

(JA/12 )

## **CP100 Reinforced Concrete**

## Tina Donoghue

---

**From:** Andy Fewings <Andy.Fewings@hjplondon.co.uk>  
**Sent:** 14 June 2017 10:25  
**To:** Allen, John: CP-Plan: RBKC  
**Subject:** CP100  
**Attachments:** CP110 FR.pdf

John,

Extract from a well-known design guide for CP110, the 1970s code for RC. Table numbers may not be the same as the code but the content is an exact replica.

If we can be of any further assistance please ask, happy to attend also if required to add further opinion for you.

Kind Regards,

Andy

Andy Fewings  
Managing Director

Harold James (London) Ltd  
96 High Street  
Burnham  
Bucks  
SL1 7JT

telephone: [REDACTED]  
facsimile: [REDACTED]  
mobile: [REDACTED]  
email: [andy.fewings@hjplondon.co.uk](mailto:andy.fewings@hjplondon.co.uk)  
web: [www.hjplondon.co.uk](http://www.hjplondon.co.uk)

If you are not the intended recipient, you must not act on, copy or show the email to anyone. If you have received an email in error, please notify the sender immediately and then delete the email.

The views or opinions expressed in the email are solely those of the author and do not necessarily represent those of the company unless specifically stated. The company accepts no responsibility for personal emails, or emails unconnected with the company's business.

All Harold James (London) Limited email and any attachments are scanned for viruses, but it is the responsibility of the recipient to conduct their own security measures and no responsibility is accepted by the company for any loss or damage arising from the receipt or use of the email.

Internet email is not a 100% secure or guaranteed communications medium. As such, email transmissions cannot be guaranteed as secure, complete, arriving on time nor having been tampered with. Harold James (London) Limited therefore does not accept any liability for any errors or omissions within the email (including attachments) or resulting from the use of internet email.

Any email (including its contents and attachments) either received by or sent from Harold James (London) Limited, may be monitored in accordance with current UK legislation.

Harold James (London) Limited is a company registered in England, company number 7115454. Registered office: 96 High Street, Burnham Bucks SL1 7JT.

---

This email has been scanned by the Symantec Email Security.cloud service.

---

Table 54. Fire resistance of reinforced concrete beams

Description	Minimum dimension of concrete to give a fire resistance in hours					
	4	3	2	1½	1	½
	mm	mm	mm	mm	mm	mm
(1) Siliceous aggregate concrete:						
a. average concrete cover to main reinforcement	65*	55*	45*	35	25	15
b. beam width	280	240	180	140	110	80
(2) As (1) with cement or gypsum plaster 15 mm thick on light mesh reinforcement:						
a. average concrete cover to main reinforcement	50*	40	30	20	15	15
b. beam width	250	210	170	110	85	70
(3) As (1) with vermiculite/gypsum plaster† or sprayed asbestos‡ 15 mm thick:						
a. average concrete cover to main reinforcement	25	15	15	15	15	15
b. beam width	170	145	125	85	60	60
(4) Lightweight aggregate concrete:						
a. average concrete cover to main reinforcement	50	45	35	30	20	15
b. beam width	250	200	160	130	100	80

\* Supplementary reinforcement, to hold the concrete cover in position, may be necessary. Reference should be made to 10.2.

† Vermiculite/gypsum plaster should have a mix ratio in the range of 1½-2 : 1 by volume.

‡ Sprayed asbestos should conform to BS 3590.

Table 59. Fire resistance of concrete columns (all faces exposed)

Type of construction	Minimum dimension of concrete to give a fire resistance in hours					
	4	3	2	1½	1	½
	mm	mm	mm	mm	mm	mm
(1) Siliceous aggregate concrete:						
a. without additional protection	450	400	300	250	200	150
b. with cement or gypsum plaster 15 mm thick on light mesh reinforcement	300	275	225	150	150	150
c. with vermiculite/gypsum plaster* or sprayed asbestos‡ 15 mm thick	275	225	200	150	120	120
(2) Limestone aggregate concrete or siliceous aggregate concrete with supplementary reinforcement in concrete cover	300	275	225	200	190	150
(3) Lightweight aggregate concrete	300	275	225	200	150	150

\* Vermiculite/gypsum plaster should have a mix ratio in the range of 1½-2 : 1 by volume.

‡ Sprayed asbestos should conform to BS 3590.

Table 56. Fire resistance of reinforced concrete floors (siliceous or calcareous aggregate)

Floor construction		Minimum dimension to give fire resistance in hours					
		4	3	2	1½	1	½
		mm	mm	mm	mm	mm	mm
(1) Solid slab	Average cover to reinforcement	25	25	20	20	15	15
	Depth, overall†	150	150	125	125	100	100
(2) Cored slabs in which the cores are circular or are higher than wide. Not less than 50 % of the gross cross section of the floor should be solid material	Average cover to reinforcement	25	25	20	20	15	15
	Thickness under cores	50	40	40	30	25	20
	Depth, overall†	190	175	160	140	110	100
(3) Hollow box section with one or more longitudinal cavities which are wider than high	Average cover to reinforcement	25	25	20	20	15	15
	Thickness of bottom flange	50	40	40	30	25	20
	Depth, overall†	230	205	180	155	130	105
(4) Ribbed floor with hollow infill blocks of clay, or inverted T-section beams with hollow infill blocks of concrete or clay. A floor in which less than 50 % of the gross cross section is solid material must be provided with a 15 mm plaster coating on soffit	Average cover to reinforcement	25	25	20	20	15	15
	Width of rib, or beam, at soffit	125	100	90	80	70	50
	Depth, overall†	190	175	160	140	110	100
(5) Upright T-sections	Average bottom cover to reinforcement	65*	55*	45*	35	25	15
	Side cover to reinforcement	65*	55*	45*	35	25	15
	Least width of downstanding leg	150	140	115	90	75	60
	Thickness of flange†	150	150	125	125	100	90
(6) Inverted channel sections with radius at intersection of soffits with top of leg not exceeding depth of section	Average bottom cover to reinforcement	65*	55*	45*	35	25	15
	Side cover to reinforcement	40*	30*	25*	20	15	10
	Least width of each downstanding leg	75	70	60	45	40	30
	Thickness at crown†	150	150	125	125	100	90
(7) Inverted channel sections or U-sections with radius at intersection of soffits with top of leg exceeding depth of section	Average bottom cover to reinforcement	65*	55*	45*	35	25	15
	Side cover to reinforcement	40*	30*	25*	20	15	10
	Least width of each downstanding leg	70	60	50	40	35	25
	Thickness at crown†	150	150	100	100	75	65

\*Supplementary reinforcement, to hold the concrete cover in position, may be necessary. Reference should be made to 10.3.  
 †Non-combustible screeds and floor finishes may be included in these dimensions.