Structural Analysis Report

EQUITONE Cladding

Prepared for

EQUITONE ANZ

&

Dynamic Composite Technologies Pty Ltd

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3.0 Client

This structural analysis report has been prepared for the following two clients.

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4.0 Purpose & Scope

The purpose of this report is to provide the following for the EQUITONE cladding panel systems when installed on external walls or soffits of buildings:

1. Non-cyclonic and cyclonic wind pressure span tables for both Australia and New Zealand where EQUITONE is installed as wall cladding on external walls;
2. Non-cyclonic and cyclonic wind pressure span tables for both Australia and New Zealand where EQUITONE is installed as soffit cladding; and
3. Outline of the methodology used in undertaking the theoretical and test analysis to develop the above span tables.

The report only covers those matters outlined above and shall not be interpreted as covering any other matter or product.

5.0 Documentation

Table 1 below lists all of the documents that were provided for the purpose of completing this report.

Table 1 - Documentation

Author	*Description*	*Date*	*Reference*
Australian Building Codes Board	2022 National Construction Code – Building Code of Australia Volumes 1 & 2	2023	-
Azuma Design	Sheet roof & wall cladding test report: EQUITONE Natura	2020	AZT0326.30 AZT0327.30 AZT0330.30 AZT0331.30 AZT0339.30
Azuma Design	Sheet roof & wall cladding test report: EQUITONE Tectiva	2020	AZT0328.30 AZT0329.30
Azuma Design	Sheet roof & wall cladding test report: EQUITONE Natura	2024	AZT0295.24
Azuma Design	Sheet roof & wall cladding test report: EQUITONE Tectiva	2024	AZT0296.24
Mahaffey Associates	Etex Group tophat screw pull-out test	2024	20620
Standards Australia	Methods of testing sheet roof and wall cladding- Method 2 (non-cyclone regions) & Method 3 (cyclone regions)	1992	AS 4040.2 AS 4040.3
Standards Australia	Structural design actions – General principles (amdt. 5)	2002	AS/NZS 1170.0
Standards Australia	Timber structures Part 1: Design methods (amdt. 3)	2010	AS 1720.1
Standards Australia	Cold-formed steel structures	2018	AS/NZS 4600
Standards New Zealand	Timber structures standard (amdt. 1, 2 & 4)	1993	NZS 3603
Standards Australia	Aluminium structures (part 1)	1997	AS/NZS 1664.1
Standards Australia	Wind loads for housing	2021	AS 4055
NASH	NASH Handbook: Design of residential and low-rise steel framing	2009	-

6.0 Product Description

The EQUITONE cladding panel system consists of fibre cement panels that are fixed to a framing system (timber/steel battens or aluminium NVELOPE system) that forms either a:

- ventilated cavity wall cladding system of an external wall; or
- soffit cladding on the underside of a floor or as an eave lining.

EQUITONE panels come in a range of types and finishes with thicknesses ranging from 8mm – 12mm. Panels are categorised into two types depending on the manufacturing process; autoclaved or air-cured. Figure 1 depicts air-cured EQUITONE [natura] and autoclaved EQUITONE [tectiva].

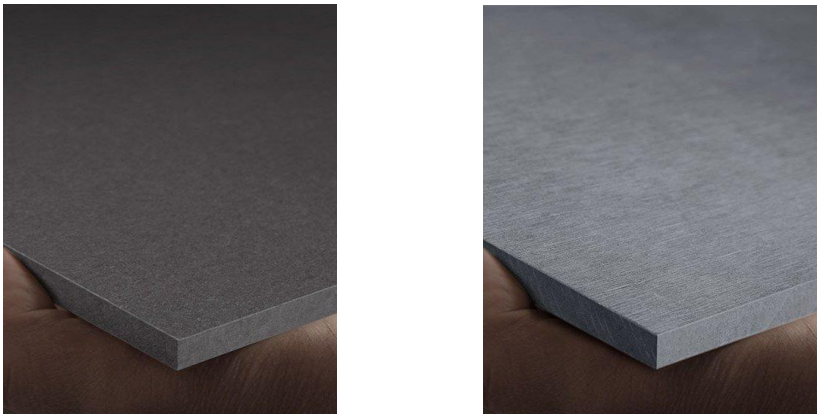


Figure 1 – EQUITONE [natura] (left), EQUITONE [tectiva] (right)

The range of panels referenced in this report include the following (material information sheets of each panel are appended to this report – see section 13.0):

- EQUITONE [natura] which is air cured and available in 8mm or 12mm thickness
- EQUITONE [natura] PRO which is air cured and available in 8mm or 12mm thickness
- EQUITONE [pictura] which is air cured and available in 8mm or 12mm thickness
- EQUITONE [materia] which is air cured and available in 8mm or 12mm thickness
- EQUITONE [inspira] which is air cured and available in 8mm thickness
- EQUITONE [coloura] which is air cured and available in 8mm thickness
- EQUITONE [textura] which is air cured and available in 8mm or 12mm thickness
- EQUITONE [tectiva] which is autoclaved and available in 8mm thickness
- EQUITONE [lines] which is autoclaved and available in a minimum of 8mm thickness
- EQUITONE [lunara] which is autoclaved and available in a minimum of 8mm thickness

The cladding panels are fastened with face fixings to the sub framing system. The sub framing system is then fixed to the stud framing of the wall or soffit. The cladding face fixings consist of one of the following (data sheets of each fastener are appended to this report – see section 12.0):

- EQUITONE stainless UNI screw 5,5xL K15 (see Figure 2) into timber battens
- EQUITONE stainless UNI metal screw (see Figure 3) into metal battens or sub framing system
- EQUITONE stainless or aluminium UNI rivet 4xL K15 (see Figure 4) into metal battens or sub framing system
- stainless SFS TUF-S-6xL concealed fixings (see Figure 5) into metal sub framing system

The sub framing consists of either a single layer of timber/metal battens, double layer of timber/metal battens or NVELOPE NV3 system.

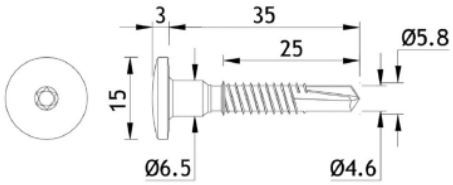


Figure 2 - Equitone UNI metal screw

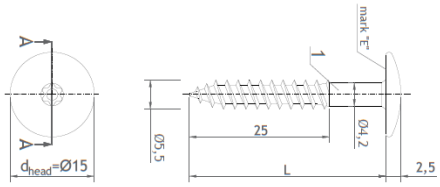


Figure 3 - Equitone UNI screw 5,5xL K15

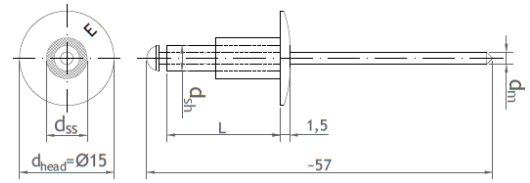


Figure 4 - Equitone UNI rivet 4xL K15

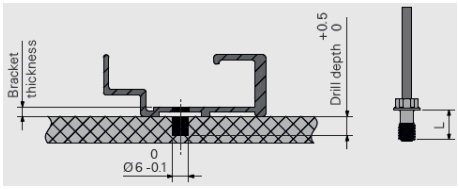


Figure 5 - SFS TUF-S-6xL concealed fixing

7.0 Structural Analysis

The development of the span tables for the EQUITONE cladding systems was undertaken with capacities determined using both testing and theoretical analysis. The member and connection checks that were considered are listed in Table 2 below.

Table 2 - Design checks

Design action checks	Method
Bending of the batten for ultimate limit state (ULS)	Theoretical
Bending of the batten for serviceability limit state (SLS)	Theoretical
Compression due to thermal expansion of batten (ULS)	Theoretical
Pull-out of the fixing from the batten to the stud and between battens	Theoretical/Testing
Pull-out of the fixing from the cladding panel into the batten	Theoretical
Bending of the EQUITONE cladding panels - ULS	Theoretical/Testing
Bending of the EQUITONE cladding panels - SLS	Theoretical
Pullout/pull-over of the fixing from the EQUITONE cladding panels	Theoretical/Testing

The analysis included the NVELOPE NV3 system shown in Figure 6 when used with the SFS TUF-S-6xL concealed fixings. However, all componets of this NVELOPE NV3 system are outside the scope of this report except for the pullout of the SFS TUF-S-6xL fixings embeded in to the back of the cladding panel.

The analysis also included EQUITONE cladding fixed to the NVELOPE NV1 system using UNI rivets or UNI metal screws. However, all components of the NVELOPE NV1 system are outside the scope of this report except for the pullout of the rivet or screw from the NV1 'L' or 'T' profile. All components of the NVELOPE systems are to be separately designed in accordance with NVELOPE product manufacter documentation.

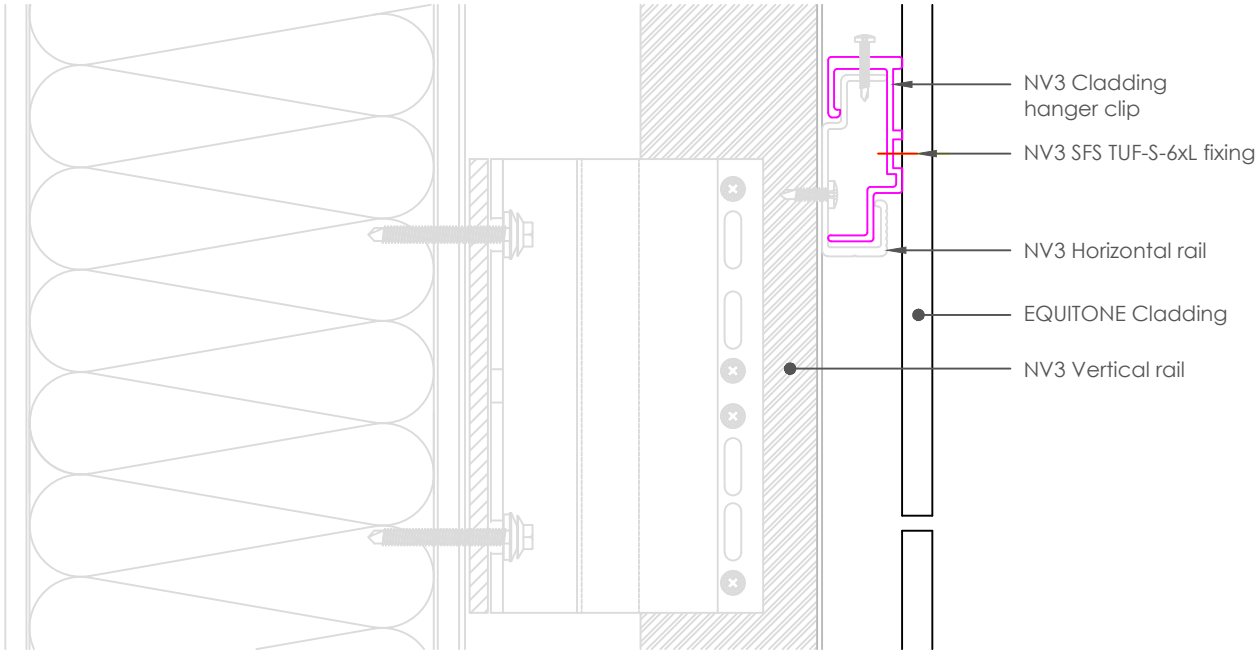


Figure 6 – NVELOPE NV3 system

7.1 Theoretical analysis

7.1.1 Assumptions

The following assumptions were relied upon in the theoretical analysis of the EQUITONE cladding systems and for the development of the wall cladding and soffit cladding span tables contained in this report.

1. Individual span tables specify whether the wind pressures relate to cyclonic, non-cyclonic or both types of wind actions.
2. The wind pressures are for external wind only, internal pressures will not be applied to the cladding and assumed to be resisted by the internal lining.
3. Determination of wind loads is as per Section 7.1.2 of this report.
4. The load on each panel is uniformly distributed.
5. The load on each member/fixing is equal to the wind pressure multiplied by the tributary area. The tributary area is considered to be halfway to the next supporting member or fasteners in both vertical and horizontal directions multiplied by a tributary area factor depending on the member/fixing as follows:
    a. Cladding fixing: Tributary area load factor is detailed in Section 7.1.2;
    b. All other member/fixings: As the load is transferred from the cladding through to the stud there is a smoothing effect due to the redistribution of loads and hence, for all other members and fixings the tributary area is multiplied by 1.25 which accounts for the worst case of a double span continuous cladding panel.
6. The span/deflection limit for SLS wind load is 250 for battens and 100 for cladding panels, with the serviceability wind load equal to 68% of the ULS wind load.
7. For soffit cladding applications:
    a. the claddings panels are always installed to be horizontally aligned. That is, not tilted away from the horizontal plane.
    b. the cladding panel weight is 18.6 kg/m^2 and acts in a direction normal to the cladding panel surface. This is the heaviest of the EQUITONE cladding types listed in section 6.0 above.
    c. wind loading is assumed to act in a vertical direction. That is, an out-of-plane direction since the soffit cladding panel is assumed to be horizontal.

d. the cladding panel will always remain dry and protected from becoming saturated.

8. For wall cladding applications:
   a. the claddings panels are always installed to be vertically aligned. That is, not tilted away from the vertical plane.
   b. The cladding weight is negligible.
   c. wind loading on wall cladding is assumed to act in a horizontal direction. That is, an out-of-plane direction since the wall cladding panel is assumed to be vertical.

7.1.2 Loading

Loading for wall cladding

For low-rise residential buildings within certain geometric limits, the wind loading on wall cladding is to be determined in accordance with AS 4055-2021 and NZS 3604:2011 for Australia and New Zealand respectively. The geometric limits are defined within these two standards. For all other buildings, the wind loading on wall cladding is to be determined in accordance with AS/NZS 1170.2:2021.

The wall cladding span tables contained in this report have an ultimate limit state strength load combination factor of 1.0 applied to all wind load actions as per AS/NZS 1170.0:2002.

Loading for soffits

The wind load on soffits in Australia is determined in accordance with AS 4055-2021. The design net pressure for soffit claddings are taken as equal to the net pressures applied to adjacent external wall cladding as per Note 3 in table 3.5(A) & 3.5(B) AS 4055-2021.

The wind load on soffits in New Zealand is determined in accordance with NZS 3604:1993 and AS/NZS 1170.2:2021 as appropriate for the building type and size. It is assumed that the net pressure on the soffit cladding is equal to the net pressure applied to the adjacent external wall cladding.

The soffit cladding span tables contained in this report have the following ultimate limit state strength load combinations factors applied as per AS/NZS 1170.0:2002:

- 1.35G (permanent action only)
- 1.2G + W_U (permanent and wind action)

Where G is the permanent self-weight and W_U is the ultimate wind load.

7.1.3 Tributary area on cladding fixings

When determining the load on a cladding fixing, the load is equal to the tributary area multiplied by the wind pressure. The tributary area is dependent on the number of continuous spans in both directions as well as the maximum and minimum cantilever span. Detailed finite element analysis was carried out for a number of panel span configurations to determine the worst case cladding fixing load. For the multi-span configuration, the maximum loading occurs in a cladding panel with two spans in each direction (2x2 span). For a single span it occurs in a cladding with two spans in one direction only (2x1 span).

Tributary area factors were calculated for interior fixings and edge fixings. To account for the worst case, tributary area factors for internal fixings were determined with no cantilever and for edge fixings a maximum cantilever was considered. The maximum cantilever for cladding systems using the Uni-rivet is 150mm and for cladding systems using TUF-S fixing the maximum cantilever is 100mm.

For internal fixings, the tributary area factor is 1.25 for the 2x2 span (one internal fixing, four edge fixings and four corner fixings). For the edge fixing, the tributary load factor is dependent on the ratio of the span length to the cantilever length so a factor was determined for every span from 600mm to 200mm in 50mm increments as shown in Table 3.

Table 3 - Edge cladding fixing tributary area factors

Span	Cantilever (mm)			
	150		100	
	Single span	Multi-span	Single span	Multi-span
	Edge cladding fixing tributary area factor			
600	0.75	0.67	0.67	0.56
550	0.77	0.70	0.68	0.58
500	0.80	0.74	0.70	0.60
450	0.83	0.79	0.72	0.63
400	0.88	0.86	0.75	0.67
350	0.93	0.94	0.79	0.72
300	1.00	1.06	0.83	0.79
250	1.10	1.24	0.90	0.90
200	1.25	1.55	1.00	1.06

The internal and edge factors are one-dimensional multipliers. To determine the total load on the cladding fixings, a factor is applied for the two perpendicular span directions e.g., for the middle fixing in a 2x2 span, the load on the fixing is equal to the tributary area x 1.25 x 1.25 = 1.56 (as it is an interior fixing in both directions). Using this method, the load on every fixing in a cladding panel is determined and the result for the governing fixing is displayed in the span table.

7.1.4 Bending of the timber batten for ULS

For Australia, the ULS bending capacity of the 35x70mm MGP10 timber batten was determined to be 0.22 kNm in accordance with Clause 3.2.1 of AS 1720.1:2010.

For New Zealand, the ULS bending capacity of the 35x70mm SG6 timber batten was determined to be 0.11 kNm in accordance with Clause 3.2.4 of NZS 3603:1993.

7.1.5 Bending of the timber batten for SLS

Deflection of the timber batten was determined assuming a simply supported beam bending about the weak axis. The modulus of elasticity was 10 GPa for Australia (AS 1720.1:2010) and 7.5GPa for New Zealand (NZS 3603:1993). A deflection limit of Span/250 was implemented.

7.1.6 Bending of the metal batten for ULS

The ULS bending capacity of the metal battens was determined using the effective section property method in accordance with AS/NZS 4600-2018. The dimensions of each tophat are shown in Figure 7 - Figure 12. Wider joint tophats are used at the express joints accommodating two cladding panels and intermediate tophats are used for intermediate supports (away from joints). Calculations were based on the intermediate tophats as they have a lower capacity. The capacities shown in Table 4 were determined for a maximum member length as determined by thermal expansion analysis as detailed in Section 7.1.8. The capacity for the horizontal 15mm and 25mm battens were determined for a span of 600mm due to the limitation of the maximum stud spacing in the span tables.

Table 4 – Metal batten bending capacities

Country	Orientation	Type	Grade	Size	BMT (mm)	Ixx (mm^4)	Bending capacity (kNm)
AUS	Horizontal	-	G250	20x15x50x15x20	1.10	5139	0.081
AUS	Vertical	Intermediate	G250	20x35x50x35x20	1.10	34697	0.176
AUS	Vertical	Joint	G250	20x35x120x35x20	1.10	-	-
NZ	Horizontal	-	G250	Omega 25/40-120	1.15	18750	0.300
NZ	Vertical	Intermediate	G250	Omega 1/50	1.15	46580	0.392
NZ	Vertical	Joint	G250	Omega 1/125	1.15	-	-

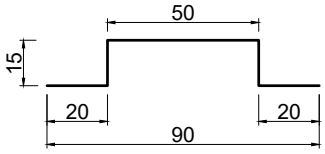


Figure 7 - AUS horizontal tophat

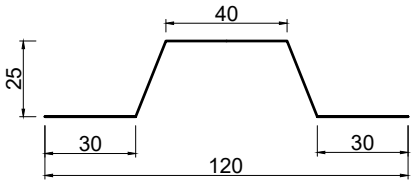


Figure 10 - NZ horizontal tophat

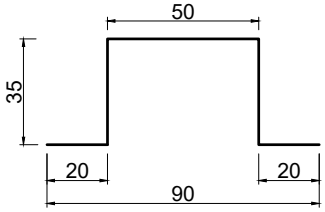


Figure 8 - AUS vertical intermediate tophat

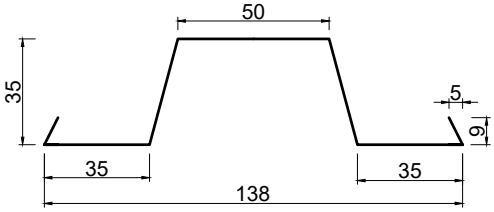


Figure 11 - NZ vertical intermediate tophat

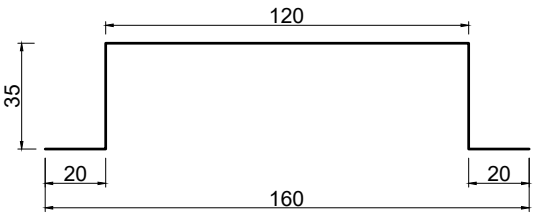


Figure 9 - AUS vertical joint tophat

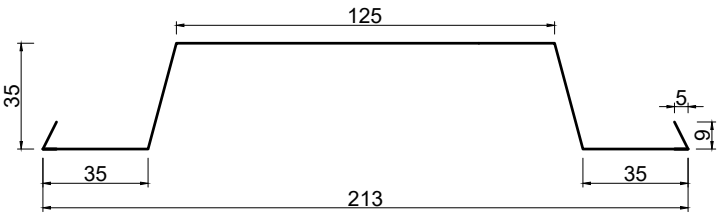


Figure 12 - NZ vertical joint tophat

7.1.7 Bending of the metal batten for SLS

Deflection of the steel battens was determined for a point load on a simply supported beam for horizontal battens and a uniformly distributed load for vertical battens as they are attached to the cladding. The modulus of elasticity for steel is 200 GPa and a deflection limit of Span/250 was implemented.

7.1.8 Compression of batten due to thermal expansion

Both metal and timber expand when subject to a temperature increase. When a restrained member is undergoing thermal strain, a large compression force can be induced. This is critical to consider for

an external façade system that is regularly exposed to temperature changes. The EQUITONE sub-framing batten system is fixed to the stud framing with screws so the compression due to thermal expansion was considered to determine the maximum spans for each of the batten types. Note that due to the batten similarity, the thermal analysis was undertaken for the Australian battens and the same limits were applied to the New Zealand battens.

The thermal strain can be calculated with a relationship between the coefficient of thermal expansion and the change in temperature. Then the resulting compression force in the member can be determined using the stress-strain relationship. However, this doesn't consider out of plane deformation of the members which leads to a reduction in the member compression stress and force. Therefore, it was appropriate to implement finite element analysis to determine the compressive force in the battens. Metal battens were modelled using plate elements and timber battens with brick elements within the Strand7 finite element analysis software. The properties are shown in Table 5 below.

Table 5 - Thermal analysis properties

Property	Metal batten	Timber batten
Elastic modulus (GPa)	200	10
Thermal expansion coefficient (1/°C)	1.24×10^{-5}	0.35×10^{-5}
Poisson ratio	0.25	0
Thickness (mm)	1.1	-
Temperature change (°C)	30	30

The temperature was assumed to be uniform. An initial temperature of 20°C and fixed temperature of 50°C was assigned to all nodes in the model. This equates to a temperature change of 30°C and is considered to be suitable for Australia and New Zealand. A linear static solver was used for the uniform temperature analysis to give a single thermal expansion result.

Pinned restraints were modelled as a single master node at the location of supports, this master node was attached to all nodes in the member cross section with rigid links. This is a conservative assumption because in reality there will be movement of the supporting members and fixings. The compression in the members was found to be independent of the span length, therefore a span of 600mm was selected and member lengths of 1 - 6 spans were modelled as shown in Figure 13.

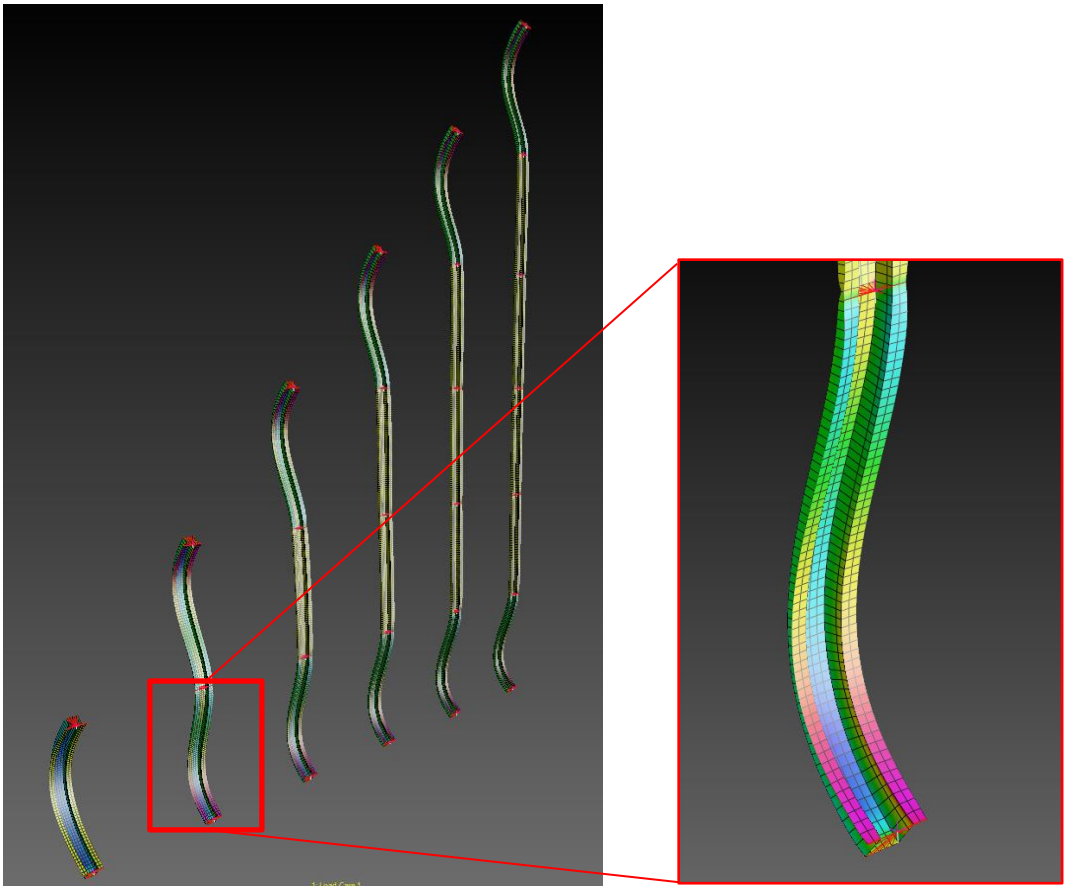


Figure 13 - Strand7 analysis of multi-span members showing stress distribution in end span along with exaggerated deformation

The maximum mid-surface von Mises plate stress was recorded for each span. It was found that all interior spans had nearly the same maximum stress that was consistent through the cross section. End spans were able to rotate at one end which resulted in a stress gradient through the cross section, however there was a constant stress at the point of inflection. The resulting force in the member was determined by multiplying the von Mises stress by the cross-sectional area. For the single span, there was no constant stress so the force in the member was determined by measuring the reaction at the support.

As noted earlier, the force in the members was found to be independent of the span length. Therefore, an effective length could be calculated for each member such that the compression capacity was equal to the compression force due to thermal expansion. The compressive capacity of the metal battens were determined using AS/NZS 4600:2018 and the timber battens using AS 1720.1:2010. Buckling effective length factors from Figure 4.6.3.2 of AS 4100:2020 for steel and Table 3.2 of AS 1720.1:2010 for timber were then used to find the limiting length for the differing span types as shown in Table 6. The timber spans are only shown for the interior span as the average stress through the cross section of other spans was unclear and it was expected that the interior span would be governing.

Table 6 - Maximum lengths for thermal expansion

Batten	Span type	Force (kN)	Effective Length factor	Max. Effective Length (mm)	Max. length (mm)
35 mm	Single span	5.06	1.00	1820	1820
	End span	9.33	0.85	1140	1341
	Interior span	13.20	0.70	874	**1249**
15 mm	Single span	4.08	1	1328	1328
	End span	7.26	0.85	866	1019
	Interior span	10.30	0.7	668	**954**
Timber	Single span	-	-	-	-
	End span	-	-	-	-
	Interior span	2.45	0.7	1680	**2400**

The interior span was found to be governing for all cases as shown in bold. These values were used as the maximum spans for the batten span tables.

The force in the members listed in Table 6 above should theoretically apply to the screw fixings in shear. However, these forces would almost always exceed the shear capacity of the screwed connection. In reality, the stud and battens that the members are fixed to would deflect to some degree during the thermal expansion, thus reducing the force on the fixings. It is assumed that these deflections of the supporting members reduce the shear on the fixings to be less than their capacity.

7.1.9 Pull-out of the fixing from the batten into the stud

The ULS pull-out capacity of a single 12-14 tek screw fixing from the G2 1.15BMT and 1.2BMT steel stud was determined to be 0.89 kN in accordance with Clause 5.4.3.2 of AS/NZS 4600-2018 which applies to both Australia and New Zealand.

The ULS pull-out capacity of a single 12-14 tek screw fixing from the G550 0.5BMT, 0.55BMT and 0.75 BMT steel stud was determined based on tests carried out by Buildex in accordance with AS/NZS 4600 and published in the NASH Handbook, 2009. The capacities are based on a series of ten tests for each screw with a sampling factor of 1.49. There are no available test results for 0.5BMT steel and hence the 0.55BTM result was factored down by the thickness ratio (0.5/0.55) to determine a pull-out capacity for 0.55BMT steel. The capacities are shown in Table 7 below:

Table 7 – G550 steel stud pull-out capacities based on test data

Stud thickness (mm)	Pull-out capacity (kN)
0.5	0.56
0.55	0.62
0.75	0.89

The ULS pull-out capacity of a single 14-10 type 17 bugle head or 12-11 tek screw fixing from the timber stud (joint group JD5) with a minimum embedment of 30mm was determined to be a minimum of 1.53 kN in accordance with Clause 4.3.3.4 of AS 1720.1:2010. This applies to Australia.

The ULS pull-out capacity of a single 14-10 type 17 bugle head or 12-11 tek screw fixing from the timber stud (joint group J5) with a minimum embedment of 30mm was determined to be a minimum of 1.49 kN in accordance with Clause 4.3.3 of NZS 3603:1993. This applies to New Zealand.

7.1.10 Pull-out of the fixing between the steel battens

For the Australian double layer system, the ULS pull-out capacity of a single 12-14 tek screw fixing from the 1.1BMT G250 steel first layer to second layer sub-framing was determined to be 0.64 kN in accordance with Clause 5.4.3.2 of AS/NZS 4600-2018.

For the New Zealand double layer system, the ULS pull-out capacity of a single 12-14 tek screw fixing from the 1.15BMT G250 steel first layer to second layer steel sub-framing was determined to be 0.67 kN in accordance with Clause 5.4.3.2 of AS/NZS 4600-2018.

7.1.11 Pull-out of the fixing from the cladding panel into the timber batten

For Australia, the ULS pull-out capacity of the stainless steel UNI screw fixing from the timber batten (joint group JD5) was determined to be 1.19 kN in accordance with Clause 4.3.3.4 of AS 1720.1:2010.

For New Zealand, the ULS pull-out capacity of the stainless steel UNI screw fixing from the timber batten (joint group J5) was determined to be 1.17 kN in accordance with Clause 4.3.3 of NZS 3603:1993.

7.2 Non-cyclonic testing analysis

7.2.1 Non-cyclonic testing

Non-cyclonic wind load test specimens and a test schedule was developed to account for a number of fixing geometries and types in the EQUITONE cladding systems. Two different sized test frames with 130x42 Tilling's SmartLVL 15 timber studs at 300mm spacing were designed to accommodate 3 test specimens. Timber battens were fixed around the perimeter of each specimen so that the area of cladding not being tested was covered by 17mm formply fixed into the perimeter battens. A polythene film was taped to the perimeter timber battens of each specimen to minimize air leakage during testing.

The cladding panels were fixed through battens into the stud frame. EQUIOTNE Natura and EQUITONE Tectiva cladding types were selected to represent the EQUITONE range for testing. Battens were either Millform 20x35x50x35x20x1.1BMT tophats or the NVELOPE NV1 system aluminium L-profiles. All panels were tested with either an EQUITONE 4.0Ømm UNI Rivet or two 6.0Ø SFS TUF-S fasteners. Fixings were spaced at either 200mm, 300mm or 600mm and the cladding was either single, multiple or cantilevered spans, with details provided in Table 8.

Table 8 – Non-cyclonic test schedule & results

Panel	Batten	Fixing	Span type	Spacing of horizontal fixings (mm)	Spacing of vertical fixings (mm)	Cantilever span (mm)	Wind pressure at failure (Pa)
Natura	Steel tophat/NV1	Al UNI rivet	Multi	600	595	0	3992
Natura	Steel tophat/NV1	Al UNI rivet	Single	600	600	0	5000

Natura	Steel tophat/NV1	Al UNI rivet	Cantilever	600	600	150	5750
Natura	Steel tophat/NV1	Al UNI rivet	Multi	200	300	0	13169
Natura	Steel tophat/NV1	Al UNI rivet	Single	200	300	0	13169
Natura	Steel tophat/NV1	Al UNI rivet	Cantilever	200	200	150	13169
Tectiva	Steel tophat/NV1	Al UNI rivet	Multi	600	580	0	4082
Tectiva	Steel tophat/NV1	Al UNI rivet	Single	600	600	0	4703
Tectiva	Steel tophat/NV1	Al UNI rivet	Cantilever	600	600	150	5500
Tectiva	Steel tophat/NV1	Al UNI rivet	Multi	200	300	0	13463
Tectiva	Steel tophat/NV1	Al UNI rivet	Single	200	300	0	13463
Tectiva	Steel tophat/NV1	Al UNI rivet	Cantilever	200	200	150	13463
Natura	NV3	SS SFS TUF-S	Multi	600	575	0	2262
Natura	NV3	SS SFS TUF-S	Single	600	600	0	2903
Natura	NV3	SS SFS TUF-S	Cantilever	600	600	150	2500
Natura	NV3	SS SFS TUF-S	Multi	200	300	0	10500
Natura	NV3	SS SFS TUF-S	Single	200	300	0	12376
Natura	NV3	SS SFS TUF-S	Cantilever	200	200	150	7000

The testing was carried out in accordance with AS 4040.2 at the Azuma Design facility in Wetherill Park. The Azuma Design facility has NATA accreditation for this test method. Each test specimen was subjected to the specified pressures for a period of 1 minute. The pressure at failure and the failure mode was recorded. The AS 4040.2 test method is an ultimate limit test. That is, the test specimens are loaded for 1 minute then incrementally increased to the next pressure step until the specimen ultimately fails.

The UNI metal screw fastener was added as an additional option after the initial non-cyclonic testing. The pull-out capacity was determined by testing in accordance with Part F4 of AS/NZS 4600:2018 (see section 12.6) and in accordance with AS/NZS 1664 (see Section 7.2.5).

7.2.2 Non-cyclonic Analysis methods

The ULS non-cyclonic wind pressures from testing were categorised and converted into a load on the cladding fixings and a bending moment in the cladding panel as detailed in Section 7.2.3 and Section 7.2.4.

For Australian span tables the ultimate design capacities were determined using the 2022 NCC Volume 1 structural reliability verification method B1V1. A minimum coefficient of variation of 20% and a capacity reduction factor of 0.75 was applied to the results to ensure the target reliability index for wind actions as defined by the NCC was met.

For the New Zealand span tables, the ultimate design capacities were determined using AS/NZS 1170.0 Appendix B – Use of test data for design. A coefficient of variation of structural characteristic of 20% was used and a k_t value of 2.21 for 1 test and 1.96 for two tests was used.

7.2.3 Non-cyclonic Bending of the EQUITONE panels for ULS

The multiple span and single span specimens with 600mm horizontal fixing spacing non-cyclonic wind load test results for each cladding panel type were used to determine the bending capacities.

All of the test specimens for each cladding panel type were analysed using finite element software Strand7 (see Figure 14). The cladding panels were modelled using plate elements in Strand7 with a panel thickness of 8mm and elastic modulus of 12000 MPa for Natura (see Figure 14 below) and 14000 MPa for Tectiva. Fixings were modelled as pin restraints. The failure wind pressure from testing was

applied to the panels and linear static analysis undertaken. Due to the high local stress concentration around the fixings, the maximum bending moment was found at the panel mid-span. For Natura, none of the test specimens failed in bending, so the largest bending capacity was selected, this was for the single 600mm span. For Tectiva, the single 600mm test specimen failed in bending so the bending capacity of this panel was selected. The bending capacities selected were then used in the analysis methods described above in Section 7.2.2. The resultant bending capacities are shown in Table 9.

Table 9 - Cladding panel bending moment capacities (non-cyclonic)

Panel	Bending capacity (Nmm/mm)	
	Australia	New Zealand
EQUITONE Natura	113.7	109.1
EQUITONE Tectiva	106.6	102.3

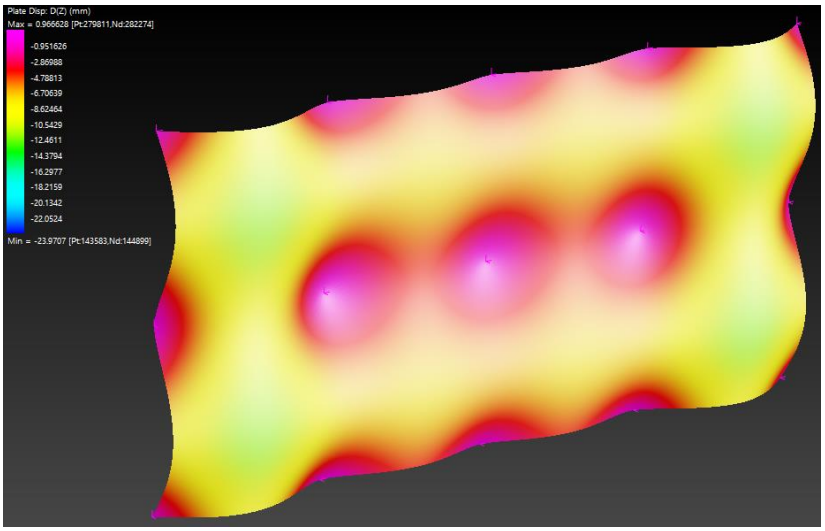


Figure 14 - Strand7 plate analysis of Natura cladding panel in bending

To apply the bending capacity check in the span tables contained in this report, the maximum bending moment in a panel configuration was equal to that of a simply supported beam with a uniformly distributed load ($wl^2/8$) where the length is the largest span (of the two perpendicular directions). This is a slightly conservative assumption but deemed to be suitable based on the Strand7 analysis.

7.2.4 Non-cyclonic Bending of the EQUITONE panels for SLS

The serviceability behaviour of the panels was not measured during testing so was calculated theoretically. A number of panel span configurations were modelled in Strand7 to find the one resulting in the greatest deflection. No cantilever was modelled, as this results in a greater deflection. This configuration was then modelled with a range of different aspect ratios to account for the differing two-way behaviour. The maximum deflection was measured under a 1kPa load for each aspect ratio and compared with deflection hand calculations for a simply supported single or double span beam with a uniformly distributed load. A deflection factor was calculated to be the ratio of the modelled deflection to the calculated deflection. A polynomial relationship between the deflection factor and aspect ratio was determined for multiple and single spans and applied to the span tables.

7.2.5 Non-cyclonic Pullout/Pull-over of the fixing from the EQUITONE panels

To accurately determine the load on the cladding fixings, the reaction was found in Strand7 for each of the tested panels. Note that cantilever was modelled exactly as it was in the test specimen. The capacity of fixings at the edge of the panel were found to have a lower capacity then those at the interior of the panel. This was determined by comparing the single span to multi span test results, the single span panels failed via pullout/pullover at a lower fixing load than the multi-span. As all of the fixings in the single span are edge fixings, it was concluded that the edge fixings have a lower capacity. This could be due to the rotation that occurs at the edge of a panel. Results were grouped based on the type of panel, fixing and span. The test data for 600mm panel spans was used to generate a capacity for each group as the 300mm span tests generally reached the test rig capacity and had no failure. The single span test results were used for the edge fixing capacity and the multi-span results for the interior fixing capacity. Design capacities were determined as described in Section 7.2.2 and shown in Table 10 below.

Table 10 - Cladding fixing pull-over capacities

Panel	Fixing	Fixing location	Pullout/Pull-over capacity (kN)	
			Australia	New Zealand
EQUITONE Natura	Aluminium UNI Rivet 4xL K15	Edge	0.770	0.738
EQUITONE Natura	Aluminium UNI Rivet 4xL K15	Interior	0.932	0.894
EQUITONE Tectiva	Aluminium UNI Rivet 4xL K15	Edge	0.736	0.706
EQUITONE Tectiva	Aluminium UNI Rivet 4xL K15	Interior	0.925	0.887
EQUITONE Natura	Steel SFS TUF-S-6xL	Edge	0.314	0.301
EQUITONE Natura	Steel SFS TUF-S-6xL	Interior	0.453	0.412
EQUITONE Tectiva	Steel SFS TUF-S-6xL	Edge	0.333	0.320
EQUITONE Tectiva	Steel SFS TUF-S-6xL	Interior	0.667	0.640

The cladding fixing pullout/pull-over capacities were applied in the span tables based on tributary area as detailed in Section 7.1.2.

The tested aluminium UNI Rivet was assumed to have the same or lower capacity as the untested stainless steel UNI rivet and stainless steel UNI screw and they were therefore assigned the same pullover capacity as the aluminium rivet.

The UNI metal screw has the same head diameter as the UNI rivet and was therefore assumed to have the same pullover capacity as the UNI rivet when attached to the EQUITONE Natura or Tectiva panel. The pull-out capacity of the screw in a 1.1mm G250 tophat was determined tested in accordance with Part F4 of AS/NZS 4600:2018 (see section 12.6). The ultimate design capacities were determined using AS/NZS 1170.0 Appendix B – Use of test data for design. The capacity was found to be 1.001 kN when installed with a drill driver and 1.174 kN when installed with an impact driver.

The pull-out capacity of the UNI metal screw in an aluminium NVELOPE NV1 profile (thickness of 2.2mm) was determined to be 1.41 kN in accordance with Clause 5.3.3.2 of AS/NZS 1664.1-1997.

Based on this assessment, the capacity of the UNI metal screw is higher than the capacity of the UNI rivet as determined by testing and therefore the UNI metal screw can be interchanged with the UNI rivet for the span tables provided in this report.

For TUF-S pullout of Tectiva panel, as there was no panel tested, pullout test data from SFS test data was used (attached in Appendix A). Testing was conducted for 2 TUF-S fixings spaced at 20mm with an embedment of 5.5mm. The resultant average pullout capacity was 1.414 kN. As the number of

tests was unknow, this result was analysed as per Section 7.1.2 as a single test result. The resulting design capacity of 0.667 kN (for Australia) was considered to be the interior fixing capacity, as the testing had no rotation. The edge fixing capacity was conservatively taken as half of this interior fixing capacity as there was no other test data was available.

7.3 Cyclonic testing analysis

7.3.1 Cyclonic Testing

Three cyclonic wind load test specimens were designed to account for a small number of wall variations of the EQUITONE cladding systems. The test frames contained studs at 300mm spacing and were designed to accommodate the following situations:

- Multiple 600mm x 595mm span EQUITONE Natura fixed with an aluminium UNI Rivet 4xL K15 to either 1.1 BMT steel tophats or NVELOPE NV1 cavity fixing system fixed to Tiling's SmartLVL 15 timber studs.
- Multiple 600mm x 595mm span EQUITONE Natura fixed with UNI metal screws to either 1.1 BMT steel tophats or NVELOPE NV1 cavity fixing system fixed to Rondo 681 steel studs.
- Multiple 600mm x 595mm span EQUITONE Tectiva fixed with UNI metal screws to either 1.1 BMT steel tophats or NVELOPE NV1 cavity fixing system fixed to Rondo 681 steel studs.

A polythene film was placed behind the cladding and fixed to the perimeter of each specimen to minimize air leakage during testing.

The testing was carried out in accordance with AS 4040.3 at the Azuma Design facility in Wetherill Park. The Azuma Design facility has NATA accreditation for this test method. The test specimens were subjected to the fatigue loading sequence specified in Table 1 of AS 4040.3 for the test pressure (Pt) of 2.695 kPa. No failure of the test specimens occurred during the three tests and therefore passed the testing requirements.

7.3.2 Cyclonic Analysis methods

The analysis method outlined in AS 4040.3 was used to account for variability of test specimens. That is, the test pressure (Pt) of 2.695 kPa was multiplied by 0.9 to give 2.425 kPa as the ultimate limit state wind load capacity for the cladding in cyclonic regions.

The EQUITONE Natura & Tectiva panels included in the cyclonic testing were expected to have the worst cyclonic behaviour and therefore the assumptions made based on its behaviour are applicable to all other panel types.

7.3.3 Cyclonic Bending of the EQUITONE cladding panels

The bending capacities of cladding panels were determined using the same method described in section 7.2.3 and is shown in Table 11.

Table 11 – Cladding fixing bending capacities for cyclonic areas

Panel	Fixing	Span	Bending capacity for cyclonic regions (Nmm/mm)
EQUITONE Natura	Aluminium UNI Rivet 4xL K15	Multiple	75
EQUITONE Natura	UNI metal screw	Multiple	75
EQUITONE Tectiva	UNI metal screw	Multiple	75

The bending capacities are lower than the bending capacity from the non-cyclonic testing (see section 7.2.3). However, this is because the non-cyclonic single span result was higher than the multi-span and there was no single span cyclonic test. The cyclonic test result is greater than the equivalent multi-span panel bending capacity determined from the non-cyclonic testing analysis. It was therefore decided that the span tables generated using non-cyclonic test results are applicable to both non-cyclonic and cyclonic regions.

7.3.4 Cyclonic Pull-over of the fixing from the EQUITONE cladding panels

The ultimate limit state wind load capacities for the cladding types obtained from the cyclonic test analysis (section 7.3.2 above) was converted into an effective pull-over capacity of the fixings using Strand7 as detailed in Section 7.2.5 (see Table 12 below).

Table 12 – Cladding fixing pull-over capacities for cyclonic areas

Panel	Fixing	Span	Pull-over capacity for cyclonic regions (kN)
EQUITONE Natura	Aluminium UNI Rivet 4xL K15	Multiple	1.196
EQUITONE Natura	UNI metal screw	Multiple	1.196
EQUITONE Tectiva	UNI metal screw	Multiple	1.196

When the cyclonic results from Table 12 is compared to the results in Table 10 for Australia it can be seen that it is greater than the non-cyclonic test results and it was therefore decided that the span tables are applicable to both non-cyclonic and cyclonic regions.

However, this is not the case for the test data relating to the TUF-S fixings. Due to its lower pullout capacity and the fact that it relies on embedment into the panel, it was decided that the span tables for TUF-S fixings are only applicable to non-cyclonic regions.

8.0 Wall cladding span tables for Australia

8.1 General

This section of the report contains various span tables for EQUITONE wall cladding in Australia. The headings for each table define the situations which the span table shall be applied to. For clarity, the terms used in these headings are defined below.

Table 13 – Australian wall cladding span table heading term definitions

Term	Definition
Autoclaved FC	EQUITONE [tectiva], [lines] & [lunara] panel types (autoclave cured during manufacture)
Air-cured FC	EQUITONE [natura], [natura] PRO, [pictura], [materia], [inspira] & [colure] panel types (air cured during manufacture)
Fastener into metal	Where cladding is fixed to steel tophat battens or NVELOPE NV1 profile using stainless 4xL K15 UNI rivets, aluminium 4xL K15 UNI rivets or stainless UNI metal screw
UNI Screw into timber	Where cladding is fixed to timber battens using stainless UNI screws 5,5xL K15
SFS TUF-S into NVELOPE NV3	Where cladding is fixed to the NVELOPE NV3 hanger clips using two stainless steel SFS TUF-S 6xL fixings embedded into the rear of the cladding panel
AUS non-cyclonic regions only	Non-cyclonic regions of Australia. These are regions A0 to A5, B1 & B2 (excluding in WA) in figure 3.1(A) of AS/NZS 1170.2:2021
AUS all regions	Both cyclonic and non-cyclonic regions of Australia. These are regions A0 to A5, B1, B2, C & D of figure 3.1(A) of AS/NZS 1170.2:2021
General zone	Wall areas located more than 1200mm from an external building corner
Corner zone	Wall areas located less than 1200mm from an external building corner

8.2 Wind Loading

Table 14 below lists the assumed wind loading for the 'N' & 'C' wind classes from AS 4055-2021 that have been calculated using the external pressure coefficients only. It is assumed that the internal pressures will be resisted by the internal lining. If the internal linings of a particular building are insufficient to resist the internal wind pressures, the span tables involving the 'N' & 'C' wind classes contained in this report shall not be used for that particular building.

Table 14 – Wall cladding wind loading to AS 4055-2021

Wind Class	Ultimate wind speed V_u m/s	External pressure coefficient $C_{p,e}$			Pressure (Any) kPa	Suction (General) kPa	Suction (Corners) kPa
		Pressure (Any)	Suction (General)	Suction (Corners)			
N1	34	0.7	-0.65	-1.3	0.49	-0.45	-0.90
N2	40	0.7	-0.65	-1.3	0.67	-0.62	-1.25
N3/C1	50	0.7	-0.65	-1.3	1.05	-0.98	-1.95
N4/C2	61	0.7	-0.65	-1.3	1.56	-1.45	-2.90
N5/C3	74	0.7	-0.65	-1.3	2.30	-2.14	-4.27
N6/C4	86	0.7	-0.65	-1.3	3.11	-2.88	-5.77

Notes to table:

1. Wind loads are for external pressures only, it is assumed that internal pressures will not be applied to the cladding and they will be resisted by the internal lining.
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner

8.3 Autoclaved EQUITONE FC - [tectiva], [lines], [lunara]

8.3.1 Stainless steel/Aluminium Fastener into metal batten – All regions

Table 15 – Autoclaved FC wall cladding: Max fixing spacing for fastener into metal in AUS all regions – General zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	600	600	600
N4/C2	600	600	600	600
N5/C3	600	450	600	550
N6/C4	500	400	500	500

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel or
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 16 - Autoclaved FC wall cladding: Max fixing spacing for fastener into metal in AUS all regions – Corner zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	500	600	600
N4/C2	500	400	500	500
N5/C3	400	300	400	350
N6/C4	300	300	350	250

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 17 – Autoclaved FC wall cladding: Max ultimate wind pressure for fastener into metal in AUS all regions

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.64	1.79	1.97	2.19	2.37	2.37	2.37	2.37	2.37
550	1.79	1.96	2.15	2.39	2.69	2.82	2.82	2.82	2.82
500	1.97	2.15	2.37	2.63	2.96	3.38	3.41	3.41	3.41
450	2.19	2.39	2.63	2.92	3.29	3.76	4.10	4.21	4.21
400	2.37	2.69	2.96	3.29	3.70	4.23	4.62	4.73	4.77
350	2.37	2.82	3.38	3.76	4.23	4.83	5.28	5.41	5.45
300	2.37	2.82	3.41	4.10	4.62	5.28	6.15	6.31	6.35
250	2.37	2.82	3.41	4.21	4.73	5.41	6.31	7.58	7.62
200	2.37	2.82	3.41	4.21	4.77	5.45	6.35	7.62	9.53
Single span wall cladding									
600	2.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
550	2.31	2.52	2.77	2.82	2.82	2.82	2.82	2.82	2.82
500	2.37	2.68	2.94	3.27	3.41	3.41	3.41	3.41	3.41
450	2.37	2.82	3.14	3.49	3.93	4.21	4.21	4.21	4.21
400	2.37	2.82	3.37	3.74	4.21	4.81	5.33	5.33	5.33
350	2.37	2.82	3.41	4.03	4.53	5.18	6.04	6.96	6.96
300	2.37	2.82	3.41	4.21	4.91	5.61	6.54	7.85	9.48
250	2.37	2.82	3.41	4.21	5.33	6.12	7.14	8.57	10.71
200	2.37	2.82	3.41	4.21	5.33	6.73	7.85	9.42	11.78

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

Table 18 - Autoclaved FC wall cladding: Max fixing spacing for fastener into metal in AUS all regions

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	550	600	600
2.00	600	450	600	600
2.25	600	400	600	550
2.50	550	400	550	550
2.75	550	350	550	450
3.00	500	350	500	450
3.50	450	350	450	400
4.00	450	300	450	350
5.00	350	300	400	250
6.00	300	300	350	250
7.00	250	250	300	250

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

8.3.2 Stainless steel UNI screw into timber batten – All regions

Table 19 – Autoclaved FC wall cladding: Max fixing spacing for UNI Screw into timber in AUS all regions – General zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	600	600	600
N4/C2	600	600	600	600
N5/C3	600	450	600	550
N6/C4	500	400	500	500

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
6. Wall cladding panel deflection limit: Span/100

Table 20 - Autoclaved FC wall cladding: Max fixing spacing for UNI Screw into timber in AUS all regions – Corner zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	500	600	600
N4/C2	500	400	500	500
N5/C3	400	300	400	350
N6/C4	300	300	350	250

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
6. Wall cladding panel deflection limit: Span/100

Table 21 – Autoclaved FC wall cladding: Max ultimate wind pressure for UNI Screw into timber in AUS all regions

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.64	1.79	1.97	2.19	2.37	2.37	2.37	2.37	2.37
550	1.79	1.96	2.15	2.39	2.69	2.82	2.82	2.82	2.82
500	1.97	2.15	2.37	2.63	2.96	3.38	3.41	3.41	3.41
450	2.19	2.39	2.63	2.92	3.29	3.76	4.10	4.21	4.21
400	2.37	2.69	2.96	3.29	3.70	4.23	4.62	4.73	4.77
350	2.37	2.82	3.38	3.76	4.23	4.83	5.28	5.41	5.45
300	2.37	2.82	3.41	4.10	4.62	5.28	6.15	6.31	6.35
250	2.37	2.82	3.41	4.21	4.73	5.41	6.31	7.58	7.62
200	2.37	2.82	3.41	4.21	4.77	5.45	6.35	7.62	9.53
Single span wall cladding									
600	2.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
550	2.31	2.52	2.77	2.82	2.82	2.82	2.82	2.82	2.82
500	2.37	2.68	2.94	3.27	3.41	3.41	3.41	3.41	3.41
450	2.37	2.82	3.14	3.49	3.93	4.21	4.21	4.21	4.21
400	2.37	2.82	3.37	3.74	4.21	4.81	5.33	5.33	5.33
350	2.37	2.82	3.41	4.03	4.53	5.18	6.04	6.96	6.96
300	2.37	2.82	3.41	4.21	4.91	5.61	6.54	7.85	9.48
250	2.37	2.82	3.41	4.21	5.33	6.12	7.14	8.57	10.71
200	2.37	2.82	3.41	4.21	5.33	6.73	7.85	9.42	11.78

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
4. Wall cladding panel deflection limit: Span/100

Table 22 - Autoclaved FC wall cladding: Max fixing spacing for UNI Screw into timber in AUS all regions

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	550	600	600
2.00	600	450	600	600
2.25	600	400	600	550
2.50	550	400	550	550
2.75	550	350	550	450
3.00	500	350	500	450
3.50	450	350	450	400
4.00	450	300	450	350
5.00	350	300	400	250
6.00	300	300	350	250
7.00	250	250	300	250

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
4. Wall cladding panel deflection limit: Span/100

8.3.3 SFS TUF-S into NVELOPE NV3 – Non-cyclonic regions only

Table 23 – Autoclaved FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – General zone

AS 4055 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	600	600	600
N4/C2	600	450	600	400
N5/C3	550	250	600	200
N6/C4	400	250	450	200

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 24 - Autoclaved FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – Corner zone

AS 4055 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	550	600	500
N3/C1	600	250	600	250
N4/C2	400	250	450	200
N5/C3	250	250	300	200
N6/C4	200	200	200	200

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 25 – Autoclaved FC wall cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

Vertical spacing of wall cladding fixing or horizontal rail (mm)	Horizontal spacing of wall cladding fixing (mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.19	1.29	1.42	1.56	1.65	1.76	1.87	1.99	2.10
550	1.29	1.41	1.55	1.70	1.80	1.92	2.04	2.17	2.29
500	1.42	1.55	1.71	1.87	1.98	2.11	2.24	2.38	2.52
450	1.56	1.70	1.87	2.08	2.20	2.34	2.49	2.65	2.80
400	1.65	1.80	1.98	2.20	2.48	2.64	2.80	2.98	3.15
350	1.76	1.92	2.11	2.34	2.64	3.01	3.20	3.40	3.60
300	1.87	2.04	2.24	2.49	2.80	3.20	3.74	3.97	4.19
250	1.99	2.17	2.38	2.65	2.98	3.40	3.97	4.76	5.03
200	2.10	2.29	2.52	2.80	3.15	3.60	4.19	5.03	6.29
Single span wall cladding									
600	1.11	1.21	1.33	1.48	1.67	1.91	2.22	2.37	2.37
550	1.19	1.29	1.42	1.58	1.78	2.03	2.37	2.82	2.82
500	1.27	1.39	1.52	1.69	1.91	2.18	2.54	3.05	3.41
450	1.37	1.49	1.64	1.82	2.05	2.35	2.74	3.28	4.10
400	1.48	1.62	1.78	1.98	2.22	2.54	2.96	3.56	4.45
350	1.62	1.76	1.94	2.16	2.43	2.77	3.23	3.88	4.85
300	1.78	1.94	2.13	2.37	2.67	3.05	3.56	4.27	5.34
250	1.98	2.16	2.37	2.63	2.96	3.39	3.95	4.74	5.93
200	2.22	2.43	2.67	2.96	3.33	3.81	4.45	5.34	6.67

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

Table 26 - Autoclaved FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	550	600	500
1.50	600	450	600	350
1.75	600	350	600	300
2.00	600	200	600	200
2.25	550	200	550	200
2.50	500	200	500	200
2.75	450	200	450	200
3.00	400	200	400	200
3.50	350	200	350	200
4.00	300	200	300	200
5.00	250	200	250	200
6.00	200	200	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

8.4 Air-cured EQUITONE FC – [natura], [natura] PRO, [pictura], [materia], [inspira], [coloura], [textura]

8.4.1 Stainless steel/Aluminium fastener into metal batten – All regions

Table 27 – Air-cured FC wall cladding: Max fixing spacing for fastener into metal in AUS all regions – General zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	600	600	600
N4/C2	600	600	600	600
N5/C3	600	450	600	500
N6/C4	500	400	500	500

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 28 - Air-cured FC wall cladding: Max fixing spacing for fastener into metal in AUS all regions – Corner zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	500	600	600
N4/C2	550	350	550	450
N5/C3	450	300	450	300
N6/C4	300	300	350	300

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 29 – Air-cured FC wall cladding: Max ultimate wind pressure for fastener into metal in AUS all regions

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.66	1.81	1.99	2.21	2.49	2.53	2.53	2.53	2.53
550	1.81	1.97	2.17	2.41	2.71	3.01	3.01	3.01	3.01
500	1.99	2.17	2.39	2.65	2.98	3.41	3.64	3.64	3.64
450	2.21	2.41	2.65	2.95	3.31	3.79	4.29	4.40	4.43
400	2.49	2.71	2.98	3.31	3.73	4.26	4.83	4.95	4.98
350	2.53	3.01	3.41	3.79	4.26	4.87	5.51	5.66	5.69
300	2.53	3.01	3.64	4.29	4.83	5.51	6.43	6.60	6.64
250	2.53	3.01	3.64	4.40	4.95	5.66	6.60	7.92	7.97
200	2.53	3.01	3.64	4.43	4.98	5.69	6.64	7.97	9.96
Single span wall cladding									
600	1.97	2.20	2.39	2.52	2.53	2.53	2.53	2.53	2.53
550	2.20	2.56	2.88	3.01	3.01	3.01	3.01	3.01	3.01
500	2.39	2.80	3.08	3.42	3.64	3.64	3.64	3.64	3.64
450	2.52	2.99	3.28	3.65	4.10	4.49	4.49	4.49	4.49
400	2.53	3.01	3.52	3.91	4.40	5.03	5.68	5.68	5.68
350	2.53	3.01	3.64	4.21	4.74	5.41	6.32	7.42	7.42
300	2.53	3.01	3.64	4.49	5.13	5.86	6.84	8.21	10.10
250	2.53	3.01	3.64	4.49	5.60	6.40	7.46	8.96	11.20
200	2.53	3.01	3.64	4.49	5.68	7.04	8.21	9.85	12.31

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

Table 30 - Air-cured FC wall cladding: Max fixing spacing for fastener into metal in AUS all regions

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	550	600	600
2.00	600	450	600	550
2.25	600	400	600	500
2.50	600	350	600	450
2.75	550	350	550	500
3.00	550	350	550	400
3.50	500	300	500	400
4.00	450	300	450	350
5.00	350	300	400	300
6.00	300	300	350	250
7.00	250	250	350	200

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

8.4.2 Stainless steel UNI screw into timber batten – All regions

Table 31 – Air-cured FC wall cladding: Max fixing spacing for UNI Screw into timber in AUS all regions – General zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	600	600	600
N4/C2	600	600	600	600
N5/C3	600	450	600	500
N6/C4	500	400	500	500

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
6. Wall cladding panel deflection limit: Span/100

Table 32 - Air-cured FC wall Materia cladding: Max fixing spacing for UNI Screw into timber in AUS all regions – Corner zone

AS 4055 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	500	600	600
N4/C2	550	350	550	450
N5/C3	450	300	450	450
N6/C4	350	250	350	350

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
6. Wall cladding panel deflection limit: Span/100

Table 33 – Air-cured FC wall cladding: Max ultimate wind pressure for UNI Screw into timber in AUS all regions

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.66	1.81	1.99	2.21	2.49	2.53	2.53	2.53	2.53
550	1.81	1.97	2.17	2.41	2.71	3.01	3.01	3.01	3.01
500	1.99	2.17	2.39	2.65	2.98	3.41	3.64	3.64	3.64
450	2.21	2.41	2.65	2.95	3.31	3.79	4.29	4.40	4.43
400	2.49	2.71	2.98	3.31	3.73	4.26	4.83	4.95	4.98
350	2.53	3.01	3.41	3.79	4.26	4.87	5.51	5.66	5.69
300	2.53	3.01	3.64	4.29	4.83	5.51	6.43	6.60	6.64
250	2.53	3.01	3.64	4.40	4.95	5.66	6.60	7.92	7.97
200	2.53	3.01	3.64	4.43	4.98	5.69	6.64	7.97	9.96
Single span wall cladding									
600	1.97	2.20	2.39	2.52	2.53	2.53	2.53	2.53	2.53
550	2.20	2.56	2.88	3.01	3.01	3.01	3.01	3.01	3.01
500	2.39	2.80	3.08	3.42	3.64	3.64	3.64	3.64	3.64
450	2.52	2.99	3.28	3.65	4.10	4.49	4.49	4.49	4.49
400	2.53	3.01	3.52	3.91	4.40	5.03	5.68	5.68	5.68
350	2.53	3.01	3.64	4.21	4.74	5.41	6.32	7.42	7.42
300	2.53	3.01	3.64	4.49	5.13	5.86	6.84	8.21	10.10
250	2.53	3.01	3.64	4.49	5.60	6.40	7.46	8.96	11.20
200	2.53	3.01	3.64	4.49	5.68	7.04	8.21	9.85	12.31

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
4. Wall cladding panel deflection limit: Span/100

Table 34 - Air-cured FC wall cladding: Max fixing spacing for UNI Screw into timber in AUS all regions

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	550	600	600
2.00	600	450	600	550
2.25	600	400	600	500
2.50	600	350	600	450
2.75	550	350	550	500
3.00	550	350	550	400
3.50	500	300	500	400
4.00	450	300	450	350
5.00	350	300	400	300
6.00	300	300	350	250
7.00	250	250	350	200

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3 treated and grade to be minimum MGP10 (JD5 joint group)
4. Wall cladding panel deflection limit: Span/100

8.4.3 SFS TUF-S into NVELOPE NV3 – Non-cyclonic regions only

Table 35 – Air-cured FC wall Materia cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – General zone

AS 4055 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	450	600	600
N4/C2	600	300	600	350
N5/C3	550	200	550	200
N6/C4	400	200	400	200

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 36 - Air-cured FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – Corner zone

AS 4055 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	500	600	600
N2	600	350	600	450
N3/C1	600	200	600	200
N4/C2	400	200	400	200
N5/C3	250	250	250	250
N6/C4	200	200	200	200

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 37 – Air-cured FC wall cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

Vertical spacing of wall cladding fixing or horizontal rail (mm)	Horizontal spacing of wall cladding fixing (mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	0.81	0.88	0.97	1.07	1.21	1.38	1.61	1.87	1.97
550	0.88	0.96	1.05	1.17	1.32	1.51	1.76	2.04	2.15
500	0.97	1.05	1.16	1.29	1.45	1.66	1.93	2.24	2.37
450	1.07	1.17	1.29	1.43	1.61	1.84	2.15	2.49	2.63
400	1.21	1.32	1.45	1.61	1.81	2.07	2.42	2.80	2.96
350	1.38	1.51	1.66	1.84	2.07	2.37	2.76	3.20	3.38
300	1.61	1.76	1.93	2.15	2.42	2.76	3.22	3.73	3.95
250	1.87	2.04	2.24	2.49	2.80	3.20	3.73	4.48	4.73
200	1.97	2.15	2.37	2.63	2.96	3.38	3.95	4.73	5.92
Single span wall cladding									
600	1.05	1.14	1.25	1.39	1.57	1.79	2.09	2.51	2.53
550	1.12	1.22	1.34	1.49	1.67	1.91	2.23	2.68	3.01
500	1.19	1.30	1.43	1.59	1.79	2.05	2.39	2.87	3.58
450	1.29	1.40	1.54	1.72	1.93	2.21	2.57	3.09	3.86
400	1.39	1.52	1.67	1.86	2.09	2.39	2.79	3.35	4.18
350	1.52	1.66	1.83	2.03	2.28	2.61	3.04	3.65	4.56
300	1.67	1.83	2.01	2.23	2.51	2.87	3.35	4.02	5.02
250	1.86	2.03	2.23	2.48	2.79	3.19	3.72	4.46	5.58
200	2.09	2.28	2.51	2.79	3.14	3.58	4.18	5.02	6.27

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

Table 38 - Air-cured FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	450	600	600
1.25	600	350	600	450
1.50	600	300	600	350
1.75	600	250	600	250
2.00	550	250	600	200
2.25	500	200	550	200
2.50	450	200	500	200
2.75	400	250	450	200
3.00	350	250	400	200
3.50	300	250	350	200
4.00	250	250	300	200
5.00	200	200	250	200
6.00	-	-	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. Batten to be NVELOPE NV3 wall cladding fixing system
4. Wall cladding panel deflection limit: Span/100

8.5 Single layer batten span tables

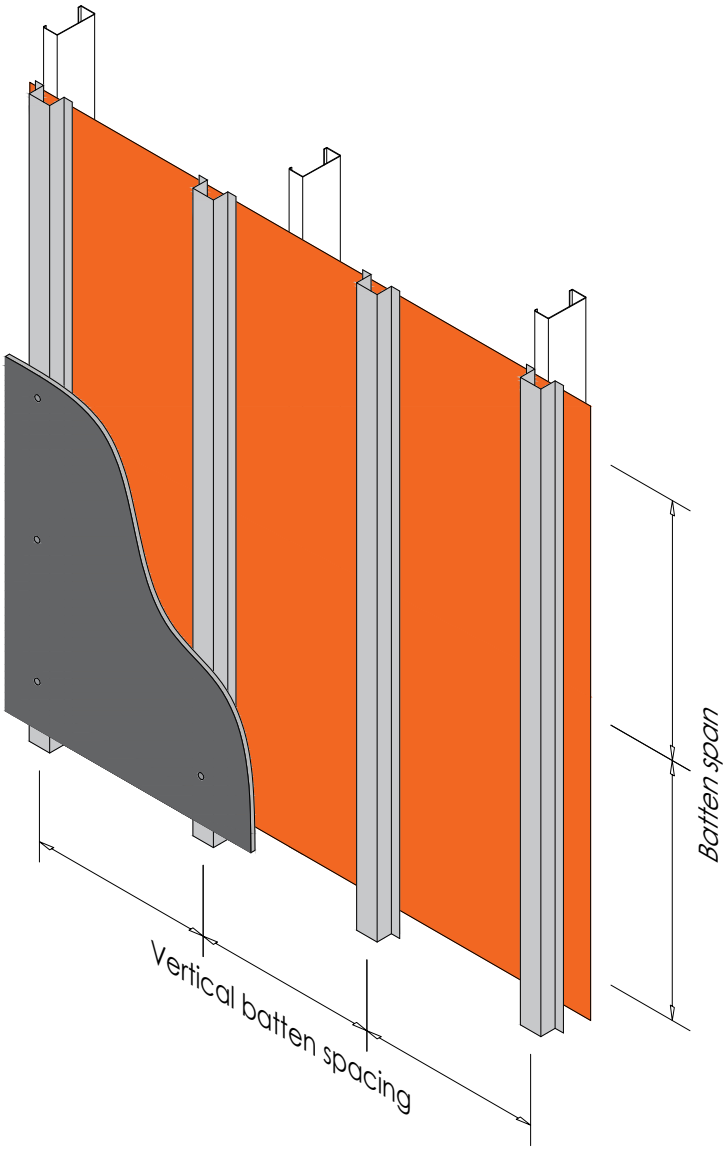


Figure 15 - Typical single layer batten detail

8.5.1 Steel stud and metal batten

Table 39 – Steel stud and single layer metal battens – General areas in AUS non-cyclonic regions

AS 4055 Wind class	Vertical Batten spacing (mm) – General zone								
	600	550	500	450	400	350	300	250	200
	Max metal batten span when fixed to 0.55BMT G550 stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	1200	1200	1200	1200	1200	1200	1200	1200	1200
N4	1050	1100	1200	1200	1200	1200	1200	1200	1200
N5	750	800	900	1000	1100	1150	1200	1200	1200
N6	550	600	650	750	850	950	1100	1200	1200
	Max metal batten span when fixed to 0.75BMT G550 stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	1200	1200	1200	1200	1200	1200	1200	1200	1200
N4	1050	1100	1200	1200	1200	1200	1200	1200	1200
N5	900	900	950	1000	1100	1150	1200	1200	1200
N6	750	800	850	850	950	1000	1100	1200	1200
	Max metal batten span when fixed to 1.15BMT G2 stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	1200	1200	1200	1200	1200	1200	1200	1200	1200
N4	1050	1100	1200	1200	1200	1200	1200	1200	1200
N5	900	900	950	1000	1100	1150	1200	1200	1200
N6	750	800	850	850	950	1000	1100	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. General zone: areas greater than 1200mm from an external building corner
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat
6. Framing deflection limit: Span/250

Table 40 – Steel stud and single layer metal battens – Corner areas in AUS non-cyclonic regions

AS 4055 Wind class	Vertical Batten spacing (mm) – Corner zone								
	600	550	500	450	400	350	300	250	200
	Max metal batten span when fixed to 0.55BMT G550 stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	800	900	1000	1100	1200	1200	1200	1200	1200
N4	550	600	650	750	850	950	1100	1200	1200
N5	350	400	450	500	550	650	750	900	1100
N6	250	300	300	350	400	450	550	650	850
	Max metal batten span when fixed to 0.75BMT G550 stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	950	1000	1050	1100	1200	1200	1200	1200	1200
N4	800	800	850	900	950	1050	1100	1200	1200
N5	550	600	650	700	800	850	900	1000	1100
N6	400	400	450	500	600	700	800	850	950
	Max metal batten span when fixed to 1.15BMT G2 stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	950	1000	1050	1100	1200	1200	1200	1200	1200
N4	800	800	850	900	950	1050	1100	1200	1200
N5	550	600	650	700	800	850	900	1000	1100
N6	400	400	450	500	600	700	800	850	950

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Corner zone: Areas less than 1200mm from an external building corner
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat
6. Framing deflection limit: Span/250

Table 41 – Steel stud and single layer metal battens - ULS wind load in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Vertical Batten spacing (mm)						
	600	550	500	450	400	350	300
	Max metal batten span when fixed to 0.55BMT G550 stud (mm)						
1.00	1200	1200	1200	1200	1200	1200	1200
1.25	1200	1200	1200	1200	1200	1200	1200
1.50	1100	1150	1200	1200	1200	1200	1200
1.75	900	1000	1100	1150	1200	1200	1200
2.00	800	900	950	1100	1150	1200	1200
2.25	700	800	850	950	1100	1150	1200
2.50	650	700	750	850	950	1100	1200
2.75	600	650	700	800	900	1000	1150
3.00	550	600	650	700	800	900	1100
3.50	450	500	550	600	700	800	900
4.00	400	450	450	550	600	700	800
5.00	300	350	350	400	450	550	650
6.00	250	300	300	350	400	450	550
7.00	200	250	250	300	350	400	450
	Max metal batten span when fixed to 0.75BMT G550 stud (mm)						
1.00	1200	1200	1200	1200	1200	1200	1200
1.25	1200	1200	1200	1200	1200	1200	1200
1.50	1100	1150	1200	1200	1200	1200	1200
1.75	1000	1050	1100	1150	1200	1200	1200
2.00	950	1000	1050	1100	1150	1200	1200
2.25	900	950	1000	1050	1100	1150	1200
2.50	850	900	950	1000	1050	1100	1200
2.75	800	850	900	950	1000	1050	1150
3.00	750	800	850	900	950	1000	1100
3.50	650	700	800	800	850	950	1000
4.00	550	600	700	750	800	850	950
5.00	450	500	550	600	700	800	850
6.00	350	400	450	500	550	650	750
7.00	300	350	400	450	500	550	650
	Max metal batten span when fixed to 1.15BMT G2 stud (mm)						
1.00	1200	1200	1200	1200	1200	1200	1200
1.25	1200	1200	1200	1200	1200	1200	1200
1.50	1100	1150	1200	1200	1200	1200	1200
1.75	1000	1050	1100	1150	1200	1200	1200
2.00	950	1000	1050	1100	1150	1200	1200
2.25	900	950	1000	1050	1100	1150	1200
2.50	850	900	950	1000	1050	1100	1200
2.75	800	850	900	950	1000	1050	1150
3.00	750	800	850	900	950	1000	1100
3.50	650	700	800	800	850	950	1000
4.00	550	600	700	750	800	850	950
5.00	450	500	550	600	700	800	850
6.00	350	400	450	500	550	650	750
7.00	300	350	400	450	500	550	650

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat
5. Framing deflection limit: Span/250

8.5.2 Steel stud and timber battens

Table 42 – Steel stud and single layer timber battens – General areas in AUS non-cyclonic regions

AS 4055 Wind class	Vertical Batten spacing (mm) – General zone								
	600	550	500	450	400	350	300	250	200
	Max timber batten span when fixed to 0.55BMT G550 stud (mm)								
N1	1200	1250	1300	1350	1400	1450	1550	1650	1750
N2	1100	1150	1150	1200	1250	1300	1400	1450	1600
N3	800	900	1000	1050	1100	1150	1200	1250	1350
N4	550	600	650	750	850	950	1050	1100	1200
N5	350	400	450	500	550	650	750	900	1050
N6	250	300	300	350	400	450	550	650	850
	Max timber batten span when fixed to 0.75BMT G550 stud (mm)								
N1	1200	1250	1300	1350	1400	1450	1550	1650	1750
N2	1100	1150	1150	1200	1250	1300	1400	1450	1600
N3	950	950	1000	1050	1100	1150	1200	1250	1350
N4	800	850	850	900	950	1000	1050	1100	1200
N5	550	600	650	700	800	850	900	950	1050
N6	400	400	450	500	600	700	800	850	950
	Max timber batten span when fixed to 1.15BMT G2 stud (mm)								
N1	1200	1250	1300	1350	1400	1450	1550	1650	1750
N2	1100	1150	1150	1200	1250	1300	1400	1450	1600
N3	950	950	1000	1050	1100	1150	1200	1250	1350
N4	800	850	850	900	950	1000	1050	1100	1200
N5	550	600	650	700	800	850	900	950	1050
N6	400	400	450	500	600	700	800	850	950

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 1/12-14 self-drilling hex head tek screw
4. General zone: areas greater than 1200mm from an external building corner
5. Timber batten to be 35x70 and minimum MGP10 (JD5 joint group)
6. Framing deflection limit: Span/250

Table 43 – Steel stud and single layer metal battens – Corner areas in AUS non-cyclonic regions

AS 4055 Wind class	Vertical Batten spacing (mm) – Corner zone								
	600	550	500	450	400	350	300	250	200
	Max timber batten span when fixed to 0.55BMT G550 stud (mm)								
N1	900	1000	1050	1100	1150	1200	1250	1350	1450
N2	650	700	750	850	950	1050	1100	1200	1300
N3	400	450	500	550	600	700	800	1000	1100
N4	250	300	300	350	400	450	550	650	850
N5	150	200	200	250	250	300	350	450	550
N6	100	150	150	150	200	200	250	300	400
	Max timber batten span when fixed to 0.75BMT G550 stud (mm)								
N1	1000	1000	1050	1100	1150	1200	1250	1350	1450
N2	900	900	950	1000	1000	1050	1100	1200	1300
N3	600	650	700	800	850	900	950	1050	1100
N4	400	400	450	500	600	700	800	900	950
N5	250	300	300	350	400	450	550	650	800
N6	200	200	200	250	300	350	400	450	600
	Max timber batten span when fixed to 1.15BMT G2 stud (mm)								
N1	1000	1000	1050	1100	1150	1200	1250	1350	1450
N2	900	900	950	1000	1000	1050	1100	1200	1300
N3	600	650	700	800	850	900	950	1050	1100
N4	400	400	450	500	600	650	800	900	950
N5	250	300	300	350	400	450	550	650	800
N6	200	200	200	250	300	350	400	450	600

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 1/12-14 self-drilling hex head tek screw
4. Corner zone: Areas less than 1200mm from an external building corner
5. Timber batten to be 35x70 and minimum MGP10 (JD5 joint group)
6. Framing deflection limit: Span/250

Table 44 - Steel stud and single layer timber battens - ULS wind load in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Vertical Batten spacing (mm)						
	600	550	500	450	400	350	300
	Max timber batten span when fixed to 0.55BMT G550 stud (mm)						
1.00	800	900	950	1050	1100	1150	1200
1.25	650	700	750	850	950	1050	1100
1.50	550	600	650	700	800	900	1050
1.75	450	500	550	600	700	800	900
2.00	400	450	450	550	600	700	800
2.25	350	400	400	450	550	600	700
2.50	300	350	350	400	450	550	650
2.75	300	300	350	400	450	500	600
3.00	250	300	300	350	400	450	550
3.50	200	250	250	300	350	400	450
4.00	200	200	200	250	300	350	400
5.00	150	150	150	200	200	250	300
6.00	100	150	150	150	200	200	250
7.00	100	100	100	150	150	200	200
	Max timber batten span when fixed to 0.75BMT G550 stud (mm)						
1.00	950	1000	1000	1050	1100	1150	1200
1.25	900	900	950	1000	1000	1050	1100
1.50	750	850	900	900	950	1000	1050
1.75	650	700	800	850	900	950	1000
2.00	550	600	700	750	850	900	950
2.25	500	550	600	700	750	850	900
2.50	450	500	550	600	700	800	900
2.75	400	450	500	550	600	700	850
3.00	350	400	450	500	550	650	750
3.50	300	350	400	450	500	550	650
4.00	250	300	350	350	400	500	550
5.00	200	250	250	300	350	400	450
6.00	150	200	200	250	250	300	350
7.00	150	150	200	200	250	250	300
	Max timber batten span when fixed to 1.15BMT G2 stud (mm)						
1.00	950	1000	1000	1050	1100	1150	1200
1.25	900	900	950	1000	1000	1050	1100
1.50	750	850	900	900	950	1000	1050
1.75	650	700	800	850	900	950	1000
2.00	550	600	700	750	850	900	950
2.25	500	550	600	700	750	850	900
2.50	450	500	550	600	700	800	900
2.75	400	450	500	550	600	700	850
3.00	350	400	450	500	550	650	750
3.50	300	350	400	450	500	550	650
4.00	250	300	350	350	400	500	550
5.00	200	250	250	300	350	400	450
6.00	150	200	200	250	250	300	350
7.00	150	150	200	200	250	250	300

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 1/12-14 self-drilling hex head tek screw
4. Timber batten to be 35x70 and minimum MGP10 (JD5 joint group)
5. Framing deflection limit: Span/250

8.5.3 Timber stud and metal/timber battens

Table 45 – Timber stud and single layer metal/timber battens – General areas in AUS non-cyclonic regions

AS 4055 Wind class	Vertical Batten spacing (mm) – General zone								
	600	550	500	450	400	350	300	250	200
	Max metal batten span when fixed to timber stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	1200	1200	1200	1200	1200	1200	1200	1200	1200
N4	1050	1100	1200	1200	1200	1200	1200	1200	1200
N5	900	900	950	1000	1100	1150	1200	1200	1200
N6	700	750	800	850	950	1000	1100	1200	1200
	Max timber batten span when fixed to timber stud (mm)								
N1	1200	1250	1300	1350	1400	1450	1550	1650	1750
N2	1100	1150	1150	1200	1250	1300	1400	1450	1600
N3	950	950	1000	1050	1100	1150	1200	1250	1350
N4	800	850	850	900	950	1000	1050	1100	1200
N5	700	750	750	800	800	850	900	950	1050
N6	650	650	700	700	750	800	800	850	950

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the timber batten and stud to be 1/14-10 type 17 bugle head screw with minimum embedment of 30mm in the stud
4. Fixing between the metal batten and stud to be 2/12-11 self-drilling hex head tek screw with minimum embedment of 30mm in the stud
5. General zone: areas greater than 1200mm from an external building corner
6. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat
7. Timber batten and stud grade to be minimum MGP10 (JD5 joint group) with batten size of 35x70.
8. Framing deflection limit: Span/250

Table 46 – Timber stud and single layer metal/timber battens – Corner areas in AUS non-cyclonic regions

AS 4055 Wind class	Vertical Batten spacing (mm) – Corner zone								
	600	550	500	450	400	350	300	250	200
	Max metal batten span when fixed to timber stud (mm)								
N1	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	1200	1200	1200	1200	1200	1200	1200	1200	1200
N3	950	1000	1050	1100	1200	1200	1200	1200	1200
N4	700	750	800	900	950	1050	1100	1200	1200
N5	450	500	550	600	700	800	900	1000	1100
N6	350	350	400	450	500	600	700	800	950
	Max timber batten span when fixed to timber stud (mm)								
N1	1000	1000	1050	1100	1150	1200	1250	1350	1450
N2	900	900	950	1000	1000	1050	1100	1200	1300
N3	750	800	800	850	850	900	950	1050	1100
N4	650	700	700	750	750	800	850	900	950
N5	450	500	550	600	650	700	750	800	850
N6	350	350	400	450	500	600	650	700	750

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the timber batten and stud to be 1/14-10 type 17 bugle head screw with minimum embedment of 30mm in the stud
4. Fixing between the metal batten and stud to be 2/12-11 self-drilling hex head tek screw with minimum embedment of 30mm in the stud
5. Corner zone: Areas less than 1200mm from an external building corner
6. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat
7. Timber batten to be 35x70 H3 treated MGP10 grade minimum (JD5 joint group) and MGP10 stud grade
8. Framing deflection limit: Span/250

Table 47 - Timber stud and single layer timber/metal battens - ULS wind load in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Vertical Batten spacing (mm)						
	600	550	500	450	400	350	300
	Max metal batten span when fixed to timber stud (mm)						
1.00	1200	1200	1200	1200	1200	1200	1200
1.25	1200	1200	1200	1200	1200	1200	1200
1.50	1100	1150	1200	1200	1200	1200	1200
1.75	1000	1050	1100	1150	1200	1200	1200
2.00	950	1000	1050	1100	1150	1200	1200
2.25	900	950	1000	1050	1100	1150	1200
2.50	800	850	950	1000	1050	1100	1200
2.75	700	800	850	950	1000	1050	1150
3.00	650	700	800	900	950	1000	1100
3.50	550	600	650	750	850	950	1000
4.00	500	550	600	650	750	850	950
5.00	400	400	450	500	600	650	800
6.00	300	350	400	450	500	550	650
7.00	250	300	300	350	400	450	550
	Max timber batten span when fixed to timber stud (mm)						
1.00	950	1000	1000	1050	1100	1150	1200
1.25	900	900	950	1000	1000	1050	1100
1.50	850	850	900	900	950	1000	1050
1.75	800	800	850	850	900	950	1000
2.00	750	800	800	850	850	900	950
2.25	700	750	750	800	850	850	900
2.50	700	700	750	750	800	850	900
2.75	650	700	700	750	800	800	850
3.00	650	650	700	700	750	800	850
3.50	550	600	650	700	700	750	800
4.00	500	550	600	650	700	700	750
5.00	400	400	450	500	600	650	700
6.00	300	350	400	450	500	550	650
7.00	250	300	300	350	400	450	550

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the timber batten and stud to be 1/14-10 type 17 bugle head screw with minimum embedment of 30mm in the stud
4. Fixing between the metal batten and stud to be 2/12-11 self-drilling hex head tek screw with minimum embedment of 30mm in the stud
5. Metal batten to be min G250 20x35x50x35x20x1.1 BMT tophat
6. Timber batten to be 35x70 H3 treated MGP10 grade minimum (JD5 joint group) and MGP10 stud grade
7. Framing deflection limit: Span/250

8.6 Double layer batten span tables

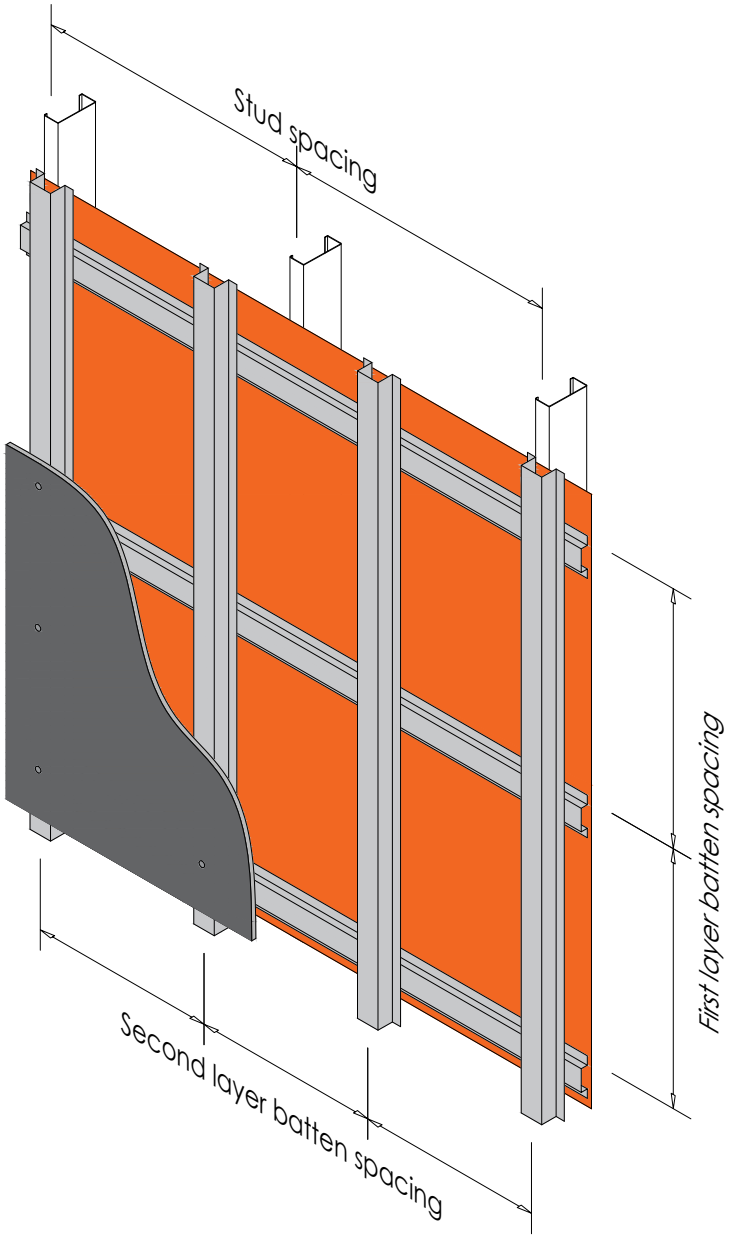


Figure 16 - Typical double layer batten detail

8.6.1 Steel stud (0.75 BMT G550 and 1.15 BMT G2) with metal battens

Table 48 - Steel stud (0.75 BMT G550 and 1.15 BMT G2) and double layer metal battens - General areas in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)								
		600	550	500	450	400	350	300	250	200
		First layer horizontal batten max spacing when fixed to steel stud (mm)								
N1	600	1200	1200	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	600	1050	1050	1050	1050	1050	1050	1050	1050	1050
	450	1050	1200	1200	1200	1200	1200	1200	1200	1200
	400	1050	1200	1200	1200	1200	1200	1200	1200	1200
	300	1050	1200	1200	1200	1200	1200	1200	1200	1200
N3	600	650	650	650	650	650	650	650	650	650
	450	650	800	950	1200	1200	1200	1200	1200	1200
	400	650	800	950	1200	1200	1200	1200	1200	1200
	300	650	800	950	1200	1200	1200	1200	1200	1200
N4	600	450	450	450	450	450	450	450	450	450
	450	450	550	650	800	800	800	800	800	800
	400	450	550	650	800	1000	1000	1000	1000	1000
	300	450	550	650	800	1000	1200	1200	1200	1200
N5	600	300	300	300	300	300	300	300	300	300
	450	300	350	450	550	550	550	550	550	550
	400	300	350	450	550	700	700	700	700	700
	300	300	350	450	550	700	900	1200	1200	1200
N6	600	200	200	200	200	200	200	200	200	200
	450	200	250	300	400	400	400	400	400	400
	400	200	250	300	400	500	500	500	500	500
	300	200	250	300	400	500	650	900	900	900

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.75 BMT G550 or 1.15 BMT G2
7. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
8. Framing deflection limit: Span/250

Table 49 - Steel stud (0.75 BMT G550 and 1.15 BMT G2) and double layer metal battens - Corner areas in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)								
		600	550	500	450	400	350	300	250	200
		First layer horizontal batten max spacing when fixed to steel stud (mm)								
N1	600	800	800	800	800	800	800	800	800	800
	450	800	950	1150	1200	1200	1200	1200	1200	1200
	400	800	950	1150	1200	1200	1200	1200	1200	1200
	300	800	950	1150	1200	1200	1200	1200	1200	1200
N2	600	550	550	550	550	550	550	550	550	550
	450	550	650	800	1000	1000	1000	1000	1000	1000
	400	550	650	800	1000	1200	1200	1200	1200	1200
	300	550	650	800	1000	1200	1200	1200	1200	1200
N3	600	350	350	350	350	350	350	350	350	350
	450	350	400	500	650	650	650	650	650	650
	400	350	400	500	650	800	800	800	800	800
	300	350	400	500	650	800	1050	1200	1200	1200
N4	600	200	200	200	200	200	200	200	200	200
	450	200	250	350	400	400	400	400	400	400
	400	200	250	350	400	550	550	550	550	550
	300	200	250	350	400	550	700	950	950	950
N5	600	150	150	150	150	150	150	150	150	150
	450	150	200	200	300	300	300	300	300	300
	400	150	200	200	300	350	350	350	350	350
	300	150	200	200	300	350	450	650	650	650
N6	600	100	100	100	100	100	100	100	100	100
	450	100	100	150	200	200	200	200	200	200
	400	100	100	150	200	250	250	250	250	250
	300	100	100	150	200	250	350	500	500	500

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.75 BMT G550 or 1.15 BMT G2
7. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
8. Framing deflection limit: Span/250

Table 50 - Steel stud (0.75 BMT G550 and 1.15 BMT G2) and double layer metal battens - ULS wind load in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
1.00	600	700	700	700	700	700	700	700
	450	700	850	1000	1200	1200	1200	1200
	400	700	850	1000	1200	1200	1200	1200
	300	700	850	1000	1200	1200	1200	1200
1.25	600	550	550	550	550	550	550	550
	450	550	650	800	1000	1000	1000	1000
	400	550	650	800	1000	1200	1200	1200
	300	550	650	800	1000	1200	1200	1200
1.50	600	450	450	450	450	450	450	450
	450	450	550	650	850	850	850	850
	400	450	550	650	850	1050	1050	1050
	300	450	550	650	850	1050	1200	1200
1.75	600	400	400	400	400	400	400	400
	450	400	450	550	700	700	700	700
	400	400	450	550	700	900	900	900
	300	400	450	550	700	900	1200	1200
2.00	600	350	350	350	350	350	350	350
	450	350	400	500	600	600	600	600
	400	350	400	500	600	800	800	800
	300	350	400	500	600	800	1050	1200
2.25	600	300	300	300	300	300	300	300
	450	300	350	450	550	550	550	550
	400	300	350	450	550	700	700	700
	300	300	350	450	550	700	900	1200
2.50	600	250	250	250	250	250	250	250
	450	250	300	400	500	500	500	500
	400	250	300	400	500	650	650	650
	300	250	300	400	500	650	850	1150
2.75	600	250	250	250	250	250	250	250
	450	250	300	350	450	450	450	450
	400	250	300	350	450	550	550	550
	300	250	300	350	450	550	750	1050
3.00	600	200	200	200	200	200	200	200
	450	200	250	300	400	400	400	400
	400	200	250	300	400	500	500	500
	300	200	250	300	400	500	700	950
3.50	600	200	200	200	200	200	200	200
	450	200	200	250	350	350	350	350
	400	200	200	250	350	450	450	450
	300	200	200	250	350	450	600	800
4.00	600	150	150	150	150	150	150	150
	450	150	200	250	300	300	300	300
	400	150	200	250	300	400	400	400
	300	150	200	250	300	400	500	700
5.00	600	100	100	100	100	100	100	100
	450	100	150	200	250	250	250	250
	400	100	150	200	250	300	300	300
	300	100	150	200	250	300	400	550
6.00	600	100	100	100	100	100	100	100
	450	100	100	150	200	200	200	200
	400	100	100	150	200	250	250	250
	300	100	100	150	200	250	350	450
7.00	600	100	100	100	100	100	100	100
	450	100	100	100	150	150	150	150
	400	100	100	100	150	200	200	200
	300	100	100	100	150	200	300	400

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.75 BMT G550 or 1.15 BMT G2
7. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
8. Framing deflection limit: Span/250

8.6.2 Steel stud (0.55BMT G550) with metal battens

Table 51 - Steel stud (0.55BMT G550) and double layer metal battens - General areas in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)								
		600	550	500	450	400	350	300	250	200
		First layer horizontal batten max spacing when fixed to steel stud (mm)								
N1	600	1200	1200	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	600	1050	1050	1050	1050	1050	1050	1050	1050	1050
	450	1050	1200	1200	1200	1200	1200	1200	1200	1200
	400	1050	1200	1200	1200	1200	1200	1200	1200	1200
	300	1050	1200	1200	1200	1200	1200	1200	1200	1200
N3	600	650	650	650	650	650	650	650	650	650
	450	650	800	950	1200	1200	1200	1200	1200	1200
	400	650	800	950	1200	1200	1200	1200	1200	1200
	300	650	800	950	1200	1200	1200	1200	1200	1200
N4	600	450	450	450	450	450	450	450	450	450
	450	450	550	650	800	800	800	800	800	800
	400	450	550	650	800	1000	1000	1000	1000	1000
	300	450	550	650	800	1000	1200	1200	1200	1200
N5	600	300	300	300	300	300	300	300	300	300
	450	300	350	450	550	550	550	550	550	550
	400	300	350	450	550	700	700	700	700	700
	300	300	350	450	550	700	900	1200	1200	1200
N6	600	200	200	200	200	200	200	200	200	200
	450	200	250	300	400	400	400	400	400	400
	400	200	250	300	400	500	500	500	500	500
	300	200	250	300	400	500	650	900	900	900

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.55 BMT G550
7. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
8. Framing deflection limit: Span/250

Table 52 - Steel stud (0.55BMT G550) and double layer metal battens - Corner areas in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)								
		600	550	500	450	400	350	300	250	200
		First layer horizontal batten max spacing when fixed to steel stud (mm)								
N1	600	800	800	800	800	800	800	800	800	800
	450	800	950	1150	1200	1200	1200	1200	1200	1200
	400	800	950	1150	1200	1200	1200	1200	1200	1200
	300	800	950	1150	1200	1200	1200	1200	1200	1200
N2	600	550	550	550	550	550	550	550	550	550
	450	550	650	800	1000	1000	1000	1000	1000	1000
	400	550	650	800	1000	1200	1200	1200	1200	1200
	300	550	650	800	1000	1200	1200	1200	1200	1200
N3	600	350	350	350	350	350	350	350	350	350
	450	350	400	500	650	650	650	650	650	650
	400	350	400	500	650	800	800	800	800	800
	300	350	400	500	650	800	1050	1200	1200	1200
N4	600	200	200	200	200	200	200	200	200	200
	450	200	250	350	400	400	400	400	400	400
	400	200	250	350	400	550	550	550	550	550
	300	200	250	350	400	550	700	950	950	950
N5	600	150	150	150	150	150	150	150	150	150
	450	150	200	200	300	300	300	300	300	300
	400	150	200	200	300	350	350	350	350	350
	300	150	200	200	300	350	450	650	650	650
N6	600	100	100	100	100	100	100	100	100	100
	450	100	100	150	200	200	200	200	200	200
	400	100	100	150	200	250	250	250	250	250
	300	100	100	150	200	250	350	500	500	500

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.55 BMT G550
7. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
8. Framing deflection limit: Span/250

Table 53 - Steel stud (0.55BMT G550) and double layer metal battens - ULS wind load in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
1.00	600	700	700	700	700	700	700	700
	450	700	850	1000	1200	1200	1200	1200
	400	700	850	1000	1200	1200	1200	1200
	300	700	850	1000	1200	1200	1200	1200
1.25	600	550	550	550	550	550	550	550
	450	550	650	800	1000	1000	1000	1000
	400	550	650	800	1000	1200	1200	1200
	300	550	650	800	1000	1200	1200	1200
1.50	600	450	450	450	450	450	450	450
	450	450	550	650	850	850	850	850
	400	450	550	650	850	1050	1050	1050
	300	450	550	650	850	1050	1200	1200
1.75	600	400	400	400	400	400	400	400
	450	400	450	550	700	700	700	700
	400	400	450	550	700	900	900	900
	300	400	450	550	700	900	1200	1200
2.00	600	350	350	350	350	350	350	350
	450	350	400	500	600	600	600	600
	400	350	400	500	600	800	800	800
	300	350	400	500	600	800	1050	1200
2.25	600	300	300	300	300	300	300	300
	450	300	350	450	550	550	550	550
	400	300	350	450	550	700	700	700
	300	300	350	450	550	700	900	1200
2.50	600	250	250	250	250	250	250	250
	450	250	300	400	500	500	500	500
	400	250	300	400	500	650	650	650
	300	250	300	400	500	650	850	1150
2.75	600	250	250	250	250	250	250	250
	450	250	300	350	450	450	450	450
	400	250	300	350	450	550	550	550
	300	250	300	350	450	550	750	1050
3.00	600	200	200	200	200	200	200	200
	450	200	250	300	400	400	400	400
	400	200	250	300	400	500	500	500
	300	200	250	300	400	500	700	950
3.50	600	200	200	200	200	200	200	200
	450	200	200	250	350	350	350	350
	400	200	200	250	350	450	450	450
	300	200	200	250	350	450	600	800
4.00	600	150	150	150	150	150	150	150
	450	150	200	250	300	300	300	300
	400	150	200	250	300	400	400	400
	300	150	200	250	300	400	500	700
5.00	600	100	100	100	100	100	100	100
	450	100	150	200	250	250	250	250
	400	100	150	200	250	300	300	300
	300	100	150	200	250	300	400	550
6.00	600	100	100	100	100	100	100	100
	450	100	100	150	200	200	200	200
	400	100	100	150	200	250	250	250
	300	100	100	150	200	250	350	450
7.00	600	100	100	100	100	100	100	100
	450	100	100	100	150	150	150	150
	400	100	100	100	150	200	200	200
	300	100	100	100	150	200	300	400

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.55 BMT G550
7. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
8. Framing deflection limit: Span/250

8.6.3 Timber stud with metal battens

Table 54 – Timber stud and double layer metal battens - General areas in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)								
		600	550	500	450	400	350	300	250	200
		First layer horizontal batten max spacing when fixed to timber stud (mm)								
N1	600	1200	1200	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200	1200	1200
N2	600	1050	1050	1050	1050	1050	1050	1050	1050	1050
	450	1050	1200	1200	1200	1200	1200	1200	1200	1200
	400	1050	1200	1200	1200	1200	1200	1200	1200	1200
	300	1050	1200	1200	1200	1200	1200	1200	1200	1200
N3	600	650	650	650	650	650	650	650	650	650
	450	650	800	950	1200	1200	1200	1200	1200	1200
	400	650	800	950	1200	1200	1200	1200	1200	1200
	300	650	800	950	1200	1200	1200	1200	1200	1200
N4	600	450	450	450	450	450	450	450	450	450
	450	450	550	650	800	800	800	800	800	800
	400	450	550	650	800	1000	1000	1000	1000	1000
	300	450	550	650	800	1000	1200	1200	1200	1200
N5	600	300	300	300	300	300	300	300	300	300
	450	300	350	450	550	550	550	550	550	550
	400	300	350	450	550	700	700	700	700	700
	300	300	350	450	550	700	900	1200	1200	1200
N6	600	200	200	200	200	200	200	200	200	200
	450	200	250	300	400	400	400	400	400	400
	400	200	250	300	400	500	500	500	500	500
	300	200	250	300	400	500	650	900	900	900

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be 2/12-11 self-drilling tek screw with minimum embedment of 30mm in the stud
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screws
5. General zone: areas greater than 1200mm from an external building corner
6. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
7. Timber stud grade to be minimum MGP10 (JD5 joint group).
8. Framing deflection limit: Span/250

Table 55 - Timber stud and double layer metal battens - Corner areas in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)								
		600	550	500	450	400	350	300	250	200
		First layer horizontal batten max spacing when fixed to timber stud (mm)								
N1	600	800	800	800	800	800	800	800	800	800
	450	800	950	1150	1200	1200	1200	1200	1200	1200
	400	800	950	1150	1200	1200	1200	1200	1200	1200
	300	800	950	1150	1200	1200	1200	1200	1200	1200
N2	600	550	550	550	550	550	550	550	550	550
	450	550	650	800	1000	1000	1000	1000	1000	1000
	400	550	650	800	1000	1200	1200	1200	1200	1200
	300	550	650	800	1000	1200	1200	1200	1200	1200
N3	600	350	350	350	350	350	350	350	350	350
	450	350	400	500	650	650	650	650	650	650
	400	350	400	500	650	800	800	800	800	800
	300	350	400	500	650	800	1050	1200	1200	1200
N4	600	200	200	200	200	200	200	200	200	200
	450	200	250	350	400	400	400	400	400	400
	400	200	250	350	400	550	550	550	550	550
	300	200	250	350	400	550	700	950	950	950
N5	600	150	150	150	150	150	150	150	150	150
	450	150	200	200	300	300	300	300	300	300
	400	150	200	200	300	350	350	350	350	350
	300	150	200	200	300	350	450	650	650	650
N6	600	100	100	100	100	100	100	100	100	100
	450	100	100	150	200	200	200	200	200	200
	400	100	100	150	200	250	250	250	250	250
	300	100	100	150	200	250	350	500	500	500

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be 2/12-11 self-drilling tek screw with minimum embedment of 30mm in the stud
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screws
5. General zone: areas greater than 1200mm from an external building corner
6. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
7. Timber stud grade to be minimum MGP10 (JD5 joint group).
8. Framing deflection limit: Span/250

Table 56 - Timber stud and double layer metal battens - ULS wind load in AUS non-cyclonic regions

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to timber stud (mm)						
1.00	600	700	700	700	700	700	700	700
	450	700	850	1000	1200	1200	1200	1200
	400	700	850	1000	1200	1200	1200	1200
	300	700	850	1000	1200	1200	1200	1200
1.25	600	550	550	550	550	550	550	550
	450	550	650	800	1000	1000	1000	1000
	400	550	650	800	1000	1200	1200	1200
	300	550	650	800	1000	1200	1200	1200
1.50	600	450	450	450	450	450	450	450
	450	450	550	650	850	850	850	850
	400	450	550	650	850	1050	1050	1050
	300	450	550	650	850	1050	1200	1200
1.75	600	400	400	400	400	400	400	400
	450	400	450	550	700	700	700	700
	400	400	450	550	700	900	900	900
	300	400	450	550	700	900	1200	1200
2.00	600	350	350	350	350	350	350	350
	450	350	400	500	600	600	600	600
	400	350	400	500	600	800	800	800
	300	350	400	500	600	800	1050	1200
2.25	600	300	300	300	300	300	300	300
	450	300	350	450	550	550	550	550
	400	300	350	450	550	700	700	700
	300	300	350	450	550	700	900	1200
2.50	600	250	250	250	250	250	250	250
	450	250	300	400	500	500	500	500
	400	250	300	400	500	650	650	650
	300	250	300	400	500	650	850	1150
2.75	600	250	250	250	250	250	250	250
	450	250	300	350	450	450	450	450
	400	250	300	350	450	550	550	550
	300	250	300	350	450	550	750	1050
3.00	600	200	200	200	200	200	200	200
	450	200	250	300	400	400	400	400
	400	200	250	300	400	500	500	500
	300	200	250	300	400	500	700	950
3.50	600	200	200	200	200	200	200	200
	450	200	200	250	350	350	350	350
	400	200	200	250	350	450	450	450
	300	200	200	250	350	450	600	800
4.00	600	150	150	150	150	150	150	150
	450	150	200	250	300	300	300	300
	400	150	200	250	300	400	400	400
	300	150	200	250	300	400	500	700
5.00	600	100	100	100	100	100	100	100
	450	100	150	200	250	250	250	250
	400	100	150	200	250	300	300	300
	300	100	150	200	250	300	400	550
6.00	600	100	100	100	100	100	100	100
	450	100	100	150	200	200	200	200
	400	100	100	150	200	250	250	250
	300	100	100	150	200	250	350	450
7.00	600	100	100	100	100	100	100	100
	450	100	100	100	150	150	150	150
	400	100	100	100	150	200	200	200
	300	100	100	100	150	200	300	400

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be 2/12-11 self-drilling tek screw with minimum embedment of 30mm in the stud
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screws
5. General zone: areas greater than 1200mm from an external building corner
6. Metal battens to be horizontal G250 20x15x50x15x20x1.1 BMT tophat and vertical G250 20x35x50x35x20x1.1 BMT tophat
7. Timber stud grade to be minimum MGP10 (JD5 joint group).
8. Framing deflection limit: Span/250

9.0 Wall cladding span tables for New Zealand

9.1 General

This section of the report contains various span tables for EQUITONE wall cladding in New Zealand. The headings for each table define the situations which the span table shall be applied to. For clarity, the terms used in these headings are defined below.

Table 57 – New Zealand wall cladding span table heading term definitions

Term	Definition
Autoclaved FC	EQUITONE [tectiva], [lines] & [lunara] panel types (autoclave cured during manufacture)
Air-cured FC	EQUITONE [natura], [natura] PRO, [pictura], [materia], [inspira], [colura] & [textura] panel types (air cured during manufacture)
Fastener into metal	Where cladding is fixed to steel tophat battens or NVELOPE NV1 profile using stainless or aluminium 4xL K15 UNI rivets or UNI metal screw
UNI Screw into timber	Where cladding is fixed to timber battens using stainless 5.5xL K15 UNI screws
SFS TUF-S into NVELOPE NV3	Where cladding is fixed to the NVELOPE NV3 hanger clips using two stainless steel 6xL SFS TUF-S fixings embedded into the rear of the cladding panel
In NZ	All regions of New Zealand. These are regions A & W in figure 5.1 of NZS 3604:2011
General zone	Wall areas located more than 1200mm from an external building corner
Corner zone	Wall areas located less than 1200mm from an external building corner

9.2 Wind Loading

Table 58 below lists the assumed wind loading for the wind classes from NZS 3604:2011 that have been calculated using the external pressure coefficients only. It is assumed that the internal pressures will be resisted by the internal lining. If the internal linings of a particular building are insufficient to resist the internal wind pressures, the span tables involving the NZS 3604:2011 wind classes contained in this report shall not be used for that particular building.

Table 58 – Wall cladding wind loading to NZS 3604:2011

Wind Class	Ultimate wind speed V_u m/s	External pressure coefficient $C_{p,e}$			Pressure (Any) kPa	Suction (General) kPa	Suction (Corners) kPa
		Pressure (Any)	Suction (General)	Suction (Corners)			
Low	32	0.7	-0.65	-1.3	0.43	-0.40	-0.80
Medium	37	0.7	-0.65	-1.3	0.57	-0.53	-1.07
High	44	0.7	-0.65	-1.3	0.81	-0.76	-1.51
Very high	50	0.7	-0.65	-1.3	1.05	-0.98	-1.95
Extra high	55	0.7	-0.65	-1.3	1.27	-1.18	-2.36

Notes to table:

1. Wind loads have been determined for external pressures only, it is assumed that internal pressures will not be applied to the cladding and they will be resisted by the internal lining.
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner

9.3 Autoclaved EQUITONE FC - [tectiva], [lines], [lunara]

9.3.1 Stainless steel/Aluminium fastener into metal batten

Table 59 - Autoclaved FC wall cladding: Max fixing spacing for fastener into metal in NZ – General zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	600	600	600
Extra high	600	600	600	600

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 60 - Autoclaved FC wall cladding: Max fixing spacing for fastener into metal in NZ – Corner zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	450	600	600
Extra high	550	400	550	550

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 61 - Autoclaved FC wall cladding: Max ultimate wind pressure for fastener into metal in NZ

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.58	1.72	1.89	2.10	2.27	2.27	2.27	2.27	2.27
550	1.72	1.88	2.07	2.29	2.58	2.70	2.70	2.70	2.70
500	1.89	2.07	2.27	2.52	2.84	3.25	3.27	3.27	3.27
450	2.10	2.29	2.52	2.80	3.15	3.61	3.94	4.04	4.04
400	2.27	2.58	2.84	3.15	3.55	4.06	4.43	4.54	4.57
350	2.27	2.70	3.25	3.61	4.06	4.64	5.06	5.19	5.22
300	2.27	2.70	3.27	3.94	4.43	5.06	5.90	6.06	6.09
250	2.27	2.70	3.27	4.04	4.54	5.19	6.06	7.27	7.31
200	2.27	2.70	3.27	4.04	4.57	5.22	6.09	7.31	9.14
Single span wall cladding									
600	2.09	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27
550	2.22	2.42	2.66	2.70	2.70	2.70	2.70	2.70	2.70
500	2.27	2.57	2.82	3.14	3.27	3.27	3.27	3.27	3.27
450	2.27	2.70	3.01	3.35	3.77	4.04	4.04	4.04	4.04
400	2.27	2.70	3.23	3.59	4.04	4.61	5.11	5.11	5.11
350	2.27	2.70	3.27	3.86	4.35	4.97	5.79	6.68	6.68
300	2.27	2.70	3.27	4.04	4.71	5.38	6.28	7.53	9.09
250	2.27	2.70	3.27	4.04	5.11	5.87	6.85	8.22	10.27
200	2.27	2.70	3.27	4.04	5.11	6.46	7.53	9.04	11.30

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile Wall cladding panel deflection limit: Span/100

Table 62 - Autoclaved FC wall cladding: Max fixing spacing for fastener into metal in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	500	600	600
2.00	600	450	600	600
2.25	600	400	600	500
2.50	550	400	550	500
2.75	500	400	500	500
3.00	500	350	500	450
3.50	450	350	450	400
4.00	450	250	450	300
5.00	350	300	400	250
6.00	300	250	350	200
7.00	250	250	300	200

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

9.3.2 Stainless steel UNI screw into timber batten

Table 63 - Autoclaved FC wall cladding: Max fixing spacing for UNI Screw into timber in NZ – General zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	600	600	600
Extra high	600	600	600	600

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
6. Wall cladding panel deflection limit: Span/100

Table 64 - Autoclaved FC wall cladding: Max fixing spacing for UNI Screw into timber in NZ – Corner zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	450	600	600
Extra high	550	400	550	550

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
6. Wall cladding panel deflection limit: Span/100

Table 65 - Autoclaved FC wall cladding: Max ultimate wind pressure for UNI Screw into timber in NZ

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.58	1.72	1.89	2.10	2.27	2.27	2.27	2.27	2.27
550	1.72	1.88	2.07	2.29	2.58	2.70	2.70	2.70	2.70
500	1.89	2.07	2.27	2.52	2.84	3.25	3.27	3.27	3.27
450	2.10	2.29	2.52	2.80	3.15	3.61	3.94	4.04	4.04
400	2.27	2.58	2.84	3.15	3.55	4.06	4.43	4.54	4.57
350	2.27	2.70	3.25	3.61	4.06	4.64	5.06	5.19	5.22
300	2.27	2.70	3.27	3.94	4.43	5.06	5.90	6.06	6.09
250	2.27	2.70	3.27	4.04	4.54	5.19	6.06	7.27	7.31
200	2.27	2.70	3.27	4.04	4.57	5.22	6.09	7.31	9.14
Single span wall cladding									
600	2.09	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27
550	2.22	2.42	2.66	2.70	2.70	2.70	2.70	2.70	2.70
500	2.27	2.57	2.82	3.14	3.27	3.27	3.27	3.27	3.27
450	2.27	2.70	3.01	3.35	3.77	4.04	4.04	4.04	4.04
400	2.27	2.70	3.23	3.59	4.04	4.61	5.11	5.11	5.11
350	2.27	2.70	3.27	3.86	4.35	4.97	5.79	6.68	6.68
300	2.27	2.70	3.27	4.04	4.71	5.38	6.28	7.53	9.09
250	2.27	2.70	3.27	4.04	5.11	5.87	6.85	8.22	10.27
200	2.27	2.70	3.27	4.04	5.11	6.46	7.53	9.04	11.30

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
4. Wall cladding panel deflection limit: Span/100

Table 66 - Autoclaved FC wall cladding: Max fixing spacing for UNI Screw into timber in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	500	600	600
2.00	600	450	600	600
2.25	600	400	600	500
2.50	550	400	550	500
2.75	500	400	500	500
3.00	500	350	500	450
3.50	450	350	450	400
4.00	450	250	450	300
5.00	350	300	400	250
6.00	300	250	350	200
7.00	250	250	300	200

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
4. Wall cladding panel deflection limit: Span/100

9.3.3 SFS TUF-S into NVELOPE NV3

Table 67 - Autoclaved FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – General zone

NZ 3604 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	600	600	600
Extra high	600	550	600	500

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 68 - Autoclaved FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – Corner zone

NZ 3604 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	550
High	600	400	600	350
Very high	600	200	600	200
Extra high	500	200	500	200

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 69 - Autoclaved FC wall cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in NZ

Vertical spacing of wall cladding fixing or horizontal rail (mm)	Horizontal spacing of wall cladding fixing spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.14	1.24	1.36	1.50	1.59	1.69	1.79	1.90	2.01
550	1.24	1.35	1.49	1.63	1.73	1.84	1.96	2.08	2.19
500	1.36	1.49	1.64	1.80	1.90	2.02	2.15	2.29	2.41
450	1.50	1.63	1.80	2.00	2.11	2.25	2.39	2.54	2.68
400	1.59	1.73	1.90	2.11	2.38	2.53	2.69	2.86	3.02
350	1.69	1.84	2.02	2.25	2.53	2.89	3.07	3.26	3.45
300	1.79	1.96	2.15	2.39	2.69	3.07	3.58	3.81	4.02
250	1.90	2.08	2.29	2.54	2.86	3.26	3.81	4.57	4.83
200	2.01	2.19	2.41	2.68	3.02	3.45	4.02	4.83	6.04
Single span wall cladding									
600	1.07	1.16	1.28	1.42	1.60	1.83	2.13	2.27	2.27
550	1.14	1.24	1.36	1.52	1.71	1.95	2.27	2.70	2.70
500	1.22	1.33	1.46	1.62	1.83	2.09	2.44	2.92	3.27
450	1.31	1.43	1.57	1.75	1.97	2.25	2.62	3.15	3.94
400	1.42	1.55	1.71	1.90	2.13	2.44	2.84	3.41	4.27
350	1.55	1.69	1.86	2.07	2.33	2.66	3.10	3.72	4.65
300	1.71	1.86	2.05	2.27	2.56	2.92	3.41	4.09	5.12
250	1.90	2.07	2.27	2.53	2.84	3.25	3.79	4.55	5.69
200	2.13	2.33	2.56	2.84	3.20	3.66	4.27	5.12	6.40

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

Table 70 - Autoclaved FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	500	600	450
1.50	600	400	600	350
1.75	600	300	600	250
2.00	600	200	600	200
2.25	500	250	550	200
2.50	450	250	500	200
2.75	400	250	450	200
3.00	400	200	400	200
3.50	300	300	350	200
4.00	300	200	300	200
5.00	200	200	250	200
6.00	200	200	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

9.4 Air-cured EQUITONE FC – [natura], [natura] PRO, [pictura], [materia], [inspira], [coloura], [textura]

9.4.1 Stainless steel/Aluminium fastener into metal batten

Table 71 - Air-cured FC wall cladding: Max fixing spacing for fastener into metal in NZ – General zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	600	600	600
Extra high	600	600	600	600

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 72 - Air-cured FC wall cladding: Max fixing spacing for fastener into metal in NZ – Corner zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	450	600	600
Extra high	600	400	600	500

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
6. Wall cladding panel deflection limit: Span/100

Table 73 - Air-cured FC wall cladding: Max ultimate wind pressure for fastener into metal in NZ

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.59	1.73	1.91	2.12	2.38	2.42	2.42	2.42	2.42
550	1.73	1.89	2.08	2.31	2.60	2.88	2.88	2.88	2.88
500	1.91	2.08	2.29	2.54	2.86	3.27	3.49	3.49	3.49
450	2.12	2.31	2.54	2.83	3.18	3.63	4.11	4.22	4.25
400	2.38	2.60	2.86	3.18	3.58	4.09	4.63	4.75	4.78
350	2.42	2.88	3.27	3.63	4.09	4.67	5.29	5.43	5.46
300	2.42	2.88	3.49	4.11	4.63	5.29	6.17	6.33	6.37
250	2.42	2.88	3.49	4.22	4.75	5.43	6.33	7.60	7.65
200	2.42	2.88	3.49	4.25	4.78	5.46	6.37	7.65	9.56
Single span wall cladding									
600	1.97	2.20	2.39	2.42	2.42	2.42	2.42	2.42	2.42
550	2.20	2.53	2.78	2.88	2.88	2.88	2.88	2.88	2.88
500	2.39	2.68	2.95	3.28	3.49	3.49	3.49	3.49	3.49
450	2.42	2.86	3.15	3.50	3.94	4.31	4.31	4.31	4.31
400	2.42	2.88	3.38	3.75	4.22	4.82	5.45	5.45	5.45
350	2.42	2.88	3.49	4.04	4.54	5.19	6.06	7.12	7.12
300	2.42	2.88	3.49	4.31	4.92	5.63	6.56	7.88	9.69
250	2.42	2.88	3.49	4.31	5.37	6.14	7.16	8.59	10.74
200	2.42	2.88	3.49	4.31	5.45	6.75	7.88	9.45	11.81

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI Rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

Table 74 - Air-cured FC wall cladding: Max fixing spacing for fastener into metal in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	500	600	600
2.00	600	450	600	550
2.25	600	400	600	500
2.50	550	400	550	550
2.75	550	350	550	450
3.00	500	350	500	450
3.50	450	350	450	450
4.00	450	300	450	350
5.00	350	300	400	250
6.00	300	300	350	250
7.00	250	250	300	250

Notes to table:

1. Fixing between the wall cladding panel and batten to be UNI rivet 4xL K15 or UNI metal screw
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat or NVELOPE NV1 profile
4. Wall cladding panel deflection limit: Span/100

9.4.2 Stainless steel UNI screw into timber batten

Table 75 - Air-cured FC wall cladding: Max fixing spacing for UNI Screw into timber in NZ – General zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	600	600	600
Extra high	600	600	600	600

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
6. Wall cladding panel deflection limit: Span/100

Table 76 - Air-cured FC wall cladding: Max fixing spacing for UNI Screw into timber in NZ – Corner zone

NZ 3604 Wind class	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	450	600	600
Extra high	600	400	600	500

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
5. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
6. Wall cladding panel deflection limit: Span/100

Table 77 - Air-cured FC wall cladding: Max ultimate wind pressure for UNI Screw into timber in NZ

Vertical spacing of wall cladding fixing (mm)	Horizontal spacing of wall cladding fixing or tophat spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	1.59	1.73	1.91	2.12	2.38	2.42	2.42	2.42	2.42
550	1.73	1.89	2.08	2.31	2.60	2.88	2.88	2.88	2.88
500	1.91	2.08	2.29	2.54	2.86	3.27	3.49	3.49	3.49
450	2.12	2.31	2.54	2.83	3.18	3.63	4.11	4.22	4.25
400	2.38	2.60	2.86	3.18	3.58	4.09	4.63	4.75	4.78
350	2.42	2.88	3.27	3.63	4.09	4.67	5.29	5.43	5.46
300	2.42	2.88	3.49	4.11	4.63	5.29	6.17	6.33	6.37
250	2.42	2.88	3.49	4.22	4.75	5.43	6.33	7.60	7.65
200	2.42	2.88	3.49	4.25	4.78	5.46	6.37	7.65	9.56
Single span wall cladding									
600	1.97	2.20	2.39	2.42	2.42	2.42	2.42	2.42	2.42
550	2.20	2.53	2.78	2.88	2.88	2.88	2.88	2.88	2.88
500	2.39	2.68	2.95	3.28	3.49	3.49	3.49	3.49	3.49
450	2.42	2.86	3.15	3.50	3.94	4.31	4.31	4.31	4.31
400	2.42	2.88	3.38	3.75	4.22	4.82	5.45	5.45	5.45
350	2.42	2.88	3.49	4.04	4.54	5.19	6.06	7.12	7.12
300	2.42	2.88	3.49	4.31	4.92	5.63	6.56	7.88	9.69
250	2.42	2.88	3.49	4.31	5.37	6.14	7.16	8.59	10.74
200	2.42	2.88	3.49	4.31	5.45	6.75	7.88	9.45	11.81

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
4. Wall cladding panel deflection limit: Span/100

Table 78 - Air-cured FC wall cladding: Max fixing spacing for UNI Screw into timber in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing/batten spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	600	600	600
1.25	600	600	600	600
1.50	600	600	600	600
1.75	600	500	600	600
2.00	600	450	600	550
2.25	600	400	600	500
2.50	550	400	550	550
2.75	550	350	550	450
3.00	500	350	500	450
3.50	450	350	450	450
4.00	450	300	450	350
5.00	350	300	400	250
6.00	300	300	350	250
7.00	250	250	300	250

Notes to table:

1. Fixing between the wall cladding panel and batten to be stainless steel UNI Screw 5.5xL K15
2. Fixing edge distance to be a maximum of 150mm from any panel edge and a minimum of:
   - 70mm for panel edges perpendicular to the framing member in contact with the cladding panel
   - 30mm from the panel edges parallel to the framing member in contact with the cladding panel
3. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
4. Wall cladding panel deflection limit: Span/100

9.4.3 SFS TUF-S into NVELOPE NV3

Table 79 - Air-cured FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – General zone

NZ 3604 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	550	600	600
Very high	600	450	600	600
Extra high	600	350	600	450

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 80 - Air-cured FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – Corner zone

NZ 3604 Wind class	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	550	600	600
Medium	600	400	600	550
High	600	250	600	300
Very high	550	200	600	200
Extra high	450	200	500	200

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. General zone: Areas greater than 1200mm from an external building corner
3. Corner zone: Areas less than 1200mm from an external building corner
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. NVELOPE NV3 fixing system components are outside the scope of this report
6. Wall cladding panel deflection limit: Span/100

Table 81 - Air-cured FC wall cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in NZ

Vertical spacing of wall cladding fixing or horizontal rail (mm)	Horizontal spacing of wall cladding fixing spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span wall cladding								
600	0.73	0.80	0.88	0.98	1.10	1.26	1.47	1.76	1.89
550	0.80	0.87	0.96	1.07	1.20	1.37	1.60	1.92	2.06
500	0.88	0.96	1.06	1.17	1.32	1.51	1.76	2.11	2.27
450	0.98	1.07	1.17	1.30	1.47	1.68	1.95	2.35	2.52
400	1.10	1.20	1.32	1.47	1.65	1.88	2.20	2.64	2.84
350	1.26	1.37	1.51	1.68	1.88	2.15	2.51	3.02	3.24
300	1.47	1.60	1.76	1.95	2.20	2.51	2.93	3.52	3.78
250	1.76	1.92	2.11	2.35	2.64	3.02	3.52	4.22	4.54
200	1.89	2.06	2.27	2.52	2.84	3.24	3.78	4.54	5.68
Single span wall cladding									
600	1.00	1.09	1.20	1.34	1.50	1.72	2.01	2.41	2.42
550	1.07	1.17	1.28	1.43	1.60	1.83	2.14	2.57	2.88
500	1.15	1.25	1.38	1.53	1.72	1.97	2.29	2.75	3.44
450	1.23	1.35	1.48	1.65	1.85	2.12	2.47	2.96	3.70
400	1.34	1.46	1.60	1.78	2.01	2.29	2.67	3.21	4.01
350	1.46	1.59	1.75	1.95	2.19	2.50	2.92	3.50	4.38
300	1.60	1.75	1.93	2.14	2.41	2.75	3.21	3.85	4.81
250	1.78	1.95	2.14	2.38	2.67	3.06	3.57	4.28	5.35
200	2.01	2.19	2.41	2.67	3.01	3.44	4.01	4.81	6.02

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

Table 82 - Air-cured FC wall cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max wall cladding fixing spacing (mm)			
	Multiple span wall cladding		Single span wall cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	400	600	600
1.25	600	350	600	400
1.50	600	250	600	300
1.75	600	250	600	250
2.00	550	200	600	200
2.25	500	200	500	200
2.50	450	200	450	200
2.75	400	200	400	200
3.00	350	250	400	200
3.50	300	250	300	250
4.00	250	250	300	200
5.00	200	200	200	200
6.00	-	-	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the wall cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
3. NVELOPE NV3 fixing system components are outside the scope of this report
4. Wall cladding panel deflection limit: Span/100

9.5 Single layer batten span tables

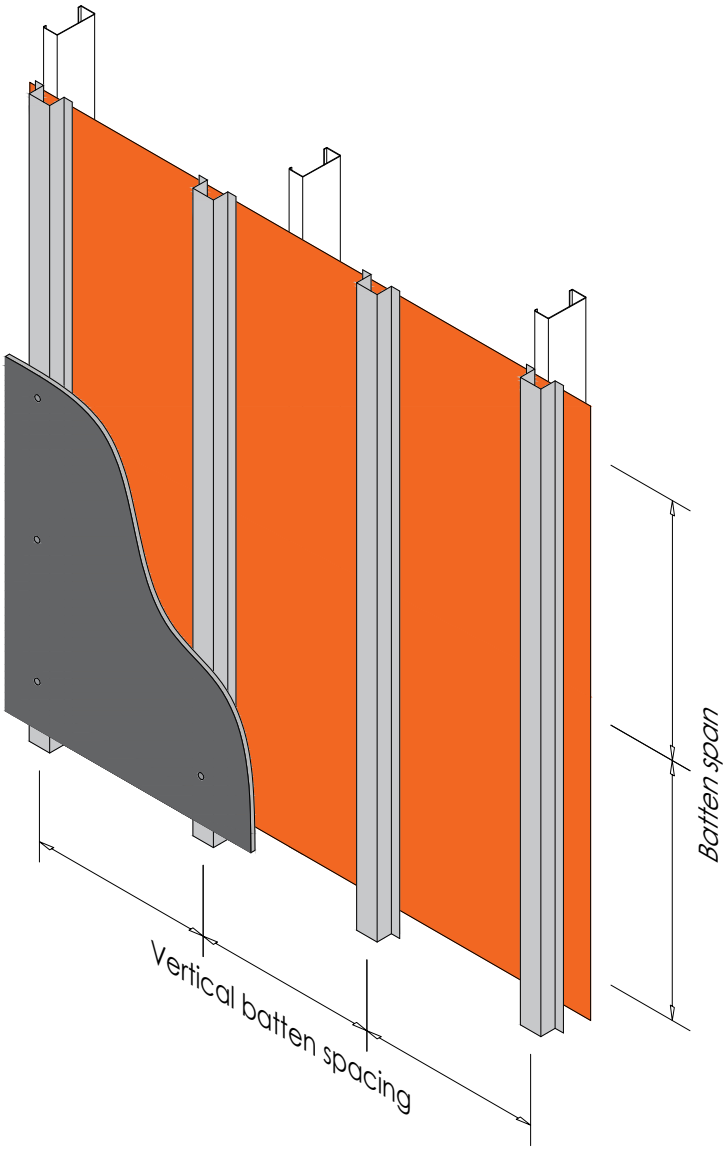


Figure 17 - Typical single layer batten detail

9.5.1 Steel stud and metal batten

Table 83 – Steel stud and single layer metal battens – General areas in NZ

NZ 3604 Wind class	Vertical Batten spacing (mm) – General zone						
	600	550	500	450	400	350	300
	Max batten span when fixed to 0.5BMT G550 stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1200	1200	1200	1200	1200	1200	1200
High	1200	1200	1200	1200	1200	1200	1200
Very high	1100	1100	1150	1200	1200	1200	1200
Extra high	1000	1050	1100	1100	1150	1200	1200
Wind class	Max batten span when fixed to 0.75BMT G550 stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1200	1200	1200	1200	1200	1200	1200
High	1200	1200	1200	1200	1200	1200	1200
Very high	1100	1100	1150	1200	1200	1200	1200
Extra high	1000	1050	1100	1100	1150	1200	1200
Wind class	Max batten span when fixed to 1.2BMT G2 stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1200	1200	1200	1200	1200	1200	1200
High	1200	1200	1200	1200	1200	1200	1200
Very high	1100	1100	1150	1200	1200	1200	1200
Extra high	1000	1050	1100	1100	1150	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. General zone: areas greater than 1200mm from an external building corner
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat
6. Framing deflection limit: Span/250

Table 84 – Steel stud and single layer metal battens – Corner areas in NZ

NZ 3604 Wind class	Vertical Batten spacing (mm) – Corner zone						
	600	550	500	450	400	350	300
	Max batten span when fixed to 0.5BMT G550 stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1050	1100	1150	1200	1200	1200	1200
High	950	1000	1000	1050	1100	1150	1200
Very high	750	800	900	950	1000	1050	1100
Extra high	600	650	750	800	950	1000	1050
Wind class	Max batten span when fixed to 0.75BMT G550 stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1050	1100	1150	1200	1200	1200	1200
High	950	1000	1000	1050	1100	1150	1200
Very high	850	900	950	950	1000	1050	1100
Extra high	800	850	850	900	950	1000	1050
Wind class	Max batten span when fixed to 1.2BMT G2 stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1050	1100	1150	1200	1200	1200	1200
High	950	1000	1000	1050	1100	1150	1200
Very high	850	900	950	950	1000	1050	1100
Extra high	800	850	850	900	950	1000	1050

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Corner zone: Areas less than 1200mm from an external building corner
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat
6. Framing deflection limit: Span/250

Table 85 - Steel stud and single layer metal battens - ULS wind load in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Vertical Batten spacing (mm)						
	600	550	500	450	400	350	300
	Max batten span when fixed to 0.5BMT G550 stud (mm)						
1.00	1100	1150	1150	1200	1200	1200	1200
1.25	1000	1050	1100	1100	1150	1200	1200
1.50	950	1000	1000	1050	1100	1150	1200
1.75	850	900	950	1000	1050	1100	1150
2.00	750	800	900	950	1000	1050	1100
2.25	650	700	800	850	950	1000	1050
2.50	600	650	700	800	900	950	1000
2.75	500	550	650	700	800	900	1000
3.00	500	500	600	650	750	850	950
3.50	400	450	500	550	600	700	850
4.00	350	400	450	500	550	600	750
5.00	300	300	350	400	450	500	600
6.00	250	250	300	300	350	400	500
7.00	200	200	250	250	300	350	400
	Max batten span when fixed to 0.75BMT G550 stud (mm)						
1.00	1100	1150	1150	1200	1200	1200	1200
1.25	1000	1050	1100	1100	1150	1200	1200
1.50	950	1000	1000	1050	1100	1150	1200
1.75	900	950	950	1000	1050	1100	1150
2.00	850	900	900	950	1000	1050	1100
2.25	850	850	900	900	950	1000	1050
2.50	800	850	850	900	900	950	1000
2.75	800	800	850	850	900	950	1000
3.00	750	800	800	850	850	900	950
3.50	650	700	750	800	800	850	900
4.00	550	600	700	750	800	800	850
5.00	450	500	550	600	700	750	800
6.00	350	400	450	500	550	650	750
7.00	300	350	400	450	500	550	650
	Max batten span when fixed to 1.2BMT G2 stud (mm)						
1.00	1100	1150	1150	1200	1200	1200	1200
1.25	1000	1050	1100	1100	1150	1200	1200
1.50	950	1000	1000	1050	1100	1150	1200
1.75	900	950	950	1000	1050	1100	1150
2.00	850	900	900	950	1000	1050	1100
2.25	850	850	900	900	950	1000	1050
2.50	800	850	850	900	900	950	1000
2.75	800	800	850	850	900	950	1000
3.00	750	800	800	850	850	900	950
3.50	650	700	750	800	800	850	900
4.00	550	600	700	750	800	800	850
5.00	450	500	550	600	700	750	800
6.00	350	400	450	500	550	650	750
7.00	300	350	400	450	500	550	650

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screw
4. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat
5. Framing deflection limit: Span/250

9.5.2 Steel stud and timber battens

Table 86 – Steel stud and single layer timber battens – General areas in NZ

NZ 3604 Wind class	Vertical Batten spacing (mm) – General zone						
	600	550	500	450	400	350	300
	Max batten span when fixed to 0.5BMT G550 stud (mm)						
Low	1150	1200	1250	1250	1350	1400	1450
Medium	1050	1100	1100	1150	1200	1250	1300
High	950	950	1000	1050	1050	1100	1200
Very high	750	800	900	950	1000	1000	1100
Extra high	600	650	750	800	900	950	1000
Wind class	Max batten span when fixed to 0.75BMT G550 stud (mm)						
Low	1150	1200	1250	1250	1350	1400	1450
Medium	1050	1100	1100	1150	1200	1250	1300
High	950	950	1000	1050	1050	1100	1200
Very high	850	900	900	950	1000	1000	1100
Extra high	800	800	850	900	900	950	1000
Wind class	Max batten span when fixed to 1.2BMT G2 stud (mm)						
Low	1150	1200	1250	1250	1350	1400	1450
Medium	1050	1100	1100	1150	1200	1250	1300
High	950	950	1000	1050	1050	1100	1200
Very high	850	900	900	950	1000	1000	1100
Extra high	800	800	850	900	900	950	1000

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 1/12-14 self-drilling hex head tek screw
4. General zone: areas greater than 1200mm from an external building corner
5. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
6. Framing deflection limit: Span/250

Table 87 – Steel stud and single layer timber battens – Corner areas in NZ

NZ 3604 Wind class	Vertical Batten spacing (mm) – Corner zone						
	600	550	500	450	400	350	300
	Max batten span when fixed to 0.5BMT G550 stud (mm)						
Low	900	950	1000	1050	1050	1100	1200
Medium	700	750	800	900	950	1000	1050
High	450	500	550	650	700	850	950
Very high	350	400	450	500	550	650	750
Extra high	300	300	350	400	450	500	600
Wind class	Max batten span when fixed to 0.75BMT G550 stud (mm)						
Low	950	950	1000	1050	1050	1100	1200
Medium	850	850	900	950	950	1000	1050
High	750	750	800	850	850	900	950
Very high	600	650	700	750	800	850	850
Extra high	500	500	600	650	750	800	800
Wind class	Max batten span when fixed to 1.2BMT G2 stud (mm)						
Low	950	950	1000	1050	1050	1100	1200
Medium	850	850	900	950	950	1000	1050
High	750	750	800	850	850	900	950
Very high	600	650	700	750	800	850	850
Extra high	500	500	600	650	750	800	800

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 1/12-14 self-drilling hex head tek screw
4. Corner zone: Areas less than 1200mm from an external building corner
5. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
6. Framing deflection limit: Span/250

Table 88 - Steel stud and single layer timber battens - ULS wind load in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Vertical Batten spacing (mm)						
	600	550	500	450	400	350	300
	Max batten span when fixed to 0.5BMT G550 stud (mm)						
1.00	750	800	900	950	1000	1050	1100
1.25	600	650	700	800	900	950	1000
1.50	500	500	600	650	750	850	950
1.75	400	450	500	550	600	700	850
2.00	350	400	450	500	550	600	750
2.25	300	350	400	400	500	550	650
2.50	300	300	350	400	450	500	600
2.75	250	250	300	350	400	450	500
3.00	250	250	300	300	350	400	500
3.50	200	200	250	250	300	350	400
4.00	150	200	200	250	250	300	350
5.00	150	150	150	200	200	250	300
6.00	100	100	150	150	150	200	250
7.00	100	100	100	100	150	150	200
	Max batten span when fixed to 0.75BMT G550 stud (mm)						
1.00	850	900	900	950	1000	1050	1100
1.25	800	850	850	900	900	950	1000
1.50	750	800	800	850	850	900	950
1.75	650	700	750	800	800	850	900
2.00	550	600	700	750	800	800	850
2.25	500	550	600	700	750	800	850
2.50	450	500	550	600	700	750	800
2.75	400	450	500	550	600	700	800
3.00	350	400	450	500	550	650	750
3.50	300	350	400	450	500	550	650
4.00	250	300	350	350	400	500	550
5.00	200	250	250	300	350	400	450
6.00	150	200	200	250	250	300	350
7.00	150	150	200	200	250	250	300
	Max batten span when fixed to 1.2BMT G2 stud (mm)						
1.00	850	900	900	950	1000	1050	1100
1.25	800	850	850	900	900	950	1000
1.50	750	800	800	850	850	900	950
1.75	650	700	750	800	800	850	900
2.00	550	600	700	750	800	800	850
2.25	500	550	600	700	750	800	850
2.50	450	500	550	600	700	750	800
2.75	400	450	500	550	600	700	800
3.00	350	400	450	500	550	650	750
3.50	300	350	400	450	500	550	650
4.00	250	300	350	350	400	500	550
5.00	200	250	250	300	350	400	450
6.00	150	200	200	250	250	300	350
7.00	150	150	200	200	250	250	300

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 1/12-14 self-drilling hex head tek screw
4. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5)
5. Framing deflection limit: Span/250

9.5.3 Timber stud and metal/timber battens

Table 89 – Timber stud and single layer metal/timber battens – General areas in NZ

NZ 3604 Wind class	Vertical Batten spacing (mm) – General zone						
	600	550	500	450	400	350	300
	Max metal batten span when fixed to timber stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1200	1200	1200	1200	1200	1200	1200
High	1200	1200	1200	1200	1200	1200	1200
Very high	1100	1100	1150	1200	1200	1200	1200
Extra high	1000	1050	1100	1100	1150	1200	1200
Wind class	Max timber batten span when fixed to timber stud (mm)						
Low	1150	1200	1250	1250	1350	1400	1450
Medium	1050	1100	1100	1150	1200	1250	1300
High	950	950	1000	1050	1050	1100	1200
Very high	850	900	900	950	1000	1000	1100
Extra high	800	800	850	900	900	950	1000

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the timber batten and stud to be 1/14-10 type 17 bugle head screw with minimum embedment of 30mm in the stud
4. Fixing between the metal batten and stud to be 2/12-11 self-drilling hex head tek screw with minimum embedment of 30mm in the stud
5. General zone: areas greater than 1200mm from an external building corner
6. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat
7. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5) and SG6 stud grade
8. Framing deflection limit: Span/250

Table 90 – Timber stud and single layer metal/timber battens – Corner areas in NZ

NZ 3604 Wind class	Vertical Batten spacing (mm) – Corner zone						
	600	550	500	450	400	350	300
	Max metal batten span when fixed to timber stud (mm)						
Low	1200	1200	1200	1200	1200	1200	1200
Medium	1050	1100	1150	1200	1200	1200	1200
High	950	1000	1000	1050	1100	1150	1200
Very high	850	900	950	950	1000	1050	1100
Extra high	800	850	850	900	950	1000	1050
Wind class	Max timber batten span when fixed to timber stud (mm)						
Low	950	950	1000	1050	1050	1100	1200
Medium	850	850	900	950	950	1000	1050
High	750	750	800	850	850	900	950
Very high	700	700	750	750	800	850	850
Extra high	650	650	700	700	750	800	800

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the timber batten and stud to be 1/14-10 type 17 bugle head screw with minimum embedment of 30mm in the stud
4. Fixing between the metal batten and stud to be 2/12-11 self-drilling hex head tek screw with minimum embedment of 30mm in the stud
5. Corner zone: Areas less than 1200mm from an external building corner
6. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat
7. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5) and SG6 stud grade
8. Framing deflection limit: Span/250

Table 91 - Timber stud and single layer metal/timber battens - ULS wind load in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Vertical Batten spacing (mm)						
	600	550	500	450	400	350	300
	Max metal batten span when fixed to timber stud (mm)						
1.00	1100	1150	1150	1200	1200	1200	1200
1.25	1000	1050	1100	1100	1150	1200	1200
1.50	950	1000	1000	1050	1100	1150	1200
1.75	900	950	950	1000	1050	1100	1150
2.00	850	900	900	950	1000	1050	1100
2.25	850	850	900	900	950	1000	1050
2.50	750	850	850	900	900	950	1000
2.75	700	750	850	850	900	950	1000
3.00	650	700	750	850	850	900	950
3.50	550	600	650	750	800	850	900
4.00	450	500	550	650	700	800	850
5.00	350	400	450	500	550	650	750
6.00	300	350	350	400	450	550	650
7.00	250	300	300	350	400	450	550
	Max timber batten span when fixed to timber stud (mm)						
1.00	850	900	900	950	1000	1050	1100
1.25	800	850	850	900	900	950	1000
1.50	750	800	800	850	850	900	950
1.75	700	750	750	800	800	850	900
2.00	700	700	750	750	800	800	850
2.25	650	650	700	700	750	800	850
2.50	650	650	650	700	750	750	800
2.75	600	650	650	650	700	750	800
3.00	600	600	650	650	700	700	750
3.50	550	600	600	600	650	700	700
4.00	450	500	550	600	600	650	700
5.00	350	400	450	500	550	600	650
6.00	300	350	350	400	450	550	600
7.00	250	300	300	350	400	450	550

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the timber batten and stud to be 1/14-10 type 17 bugle head screw with minimum embedment of 30mm in the stud
4. Fixing between the metal batten and stud to be 2/12-11 self-drilling hex head tek screw with minimum embedment of 30mm in the stud
5. Metal batten to be min G250 Omega 1/50 1.15 BMT tophat
6. Timber batten to be 35x70 H3.2 treated SG6 grade minimum (timber group J5) and SG6 stud grade
7. Framing deflection limit: Span/250

9.6 Double layer batten span tables

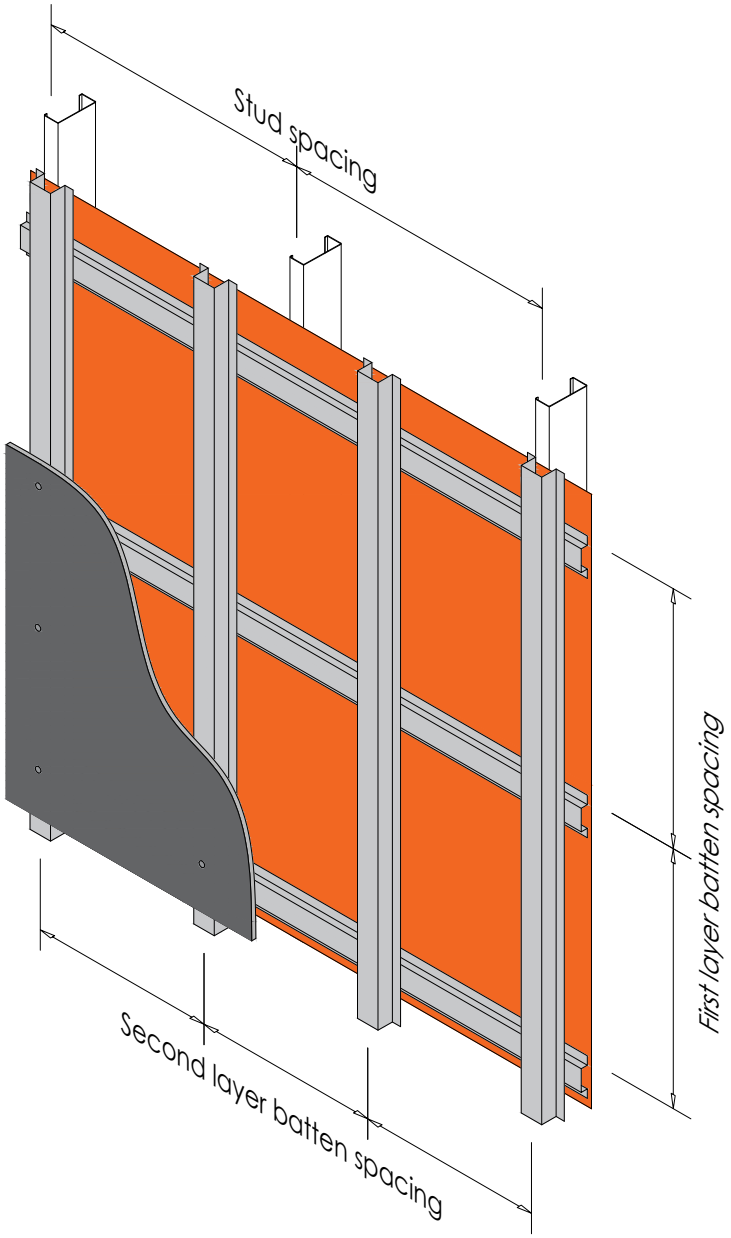


Figure 18 - Typical double layer batten detail

9.6.1 Steel stud (0.75 BMT G550 and 1.2 BMT G2) with metal battens

Table 92 - Steel stud (0.75 BMT G550 and 1.2 BMT G2) and double layer metal battens - General areas in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
Low	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Medium	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
High	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Very High	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Extra high	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screws
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.75 BMT G550 or 1.2 BMT G2
7. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
8. Framing deflection limit: Span/250

Table 93 - Steel stud (0.75 BMT G550 and 1.2 BMT G2) and double layer metal battens - Corner areas in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
Low	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Medium	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
High	600	1150	1200	1200	1200	1200	1200	1200
	450	1150	1200	1200	1200	1200	1200	1200
	400	1150	1200	1200	1200	1200	1200	1200
	300	1150	1200	1200	1200	1200	1200	1200
Very High	600	900	1000	1100	1200	1200	1200	1200
	450	900	1000	1100	1200	1200	1200	1200
	400	900	1000	1100	1200	1200	1200	1200
	300	900	1000	1100	1200	1200	1200	1200
Extra high	600	750	800	900	1000	1000	1000	1000
	450	750	800	900	1000	1100	1200	1200
	400	750	800	900	1000	1100	1200	1200
	300	750	800	900	1000	1100	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screws
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.75 BMT G550 or 1.2 BMT G2
7. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
8. Framing deflection limit: Span/250

Table 94 - Steel stud (0.75 BMT G550 and 1.2 BMT G2) and double layer metal battens - ULS wind load in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
1.00	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
1.25	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
1.50	600	1150	1200	1200	1200	1200	1200	1200
	450	1150	1200	1200	1200	1200	1200	1200
	400	1150	1200	1200	1200	1200	1200	1200
	300	1150	1200	1200	1200	1200	1200	1200
1.75	600	1000	1100	1200	1200	1200	1200	1200
	450	1000	1100	1200	1200	1200	1200	1200
	400	1000	1100	1200	1200	1200	1200	1200
	300	1000	1100	1200	1200	1200	1200	1200
2.00	600	850	950	1050	1150	1150	1150	1150
	450	850	950	1050	1150	1200	1200	1200
	400	850	950	1050	1150	1200	1200	1200
	300	850	950	1050	1150	1200	1200	1200
2.25	600	750	850	950	1050	1050	1050	1050
	450	750	850	950	1050	1150	1200	1200
	400	750	850	950	1050	1150	1200	1200
	300	750	850	950	1050	1150	1200	1200
2.50	600	700	750	850	900	900	900	900
	450	700	750	850	950	1050	1200	1200
	400	700	750	850	950	1050	1200	1200
	300	700	750	850	950	1050	1200	1200
2.75	600	650	700	750	850	850	850	850
	450	650	700	750	850	950	1100	1100
	400	650	700	750	850	950	1100	1200
	300	650	700	750	850	950	1100	1200
3.00	600	550	650	700	750	750	750	750
	450	550	650	700	750	850	1000	1050
	400	550	650	700	750	850	1000	1150
	300	550	650	700	750	850	1000	1150
3.50	600	500	550	600	650	650	650	650
	450	500	550	600	650	750	850	900
	400	500	550	600	650	750	850	1000
	300	500	550	600	650	750	850	1000
4.00	600	400	450	500	550	550	550	550
	450	400	450	500	550	650	750	750
	400	400	450	500	550	650	750	850
	300	400	450	500	550	650	750	850
5.00	600	350	350	400	450	450	450	450
	450	350	350	400	450	500	600	600
	400	350	350	400	450	500	600	700
	300	350	350	400	450	500	600	700
6.00	600	250	300	350	350	350	350	350
	450	250	300	350	350	400	500	500
	400	250	300	350	350	400	500	550
	300	250	300	350	350	400	500	550
7.00	600	250	250	300	300	300	300	300
	450	250	250	300	300	350	400	450
	400	250	250	300	300	350	400	500
	300	250	250	300	300	350	400	500

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screws
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.75 BMT G550 or 1.2 BMT G2
7. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
8. Framing deflection limit: Span/250

9.6.2 Steel stud (0.5 BMT G550) with metal battens

Table 95 - Steel stud (0.5 BMT G550) and double layer metal battens - General areas in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
Low	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Medium	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
High	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Very High	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Extra high	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screws
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.5 BMT G550
7. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
8. Framing deflection limit: Span/250

Table 96 - Steel stud (0.5 BMT G550) and double layer metal battens - Corner areas in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
Low	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Medium	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
High	600	950	950	950	950	950	950	950
	450	950	1050	1150	1200	1200	1200	1200
	400	950	1050	1150	1200	1200	1200	1200
	300	950	1050	1150	1200	1200	1200	1200
Very High	600	750	750	750	750	750	750	750
	450	750	800	900	1000	1000	1000	1000
	400	750	800	900	1000	1150	1150	1150
	300	750	800	900	1000	1150	1200	1200
Extra high	600	600	600	600	600	600	600	600
	450	600	650	750	800	800	800	800
	400	600	650	750	800	950	950	950
	300	600	650	750	800	950	1050	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screws
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.5 BMT G550
7. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
8. Framing deflection limit: Span/250

Table 97 - Steel stud (0.5 BMT G550) and double layer metal battens - ULS wind load in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to steel stud (mm)						
1.00	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
1.25	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
1.50	600	1000	1000	1000	1000	1000	1000	1000
	450	1000	1050	1200	1200	1200	1200	1200
	400	1000	1050	1200	1200	1200	1200	1200
	300	1000	1050	1200	1200	1200	1200	1200
1.75	600	850	850	850	850	850	850	850
	450	850	900	1000	1100	1100	1100	1100
	400	850	900	1000	1100	1200	1200	1200
	300	850	900	1000	1100	1200	1200	1200
2.00	600	750	750	750	750	750	750	750
	450	750	800	900	1000	1000	1000	1000
	400	750	800	900	1000	1100	1100	1100
	300	750	800	900	1000	1100	1200	1200
2.25	600	650	650	650	650	650	650	650
	450	650	700	800	850	850	850	850
	400	650	700	800	850	1000	1000	1000
	300	650	700	800	850	1000	1100	1200
2.50	600	600	600	600	600	600	600	600
	450	600	650	700	800	800	800	800
	400	600	650	700	800	900	900	900
	300	600	650	700	800	900	1000	1200
2.75	600	500	500	500	500	500	500	500
	450	500	550	650	700	700	700	700
	400	500	550	650	700	800	800	800
	300	500	550	650	700	800	900	1050
3.00	600	500	500	500	500	500	500	500
	450	500	500	600	650	650	650	650
	400	500	500	600	650	750	750	750
	300	500	500	600	650	750	850	1000
3.50	600	400	400	400	400	400	400	400
	450	400	450	500	550	550	550	550
	400	400	450	500	550	600	600	600
	300	400	450	500	550	600	700	850
4.00	600	350	350	350	350	350	350	350
	450	350	400	450	500	500	500	500
	400	350	400	450	500	550	550	550
	300	350	400	450	500	550	600	750
5.00	600	300	300	300	300	300	300	300
	450	300	300	350	400	400	400	400
	400	300	300	350	400	450	450	450
	300	300	300	350	400	450	500	600
6.00	600	250	250	250	250	250	250	250
	450	250	250	300	300	300	300	300
	400	250	250	300	300	350	350	350
	300	250	250	300	300	350	400	500
7.00	600	200	200	200	200	200	200	200
	450	200	200	250	250	250	250	250
	400	200	200	250	250	300	300	300
	300	200	200	250	250	300	350	400

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be minimum 2/12-14 self-drilling hex head tek screws
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screw
5. General zone: areas greater than 1200mm from an external building corner
6. Steel stud to be 0.5 BMT G550
7. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
8. Framing deflection limit: Span/250

9.6.3 Timber stud with metal battens

Table 98 - Timber stud and double layer metal battens - General areas in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to timber stud (mm)						
Low	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Medium	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
High	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Very High	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Extra high	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be 2/12-11 self-drilling tek screw with minimum embedment of 30mm in the stud
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screws
5. General zone: areas greater than 1200mm from an external building corner
6. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
7. Timber stud grade to be minimum SG6 grade (timber group J5).
8. Framing deflection limit: Span/250

Table 99 - Timber stud and double layer metal battens - Corner areas in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to timber stud (mm)						
Low	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
Medium	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
High	600	1150	1200	1200	1200	1200	1200	1200
	450	1150	1200	1200	1200	1200	1200	1200
	400	1150	1200	1200	1200	1200	1200	1200
	300	1150	1200	1200	1200	1200	1200	1200
Very High	600	900	1000	1000	1000	1000	1000	1000
	450	900	1000	1100	1200	1200	1200	1200
	400	900	1000	1100	1200	1200	1200	1200
	300	900	1000	1100	1200	1200	1200	1200
Extra high	600	750	800	800	800	800	800	800
	450	750	800	900	1000	1100	1100	1100
	400	750	800	900	1000	1100	1200	1200
	300	750	800	900	1000	1100	1200	1200

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be 2/12-11 self-drilling tek screw with minimum embedment of 30mm in the stud
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screws
5. General zone: areas greater than 1200mm from an external building corner
6. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
7. Timber stud grade to be minimum SG6 grade (timber group J5).
8. Framing deflection limit: Span/250

Table 100 - Timber stud and double layer metal battens - ULS wind load in NZ

AS/NZS 1170.2 ULS wind pressure (kPa)	Stud spacing (mm)	Second layer vertical batten spacing (mm)						
		600	550	500	450	400	350	300
		First layer horizontal batten max spacing when fixed to timber stud (mm)						
1.00	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
1.25	600	1200	1200	1200	1200	1200	1200	1200
	450	1200	1200	1200	1200	1200	1200	1200
	400	1200	1200	1200	1200	1200	1200	1200
	300	1200	1200	1200	1200	1200	1200	1200
1.50	600	1150	1200	1200	1200	1200	1200	1200
	450	1150	1200	1200	1200	1200	1200	1200
	400	1150	1200	1200	1200	1200	1200	1200
	300	1150	1200	1200	1200	1200	1200	1200
1.75	600	1000	1100	1100	1100	1100	1100	1100
	450	1000	1100	1200	1200	1200	1200	1200
	400	1000	1100	1200	1200	1200	1200	1200
	300	1000	1100	1200	1200	1200	1200	1200
2.00	600	850	950	950	950	950	950	950
	450	850	950	1050	1150	1200	1200	1200
	400	850	950	1050	1150	1200	1200	1200
	300	850	950	1050	1150	1200	1200	1200
2.25	600	750	850	850	850	850	850	850
	450	750	850	950	1050	1150	1150	1150
	400	750	850	950	1050	1150	1200	1200
	300	750	850	950	1050	1150	1200	1200
2.50	600	700	750	750	750	750	750	750
	450	700	750	850	950	1050	1050	1050
	400	700	750	850	950	1050	1150	1150
	300	700	750	850	950	1050	1200	1200
2.75	600	650	700	700	700	700	700	700
	450	650	700	750	850	950	950	950
	400	650	700	750	850	950	1050	1050
	300	650	700	750	850	950	1100	1200
3.00	600	550	650	650	650	650	650	650
	450	550	650	700	750	850	850	850
	400	550	650	700	750	850	950	950
	300	550	650	700	750	850	1000	1150
3.50	600	500	550	550	550	550	550	550
	450	500	550	600	650	750	750	750
	400	500	550	600	650	750	800	800
	300	500	550	600	650	750	850	1000
4.00	600	400	450	450	450	450	450	450
	450	400	450	500	550	650	650	650
	400	400	450	500	550	650	700	700
	300	400	450	500	550	650	750	850
5.00	600	350	350	350	350	350	350	350
	450	350	350	400	450	500	500	500
	400	350	350	400	450	500	550	550
	300	350	350	400	450	500	600	700
6.00	600	250	300	300	300	300	300	300
	450	250	300	350	350	400	400	400
	400	250	300	350	350	400	450	450
	300	250	300	350	350	400	500	550
7.00	600	250	250	250	250	250	250	250
	450	250	250	300	300	350	350	350
	400	250	250	300	300	350	400	400
	300	250	250	300	300	350	400	500

Notes to table:

1. Cladding span tables take precedence over the batten spacings contained in this table
2. Max cantilever of batten to be 20% of span
3. Fixing between the batten and stud to be 2/12-11 self-drilling tek screw with minimum embedment of 30mm in the stud
4. Fixing between first and second layer of battens to be minimum 2/12-14 self-drilling hex head tek screws
5. General zone: areas greater than 1200mm from an external building corner
6. Metal batten to be min horizontal G250 Omega 25/40-120 1.15 BMT tophat and vertical G250 Omega 1/50 1.15 BMT tophat
7. Timber stud grade to be minimum SG6 grade (timber group J5).
8. Framing deflection limit: Span/250

10.0 Soffit cladding span tables for Australia

10.1 General

This section of the report contains various span tables for EQUITONE soffit cladding in Australia. The headings for each table define the situations which the span table shall be applied to. For clarity, the terms used in these headings are defined below.

Table 101 - Australian soffit cladding span table heading term definitions

Term	Definition
Autoclaved FC	EQUITONE [tectiva], [lines] & [lunara] panel types (autoclave cured during manufacture)
Air-cured FC	EQUITONE [natura], [natura] PRO, [pictura], [materia], [inspira], [colura] & [textura] panel types (air cured during manufacture)
SFS TUF-S into NVELOPE NV3	Where cladding is fixed to the NVELOPE NV3 hanger clips using two stainless steel 6xL SFS TUF-S fixings embedded into the rear of the cladding panel
AUS non-cyclonic regions only	Non-cyclonic regions of Australia. These are regions A0 to A5, B1 & B2 (excluding in WA) in figure 3.1(A) of AS/NZS 1170.2:2021
AUS all regions	Both cyclonic and non-cyclonic regions of Australia. These are regions A0 to A5, B1, B2, C & D of figure 3.1(A) of AS/NZS 1170.2:2021
General zone	Wall areas located more than 1200mm from an external building corner
Corner zone	Wall areas located less than 1200mm from an external building corner

10.2 Wind Loading

Table 102 below lists the assumed wind loading for the 'N' & 'C' wind classes from AS 4055-2021 that have been calculated using the external pressure coefficients only. It is assumed that the internal pressures will be resisted by the internal lining. If the internal linings of a particular building are insufficient to resist the internal wind pressures, the span tables involving the 'N' & 'C' wind classes contained in this report shall not be used for that particular building.

Table 102 – Soffit cladding wall loading to AS 4055-2021

Wind Class	Ultimate wind speed V_u m/s	External pressure coefficient $C_{p,e}$			Pressure (Any) kPa	Suction (General) kPa	Suction (Corners) kPa
		Pressure (Any)	Suction (General)	Suction (Corners)			
N1	34	0.7	-0.65	-1.3	0.49	-0.45	-0.90
N2	40	0.7	-0.65	-1.3	0.67	-0.62	-1.25
N3/C1	50	0.7	-0.65	-1.3	1.05	-0.98	-1.95
N4/C2	61	0.7	-0.65	-1.3	1.56	-1.45	-2.90
N5/C3	74	0.7	-0.65	-1.3	2.30	-2.14	-4.27
N6/C4	86	0.7	-0.65	-1.3	3.11	-2.88	-5.77

Notes to table:

1. Wind loads are for external pressures only, it is assumed that internal pressures will not be applied to the cladding and they will be resisted by the internal lining.
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding as per note 3 of table 3.5(A) & 3.5(B) of AS 4055-2021
3. General zone: Areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner

10.3 Autoclaved [tectiva], [lines], [lunara]: SFS TUF-S into NVELOPE NV3 – Non-cyclonic regions only

Table 103 – Autoclaved FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – General zone

AS 4055 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	600	600	600
N3/C1	600	550	600	500
N4/C2	600	350	600	300
N5/C3	500	250	550	200
N6/C4	400	200	400	200

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding as per note 3 of table 3.5(A) & 3.5(B) of AS 4055-2021
3. General zone: areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm to the centre of the NV3 hanger clip
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 104 - Autoclaved FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – Corner zone

AS 4055 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	550
N2	600	450	600	400
N3/C1	550	200	600	200
N4/C2	400	200	400	200
N5/C3	250	250	250	250
N6/C4	200	200	200	200

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Soffit cladding wind class is equal to that for adjacent wall cladding as per Note 3 in table 3.3 & 3.4 of AS 4055-2021
3. General zone: areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 105 – Autoclaved FC soffit cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

Vertical spacing of soffit cladding fixing or horizontal rail (mm)	Horizontal spacing of soffit cladding fixing (mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span soffit cladding								
600	0.97	1.07	1.20	1.34	1.43	1.54	1.65	1.77	1.88
550	1.07	1.19	1.33	1.48	1.58	1.70	1.82	1.95	2.07
500	1.20	1.33	1.49	1.65	1.76	1.89	2.02	2.16	2.30
450	1.34	1.48	1.65	1.86	1.99	2.12	2.27	2.43	2.58
400	1.43	1.58	1.76	1.99	2.26	2.42	2.58	2.76	2.93
350	1.54	1.70	1.89	2.12	2.42	2.79	2.98	3.18	3.38
300	1.65	1.82	2.02	2.27	2.58	2.98	3.52	3.75	3.98
250	1.77	1.95	2.16	2.43	2.76	3.18	3.75	4.55	4.81
200	1.88	2.07	2.30	2.58	2.93	3.38	3.98	4.81	6.07
Single span soffit cladding									
600	0.89	0.99	1.12	1.26	1.45	1.69	2.00	2.15	2.15
550	0.97	1.07	1.20	1.36	1.56	1.81	2.15	2.60	2.60
500	1.05	1.17	1.31	1.47	1.69	1.96	2.32	2.83	3.19
450	1.15	1.27	1.42	1.61	1.83	2.13	2.52	3.06	3.89
400	1.26	1.40	1.56	1.76	2.00	2.32	2.75	3.34	4.23
350	1.40	1.54	1.72	1.94	2.21	2.55	3.01	3.66	4.63
300	1.56	1.72	1.92	2.15	2.45	2.83	3.34	4.05	5.12
250	1.76	1.94	2.15	2.42	2.75	3.17	3.73	4.52	5.71
200	2.00	2.21	2.45	2.75	3.12	3.59	4.23	5.12	6.45

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Cladding panel weight assumed to be 18.6 kg/m^2
3. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
4. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
5. Soffit cladding panel deflection limit: Span/100

Table 106 - Autoclaved FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

AS/NZS1170.2 ultimate wind pressure (kPa)	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	550	600	500
1.25	600	450	600	400
1.50	600	350	600	300
1.75	600	250	600	250
2.00	550	200	600	200
2.25	500	200	500	200
2.50	450	200	450	200
2.75	400	250	400	200
3.00	350	250	400	200
3.50	300	300	350	200
4.00	250	250	300	200
5.00	200	200	250	200
6.00	200	200	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Cladding panel weight assumed to be 18.6 kg/m^2
3. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
4. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
5. Soffit cladding panel deflection limit: Span/100

10.4 Air-cured [natura], [natura] PRO, [pictura], [materia], [inspira], [coloura], [textura]: SFS TUF-S into NVELOPE NV3 – Non-cyclonic regions only

Table 107 – Air-cured FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – General zone

AS 4055 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	600	600	600
N2	600	550	600	600
N3/C1	600	400	600	500
N4/C2	600	250	600	300
N5/C3	500	200	500	200
N6/C4	350	250	400	200

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding as per note 3 of table 3.5(A) & 3.5(B) of AS 4055-2021
3. General zone: areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 108 - Air-cured FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only – Corner zone

AS 4055 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
N1	600	400	600	500
N2	600	300	600	350
N3/C1	500	250	550	200
N4/C2	350	250	400	200
N5/C3	250	200	250	200
N6/C4	-	-	200	200

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding as per note 3 of table 3.5(A) & 3.5(B) of AS 4055-2021
3. General zone: areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 109 – Air-cured FC soffit cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

Vertical spacing of soffit cladding fixing or horizontal rail (mm)	Horizontal spacing of soffit cladding fixing (mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span soffit cladding								
600	0.59	0.66	0.75	0.85	0.99	1.16	1.39	1.65	1.75
550	0.66	0.74	0.84	0.95	1.10	1.29	1.54	1.82	1.93
500	0.75	0.84	0.94	1.07	1.23	1.44	1.71	2.02	2.15
450	0.85	0.95	1.07	1.21	1.39	1.62	1.93	2.27	2.41
400	0.99	1.10	1.23	1.39	1.59	1.85	2.20	2.58	2.74
350	1.16	1.29	1.44	1.62	1.85	2.15	2.54	2.98	3.16
300	1.39	1.54	1.71	1.93	2.20	2.54	3.00	3.52	3.73
250	1.65	1.82	2.02	2.27	2.58	2.98	3.52	4.26	4.52
200	1.75	1.93	2.15	2.41	2.74	3.16	3.73	4.52	5.70
Single span soffit cladding									
600	0.83	0.92	1.04	1.18	1.35	1.57	1.87	2.29	2.31
550	0.90	1.00	1.12	1.27	1.45	1.69	2.01	2.46	2.79
500	0.98	1.08	1.22	1.37	1.57	1.83	2.17	2.65	3.37
450	1.07	1.18	1.33	1.50	1.71	1.99	2.35	2.87	3.64
400	1.18	1.30	1.45	1.64	1.87	2.17	2.57	3.13	3.96
350	1.30	1.44	1.61	1.81	2.06	2.39	2.82	3.43	4.34
300	1.45	1.61	1.79	2.01	2.29	2.65	3.13	3.80	4.80
250	1.64	1.81	2.01	2.26	2.57	2.97	3.50	4.24	5.36
200	1.87	2.06	2.29	2.57	2.92	3.37	3.96	4.80	6.05

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Cladding panel weight assumed to be 18.6 kg/m^2
3. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
4. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
5. Soffit cladding panel deflection limit: Span/100

Table 110 - Air-cured FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in AUS non-cyclonic regions only

AS/NZS1170.2 ultimate wind pressure (kPa)	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	350	600	450
1.25	600	300	600	350
1.50	600	250	600	250
1.75	600	200	600	200
2.00	500	250	550	200
2.25	450	250	500	200
2.50	400	250	450	200
2.75	350	250	400	200
3.00	350	200	350	200
3.50	300	250	300	200
4.00	250	250	250	250
5.00	200	200	200	200
6.00	-	-	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Cladding panel weight assumed to be 18.6 kg/m^2
3. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
4. Batten to be NVELOPE NV3 soffit cladding fixing system
5. Soffit cladding panel deflection limit: Span/100

11.0 Soffit cladding span tables for New Zealand

11.1 General

This section of the report contains various span tables for EQUITONE soffit cladding in New Zealand. The headings for each table define the situations which the span table shall be applied to. For clarity, the terms used in these headings are defined below.

Table 111 – New Zealand soffit cladding span table heading term definitions

Term	Definition
Autoclaved FC	EQUITONE [tectiva], [lines] & [lunara] panel types (autoclave cured during manufacture)
Air-cured FC	EQUITONE [natura], [natura] PRO, [pictura], [materia], [inspira] & [colure] panel types (air cured during manufacture)
SFS TUF-S into NVELOPE NV3	Where cladding is fixed to the NVELOPE NV3 hanger clips using two stainless steel 6xL SFS TUF-S fixings embedded into the rear of the cladding panel
In NZ	All regions of New Zealand. These are regions A & W in figure 5.1 of NZS 3604:2011
General zone	Wall areas located more than 1200mm from an external building corner
Corner zone	Wall areas located less than 1200mm from an external building corner

11.2 Wind Loading

Table 112 below lists the assumed wind loading for the wind classes from NZS 3604:2011 that have been calculated using the external pressure coefficients only. It is assumed that the internal pressures will be resisted by the internal lining. If the internal linings of a particular building are insufficient to resist the internal wind pressures, the span tables involving the NZS 3604:2011 wind classes contained in this report shall not be used for that particular building.

Table 112 – Soffit cladding wind loading to NZS 3604:2011

Wind Class	Ultimate wind speed V_U m/s	External pressure coefficient $C_{p,e}$			Pressure (Any) kPa	Suction (General) kPa	Suction (Corners) kPa
		Pressure (Any)	Suction (General)	Suction (Corners)			
Low	32	0.7	-0.65	-1.3	0.43	-0.40	-0.80
Medium	37	0.7	-0.65	-1.3	0.57	-0.53	-1.07
High	44	0.7	-0.65	-1.3	0.81	-0.76	-1.51
Very high	50	0.7	-0.65	-1.3	1.05	-0.98	-1.95
Extra high	55	0.7	-0.65	-1.3	1.27	-1.18	-2.36

Notes to table:

1. Wind loads have been determined for external pressures only, it is assumed that internal pressures will not be applied to the cladding and they will be resisted by the internal lining.
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. General zone: Areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner

11.3 Autoclaved [tectiva], [lines], [lunara]: SFS TUF-S into NVELOPE NV3

Table 113 - Autoclaved FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – General zone

NZ 3604 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	600	600	600
High	600	600	600	600
Very high	600	550	600	500
Extra high	600	450	600	400

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. General zone: Areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 114 - Autoclaved FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – Corner zone

NZ 3604 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	500	600	450
High	600	300	600	250
Very high	550	200	550	200
Extra high	450	200	450	200

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. General zone: Areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 115 - Autoclaved FC soffit cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in NZ

Vertical spacing of soffit cladding fixing or horizontal rail (mm)	Horizontal spacing of soffit cladding fixing spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span soffit cladding								
600	0.92	1.02	1.15	1.28	1.37	1.47	1.57	1.69	1.79
550	1.02	1.13	1.27	1.41	1.51	1.62	1.74	1.86	1.98
500	1.15	1.27	1.42	1.58	1.68	1.80	1.93	2.07	2.20
450	1.28	1.41	1.58	1.78	1.90	2.03	2.17	2.32	2.46
400	1.37	1.51	1.68	1.90	2.16	2.31	2.47	2.64	2.80
350	1.47	1.62	1.80	2.03	2.31	2.67	2.85	3.05	3.23
300	1.57	1.74	1.93	2.17	2.47	2.85	3.37	3.59	3.81
250	1.69	1.86	2.07	2.32	2.64	3.05	3.59	4.35	4.61
200	1.79	1.98	2.20	2.46	2.80	3.23	3.81	4.61	5.82
Single span soffit cladding									
600	0.85	0.94	1.06	1.20	1.38	1.61	1.91	2.05	2.05
550	0.92	1.02	1.15	1.30	1.49	1.73	2.06	2.49	2.49
500	1.00	1.11	1.24	1.41	1.61	1.87	2.22	2.71	3.05
450	1.09	1.21	1.36	1.53	1.75	2.03	2.41	2.93	3.72
400	1.20	1.33	1.49	1.68	1.91	2.22	2.62	3.19	4.05
350	1.33	1.47	1.64	1.85	2.11	2.44	2.88	3.50	4.43
300	1.49	1.64	1.83	2.06	2.34	2.71	3.19	3.88	4.90
250	1.68	1.85	2.06	2.31	2.62	3.03	3.57	4.33	5.47
200	1.91	2.11	2.34	2.62	2.98	3.44	4.05	4.90	6.18

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. Cladding panel weight assumed to be 18.6 kg/m^2
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
6. Soffit cladding panel deflection limit: Span/100

Table 116 - Autoclaved FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	550	600	450
1.25	600	450	600	350
1.50	600	300	600	250
1.75	600	200	600	200
2.00	500	250	550	200
2.25	450	250	500	200
2.50	400	250	450	200
2.75	400	200	400	200
3.00	350	250	350	250
3.50	300	250	300	250
4.00	250	250	300	200
5.00	200	200	200	200
6.00	-	-	200	200
7.00	-	-	-	-

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. Cladding panel weight assumed to be 18.6 kg/m^2
4. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
5. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
6. Soffit cladding panel deflection limit: Span/100

11.4 Air-cured [natura], [natura] PRO, [pictura], [materia], [inspira], [coloura], [textura]: SFS TUF-S into NVELOPE NV3

Table 117 - Air-cured FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – General zone

NZ 3604 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	600	600	600
Medium	600	550	600	600
High	600	450	600	600
Very high	600	350	600	450
Extra high	600	300	600	350

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. General zone: Areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 118 - Air-cured FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ – Corner zone

NZ 3604 Wind class	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
Low	600	400	600	550
Medium	600	300	600	400
High	600	250	600	250
Very high	500	200	550	200
Extra high	400	250	450	200

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Wind pressure applied to soffit cladding is assumed to be equal to that for adjacent wall cladding
3. General zone: Areas greater than 1200mm from an external building corner
4. Corner zone: Areas less than 1200mm from an external building corner
5. Cladding panel weight assumed to be 18.6 kg/m^2
6. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
7. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
8. Soffit cladding panel deflection limit: Span/100

Table 119 - Air-cured FC soffit cladding: Max ultimate wind pressure for SFS TUF-S into NVELOPE NV3 in NZ

Vertical spacing of soffit cladding fixing or horizontal rail (mm)	Horizontal spacing of soffit cladding fixing spacing(mm)								
	600	550	500	450	400	350	300	250	200
	Max AS/NZS1170.2 ultimate wind pressure (kPa)								
	Multiple span soffit cladding								
600	0.51	0.58	0.66	0.76	0.88	1.04	1.25	1.54	1.67
550	0.58	0.65	0.74	0.85	0.98	1.15	1.38	1.70	1.85
500	0.66	0.74	0.84	0.95	1.10	1.29	1.54	1.89	2.05
450	0.76	0.85	0.95	1.08	1.25	1.46	1.74	2.13	2.30
400	0.88	0.98	1.10	1.25	1.43	1.67	1.98	2.42	2.62
350	1.04	1.15	1.29	1.46	1.67	1.93	2.29	2.80	3.03
300	1.25	1.38	1.54	1.74	1.98	2.29	2.71	3.30	3.57
250	1.54	1.70	1.89	2.13	2.42	2.80	3.30	4.00	4.32
200	1.67	1.85	2.05	2.30	2.62	3.03	3.57	4.32	5.46
Single span soffit cladding									
600	0.78	0.88	0.98	1.12	1.29	1.50	1.79	2.19	2.20
550	0.85	0.95	1.06	1.21	1.39	1.62	1.92	2.35	2.67
500	0.93	1.03	1.16	1.31	1.50	1.75	2.07	2.53	3.22
450	1.02	1.13	1.26	1.43	1.63	1.90	2.25	2.74	3.48
400	1.12	1.24	1.39	1.56	1.79	2.07	2.46	2.99	3.79
350	1.24	1.37	1.53	1.73	1.97	2.28	2.70	3.28	4.16
300	1.39	1.53	1.71	1.92	2.19	2.53	2.99	3.63	4.60
250	1.56	1.73	1.92	2.16	2.46	2.84	3.35	4.06	5.13
200	1.79	1.97	2.19	2.46	2.79	3.22	3.79	4.60	5.80

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Cladding panel weight assumed to be 18.6 kg/m^2
3. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
4. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
5. Soffit cladding panel deflection limit: Span/100

Table 120 - Air-cured FC soffit cladding: Max fixing spacing for SFS TUF-S into NVELOPE NV3 in NZ

AS/NZS1170.2 ultimate wind pressure (kPa)	Max soffit cladding fixing spacing (mm)			
	Multiple span soffit cladding		Single span soffit cladding	
	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing	Max nominal horizontal fixing spacing	Max nominal vertical fixing spacing
1.00	600	350	600	450
1.25	600	250	600	300
1.50	600	250	600	250
1.75	550	200	600	200
2.00	500	200	500	200
2.25	450	200	450	200
2.50	400	200	400	200
2.75	350	250	400	200
3.00	350	200	350	200
3.50	300	200	300	200
4.00	250	250	250	250
5.00	200	200	200	200
6.00	-	-	-	-
7.00	-	-	-	-

Notes to table:

1. Fixing between the soffit cladding panel and NV3 hanger clip to be 2/SFS TUF-S-6xL
2. Cladding panel weight assumed to be 18.6 kg/m^2
3. Fixing edge distance to be a minimum of 50mm and a maximum of 100mm
4. Batten to be NVELOPE NV3 soffit cladding fixing system to manufacturers specification
5. Soffit cladding panel deflection limit: Span/100

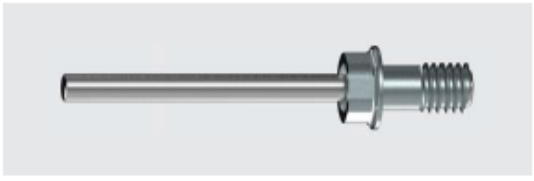
12.0 APPENDIX A – Fastener Data Sheets

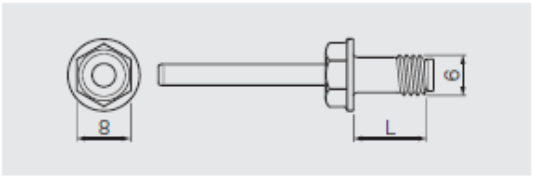
12.1 SFS TUF-S 6xL Test Data Sheet

SFS

TUF-S-6xL

Eternit Equitone Tectiva



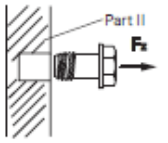


Specification TUF-S
Mandrel: Carbon steel zinced
Sleeve: Stainless steel A4, Material number 1.4401, AISI 316

Predrilling instructions
Ø panel = 6 mm to create with special SFS drill bit
Ø bracket = 6.5 - 7.0 mm
TUF-S-6xL = Embedment + Bracket

Pull-out load F_z

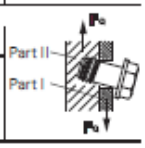
Part II (blind side) Material	t_B	Embedment	TUF-S per bracket	TUF-S distance	Test results (N) $F_{z,avg}$	s
Equitone Tectiva	8 mm	5 mm	2x	20 mm	1159	106
	8 mm	5 mm	2x	30 mm	1296	94
	8 mm	5.5 mm	2x	20 mm	1414	59
	8 mm	5.5 mm	2x	40 mm	1612	189



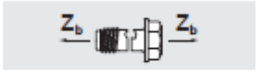
Remarks: Support ring-Ø 135 mm

Shear load F_Q

Part II (blind side) Material	t_B	Embedment	Part I (setting side) Grade	t_I	L	TUF-S per bracket	TUF-S distance	Test results (N) $F_{Q,avg}$	s
Equitone Tectiva	8 mm	5 mm	AlMg3	4 mm	9 mm	2x	20 mm	4600	250
	8 mm	5.5 mm	AlMg3	3.5 mm	9 mm	2x	20 mm	4923	249



Remarks: $F_{Q,avg}$ is measured after a bracket displacement of max 3 mm



Tensile breaking load Z_b (N)
$Z_b \geq 8{,}780$ N

Shear breaking load Q_b (N)
$Q_b \geq 6{,}530$ N

www.tuf-s.biz

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9435 Heerbrugg
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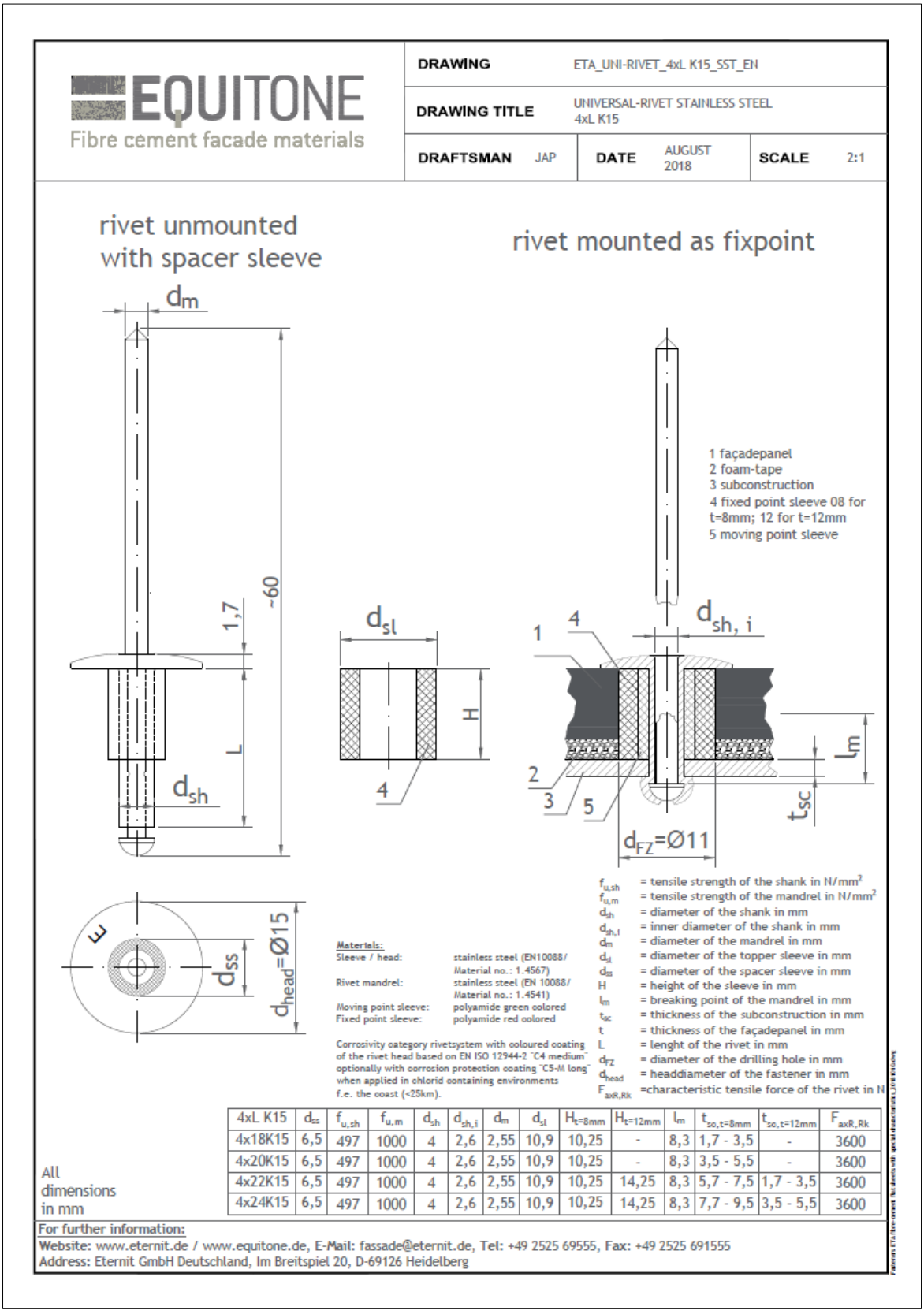
Figure 19 –SFS TUF-S data sheet and pullout of EQUITONE Tectiva panel test data

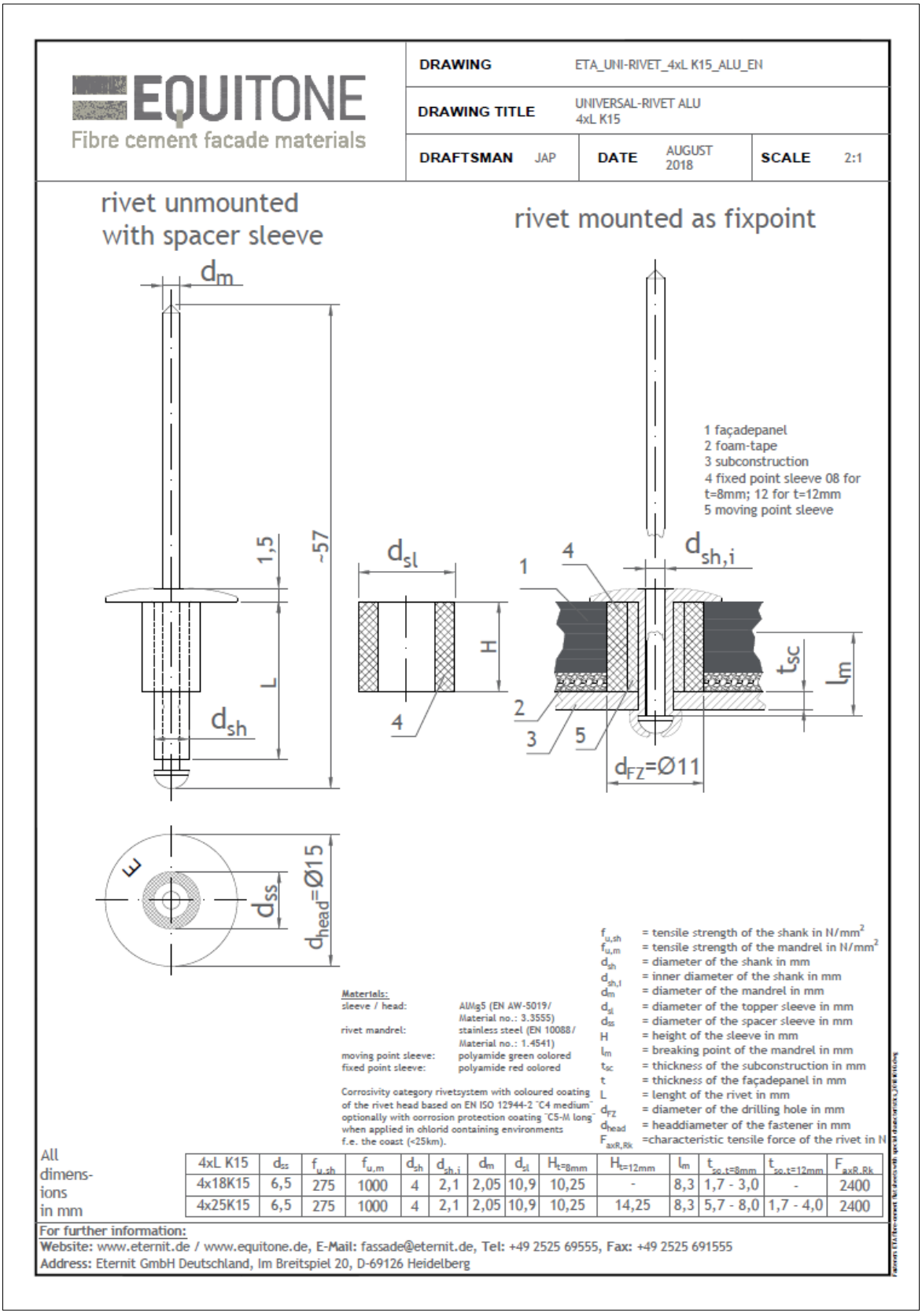
12.2 EQUITONE stainless UNI Rivet 4xL K15 Data Sheet



4xL K15	d_{ss}	$f_{u,sh}$	$f_{u,m}$	d_{sh}	$d_{sh,i}$	d_m	d_{sl}	$H_{t=8mm}$	$H_{t=12mm}$	l_m	$t_{so,t=8mm}$	$t_{so,t=12mm}$	$F_{axR,Rk}$
4x18K15	6,5	497	1000	4	2,6	2,55	10,9	10,25	-	8,3	1,7 - 3,5	-	3600
4x20K15	6,5	497	1000	4	2,6	2,55	10,9	10,25	-	8,3	3,5 - 5,5	-	3600
4x22K15	6,5	497	1000	4	2,6	2,55	10,9	10,25	14,25	8,3	5,7 - 7,5	1,7 - 3,5	3600
4x24K15	6,5	497	1000	4	2,6	2,55	10,9	10,25	14,25	8,3	7,7 - 9,5	3,5 - 5,5	3600

Figure 20 – EQUITONE stainless UNI Rivet 4xL K15 Data Sheet

12.3 EQUITONE aluminium UNI Rivet 4xL K15 Data Sheet



4xL K15	d_{ss}	$f_{u,sh}$	$f_{u,m}$	d_{sh}	$d_{sh,i}$	d_m	d_{sl}	$H_{t=8mm}$	$H_{t=12mm}$	l_m	$t_{sc,t=8mm}$	$t_{sc,t=12mm}$	$F_{axR,Rk}$
4x18K15	6,5	275	1000	4	2,1	2,05	10,9	10,25	-	8,3	1,7 - 3,0	-	2400
4x25K15	6,5	275	1000	4	2,1	2,05	10,9	10,25	14,25	8,3	5,7 - 8,0	1,7 - 4,0	2400

Figure 21 – EQUITONE aluminium UNI Rivet 4xL K15 Data Sheet

12.4 EQUITONE stainless UNI Screw 5,5xL K15 Data Sheet

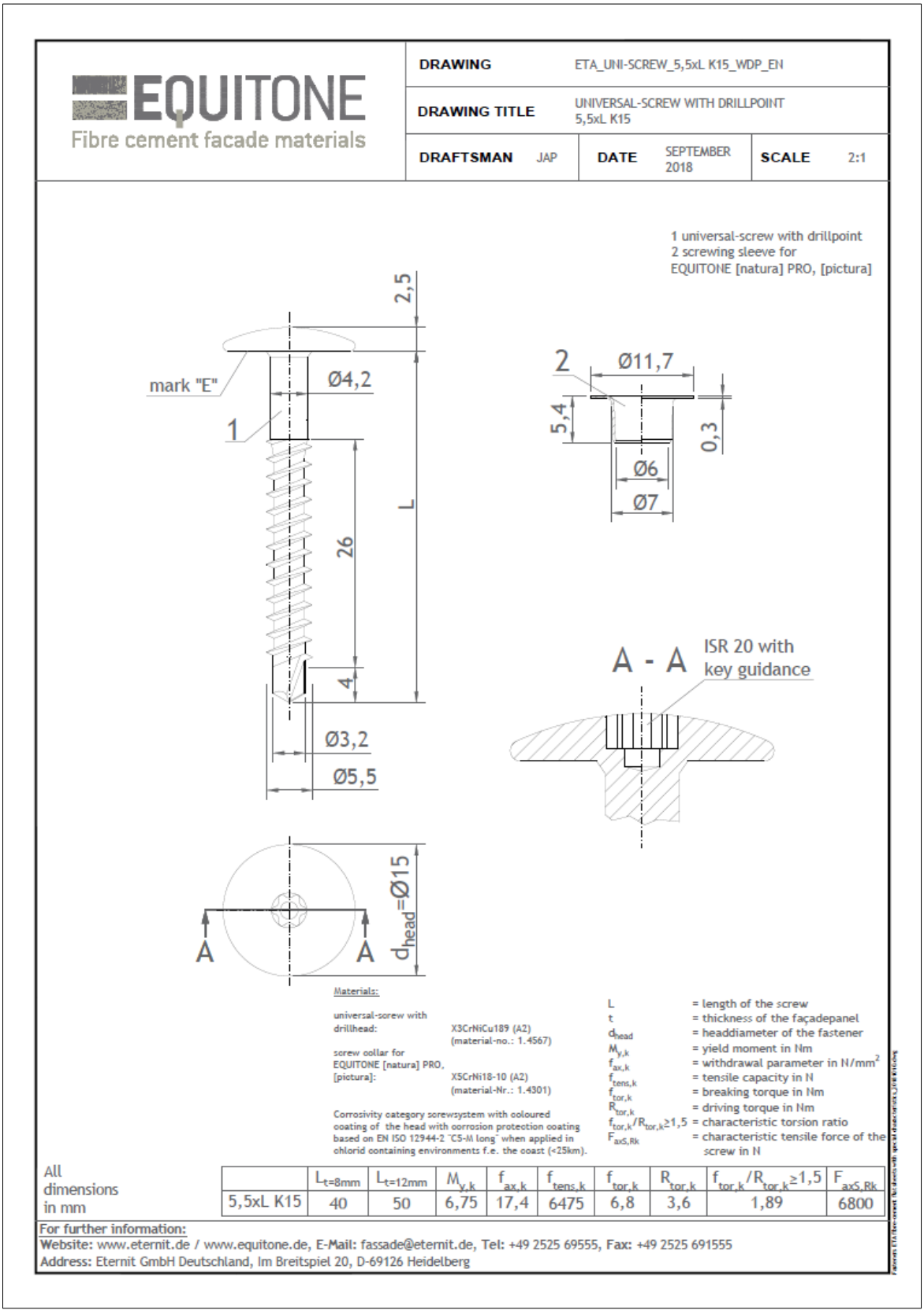


Figure 22 – EQUITONE stainless UNI Screw 5,5xL K15 Data Sheet

12.5 EQUITONE Metal Screw Data Sheet

EQUITONE
Fibre cement facade materials

EQUITONE UNI-Metal-Screw Material Information Sheet

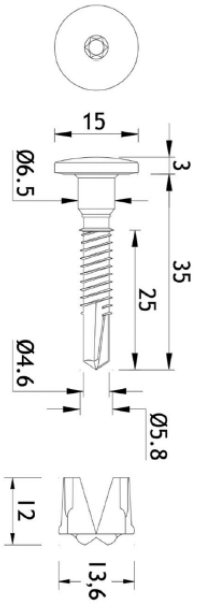
Product description

EQUITONE fibre-cement façade panels may be face fixed to a metal supporting frame using the EQUITONE UNI-Metal-Screw.

The EQUITONE UNI-Metal-Screw is suitable for securing any 8 mm thick EQUITONE panel as well as EQUITONE [lines], to facades, soffits, or ceilings.

1. Technical Characteristics

With its unique design, the EQUITONE UNI-Metal-Screw offers a fixing solution that allows for three-dimensional movement, ensuring stress-free panel fixing. The screw comes with a pre-assembled centring sleeve, eliminating the need for predrilling the metal framing and ensuring the screw is perfectly centred in the panel fixing hole. Its special thread design prevents the fastener from unscrewing under expansion and contraction in time. Additionally, the screw features a special Torx T25W recess.



EQUITONE UNI-Metal-Screw is available for:
EQUITONE [lines] and all 8mm thick EQUITONE panels

UNI-Metal-Screw Dimensions	
Diameter	5.8 mm
Length (L)	35 mm
Head diameter	15 mm

UNI-Metal-Screw Materials	
Body	stainless steel A2 (AISI 304) material number 1.4301 (EN 10088-1)
Drill point	carbon steel

Tensile breaking load: 9700 N
Shear breaking load: 9100 N
Characteristic head pull through resistance: 2000 N

Pull-out values from framing:

Framing Material	Tensile strength	Base Metal Thickness	Pull-out capacity	Notes
Steel G250	320 N/mm2	1.1 mm	1593 N	Min value as tested in accordance with AS/NZS 4600:2018 (based on 30 tests)
Steel G300	340 N/mm2	1.15 mm	1923 N	Min value as tested in accordance with AS/NZS 4600:2018 (based on 15 tests)
Aluminium	215 N/mm²	1.8 mm	1240 N	Characteristic value in accordance with EN 1382
	215 N/mm²	2.0 mm	1380 N	
	215 N/mm²	3.0 mm	1610 N	

1

EQUITONE-MIS-UNI-Metal-Screw-en-ANZ-202407

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Figure 23 - EQUITONE UNI Metal Screw data sheet

12.6 EQUITONE Metal Screw Test Data

MAHAFFEY ASSOCIATES PTY LTD
Unit 9/108-110 Percival Rd (PO Box 2162) Smithfield NSW 2164
Ph: (02) 9756 4003 Email: admin@mahaffey.com.au
ABN: 90 001 629 036

Client:	Etex Group
Job Number:	20620
Project:	Screw Pull-Out Assessment
Product Name:	See Below
Product Size:	See Below
Screw Type:	Etex CP Screw SX4-5.8
Test Method:	Part F4 of AS/NZ 4600:2018
Test Type:	Tophat Screw Pull-Out Test
Test Date:	22/05/2024

Methodology:

Specimens were prepared and supplied by the client. Each specimen was tested in the UTM in tensile until failure, as shown in photos below. All specimens failed within 30 to 240 seconds as required in AS 4600:2018 part F4.
The load vs deflection graph was recorded electronically for each set of specimens. Results can be found in the next pages.

David Whilshurst
Approved Signatory
Technical Director
Date of Issue: 24/05/2024

Figure 24 – Mahaffey Associates Test report 20620 - page 1 of 11

Results

1- BMT 1.1 mm G250 Tophat

A - Impact Driver used to drive the screw into the tophat

Test No.	*Specimen ID (Graph)*	*Impact Driver used to install the screw*		
		Max. Load (N)	*Failure Profile*	*Notes*
1	1	2218.2	Screw Pull out	Test speed = 3 mm/min.
2	2	2036.2	Screw Pull out	
3	3	2055.4	Screw Pull out	Test speed = 4 mm/min.
4	4	1987.3	Screw Pull out	
5	5	2160.3	Screw Pull out	
6	6	2145.7	Screw Pull out	
7	7	2056.6	Screw Pull out	
8	8	2030.7	Screw Pull out	
9	9	1975.2	Screw Pull out	
10	11	2088.8	Screw Pull out	
11	13	2098.6	Screw Pull out	
12	14	2012.0	Screw Pull out	
13	15	1939.6	Screw Pull out	
14	16	1873.5	Screw Pull out	
15	17	2134.8	Screw Pull out	
16	18	1824.2	Screw Pull out	
17	19	1865.9	Screw Pull out	
18	20	1724.6	Screw Pull out	
19	21	1810.7	Screw Pull out	
20	22	1870.6	Screw Pull out	

Max. Value	2218.2
Min. Value	1724.6
Average	1995.4
Standard Deviation	133.0

Figure 25 - Mahaffey Associates Test report 20620 - page 2 of 11

B - Drill Driver used to drive the screw into the tophat

Test No.	*Specimen ID (Graph)*	*Drill Driver used to install the screw*		
		Max. Load (N)	*Failure Profile*	*Notes*
1	10	1776.4	Screw Pull out	Test Speed = 4 mm/min.
2	12	1593.8	Screw Pull out	
3	23	1641.7	Screw Pull out	
4	24	1691.2	Screw Pull out	
5	25	1808.8	Screw Pull out	
6	26	1735.0	Screw Pull out	
7	27	1878.7	Screw Pull out	
8	28	1897.4	Screw Pull out	
9	29	1815.4	Screw Pull out	
10	30	1880.3	Screw Pull out	
Max. Value		1897.4		
Min. Value		1593.8		
Average		1771.9		
Standard Deviation		104.7		

All Samples Results from A & B above	**Max. Value**	2218.2
	Min. Value	1593.8
	Average	1920.9
	Standard Deviation	162.8

Figure 26 - Mahaffey Associates Test report 20620 - page 3 of 11

2- BMT 1.15 mm G300 Tophat

A - Impact Driver used to drive the screw into the tophat

Test No.	*Specimen ID (Graph)*	*Impact Driver used to install the screw*		
		Max. Load (N)	*Failure Profile*	*Notes*
1	2	2278.2	Screw Pull out	Test Speed = 4 mm/min.
2	3	2290.4	Screw Pull out	
3	4	1923.6	Screw Pull out	
4	5	2083.5	Screw Pull out	
5	6	2400.6	Screw Pull out	
6	7	2387.3	Screw Pull out	
7	8	2448.5	Screw Pull out	
Max. Value		2448.5		
Min. Value		1923.6		
Average		2258.9		
STD		190.2		

B - Drill Driver used to drive the screw into the tophat

Test No.	*Specimen ID (Graph)*	*Drill Driver used to install the screw*		
		Max. Load (N)	*Failure Profile*	*Notes*
1	1	2002.9	Screw Pull out	Test Speed = 4 mm/min.
2	9	2183.5	Screw Pull out	
3	10	2200.1	Screw Pull out	
4	11	2099.9	Screw Pull out	
5	12	2117.5	Screw Pull out	
6	13	2132.9	Screw Pull out	
7	14	2057.3	Screw Pull out	
8	15	2236.0	Screw Pull out	
Max. Value		2236.0		
Min. Value		2057.3		
Average		2146.7		
Standard Deviation		62.5		

All Samples Results from A & B above	**Max. Value**	2448.5
	Min. Value	1923.6
	Average	2189.5
	Standard Deviation	151.6

Figure 27 - Mahaffey Associates Test report 20620 - page 4 of 11

3- BMT 0.75 mm G300 Tophat

A - Impact Driver used to drive the screw into the tophat

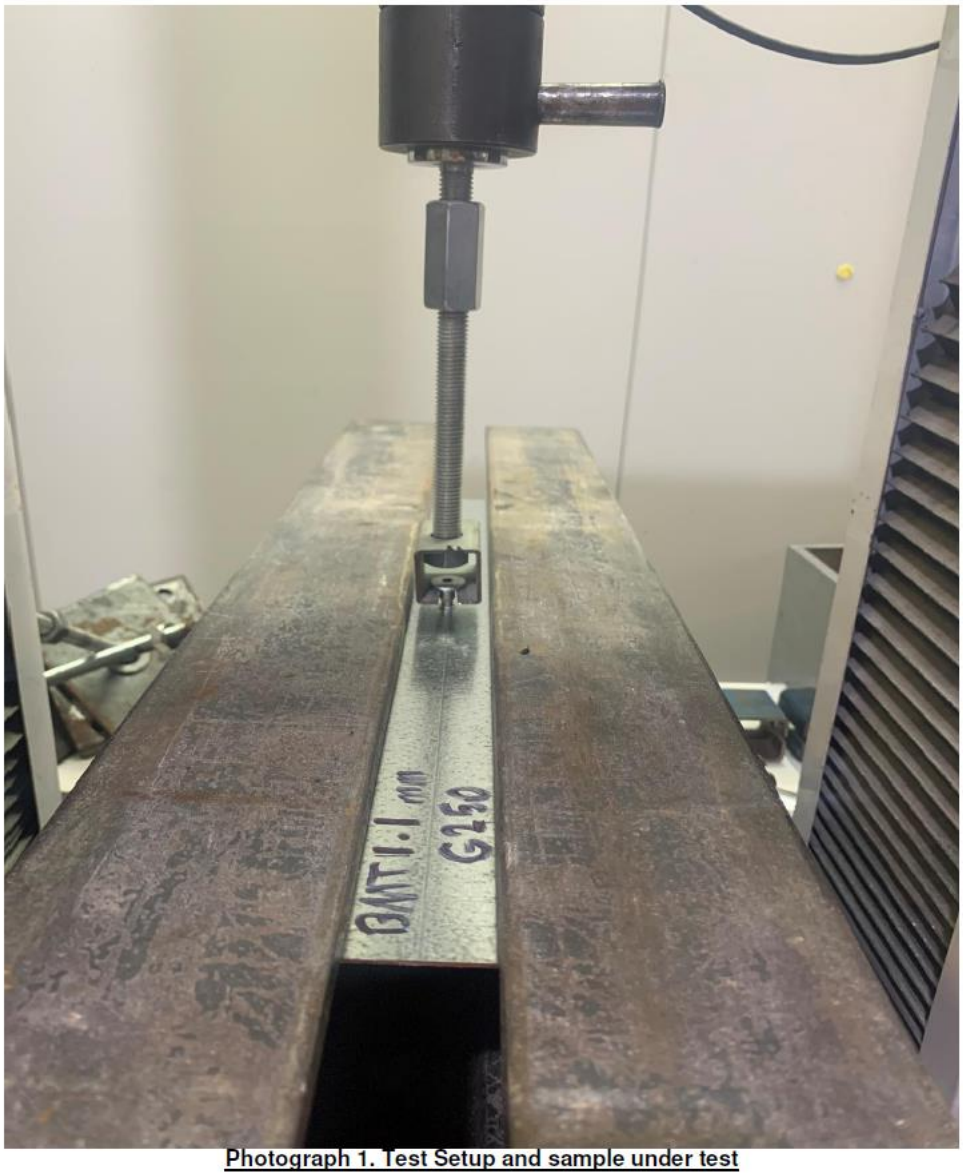
Test No.	*Specimen ID (Graph)*	*Impact Driver used to install the screw*		
		Max. Load (N)	*Failure Profile*	*Notes*
1	-	1237.4	Screw Pull out	Test Speed = 2 mm/min.
2	1	1036.4	Screw Pull out	
3	2	860.6	Screw Pull out	
4	5	923.7	Screw Pull out	
5	6	1177.6	Screw Pull out	
6	7	1187.3	Screw Pull out	
7	10	1201.8	Screw Pull out	
8	11	903.9	Screw Pull out	
Max. Value		1237.4		
Min. Value		860.6		
Average		1066.1		
Standard Deviation		153.3		

B - Drill Driver used to drive the screw into the tophat

Test No.	*Specimen ID (Graph)*	*Drill Driver used to install the screw*		
		Max. Load (N)	*Failure Profile*	*Notes*
1	-	1318.8	Screw Pull out	Test Speed = 2 mm/min.
2	3	1175.5	Screw Pull out	
3	4	940.1	Screw Pull out	
4	8	998.2	Screw Pull out	
5	9	1114.0	Screw Pull out	
6	12	1155.5	Screw Pull out	
7	13	978.0	Screw Pull out	
Max. Value		1318.8		
Min. Value		940.1		
Average		1097.2		
Standard Deviation		133.9		

All Samples Results from A & B above	**Max. Value**	1318.8
	Min. Value	860.6
	Average	1080.6
	Standard Deviation	140.4

Figure 28 - Mahaffey Associates Test report 20620 - page 5 of 11

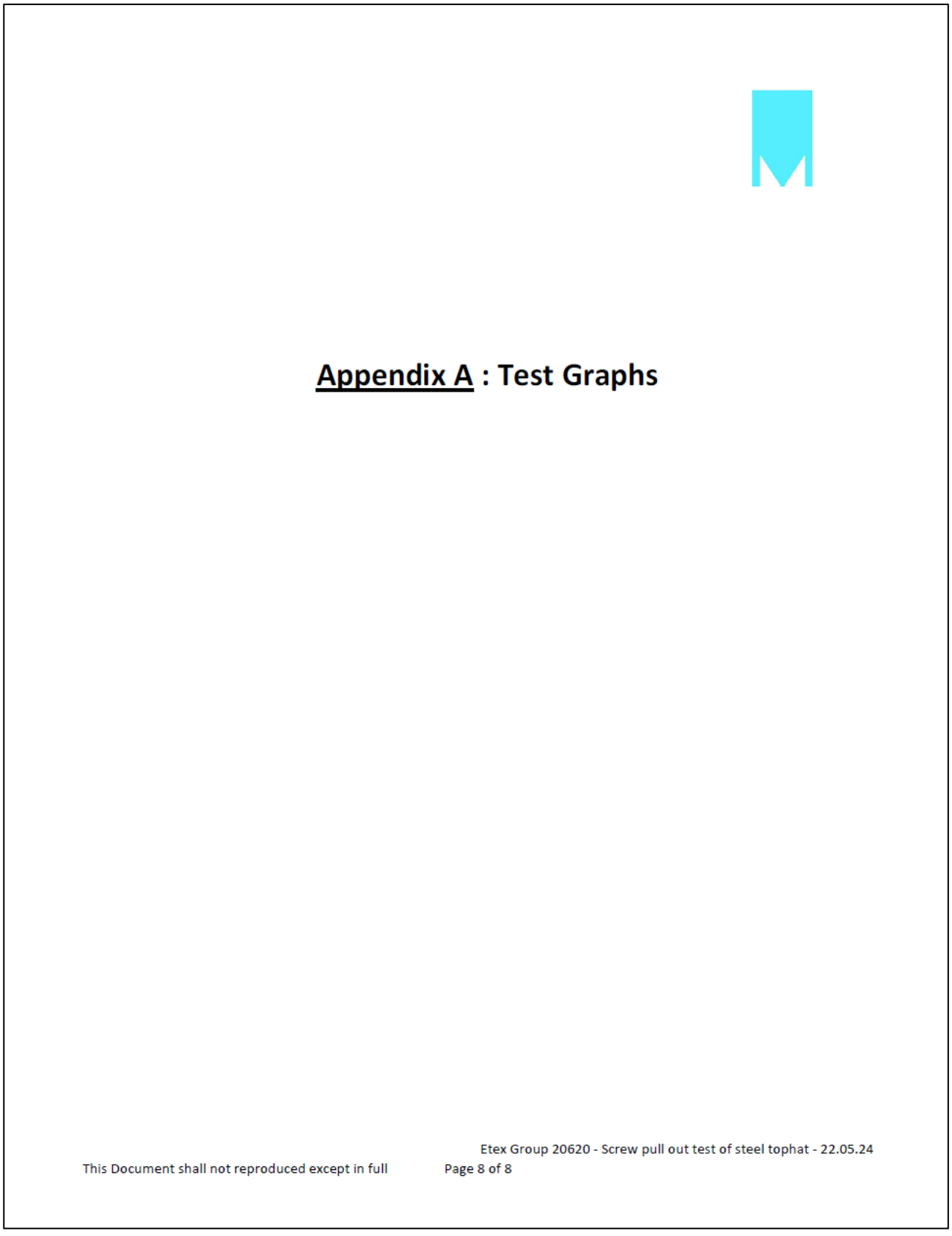


Photograph 1. Test Setup and sample under test

Figure 29 - Mahaffey Associates Test report 20620 - page 6 of 11

Photograph 2. Typical Sample after test

Figure 30 - Mahaffey Associates Test report 20620 - page 7 of 11



Appendix A : Test Graphs

Figure 31 - Mahaffey Associates Test report 20620 - page 8 of 11

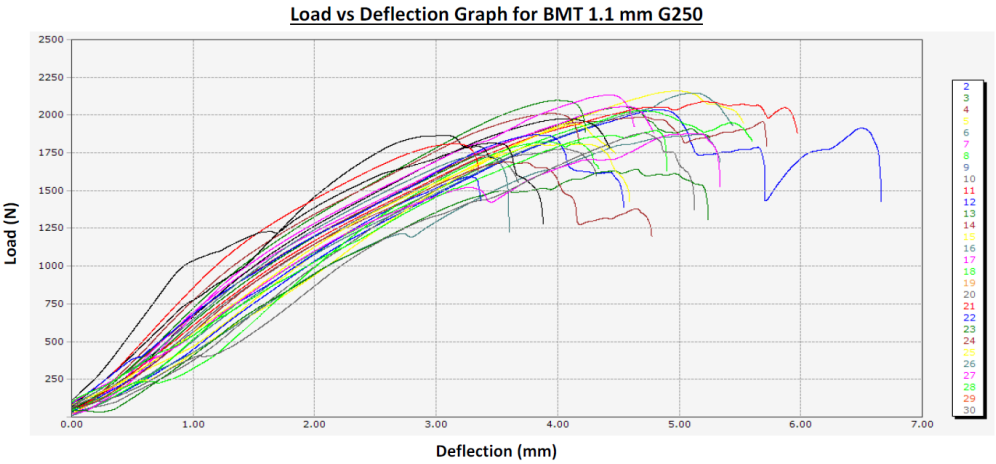


Figure 32 - Mahaffey Associates Test report 20620 - page 9 of 11

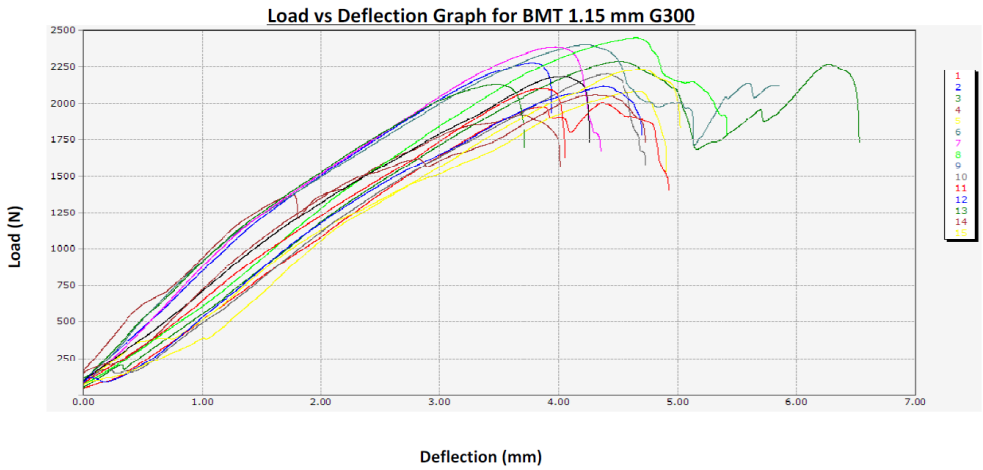


Figure 33 - Mahaffey Associates Test report 20620 - page 10 of 11

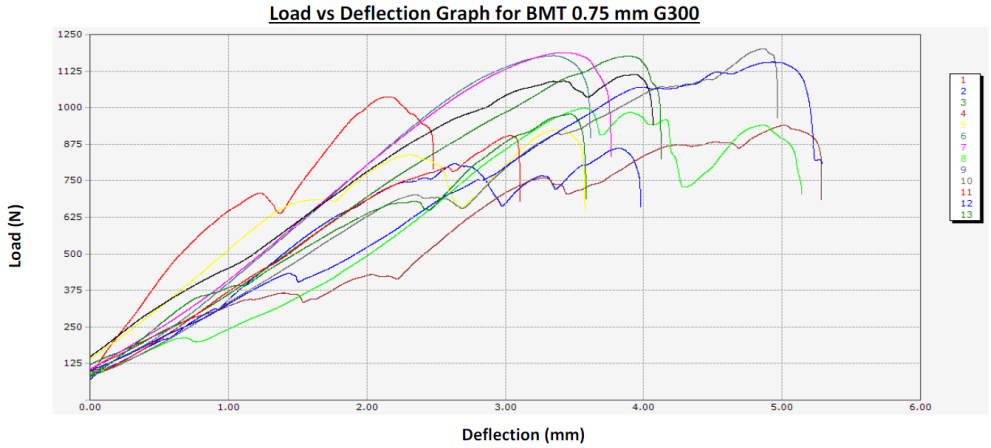


Figure 34 - Mahaffey Associates Test report 20620 - page 11 of 11

Table 121 - UNI metal screw in 1.1mm BMT G250 tophat drill driver AS4600 test analysis

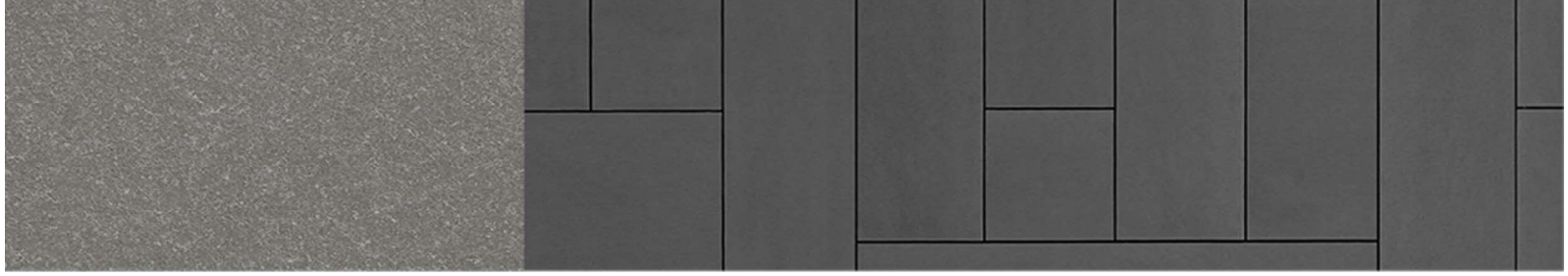
Laboratory	Mahaffey Associates Pty Ltd			
Report No	20620			
Report date	22/05/2024			
Product tested	UNI metal screw in BMT 1.1 mm G250 Tophat			
Comment	Drill driver			
Test standard	Part 4 of AS/NZS 4600			
Analysis standard	AS/NZS 4600			
Measured value	ID	Value	Units	Test no.
Screw pull out	10	1776.40	N	1
Screw pull out	12	1593.80	N	2
Screw pull out	23	1641.70	N	3
Screw pull out	24	1691.20	N	4
Screw pull out	25	1808.80	N	5
Screw pull out	26	1735.00	N	6
Screw pull out	27	1878.70	N	7
Screw pull out	28	1897.40	N	8
Screw pull out	29	1815.40	N	9
Screw pull out	30	1880.30	N	10
Coefficient of variation	**V_{sc}**	20%	-	
Average test value	**R_{ave}**	1772	N	
Sampling factor	**$k_{t\text{-}ave}$**	1.77	-	
Design value	**R_d**	1001	N	
Minimum test value	**R_{min}**	1594	N	
Sampling factor	**$k_{t\text{-}min}$**	1.49	-	
Design value	**R_d**	1070	N	

Table 122 - UNI metal screw in 1.1mm BMT G250 tophat drill driver AS4600 test analysis

Laboratory	Mahaffey Associates Pty Ltd			
Report No	20620			
Report date	22/05/2024			
Product tested	UNI metal screw in BMT 1.1 mm G250 Tophat			
Comment	Impact driver			
Test standard	Part 4 of AS/NZS 4600			
Analysis standard	AS/NZS 4600			
Measured value	ID	Value	Units	Test no.
Screw pull out	1	2218.20	N	1
Screw pull out	2	2036.20	N	2
Screw pull out	3	2055.40	N	3
Screw pull out	4	1987.30	N	4
Screw pull out	5	2160.30	N	5
Screw pull out	6	2145.70	N	6
Screw pull out	7	2056.60	N	7
Screw pull out	8	2030.70	N	8
Screw pull out	9	1975.20	N	9
Screw pull out	11	2088.80	N	10
Screw pull out	13	2098.60	N	11
Screw pull out	14	2012.00	N	12
Screw pull out	15	1936.60	N	13
Screw pull out	16	1873.50	N	14
Screw pull out	17	2134.80	N	15
Screw pull out	18	1824.20	N	16
Screw pull out	19	1865.90	N	17
Screw pull out	20	1724.60	N	18
Screw pull out	21	1810.70	N	19
Screw pull out	22	1870.60	N	20
Coefficient of variation	**V_{sc}**	20%	-	
Average test value	**R_{ave}**	1995	N	
Sampling factor	**$k_{t\text{-}ave}$**	1.7	-	
Design value	**R_d**	1174	N	
Minimum test value	**R_{min}**	1725	N	
Sampling factor	**$k_{t\text{-}min}$**	1.29	-	
Design value	**R_d**	1337	N	

13.0 APPENDIX B – EQUITONE Material Information Sheets

13.1 EQUITONE [natura] material information sheet



EQUITONE
Fibre cement facade materials

EQUITONE [natura]
Material Information Sheet

1. Product Appearance

EQUITONE [natura] is a high-density fibre cement panel with a through coloured core, and a coloured semi-transparent double layer acrylic finish which results in the structure (fibres) of the material shining through.

Irregularities, differences in shade and traces of the manufacturing process are part of the natural characteristics of the material. The rear receives a transparent back-sealing coating.

2. Colour

EQUITONE [natura] is available in a wide range of standard and special colours, manufactured based on various different through coloured core/base boards as shown on the colour chart below.

Colour variations are part of the natural characteristics of the material. The allowable tolerance of shade between the EQUITONE [natura] materials is minimal and is measured according to the CIELAB colour model. The allowable dry mean averages of three readings are ΔL* (brightness) of ±2.0, Δa* (+red/-green) of ±1.0 and Δb* (+yellow/-blue) of ±1.0 compared to the production benchmark sample and measured with the same device.

Available colours

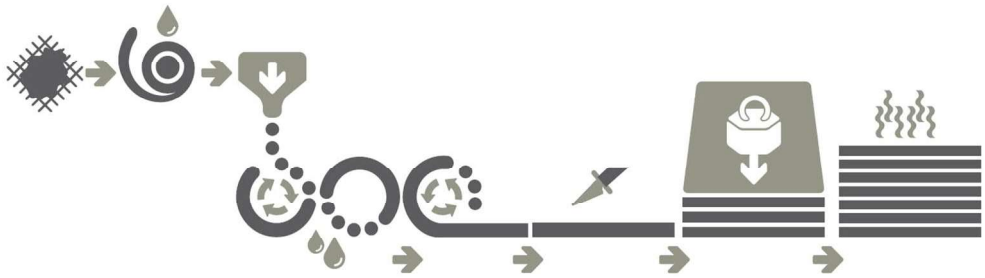
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com

3. Product Composition

EQUITONE [natura] panels consist of cement, water, mineral fillers, cellulose fibres, synthetic reinforcing fibres, inorganic colour pigments (depending on the colour) and an acrylic coating.

4. Production Method

EQUITONE [natura] is a highly compressed, air cured fibre cement material manufactered in Germany (Europe).



EQUITONE [natura] panels are manufactured through the Hatschek process where the base materials which are mainly cement, fibres, cellulose, pigments and water are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

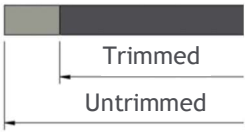
This is followed by a curing process where the panels harden under ambient temperature and without vapour pressure.

Subsequently EQUITONE [natura] receives an industrially applied multiple layer coating on the front face, and a physically equivalent sealing coating on the rear face.

In case of factory trimmed panels the edges are trimmed and additionally sealed with Luko edge sealer.

5. Dimensions and Tolerances

EQUITONE [natura] is available in a standard thickness of 8 mm and also in 12 mm thicknesses for specific applications or fixings. The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



The panel must not be installed with untrimmed edges. Approximately 15 mm needs to be trimmed from each of the untrimmed (raw) edges. Cut edges need to be sealed with Luko edge sealer.

Dimensions		
Thickness	8 mm	12 mm

Width	
Trimmed	1250 mm
Untrimmed	1280 mm

Length	
Trimmed	2500 mm / 3100 mm
Untrimmed	2530 mm / 3130 mm

Tolerances[1] (for cut and trimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 1 mm	
Length	± 1 mm	
Squareness	± 1.0 mm/m	

Tolerances[1] (for untrimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 6 mm	
Length	± 8 mm	
Squareness	± 1.0 mm/m	

Weight per m^2 (air dry)		
	15.4 kg/m^2	22.8 kg/m^2

Weight per panel (without pallet)		
2500 x 1250 mm (trimmed)	48.1 kg	71.3 kg
3100 x 1250 mm (trimmed)	59.7 kg	88.4 kg
2530 x 1280 mm (untrimmed)	49.9 kg	73.8 kg
3130 x 1280 mm (untrimmed)	61.7 kg	91.4 kg

Packaging		
Number of panels on pallet	30	20

Usable surface per pallet		
2500 x 1250 mm (trimmed)	93.75 m^2	62.5 m^2
3100 x 1250 mm (trimmed)	116.25 m^2	77.5 m^2

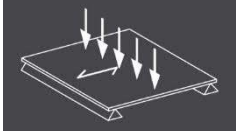
Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 2.0
Δa*, + red/ - green	± 1.0
Δb*, + yellow/ - blue	± 1.0

[1] Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

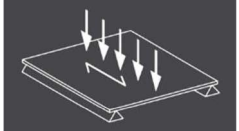
[2] Colour tolerance are only to be measured on dry surfaces.

6. Material Properties

EQUITONE [natura] cladding panels conform to the requirements of EN 12467:2012+A2:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification		
Type of product	EN12467	NT
Durability classification	EN12467	Category A
Strength classification	EN12467	Class 4
Dimensional tolerances for trimmed panels	EN12467	Level I
Dimensional tolerances for untrimmed panels	EN12467	Level II

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	24.5	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	19.5	MPa
Modulus of rupture[3]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	wet	EN12467	≥ 18	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 21.2	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1750	kg/m³
Moisture movement	30-90 %	EN12467	0.1	%
Mean module of elasticity	ambient	EN12467	12,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load (8mm)		-	0.17	kN/m²
Characteristic dead load (12mm)		-	0.26	kN/m²

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	-	0.407	W/mK
Moisture content at 20°C, 65 % humidity		-	< 6	M.-%
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m³
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m³

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm², M.-% = mass percentage

Note: EQUITONE [natura] panels also comply with the requirements of ISO8336:2017 "Fibre-cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC, with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [natura] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the façade
- UV-resistant
- Resistant to extreme temperatures and frost
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Material appearance due to transparent coating
- Strong, rigid panel
- Hail impact tested

Working with the material:

- The material is easy to drill, cut and install with the proper tools

9. Applications

EQUITONE [natura] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [natura] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C, and roof applications.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety
- ISO 50001 Energy Management System

EQUITONE [natura] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

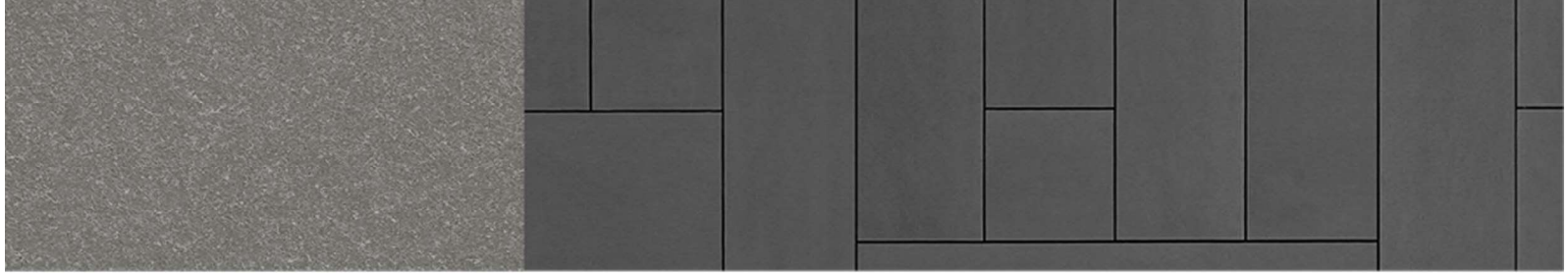
EQUITONE [natura] is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.

www.equitone.com

13.2 EQUITONE [natura] PRO material information sheet



EQUITONE
Fibre cement facade materials

EQUITONE [natura] PRO Material Information Sheet

1. Product Appearance

EQUITONE [natura] PRO is a high-density fibre cement panel with a through coloured core, and a coloured semi-transparent double layer acrylic finish which results in the structure (fibres) of the material shining through.

The surface finish is matt with a UV hardened PU topcoat (front side), providing a hard, dirt resistant surface finish with a high abrasion resistance and a permanent and durable graffiti protection.

Irregularities, differences in shade and traces of the manufacturing process are part of the natural characteristics of the material. The rear receives a transparent back-sealing coating.

2. Colour

EQUITONE [natura] PRO is available in a wide range of standard and special colours, manufactured based on various different through coloured core/base boards as shown on the colour chart below.

Colour variations are part of the natural characteristics of the material. The allowable tolerance of shade between the EQUITONE [natura] PRO materials is minimal and is measured according to the CIELAB colour model. The allowable dry mean averages of three readings are ΔL (brightness) of ±2.0, Δa (+red/-green) of ±1.0 and Δb (+yellow/-blue) of ±1.0 compared to the production benchmark sample and measured with the same device.

Available colours

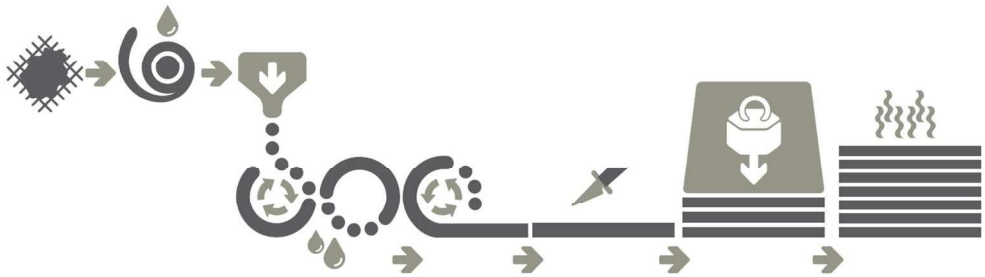
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com

3. Product Composition

EQUITONE [natura] PRO panels consist of cement, water, mineral fillers, cellulose fibres, synthetic reinforcing fibres, inorganic colour pigments (depending on the colour), an acrylic coating and a UV-cured functional top layer.

4. Production Method

EQUITONE [natura] PRO is a highly compressed, air cured fibre cement material manufactered in Germany (Europe).



EQUITONE [natura] PRO panels are manufactured through the Hatschek process where the base materials which are mainly cement, fibres, cellulose, pigments and water are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

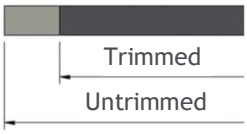
This is followed by a curing process where the panels harden under ambient temperature and without vapour pressure.

Subsequently EQUITONE [natura] PRO receives an industrially applied multiple layer coating on the front face, and a physically equivalent sealing coating on the rear face. Finally a UV hardened PU top-coat is applied to the front side.

In case of factory trimmed panels the edges are trimmed and additionally sealed with Luko edge sealer.

5. Dimensions and Tolerances

EQUITONE [natura] PRO is available in a standard thickness of 8 mm and also in 12 mm thicknesses for specific applications or fixings. The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



The panel must not be installed with untrimmed edges. Approximately 15 mm needs to be trimmed from each of the untrimmed (raw) edges. Cut edges need to be sealed with Luko edge sealer.

Dimensions		
Thickness	8 mm	12 mm

Width	
Trimmed	1250 mm
Untrimmed	1280 mm

Length	
Trimmed	2500 mm / 3100 mm
Untrimmed	2530 mm / 3130 mm

Tolerances[1] (for cut and trimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 1 mm	
Length	± 1 mm	
Squareness	± 1.0 mm/m	

Tolerances[1] (for untrimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 6 mm	
Length	± 8 mm	
Squareness	± 1.0 mm/m	

Weight per m^2 (air dry)		
	15.4 kg/m^2	22.8 kg/m^2

Weight per panel (without pallet)		
2500 x 1250 mm (trimmed)	48.1 kg	71.3 kg
3100 x 1250 mm (trimmed)	59.7 kg	88.4 kg
2530 x 1280 mm (untrimmed)	49.9 kg	73.8 kg
3130 x 1280 mm (untrimmed)	61.7 kg	91.4 kg

Packaging		
Number of panels on pallet	30	20

Usable surface per pallet		
2500 x 1250 mm (trimmed)	93.75 m^2	62.5 m^2
3100 x 1250 mm (trimmed)	116.25 m^2	77.5 m^2

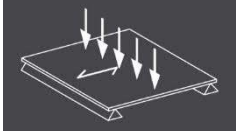
Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 2.0
Δa*, + red/ - green	± 1.0
Δb*, + yellow/ - blue	± 1.0

[1]Factory tolerances for trimmed panels outperform the requirements of the EN12467 Level I dimensional tolerances.

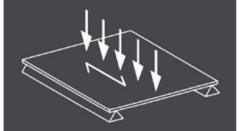
[2] Colour tolerance are only to be measured on dry surfaces.

6. Material Properties

EQUITONE [natura] PRO cladding panels conform to the requirements of EN 12467:2012+A2:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification			
Type of product	EN12467	NT	
Durability classification	EN12467	Category A	
Strength classification	EN12467	Class 4	
Dimensional tolerances for trimmed panels	EN12467	Level I	
Dimensional tolerances for untrimmed panels	EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	24.5	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	19.5	MPa
Modulus of rupture[3]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	wet	EN12467	≥ 18	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 21.2	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1750	kg/m³
Moisture movement	30-90 %	EN12467	0.1	%
Mean module of elasticity	ambient	EN12467	12,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load (8mm)		-	0.17	kN/m²
Characteristic dead load (12mm)		-	0.26	kN/m²

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.407	W/mK
Moisture content at 20°C, 65 % humidity		-	< 6	M.-%
Brinell surface hardness (HBWmean)		ISO6506-1	75	N/mm^2
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m^3
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m^3

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm^2, M.-% = mass percentage
Note: EQUITONE [natura] PRO panels also comply with the requirements of ISO8336:2017 "Fibre-cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

The EQUITONE [natura] PRO surface has the following properties:

- Oesterle scratch resistance 2.5 N
- Mohs hardness 4
- Pencil hardness 4H
- Indentation test 6 N according to DIN 53153, EN ISO 2815

The UV-hardened surface coating is smooth and easy to clean. It offers high protection against normal and spray paints. The anti graffiti coating satisfies the placement test requirements and those of Test Cycle 2 of the quality control association Gütegemeinschaft Anti-Graffiti e.V. for protective anti-graffiti surface systems (ILF test report 4-013/2006 of the Institut für Lacke und Farben e.V.). Graffiti can be removed with the usual graffiti cleaning agents available in the trade.

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC, with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [natura] PRO fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the facade
- UV-resistant
- Resistant to extreme temperatures and frost
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Material appearance due to transparent coating
- Strong, rigid panels
- Hail impact tested
- Permanent and durable graffiti protection.

Working with the material:

- The material is easy to drill, cut and install with the proper tools

9. Applications

EQUITONE [natura] PRO can be used in several ventilated applications, including, but not limited to:

- Ventilated facade / rainscreen cladding
- Window and door reveal

- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)
- Roof applications or inclined facades with panels facing up

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [natura] PRO can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety
- ISO 50001 Energy Management System

EQUITONE [natura] PRO is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

EQUITONE [natura] PRO is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.

www.equitone.com

13.3 EQUITONE [pictura] material information sheet

EQUITONE
Fibre cement facade materials

EQUITONE [pictura]
Material Information Sheet

1. Product Appearance

EQUITONE [pictura] is a high-density fibre cement panel with a through coloured core, and a coloured double layer acrylic coating.

The surface finish is matt with a UV hardened PU topcoat (front side), providing a hard, dirt resistant surface finish with a high abrasion resistance and a permanent and durable graffiti protection.

Irregularities and traces of the manufacturing process are part of the natural characteristics of the material. The rear receives a transparent back-sealing coating.

2. Colour

EQUITONE [pictura] is available in a wide range of standard and special colours, manufactured based on various different through coloured core/base boards as shown on the colour chart below.

The allowable tolerance of shade between the EQUITONE [pictura] materials is minimal and is measured according to the CIELAB colour model. The allowable dry mean averages of three readings are ΔL* (brightness) of ±1.0, Δa* (+red/-green) of ±0.75 and Δb* (+yellow/-blue) of ±0.75 compared to the production benchmark sample and measured with the same device.

Available colours

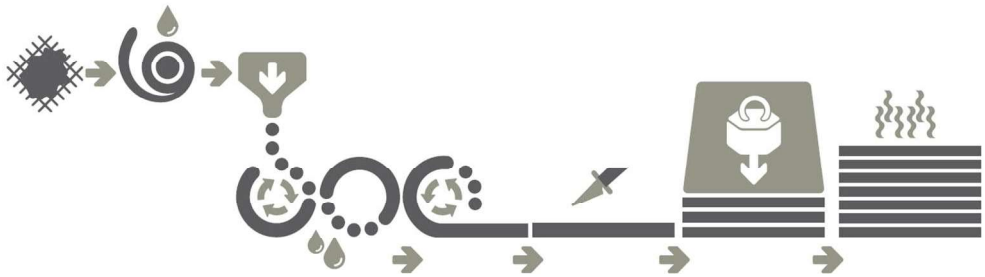
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com

3. Product Composition

EQUITONE [pictura] panels consist of cement, water, mineral fillers, cellulose fibres, synthetic reinforcing fibres, inorganic colour pigments (depending on the colour) and an acrylic coating and a UV-cured functional top layer.

4. Production Method

EQUITONE [pictura] is a highly compressed, air cured fibre cement material manufactered in Germany (Europe).



EQUITONE [pictura] panels are manufactured through the Hatschek process where the base materials which are mainly cement, fibres, cellulose, water and optional pigments are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

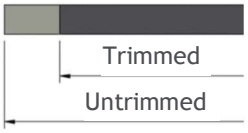
This is followed by a curing process where the panels harden under ambient temperature and without vapour pressure.

Subsequently EQUITONE [pictura] receives an industrially applied multiple layer acrylic coating on the front face, and a physically equivalent sealing coating on the rear face. Finally a UV hardened PU top-coat is applied to the front side.

In case of factory trimmed panels the edges are trimmed and additionally sealed with Luko edge sealer.

5. Dimensions and Tolerances

EQUITONE [pictura] is available in a standard thickness of 8 mm and also in 12 mm thicknesses for specific applications or fixings. The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



The panel must not be installed with untrimmed edges. Approximately 15 mm needs to be trimmed from each of the untrimmed (raw) edges.

Dimensions		
Nominal Thickness	8 mm	12 mm

Width	
Trimmed	1250 mm
Untrimmed	1280 mm

Length	
Trimmed	2500 mm / 3100 mm
Untrimmed	2530 mm / 3130 mm

Tolerances[1] (for cut and trimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 1 mm	
Length	± 1 mm	
Squareness	± 1.0 mm/m	

Tolerances[1] (for untrimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 6 mm	
Length	± 8 mm	
Squareness	± 1.0 mm/m	

Weight per m^2 (air dry)		
	15.4 kg/m^2	22.8 kg/m^2

Weight per panel (without pallet)		
2500 x 1250 mm (trimmed)	48.1 kg	71.3 kg
3100 x 1250 mm (trimmed)	59.7 kg	88.4 kg
2530 x 1280 mm (untrimmed)	49.9 kg	73.8 kg
3130 x 1280 mm (untrimmed)	61.7 kg	91.4 kg

Packaging		
Number of panels on pallet	30	20

Usable surface per pallet		
2500 x 1250 mm (trimmed)	93.75 m^2	62.5 m^2
3100 x 1250 mm (trimmed)	116.25 m^2	77.5 m^2

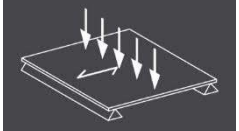
Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 1.0
Δa*, + red/ - green	± 0.75
Δb*, + yellow/ - blue	± 0.75

[1] Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

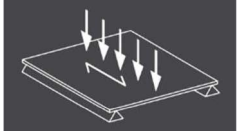
[2] Colour tolerance are only to be measured on dry surfaces.

6. Material Properties

EQUITONE [pictura] cladding panels conform to the requirements of EN 12467:2012+A1:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification				
Type of product		EN12467	NT	
Durability classification		EN12467	Category A	
Strength classification		EN12467	Class 4	
Dimensional tolerances for trimmed panels		EN12467	Level I	
Dimensional tolerances for untrimmed panels		EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	24.5	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	19.5	MPa
Modulus of rupture[3]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	wet	EN12467	≥ 18	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 21.2	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1750	kg/m³
Moisture movement	30-90 %	EN12467	0.1	%
Mean module of elasticity	ambient	EN12467	12,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load (8mm)		-	0.17	kN/m²
Characteristic dead load (12mm)		-	0.26	kN/m²

Durability requirements			
Freeze-thaw test for category A panel	EN12467	Pass	
Heat-rain tests for category A panel	EN12467	Pass	
Warm water test	EN12467	Pass	
Soak-dry test	EN12467	Pass	

Fire and safety			
Reaction to fire	EN13501	A2-s1,d0	

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.407	W/mK
Moisture content at 20°C, 65 % humidity		-	<6	M.-%
Brinell surface hardness (HBWmean)		ISO6506-1	75	N/mm^2
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m^3
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m^3

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm^2, M.-% = mass percentage

Note: EQUITONE [pictura] panels also comply with the requirements of ISO8336:2017 "Fibre-cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

The EQUITONE [pictura] surface has the following properties:

- Oesterle scratch resistance 2.5 N
- Mohs hardness 4
- Pencil hardness 4H
- Indentation test 6 N according to DIN 53153, EN ISO 2815

The UV-hardened surface coating is smooth and easy to clean. It offers high protection against normal and spray paints. The anti graffiti coating satisfies the placement test requirements and those of Test Cycle 2 of the quality control association Gütegemeinschaft Anti-Graffiti e.V. for protective anti-graffiti surface systems (ILF test report 4-013/2006 of the Institut für Lacke und Farben e.V.). Graffiti can be removed with the usual graffiti cleaning agents available in the trade.

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC, with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [pictura] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the façade
- UV-resistant
- Resistant to extreme temperatures and frost
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong, rigid panels
- Hail impact tested
- Permanent and durable graffiti protection.

Working with the material:

- The material is easy to drill, cut and install with the proper tools

9. Applications

EQUITONE [pictura] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal

- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)
- Roof applications or inclined facades with panels facing up

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [pictura] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product. The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety
- ISO 50001 Energy Management System

EQUITONE [pictura] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

EQUITONE [pictura] is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.

www.equitone.com

13.4 EQUITONE [materia] material information sheet

1. Product Appearance

EQUITONE [materia] is a through-coloured natural fibre cement panel without coating or hydrophobation. The mechanical treated surface results in a rough texture. The finished panel is weatherproof. Irregularities, differences in the colour tone and traces of the manufacturing process are characteristics of the surface of the board and are to be expected. The rear receives no back coating.

2. Product Composition

EQUITONE [materia] sheets consist of the following:

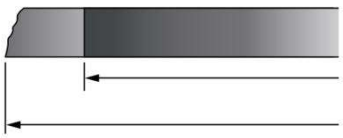
- Portland cement
- Minerals fillers
- Cellulose fibres
- Reinforcing fibres

3. Production Method

EQUITONE [materia] sheets are manufactured on a Hatschek machine and are compressed and air-dried. The surface of the EQUITONE [materia] receives a mechanical surface treatment giving the rough texture.

4. Dimensions

EQUITONE [materia] is available in 8mm and 12mm thicknesses. The panels are available in either untrimmed or trimmed formats.



untrimmed

The panels that come off the production line have untrimmed (raw) edges. These panels are available for distributors with the proper equipment to allow them to cut and trim the panel for any project.

The factory also provides a cutting service for customers who do not have the necessary cutting facilities. The untrimmed (raw) panel needs to be trimmed by approximately 15mm on all edges. The panel should not be installed with untrimmed edges.

Dimensions

Not rectified untrimmed	2530mm x1280mm	3130mm x 1280mm
Rectified trimmed	2500mm x 1250mm	3100mm x 1250mm

EQUITONE
Fibre cement facade materials

For further information, please contact
Email: info.australia@equitone.com www.equitone.com
EQUITONE Australia, Suite 201/198 Harbour Esplanade, Docklands, 3008 Vic, Australia

5. Colour

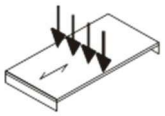
As EQUITONE [materia] is an uncoated panel the Δ L is fluctuating more than Δ a and Δ b and is within the following parameters.

EQUITONE [materia]	
Δ L Brightness (dry)	± 2.0

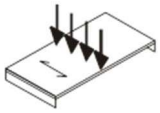
The panel will appear different when wet or dry. The weathering of EQUITONE [materia] is no different than that expected from uncoated cementitious materials. As with all non-coated materials, EQUITONE [materia] will lighten and weather over time.

6. Technical Properties

EQUITONE [materia] cladding panels conform to the requirements of EN 12467:2012+A1:2016 "Fibre-cement flat sheets – Product specification and test methods". The results below are presented as defined by the standard.



Load perpendicular to the production direction



Load parallel to to the production direction

Technical Properties

Miniumum Density	Dry	EN12467	1650	kg/m^3
Characteristic bending strength perpendicular	ambient	EN12467	24.0	N/mm^2
Characteristic bending strength parallel	ambient	EN12467	18.5	N/mm^2
Mean module of elasticity	ambient	EN12467	12,000	N/mm^2
Hygric movement	30-95% rh	-	1.18	mm/m
Water absorption	0-100	-	< 20	%
Moisture content	Air dried	EN12467	< 8	%

Classification

Durability classification	EN12467	Category A
Strength classification	EN12467	Class 3
Reaction to fire	EN13501	A2-s1,d0

Extra tests

Water impermeability test	EN12467	Pass	
Warm water test	EN12467	Pass	
Soak-dry test	EN12467	Pass	
Freeze-thaw test	EN12467	Pass	
Heat-rain tests for category	EN12467	Pass	
Dimensional tolerances	EN12467	Level1	trimmed
Thermal movement [α_T]	-	$10 \cdot 10^{-6}$	$\cdot K^{-1}$
Thermal conductivity [λ]	-	0.6	W/mK

Panel Weight (air dried)

Panel	Weight	2530mm x 1280mm	3130mm x 1280mm
8mm	15.4 kg/m^2	49.9 kg	61.7 kg
12mm	22.8 kg/m^2	73.8 kg	91.4 kg

Tolerances rectified trimmed

Thickness	8mm ± 0.6mm. 12mm ± 0.9mm
Length	± 1mm
Width	± 1mm
Squareness	± 1.5mm/m

7. Advantages

Providing the application guidelines are followed, EQUITONE fibre-cement sheets have the following superior mix of properties compared to other materials:

- fire safe (no fire ignition, no spread of fire)
- sound insulating
- resistant to extreme temperatures and frost
- water resistant (if in compliance with application guideline)
- resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- resistant to many chemicals
- environmentally friendly, no harmful gas emissions
- strong, rigid panels

8. Applications

EQUITONE [materia] can be used in the following applications:

- Ventilated façade cladding with Uni-screws, Uni-rivets and non-visible fixing Tergo+
- Ventilated Exterior ceiling: decorative cladding of ceiling
- Ventilated eaves and verge boards
- Interior wall lining

9. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. For more information, please check the Safety Data Sheet (based on 1907/2006/EC, article 31). The reinforcement is achieved using synthetic, organic fibres of polyvinyl alcohol. These fibres are used in a similar form in the clothing industry for covering fabrics, for fleece materials and for medical fibres. A very important feature is that they are physiologically not problematic.

10. Maintenance and Cleaning

The finished ventilated facade areas should be cleaned down following fixing of panels. Any partial cleaning may cause minor visual impairments.
To clean off dust use a soft brush and compressed air.
As with all uncoated materials contaminations must be avoided.

WARNING
The use of abrasive materials, such as steel-wool, scourers etc. is not permitted as these cleaning items will leave irreparable scratches on the surface.

11. Certification

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.infodop.com. The manufacturer is also ISO certified.

12. Information

Information on the different applications can be found in the Etex Façade application guidelines. They can be found on the local website or can be obtained from local support. Information about external suppliers can also be downloaded from your local websites.

13.5 EQUITONE [inspira] material information sheet

EQUITONE
Fibre cement facade materials

EQUITONE [inspira]
Material Information Sheet

1. Product Appearance

EQUITONE [inspira] is a high-density fibre cement panel with a digital printed surface covered with a UV finishing.

The surface finish is smooth, hard, matt and resistant to UV radiation. providing a hard, dirt resistant surface finish with a high abrasion resistance and a permanent and durable graffiti protection.

The panels are calibrated to ensure a consistent thickness. The rear receives a UV coating.

2. Colour

EQUITONE [inspira] is available in a wide range of designs inspired by nature as well as wood, concrete, stone and rust graphics and personnalised images.

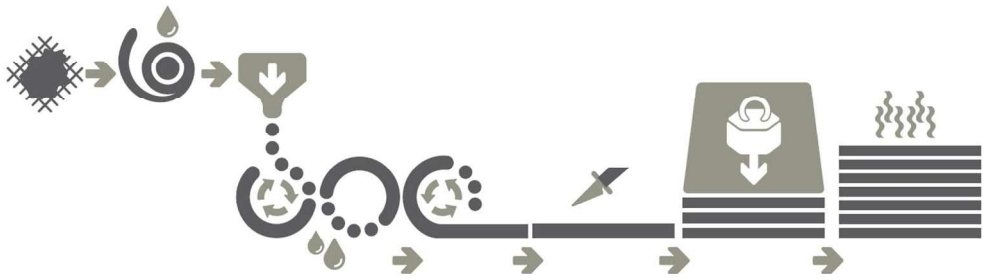
3. Product Composition

EQUITONE [inspira] panels consist of cement, water, mineral fillers, cellulose and synthetic organic fibres, and a colour digital printed surface covered with UV-cured funcional topcoats.

EQUITONE [inspira] panels are mass-hydrophobated to reduce water absorption, enhancing their long-term durability.

4. Production Method

EQUITONE [inspira] is a highly compressed, air cured fibre cement material manufactered in Poland (Europe).



EQUITONE [inspira] panels are manufactured through the Hatschek process where the base materials which are mainly cement, fibres, cellulose, water and optional pigments are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

This is followed by a curing process where the panels harden under ambient temperature and without vapour pressure.

The panels are calibrated for a consistent thickness.

Subsequently EQUITONE [inspira] receives a digital print, with UV hardened topcoats offering a graffiti resistant finish on the front face. The back side is finished with a UV coating to balance the humidity of the panel.

5. Dimensions and Tolerances

EQUITONE [inspira] is available in a standard thickness of 8 mm. The panels are available in trimmed (maximum usable size) formats.

Dimensions	
Nominal Thickness	8 mm

Width	
Trimmed	1250 mm

Length	
Trimmed	2500 mm / 3100 mm

Tolerances[1] (for cut and trimmed panels)	
Thickness	± 0.2 mm
Width	± 1 mm
Length	± 1 mm
Squareness	± 1.0 mm/m

Weight per m^2 (air dry)	
	16.8 kg/m^2

Weight per panel (without pallet)	
2500 x 1250 mm (trimmed)	50.4 kg
3100 x 1250 mm (trimmed)	64.5 kg

Packaging	
Number of panels on pallet	20

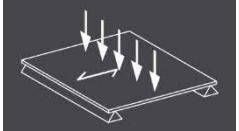
Usable surface per pallet	
2500 x 1250 mm (trimmed)	62.5 m^2
3100 x 1250 mm (trimmed)	77.5 m^2

Gray scale discoloration according to PN-EN 201056-A2:1996	
Gray scale discoloration	4-5

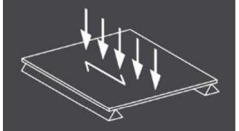
[1] Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

6. Material Properties

EQUITONE [inspira] cladding panels conform to the requirements of EN 12467:2012+A1:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification			
Type of product	EN12467	NT	
Durability classification	EN12467	Category A	
Strength classification	EN12467	Class 4	
Dimensional tolerances for trimmed panels	EN12467	Level I	
Dimensional tolerances for untrimmed panels	EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	24.5	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	19.5	MPa
Modulus of rupture[3]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	wet	EN12467	≥ 18	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 21.2	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1750	kg/m³
Moisture movement	30-90 %	EN12467	0.1	%
Mean module of elasticity	ambient	EN12467	12,000	MPa
Water impermeability test		EN12467	No drops/Pass	

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501	A2-s1,d0

Other characteristics				
Thermal movement	α	-	< 0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.60	W/mK
Poisson’s ratio	ν	-	0.2	-

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm², M.-% = mass percentage
Note: EQUITONE [inspira] panels also comply with the requirements of ISO8336:2017 “Fibre-cement flat sheets – Product specification and test methods”

7. Advantages

Providing the application guidelines are followed, EQUITONE [inspira] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the façade
- UV-resistant
- Resistant to extreme temperatures and frost
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong, rigid panels
- Permanent and durable graffiti protection.

Working with the material:

- The material is easy to drill, cut and install with the proper tools

8. Applications

EQUITONE [inspira] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [inspira] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C.

9. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

10. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

11. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product. The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

EQUITONE [inspira] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

12. Information

Please visit www.equitone.com for contact details and further information and technical documents.

13.6 EQUITONE [coloura] material information sheet

EQUITONE
Fibre cement facade materials

EQUITONE [coloura]
Material Information Sheet

1. Product Appearance

EQUITONE [coloura] is a high-density fibre cement panel with a coloured double layer PU-acrylic coating.

The surface finish is smooth, hard, matt and resistant to UV radiation. The panels are calibrated to ensure consistent thickness. The back side receives a UV coating. Irregularities and traces of the manufacturing process are part of the natural characteristics of the material.

2. Colour

EQUITONE [coloura] is available in a wide range of standard colours and specials colours as shown on the colour chart below.

The allowable tolerance of shade between the EQUITONE [coloura] materials is minimal and is measured according to the CIELAB colour model. The allowable dry mean averages of three readings are ΔL* (brightness) of ±1.0, Δa* (+red/–green) of ±0.75 and Δb* (+yellow/–blue) of ±0.75 compared to the production benchmark sample and measured with the same device.

Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com.

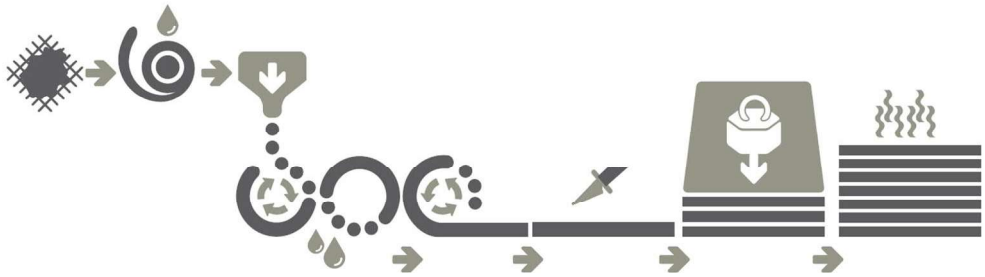
3. Product Composition

EQUITONE [coloura] panels consist of cement, water, mineral fillers, cellulose and synthetic organic fibres, and a coloured double layer PU-acrylic coating with the back side finished with a UV coating.

EQUITONE [coloura] panels are mass-hydrophobated to reduce water absorption, enhancing their long-term durability.

4. Production Method

EQUITONE [coloura] is a highly compressed, air cured fibre cement material manufactered in Poland (Europe).



EQUITONE [coloura] panels are manufactured through the Hatschek process where the base materials which are mainly cement, fibres, cellulose, water and optional pigments are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

This is followed by a curing process where the panels harden under ambient temperature and without vapour pressure.

Subsequently EQUITONE [coloura] receives a coloured double layer PU-acrylic coating and the back side is finished with a UV coating.

Finally the panels are trimmed and chamfered.

5. Dimensions and Tolerances

EQUITONE [coloura] is available in a standard thickness of 8 mm. The panels are available in trimmed (maximum usable size) formats.

Dimensions	
Nominal Thickness	8 mm

Width	
Trimmed	1250 mm

Length	
Trimmed	2500 mm / 3100 mm

Tolerances	
Thickness	± 0.2 mm
Width	± 1 mm
Length	± 1 mm
Squareness	± 1.0 mm/m

Weight per m^2 (air dry)	
	16.8 kg/m^2

Weight per panel (without pallet)	
2500 x 1250 mm (trimmed)	52.5 kg
3100 x 1250 mm (trimmed)	65.1 kg

Packaging	
Number of panels on pallet	20

Usable surface per pallet	
2500 x 1250 mm (trimmed)	62.5 m^2
3100 x 1250 mm (trimmed)	77.5 m^2

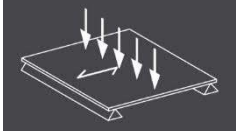
Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 1.0
Δa*, + red/ - green	± 0.75
Δb*, + yellow/ - blue	± 0.75

[1] Factory tolerances for trimmed outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

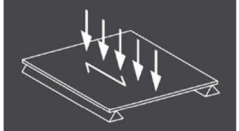
[2] Colour tolerance are only to be measured on dry surfaces. The colour deviation may differ depending on the angle of light incidence and the angle of view.

6. Material Properties

EQUITONE [coloura] cladding panels conform to the requirements of EN 12467:2012+A1:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification			
Type of product	EN12467	NT	
Durability classification	EN12467	Category A	
Strength classification	EN12467	Class 4	
Dimensional tolerances for trimmed panels	EN12467	Level I	
Dimensional tolerances for untrimmed panels	EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	24.5	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	19.5	MPa
Modulus of rupture[3]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	wet	EN12467	≥ 18	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 21.2	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1750	kg/m³
Moisture movement	30-90 %	EN12467	0.1	%
Mean module of elasticity	ambient	EN12467	12,000	MPa
Water impermeability test		EN12467	No drops/Pass	

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501	A2-s1,d0

Other characteristics				
Thermal movement	α	-	< 0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.60	W/mK
Poisson’s ratio	ν	-	0.2	-

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm², M.-% = mass percentage

Note: EQUITONE [coloura] panels also comply with the requirements of ISO8336:2017 “Fibre-cement flat sheets – Product specification and test methods”

7. Advantages

Providing the application guidelines are followed, EQUITONE [coloura] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the façade
- UV-resistant
- Resistant to extreme temperatures and frost
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong, rigid panels

Working with the material:

- The material is easy to drill, cut and install with the proper tools

8. Applications

EQUITONE [coloura] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [coloura] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C.

9. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

10. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

11. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

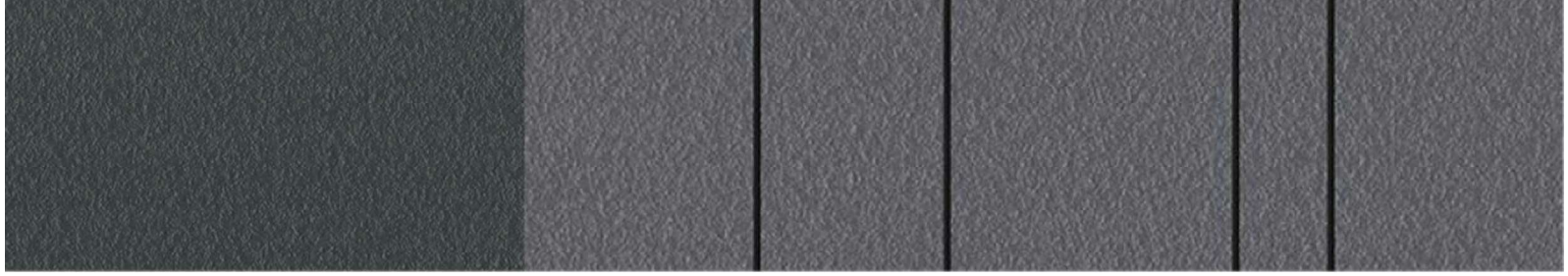
The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product. The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

EQUITONE [coloura] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

12. Information

Please visit www.equitone.com for contact details and further information and technical documents.

13.7 EQUITONE [textura] material information sheet



EQUITONE
Fibre cement facade materials

EQUITONE [textura]
Material Information Sheet

1. Product Appearance

EQUITONE [textura] is high-density fibre cement panel with a through coloured core, a coloured double layer acrylic finish, fillite filling and a hot-film sealing topcoat (front side) which provides a dirt resistant finish. The surface has a grainy structure. The rear receives a transparent back-sealing coating.

2. Colour

EQUITONE [textura] is available in a wide range of standard and special colours, manufactured based on various different through coloured core/base boards as shown on the colour chart below.

The allowable tolerance of shade between the EQUITONE [textura] materials is minimal and is measured according to the CIELAB colour model. The allowable dry mean averages of three readings are ΔL* (brightness) of ±1.0, Δa* (+red/-green) of ±0.75 and Δb* (+yellow/-blue) of ±0.75 compared to the production benchmark sample and measured with the same device.

Available colours

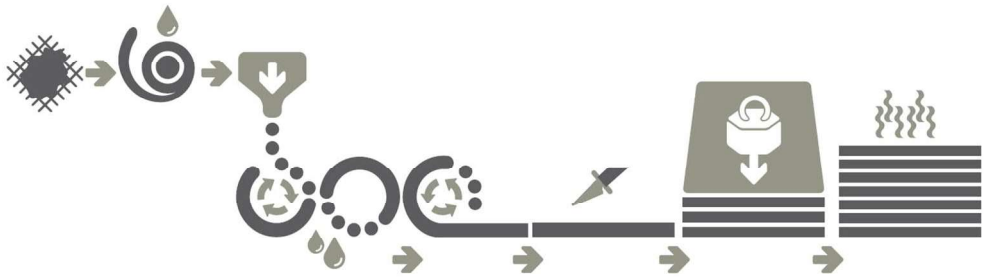
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com

3. Product Composition

EQUITONE [textura] panels consist of cement, water, mineral fillers, cellulose fibres, synthetic reinforcing fibres, inorganic colour pigments (depending on the colour) and an acrylic coating.

4. Production Method

EQUITONE [textura] is a highly compressed, air cured fibre cement material manufactered in Germany (Europe).



EQUITONE [textura] panels are manufactured through the Hatschek process where the base materials which are mainly cement, fibres, cellulose, water and optional pigments are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

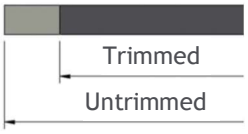
This is followed by a curing process where the panels harden under ambient temperature and without vapour pressure.

Subsequently EQUITONE [textura] receives an industrially applied multiple layer acrylic coating on the front face, and a physically equivalent sealing coating on the rear face.

In case of factory trimmed panels the edges are trimmed and additionally sealed with Luko edge sealer.

5. Dimensions and Tolerances

EQUITONE [textura] is available in a standard thickness of 8 mm and also in 12 mm thicknesses for specific applications or fixings. The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



The panel must not be installed with untrimmed edges. Approximately 15 mm needs to be trimmed from each of the untrimmed (raw) edges.

Dimensions		
Nominal Thickness	8 mm	12 mm

Width	
Trimmed	1250 mm
Untrimmed	1280 mm

Length	
Trimmed	2500 mm / 3100 mm
Untrimmed	2530 mm / 3130 mm

Tolerances[1] (for cut and trimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 1 mm	
Length	± 1 mm	
Squareness	± 1.0 mm/m	

Tolerances[1] (for untrimmed panels)		
Thickness	± 0.6 mm	± 0.9 mm
Width	± 6 mm	
Length	± 8 mm	
Squareness	± 1.0 mm/m	

Weight per m^2 (air dry)		
	15.4 kg/m^2	22.8 kg/m^2

Weight per panel (without pallet)		
2500 x 1250 mm (trimmed)	48.1 kg	71.3 kg
3100 x 1250 mm (trimmed)	59.7 kg	88.4 kg
2530 x 1280 mm (untrimmed)	49.9 kg	73.8 kg
3130 x 1280 mm (untrimmed)	61.7 kg	91.4 kg

Packaging		
Number of panels on pallet	30	20

Usable surface per pallet		
2500 x 1250 mm (trimmed)	93.75 m^2	62.5 m^2
3100 x 1250 mm (trimmed)	116.25 m^2	77.5 m^2

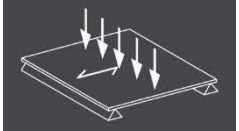
Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 1.0
Δa*, + red/ - green	± 0.75
Δb*, + yellow/ - blue	± 0.75

[1] Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

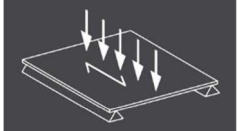
[2] Colour tolerance are only to be measured on dry surfaces.

6. Material Properties

EQUITONE [textura] cladding panels conform to the requirements of EN 12467:2012+A1:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification			
Type of product	EN12467	NT	
Durability classification	EN12467	Category A	
Strength classification	EN12467	Class 4	
Dimensional tolerances for trimmed panels	EN12467	Level I	
Dimensional tolerances for untrimmed panels	EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	24.5	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	19.5	MPa
Modulus of rupture[3]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	wet	EN12467	≥ 18	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 21.2	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1750	kg/m³
Moisture movement	30-90 %	EN12467	0.1	%
Mean module of elasticity	ambient	EN12467	12,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load (8mm)		-	0.17	kN/m²
Characteristic dead load (12mm)		-	0.26	kN/m²

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.407	W/mK
Moisture content at 20°C, 65 % humidity		-	< 6	M.-%
Brinell surface hardness (HBWmean)		ISO6506-1	75	N/mm
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m^3
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m^3

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm^2, M.-% = mass percentage

Note: EQUITONE [textura] panels also comply with the requirements of ISO8336:2017 "Fibre cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC,

with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [textura] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the façade
- UV-resistant
- Resistant to extreme temperatures and frost
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong, rigid panel
- Hail impact tested

Working with the material:

- The material is easy to drill, cut and install with the proper tools

9. Applications

EQUITONE [textura] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)
- Roof applications or inclined facades with panels facing up

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [textura] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be

foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety
- ISO 50001 Energy Management System

EQUITONE [textura] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

EQUITONE [textura] is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.

www.equitone.com

13.8 EQUITONE [tectiva] material information sheet

EQUITONE
Fibre cement facade materials

EQUITONE [tectiva]
Material Information Sheet

1. Product Appearance

EQUITONE [tectiva] is a high-density through coloured fibre cement panel with no coating. The panel has an honest, pure and natural appearance with natural colour variations and hues. The natural characteristic of the panel may be accentuated by the production process as well as light or dark inclusions.

The surface of the panel is characterised by fine sanding lines in the longitudinal direction. However, the panels are not considered directional and may be installed in any direction to enhance the natural look of the facade.

The panel has been made water repellent by means of hydrophobation.

2. Colour

The colour is throughout the panel. Natural colour variations, accentuated by the orientation of the panel, the viewing angle and the effects of light and moisture, strengthen the natural look of the facade.

Colour variations and random hues are part of the natural characteristics of the material. Each panel has its own individual character.

Colour differences are measured according to a simplified CIELAB colour model, by which only the parameter lightness ΔL of the colour is followed. Tolerated colour differences on a dry facade are $\Delta L^* = \pm 2.5$.

Available colours

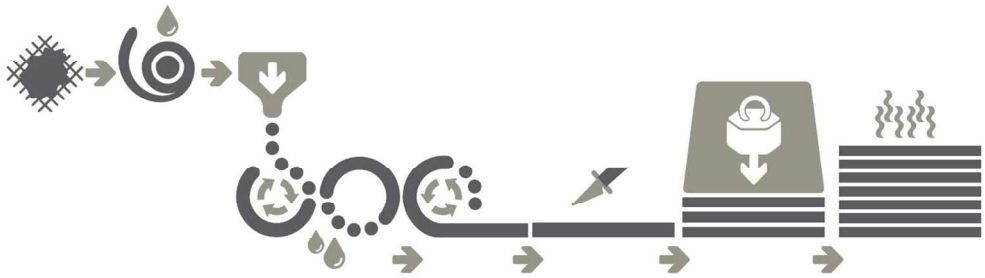
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com.

3. Product Composition

EQUITONE [tectiva] panels consist of cement, quartz sand, cellulose, natural calcium silicate, inorganic colour pigments, water and additives.

4. Production Method

EQUITONE [tectiva] is a highly compressed, autoclaved fibre cement material manufactered in Belgium (Europe).



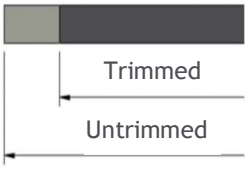
EQUITONE [tectiva] panels are manufactured through the Hatschek process where the base materials which are mainly cement, sand, cellulose, pigments and water are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

This is followed by a curing process in an autoclave where the panels harden under high temperature and pressure. After curing the panels receive their final finish.

Subsequently and finally, EQUITONE [tectiva] panels receive a hydrophobation making them water repellant.

5. Dimensions and Tolerances

EQUITONE [tectiva] is available in a standard thickness of 8 mm and also in 10 mm thickness for specific applications or fixings (minimal order quantities may apply). The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



The panel must not be installed with untrimmed edges. Approximately 10 mm needs to be trimmed from each of the untrimmed (raw) edges. Factory trimmed panels are available in both standard and custom (MTO) trimmed formats. For internal applications where trimmed edges are within close viewing position the latter format may be more suitable. The standard factory trimmed edges may have a slight recess located towards the rear face of the panel.

Dimensions		
Nominal Thickness	8 mm	10 mm

Width	
Trimmed	1220 mm
Untrimmed	1240 mm

Length	
Trimmed	2500 mm / 3050 mm
Untrimmed	2520 mm / 3070 mm

Tolerances[1] (for trimmed panels)		
Thickness	-0.5/+0.8 mm	-0.5/+1.0 mm
Width	± 3 mm	
Length	± 3 mm	
Squareness	± 1.0 mm/m	

Tolerances[1] (for untrimmed panels)		
Thickness	-0.5/+0.8 mm	-0.5/+1.0 mm
Width	± 5 mm	
Length	± 5 mm	
Squareness	± 2.0 mm/m	

Weight per m^2 (nominal, ambient)		
	14.9 kg/m^2	18.6 kg/m^2

Weight per panel (without pallet)		
2500 x 1220 mm (trimmed)	45.4 kg	56.7 kg
3050 x 1220 mm (trimmed)	55.4 kg	69.2 kg
2520 x 1240 mm (untrimmed)	46.6 kg	58.1 kg
3070 x 1240 mm (untrimmed)	56.7 kg	70.8 kg

Packaging		
Number of panels on pallet	40	30

Usable surface per pallet		
2500 x 1220 mm (trimmed)	122.0 m^2	91.5 m^2
3050 x 1220 mm (trimmed)	148.8 m^2	111.6 m^2

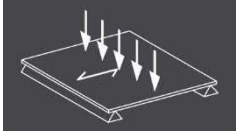
Colour tolerance (CIELAB)[2]
ΔL*, brightness = ± 2.5

[1] Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

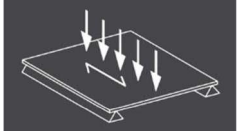
[2] Colour tolerance are only to be measured on dry surfaces.

6. Material Properties

EQUITONE [tectiva] cladding panels conform to the requirements of EN 12467:2012+A2:2018 “Fibre cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification			
Type of product	EN12467	NT	
Durability classification	EN12467	Category A	
Strength classification	EN12467	Class 4	
Dimensional tolerances for trimmed panels	EN12467	Level I	
Dimensional tolerances for untrimmed panels	EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	32.0	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	ambient	EN12467	27.0	MPa
Modulus of rupture[3]	wet	EN12467	23.5	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 25.0	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1630	kg/m³
Moisture movement	30-90 %	EN12467	<0.08	%
Mean module of elasticity	ambient	EN12467	14,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load (8mm)		-	0.16	kN/m²
Characteristic dead load (10mm)		-	0.20	kN/m²

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501-1	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.39	W/mK
Moisture content at 23°C, 80 % humidity		-	6	M.-%
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m³
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m³

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm², M.-% = mass percentage

Note: EQUITONE [tectiva] panels also comply with the requirements of ISO8336:2017 "Fibre cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC, with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [tectiva] fibre cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the facade
- UV-resistant
- Resistant to extreme temperatures
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong and rigid panel
- Hail impact tested
- Can be ideally combined with [lunara] and [linea] in the same colour

Working with the material:

- The material is easy to drill, cut and install with the proper tools
- Cut edges do not need to be sealed
- As the material is uncoated, minor scratches or stains may be sanded off

9. Applications

EQUITONE [tectiva] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [tectiva] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C, and roof applications.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be

foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety

EQUITONE [tectiva] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

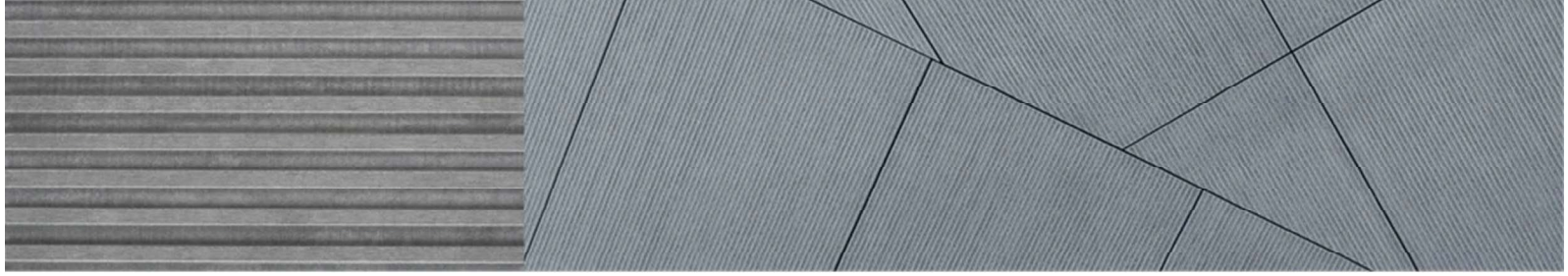
EQUITONE [tectiva] is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.

www.equitone.com

13.9 EQUITONE [lines] material information sheet



EQUITONE
Fibre cement facade materials

EQUITONE [lines]
Material Information Sheet

1. Product Appearance

EQUITONE [lines] is a high-density through coloured fibre cement panel with no coating. The panel has an honest, pure and natural appearance with natural colour variations and hues. The natural characteristic of the panel may be accentuated by the production process as well as light or dark inclusions.

The front face of the panel features grooves. The top of the ridges are characterised by fine sanding lines in the longitudinal direction. The revealed texture of the fibre cement core in the grooves enhances the 3D surface aspect of the panel. The panel has been made water repellent by means of hydrophobation.

2. Colour

The colour is throughout the panel. Natural colour variations, accentuated by the orientation of the panel, the viewing angle and the effects of light and moisture, strengthen the natural look of the façade.

Colour variations and random hues are part of the natural characteristics of the material. Each panel has its own individual character.

Colour differences are measured according to a simplified CIELAB colour model, by which only the parameter lightness ΔL of the colour is followed. Tolerated colour differences on a dry façade are $\Delta L^* = \pm 2.5$.

Available colours

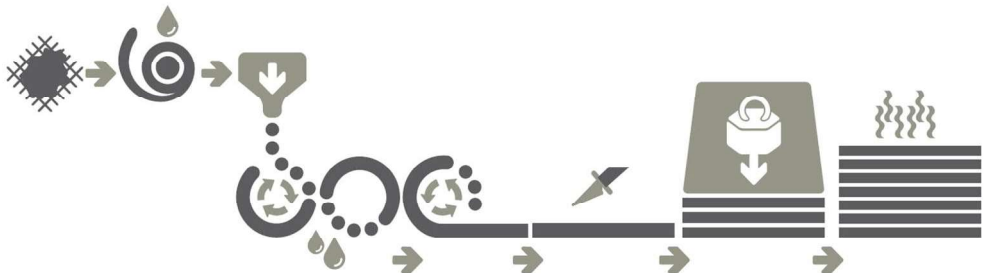
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com.

3. Product Composition

EQUITONE [lines] panels consist of cement, quartz sand, cellulose, natural calcium silicate, inorganic colour pigments, water and additives.

4. Production Method

EQUITONE [lines] is a highly compressed, autoclaved fibre cement material manufactered in Belgium (Europe).



EQUITONE [lines] panels are manufactured through the Hatschek process where the base materials which are mainly cement, sand, cellulose, pigments and water are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

This is followed by a curing process in an autoclave where the panels harden under high temperature and pressure. After curing the panels receive their final finish. The surface is mechanically processed to create a grooved surface.

Subsequently and finally, EQUITONE [lines] panels receive a hydrophobation making the surface water repellant. The back side receives no hydrophobation.

5. Dimensions and Tolerances

EQUITONE [lines] is available in a standard thickness of 10 mm. The panels are always trimmed.

Dimensions	
Panel Thickness	8 mm (valley) / 10 mm (including ridges)
Nominal Thickness (for static bending strength calculation)	8 mm
Number of ridges on full width panel	57
Number of valleys on full width panel	56

Width	
Trimmed	1220 mm

Length	
Trimmed	2500 mm / 3050 mm

Tolerances[1] (for trimmed panels)	
Total thickness	± 1 mm
Thickness in valley	-0.5 / +1.0 mm
Width	± 2 mm
Length	± 2 mm
Squareness	± 1.0 mm/m

Weight per m² (nominal, ambient)	
	16.8 kg/m²

Weight per panel (without pallet)	
2500 x 1220 mm (trimmed)	51.2 kg
3050 x 1220 mm (trimmed)	62.5 kg

Packaging	
Number of panels on pallet	30

Usable surface per pallet	
2500 x 1220 mm (trimmed)	91.5 m²
3050 x 1220 mm (trimmed)	111.6 m²

Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 2.5

The dimensions of the grooves are purely indicative. These are nominal dimensions subject to manufacturing tolerances. The grooves are longitudinal in the panel.

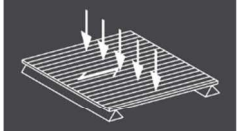
When cutting [lines] panels the center of the valleys or ridges should be kept as reference. When cutting through a ridge, minimum 4 mm of the ridge should be kept at panel edges to prevent damage of the edge.

[1] Factory tolerances for trimmed panels outperform the requirements of the EN12467 Level I dimensional tolerances, respectively.

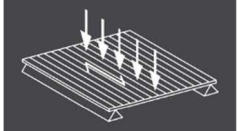
[2] Colour tolerance are only to be measured on the top of the ridges, not in the valleys and only on dry surfaces.

6. Material Properties

EQUITONE [lines] cladding panels conform to the requirements of EN 12467:2012+A1:2018 “Fibre-cement flat sheets – Product specification and test methods“. The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification				
Type of product		EN12467	NT	
Durability classification		EN12467	Category A	
Strength classification		EN12467	Class 4	
Dimensional tolerances for trimmed panels		EN12467	Level I	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	32.0	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	ambient	EN12467	27.0	MPa
Modulus of rupture[3]	wet	EN12467	23.5	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 25.0	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1630	kg/m³
Moisture movement	30-90 %	EN12467	<0.08	%
Mean module of elasticity	ambient	EN12467	14,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load		-	0.18	kN/m²

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501-1	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.39	W/mK
Moisture content at 20°C, 65% humidity		-	6	M.-%
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m^3
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m^3

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm^2, M.-% = mass percentage

Note: EQUITONE [lines] panels also comply with the requirements of ISO8336:2017 "Fibre-cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC, with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [lines] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the facade
- UV-resistant
- Resistant to extreme temperatures
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong and rigid panel
- Hail impact tested
- Can be ideally combined with [tectiva] and [lunara] in the same colour
- The unique 3D design plays with natural light to produce compelling visual effects

Working with the material:

- The material is easy to drill, cut and install with the proper tools
- Cut edges do not need to be sealed

9. Applications

EQUITONE [lines] can be used in several ventilated applications, including, but not limited to:

- Ventilated façade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [lines] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C, and roof applications.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high

concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety

EQUITONE [lines] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

EQUITONE [lines] is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.

www.equitone.com

13.10 EQUITONE [lunara] material information sheet

EQUITONE
Fibre cement facade materials

EQUITONE [lunara]
Material Information Sheet

1. Product Appearance

EQUITONE [lunara] is a high-density through coloured fibre cement panel with no coating. The panel has an honest, pure and natural appearance with natural colour variations and hues. The natural characteristic of the panel may be accentuated by the production process as well as light or dark inclusions.

Its unique texture has a random-looking, non-repeating surface structure, covered with tiny irregular elevations and depressions providing a natural appearance. Thanks to the special production process each panel has its own individual and unique character, no two panels are alike. Colour deviating inclusions contribute to the natural appearance of the surface

The panel has been made water repellent by means of hydrophobation.

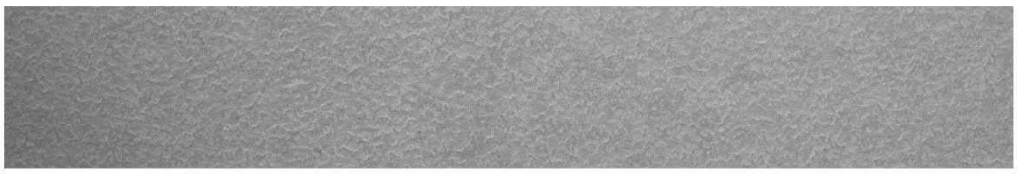
2. Colour

The colour is throughout the panel. Natural colour variations, accentuated by the orientation of the panel, the viewing angle and the effects of light and moisture, strengthen the natural look of the facade.

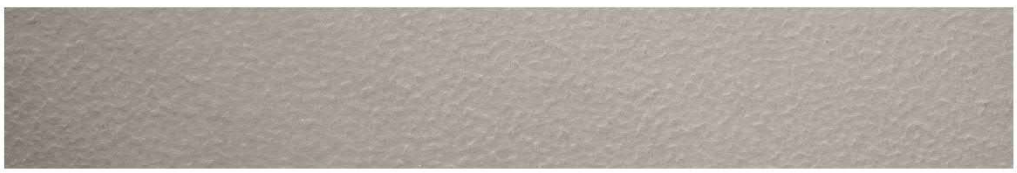
Colour variations and random hues are part of the natural characteristics of the material. Each panel has its own individual character.

Colour differences are measured according to a simplified CIELAB colour model, by which only the parameter lightness ΔL of the colour is followed. Tolerated colour differences on a dry facade are $\Delta L^* = \pm 2.5$.

Available colours



LA 20



LA 60

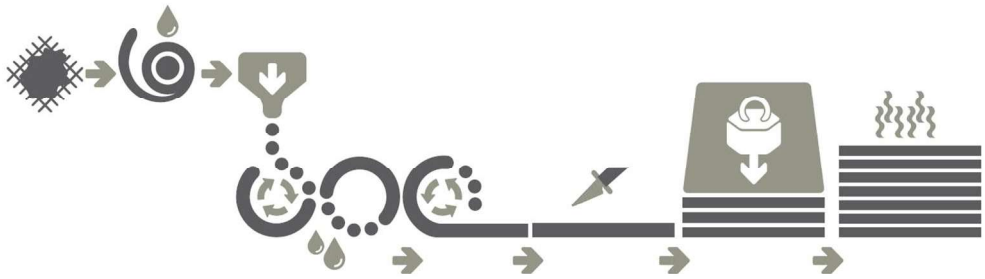
Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website www.equitone.com

3. Product Composition

EQUITONE [lunara] panels consist of cement, quartz sand, cellulose, natural calcium silicate, inorganic colour pigments, water and additives.

4. Production Method

EQUITONE [lunara] is a highly compressed, autoclaved fibre cement material manufactered in Belgium (Europe).



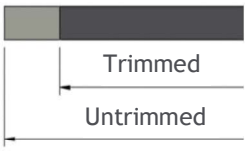
EQUITONE [lunara] panels are manufactured through the Hatschek process where the base materials which are mainly cement, sand, cellulose, pigments and water are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

This is followed by a curing process in an autoclave where the panels harden under high temperature and pressure. After curing the panels receive their final finish. The surface is then mechanically processed to create a unique surface.

Subsequently and finally, EQUITONE [lunara] panels receive a hydrophobation making them water repellant.

5. Dimensions and Tolerances

EQUITONE [lunara] is available in a standard thickness of 10 mm. The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



The panel must not be installed with untrimmed edges. Approximately 10 mm needs to be trimmed from each of the untrimmed (raw) edges. Factory trimmed panels are available in both standard and custom (MTO) trimmed formats. For internal applications where trimmed edges are within close viewing position the latter format may be more suitable. The standard factory trimmed edges may have a slight recess located towards the rear face of the panel.

Dimensions	
Panel Thickness base sheet	10 mm
Nominal Thickness (for static bending strength calculation)	8 mm

Width	
Trimmed	1220 mm
Untrimmed	1240 mm

Length	
Trimmed	2500 mm / 3050 mm
Untrimmed	2520 mm / 3070 mm

Tolerances[1] (for trimmed panels)	
Thickness (at crest)	10 mm ± 1.0 mm
Thikness (in valley)	8 mm -0.2 mm / +1.0 mm
Width	± 3 mm
Length	± 3 mm
Squareness	± 1.0 mm/m

Tolerances[1] (for untrimmed panels)	
Thickness (at crest)	10 mm ± 1.0 mm
Thikness (in valley)	8 mm -0.2 mm / +1.0 mm
Width	± 5 mm
Length	± 5 mm
Squareness	± 2.0 mm/m

Weight per m^2 (nominal, ambient)
18.6 kg/m^2

Weight per panel (without pallet)	
2500 x 1220 mm (trimmed)	56.7 kg
3050 x 1220 mm (trimmed)	69.2 kg
2520 x 1240 mm (untrimmed)	58.1 kg
3070 x 1240 mm (untrimmed)	70.8 kg

Packaging	
Number of panels on pallet	30

Usable surface per pallet	
2500 x 1220 mm (trimmed)	91.5 m^2
3050 x 1220 mm (trimmed)	111.6 m^2

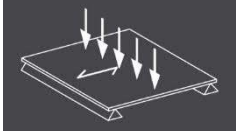
Colour tolerance (CIELAB) [2]	
ΔL*, brightness	± 2.5

[1] Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

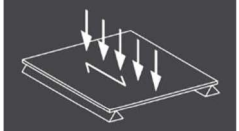
[2] Colour tolerance are only to be measured on dry surfaces.

6. Material Properties

EQUITONE [lunara] cladding panels conform to the requirements of EN 12467:2012+A1:2018 “Fibre cement flat sheets – Product specification and test methods“.The results below are presented as defined by the standard.



[1]Bending strength perpendicular, load perpendicular to the production (longitudinal) direction



[2]Bending strength parallel, load parallel to the production (longitudinal) direction

Classification			
Type of product	EN12467	NT	
Durability classification	EN12467	Category A	
Strength classification	EN12467	Class 4	
Dimensional tolerances for trimmed panels	EN12467	Level I	
Dimensional tolerances for untrimmed panels	EN12467	Level II	

Bending strength				
Mean modulus of rupture perpendicular[1]	ambient	EN12467	32.0	MPa
Mean modulus of rupture parallel[2]	ambient	EN12467	22.0	MPa
Modulus of rupture[3]	ambient	EN12467	27.0	MPa
Modulus of rupture[3]	wet	EN12467	23.5	MPa
Characteristic modulus of rupture[3]	ambient	EN12467	≥ 25.0	MPa

[3] Average of perpendicular and parallel values (Mean of values in both directions)
Note: The characteristic values have been determined according to EN 17468-1:2022, chapter 9.1.2 as the 5 % quantile with 75 % probability.

Other physical requirements and characteristics				
Mean density	dry	EN12467	1630	kg/m³
Moisture movement	30-90 %	EN12467	<0.08	%
Mean module of elasticity	ambient	EN12467	14,000	MPa
Water impermeability test		EN12467	No drops/Pass	
Characteristic dead load		-	0.20	kN/m²

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501-1	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	-	0.39	W/mK
Moisture content at 23°C, 80 % humidity		-	6	M.-%
Poisson's ratio	ν	-	0.2	-
Total volatile organic compounds (TVOC)		CDPH Method	< 0.5	mg/m^3
Individual VOC			< limit	
Formaldehyde			≤ 0.009	mg/m^3

Note to the units: 1 K (degree Kelvin) = 1°C, 1 MPa (Mega Pascal) = 1 N/mm^2, M.-% = mass percentage

Note: EQUITONE [lunara] panels also comply with the requirements of ISO8336:2017 "Fibre cement flat sheets – Product specification and test methods"

Performance to AS/NZS 2908.2(**)

Classification		
Dimensional and geometrical tolerances	AS/NZS 2908.2	Compliant
Durability Classification	AS/NZS 2908.2	Type A
Bending Strength Classification	AS/NZS 2908.2	Category 5
Water Permeability	AS/NZS 2908.2	Compliant
Frost Resistance	AS/NZS 2908.2	Compliant
Warm-Water	AS/NZS 2908.2	Compliant
Heat-Rain	AS/NZS 2908.2	Compliant
Soak-Dry	AS/NZS 2908.2	Compliant

(**) Based on an independent assessment and ISO8336 independent testing

7. Fire performance

Australia
EQUITONE facade materials are fibre cement sheeting, and as such are deemed non-combustible in accordance with the following clauses of the NCC, and may be used wherever a non-combustible material is required.

- C2D10(6)(d) of the NCC 2022 Volume 1
- H3D2(1)(d) of the NCC 2022 Volume 2
- C1.9e(iv) of the NCC 2019 Volume 1 (Amendment 1)
- 3.7.1.1(d) of the NCC 2019 Volume 2 (Amendment 1)

EQUITONE fibre cement façade materials are classified as a 'Group 1' material in compliance with AS5637.1 and Specification C2D11 – Fire hazard properties, of the NCC 2022 Volume 1.

New Zealand
EQUITONE façade materials are classified as Type 'A' cladding materials and fully meet the fire properties requirements of external wall cladding materials as outlined in the Verification Method C/VM2 of the NZBC, with Peak Heat Release Rate (kW/m2) of less than (<) 100 and Total Heat Released (MJ/m2) of less than (<) 25 as determined in accordance with ISO 5660.1 at an irradiance of 50 kW/ m2 for a duration of 15 minutes.

EQUITONE façade materials are classified as a 'Group 1-S' fire resistant material in accordance with the Verification Method C/VM2 (Appendix 'A') and ISO5660, and as such are safe and suitable for internal lining and ceiling applications.

8. Advantages

Providing the application guidelines are followed, EQUITONE [lunara] fibre-cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the facade
- UV-resistant
- Resistant to extreme temperatures
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong and rigid panel
- Can be ideally combined with [tectiva] and [lines] in the same colour

Working with the material:

- The material is easy to drill, cut and install with the proper tools
- Cut edges do not need to be sealed

9. Applications

EQUITONE [lunara] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [lunara] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C, and roof applications.

10. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit www.equitone.com for the most recent Safety Information Sheet.

11. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning and Maintenance Information" Guide.

12. Certification

EQUITONE façade materials and systems are CodeMark certified in Australia and New Zealand. For more details, please refer to the CodeMark certificates available at www.equitone.com.

The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.
The Declaration of Performance is presented in accordance with the CPR and can be found at www.equitone.com.

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety

EQUITONE [lunara] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet. EQUITONE [lunara] is Cradle to Cradle Certified at the Bronze level.

13. Information

Please visit www.equitone.com for contact details and further information and technical documents.