



Task No. 1000A

10th June 2013
 Mr Graeme Salter
 Opus International
 Private Bag 3057
 Hamilton 3204

Dear Graeme

Gisborne District Council; 2002 Office Extention.

In response to your letter of the 22nd May I comment as below.

The calculations were carried out using a period of 0.6. From this a Ch(T) of 2.84 was used. I accept your analysis that calculated the period to be less than 0.4. This means that a Ch(T) of 3.0 should have been used, a 5% increase.

You are correct $S_p = 0.7$ for a ductility of 3. This gives a Cd of 0.46. A ductility of 3 was not used anywhere in the revised calculations so it has not affected the revised calculations.

I have reworked the calculations to apply the 10% accidental eccentricity plus the eccentricity due to shape. The result allowing for the torsion effect to be restrained by all four walls in proportion to their distance from the centre of rigidity and their stiffness is that the shorter walls on grids C and D have a shear load of 1230kN 20% less than the 1500 used in the design and the walls on grids 3 and 7 have 1811kN 21% more. My calculations are attached. The walls on grids 3 and 7 are 27% longer so in simple terms can take 27% more shear and provide between 27% and 60% more resistance to overturning (mix of $wl^2/4$ and $Wl/2$) than the short walls

I calculate the unfactored wall/diaphragm shear transfer at 4380kN. 16Ø @ 150 c-c and a 140mm strip of concrete. The top of the wall has bars at 150mm c-c I suggest that is highly unlikely that it was towelled off leaving it as a rough surface. The precast beams have reinforcing protruding out of the top surface which was cast into the floor. (see attached detail) It would take a significant force to prise them off, hence the use of them for bearing. The combined action of these reinforcing, concrete shear and bearing is well in excess of the shear strength of the shear wall itself. I believe that the doubling up of the 16Ø starters into the floor was also carried out on the other two shear walls as well. To date I have not found a written instruction to this effect. I have asked the contractor if he has any record of it but I am doubtful that he has kept any records. The change to the first two walls was urgent as the beams were about to be poured so were possibly treated on their own. If no instruction is found for the others we could confirm or otherwise this by scanning the floor at this location.

If we assumed a shear failure in the first floor located at the 56mm recess between the between the "traydec" units it would have to extend the full 36 metre length of the building. Slippage across the building would require a shear crack above each "traydec" unit. Rather like diagonal cracking in masonry. I cannot visualise this happening here.

SPACE GASS 8 07b(Min) - BHC CONSULTING
 Job: 2:\BHC\TASK FILES\1000\2\1000\STRUCTURAL CALCULATIONS\26DC OFFICE 3
 Designer: Date: 12 Jun 2013, 3:22 pm Page: 1

ANALYSIS STATUS REPORT

Job name: 26DC OFFICE 3
 Location: 2:\BHC\TASK FILES\1000\2\1000\STRUCTURAL CALCULATIONS

Length units: m
 Section property units: mm
 Material strength units: MPa
 Mass density units: T/m³
 Temperature units: Celsius
 Force units: kN
 Moment units: kNm
 Mass units: T
 Acceleration units: g's
 Translation units: mm
 Stress units: MPa

Note that the above units apply to the analysis data only.
 The design units may be different and can be observed in the design data sheets or design output reports.

Nodes: 12 (2500)
 Members: 10 (5000)
 Restrained nodes: 5 (2500)
 Nodes with spring restraints: 0 (2500)
 Section properties: 2 (100)
 Material properties: 1 (25)
 Constrained nodes: 0 (2500)
 Member offsets: 0 (5000)
 Node loads: 5 (10000)
 Prescribed node displacements: 0 (10000)
 Member concentrated loads: 0 (10000)
 Member distributed forces: 6 (10000)
 Member distributed moments: 0 (10000)
 Thermal/Prestress loads: 0 (10000)
 Self weight load cases: 0 (10000)
 Combination load cases: 7 (10000)
 Load cases with titles: 3 (10000)
 Lumped masses: 5 (10000)
 Spectral load cases: 5 (10000)

NODE COORDINATES (m)

Node	X Coord	Y Coord	Z Coord
1	0.000	0.000	0.000
2	1.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	12.000	1.000	0.000
6	15.000	1.000	0.000
7	18.000	0.000	0.000
8	6.000	4.000	0.000
9	12.000	4.000	0.000
10	6.000	0.000	0.000
11	12.000	0.000	0.000

MEMBER DATA (deg, kNm/rad, m)

----- F Fixed, R Released, * Variable length

Membr	Dir Angle	Dir Node	Dir Axis	Dir Type	Node A	Node B	Sec Mat	Fixity	Fixity	Length
1	0.00			Norm	1	2	1	1	1	1.000
2	0.00			Norm	2	3	1	1	1	1.000
3	0.00			Norm	3	4	1	1	1	1.000
4	0.00			Norm	4	5	1	1	1	1.000
5	0.00			Norm	5	6	1	1	1	1.000
6	0.00			Norm	6	7	1	1	1	1.000
7	0.00			Norm	7	10	1	1	1	0.000
8	0.00			Norm	8	11	1	1	1	0.000
9	0.00			Norm	9	12	1	1	1	0.000
10	0.00			Norm	10	11	1	1	1	1.000

MEMBER RESTRAINTS (kN/m, kNm/rad)

----- F Fixed, R Released, D Deleted, S Spring, * General

Node	Rest Code	X Axial	Y Axial	Z Axial	X Rotation	Y Rotation	Z Rotation
3	FDDDR						
4	RDDDR						
5	FDDDR						
6	RDDDR						
7	FDDDR						

SECTION PROPERTIES (mm, mm², mm⁴, deg)

Sect	Section Name	Mark	Angle	Type	Flipped	Source
1	Beam	S1		Not applicable	No	Manual
2	Wall	S2		Not applicable	No	Standard shape

Sect	Section	Area of Section	Torsion Constant	Y-Axis Mom of In	Z-Axis Mom of In	Y-Axis Shx Area	Z-Axis Shx Area	Princ Angle
1	2.4900E+05	5.5618E+06	1.8080E+09	1.2800E+10	INFINITE	INFINITE	0.00	
2	6.6900E+05	1.5624E+10	1.2300E+10	4.6300E+11	INFINITE	INFINITE	0.00	

Sect	Section Shape	I	Sx/Sy	Ux/Uy	Tx	Ty
2	Rectangle	1400.000	400.000			

MATERIAL PROPERTIES (MPa, T/m³, strain/degC)

Matl	Material Name	Young's Modulus	Poisson's Ratio	Mass Density	Coeff of Expansion	Concrete Strength
1	CONCRETE-25	2.5260E+04	0.15	4000E+00	1.2000E-05	75.00

MEMBER LOADS (kN, kNm)

Load Case	Node	X-Axis Force	Y-Axis Force	Z-Axis Force	X-Axis Moment	Y-Axis Moment	Z-Axis Moment
1	1	0.000	-100.000	0.000	0.000	0.000	0.000
	8	1040.000	0.000	0.000	0.000	0.000	0.000
	9	1040.000	0.000	0.000	0.000	0.000	0.000
	10	-826.000	0.000	0.000	0.000	0.000	0.000
	11	-826.000	0.000	0.000	0.000	0.000	0.000

MEMBER DISTRIBUTED FORCES (kN, kNm)

Load Case	Membr	Start Pos	End Pos	Start/Finish	Y Start/Finish	Z Start/Finish
1	1	1	6	0.000	100.000	0.000
				0.000	-15.000	0.000
				0.000	-13.000	0.000
2	1	6	11	0.000	100.000	0.000
				0.000	-13.000	0.000
3	1	6	11	0.000	100.000	0.000
				0.000	-30.400	0.000
				0.000	-32.400	0.000
4	1	11	16	0.000	100.000	0.000
				0.000	-13.000	0.000
				0.000	-13.000	0.000
5	1	6	11	0.000	100.000	0.000
				0.000	-13.000	0.000
				0.000	-13.000	0.000

COMBINATION LOAD CASES

Load case 10:
 0.6:0 * Load case 1: Eq
 Load case 11:
 0.50: * Load case 1: Eq
 Load case 12:
 0.10: * Load case 1: Eq

LOAD CASE TITLES

Load Case Title:
 1: Eq

MEMBER FORCES AND MOMENTS (KN, KNm)

Load case 1 (Non-linear): Eq1
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Membr	Node	axial Force	Y-Axis Shear	Z-Axis Shear	X-Axis Torsion	Y-Axis Moment	Z-Axis Moment
1	1	0.000	-100.000	0.000	0.000	0.000	0.000
1	2	0.000	-135.000	0.000	0.000	0.000	-359.500
2	2	0.000	-135.000	0.000	0.000	0.000	-359.500
2	3	0.000	-170.000	0.000	0.000	0.000	-524.000
3	3	0.000	-780.864	0.000	0.000	0.000	2663.200
3	4	0.000	-887.664	0.000	0.000	0.000	189.000
4	1	0.000	-1115.000	0.000	0.000	0.000	143.000
4	5	0.000	-1251.200	0.000	0.000	0.000	-3405.031
5	5	0.000	-25.145	0.000	0.000	0.000	96.169
5	6	0.000	-64.835	0.000	0.000	0.000	-38.667
6	2	0.000	30.289	0.000	0.000	0.000	-38.667
6	7	0.000	-8.511	0.000	0.000	0.000	0.000
7	3	0.000	31.200	0.000	0.000	0.000	-3495.200
7	10	0.000	714.000	0.000	0.000	0.000	-3328.000
8	3	0.000	214.000	0.000	0.000	0.000	-3405.200
8	11	0.000	214.000	0.000	0.000	0.000	-3328.000
10	10	0.000	1040.000	0.000	0.000	0.000	-3328.000
10	8	0.000	1040.000	0.000	0.000	0.000	-3328.000
10	11	0.000	1040.000	0.000	0.000	0.000	-3328.000
10	9	0.000	1040.000	0.000	0.000	0.000	-3328.000

Load case 10 (Non-linear):
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Membr	Node	axial Force	Y-Axis Shear	Z-Axis Shear	X-Axis Torsion	Y-Axis Moment	Z-Axis Moment
1	1	0.000	-87.000	0.000	0.000	0.000	0.000
1	2	0.000	-93.130	0.000	0.000	0.000	-249.195
2	2	0.000	-93.130	0.000	0.000	0.000	-249.195
2	3	0.000	-119.260	0.000	0.000	0.000	-558.780
3	3	0.000	-809.611	0.000	0.000	0.000	1785.604
3	4	0.000	-598.135	0.000	0.000	0.000	15.165
4	1	0.000	-760.503	0.000	0.000	0.000	96.169
4	5	0.000	-925.627	0.000	0.000	0.000	-2260.633
5	5	0.000	-17.641	0.000	0.000	0.000	64.451
5	6	0.000	-43.173	0.000	0.000	0.000	-21.937
6	2	0.000	21.791	0.000	0.000	0.000	-25.977
6	7	0.000	-4.427	0.000	0.000	0.000	0.000
7	3	0.000	143.396	0.000	0.000	0.000	-3314.461
7	10	0.000	143.396	0.000	0.000	0.000	-3229.760
8	3	0.000	143.396	0.000	0.000	0.000	-3344.664
8	11	0.000	143.396	0.000	0.000	0.000	-3229.760
9	10	0.000	696.800	0.000	0.000	0.000	-3229.760
9	8	0.000	696.800	0.000	0.000	0.000	-3229.760
10	11	0.000	696.800	0.000	0.000	0.000	-3229.760
10	9	0.000	696.800	0.000	0.000	0.000	-3229.760

Load case 11 (Non-linear):
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Membr	Node	axial Force	Y-Axis Shear	Z-Axis Shear	X-Axis Torsion	Y-Axis Moment	Z-Axis Moment
1	1	0.000	-30.000	0.000	0.000	0.000	0.000
1	2	0.000	-40.500	0.000	0.000	0.000	-118.105
2	2	0.000	-40.500	0.000	0.000	0.000	-118.105
2	3	0.000	-55.500	0.000	0.000	0.000	-170.250
2	4	0.000	-85.000	0.000	0.000	0.000	-413.000
3	3	0.000	-395.520	0.000	0.000	0.000	1332.600
3	4	0.000	-443.632	0.000	0.000	0.000	71.004
4	4	0.000	-567.540	0.000	0.000	0.000	74.004
4	5	0.000	-816.110	0.000	0.000	0.000	-1701.515
5	5	0.000	-12.703	0.000	0.000	0.000	49.055
5	6	0.000	-22.223	0.000	0.000	0.000	-19.334
6	2	0.000	16.155	0.000	0.000	0.000	-19.334
6	7	0.000	-3.350	0.000	0.000	0.000	0.000
7	3	0.000	107.000	0.000	0.000	0.000	-1749.600
7	10	0.000	107.000	0.000	0.000	0.000	-1664.000
8	3	0.000	107.000	0.000	0.000	0.000	-1749.600
8	11	0.000	107.000	0.000	0.000	0.000	-1664.000
9	10	0.000	520.000	0.000	0.000	0.000	-1664.000
9	8	0.000	520.000	0.000	0.000	0.000	-1664.000
10	11	0.000	520.000	0.000	0.000	0.000	-1664.000
10	9	0.000	520.000	0.000	0.000	0.000	-1664.000

Load case 12 (Non-linear):
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Membr	Node	axial Force	Y-Axis Shear	Z-Axis Shear	X-Axis Torsion	Y-Axis Moment	Z-Axis Moment
1	1	0.000	-33.000	0.000	0.000	0.000	0.000
1	2	0.000	-45.570	0.000	0.000	0.000	-118.305
2	2	0.000	-45.570	0.000	0.000	0.000	-118.305
2	3	0.000	-58.740	0.000	0.000	0.000	-275.220
3	3	0.000	-160.855	0.000	0.000	0.000	879.516
3	4	0.000	-252.925	0.000	0.000	0.000	48.843
4	4	0.000	-374.570	0.000	0.000	0.000	48.843
4	5	0.000	-406.652	0.000	0.000	0.000	-1123.000
5	5	0.000	-6.557	0.000	0.000	0.000	31.736
5	6	0.000	-21.267	0.000	0.000	0.000	-12.780
6	2	0.000	10.848	0.000	0.000	0.000	-12.780
6	7	0.000	-2.162	0.000	0.000	0.000	0.000
7	3	0.000	70.620	0.000	0.000	0.000	-1154.736
7	10	0.000	70.620	0.000	0.000	0.000	-1080.540

Membr	Node	axial Force	Y-Axis Shear	Z-Axis Shear	X-Axis Torsion	Y-Axis Moment	Z-Axis Moment
8	3	0.000	70.620	0.000	0.000	0.000	-1154.736
8	11	0.000	70.620	0.000	0.000	0.000	-1080.540
9	10	0.000	343.200	0.000	0.000	0.000	-1098.240
9	8	0.000	343.200	0.000	0.000	0.000	-1098.240
10	11	0.000	343.200	0.000	0.000	0.000	-1098.240
10	9	0.000	343.200	0.000	0.000	0.000	-1098.240

NODE REACTIONS (KN, KNm)

Load case 1 (Non-linear): Eq1
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Node	Y-Axis Force	Y-Axis Moment	Z-Axis Force	X-Axis Moment	Y-Axis Moment	Z-Axis Moment
1	-214.000	-612.164	0.000	0.000	0.000	0.000
2	0.000	-247.413	0.000	0.000	0.000	0.000
3	-214.000	1264.834	0.000	0.000	0.000	0.000
4	0.000	96.169	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000
10	128.000	-458.400	0.000	0.000	0.000	0.000
11	-128.000	-458.400	0.000	0.000	0.000	0.000

Load case 10 (Non-linear):
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Node	Y-Axis Force	Y-Axis Moment	Z-Axis Force	X-Axis Moment	Y-Axis Moment	Z-Axis Moment
1	0.000	0.000	0.000	0.000	0.000	0.000
2	-143.380	-410.351	0.000	0.000	0.000	0.000
3	0.000	-165.768	0.000	0.000	0.000	0.000
4	-143.380	808.579	0.000	0.000	0.000	0.000
5	0.000	96.169	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000
10	296.760	-331.461	0.000	0.000	0.000	0.000
11	-296.760	-331.461	0.000	0.000	0.000	0.000

Load case 11 (Non-linear):
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Node	Y-Axis Force	Y-Axis Moment	Z-Axis Force	X-Axis Moment	Y-Axis Moment	Z-Axis Moment
1	0.000	0.000	0.000	0.000	0.000	0.000
2	-107.000	-300.272	0.000	0.000	0.000	0.000
3	0.000	-123.708	0.000	0.000	0.000	0.000
4	-107.000	603.417	0.000	0.000	0.000	0.000
5	0.000	46.437	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000
10	214.000	-226.063	0.000	0.000	0.000	0.000
11	-214.000	-226.063	0.000	0.000	0.000	0.000

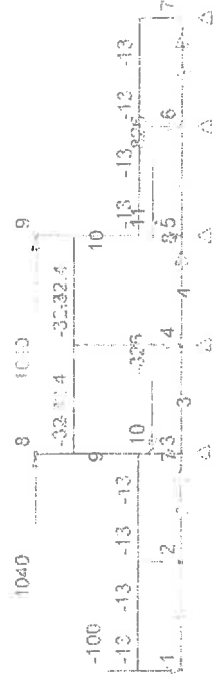
Load case 12 (Non-linear):
 Non-linear effects: P-D, P-d, 2 Iterations, 100.000 Convergence

Node	Y-Axis Force	Y-Axis Moment	Z-Axis Force	X-Axis Moment	Y-Axis Moment	Z-Axis Moment
1	0.000	0.000	0.000	0.000	0.000	0.000
2	-70.620	-202.113	0.000	0.000	0.000	0.000
3	0.000	-87.647	0.000	0.000	0.000	0.000
4	-70.620	359.286	0.000	0.000	0.000	0.000
5	0.000	31.736	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000
10	141.240	-147.632	0.000	0.000	0.000	0.000
11	-141.240	-147.632	0.000	0.000	0.000	0.000

SPACE GASS 8.07b(Wm) - BHC CONSULTING

Eqk

(0.0)

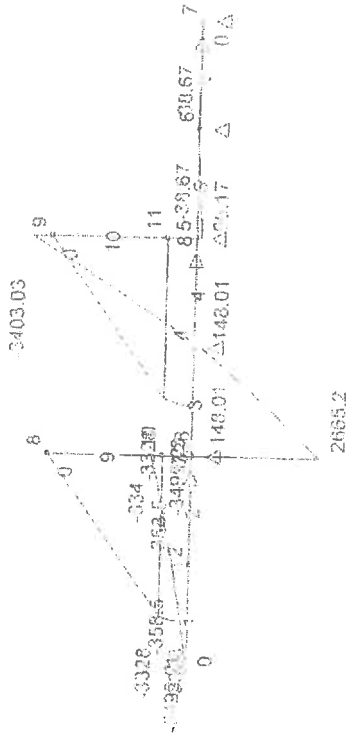


Job: Z:\BHC\TASK FILES\1000\STRUCTURAL CALCULATIONS\2GDC OFFICE 3
 Designer: . Units: m,KN,KNm,KN/m,T,Tm²,MPa,mm, Scale: 1:200, Axes: XY
 Load: 2.2 Disp: None Moment: None Shear: None Axial: None

12 Jun 2013, 3:16 pm

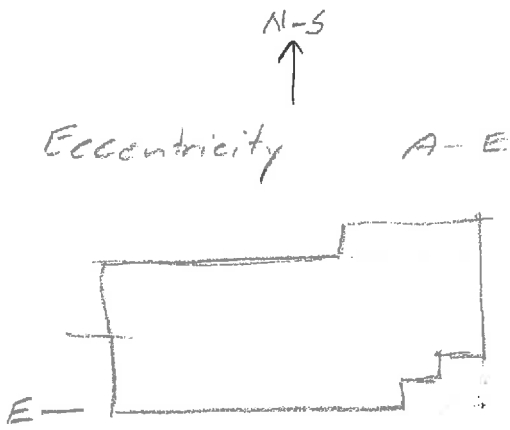
SPACE GASS 8.07b(W/m) - BHC CONSULTING

Eqd



Job: Z:\BHC\TASK FILES\1000'S\1000\STRUCTURAL CALCULATIONS\2GDGC OFFICE 3
 Designer: , Units: m,KN,KNm,KN/m,T,Tm^2,MPa,mm, Scale: 1:200, Axes: XY
 Load: None Disp: None Moment: 150 Shear: None Axial: None

12 Jun 2013, 3:17 pm



BHC CONSULTING
civil and structural engineers

Title GDC 2002 office	
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About E

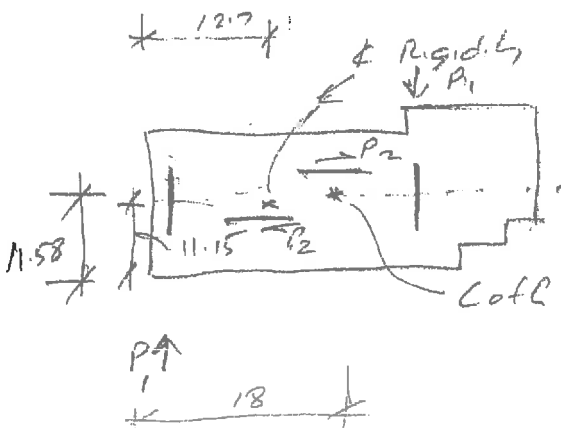
$$\begin{aligned}
 & 36.15 \cdot 22.3 + \frac{22.3}{2} \cdot 12.15 + 4 \cdot 24.3 \\
 & - 3.15 \cdot 4.85 - \frac{4.85}{2} \cdot 3.755 - 3.755 \cdot \frac{7.55}{2} \\
 & = (36.15 \cdot 22.3 + 12.15 \cdot 4 - 3.15 \cdot 4.85 - 3.755) \cdot 5 \\
 & 8938.5 + 590.5 - 373 - 355 \\
 & = 9452.2 = 8168 \bar{x} \\
 & \bar{x} = 11.58 \text{ from E}
 \end{aligned}$$

$$\begin{aligned}
 \text{C rigidity} &= 7.55 + \frac{3.15 \cdot 4.85}{2} \\
 &= 7.55 + 3.60 \\
 &= 11.15
 \end{aligned}$$

$$\begin{aligned}
 \text{Diff} & 0.43 \quad 10\% \quad 2.63 \\
 \text{Total} & = 3.06
 \end{aligned}$$

$$\text{For } V = 2164 \quad (cd = 0.31)$$

$$\therefore \text{Force/wall} = \frac{2164}{2}$$



Restoring Moment Needed
 $= 2164 \cdot 3.06 = 6622$
 proportional to distance of wall from centre of rigidity and wall stiffness

Wall length
 Grid C-D 6.0
 Grids 3-7 7.2

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Stiffness proportional to L^3 or 216 : 373
 D-E dist. = 3.6 eff 216.36 = 778
 3-7 " 11.3 eff 373.11.3 = 4215
 3-7 take 84% , D-E 16%

$$\therefore P_1 = 11.3 \cdot 2 = 0.84 \cdot 6672 \quad P_1 = 247 \text{ kN}$$

$$P_2 = 3.6 \cdot 2 = 0.16 \cdot 6672 \quad P_2 = 148 \text{ kN}$$

At right angles Restoring Moment
 cofrigidity - cofg = 5.3
 10% length = 3.61
 Total = 8.91
 Restoring Moment = 2164.891
 = 19281

$$\therefore P_1 = 11.1 \cdot 2 = 0.84 \cdot 19281 = 729$$

$$P_2 = 3.6 \cdot 2 = 0.16 \cdot 19281 = 428$$

Maximum Shear on walls
 Grids C-D E-W $\frac{2164}{2} + 148 = 1230$

$$N-S \quad \text{or } 0 + 428 = 428$$

Grids 3-7 N-S $\frac{2164}{2} + 729 = 1811$

$$E-W \quad \text{or } 0 + 247 = 247$$

Walls C-D checked for 1500 20% over

Walls 3-7 shear $\frac{7.2}{6.0}$ or 20%
 overturning $\left(\frac{7.2}{6.0}\right)^2$ or 44%
 or 1200 kN eff
 or 2100 kN eff

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$$C(T) = C_h(T) Z R N = 30 \cdot 0.36 \cdot 1.3 \cdot 1 = 140$$

$$C_h(T) = 3.0 \quad Z = 0.36 \quad R = 1.3 \quad N = 1$$

$$S_p = \frac{M}{125} = (1.3 - 0.3 \cdot 1.25) = 0.925$$

$$M = 2.0 \quad = (1.3 - 0.3 \cdot 2) = 0.7$$

$$M = 3.0 \quad = 0.7$$

$$125 K_M = \frac{(1.25-1)0.4}{0.7} + 1 = 1.14$$

$$2.0 K_M = \frac{(2-1)0.4}{0.7} + 1 = 1.57$$

$$3.0 K_M = \frac{(3-1)0.4}{0.7} + 1 = 2.15$$

$$C_d(T) = \frac{1.40 \cdot 0.925}{1.14} = 1.14 \quad (M = 1.25)$$

$$\text{or } \frac{1.40 \cdot 0.7}{1.57} = 0.62 \quad (M = 2.0)$$

$$\text{or } \frac{1.4 \cdot 0.7}{2.15} = 0.46 \quad (M = 3.0)$$

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$$C = C_h(T, m) S_p R Z$$

$$S_p = 0.67 \quad R = 1.1 \quad Z = 1.2$$

Cat Soil (b)

$$\text{For } M = 1.25 = 0.69 \cdot 0.67 \cdot 1.1 \cdot 1.2 = 0.61$$

$$M = 2.0 = 0.49 \cdot 0.67 \cdot 1.1 \cdot 1.2 = 0.43$$

$$M = 3.0 = 0.35 \cdot 0.67 \cdot 1.1 \cdot 1.2 = 0.31$$

Short Wall Grids C & D

$$V^* = 1230 \text{ kN} \quad C_d \text{ of } 0.31$$

$$= 1705 \text{ kN} \quad C_d \quad 0.43$$

$$= 2460 \text{ kN} \quad C_d \quad 0.62$$

Long Wall Grids 3 & 7

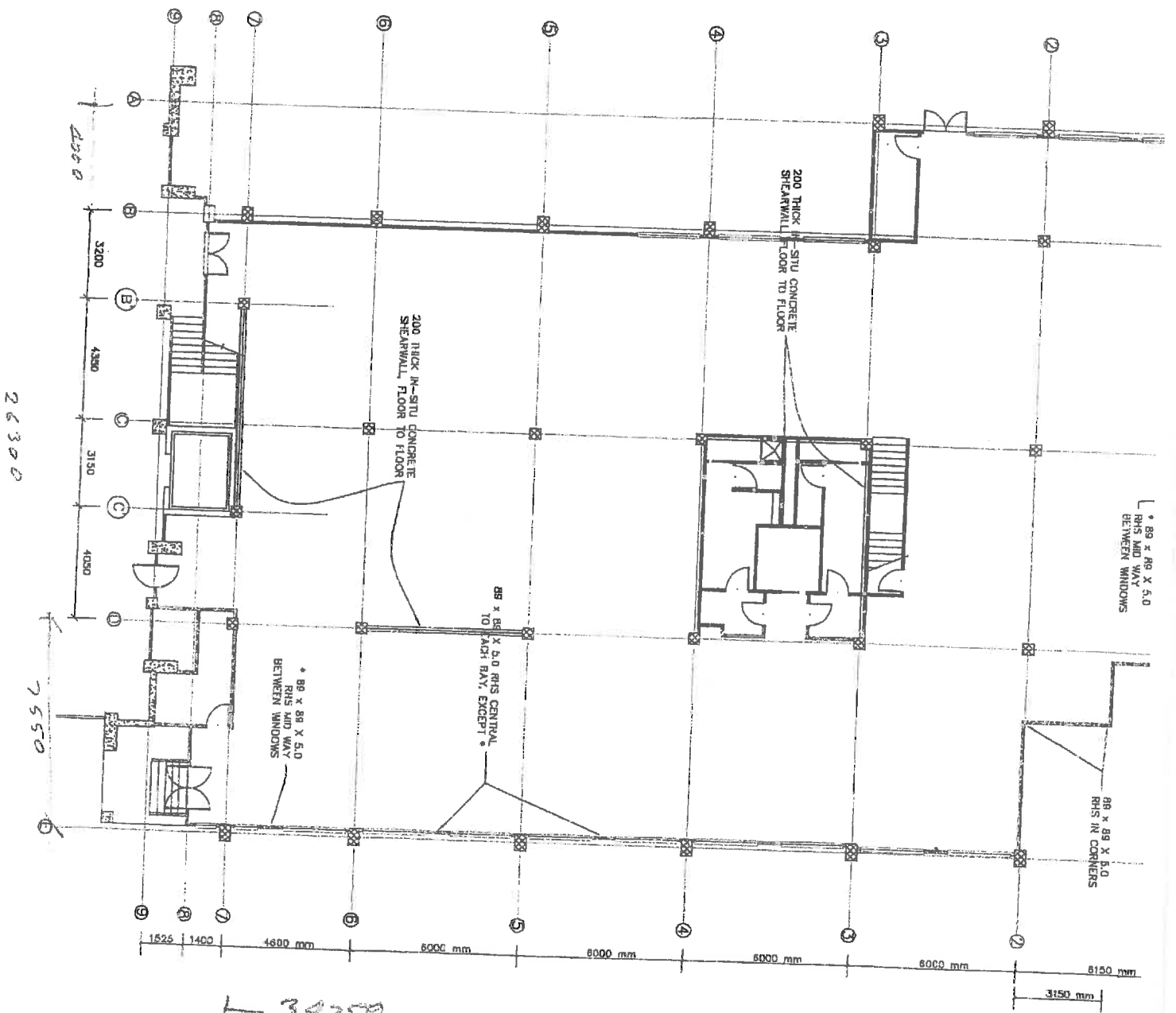
$$V^* = 1811 \text{ kN} \quad C_d \text{ of } 0.31$$

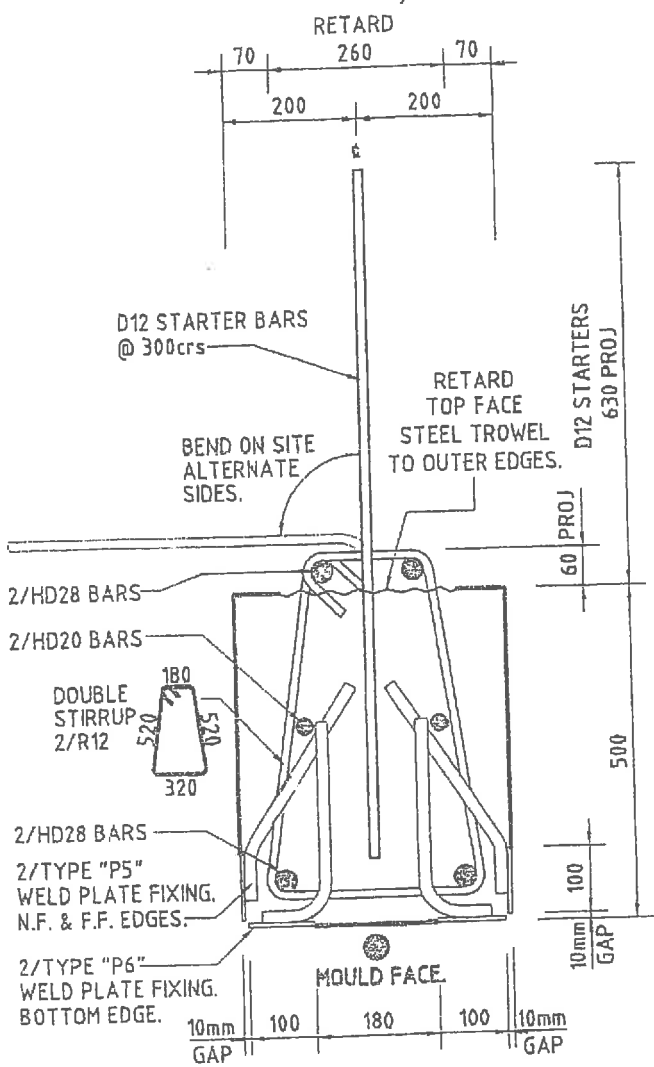
$$2512 \quad 0.43$$

$$3622 \quad 0.62$$

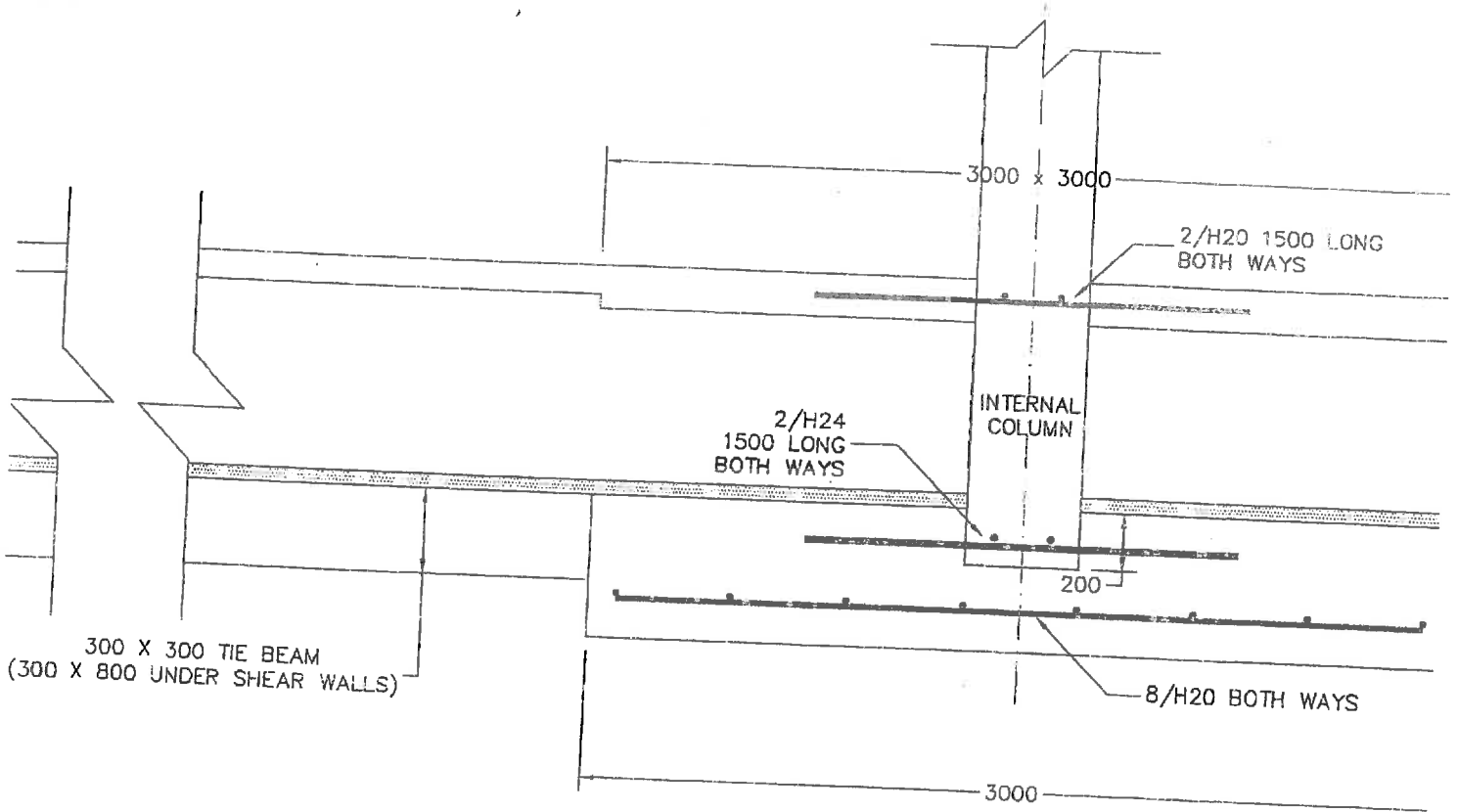
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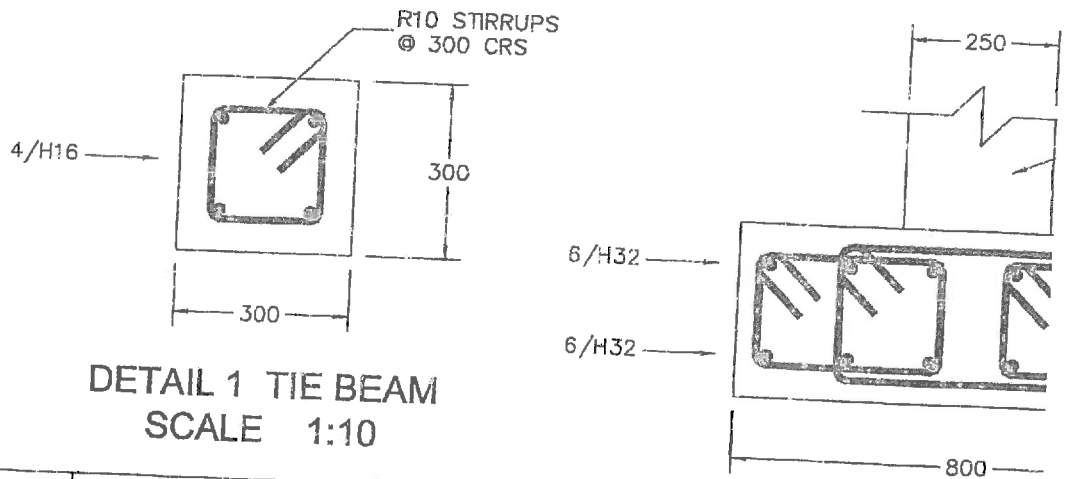




B2 SECTION
 Scale 1:10



DETAIL OF FOUNDATION
AT INTERNAL COLUMNS
SCALE 1:20



DETAIL 1 TIE BEAM
SCALE 1:10