MetecnoSpan - Roof Span Table for Housing Application

Non-Cyclonic

		Panel Thickness											
		40 mm			60 mm			80 mm			100 mm		
		Max Span (m)		Max.	Max Span (m)		Max.	Max Span (m)		Max.	Max Span (m)		Max.
Wind Class	ULS Design Wind Pressure (kPa)	Single Span	Multi-Span	Cantilever (mm)	Single Span	Multi-Span	Cantilever (mm)	Single Span	Multi-Span	Cantilever (mm)	Single Span	Multi-Span	Cantilever (mm)
N2	-1.51	3.3	3.6	300	3.6	4.8	500	4.2	5.4	900	4.5	6.0	1200
N3	-2.35	2.4	2.4	300	3.0	3.6	500	3.3	4.5	900	3.6	4.8	1200
N4	-3.50	2.1	1.5	300	2.4	2.4	500	2.7	2.7	900	3.0	3.0	1000
N5	-5.17	-	-	-	1.8	1.5	500	2.1	1.8	700	2.4	2.1	850

Cyclonic

		Panel Thickness											
		40 mm			60 mm			80 mm			100 mm		
		Max Span		Max.	Max Span		Max.	Max Span		Max.	Max Span		Max.
Wind Class	ULS Design Wind Pressure (kPa)	Single Span	Multi-Span	Cantilever (mm)	Single Span	Multi-Span	Cantilever (mm)	Single Span	Multi-Span	Cantilever (mm)	Single Span	Multi-Span	Cantilever (mm)
C1	-3.42	2.1	1.8	300	2.4	2.4	500	2.7	2.7	900	3.0	3.0	1200
C2	-5.08	-	-	-	1.8	1.5	500	2.1	1.8	700	2.4	2.1	800
C3	-7.51	-	-	-	-	-	-	1.5	-	600	1.8	1.5	600
C4	-10.12	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Wind speeds and coefficients based on AS 4055 - Wind Loads for Housing.
2. Roof pressure coefficients based on the following worst case assumptions:
   a) External Pressure - Ratio of building height to least horizontal dimension on plan, h/d < 0.5. C_{pe} = -0.9
   b) Internal Pressure - Non-Cyclonic - Building has no dominate openings & more than one permeable wall or is effectively sealed. C_{pi} = +0.2
   - Cyclonic - Based on dominate opening pressure. C_{pi} = + 0.7
   c) Local Pressure - Least Horizontal Dimension on Plan < 20m (a = 4m). K_l = 1.5
   d) Combination Factor - K_c = 0.95
   e) Non-cyclonic - C_{fig} = -1.57, Cyclonic - C_{fig} = -2.28
3. Serviceability deflection limit of span/150 has been allowed for.
4. Self weight of the panel has been allowed for, plus an allowance of up to 10kg/m2 (0.1kPa dead load) for light duty fittings (lights, etc.).
5. Non-trafficable maintenance access (concentrated load) of 140kg on any span has been allowed for, in roof pans only. Avoid stepping on the ribs.
6. Distributed live load of 0.25kPa (as per AS/NZS 1170.1) has been allowed for.
7. Fixing at each rib for non-cyclonic regions and each rib and pan for cyclonic regions with 14g tek screws (or equivalent) are required.
8. Overhangs:
   a) Max. Overhang min. Of value stated or 40% of backspan.
   b) Overhangs include an allowance for a 1.1kN concentrated load based on strength limit state as a separate loadcase.
9. Span tables have been developed by Bligh Tanner Consulting Engineers by interpretation of physical testing conducted & reported by BRANZ.

Version 5
Oct 2020