



Kingspan TEK[®] Building System

SPAN TABLES

Introduction

This report provides span tables for Kingspan TEK[®] Building System roof panels in a 142 mm and 172 mm thickness. The tables that follow provide generic guidance on the limits of applicability and each individual project should be checked by a suitably qualified engineer. The spans have been calculated using the calculation procedure defined in Annex C of EOTA TR 019.

The values given in the tables provide the maximum permissible clear span (l), in metres both on plan and on the slope (see Figure 1), for Kingspan TEK[®] Building System panels in a 142 mm and 172 mm thickness, for a given permanent action, variable action and roof pitch. Permanent and variable actions should be assessed using the relevant Eurocodes and UK National Annex.

Values are given for single span situations (see Tables 1, 3, 5 and 7) where the panel has two simple supports: one at each end. Values are also given for double span situations (see Tables 2, 4, 6 and 8) where the panel has three supports: a simple support at each end and continuous central support. In a double span situation the span length is given as the plan length between the simple end support and the continuous internal support. It is assumed that the length between each support is equal.

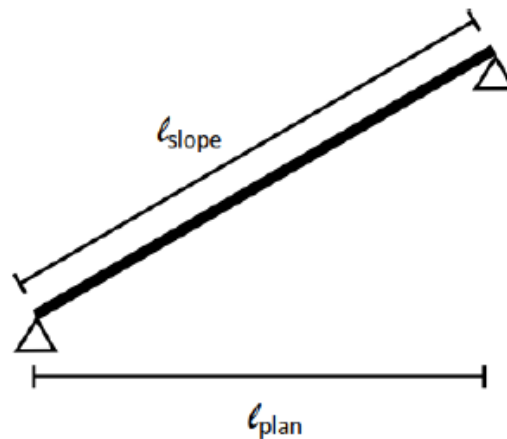


Figure 1 – Illustration of span measured on plan and on slope



Figure 2 – Illustration of single span support conditions

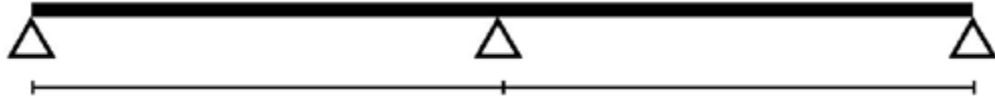


Figure 3 – Illustration of double span support conditions

Definitions and Notes for the Span Tables

Definitions

g_k = Distributed permanent actions applied on the slope of the panel, including self-weight (kN/m^2)

q_k = Distributed variable actions applied on the plan length of the panel (kN/m^2)

Q_k = Concentrated variable actions applied at the most onerous point on the panel (kN)

Notes

- The self-weight of a Kingspan TEK[®] Building System panel (in a 142 mm or 172 mm thickness) is 0.25 kN/m^2 .
- A nominal pitch of 2° has been assumed for a flat roof.
- The variable action duration of load is taken to be short-term.
- It is assumed that variable actions from wind and snow do not govern the design.
- The instantaneous deflection of the panel is limited to $\text{span}/350$.
- The final deflection (including creep) is limited to $\text{span}/250$ for brittle finishes (i.e. plaster).
- The final deflection (including creep) is limited to $\text{span}/150$ for non-brittle finishes.
- Other brittle finishes may require bespoke deflection limits (e.g. glazing).
- The maximum span is presented for the worst case variable action q_k or Q_k .
- The concentrated variable action Q_k is assumed to be distributed over a 1 m width of Kingspan TEK[®] Building System panel.
- The minimum bearing length for an end support is 45 mm.
- The minimum bearing length for an internal support on double span beams is 90 mm.
- The span length between each support of the double span tables is assumed to be equal.
- No axial loads are assumed in the roof panels (i.e. panels require vertical support by walls / purlins or beams at both ends).
- Linear interpolation between values is allowed.
- Extrapolation is not allowed.

Kingspan TEK® Building System (142 mm) Span Table for Final Deflection Limited to Span/250.

For Kingspan TEK® Building System (142 mm) roofs with brittle ceiling finishes, such as a plaster or plasterboard.

Kingspan TEK® Building System (142 mm) – Roof Panels – Single Span – Span/250

Pitch (°)	Permanent Action g_k (kN/m ²)	Variable Action q_k (kN/m ²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	2.77	2.78
2	0.75	0.60	0.90	2.20	2.20
2	1.00	0.60	0.90	1.82	1.82
15	0.50	0.60	0.90	2.75	2.84
15	0.75	0.60	0.90	2.19	2.26
15	1.00	0.60	0.90	1.81	1.87
30	0.50	0.60	0.90	2.66	3.07
30	0.75	0.60	0.90	2.13	2.46
30	1.00	0.60	0.90	1.77	2.04
45	0.50	0.30	0.90	2.59	3.66
45	0.75	0.30	0.90	2.07	2.92
45	1.00	0.30	0.90	1.72	2.43

Table 1

Kingspan TEK® Building System (142 mm) – Roof Panels – Double Span – Span/250

Pitch (°)	Permanent Action g_k (kN/m ²)	Variable Action q_k (kN/m ²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	3.08	3.08
2	0.75	0.60	0.90	2.45	2.45
2	1.00	0.60	0.90	2.02	2.02
15	0.50	0.60	0.90	3.05	3.16
15	0.75	0.60	0.90	2.43	2.51
15	1.00	0.60	0.90	2.01	2.08
30	0.50	0.60	0.90	2.96	3.41
30	0.75	0.60	0.90	2.37	2.73
30	1.00	0.60	0.90	1.97	2.27
45	0.50	0.30	0.90	2.88	4.07
45	0.75	0.30	0.90	2.29	3.25
45	1.00	0.30	0.90	1.91	2.70

Table 2

Kingspan TEK® Building System (172 mm) Span Table for Final Deflection Limited to Span/250.

For Kingspan TEK® Building System (172 mm) roofs with brittle ceiling finishes, such as a plaster or plasterboard.

Kingspan TEK® Building System (172 mm) – Roof Panels – Single Span – Span/250

Pitch (°)	Permanent Action g_k (kN/m ²)	Variable Action q_k (kN/m ²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	3.26	3.26
2	0.75	0.60	0.90	2.60	2.60
2	1.00	0.60	0.90	2.16	2.16
15	0.50	0.60	0.90	3.23	3.34
15	0.75	0.60	0.90	2.58	2.67
15	1.00	0.60	0.90	2.14	2.22
30	0.50	0.60	0.90	3.12	3.60
30	0.75	0.60	0.90	2.51	2.90
30	1.00	0.60	0.90	2.10	2.42
45	0.50	0.30	0.90	3.03	4.28
45	0.75	0.30	0.90	2.43	3.44
45	1.00	0.30	0.90	2.04	2.88

Table 3

Kingspan TEK® Building System (172 mm) – Roof Panels – Double Span – Span/250

Pitch (°)	Permanent Action g_k (kN/m ²)	Variable Action q_k (kN/m ²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	3.62	3.62
2	0.75	0.60	0.90	2.89	2.89
2	1.00	0.60	0.90	2.40	2.40
15	0.50	0.60	0.90	3.58	3.71
15	0.75	0.60	0.90	2.87	2.97
15	1.00	0.60	0.90	2.38	2.47
30	0.50	0.60	0.90	3.47	4.00
30	0.75	0.60	0.90	2.79	3.22
30	1.00	0.60	0.90	2.33	2.69
45	0.50	0.30	0.90	3.36	4.76
45	0.75	0.30	0.90	2.71	3.83
45	1.00	0.30	0.90	2.26	3.20

Table 4

Kingspan TEK® Building System (142 mm) Span Table for Final Deflection Limited to Span/150.

For Kingspan TEK® Building System (142 mm) roofs without a brittle ceiling finish.

Kingspan TEK® Building System (142 mm) – Roof Panels – Single Span – Span/150

Pitch (°)	Permanent Action g_k (kN/m²)	Variable Action q_k (kN/m²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	3.72	3.72
2	0.75	0.60	0.90	3.07	3.07
2	1.00	0.60	0.90	2.62	2.62
15	0.50	0.60	0.90	3.67	3.80
15	0.75	0.60	0.90	3.03	3.14
15	1.00	0.60	0.90	2.59	2.68
30	0.50	0.60	0.90	3.52	4.07
30	0.75	0.60	0.90	2.92	3.37
30	1.00	0.60	0.90	2.51	2.89
45	0.50	0.30	0.90	3.37	4.76
45	0.75	0.30	0.90	2.78	3.94
45	1.00	0.30	0.90	2.39	3.38

Table 5

Kingspan TEK® Building System (142 mm) – Roof Panels – Double Span – Span/150

Pitch (°)	Permanent Action g_k (kN/m²)	Variable Action q_k (kN/m²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	4.13	4.13
2	0.75	0.60	0.90	3.41	3.41
2	1.00	0.60	0.90	2.91	2.91
15	0.50	0.60	0.90	4.08	4.23
15	0.75	0.60	0.90	3.37	3.49
15	1.00	0.60	0.90	2.88	2.98
30	0.50	0.60	0.90	3.91	4.52
30	0.75	0.60	0.90	3.24	3.75
30	1.00	0.60	0.90	2.78	3.21
45	0.50	0.30	0.90	3.74	5.29
45	0.75	0.30	0.90	3.09	4.37
45	1.00	0.30	0.90	2.66	3.76

Table 6

Kingspan TEK® Building System (172 mm) Span Table for Final Deflection Limited to Span/150.

For Kingspan TEK® Building System (172 mm) roofs without a brittle ceiling finish.

Kingspan TEK® Building System (172 mm) – Roof Panels – Single Span – Span/150

Pitch (°)	Permanent Action g_k (kN/m²)	Variable Action q_k (kN/m²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	4.34	4.34
2	0.75	0.60	0.90	3.60	3.60
2	1.00	0.60	0.90	3.08	3.08
15	0.50	0.60	0.90	4.29	4.44
15	0.75	0.60	0.90	3.55	3.68
15	1.00	0.60	0.90	3.05	3.16
30	0.50	0.60	0.90	4.11	4.74
30	0.75	0.60	0.90	3.42	3.95
30	1.00	0.60	0.90	2.94	3.40
45	0.50	0.30	0.90	3.92	5.54
45	0.75	0.30	0.90	3.25	4.60
45	1.00	0.30	0.90	2.80	3.96

Table 7

Kingspan TEK® Building System (172 mm) – Roof Panels – Double Span – Span/150

Pitch (°)	Permanent Action g_k (kN/m²)	Variable Action q_k (kN/m²)	Variable Action Q_k (kN)	Span on Plan (m)	Span on Slope (m)
2	0.50	0.60	0.90	4.82	4.83
2	0.75	0.60	0.90	4.00	4.00
2	1.00	0.60	0.90	3.42	3.42
15	0.50	0.60	0.90	4.76	4.93
15	0.75	0.60	0.90	3.95	4.09
15	1.00	0.60	0.90	3.39	3.51
30	0.50	0.60	0.90	4.56	5.27
30	0.75	0.60	0.90	3.80	4.38
30	1.00	0.60	0.90	3.27	3.78
45	0.50	0.30	0.90	4.36	6.16
45	0.75	0.30	0.90	3.61	5.11
45	1.00	0.30	0.90	3.11	4.40

Table 8