

## CERTIFICATE OF STRUCTURAL ADEQUACY

Project: Fixing Specifications for Knotwood Batten Systems      Project No: 20560  
Date: April 2022  
Engineer: T.Magryn

For: Knotwood Pty Ltd

### GENERAL

Knotwood manufacture architectural aluminium batten systems comprising of “base” battens and “clip-on” battens. Base battens are fixed to parent structural elements (e.g. wall studs, roof/ceiling beams); the clip-on battens subsequently clip into the base battens.

Magryn & Associates have been engaged to:

- Verify the structural adequacy of the clip connection between base battens and clip-in battens under wind loading and self-weight
- Specify base batten fixing details and maximum allowable batten spans under wind loading and self-weight, with consideration of both strength of the battens and capacities of the fixings

The battens systems assessed are:

- 25mm base battens with 50mm, 75mm, 100mm and 150mm wide clip-on battens
- 50mm base battens with 50mm, 100mm, 150mm and 200mm wide clip-on battens
- 25mm base battens with 25mm, 32mm and 40mm wide clip-on battens

Fixing to the following materials is considered:

- Cold-formed steel
- Hot-rolled steel
- Concrete
- Timber
- Masonry
  - Solid clay brick
  - Solid sand lime brick
  - Aerated concrete block

The scope of this certification excludes assessment of the structural elements of the base battens are fixed to.

This certificate supersedes the certificate issued as part of Magryn and Associates Project 19470.

This certificate references BCA2019 Amendment 1 and has been prepared by a NER Structural Engineer.

## BATTEN PRODUCT DOCUMENTATION

Magryn & Associates calculations were based on the following drawings provided by Knotwood:

- 40730 - KWBA5050 – 50x50 base batten
- 33078 - KWB50200B – 200x50 clip-on batten
- 33076 - KWB50150B – 150x50 clip-on batten
- 33077 - KWB50100B – 100x50 clip-on batten
- 33079 - KWB5050B – 50x50 clip-on batten
- 37844 - KW2PA2550 – 50x25 base batten
- 37848 - KW2P25150B – 150x25 clip-on batten
- 37847 - KW2P25100B – 100x25 clip-batten
- 37846 - KW2P2575B – 75x25 clip-on batten
- 37845 - KW2P2550B – 50x25 clip-on batten
- KEB2525M – 25x25 male (base) batten
- KEB2525FSF – 25x25 female (clip-on) batten
- KEB3232FSF – 32x32 female (clip-on) batten
- KEB4040FSF – 40x40 female (clip-on) batten

As indicated on the drawings, it is assumed all batten products are manufactured of 6063 alloy with T6 temper.

## INSTALLATION

This certification applies to battens installed:

- Onto wall, roof or ceiling elements, at any inclination
- Horizontally, vertically, or otherwise

This certification does not apply to batten systems which incorporate a 45-degree joiner (e.g. product KEBJ45D-6050 or similar).

## DESIGN STANDARDS

The battens were checked in accordance with the latest versions of the following standards:

AS/NZS 1170.0	Structural design actions: Part 0: General principles
AS/NZS 1170.1	Structural design actions: Part 1: Permanent, Imposed and other actions
AS/NZS 1170.2	Structural design actions: Part 2: Wind actions
AS/NZS 1664.1	Aluminium structures: Part 1: Limit state design

## DESIGN CRITERIA

Design loads considered are self-weight and wind loads for Regions A, B and C in Australia. The following wind parameters have been adopted:

- Wind average recurrence interval of 500 years
- Terrain Category 2
- Building height  $\leq 20\text{m}$
- Shielding and Topographic Multiplier  $M_s$  and  $M_t$  taken as 1.0
- Aspect ratio correction and angle of inclination factors  $K_{ar}$  and  $K_i$  taken as 1.0

## RESULTS

### Clip Connections

Magryn and Associates confirm the structural adequacy of the clip connections between all batten systems under the considered loading conditions.

### Fixing Specifications

All fixing anchors are to be stainless steel. Alternatively, hot dipped galvanised steel fixings can be used in combination with a neoprene washer to isolate the fixing anchor from the aluminium.

For the 50mm base batten, fixing screws are to be installed in pairs of two at 25mm centres to the perforated groove in the base batten at maximum centres detailed below, and with one pair of screws at each end of each base batten component.

For the 25mm base batten, fixing screws are to be installed at the centre to the perforated groove in the base batten at maximum centres detailed below, and with one screw at each end of each base batten component.

Fixing bolts are to be installed as single bolts to the centre of the base batten at maximum centres detailed below, and with one bolt at each end of each base batten component. If required, the screw flutes are to be removed locally to allow for installation of the bolts centrally in the base batten.

All fixings are to be installed in accordance with manufacturer's specifications.

### **Fixing Notes:**

#### **Timber:**

- Nominal embedment depth to timber to be 35mm.
- Fixing to be central in timber element.

#### **Concrete:**

- Nominal embedment depth to be 70mm for Hilti HUS-HR Screw Anchors.

- Minimum thickness of concrete to be 100mm for Hilti HUS-HR Screw Anchors.
- Minimum distance from the concrete edge to be 140mm.

**Masonry:**

- Nominal embedment depth to be 75mm.
- Minimum anchor spacing to be 80mm.
- Minimum edge distances to be 200mm from the masonry edge, 40mm from vertical masonry mortar joints, and 20mm from horizontal masonry mortar joints.
- One anchor per brick.

## 1. 50x50 Batten Fixing Requirements:

**Table 1.1 Fixing into cold-formed steel:**

50x50	Wind Region A	Wind Region B	Wind Region C
<b>Steel 0.55BMT</b>	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*
<b>Steel 0.75BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*
<b>Steel 1.20BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*	2 No. Buildex <b>#14-12 CyclonicZips</b> at 4200mm centres*

\* - Spacing dictated by maximum span of section allowed.

**Table 1.2 Fixing into timber:**

50x50	Wind Region A	Wind Region B	Wind Region C
<b>F7 Timber Pine</b>	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*
<b>F17 Timber Hardwood</b>	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*	2 No. Buildex <b>#12-11 BattenZips</b> at 4200mm centres*

\* - Spacing dictated by maximum span of section allowed.

**Table 1.3 Fixing into concrete:**

50x50	Wind Region A	Wind Region B	Wind Region C
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 4200mm centres*	Hilti <b>HUS-HR 8</b> Anchors at 4200mm centres*	Hilti <b>HUS-HR 8</b> Anchors at 4200mm centres*

\* - Spacing dictated by maximum span of section allowed.

**Table 1.4 Fixing into masonry:**

<b>50x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 4200mm centres*	Hilti <b>HUS-HR 8</b> Screw Anchors at 3900mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 2700mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 3800mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 2350mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 750mm centres
<b>Aerated Concrete Block</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 1600mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 700mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 500mm centres

\* - Spacing dictated by maximum span of section allowed.

## 2. 100x50 Batten Fixing Requirements

**Table 2.1 Fixing into cold-formed steel:**

100x50	Wind Region A	Wind Region B	Wind Region C
<b>Steel 0.55BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 2050mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1250mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 800mm centres
<b>Steel 0.75BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 2750mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1700mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1100mm centres
<b>Steel 1.20BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 2750mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1700mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1100mm centres

**Table 2.2 Fixing into timber:**

100x50	Wind Region A	Wind Region B	Wind Region C
<b>F7 Timber Pine</b>	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 2750mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1700mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1100mm centres
<b>F17 Timber Hardwood</b>	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 2750mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1700mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1100mm centres

**Table 2.3 Fixing into concrete:**

100x50	Wind Region A	Wind Region B	Wind Region C
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 3100mm centres	Hilti <b>HUS-HR 8</b> Anchors at 1950mm centres	Hilti <b>HUS-HR 8</b> Anchors at 1300mm centres

**Table 2.4 Fixing into masonry:**

<b>100x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 1250mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 750mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 500mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 750mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 450mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 300mm centres
<b>Aerated Concrete Block</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 250mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 150mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 100mm centres



### 3. 150x50 Batten Fixing Requirements

**Table 3.1 Fixing into cold-formed steel:**

<b>150x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Steel 0.55BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1000mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 620mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 430mm centres
<b>Steel 0.75BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1350mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 840mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 570mm centres
<b>Steel 1.20BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1350mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 840mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 570mm centres

**Table 3.2 Fixing into timber:**

<b>150x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>F7 Timber Pine</b>	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1350mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1700mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 840mm centres
<b>F17 Timber Hardwood</b>	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1350mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1700mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 840mm centres

**Table 3.3 Fixing into concrete:**

<b>150x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 1500mm centres	Hilti <b>HUS-HR 8</b> Anchors at 950mm centres	Hilti <b>HUS-HR 8</b> Anchors at 650mm centres

**Table 3.4 Fixing into masonry:**

<b>150x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 600mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 380mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 260mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 350mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 230mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 150mm centres
<b>Aerated Concrete Block</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 120mm centres	<i>Not Recommended</i>	<i>Not Recommended</i>

#### 4. 200x50 Batten Fixing Requirements

**Table 4.1 Fixing into cold-formed steel:**

<b>200x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Steel 0.55BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 880mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 550mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 370mm centres
<b>Steel 0.75BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1150mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 740mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 500mm centres
<b>Steel 1.20BMT</b>	2 No. Buildex <b>#14-12 CyclonicZips</b> at 1150mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 740mm centres	2 No. Buildex <b>#14-12 CyclonicZips</b> at 500mm centres

**Table 4.2 Fixing into timber:**

<b>200x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>F7 Timber Pine</b>	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1150mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 740mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 500mm centres
<b>F17 Timber Hardwood</b>	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 1150mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 740mm centres	2 No. Buildex <b>#14-10 Type 17 Screws</b> at 500mm centres

**Table 4.3 Fixing into concrete:**

<b>200x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 900mm centres	Hilti <b>HUS-HR 8</b> Anchors at 560mm centres	Hilti <b>HUS-HR 8</b> Anchors at 380mm centres

**Table 4.4 Fixing into masonry:**

<b>200x50</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 360mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 220mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 150mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 210mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 130mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 150mm centres
<b>Aerated Concrete Block</b>	<i>Not Recommended</i>	<i>Not Recommended</i>	<i>Not Recommended</i>

## 5. 50x25 Batten Fixing Requirements:

**Table 5.1 Fixing into cold-formed steel:**

<b>50x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Steel 0.55BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 1850mm centres	Buildex <b>#14-12 CyclonicZips</b> at 1150mm centres	Buildex <b>#14-12 CyclonicZips</b> at 780mm centres
<b>Steel 0.75BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 1850mm centres	Buildex <b>#14-12 CyclonicZips</b> at 1150mm centres	Buildex <b>#14-12 CyclonicZips</b> at 780mm centres
<b>Steel 1.20BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 1850mm centres	Buildex <b>#14-12 CyclonicZips</b> at 1150mm centres	Buildex <b>#14-12 CyclonicZips</b> at 780mm centres

**Table 5.2 Fixing into timber:**

<b>50x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>F7 Timber Pine</b>	Buildex <b>#14-10 Type 17 Screw</b> at 1850mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 1150mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 780mm centres
<b>F17 Timber Hardwood</b>	Buildex <b>#14-10 Type 17 Screw</b> at 1850mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 1150mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 780mm centres

**Table 5.3 Fixing into concrete:**

<b>50x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 2600mm centres*	Hilti <b>HUS-HR 8</b> Anchors at 1950mm centres	Hilti <b>HUS-HR 8</b> Anchors at 1300mm centres

\* - Spacing dictated by maximum span of section allowed.

**Table 5.4 Fixing into masonry:**

<b>50x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 2500mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 1500mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 1000mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 1500mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 940mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 640mm centres
<b>Aerated Concrete Block</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 500mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 310mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 200mm centres

## 6. 75x25 Batten Fixing Requirements

**Table 6.1 Fixing into cold-formed steel:**

<b>75x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Steel 0.55BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 900mm centres	Buildex <b>#14-12 CyclonicZips</b> at 560mm centres	Buildex <b>#14-12 CyclonicZips</b> at 380mm centres
<b>Steel 0.75BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 900mm centres	Buildex <b>#14-12 CyclonicZips</b> at 560mm centres	Buildex <b>#14-12 CyclonicZips</b> at 380mm centres
<b>Steel 1.20BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 900mm centres	Buildex <b>#14-12 CyclonicZips</b> at 560mm centres	Buildex <b>#14-12 CyclonicZips</b> at 380mm centres

**Table 6.2 Fixing into timber:**

<b>75x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>F7 Timber Pine</b>	Buildex <b>#14-10 Type 17 Screw</b> at 900mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 560mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 380mm centres
<b>F17 Timber Hardwood</b>	Buildex <b>#14-10 Type 17 Screw</b> at 900mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 560mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 380mm centres

**Table 6.3 Fixing into concrete:**

<b>75x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 1500mm centres	Hilti <b>HUS-HR 8</b> Anchors at 950mm centres	Hilti <b>HUS-HR 8</b> Anchors at 650mm centres

**Table 6.4 Fixing into masonry:**

<b>75x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 1200mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 750mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 500mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 700mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 450mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 300mm centres
<b>Aerated Concrete Block</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 200mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 150mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 100mm centres



## 7. 100x25 Batten Fixing Requirements

**Table 7.1 Fixing into cold-formed steel:**

100x25	Wind Region A	Wind Region B	Wind Region C
<b>Steel 0.55BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 530mm centres	Buildex <b>#14-12 CyclonicZips</b> at 330mm centres	Buildex <b>#14-12 CyclonicZips</b> at 220mm centres
<b>Steel 0.75BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 530mm centres	Buildex <b>#14-12 CyclonicZips</b> at 330mm centres	Buildex <b>#14-12 CyclonicZips</b> at 220mm centres
<b>Steel 1.20BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 530mm centres	Buildex <b>#14-12 CyclonicZips</b> at 330mm centres	Buildex <b>#14-12 CyclonicZips</b> at 220mm centres

**Table 7.2 Fixing into timber:**

100x25	Wind Region A	Wind Region B	Wind Region C
<b>F7 Timber Pine</b>	Buildex <b>#14-10 Type 17 Screw</b> at 530mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 330mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 220mm centres
<b>F17 Timber Hardwood</b>	Buildex <b>#14-10 Type 17 Screw</b> at 530mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 330mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 220mm centres

**Table 7.3 Fixing into concrete:**

100x25	Wind Region A	Wind Region B	Wind Region C
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 900mm centres	Hilti <b>HUS-HR 8</b> Anchors at 560mm centres	Hilti <b>HUS-HR 8</b> Anchors at 380mm centres

**Table 7.4 Fixing into masonry:**

<b>100x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 720mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 450mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 300mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 430mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 270mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 180mm centres
<b>Aerated Concrete Block</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 140mm centres	<i>Not Recommended</i>	<i>Not Recommended</i>

## 8. 150x25 Batten Fixing Requirements

**Table 8.1 Fixing into cold-formed steel:**

150x25	Wind Region A	Wind Region B	Wind Region C
<b>Steel 0.55BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 250mm centres	Buildex <b>#14-12 CyclonicZips</b> at 150mm centres	Buildex <b>#14-12 CyclonicZips</b> at 100mm centres
<b>Steel 0.75BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 250mm centres	Buildex <b>#14-12 CyclonicZips</b> at 150mm centres	Buildex <b>#14-12 CyclonicZips</b> at 100mm centres
<b>Steel 1.20BMT</b>	Buildex <b>#14-12 CyclonicZips</b> at 250mm centres	Buildex <b>#14-12 CyclonicZips</b> at 150mm centres	Buildex <b>#14-12 CyclonicZips</b> at 100mm centres

**Table 8.2 Fixing into timber:**

150x25	Wind Region A	Wind Region B	Wind Region C
<b>F7 Timber Pine</b>	Buildex <b>#14-10 Type 17 Screw</b> at 250mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 150mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 100mm centres
<b>F17 Timber Hardwood</b>	Buildex <b>#14-10 Type 17 Screw</b> at 250mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 150mm centres	Buildex <b>#14-10 Type 17 Screw</b> at 100mm centres

**Table 8.3 Fixing into concrete:**

150x25	Wind Region A	Wind Region B	Wind Region C
<b>Concrete ≥ Grade N25</b>	Hilti <b>HUS-HR 8</b> Anchors at 420mm centres	Hilti <b>HUS-HR 8</b> Anchors at 260mm centres	Hilti <b>HUS-HR 8</b> Anchors at 180mm centres

**Table 8.4 Fixing into masonry:**

<b>150x25</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Solid clay brick</b>	Hilti <b>HUS-HR 8</b> Screw Anchors at 340mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 200mm centres	Hilti <b>HUS-HR 8</b> Screw Anchors at 140mm centres
<b>Solid Sand Lime Brick</b>	Hilti <b>HUS-HR 6</b> Screw Anchors at 200mm centres	Hilti <b>HUS-HR 6</b> Screw Anchors at 120mm centres	<i>Not Recommended</i>
<b>Aerated Concrete Block</b>	<i>Not Recommended</i>	<i>Not Recommended</i>	<i>Not Recommended</i>

## 9. 25x25 Batten Fixing Requirements:

**Table 9.1 Fixing into cold-formed steel:**

25x25	Wind Region A	Wind Region B	Wind Region C
<b>Steel 0.55BMT</b>	Buildex <b>#12-11 BattenZip</b> at 2750mm centres*	Buildex <b>#12-11 BattenZip</b> at 1950mm centres*	Buildex <b>#12-11 BattenZip</b> at 1800mm centres*
<b>Steel 0.75BMT</b>	Buildex <b>#12-11 BattenZip</b> at 2750mm centres*	Buildex <b>#12-11 BattenZip</b> at 1950mm centres*	Buildex <b>#12-11 BattenZip</b> at 1800mm centres*
<b>Steel 1.20BMT</b>	Buildex <b>#12-11 BattenZip</b> at 2750mm centres*	Buildex <b>#12-11 BattenZip</b> at 1950mm centres*	Buildex <b>#12-11 BattenZip</b> at 1800mm centres*

\* - Spacing dictated by maximum span of section allowed.

**Table 9.2 Fixing into hot-rolled steel:**

25x25	Wind Region A	Wind Region B	Wind Region C
<b>Hot-rolled steel 2.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2750mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 1950mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 1800mm centres*
<b>Hot-rolled steel 3.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2750mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 1950mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 1800mm centres*
<b>Hot-rolled steel 4.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2750mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 1950mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 1800mm centres*

\* - Spacing dictated by maximum span of section allowed.

**10.32x32 Batten Fixing Requirements:****Table 10.1 Fixing into cold-formed steel:**

<b>32x32</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Steel 0.55BMT</b>	Buildex <b>#12-11 BattenZip</b> at 3850mm centres*	Buildex <b>#12-11 BattenZip</b> at 3000mm centres*	Buildex <b>#12-11 BattenZip</b> at 2500mm centres*
<b>Steel 0.75BMT</b>	Buildex <b>#12-11 BattenZip</b> at 3850mm centres*	Buildex <b>#12-11 BattenZip</b> at 3000mm centres*	Buildex <b>#12-11 BattenZip</b> at 2500mm centres*
<b>Steel 1.20BMT</b>	Buildex <b>#12-11 BattenZip</b> at 3850mm centres*	Buildex <b>#12-11 BattenZip</b> at 3000mm centres*	Buildex <b>#12-11 BattenZip</b> at 2500mm centres*

\* - Spacing dictated by maximum span of section allowed.

**Table 10.2 Fixing into hot-rolled steel:**

<b>32x32</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Hot-rolled steel 2.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3850mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3000mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2500mm centres*
<b>Hot-rolled steel 3.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3850mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3000mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2500mm centres*
<b>Hot-rolled steel 4.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3850mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3000mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2500mm centres*

\* - Spacing dictated by maximum span of section allowed.

**11.40x40 Batten Fixing Requirements:**

<b>40x40</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Steel 0.55BMT</b>	Buildex <b>#12-11 BattenZip</b> at 4550mm centres*	Buildex <b>#12-11 BattenZip</b> at 3600mm centres*	Buildex <b>#12-11 BattenZip</b> at 2950mm centres*
<b>Steel 0.75BMT</b>	Buildex <b>#12-11 BattenZip</b> at 4550mm centres*	Buildex <b>#12-11 BattenZip</b> at 3600mm centres*	Buildex <b>#12-11 BattenZip</b> at 2950mm centres*
<b>Steel 1.20BMT</b>	Buildex <b>#12-11 BattenZip</b> at 4550mm centres*	Buildex <b>#12-11 BattenZip</b> at 3600mm centres*	Buildex <b>#12-11 BattenZip</b> at 2950mm centres*

\* - Spacing dictated by maximum span of section allowed.

<b>40x40</b>	<b>Wind Region A</b>	<b>Wind Region B</b>	<b>Wind Region C</b>
<b>Hot-rolled steel 2.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 4550mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3600mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2950mm centres*
<b>Hot-rolled steel 3.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 4550mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3600mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2950mm centres*
<b>Hot-rolled steel 4.0mm</b>	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 4550mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 3600mm centres*	Buildex <b>#14-10 Hex Head with 5/16 Drive Teks</b> at 2950mm centres*

\* - Spacing dictated by maximum span of section allowed.

For Magryn & Associates Pty. Ltd.



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CPEng.

Attachments:

- SC19470
- SC20560