

Table for Single Fix HU - Fixing to Roof Sheeting - 0.42BMT - Using 4 Bremick 6.2x25mm Vortex Screws - 2100 Modules. Columns include TC, Pitch, H, h/d & hb, Zone, and SPAN (mm) with various wind speed and direction scenarios.

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DESIGN PARAMETERS

WIND PARAMETERS ARE IN ACCORDANCE WITH AS/NZS 1170.2:2021. EARTHQUAKE AND SNOW LOADS ARE EXCLUDED. TABLES ARE SUITABLE FOR BUILDINGS INCLUSIVE OF PARAMETERS REFERRED TO IN THE TABLES BELOW AND ASSUMPTION MANUAL ATTACHED.

GENERAL

- SPAN TABLE TO BE READ WITH PARTRIDGE ASSUMPTIONS MANUAL.
REVIEW OF SUPPORTING BUILDING FOR STRUCTURAL ADEQUACY TO SUPPORT PANEL INSTALLATION BY OTHERS.
REVIEW OF ROOF SHEETING FOR STRUCTURAL ADEQUACY TO SUPPORT PANEL INSTALLATION BY OTHERS.
THESE SPANS ARE ONLY APPLICABLE TO CONTINUOUS RAILS SUPPORTED BY A MINIMUM OF 4 FASTENERS.
REVIEW OF SOLAR PANEL STRUCTURAL CAPACITY BY OTHERS.
FASTENERS TO BE FIXED TO THE SUB STRUCTURE OR ROOF SHEETING WITH THE QUANTITY AND TYPE OF FASTENER NOTED IN THE TABLE.
ALL FIXTURES TO BE INSTALLED TO THE MANUFACTURERS SPECIFICATIONS.
ALLOWANCE HAS BEEN MADE FOR A SOLAR PANEL SELF WEIGHT OF 0.15 kPa.
2 RAILS MINIMUM ARE TO BE USED FOR ALL WIND REGIONS. RAILS TO BE LOCATED 15%-25% OF THE PANELS LENGTH FROM THE EDGE.
PANELS TO BE ORIENTATED IN THE PORTRAIT POSITION.
ALL RAILS ARE TO BE JOINED WITH RAIL CONNECTORS DOCUMENTED IN SCLLETTER Pty Ltd Technical Article Z-14.4-639.
ALL RAILS TO SPAN THREE FULL SPAN MINIMUM (BE SUPPORTED BY MIN 4 FASTENERS). CANTILEVERS TO BE A MAXIMUM OF 40% OF THE ADJACENT SPAN CAPACITY.
ALL RAILS, CLAMPS AND FASTENERS TO BE INSTALLED IN ACCORDANCE WITH THEIR RELEVANT SCLLETTER INC. DOCUMENTATION.
FASTENERS FIXED TO TIMBER MUST COMPLY WITH EDGE DISTANCES OUTLINED IN AS1702.1:2010 SECTION 4.3.4.
FASTENERS FIXED TO TIMBER FRAMING MUST USE A BREMICK VORTEX UNIVERSAL SCREW, WITH MINIMUM DIAMETER OF 6.2mm, AND A MINIMUM EMBEDMENT OF 35mm.
TIMBER PURLINS MUST HAVE A MINIMUM WIDTH OF 10D WHERE D IS THE DIAMETER OF THE TIMBER SCREW.
TIMBER PURLINS MUST HAVE A MINIMUM GRADE OF F7 AS DEFINED IN AS1720.1.
FASTENERS FIXED TO COLD FORMED STEEL PURLINS MUST COMPLY WITH EDGE DISTANCES OUTLINED IN AS4600:2-18 SECTION 5.4.3.
STEEL PURLINS MUST HAVE A MINIMUM BASE METAL EQUAL TO THE VALUE SPECIFIED IN THE TABLE.
STEEL PURLINS MUST HAVE A MINIMUM WIDTH OF 6D WHERE D IS THE DIAMETER OF THE STEEL SCREW.
PARTRIDGE ENGINEERS Pty Ltd PREPARED DOCUMENTATION, PROJECT NUMBER 2021S0925, IS FOR THE EXCLUSIVE USE BY SCLLETTER AUSTRALIA PTY LTD ONLY.
INSTALLATION VERIFICATION AND ASSOCIATED CERTIFICATION IS BY OTHERS.
NO ALLOWANCE HAS BEEN MADE FOR HYDRAULIC, HAIL OR SNOW LOADING.
INSTALLATION OUTSIDE THE SPECIFIC PARAMETERS REQUIRES SPECIFIC ENGINEERING ANALYSIS.
INSTALLATIONS IN TERRAIN CATEGORY = 1.0, REDUCE EQUIVALENT TERRAIN CATEGORY 2.0 VALUES BY THE FOLLOWING:
Region A = 18%
Region B = 18%
Region C/D = Specific engineering review required.
REFER TO AS1170.2:2021 SECTION 4.2.1 FOR THE DETERMINATION OF TERRAIN CATEGORY.
SOLAR PANELS HAVE BEEN CHECKED FOR WIND LOADINGS AND SHOULD BE CERTIFIED BY THE MANUFACTURER FOR THE VARIOUS SPANS AND WIND REGIONS.

SOLAR PANEL EXCLUSION ZONE & MOUNTING RESTRAINTS

Diagram showing exclusion zones for solar panels at different pitches (< 10° and 10°). Includes text: 'PANELS MUST NOT BE INSTALLED WITHIN A DISTANCE OF 2S FROM THE ROOF EDGE WHERE S IS THE GAP BETWEEN THE UNDERSIDE OF THE PANEL AND THE ROOF SURFACE (ROOF EDGE INCLUDES RIDGES WITH PITCH 10)'. Includes Partridge logo and client information.

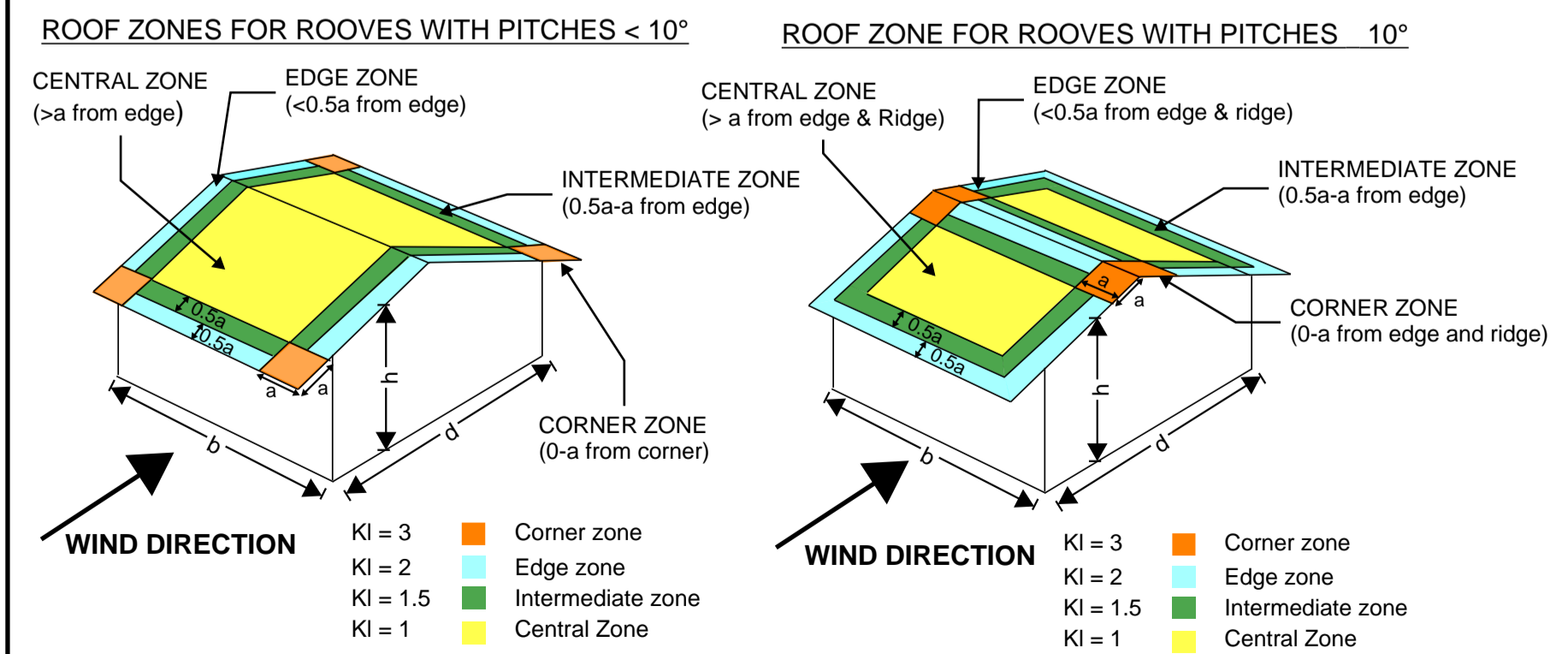
SPAN TABLE RULES FOR FixZ AND h/d OR h/b > 0.5 (SPANS HIGHLIGHTED ORANGE)

THE FASTENER SPACINGS IN THE TABLE ABOVE HIGHLIGHTED ORANGE MUST FOLLOW THE RULES DESCRIBED BELOW. THE FOLLOWING RULES ARE NOT APPLICABLE TO THE UNHIGHLIGHTED FASTENER SPACINGS.

FASTENER SPACINGS HIGHLIGHTED IN ORANGE MUST BE MULTIPLIED BY A FACTOR DEPENDING ON WHERE THEY ARE LOCATED ON THE ROOF. THE DIFFERENT ROOF ZONES CAN BE SEEN IN THE FIGURE BELOW.

- CORNER ZONE: SPACINGS MUST BE MULTIPLIED BY 0.33
EDGE ZONE: SPACINGS MUST BE MULTIPLIED BY 0.5
INTERMEDIATE ZONE: SPACINGS MUST BE MULTIPLIED BY 0.66
CENTRAL ZONE: SPACINGS DO NOT NEED TO BE MULTIPLIED BY ANY FACTOR

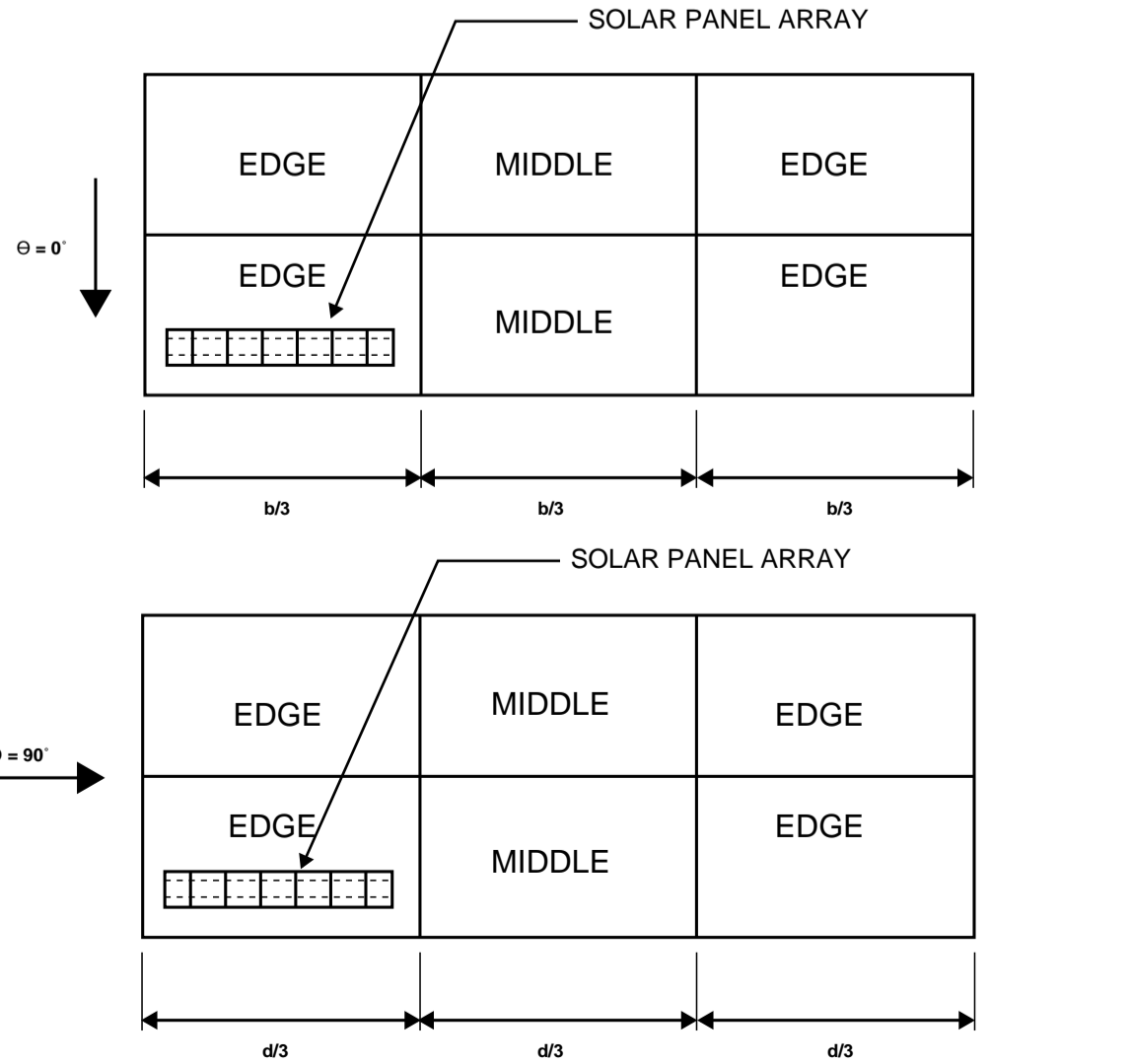
WHERE a = MIN(0.2d, 0.2b) if h/d or h/b > 0.2, or 2a or 2b if h/d and h/b < 0.2



SPAN TABLE RULES FOR FLUSH PANELS WITH h/d AND h/b 0.5 (SPANS NOT HIGHLIGHTED)

THE FASTENER SPACINGS NOT HIGHLIGHTED IN ORANGE IN THE TABLE ABOVE NEED TO FOLLOW THE RULES DESCRIBED BELOW. THE FOLLOWING RULES ARE NOT APPLICABLE TO SPANS THAT ARE HIGHLIGHTED IN ORANGE.

IF THE FASTENER IS LOCATED IN THE EDGE ZONE OF THE ROOF (SEE BELOW), THEN READ THE SPACING FROM THE 'EDGE' CELL. IF THE FASTENER IS LOCATED IN THE MIDDLE ZONE OF THE ROOF, THEN READ THE SPACING FROM THE 'MID' CELL.



REDUCTION FACTORS FOR RAILS SUPPORTED BY LESS THAN 4 FASTENERS

SPANS FROM THE ABOVE TABLE CANNOT BE USED ON CONTINUOUS RAILS THAT ARE SUPPORTED BY LESS THAN 4 FASTENERS. WHERE A RAIL IS SUPPORTED BY LESS THAN 4 FASTENERS THE SPANS ABOVE SHOULD BE MULTIPLIED BY THE BELOW FACTOR.

RAIL SUPPORT REDUCTION FACTOR = 0.89
NOTE: RAIL MUST SPAN BETWEEN MIN TWO FASTENERS.

TERRAIN CATEGORY DEFINITIONS

AS1170.2: 2021 CLAUSE 4.2.1
TC1 - VERY EXPOSED OPEN TERRAIN WITH VERY FEW OR NO OBSTRUCTIONS, AND ALL WATER SURFACES

TC2 - OPEN TERRAIN, INCLUDING GRASSLAND, WITH WELL SCATTERED OBSTRUCTIONS HAVING HEIGHTS GENERALLY FROM 1.5m TO 5m, WITH NO MORE THAN TWO OBSTRUCTIONS PER HECTARE

TC2.5 - TERRAIN WITH SOME TREES OR ISOLATED OBSTRUCTIONS. TERRAIN IN DEVELOPING OUTER URBAN AREAS WITH SCATTERED HOUSES, OR LARGE ACREAGE DEVELOPMENTS WITH MORE THAN TWO AND LESS THAN 10 BUILDINGS PER HECTARE

TC3 - TERRAIN WITH NUMEROUS CLOSELY SPACED OBSTRUCTIONS HAVING HEIGHTS GENERALLY FROM 3m TO 10m. THE MINIMUM DENSITY OF OBSTRUCTIONS SHALL BE AT LEAST THE EQUIVALENT OF 10 HOUSE-SIZE OBSTRUCTIONS PER HECTARE

TC4 - TERRAIN WITH NUMEROUS LARGE, HIGH (10m TO 30m TALL) AND CLOSELY SPACED CONSTRUCTIONS, SUCH AS LARGE CITY CENTRES AND WELL-DEVELOPED INDUSTRIAL COMPLEXES.

ALTERATIONS TO SPAN TABLES FOR SOLAR PANEL SIZE

THIS SPAN TABLE IS FOR SOLAR PANELS OF SIZE 2100x1100mm. EACH RAIL SUPPORTS A SOLAR PANEL WIDTH OF 1050mm. THE SPACINGS SHOWN IN THE TABLES HAVE BEEN CALCULATED ASSUMING EACH PANEL IS SUPPORTED WITH TWO RAILS. THE SPANS IN THE TABLE CAN BE ALTERED FOR LARGER & SMALLER SOLAR PANELS USING THE FOLLOWING EQUATIONS.

FOR SOLAR PANELS WITH LENGTH LARGER THAN 2100mm

Span * (2100 / y)

FOR SOLAR PANELS WITH LENGTH SMALLER THAN 2100mm

Span * sqrt(2100 / y)

WHERE y = NEW SOLAR PANEL LENGTH IN MM

ALTERATIONS TO SPAN TABLES FOR ADDITIONAL RAILS

THIS SPAN TABLE IS FOR SOLAR PANELS OF SIZE 2100x1100mm. EACH RAIL SUPPORTS A SOLAR PANEL WIDTH OF 1050mm. THE SPACINGS SHOWN IN THE TABLES HAVE BEEN CALCULATED ASSUMING EACH PANEL IS SUPPORTED WITH TWO RAILS. THE SPANS IN THE TABLE CAN BE ALTERED FOR ADDITIONAL RAILS USING THE FOLLOWING EQUATION.

Span * (1050 / ((2100) / n))

WHERE n = THAT TOTAL NUMBER RAILS SUPPORTING THE PANEL. RAILS MUST BE SPACED SO THAT THEY SUPPORT EVEN WIDTHS OF THE PANEL.

Table with 4 columns: Rev, Issue / Amendment, By, Date. Contains project revision information.

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Architect:

Project: 2021S0925

Title: Single Fix HU - Fixing to Roof Sheeting - 0.42BMT - Using 4 Bremick 6.2x25mm Vortex Screws - 2100 Modules

Electronic Signature: DO NOT SCALE DRAWINGS USE FIGURED DIMENSIONS

Scale at A1: Date 17/08/2023, Drawing No. 17/08/2023

Job No. 2021S0925, Drawing No. 17/08/2023

Rev. Issue / Amendment, By, Date table