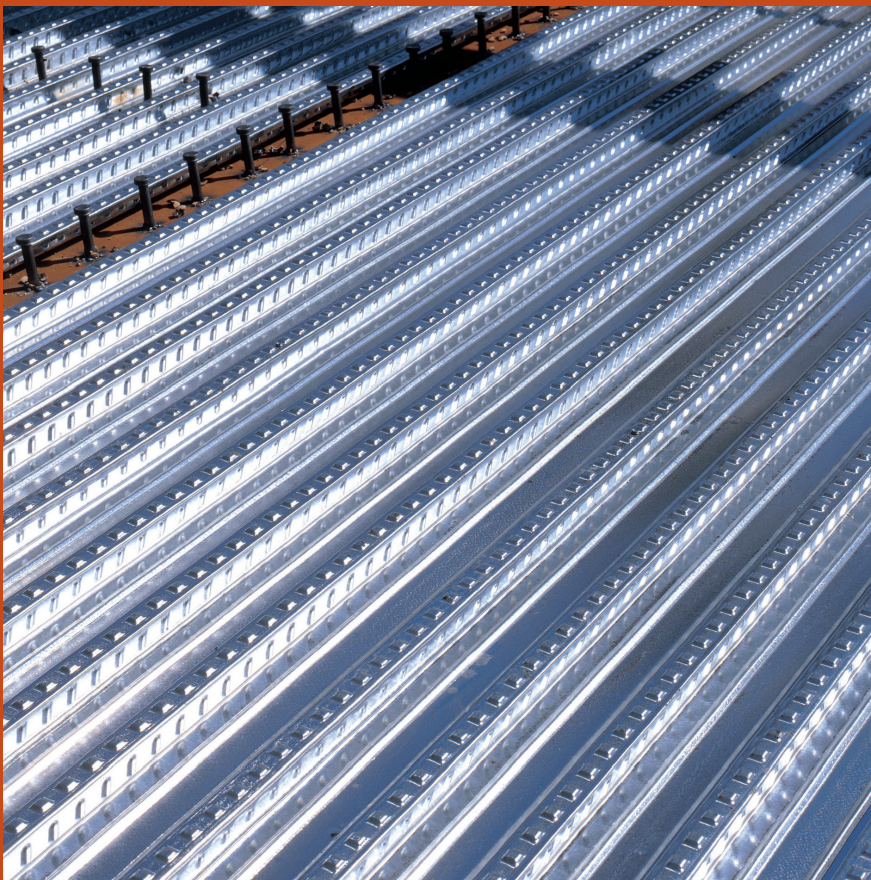


**Structural Products
& Systems**

Multideck



Multideck 50-V3
Galvanised Steel Floor Decking System



Meadowhall Extension, Sheffield UK. Image courtesy of MSW (UK) Ltd.

Introduction

Structural Products & Systems, a sub-division of Kingspan Insulated Panels, is one of Britain's leading designers and manufacturers of structural steel components for the construction industry. Based in Sherburn, North Yorkshire, we operate one of the largest and most advanced production complexes in Europe, manufacturing over 50,000 tonnes of steel products each year. In five decades of trading, we have become an established market leader, renowned for our quality products and innovative designs.

Multideck 50-V3 Floor Decking System

Multideck 50-V3 is a high performance, profiled, galvanised steel floor decking for use in the construction of composite floor slabs. The profile may also be used as a permanent shuttering.

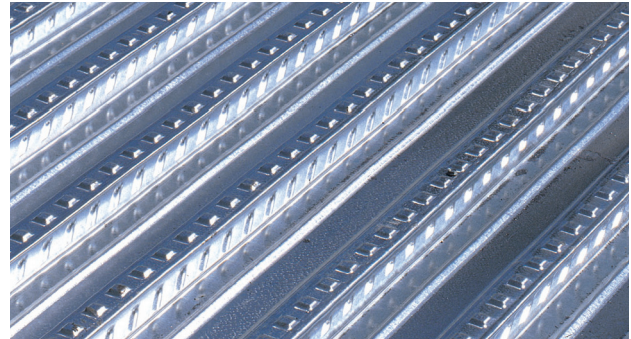
As part of the Kingspan ethos of continuous product and service development, the Multideck 50 system has recently been subject to a number of design improvements that have significantly improved the capability of the product.

As a consequence of the design improvements and an extension of the range of gauges available, the new Multideck 50-V3 provides enhanced performance criteria and the potential to deliver both design and economic benefits compared to the previous V2 system.

Following extensive testing, which investigated the product performance at both construction and composite stages, new performance paradigms and load tables have been produced to allow designers to take advantage of the improvements.

Multideck 50-V3 has the following attributes:

- 50mm 'Dovetail' rib profile, maximising deck bond to concrete;
- Minimum slab depth of 100mm;
- Spans up to 4.0m unpropped;
- Gauge range available up to 1.20mm;
- Shear keys on flange and webs of ribs give class-leading load capacity;
- 1 hour fire performance with 100mm slab depth;
- Fire performance up to 4 hours;
- Acoustic robust solution.



Key benefits to using the Multideck Floor System include:

- The larger range of Multideck gauge thicknesses allow closer matching of design requirements and deck performance, resulting in greater design efficiency.
- Eliminating the need for temporary props, under most conditions, Multideck 50-V3 offers quick and efficient installation.
- A wide range of accessories also allows for easy installation of ceilings and services.
- Our Technical Services Department also provides an engineering and advisory service to specifiers and end users on the use of the Multideck range of composite decks.
- The Multideck Toolkit design software includes comprehensive composite floor design which allows the user to easily select the right Multideck solution. The design software is available for download from the website: www.kingspanstructural.com

For information on the full range of Multideck floor decking systems (including Multideck 60-V2, 80-V2 and 146), please refer to the Multideck Technical Handbook P364.

Product Data

Material Specification - 450N/mm² Steel

Multideck 50-V3 is manufactured from one continuous steel strip and complies with BS EN 10143: 2006 and BS EN 10326: 2004. Multideck 50-V3 offers a guaranteed minimum yield strength of 450N/mm² and a minimum total coating mass (including both sides) of 275g/m².

Concrete Volumes and Specification

Load/span tables are based on Grade C25/30 concrete, having a design strength of 30N/mm². Solutions using other concrete strengths are possible with the Multideck Toolkit design software. Density of normal weight concrete: 2400kg/m³ at wet stage. Density of lightweight concrete: 1900kg/m³ at wet stage.

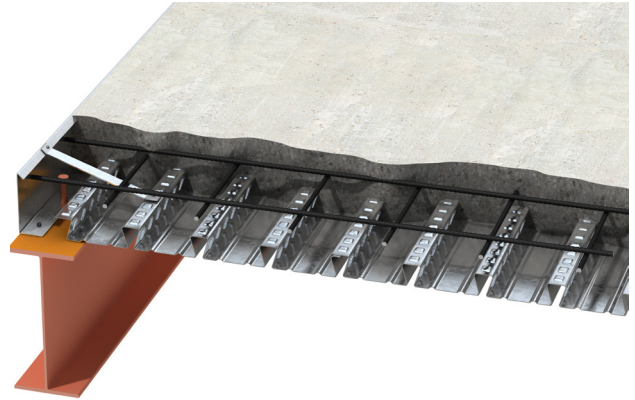
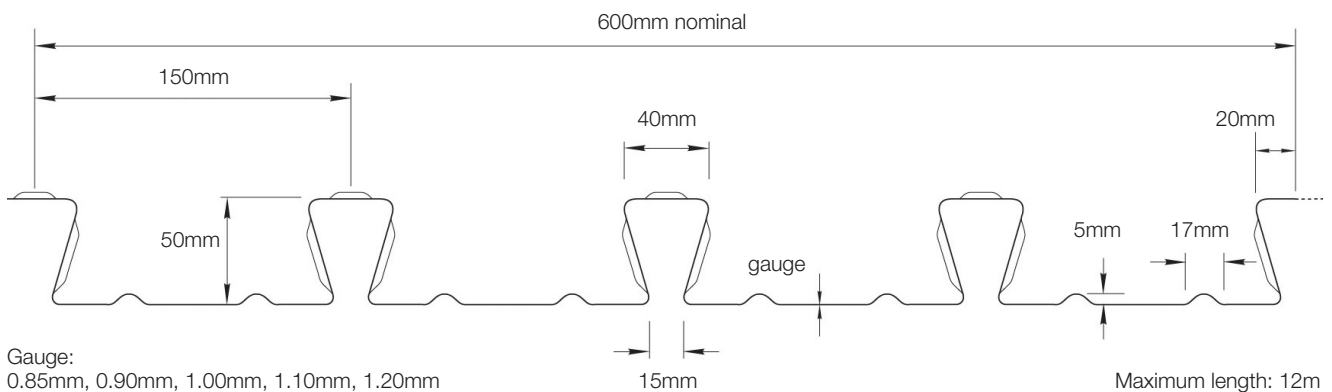
Rake Cutting

Pre-delivery cutting of sections is available. Please contact our Sales Department for details.

Reinforcement

Mesh or bar reinforcement of the slab to control cracking in the concrete at all intermediate supports is required in BS 5950: Part 4: 1994. Steel reinforcement for crack control in the concrete or fire engineering purposes should be in accordance with British Standards: Hot Rolled Bars - BS 4449: 2005 and Mesh Reinforcement - BS 4483: 1998.

Profile and Dimensions (mm)



Embossments

The unique patented combination of embossments on each face of the 'dovetail' profile provides a mechanical connection to enhance the bond between the harden concrete and Multideck 50-V3.

References

Engineers are advised to consult the Steel Construction Institute/ The Metal Cladding and Roofing Manufacturers Association (SCI/ MCRMA) Technical Paper 13 'Composite Slabs and Beams using Steel Decking: Best Practice for Design and Construction'.

Product Data

Section Properties per Metre Width

Nominal Thickness (mm)	Self Weight		Height to Neutral Axis Sagging (mm)	Second Moment of Area (cm ⁴ /m)	Steel Area (mm ² /m)	Ultimate Moment Capacity (kNm/m)	
	(kg/m ²)	(kN/m ²)				Sagging	Hogging
0.85	11.42	0.112	16.10	56.58	1418	6.47	6.30
0.90	12.89	0.126	16.50	66.15	1605	7.72	7.22
1.00	14.36	0.141	16.60	75.90	1792	8.97	7.99
1.10	15.83	0.155	16.70	83.99	1979	10.17	8.82
1.20	17.29	0.170	16.70	92.16	2165	11.31	9.55

Volume and Weight of Composite Slabs on Multideck 50-V3

Slab Depth (mm)	Concrete Volume (m ³ /m ²)	Weight (kN/m ²)			
		Normal Weight Concrete		Lightweight Concrete	
		Wet	Dry	Wet	Dry
100	0.091	2.14	2.10	1.70	1.61
110	0.101	2.38	2.33	1.88	1.78
120	0.111	2.61	2.56	2.07	1.96
125	0.116	2.73	2.67	2.16	2.05
130	0.121	2.85	2.79	2.26	2.14
140	0.131	3.08	3.02	2.44	2.31
150	0.141	3.32	3.25	2.63	2.49
160	0.151	3.56	3.48	2.81	2.67
170	0.161	3.79	3.71	3.00	2.84
200	0.191	4.50	4.40	3.56	3.37
250	0.241	5.67	5.56	4.49	4.26

Notes:

1. Important - concrete volumes do not take into account deflection.
2. Excludes weight of steel decking and relates only to weight of concrete.
3. Concrete volumes are based upon a calculated minimum value (nominal slab depth). Account should be taken of deck and supporting structure deflections.

Load/Span Tables

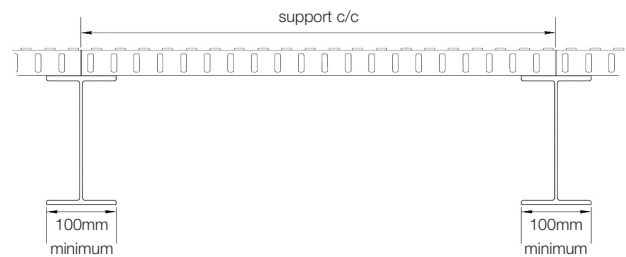
Load/Span Tables

When using load/span tables, please consider the following notes:

1. The table shows the maximum span in metres of the Multideck product for the applied loads and slab depths shown. Values are shown for each gauge where the deck is single span or double span.
2. Construction stage span capacity is generally noted under the 4kN/m² load and is shaded in grey.
3. The span values are based on the use of a minimum 100mm bearing support. Where the bearing exceeds 100mm the span capacity can be increased. See 'Definition of Span' diagram.
4. Deck must lie flat on all supports beams. Point only contact will adversely affect the design loading reducing the capacity below that shown in the tables.
5. The self-weight of the slab has been taken into account in the table and should not be included in the applied loading.
6. All tabulated span capacities include applied construction stage load of 1.5kN/m² for spans equal to or greater than 3.0m.
7. The composite slab should meet the requirements of BS 5950: Part 4: 1994 with regard to their composite behaviour under normal loading.
8. The concrete grade is a minimum of C25/30 with a minimum cube strength of 30N/mm².
9. Minimum reinforcement mesh sizes shown meet or exceed 0.1% gross cross sectional area of the concrete at the supports. Minimum reinforcement should be increased where:
 - a) The slab is propped during construction.
 - b) It is required to control the size of cracking in the concrete, i.e. where a brittle finish is applied to the slab.
 - c) There are moving loads.Mesh reinforcement should be placed near the upper edge of the concrete slab in a zone of 15mm to 40mm from the top of surface. Concrete cover to reinforcement should be increased where slab exposure dictates.
10. Fire resistance performance of the composite concrete Multideck 50-V3 slab is as documented and tabulated on pages 13 through 22.
11. Total applied load referred to in the table is a working load derived from the sum of the loads supported by the composite slab (live load, finishes, ceilings, services, partitions). Loads shown are based on the ultimate capacity divided by 1.6. The slab self-weight has already been taken into account, do not include in applied loads.

12. Deflection under construction loading (wet concrete etc) has been limited to that stipulated in BS5950: Part 4: 1994 as 30mm or the span divided by 130, whichever is smaller. At the composite stage the suggested maximum ratio of slab span to slab depth is 35 for NWC and 30 for LWC to control deflection.
13. For the propped during construction cases, the temporary supports should remain in place until the concrete has achieved 75% of its 28 day cube strength (often available after 7 days).
14. Where more than one prop is provided they should be equally spaced across the span of the Multideck system.
15. The sound attenuation performance of the composite concrete Multideck 50-V3 slab is as documented and tabulated on page 23.

Definition of Span (construction stage) when using Kingspan Load/Span Tables



Support Widths Greater than 100mm?

The span capacities shown on the following pages can be increased by the difference between the actual support widths and 100mm. The deck span (m) used in the table is based on: (support c/c - support bearing) + the deck depth. All values are in metres.

Example

Support widths 140mm and 200mm.

Span values can be increased by: $(140 + 200)/2 - 100 = 70\text{mm}$.

Multideck 50-V3 1.2mm double span deck.

150mm thick slab - normal weight concrete.



Construction stage span: 4.0N/m² load column = 3780mm.

With support widths of 140 and 200 the increased span capacity is $3780 + 70 = 3850\text{mm}$.

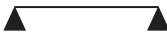

Load/Span Tables

Normal Weight Concrete Unpropped Load/Span Tables (Steel - 450N/mm²)

Gauge - 0.85mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.02	3.02	3.02	3.00	3.00	2.99
	110	A142	2.94	2.94	2.94	2.94	2.94	2.94
	120	A142	2.87	2.87	2.87	2.87	2.87	2.87
	130	A142	2.78	2.78	2.78	2.78	2.78	2.78
	140	A142	2.71	2.71	2.71	2.71	2.71	2.71
	150	A142	2.63	2.63	2.63	2.63	2.63	2.63
	160	A193	2.58	2.58	2.58	2.58	2.58	2.58
	175	A193	2.49	2.49	2.49	2.49	2.49	2.49
	200	A193	2.36	2.36	2.36	2.36	2.36	2.36
	250	A252	2.16	2.16	2.16	2.16	2.16	2.16
	100	A142	3.31	3.31	3.31	3.31	3.31	3.20
	110	A142	3.21	3.21	3.21	3.21	3.21	3.21
	120	A142	3.13	3.13	3.13	3.13	3.13	3.13
	130	A142	3.05	3.05	3.05	3.05	3.05	3.05
	140	A142	2.97	2.97	2.97	2.97	2.97	2.97
	150	A142	2.89	2.89	2.89	2.89	2.89	2.89
	160	A193	2.81	2.81	2.81	2.81	2.81	2.81
	175	A193	2.71	2.71	2.71	2.71	2.71	2.71
	200	A193	2.57	2.57	2.57	2.57	2.57	2.57
	250	A252	2.35	2.35	2.35	2.35	2.35	2.35

Gauge - 0.90mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.17	3.17	3.17	3.00	3.00	3.00
	110	A142	3.08	3.08	3.08	3.08	3.08	3.08
	120	A142	3.01	3.01	3.01	3.01	3.01	3.01
	130	A142	2.94	2.94	2.94	2.94	2.94	2.94
	140	A142	2.88	2.88	2.88	2.88	2.88	2.88
	150	A142	2.82	2.82	2.82	2.82	2.82	2.82
	160	A193	2.77	2.77	2.77	2.77	2.77	2.77
	175	A193	2.70	2.70	2.70	2.70	2.70	2.70
	200	A193	2.59	2.59	2.59	2.59	2.59	2.59
	250	A252	2.38	2.38	2.38	2.38	2.38	2.38
	100	A142	3.59	3.50	3.49	3.49	3.40	3.20
	110	A142	3.49	3.49	3.49	3.49	3.49	3.49
	120	A142	3.40	3.40	3.40	3.40	3.40	3.40
	130	A142	3.32	3.32	3.32	3.32	3.32	3.32
	140	A142	3.24	3.24	3.24	3.24	3.24	3.24
	150	A142	3.17	3.17	3.17	3.17	3.17	3.17
	160	A193	3.10	3.10	3.10	3.10	3.10	3.10
	175	A193	3.00	3.00	3.00	3.00	3.00	3.00
	200	A193	2.84	2.84	2.84	2.84	2.84	2.84
	250	A252	2.58	2.58	2.58	2.58	2.58	2.58

Notes:

Total applied load referred to in the above tables is a working load based on combinations of live loads, finishes, ceilings, services and partitions (excluding slab self weight).

Permanent Support ▲



For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This design software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

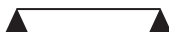

Load/Span Tables

Normal Weight Concrete Unpropped Load/Span Tables (Steel - 450N/mm²)

Gauge - 1.00mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.30	3.30	3.22	3.00	3.00	3.00
	110	A142	3.22	3.22	3.22	3.22	3.22	3.22
	120	A142	3.14	3.14	3.14	3.14	3.14	3.14
	130	A142	3.07	3.07	3.07	3.07	3.07	3.07
	140	A142	3.00	3.00	3.00	3.00	3.00	3.00
	150	A142	2.94	2.94	2.94	2.94	2.94	2.94
	160	A193	2.89	2.89	2.89	2.89	2.89	2.89
	175	A193	2.81	2.81	2.81	2.81	2.81	2.81
	200	A193	2.70	2.70	2.70	2.70	2.70	2.70
	250	A252	2.53	2.53	2.53	2.53	2.53	2.53
	100	A142	3.85	3.56	3.50	3.50	3.40	3.19
	110	A142	3.74	3.74	3.74	3.74	3.74	3.54
	120	A142	3.64	3.64	3.64	3.64	3.64	3.64
	130	A142	3.55	3.55	3.55	3.55	3.55	3.55
	140	A142	3.47	3.47	3.47	3.47	3.47	3.47
	150	A142	3.39	3.39	3.39	3.39	3.39	3.39
	160	A193	3.32	3.32	3.32	3.32	3.32	3.32
	175	A193	3.22	3.22	3.22	3.22	3.22	3.22
	200	A193	3.07	3.07	3.07	3.07	3.07	3.07
	250	A252	2.80	2.80	2.80	2.80	2.80	2.80

Gauge - 1.10mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.40	3.40	3.28	3.00	3.00	3.00
	110	A142	3.31	3.31	3.31	3.31	3.30	3.30
	120	A142	3.24	3.24	3.24	3.24	3.24	3.24
	130	A142	3.16	3.16	3.16	3.16	3.16	3.16
	140	A142	3.10	3.10	3.10	3.10	3.10	3.10
	150	A142	3.04	3.04	3.04	3.04	3.04	3.04
	160	A193	2.98	2.98	2.98	2.98	2.98	2.98
	175	A193	2.90	2.90	2.90	2.90	2.90	2.90
	200	A193	2.86	2.86	2.86	2.86	2.86	2.86
	250	A252	2.61	2.61	2.61	2.61	2.61	2.61
	100	A142	4.08	3.61	3.50	3.50	3.41	3.19
	110	A142	3.97	3.93	3.85	3.85	3.76	3.53
	120	A142	3.87	3.87	3.87	3.87	3.87	3.87
	130	A142	3.77	3.77	3.77	3.77	3.77	3.77
	140	A142	3.68	3.68	3.68	3.68	3.68	3.68
	150	A142	3.59	3.59	3.59	3.59	3.59	3.59
	160	A193	3.52	3.52	3.52	3.52	3.52	3.52
	175	A193	3.40	3.40	3.40	3.40	3.40	3.40
	200	A193	3.26	3.26	3.26	3.26	3.26	3.26
	250	A252	2.99	2.99	2.99	2.99	2.99	2.99

Notes:

Total applied load referred to in the above tables is a working load based on combinations of live loads, finishes, ceilings, services and partitions (excluding slab self weight).

Permanent Support ▲



For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This design software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Load/Span Tables

Normal Weight Concrete Unpropped Load/Span Tables (Steel - 450N/mm²)

Gauge - 1.20mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.50	3.50	3.32	3.05	3.00	3.00
	110	A142	3.42	3.42	3.42	3.35	3.28	3.28
	120	A142	3.33	3.33	3.33	3.33	3.33	3.33
	130	A142	3.25	3.25	3.25	3.25	3.25	3.25
	140	A142	3.19	3.19	3.19	3.19	3.19	3.19
	150	A142	3.12	3.12	3.12	3.12	3.12	3.12
	160	A193	3.07	3.07	3.07	3.07	3.07	3.07
	175	A193	2.99	2.99	2.99	2.99	2.99	2.99
	200	A193	2.87	2.87	2.87	2.87	2.87	2.87
	250	A252	2.69	2.69	2.69	2.69	2.69	2.69
	100	A142	4.19	3.66	3.50	3.50	3.41	3.19
	110	A142	4.12	3.98	3.85	3.85	3.76	3.55
	120	A142	4.03	4.03	4.03	4.03	4.03	3.88
	130	A142	3.95	3.95	3.95	3.95	3.95	3.95
	140	A142	3.87	3.87	3.87	3.87	3.87	3.87
	150	A142	3.78	3.78	3.78	3.78	3.78	3.78
	160	A193	3.70	3.70	3.70	3.70	3.70	3.70
	175	A193	3.59	3.59	3.59	3.59	3.59	3.59
	200	A193	3.42	3.42	3.42	3.42	3.42	3.42
	250	A252	3.13	3.13	3.13	3.13	3.13	3.13

Notes:

Total applied load referred to in the above tables is a working load based on combinations of live loads, finishes, ceilings, services and partitions (excluding slab self weight).

Permanent Support ▲



For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This design software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

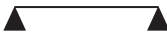

Load/Span Tables

Lightweight Concrete Unpropped Load/Span Tables (Steel - 450N/mm²)

Gauge - 0.85mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.22	3.22	2.94	2.73	2.57	2.50
	110	A142	3.14	3.14	3.14	2.97	2.79	2.75
	120	A142	3.06	3.06	3.06	3.06	3.02	2.99
	130	A142	3.00	3.00	3.00	3.00	3.00	3.00
	140	A142	2.94	2.94	2.94	2.94	2.94	2.94
	150	A142	2.87	2.87	2.87	2.87	2.87	2.87
	160	A193	2.80	2.80	2.80	2.80	2.80	2.80
	175	A193	2.71	2.71	2.71	2.71	2.71	2.71
	200	A193	2.58	2.58	2.58	2.58	2.58	2.58
	250	A252	2.36	2.36	2.36	2.36	2.36	2.36
	100	A142	3.51	3.23	3.00	3.00	3.00	3.00
	110	A142	3.42	3.42	3.29	3.29	3.29	3.29
	120	A142	3.34	3.34	3.34	3.34	3.34	3.34
	130	A142	3.26	3.26	3.26	3.26	3.26	3.26
	140	A142	3.19	3.19	3.19	3.19	3.19	3.19
	150	A142	3.13	3.13	3.13	3.13	3.13	3.13
	160	A193	3.06	3.06	3.06	3.06	3.06	3.06
	175	A193	2.96	2.96	2.96	2.96	2.96	2.96
	200	A193	2.81	2.81	2.81	2.81	2.81	2.81
	250	A252	2.57	2.57	2.57	2.57	2.57	2.57

Gauge - 0.90mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.38	3.29	2.99	2.77	2.61	2.51
	110	A142	3.29	3.29	3.25	3.01	2.84	2.75
	120	A142	3.21	3.21	3.21	3.21	3.06	3.00
	130	A142	3.15	3.15	3.15	3.15	3.15	3.15
	140	A142	3.08	3.08	3.08	3.08	3.08	3.08
	150	A142	3.02	3.02	3.02	3.02	3.02	3.02
	160	A193	2.96	2.96	2.96	2.96	2.96	2.96
	175	A193	2.89	2.89	2.89	2.89	2.89	2.89
	200	A193	2.78	2.78	2.78	2.78	2.78	2.78
	250	A252	2.60	2.60	2.60	2.60	2.60	2.60
	100	A142	3.76	3.29	3.00	3.00	3.00	3.00
	110	A142	3.71	3.58	3.30	3.30	3.30	3.30
	120	A142	3.63	3.60	3.60	3.60	3.60	3.60
	130	A142	3.54	3.54	3.54	3.54	3.54	3.54
	140	A142	3.47	3.47	3.47	3.47	3.47	3.47
	150	A142	3.40	3.40	3.40	3.40	3.40	3.40
	160	A193	3.33	3.33	3.33	3.33	3.33	3.33
	175	A193	3.24	3.24	3.24	3.24	3.24	3.24
	200	A193	3.10	3.10	3.10	3.10	3.10	3.10
	250	A252	2.84	2.84	2.84	2.84	2.84	2.84

Notes:

Total applied load referred to in the above tables is a working load based on combinations of live loads, finishes, ceilings, services and partitions (excluding slab self weight).

Permanent Support ▲



For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This design software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

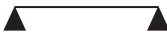

Load/Span Tables

Lightweight Concrete Unpropped Load/Span Tables (Steel - 450N/mm²)

Gauge - 1.00mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.52	3.35	3.04	2.82	2.65	2.52
	110	A142	3.43	3.43	3.30	3.06	2.88	2.75
	120	A142	3.35	3.35	3.35	3.31	3.11	3.00
	130	A142	3.28	3.28	3.28	3.28	3.28	3.25
	140	A142	3.21	3.21	3.21	3.21	3.21	3.21
	150	A142	3.15	3.15	3.15	3.15	3.15	3.15
	160	A193	3.09	3.09	3.09	3.09	3.09	3.09
	175	A193	3.01	3.01	3.01	3.01	3.01	3.01
	200	A193	2.90	2.90	2.90	2.90	2.90	2.90
	250	A252	2.71	2.71	2.71	2.71	2.71	2.71
	100	A142	3.83	3.35	3.04	3.00	3.00	3.00
	110	A142	3.98	3.63	3.30	3.30	3.30	3.30
	120	A142	3.89	3.89	3.60	3.60	3.60	3.60
	130	A142	3.79	3.79	3.79	3.79	3.79	3.79
	140	A142	3.72	3.72	3.72	3.72	3.72	3.72
	150	A142	3.64	3.64	3.64	3.64	3.64	3.64
	160	A193	3.57	3.57	3.57	3.57	3.57	3.57
	175	A193	3.47	3.47	3.47	3.47	3.47	3.47
	200	A193	3.32	3.32	3.32	3.32	3.32	3.32
	250	A252	3.07	3.07	3.07	3.07	3.07	3.07

Gauge - 1.10mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.62	3.40	3.09	2.87	2.70	2.56
	110	A142	3.54	3.55	3.35	3.10	2.91	2.78
	120	A142	3.45	3.45	3.45	3.36	3.16	3.01
	130	A142	3.38	3.38	3.38	3.38	3.38	3.25
	140	A142	3.31	3.31	3.31	3.31	3.31	3.31
	150	A142	3.25	3.25	3.25	3.25	3.25	3.25
	160	A193	3.19	3.19	3.19	3.19	3.19	3.19
	175	A193	3.12	3.12	3.12	3.12	3.12	3.12
	200	A193	3.00	3.00	3.00	3.00	3.00	3.00
	250	A252	2.80	2.80	2.80	2.80	2.80	2.80
	100	A142	3.89	3.40	3.09	2.99	2.99	2.99
	110	A142	4.22	3.69	3.35	3.30	3.30	3.30
	120	A142	4.12	3.98	3.62	3.60	3.60	3.60
	130	A142	4.03	4.03	3.90	3.90	3.90	3.90
	140	A142	3.94	3.94	3.94	3.94	3.94	3.94
	150	A142	3.86	3.86	3.86	3.86	3.86	3.86
	160	A193	3.79	3.79	3.79	3.79	3.79	3.79
	175	A193	3.68	3.68	3.68	3.68	3.68	3.68
	200	A193	3.52	3.52	3.52	3.52	3.52	3.52
	250	A252	3.26	3.26	3.26	3.26	3.26	3.26

Notes:

Total applied load referred to in the above tables is a working load based on combinations of live loads, finishes, ceilings, services and partitions (excluding slab self weight).

Permanent Support ▲



For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This design software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Load/Span Tables

Lightweight Concrete Unpropped Load/Span Tables (Steel - 450N/mm²)

Gauge - 1.20mm

Span Type (support condition)	Slab Depth (mm)	Min Mesh Size	Total Applied Load (kN/m ²) SLS					
			4.0	6.0	8.0	10.0	12.0	14.0
			Span (m)					
	100	A142	3.72	3.45	3.14	2.91	2.75	2.60
	110	A142	3.63	3.63	3.39	3.15	2.97	2.82
	120	A142	3.55	3.55	3.55	3.40	3.20	3.04
	130	A142	3.48	3.48	3.48	3.48	3.44	3.27
	140	A142	3.40	3.40	3.40	3.40	3.40	3.40
	150	A142	3.34	3.34	3.34	3.34	3.34	3.34
	160	A193	3.28	3.28	3.28	3.28	3.28	3.28
	175	A193	3.21	3.21	3.21	3.21	3.21	3.21
	200	A193	3.08	3.08	3.08	3.08	3.08	3.08
	250	A252	2.94	2.94	2.94	2.94	2.94	2.94
	100	A142	3.95	3.45	3.14	3.00	3.00	3.00
	110	A142	4.28	3.74	3.39	3.30	3.30	3.30
	120	A142	4.25	4.03	3.67	3.60	3.60	3.60
	130	A142	4.17	4.17	3.94	3.90	3.90	3.90
	140	A142	4.10	4.10	4.10	4.10	4.10	4.10
	150	A142	4.03	4.03	4.03	4.03	4.03	4.03
	160	A193	3.97	3.97	3.97	3.97	3.97	3.97
	175	A193	3.87	3.87	3.87	3.87	3.87	3.87
	200	A193	3.70	3.70	3.70	3.70	3.70	3.70
	250	A252	3.43	3.43	3.43	3.43	3.43	3.43

Notes:

Total applied load referred to in the above tables is a working load based on combinations of live loads, finishes, ceilings, services and partitions (excluding slab self weight).

Permanent Support ▲

For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This design software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance

Fire Performance - Mesh

1. The fire resistance load/span tables for Multideck 50-V3 on the following pages are based upon fire test data from full scale tests performed at the Warrington Fire Research Centre UK, May 1998.
2. The published load/span tables on the following pages provide values for fire performance up to 2.0 hours. The Multideck Toolkit design software should be used for extended fire periods of up to 4 hours or where the composite slab is single span.
3. The composite slab is assumed to be continuous over one or more intermediate supports, i.e. minimum double span.
4. The fire resistance load/span tables are for continuous spans only with no propping. For propped and single span conditions use the Multideck Toolkit design software or contact our Technical Services Department.
5. Minimum laps should be 300mm for A142 mesh and 400mm for A193 and A252 mesh.
6. The mesh should be placed between 15mm and 40mm from the upper surface of the slab (this range caters for lap areas).
7. The tables are based upon Grade 30 concrete, reinforcement having a yield strength of 460N/mm².
8. The fire resistance load/span tables must be read in conjunction with the standard load/span tables to verify the structural integrity of the composite slab.
9. The values in all load/span tables are relevant to unpropped construction.
10. The tables take into account the reduced partial factor of 0.8 as permitted in BS 5950: Part 8: 2003 for non-permanent imposed loads. The tables are presented in terms of total specified imposed load (non-permanent and permanent). It is assumed that the permanent imposed loads for partitions, finishes, ceilings and services are equivalent to 1.7kN/m² in all cases. The tables are therefore appropriate for office type applications. For other applications where the imposed loads are almost entirely permanent, the total load should be adjusted accordingly before reading from the tables, e.g.
 - 150mm normal weight concrete plantroom slab and A142 mesh.
 - 7.5kN/m² live load.
 - 1.2kN/m² 50mm screed finish 0.5kN/m² ceilings and services.
 - 1 hour fire rating.

Multideck 50-V3 profile

Total applied load = $1.2 + 0.5 + 7.5/0.8 = 11.075\text{kN/m}^2$.
From table overleaf, maximum span = 3.60m.

11. The * denotes that the mesh provided, although satisfying the fire resistance requirement, does not comply with the minimum anti-crack reinforcement requirement of BS 5950: Part 4: 1994.

Refer to standard load/span tables for minimum mesh requirements.

12. For load/span conditions beyond the scope of these tables, the Fire Engineering Method as detailed in the SCI Publication 056 should be adopted or use the Multideck Toolkit design software. Please contact our Technical Services Department for advice.
13. These tables apply to all gauges 0.85mm and above.

Fire Performance - Dramix® Steel Fibre

1. Multideck 50-V3 can be used with Dramix® Steel Fibre reinforcement as an alternative to conventional fire engineering using steel mesh (see fire resistance load/span tables on pages 20 through 23).
2. For more information on the use of Dramix® Steel Fibre Concrete, please refer to pages 101 through 103 of the Multideck Technical Handbook P364.
3. Dramix® Steel Fibre reinforcement can only be used with Multideck 50-V3 in gauges 0.9mm, 1.0mm and 1.2mm.

Fire Resistance Load/Span Tables

Normal Weight Concrete Load/Span Table - Unpropped Construction

Slab Depth (mm)	Min Mesh Size	Fire Rating: 1.0 hour								
		Total Applied Load (kN/m ²)								
		4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
		Span (m)								
100	A142	3.50	3.50	3.50	3.50	3.43	3.30	3.17	3.07	2.96
100	A193	3.50	3.50	3.50	3.50	3.50	3.43	3.36	3.25	3.14
100	A252	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.42	3.33
110	A142	3.85	3.85	3.85	3.75	3.57	3.44	3.31	3.21	3.10
110	A193	3.85	3.85	3.85	3.85	3.79	3.65	3.51	3.40	3.29
110	A252	3.85	3.85	3.85	3.85	3.85	3.79	3.73	3.61	3.49
125	A142	4.38	4.33	4.11	3.93	3.77	3.64	3.50	3.39	3.28
125	A193	4.38	4.38	4.37	4.18	4.01	3.87	3.72	3.61	3.49
125	A252	4.38	4.38	4.38	4.37	4.26	4.11	3.95	3.83	3.70
130	A142	4.55	4.39	4.18	3.99	3.83	3.70	3.56	3.45	3.34
130	A193	4.55	4.55	4.44	4.25	4.07	3.93	3.78	3.67	3.55
130	A252	4.55	4.55	4.55	4.50	4.32	4.17	4.02	3.90	3.77
140	A142	4.73	4.48	4.27	4.08	3.92	3.79	3.65	3.54	3.43
140	A193	4.90	4.77	4.54	4.34	4.17	4.03	3.88	3.76	3.64
140	A252	4.90	4.90	4.82	4.61	4.43	4.28	4.12	4.00	3.87
150	A142	4.80	4.55	4.34	4.16	4.00	3.86	3.72	3.61	3.50
150	A193	5.10	4.84	4.62	4.42	4.25	4.11	3.96	3.84	3.72
150	A252	5.25	5.14	4.90	4.69	4.51	4.36	4.20	4.08	3.95
160	A142	4.86	4.62	4.41	4.23	4.07	3.94	3.80	3.69	3.58
160	A193	5.17	4.91	4.69	4.50	4.32	4.18	4.03	3.92	3.80
160	A252	5.49	5.21	4.98	4.77	4.59	4.44	4.28	4.15	4.03
200	A142	5.07	4.85	4.65	4.47	4.32	4.19	4.05	3.94	3.83
200	A193	5.38	5.14	4.93	4.75	4.58	4.44	4.30	4.18	4.06
200	A252	5.71	5.45	5.23	5.03	4.86	4.71	4.56	4.44	4.31
250	A142	5.27	5.06	4.88	4.72	4.56	4.43	4.30	4.20	4.09
250	A193	5.58	5.36	5.17	4.99	4.83	4.70	4.56	4.45	4.33
250	A252	5.92	5.68	5.47	5.29	5.12	4.98	4.83	4.71	4.58

Notes:

These values are for unpropped spans only. For cases where the deck is propped please use the Multideck Toolkit design software.
For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.
This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Normal Weight Concrete Load/Span Table - Unpropped Construction

Slab Depth (mm)	Min Mesh Size	Fire Rating: 1.5 hours								
		Total Applied Load (kN/m ²)								
		4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
Span (m)										
100	A142	-	-	-	-	-	-	-	-	-
100	A193	-	-	-	-	-	-	-	-	-
100	A252	-	-	-	-	-	-	-	-	-
110	A142	3.80	3.58	3.40	3.24	3.10	2.99	2.88	2.79	2.69
110	A193	3.85	3.85	3.65	3.49	3.34	3.22	3.09	2.99	2.89
110	A252	3.85	3.85	3.85	3.73	3.57	3.44	3.31	3.21	3.10
125	A142	3.98	3.76	3.58	3.42	3.28	3.17	3.05	2.96	2.86
125	A193	4.29	4.05	3.85	3.68	3.53	3.41	3.28	3.18	3.08
125	A252	4.38	4.35	4.13	3.95	3.78	3.65	3.51	3.40	3.29
130	A142	4.04	3.82	3.63	3.48	3.33	3.22	3.10	3.01	2.91
130	A193	4.35	4.12	3.91	3.74	3.59	3.47	3.34	3.24	3.13
130	A252	4.55	4.42	4.20	4.02	3.85	3.72	3.58	3.47	3.36
140	A142	4.14	3.92	3.73	3.58	3.43	3.32	3.20	3.10	3.00
140	A193	4.46	4.22	4.02	3.85	3.70	3.57	3.44	3.34	3.23
140	A252	4.79	4.53	4.32	4.13	3.97	3.83	3.69	3.58	3.47
150	A142	4.22	4.00	3.82	3.66	3.52	3.40	3.28	3.19	3.09
150	A193	4.55	4.32	4.12	3.95	3.79	3.67	3.54	3.44	3.33
150	A252	4.89	4.65	4.42	4.24	4.07	3.94	3.80	3.69	3.57
160	A142	4.27	4.06	3.88	3.72	3.58	3.46	3.34	3.25	3.15
160	A193	4.61	4.38	4.18	4.01	3.86	3.73	3.60	3.50	3.39
160	A252	4.95	4.71	4.49	4.31	4.14	4.01	3.87	3.76	3.64
200	A142	4.44	4.24	4.07	3.92	3.78	3.67	3.55	3.46	3.36
200	A193	4.78	4.57	4.39	4.23	4.07	3.95	3.82	3.72	3.61
200	A252	5.14	4.91	4.71	4.53	4.37	4.24	4.10	3.99	3.88
250	A142	4.60	4.42	4.26	4.12	3.98	3.87	3.76	3.67	3.57
250	A193	4.95	4.75	4.58	4.43	4.28	4.16	4.04	3.94	3.84
250	A252	5.30	5.10	4.91	4.75	4.59	4.46	4.33	4.22	4.11

Notes:

These values are for unpropped spans only. For cases where the deck is propped please use the Multideck Toolkit design software.
For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.
This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Normal Weight Concrete Load/Span Table - Unpropped Construction

Slab Depth (mm)	Min Mesh Size	Fire Rating: 2.0 hours								
		Total Applied Load (kN/m ²)								
		4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
Span (m)										
100	A142	-	-	-	-	-	-	-	-	-
100	A193	-	-	-	-	-	-	-	-	-
100	A252	-	-	-	-	-	-	-	-	-
110	A142	-	-	-	-	-	-	-	-	-
110	A193	-	-	-	-	-	-	-	-	-
110	A252	-	-	-	-	-	-	-	-	-
125	A142	3.34	3.15	3.00	2.87	2.75	2.66	2.56	2.48	2.40
125	A193	3.67	3.47	3.30	3.16	3.03	2.92	2.81	2.73	2.64
125	A252	4.01	3.79	3.60	3.45	3.30	3.18	3.06	2.97	2.88
130	A142	3.39	3.21	3.05	2.92	2.80	2.70	2.60	2.53	2.45
130	A193	3.73	3.53	3.36	3.21	3.08	2.97	2.86	2.78	2.69
130	A252	4.08	3.86	3.67	3.51	3.36	3.25	3.13	3.04	2.94
140	A142	3.47	3.29	3.14	3.00	2.88	2.79	2.69	2.61	2.53
140	A193	3.82	3.62	3.45	3.31	3.17	3.07	2.96	2.87	2.78
140	A252	4.18	3.96	3.77	3.62	3.47	3.35	3.23	3.13	3.03
150	A142	3.55	3.37	3.21	3.08	2.96	2.86	2.76	2.68	2.60
150	A193	3.92	3.72	3.55	3.40	3.27	3.16	3.05	2.96	2.87
150	A252	4.28	4.06	3.87	3.71	3.57	3.45	3.32	3.23	3.13
160	A142	3.61	3.44	3.28	3.15	3.03	2.93	2.83	2.75	2.67
160	A193	3.99	3.79	3.62	3.47	3.34	3.23	3.12	3.03	2.94
160	A252	4.36	4.14	3.96	3.80	3.65	3.53	3.41	3.31	3.21
200	A142	3.74	3.58	3.43	3.31	3.19	3.10	3.00	2.92	2.84
200	A193	4.13	3.95	3.79	3.65	3.52	3.41	3.30	3.21	3.12
200	A252	4.52	4.32	4.14	3.99	3.85	3.73	3.61	3.51	3.41
250	A142	3.86	3.71	3.57	3.46	3.34	3.25	3.16	3.08	3.00
250	A193	4.25	4.08	3.93	3.80	3.68	3.58	3.47	3.39	3.30
250	A252	4.65	4.46	4.30	4.16	4.03	3.92	3.80	3.71	3.61

Notes:

These values are for unpropped spans only. For cases where the deck is propped please use the Multideck Toolkit design software.
For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.
This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Lightweight Concrete Load/Span Table - Unpropped Construction

Slab Depth (mm)	Min Mesh Size	Fire Rating: 1.0 hour								
		Total Applied Load (kN/m ²)								
		4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
		Span (m)								
100	A142	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
100	A193	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
100	A252	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
110	A142	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.13	3.11
110	A193	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
110	A252	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
125	A142	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.35	3.25
125	A193	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
125	A252	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
130	A142	3.90	3.90	3.90	3.90	3.90	3.79	3.67	3.55	3.43
130	A193	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.78	3.65
130	A252	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.89
140	A142	4.20	4.20	4.20	4.18	4.06	3.91	3.76	3.64	3.52
140	A193	4.20	4.20	4.20	4.20	4.20	4.10	4.00	3.87	3.74
140	A252	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.09	3.98
150	A142	4.50	4.50	4.50	4.32	4.14	3.99	3.84	3.72	3.60
150	A193	4.50	4.50	4.50	4.50	4.41	4.25	4.09	3.96	3.83
150	A252	4.50	4.50	4.50	4.50	4.50	4.43	4.35	4.21	4.07
160	A142	4.80	4.80	4.61	4.41	4.23	4.08	3.92	3.80	3.68
160	A193	4.80	4.80	4.80	4.69	4.49	4.33	4.17	4.04	3.91
160	A252	4.80	4.80	4.80	4.80	4.78	4.61	4.43	4.30	4.16
200	A142	5.40	5.13	4.89	4.69	4.51	4.36	4.21	4.09	3.96
200	A193	5.73	5.45	5.20	4.98	4.79	4.63	4.47	4.34	4.21
200	A252	6.00	5.78	5.52	5.29	5.08	4.91	4.74	4.60	4.46
250	A142	5.65	5.39	5.17	4.97	4.80	4.65	4.50	4.38	4.25
250	A193	5.99	5.72	5.48	5.27	5.09	4.93	4.77	4.64	4.51
250	A252	6.35	6.06	5.81	5.59	5.39	5.22	5.05	4.91	4.77

Notes:

These values are for unpropped spans only. For cases where the deck is propped please use the Multideck Toolkit design software.
For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.
This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Lightweight Concrete Load/Span Table - Unpropped Construction

Slab Depth (mm)	Min Mesh Size	Fire Rating: 1.5 hours								
		Total Applied Load (kN/m ²)								
		4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
Span (m)										
100	A142	-	-	-	-	-	-	-	-	-
100	A193	-	-	-	-	-	-	-	-	-
100	A252	-	-	-	-	-	-	-	-	-
110	A142	3.15	3.15	3.15	3.15	3.15	3.15	2.92	2.83	2.73
110	A193	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.05	2.94
110	A252	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
125	A142	3.45	3.45	3.45	3.42	3.31	3.19	3.06	2.96	2.86
125	A193	3.45	3.45	3.45	3.45	3.45	3.38	3.30	3.19	3.08
125	A252	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.39	3.32
130	A142	3.90	3.90	3.84	3.66	3.50	3.37	3.24	3.14	3.03
130	A193	3.90	3.90	3.90	3.89	3.78	3.64	3.50	3.39	3.27
130	A252	3.90	3.90	3.90	3.90	3.90	3.84	3.77	3.65	3.53
140	A142	4.20	4.15	3.94	3.76	3.60	3.47	3.33	3.23	3.12
140	A193	4.20	4.20	4.20	4.06	3.89	3.75	3.60	3.49	3.37
140	A252	4.20	4.20	4.20	4.20	4.19	4.04	3.88	3.76	3.63
150	A142	4.47	4.22	4.01	3.83	3.67	3.54	3.40	3.30	3.19
150	A193	4.50	4.50	4.34	4.14	3.96	3.82	3.68	3.57	3.45
150	A252	4.50	4.50	4.50	4.45	4.27	4.12	3.96	3.84	3.71
160	A142	4.54	4.29	4.07	3.89	3.73	3.60	3.47	3.36	3.25
160	A193	4.80	4.63	4.40	4.21	4.03	3.89	3.75	3.64	3.52
160	A252	4.80	4.80	4.74	4.53	4.34	4.19	4.03	3.91	3.78
200	A142	4.74	4.51	4.30	4.12	3.97	3.84	3.70	3.60	3.49
200	A193	5.12	4.86	4.64	4.45	4.28	4.14	3.99	3.88	3.76
200	A252	5.51	5.23	4.99	4.78	4.60	4.45	4.29	4.17	4.04
250	A142	4.94	4.72	4.52	4.36	4.20	4.07	3.94	3.83	3.72
250	A193	5.32	5.08	4.87	4.69	4.52	4.38	4.24	4.13	4.01
250	A252	5.72	5.46	5.23	5.04	4.86	4.71	4.56	4.43	4.30

Notes:

These values are for unpropped spans only. For cases where the deck is propped please use the Multideck Toolkit design software.
For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.
This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Lightweight Concrete Load/Span Table - Unpropped Construction

Slab Depth (mm)	Min Mesh Size	Fire Rating: 2.0 hours								
		Total Applied Load (kN/m ²)								
		4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
Span (m)										
100	A142	-	-	-	-	-	-	-	-	-
100	A193	-	-	-	-	-	-	-	-	-
100	A252	-	-	-	-	-	-	-	-	-
110	A142	-	-	-	-	-	-	-	-	-
110	A193	-	-	-	-	-	-	-	-	-
110	A252	-	-	-	-	-	-	-	-	-
125	A142	3.45	3.29	3.11	2.96	2.83	2.72	2.61	2.53	2.44
125	A193	3.45	3.45	3.44	3.28	3.13	3.01	2.89	2.80	2.70
125	A252	3.45	3.45	3.45	3.45	3.42	3.29	3.16	3.06	2.95
130	A142	3.68	3.46	3.28	3.13	2.99	2.88	2.77	2.68	2.59
130	A193	3.90	3.84	3.64	3.47	3.31	3.19	3.07	2.97	2.87
130	A252	3.90	3.90	3.90	3.80	3.63	3.50	3.36	3.26	3.15
140	A142	3.79	3.57	3.39	3.23	3.09	2.98	2.87	2.78	2.69
140	A193	4.20	3.95	3.75	3.58	3.42	3.30	3.17	3.07	2.97
140	A252	4.20	4.20	4.12	3.93	3.76	3.62	3.48	3.37	3.26
150	A142	3.86	3.64	3.46	3.30	3.16	3.05	2.94	2.85	2.75
150	A193	4.27	4.03	3.83	3.66	3.50	3.38	3.25	3.15	3.05
150	A252	4.50	4.43	4.21	4.02	3.85	3.71	3.57	3.46	3.34
160	A142	3.90	3.68	3.50	3.35	3.21	3.10	2.99	2.90	2.80
160	A193	4.32	4.08	3.88	3.71	3.56	3.43	3.30	3.20	3.10
160	A252	4.74	4.48	4.26	4.07	3.90	3.77	3.63	3.52	3.40
200	A142	4.04	3.84	3.67	3.52	3.38	3.27	3.16	3.07	2.98
200	A193	4.47	4.25	4.06	3.89	3.74	3.62	3.49	3.39	3.29
200	A252	4.91	4.66	4.45	4.27	4.10	3.97	3.83	3.72	3.61
250	A142	4.18	3.99	3.83	3.69	3.56	3.45	3.34	3.25	3.16
250	A193	4.62	4.41	4.23	4.08	3.93	3.81	3.68	3.58	3.48
250	A252	5.06	4.83	4.64	4.46	4.30	4.17	4.04	3.93	3.81

Notes:

These values are for unpropped spans only. For cases where the deck is propped please use the Multideck Toolkit design software.
For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.
This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Dramix® Steel Fibre Reinforced Concrete 20kg/m³ RC-80/60-BN Load/Span Tables

1.0 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 0.9mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
101	5.01	4.16	3.88	3.52	3.30	3.02	2.82
110	5.17	4.34	4.05	3.67	3.45	3.17	2.95
120	5.35	4.52	4.23	3.84	3.62	3.34	3.11
130	5.53	4.70	4.41	4.02	3.78	3.49	3.26
140	5.70	4.87	4.58	4.18	3.94	3.64	3.41
150	5.85	5.03	4.73	4.34	4.09	3.79	3.55
160	6.02	5.20	4.91	4.50	4.25	3.95	3.70
170	6.16	5.35	5.05	4.65	4.40	4.08	3.83
180	6.31	5.51	5.21	4.80	4.55	4.23	3.97
190	6.44	5.65	5.34	4.94	4.68	4.35	4.09
200	6.58	5.79	5.49	5.08	4.82	4.49	4.22

1.5 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 0.9mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
110	3.64	3.06	2.86	2.60	2.45	2.25	2.10
120	3.82	3.23	3.02	2.76	2.59	2.39	2.23
130	3.98	3.40	3.19	2.91	2.74	2.53	2.37
140	4.16	3.56	3.35	3.06	2.89	2.68	2.51
150	4.31	3.71	3.50	3.20	3.03	2.80	2.63
160	4.45	3.85	3.63	3.34	3.16	2.93	2.74
170	4.63	4.02	3.80	3.50	3.31	3.08	2.88
180	4.77	4.16	3.95	3.63	3.45	3.20	3.01
190	4.89	4.29	4.06	3.76	3.56	3.32	3.12
200	5.02	4.43	4.20	3.88	3.69	3.44	3.23

2.0 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 0.9mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
125	3.58	3.04	2.85	2.60	2.45	2.27	2.12
130	3.65	3.11	2.92	2.66	2.52	2.32	2.17
140	3.84	3.29	3.09	2.83	2.67	2.48	2.31
150	3.99	3.44	3.24	2.97	2.80	2.60	2.44
160	4.15	3.59	3.39	3.12	2.95	2.73	2.56
170	4.30	3.74	3.54	3.26	3.09	2.87	2.69
180	4.46	3.90	3.69	3.40	3.23	3.00	2.82
190	4.60	4.04	3.83	3.54	3.36	3.13	2.94
200	4.73	4.16	3.95	3.66	3.48	3.24	3.05

Notes:

These tables are not applicable to slabs where the deck is supplied in single span lengths (use the Multideck Toolkit design software to determine the suitable bottom bar requirements).

These values are for unpropped spans only. For cases where the deck is propped, please use the Multideck Toolkit design software.

Use of Dramix® Steel Fibre reinforcement is limited to the gauges shown above.

* Refer to p.13, note 11 for details.

For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Dramix® Steel Fibre Reinforced Concrete 20kg/m³ RC-80/60-BN Load/Span Tables

1.0 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 1.0mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
101	5.22	4.34	4.05	3.66	3.44	3.16	2.94
110	5.37	4.50	4.20	3.81	3.58	3.29	3.07
120	5.54	4.68	4.38	3.98	3.74	3.45	3.22
130	5.72	4.86	4.55	4.16	3.91	3.61	3.38
140	5.88	5.03	4.73	4.32	4.07	3.76	3.52
150	6.03	5.20	4.88	4.48	4.23	3.91	3.66
160	6.19	5.35	5.05	4.63	4.38	4.05	3.80
170	6.34	5.52	5.20	4.79	4.53	4.20	3.95
180	6.50	5.68	5.37	4.95	4.69	4.35	4.09
190	6.62	5.80	5.50	5.08	4.81	4.48	4.20
200	6.75	5.95	5.64	5.21	4.95	4.61	4.34

1.5 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 1.0mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
110	3.74	3.14	2.94	2.67	2.51	2.31	2.16
120	3.91	3.31	3.10	2.83	2.66	2.45	2.30
130	4.09	3.48	3.27	2.98	2.81	2.60	2.43
140	4.24	3.63	3.41	3.13	2.95	2.73	2.55
150	4.38	3.78	3.55	3.26	3.08	2.85	2.67
160	4.56	3.95	3.73	3.42	3.23	3.00	2.81
170	4.71	4.10	3.88	3.56	3.38	3.13	2.95
180	4.86	4.24	4.02	3.70	3.51	3.27	3.06
190	4.99	4.38	4.16	3.84	3.64	3.39	3.19
200	5.13	4.52	4.30	3.98	3.77	3.52	3.31

2.0 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 1.0mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
125	3.66	3.10	2.91	2.66	2.50	2.31	2.16
130	3.73	3.19	2.99	2.73	2.57	2.38	2.23
140	3.91	3.36	3.16	2.89	2.73	2.52	2.36
150	4.07	3.51	3.30	3.03	2.87	2.66	2.48
160	4.23	3.67	3.46	3.18	3.01	2.79	2.62
170	4.37	3.80	3.59	3.30	3.13	2.91	2.73
180	4.52	3.95	3.74	3.45	3.27	3.04	2.86
190	4.66	4.09	3.88	3.59	3.40	3.16	2.98
200	4.80	4.24	4.02	3.73	3.54	3.30	3.10

Notes:

These tables are not applicable to slabs where the deck is supplied in single span lengths (use the Multideck Toolkit design software to determine the suitable bottom bar requirements).

These values are for unpropped spans only. For cases where the deck is propped, please use the Multideck Toolkit design software.

Use of Dramix® Steel Fibre reinforcement is limited to the gauges shown above.

* Refer to p.13, note 11 for details.

For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Fire Resistance Load/Span Tables

Dramix® Steel Fibre Reinforced Concrete 20kg/m³ RC-80/60-BN Load/Span Tables

1.0 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 1.2mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
101	5.61	4.67	4.36	3.95	3.70	3.40	3.16
110	5.77	4.84	4.52	4.09	3.84	3.54	3.30
120	5.92	5.01	4.69	4.26	4.01	3.70	3.45
130	6.08	5.16	4.84	4.42	4.16	3.84	3.59
140	6.23	5.34	5.01	4.58	4.32	3.99	3.73
150	6.39	5.50	5.18	4.74	4.48	4.14	3.88
160	6.53	5.66	5.33	4.89	4.63	4.29	4.02
170	6.69	5.82	5.49	5.05	4.78	4.44	4.16
180	6.83	5.96	5.64	5.20	4.92	4.58	4.30
190	6.98	6.12	5.80	5.35	5.07	4.72	4.44
200	7.09	6.25	5.93	5.48	5.20	4.85	4.56

1.5 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 1.2mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
110	3.92	3.30	3.09	2.80	2.63	2.43	2.27
120	4.10	3.47	3.25	2.96	2.79	2.57	2.41
130	4.27	3.64	3.42	3.12	2.94	2.72	2.54
140	4.43	3.80	3.57	3.27	3.09	2.85	2.67
150	4.59	3.95	3.72	3.41	3.22	2.98	2.80
160	4.74	4.11	3.88	3.56	3.37	3.13	2.93
170	4.88	4.25	4.02	3.70	3.50	3.25	3.05
180	5.00	4.38	4.14	3.82	3.62	3.37	3.16
190	5.16	4.52	4.29	3.96	3.76	3.50	3.29
200	5.30	4.67	4.43	4.10	3.90	3.63	3.41

2.0 Hour Fire Rating - Normal Weight Concrete

Slab Depth (mm)	Gauge 1.2mm						
	Total Applied Load (kN/m ²)						
	2.0	4.0	5.0	6.7	8.0	10.0	12.0
	Span (m)*						
125	3.80	3.23	3.03	2.77	2.61	2.41	2.25
130	3.88	3.31	3.11	2.84	2.68	2.48	2.31
140	4.06	3.48	3.27	3.00	2.83	2.62	2.45
150	4.21	3.63	3.42	3.14	2.97	2.75	2.58
160	4.37	3.78	3.57	3.28	3.10	2.88	2.70
170	4.49	3.91	3.70	3.41	3.23	3.00	2.81
180	4.63	4.05	3.83	3.53	3.35	3.12	2.93
190	4.80	4.22	4.00	3.70	3.50	3.27	3.07
200	4.94	4.36	4.13	3.83	3.63	3.39	3.19

Notes:

These tables are not applicable to slabs where the deck is supplied in single span lengths (use the Multideck Toolkit design software to determine the suitable bottom bar requirements).

These values are for unpropped spans only. For cases where the deck is propped, please use the Multideck Toolkit design software.

Use of Dramix® Steel Fibre reinforcement is limited to the gauges shown above.

* Refer to p.13, note 11 for details.

For load/span conditions beyond the scope of these tables, the Multideck Toolkit design software should be used to check for a solution.

This software provides an accurate and detailed analysis and Kingspan encourages its use for all design checks.

Sound Attenuation

Predicted Site Acoustic Performance of Floors with Multideck 50-V3

Slab Depth (mm)	Predicted Acoustic Performance DnT,w + Ctr (dB) for Airborne Sound				
	Description of Floor				
	Slab on deck with no ceiling and no floor treatment	Slab on deck with ceiling and no floor treatment	Slab on deck with ceiling and platform floor (FFT4)	Slab on deck with ceiling and battened floor (FFT3)	Slab on deck with ceiling and isolated screed
120	36 to 40	46 to 50	45 to 49	46 to 50	45 to 49
130	37 to 41	47 to 51	46 to 50	47 to 51	46 to 50
140	38 to 42	48 to 52	47 to 51	48 to 52	47 to 51
150	39 to 43	49 to 53	48 to 52	49 to 53	48 to 52
160	40 to 44	50 to 54	49 to 53	50 to 54	49 to 53
175	41 to 45	51 to 55	50 to 54	51 to 55	50 to 54
200	43 to 47	53 to 57	52 to 56	53 to 57	52 to 56
250	47 to 51	57 to 61	56 to 60	57 to 61	56 to 60

Slab Depth (mm)	Predicted Acoustic Performance L'nT,w (dB) for Impact Sound				
	Description of Floor				
	Slab on deck with no ceiling and no floor treatment	Slab on deck with ceiling and no floor treatment	Slab on deck with ceiling and platform floor (FFT4)	Slab on deck with ceiling and battened floor (FFT3)	Slab on deck with ceiling and isolated screed
120 to 250	76 to 70	68 to 72	51 to 55	53 to 57	51 to 55



Notes:

The tables are based on a minimum concrete density of 2350kgs/m³ and can be used with mesh or Dramix® Steel Fibre reinforcement. Lightweight concrete may lead to a reduction in acoustic performance of about 2 to 3dB on the values shown above.

Values of DnT,w are available from our Technical Services Department.

The junction details between the walls and floors must be appropriately detailed to ensure that flanking sound is minimised.

The values in the table are based on the new (since 2003) measurement index DnT,w + Ctr for airborne sound. The Ctr term is a spectrum adaptation value which is generally negative and adjusts the index to take account of low frequency sounds that often cause problems in residential buildings. Thus the DnT,w + Ctr rating is lower than the DnT,w rating for the same construction.

Kingspan Insulated Panels' Structural Products & Systems is a member of The Steel Construction Institute and has undertaken extensive testing on the acoustic performance of the Multideck range of composite steel slabs. The testing was carried out on behalf of Kingspan by The Steel Construction Institute and resulted in a comprehensive report: 'Acoustic Performance of Kingspan Composite Floors', copies of which can be obtained from our Technical Services Department.

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