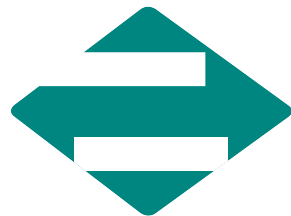


NuKlip

28mm Casement Window

Technical Catalogue



almin

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<u>INDEX</u>	<u>PAGE</u>
1. Introduction	1...
2. System usage	2...
3. System sections	3.- 4
4. Size limitation chart	5...
5. Transom carrying capacity chart	6...
6. Recommended maximum sizes for project out sashes.....	7...
7. Proposed maximum dimensions for sashes made with NKTEHSA.....	8...
8. Project out window types	9...
9. Typical Elevation of top hung window	10..
10.Overall horizontal section through opening sash and outer frame	11..
11.Vertical section through opening sash and outer frame	12...
12.Recommended fixing method using cill and head	13.-15
13.Section through frame and opening sash utilising unequal leg outer frame	16....
14.Typical window elevation with top hung sash and two fixed panels	17....
15.Section through opening sash and fixed panel	18....
16.Section through outer frame and two fixed panels	19....
17.Vertical section through opening sash and outer frame	20....
18.Section through fixed panel	21....
19.Alternative section through opening sash and fixed panel	22....
20.Typical window elevation with top hung sashes and two fixed panels	23....
21.Vertical section through opening sashes and fixed panel	24....
22.Sash to sash transom details	25....
23.Top hung window on a shop front	26....
24.Horizontal section through sash and fixed panel	27....
25.Horizontal section through fixed panel	28....
26.Vertical section through sash and fixed panel	29....
27.Horizontal section using NKTECO as a coupler / expansion joint	30.-32
28.Adjustable corner layout	33....
29.Alternative solution using float head NKTEHE	34....
30.Cutting sizes	35.-38
31.Machining details	39.- 4



Part I - System Details

1. Introduction

The NuKlip Twenty Eight Window system is a sub system of the NuKlip System.

The NuKlip System is a versatile system for aluminium fenestration from domestic use to high class performance curtainwalls on high-rise building whilst maintaining interchangeability of part and/or profiles.

The NuKlip Twenty Eight Window is a specially -designed sub system with specific uses in the project-out window types, mainly for domestic and low-rise application in offices, hospitals, flat building and town house complexes.

The design of the NuKlip Twenty Eight Window does make provision for a Cottage Pane design as well as a Fly Screen. These details are shown in separate publications.(*)

Using NKTEMUM, the heavy-duty mullion, near hurricane conditions can be catered for, depending on the overall sizes and configuration of the window, the maximum sizes etc. are indicated in the chapter dealing with the System usage.

Floating Heads and or separate Cill details are included for the more sophisticated window-to-brick finishes or window-to-concrete finishes.

Bay Windows with various angles can easily be manufactured with the Twenty Eight Window.

The NuKlip Twenty Eight Window System incorporates the dry glazing method, using clip-in beads with butterfly and wedge gaskets. The newly-developed NKTEM section is a combined sash and glazing bead in one, and uses the standard patio door glazing channel gasket.

Weatherproofing is achieved by the use of woolpile in both opening sash and the relevant frame section, thus giving a double barrier against wind and water infiltration. The recommended woolpile is indicated in the list of components elsewhere in this publication.

This publication provides a number of practical details and solutions, however, in many instances the individual manufacturer might develop his own method of construction based on available machinery and skills.

The details shown in this publication are based on accepted practices in the South African Aluminium Industry and weatherproofing will be maintained using the details indicated.

In case of major deviations from the suggested details, it is recommended that tests are performed to ensure adequate weatherproofing, such as water ingress, air infiltration and deflection under specified wind loadings.

(*) At present in course of preparation.



2. System usage

The Selection Guide from the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) formed the basis of the design parameters for the Nuklip 28mm window.

The design pressure is based on 1000 Pascal or 1 kPa unless otherwise stated.
The maximum allowed calculated deflection under maximum design load is the lower of:
Span divide by 175 or 20 mm.

The Nuklip 28mm Window design is based on a minimum glass thickness of 4 mm and a maximum of 6 mm monolithic glass.

However, the glass thickness for the sashes should NOT exceed 4 mm as the overall mass will become too heavy for the friction stays.

If laminated safety glass is used, the standard pressure wedge must be replaced by a suitable non-standard wedge to accept the increased glass thickness.
Sash glazing with 4.5mm thick laminated glass is acceptable for the friction stays.

The project out Friction Stays are normally designed to carry a certain mass.
The standard friction stays stocked by Aluminium City are suitable for the requirements stated above, i.e. 4 mm monolithic glass or 4.5mm laminated glass at maximum sash sizes.

This window is primarily designed for use in domestic and lowrise applications for opening out ventilation. Horizontal sliding ventilation is dealt with in our publication "Classic Horizontal Double Sliding Window".

For top hung open out (T.H.O.O.) ventilation using the project out friction stay, the following limitation apply:

Based on a nominal glass thickness of 4mm.

Sash width of 1200mm x Sash height of 600mm,

Sash width of 600mm x Sash height of 1200mm,

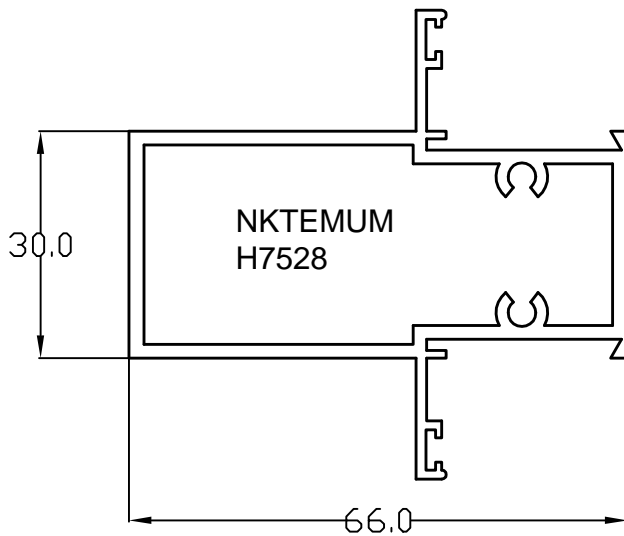
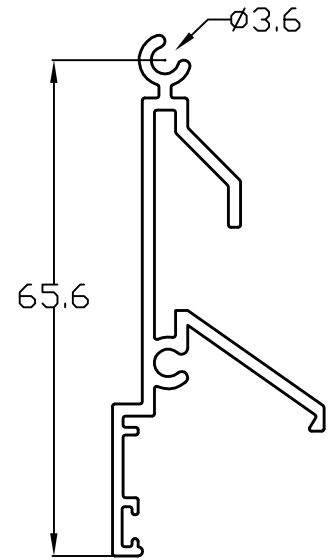
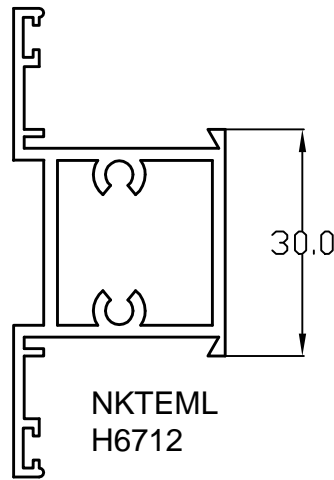
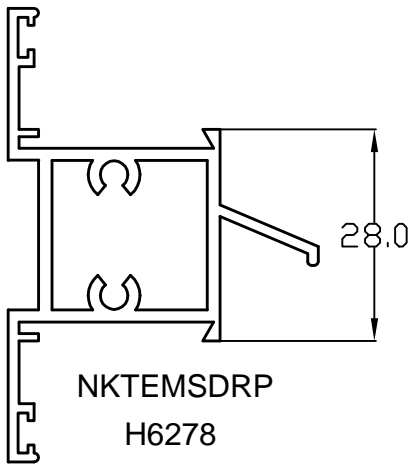
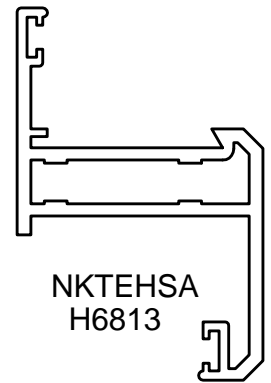
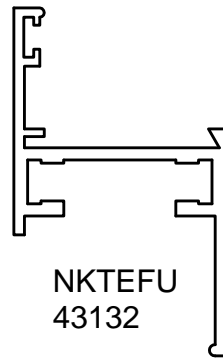
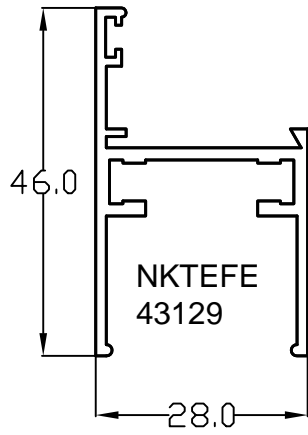
Note:

For side hung open out (S.H.O.O.) ventilation using the project out friction stay the following limitation applies.

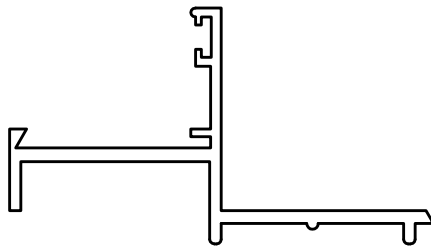
Based on a nominal glass thickness of 4mm.

Sash width of 600mm x Sash height of 120mm

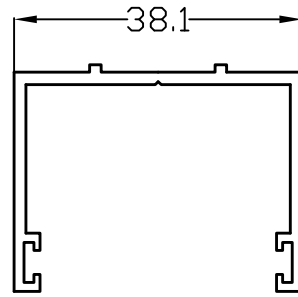
For Sash width greater than 700mm, TWO handles are to be used to achieve adequate closing.



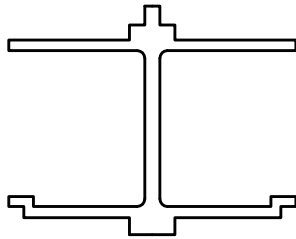
28mm CASEMENT WINDOW SYSTEM SECTIONS



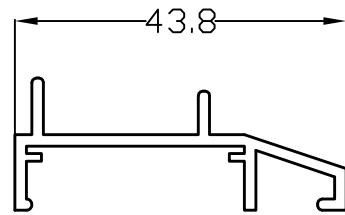
NKTENK
43136



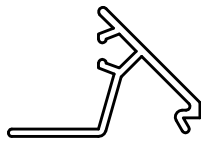
NKTEHE
43130



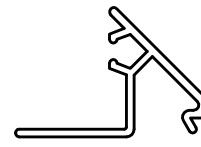
NKTECO
43140



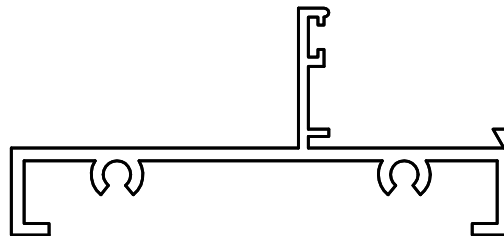
NKTECI
43131



NKTEBS45
37884

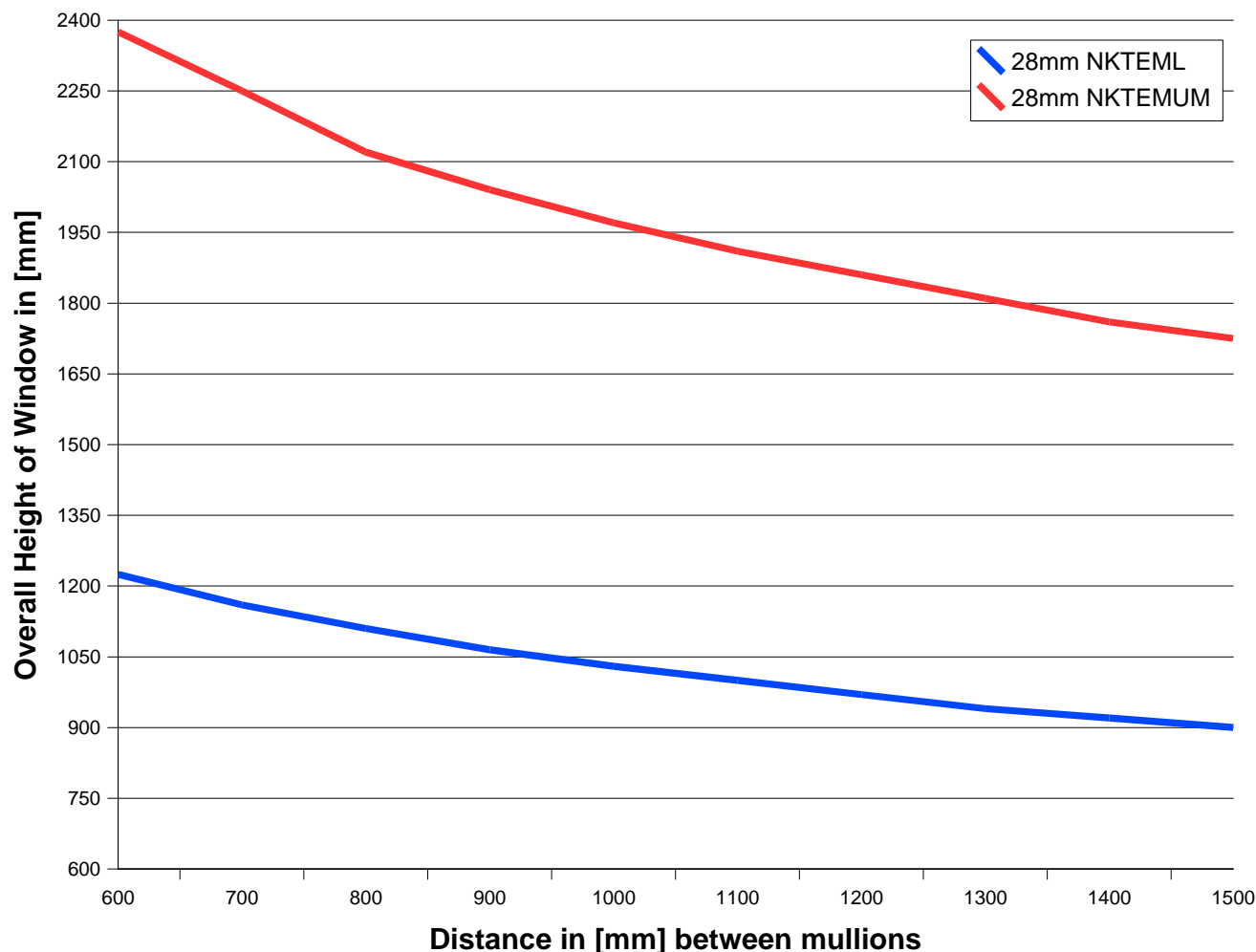


NKTEBS65
45529



NKTEFL
44792

**NuKlip 28 Casement Window Systems
SIZE LIMITATION CHART at 740Pa**



Problem :

The Window Schedule calls for square Casement Windows with 1200mm between the Mullions(Verticals), 1200mm Overall height. The Wind Pressure specified for the building is 740Pa.
- Which window system is appropriate for the job?

Answer :

Go to 1200mm on the horizontal axis indicating distance bwtween mullions.
Draw a line straight up and where it intersects, now draw a line horizontally to the left to the vertical axis.
The number indicated is then the maximum overall height for the chosen section i.e. NKTEML, AE253 etc.
In this example the 28mm NKTEML will NOT be sufficient as it only goes up to about 950mm overall height.
The correct section is the 38mm AE253.
If for some reason you want to or have to use the NuKlip 28mm Window, then you must use NKTEMUM.

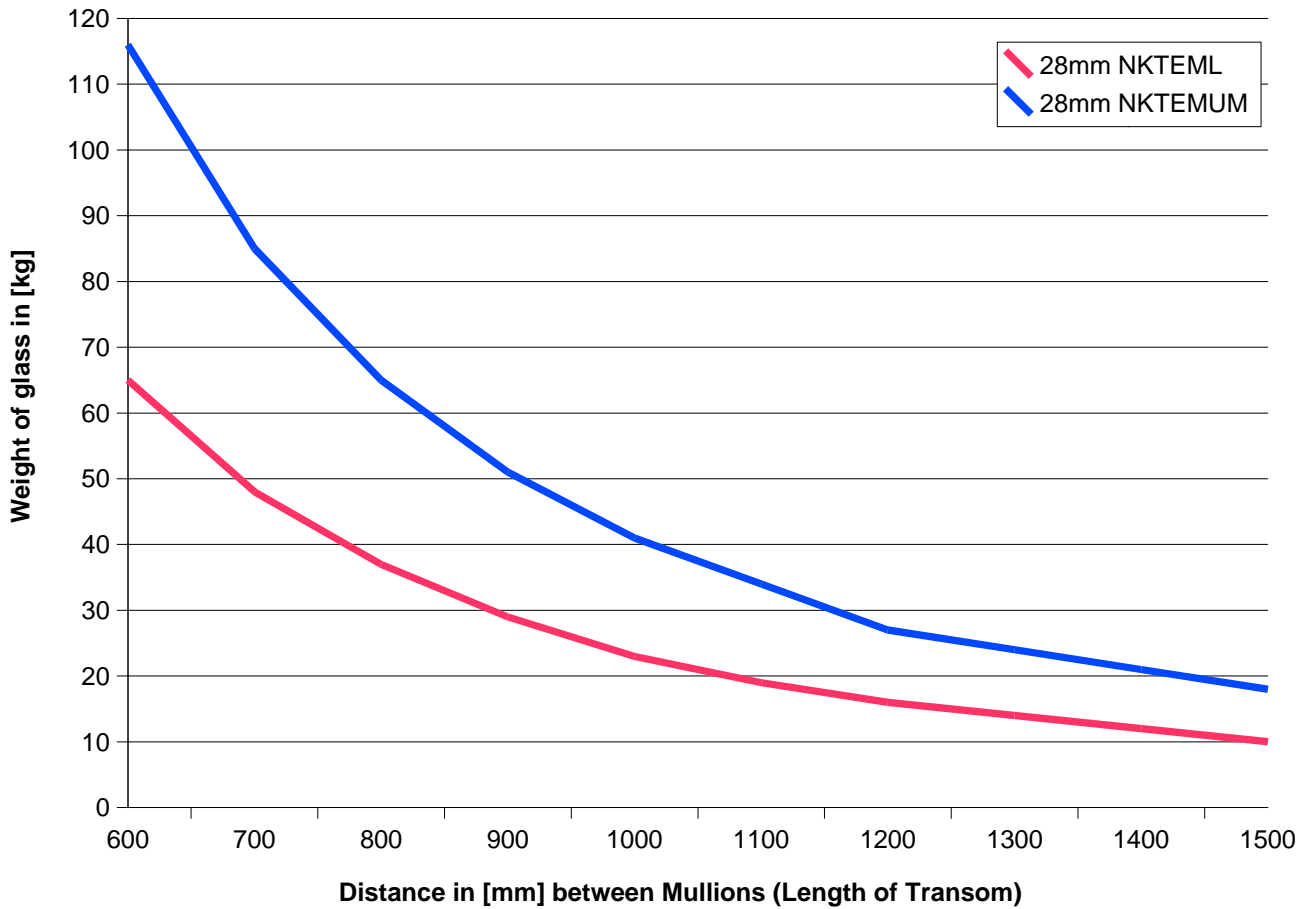
NOTE!

Since NKTEML in this case will not do 1200mm as a mullion(vertical), it will not do 1200mm as a transom either.

* Almin Metal Industries Ltd do not accept any liability for the use of this chart.
If in doubt, we provide provide the Engineering Advise free of charge to assist with these issues.

Deflection Limit : Height/175 or 20mm, whichever is less.

**NuKlip 28mm Transom Carrying Capacity
(Applies to Fixed Glazing Only)**



Deflection Limit : L/1000 or 2mm, whichever is less. Glass is assumed set on Packers at ¼ span of transom.

NOTE!

The values indicated above are theoretical values for the Transom profile only.

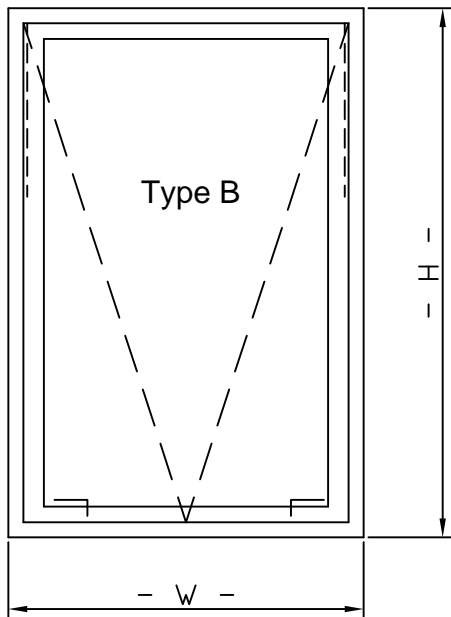
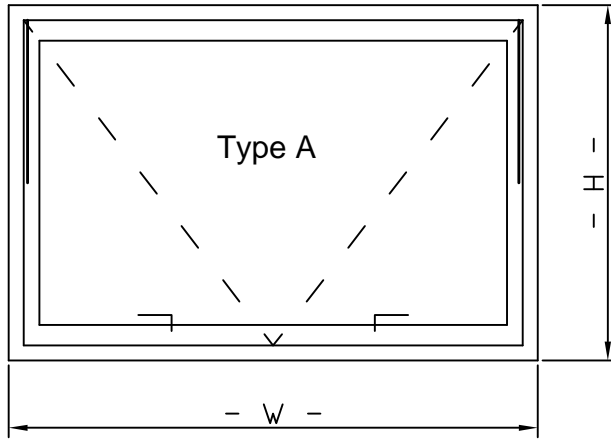
It is the responsibility of the fabricator to ensure that the Transom-to-Mullion connections can carry the weight.

* Almin Metal Industries Ltd do not accept any liability for the use of this chart.

If in doubt, we provide provide the Engineering Advise free of charge to assist with these issues.



Note:
For sash width > 700mm use TWO handles



	W mm	H mm	Max Glass Thickness
A Top Hung NKTESA	1200	600	4.0mm
B Top Hung NKTESA	1200	1200	4.0mm
C Side Hung NKTESA	600	1200	4.0mm

- The above recommended maximum sizes are a combination of the following considerations:
- 1) Windloading of 1000Pa.
 - 2) Maximum deflection the lower of L/175 or 20mm.
 - 3) Capabilities of interlock Friction Stays held in stock.
 - 4) The industry practical multiples of 300mm for window sizes.

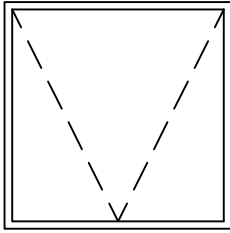
RECOMMENDED MAXIMUM SIZES FOR PROJECT-OUT SASHES
INCOPORATING INTERLOCK FRICTION STAYS



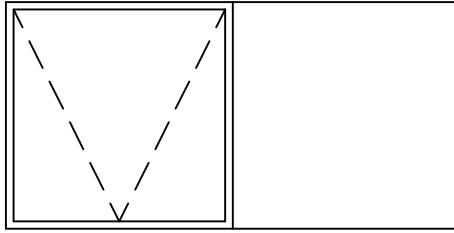
Proposed maximum dimensions for Sashes made with NKTEHSA

	Top Hung Project Out					Side Hung Project Out			
	Design Windload	Sash Width	Sash Height	Max. Perimeter		Design Windload	Sash Width	Sash Height	Max. Perimeter
	800	1500	900	4800		800	1200	1400	4800
	1000	1400	900	4300		1000	1200	1350	4300
	1200	1300	1000	4000		1200	1200	1250	4000
	1500	1200	1200	4000		1500	1200	1200	4000

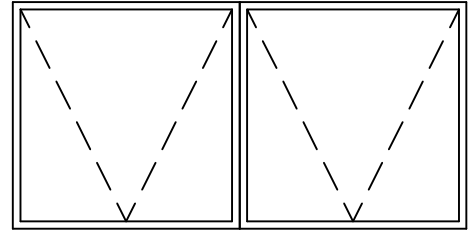
Sashes wider or higher than 700mm require 2 handles.
Above maxima are based on the maximum deflection of the sash edge opposite the edge with handles.
Maximum deflection based on the lower of L/175 or 20 mm.
The selected friction stays must be able to accommodate the glass weight and sash sizes.
The sash corner construction and correct understopping of the glass are essential for a proper operation of the sash.



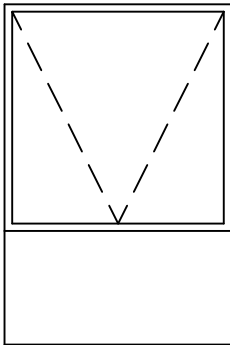
Top Hung



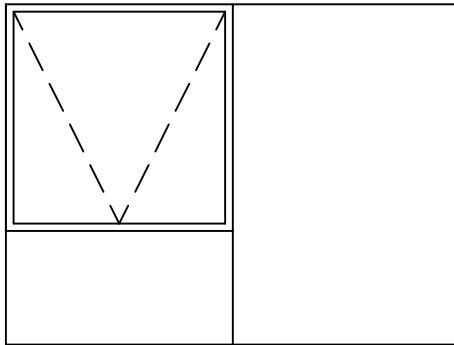
Top Hung / Fixed



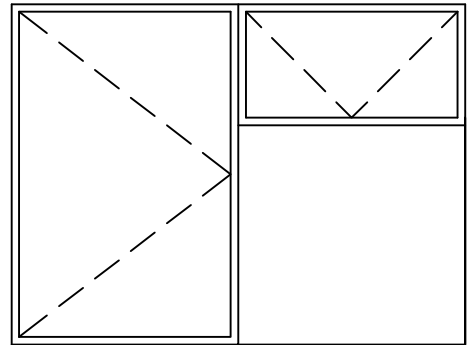
Top Hung / Top Hung



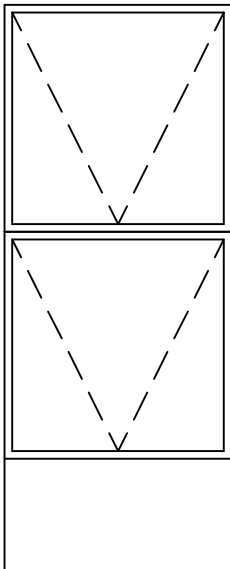
Top Hung Fixed



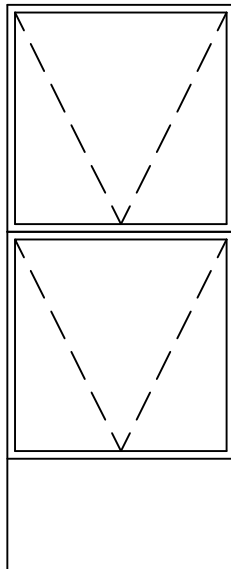
Top Hung / Fixed
Fixed



Side Hung / Top Hung
Fixed

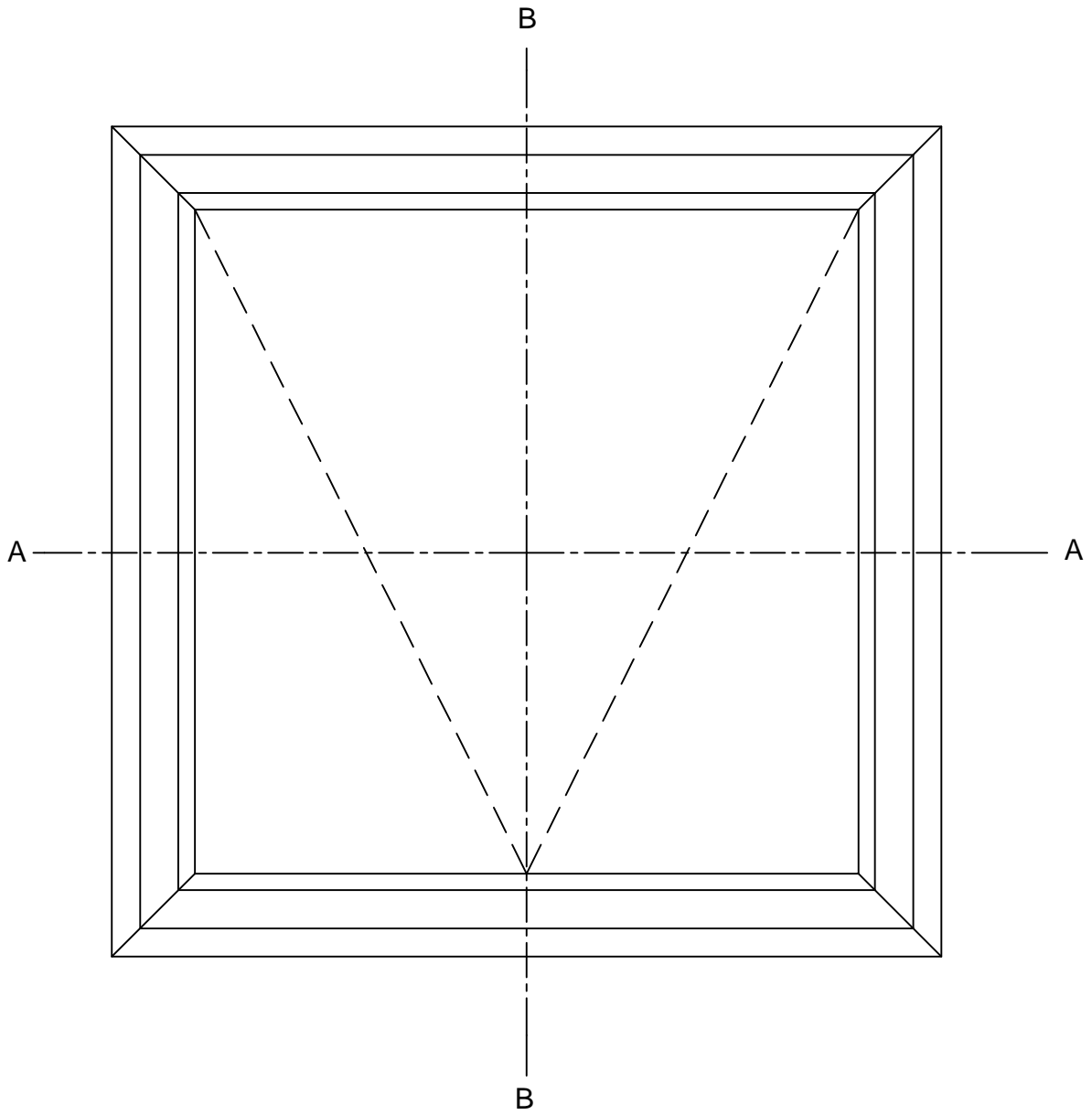


Top Hung
Top Hung
Fixed



Top Hung / Fixed
Top Hung
Fixed

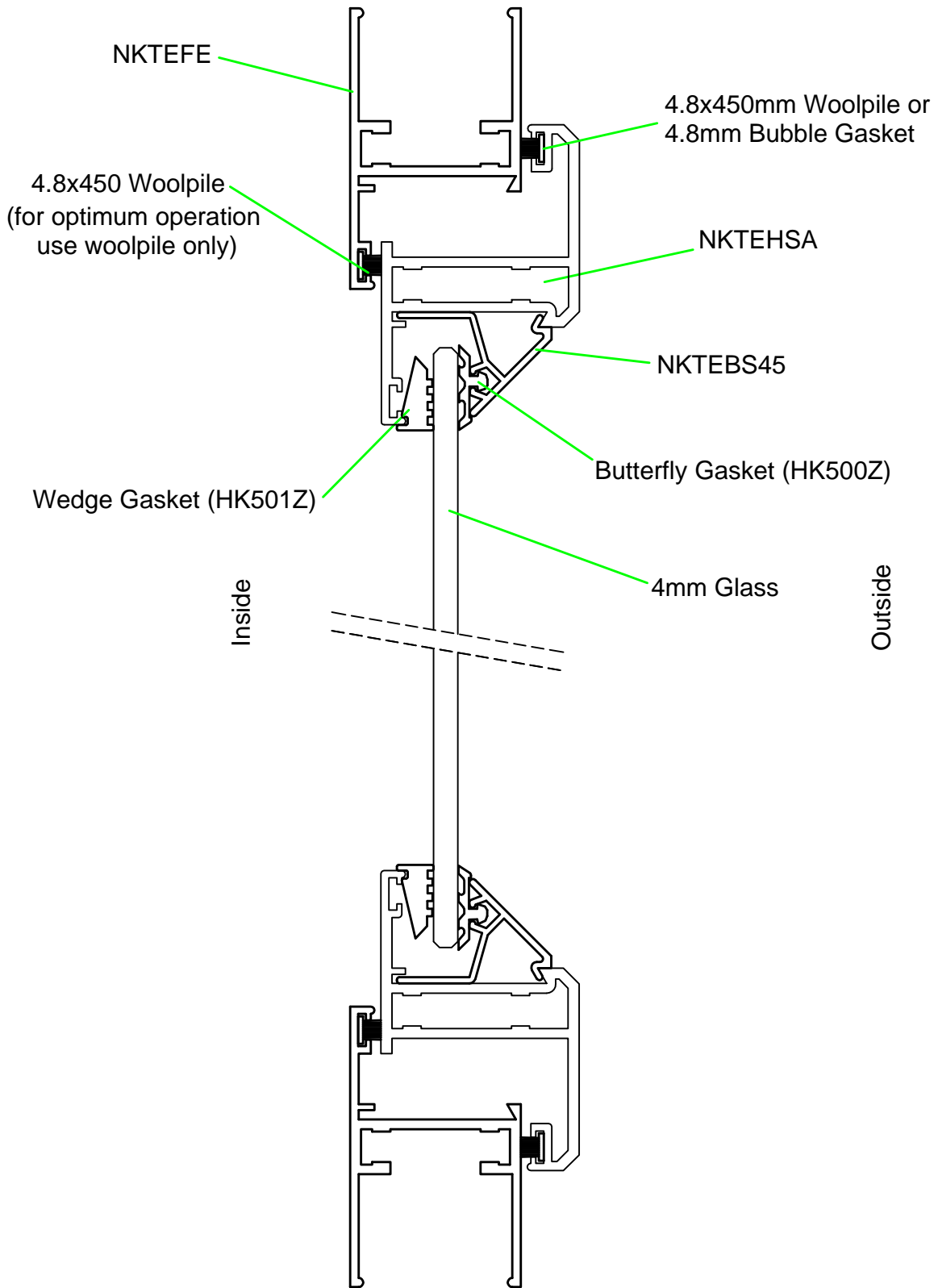
Often used Project Out Window Types
Schematic Elevations



Typical Elevation of Top Hung Window
Detailed Elevations



SECTION A - A

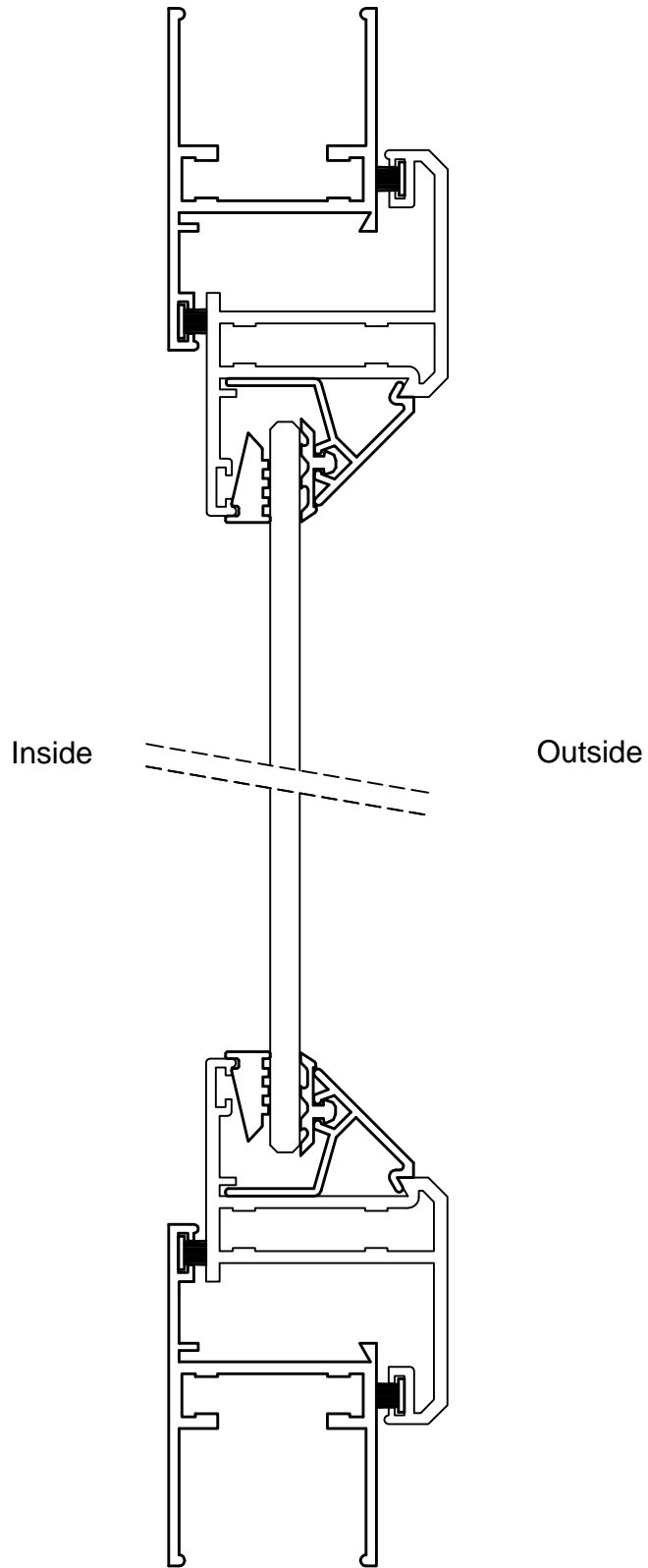


Section through Opening Sash and Outer Frame

Overall Horizontal Cross Sections



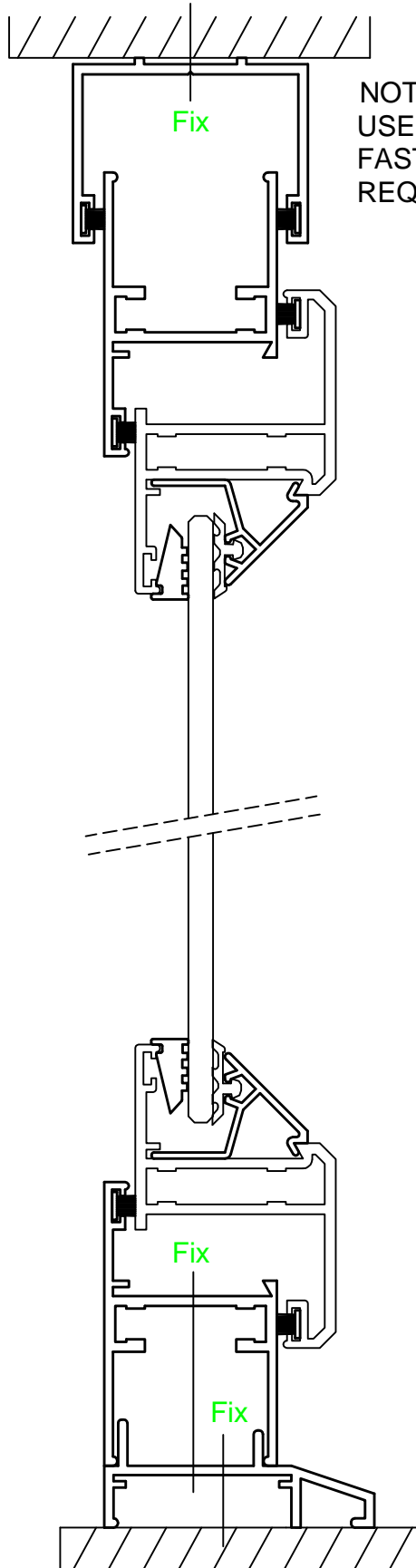
SECTION B - B



Section through Opening Sash and Outer Frame
Overall Vertical Cross Sections



SECTION B - B

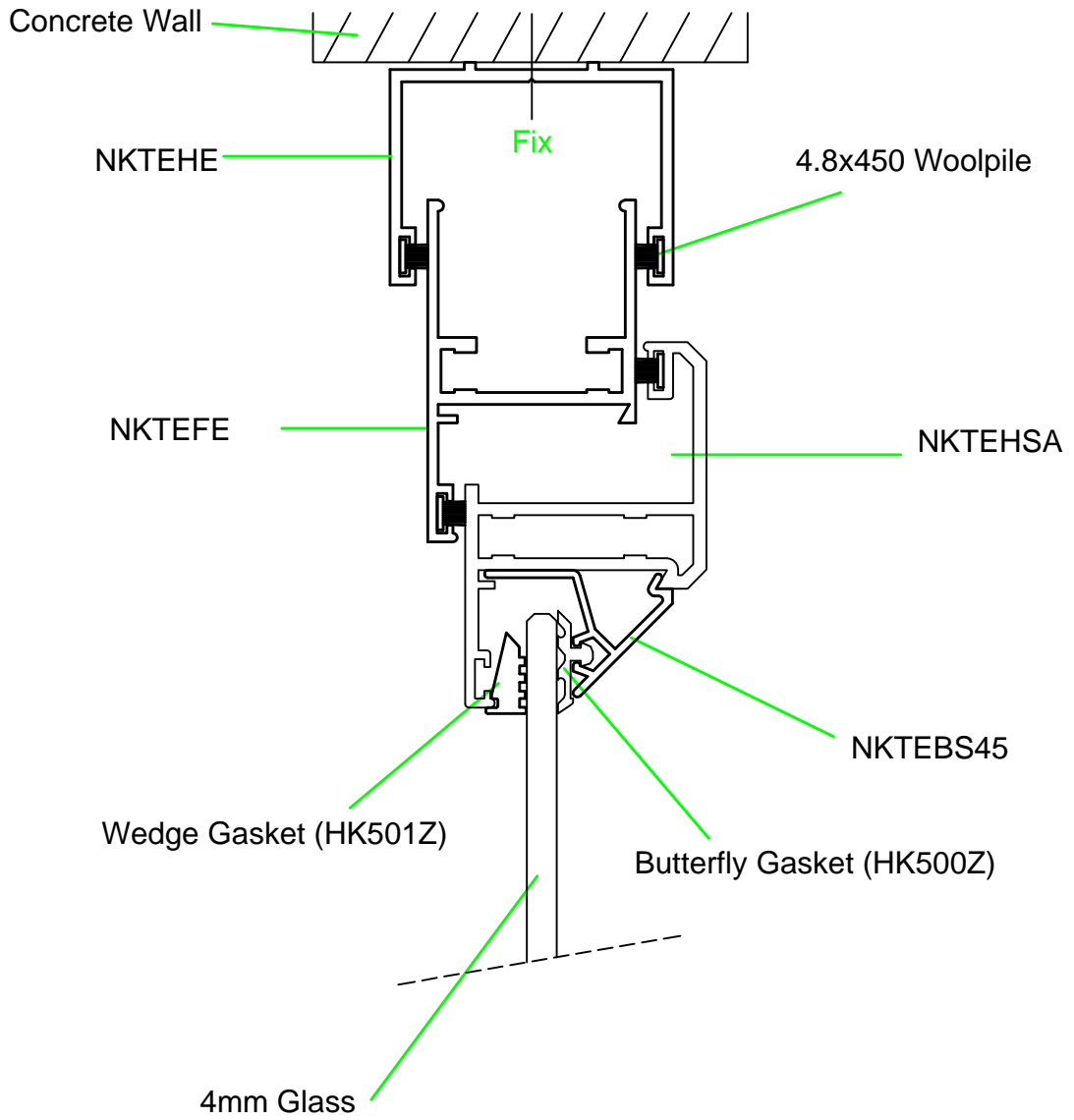


NOTE!
USE CILL & HEAD SECTIONS WHERE
FAST ON-SITE INSTALLATION IS
REQUIRED.

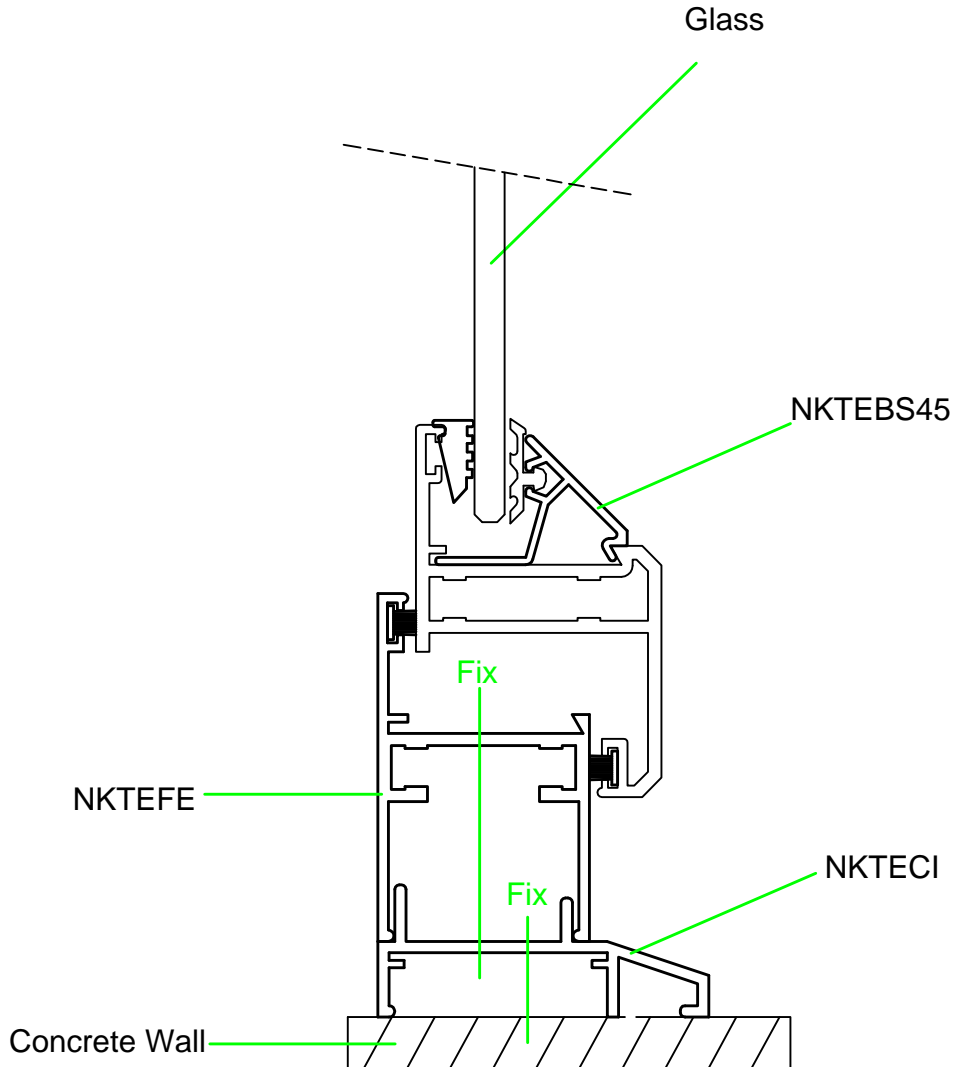
Inside

Outside

Vertical Section through Opening Sash and Outer Frame
Recommended fixing method using Cill and Head



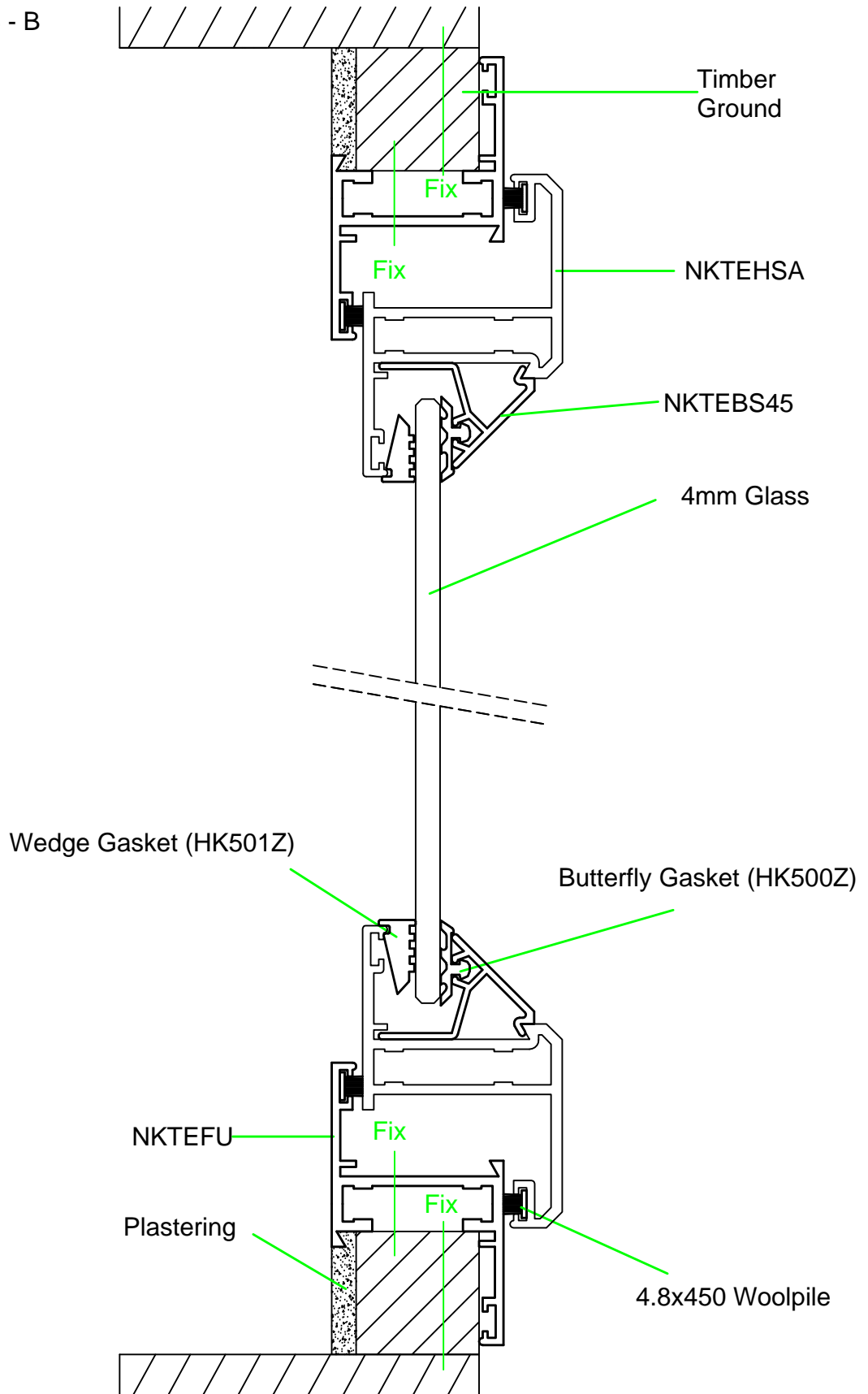
Alternative Solution using Floating Head NKTEHE
Recommended fixing method using Cill and Head



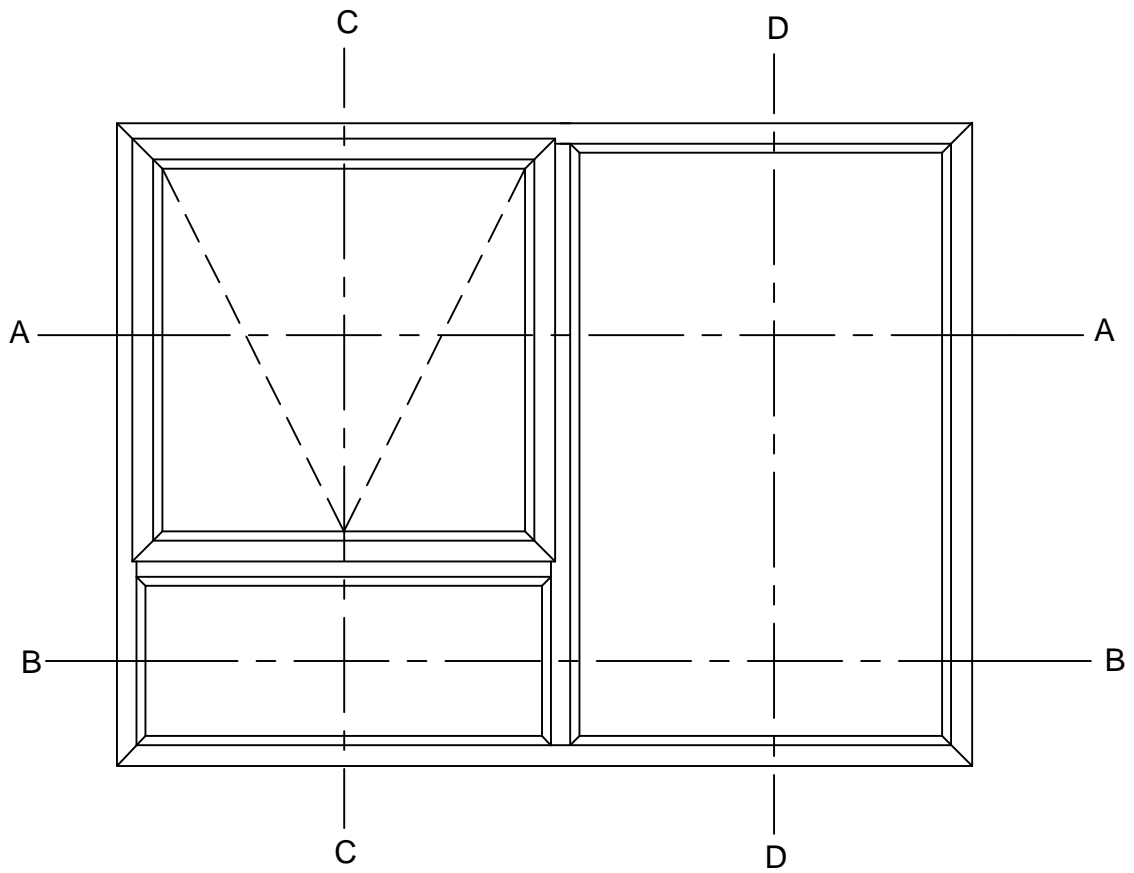
Detail of Outer Frame and Cill Connection
Recommended fixing method using Cill and Head



SECTION B - B



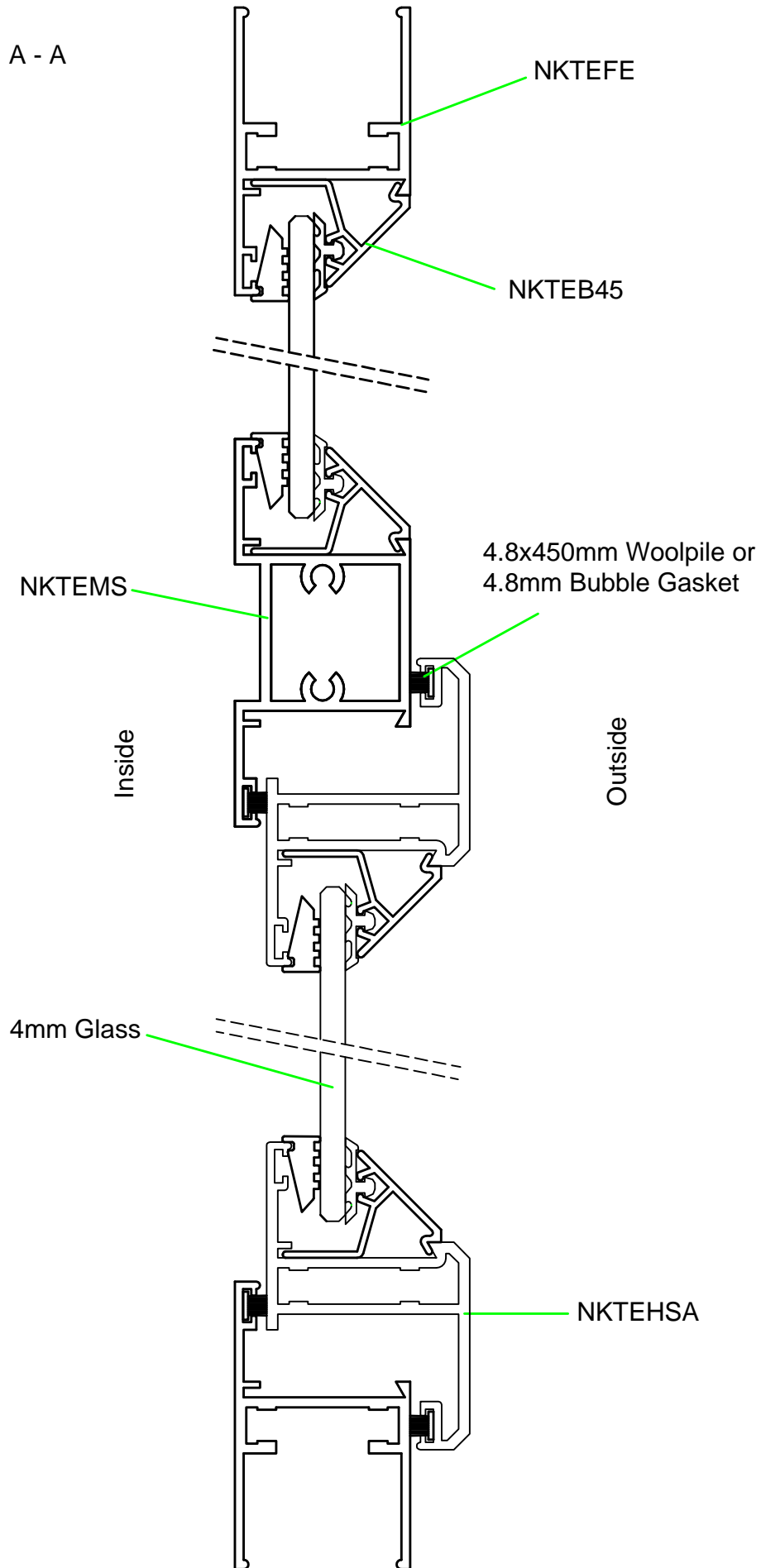
Section through Frame and Opening Sash
utilising Unequal Leg Outer Frame
Alternative Cross Sections and Details



Typical Window Elevation with Top Hung Sash and two Fixed Panels
Detailed Elevations



SECTION A - A

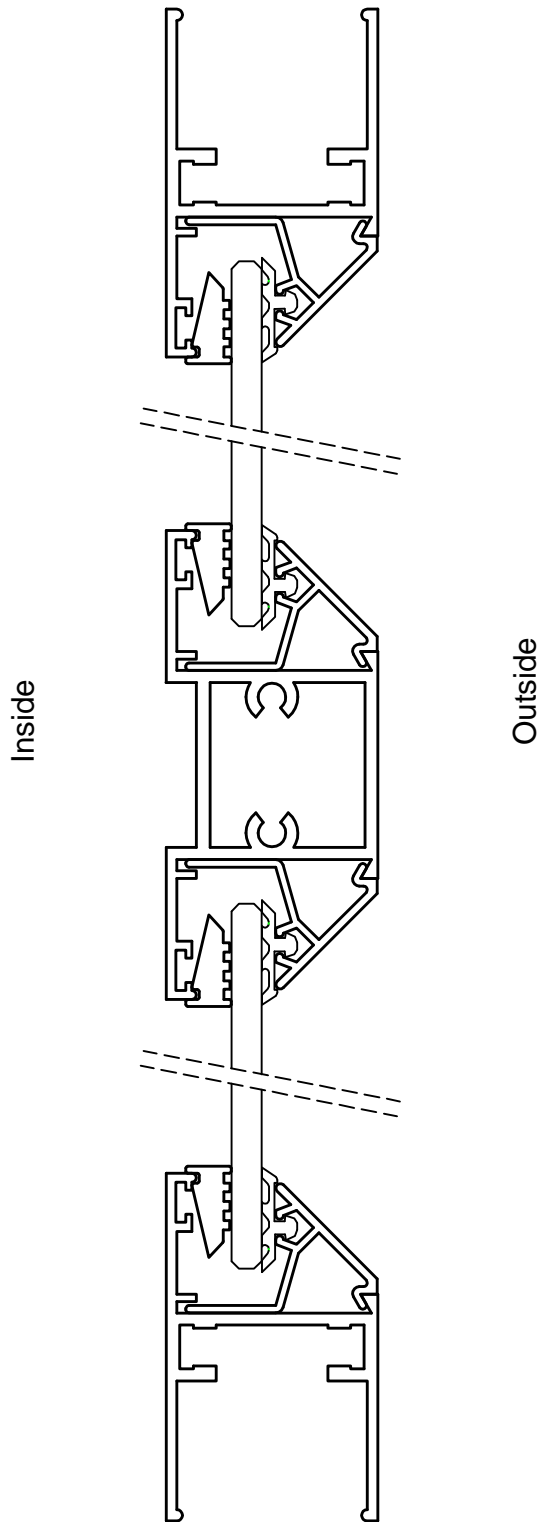


Section through Opening Sash and Fixed Panel

Overall Horizontal Cross Sections



SECTION B - B



Section through Outer Frame with Two Fixed Panels

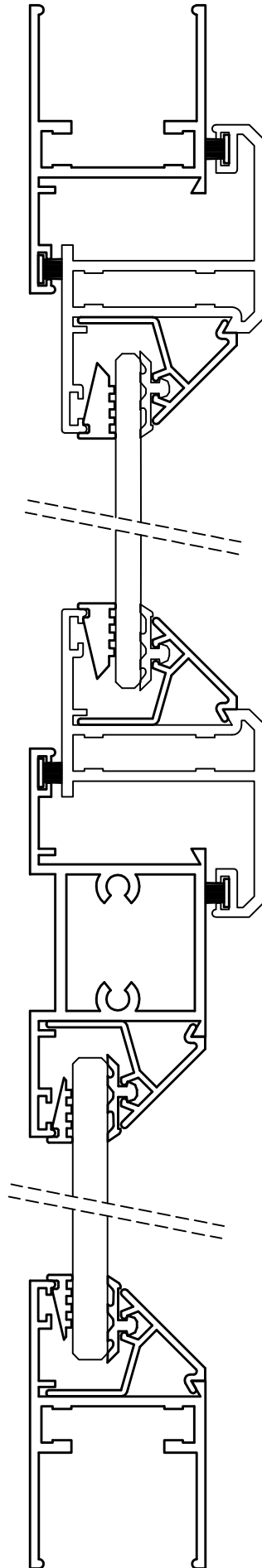
Overall Horizontal Cross Sections



SECTION C - C

Inside

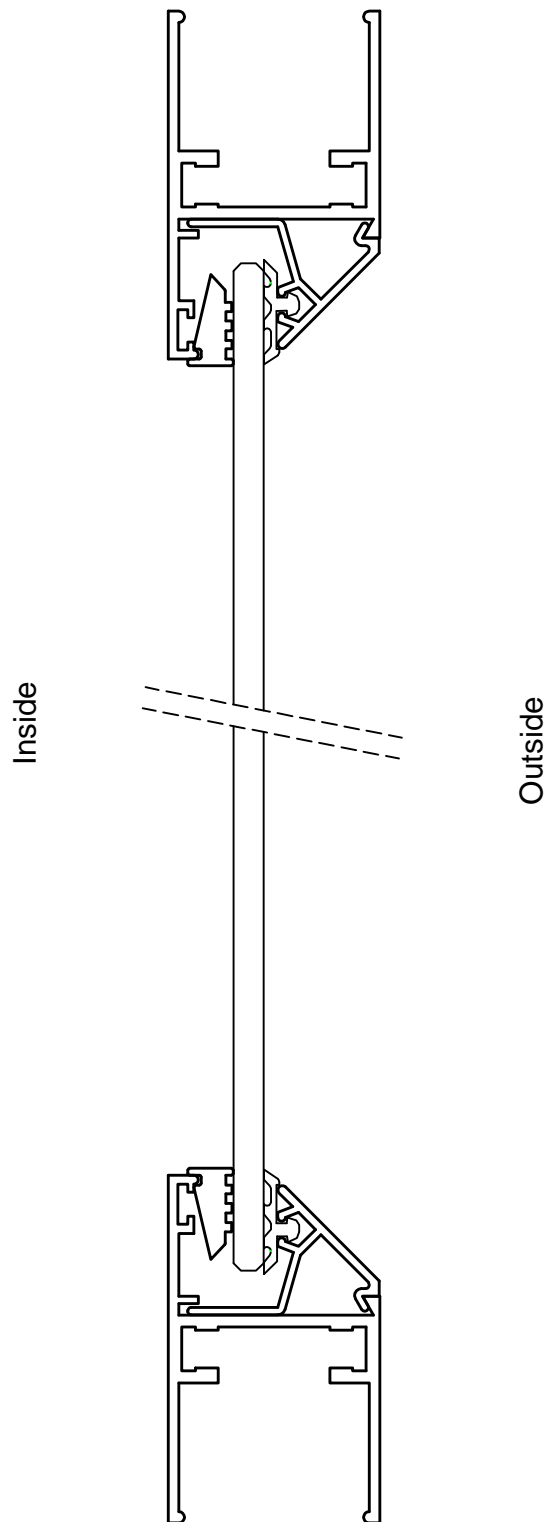
Outside



Vertical Section through Opening Sash and Outer Frame



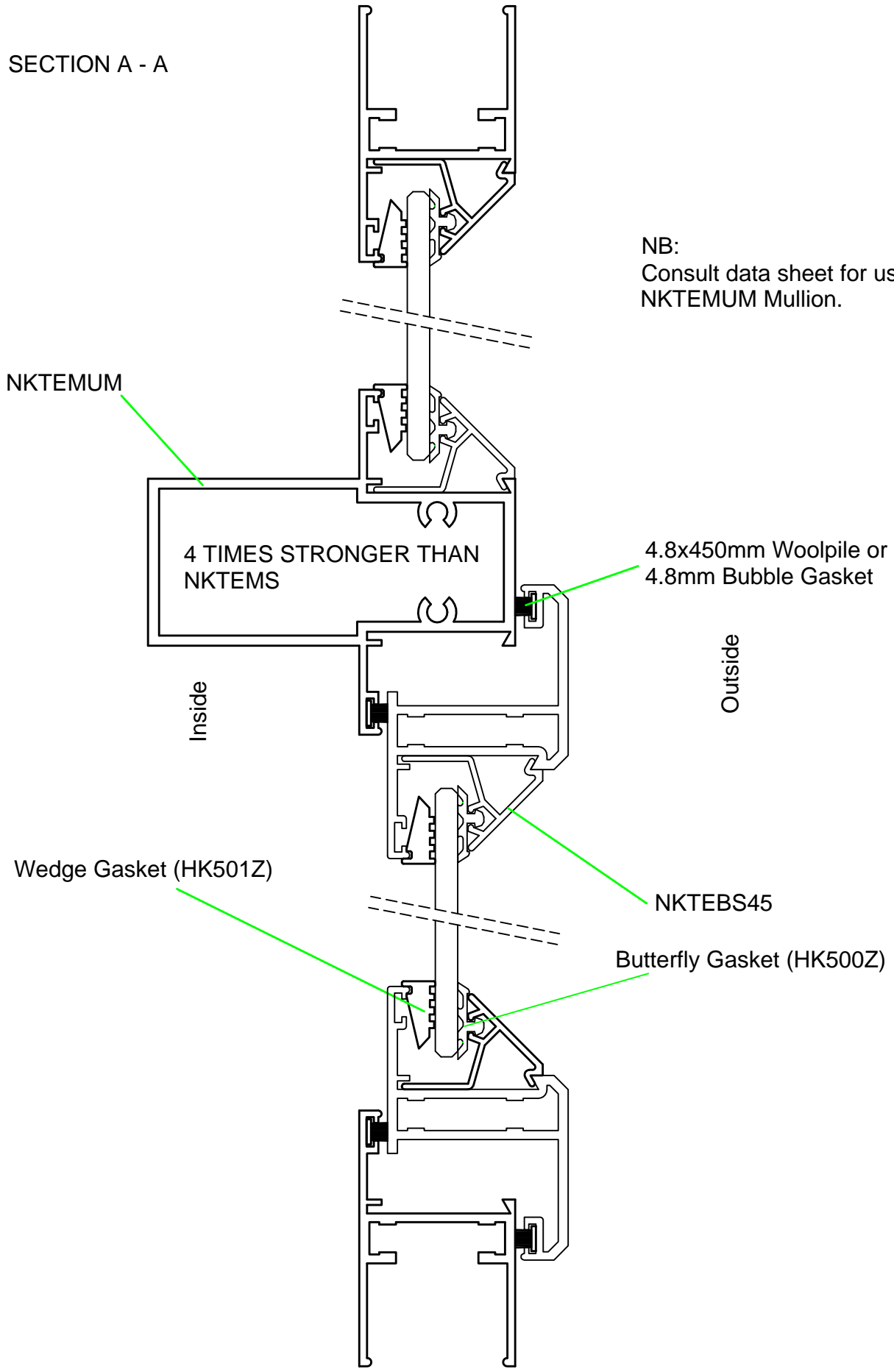
SECTION D - D



Section through Fixed Panel
Vertical Cross Sections

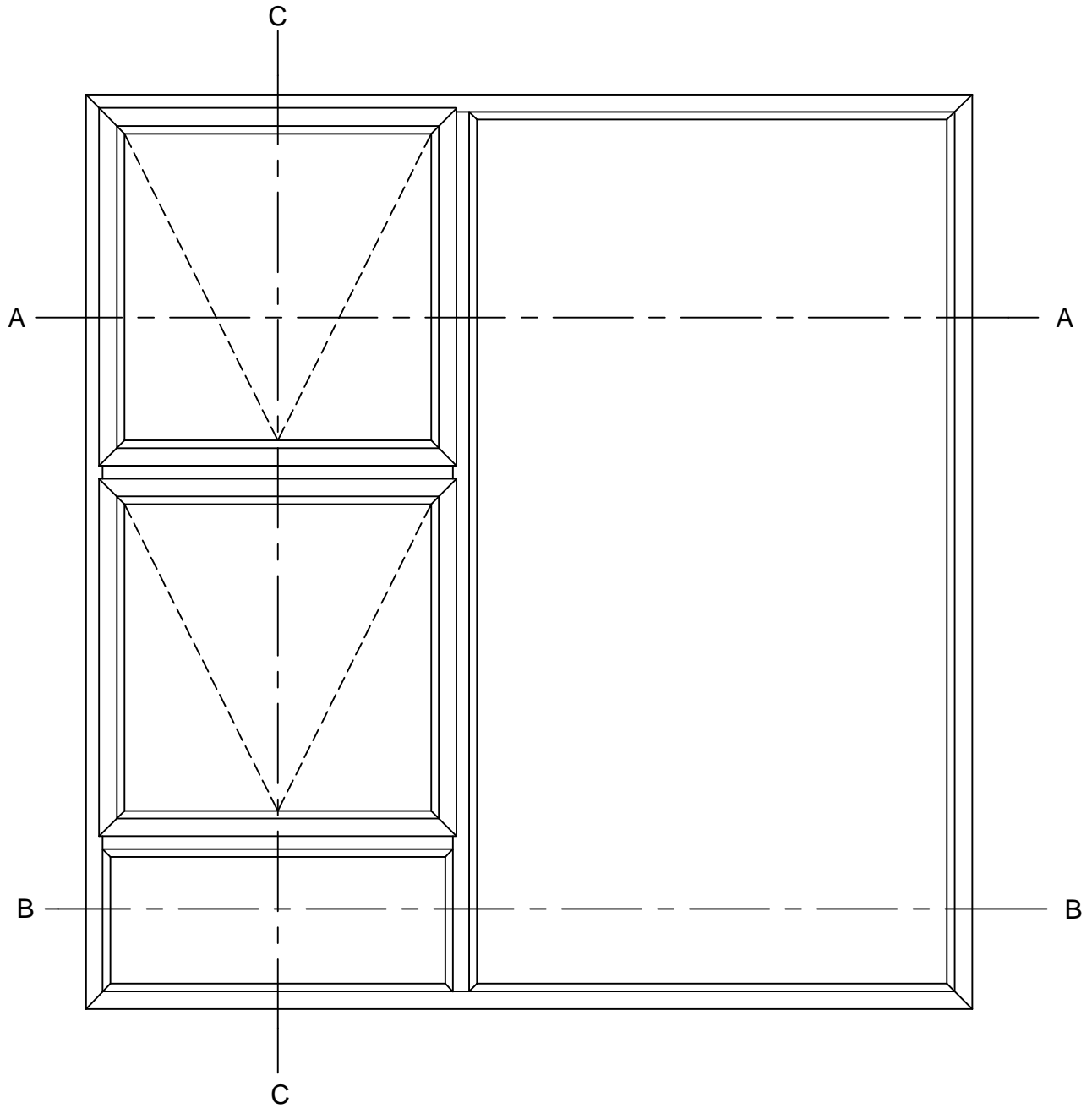


SECTION A - A



NB:
Consult data sheet for use of
NKTEMUM Mullion.

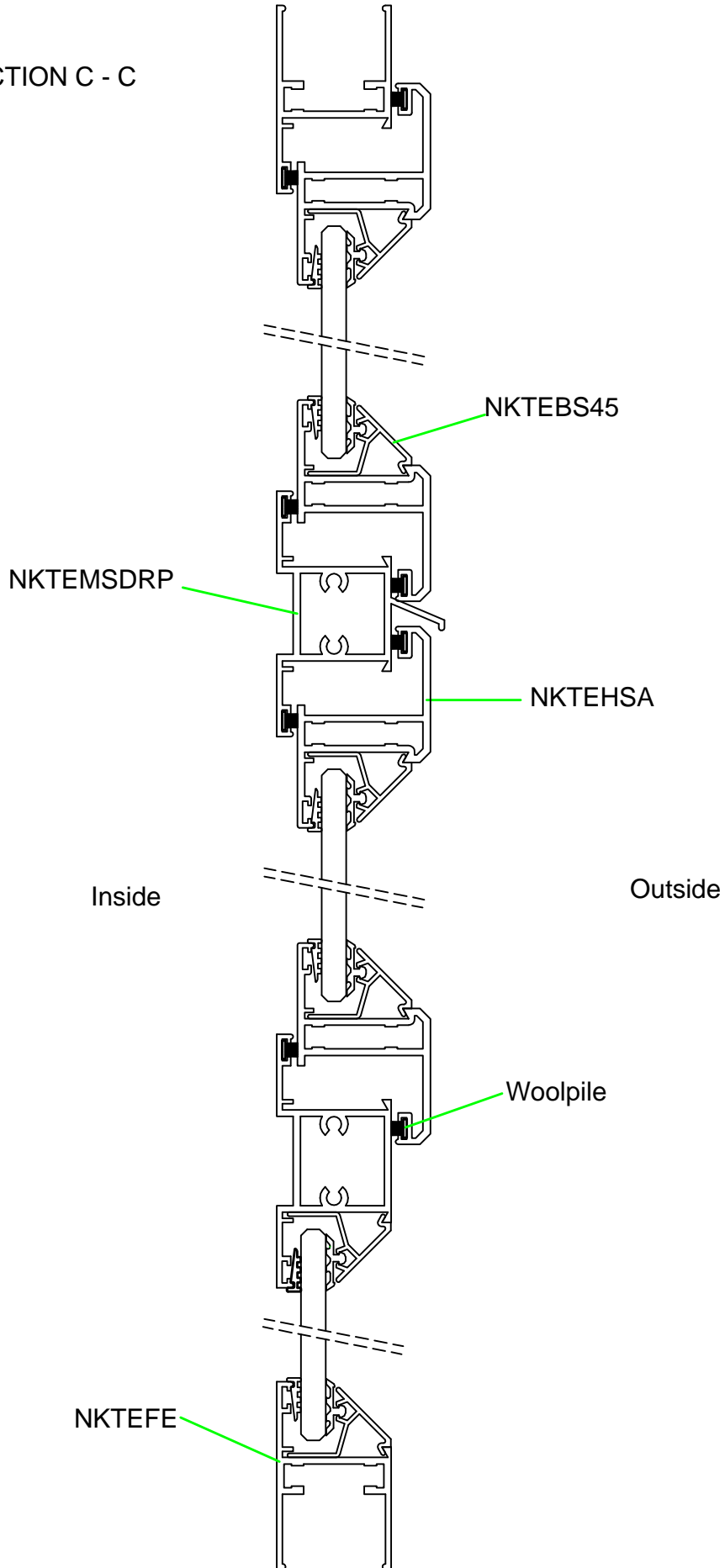
Alternative Section through opening Sash and Fixed Panel



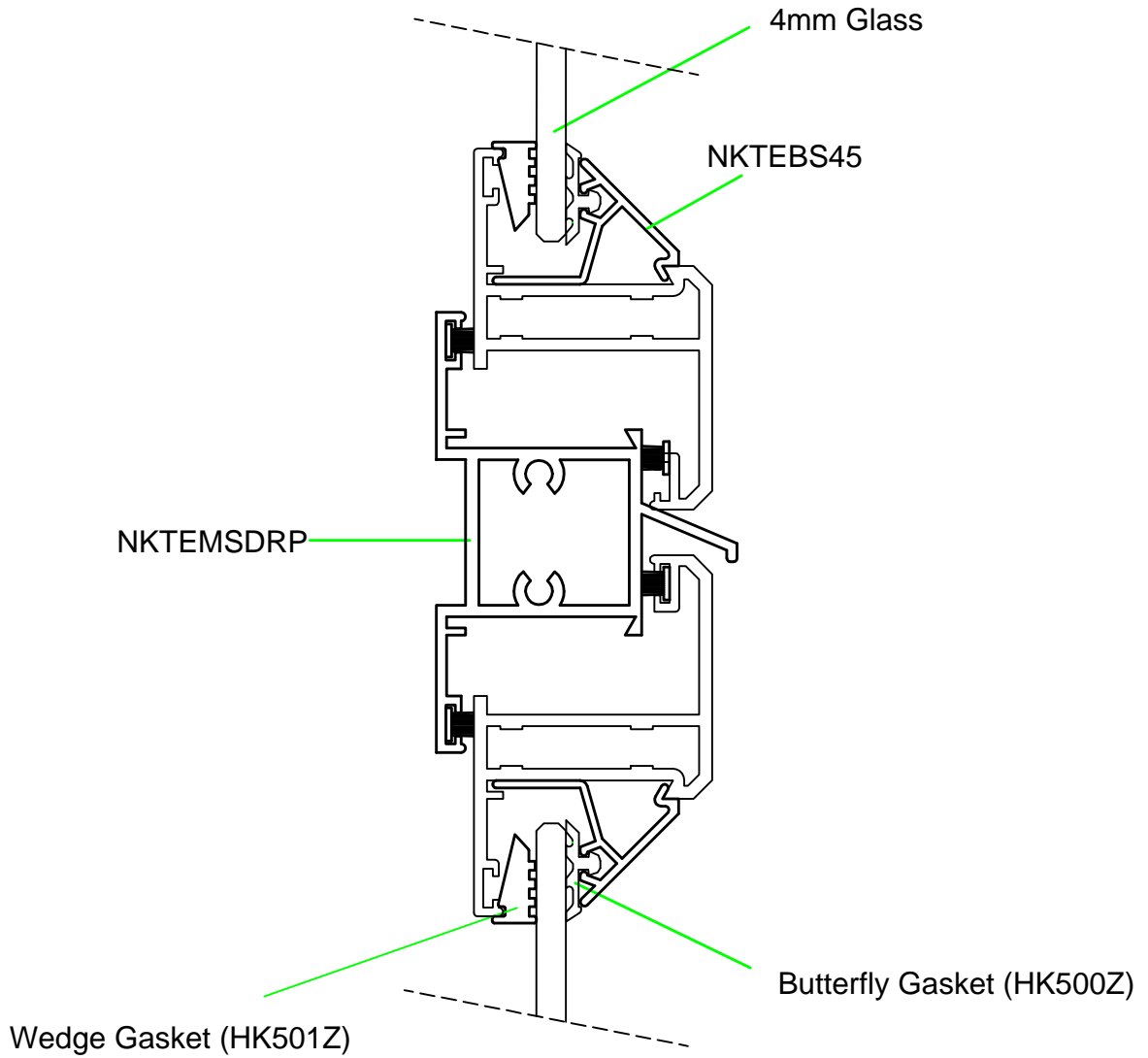
Typical Window Elevation with two Top Hung Sashes and two Fixed Panels
Detailed Elevations



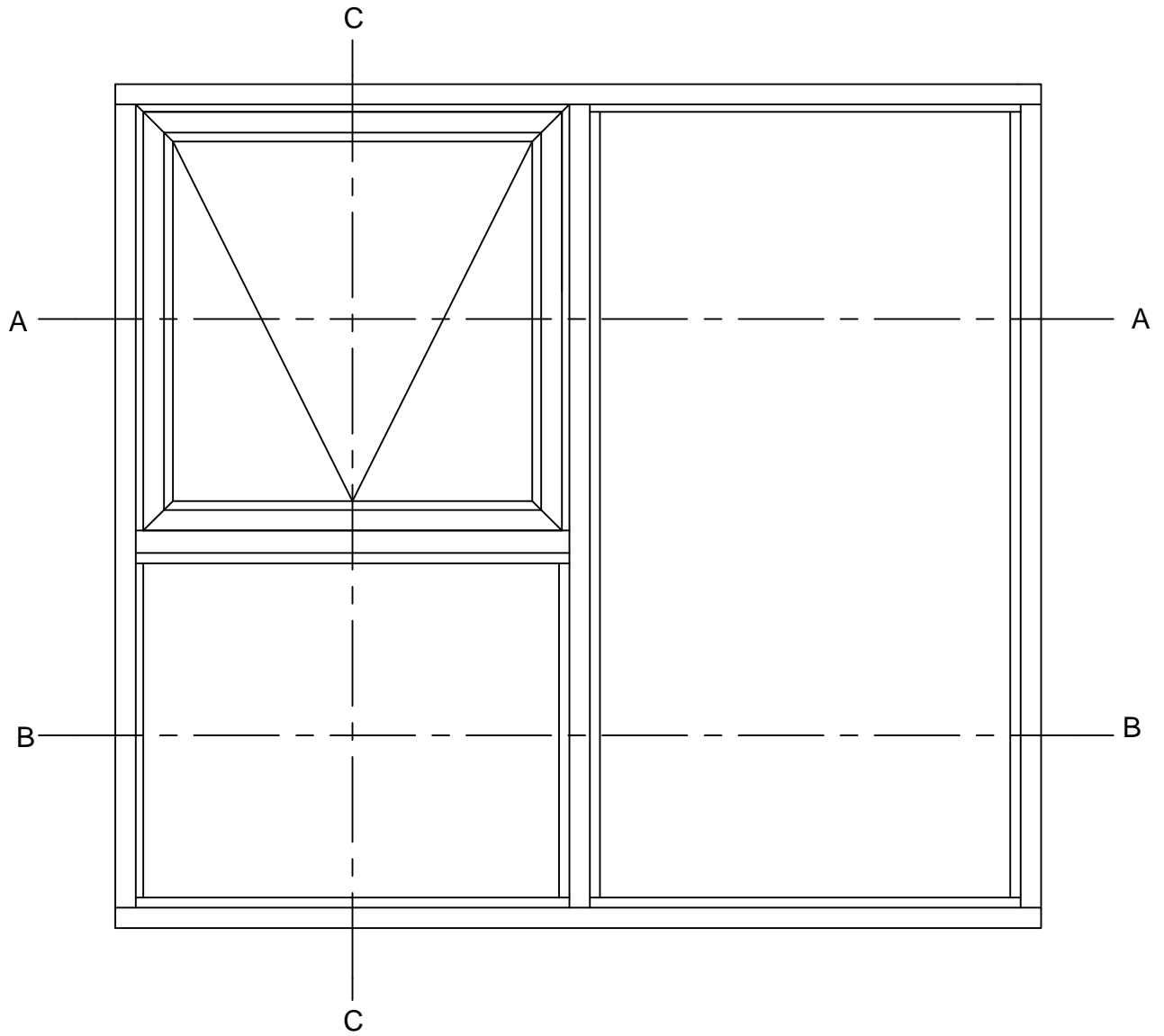
SECTION C - C



Section through two Opening Sashes and Fixed Panel
Overall Vertical Cross Sections



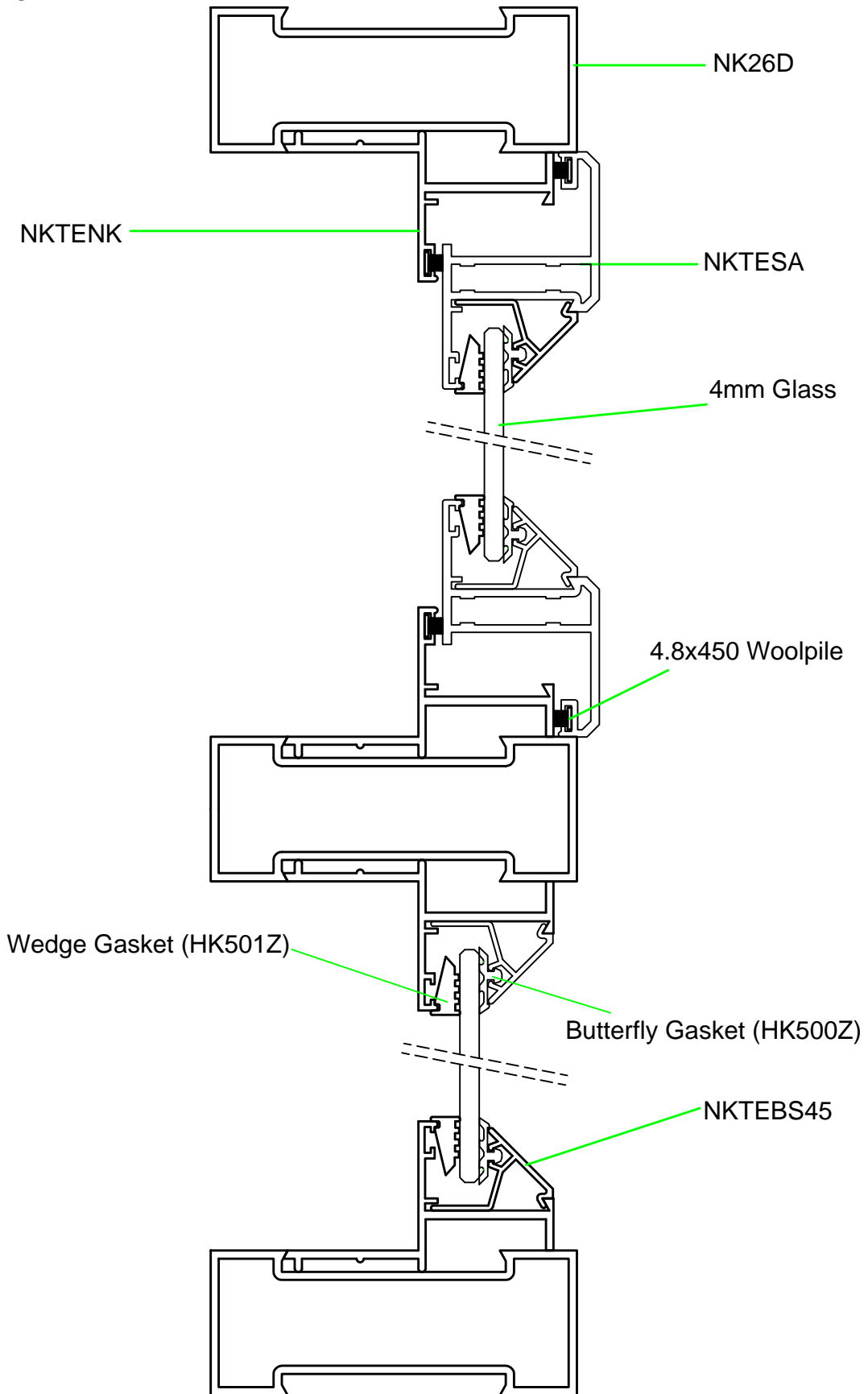
Section A - A Sash to Sash Transom details



Top Hung Window on a Shop Front



SECTION A - A

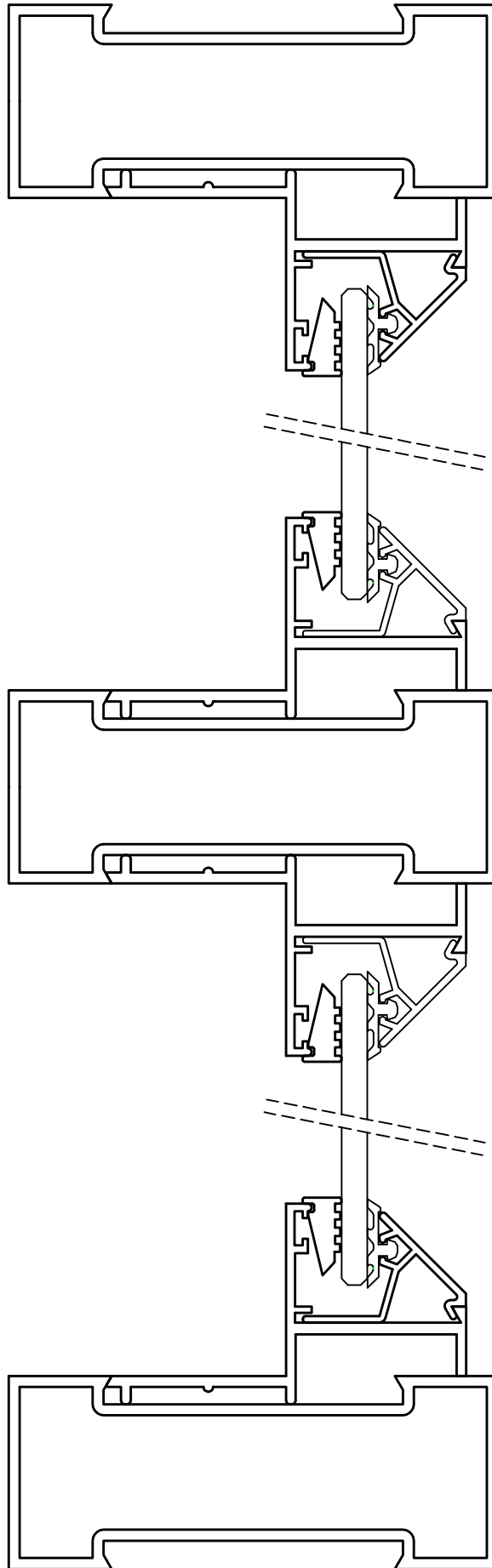


Section through Sash and Fixed Panel

Overall Horizontal Cross Sections



SECTION B - B

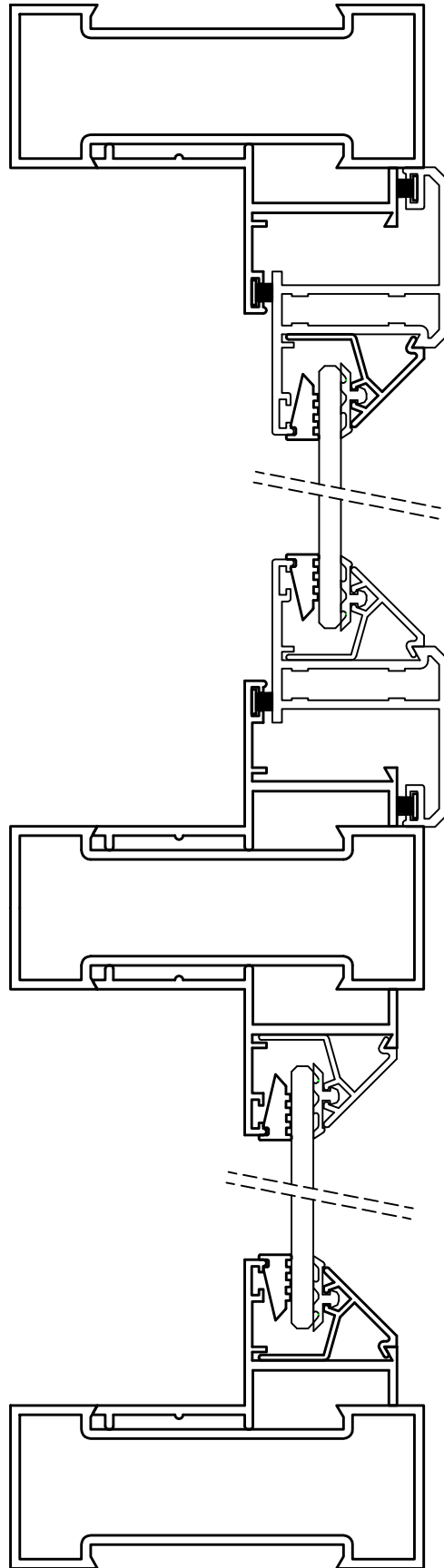


Section through two fixed Panels

Overall Horizontal Cross Sections

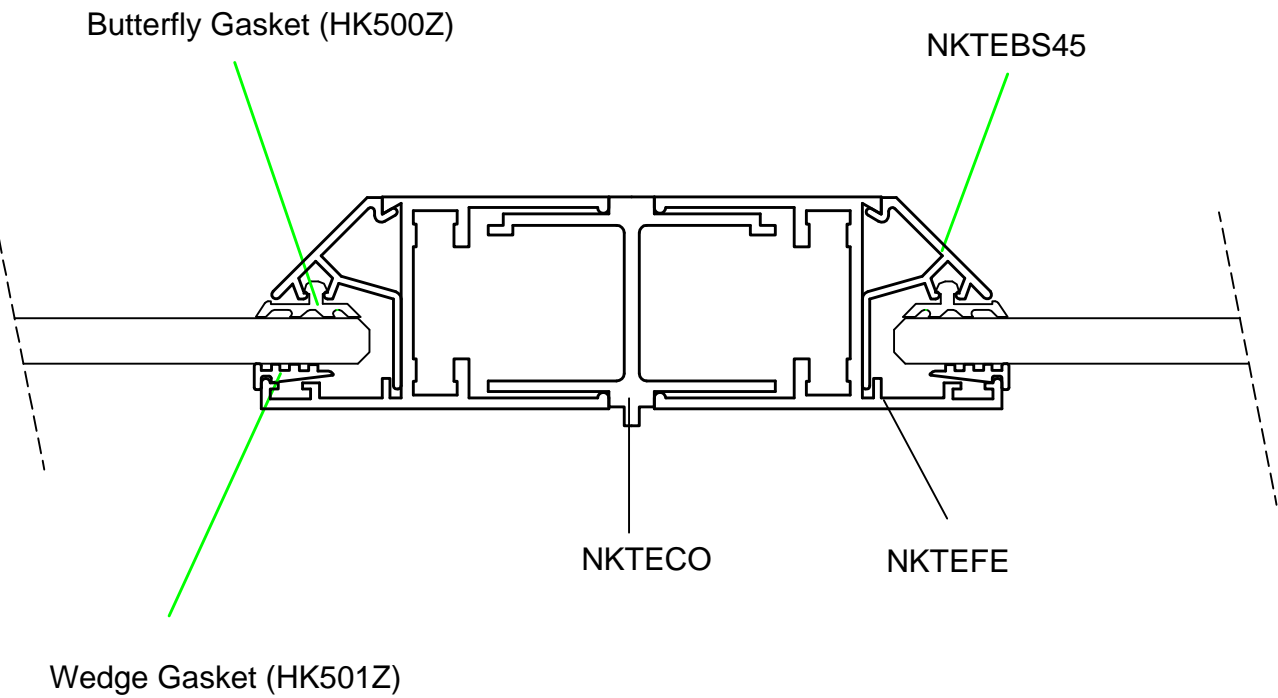


SECTION C - C

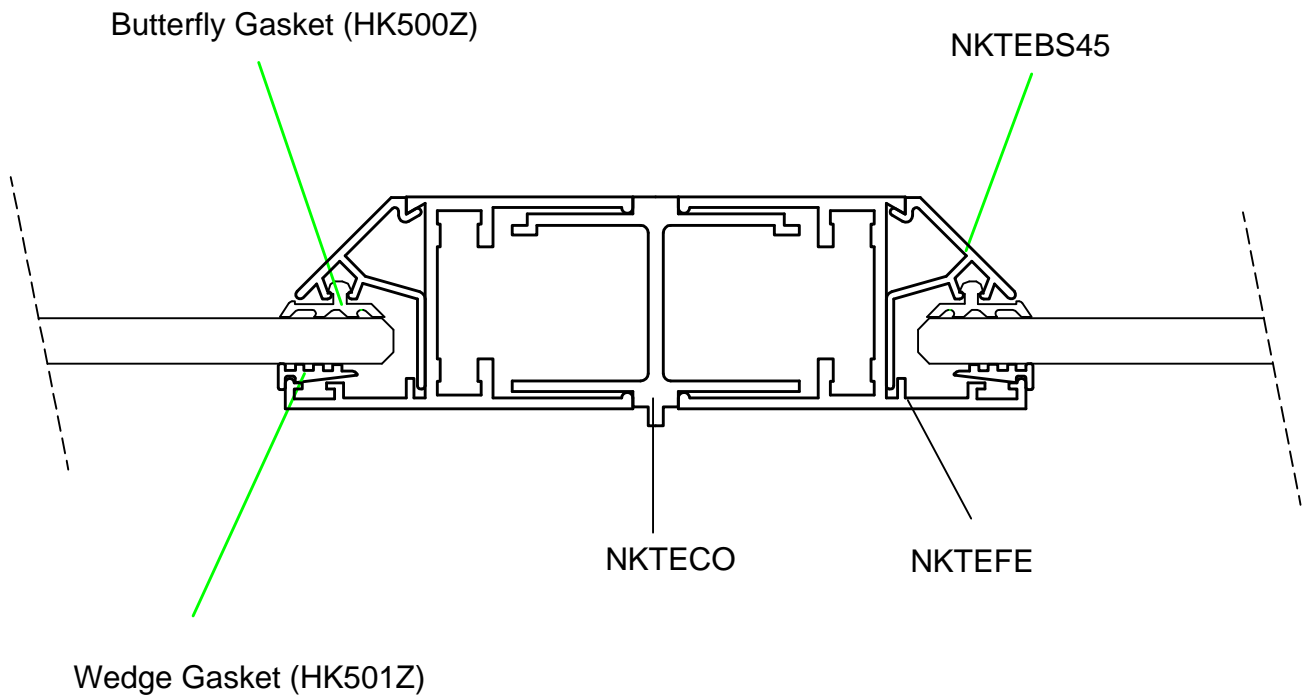


Section through Sash and Fixed Panel

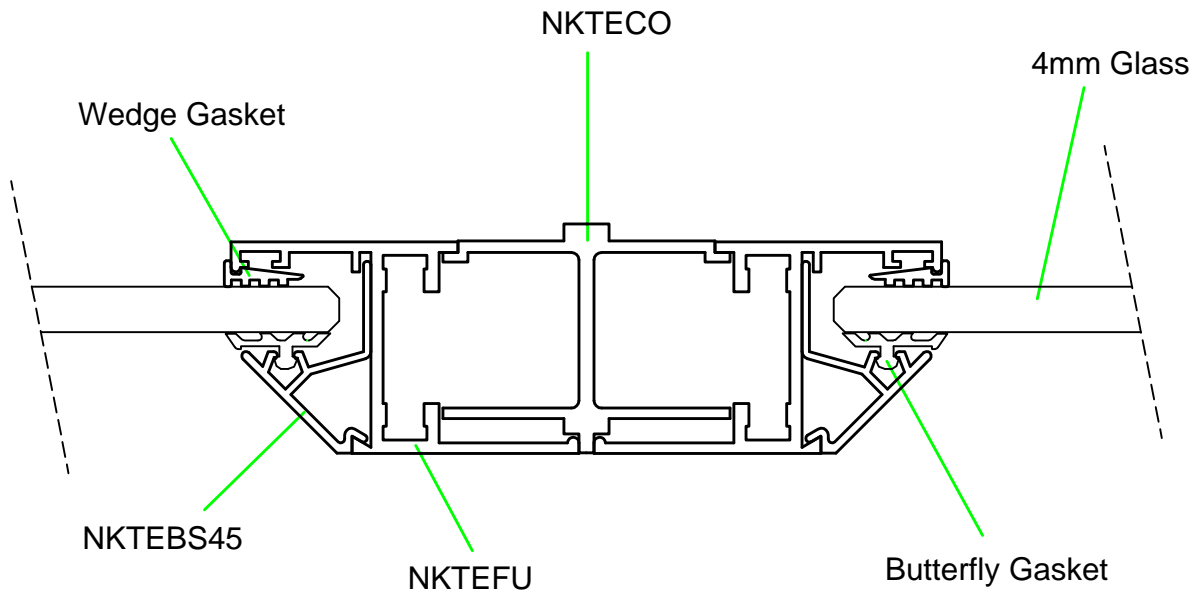
Overall Vertical Cross Sections



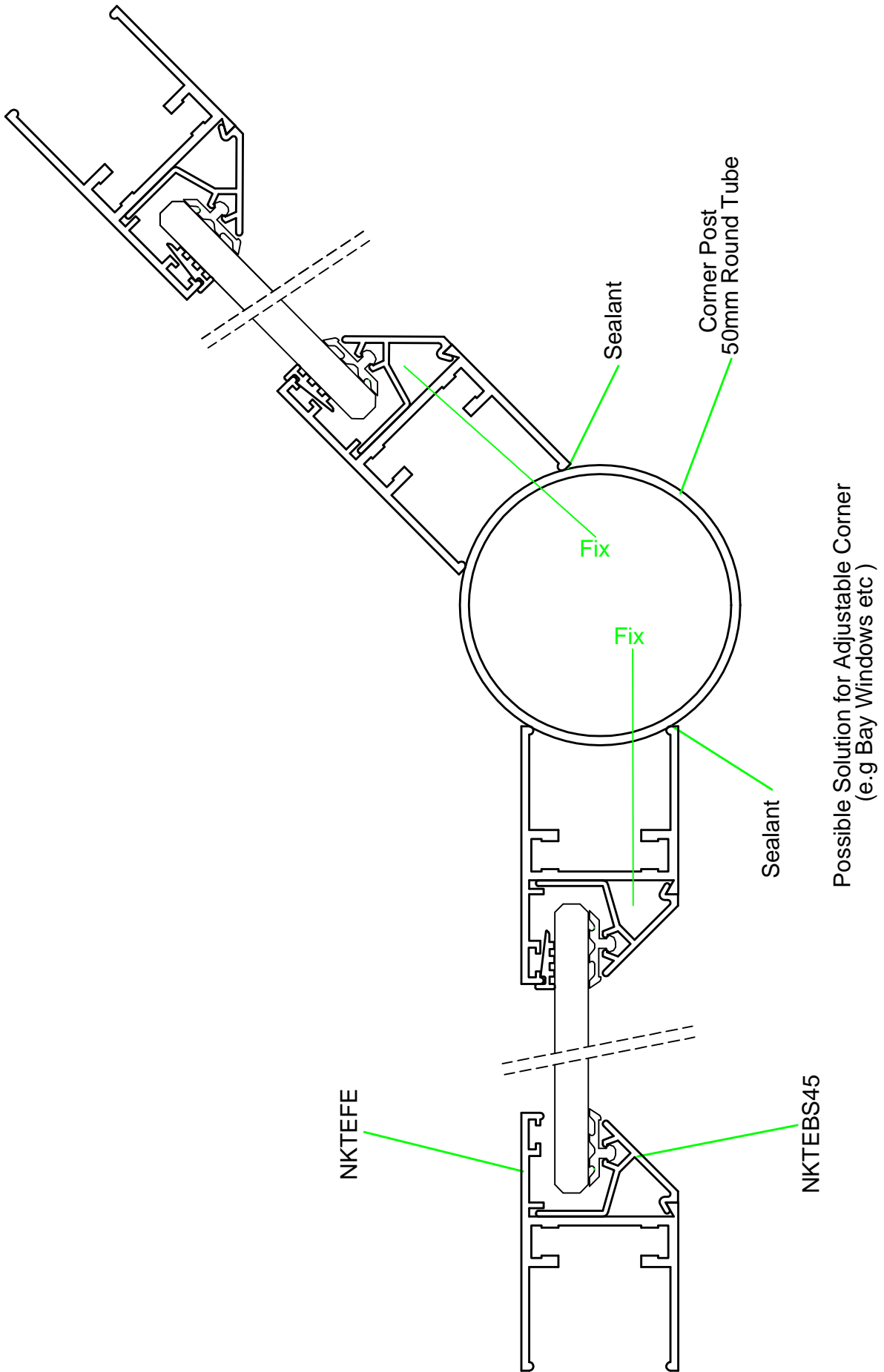
Horizontal Section using NKTECO as Expansion Joint/ Coupler
(Equal Leg Outer Frame)



Horizontal Section using NKTECO as Expansion Joint/ Coupler
(Equal Leg Outer Frame)



Horizontal Section using NKTECO as Coupler
(Unequal Leg Outer Frame)



Adjustable corner layout for 28mm window



NKTEHE

Woolpile

NKTEFE

NKTEHSA

NKTEBS45/65

Prepunched 10672

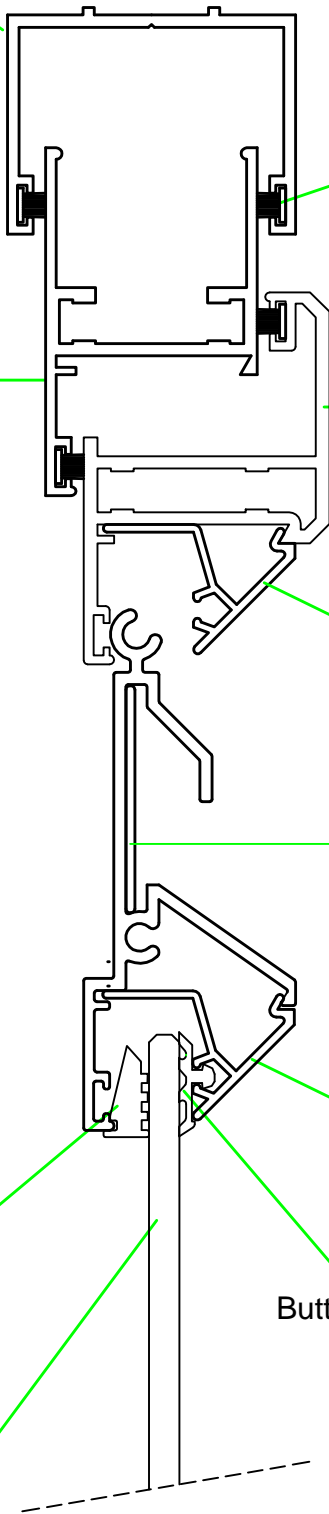
NKTEBS45

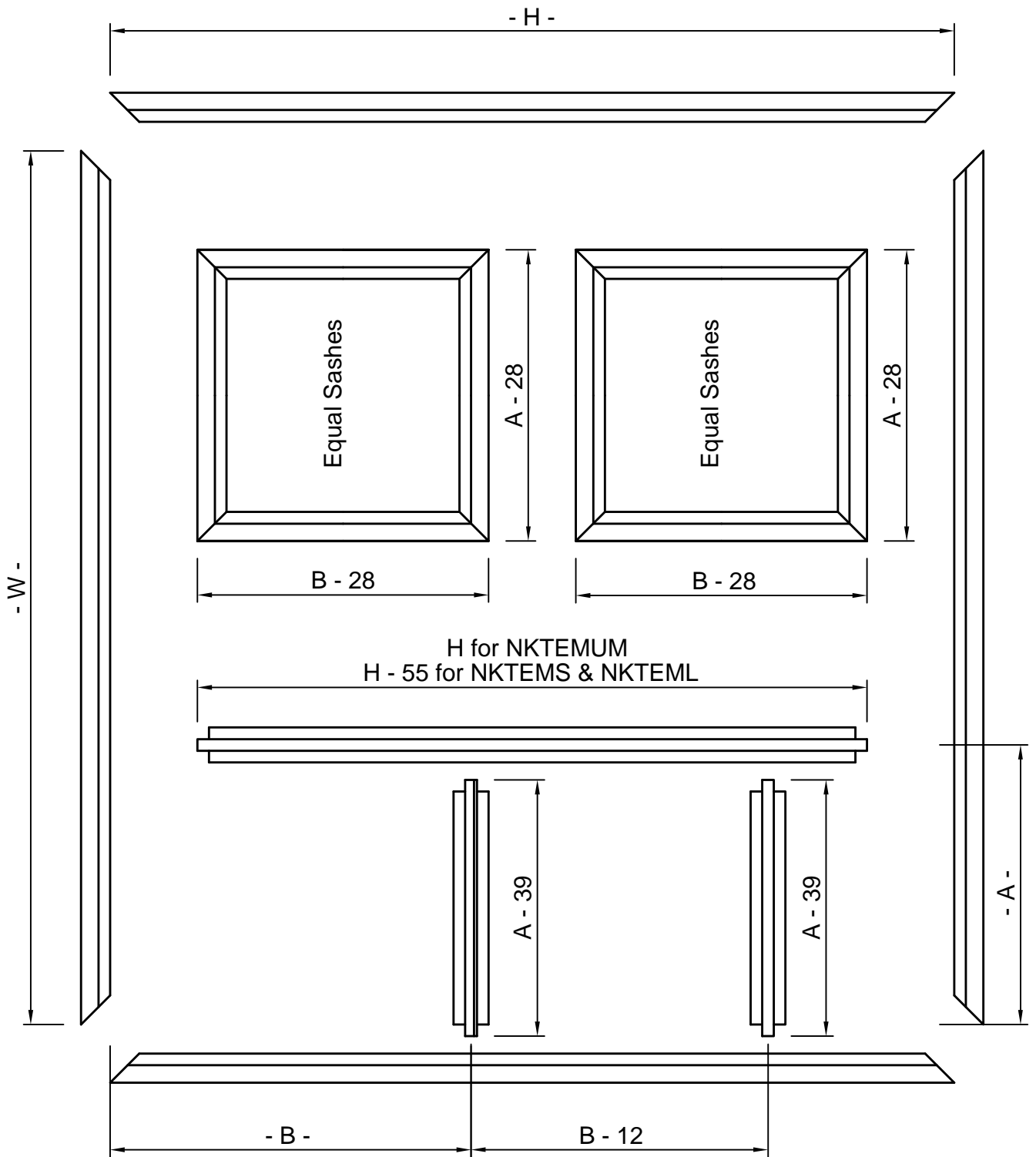
Wedge Gasket

Butterfly Gasket

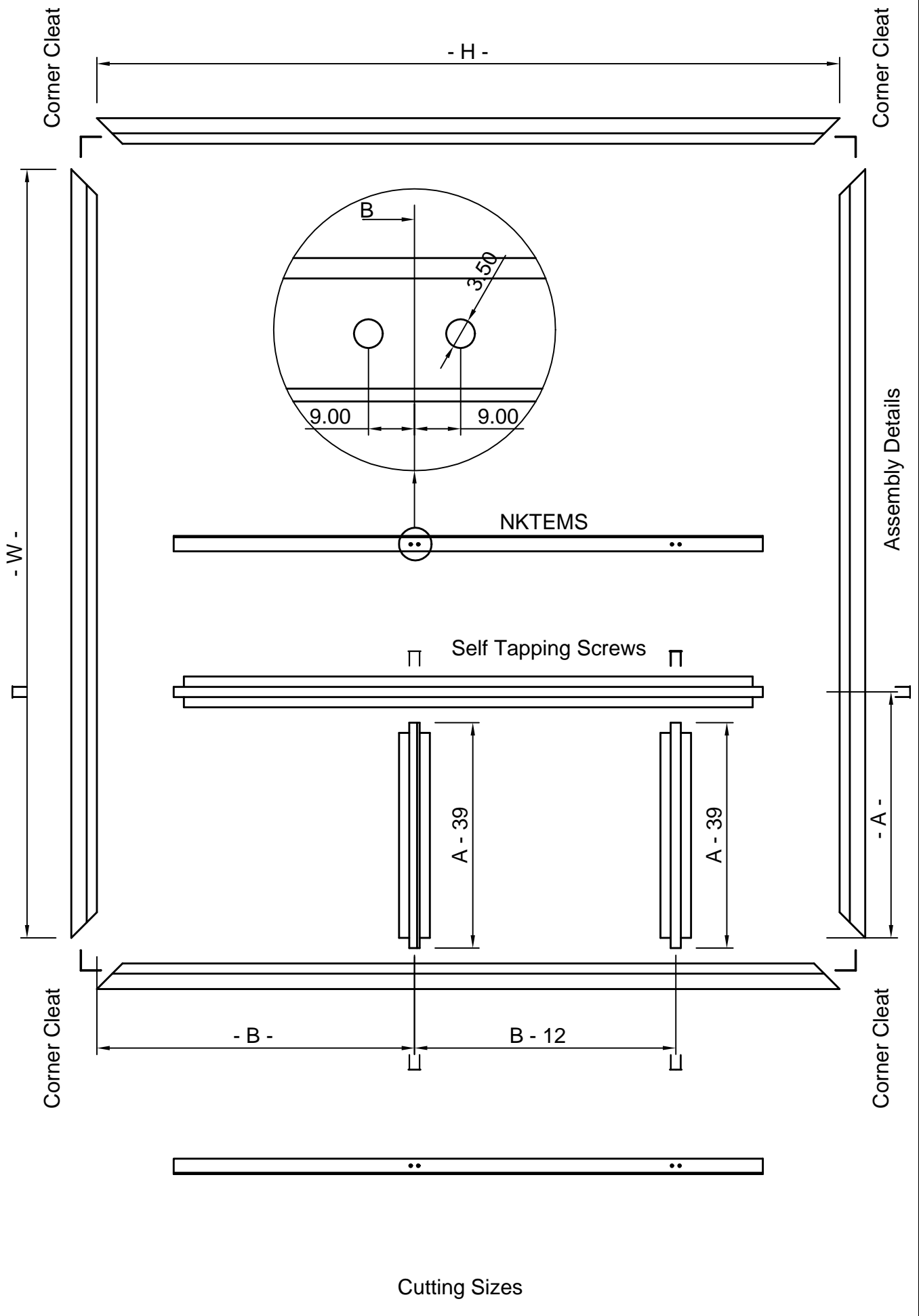
4mm Glass

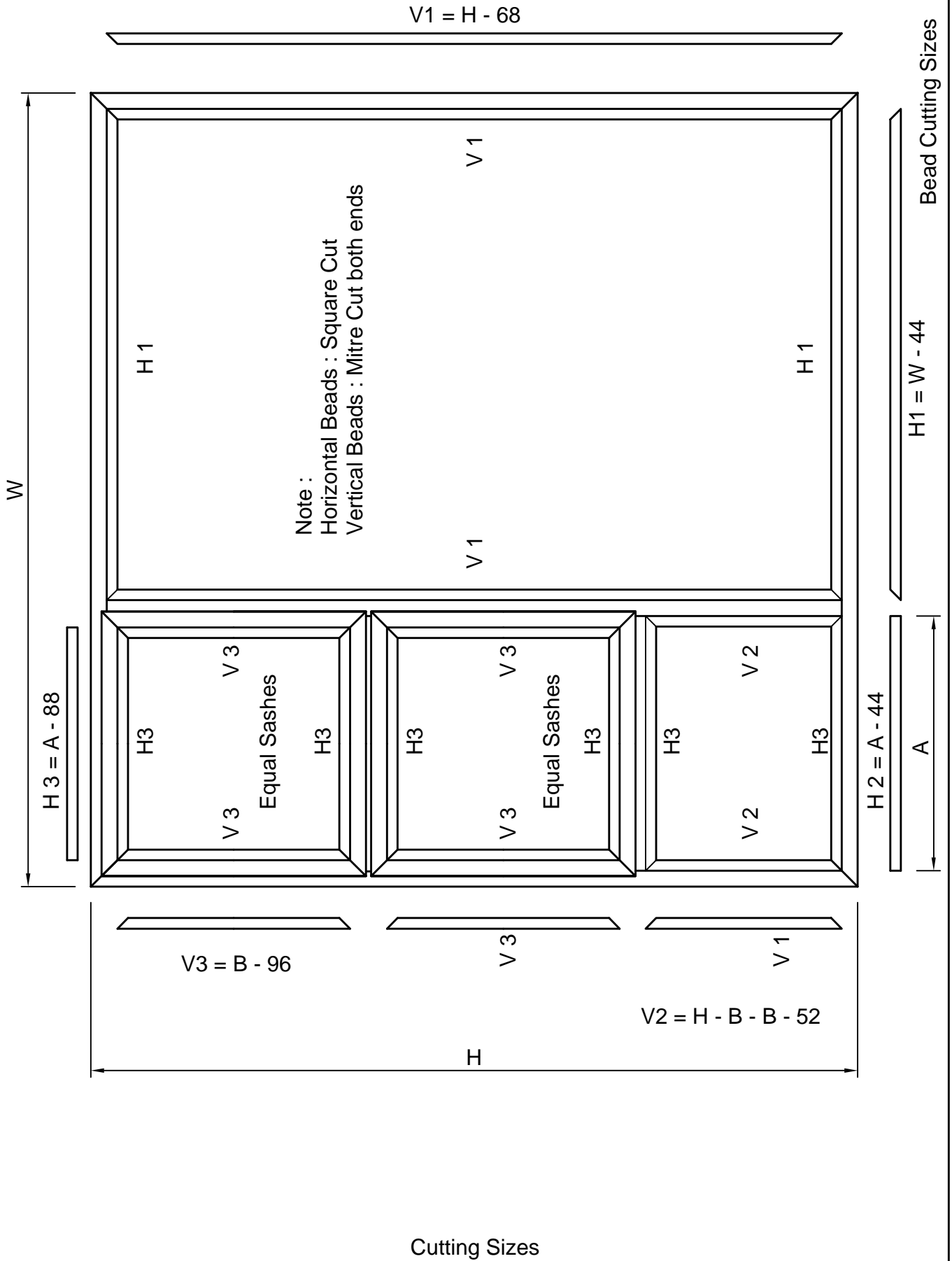
Alternative Solution using Floating Head NKTEHE

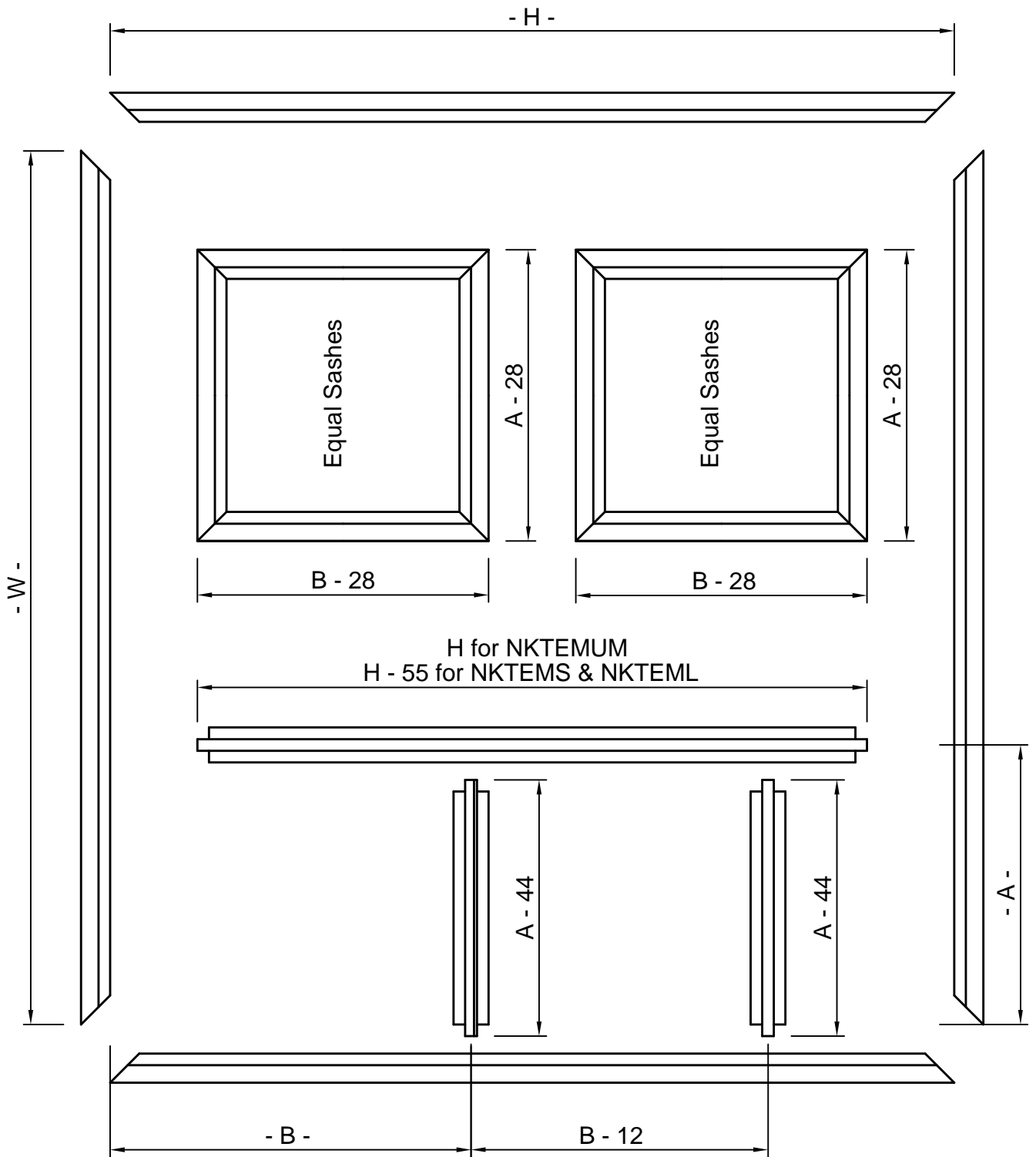




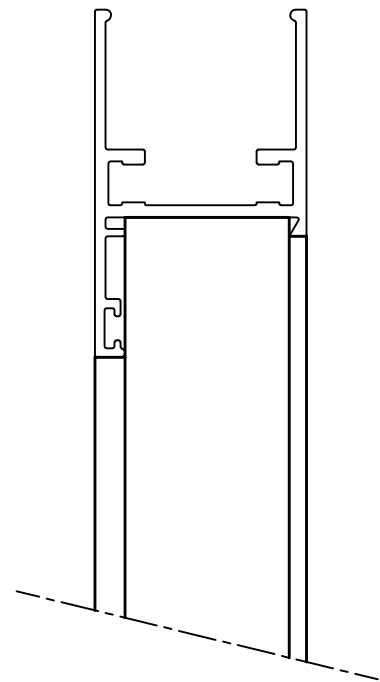
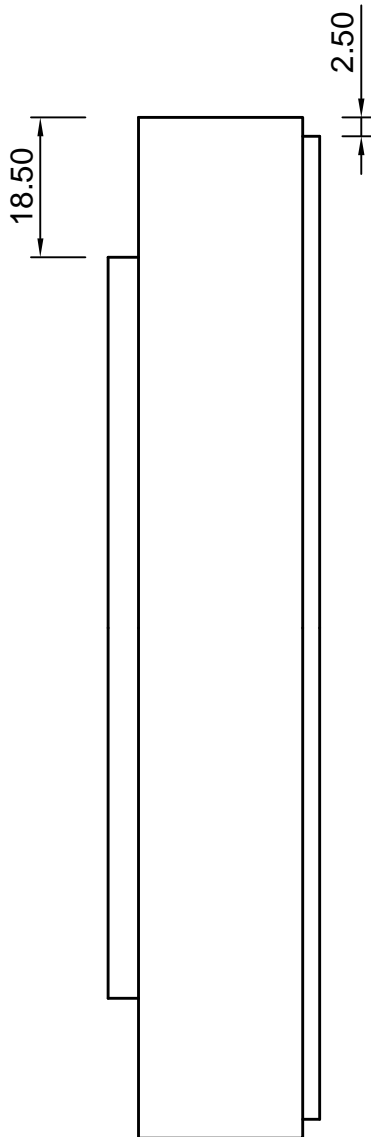
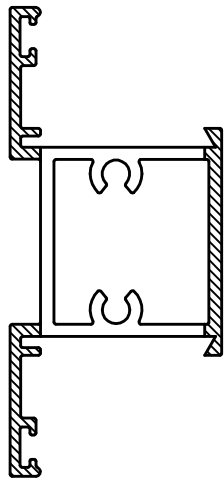
Cutting Sizes



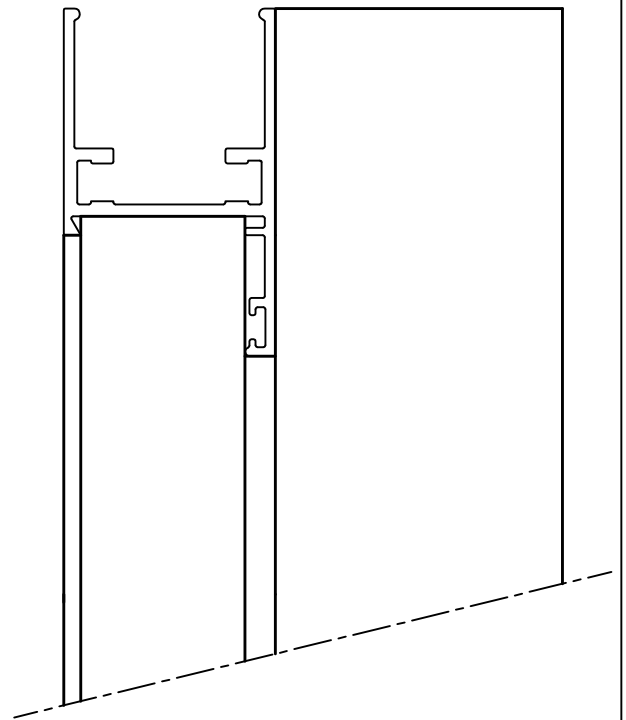
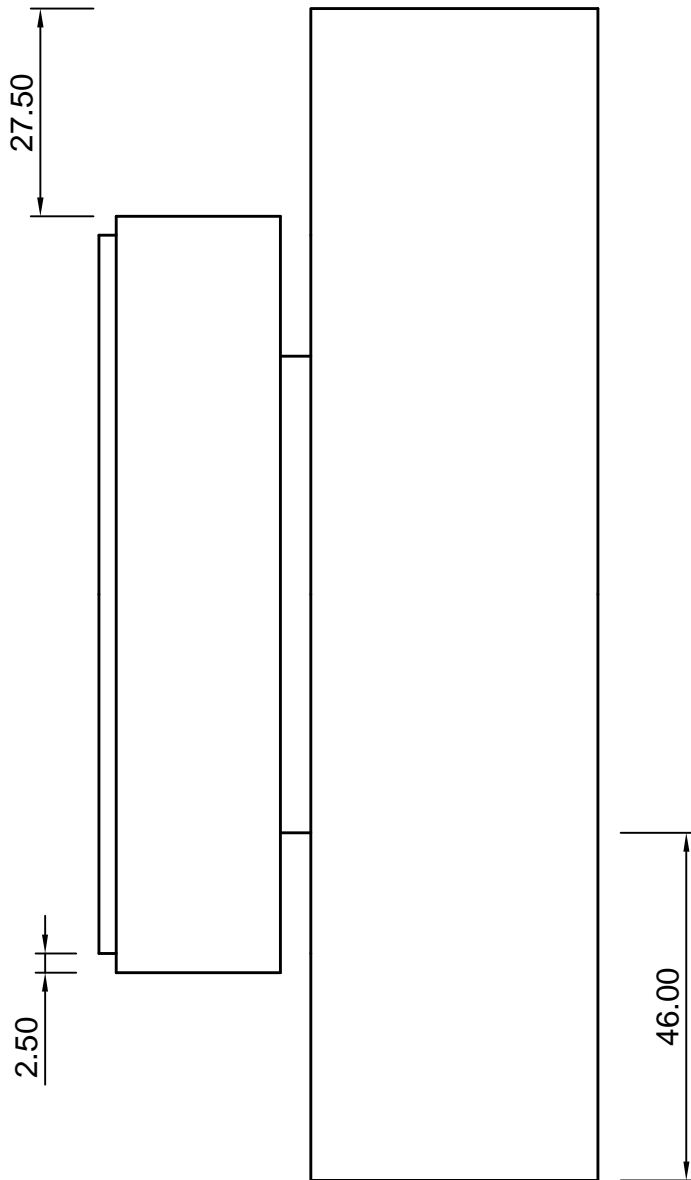
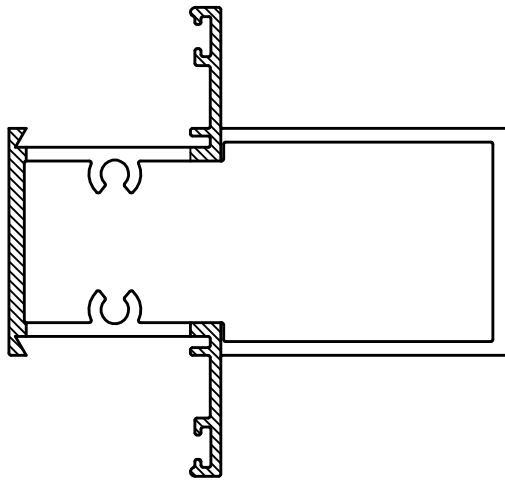




Alternative Cutting Sizes (if spacer is used refer to pages

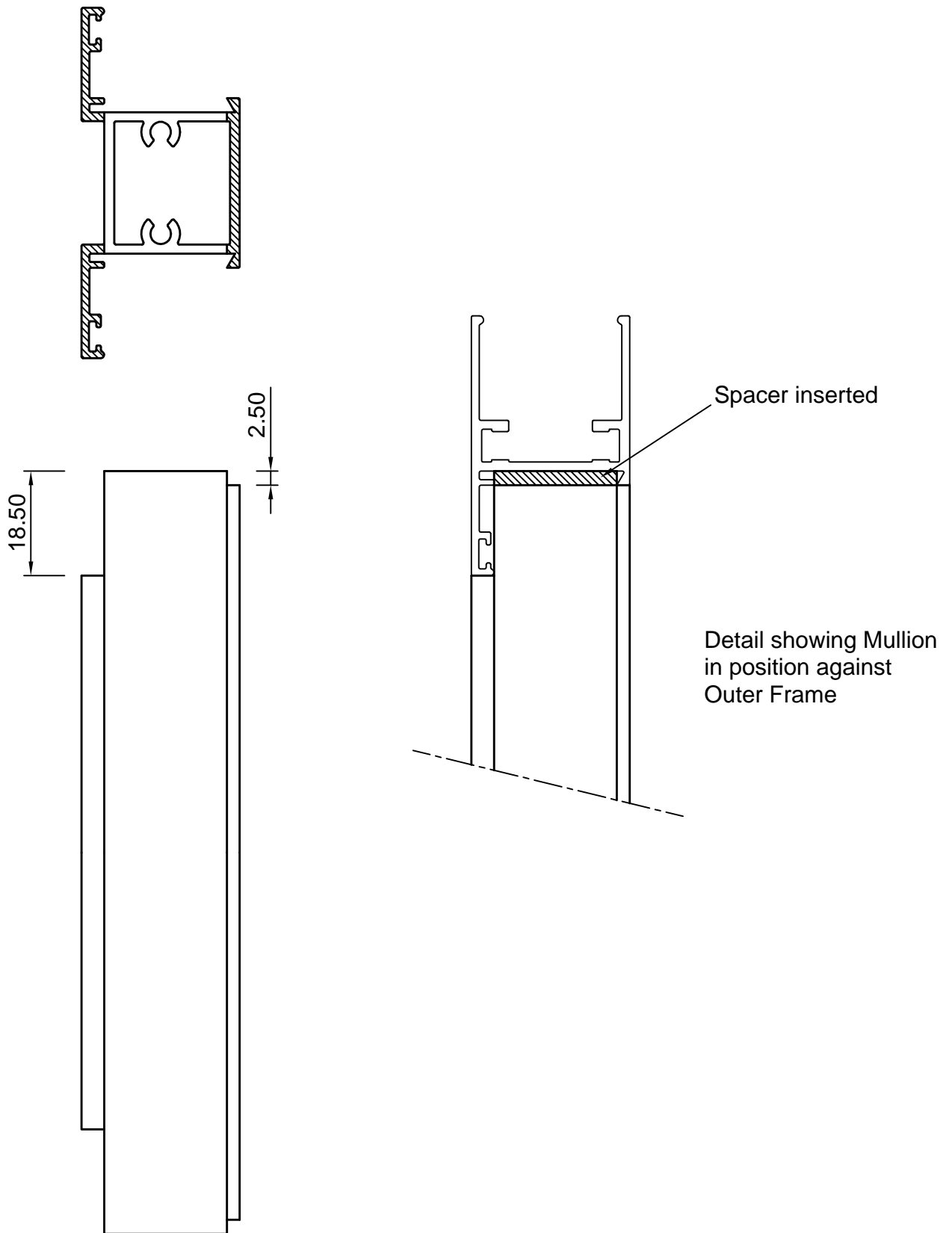


Detail showing Mullion
in position against
Outer Frame

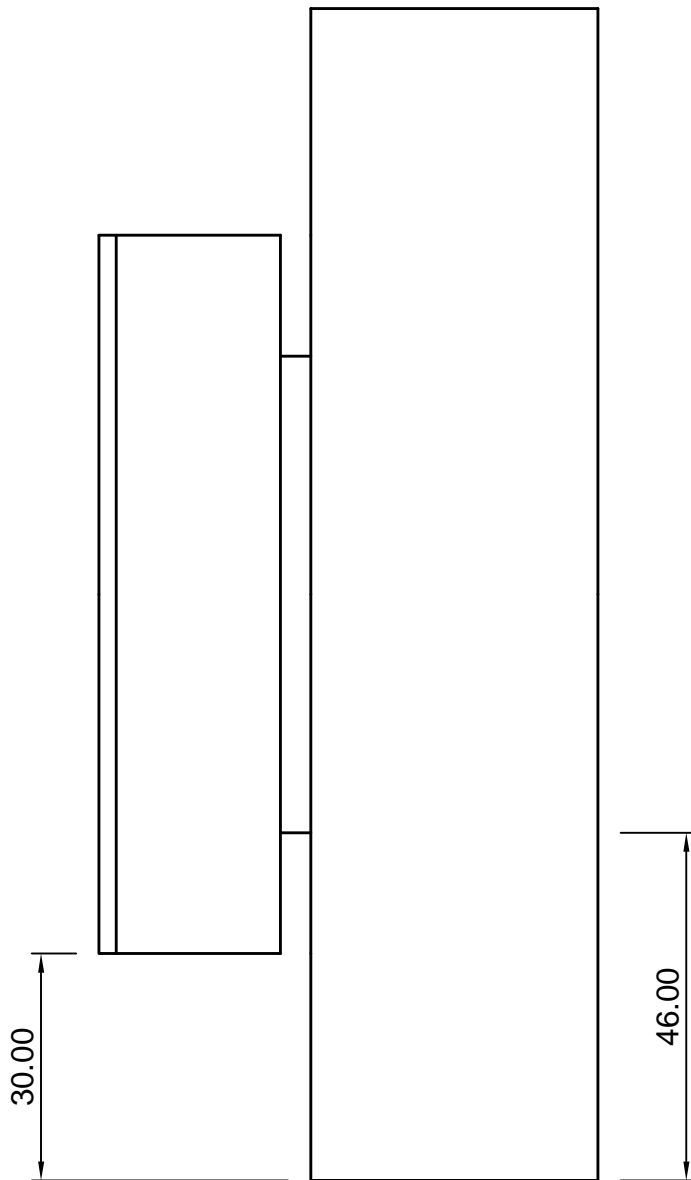
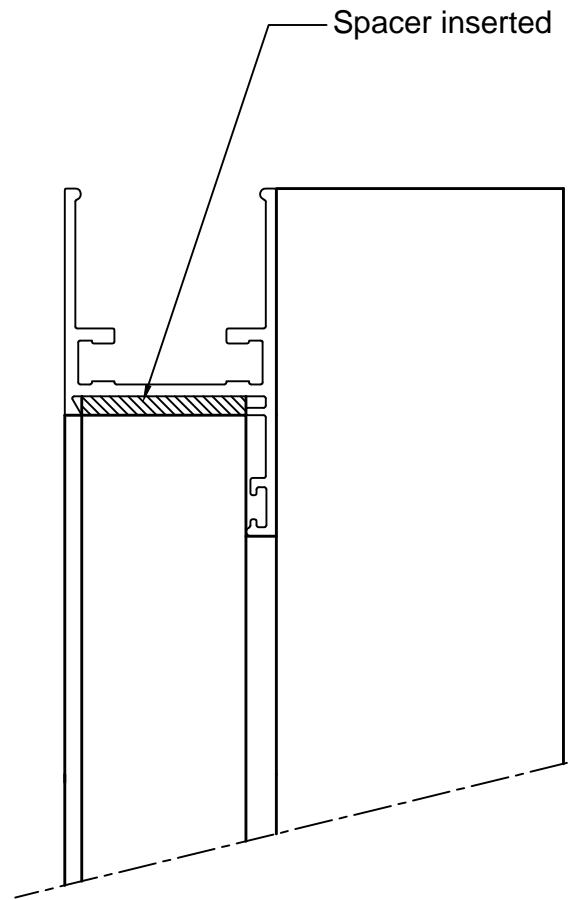
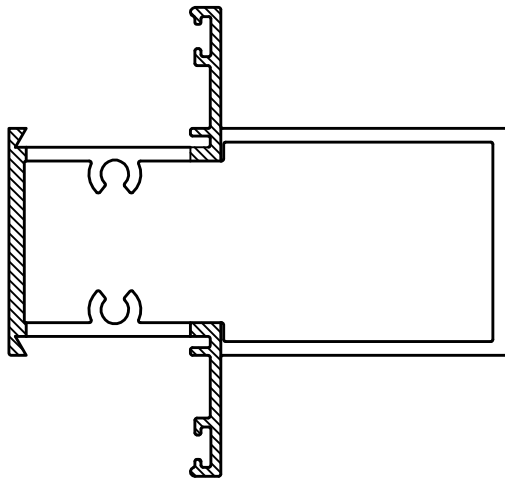


Detail showing Mullion in position against Outer Frame

Machining Details for Heavy Duty Mullion and / or Transom



Machining Details for Mullion and / or Transom
Alternate Machining Detail (if spacer is used)



Detail showing Mullion
in position against
Outer Frame

Machining Details for Heavy Duty Mullion NKTEMUM
Alternate Machining Detail (if spacer is used)