

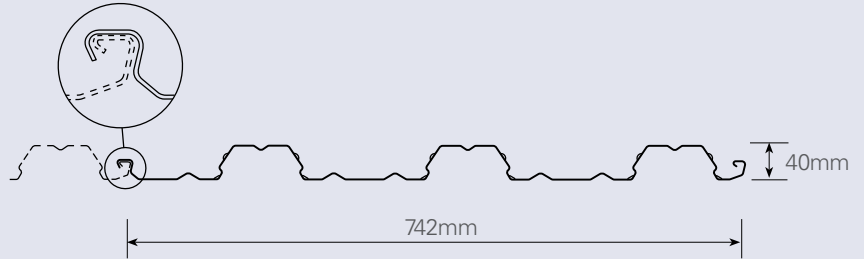


KingFlor[®] KF40[®]



Features and Benefits

Fielders KF40® is a revolutionary steel formwork solution suitable for concrete slabs in all types of construction. KF40® combines the performance of a traditional flat pan profile with the unmatched economy and concrete saving of a trapezoidal deck.



KF40® is manufactured from G550 (550 MPa Yield Stress) DECKFORM® steel in a 3 pan profile* with a Base Metal Thickness (BMT) of 0.75mm and 1.00mm. The galvanised coating thickness is a Z350 (350 g/m²) in accordance with AS 1397:2001.

KF40® Features and Benefits

Feature	Benefit
SquashCut™ ends	No end caps needed. Also provides rigid and secure platform during construction.
Unique off-set lap	Enables shear studs to be placed centrally in the pan in the most optimal position.
Unique profile	Concrete savings up to 40kg/m ² (16mm off slab depth).
Lower 40mm height	Suitable for post-tensioning ducts.
Wide 742mm cover	Economical deck.
Strong re-entrant features	KF40® has been specifically designed to provide a strong and reliable shear bond performance giving strong composite slabs.

Concrete Savings

KF40® saves the equivalent of 16mm of concrete from the overall slab depth by concrete volume when compared to conventional concrete slabs. This represents a significant saving in concrete costs, supporting framework and foundation loads.

KF40® Material Specifications

KF40® is manufactured from G550 (550 MPa Yield Stress) steel in a 3 pan profile with a Base Metal Thickness (BMT) of 0.75mm and 1.00mm. The galvanised coating thickness is a Z350 (350 g/m²) in accordance with AS 1397:2001.

Material Properties	0.75 BMT	1.00 BMT
Mass Area – Average mass of 3-PAN deck per plan area (kg/m ²)	8.35	10.97
Mass Linear – Mass of individual 3-PAN length (kg/m)	6.19	8.14
Zinc Coating (g/m ²) (Z350)	350	350
Yield Strength (MPa)	550	550

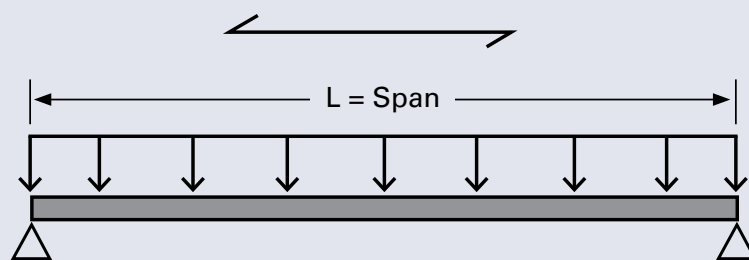
KF40[®] 3-Pan Formwork/Slab Span Tables - Simple Span

Single Slab Span (L) on Steel support

Formwork deflection limits L/130 and L/240

Slab Depth (mm)	L/130						L/240					
	0.75 BMT Number of props per span			1.0 BMT Number of props per span			0.75 BMT Number of props per span			1.0 BMT Number of props per span		
	0	1	2	0	1	2	0	1	2	0	1	2
90	2250	[5900]	[8250]	2450	[6450]	[9000]	1850	[5000]	[6900]	2050	[5450]	[7600]
100	2150	[5700]	[8000]	2350	[6250]	[8700]	1750	[4800]	[6700]	1950	[5250]	[7300]
110	2100	[5550]	[7750]	2300	[6100]	[8500]	1700	[4650]	[6450]	1900	[5100]	[7100]
120	2050	[5400]	[7550]	2250	[5950]	[8250]	1650	[4550]	[6300]	1800	[4950]	[6900]
130	2000	[5300]	[7350]	2150	[5800]	[8050]	1600	4400	[6100]	1750	[4850]	[6700]
140	1950	[5150]	[7200]	2100	[5650]	[7850]	1550	4300	[5950]	1700	4700	[6550]
150	1900	5000	[7000]	2050	[5550]	[7700]	1500	4200	[5800]	1650	4600	[6400]
160	1850	4900	[6850]	2050	5450	[7550]	1450	4100	[5700]	1650	4500	[6250]
170	1800	4800	[6750]	2000	5300	[7400]	1400	4000	5550	1600	4400	[6100]
180	1750	4700	[6600]	1950	5200	[7250]	1400	3950	5500	1550	4300	6000
190	1700	4650	6500	1900	5150	[7150]	1350	3850	5400	1500	4250	5900
200	1650	4550	6400	1900	5050	7000	1300	3800	5300	1500	4150	5800
210	1650	4450	6300	1850	4950	6900	1300	3750	5200	1450	4100	5700
220	1600	4400	6200	1800	4900	6800	1250	3700	5100	1400	4050	5600
230	1600	4300	6100	1750	4850	6700	1250	3600	5050	1400	4000	5500
240	1550	4250	6000	1750	4800	6600	1250	3550	4950	1350	3900	5450
250	1550	4200	5950	1700	4700	6550	1200	3500	4850	1350	3850	5400

Brackets indicated for spans with Span over depth ratio is 35 for single span and 40 for double span



Temporary Propping Tables Notes

1. The tables above denote maximum allowable centreline to centreline span in millimetres between permanent supports after temporary propping is removed.
2. The practical limit for span to slab depth ratio is considered to be 35 for single span slabs, or 40 for continuous slabs. Values above these limits have been listed in brackets "[]". The use of the results in brackets must be confirmed with the structural engineer or a Fielders representative as the long term serviceability and composite performance of the resulting concrete slab may not be suitable for the project application.
3. Allowance has been made for ponding of wet concrete due to decking deflection, density 2400kg/m³.
4. Loading is considered in accordance with AS 1170.0:2002, AS/NZS 2327:2017, AS 3610:1995 with a Stage III construction live load allowance of 1.0kPa in accordance with AS/NZS 2327:2017 Appendix A.
5. The requirements for Stage II & IV material stacking loads in accordance with AS/NZS 2327:2017 Appendix A are assumed to be zero.
6. It is recommended that an experienced structural engineer design the composite slab to ensure sufficient capacity to meet strength and long term deflection requirements.

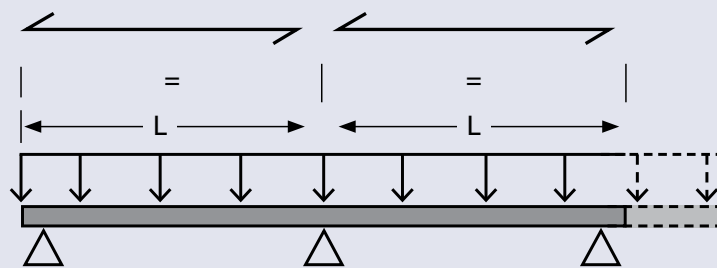
KF40® 3-Pan Formwork/Slab Span Tables - Continuous Spans

Continuous-Two or more Spans (L) on steel support

Formwork deflection limits L/130 and L/240

Slab Depth (mm)	L/130						L/240					
	0.75 BMT Number of props per span			1.0 BMT Number of props per span			0.75 BMT Number of props per span			1.0 BMT Number of props per span		
	0	1	2	0	1	2	0	1	2	0	1	2
90	2950	[5600]	[8400]	3200	[6150]	[9150]	2500	[4700]	[7050]	2700	[5150]	[7700]
100	2850	[5450]	[8100]	3100	[5950]	[8850]	2400	[4550]	[6800]	2600	[4950]	[7450]
110	2750	[5250]	[7850]	3050	[5750]	[8600]	2300	4400	[6600]	2550	[4800]	[7200]
120	2700	[5100]	[7650]	2950	[5600]	[8400]	2250	4250	[6400]	2450	4700	[7000]
130	2600	5000	[7450]	2900	[5500]	[8200]	2200	4150	[6200]	2400	4550	[6800]
140	2550	4850	[7300]	2800	5350	[8000]	2150	4050	[6050]	2350	4450	[6650]
150	2500	4750	[7150]	2750	5250	[7800]	2100	3950	5900	2300	4350	[6500]
160	2450	4650	[7000]	2700	5100	[7650]	2050	3850	5800	2250	4250	6350
170	2400	4600	[6850]	2650	5000	[7500]	2000	3800	5650	2200	4150	6200
180	2350	4500	6750	2600	4950	[7350]	1950	3700	5550	2150	4050	6100
190	2300	4400	6600	2550	4850	7250	1900	3650	5450	2100	4000	6000
200	2250	4350	6500	2500	4750	7150	1900	3600	5350	2050	3950	5900
210	2200	4250	6400	2450	4700	7000	1850	3550	5300	2050	3850	5800
220	2200	4200	6300	2450	4600	6900	1850	3450	5200	2000	3800	5700
230	2150	4150	6200	2400	4550	6800	1800	3400	5100	1950	3750	5600
240	2100	4100	6100	2350	4500	6700	1750	3350	5050	1950	3700	5550
250	2100	4050	6050	2350	4450	6650	1750	3300	4950	1900	3650	5450

Brackets indicated for spans with Span over depth ratio is 35 for single span and 40 for double span



Temporary Propping Tables Notes continued

- The temporary propping tables have been prepared for a span/240 deflection criteria. A span/240 deflection is generally considered aesthetically satisfactory for exposed soffits.
- These tables are based upon effective section properties of the sheeting calculated in accordance to AS 4600:2005.
- Care must be exercised when placing concrete to avoid mounding.
- Wide ply strips, of 300mm wide, shall be provided to prevent any concentrated loads being applied to the sheeting, particularly for exposed soffits, to avoid direct point loading of the sheet overlap ribs and unsupported edges of the sheeting.
- When using the table for two or more spans the adjacent spans should not differ in length by more than 5%.
- A maximum sheet length of 12m has been considered.
- A minimum bearing width of the permanent support has been considered to be 50mm.
- Fielders recommend a gauge of 1.00 mm BMT for exposed soffits in propped applications to avoid creasing of steel decking. Please contact your local KingFlor® representative for further information.

KF40[®] Pre-stressed / Post-tensioned Slabs

KF40[®] can be adopted as permanent formwork and composite reinforcement in the design and construction of post-tensioned composite slabs.

The shallow overall depth of the KF40[®] profile allows post-tensioning tendons to be draped in the spanning and transverse directions of the slab without clashes.

The primary post-tensioning tendons draped parallel to the spanning direction of the KF40[®] slab are located centrally between ribs at the cover specified in Tables 2A, 2B and 2C to achieve the required FRL.

The minimum recommended post-tensioned slab thickness is 160mm to allow tendons to be draped and pre-stressing anchorages to fit within the slab depth without causing horizontal splitting.

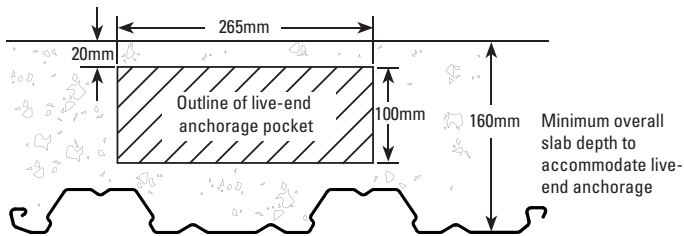


FIGURE 1: Fitting a Typical Live-End Anchorage in a Composite Slab Incorporating KF40[®]

Note: Anti-bursting reinforcement can be supported off lap ribs, which ideally are only 20mm high and allow concrete aggregate to pass around the reinforcing bars as necessary.

Locating Longitudinal Tendons

The location of the post-tension tendon for KF40[®] slabs are determined in order to not exceed the limiting steel temperatures of 450°C (simply supported), 520°C (flat slab) and 650°C (continuous) to ensure consistency with the current version of AS 3600:2009.

For the case of tendons having parallel orientation to the deck it is assumed that the tendon is located centrally between two KF40[®] ribs. This gives a distance from the centreline of the rib to the edge of the tendon of 85mm. The required distances from the heated soffit to the bottom of the tendon have been determined using TASEF-2 analyses previously undertaken for KF40[®].

The slab thickness has been assumed to be 160mm but the results can be considered to be applicable to the range of practical post-tensioned concrete slabs.

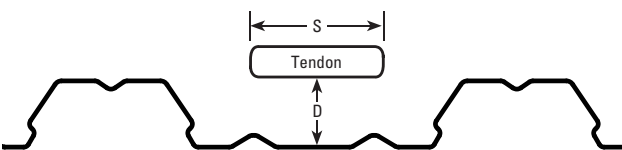


FIGURE 2: Distances to the Prestressing Tendon.

Table 2A: Minimum Distance (D) to Underside of Tendon from Soffit (S = 45mm)

FRL	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	47	25	36
180	67	35	55
240	83	47	70

Table 2B: Minimum Distance (D) to Underside of Tendon from Soffit (S = 70mm)

FRL	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	49	25	38
180	69	37	58
240	84	49	73

Table 2C: Minimum Distance (D) to Underside of Tendon from Soffit (S = 90mm)

FRL	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	53	25	42
180	71	38	60
240	85	50	75

Locating Transverse Tendons

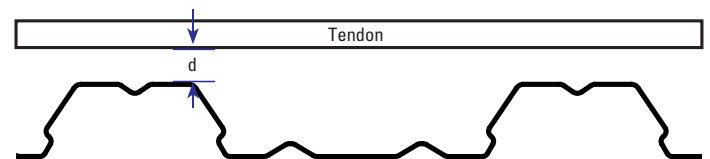


FIGURE 3: Distance between Top of Rib and underside of Tendon

Table 3: Minimum Distance between Top of Rib and underside of Tendon

FRL	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	40	22	33
180	53	31	44
240	65	38	56

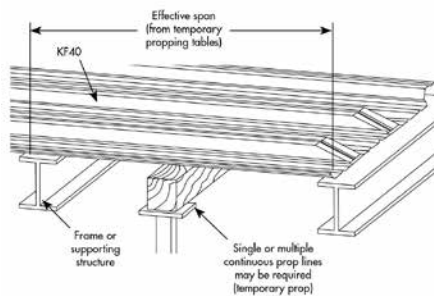
Installing KF40®

Temporary Propping

If temporary propping is required (refer to the temporary propping tables), props should be placed at the correct centres prior to laying the KF40® sheets. Generally, timber or steel bearers with a minimum dimension of 75mm x 75mm are used on vertical props. The props should be installed so as to prevent settlement during loading by wet concrete and other construction loads.

300mm wide ply strips to be positioned above the header bearers to assist in dispersing the load and minimise any local deformation of the decking due to the headers.

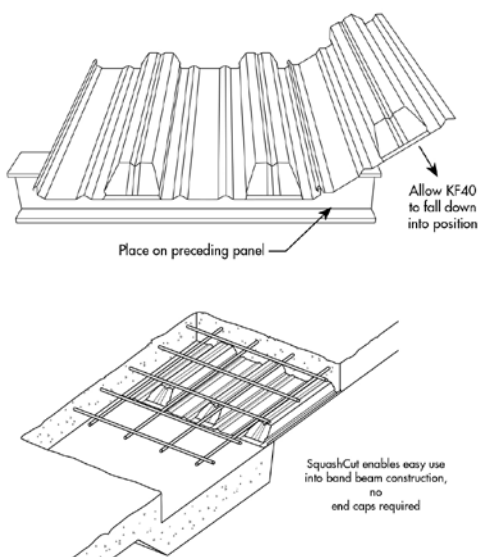
Temporary props should only be removed after the slab has reached sufficient strength (at least 75% of the specified 28 day strength). The full design load may only be applied once the slab has achieved 28-day strength.



Laying KF40®

1. Place the KF40® sheet over the supports ensuring a minimum end bearing of 50mm. If supporting on a brick or masonry wall, provide a separating strip such as malthoid.
2. Engage subsequent sheets of KF40® by locking the larger female rib over the male rib as shown in the diagram below. No crimping is required in this situation.

SquashCut™ /Band Beam Detail

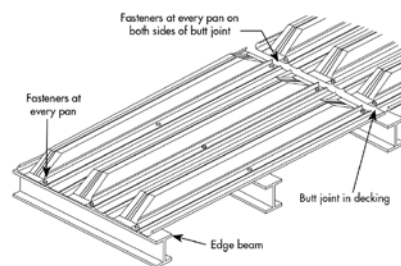


Fastener Locations

The decking must be positively fixed to the supporting structure in order to avoid movement and excessive deflection during the pouring of concrete.

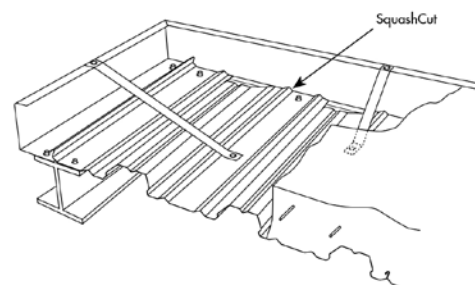
When fixing to a steel support structure, shot fired pins or self-drilling/tapping fasteners should be used. Provide one fastener in each pan at every support.

In the case of other support systems, such as brickwork, block work and concrete, the KF40® sheets must be temporarily held in place against wind and other effects until the concrete is poured.



Edge-form

Galvanised steel edge-forms can be used for the retention of wet concrete to the correct level at the decked floor perimeters. KF40® edge-form is usually shot-fired to the steel support structure or to the KF40® deck and the top of the edge-form is connected back to the decking with restraint straps at approximately 600mm centres using either pop-rivets or self-drilling screws.



Reinforcement

Place all reinforcement in strict accordance with the structural engineer's drawings and specification.

Concrete Placement

The specified grade of concrete and any chemical admixtures must be in strict accordance with AS 3600:2009 and the structural engineer's drawings and specification. The deck must be clear of any excess dirt, grease or debris as this inhibits bonding between the deck and concrete.

Ensure that concrete is applied evenly over the decking surface, as mounding of the wet concrete will cause excessive local loading.



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