

Fire Resistance of Milbank Precast Concrete Units

Based on BS 8110-Part 2: 1985 Section 4

(Note cover on Hollowcore Floors, Precast Stairs and Landings can be increased to provide greater fire resistance if required)

Floor Type	Unit Ref	Unit Thickness h (mm)	Unit Width b (mm)	Average Cover to Tendons (mm)	Total Core Area "C" (mm ²)	Gross Section Area "A" (mm ²)	$\xi = (A - C)/A$	Minimum Floor Thickness $t_e = h \times \sqrt{\xi} + t_f$	Basic Fire Resistance from Tables 4.4 and 4.5	Notes
Beam & Block	T155	150	110	25	0	11,829	1.000	150	1 Hour	Limited by Cover and Bottom flange width
Beam & Block	T225	225	110	25	0	18,160	1.000	225	1 Hour	Limited by Cover and Bottom flange width
Hollowcore	PS-150L	150	1200	25	58,969	180,000	0.672	123	1 Hour	Limited by Cover. (Max 1½ Hours possible with 30mm cover- limited by t_e)
Hollowcore	PS-150H	150	1200	25	36,334	180,000	0.798	134	1 Hour	Limited by Cover. (Max 2 Hours possible with 40mm cover)
Hollowcore	PS-200	200	1200	25	95,586	240,000	0.602	155	1 Hour	Limited by Cover. (Max 2 Hours possible with 40mm cover)
Hollowcore	PS-250	250	1200	25	134,490	300,000	0.552	186	1 Hour	Limited by Cover. (Max 2 Hours possible with 40mm cover)

Beam & Block Floors

Table 4.5 Ribbed open soffit concrete floors

Prestressed concrete (simply supported):
Dense concrete

Fire Resistance	Width of Rib "b"	Minimum Thickness t_e	Cover to Tendons
½ Hour	80mm	70mm	20mm
1 Hour	110mm	90mm	25mm
1 ½ Hour	135mm	105mm	30mm
2 Hour	150mm	115mm	40mm
3 Hour	175mm	135mm	55mm
4 Hour	200mm	150mm	65mm



Hollowcore Floors

Table 4.4 Plain Soffit concrete floors

Prestressed concrete (simply supported):
Dense concrete

Fire Resistance	Minimum Thickness t_e	Cover to Tendons
½ Hour	75mm	20mm
1 Hour	95mm	25mm
1 ½ Hour	110mm	30mm
2 Hour	125mm	40mm
3 Hour	150mm	55mm
4 Hour	170mm	65mm



Precast Stairs and Landings (Solid Slabs)

Table 4.4 Plain Soffit concrete floors

Reinforced concrete (simply supported):
Dense concrete

Fire Resistance	Minimum Thickness t_e	Cover to Main reinforcement
½ Hour	75mm	15
1 Hour	95mm	20
1 ½ Hour	110mm	25
2 Hour	125mm	35
3 Hour	150mm	45
4 Hour	170mm	55



Flights, Waist \geq 150mm
Landings, Thickness \geq 150mm
Minimum Cover 20mm