

		UNIT	Code Reference / Clause
Wall Name	:	W2	
Analysis Reference (Surface Number)	:	W4A	
Length (L)	:	1000	mm
Height (H)	:	8000	mm
Thickness (D)	:	400	mm
Clear Cover (c <sub>nom</sub> )	:	40	mm
Design Code	:	EN 02 - 1 - 1 - 2004 + EN 02 - 3 - 2006 UK	
Grade Of Concrete (f <sub>ck</sub> )(Cylindrical)	:	C25/30	N/sqmm
Partial Factor for Concrete (γ <sub>c</sub> )	:	1.5	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Partial Factor for Concrete (γ <sub>cd</sub> )	:	1.2	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Grade Of Steel (f <sub>yk</sub> )	:	Fy460	N/sqmm
Partial Factor for Reinforcement(γ <sub>s</sub> )	:	1.15	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Partial Factor for Reinforcement (γ <sub>sd</sub> )	:	1	Constant table 2.1 - BS EN 1992-3 -2006 (E)
E <sub>s</sub>	:	2x10 <sup>5</sup>	N/sqmm
Moment Distribution Ratio (δ)	:	1	As RCDC doesn't allow distribution of Moment, δ is assumed as 1
Moment Distribution Ratio	:	1	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Partial Factor for Concrete (γ <sub>c</sub> )	:	1.5	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Partial Factor for Concrete (γ <sub>cd</sub> )	:	1.2	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Partial Factor for Reinforcement (γ <sub>s</sub> )	:	1.15	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Partial Factor for Reinforcement (γ <sub>sd</sub> )	:	1	Constant table 2.1 - BS EN 1992-3 -2006 (E)
Co-efficient taking account stress in compression chord	:	1	Constant
Strength reduction factor (SRF)	:	0.54	
Co-efficient taking account long term effects of load - acc	:	1	Constant
α <sub>cw</sub>	:	1	Constant
k'	:	0.6 δ - 0.18 δ <sup>2</sup> - 0.21	
	:	0.168	
Mean value of axial tensile strength of Concrete (f <sub>ctm</sub> )	:	For f'c <=50, fctm = 0.3*f'c^(2/3) = 2.56	Table 3.1 - BS EN 1992-3 -2006 €
	:	For f'c >50, fctm = 2.12*(1+((f'c+8)/10))) = 3.09	
	:	2.56	

**Flexural Design (Vertical)**

Effective Width (B <sub>eff</sub> )	:	500	mm	As per the section cut length set by user.
Effective Depth (d)	:	D - Cover - 16 - 16/2		(Deff is initially calculated for 16mm dia for Horizontal, Vertical )
	:	400 - 40 - 16 - 8		
	:	336	mm	
P <sub>tmin</sub> as per code formulation	:	(0.26*f <sub>ctm</sub> *B <sub>eff</sub> *Deff/fy)/(B <sub>e</sub> ...	Eq1	Cl. 9.2.1.1 - BS EN 1992-3 -2006 E
	:	0.0013*B <sub>eff</sub> *Deff / (B <sub>eff</sub> * l...	Eq2	Cl. 9.2.1.1 - BS EN 1992-3 -2006 E
	:	Max (Eq1, Eq2) = 0.14497		
A <sub>s,min(flex)</sub> (B)	:	243.56	sqmm	
P <sub>tmin</sub> as per User input	:	0.20%		
A <sub>s,min</sub> (user input) (B')	:	0.20% x B <sub>eff</sub> x Deff		
	:	336	sqmm	
P <sub>tmax</sub> as per User input	:	2%		
A <sub>s,max</sub>	:	2% ( B <sub>eff</sub> x D)		
	:	4000	sqmm	
P <sub>t-nominal</sub> as per User input	:	0.10%		
A <sub>s,nominal</sub> (B <sub>n</sub> )	:	0.1% ( B <sub>eff</sub> x D)		
	:	200	sqmm	

**Face 1**

Face 1-Description	Zone-1	Zone-2	
	Maximum	Maximum	
Critical L/C - Analysis	105	106	
Critical L/C - RCDC	6	7	
Mu (kNm)	70.25	15.72	
K = Mu / (bd <sup>2</sup> x f <sub>ck</sub> )	0.05	0.011	
z	0.95*Deff = 0.95 x 336 = 319.2 mm		... Eq1
	(Deff/2)*(1+SQRT(1-(3.53*k))) = 320.526 mm		... Eq2
z = minimum (Eq1, Eq2)	319.2	319.2	
ρ (%)	[ Mu / (fyd*z) ] / (B <sub>eff</sub> *Deff)*100		
	[ 70.25 x 10 <sup>6</sup> / ((460 / 1.15)* 319.2 ) ] / (500*336)*100		
ρ (%)	0.3275	0.0733	
A <sub>s</sub> (sqmm) (A)	0.3275 * 500 * 336/100		
	550.24	123.09	

**NOTE:** When A<sub>s</sub> provided as per Flexure Design, doesn't satisfy Crack width and Drying Shrinkage requirement, RCDC increases the A<sub>s</sub> to Satisfy the CW and Shrinkage requirement

A <sub>s</sub> (drying + thermal) (C)(sqmm)	346.66	346.66
A <sub>s,reqd</sub> (sqmm)	550.24	346.66
A <sub>s,reqd</sub> crackwidth (sqmm)	1005.3	346.66
A <sub>s,prov</sub> (sqmm)	1005.3	346.66
Reinforcement Provided	T16 @ 100	T16 @ 290

**Face 2**

Face 2-Description	Zone-1
	Maximum
Critical L/C - Analysis	102
Critical L/C - RCDC	3
Mu (kNm)	8.66
Mu / (bd <sup>2</sup> x f <sub>ck</sub> )	0.006
z (mm)	319.2
ρ (%)	0.0404
A <sub>s</sub> (sqmm) (A)	67.8
A <sub>s</sub> (drying + thermal) (C)(sqmm)	346.66
A <sub>s,reqd</sub> (sqmm)	346.66
A <sub>s,reqd</sub> crackwidth (sqmm)	346.66
A <sub>s,prov</sub> (sqmm)	346.66
Reinforcement Provided	T16 @ 290

**Flexural Design (Horizontal)**

Effective Width (Beff)	:	500	mm
Effective Depth(d)	:	352	mm
A <sub>s, max</sub>	:	4000	sqmm
A <sub>s,min(flex)</sub> (B)	:	255.16	sqmm
A <sub>s,nominal</sub> (Bn)	:	200	sqmm
A <sub>s,min</sub> (user input) (B')	:	352	sqmm

**Face 1**

Face 1-Description	Zone-1	Zone-2	Zone-3	Zone-4	Zone-5	Zone-6
	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum
Critical L/C - Analysis	106	106	100	106	100	106
Critical L/C - RCDC	7	7	1	7	1	7
Mu (kNm)	18.52	43.47	0	72.77	0	76.89
Mu / (bd <sup>2</sup> x f <sub>ck</sub> )	0.012	0.028	0	0.047	0	0.05
z (mm)	334.4	334.4	334.4	334.4	334.4	334.4
ρ (%)	0.0787	0.1847	0	0.3091	0	0.3266
A <sub>s</sub> (sqmm) (A)	138.44	325.02	0	544.07	0	574.8
A <sub>s</sub> (drying + thermal) (C)(sqmm)	359.04	359.04	359.04	357	359.04	357
A <sub>s,reqd</sub> (sqmm)	359.04	359.04	359.04	544.07	359.04	574.8
A <sub>s,reqd</sub> crackwidth (sqmm)	359.04	913.91	359.04	1309	359.04	1309
A <sub>s,prov</sub> (sqmm)	359.04	913.91	359.04	1309	359.04	1309
Reinforcement Provided	T16 @ 280	T16 @ 110	T16 @ 280	T20 @ 120	T16 @ 280	T20 @ 120

Face 1-Description	Zone-7	Zone-8	Zone-9	Zone-10
	Maximum	Maximum	Maximum	Maximum
Critical L/C - Analysis	100	107	100	107
Critical L/C - RCDC	1	8	1	8
Mu (kNm)	0	34.18	0	59.04
Mu / (bd <sup>2</sup> x f <sub>ck</sub> )	0	0.022	0	0.038
z (mm)	334.4	334.4	334.4	334.4
ρ (%)	0	0.1452	0	0.2508
A <sub>s</sub> (sqmm) (A)	0	255.51	0	441.41
A <sub>s</sub> (drying + thermal) (C)(sqmm)	359.04	359.04	359.04	359.04
A <sub>s,reqd</sub> (sqmm)	359.04	359.04	359.04	441.41
A <sub>s,reqd</sub> crackwidth (sqmm)	359.04	773.31	359.04	718.07
A <sub>s,prov</sub> (sqmm)	359.04	773.31	359.04	718.07
Reinforcement Provided	T16 @ 280	T16 @ 130	T16 @ 280	T16 @ 140

**Face 2**

Face 2-Description	Zone-1	Zone-2	Zone-3
	Maximum	Maximum	Maximum
Critical L/C - Analysis	107	102	102
Critical L/C - RCDC	8	3	3
Mu (kNm)	25.26	33.8	37.35
Mu / (bd <sup>2</sup> x f <sub>ck</sub> )	0.016	0.022	0.024
z (mm)	334.4	334.4	334.4
ρ (%)	0.1073	0.1436	0.1587
A <sub>s</sub> (sqmm) (A)	188.82	252.72	279.26
A <sub>s</sub> (drying + thermal) (C)(sqmm)	359.04	359.04	359.04
A <sub>s,reqd</sub> (sqmm)	359.04	359.04	359.04
A <sub>s,reqd</sub> crackwidth (sqmm)	558.5	628.31	718.07
A <sub>s,prov</sub> (sqmm)	558.5	628.31	718.07
Reinforcement Provided	T16 @ 180	T16 @ 160	T16 @ 140

**Note: Calculation of A<sub>s</sub>**

A<sub>s,reqd</sub> = Max{A,B,B',C} (for Mu > 0)

A<sub>s,reqd</sub> = Max (Bn (for Mu = 0), C)

Where,

A = A<sub>s</sub> = Tension reinforcement required for bending moment

B = A<sub>s,min</sub> (flex) = Min area of flexural reinforcement

Bn = A<sub>s,nominal</sub> = Nominal area of reinforcement

C = A<sub>s</sub>(drying + thermal) = A<sub>st</sub> required for drying shrinkage + thermal shrinkage

### Shear Design

<b>Description</b>	Zone-1		
	Maximum		
Critical L/C - Analysis	106		
Critical L/C - RCDC	7		
PtPrv (%)	0.5984		
V <sub>Ed</sub> (kN)	84.09		
v <sub>Ed</sub> (N/sqmm)	0.5		
Term A	0.18/ (γ <sub>c</sub> = 1.15) = 0.12		
k	Min (1+SQRT(200/Deff),2) = 1.772		
v <sub>Rd,c</sub> (N/sqmm)	Max - Eq1 = Term A* k * [Min(Ptprv,2)*f'c]^1/3, & Eq2 = 0.035*k^(3/2)* sqrt (f'c)		
	0.52		
V <sub>Rd,c</sub> (kN)	v <sub>Rd,c</sub> * Beff * Deff		
	88		
v <sub>Rd,max</sub> = Min (v <sub>Rd,max</sub> cot θ = 2.5, v <sub>Rd,max</sub> cot θ = 1)			
fcd =	f'c*α <sub>cc</sub> /γ <sub>c</sub> = 16.67		
v <sub>Rd,max</sub> cot θ = 2.5 =	(SRF*α <sub>cw</sub> *fcd)/(2.5+1/2.5)*0.9 = 2.37		
v <sub>Rd,max</sub> cot θ = 1 =	(SRF*α <sub>cw</sub> *fcd)/(1+1/1)*0.9 = 4.05		
v <sub>Rd,max</sub> (N/sqmm)	2.37		
V <sub>Rd,max</sub> (kN)	Beff*Deff*v <sub>Rd,max</sub>		
	398.83		
A <sub>sw</sub> (sqmm)	-		
Legs	-		
∅ <sub>sv</sub> ( mm)	-		
s <sub>reqd</sub> (mm)	-		
s <sub>prov</sub> (mm)	-		
A <sub>sw,prov</sub> (sqmm)	-		

Clause 6.2.2

Clause 6.2.2

Clause 6.2.2

Clause 6.2.2

Clause 6.2.2

0.85 otherwise EN Code

γ<sub>c</sub> = 1.5 (Constant Value from

... SRF = Strength Reduction Factor

...α<sub>cw</sub> = 1

Clause 6.2.2

**Crack width (Vertical Face-1) as per EN**

**02 - 1 - 1 - 2004**

$k_1 = 0.8$ for high bond bars & 1.6 for bars with an effectively plain surface	0.80
$k_2 = 0.5$ for Bending, $k_2 = 1.0$ for pure tension	0.50
$k_3$	3.40
$k_4$	0.425
$k_t$	0.40

Constant Refer Cl. 7.3.4 EN 1992-1-1:2004 +MS NA  
 Constant Refer Cl. 7.3.4 EN 1992-1-1:2004 +MS NA  
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 Constant Refer Cl. 7.3.4 EN 1992-1-1:2004 +MS NA  
 Constant Refer Cl. 7.3.4 EN 1992-1-1:2004 +MS NA

Face 1-Description	Zone-1	Zone-2
	Maximum	Maximum
Critical L/C - RCDC	10008	10001
BM (Unfactored) (kNm)	62.05	16.88
Reinforcement Provided	T16 @ 100	T16 @ 290
$A_{st,Prv}$ (sqmm/m)	1005.3	346.66
$s_p$ (mm)	100	290
$k = \sqrt{\frac{2(A_s/Bd)m + (A_s/Bd)^2 m}{(A_s/Bd)m}}$	0.37	0.24
$x$ (mm) = $kd$	123.34	79.54
$\alpha_e = E_s / E_{cm}$	17.7914	17.7914
$h_{c,eff}$ (mm) = $\min(2.5(D-d_{eff}), (D-x)/3, D/2)$		
$h_{c,eff}$ (mm)	92.22	106.82
$A_{c,eff}$ (sqmm) = $h_{c,eff} \times B_{eff}$	46109.18	53409.77
$\rho_{p,eff} = A_{st,Prv} / A_{c,eff}$	0.0218	0.0065
$S_{r,max1} = k_3 C_{nom} + k_1 k_2 k_4 \phi / \rho_{p,eff}$ (mm)	260.76	555.08
$S_{r,max2} = 1.3 (D - x)$	359	416
Check for Stress In Concrete		
$\sigma_c$ (N/sqmm) = $\mu_u / (B_{eff} \times x / 2 \times (D_{eff} - x / 3))$	6.82	2.74
$\sigma_{c,Perm}$ (N/sqmm) = $0.45 \times f_c$	11.25	11.25
Check for Stress In Reinforcement		
$\sigma_s$ (N/sqmm) = $BM / (A_s,Prov \times z)$	209.31	157.37
$\sigma_{s,Perm}$ (N/sqmm) = $0.8 f_y$	368	368
Crack Width Check		
$f_{ctm}$	2.565	2.565
$\epsilon_{sm} - \epsilon_{cm} = \text{Max}(Eq1, Eq2)$ $Eq1 = (\sigma_s - k_t \times (f_{ct,eff} / \rho_{p,eff})) \times (1 + (\alpha_e \times \rho_{p,eff})) / E_s$ $Eq2 = 0.6 \times \sigma_s / E_s$	0.0007	0.0005
$w_k$ (mm) = $s_{r,max} (\epsilon_{sm} - \epsilon_{cm})$	0.1877	0.1964
$w_{k,perm}$ (mm)	0.2	0.2

Cl. 7.3.4 EN 1992-1-1:2004 + MS NA  
 Refer Cl. 7.3.2 EN 1992-1-1:2004 +MS NA  
 Refer Cl. 7.3.2 EN 1992-1-1:2004 +MS NA  
 Refer Cl. 7.3.4 EN 1992-1-1:2004 +MS NA  
 Refer eq 7.11 EN 1992-1-1:2004+MS NA  
 Refer eq 7.14 EN 1992-1-1:2004 + MS NA

Refer Table 3.1, EN 1992-1-1:2004 + MS NA

**Crack width (Vertical Face-2) as per EN 02 - 1 - 1 - 2004**

Face 2-Description	Zone-1
	Maximum
Critical L/C - RCDC	10003
BM (Unfactored) (kNm)	9.17
Reinforcement	T16 @ 290
AstPrv (sqmm/m)	346.66
sp (mm)	290
x (mm)	79.54
$\alpha_e$	17.7914
$h_{c,eff}$ (mm)	106.82
$A_{c,eff}$ (sqmm)	53409.77
$\rho_{p,eff}$	0.0065
$S_{max1}$ (mm)	555.08
$S_{max2}$ (mm)	416
Check for Stress In Concrete	
$\sigma_c$ (N/sqmm)	1.49
$\sigma_{c,Perm}$ (N/sqmm)	11.25
Check for Stress In Reinforcement	
$\sigma_s$ (N/sqmm)	85.44
$\sigma_{s,Perm}$ (N/sqmm)	368
Crack Width Check	
$f_{ctm}$	2.565
$\epsilon_{sm} - \epsilon_{cm}$	0.0003
$w_k$ (mm)	0.1066
$w_{k,perm}$ (mm)	0.2

**Crack width (Horizontal Face-1) as per  
EN 02 - 1 - 1 - 2004**

Face 1-Description	Zone-1	Zone-2	Zone-3	Zone-4	Zone-5	Zone-6
	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum
Critical L/C - RCDC	10001	10004	10001	10004	10001	10004
BM (Unfactored) (kNm)	18.5	56.56	0	80.3	0	80.25
Reinforcement	T16 @ 280	T16 @ 110	T16 @ 280	T20 @ 120	T16 @ 280	T20 @ 120
AstPrv (sqmm/m)	359.04	913.91	359.04	1309	359.04	1309
sp (mm)	280	110	280	120	280	120
x (mm)	82.92	122.24	82.92	140.4	82.92	140.4
$\alpha_e$	17.7914	17.7914	17.7914	17.7914	17.7914	17.7914
$h_{c,eff}$ (mm)	105.69	92.59	105.69	86.53	105.69	86.53
$A_{c,eff}$ (sqmm)	52847.06	46292.93	52847.06	43266.82	52847.06	43266.82
$\rho_{p,eff}$	0.0068	0.0197	0.0068	0.0303	0.0068	0.0303
$S_{max1}$ (mm)	536.36	273.78	536.36	248.38	536.36	248.38
$S_{max2}$ (mm)	412	361	412	337	412	337
Check for Stress In Concrete						
$\sigma_c$ (N/sqmm)	2.75	5.95	0	7.5	0	7.49
$\sigma_{c,Perm}$ (N/sqmm)	11.25	11.25	11.25	11.25	11.25	11.25
Check for Stress In Reinforcement						
$\sigma_s$ (N/sqmm)	158.81	198.82	0	201.01	0	200.88
$\sigma_{s,Perm}$ (N/sqmm)	368	368	368	368	368	368
Crack Width Check						
$f_{ctm}$	2.565	2.565	2.565	2.565	2.565	2.565
$\epsilon_{sm} - \epsilon_{cm}$	0.0005	0.0006	0	0.0007	0	0.0007
$w_k$ (mm)	0.1963	0.176	0	0.1849	0	0.1847
$w_{k,perm}$ (mm)	0.2	0.2	0.2	0.2	0.2	0.2



Face 1-Description	Zone-7	Zone-8	Zone-9	Zone-10
	Maximum	Maximum	Maximum	Maximum
Critical L/C - RCDC	10001	10003	10001	10004
BM (Unfactored) (kNm)	0	48.47	0	46.49
Reinforcement	T16 @ 280	T16 @ 130	T16 @ 280	T16 @ 140
AstPrv (sqmm/m)	359.04	773.31	359.04	718.07
sp (mm)	280	130	280	140
x (mm)	82.92	114.36	82.92	110.98
$\alpha_e$	17.7914	17.7914	17.7914	17.7914
$h_{c,eff}$ (mm)	105.69	95.21	105.69	96.34
$A_{c,eff}$ (sqmm)	52847.06	47606.76	52847.06	48169.96
$\rho_{p,eff}$	0.0068	0.0162	0.0068	0.0149
$S_{max1}$ (mm)	536.36	303.45	536.36	318.46
$S_{max2}$ (mm)	412	371	412	375
Check for Stress In Concrete				
$\sigma_c$ (N/sqmm)	0	5.4	0	5.32
$\sigma_{c,Perm}$ (N/sqmm)	11.25	11.25	11.25	11.25
Check for Stress In Reinforcement				
$\sigma_s$ (N/sqmm)	0	199.67	0	205.51
$\sigma_{s,Perm}$ (N/sqmm)	368	368	368	368
Crack Width Check				
$f_{ctm}$	2.565	2.565	2.565	2.565
$\epsilon_{sm} - \epsilon_{cm}$	0	0.0006	0	0.0006
$w_k$ (mm)	0	0.1818	0	0.1963
$w_{k,perm}$ (mm)	0.2	0.2	0.2	0.2

**Crack width (Horizontal Face-2) as per EN 02 - 1 - 1 - 2004**

Face 2-Description	Zone-1	Zone-2	Zone-3
	Maximum	Maximum	Maximum
Critical L/C - RCDC	10004	10001	10001
BM (Unfactored) (kNm)	30.76	37.87	43.06
Reinforcement	T16 @ 180	T16 @ 160	T16 @ 140
AstPrv (sqmm/m)	558.5	628.31	718.07
sp (mm)	180	160	140
x (mm)	100.07	105.08	110.98
$\alpha_e$	17.7914	17.7914	17.7914
$h_{c,eff}$ (mm)	99.98	98.31	96.34
$A_{c,eff}$ (sqmm)	49988.87	49153.95	48169.96
$\rho_{p,eff}$	0.0112	0.0128	0.0149
$S_{max1}$ (mm)	379.46	348.79	318.46
$S_{max2}$ (mm)	389	383	375
Check for Stress In Concrete			
$\sigma_c$ (N/sqmm)	3.86	4.55	4.93
$\sigma_{c,Perm}$ (N/sqmm)	11.25	11.25	11.25
Check for Stress In Reinforcement			
$\sigma_s$ (N/sqmm)	172.83	190.15	190.38
$\sigma_{s,Perm}$ (N/sqmm)	368	368	368
Crack Width Check			
$f_{ctm}$	2.565	2.565	2.565
$\epsilon_{sm} - \epsilon_{cm}$	0.0005	0.0006	0.0006
$w_k$ (mm)	0.1967	0.199	0.1819
$w_{k,perm}$ (mm)	0.2	0.2	0.2

**Stress Limit Check (Vertical Face-1) as per EN 02 - 1 - 1 - 2004**

Face 1-Description	Zone-1	Zone-2
	Maximum	Maximum
Critical L/C - RCDC	10008	10001
BM (Unfactored) (kNm)	62.05	16.88
AstPrv (sqmm/m)	1005.3	346.66
sp (mm)	100	290
Check for Stress In Concrete		
$\sigma_c$ (N/sqmm)	6.82	2.74
$\sigma_{c,perm}$ (N/sqmm)	11.25	11.25
Check for Stress In Reinforcement		
$\sigma_s$ (N/sqmm)	209.31	157.37
$\sigma_{s,Perm}$ (N/sqmm)	368	368

**Stress Limit Check (Vertical Face-2) as per EN 02 - 1 - 1 - 2004**

Face 2-Description	Zone-1
	Maximum
Critical L/C - RCDC	10003
BM (Unfactored) (kNm)	9.17
AstPrv (sqmm/m)	346.66
sp (mm)	290
Check for Stress In Concrete	
$\sigma_c$ (N/sqmm)	1.49
$\sigma_{c,perm}$ (N/sqmm)	11.25
Check for Stress In Reinforcement	
$\sigma_s$ (N/sqmm)	85.44
$\sigma_{s,Perm}$ (N/sqmm)	368

**Stress Limit Check (Horizontal Face-1)****as per EN 02 - 1 - 1 - 2004**

Face 1-Description	Zone-1	Zone-2	Zone-3	Zone-4	Zone-5	Zone-6
	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum
Critical L/C - RCDC	10001	10004	10001	10004	10001	10004
BM (Unfactored) (kNm)	18.5	56.56	0	80.3	0	80.25
AstPrv (sqmm/m)	359.04	913.91	359.04	1309	359.04	1309
sp (mm)	280	110	280	120	280	120
Check for Stress In Concrete						
$\sigma_c$ (N/sqmm)	2.75	5.95	0	7.5	0	7.49
$\sigma_{c,perm}$ (N/sqmm)	11.25	11.25	11.25	11.25	11.25	11.25
Check for Stress In Reinforcement						
$\sigma_s$ (N/sqmm)	158.81	198.82	0	201.01	0	200.88
$\sigma_{s,Perm}$ (N/sqmm)	368	368	368	368	368	368
Face 1-Description	Zone-7	Zone-8	Zone-9	Zone-10		
	Maximum	Maximum	Maximum	Maximum		
Critical L/C - RCDC	10001	10003	10001	10004		
BM (Unfactored) (kNm)	0	48.47	0	46.49		
AstPrv (sqmm/m)	359.04	773.31	359.04	718.07		
sp (mm)	280	130	280	140		
Check for Stress In Concrete						
$\sigma_c$ (N/sqmm)	0	5.4	0	5.32		
$\sigma_{c,perm}$ (N/sqmm)	11.25	11.25	11.25	11.25		
Check for Stress In Reinforcement						
$\sigma_s$ (N/sqmm)	0	199.67	0	205.51		
$\sigma_{s,Perm}$ (N/sqmm)	368	368	368	368		

**Stress Limit Check (Horizontal Face-2)****as per EN 02 - 1 - 1 - 2004**

Face 2-Description	Zone-1	Zone-2	Zone-3
	Maximum	Maximum	Maximum
Critical L/C - RCDC	10004	10001	10001
BM (Unfactored) (kNm)	30.76	37.87	43.06
AstPrv (sqmm/m)	558.5	628.31	718.07
sp (mm)	180	160	140
Check for Stress In Concrete			
$\sigma_c$ (N/sqmm)	3.86	4.55	4.93
$\sigma_{c,perm}$ (N/sqmm)	11.25	11.25	11.25
Check for Stress In Reinforcement			
$\sigma_s$ (N/sqmm)	172.83	190.15	190.38
$\sigma_{s,Perm}$ (N/sqmm)	368	368	368