Ribdeck 80 — Mesh sizes for Simplified Fire Designs

	Fire Rating (Hrs)	Slab Depth (mm)	Span (m) for given Imposed Load (kN/m²)											
			A142			A193			A252			A393		
			5.0	6.7	10.0	5.0	6.7	10.0	5.0	6.7	10.0	5.0	6.7	10.0
NORMAL WEIGHT CONCRETE	1.0	140	3.93	3.56	3.08	4.17	3.78	3.26	4.42	4.01	3.46	4.90	4.46	3.85
		150	4.12	3.76	3.24	4.39	3.99	3.45	4.67	4.24	3.67	5.23	4.75	4.10
		160	4.28	3.90	3.38	4.57	4.16	3.61	4.87	4.43	3.85	5.47	4.98	4.32
		175	4.39	4.01	3.50	4.69	4.28	3.73	4.99	4.56	3.98	5.62	5.14	4.47
		200	-	-	-	4.84	4.45	3.90	5.16	4.74	4.15	5.80	5.32	4.66
	1.5	150	3.50	3.18	2.76	3.78	3.43	2.98	4.06	3.69	3.19	4.61	4.19	3.62
		160	3.67	3.35	2.91	3.97	3.62	3.14	4.27	3.89	3.38	4.87	4.44	3.85
		175	3.63	3.51	3.06	4.16	3.81	3.32	4.49	4.10	3.35	5.14	4.70	4.09
		200	-	-	-	4.30	3.95	3.47	4.64	4.26	3.74	5.32	4.88	4.28
	2.0	160	3.04	2.77	2.42	3.37	3.07	2.67	3.70	3.37	2.93	4.32	3.94	3.42
		175	3.24	2.97	2.59	3.60	3.30	2.88	3.96	3.62	3.16	4.65	4.25	3.70
		200	-	-	-	3.73	3.43	3.02	4.11	3.78	3.32	4.84	4.45	3.90
LIGHTWEIGHT CONCRETE	1.0	130	3.90	3.50	2.99	3.90	3.71	3.17	3.90	3.90	3.36	3.90	3.90	3.74
		140	4.13	3.72	3.19	4.20	3.97	3.40	4.20	4.20	3.61	4.20	4.20	4.05
		150	4.33	3.91	3.36	4.50	4.18	3.59	4.50	4.45	3.82	4.50	4.50	4.29
		160	4.47	4.05	3.48	4.79	4.33	3.73	4.80	4.63	3.98	4.80	4.80	4.49
		175	4.60	4.17	3.60	4.91	4.46	3.85	5.19	4.76	4.11	5.25	5.25	4.63
		200	-	-	-	5.09	4.64	4.03	5.43	4.95	4.30	6.00	5.57	4.84
	1.5	140	3.57	3.21	2.76	3.86	3.47	2.98	4.15	3.74	3.20	4.20	4.20	3.64
		150	3.78	3.42	2.94	4.11	3.71	3.19	4.43	4.00	3.43	4.50	4.50	3.93
		160	3.95	3.58	3.08	4.30	3.89	3.35	4.65	4.21	3.62	4.80	4.80	4.16
		175	4.05	3.68	3.18	4.40	3.99	3.45	4.77	4.32	3.73	5.25	4.98	4.30
		200	-	-	-	4.55	4.15	3.60	4.92	4.48	3.89	5.66	5.16	4.48
	2.0	150	3.18	2.87	2.47	3.53	3.19	2.75	3.89	3.51	3.02	4.50	4.12	3.54
		160	3.37	3.05	2.63	3.75	3.39	2.93	4.13	3.74	3.22	4.80	4.39	3.78
		175	3.49	3.17	2.74	3.89	3.54	3.06	4.30	3.90	3.37	5.09	4.61	3.98
		200	-	-	-	3.99	3.64	3.17	4.41	4.02	3.49	5.22	4.75	4.13

Notes:

1. The simplified fire design tables are based on the SCI appraisal of a product specific fire test at WFRC; report reference WARRES 120418, on a Ribdeck 80 composite slab incorporating steel mesh with 15-45mm cover. Tables are applicable for any construction where the mesh may act in tension over a supporting beam or wall (negative bending). This includes end bay conditions i.e. the concrete slab is continuous over more than one span.
2. Loads shown are unfactored working loads and should include all imposed live and dead loads, excluding only the self-weight of the slab. An ultimate load factor of 1.0 is assumed throughout.
3. Mesh should satisfy the minimum elongation requirement given in BS4449:1988.
4. For conditions outside the scope of the simplified tables, including all isolated spans consult the Fire Engineering Design table.
5. - Indicates that the area of mesh is less than the recommended minimum for crack control.
6. Tables are based on grade 30 normal weight or lightweight concrete as shown.
7. For conditions outside the scope of the simplified tables, including all isolated spans, consult SCI publication 56 (2nd edition) or RLSD's Deckspan software.

Ribdeck 80 — Rebar sizes for Fire Engineering Designs

	Imposed Load kN/m²	Top Mesh (min 0.1%)	Slab Depth mm	1.0 Hour Fire							1.5 Hour Fire							2.0 Hour Fire						
				10@ 300	8@ 150	12@ 300	10@ 150	16@ 300	12@ 150	16@ 150	10@ 300	8@ 150	12@ 300	10@ 150	16@ 300	12@ 150	16@ 150	10@ 300	8@ 150	12@ 300	10@ 150	16@ 300	12@ 150	16@ 150
NORMAL WEIGHT CONCRETE	5.0	A142	140	3.69	4.02	4.25	4.81	4.92	4.92	4.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		A142	150	3.88	4.24	4.47	5.06	5.26	5.26	5.26	3.71	4.06	4.29	4.86	5.26	5.26	5.26	-	-	-	-	-	-	-
		A142	165	4.09	4.47	4.72	5.35	5.70	5.70	5.70	3.97	4.33	4.57	5.18	5.56	5.70	5.70	3.71	4.05	4.27	4.84	5.42	5.64	5.70
		A142	175	4.21	4.61	4.86	5.52	5.97	5.97	5.97	4.09	4.47	4.71	5.35	5.97	5.97	5.97	3.85	4.20	4.43	5.02	5.61	5.84	5.97
		A193	200	4.65	5.07	5.32	6.02	6.50	6.50	6.50	4.52	4.92	5.16	5.84	6.49	6.50	6.50	4.28	4.65	4.87	5.50	6.11	6.36	6.50
	6.7	A142	140	3.33	3.63	3.84	4.34	4.67	4.67	4.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		A142	150	3.51	3.83	4.05	4.58	4.97	4.97	4.97	3.36	3.67	3.88	4.40	4.93	4.97	4.97	-	-	-	-	-	-	-
		A142	165	3.72	4.06	4.28	4.85	5.35	5.35	5.35	3.60	3.94	4.15	4.70	5.26	5.35	5.35	3.37	3.68	3.88	4.40	4.92	5.12	5.35
		A142	175	3.84	4.20	4.42	5.02	5.62	5.62	5.62	3.72	4.07	4.29	4.87	5.44	5.62	5.62	3.50	3.83	4.03	4.57	5.11	5.32	5.62
		A193	200	4.26	4.64	4.87	5.51	6.13	6.25	6.25	4.14	4.50	4.73	5.34	5.95	6.19	6.25	3.92	4.25	4.46	5.03	5.59	5.82	6.25
	10.0	A142	140	2.85	3.11	3.29	3.72	4.09	4.09	4.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		A142	150	3.02	3.30	3.48	3.93	4.35	4.35	4.35	2.89	3.16	3.34	3.78	4.24	4.35	4.35	-	-	-	-	-	-	-
		A142	165	3.21	3.51	3.70	4.19	4.69	4.75	4.75	3.11	3.40	3.58	4.06	4.54	4.72	4.75	2.91	3.18	3.35	3.80	4.25	4.42	4.75
		A142	175	3.32	3.64	3.83	4.35	4.86	5.02	5.02	3.23	3.53	3.72	4.22	4.72	4.91	5.02	3.04	3.31	3.49	3.96	4.42	4.60	5.02
		A193	200	3.71	4.05	4.25	4.81	5.35	5.50	5.50	3.61	3.93	4.12	4.66	5.19	5.40	5.50	3.42	3.71	3.89	4.39	4.88	5.08	5.50
LIGHTWEIGHT CONCRETE	5.0	A142	140	3.84	4.19	4.22	4.22	4.22	4.22	4.22	3.78	4.13	4.22	4.22	4.22	4.22	4.22	-	-	-	-	-	-	-
		A142	150	4.03	4.39	4.51	4.51	4.51	4.51	4.51	4.01	4.37	4.51	4.51	4.51	4.51	4.51	3.94	4.30	4.51	4.51	4.51	4.51	4.51
		A142	165	4.25	4.64	4.90	4.95	4.95	4.95	4.95	4.25	4.64	4.89	4.95	4.95	4.95	4.95	4.21	4.60	4.85	4.95	4.95	4.95	4.95
		A142	175	4.39	4.80	5.05	5.25	5.25	5.25	5.25	4.38	4.79	5.05	5.25	5.25	5.25	5.25	4.34	4.75	5.01	5.25	5.25	5.25	5.25
		A193	200	4.86	5.29	5.56	6.00	6.00	6.00	6.00	4.86	5.29	5.55	6.00	6.00	6.00	6.00	4.82	5.24	5.51	6.00	6.00	6.00	6.00
	6.7	A142	140	3.44	3.75	3.96	4.22	4.22	4.22	4.22	3.39	3.71	3.92	4.22	4.22	4.22	4.22	-	-	-	-	-	-	-
		A142	150	3.62	3.95	4.16	4.51	4.51	4.51	4.51	3.60	3.93	4.15	4.51	4.51	4.51	4.51	3.54	3.87	4.08	4.51	4.51	4.51	4.51
		A142	165	3.84	4.19	4.42	4.95	4.95	4.95	4.95	3.83	4.19	4.41	4.95	4.95	4.95	4.95	3.80	4.15	4.38	4.95	4.95	4.95	4.95
		A142	175	3.97	4.34	4.57	5.19	5.25.	5.25	5.25	3.96	4.33	4.57	5.18	5.25	5.25	5.25	3.93	4.30	4.53	5.14	5.25	5.25	5.25
		A193	200	4.42	4.81	5.05	5.71	5.94	5.94	5.94	4.42	4.81	5.05	5.71	5.94	5.94	5.94	4.38	4.77	5.01	5.66	5.94	5.94	5.94
	10.0	A142	140	2.93	3.20	3.37	3.79	3.79	3.79	3.79	2.89	3.16	3.34	3.77	3.79	3.79	3.79	-	-	-	-	-	-	-
		A142	150	3.09	3.37	3.56	4.02	4.02	4.02	4.02	3.08	3.36	3.54	4.01	4.02	4.02	4.02	3.02	3.30	3.49	3.95	4.02	4.02	4.02
		A142	165	3.29	3.59	3.79	4.29	4.38	4.38	4.38	3.28	3.59	3.78	4.29	4.38	4.38	4.38	3.26	3.56	3.75	4.25	4.38	4.38	4.38
		A142	175	3.41	3.73	3.93	4.46	4.63	4.63	4.63	3.41	3.72	3.93	4.46	4.63	4.63	4.63	3.38	3.69	3.89	4.42	4.63	4.63	4.63
		A193	200	3.82	4.16	4.37	4.94	5.25	5.25	5.25	3.82	4.16	4.37	4.94	5.25	5.25	5.25	3.79	4.12	4.33	4.90	5.25	5.25	5.25

Notes:

1. All figures in the fire engineering design tables are derived strictly in accordance with the product specific fire test and guidance given in SCI publication 056 - "The fire resistance of composite floors with steel decking" (2nd edition) 1991.
2. The tables of reinforcement are for the end-span conditions of a continuous slab which incorporates a nominal 0.1% top mesh that complies with BS5950:Part 4 criteria for crack control and distribution. For simply supported spans use RLSD's Deckspan design software or refer to the technical department.
3. Bottom and side cover to bar reinforcement must be 50mm.
4. Where for other reasons a greater area of fabric is provided contact our Technical Liaison department for potential design enhancements.