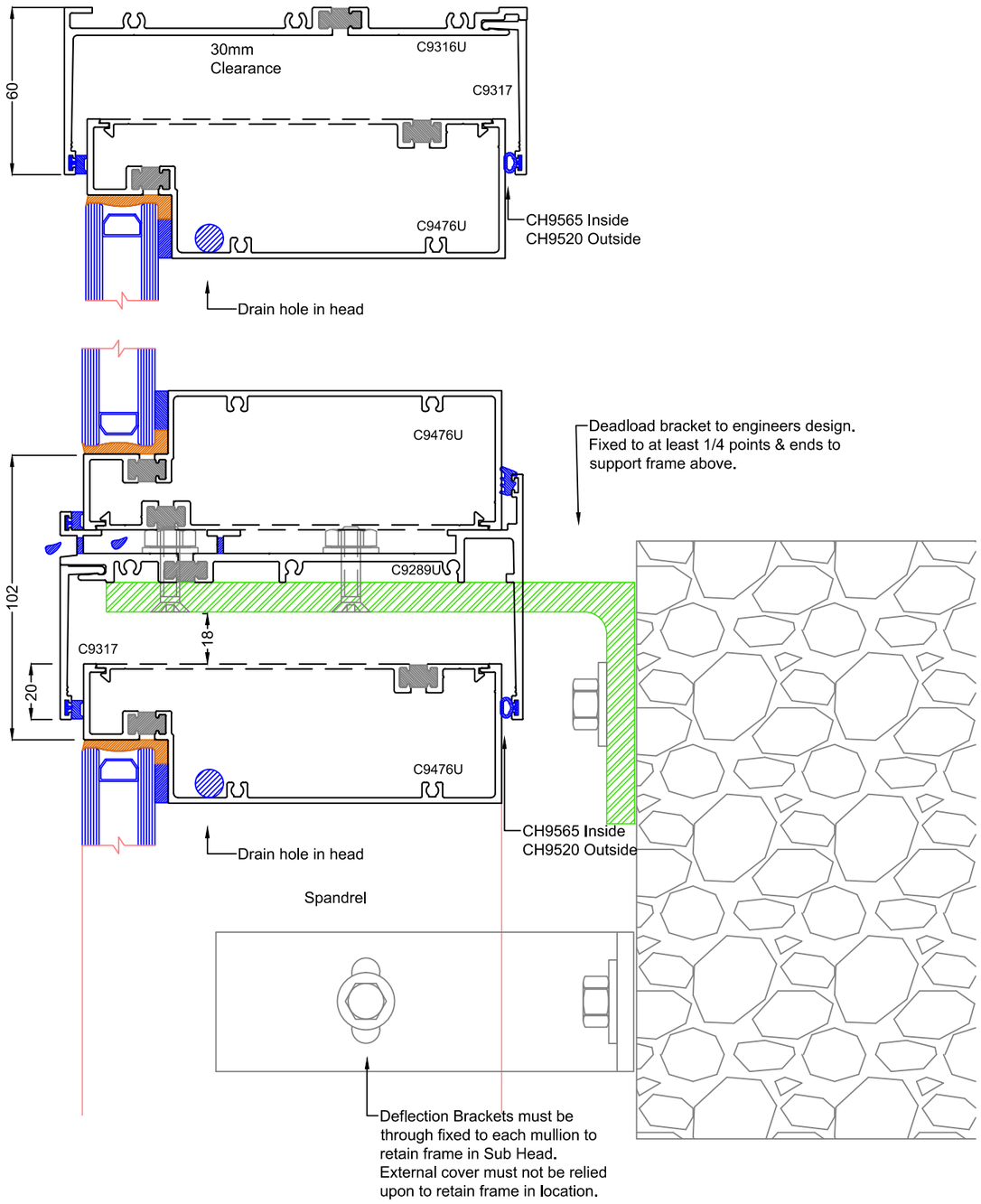
U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 6

50mm Head & Sill with Stack Sub Head / Sub Sill

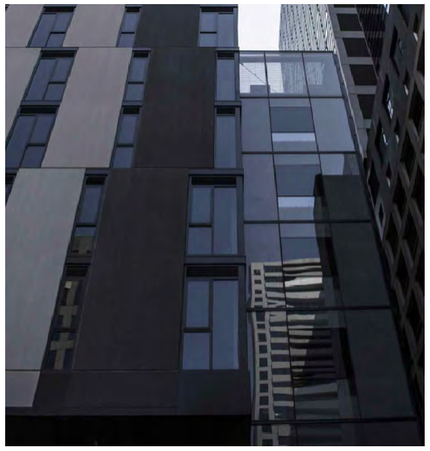
Used where mullion fixing isn't available on the frame above, as required by a stack joint. The top frame is retained by a sub head & the stack sub head/sill is bracketed back to the structure to take the weight of the frame below.

(a) Deadload supporting bracket to engineers detail.
(b) Deflection brackets required on every mullion. The external subhead must not be relied on alone to retain the frame in location.



Stack Sub Head / Sub Sill

The detail shown below is a project using the stack subhead / subsill in a 5 storey curtain wall.



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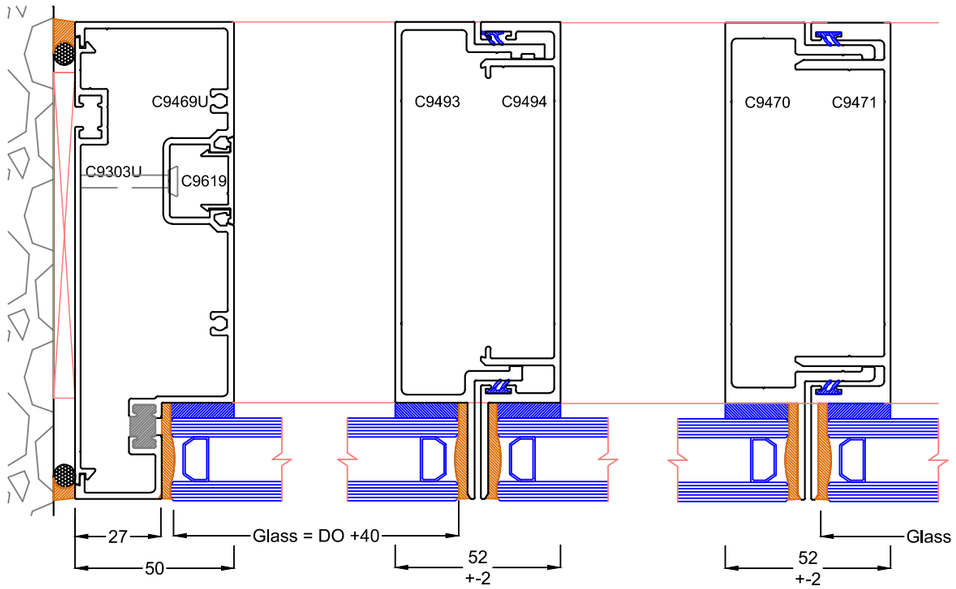
U-Max™ THERMAL BREAK SG150 Structural Glazed

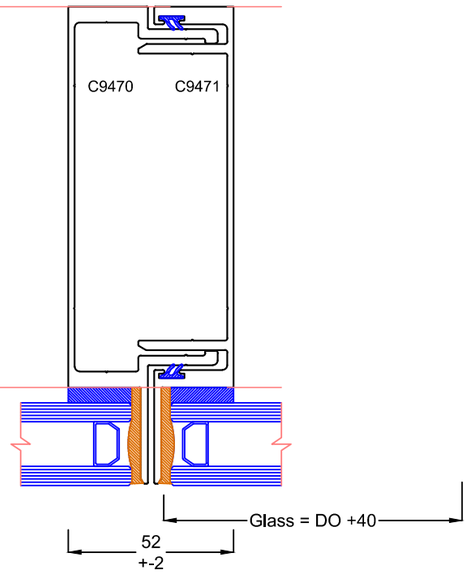
U-Max Framing Systems: USG150 - 7

Pocketed Jamb

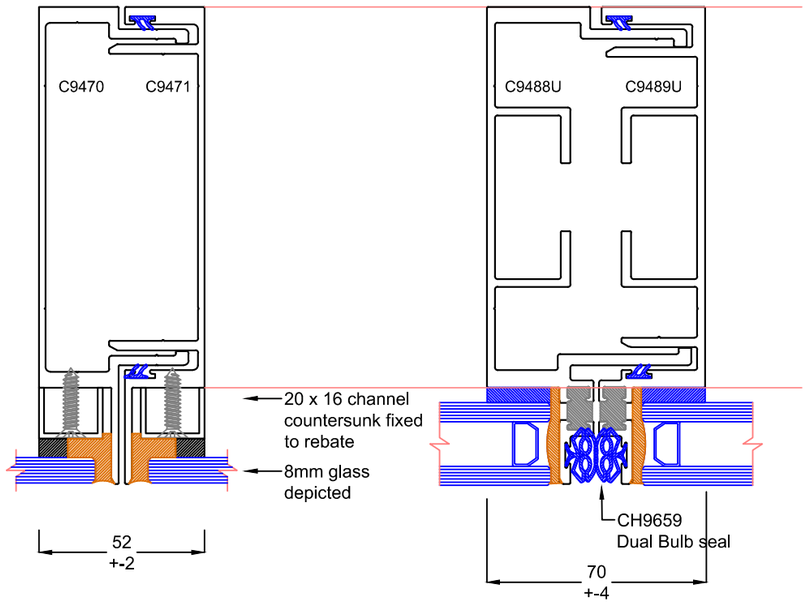


Light Split Mullion

Standard Split Mullion



Spandrel detail

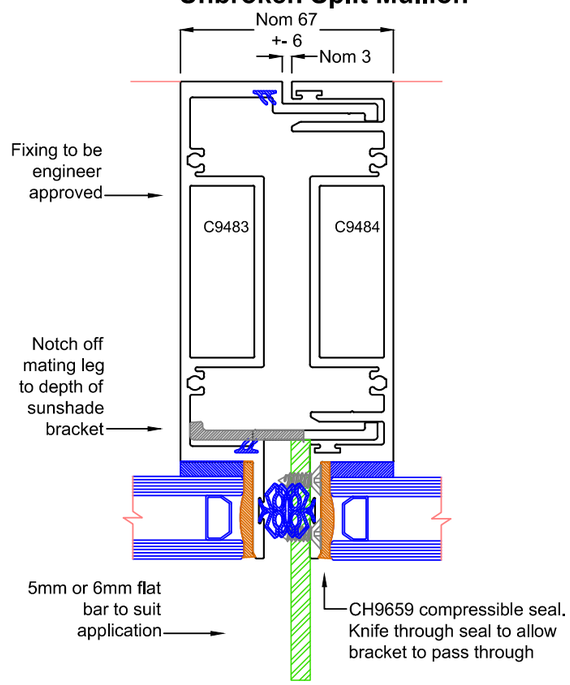


HD Split Mullion

Feature Fin Detail

The following detail depicts a custom feature fin which can be incorporated into the SG150 system.

Unbroken Split Mullion



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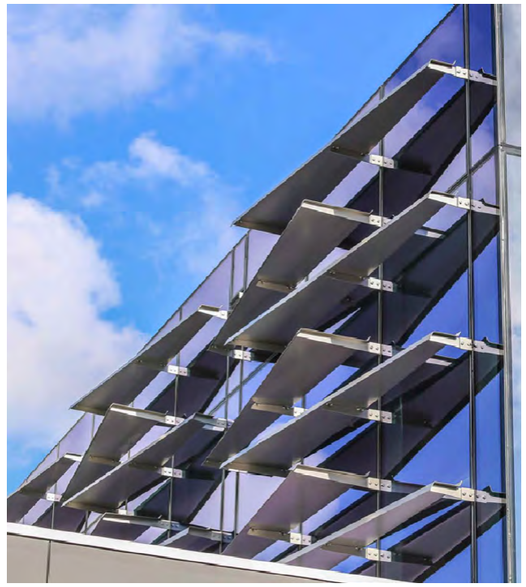
U-Max™ THERMAL BREAK SG150 Structural Glazed

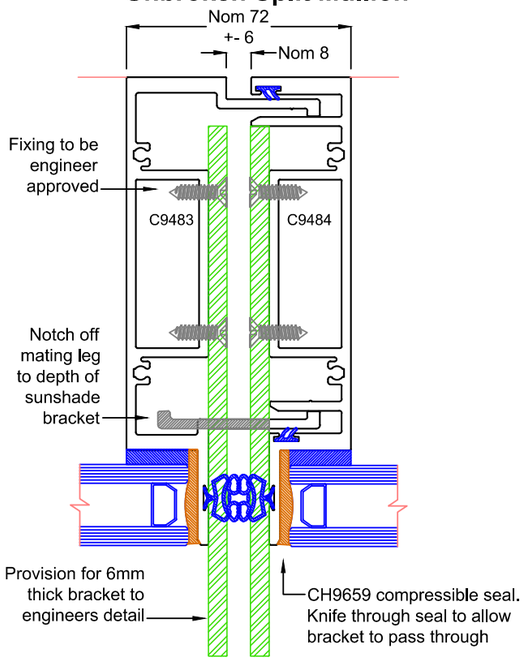
U-Max Framing Systems: USG150 - 8

Sunshade Mullion Detail

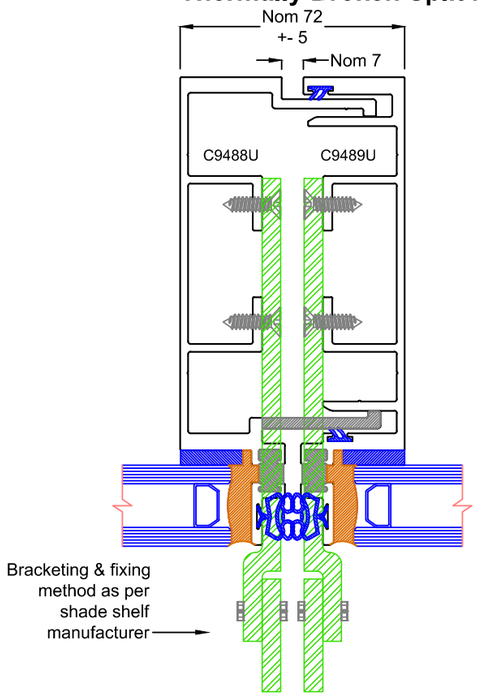
The detail below illustrates a method of bracketing through the mullion to affix a horizontal sunshade. In applications where this is applicable, bracket strength & fixing method needs to be verified by a structural engineer.



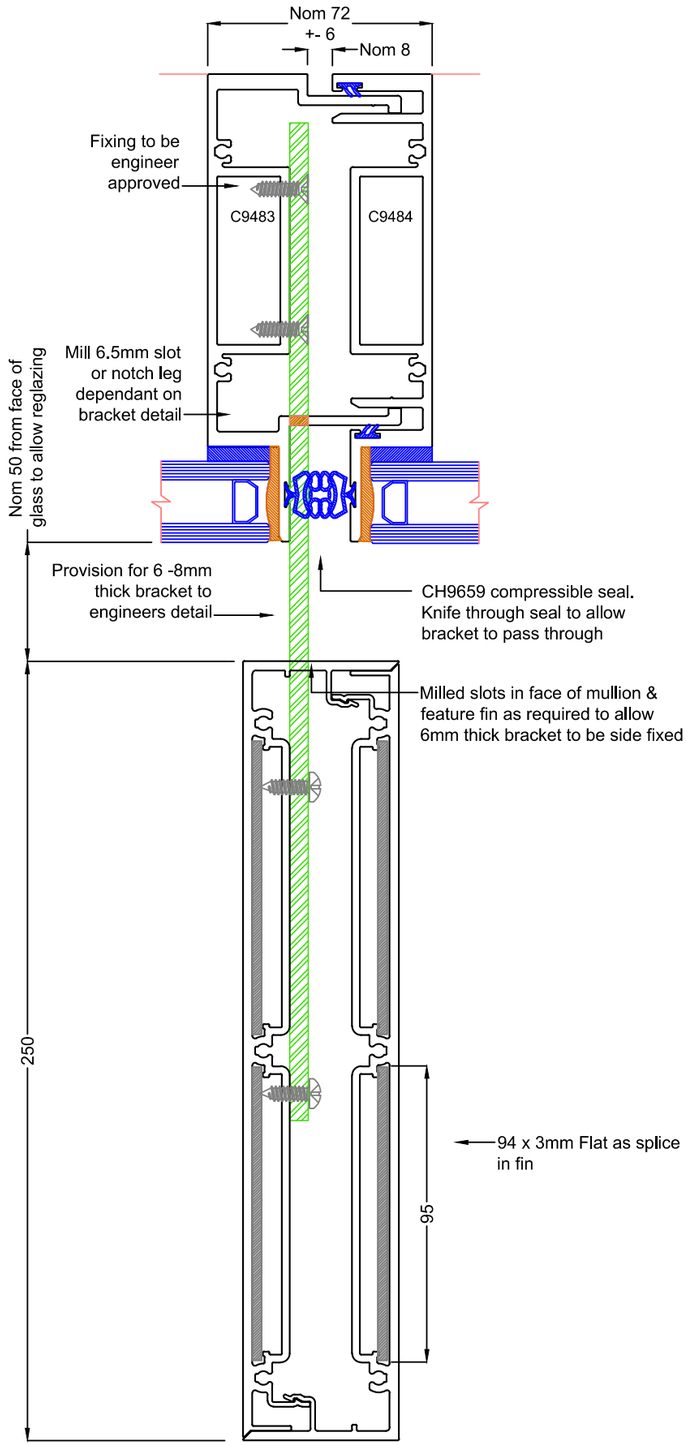
Unbroken Split Mullion



Thermally Broken Split Mullion



Unbroken Split Mullion



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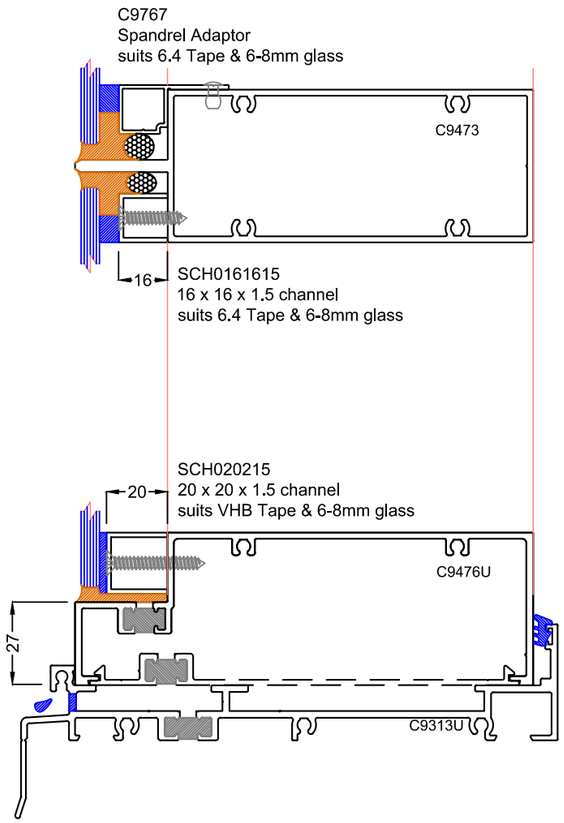
U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 9

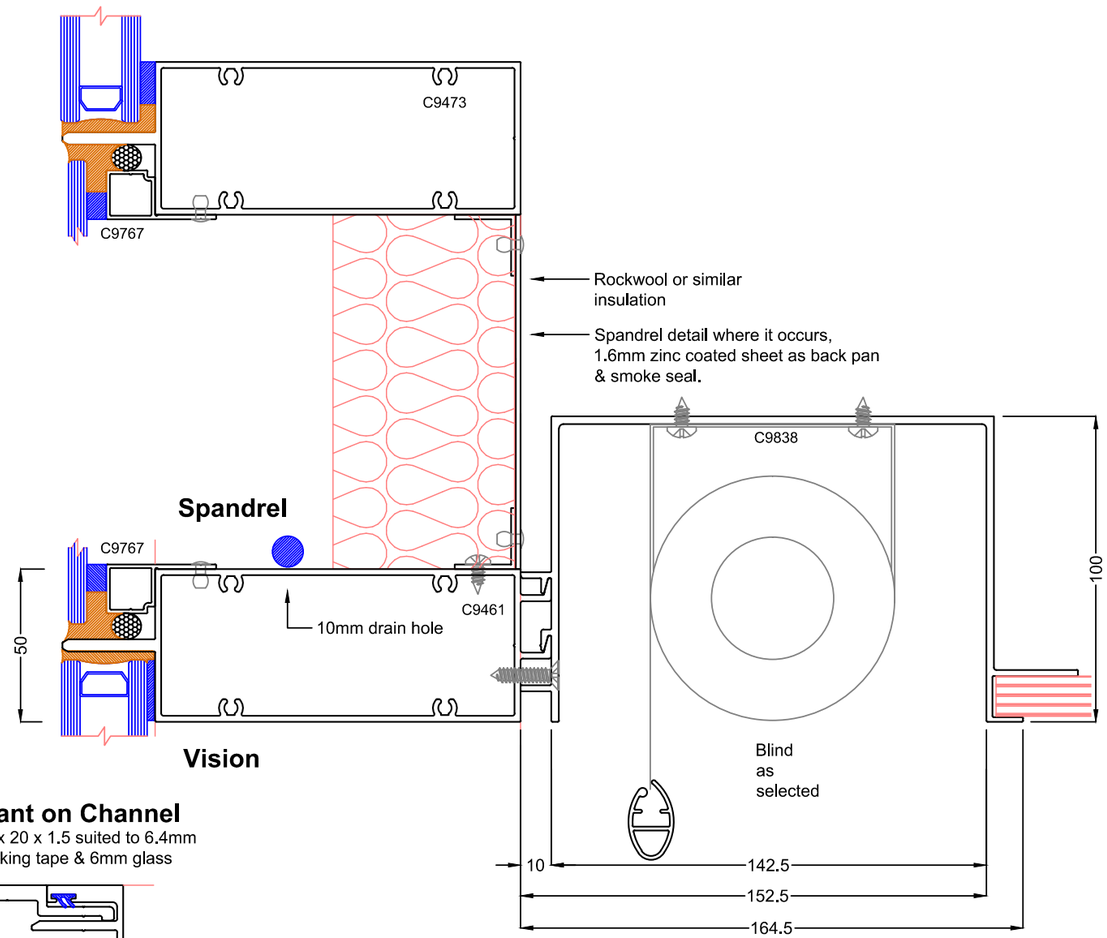
Spandrel Details

Details can vary depending on glazing method (tape thickness)
& whether the spandrel area is visible from inside or concealed.



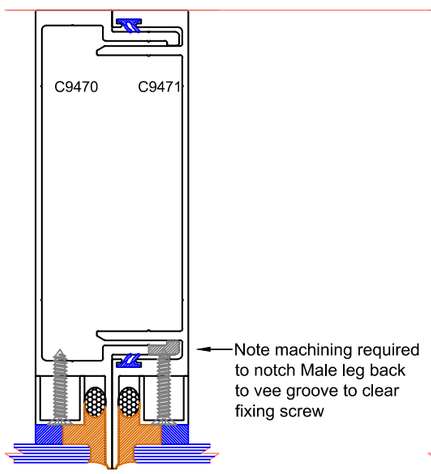
Blind Pelmet Transom Detail

This detail can be used at the top of vision panels
& connecting with the ceiling grid.



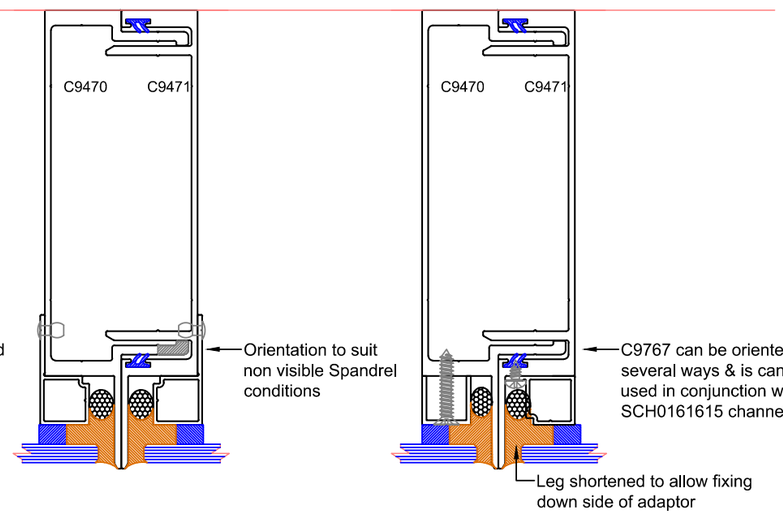
Plant on Channel

16 x 16 x 1.5 suited to 6.4mm
backing tape & 6mm glass



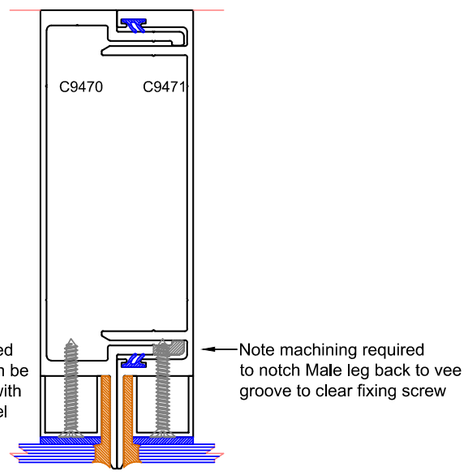
C9767 Spandrel Adaptor

Best suited to 6.4mm
backing tape & 6mm glass



Plant on Channel

20 x 20 x 1.5 suited to 6.4mm
backing tape & 6mm glass



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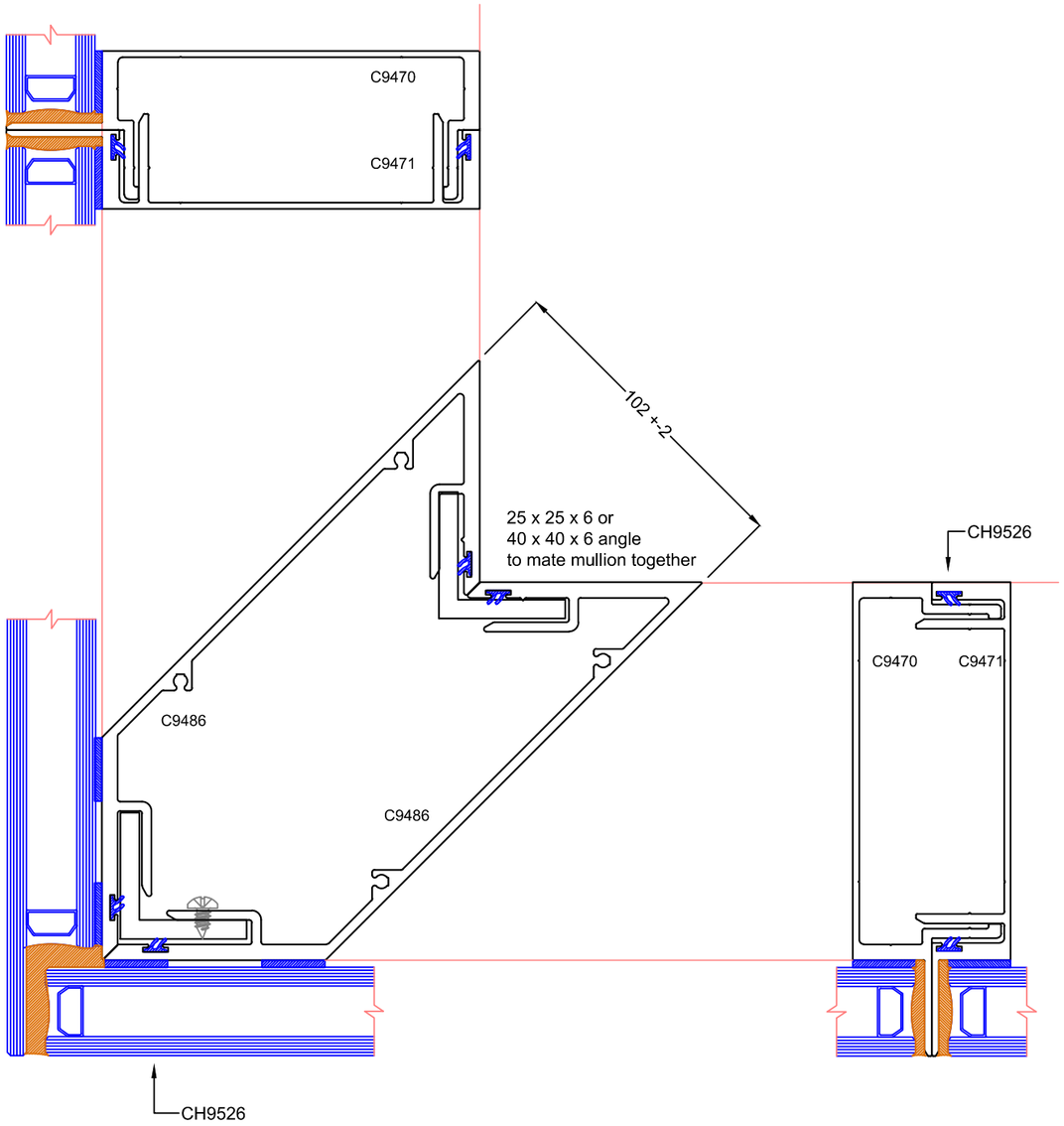
U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 10

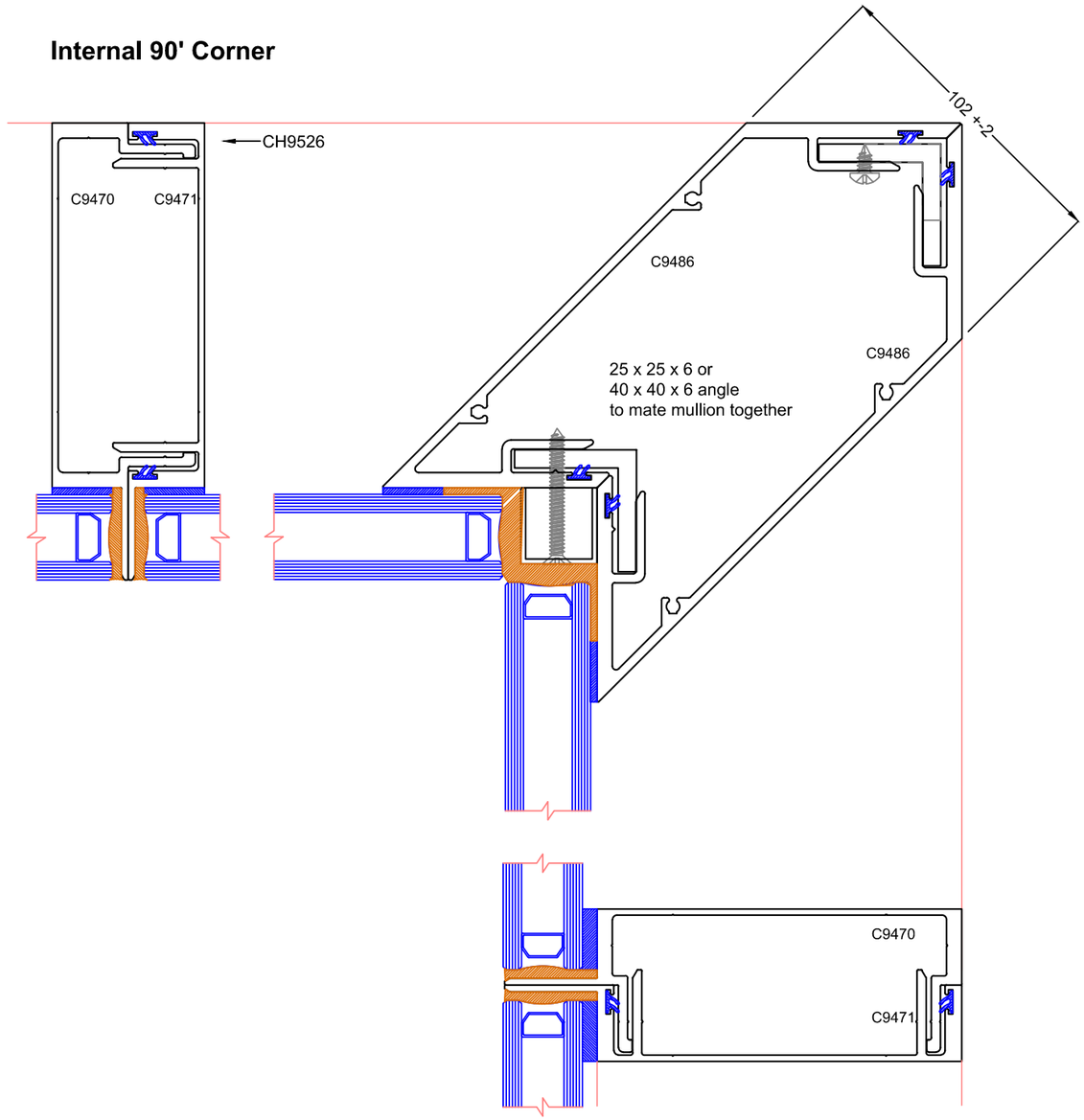
Structural Corner Mullion Detail

Corner Mullion is self mating & can be used for Internal
or External corner mullion assemblies

External 90' Corner



Internal 90' Corner



Springvale Cemetery, Clarence Reardon building.
Internal & External corner mullions creating a zig zag effect

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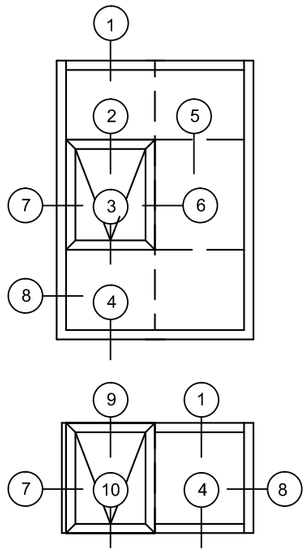
U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 11

Structural Glazed Awning Sash

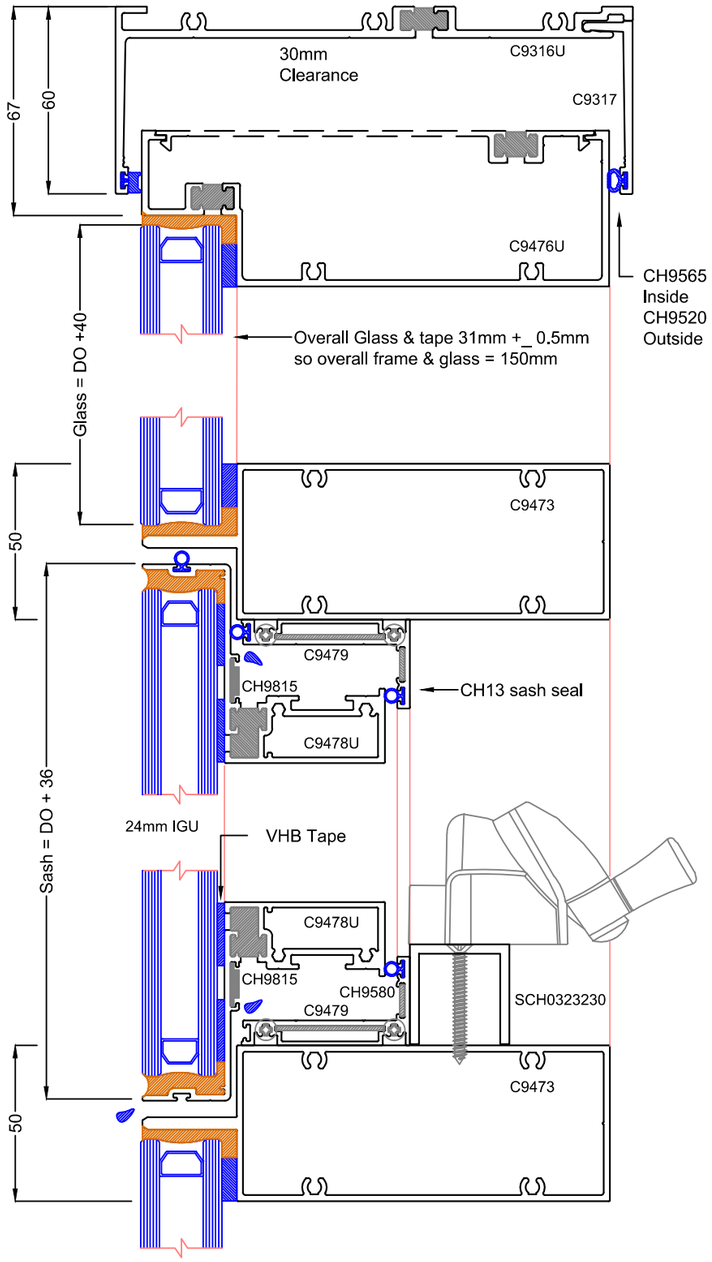
The structural glazed sash is designed to work the SG150 suite.
Note the sash requires 20mm IGUs with 3M VHB tape, so that the external face of glass aligns with the IGU in the fixed framing.



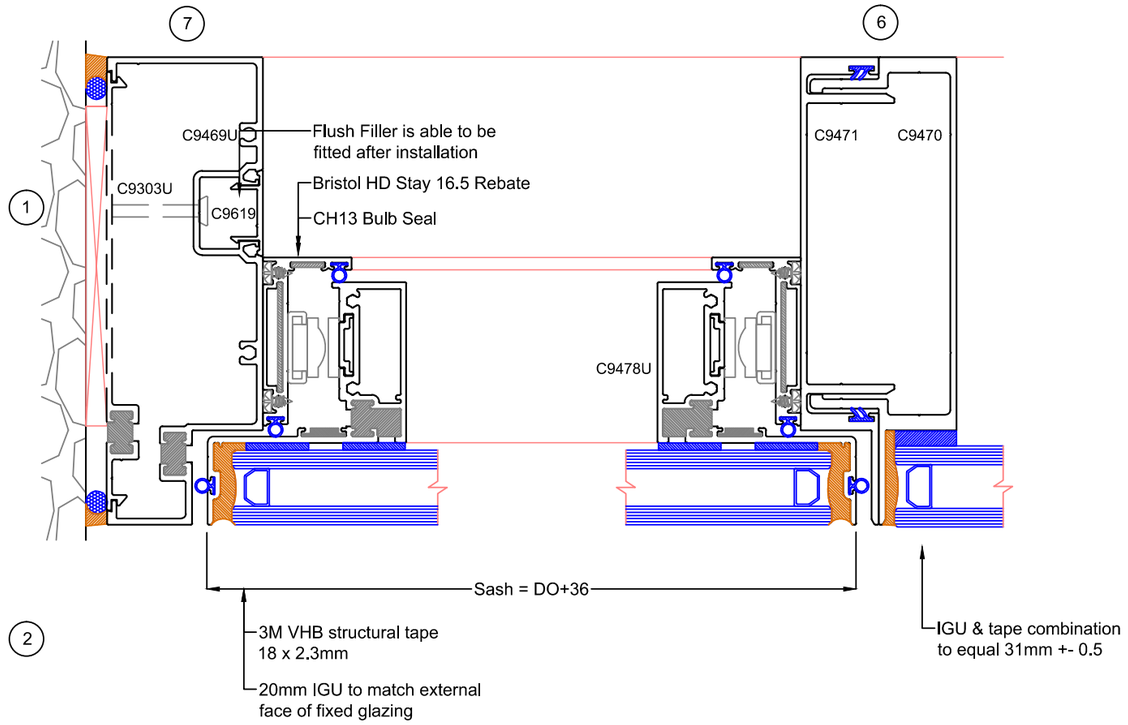
C9478 Sash requires 24mm IGUs with 3M VHB tape, so that the external face of glass aligns with the IGU in the fixed framing.

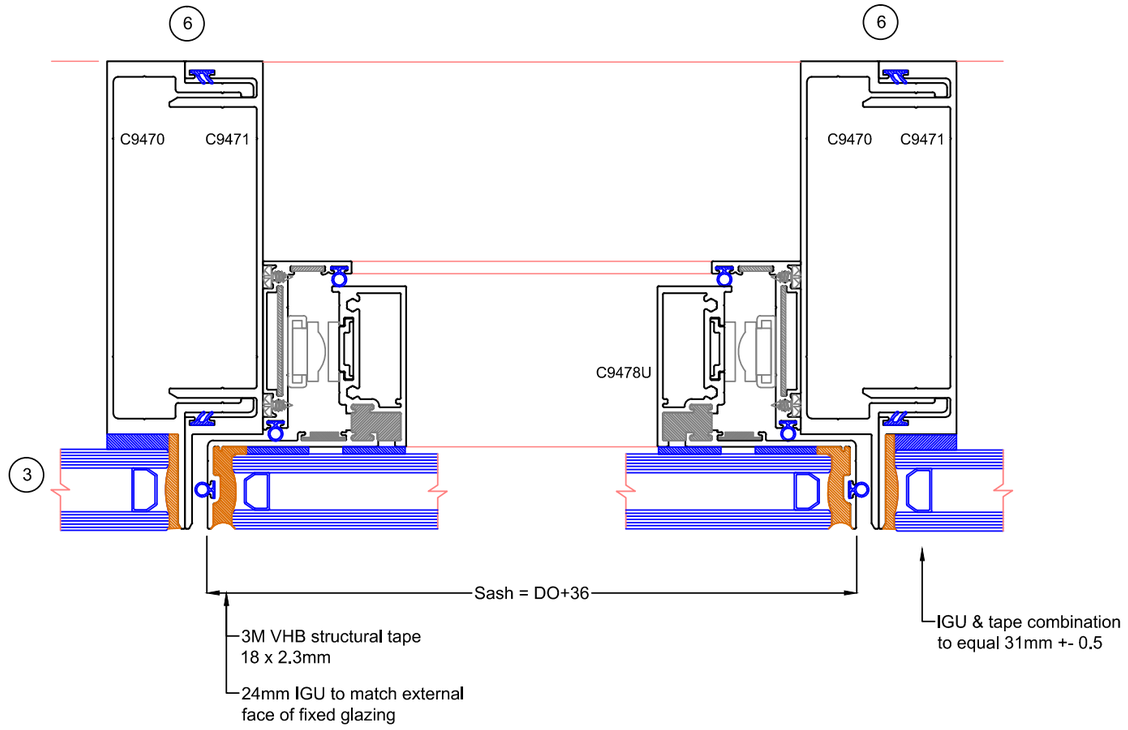
- Accepts winders, cam handles, multi locking handle or Motorised winder
- Accepts Bristol HD Stays, 90kg limit
- Max Sash Height: 1800mm
- Min Sash Width: 450mm
- Max Sash Width: 1200mm
- Glass 16mm - 29mm
- Accepts Q-lon acoustic seals

Please refer the Sashes segment in the catalogue for further information on sash limits & hardware selection.



Structural Glazed Awning Sash Jamb & Mullion Detail





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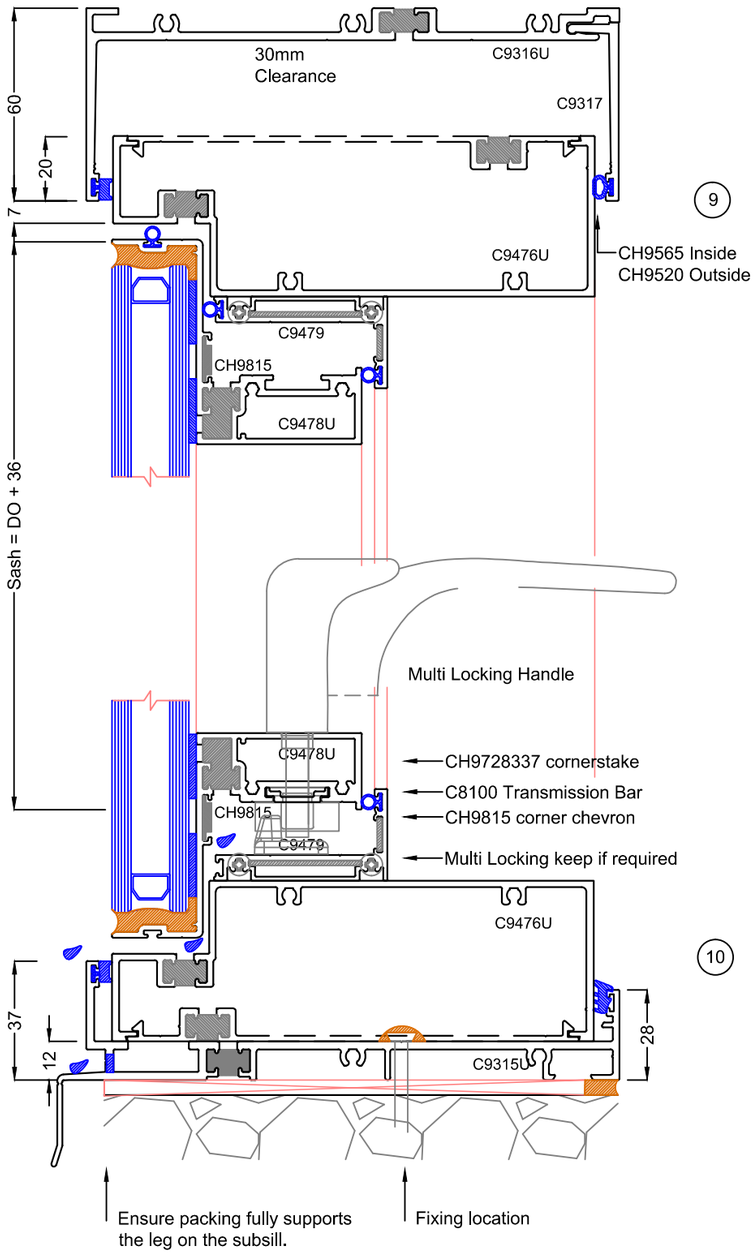
U-Max™ THERMAL BREAK SG150 Structural Glazed

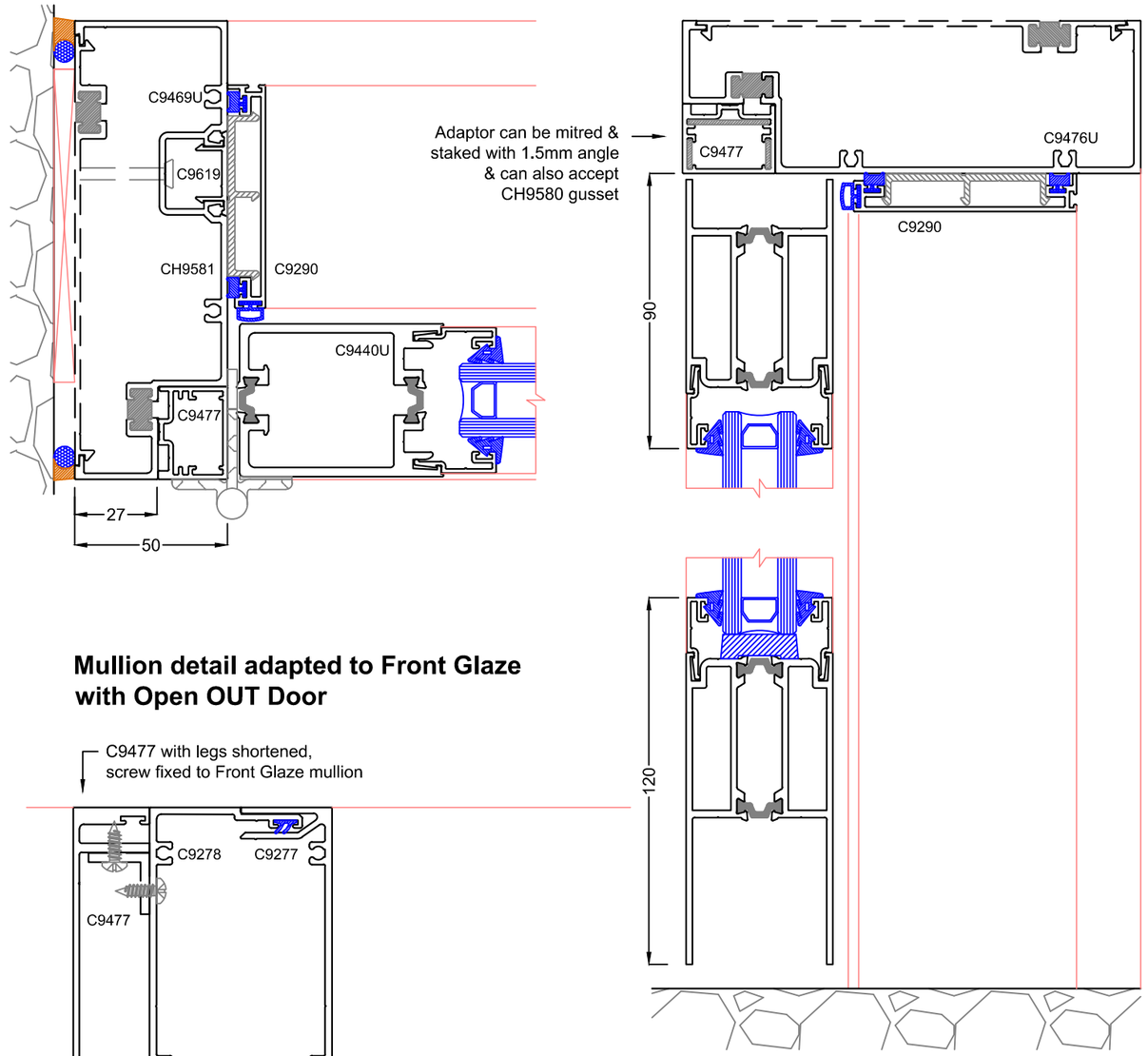
U-Max Framing Systems: USG150 - 12

Structural Glazed sash

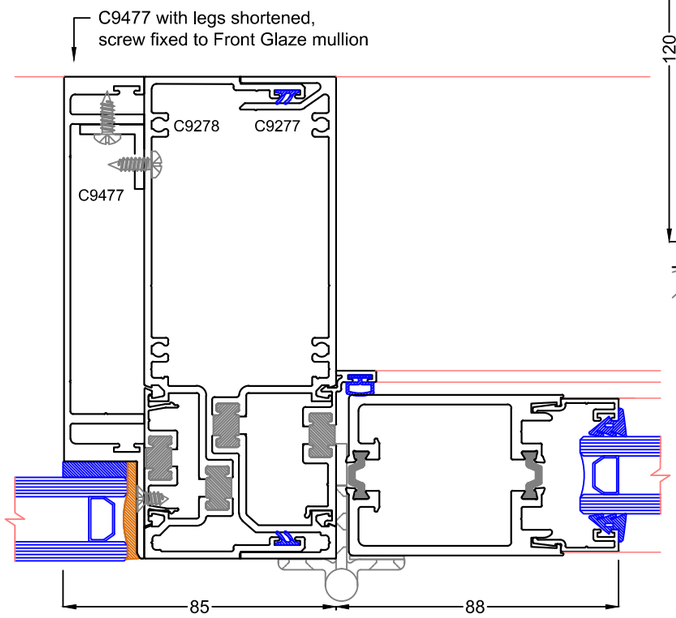
Detail showing Sash between head & sill.
Note the sash requires 24mm IGUs with 3M VHB tape, so that the external face of glass aligns with the IGU in the fixed framing.



Hinged Door Detail using C9477 Rebate Adaptor



Mullion detail adapted to Front Glaze with Open OUT Door



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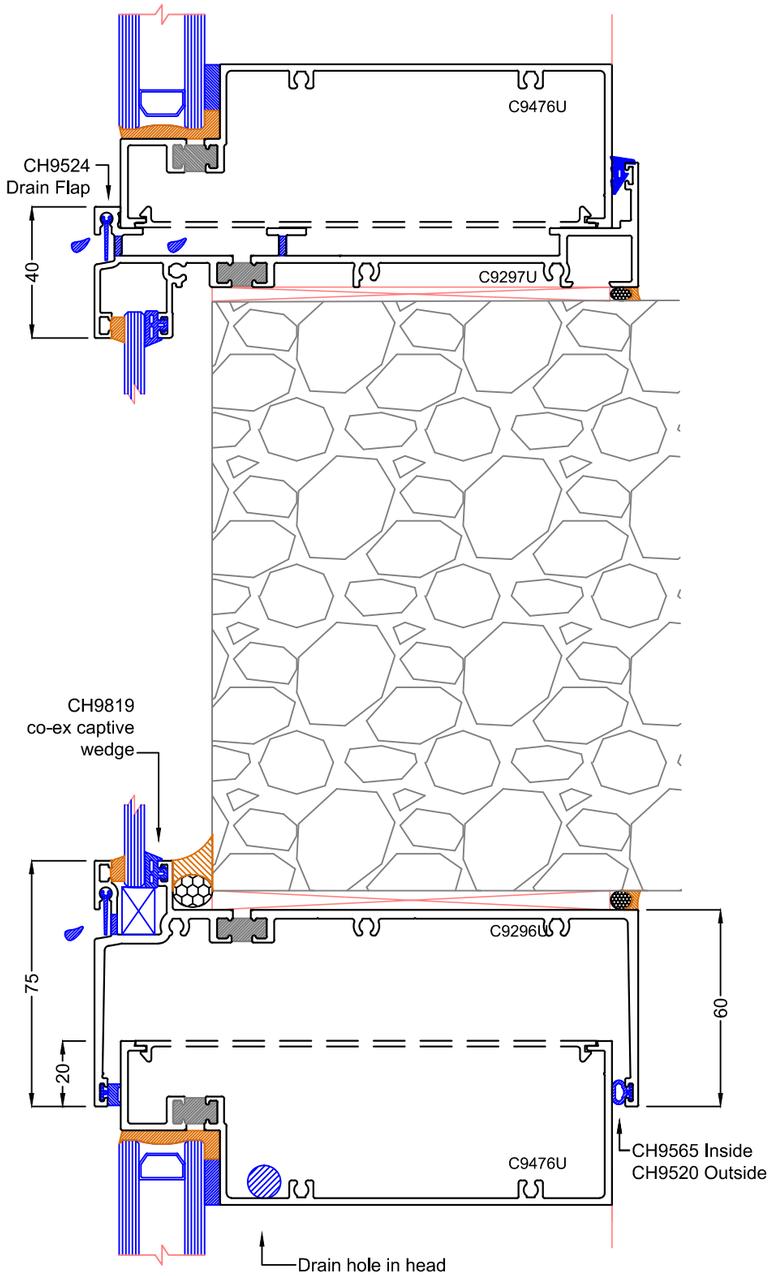
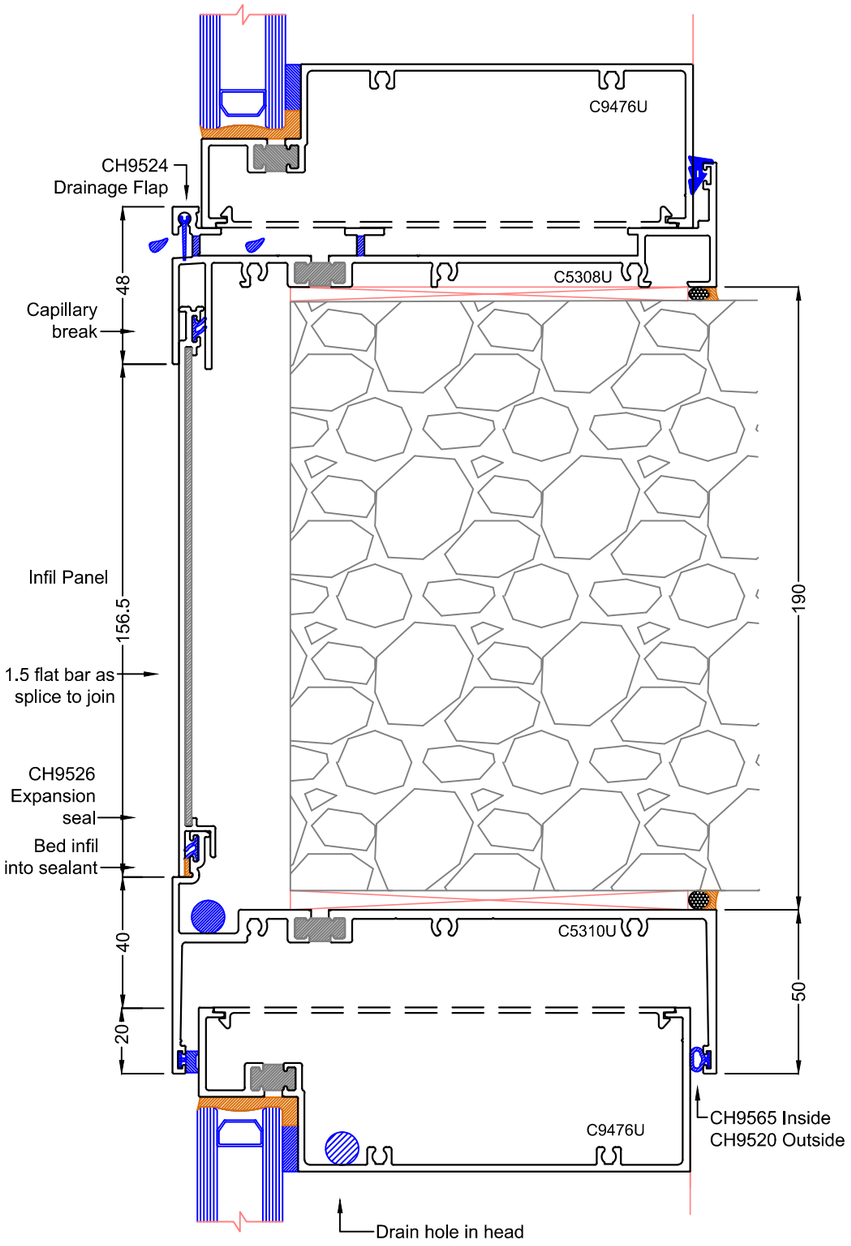
U-Max™ THERMAL BREAK SG150 Structural Glazed
U-Max Framing Systems: USG150 - 13
Glazed Spandrel Sub Head & Subsill



Spandrel Sub Head & Subsill

Used in a similar manner to other spandrel sub framing, this has been especially developed to suit a specific size extruded infil to cover the face of a slab



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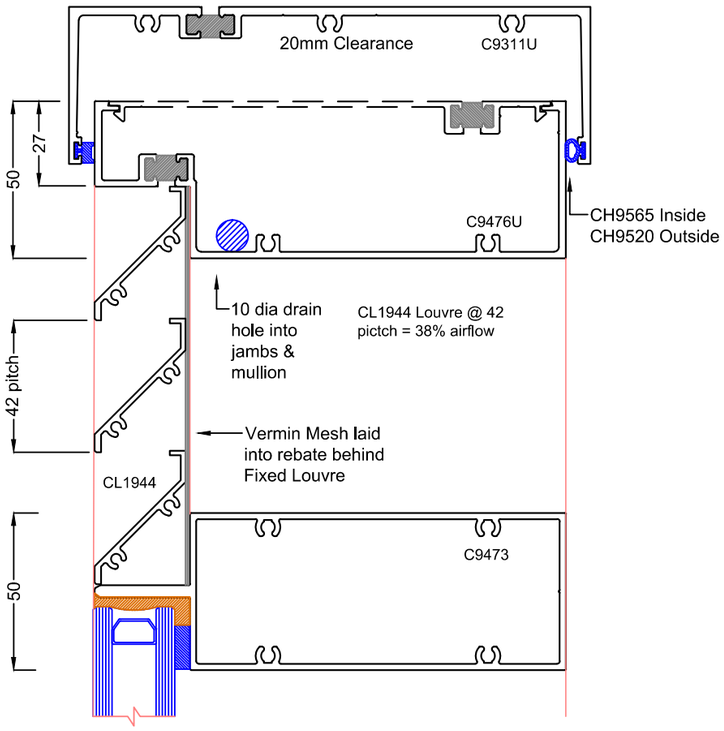
U-Max™ THERMAL BREAK SG150 Structural Glazed

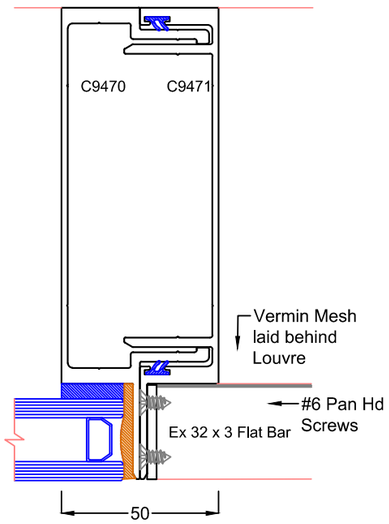
U-Max Framing Systems: USG150 - 14

Louvre Detail showing C9477 Rebate Adaptor

The adaptor can be used for a number of purposes to allow louvres, doors or other inserts to be fitted into the standard frame.

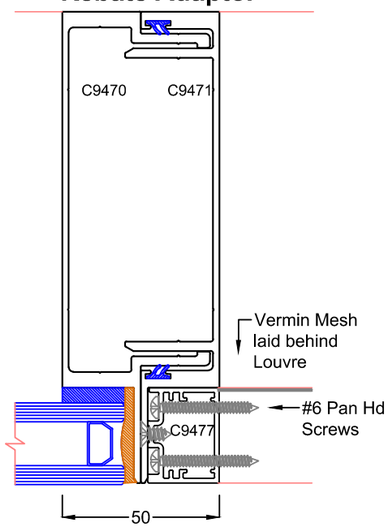


Louvre Blades fixed to Flat Bar



Using ex 32 x 3 flat bar, stripped to 30mm Louvre blades can be inserted into rebate

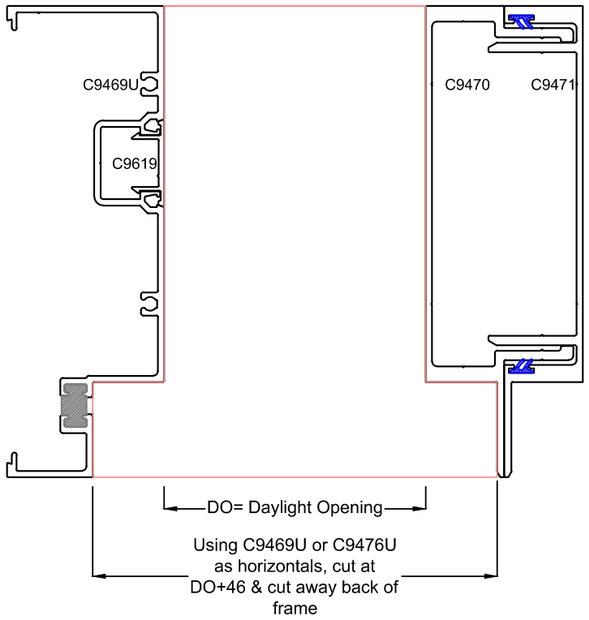
Louvre Blades fixed to C9477 Rebate Adaptor

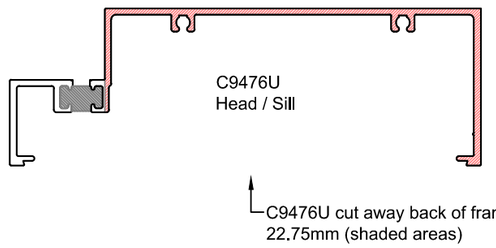


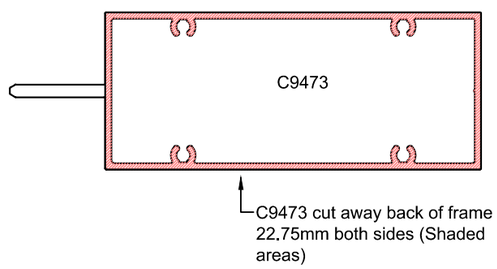
C9477 pre-assembled with Louvre blades can be inserted into rebate & back fixed with #8 CSK screw

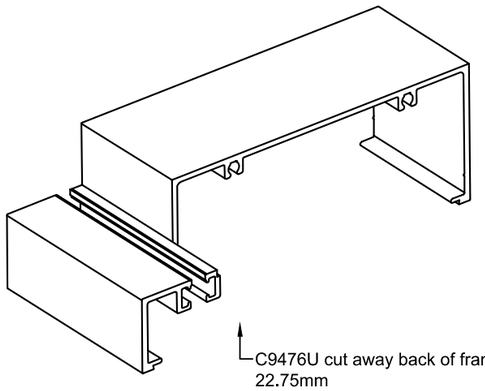
Head, Sill & Transom Machining

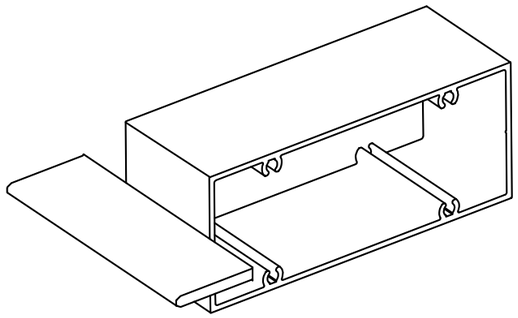
The detail below shows how the head, sill & are machined.











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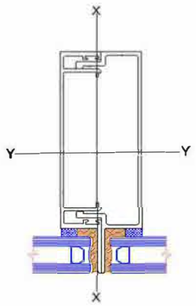
U-Max™ THERMAL BREAK SG150 Structural Glazed
U-Max Framing Systems: USG150 - 15
Mullion Structural Table

Mullion Combination: Max SG150 LT C9493, C9494



These tables use theoretical section properties. The resulting Serviceability and Ultimate should be read in conjunction with the requirements of AS1170.

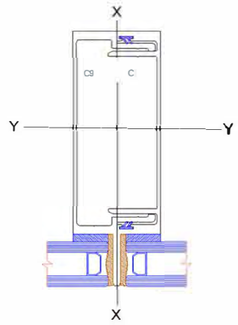
Note the following:
- Maximum Stress = 110Mpa
- Serviceability based on Span/250
- Italics indicate where Serviceability is limited by Ulltimate.

This chart is to be used as a guide only. Where Serviceability exceeds 3kPa or for more information, contact Capral.

2200	**S**	*6552*	*5381*	*4635*	*4137*	*3802*	*3583*	*3458*	*3416*
	U	*6552*	*5381*	*4635*	*4137*	*3802*	*3583*	*3458*	*3416*
2400	**S**	*5426*	*4437*	*3800*	*3368*	*3067*	*2858*	*2719*	*2639*
	U	*5426*	*4437*	*3800*	*3368*	*3067*	*2858*	*2719*	*2639*
2600	**S**	*4565*	*3720*	*3173*	*2797*	*2530*	*2338*	*2203*	*2112*
	U	*4565*	*3720*	*3173*	*2797*	*2530*	*2338*	*2203*	*2112*
2800	**S**	3579	2918	2488	2193	1982	1829	1718	1639
	U	3892	3163	2689	2360	2124	1952	1825	1734
3000	**S**	2898	2356	2003	1759	1583	1453	1357	1286
	U	3356	2722	2307	2019	1810	1655	1539	1452
3200	**S**	2379	1931	1638	1433	1285	1175	1092	1029
	U	2922	2366	201	1747	1561	1422	1316	1235
3400	**S**	1978	1602	1356	1184	1059	965	893	838
	U	2566	2075	1752	1526	1360	1235	1139	1065
3600	**S**	1662	1345	1136	990	883	802	740	692
	U	2271	1834	1546	1344	1195	1083	996	928
3800	**S**	1410	1140	962	837	745	675	621	
	U	2022	1632	1374	1192	1059	957	878	
4000	**S**	1207	975	821	713	634			
	U	1812	1461	1229	1065	944			
4200	**S**	1041	840	707	613				
	U	1632	1315	1105	957				
4400	**S**	904	729	613					
	U	1477	1189	999					
4600	**S**	791	637						
	U	1343	1080						
4800	**S**	695							
	U	1225							
5000	**S**	615							
	U	1122							
Mullion Centres (mm)		800	1000	1200	1400	1600	1800	2000	2200

Mullion Structural Table

Mullion Combination: Max 150 Struct DG C9470, C9471



These tables use theoretical section properties. The resulting Serviceability and Ultimate should be read in conjunction with the requirements of AS1170.

Note the following:
- Maximum Stress = 110Mpa
- Serviceability based on Span/250
- Italics indicate where Serviceability is limited by Ulltimate.

This chart is to be used as a guide only. Where Serviceability exceeds 3kPa or for more information, contact Capral.

2200	**S**	*8151*	*6695*	*5767*	*5148*	*4730*	*4458*	*4302*	*4250*
	U	*8151*	*6695*	*5767*	*5148*	*4730*	*4458*	*4302*	*4250*
2400	**S**	*6753*	*5522*	*4729*	*4191*	*3817*	*3557*	*3385*	*3285*
	U	*6753*	*5522*	*4729*	*4191*	*3817*	*3557*	*3385*	*3285*
2600	**S**	*5658*	*4626*	*3950*	*3482*	*3150*	*2912*	*2743*	*2629*
	U	*5684*	*4632*	*3950*	*3482*	*3150*	*2912*	*2743*	*2629*
2800	**S**	4506	3673	3132	2761	2495	2303	2163	2064
	U	4848	3940	3349	2940	2646	2431	2273	2159
3000	**S**	3648	2966	2522	2214	1993	1829	1708	1618
	U	4182	3392	2875	2515	2255	2062	1917	1809
3200	**S**	2995	2431	2062	1805	1618	1479	1375	1295
	U	3642	2949	2495	2177	1945	1772	1640	1539
3400	**S**	2490	2017	1707	1491	1333	1215	1124	1055
	U	3200	2587	2184	1902	1696	1540	1420	1327
3600	**S**	2092	1693	1430	1246	1112	1010	932	871
	U	2832	2287	1928	1676	1491	1350	1242	1157
3800	**S**	1776	1435	1211	1053	937	850	782	729
	U	2523	2036	1714	1488	1321	1194	1095	1018
4000	**S**	1520	1227	1034	898	798	722	663	616
	U	2261	1823	1533	1329	1178	1063	974	902
4200	**S**	1311	1057	890	772	685	619		
	U	2037	1641	1379	1194	1058	953		
4400	**S**	1139	918	772	669				
	U	1845	1485	1247	1079				
4600	**S**	995	802	674					
	U	1677	1350	1133					
4800	**S**	875	705						
	U	1531	1231						
5000	**S**	774	622						
	U	1403	1128						
Mullion Centres (mm)		800	1000	1200	1400	1600	1800	2000	2200

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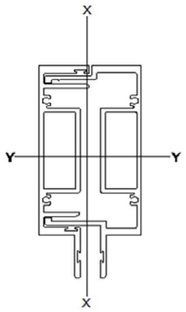
U-Max™ THERMAL BREAK SG150 Structural Glazed
U-Max Framing Systems: USG150 - 16
Mullion Structural Table

Mullion Combination: Structural Shadescreen C9483, C9484



These tables use theoretical section properties. The resulting Serviceability and Ultimate should be read in conjunction with the requirements of AS1170.

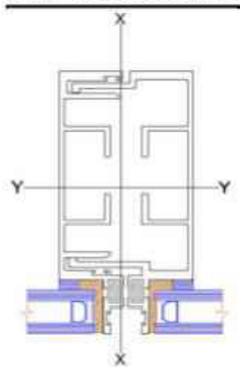
Note the following:
- Maximum Stress = 110Mpa
- Serviceability based on Span/250
- Italics indicate where Serviceability is limited by Ulltimate.

This chart is to be used as a guide only. Where Serviceability exceeds 3kPa or for more information, contact Capral.

2200	*S*	*11350*	*9322*	*8030*	*7168*	*6586*	*6207*	*5990*	*5918*
	U	*11350*	*9322*	*8030*	*7168*	*6586*	*6207*	*5990*	*5918*
2400	*S*	*9421*	*7703*	*6598*	*5847*	*5325*	*4962*	*4722*	*4582*
	U	*9421*	*7703*	*6598*	*5847*	*5325*	*4962*	*4722*	*4582*
2600	*S*	*7852*	*6421*	*5520*	*4866*	*4402*	*4069*	*3833*	*3674*
	U	*7943*	*6473*	*5520*	*4866*	*4402*	*4069*	*3833*	*3674*
2800	**S**	6254	5098	4348	3831	3463	3196	3002	2864
	U	6787	5516	4688	4116	3704	3403	3182	3023
3000	**S**	5063	4117	3500	3073	2766	2539	2371	2246
	U	5864	4756	4032	3528	3162	2891	2688	2537
3200	**S**	4157	3374	2861	2505	2246	2053	1908	1798
	U	5116	4143	3504	3058	2733	2489	2304	2162
3400	**S**	3456	2800	2370	2069	1850	1686	1560	1464
	U	4502	3640	3073	2676	2385	2166	1998	1867
3600	**S**	2904	2350	1985	1730	1543	1402	1294	1209
	U	3991	3223	2717	2362	2101	1903	1750	1630
3800	**S**	2464	1991	1680	1462	1301	1179	1085	1011
	U	3561	2873	2419	2100	1864	1685	1546	1436
4000	**S**	2109	1703	1435	1246	1108	1002	920	855
	U	3196	2577	2168	1879	1666	1503	1376	1275
4200	**S**	1819	1467	1235	1072	951	859	787	730
	U	2884	2323	1953	1691	1497	1349	1233	1140
4400	**S**	1580	1274	1071	928	823	742	679	628
	U	2615	2105	1768	1530	1353	1217	1111	1026
4600	**S**	1381	1113	935	810	717	645		
	U	2382	1916	1608	1390	1228	1104		
4800	**S**	1215	978	821	710	628			
	U	2177	1751	1469	1269	1120			
5000	**S**	1074	864	725	627				
	U	1998	1606	1346	1162				
Mullion Centres (mm)		800	1000	1200	1400	1600	1800	2000	2200

Mullion Structural Table

Mullion Combination: U-Max SG150 Shadescreen C9488, C9489



These tables use theoretical section properties. The resulting Serviceability and Ultimate should be read in conjunction with the requirements of AS1170.

Note the following:
- Maximum Stress = 110Mpa
- Serviceability based on Span/250
- Italics indicate where Serviceability is limited by Ulltimate.

This chart is to be used as a guide only. Where Serviceability exceeds 3kPa or for more information, contact Capral.

2200	**S**	*11004*	*9038*	*7785*	*6949*	*6385*	*6018*	*5808*	*5738*
	U	*11004*	*9038*	*7785*	*6949*	*6385*	*6018*	*5808*	*5738*
2400	**S**	*9132*	*7467*	*6396*	*5668*	*5162*	*4810*	*4577*	*4442*
	U	*9132*	*7467*	*6396*	*5668*	*5162*	*4810*	*4577*	*4442*
2600	**S**	7390	6042	5173	4580	4163	3867	3660	3523
	U	7699	6275	5351	4717	4267	3944	3715	3561
2800	**S**	5885	4797	4092	3606	3259	3008	2825	2695
	U	6578	5346	4544	3989	3590	3298	3084	2930
3000	**S**	4765	3874	3294	2892	2603	2389	2231	2114
	U	5683	4610	3907	3419	3065	2802	2605	2458
3200	**S**	3912	3175	2693	2357	2114	1932	1796	1692
	U	4958	4015	3396	2963	2648	2412	2233	2096
3400	**S**	3252	2635	2230	1947	1741	1586	1468	1378
	U	4362	3527	2978	2593	2312	2099	1936	1810
3600	**S**	2733	2211	1868	1628	1452	1319	1217	1138
	U	3867	3123	2633	2289	2036	1844	1696	1580
3800	**S**	2319	1874	1581	1376	1224	1110	1021	952
	U	3450	2784	2344	2034	1806	1633	1498	1392
4000	**S**	1985	1602	1350	1173	1042	943	866	805
	U	3097	2496	2100	1820	1614	1456	1333	1236
4200	**S**	1712	1381	1163	1009	895	808	741	687
	U	2794	2251	1892	1638	1450	1307	1194	1105
4400	**S**	1487	1199	1008	874	774	698	639	591
	U	2533	2039	1713	1482	1310	1179	1076	994
4600	**S**	1300	1047	880	762	674	607		
	U	2307	1856	1558	1346	1190	1069		
4800	**S**	1143	920	773	668	591			
	U	2109	1696	1422	1229	1085			
5000	**S**	1010	813	682	590				
	U	1935	1555	1304	1126				
Mullion Centres (mm)		800	1000	1200	1400	1600	1800	2000	2200

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U-Max™ THERMAL BREAK SG150 Structural Glazed

U-Max Framing Systems: USG150 - 17

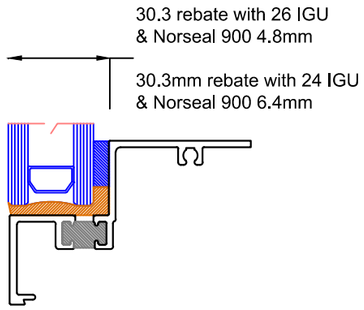
Glazing Methodology

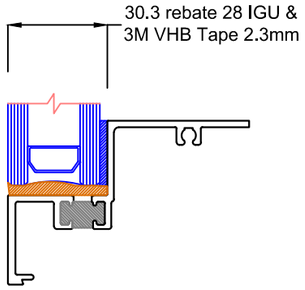
It is possible to glaze the SG150 system in a number of ways - either as a site glazed or factory glazed system. When factory glazed, panels are assembled as individual units (glass & frame bonded panels) in a controlled environment. This allows for proper surface preparation & tape application procedures to be maintained as well as implementation of quality & process control programs.

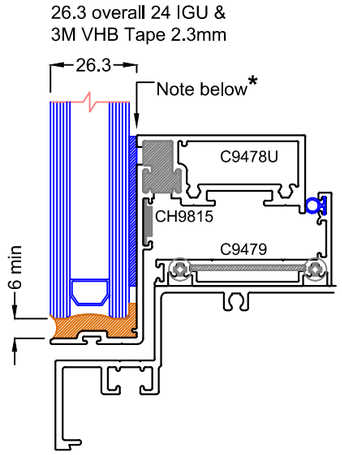
Factory glazed systems are usually the only glazing systems approved for 3M™ VHB™ Structural Glazing Tape projects. A key benefit of factory glazed 3M™ VHB™ Structural Glazing Tape system is the ability to assemble & handle glazed panels the same day. This is due to the immediate handling strength of the 3M™ VHB™ Structural Glazing Tape.

If the outdoor temperature is below 15ºC it is required that the assembled panels be kept in the warmer, controlled environment of the factory shop for 24 hours before exposing the panel to colder site temperatures. A separate instructional document for the use of 3M™ VHB™ Structural Glazing Tape is available for fabricators to download when required.

The use of 4 sided structural glazing requires great attention to detail in the glazing of frames. Glazing methodology, class cover & silicone bite should be referred to tape & silicone suppliers for suitability of the application.







U-Max Structural Glazed	Glass thickness	Example	Rebate Tape
	24mm	6/12/6	Norseal V900 Tape 12 x 6.4
	26mm	6/14/6	Norseal V900 Tape 12 x 4.8
		10/10/6	Norseal V900 Tape 12 x 4.8
	28mm	6/16/6	3M VHB Tape 18 x 2.3mm
		10/12/6	3M VHB Tape 18 x 2.3mm
	C9478U Structural Glazed Sash		
	20mm	4/12/4	3M VHB Tape 18 x 2.3mm

Note *
We recommend the use of a 50mm wide VHB tape fitted to the glass first, then fitted to the frame & excess trimmed. This conceals the thermal break and improves the visible appearance of tape through the glass.

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