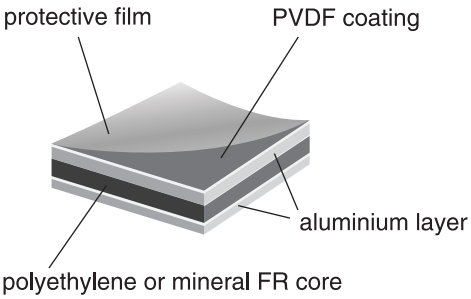
NEOBOND®

Aluminium Composite Panel

description

Aluminuim composite panel Neobond® description

Aluminium composite panel consists of two aluminium plates and a core between them. There are two types of cores available: polyethylene core (PE) and mineral core (FR). The face layer is covered with PVDF coating, which provide long term durability as well as resistance to colour fade and environmental conditions. Back side of each panel is covered with protective polyester layer.



Fields of application:
- external finish of facade: for new or renewed buildings with ventilated hinged facade systems;
- lining of balconies, cornices and canopies;
- cladding for interior walls and ceilings;
- linings of petrol stations, tunnels and pillars;
- signboards, information and exposition stands;
- different custom and non-standard objects.

Standard values:

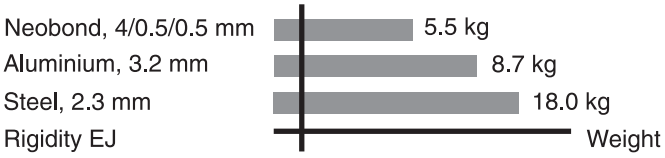
Thickness	4 mm
Width	1250 mm
Length	3200 mm

Custom values:

Thickness	3, 4 or 6 mm
Width	1000, 1250, 1500, 1570 mm
Length	up to 6000 mm

Advantages of Neobond® aluminium composite panels are:
- Light weight: with same stiffness, 4 mm Neobond® panel is 1.6 times lighter than aluminium sheet, and 3.3 times lighter than steel;
- Stiffness and resistibility;
- High weather resistance: temperature of use -50°C...+80°C;
- Durability and high corrosion resistance;
- Low linear expansion coefficient;
- High acoustic and insulation features;
- Processing convenience: Neobond® panels are flexible, formable, easy-to-cut, drill and mill. Processing is possible both with manual or special CNC metalworking machinery.

Comparison of thickness and weight on equal rigidity



General properties

Panel thickness, mm	Core	Aluminium thickness, mm	Weight, kg/m^2	Sound transmission loss, Rw dB	Thermal expansion coefficient, mm/m/°C
4	FR	0.5	7.9	24	0.0280
4	PE	0.5	5.6	24	0.0287
3	PE	0.3	3.9	22	0.0285
3	PE	0.21	3.6	20	0.0282

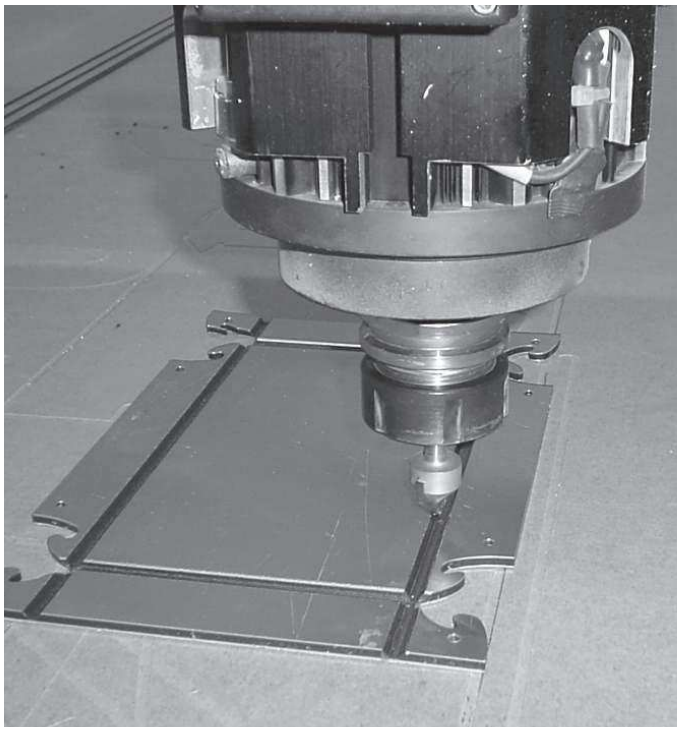
Composite panels processing types

Cutting and milling: it is possible to use manual or stationery milling machinery. Milling tool material: high-speed steel or hard alloy metals. Maximum milling speed for high-speed steel: 3000 rpm with 25m/min feed; for milling tools and alloys: 5000 rpm with 30 m/min feed. CNC cutting and milling: high-speed cutters (single flute, upcut) are recommended with 10000–20000 rpm and 3–5 m/min feed.

Drilling is performed with ordinary twist drills provided for metal drilling. Drill material: high-speed steel. Cutting angle 100°–140°.

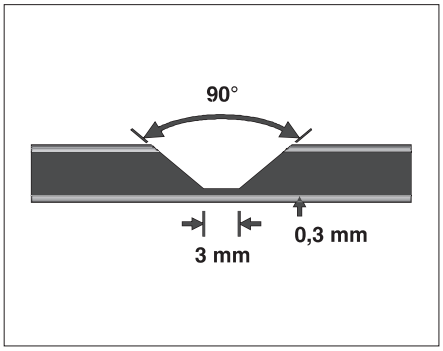
Bending: composite panels are bent by cold plastic bending applying different methods on rimming presses, folding and rounding machines. Minimal bending radius should 100 times exceed material thickness. To avoid damage of front surface or the panel, it is recommended to use 1-2 mm thick plastic filler sheets.

Welding is possible with hot-air welders using polyethylene cord. Welding speed 0.50–0.60 m/min.



1, 1a) V-groove for edges up to 90°
2, 2a) Rectangular groove for edges up to 180° depending on panel thickness
3, 3a) V-groove 135° for edges up to 45°

1



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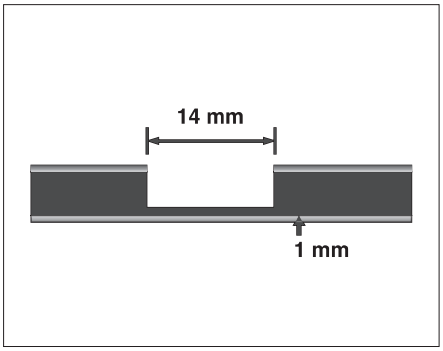

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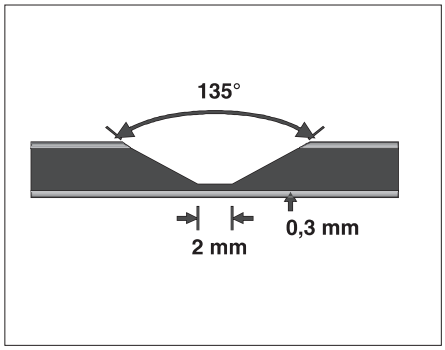
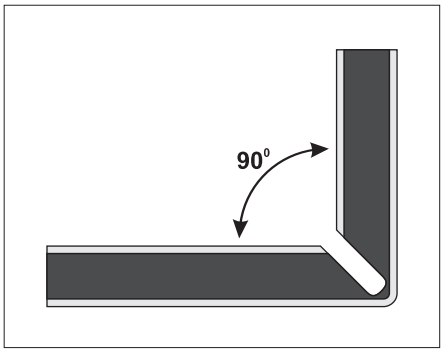
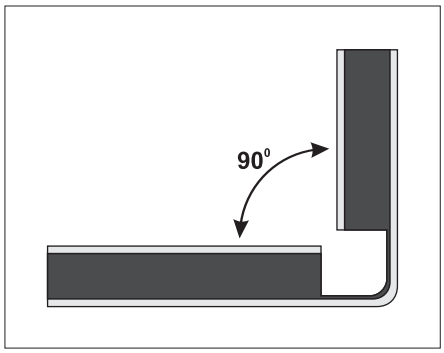


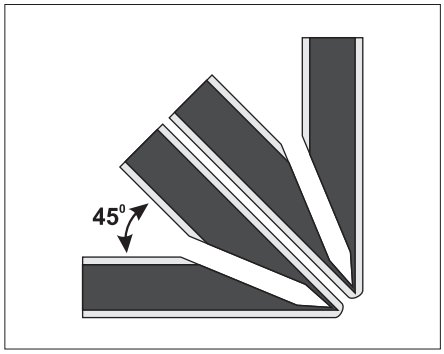
1a



2a



3a



Ventilated fasade: basics

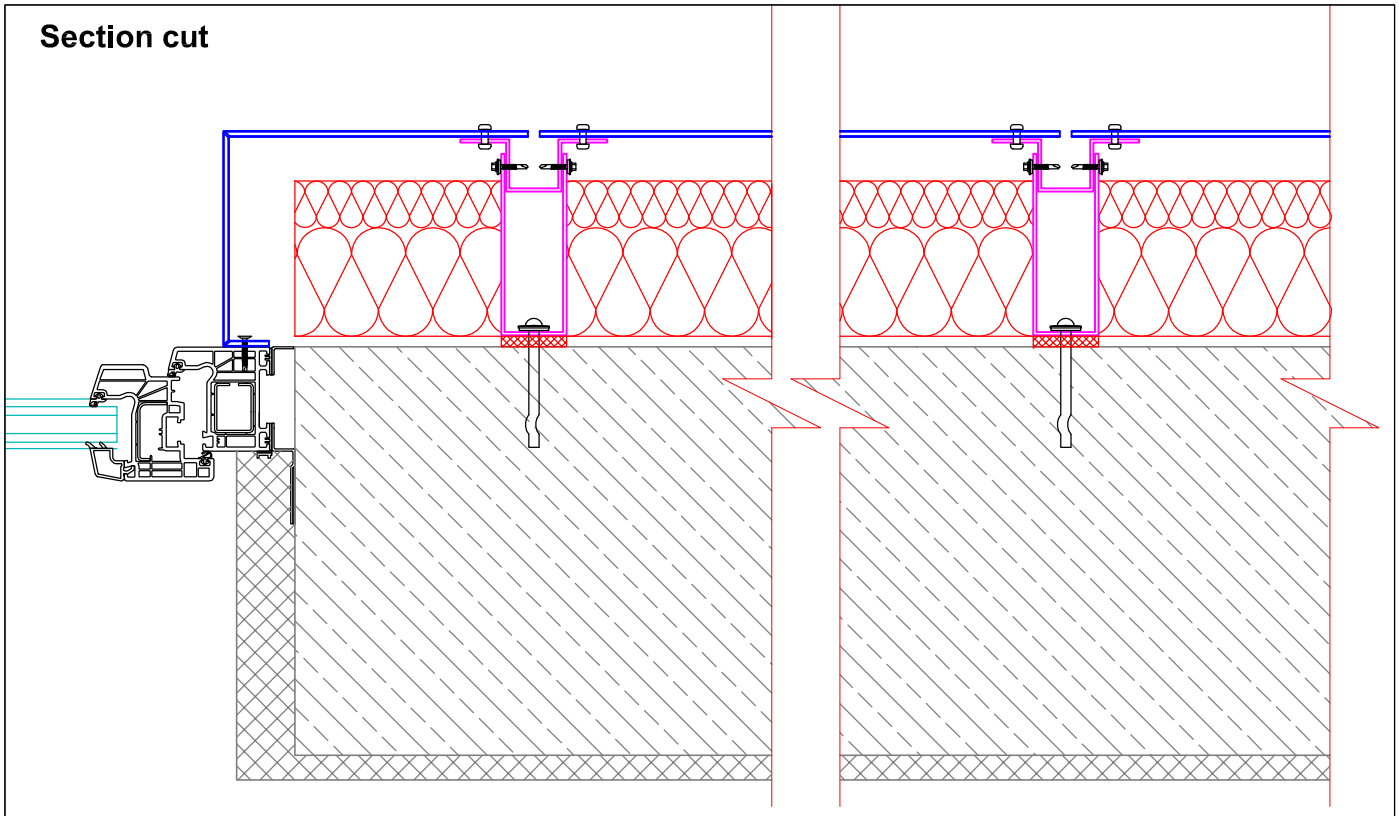
Modern technologies of back-vented hinged facade systems allow to use plenty of materials as exterior decoration for any type of building. The characteristics of aluminium composite panels Neobond® allow to realize most expressive architectural forms.

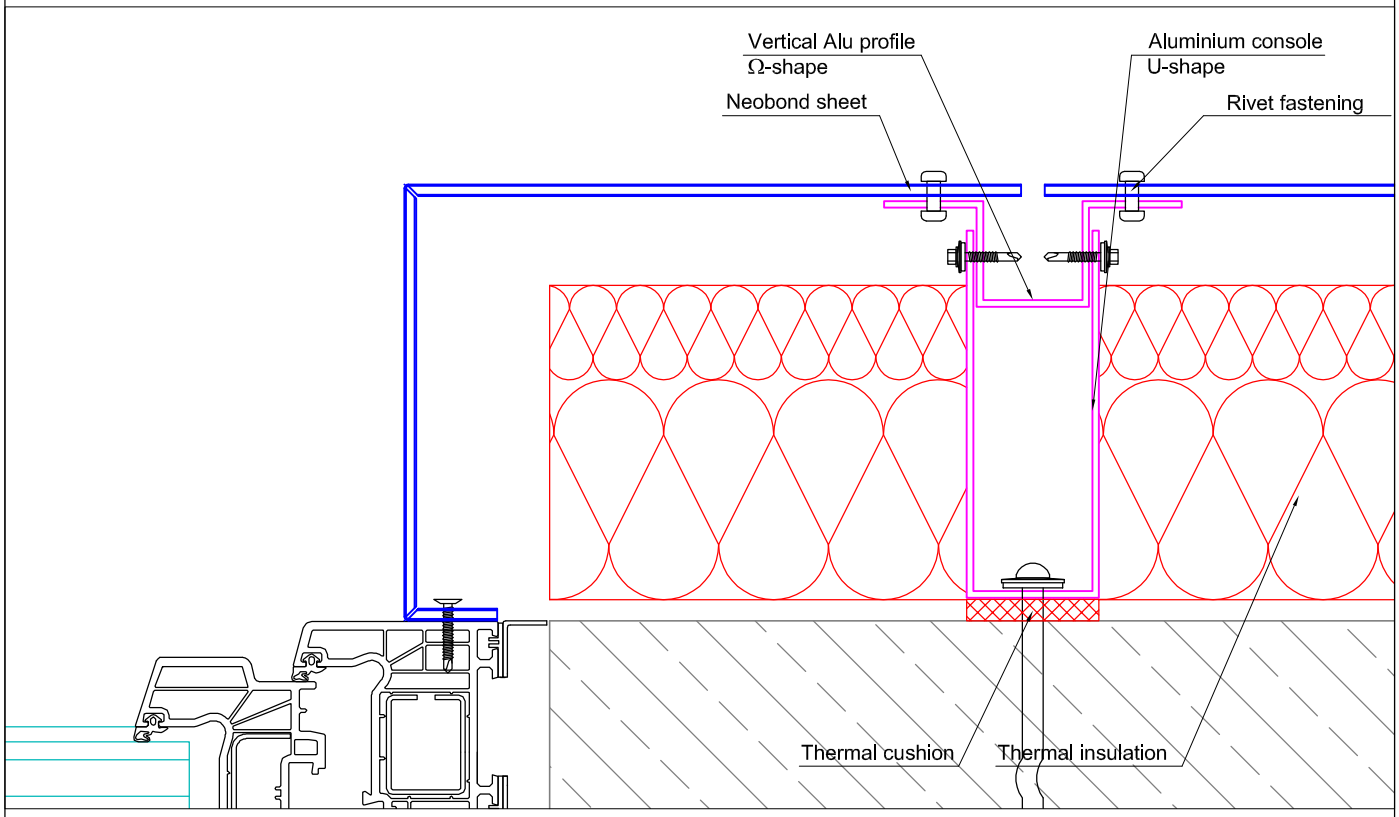
Ventilated facade consists of decorative cladding, thermal insulation layer with aluminium sub-system and ventilation gap between them. Because of construction, thermal insulation prevents building from overheating and temperature losses in different time of the year.

Main principles of ventilated facade get these advantages:
- non-even walls aligning;
- minimizing windloads;
- protection against cold wind and direct sun radiation.

Additionally, Neobond® panels have these advantages:
- coatings with any type of material imitation;
- 20 years warranty for panel coating;
- installation of any period of the year (except extremal temperatures);
- minimized loads on bearing walls;
- simplicity of installation speeds up the working process;
- possibility of processing on the building site. As sub-construction elements, as Neobond® panels itsels are universal decision for lots of architectural problems – from creating small forms to extreme engineering.

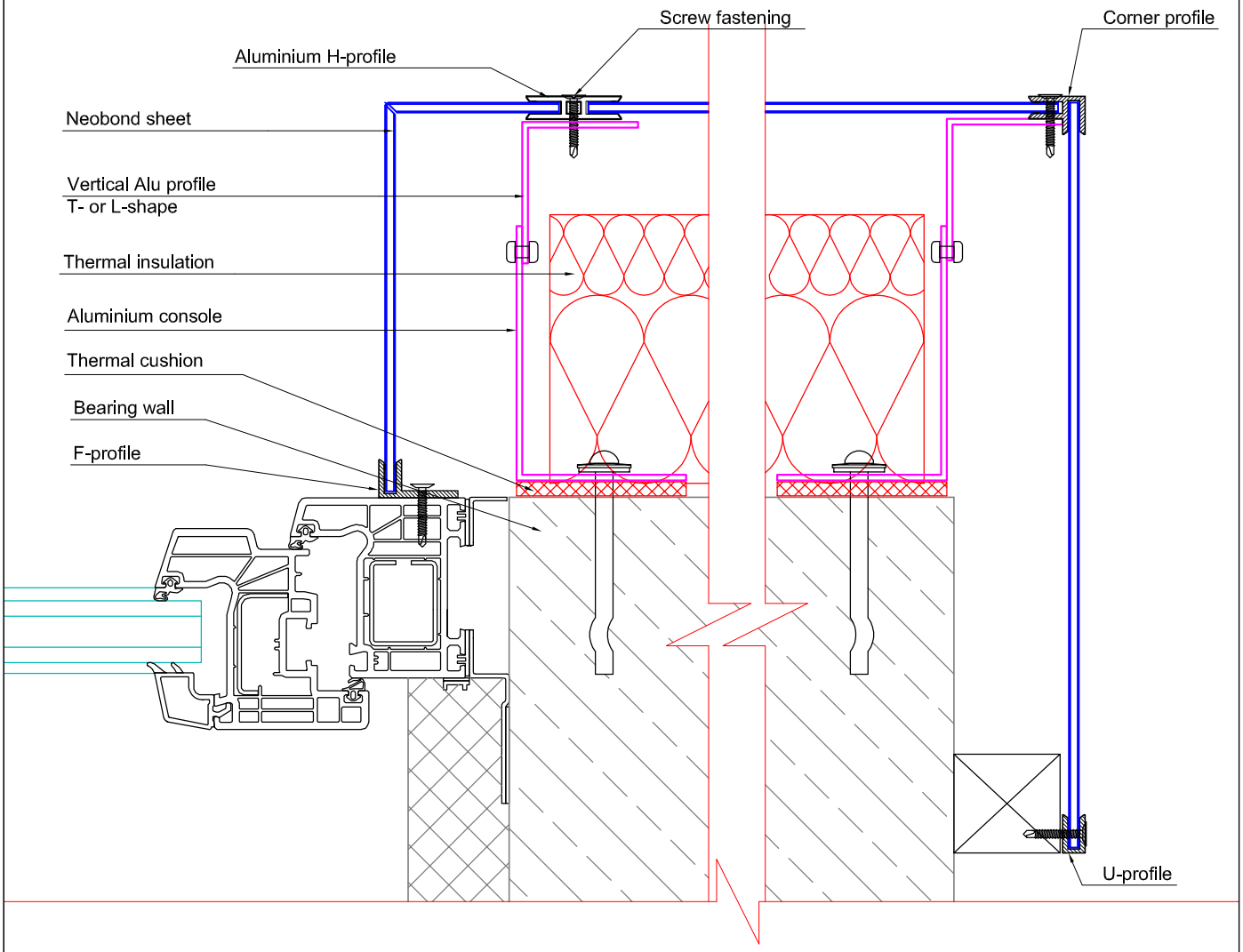
Section cut





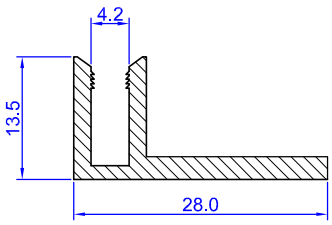
NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade system Sheets fastening with rivets**	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 1	Revised: A

Section cut

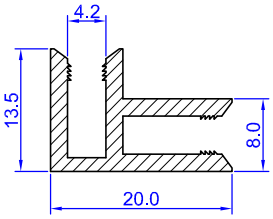


Aluminium profiles

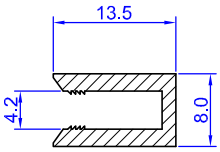
F-profile



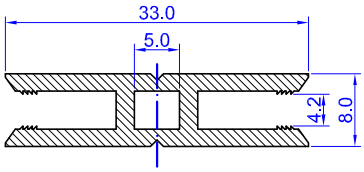
Corner profile



U-profile

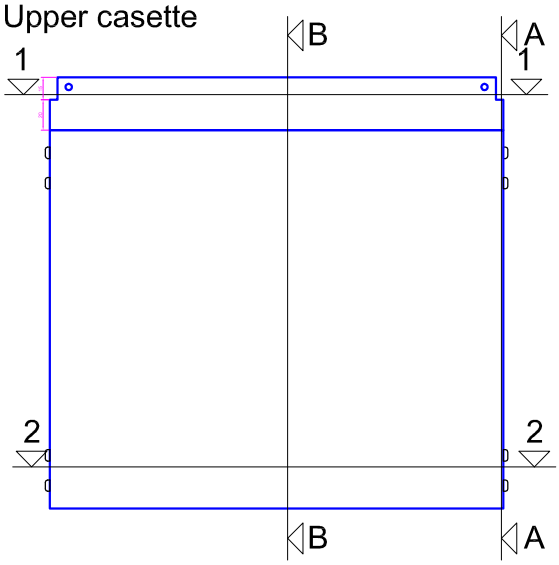


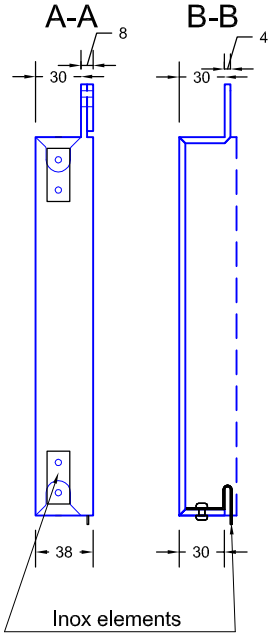
H-profile



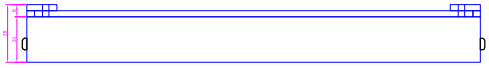
NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade system Sheets joint with aluminium profiles**	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 2	Revised: A

Upper casette

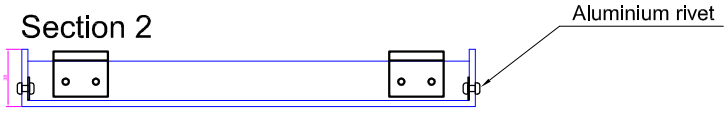




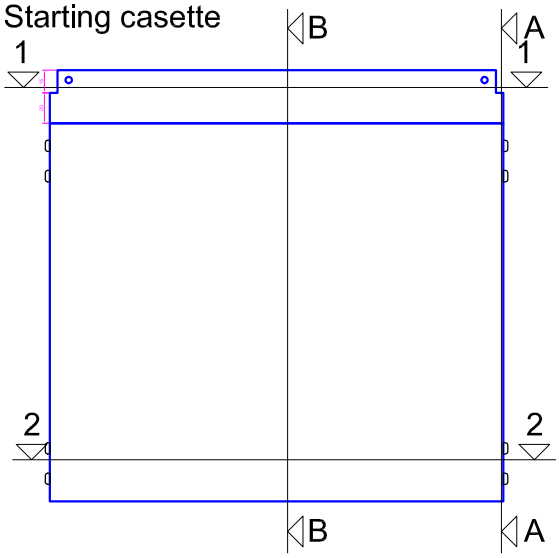
Section 1



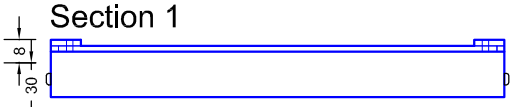
Section 2



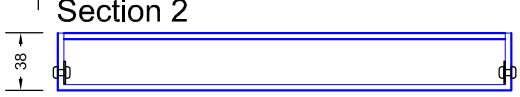
Starting casette

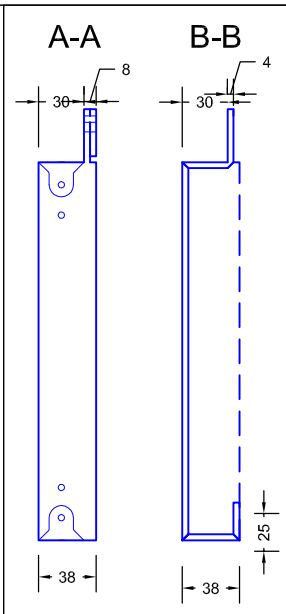


Section 1

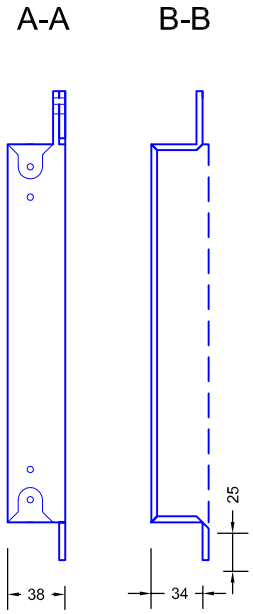


Section 2





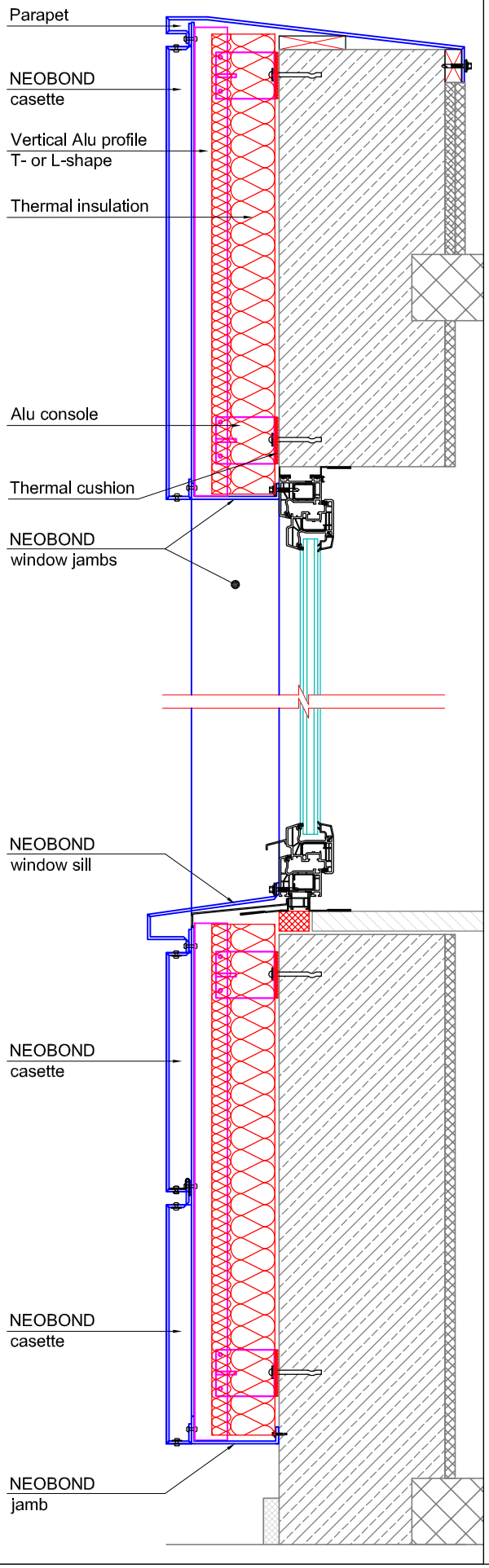
Type a



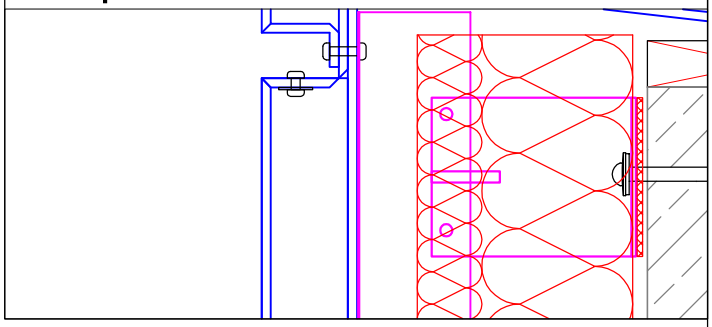
Type b

NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade casette system Hinged facade system *type 1***	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 3	Revised: A

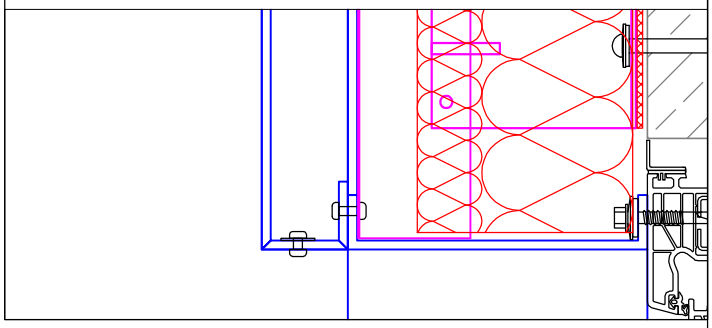
Vertical cut



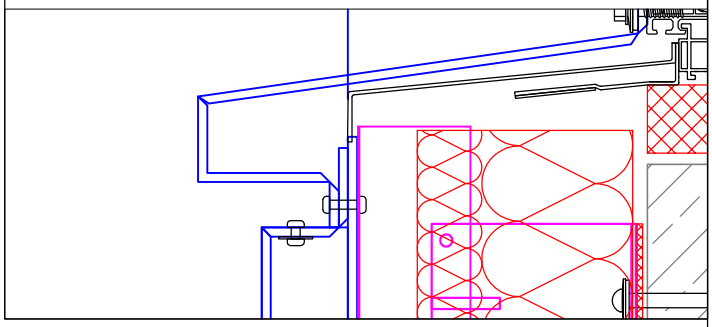
Parapet



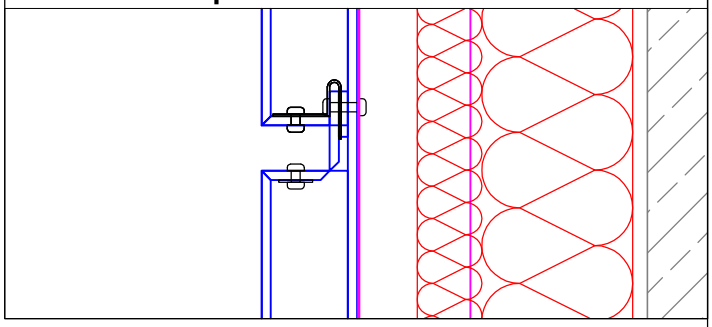
Jamb



Sill



Horizontal split



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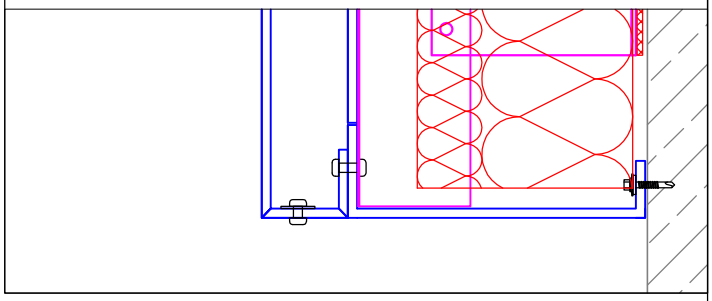
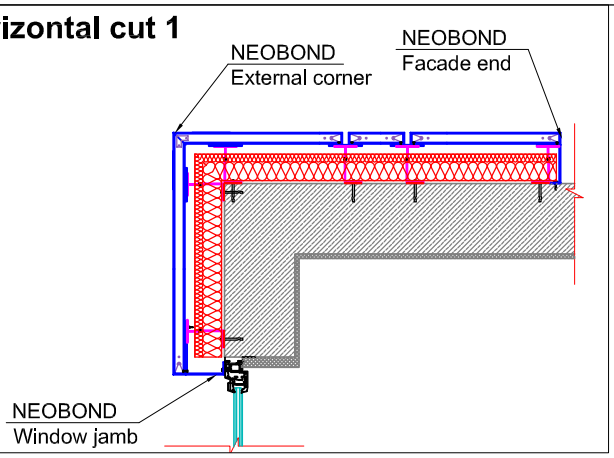
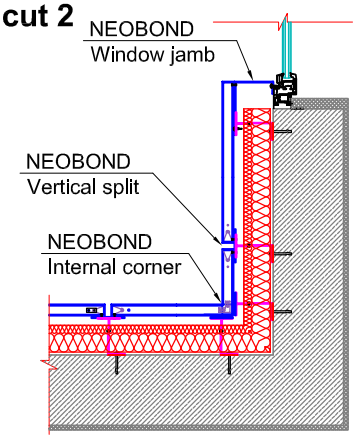


NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade casette system** **Hinged facade system *type 1*: vertical cut**	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 4	Revised: A

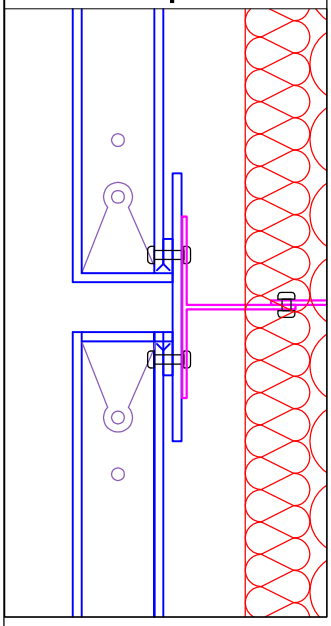
Horizontal cut 1



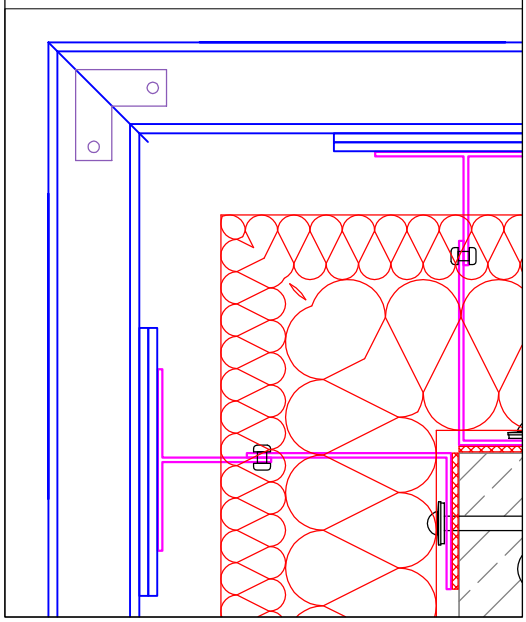
Horizontal cut 2



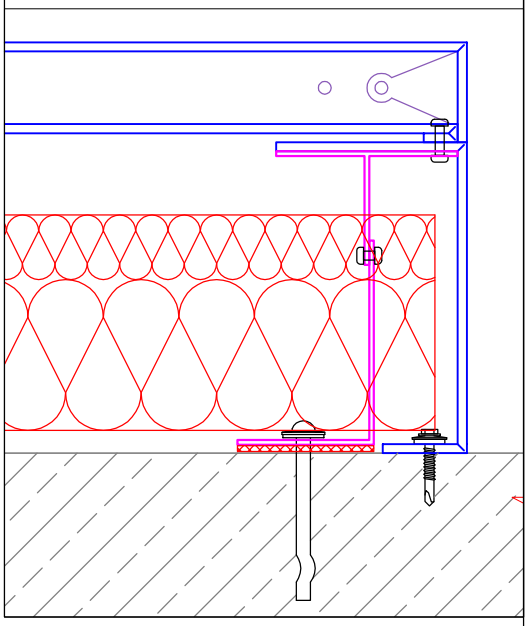
Vertical split



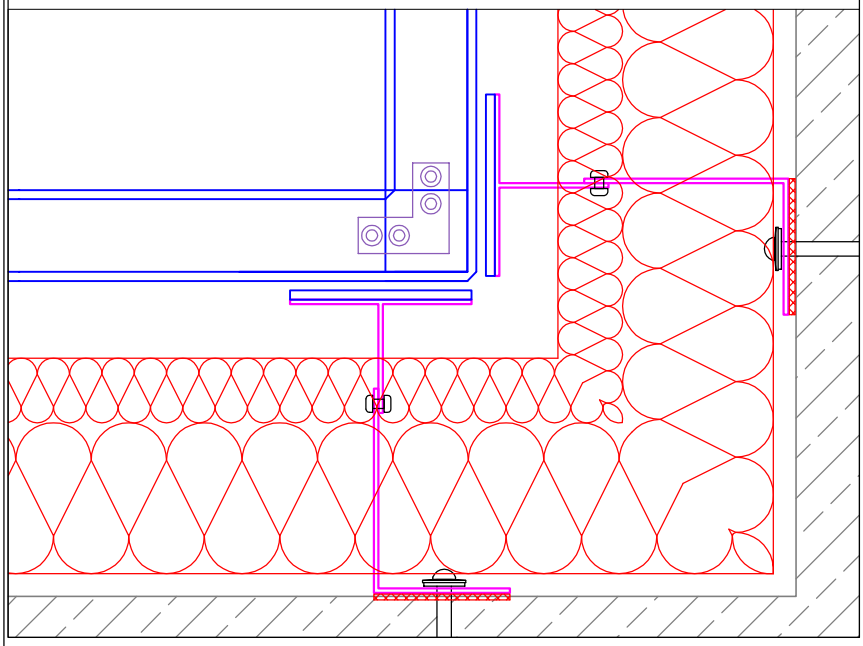
External corner



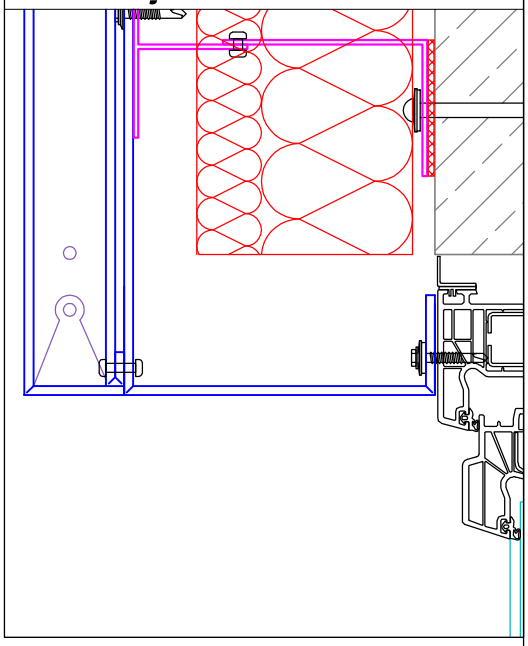
Facade end



Internal corner



Window jamb

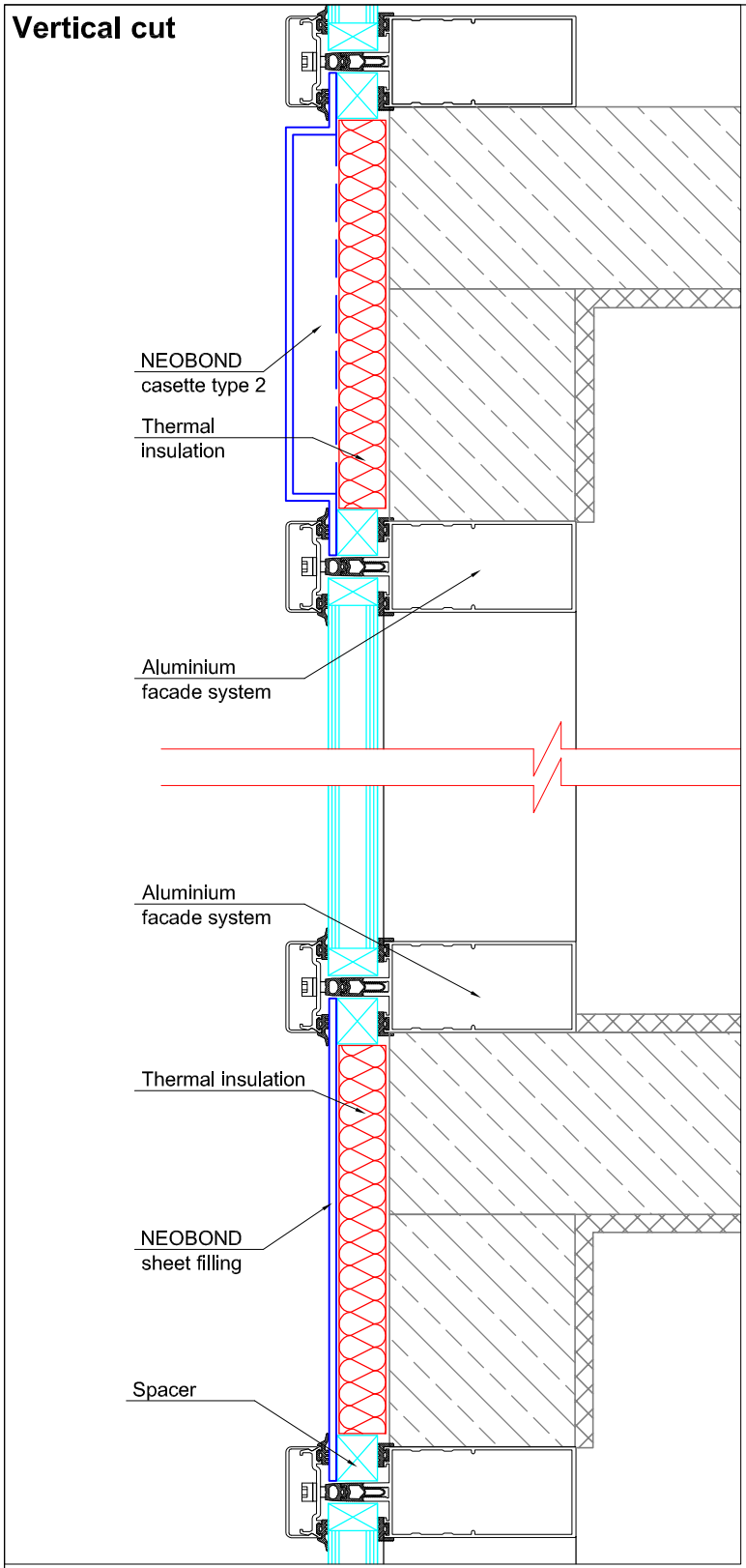


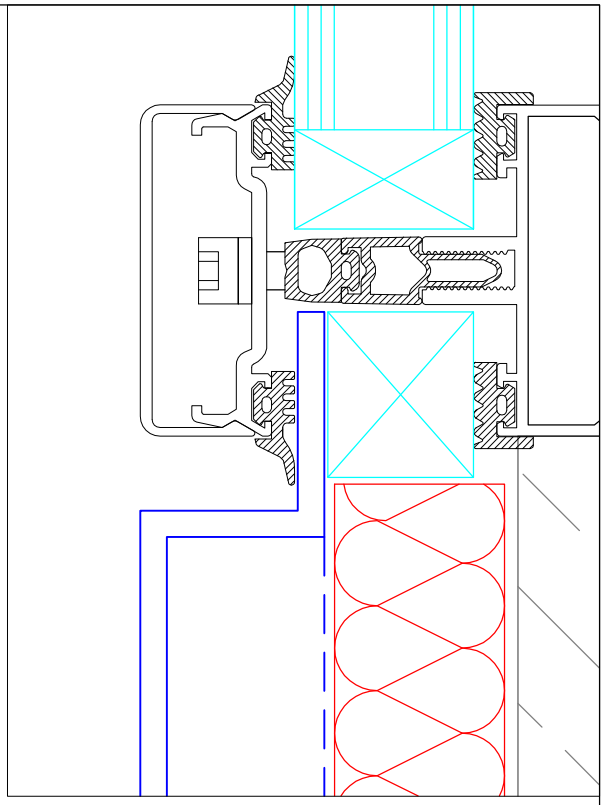
NEOBOND® Aluminium Composite Panel www.neobond.com

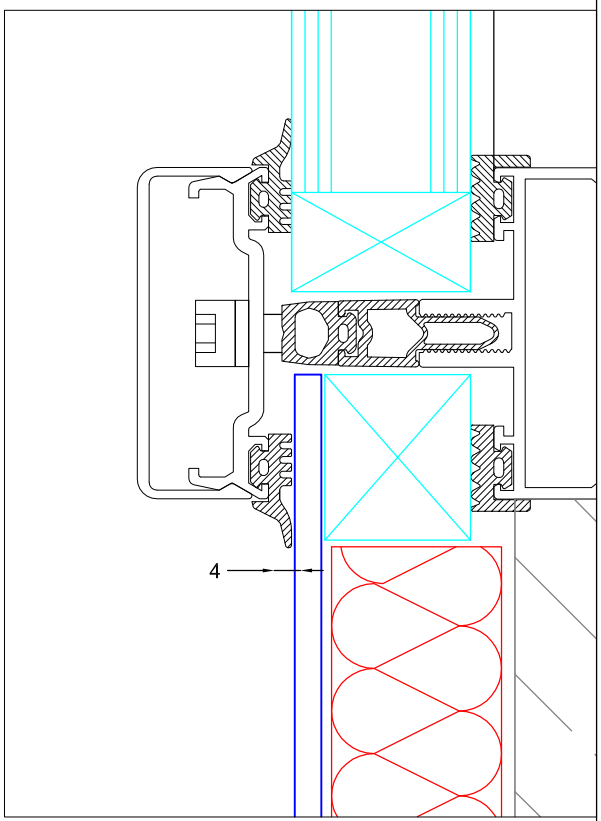
Drawing:
NEOBOND facade casette system
Hinged facade system *type 1*: horizontal cut

Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 5	Revised: A

Vertical cut

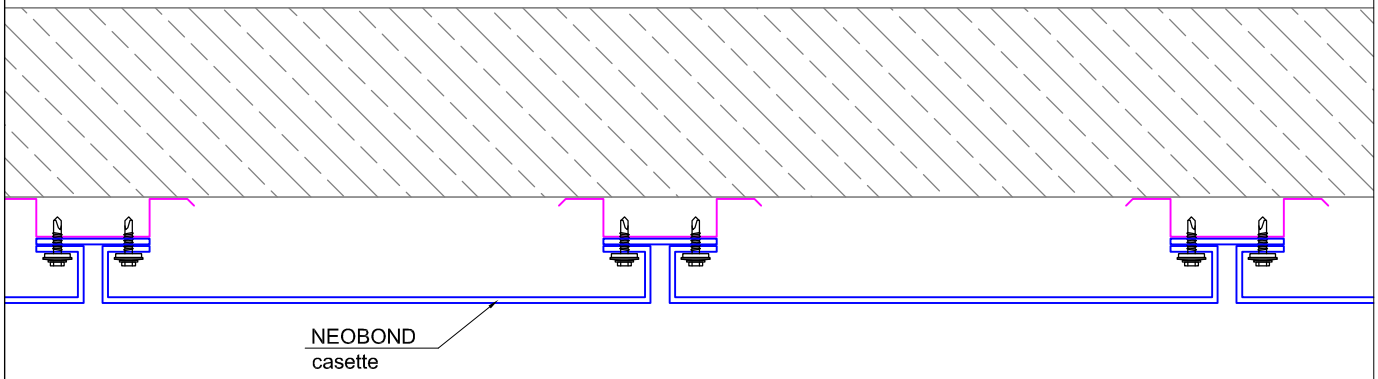




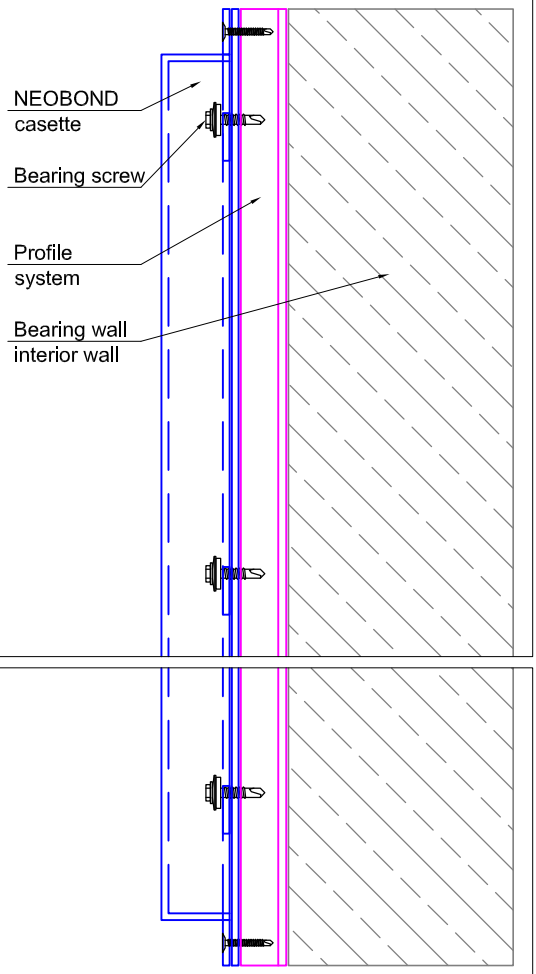


NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade system** **Facade system *type 2***	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 6	Revised: A

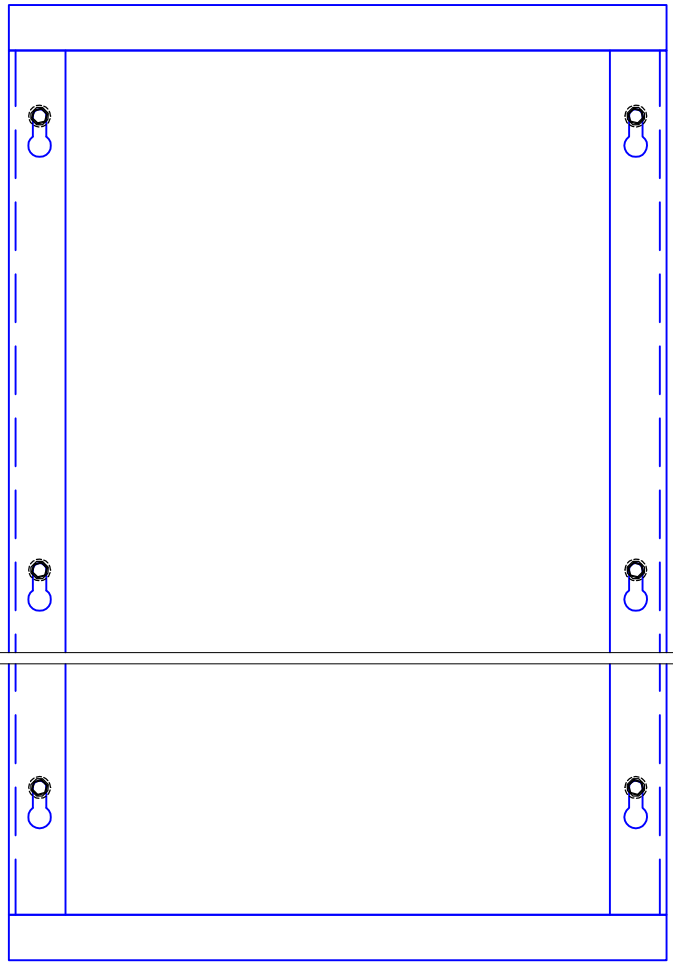
Horizontal cut



Side cut

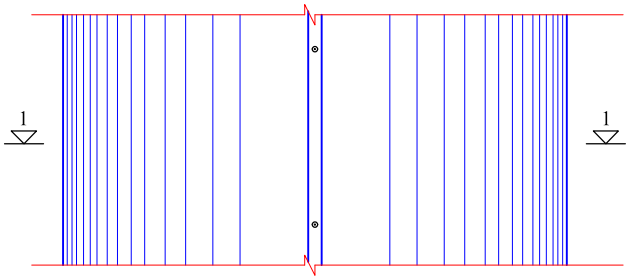


View from inside

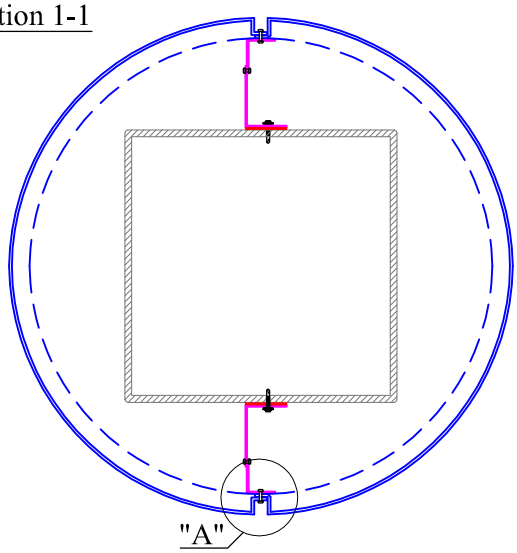


NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade system** (with small windloads) **Facade system *type 3***	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 7	Revised: A

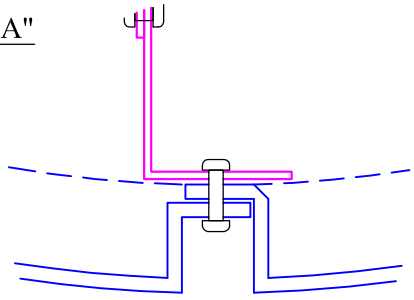
Round column



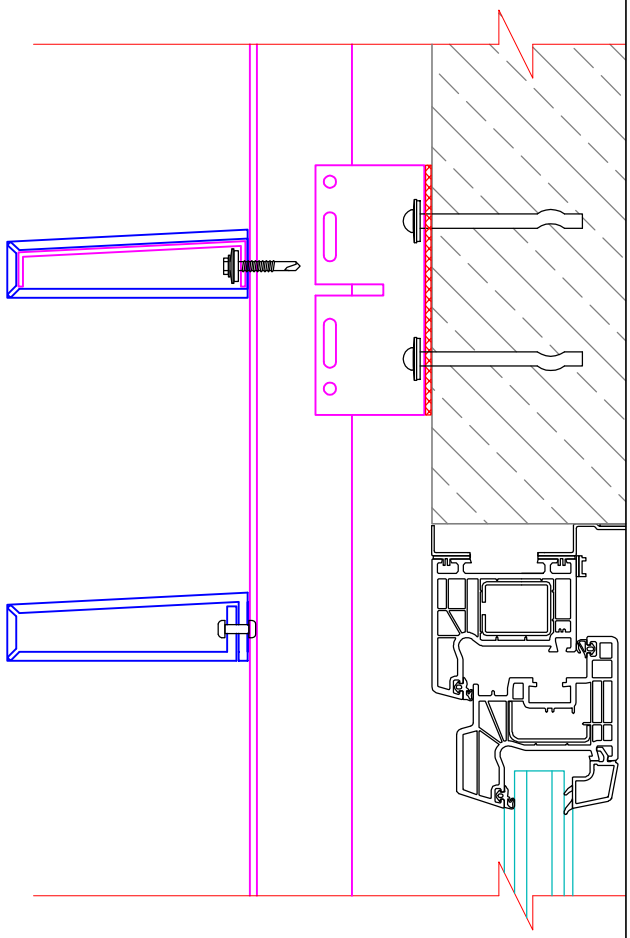
Section 1-1

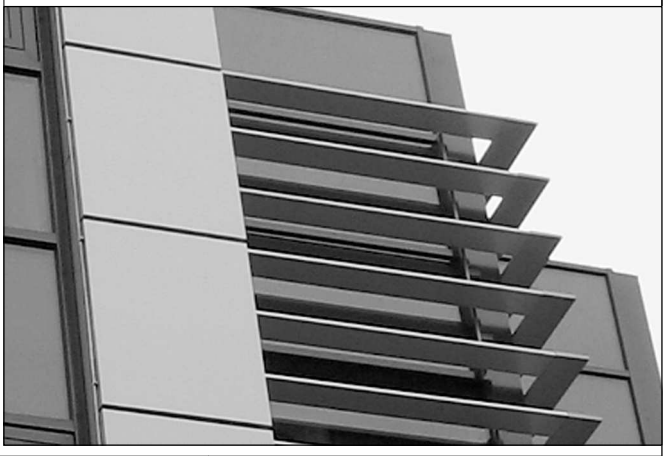


Detail "A"



External window blinds





NEOBOND® Aluminium Composite Panel www.neobond.com	Drawing: **NEOBOND facade system Custom facade elements**	
Date: 2008	Project: **Typical facade systems**	
Owner: Williams Ltd.	Building:	
Scale:	Page No. 8	Revised: A

notes

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