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SECTION THREE

**COLUMN  
REINFORCEMENT**

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## SECTION THREE : COLUMN REINFORCEMENT

This Section enables engineer to specify from the design tables, column link cage for various sizes of column using T13 and T16 as the main vertical reinforcement bars. T16 diameter bar is the maximum bar size which is currently available by machine fabrication. Larger bar size can be introduced by manual fabrication.

The link cage can also be used independently without the main reinforcement bars if so desired.

To achieve higher column capacity, engineer may install additional vertical reinforcement bars to the cage and/or use higher grades of concrete.

### 3.1 Design Considerations

1. Annotation for column reference number with its specific steel reinforcement cage are shown in the following examples.

Example (1): CA25/25-T1 from Column Design Table 'CA2', where,

CA – Denotes reinforced concrete column designed based on Grade 30 concrete

25/25 – Denotes 250mm x 250mm reinforced concrete square column

T1 – Denotes specific main vertical reinforcement bars 4T13 with 1 number complete close link indicated as LR8-150 are used

Example (2): CA35/60-T6 from Column Design Table 'CA24', where,

CA – Denotes rectangular reinforced concrete column designed based on Grade 30 concrete

35/60 – Denotes 350mm x 600mm reinforced concrete rectangular column

T6 – Denotes specific main vertical reinforcement bars 14T16 with 1 number complete close link and 2 numbers "C" link indicated as 3LR8-175 are used

2. The derivation of Design Ultimate Vertical Load, N (in kN) in the design tables is in accordance to Clause (3.8.4.4) in BS 8110: Part 1: 1985: Section Three for short braced column supporting an approximately symmetrical arrangement of beams, and assumed to be pinned at each floor. Engineer shall exercise his own judgement when using the design tables such as when bending or unbraced condition is to be taken into consideration.

$$N \text{ (in kN)} = 0.35 f_{cu} A_c + 0.67 A_{sc} f_y$$

where,

$f_{cu}$  – Denotes characteristic strength of concrete used (N/mm<sup>2</sup>)

$A_c$  – Denotes net cross-section area of concrete in a column (mm<sup>2</sup>)

$A_{sc}$  – Denotes area of main vertical reinforcement bars (mm<sup>2</sup>)

$f_y$  – Denotes characteristic strength of steel reinforcement bars (460 N/mm<sup>2</sup>)

3. Annotation for column link cage :-

Numbers of Link	Close Link	Link Material	Link Diameter (mm)	-	Link Spacing, S <sub>v</sub> (mm)
n	L	R, D, H	6, 8, 10, 13	-	100, 125, 150, 200, 250, 300

Example (1): 1 R 10 - 200

consists of 1 number complete close link cage of 10mm diameter Plain Mild Steel Bar at 200mm spacing.

Example (2): 3 L D 13 - 150

consists of 1 number complete close link cage and 2 numbers "C" link of 13mm diameter Deformed Hard Drawn Wire at 150mm spacing.

Example (3): 6 L H 8 - 125

consists of 1 number complete close link cage and 5 numbers "C" link of 8mm diameter Plain Hard Drawn Wire at 125mm spacing.

**NOTE :-** "C" link is considered as one link in the annotation above.

4. 30mm nominal concrete cover and 30 N/mm<sup>2</sup> concrete characteristic strength are adopted in the design for Table 'CA1' to Table 'CA25'.
5. Steel/Concrete content (in kg/m<sup>3</sup>) and its percentage are an estimated values without taking into account of lapping zone.
6. Engineer shall consider and liaise with fabricators, if necessary, for any other column cage, and to verify the feasible cage size, lapping and lifting requirements.
7. Conversion table for plain mild steel bar to other type of link material cage is shown in the Appendix.

### 3.2 Column Design Tables

Column Design Table: CA1			Column Size: 200 mm x 200 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/20-T1	4T13	531	1.33	LR8-150	580	151
CA20/20-T2	4T16	804	2.01	LR8-175	660	198

Column Design Table: CA2			Column Size: 250 mm x 250 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/25-T1	4T13	531	0.85	LR8-150	810	105
CA25/25-T2	4T16	804	1.29	LR8-175	900	134

Column Design Table: CA3			Column Size: 300 mm x 300 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA30/30-T1	4T13	531	0.59	LR8-150	1100	79
CA30/30-T2	6T13	796	0.88	LR8-150	1180	102
CA30/30-T3	<b>8T13</b>	1062	1.18	LR8-150	1260	125
CA30/30-T4	4T16	804	0.89	LR8-175	1180	98
CA30/30-T5	6T16	1206	1.34	LR8-175	1300	133
CA30/30-T6	8T16	1608	1.79	LR8-175	1420	168

Column Design Table: CA4			Column Size: 350 mm x 350mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA35/35-T1	4T13	531	0.43	LR8-150	1440	62
CA35/35-T2	6T13	796	0.65	LR8-150	1520	79
CA35/35-T3	8T13	1062	0.87	LR8-150	1600	96
CA35/35-T4	4T16	804	0.66	LR8-175	1530	76
CA35/35-T5	6T16	1206	0.98	LR8-175	1650	102
CA35/35-T6	8T16	1608	1.31	LR8-175	1770	127

Column Design Table: CA5			Column Size: 400 mm x 400 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA40/40-T1	8T13	1062	0.66	LR8-150	2000	77
CA40/40-T2	12T13	1593	1.00	LR8-150	2150	103
CA40/40-T3	4T16	804	0.50	LR8-175	1920	61
CA40/40-T4	8T16	1608	1.01	LR8-175	2160	100
CA40/40-T5	12T16	2413	1.51	LR8-175	2400	140

Column Design Table: CA6			Column Size: 450 mm x 450 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA45/45-T1	8T13	1062	0.52	LR8-150	2440	63
CA45/45-T2	12T13	1593	0.79	LR8-150	2600	84
CA45/45-T3	4T16	804	0.40	LR8-175	2370	50
CA45/45-T4	8T16	1608	0.79	LR8-175	2610	82
CA45/45-T5	12T16	2413	1.19	LR8-175	2840	113

Column Design Table: CA7			Column Size: 500 mm x 500 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA50/50-T1	8T13	1062	0.42	3 LR8-150	2940	63
CA50/50-T2	12T13	1593	0.64	3 LR8-150	3100	80
CA50/50-T3	16T13	2124	0.85	3 LR8-150	3260	96
CA50/50-T4	8T16	1608	0.64	3 LR8-175	3100	76
CA50/50-T5	12T16	2413	0.97	3 LR8-175	3340	101
CA50/50-T6	16T16	3217	1.29	3 LR8-175	3580	127

Column Design Table: CA8			Column Size: 600 mm x 600 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA60/60-T1	12T13	1593	0.44	5 LR8-150	4250	68
CA60/60-T2	16T13	2124	0.59	5 LR8-150	4410	80
CA60/60-T3	20T13	2655	0.74	5 LR8-150	4570	91
CA60/60-T4	8T16	1608	0.45	5 LR8-175	4260	57
CA60/60-T5	12T16	2413	0.67	5 LR8-175	4500	81
CA60/60-T6	16T16	3217	0.89	5 LR8-175	4740	99
CA60/60-T7	20T16	4021	1.12	5 LR8-175	4980	116

Column Design Table: CA9			Column Size: 200 mm x 400 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/40-T1	4T13	531	0.66	LR8-150	1000	89
CA20/40-T2	8T13	1062	1.33	LR8-150	1160	141
CA20/40-T3	4T16	804	1.01	LR8-175	1080	110
CA20/40-T4	8T16	1608	2.01	LR8-175	1320	189

Column Design Table: CA10			Column Size: 200 mm x 500 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/50-T1	6T13	796	0.80	2 LR8-150	1290	102
CA20/50-T2	10T13	1327	1.33	2 LR8-150	1450	144
CA20/50-T3	6T16	1206	1.21	2 LR8-175	1410	129
CA20/50-T4	10T16	2011	2.01	2 LR8-175	1650	192

Column Design Table: CA11			Column Size: 200 mm x 600 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/60-T1	8T13	1062	0.88	3 LR8-150	1580	112
CA20/60-T2	12T13	1593	1.33	3 LR8-150	1730	146
CA20/60-T3	8T16	1608	1.34	3 LR8-175	1740	142
CA20/60-T4	12T16	2413	2.01	3 LR8-175	1980	194

Column Design Table: CA12			Column Size: 200 mm x 700 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/70-T1	8T13	1062	0.76	3 LR8-150	1790	99
CA20/70-T2	10T13	1327	0.95	3 LR8-150	1870	114
CA20/70-T3	14T13	1858	1.33	3 LR8-150	2020	144
CA20/70-T4	8T16	1608	1.15	3 LR8-175	1950	125
CA20/70-T5	10T16	2011	1.44	3 LR8-175	2070	147
CA20/70-T6	14T16	2815	2.01	3 LR8-175	2310	192

Column Design Table: CA13			Column Size: 200 mm x 800 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/80-T1	8T13	1062	0.66	3 LR8-150	2000	90
CA20/80-T2	12T13	1593	1.00	3 LR8-150	2150	116
CA20/80-T3	16T13	2124	1.33	3 LR8-150	2310	142
CA20/80-T4	8T16	1608	1.01	3 LR8-175	2160	112
CA20/80-T5	12T16	2413	1.51	3 LR8-175	2400	151
CA20/80-T6	16T16	3217	2.01	3 LR8-175	2640	191

Column Design Table: CA14			Column Size: 200 mm x 1000 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA20/100-T1	12T13	1593	0.80	5 LR8-150	2570	104
CA20/100-T2	16T13	2124	1.06	5 LR8-150	2730	125
CA20/100-T3	20T13	2655	1.33	5 LR8-150	2890	145
CA20/100-T4	12T16	2413	1.21	5 LR8-175	2820	130
CA20/100-T5	16T16	3217	1.61	5 LR8-175	3060	162
CA20/100-T6	20T16	4021	2.01	5 LR8-175	3300	193

Column Design Table: CA15			Column Size: 250 mm x 400 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/40-T1	4T13	531	0.53	LR8-150	1210	74
CA25/40-T2	8T13	1062	1.06	LR8-150	1370	115
CA25/40-T3	4T16	804	0.80	LR8-175	1290	91
CA25/40-T4	8T16	1608	1.61	LR8-175	1530	154

Column Design Table: CA16			Column Size: 250 mm x 500 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/50-T1	6T13	796	0.64	2 LR8-150	1550	85
CA25/50-T2	10T13	1327	1.06	2 LR8-150	1710	118
CA25/50-T3	6T16	1206	0.97	2 LR8-175	1670	106
CA25/50-T4	10T16	2011	1.61	2 LR8-175	1910	157

Column Design Table: CA17			Column Size: 250 mm x 600 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/60-T1	8T13	1062	0.71	3 LR8-150	1890	93
CA25/60-T2	12T13	1593	1.06	3 LR8-150	2050	121
CA25/60-T3	8T16	1608	1.07	3 LR8-175	2050	116
CA25/60-T4	12T16	2413	1.61	3 LR8-175	2290	158

Column Design Table: CA18			Column Size: 250 mm x 700 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/70-T1	8T13	1062	0.61	3 LR8-150	2150	83
CA25/70-T2	10T13	1327	0.76	3 LR8-150	2230	94
CA25/70-T3	14T13	1858	1.06	3 LR8-150	2390	118
CA25/70-T4	8T16	1608	0.92	3 LR8-175	2320	102
CA25/70-T5	10T16	2011	1.15	3 LR8-175	2440	120
CA25/70-T6	14T16	2815	1.61	3 LR8-175	2680	156

Column Design Table: CA19			Column Size: 250 mm x 800 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/80-T1	8T13	1062	0.53	3 LR8-150	2420	75
CA25/80-T2	12T13	1593	0.80	3 LR8-150	2570	96
CA25/80-T3	16T13	2124	1.06	3 LR8-150	2730	117
CA25/80-T4	8T16	1608	0.80	3 LR8-175	2580	92
CA25/80-T5	12T16	2413	1.21	3 LR8-175	2820	123
CA25/80-T6	16T16	3217	1.61	3 LR8-175	3060	155

Column Design Table: CA20			Column Size: 250 mm x 1000 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA25/100-T1	12T13	1593	0.64	5 LR8-150	3100	86
CA25/100-T2	16T13	2124	0.85	5 LR8-150	3260	103
CA25/100-T3	20T13	2655	1.06	5 LR8-150	3420	119
CA25/100-T4	12T16	2413	0.97	5 LR8-175	3340	107
CA25/100-T5	16T16	3217	1.29	5 LR8-175	3580	132
CA25/100-T6	20T16	4021	1.61	5 LR8-175	3820	157

Column Design Table: CA21			Column Size: 300 mm x 500 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA30/50-T1	6T13	796	0.53	2 LR8-150	1810	74
CA30/50-T2	10T13	1327	0.88	2 LR8-150	1970	101
CA30/50-T3	12T13	1593	1.06	2 LR8-150	2050	115
CA30/50-T4	6T16	1206	0.80	2 LR8-175	1930	91
CA30/50-T5	10T16	2011	1.34	2 LR8-175	2170	133
CA30/50-T6	12T16	2413	1.61	2 LR8-175	2290	154

Column Design Table: CA22			Column Size: 300 mm x 600 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA30/60-T1	8T13	1062	0.59	3 LR8-150	2210	80
CA30/60-T2	12T13	1593	0.88	3 LR8-150	2360	103
CA30/60-T3	14T13	1858	1.03	3 LR8-150	2440	115
CA30/60-T4	8T16	1608	0.89	3 LR8-175	2370	99
CA30/60-T5	12T16	2413	1.34	3 LR8-175	2610	135
CA30/60-T6	14T16	2815	1.56	3 LR8-175	2730	152



Column Design Table: CA23			Column Size: 350 mm x 500 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA35/50-T1	6T13	796	0.46	2 LR8-150	2070	65
CA35/50-T2	10T13	1327	0.76	2 LR8-150	2230	89
CA35/50-T3	12T13	1593	0.91	2 LR8-150	2310	101
CA35/50-T4	6T16	1206	0.69	2 LR8-175	2200	80
CA35/50-T5	10T16	2011	1.15	2 LR8-175	2440	116
CA35/50-T6	12T16	2413	1.38	2 LR8-175	2560	134

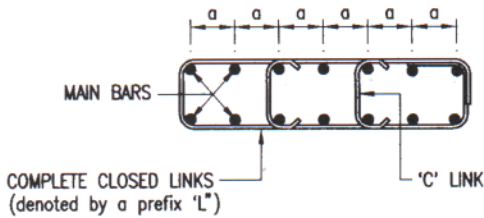
Column Design Table: CA24			Column Size: 350 mm x 600 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA35/60-T1	8T13	1062	0.51	3 LR8-150	2520	71
CA35/60-T2	12T13	1593	0.76	3 LR8-150	2680	91
CA35/60-T3	14T13	1858	0.88	3 LR8-150	2760	101
CA35/60-T4	8T16	1608	0.77	3 LR8-175	2680	87
CA35/60-T5	12T16	2413	1.15	3 LR8-175	2920	117
CA35/60-T6	14T16	2815	1.34	3 LR8-175	3040	133

Column Design Table: CA25			Column Size: 450 mm x 600 mm			
			Concrete Grade: 30 N/mm <sup>2</sup>			
Column Ref.No.	Vert Reinf Prov'd	Asc (prov'd) (mm <sup>2</sup> )	Asc (prov'd) (%)	Link Cage Prov'd	Ult Vert Load Capacity (kN)	Steel/Concrete Prov'd (kg/m <sup>3</sup> )
CA45/60-T1	12T13	1593	0.59	5 LR8-150	3310	85
CA45/60-T2	16T13	2124	0.79	5 LR8-150	3470	101
CA45/60-T3	12T16	2413	0.89	5 LR8-175	3550	104
CA45/60-T4	16T16	3217	1.19	5 LR8-175	3790	127

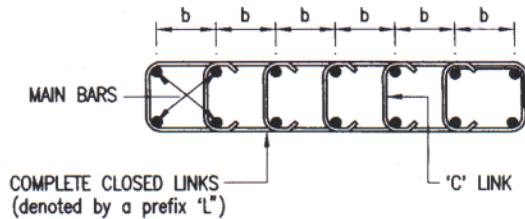
### 3.3 Illustration On Use Of Column Cage

#### REQUIREMENT OF COLUMN LINK CAGE

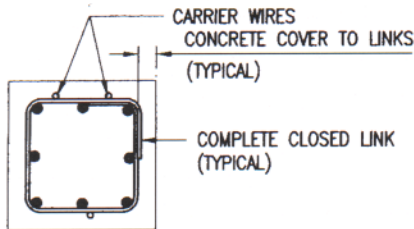
1. ALTERNATE OUTER MAIN BARS SHALL BE TIED BY 'C' LINKS IF THE SPACING ARE EQUAL OR LESS THAN 150mm ( FOR  $a \leq 150\text{mm}$  )



2. ALL ALTERNATE MAIN BARS SHALL BE TIED BY 'C' LINKS IF THE SPACING EXCEEDS 150mm ( FOR  $b > 150\text{mm}$  )



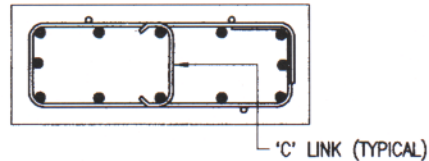
#### EXAMPLES OF COLUMN LINK CAGE



##### Example '1'

##### Single Column Link Cage

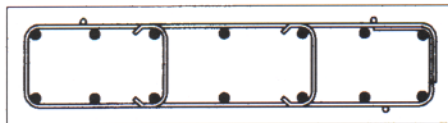
CONSISTS OF ONE COMPLETE CLOSED LINK ( e.g. LR10-200 )



##### Example '2'

##### Double Column Link Cage

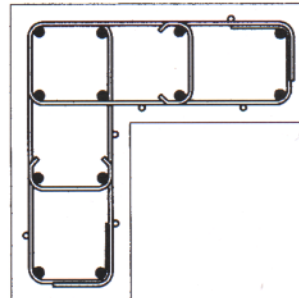
CONSISTS OF ONE COMPLETE CLOSED LINK AND ONE 'C' LINK ( e.g. 2LD8-200 )



##### Example '3'

##### Triple Column Link Cage

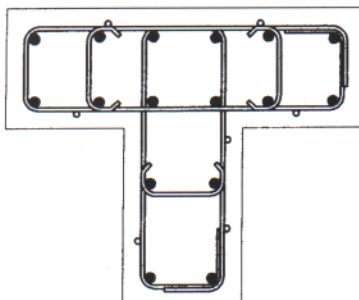
CONSISTS OF ONE COMPLETE CLOSED LINK AND TWO 'C' LINKS ( e.g. 3LH10-175 )



##### Example '4'

##### Two "Interlocking" Column Link Cages for L-Shaped Columns

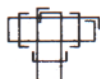
CONSISTS OF TWO COMPLETE CLOSED LINKS AND TWO 'C' LINKS ( e.g. 4LH10-250 )

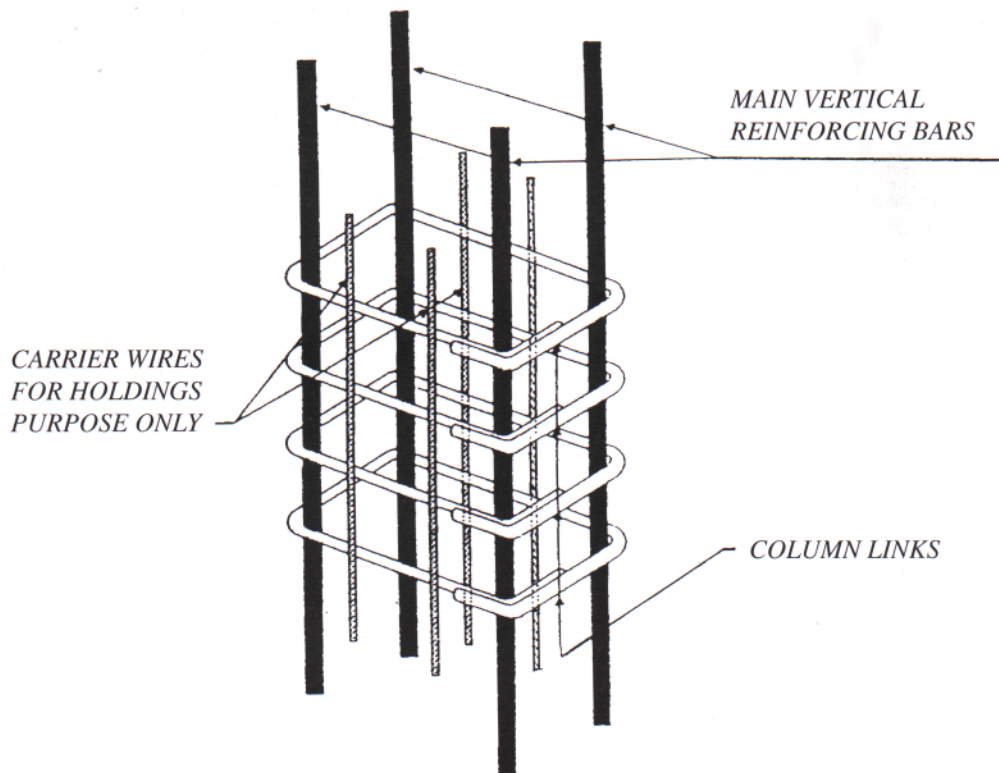


##### Example '5'

##### Two "Interlocking" Column Link Cages for T-Shaped Columns

CONSISTS OF TWO COMPLETE CLOSED LINKS AND THREE 'C' LINKS ( e.g. 5LD13-150 )





**NOTE :**

MAIN VERTICAL REINFORCEMENT BARS CAN BE FURTHER INCORPORATED WITHIN THE COLUMN CAGE IF NEED ARISES TO INCREASE THE COLUMN LOAD CAPACITY