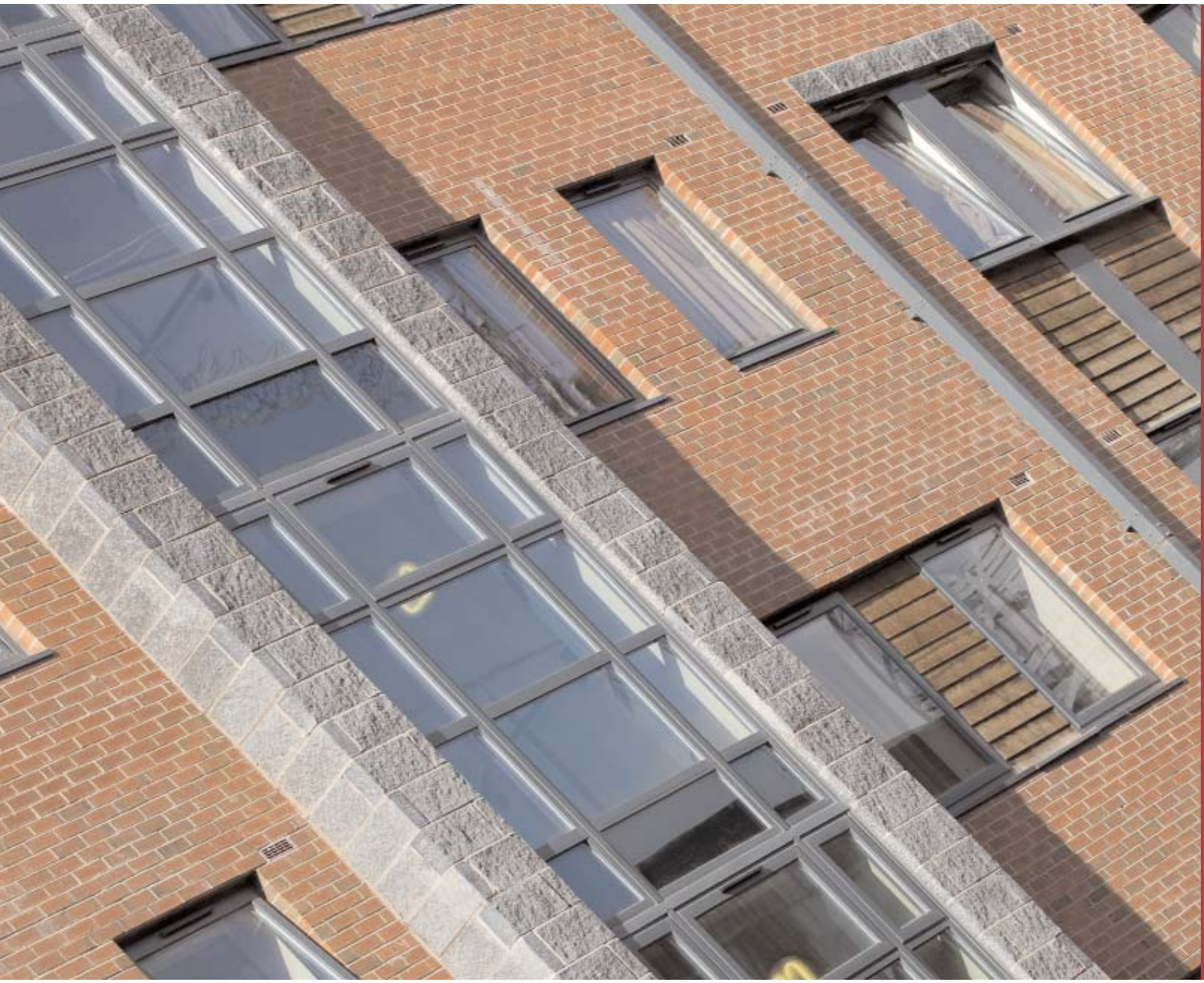
Uniclass L3811	
CI/SfB (31) Xh4	

October 2007

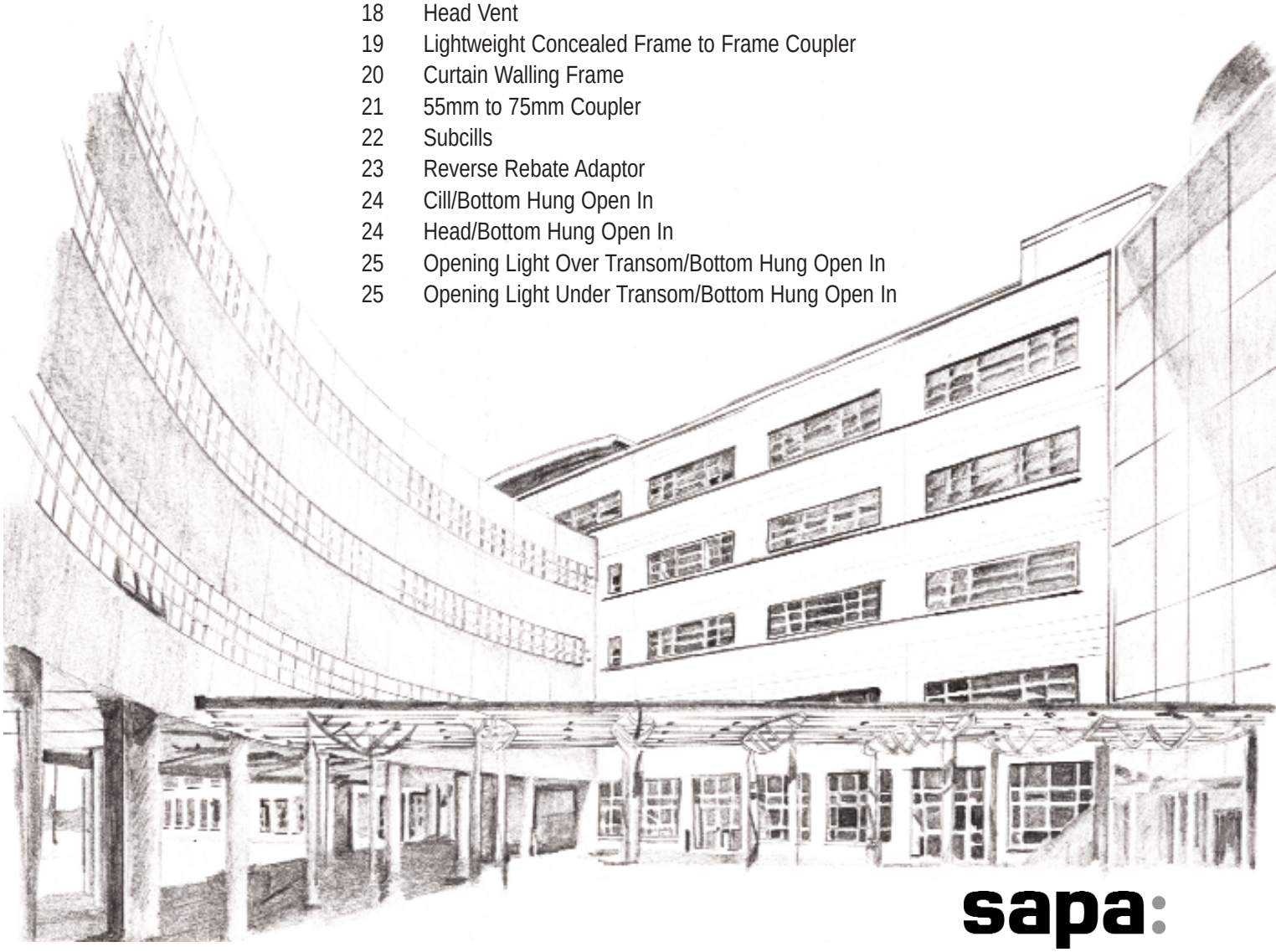
sapa: buildingsystem
ARCHITECTURAL ALUMINIUM SOLUTIONS



Dualframe 55mm Tilt Before Turn & Bottom Hung Windows

Technical Data Sheet

Sapa Building System



sapa:

DUALFRAME

The Dualframe range

- **Contemporary Design:** Dualframe signifies a new era in aluminium fenestration, with products that have been specifical designed to comply with the ever increasing complexity of Building Regulations, British Standards and other regulatory demands.
- **Superior thermal performance:** Dualframe comfortably exceeds the requirements of Part L 2006 of the Building Regulations (2006) for both thermal insulation and air permeability, and has been designed to be compliant with future anticipated changes. Where required, Dualframe 75 casement can achieve an 'A' Window Energy Rating.
- **Dual colour capability:** All Dualframe products can have differing finishes internally and externally.
- **Integrated design:** The Dualframe suite consists of casement, pivot, tilt/turn, sliding and reversible windows, single and double leaf doors and glazed roofing, all of which can be combined to form composite units.
- **Unique polyamide thermal barrier:** With integral bead retention leg to minimise projection of opening lights (patent applied for).
- **Accreditation:** Dualframe casement and tilt/turn windows have been awarded BSI Kitemarks to BS4873 'Specification for aluminium alloy windows' and BS7950 'Specification for enhanced security performance of casement and tilt/turn windows for domestic applications'.

  Dualframe doors have been awarded BSI PAS023-1 : 1999, 'General performance requirements for door assemblies; Part 1 - single leaf door assemblies to dwellings' and PAS024-1 : 1999 'enhanced security performance requirements for door assemblies; Part 1 - single leaf external door assemblies to dwellings'.

  Dualframe casement, tilt/turn windows and Dualframe doors meet the Secured by Design specification.

  Dualframe 75 casement can achieve an 'A' Window Energy Rating (WER) where required.
- **Choice of appearance:** Chamfered and Softline profiles are available to many products within the Dualframe suite, options of internal or external beading (including BS7950 compliant security) are also available.
- **Ease of maintenance:** The integration of a 'Eurogroove' features enables use of industry standard hardware, available from a variety of sources so that the product is competitive and easily maintained.

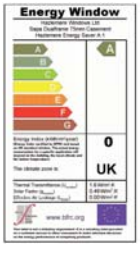
Secured by Design
Official Police Security Initiative

FM01154

BS 4873
Licence No. KM74159

BS 7950
Licence No. KM74141

PAS 23-1 and
PAS 24-1
Licence No. KM90215



- **Product**
  Dualframe 55mm tilt-before-turn and bottom hung open in window.
- **Design Variants**
  Can be constructed to form fixed and opening lights either as combination frames or as separate coupled lights.
- **Compatibility**
  Can also be integrated with other products from the Dualframe range and with Sapa Elegance 52 curtain walling.
- **Application**
  Suitable for installation in new build or replacement projects in residential, commercial or public buildings.
- **Finishes**
  A wide range of polyester powder coat finishes is available to BS EN 12206:1 2004. Anodised finishes are to BS 3987 Grade AA25 etch silver with a range of special anodised finishes on application.

For more details, or to talk to a Project Consultant, contact the Marketing Department on 01684 853500.

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DUALFRAME Performance data: TBT & bottom hung windows

Composition and Manufacture

Aluminium profiles are extruded from aluminium alloy 6063 or 6060 T6 complying with the recommendations of BS EN 755-9:2001.

Weatherstripping is silicone bulb seal internally and polyurethane foam enclosed in a polythene sheath externally, both set in undercut grooves in the sash and frame.

The thermal barrier is achieved using two separate aluminium extrusions and two polyamide extrusions mechanically joined together to form a single compound profile. On some coupling mullions a 'pour and cut' polyurethane resin thermal break is used.

Frame members are mitre cut at 45°. Corners are reinforced with stainless steel corner ties and extruded aluminium corner cleats. All joints are sealed against water entry during fabrication.

Weather Performance

When tested in accordance with BS6375:Part 1:1989 all products listed in this data sheet, when manufactured, installed and glazed strictly in accordance with Sapa Building Systems' specifications, will achieve the following exposure categories "2400 Special":

Opening Lights	
Water tightness	600 Pascals
Air Permeability	600 Pascals
Wind Resistance	2400 Pascals*

Fixed Lights	
Water tightness	600 Pascals
Air Permeability	600 Pascals
Wind Resistance	2400 Pascals*

* Exposure category varies with width/height of window and mullion/transom used, as these are the only unsupported members. An accurate figure can be obtained using BS6399:Part 2 calculations and inertia values given on pages 6 and 7.

Maximum fixed light area = $5m^2$.

Intermediate integral mullion/transom coupling mullion strength requirements must be calculated using BS6399: Part 2 calculations and inertia values given on pages 6 and 7.

Authority

BS 4873: Aluminium Alloy Windows

BS6375-1: Performance of windows: Classification for weathertightness and guidance on selection and specification.

BS6375-2: Performance of windows. Specification for operation and strength characteristics.

BS6262: Code of practice for glazing for buildings

BS EN 755-9: Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Profiles, tolerances on dimensions and form.

BS 3987: Specification for anodic oxide coatings on wrought aluminium for external architectural applications

BS EN 12206:1 2004: Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and perforated sections for external architectural purposes.

BS EN 10077-2: Thermal performance of windows, doors and shutters – calculation of thermal transmittance – Part 2: Numerical method for frames

Size Limitations

Fixed Light

Maximum area 5 sq m

TBT Opening Light	
Maximum width	1441mm
Maximum height	1941mm
Maximum weight	80 kg

Bottom Hung Opening Light	
Maximum width	2040mm
Maximum height	740mm
Minimum width	440mm
Minimum height	250mm

Note: All sizes given are in millimetres. All opening light maximum sizes relate to the overall size of the opening light frame and not the outer frame.

Maximum fixed light area = $5m^2$.

Secured by Design
Official Police Security Initiative

BS 4873
Licence No. KM74159

BS 7950
Licence No. KM74141

Hardware and Security

Tilt Before Turn opening lights are hung on concealed, zinc plated steel, variable geometry, friction hinges. Espagnolette locks are zinc plated steel with zinc lated zinc die cast keeps. Handles can be colour matched and are zinc die castings. Handles are of the 'safety locking' type which means that the turn mode can be locked off to unauthorised users.

Optional high security locking gear with mushroom head engagement points and zinc plated steel/zinc die cast keeps are available which must be fitted when enhanced security to BS7950 is required.

Bottom hung opening lights are hung on three part, zinc die cast and zinc plated steel adjustable hinges, operated by folding openers constructed from anodised aluminium extrusions.

Glazing

Drainage in accordance with details listed in the Product Manuall meets the requirements of "Ventilated and Drained Glazing System", as specified in BS6262. Glass must conform to BS6262 for thickness and type. Insulating glass or panel units of between 24mm and 32mm can be accommodated.

Glass is set against extruded synthetic rubber gaskets retained in undercut grooves with the aluminium profile. Final retention of the glass is achieved by the application of a co-extruded PVCu/synthetic rubber wedge gasket between the inner face of the glass and the bead.

Thermal Performance

Dualframe 55mm can meet and surpass the area weighted average U values stiplulated in Part L of the Building Regulations. Lower U-values can be achieved using double glazed units with enhanced thermal insulation, such as 'soft coat' low emissivity glass, argon gas filling and thermally broken spacer bars.

Site Work

A fabrication, installation and glazing service is available through a nationwide network of fabricators and installers. For details of suitable fabricators and installers, please contact our Marketing Department on 01684 853500.

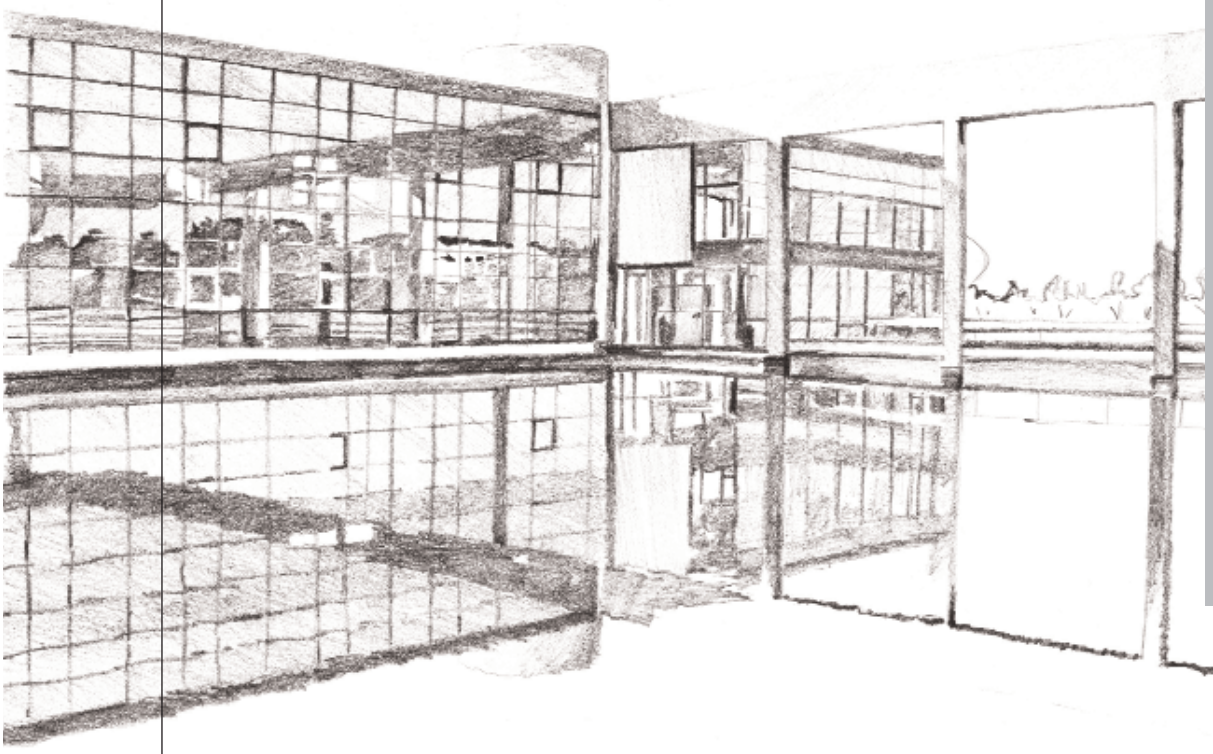
Support services

- Our field based Project Consultants, working with our in-house Contracts Design and Administration team, provide UK specifiers with specialist advice concerning the correct application of products, giving guidance on Building Regulations, British Standards and other issues such as product specifications, usage, maintenance and safety. Complementary to this, our Product Support Department has an invaluable reservoir of experience on every aspect of our product range.

- We also appreciate that the specification process is influenced by client demands to obtain best value, and to that end, we can participate in site visits, design meetings and budgetary planning. Design stages can be formalised through written specification documents (which can be supplied in either an NBS format, or your own specification layout) and supported by samples, literature and drawings for consultation or planning issues.

- Taking this partnership approach through the whole project allows on-site monitoring of manufacturing and installation ensuring the specifier always has professional support from a worldwide group. Drawing on one of the largest fabricator and installer networks in the UK, we can provide details of specialist contractors who will quote or tender competitively for any type of contract.

- For specification assistance or details of fabricators & installers, please call our Marketing Department on 01684 853500.



- Sapa Group

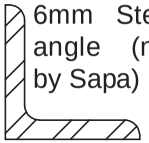
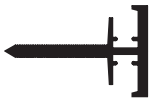
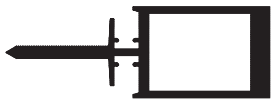
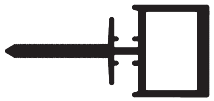
  Sapa Building Systems Limited is a member of the worldwide Sapa Group. We develop and market high value-added profiles in aluminium and are the leading independent producer of aluminium profiles in the world, with customers in Europe, North America and Asia. In the UK, the Sapa Group has extensive multi-site extruding, re-melt, anodising and polyester powder coating facilities, offering total control and a fast and co-operative response.

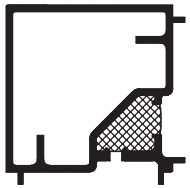
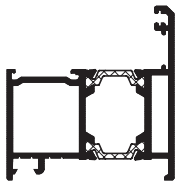
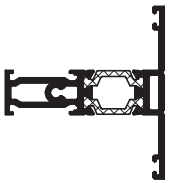
  Backed by the resources of the Group, Sapa Building Systems Limited offers architects and specifiers a wide range of innovative aluminium systems for curtain walling, doors, windows and specialist applications. With a wealth of European knowledge and experience our company incorporates the highly respected Glostal, Monarch and RC System brands that have satisfied the demands of specifiers for over four decades. Our company systems have been approved under BS EN ISO 9001:2000 and we have been recognised as an Investor in People for over three years.

sapa:

PROFILE INERTIA VALUES

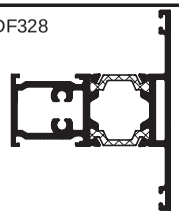
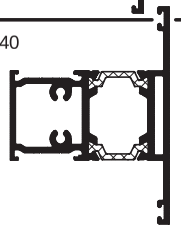
This page and the following page gives information on the inertia values of framing and coupling profiles. BS6399 Part 2 must be used to calculate the inertia required.

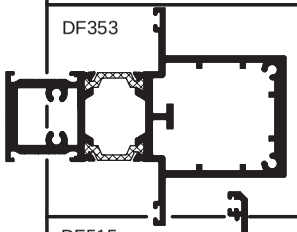
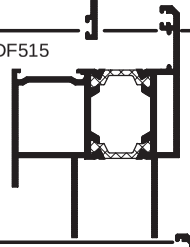
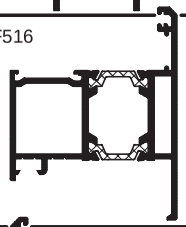
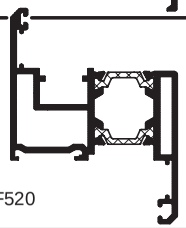
Profile		Inertia (mm^4)
45 x 45 x 6mm Steel angle (not by Sapa) 	⇦	293,000 (aluminium basis)
	⇩	293,000 (aluminium basis)
16021 	⇦	53,629
	⇩	9,051
16022 	⇦	378,702
	⇩	49,252
16023 	⇦	154,527
	⇩	27,187

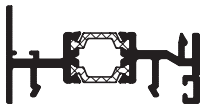
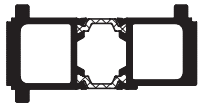
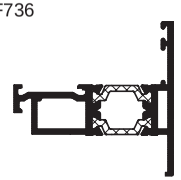
Profile		Inertia (mm^4)
DF187 	⇦	231,768
	⇩	243,324
DF268 	⇦	18,460
	⇩	6,156
DF301 	⇦	129,455
	⇩	61,772
DF320 	⇦	85,995
	⇩	22,691

PROFILE INERTIA VALUES

This page and the previous page gives information on the inertia values of framing and coupling profiles. BS6399 Part 2 must be used to calculate the inertia required.

Profile	Inertia (mm^4)	
DF328 	⇦	107,515
	⇩	44,548
DF340 	⇦	120,641
	⇩	65,961

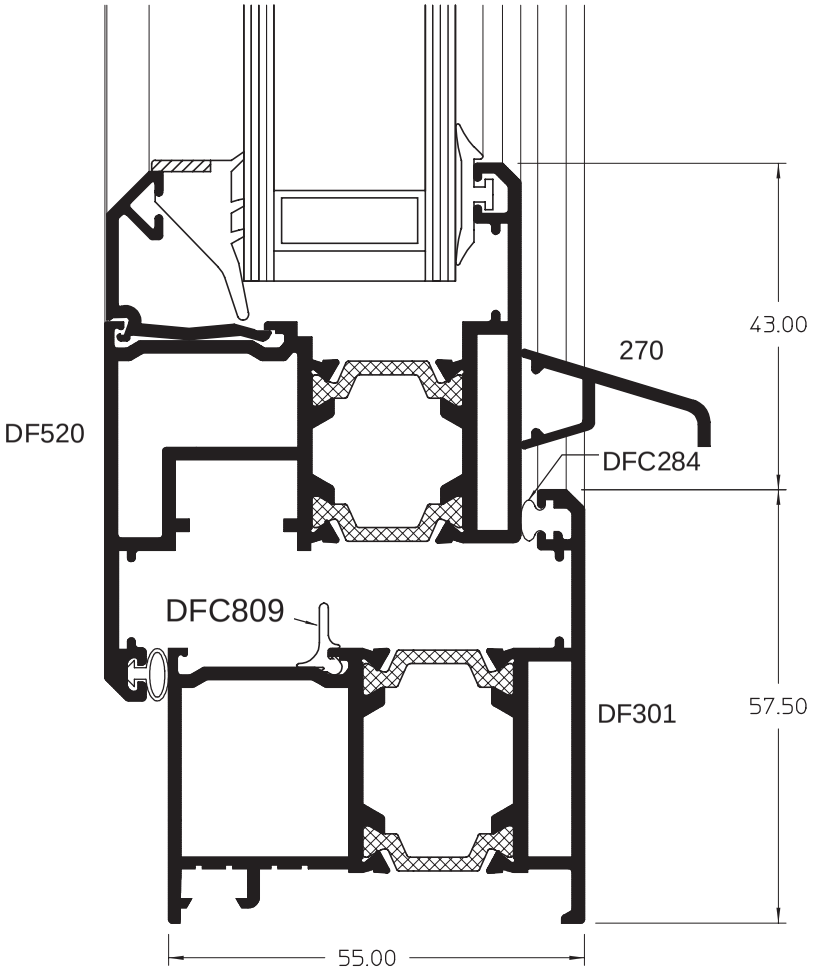
Profile	Inertia (mm^4)	
DF353 	⇦	598,719
	⇩	166,866
DF515 	⇦	129,334
	⇩	124,972
DF516 	⇦	138,073
	⇩	72,834
 DF520	⇦	152,334
	⇩	85,643

Profile	Inertia (mm^4)	
DF708 	⇦	54,319
	⇩	2,150
DF709 	⇦	134,415
	⇩	10,267
DF714 	⇦	384,692
	⇩	63,578
DF736 	⇦	78,107
	⇩	19,683

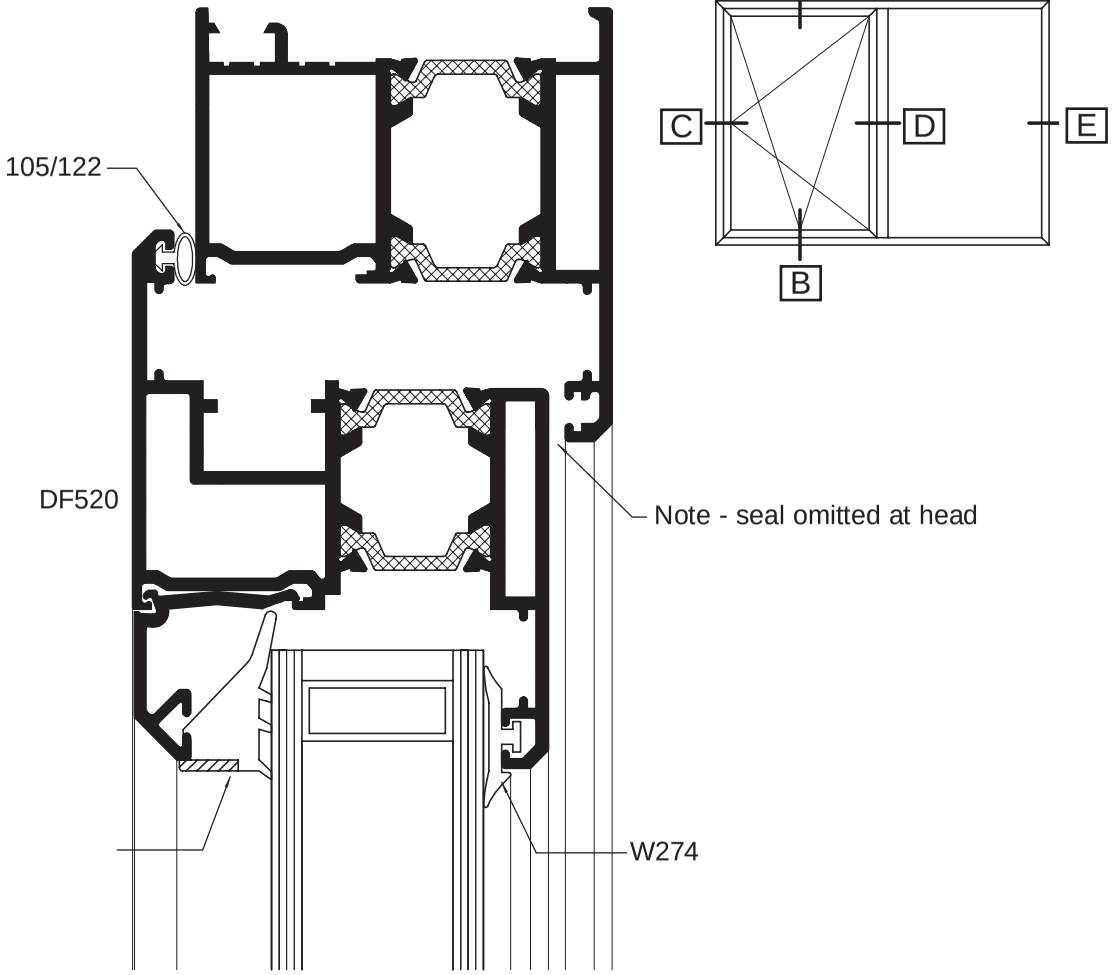
GENERAL ARRANGEMENTS

These drawings illustrate a number of the available profile combinations. Other combinations are available please consult Sapa Building Systems for further details.

B Opening Light Cill

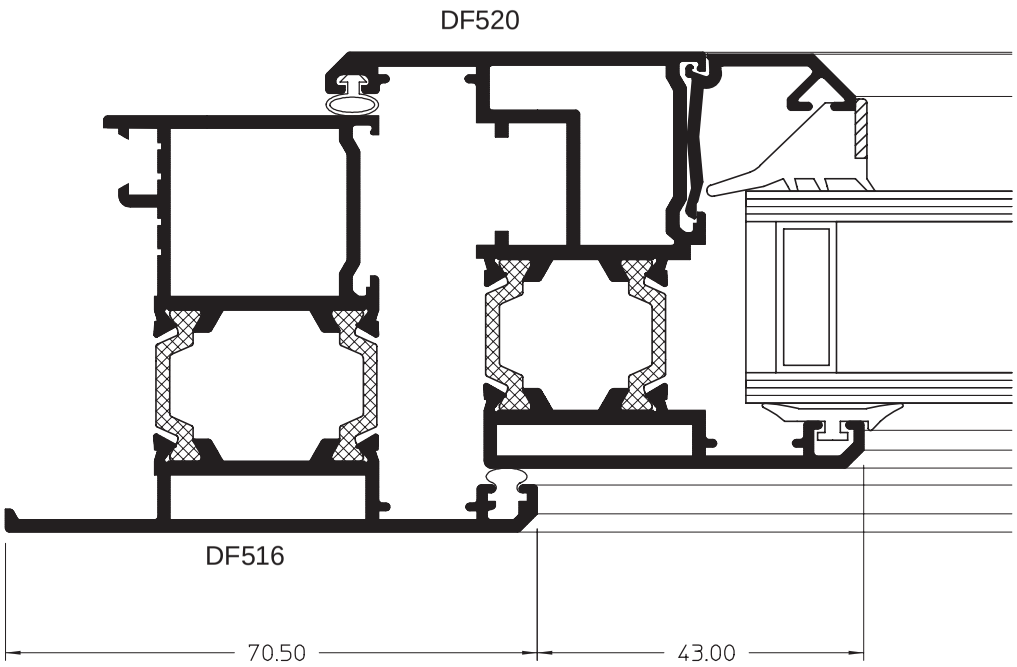


A Opening Light Head

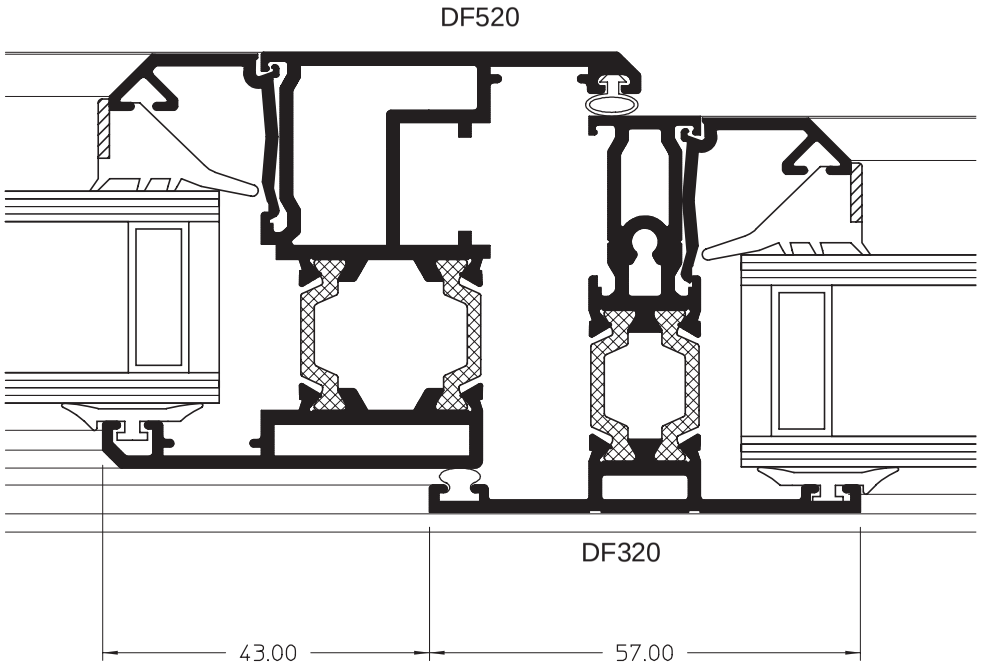


C Opening Light Jamb

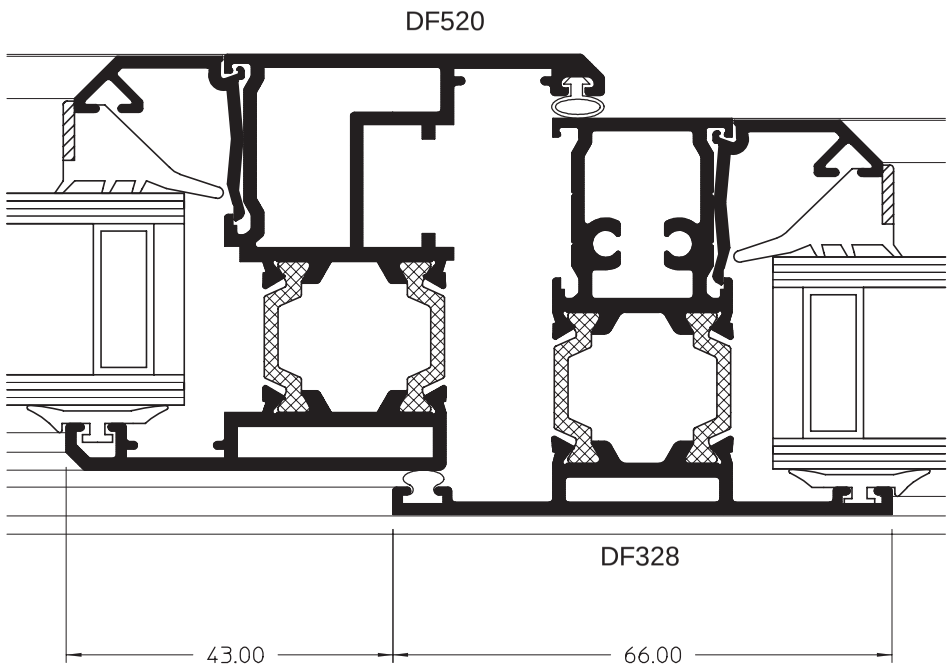
Showing alternative Odd Leg Frame



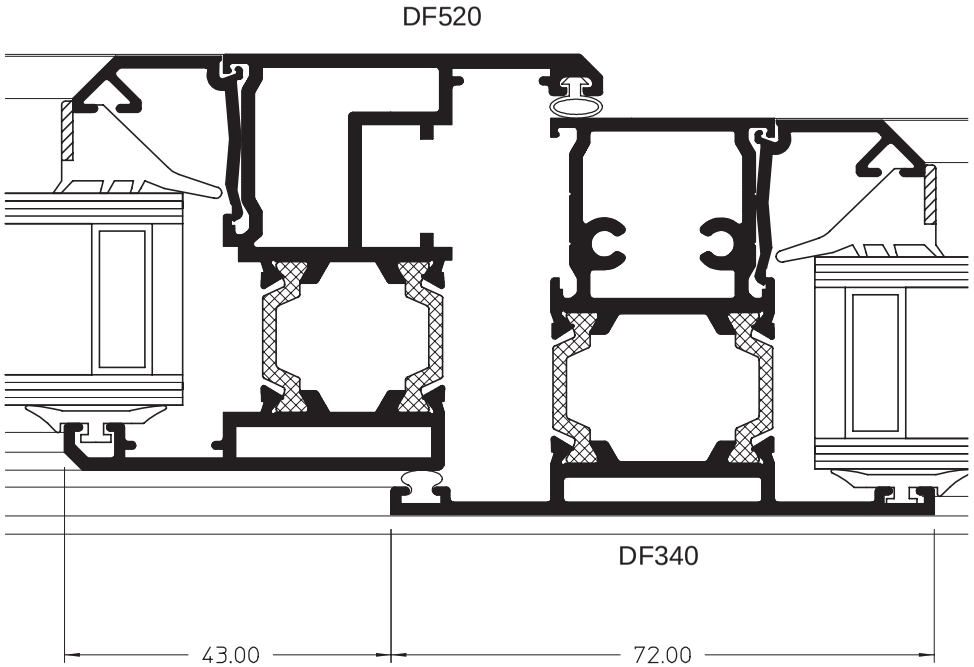
D 57mm Mullion / Transom



D Alternative 66mm Mullion / Transom

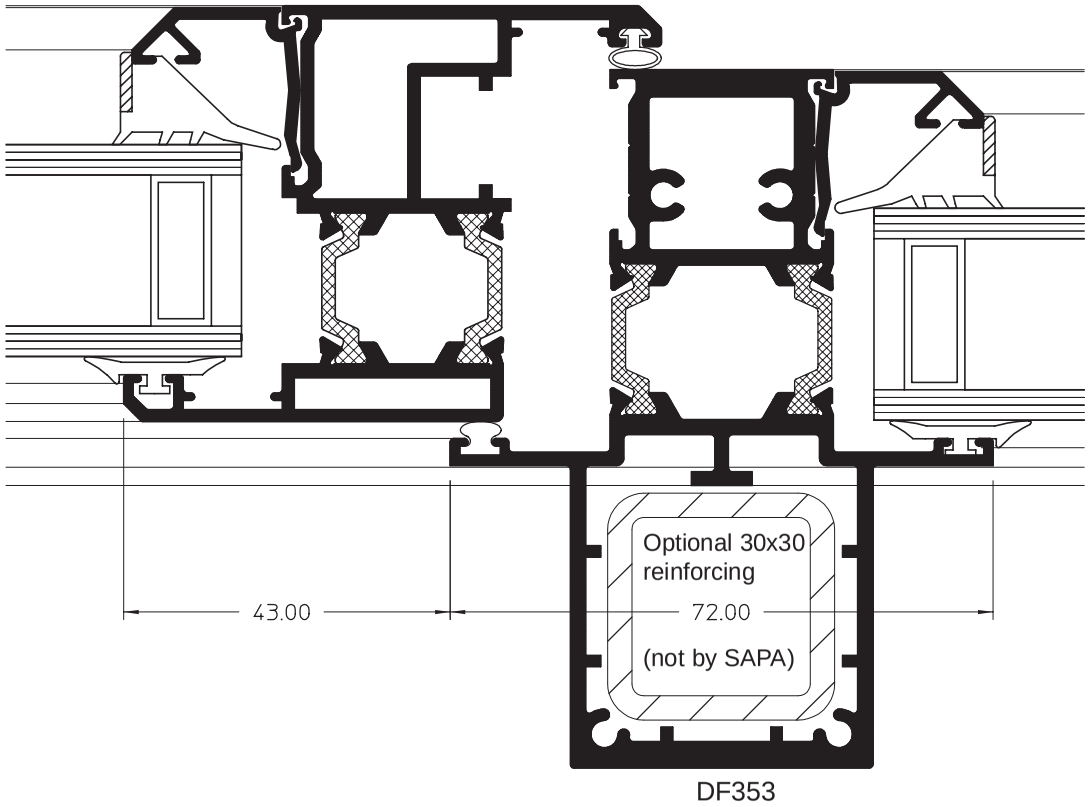


D Alternative 72mm Mullion / Transom

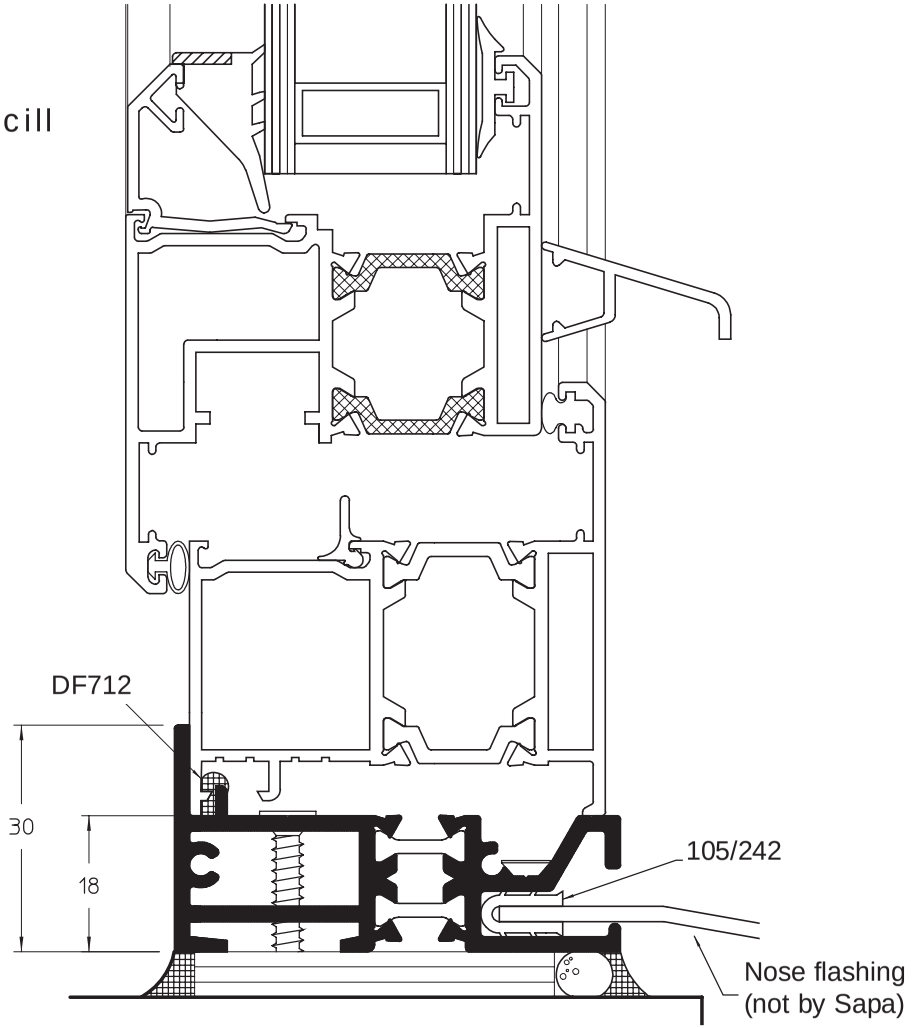


D Alternative 72mm Heavy Duty Mullion

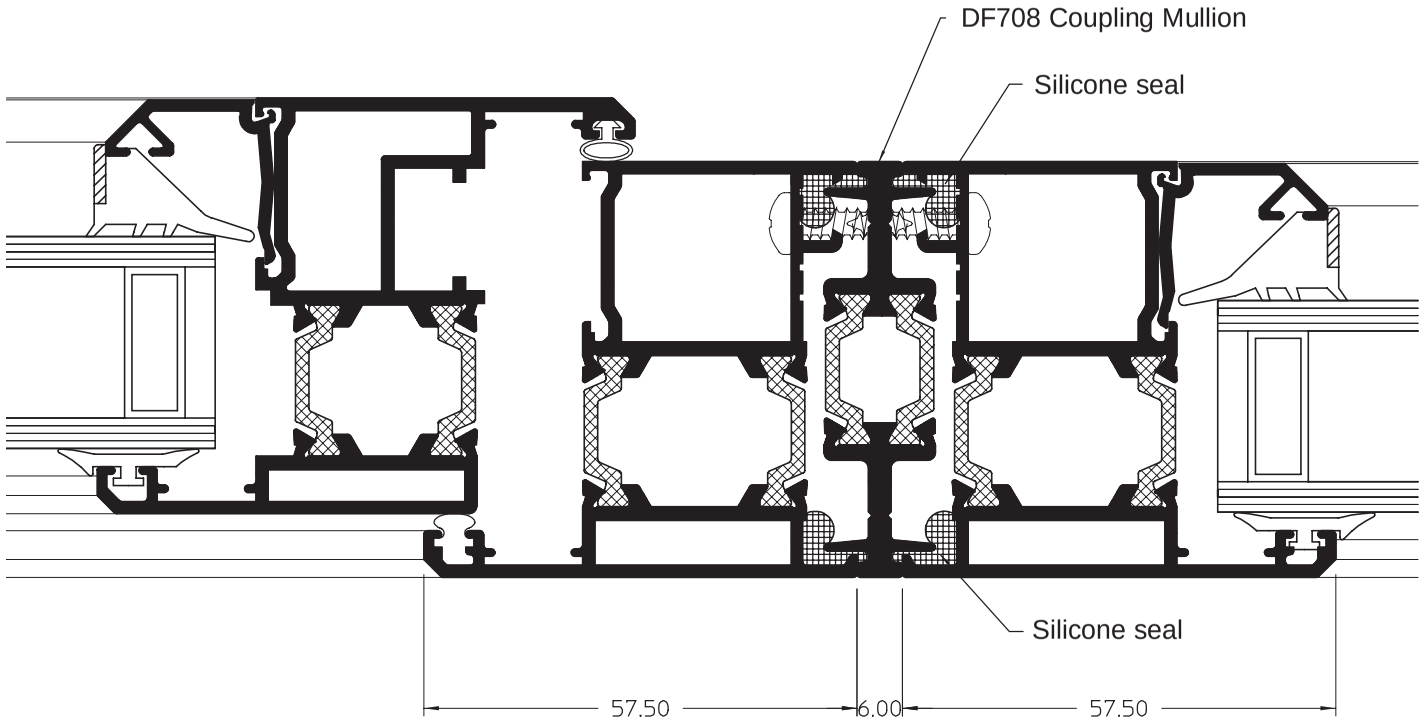
Note:-
DF353 must only be used as a mullion.



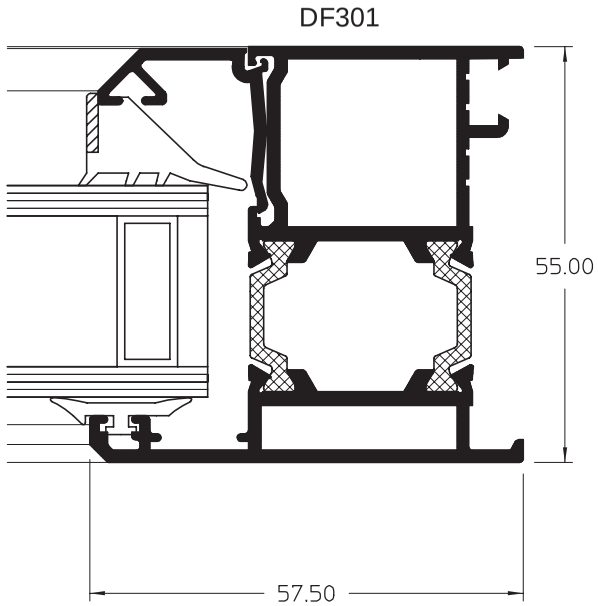
Sub cill



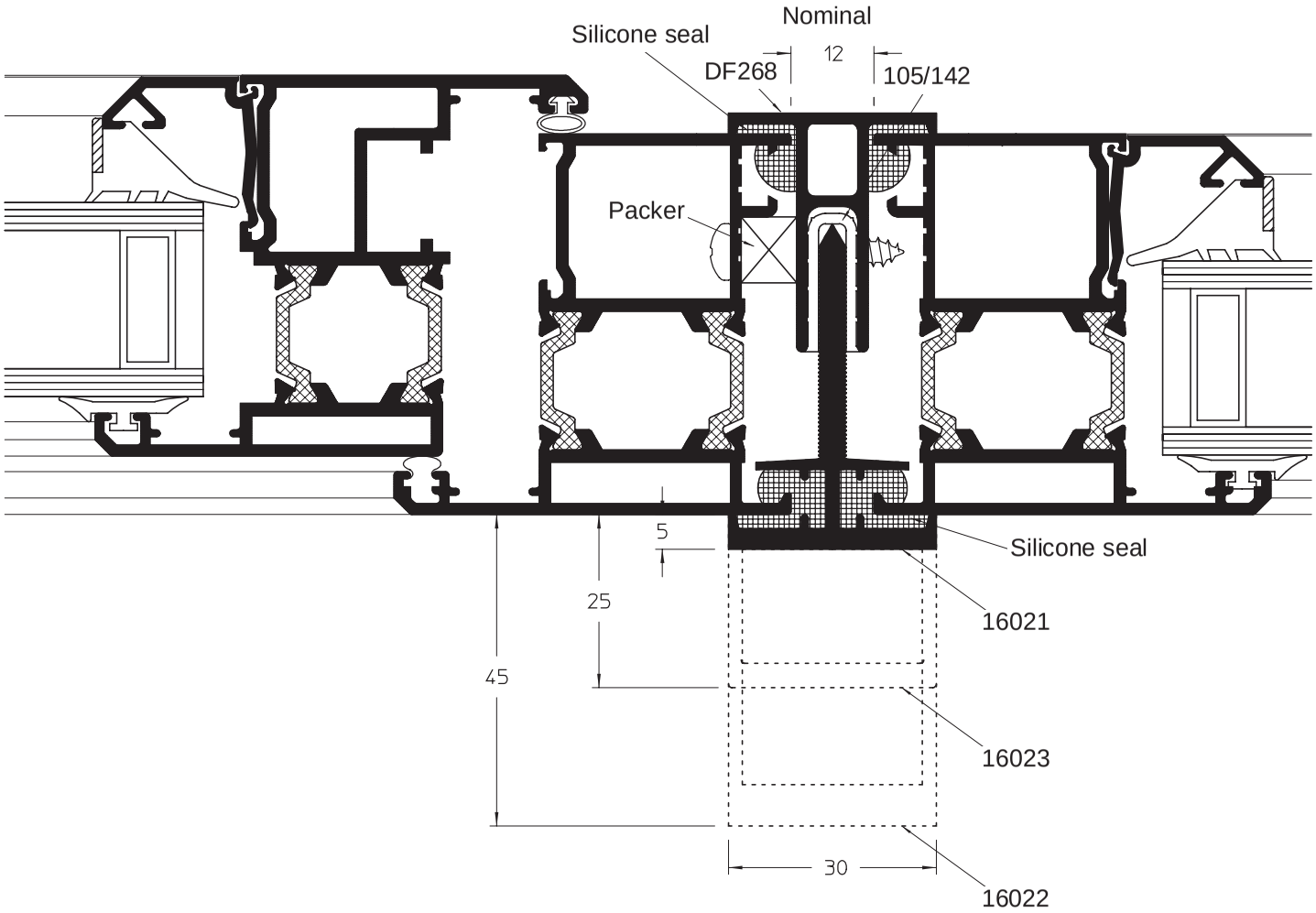
D Coupling Mullion



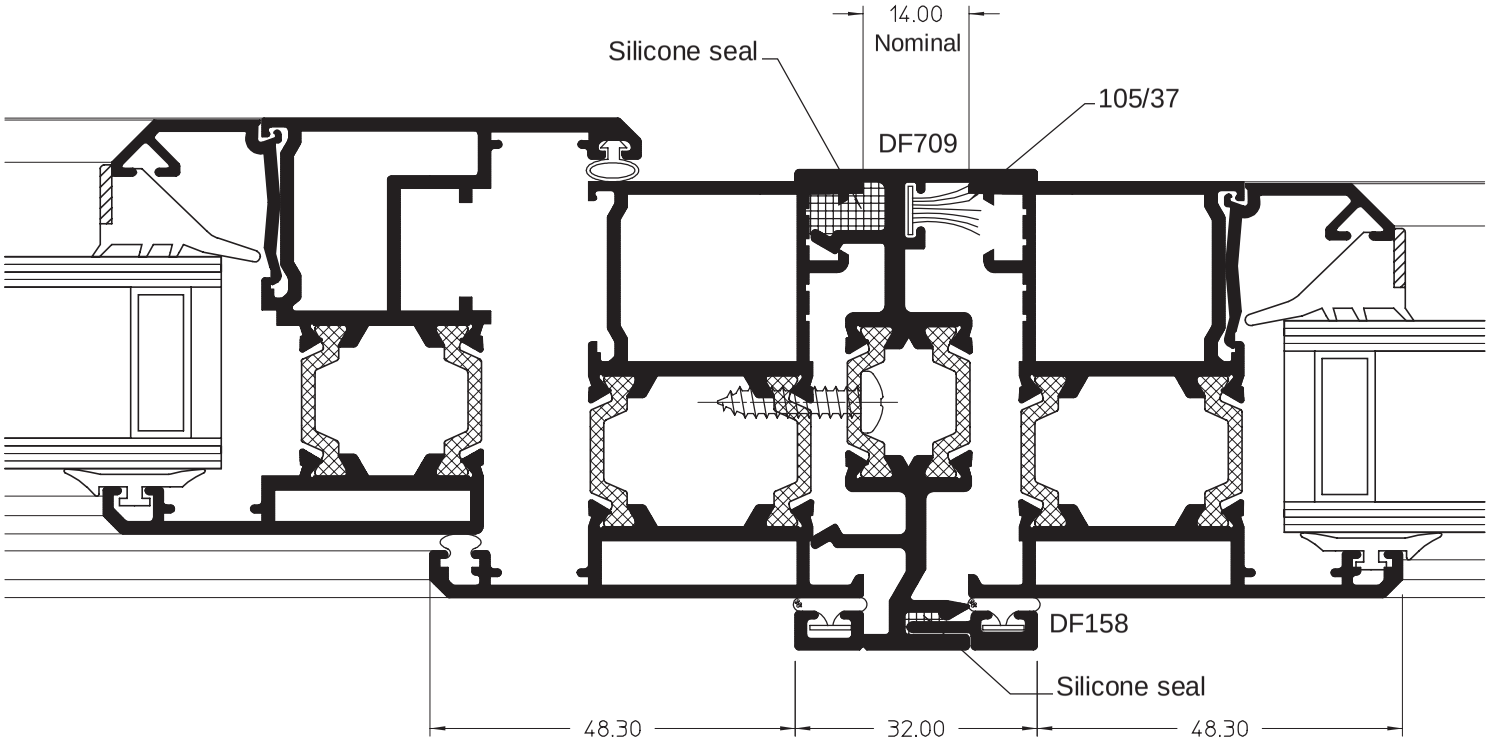
E Fixed Light Jamb



D Heavy Duty Couplers

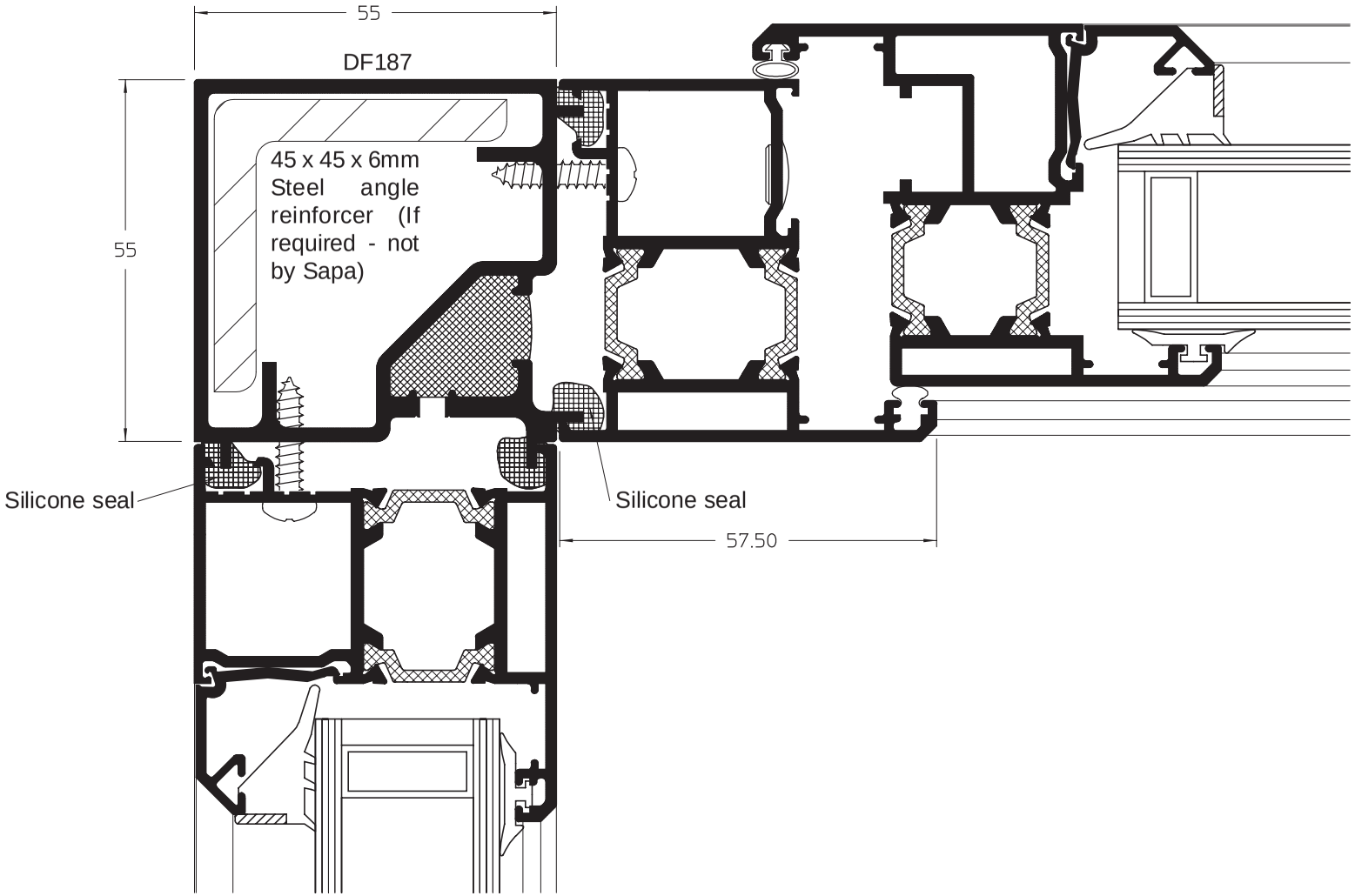


D Expansion Coupler

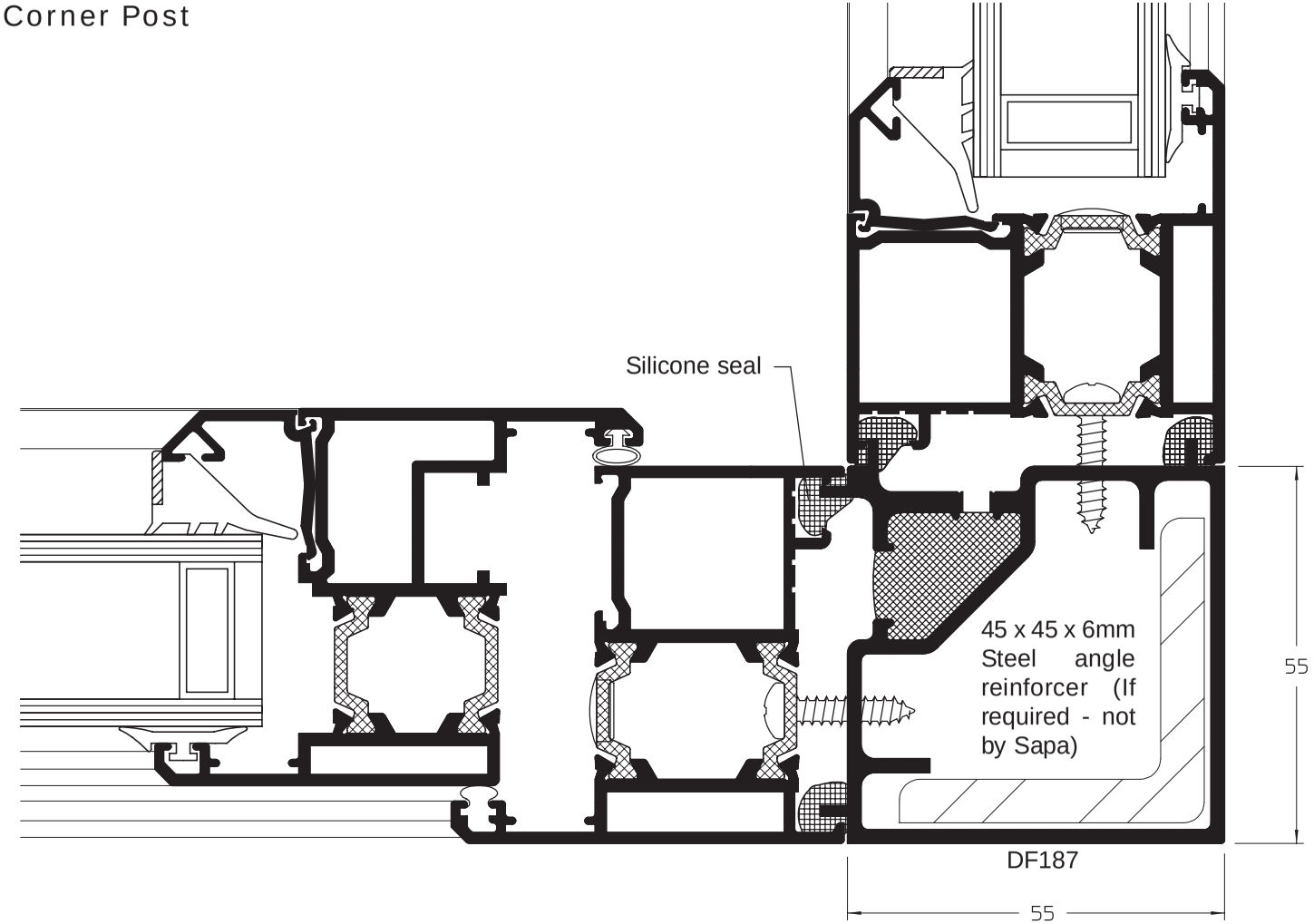


GENERAL ARRANGEMENTS

Internal 90° Corner Post

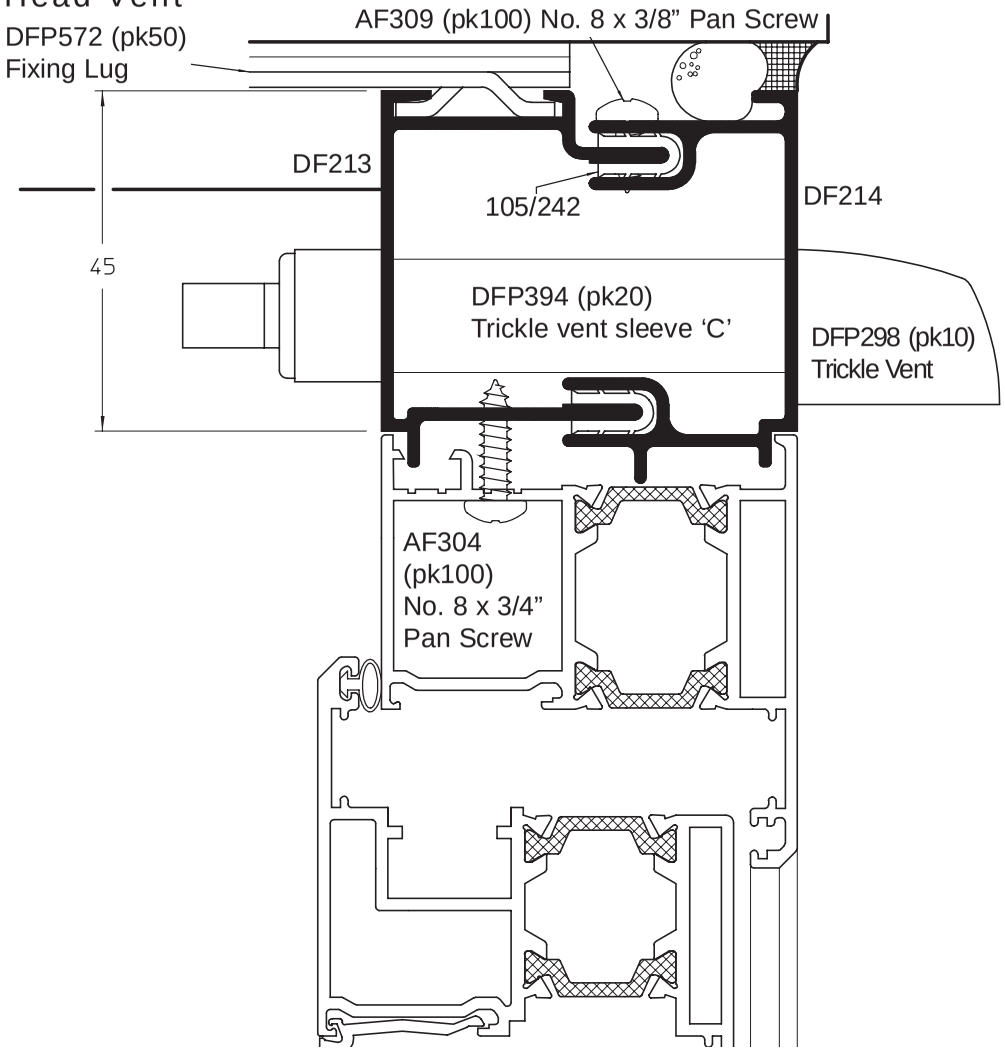


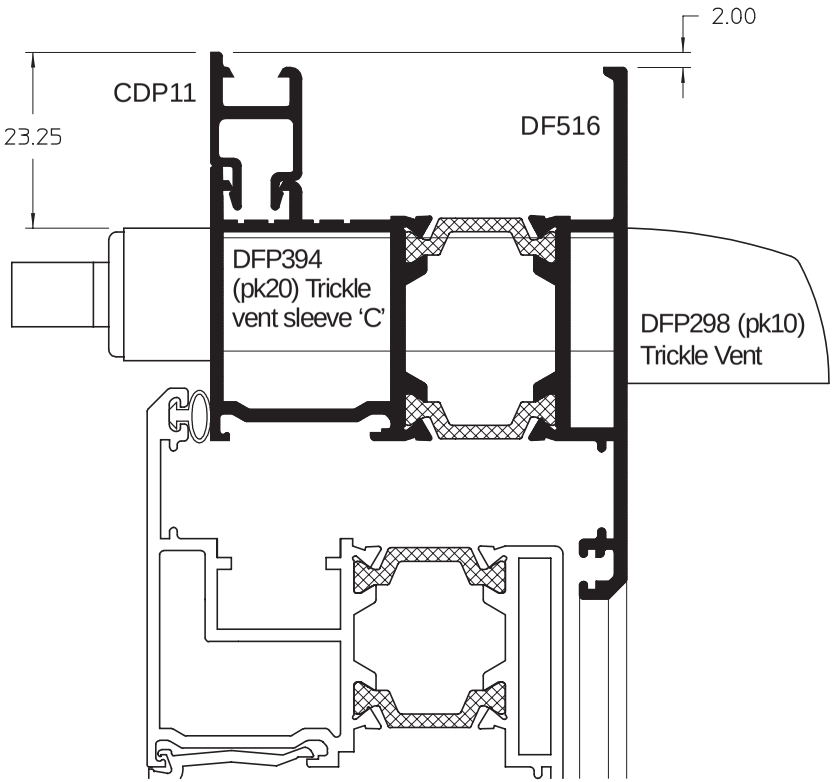
External 90° Corner Post



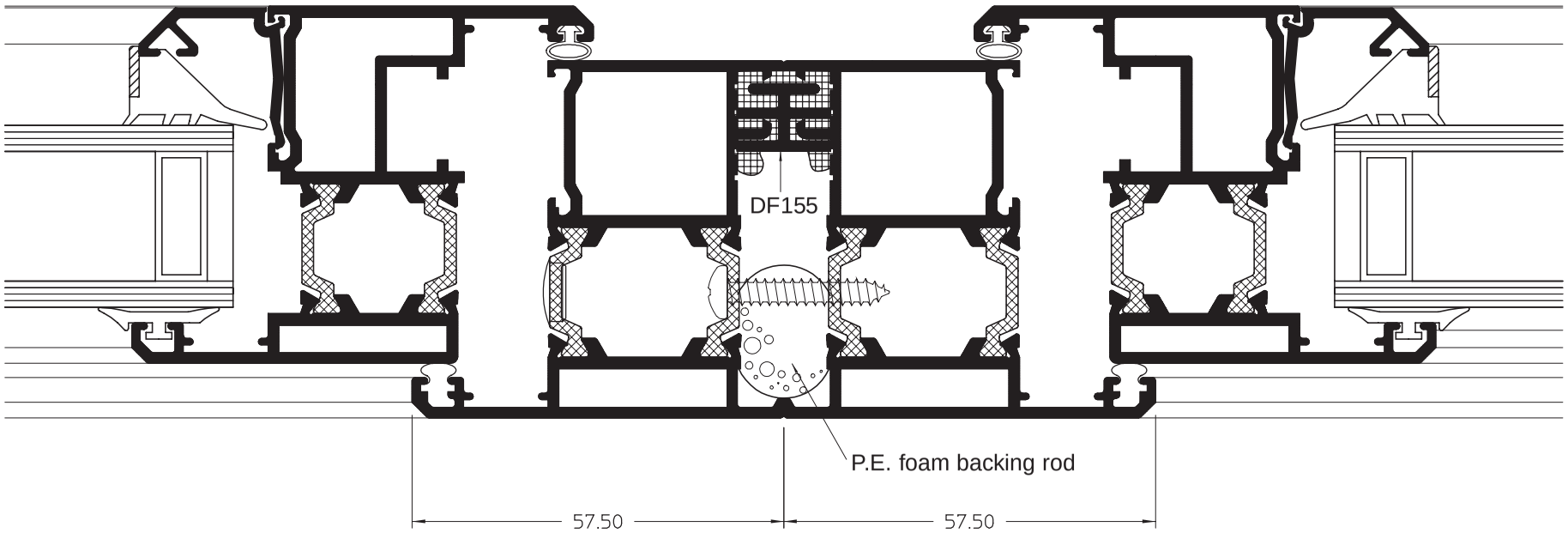
GENERAL ARRANGEMENTS

Head Vent



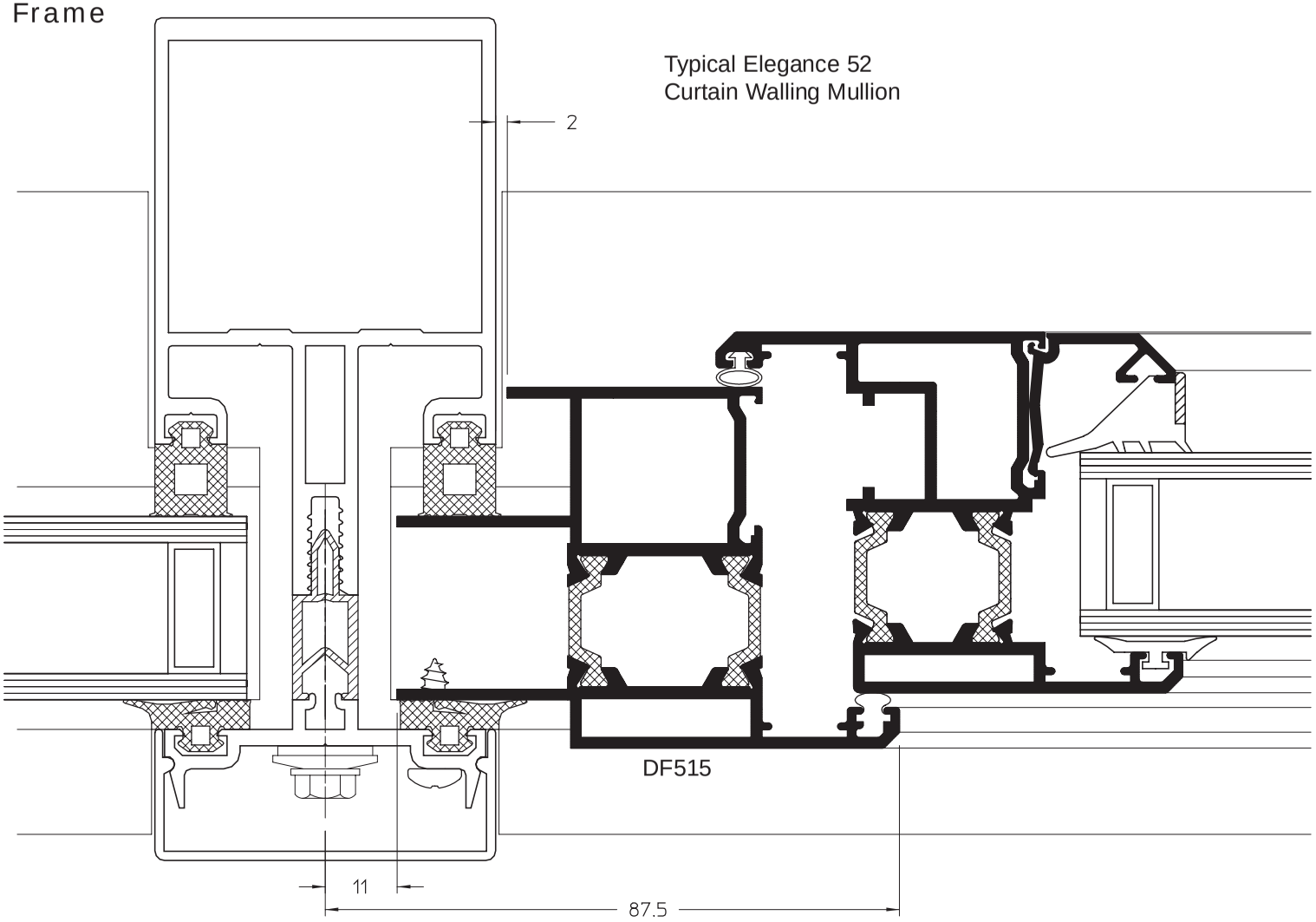


Lightweight Concealed Frame to Frame Coupler

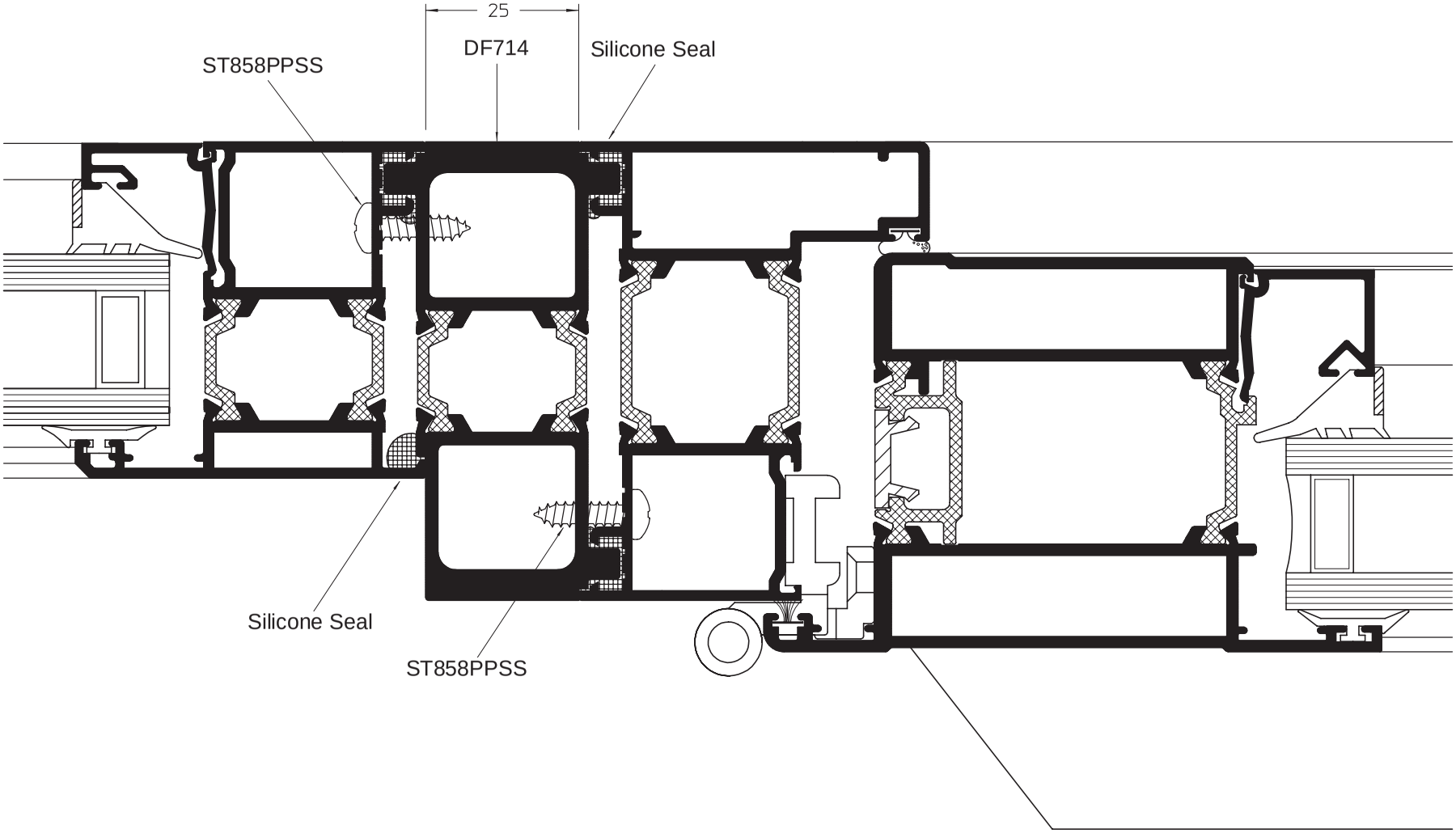


GENERAL ARRANGEMENTS

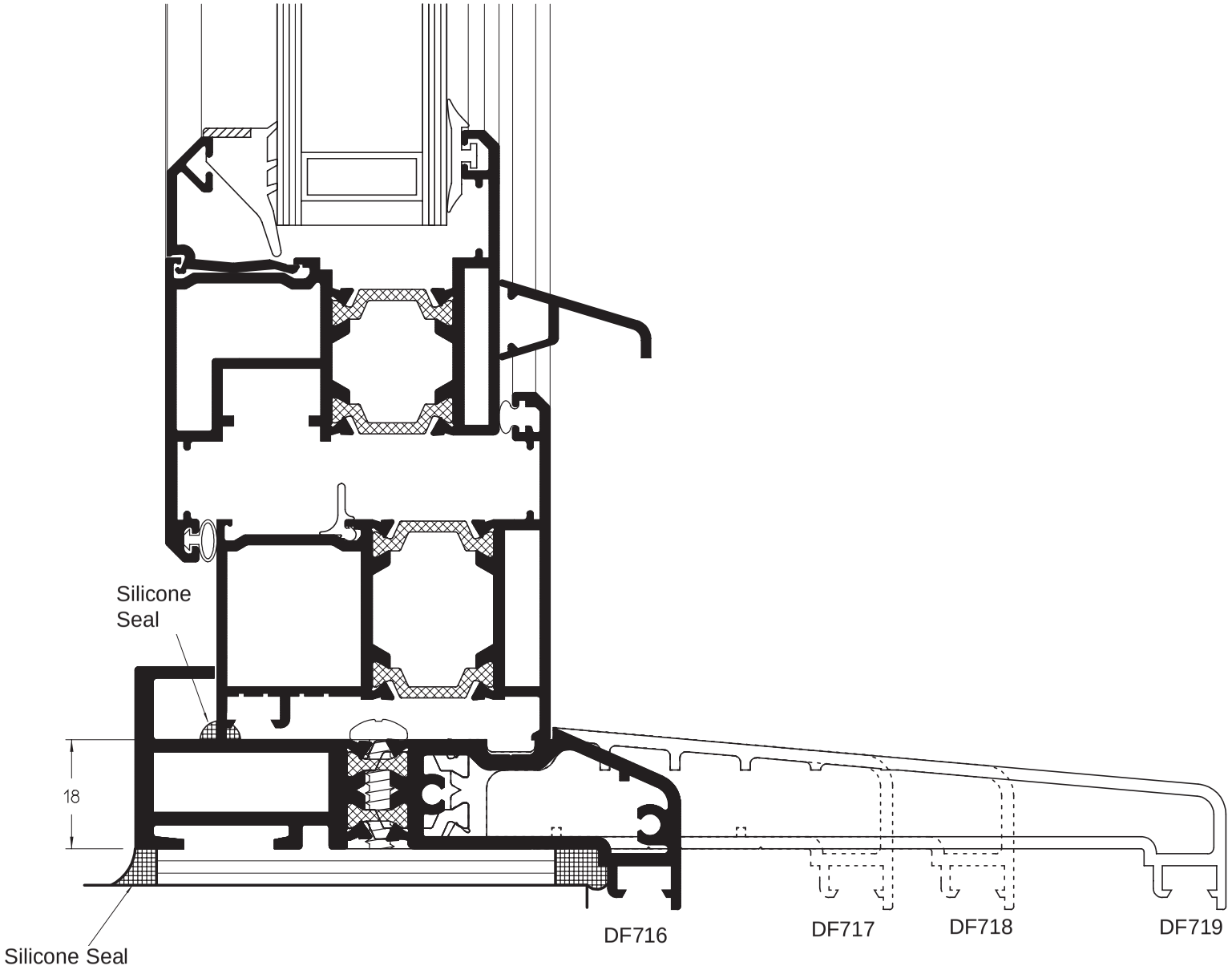
Curtain Walling Frame



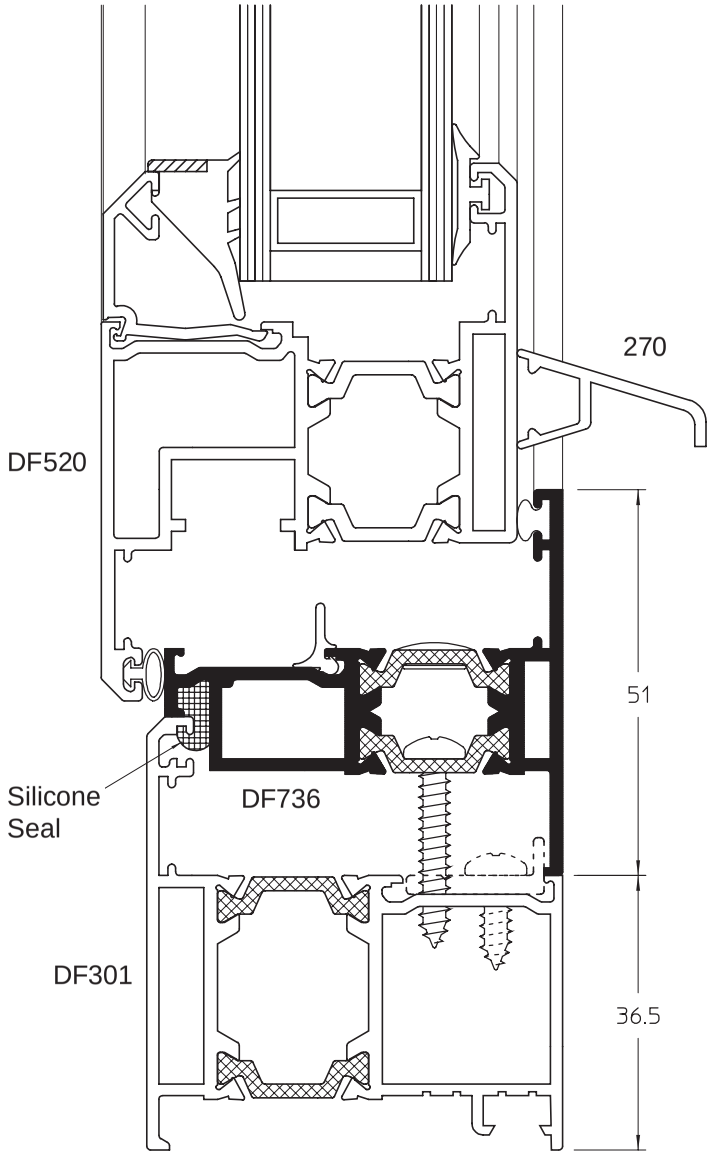
55mm To 75mm Coupler



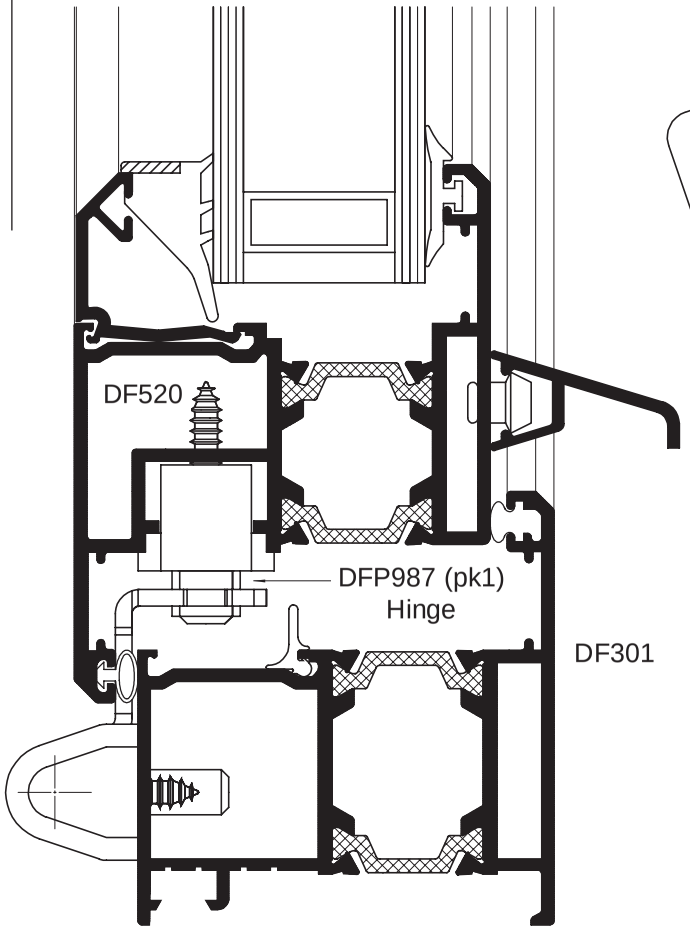
Subcills



Reverse Rebate Adaptor



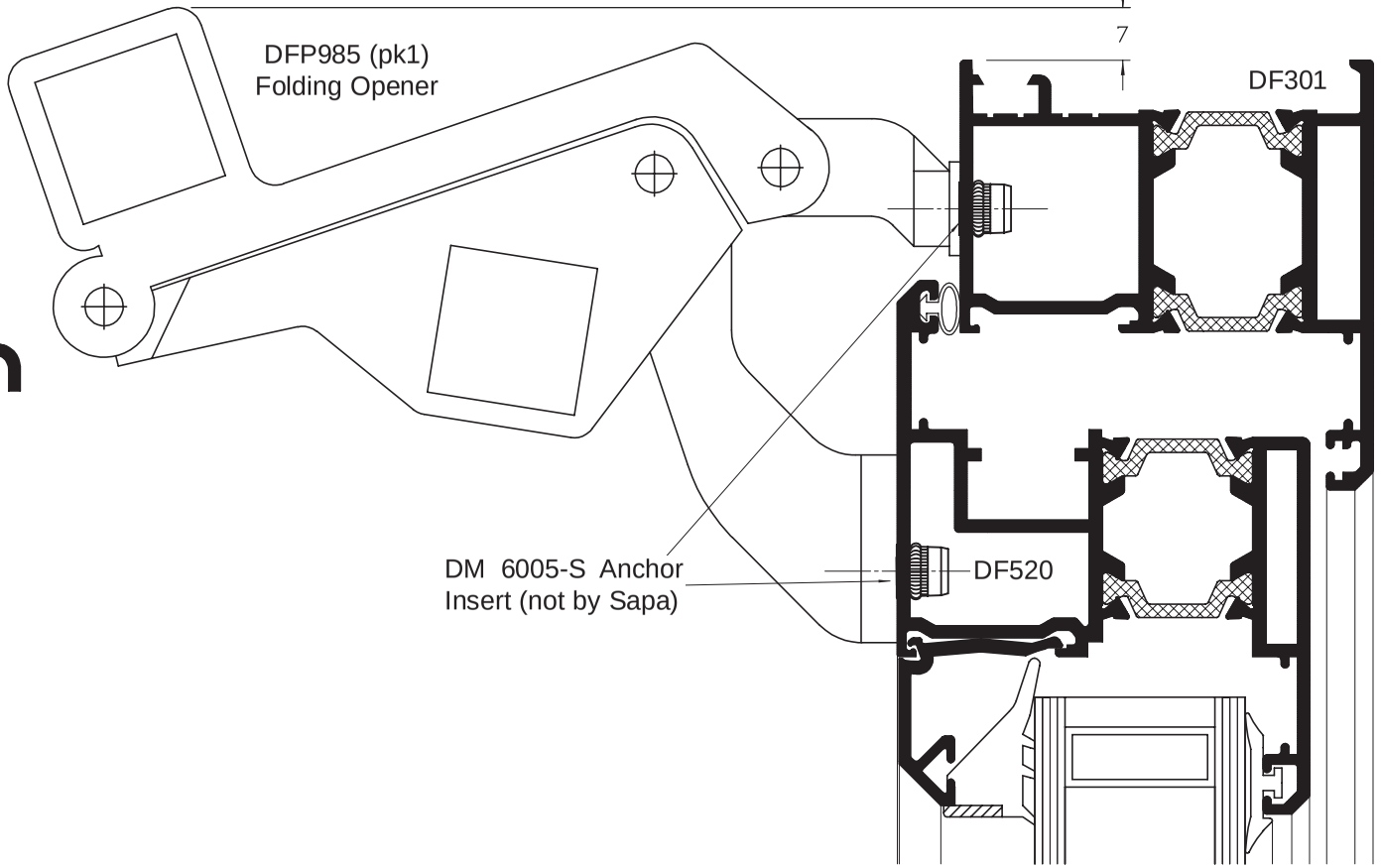
Cill / Bottom Hung Open In



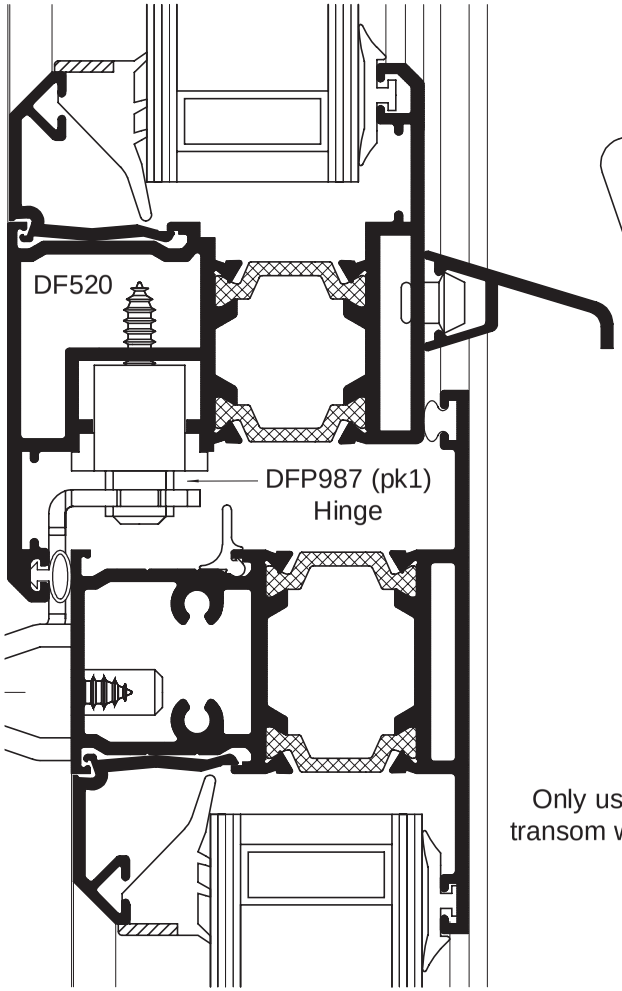
Note - If this detail is to sit on to a subcill then DF301 must be replaced by DF516 and CDP11 extender.

Head / Bottom Hung Open In

A clearance of 85mm must be allowed for above the top arm when using DFP985 (pk1) folding openers

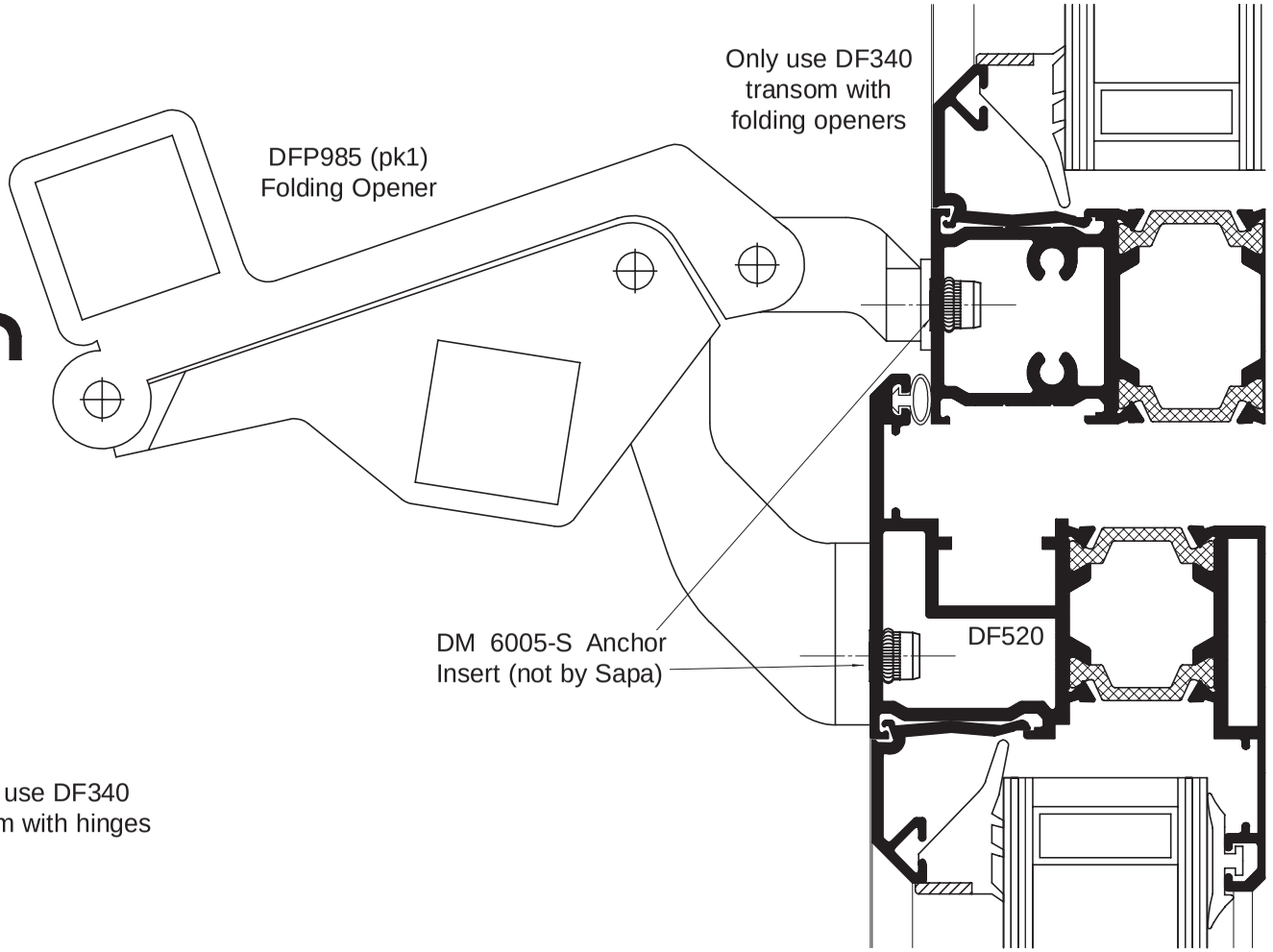


Opening Light Over Transom / Bottom Hung Open In



Only use DF340
transom with hinges

Opening Light Under Transom / Bottom Hung Open In



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This Technical Data Sheet is for specification guidance only. It should not be relied on for manufacturing or installation details which must instead be obtained from Sapa Building Systems' Fabrication Manuals. For further assistance please contact one of our Project Consultants by calling the Marketing Department on the number below.

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