

## espan® PRODUCT SELECTOR GUIDE

WIND ZONE NZS 3604 (ULS) Design Load	espan® 340				espan® 470					
	SWAGES IN PAN		FLAT PAN		SWAGES IN PAN		FLAT PAN			
	VERTICAL CLADDING	ROOFING	VERTICAL CLADDING	ROOFING	VERTICAL CLADDING	ROOFING	VERTICAL CLADDING	*SOLAR LAMINATE ROOFING ONLY	ROOFING	
<b>LOW</b> 0.98kPa	YES	YES	YES	YES	YES	YES	YES	YES	YES	<b>APPROVAL REQUIRED</b>
Maximum span (mm)	VERTICAL CLADDING - 1200mm centres. ROOFING - 900mm intermediate spans & 600mm end spans.									
<b>MEDIUM</b> 1.32kPa	YES	YES	YES	YES	YES	YES	YES	YES	YES	<b>APPROVAL REQUIRED</b>
Maximum span (mm)	VERTICAL CLADDING - 1200mm centres. ROOFING - 900mm intermediate spans & 600mm end spans.				VERTICAL CLADDING - 1000mm centres. ROOFING - 900mm intermediate spans & 600mm end spans.					
<b>HIGH</b> 1.88kPa	YES	YES	YES	YES	YES	YES	YES	YES	YES	<b>NOT SUITABLE</b>
Maximum span (mm)	VERTICAL CLADDING - 900mm centres. ROOFING - 900mm intermediate spans & 600mm end spans.				VERTICAL CLADDING - 800mm centres. ROOFING - 800mm intermediate spans & 520mm end spans.					
<b>VERY HIGH</b> 2.44kPa	YES	YES	YES	YES	YES	YES	YES	YES	YES	<b>NOT SUITABLE</b>
Maximum span (mm)	VERTICAL CLADDING - 800mm centres. ROOFING - 800mm intermediate spans & 550mm end spans.				VERTICAL CLADDING - 700mm centres. ROOFING - 700mm intermediate spans & 450mm end spans.					
<b>EXTRA HIGH</b> 2.96kPa	YES	YES	YES	YES	YES	YES	YES	YES	YES	<b>NOT SUITABLE</b>
Maximum span (mm)	VERTICAL CLADDING - 700mm centres. ROOFING - 700mm intermediate spans & 450mm end spans.				VERTICAL CLADDING - 600mm centres. ROOFING - 600mm intermediate spans & 390mm end spans.					
<b>** (SED)</b>	<b>APPROVAL REQUIRED</b>				<b>APPROVAL REQUIRED</b>					<b>NOT SUITABLE</b>

\*FLAT PAN ONLY ALLOWED FOR ROOFING IF SOLAR LAMINATES ARE INSTALLED AT SAME TIME WITH THE ROOFING INSTALL.

\*\* (SED) FOR SPECIFIC ENGINEERING DESIGN PROJECTS, THE ENGINEER MUST PREPARE A ROOF MAP SHOWING PURLIN SPANS AND LOCAL PRESSURE FACTORS FOR EACH SECTION OF THE ROOFING AND CLADDING. DESIGN LOADS NEED TO BE FULLY FACTORISED AND INCLUDE LOCAL PRESSURE FACTOR + INTERNAL AND EXTERNAL PRESSURE CO-EFFICIENTS.

### GUIDANCE NOTES

If an architect or engineer is designing a building in full accordance with E2/AS1 then it is necessary for the design spans and fixings to comply with those of E2/AS1.

If the architect or designer wishes to use the spans and Fastener patterns as provided by Metalcraft Roofing then they must consider the load on a purlin and a purlin/rafter connection is determined by the wind load and the area of roof the load is acting upon. Roof fasteners transfer wind uplift-loads to the purlins, which in turn transfer them to the primary structure.

Fastening to every second purlin may be within the roof's load/span range, but will double the load acting on the fastened purlins.

All purlins must be fastened to unless alternate purlins are specifically designed to take the additional loads.

For espan® cladding the nogs and cavity battens are laid horizontally.

Refer to espan® Installation guide for more information.

### DESIGN LOAD PARAMETERS:

espan® must resist a Uniformly Distributed Load (UDL) strength load. For roofing end spans have been calculated by multiplying the Intermediate span by 0.66. Spans are based on unrestricted access and allow for a concentrated load of 1.32kN.

In all wind zones, up to Extra High as defined in Table 5.4 NZS3604:2011, the Ultimate kPa loads for Low, Medium, High, Very High, Extra High have been derived from:

Pressure coefficients  $C_{pe} + C_{pi} = 1.1$   
Local pressure factor  $k_l = 1.5$   
Ultimate load factor = 1.0

Projects that are specific engineered design (SED) will use different factors than above and these should be calculated by the project engineer. For SED projects use the graph to AS/NZS 1170 to determine maximum spans and fastener requirements.

Classification of Wind Zones in NZS 3604 are specific to the site. Because the buildings covered by this standard are limited in size, design tables (but not design wind speed) include a local pressure factor of 1.5 kPa over the entire structure, rather than varying factors according to the position on the roof as required by AS/NZS 1170.