

4.0 Trapezoidal Profiles

4.1 KF70® Specification and Design

KF70 is manufactured from G550 (550MPa Yield Stress) steel with a base metal thickness (BMT) of 0.75mm or 1.00mm. Base Metal Thickness of 0.60mm is also available on request. The galvanised coating thickness is Z350 (minimum 350g/m²) in accordance with AS 1397:2001.

Fielders KF70 is a revolutionary steel formwork solution suitable for composite concrete slabs in concrete and steel-framed construction. KF70 is the answer to increased market demand for a lightweight profile capable of large spans. The KF70 profile displaces 26mm of concrete from the total slab depth to achieve a lightweight slab.

KF70 has delivered cost savings when used in the following types of construction:

- Multi-level car parks
- Multi-storey buildings
- Commercial buildings

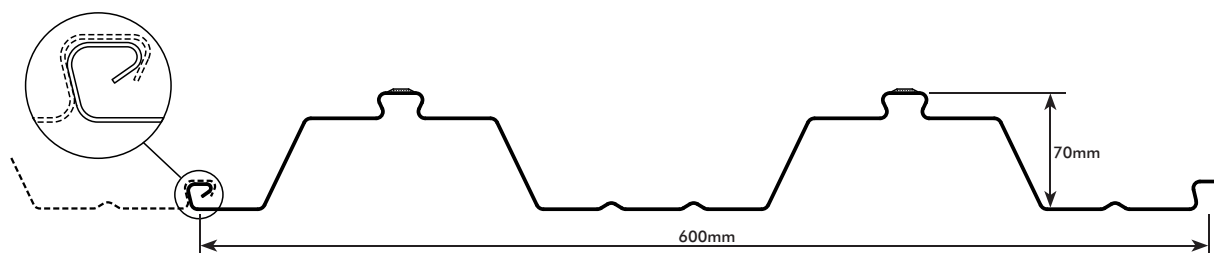


Figure 4.0.A KF70® Profile

Note: All dimensions are nominal only.

KF70® Material Specifications

Material Properties	0.75 BMT	1.00 BMT
Mass Area – Average mass of fitted deck per plan area (kg/m ²)	9.17	12.23
Mass Linear – Mass of individual length (kg/m)	5.50	7.34
Mass Area (m ² /t)	109	81
Zinc Coating (g/m ²) (Z350)	350	350
Yield Strength (MPa)	550	550
Friction Coefficient	0.5	0.5
Sheet Section Steel Area A _{sh} (mm ² /m)	1100	1467
Centroid Height y _{sh} (mm)	27.7	27.7
Bare Sheet Resistance M _{u+} (kNm/m)	7.83	11.75
Bare Sheet Resistance M _{u-} (kNm/m)	9.33	11.67
Vertical Shear Resistance (kN/m)	44.5	84.0
Web Crushing Resistance - End span (kN/m)	34.5	51.2
Web Crushing Resistance - Internal span (kN/m)	45.3	67.7
Capacity Reduction Factor – φ bare steel ultimate limit state analysis	0.9	0.9
Moment of Inertia I _{x+} (mm ⁴ /m)	584000	745000
Moment of Inertia I _{x-} (mm ⁴ /m)	584000	745000

Table 4.0.A KF70® Material Specifications

4.2 KF40® Specification and Design

KF40 is manufactured from G550 (550MPa Yield Stress) steel with a base metal thickness (BMT) of 0.60mm, 0.75mm or 1.00mm. The galvanised coating thickness is Z350 (350g/m²) in accordance with AS 1397: 2001.

Fielders KF40 is a revolutionary steel formwork solution suitable for composite concrete slabs in concrete and steel framed construction. An optimum strength-to-weight profile, KF40 is the answer to increased market demand for a lightweight profile. The KF40 profile displaces 16mm of concrete from the total slab depth to achieve a lightweight slab.

KF40 has delivered cost savings when used in the following types of construction:

- Concrete framed construction
- Residential construction
- Commercial buildings

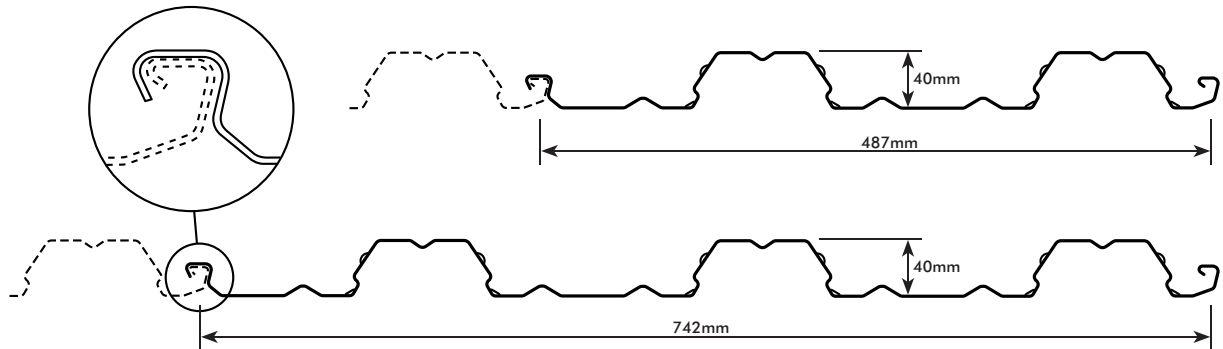


Figure 4.2.A KF40® Profile Details

Note: All dimensions are nominal only.

KF40® Material Specifications				
Material Properties		0.60 BMT	0.75 BMT	1.00 BMT
Mass Area –	Average mass of fitted 2-PAN deck per plan area (kg/m ²)	7.04	8.67	11.39
	Average mass of fitted 3-PAN deck per plan area (kg/m ²)	6.78	8.35	10.97
Mass Linear –	Mass of individual 2-PAN length (kg/m)	3.43	4.22	5.55
	Mass of individual 3-PAN length (kg/m)	5.03	6.19	8.14
Mass Area (m ² /t)	2-PAN	142	115	88
	3-PAN	147	120	91
Zinc Coating (g/m ²) (Z350)		350	350	350
Yield Strength (MPa)		550	550	550
Friction Coefficient		0.5	0.5	0.5
Sheet Section Steel Area A _{sh} (mm ² /m)	2-PAN	832	1040	1386
	3-PAN	800	1000	1334
Centroid Height y _{sh} (mm)		14	14	14
Bare Sheet Resistance M _u ⁺ (kNm/m)	– single span sheets	2.48	3.91	5.75
	– multi-span sheets	2.98	4.69	6.90
Bare Sheet Resistance M _u ⁻ (kNm/m)		0	0	0
Vertical Shear Resistance (kN/m)		7.78	10.63	16.20
Web Crushing Resistance - End span (kN/m)		7.78	10.63	16.20
Web Crushing Resistance - Int span (kN/m)		9.81	15.35	22.50
Capacity Reduction Factor – ϕ bare steel ultimate limit state analysis		0.90	0.90	0.90
Moment of Inertia I _x ⁺ (mm ⁴ /m)		I _x ⁺ is dependent on span, refer to Appendix K		
Moment of Inertia I _x ⁻ (mm ⁴ /m)		I _x ⁻ is dependent on span, refer to Appendix K		

Table 4.2.A KF40® Material Specifications

4.3 Acoustic Performance of KF70® and KF40® Slabs

A crucial issue when designing adjoined residential or aged care premises is the transmission of noise through floor systems. In isolation, profiled steel formwork slabs do not offer the same level of sound insulation as of form slabs. However, shallow floors generally exceed the current requirements of the 2006 BCA when installed with a ceiling and insulation (refer to figure 4.3.A for typical configuration).

The R_w value is a laboratory based test result, and is similar to the STC that has been in use for a number of years. The R_w+C_{tr} value is the R_w plus a correction for noise containing greater proportions of lower frequency. The R_w value is usually applied for Class 9c buildings and R_w+C_{tr} is applied for apartment buildings as in the following tables.

Where there is no ceiling provision, the BCA requires that the floor surface finish is carpet on underlay.

We expect that the $L_{n,w}+Ci$ impact noise criterion of not exceeding 62 will be met for all configurations that meet the airborne noise requirement.

Class 9c Buildings (Aged Care Facilities)

The 2006 BCA requires that floor/ceiling systems for Class 9c buildings include an R_w rating not less than 45 and no specified impact noise numerical requirement.

Deemed-to-satisfy constructions include:

- Pre-cast 100mm thick concrete slab
- 100mm thick in-situ concrete slab with density not less than 2500kg/m³

Apartment Buildings (Sole Occupancy Units)

Currently the 2006 BCA requires that floor/ceiling systems for sole occupancy units include an R_w+C_{tr} rating not less than 50 with an impact noise control $L_{n,w}+Ci$ not greater than 62.

Refer to Table 4.3.A and Table 4.3.B for the proposed acceptable R_w and R_w+C_{tr} ratings for ceiling provision combinations.

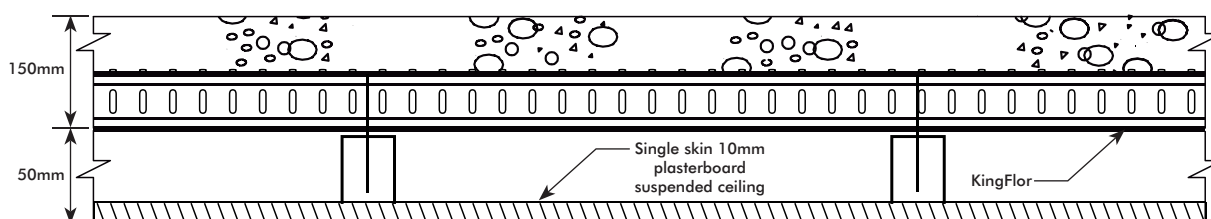


Figure 4.3.A Shallow Composite Floor - Bare Concrete Slab with Plasterboard Ceiling

KF70® Acoustic Performance									
Dcs (mm)	Ceiling Provision							R _w	R _w +C _{tr}
	None	Plasterboard	Cavity			Insulation			
		10mm Plasterboard	15mm Cavity	50mm Cavity with Resilient Mounts	100mm Cavity with Resilient Mounts	No Insulation	Polyester Insulation		
100 In-situ Slab	●							48-49	46
200 In-situ Slab	●							59	53
130	●							45-46	44
		●	●			●		46	43
		●		●		●		50	45
		●			●		●	60	51
		●			●	●		54	49
		●			●		●	65	57
150	●							48-49	46
		●	●			●		48	44
		●		●		●		52	47
		●		●			●	61	52
		●			●	●		55	50
		●			●		●	>65	58
170	●							51	47
		●	●					50	45
		●		●		●		53	47
		●		●			●	58	51
		●			●	●		56	50
		●			●		●	>65	59
200	●							54	50
		●	●					52	46
		●		●		●		55	49
		●		●			●	63	54
		●			●	●		58	52
		●			●		●	>65	60
220	●							56	51
		●	●					54	48
		●		●		●		57	50
		●		●			●	64	53
		●			●	●		60	53
		●			●		●	>65	60
230	●							57	52
		●	●					55	49
		●		●		●		58	51
		●		●			●	65	54
		●			●	●		60	53
		●			●		●	>65	61

Table 4.3.A KF70® Acoustic Performance

KF40® Acoustic Performance										
Dcs (mm)	Ceiling Provision								R _w	R _w +C _{ir}
	None	Plasterboard	Cavity			Insulation				
		10mm Plasterboard	15mm Cavity	50mm Cavity with Resilient Mounts	100mm Cavity with Resilient Mounts	No Insulation	Polyester Insulation			
100 In-situ Slab	●								48-49	46
200 In-situ Slab	●								59	53
130	●								48	45
		●				●			47	44
		●	●		●	●			51	46
		●			●		●		61	52
		●				●	●		54	49
		●				●	●		>65	58
150	●								50	47
		●				●			49	46
		●	●		●	●			53	47
		●			●		●		62	53
		●				●	●		56	50
		●				●	●		>65	59
170	●								53	48
		●				●			51	45
		●	●		●	●			54	48
		●			●		●		63	53
		●				●	●		57	50
		●				●	●		>65	60
200	●								55	51
		●				●			53	47
		●	●		●	●			56	50
		●			●		●		64	53
		●				●	●		59	52
		●				●	●		>65	60
220	●								57	52
		●				●			55	49
		●	●		●	●			58	51
		●			●		●		65	54
		●				●	●		61	54
		●				●	●		>65	61
230	●								58	53
		●				●			56	50
		●	●		●	●			59	51
		●			●		●		>65	54
		●				●	●		62	54
		●				●	●		>65	61

Table 4.3.B KF40® Acoustic Performance

4.4 Fire Design

The BCA requires that floors must achieve satisfactory levels in the criterion of structural adequacy, integrity and insulation. These three criterion are defined in greater detail in AS 1530.4:2005. The performance objective and requirements associated with the provision of a fire-resistance period. It is necessary that fire does not pass from one enclosure to the other, irrespective of whether this is due to collapse, formation of cracks and fissures, or excessive temperature rise.

Analysis of the fire performance of KF70 and KF40 has been undertaken to determine insulation and integrity in accordance with established fire engineering principles. It was found that ignition will not occur and the slab will achieve the necessary performance with respect to insulation (provided the maximum temperature of the unexposed face does not exceed 275°C). The standard fire tests concluded that the KF70 and KF40 profile would achieve the fire resistance period for insulation and integrity for overall slab thicknesses as detailed in table 4.4.A.

Fire Resistance Minimum Slab Depth for Insulation and Integrity	
FRL (minutes)	KF70® and KF40® Minimum Dcs (mm)
60	120
90	120
120	125
180	150
240	170

Table 4.4.A KF70® and KF40® Fire Resistance - Minimum Slab Depth for Insulation and Integrity.

Note: Table 4.4.A values are for Normal Density Concrete.

No contribution from ceiling or applied passive surface treatments has been allowed for in table 4.4.A.

Analysis of KF70® and KF40®

The following set of simplified equations have been formulated for the elevated temperature bending strength of both positive and negative moment regions of KF70/KF40 slabs. The method of analysis complies with the recommendations given in Clause 5.9 of AS 3600:2001.

For more details on analysis methods, refer to appendix G.

Values of the strength reduction factor R_{st} for steel reinforcing positions $y_c = 75\text{mm}$ (for KF70) and $y_c = 60\text{mm}$ (for KF40) (y_c shown in figure 4.4.A and 4.4.B) have been derived from the results of extensive analysis of KF40/KF70 slab cross-sections, and are given in table 4.4.B, as a function of fire resistance period and the allowable positions of reinforcement located within the shaded regions shown in figures 4.4.A and 4.4.B.

Strength Reduction Factor R_{st} at Top of Ribs		
FRL (minutes)	Strength Reduction Factor (R_{st})	
	KF70 $y_c = 75\text{mm}$	KF40 $y_c = 60\text{mm}$
60	1.00	0.90
90	0.77	0.65
120	0.58	0.48
180	0.33	0.24
240	0.15	0.07

Table 4.4.B Strength Reduction Factor R_{st} at Top of Ribs

where

y_c = distance to the centroid of steel reinforcement measured from slab soffit (in mm)

The R_{st} values in table 4.4.B are for reinforcement located 75mm from the bottom of the pan ($y_c = 75\text{mm}$ for KF70 and $y_c = 60\text{mm}$ for KF40), for all other locations refer to tables 4.4.C.

Positive Bending Capacity

The design strength in positive bending of a KingFlor composite slab cross-section, assuming the soffit of the slab to be exposed to fire, can be determined using the equation:

$$\phi M_u^+ = \phi R_{st} A_{st}^+ f_{sy} d^+ \left[1 - \frac{0.6 R_{st} A_{st}^+ f_{sy}}{b d^+ f'_c} \right]$$

where

ϕ = strength reduction factor taken equal to 0.8

R_{st} = reduction factor due to the effect of temperature on the yield strength of the reinforcing steel give in tables 4.4.C

f_{sy} = yield strength of reinforcing steel mesh, taken as 500MPa

d^+ = effective depth of section in positive bending (see figure 4.4.A and 4.4.B)

b = width of composite slab

f'_c = characteristic compressive strength of concrete at 28 days which may be taken as equal to the specified strength grade

A_{st}^+ = area of steel at a cross-section which acts in tension when the cross-section is subjected to positive bending, where the location of the steel can be anywhere within the shaded region shown in figure 4.4.A and 4.4.B

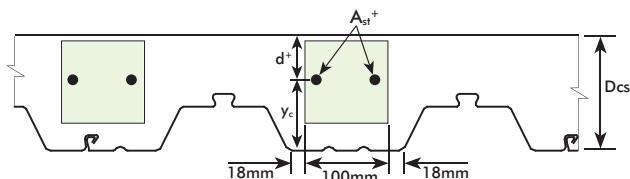


Figure 4.4.A Allowable Positions of Steel Reinforcement in the Composite Slab With KF70®

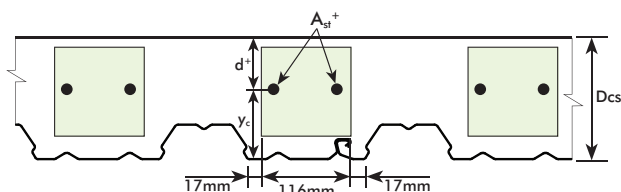


Figure 4.4.B Allowable Positions of Steel Reinforcement in the Composite Slab With KF40®

The expression of the positive bending equation above is the same as that used in the calculation of the design strength in positive bending of a singly-reinforced cross-section at room temperature conditions, but makes allowance for the influence of temperature on the strength of the reinforcing steel. Therefore, in using this equation, it is necessary to ensure that the slab cross-section is under-reinforced at the end of the fire period. Therefore, the limit of k_u^+ (determined at the end of the fire period and ignoring the presence of any compressive reinforcement) has been chosen as:

$$k_u^+ = \frac{R_{st} A_{st}^+ f_{sy}}{0.85 \gamma b d^+ f'_c} \leq 0.40$$

where

$$\gamma = 0.85 - 0.007(f'_c - 28) \text{ within the limits of } 0.65 \text{ to } 0.85$$

Reinforcement

Resistance to positive bending actions in the fire situation is provided by embedded reinforcement at various levels within the slab as follows:

Top Face Reinforcement

Usually mesh, this is generally located very close to the top surface, hence, the effective lever arm and the contribution in flexural resistance is correspondingly small. The temperature based strength reduction effects are accounted for by a factor (R_{st}) computed in relation to both the concrete cover of longitudinal wires from the underside and the fire exposure period.

If lower level fire reinforcement is provided, the "shrinkage" reinforcement is positioned away from the tensile zone and becomes ineffective in resisting positive bending actions.

Fire Mesh Reinforcement

Fire mesh reinforcement resting directly on the KF70/KF40 rib tops, with longitudinal wires positioned well clear of the rib. The temperature based strength reduction effects are accounted for by a factor (R_{st}) computed in relation to both the concrete cover of longitudinal wires from the exposed KF70/KF40 profile and the fire exposure period.

Fire Bar Reinforcement

Fire bar reinforcement either supported on conventional spacer devices or resting directly on the fire mesh (as above), with longitudinal bars positioned as far clear from the rib as feasible.

Strength Reduction Factor (R_{st})

FRL (minutes)	KF70®		KF40®	
	y_c (mm)	R_{st}	y_c (mm)	R_{st}
60	≥ 75	1.00	≥ 70	1.00
	$55 \leq y_c < 75$	$0.0120y_c + 0.1000$	$45 \leq y_c < 70$	$0.0134y_c + 0.0620$
	$15 < y_c < 55$	$0.0190y_c - 0.2850$	$15 < y_c < 45$	$0.0222y_c - 0.3325$
	≤ 15	0.00	≤ 15	0.00
90	≥ 95	1.00	≥ 90	1.00
	$60 \leq y_c < 95$	$0.0114y_c - 0.0840$	$55 \leq y_c < 90$	$0.0124y_c - 0.1134$
	$25 < y_c < 60$	$0.0171y_c - 0.4270$	$25 < y_c < 55$	$0.0189y_c - 0.4725$
	≤ 25	0.00	≤ 25	0.00
120	≥ 115	1.00	≥ 105	1.00
	$80 \leq y_c < 115$	$0.0100y_c - 0.1500$	$70 \leq y_c < 105$	$0.0108y_c - 0.1310$
	$35 < y_c < 80$	$0.0144y_c - 0.5030$	$35 < y_c < 70$	$0.0178y_c - 0.6230$
	≤ 35	0.00	≤ 35	0.00
180	≥ 135	1.00	≥ 130	1.00
	$100 \leq y_c < 135$	$0.0100y_c - 0.3500$	$90 \leq y_c < 130$	$0.0088y_c - 0.1375$
	$50 < y_c < 100$	$0.0130y_c - 0.6500$	$45 < y_c < 90$	$0.0144y_c - 0.6500$
	≤ 50	0.00	≤ 45	0.00
240	≥ 115	1.00	≥ 145	1.00
	$110 \leq y_c < 115$	$0.0092y_c - 0.4294$	$100 \leq y_c < 145$	$0.0088y_c - 0.2824$
	$65 < y_c < 110$	$0.0122y_c - 0.7601$	$55 < y_c < 100$	$0.0134y_c - 0.7358$
	≤ 65	0.00	≤ 55	0.00

Table 4.4.C Strength Reduction Factor (R_{st}) for KF70® and KF40®

The temperature based strength reduction effects are accounted for by a factor (R_{st}) computed in relation to both the concrete cover from the exposed KF70/KF40 profile and the fire exposure period.

Concrete resistance as a compression element at top of slab is taken as fully contributing since temperature is less than 350°C.

Negative Bending Capacity

The design strength in negative bending of a KingFlor composite slab cross-section, assuming the soffit of the slab to be exposed to fire, can be determined using the equation:

$$\phi M_{-U} = \phi R_{st} A_{st}^- f_{sy} (d^- - d_x)$$

where

- ϕ = strength reduction factor taken equal to 0.8
- R_{st} = reduction factor due to the effect of temperature on the yield strength of the reinforcing steel give in tables 4.4.C
- f_{sy} = yield strength of reinforcing steel mesh, taken as 500Mpa
- d^- = effective depth of section in negative bending (see figure 4.4.C)
- d_x = distance from slab soffit to resultant compressive force of section in negative bending (see figure 4.4.C)
- A_{st}^- = area of steel at a cross-section which acts in tension when the cross-section is subjected to negative bending, where the location of the steel can be anywhere within the shaded region as shown in figure 4.4.A and 4.4.B

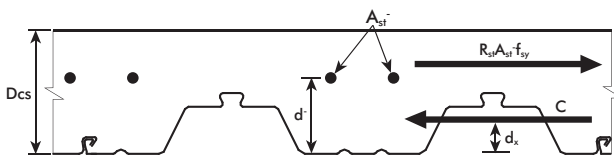


Figure 4.4.C Force Equilibrium in Negative Bending.

The values of d_x are given in table 4.4.D as a function of the depth of the neutral axis at ultimate load ($k_u^- d^-$) and the fire resistance period. The limit of k_u^- has been chosen as:

$$k_u^- = \frac{R_{st} A_{st}^- f_{sy}}{0.85 \gamma b d f_c} \leq 0.40$$

where

$$\gamma = 0.85 - 0.007(f'_c - 28) \text{ within the limits of 0.65 to 0.85}$$

Values for d_x for Negative Bending for KF40®

FRL (minutes)	d_x (mm)
60	$0.81 k_u^- d^- + 13$
90	$0.96 k_u^- d^- + 20$
120	$0.85 k_u^- d^- + 27$
180	$0.92 k_u^- d^- + 37$
240	$0.78 k_u^- d^- + 49$

Table 4.4.D Values for d_x for Negative Bending for KF40®

Reinforcement

Resistance to negative bending actions in the fire situation is provided by embedded negative flexural reinforcement at upper levels within the slab as follows:

Top Face Reinforcement

This is usually mesh which is generally located very close to the top surface for shrinkage control. The temperature based strength reduction effects are accounted for by a factor (R_{st}) computed in relation to both the concrete cover of longitudinal wires from the exposed KF70/KF40 profile and the fire exposure period.

Supplementary Bar Reinforcement

Supplementary bar reinforcement is either supported on conventional spacer devices or resting directly on the top face mesh (as above), with longitudinal bars evenly spaced. The temperature based strength reduction effects are accounted for by a factor (R_{st}) computed in relation to both the concrete cover from the exposed KF70/KF40 profile and the fire exposure period.

Concrete resistance as a compression element at bottom of slab is reduced when temperature is greater than 350°C. The allowance made for loss of effective concrete strength is accounted for by the reduction of effective depth by an amount (d_x), which is computed in relation to the fire exposure period.

For more detailed fire analysis, please contact your local Fielders KingFlor representative.

Exposed Surface Area-To-Mass Ratio (ESA/M)

To assess the fire capacity of the structural steel work using the ratio of area of steel on mass (ESA/M), see appendix G.

KF40® Prestressed / Post-tensioned Slabs

KF40 can be used in conjunction with prestressed/post-tensioned slabs to act as an economical form of permanent formwork, reducing propping and labour requirements.

Concrete slabs may be prestressed parallel or perpendicular to that of the KF40 ribs. It is common for the slab to act primarily in the spanning direction of the steel decking, making it a one-way slab. In this case the main prestressing is aligned in this direction, and accordingly the cables must be draped to act effectively. At the edges of the slabs the cables are normally centralised in the depth of the slab. In the mid-span regions they are placed as low as possible in the slab with about 20mm bottom cover to the prestress ducts (noting that design for fire resistance may require a greater cover). Over internal supports the top cover is minimised. The cable profiles take up a parabolic shape in between these points.

The cables must be anchored at their dead and live ends. After the stressing operation the ducts are normally grouted. To avoid bursting the ducts during the high pressure grouting operation, adequate concrete cover (normally at least 20mm) must be provided to the ducts. The prestressing cables are typically spaced transversely at between 1000mm and 3000mm centres depending on the thickness of the slab and the intensity of prestress required.

Post-tensioned concrete slabs are normally at least 150mm deep in order to fit the prestressing anchorages into the slab without causing horizontal splitting, and also accommodate some drape of the cables. Slabs up to 200mm thick are very common in building floors.

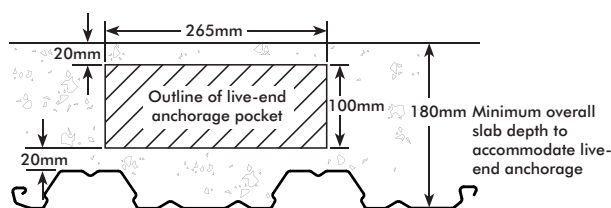


Figure 4.4.D Fitting a Typical Live-End Anchorage in a Composite Slab Incorporating KF40®

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 Conduits

The location of the post-tension conduit 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 current and future versions of AS 3600:2001.

For the case of tendons having parallel orientation to the deck it is assumed that the conduit is located centrally

between two KF40 ribs. This gives a distance from the centreline of the rib to the edge of the conduit of 85mm. The required distances from the heated soffit to the bottom of the conduit have been determined using TASEF-2 analyses previously undertaken for KF40. The limiting distances to the edge of the conduit to achieve the nominated FRL are summarised in table 4.4.E and table 4.4.F and relate to the edge of the conduit being located either 60mm or 75mm from the centreline of the rib as shown in figure 4.4.E.

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.

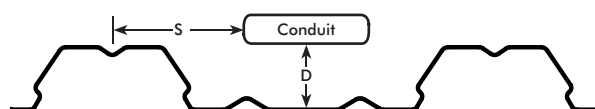


Figure 4.4.E Distances to the Prestressing Conduit

Minimum Distance to Underside of Conduit from Soffit (S = 60mm)

FRL (minutes)	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	82	55	72
180	97	84	93
240	109	83	100

Table 4.4.E Minimum Distance (D) to Underside of Conduit from Soffit (S=60)

Minimum Distance to Underside of Conduit from Soffit (S = 75mm)

FRL (minutes)	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	77	50	67
180	94	67	83
240	109	78	97

Table 4.4.F Minimum Distance (D) to Underside of Conduit from Soffit (S=75)

For the case of tendons having perpendicular orientation to the deck the location of the conduit is required to be greater than that for the parallel orientation. Using the TASEF-2 analysis results for KF40, the minimum distances between the bottom of the pan and the underside of a conduit to achieve a required FRL are given in table 4.4.G.

Minimum Distance to Underside of Conduit

FRL (minutes)	Simply Supported (mm)	Continuous (mm)	Flat Slabs (mm)
120	92	75	84
180	100	79	97
240	112	85	106

Table 4.4.G Minimum Distance (D) to Underside of Conduit

It is assumed that the prestressing tendons are encapsulated within a conduit that is subsequently grouted after tensioning. It is further assumed that the width of this conduit is 80mm and that no less than 6mm of grout exists between the inside surface and the outer surface of a prestressing tendon.

Infill Panels

To extend the flat pan width to locate post-tensioning cables, infill panels are available.

Nominal flat pan width is between 250 and 400mm measured between nearest laps of adjacent decking ribs. Infill panels have a rib height of 20mm and are available in base metal thicknesses from 0.55 to 1.6mm (dependant on the width and depth of the slab).

The panel outstand limits the tendency for the span of the decking sheet on the extended side to deflect downwards under the weight of concrete supported by the infill panel.

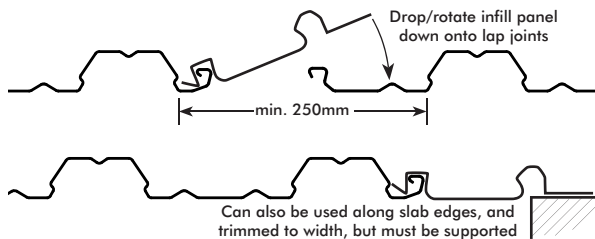


Figure 4.4.F Infill Panel Installation

See appendix B for Fielders PT Plus Design Solutions

4.5 Crack Control for KF70® and KF40®

The tables that follow have been prepared considering moderate crack control. To increase or decrease the crack control requirement vary the mesh in accordance with table 4.5.A

The crack control reinforcement is for shrinkage and temperature only, not flexure.

The crack control tables exclude exposure classifications B1, B2 and C.

Crack Control						
Dcs (mm)	KF70®			KF40®		
	Reinforcement			Reinforcement		
	Minor	Moderate	Strong	Minor	Moderate	Strong
100	N/A	N/A	N/A	SL62	SL82	SL81
110	N/A	N/A	N/A	SL62	SL92	SL81
120	SL62	SL92	SL81	SL62	SL92	RL918
130	SL62	SL92	SL81	SL72	SL102	RL918
140	SL72	SL102	RL918	SL72	SL102	RL1018
150	SL72	SL102	RL918	SL82	SL81	RL1018
160	SL82	SL81	RL1018	SL82	SL81	RL1118
170	SL82	SL81	RL1018	SL92	RL918	RL1118
180	SL82	SL81	RL1118	SL92	RL918	RL1118
190	SL92	RL918	RL1118	SL92	RL918	RL1218
200	SL92	RL918	RL1118	SL92	RL918	RL1218
210	SL92	RL918	RL1218	SL102	RL1018	RL1218
220	SL92	RL918	RL1218	SL102	RL1018	RL1218
230	SL102	RL1018	RL1218	SL102	RL1018	-
240	SL102	RL1018	RL1218	SL102	RL1018	-
250	SL102	RL1018	-	SL81	RL1118	-

Table 4.5.A KF70® and KF40® Crack Control

Notes for Table 4.5.A

1. N/A - Not Applicable
2. Table prepared in accordance with AS 3600:2001.
3. KF70 slabs less than 130mm are not recommended due to cover requirements to reinforcing as per AS 3600:2001.
4. Rectangular mesh to be laid such that the largest bars are oriented perpendicular to the decking span.
5. SL718 mesh can be replaced with SL102.
6. SL818 mesh can be replaced with SL81 as only transverse bars are effective.
7. Laps in mesh to occur mid span.
8. Mesh to be located on top of slab.