



Atlas Steels **AlFacade**

Installation and Technical Manual

Table of Contents

01	Introduction to ALFACADE	2
02	Product Specifications	3
	2.1 Overview	
	2.2 Material Composition	
	2.3 Standard Panel Size	
03	Finish & Coating specification	4
04	Material Data	5
05	Installation detail	6
	5.1 Installation Considerations	
	5.2 Protective Film	
	5.3 Installation Guidelines	
	5.4 Drawings	
06	Fabrication details	16
	6.1 Fabrication Considerations	
07	Warranty	19
	7.1 Warranty Outlined	
08	Storage & Handling	20
	8.1 Handling	
	8.2 Transport	
	8.3 Storage	
09	Service Centre Locations	21

INTRODUCTION TO ATLAS STEELS ALFACADE

As the team behind the largest supplier of Aluminium , Stainless Steel & Specialty Metal products in Australia, the people of Atlas Steels are driven by wanting to be our customers' first choice in specialty metals.

Atlas Steels has a long and proud history of customer service in Australia which commenced in 1939 with the entry into Australia of Atlas Steels Canada, a leading Canadian steel supplier founded in 1918. From these roots Atlas steel built a distribution network with 8 customer service sites across Australia.

The Atlas Steels reputation is built on over 80 years of service of our customers. The belief that our customers are our priority is core to the values of the Atlas Steels people, whose talents and energy are aimed at building long term relationships with our customers by adding value to their businesses.

Atlas Steels Alfacade is a 3mm & 4mm non-combustible solid aluminium panel that forms the part of Atlas's range of NCC compliant, deemed non-combustible cladding solutions. Suitable for all Type A, B & C class of construction.

The Atlas Steels Alfacade solid aluminium panel has high impact resistance, the panels can be fabricated and processed via CNC machining Including, Pan break & Break press folding, rolled and curved, the pre-finished cladding panels have a PVDF coating system with a proven history for its superior quality colour range and design integrity.

02

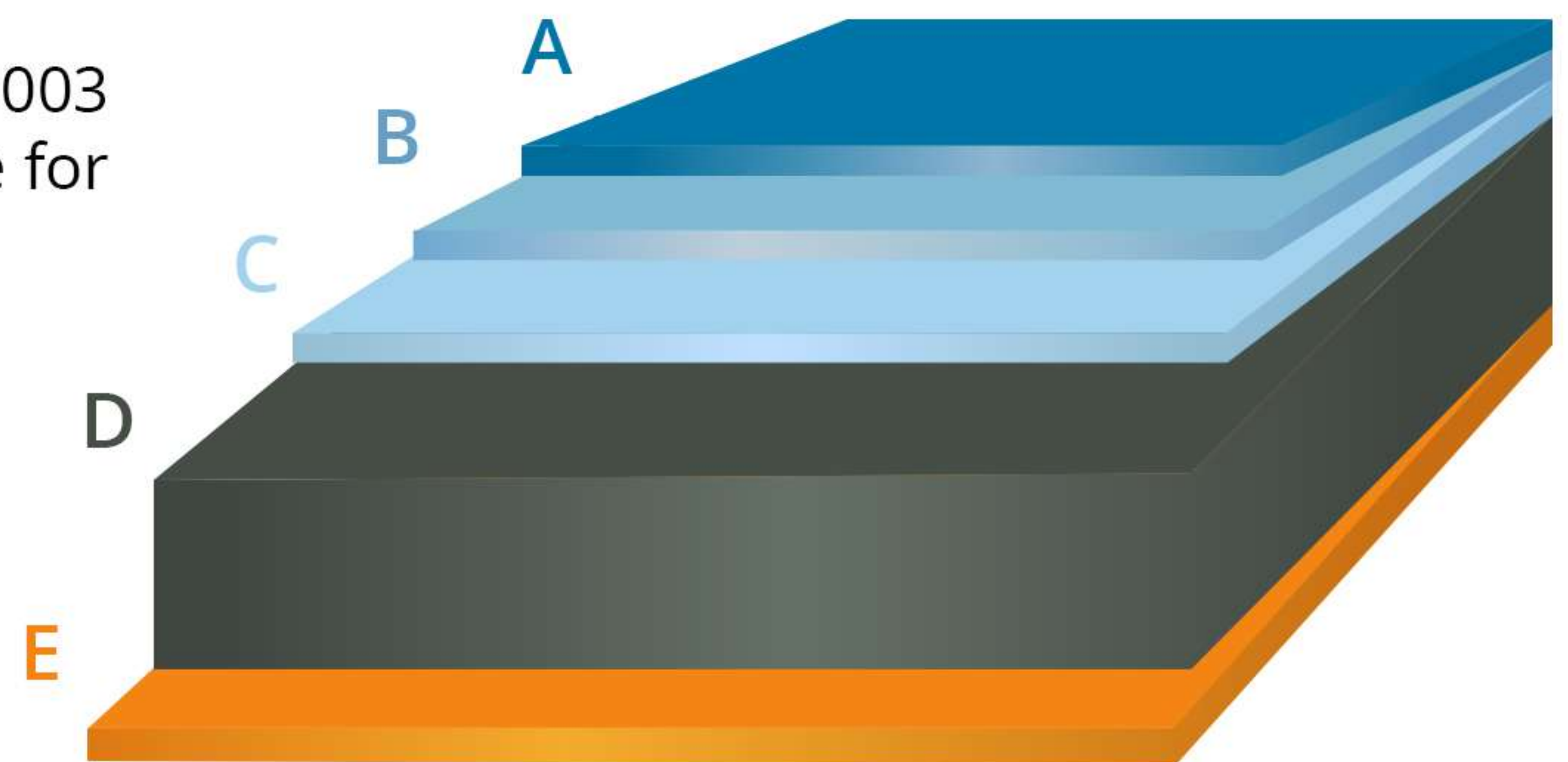
Atlas Steels Alfacade Product Specification

- Atlas Steels Alfacade is a 3mm or 4mm non-combustible pre-finished solid Aluminium panel tested to AS1530.1 and deemed non-combustible, the panels have also been tested and pass AS1530.3 requirements.
- Polyvinylidene flouride (PVDF) Coating system.
- 20 years warranty, subject to standard terms and conditions.
- Atlas Steels Alfacade has been tested to AS 4284 and meets the weatherproofing requirements for FP1.4
- The Atlas Steels Alfacade is certified to ISO 9001:2015 & ISO 14001:2015 for designed, manufactured and coating system.

Material composition

Atlas Steels Alfacade is a 3.0mm or 4.0mm 3003 Series H22 100% solid aluminium panel, suitable for all Type A, B, & C class of construction.

- A. Protective film
- B. PVDF coating
- C. Pre-Treatment Layer
- D. 3mm or 4mm aluminium
- E. Protective wash coat to back of panel



Standard panel dimensions

WIDTH	LENGTH	THICKNESS
1250 / 1575	2500 3200 4000	3mm / 4mm

***Note - Custom width & lengths are available with minimum MOQ per width and size.*

03

Coating System

Atlas Steels Alfacade panels are coated with a Becker Group coating system, Beckers are a leading worldwide supplier of industrial coatings and the global market leader of coil coatings. Beckers are focused on developing sustainable coatings – their vision is to become the most sustainable industrial coatings company in the world. Beckers expertise is based on a long history dating back over 150 years, their history includes the manufacturing of high-performance coating solutions for a wide variety of applications, including an extensive range of colours.

Atlas Steels Alfacade 2 or 3 coat polyvinylidene fluoride (PVDF) coating system is a pure thermoplastic fluoropolymer that is non-reactive & possesses multiple coating benefits.

PVDF coatings are especially resistant to solvents, acids & have a very low density compared to other fluoropolymers .

Atlas Steels Alfacade is able to be colour matched to any colour that the Architect, client, builder requires from any existing colour range (subject to minimum order quantities)



- Chemical resistance (ASTM D543): excellent
- Abrasion resistance (ASTM D4060) : excellent
- PVDF coating thickness: 25 - 30 micron
- Gloss 20 – 80% matt/flat gloss
- Reverse = 7 micron grey wash coat

Beckers most UV-resistant topcoat system based on a blend of polyvinylidene fluoride and acrylic resins in 70/30. Available in mid to low gloss levels. Only the most durable pigments are used to achieve the Beckry®Fluor colour range.

04

Material Data

Test results

Test Standard	RESULT
AS 1530.1	Non - Combustible
AS 1530.3	PASS
	Ignitability Index 0
	Heat Evolved 0
	Spread of Flame 0
	Smoke Developed 1

Thermal performance

Thermal resistance from -50°C To + 80°C

Test Standard	Thermal Resistance 1A M2.K/W	Thermal Resistance 1A M2.K/W
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Material Data Sheet

Physical property	VALUE
Tensile strength - ultimate, Ft _u * (MPa)	179
Tensile strength - yield, Ft _y * (MPa)	158
Compressive strength, F _{cy} (MPa)	131
Shear strength - ultimate, F _{su} (MPa)	83
Shear strength - yield, F _{su} (MPa)	69
Bearing strength - ultimate, F _{bu} (MPa)	276
Bearing strength - yield, F _{by} (MPa)	172
Compressive MOE, E (MPa)	70000
Thermal expansion coefficient	23
Fatigue strength (MPa)	60
Modulus of resilience (Kj/M ³)	130
Embodied carbon (kg-CO ₂ /kg)	8.1

05

Installation Details

The following list of installation considerations and details need to be taken into account prior to the start of panel installation:

- Atlas Steels Alfacade has a directional arrow on the protective film, ensure arrow direction is consistent with the installed cladding layout to prevent any variation in the finish due to light refraction/reflection.
- Different production lots may show as a minor colour variation a overall project order is recommended to ensure colour consistency across the project.
- When aluminium Z angles are installed onto galvanised top hats, an isolation tape/barrier should be used to separate dissimilar metals.
- Atlas Steels Alfacade is to be installed in a cassette fix method on Type A & B constructions, refer to the following installation drawing.
- Atlas Steels Alfacade panel is to be installed on a BCA compliant wall or wall system that meets the current NCC requirement, including variations of wall types for example, load bearing, non-load bearing, wall types that require a Fire Resistance Level (FRL).

Protective Film

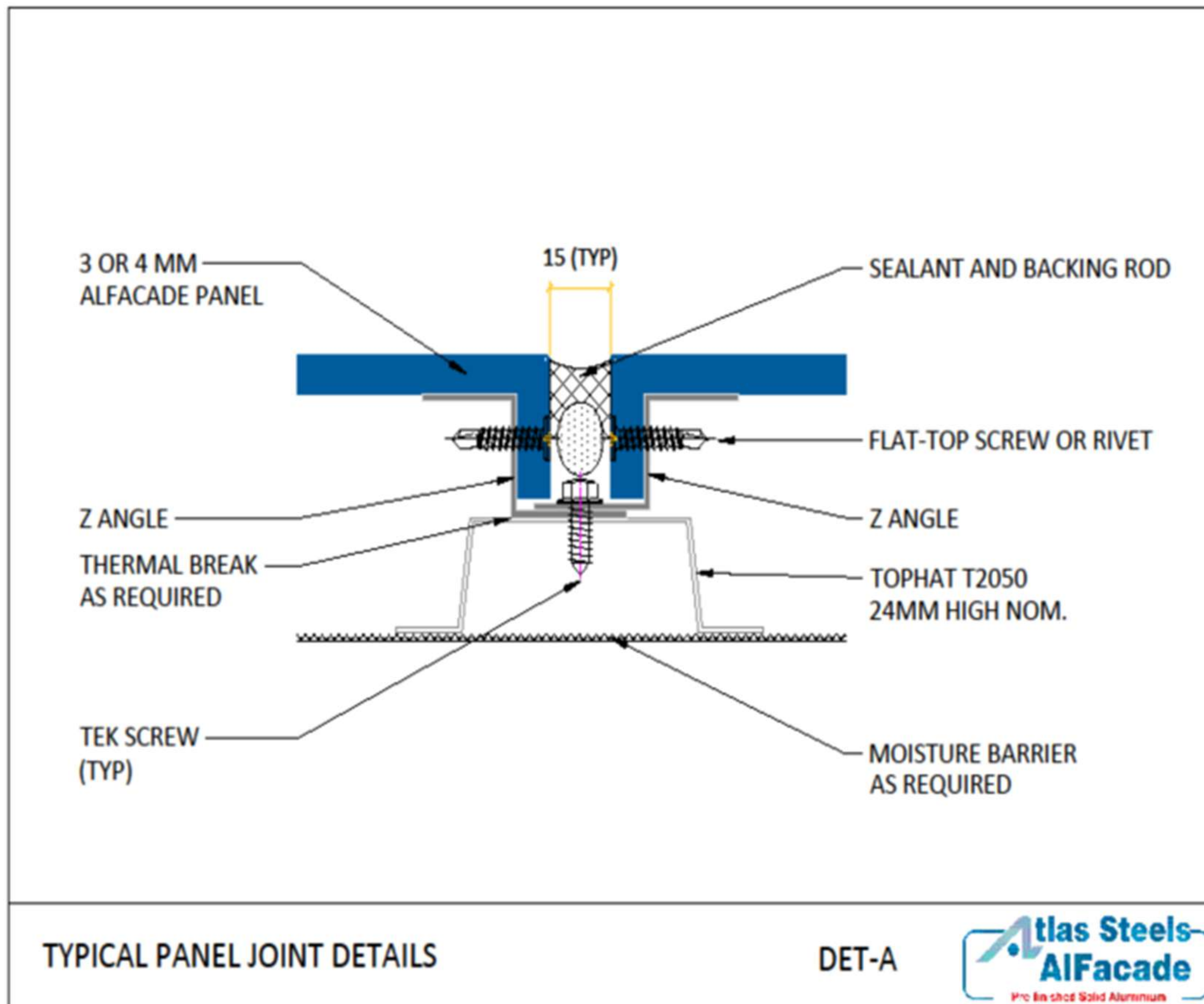
- Ensure the protective film is completely removed from within express joints before they are caulked with silicon.
- To avoid glue residue on panel surface from exposure to weathering and UV light, the protective film will need to be removed from the panels within 45 days of installation. A clear protective film is also available (MOQ may apply) which needs to be removed within 25 days of installation.
- Under no circumstance should you apply PVC tapes, polyurethane or silicone sealant. These products can penetrate the film, or the panel surface, resulting in a change in the PVDF coating gloss level.
- Do not apply any spray paint or write with permanent marker on the protective film, as the colour may penetrate the film and affect the painted panel surface.
- After removal of the protective film ensure no scratches/damage will occur to the panel surface if still working within the area.

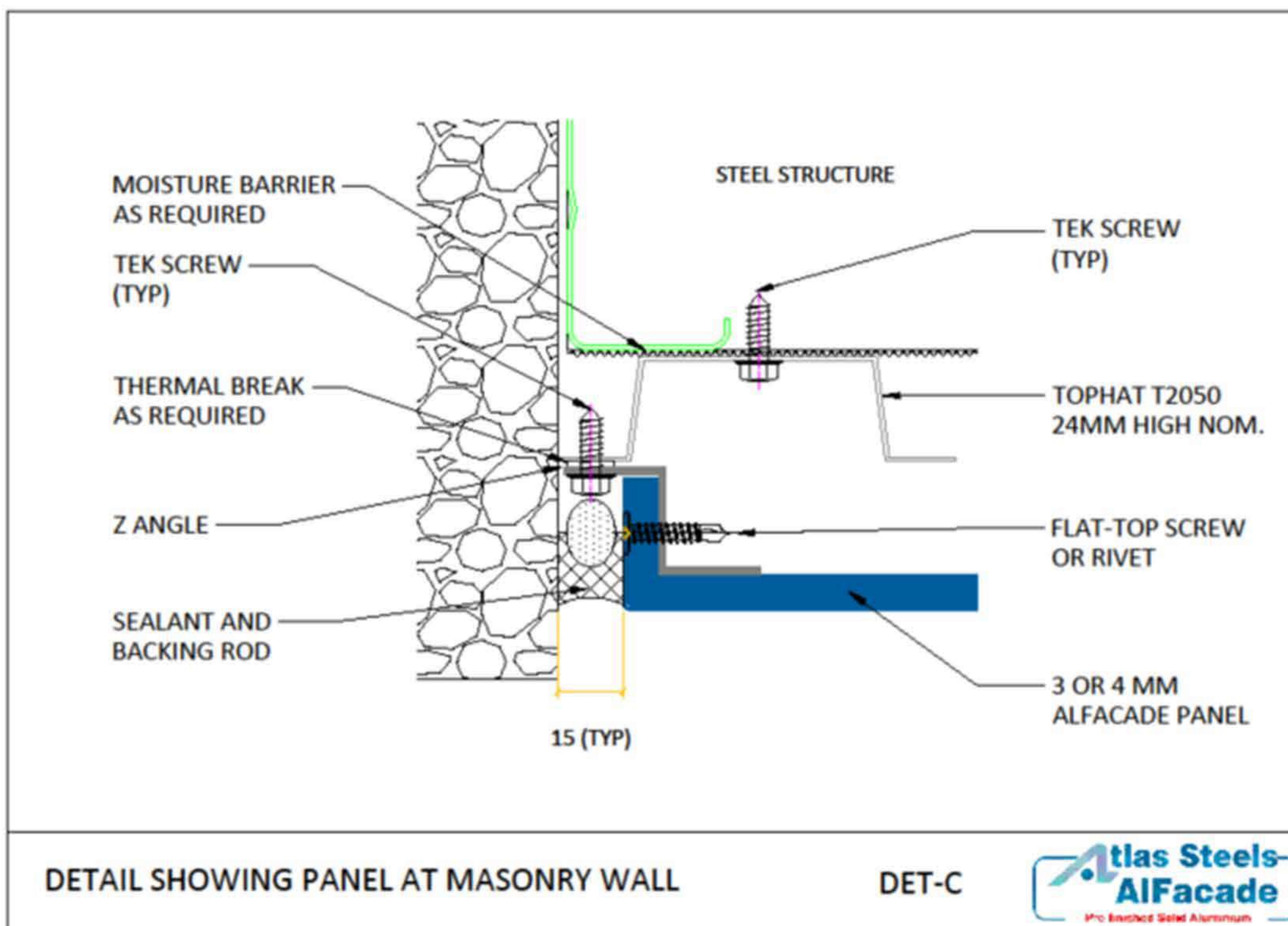
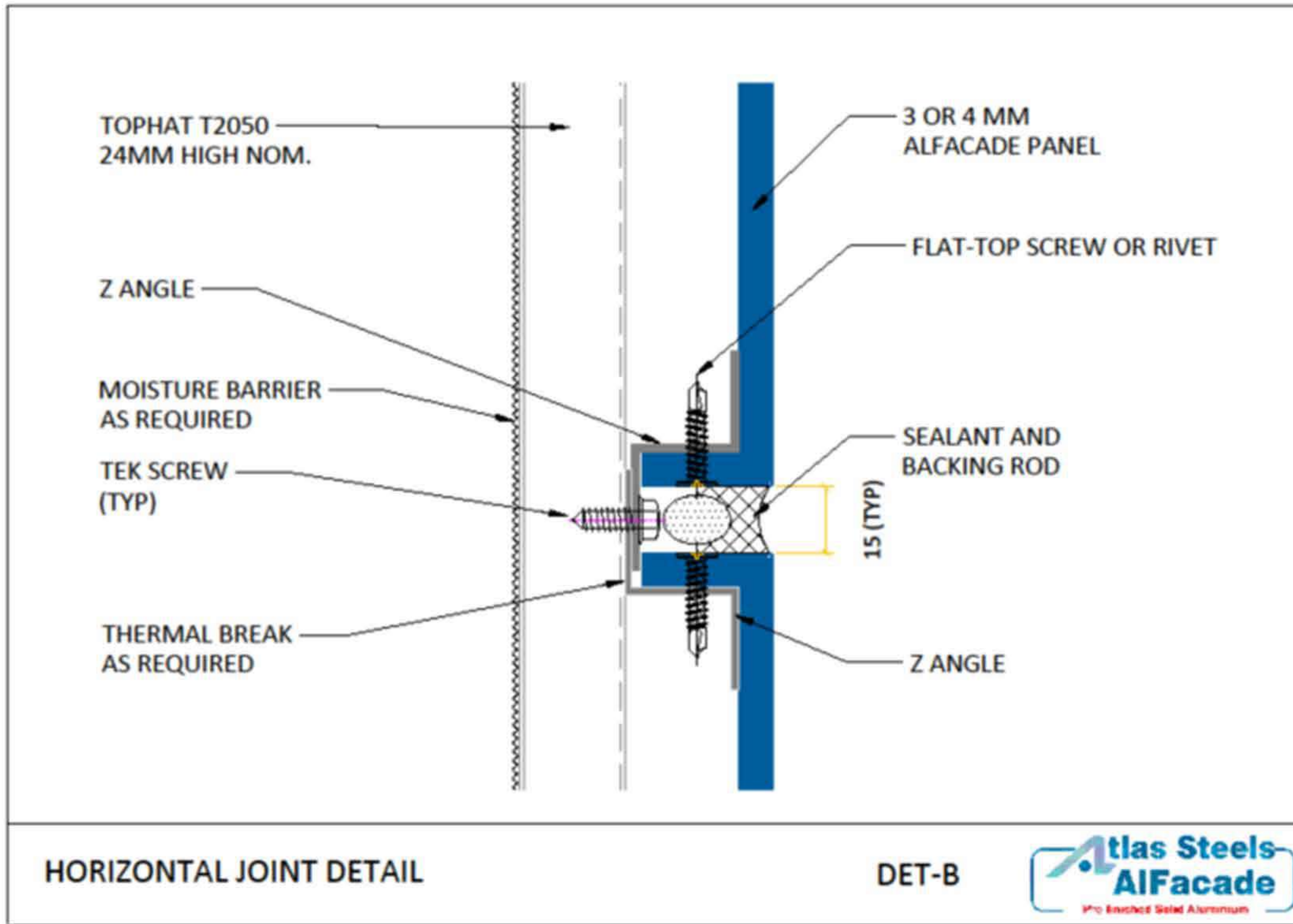
Installation Guidelines

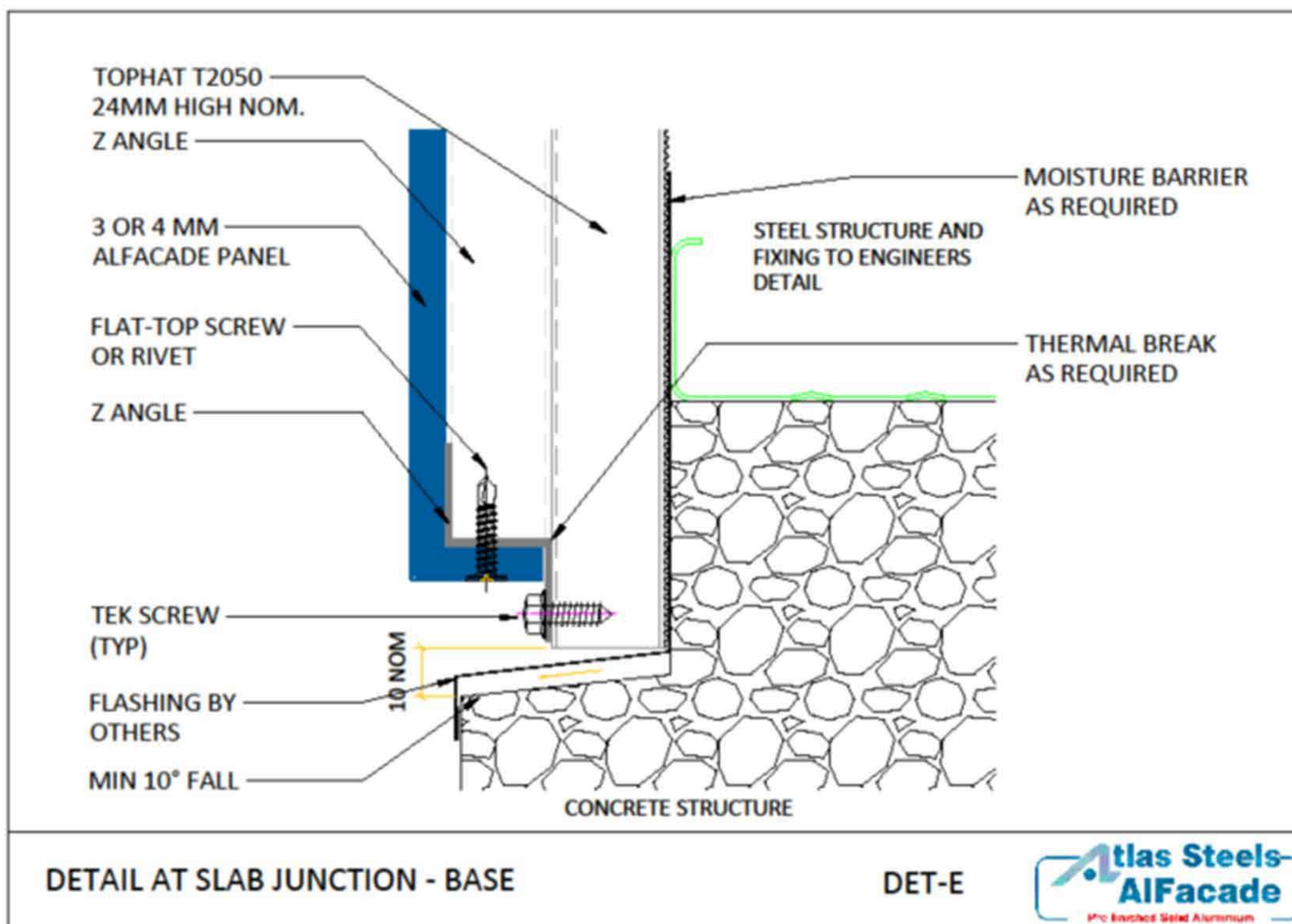
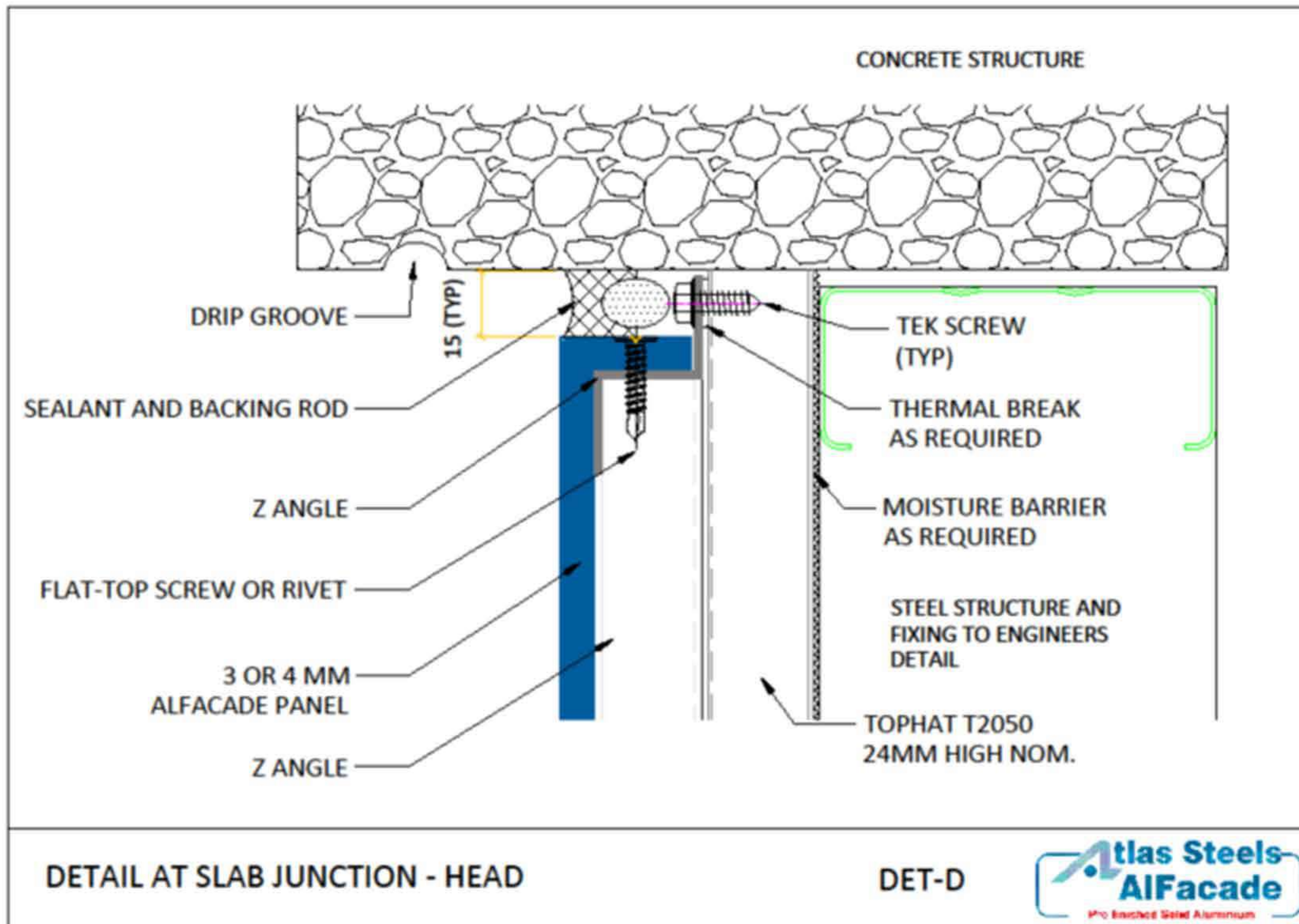
General guideline, sequence of installation is as follows:

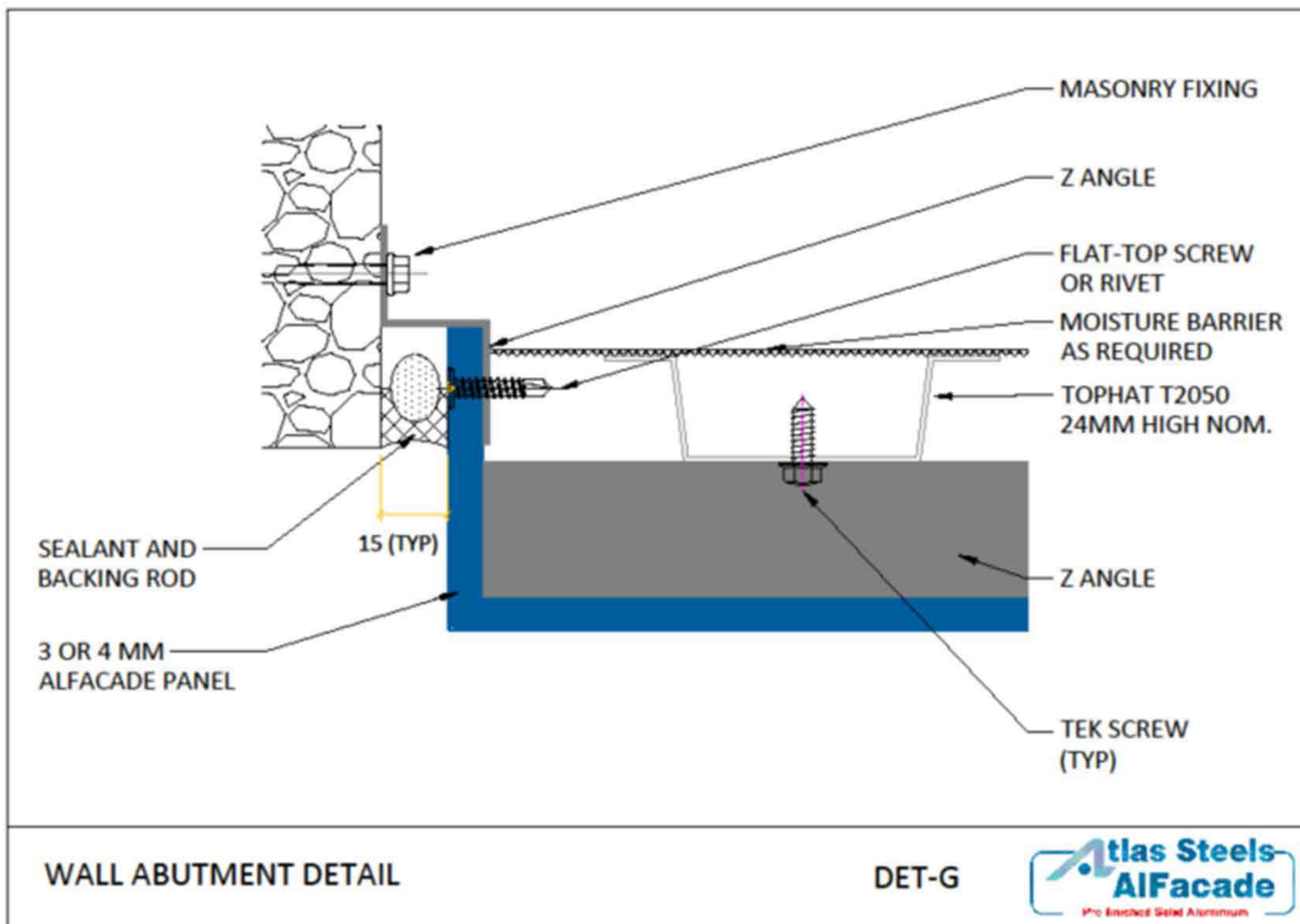
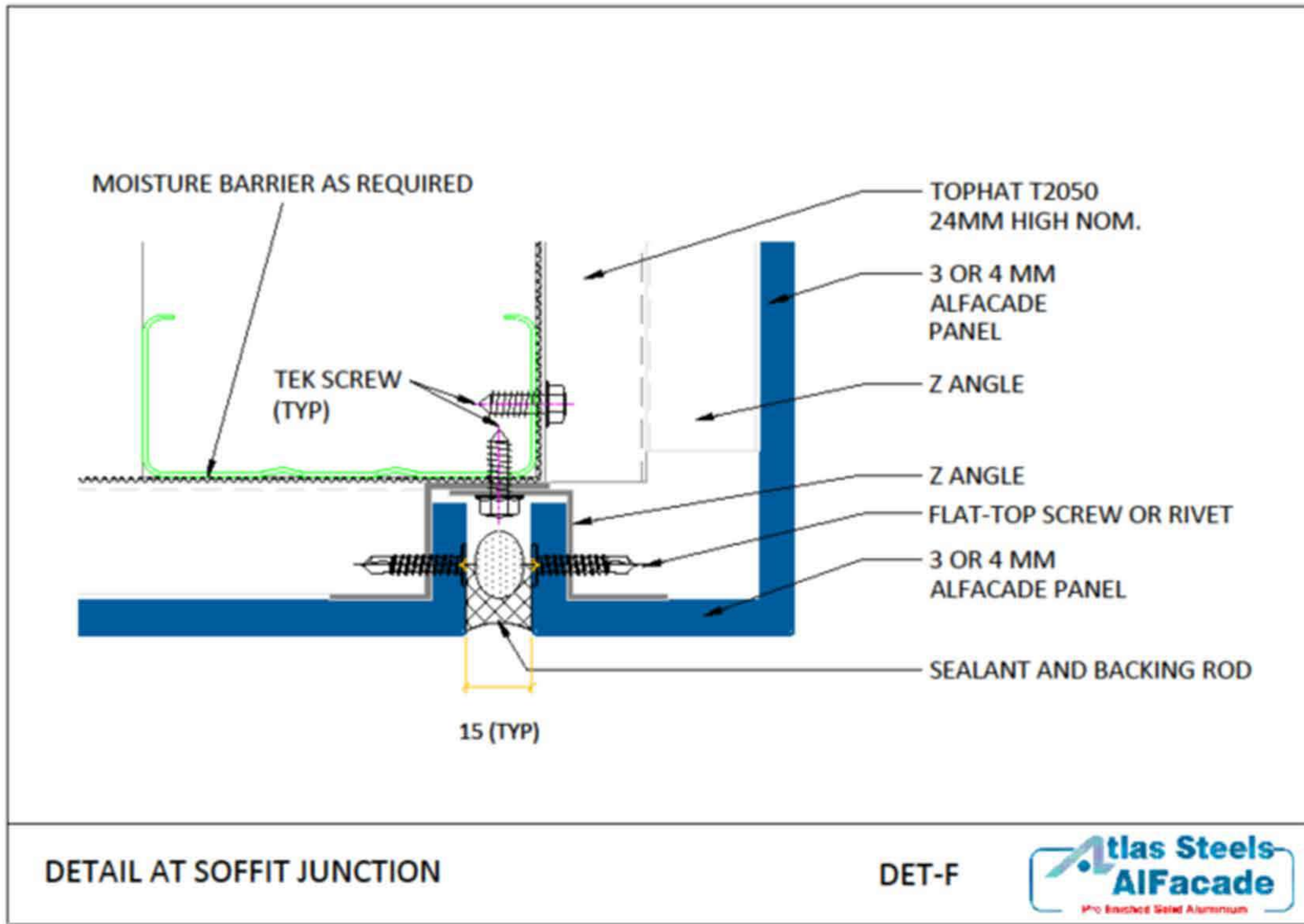
- Installation of an approved/compliant vapor permeable membrane as per manufacturers requirements.
- Installation of top hats vertically, ensuring they are levelled horizontally and vertically and fixed at appropriate center's to meet area / building wind loading requirements, with 10-12 gauge hex head class 3 screws.
- CNC fabricate and prepare Atlas Steels Alfacade for installation.
- Install Atlas Steels Alfacade panels to the top hats, then fix through the aluminium Z angles into top hats at the recommended centers for wind loading requirements.
- Caulking + backing rod applied to panel joints as per manufacturers recommendations, do not caulk panel joints if temperature is above 30°C.
- Remove all the protective film from Atlas Steels Alfacade within 45 days of installation.

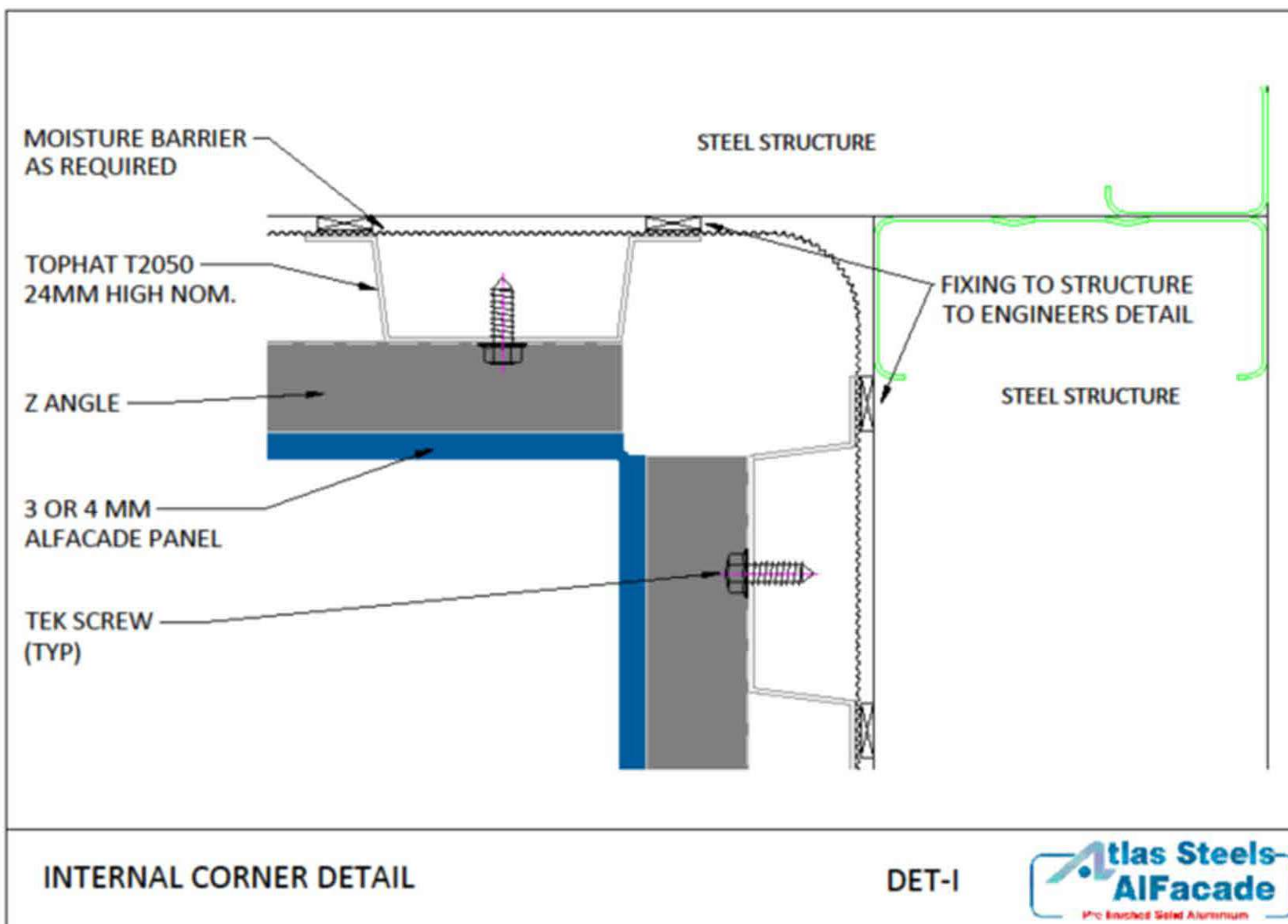
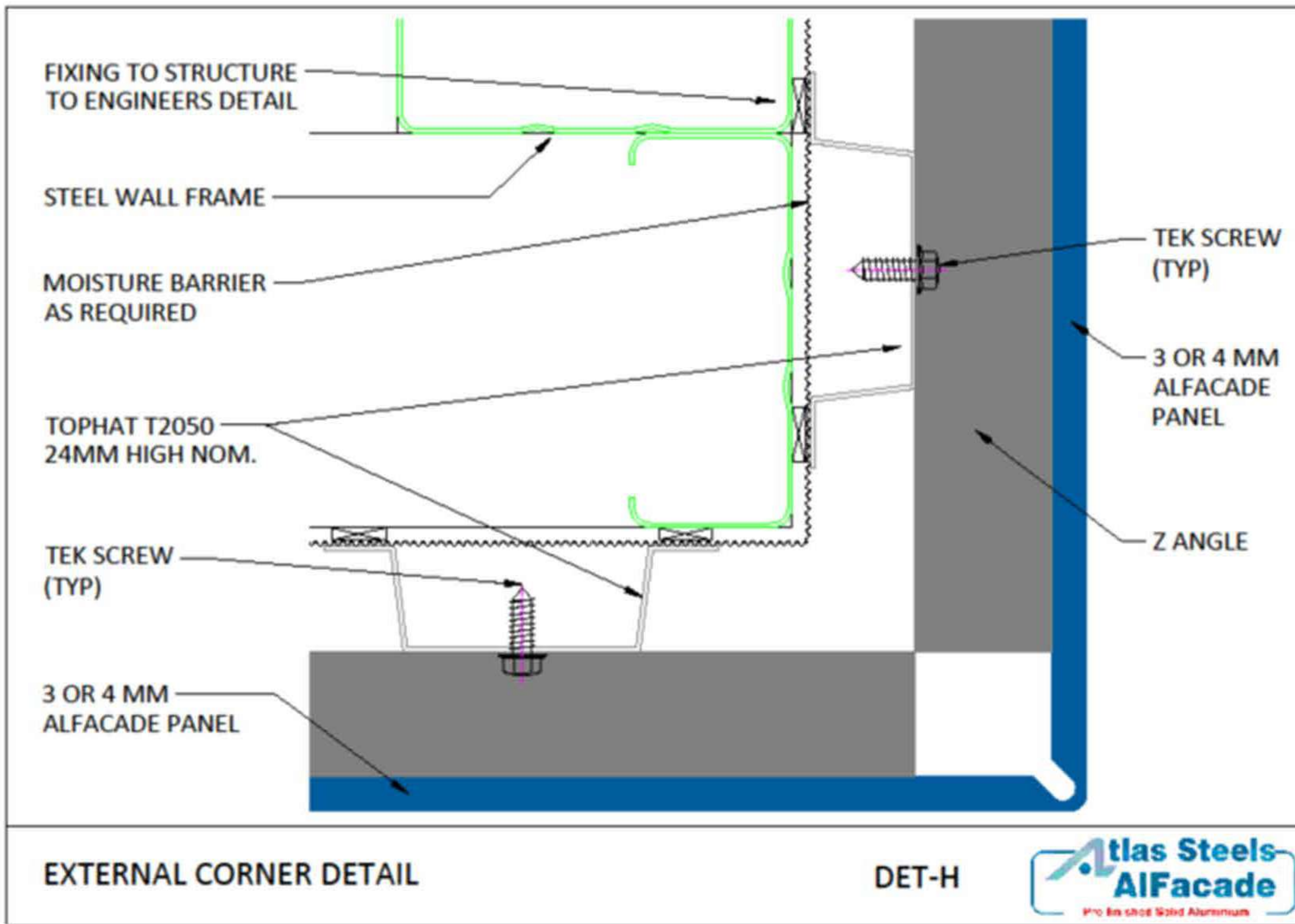
Installation Drawings

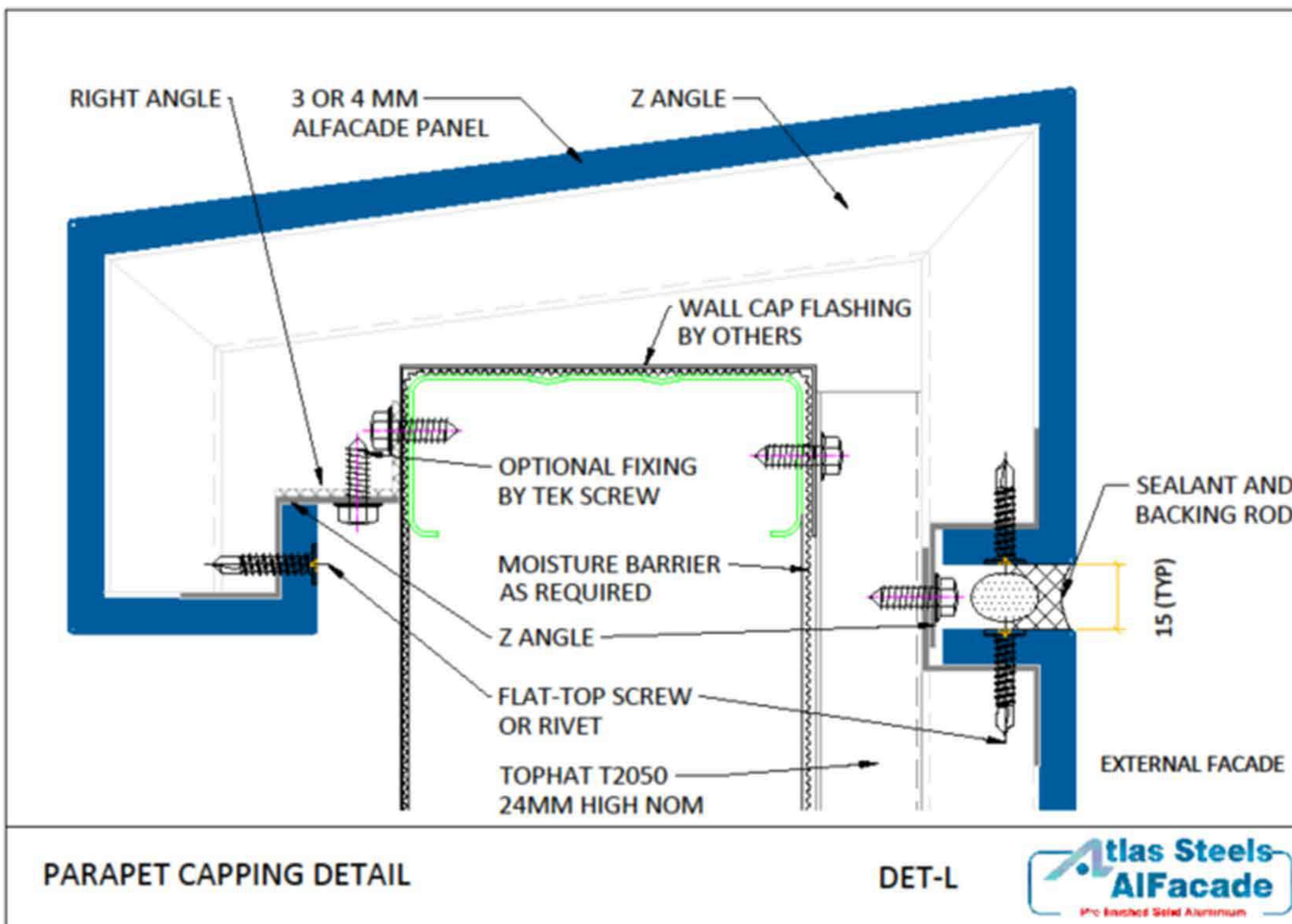
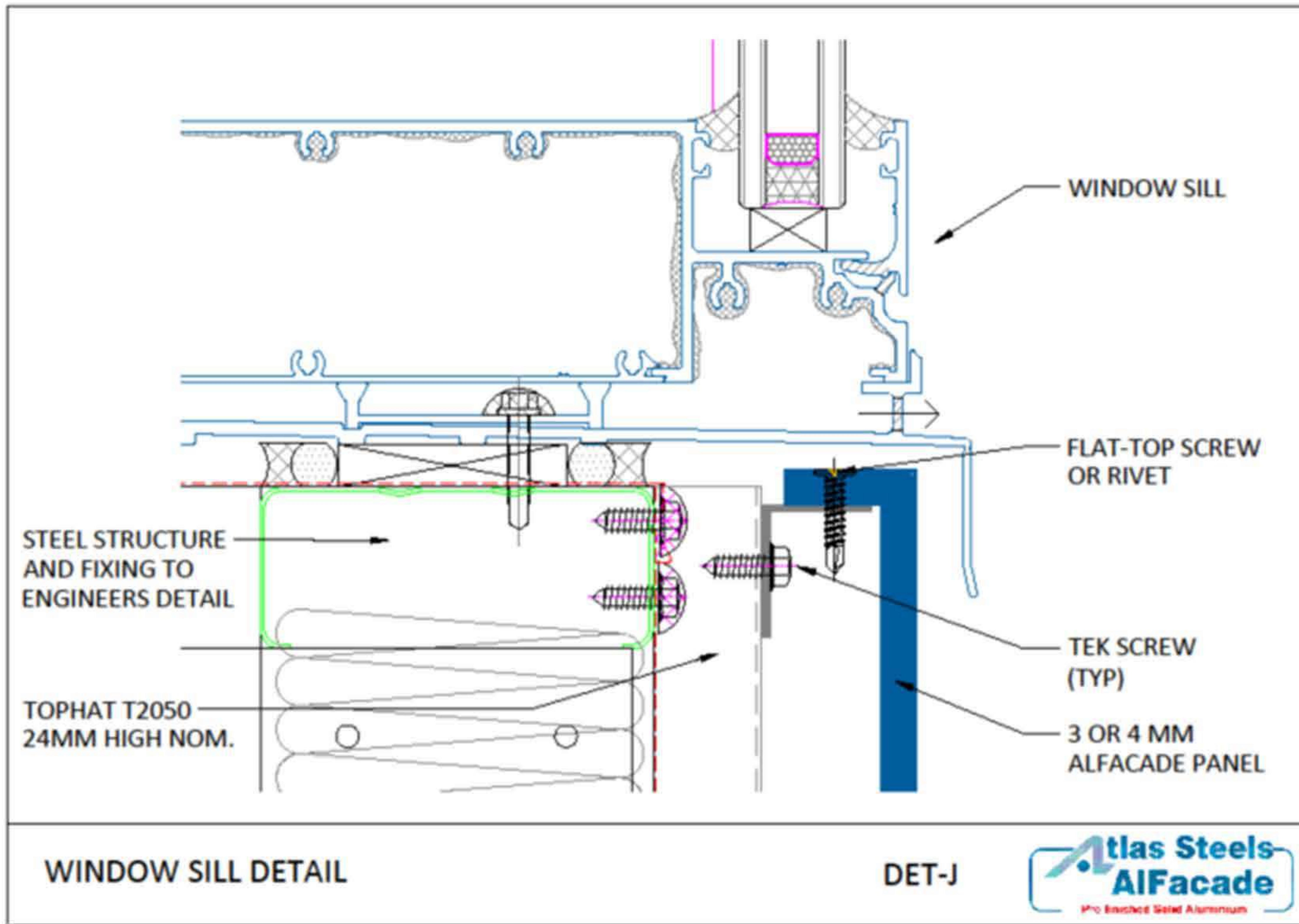


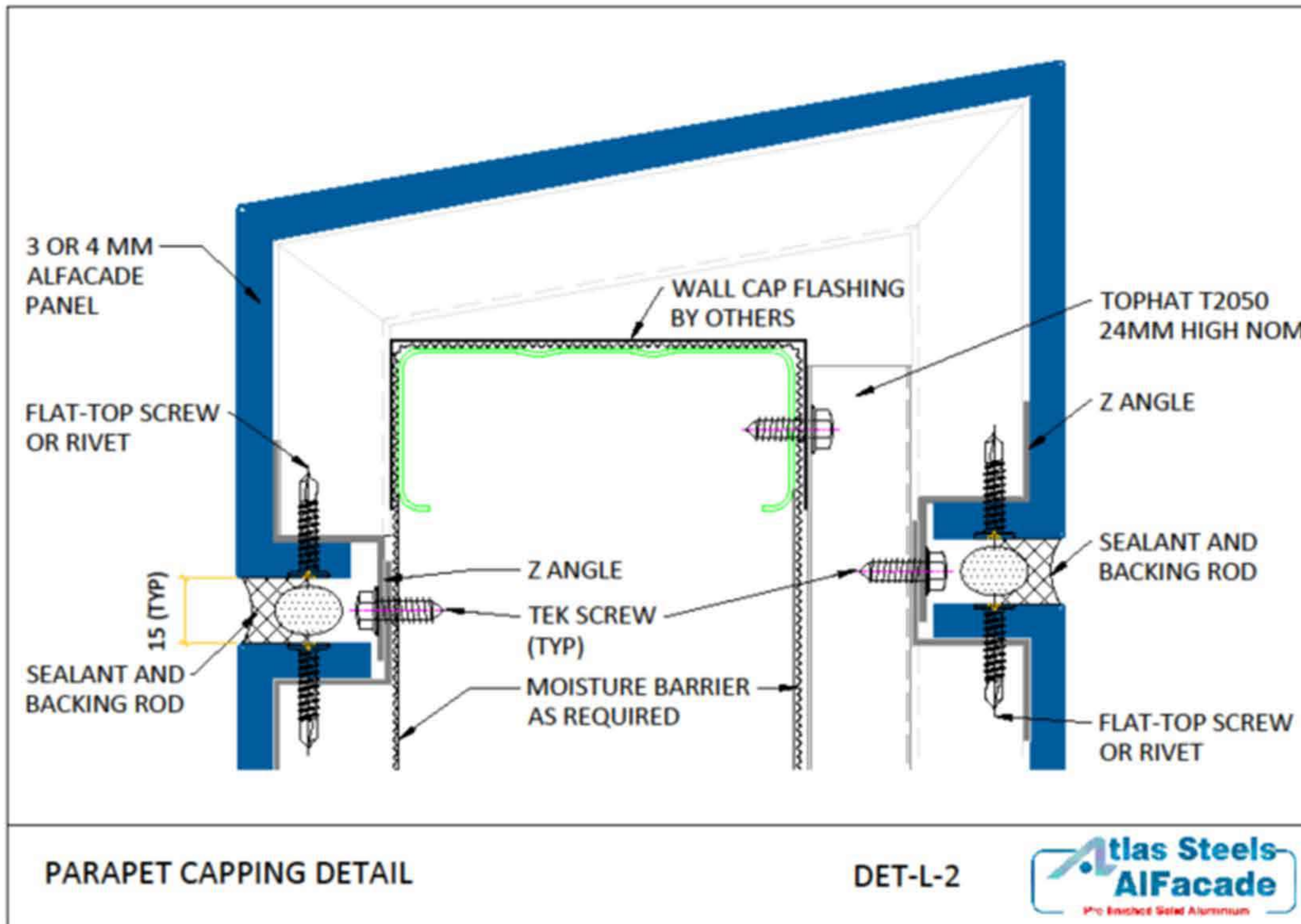












Atlas Steels Alfacade 3.0mm panel wind pressure table

Material AS/NZS Properties 1664 3003 H22

E	70000 MPa	<-- Compressive modulus of elasticity	<-- AS/NZS 1664.1 Table 3.4 (A) for Alloy 3003 Group
G	26250 MPa	<-- Shear modulus of elasticity	<-- AS/NZS 1664.1 Clause 3.4.8.3
t	3.00 mm	<-- Plate thickness	
F _{tu}	159 MPa	<-- Tensile ultimate strength	<-- Mill Certificate
F _{ty}	144 MPa	<-- Tensile yield strength	<-- Mill Certificate
F _{cy}	124 MPa	<-- Compressive yield strength	<-- Extrapolated from Table 3.3 (A) AS/NZS 1664.1 3003-H16
f _y	0.95	<-- Yield capacity factor	<-- AS/NZS 1664.1 Clause 3.4.2 & 3.4.3
f _u	0.85	<-- Ultimate capacity factor	<-- AS/NZS 1664.1 Clause 3.4.2 & 3.4.3
k _t	1.0	<-- Coefficient for tension members	<-- AS/NZS 1664.1 Table 3.4 (B)
f _{FL}	135 MPa	<-- Limit state bending stress.	<-- AS/NZS 1664.1 Clause 3.4.2 & 3.4.3

Flat plate, simply supported (4 sides) maximum principal Stress at mid span due to wind pressure, W_{uls}

$$\sigma_{max} = \frac{\beta qb^2}{t^2} \quad (1)$$

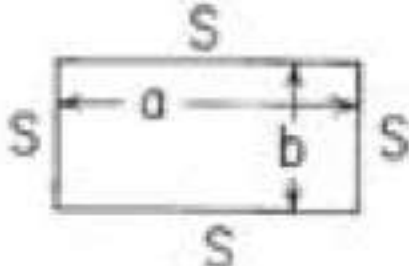
W_{uls}	Panel width 'b'	Panel Length 'a'							
		900.0 mm	1200.0 mm	1500.0 mm	1800.0 mm	2100.0 mm	2400.0 mm	2700.0 mm	3000.0 mm
1.0 kPa	600 mm	19.4 MPa	24.4 MPa	26.5 MPa	28.5 MPa	29.1 MPa	29.6 MPa	29.8 MPa	29.9 MPa
	900 mm	25.9 MPa	38.4 MPa	48.2 MPa	54.9 MPa	58.0 MPa	61.1 MPa	64.2 MPa	65.0 MPa
	1200 mm	68.2 MPa	46.0 MPa	63.3 MPa	77.6 MPa	88.9 MPa	97.6 MPa	101.8 MPa	105.9 MPa
	1500 mm	133.8 MPa	98.9 MPa	71.9 MPa	94.1 MPa	113.3 MPa	129.3 MPa	Stiffener R'd	Stiffener R'd
1.5 kPa	600 mm	29.1 MPa	36.6 MPa	39.7 MPa	42.8 MPa	43.6 MPa	44.5 MPa	44.7 MPa	44.9 MPa
	900 mm	38.8 MPa	57.5 MPa	72.3 MPa	82.4 MPa	87.0 MPa	91.7 MPa	96.3 MPa	97.5 MPa
	1200 mm	102.3 MPa	69.0 MPa	94.9 MPa	116.4 MPa	133.4 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd
	1500 mm	Stiffener R'd	Stiffener R'd	107.8 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd
2.0 kPa	600 mm	38.8 MPa	48.8 MPa	52.9 MPa	57.1 MPa	58.2 MPa	59.3 MPa	59.5 MPa	59.8 MPa
	900 mm	51.7 MPa	76.7 MPa	96.3 MPa	109.8 MPa	116.0 MPa	122.3 MPa	128.4 MPa	97.5 MPa
	1200 mm	Stiffener R'd	92.0 MPa	126.5 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd
	1500 mm	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd
2.5 kPa	600 mm	48.5 MPa	61.0 MPa	66.2 MPa	71.3 MPa	72.7 MPa	74.1 MPa	74.4 MPa	74.8 MPa
	900 mm	64.7 MPa	95.9 MPa	120.4 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd
	1200 mm	Stiffener R'd	115.0 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd
	1500 mm	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd

Notes:

- (1) Roark's Formulas for Stress and Strain Table 11.4, Chapter 11, Page 502
- (2) Plate principal stress near fixings, equi-spaced @ 300mm maximum centres, due to negative wind pressure can be calculated by multiplying Table Stress by 1.3. Stress at fixing shall be less than specified AS/NZS 1664.1 limit state bending stress, provided above. Where stress at fixings non-compliant, fixing spacing need to be reduced. In such case, consult manufacturer.

TABLE 11.4 Formulas for flat plates with straight boundaries and constant thickness

NOTATION: The notation for Table 11.2 applies with the following modifications: a and b refer to plate dimensions, and when used as subscripts for stress, they refer to the stresses in directions parallel to the sides a and b , respectively. σ is a bending stress which is positive when tensile on the bottom and compressive on the top if loadings are considered vertically downward. R is the reaction force per unit length normal to the plate surface exerted by the boundary support on the edge of the plate. r'_0 is the equivalent radius of contact for a load concentrated on a very small area and is given by $r'_0 = \sqrt{1.6r_0^2 + t^2} - 0.675t$ if $r_0 < 0.5t$ and $r'_0 = r_0$ if $r_0 \geq 0.5t$

Case no., shape, and supports	Case no., loading	Formulas and tabulated specific values																																												
1. Rectangular plate; all edges simply supported 	1a. Uniform over entire plate	(At center) $\sigma_{max} = \sigma_b = \frac{\beta qb^2}{t^2}$ and $y_{max} = \frac{-\alpha qb^4}{Et^3}$ (At center of long sides) $R_{max} = \gamma qb$ <table border="1"> <tr> <th>a/b</th> <td>1.0</td> <td>1.2</td> <td>1.4</td> <td>1.6</td> <td>1.8</td> <td>2.0</td> <td>3.0</td> <td>4.0</td> <td>5.0</td> <td>∞</td> </tr> <tr> <th>β</th> <td>0.2874</td> <td>0.3762</td> <td>0.4530</td> <td>0.5172</td> <td>0.5688</td> <td>0.6102</td> <td>0.7134</td> <td>0.7410</td> <td>0.7476</td> <td>0.7500</td> </tr> <tr> <th>α</th> <td>0.0444</td> <td>0.0616</td> <td>0.0770</td> <td>0.0906</td> <td>0.1017</td> <td>0.1110</td> <td>0.1335</td> <td>0.1400</td> <td>0.1417</td> <td>0.1421</td> </tr> <tr> <th>γ</th> <td>0.420</td> <td>0.455</td> <td>0.478</td> <td>0.491</td> <td>0.499</td> <td>0.503</td> <td>0.505</td> <td>0.502</td> <td>0.501</td> <td>0.500</td> </tr> </table> (Ref. 21 for $\nu = 0.3$)	a/b	1.0	1.2	1.4	1.6	1.8	2.0	3.0	4.0	5.0	∞	β	0.2874	0.3762	0.4530	0.5172	0.5688	0.6102	0.7134	0.7410	0.7476	0.7500	α	0.0444	0.0616	0.0770	0.0906	0.1017	0.1110	0.1335	0.1400	0.1417	0.1421	γ	0.420	0.455	0.478	0.491	0.499	0.503	0.505	0.502	0.501	0.500
	a/b	1.0	1.2	1.4	1.6	1.8	2.0	3.0	4.0	5.0	∞																																			
β	0.2874	0.3762	0.4530	0.5172	0.5688	0.6102	0.7134	0.7410	0.7476	0.7500																																				
α	0.0444	0.0616	0.0770	0.0906	0.1017	0.1110	0.1335	0.1400	0.1417	0.1421																																				
γ	0.420	0.455	0.478	0.491	0.499	0.503	0.505	0.502	0.501	0.500																																				
1b. Uniform over small concentric circle of radius r_0 (note definition of r'_0)	(At center) $\sigma_{max} = \frac{3W}{2\pi t^2} \left[(1 + \nu) \ln \frac{2b}{\pi r'_0} + \beta \right]$ $y_{max} = \frac{-\alpha Wb^2}{Et^3}$ <table border="1"> <tr> <th>a/b</th> <td>1.0</td> <td>1.2</td> <td>1.4</td> <td>1.6</td> <td>1.8</td> <td>2.0</td> <td>∞</td> </tr> <tr> <th>β</th> <td>0.435</td> <td>0.650</td> <td>0.789</td> <td>0.875</td> <td>0.927</td> <td>0.958</td> <td>1.000</td> </tr> <tr> <th>α</th> <td>0.1267</td> <td>0.1478</td> <td>0.1621</td> <td>0.1715</td> <td>0.1770</td> <td>0.1805</td> <td>0.1851</td> </tr> </table> (Ref. 21 for $\nu = 0.3$)	a/b	1.0	1.2	1.4	1.6	1.8	2.0	∞	β	0.435	0.650	0.789	0.875	0.927	0.958	1.000	α	0.1267	0.1478	0.1621	0.1715	0.1770	0.1805	0.1851																					
a/b	1.0	1.2	1.4	1.6	1.8	2.0	∞																																							
β	0.435	0.650	0.789	0.875	0.927	0.958	1.000																																							
α	0.1267	0.1478	0.1621	0.1715	0.1770	0.1805	0.1851																																							

Atlas Steels Alfacade 4.0mm panel wind pressure table

Material AS/NZS Properties 1664 3003 H22

E	70000 MPa	<-- Compressive modulus of elasticity	<-- AS/NZS 1664.1 Table 3.4 (A) for Alloy 3003 Group
G	26250 MPa	<-- Shear modulus of elasticity	<-- AS/NZS 1664.1 Clause 3.4.8.3
t	4.00 mm	<-- Plate thickness	
F _{tu}	159 MPa	<-- Tensile ultimate strength	<-- Mill Certificate
F _{ty}	144 MPa	<-- Tensile yield strength	<-- Mill Certificate
F _{cy}	124 MPa	<-- Compressive yield strength	<-- Extrapolated from Table 3.3 (A) AS/NZS 1664.1 3003-H16
f _y	0.95	<-- Yield capacity factor	<-- AS/NZS 1664.1 Clause 3.4.2 & 3.4.3
f _u	0.85	<-- Ultimate capacity factor	<-- AS/NZS 1664.1 Clause 3.4.2 & 3.4.3
k _t	1.0	<-- Coefficient for tension members	<-- AS/NZS 1664.1 Table 3.4 (B)
f _{FL}	135 MPa	<-- Limit state bending stress.	<-- AS/NZS 1664.1 Clause 3.4.2 & 3.4.3

Flat plate, simply supported (4 sides) maximum principal Stress at mid span due to wind pressure, $W_{(uls)}$

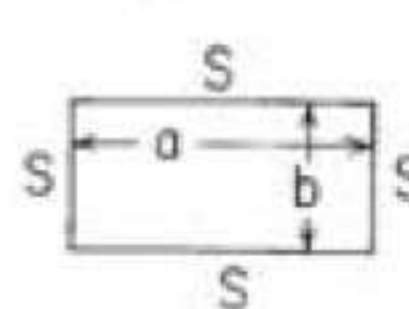
$$\sigma_{max} = \frac{\beta qb^2}{t^2} \quad (1)$$

W_{uls}	Panel width 'b'	Panel Length 'a'							
		900.0 mm	1200.0 mm	1500.0 mm	1800.0 mm	2100.0 mm	2400.0 mm	2700.0 mm	3000.0 mm
1.0 kPa	600 mm	10.9 MPa	13.7 MPa	14.9 MPa	16.1 MPa	16.4 MPa	16.7 MPa	16.7 MPa	16.8 MPa
	900 mm	14.5 MPa	21.6 MPa	27.1 MPa	30.9 MPa	32.6 MPa	34.4 MPa	36.1 MPa	36.6 MPa
	1200 mm	38.4 MPa	25.9 MPa	35.6 MPa	43.7 MPa	50.0 MPa	54.9 MPa	57.2 MPa	59.6 MPa
	1500 mm	75.3 MPa	55.6 MPa	40.4 MPa	52.9 MPa	63.7 MPa	72.7 MPa	80.0 MPa	85.8 MPa
1.5 kPa	600 mm	16.4 MPa	20.6 MPa	22.3 MPa	24.1 MPa	24.5 MPa	25.0 MPa	25.1 MPa	25.2 MPa
	900 mm	21.8 MPa	32.4 MPa	40.6 MPa	46.3 MPa	48.9 MPa	51.6 MPa	54.2 MPa	54.9 MPa
	1200 mm	57.5 MPa	38.8 MPa	53.4 MPa	65.5 MPa	75.0 MPa	82.4 MPa	85.9 MPa	89.3 MPa
	1500 mm	112.9 MPa	83.4 MPa	60.6 MPa	79.4 MPa	95.6 MPa	109.1 MPa	120.0 MPa	128.7 MPa
2.0 kPa	600 mm	21.8 MPa	27.5 MPa	29.8 MPa	32.1 MPa	32.7 MPa	33.3 MPa	33.5 MPa	33.6 MPa
	900 mm	29.1 MPa	43.1 MPa	54.2 MPa	61.8 MPa	65.2 MPa	68.8 MPa	72.2 MPa	74.9 MPa
	1200 mm	76.7 MPa	51.7 MPa	71.2 MPa	87.3 MPa	100.1 MPa	109.8 MPa	114.5 MPa	119.1 MPa
	1500 mm	Stiffener R'd	111.2 MPa	80.8 MPa	105.8 MPa	127.4 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd
2.5 kPa	600 mm	27.3 MPa	34.3 MPa	37.2 MPa	40.1 MPa	40.9 MPa	41.7 MPa	41.9 MPa	42.1 MPa
	900 mm	36.4 MPa	53.9 MPa	67.7 MPa	77.2 MPa	81.5 MPa	86.0 MPa	90.3 MPa	91.4 MPa
	1200 mm	95.9 MPa	64.7 MPa	89.0 MPa	109.1 MPa	125.1 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd
	1500 mm	Stiffener R'd	Stiffener R'd	101.0 MPa	132.3 MPa	Stiffener R'd	Stiffener R'd	Stiffener R'd	Stiffener R'd

- Notes:
- Roark's Formulas for Stress and Strain Table 11.4, Chapter 11, Page 502
 - Plate principal stress near fixings, equi-spaced @ 300mm maximum centres, due to negative wind pressure can be calculated by multiplying Table Stress by 1.3
Stress at fixing shall be less than specified AS/NZS 1664.1 limit state bending stress, provided above.
Where stress at fixings non-compliant, fixing spacing need to be reduced. In such case, consult manufacturer.

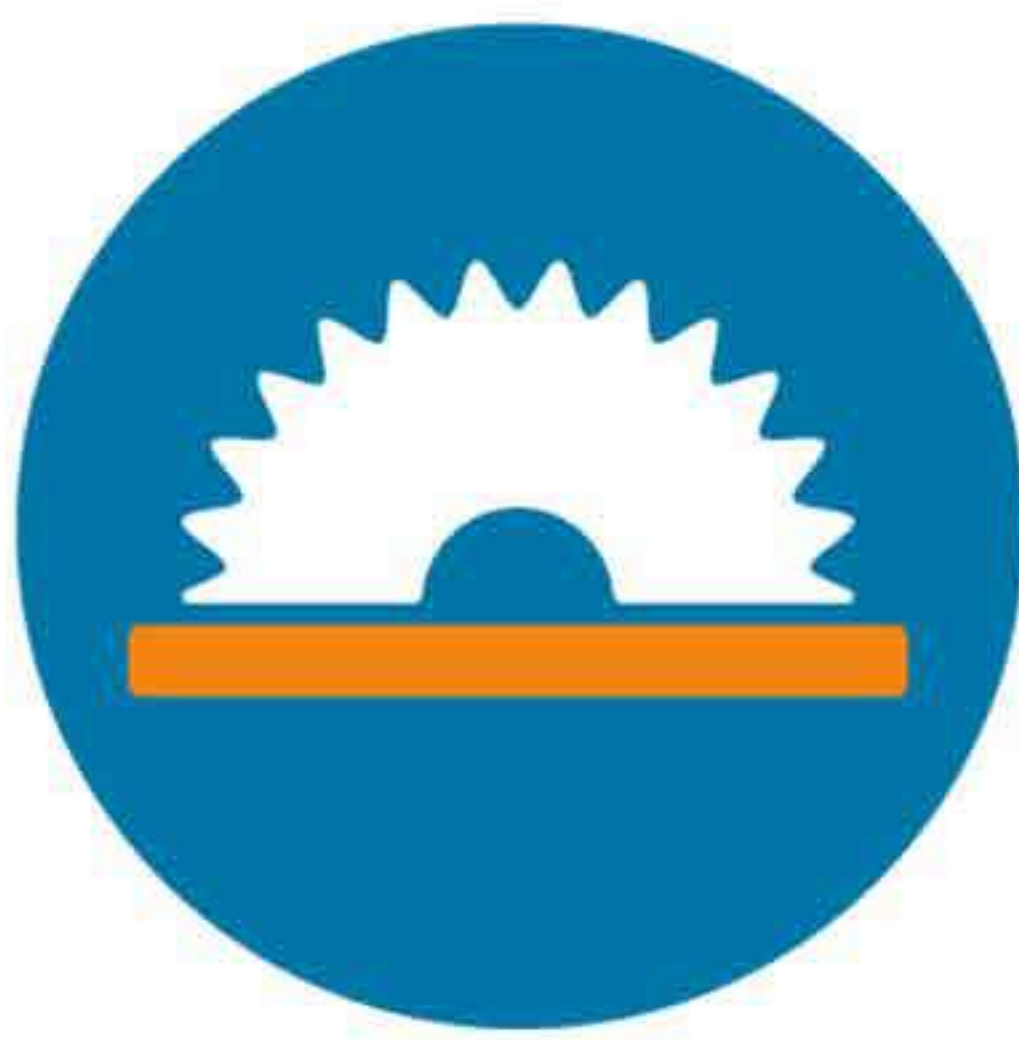
TABLE 11.4 Formulas for flat plates with straight boundaries and constant thickness

NOTATION: The notation for Table 11.2 applies with the following modifications: a and b refer to plate dimensions, and when used as subscripts for stress, they refer to the stresses in directions parallel to the sides a and b , respectively. σ is a bending stress which is positive when tensile on the bottom and compressive on the top if loadings are considered vertically downward. R is the reaction force per unit length normal to the plate surface exerted by the boundary support on the edge of the plate. r'_0 is the equivalent radius of contact for a load concentrated on a very small area and is given by $r'_0 = \sqrt{1.6r_0^2 + t^2} - 0.675t$ if $r_0 < 0.5t$ and $r'_0 = r_0$ if $r_0 \geq 0.5t$

Case no., shape, and supports	Case no., loading	Formulas and tabulated specific values																																												
1. Rectangular plate; all edges simply supported 	1a. Uniform over entire plate	<p>(At center) $\sigma_{max} = \sigma_b = \frac{\beta qb^2}{t^2}$ and $y_{max} = \frac{-\alpha qb^4}{Et^3}$</p> <p>(At center of long sides) $R_{max} = \gamma qb$</p> <table border="1"> <tr> <th>a/b</th> <td>1.0</td> <td>1.2</td> <td>1.4</td> <td>1.6</td> <td>1.8</td> <td>2.0</td> <td>3.0</td> <td>4.0</td> <td>5.0</td> <td>∞</td> </tr> <tr> <th>β</th> <td>0.2874</td> <td>0.3762</td> <td>0.4530</td> <td>0.5172</td> <td>0.5688</td> <td>0.6102</td> <td>0.7134</td> <td>0.7410</td> <td>0.7476</td> <td>0.7500</td> </tr> <tr> <th>α</th> <td>0.0444</td> <td>0.0616</td> <td>0.0770</td> <td>0.0906</td> <td>0.1017</td> <td>0.1110</td> <td>0.1335</td> <td>0.1400</td> <td>0.1417</td> <td>0.1421</td> </tr> <tr> <th>γ</th> <td>0.420</td> <td>0.455</td> <td>0.478</td> <td>0.491</td> <td>0.499</td> <td>0.503</td> <td>0.505</td> <td>0.502</td> <td>0.501</td> <td>0.500</td> </tr> </table> <p>(Ref. 21 for $\nu = 0.3$)</p>	a/b	1.0	1.2	1.4	1.6	1.8	2.0	3.0	4.0	5.0	∞	β	0.2874	0.3762	0.4530	0.5172	0.5688	0.6102	0.7134	0.7410	0.7476	0.7500	α	0.0444	0.0616	0.0770	0.0906	0.1017	0.1110	0.1335	0.1400	0.1417	0.1421	γ	0.420	0.455	0.478	0.491	0.499	0.503	0.505	0.502	0.501	0.500
	a/b	1.0	1.2	1.4	1.6	1.8	2.0	3.0	4.0	5.0	∞																																			
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γ	0.420	0.455	0.478	0.491	0.499	0.503	0.505	0.502	0.501	0.500																																				
1b. Uniform over small concentric circle of radius r_0 (note definition of r'_0)	<p>(At center) $\sigma_{max} = \frac{3W}{2\pi t^2} \left[(1 + \nu) \ln \frac{2b}{\pi r'_0} + \beta \right]$</p> <p>$y_{max} = \frac{-\alpha W b^2}{Et^3}$</p> <table border="1"> <tr> <th>a/b</th> <td>1.0</td> <td>1.2</td> <td>1.4</td> <td>1.6</td> <td>1.8</td> <td>2.0</td> <td>∞</td> </tr> <tr> <th>β</th> <td>0.435</td> <td>0.650</td> <td>0.789</td> <td>0.875</td> <td>0.927</td> <td>0.958</td> <td>1.000</td> </tr> <tr> <th>α</th> <td>0.1267</td> <td>0.1478</td> <td>0.1621</td> <td>0.1715</td> <td>0.1770</td> <td>0.1805</td> <td>0.1851</td> </tr> </table> <p>(Ref. 21 for $\nu = 0.3$)</p>	a/b	1.0	1.2	1.4	1.6	1.8	2.0	∞	β	0.435	0.650	0.789	0.875	0.927	0.958	1.000	α	0.1267	0.1478	0.1621	0.1715	0.1770	0.1805	0.1851																					
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α	0.1267	0.1478	0.1621	0.1715	0.1770	0.1805	0.1851																																							

06

Atlas Steels Alfacade Fabrication Details



Cutting

Atlas Steels Alfacade can be cut using various types of saw with an appropriate type aluminium blade used in your circular saw, wall saw or jigsaw, consult with your supplier for best suited option. A cutting coolant system is recommended when processing.

Tool

(CNC) 4.76mm single flute upsiral cutter

Feed

1,500mm/minute

Spindle

21,000mm/minute

angle entry when cutting panel is recommended. Cutting fluid required.



Grooving

The preferred V-Groove-routing method of Atlas Steels Alfacade is to be done via CNC machine to maintain consistency, of routed depth, by leaving 0.7-1.0mm of material at the base of the route. A cutter coolant system is recommended when processing.

Tool

(CNC) 4.76mm single flute upsiral cutter

Feed

1,500mm/minute

Spindle

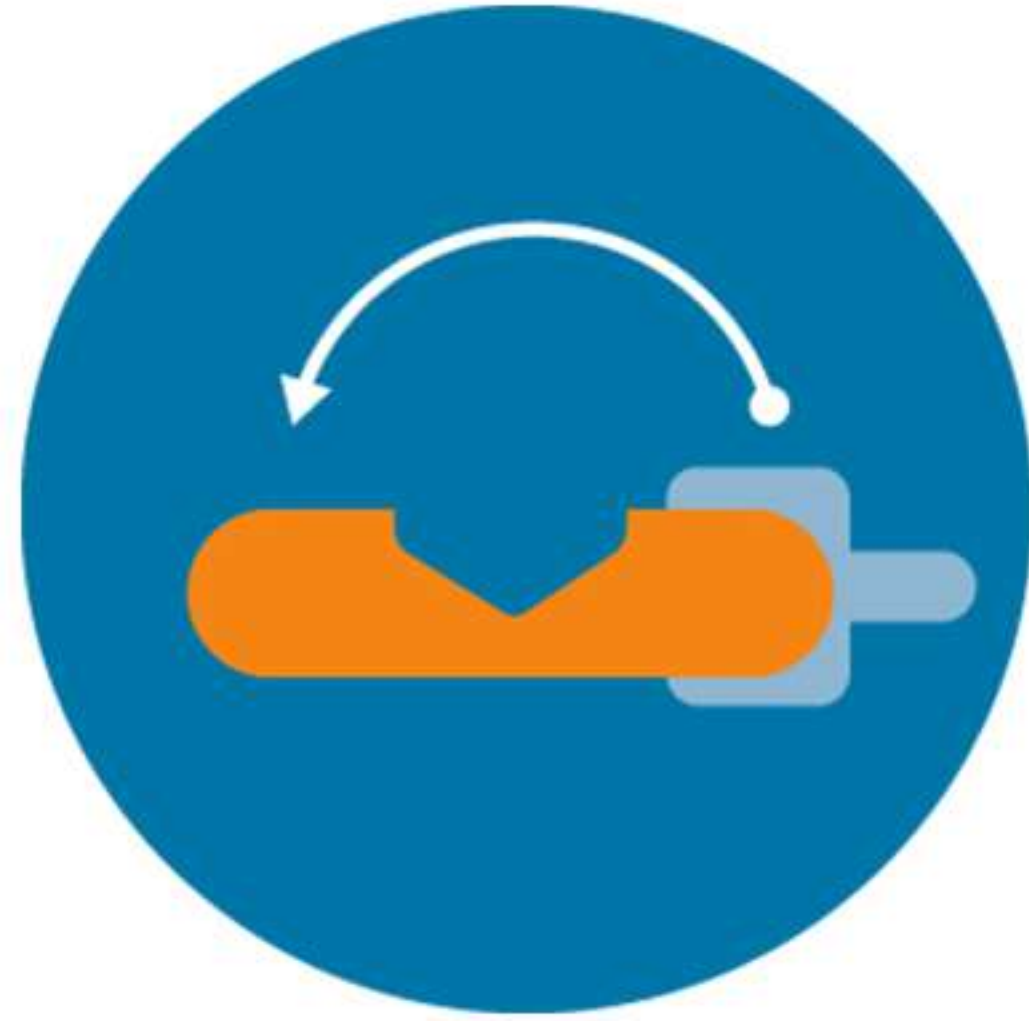
21,000mm/minute

NOTE: angle entry when routing panel is recommended. Cutting fluid required.



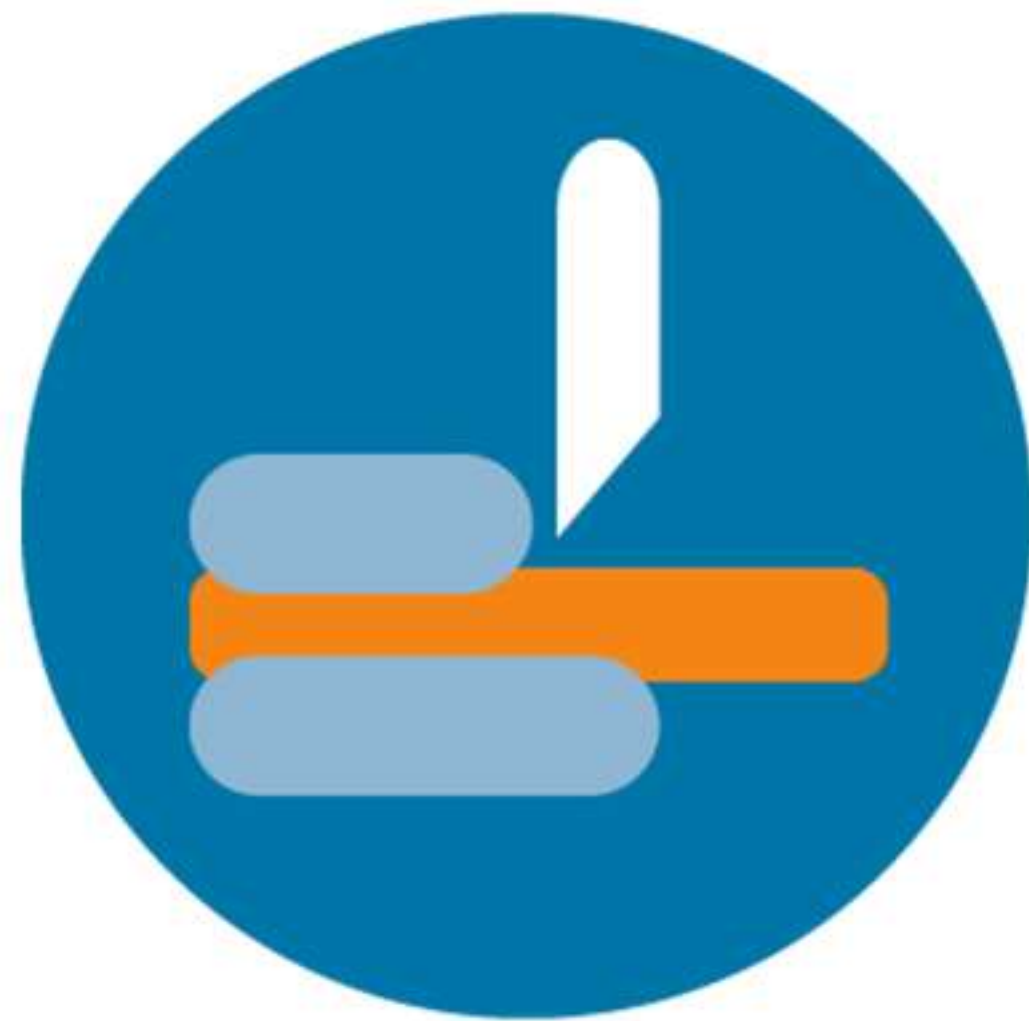
Radius/Profile cutting

The use of CNC machine, jigsaws and waterjet cutters are recommended for any curved profile cutting. A cutter coolant system is recommended when processing.



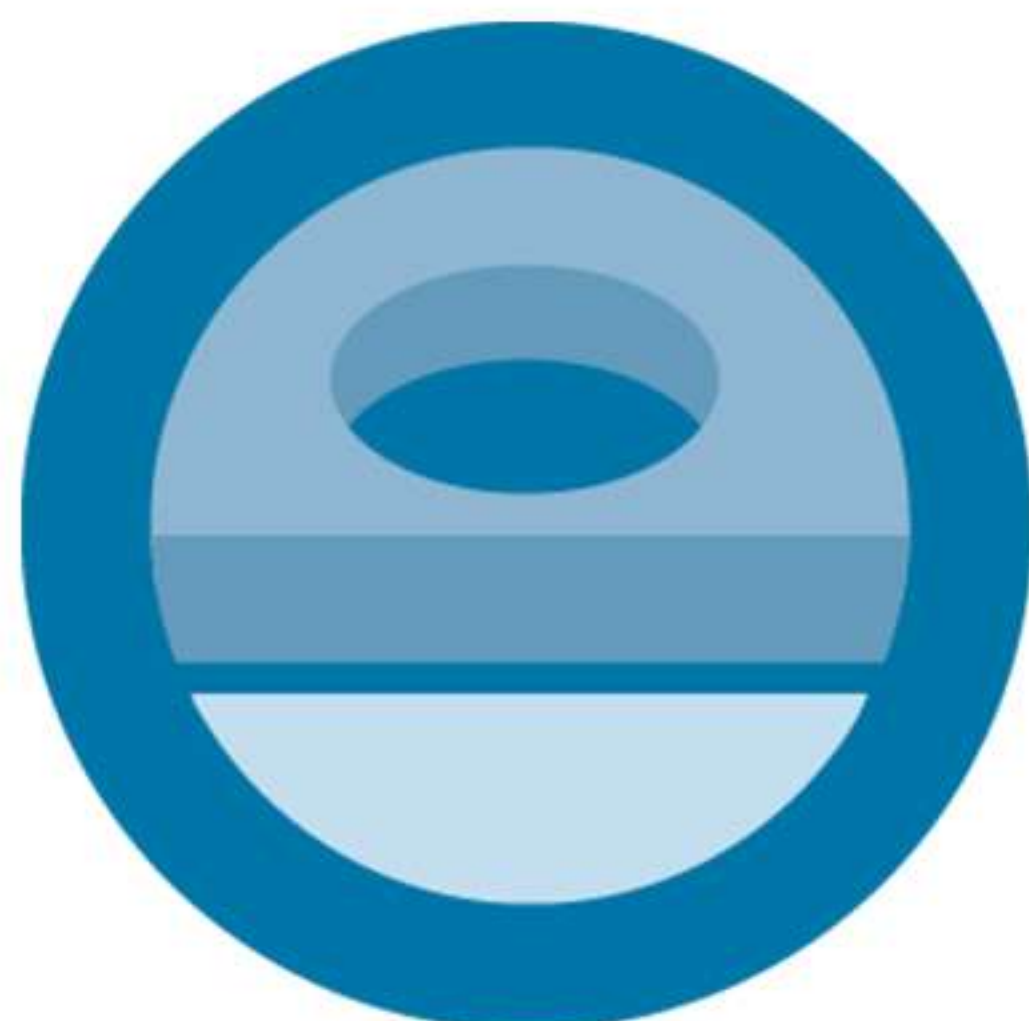
Folding

To fold the Atlas Steels Alfacade once routed, the use of pan break or a break press machine is recommended, especially for large format panels.



Shearing

Atlas Steels Alfacade panels can be guillotined face up for quick size processing of panels. Ensure the panel is protected from any potential damage during this process.



Perforating

Atlas Steels Alfacade can be punched/perforated by turret punch machines, always punch the panels face up to the tooling, as a general rule 3.0mm minimum spacing between punched holes is required.



Roll Forming

Mandrill roller systems can be used to produce curved/radius in Atlas Steels Alfacade panels. Ensure roller sets are cleaned thoroughly before processing so not to damage the painted surface.



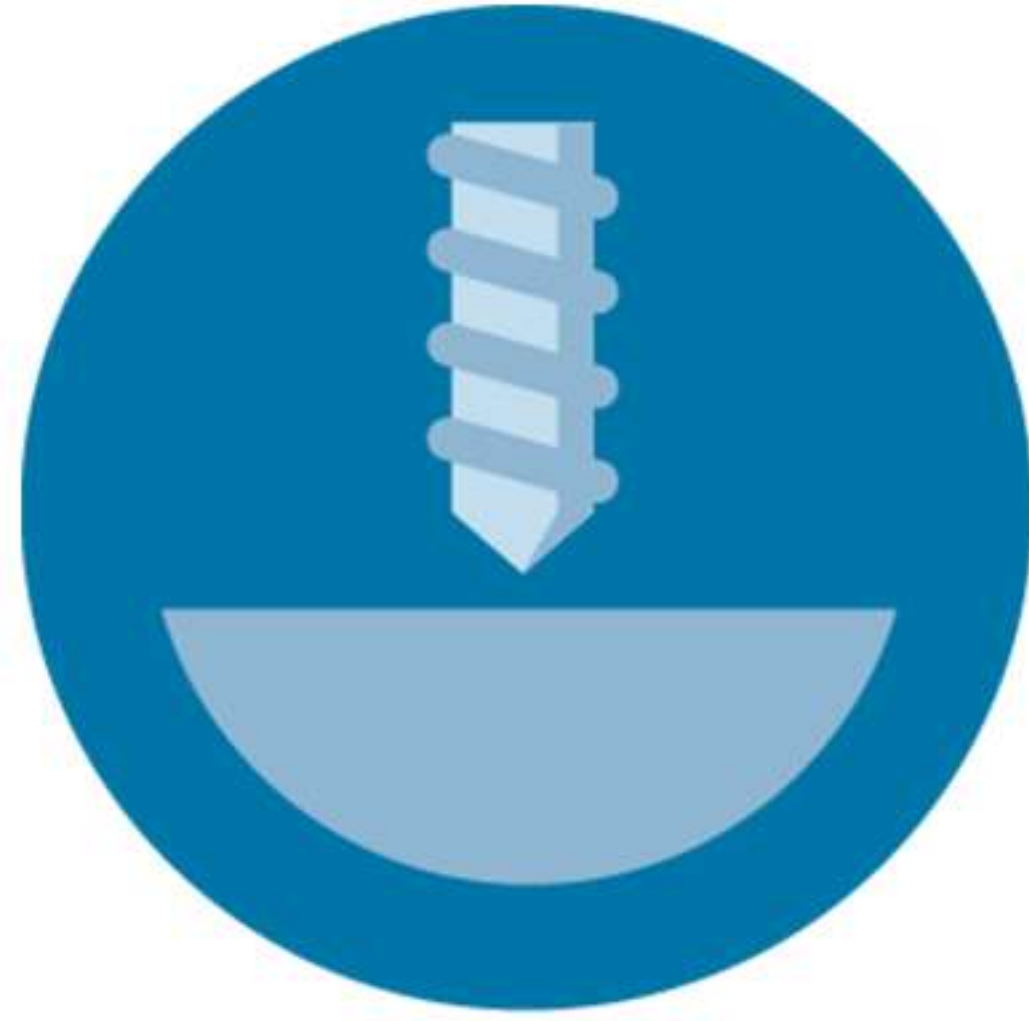
Screwing

When screw fixing Atlas Steels Alfacade the use of stainless, class 3 or 4 SDS steel screws are recommended. A facade washer can also be implemented to protect painted surface, thermal expansion/contraction also needs to be allowed for.



Riveting

When rivet fixing Atlas Steels Alfacade the use of stainless, or aluminium blind or solid rivets can be used. Protect painted surface from any possible damage, thermal expansion/contraction also needs to be allowed for.



Drilling

The use of high-speed steel (HSS) drills are recommended for any drilling required on Atlas Steels Alfacade, always drill from the panel face so not to bur the painted surface.



Bending

Atlas Steels Alfacade 3.0mm and 4.0mm panels can be folded by break press machines without having to be V routed, minor fracturing of the paint may occur which is acceptable under the Atlas Steels Alfacade warranty.

07

Atlas Steel Alfacade Warranty

This Warranty must be read and understood with the following product documents:

- Atlas Steels AlFacade™ Installation and Technical Manual
- Atlas Steels AlFacade™ Cleaning and Maintenance Schedule
- American Architectural Manufacturers Association voluntary standard AAMA2605.A

Atlas Steels warrants the AlFacade™ Panels coating:

- Will maintain its integrity as a façade panel for 20 years from the date of installation (“Warranty Period”).
- Complies with AAMA2605.A
- Will not flake, blister, crack or peel when exposed to weather, except for minute fracturing on folds etc, that may occur during the fabrication process of the panels.
- Is applied to aluminium compliant to ASTM B209M.
- Any colour change or reduction of gloss of the surface coating will be in a uniform manner when surfaces are equally exposed to the sun & elements. The determination of colour differences & gloss reduction is to be done on clean panels from which deposits of foreign matter & chalk have been removed.

08

Atlas Steel Alfacade Storage and Handling

Handling

Atlas Steels Alfacade is a solid aluminum panel. Impact to the edge of the panel may cause deformation. Hard particles such as grains of dirt/sand, and cutting swarf can be caught between panels and may cause dents/scratches and possible damage to the adjacent panels when stacked together. Ensure precautions are taken to ensure the panels are clean and free of any debris when handling Atlas Steels Alfacade during unpacking and repacking process.

Transport

During transportation of Atlas Steels Alfacade the panels must be packed flat on a correct size pallet to support the whole panel and never place other heavy loads on top of the panels. Always mark the packed material "Handle With Care," "No Top Load," clearly on the packaging.

Storage

Atlas Steels Alfacade should always be stored indoors out of direct sunlight and rain, panels should be stored on a flat surface on pallets or a flat rack system. In a flat rack system, panels should also be stored on a rigid pallet. do not stack up varying sizes of panels together.

09

Atlas Steels Service Centre Locations

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Melbourne

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