

FREDERICK R SMITH

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REGISTERED PROFESSIONAL ENGINEER

P O Box 35 422, Browns Bay, Auckland

Phone/Fax 09 473 1262

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PURLINS T.C.3

WIND		SSS MEDIUM					S45 HIGH					SSD V HIGH				
SPAN		3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
3.5	M*	0.44	0.58	0.76	1.16	1.62	0.74	1.00	1.28	1.97	2.79	0.92	1.24	1.58	2.44	3.47
4	M	1.35	1.35	1.35	1.38	1.84	1.35	1.35	1.35	2.76	2.76	1.35	1.35	1.56	2.76	3.68
	PURLIN	8C	8C	8C	8C	8C2	8C	8C	8C	8C	8C	8C	8C	8C	8C	8C2
		0.47	0.63	0.82	1.25	1.76	0.80	1.07	1.35	2.09	2.97	0.99	1.32	1.70	2.59	3.65
		1.35	1.35	1.35	1.35	1.84	1.35	1.35	1.35	2.76	3.10	1.35	1.35	1.84	3.10	3.68
		8C	8C	8C	8C	8C2	8C	8C	8C	8C	8C1	8C	8C	8C2	8C1	8C2
5		0.66	0.87	1.08	1.63	2.30	1.07	1.42	1.82	2.78	3.92	1.33	1.76	2.26	3.44	4.82
		1.35	1.35	1.35	1.84	2.76	1.35	1.84	1.84	2.76	5.40	1.35	1.84	2.76	3.68	5.40
		8C	8C	8C	8C2	8C	8C	8C2	8C2	8C	C150	8C	8C2	8C	8C2	C150
6		0.52	0.67	0.86	1.31	1.85	0.87	1.15	1.46	2.06	3.11	1.07	1.41	1.80	2.72	3.82
		1.35	1.35	1.35	1.35	1.84	1.35	1.35	1.35	2.76	3.10	1.35	1.84	1.84	2.76	5.40
		8C	8C	8C	8C	8C2	8C	8C	8C1	8C	8C1	8C	8C2	8C2	8C	C150
7		0.63	0.83	1.04	1.59	2.21	1.06	1.47	1.76	2.66	3.74	1.31	1.73	2.18	3.28	4.57
		1.35	1.35	1.35	1.35	2.76	1.35	1.84	1.35	2.76	5.40	1.35	1.84	2.76	3.68	5.40
		8C	8C	8C	8C1	8C	8C	8C2	8C2	8C	C150	8C	8C2	8C	8C2	C150
8		0.55	0.72	0.92	1.38	1.89	0.92	1.23	1.54	2.31	3.20	1.14	1.50	1.90	2.88	3.96
		1.35	1.35	1.35	1.35	1.84	1.35	1.35	1.35	2.76	3.68	1.35	1.84	2.76	3.10	5.40
		8C	8C	8C	8C	8C2	8C	8C	8C1	8C	8C2	8C	8C2	8C	8C1	C150
9		0.66	0.86	1.08	1.63	2.25	1.10	1.45	1.82	2.75	3.78	1.37	1.79	2.26	3.38	4.68
		1.35	1.35	1.35	1.84	2.76	1.35	1.84	1.84	2.76	5.40	1.35	1.84	2.76	3.68	5.40
		8C	8C	8C	8C2	8C	8C	8C1	8C2	8C	C150	8C	8C2	8C	8C2	C150
10		0.75	1.06	1.24	1.84	2.57	1.27	1.65	2.08	3.13	4.28	1.36	2.05	2.58	3.58	5.31
		1.35	1.35	1.35	1.84	2.76	1.35	1.84	2.76	3.10	5.40	1.36	2.76	2.76	5.40	5.40
		8C	8C	8C	8C2	8C	8C	8C2	8C	8C1	C150	8C1	8C	8C	C150	C150
11		0.69	0.89	1.12	1.66	2.30	1.16	1.52	1.88	2.81	3.87	1.43	1.87	2.34	3.50	4.77
		1.35	1.35	1.35	1.84	2.76	1.35	1.84	1.84	3.10	5.40	1.36	1.84	2.76	3.68	5.40
		8C	8C	8C	8C2	8C	8C	8C1	8C2	8C	C150	8C1	8C2	8C	8C2	C150
12		0.78	1.01	1.26	1.88	2.52	1.29	1.68	2.10	3.13	4.28	1.60	2.08	2.60	3.88	5.31
		1.35	1.35	1.35	1.84	2.76	1.35	1.84	2.76	3.10	5.40	1.84	2.76	2.76	5.40	5.40
		8C	8C	8C	8C2	8C	8C	8C2	8C	8C1	C150	8C2	8C	8C	C150	C150

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PURLINS

WIND ZONE T.C. 3	S35	MEDIUM	S45	HIGH	S50	UMICH
RAM SPACINGS (PURLIN LENGTHS)	3	3.5	4	5	6	5
PURLIN CENTRES	3	3.5	4	5	6	5
954	3.5	4	5	6	5	4
995	4	5	6	7	8	7
1244	5	6	7	8	9	8
1008	6	7	8	9	10	9
1181	7	8	9	10	11	10
1035	8	9	10	11	12	11
1164	9	10	11	12	13	12
1294	10	11	12	13	14	13
1138	11	12	13	14	15	14
1242	12	13	14	15	16	15

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amended

PURLINS

Serviceability

$$\delta = \frac{ML^2}{98EF}$$

$$\delta = \frac{L}{120}$$

$$M_s^* = \frac{9.8 EF}{120 L} = 0.02 \frac{I}{L}$$

C8070 I = 117580															
REINFORCEMENT	0					1					2				
Le	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Ms	0.48	0.41	0.36	0.29	0.24	0.24	0.27	0.41	0.53	0.27	0.64	0.33	0.48	0.39	0.32
	RC8070 I = 235,160														
Ms	0.96	0.52	0.72	0.38	0.28	1.08	0.94	0.82	0.66	0.52	1.28	1.10	0.96	0.78	0.64
	C8080 I = 134,377														
Ms	0.55	0.47	0.41	0.33	0.28	0.62	0.54	0.47	0.37	0.31	0.73	0.63	0.57	0.44	0.37
	RC8080 I = 268,754														
Ms	1.10	0.94	0.82	0.66	0.56	1.24	1.08	0.94	0.74	0.62	1.46	1.28	1.10	0.88	0.74
	C15010 I = 1.08 x 10 ⁶														
Ms	4.43	3.50	3.32	2.86	2.21	5.06	4.30	3.77	3.01	2.51	5.40	5.06	4.43	3.52	2.95
	C15012 I = 1.30 x 10 ⁶														
Ms	5.33	4.57	4.00	3.20	2.60	6.09	5.18	4.54	3.62	3.02	7.10	6.09	5.33	4.28	3.55
	C15015 I = 1.61 x 10 ⁶														
Ms	6.60	5.60	4.95	3.96	3.29	7.54	6.42	5.62	4.44	3.74	8.79	7.54	6.60	5.28	4.40
	C15019 I = 2.03 x 10 ⁶														
Ms	8.32	7.06	6.24	4.99	4.15	9.51	8.09	7.09	5.65	4.72	11.08	9.51	8.32	6.66	5.35
	RC15010 I = 2.16 x 10 ⁶														
Ms	8.66	7.60	6.64	5.36	4.42	10.12	8.60	7.54	6.02	5.02	11.80	10.12	8.66	7.08	5.90
	RC15012 I = 2.60 x 10 ⁶														
Ms	10.16	9.14	8.00	6.40	5.36	12.18	10.36	9.08	7.24	6.04	14.20	12.18	10.66	8.52	7.10
	RC15015 I = 3.22 x 10 ⁶														
Ms	13.20	11.20	9.90	7.92	6.58	15.08	12.84	11.24	8.96	7.48	17.58	15.08	13.20	10.56	8.80
	C22012 I = 3.3 x 10 ⁶														
Ms				4.89						7.67					9.02

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PURLINS

SERVICEABILITY

$$\delta = \frac{M L^2}{9.6 E I}$$

FOR WIND LOAD CHECK DEFLECTIONS FOR $\frac{L}{150}$

$$W_s = 0.66 W_u$$

$$\frac{L}{150} = \frac{M L^2}{9.6 E I}$$

$$M^*_{max} = \frac{9.6 E I}{150 L}$$

$$E = 205000 \text{ MPa}$$

C8080

RC8080

80 I 40 I=134377

80 I 40 I=248124

C15010 I=1.08x10⁶

C15012 I=1.30x10⁶

$$L_e =$$

	B	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
M_u	0.54	0.50	0.44	0.35	0.24	1.15	1.00	0.84	0.70	0.58	4.72	4.05	3.52	2.83	2.36	5.66	4.86	4.25	3.40	2.83
$M_s = \frac{M_u}{0.66}$	0.82	0.76	0.67	0.53	0.36	1.74	1.52	1.27	1.06	0.88	7.15	6.14	5.36	4.24	3.58	8.58	7.36	6.44	5.15	4.24
δ	20mm	23	26	33	40	20	23	26	33	40	20	23	26	33	40	20	23	26	33	40

INCREASE DEFLECTION LIMIT TO $\frac{L}{120}$

$$\text{THEN } M^*_{max} = \frac{9.6 E I}{120 L}$$

M_u
 $M_s = \frac{M_u}{0.66}$
 δ

M_u	0.74	0.63	0.55	0.44	0.36	1.48	1.25	1.10	0.88	0.73	5.40	5.06	4.43	3.74	2.95	7.08	6.10	5.31	4.25	3.54
M_s	1.12	0.95	0.83	0.67	0.55	2.26	1.88	1.67	1.33	1.11	8.14	7.67	6.71	5.36	4.47	10.73	9.24	8.05	6.44	5.36
δ	25	28	32	41	50	25	28	32	41	50	25	28	32	41	50	25	28	32	41	50

C15012 I=1.30x10⁶
4.65x10⁴ 2.74 2.53
C15015 I=1.6x10⁶

5.81 7.55 6.61 5.24 4.41
13.75 11.44 10.02 8.02 6.65
5.81 4.49 4.36 3.49 2.41

C15019 I=2.03x10⁶

8.12
11.09 9.51 8.02 6.66 5.52
15.00 12.41 10.61 8.42
7.32 6.28 5.44 4.40 3.67

C8070

RC8070

L_e
 M_u

	3	3.5	4	5	6	3	3.5	4	5	6
M_u	0.24	0.24	0.25	0.20	0.17	0.68	0.58	0.51	0.40	0.33

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PURLINS - T.C.2 - DEFLECTION CONTROLLING

WIND ZONES T.C.2	S35	MEDIUM	S45	HIGH	S50	U HIGH
RAY SPACINGS (PURLIN LENGTHS)	3	4	3	4	3	5
PURLIN CRS SPANS	3	4	3	4	3	5
934	80L	80L	80L	80L	80L	80L
995	80L	80L	80L	80L	80L	80L
1294	80L	80L	80L	80L	80L	80L
1508	80L	80L	80L	80L	80L	80L
1181	80L	80L	80L	80L	80L	80L
1015	80L	80L	80L	80L	80L	80L
1164	80L	80L	80L	80L	80L	80L
1294	80L	80L	80L	80L	80L	80L
1138	80L	80L	80L	80L	80L	80L
1242	80L	80L	80L	80L	80L	80L

PURLING - T.C.3 - DEFLECTION CONTROLLING

WIND ZONE T.C.3	535	MEDIUM	545	HIGH	550	UNICH
BAW SPAINING (PURLIN LENGTH)	3	3.5	4	5	6	6
PURLIN CENTRES	954	995	1294	1608	1181	1035
3.5	80L	80L	80L	80L	80L	80L
4	80L	80L	80L	80L	80L	80L
5	80L	80L	80L	80L	80L	80L
6	80L	80L	80L	80L	80L	80L
7	80L	80L	80L	80L	80L	80L
8	80L	80L	80L	80L	80L	80L
9	80L	80L	80L	80L	80L	80L
10	80L	80L	80L	80L	80L	80L
11	80L	80L	80L	80L	80L	80L
12	80L	80L	80L	80L	80L	80L

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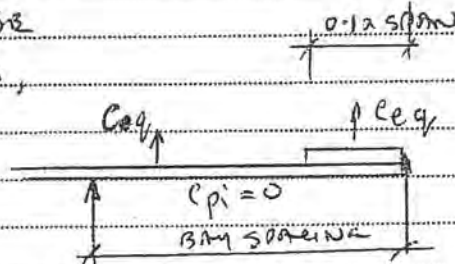
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GIRTS

MAXIMUM GIRT LOADING WILL BE
 IN THE END BAY WITH LONG WIND,
 LOCAL WIND PRESSURES

$$C_e = 0.65$$



$$\text{EQUIVALENT UDL } w_e = \left[(0.65 + 0.00 + \frac{1.3 \times 0.65 \times 0.12}{\text{Bay Spacing}}) q \right] \times \text{girt spacing}$$

T.C.2

$$= \left[(0.65 + \frac{0.08 \text{ SPAN}}{\text{Bay Spacing}}) q \right] \times \text{GIRT SPACING}$$

ASSUME WALL HT 4.8m

WIND		S35 $q = 0.42$					S45 $q = 0.69$					S50 $q = 0.85 \text{ kPa}$				
BAY SPACING	L	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
SPAN 3.5		0.37	0.37	0.36	0.36	0.35	0.62	0.60	0.60	0.58	0.58	0.76	0.75	0.73	0.72	0.71
4		0.38	0.37	0.37	0.36	0.35	0.63	0.61	0.60	0.59	0.58	0.77	0.75	0.74	0.73	0.72
5		0.40	0.38	0.38	0.37	0.36	0.65	0.63	0.62	0.60	0.59	0.80	0.78	0.76	0.74	0.72
6		0.41	0.40	0.39	0.38	0.37	0.67	0.65	0.64	0.62	0.60	0.83	0.81	0.79	0.76	0.74
w_e 7		0.42	0.41	0.40	0.38	0.37	0.69	0.67	0.65	0.63	0.61	0.85	0.83	0.81	0.78	0.75
8		0.44	0.42	0.41	0.39	0.38	0.71	0.69	0.67	0.65	0.63	0.88	0.85	0.83	0.80	0.77
9		0.45	0.43	0.42	0.40	0.38	0.73	0.71	0.68	0.66	0.64	0.91	0.88	0.85	0.81	0.78
10		0.46	0.44	0.43	0.41	0.39	0.76	0.73	0.70	0.67	0.65	0.94	0.91	0.87	0.83	0.80
11		0.47	0.45	0.44	0.42	0.40	0.78	0.75	0.72	0.69	0.66	0.96	0.93	0.89	0.84	0.81
12		0.49	0.47	0.45	0.43	0.41	0.80	0.77	0.74	0.71	0.67	0.99	0.95	0.91	0.87	0.83
$M^* = \frac{w_e L^2}{8}$																
	L	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
SPAN 3.5		0.42	0.57	0.72	1.13	1.58	0.70	0.92	1.20	1.51	2.61	0.86	1.15	1.46	2.25	3.20
4		0.43	0.57	0.74	1.13	1.58	0.71	0.93	1.20	1.54	2.61	0.87	1.15	1.48	2.28	3.24
5		0.45	0.58	0.76	1.16	1.62	0.73	0.96	1.24	1.58	2.66	0.90	1.19	1.52	2.31	3.24
6		0.46	0.61	0.78	1.19	1.67	0.75	1.00	1.28	1.64	2.70	0.93	1.24	1.58	2.38	3.33
7		0.47	0.63	0.80	1.19	1.67	0.78	1.03	1.30	1.67	2.75	0.96	1.27	1.62	2.44	3.38
8		0.50	0.64	0.82	1.22	1.71	0.80	1.06	1.34	1.70	2.84	0.99	1.30	1.66	2.50	3.47
9		0.51	0.66	0.84	1.25	1.71	0.82	1.09	1.36	1.74	2.88	1.02	1.35	1.70	2.53	3.51
10		0.52	0.67	0.86	1.28	1.76	0.86	1.12	1.40	1.79	2.93	1.06	1.39	1.74	2.59	3.60
11		0.53	0.69	0.88	1.31	1.80	0.88	1.15	1.44	1.84	2.97	1.08	1.42	1.78	2.63	3.65
12		0.55	0.72	0.90	1.34	1.85	0.90	1.18	1.48	1.88	3.02	1.11	1.45	1.82	2.72	3.74

CHEEK DEFLECTIONS

$$\delta = \frac{ML^2}{768EI} = \frac{L}{120}$$

$$M_{max} = \frac{9.6EI}{120L}$$

$$M_s = 0.0164 \frac{I \text{ mm}^4}{L \text{ mm}}$$

$$W_s = 0.66 W_u$$

$$M_s = 0.66 M_u$$

$$M_s = \frac{MW}{0.66} = \frac{0.66 \times 9.6EI}{120 \times 0.66 L} = \frac{9.6EI}{120L}$$

	80[40 I=134,377					80[40 I=268,754					C15010 I=1.05x10 ⁶				
L ₂ m	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
M _s	0.73 1.11	0.63 0.45	0.55 0.33	0.44 0.27	0.37 0.22	1.47 2.24	1.24 1.89	1.10 1.67	0.87 1.33	0.73 1.11	5.87 8.94	5.03 7.67	4.40 6.71	3.82 5.36	2.93 4.47
δ	25	28	32	41	50	25	28	32	41	50	25	28	32	41	50
M _u	1.38(0) 0.75	1.52(1) 0.85	1.84(2) 1.0			2.76(0)	3.10(1)	3.65(2)			5.40(0)	6.12(1)	7.20(2)		

IN ALL CASES M_s CONTROLS

T.C.2	S35 MEDIUM					S45 HIGH					S50 V HIGH				
AIR LENGTH	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
SPANS 3.5	80F	80[2	80[	80[	C15010	80[2	80[	80[	C15010	C15010	80[	80[	80[	C15010	C15010
4	80[	80[2	80[			80[2	80[	80[			80[	80[	80[
5	80[	80[2	80[			80[2	80[	80[			80[	80[	80[
6	80[	80[2	80[			80[2	80[	80[			80[	80[	80[
7	80[	80[2	80[			80[	80[	80[			80[	80[	80[
8	80[	80[	80[			80[	80[	80[			80[	80[	80[
9	80[	80[	80[			80[	80[	80[			80[	80[	C15010		
10	80[	80[	80[			80[	80[	80[			80[	80[	C15010		
11	80[	80[	80[			80[	80[	80[			80[	80[	C15010		
12	80[	80[	80[	80[	C15010	80[	80[	80[	C15010	C15010	80[	80[	C15010	C15010	C15010

φM _u	80[40					80[40					C15010				
AIR LENGTH	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
RIDGING	0.73 1.11	0.63 0.45	0.55 0.33	0.44 0.27	0.37 0.22	1.47 2.24	1.24 1.89	1.10 1.67	0.87 1.33	0.73 1.11	5.87 8.94	5.03 7.67	4.40 6.71	3.82 5.36	2.93 4.47
1	0.63 0.45	0.55 0.33	0.44 0.27	0.37 0.22	0.33 0.22	1.24 1.90	1.05 1.61	0.94 1.42	0.74 1.13	0.66 0.94	4.94 7.60	4.28 6.52	3.74 5.70	2.94 4.36	2.49 3.80
0	0.55 0.33	0.45 0.27	0.33 0.22	0.27 0.18	0.22 0.18	1.05 1.42	0.83 1.25	0.74 1.00	0.66 0.83	0.66 0.83	4.40 6.71	3.77 5.75	3.30 5.03	2.64 4.02	2.20 3.35

x1.0

x0.85

x0.75

T.C. 3.

$$w_e = \left(0.65 + \frac{0.08 \text{ SPAN}}{\text{SPAN SPACING}} \right) q \times \text{AIRT SPACING}$$

$$M^* = \frac{w_e L^2}{8}$$

INCREASE T.C. 2 X RATIO OF $q^{1/5}$ (1.2m)

WIND	S35 $q=0.29$					S45 $q=0.48$					SSD $q=0.59$				
AIRT LENGTHS	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
SPAN 3.5	0.29	0.39	0.50	0.78	1.09	0.49	0.64	0.83	1.26	1.82	0.60	0.80	1.01	1.56	2.22
4	0.30	0.39	0.51	0.78	1.09	0.49	0.65	0.83	1.28	1.82	0.60	0.80	1.03	1.58	2.25
5	0.31	0.40	0.52	0.80	1.12	0.51	0.67	0.86	1.31	1.85	0.62	0.83	1.06	1.60	2.25
6	0.32	0.42	0.54	0.82	1.15	0.52	0.70	0.89	1.35	1.88	0.65	0.86	1.10	1.65	2.31
M* 7	0.32	0.44	0.55	0.82	1.15	0.52	0.72	0.90	1.37	1.91	0.67	0.88	1.12	1.69	2.35
8	0.35	0.46	0.57	0.84	1.18	0.56	0.74	0.93	1.41	1.98	0.69	0.90	1.15	1.74	2.41
9	0.35	0.46	0.58	0.86	1.19	0.57	0.76	0.95	1.43	2.00	0.71	0.94	1.18	1.76	2.44
10	0.36	0.46	0.59	0.88	1.22	0.60	0.78	0.97	1.45	2.04	0.74	0.96	1.21	1.80	2.50
11	0.37	0.48	0.61	0.90	1.24	0.61	0.80	1.00	1.50	2.07	0.75	0.99	1.24	1.83	2.53
12	0.38	0.50	0.62	0.93	1.28	0.63	0.82	1.03	1.54	2.10	0.77	1.01	1.26	1.89	2.60

REFER PAGE 18 FOR CONTROLLING MOMENTS DUE TO DEFLECTION CONTROL

T.C. 3	S35 MEDIUM					S45 HIGH					SSD V HIGH				
AIRT LENGTHS	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
SPANS 3.5	80L	80L	80L	80L	80L	80L	80L	80L	80L	C15010	80L	80L	80L	C15010	C15010
4															
5															
6															
7								80L							
8								80L							
9					80L										
10					C15010				80L						
11					C15010				C15010						
12	80L	80L	80L	80L	C15010	80L	80L	80L	C15010	C15010	80L	80L	80L	C15010	C15010

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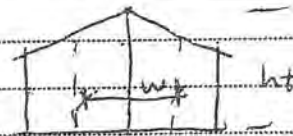
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END WALL POSTS

T.C.2



S35

$$M^* = \frac{C_q \cdot W \cdot h^2}{8}$$

$$C = (0.7 + 0.3) = 1.0$$

10 φmm
1.38 (6)
1.56 (17)
1.84 (27)

2.4

M*

0.7

2.0.8

1.1.1

2.1.4

3.1.8

5.2.3

6.2.7

7.1.6

9.1.9

10.2.2

SPAN	WALL MT				3.6				4.2				4.8			
	POST HT	C _q	M*	SECT	POST HT	C _q	M*	SECT	POST HT	C _q	M*	SECT	POST HT	C _q	M*	SECT
3.5	3.5	0.37	0.99	BOB C15010	4.1	0.39	1.43	BOB C15010	4.7	0.41	1.95	BOB C15010	5.3	0.42	2.58	BOB C15010
4	3.5		1.13		4.1		1.64		4.7		2.26		5.3		2.95	C15010
5	3.7		1.58		4.3		2.25		4.9		3.08		5.5		3.97	C15010
6	3.8		2.00		4.4		2.83		5.0		3.84	BOB C15010	5.6		4.94	
7	3.9		2.46		4.5		3.46		5.1		4.67	C15010	5.7		5.97	
8	4.0		2.94		4.6		4.13		5.2		5.54		5.8		7.06	
9	4.2		3.7		4.8		5.1		5.4		6.4		6.0		8.25	
10	4.3		4.5		4.9		5.9		5.5		7.8		6.1		9.58	
11	4.4		5.4		5.0		6.1		5.6		9.2		6.2		11.0	
12	4.6		6.4	BOB C15010	5.2		7.9	BOB C15010	5.8		10.3	C15010	6.4		12.9	C15010

S45

4.4

M*

1.1.1

1.4.2.0

1.9.2.5

2.4.3.0

3.0.3.5

3.8.4.0

4.5.2.2

5.1.2.6

6.5.3.2

7.4.3.7

SPAN	WALL MT	≤ 3.0				3.6				4.2				4.8			
	POST MT	C _q	M*	SECT	POST MT	C _q	M*	SECT	POST MT	C _q	M*	SECT	POST MT	C _q	M*	SECT	
3.5	3.5	0.62	1.66	BOB C15010	4.1	0.64	2.35	BOB C15010	4.7	0.67	3.24	C15010	5.3	0.69	4.24	C15010	
4	3.5		1.90		4.1		2.69		4.7		3.70		5.3		4.85		
5	3.7		2.65		4.3		3.70	BOB C15010	4.9		5.03		5.5		6.52	C15010	
6	3.8		3.26	BOB C15010	4.4		4.65	C15010	5.0		6.25		5.6		8.11	C15012	
7	3.9		4.13	C15010	4.5		5.67		5.1		7.62		5.7		9.81	C15015	
8	4.0		5.1 5.1		4.6		6.7 6.7		5.2		8.9 8.9		5.8		11.2	C15010	
9	4.2		3.08		4.8		4.15		5.4		5.49		6.0		6.99	C15010	
10	4.3		3.58		4.9		4.50		5.5		6.33		6.1		8.02	C15015	
11	4.4		4.13		5.0		5.50		5.6		7.22	C15010	6.2		9.12	C15015	
12	4.6		4.92	C15010	5.2		6.49	C15010	5.8		8.75	C15012	6.4		10.60	C15015	

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END WALL POSTS

SSO

REFER PAR 7 FOR
DIM FOR SECTIONS

4

MT

1-4 1.75

17 2

2-3 2.5

2-9 3

3-6 3.5

2-3 4.7

2-7 2.25

3-2 2.5

3-9 2.75

4-5 3

SPAN	WALL HT	≤ 3.0			3.6				4.2				4.8			
	POST HT	Cg	M ²	SECT	POST HT	Cg	M ²	SECT	POST HT	Cg	M ²	SECT	POST HT	Cg	M ²	SECT
3.5	3.5	0.76	2.04	800 C15010	4.1	0.80	2.94	800 C15010	4.7	0.83	4.01	C15010	5.3	0.85	5.22	C15010
4	3.5		2.33		4.1		3.36	800	4.7		4.58		5.3		5.97	C15010
5	3.7		3.25	800 C15010	4.3		4.62		4.9		6.23		5.5		8.04	C15012
6	3.8		4.12		4.4		5.81		5.0		7.78	C15010	5.6		10.00	C15019
7	3.9		5.06		4.5		7.09		5.1		9.44	BC15010 C15015	5.7		12.08	BC15010 C15019
8	4.0		6.03		4.6		8.43		5.2		10.61	C15010	5.8		14.15	C15012
9	4.2		7.77		4.8		10.18		5.4		12.81		6.0		16.61	C15012
10	4.3		9.39		4.9		12.00		5.5		14.85		6.1		19.88	C15015
11	4.4		11.06		5.0		14.58	C15010	5.6		17.95	BC15010 C15019	6.2		22.23	BC15010 C15019
12	4.6		16.03	C15010	5.2		20.11	C15012	5.8		25.47	C15019	6.4		28.06	BC15010 C15019

or
BC15010

SECTION PROPERTIES

POSTS WILL BE RESTRAINED BY AIRTS

SECTION	C	Z	DM	INT
	φ=0.45		(FR)	kg/m
C15010	500	15100	7.2	232
C15012	500	18120	8.6	278
C15015	450	22720	9.7	347
C15019	450	28778	12.3	440
C22012	500	25263	12.0	348
C22015	450	31578	13.5	442
C22019	450	40000	17.1	588

C22012 COULD REPLACE C15015, C15019
C22015 " " BC15010

ROOF FRAMES

- Assume PURLIN & CURT POINT LOADS TO BE UDL'S

MONA FRAME

- LOCAL WIND PRESSURES NOT TO BE CONSIDERED
- CHECK FRAMES WITH & WITHOUT APEX & KNEE BRACES



MONA

NODE	WALL HT	FRAME SPAN									
		3.5	4	5	6	7	8	9	10	11	12
1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.0	0.3.0	0.3.0	0.3.0	0.3.0	0.3.0	0.3.0	0.3.0	0.3.0	0.3.0	0.3.0
	3.6	0.3.6	0.3.6	0.3.6	0.3.6	0.3.6	0.3.6	0.3.6	0.3.6	0.3.6	0.3.6
	4.2	0.4.2	0.4.2	0.4.2	0.4.2	0.4.2	0.4.2	0.4.2	0.4.2	0.4.2	0.4.2
	4.8	0.4.8	0.4.8	0.4.8	0.4.8	0.4.8	0.4.8	0.4.8	0.4.8	0.4.8	0.4.8
3	3.0	1.75, 3.47	2.0, 3.54	2.5, 3.67	3.0, 3.80	3.5, 3.94	4.0, 4.04	4.5, 4.21	5.0, 4.34	5.5, 4.47	6.0, 4.61
	3.6	1.75, 4.07	2.0, 4.14	2.5, 4.27	3.0, 4.40	3.5, 4.54	4.0, 4.64	4.5, 4.81	5.0, 4.94	5.5, 5.07	6.0, 5.21
	4.2	1.75, 4.67	2.0, 4.74	2.5, 4.87	3.0, 5.00	3.5, 5.14	4.0, 5.24	4.5, 5.41	5.0, 5.54	5.5, 5.67	6.0, 5.81
	4.8	1.75, 5.27	2.0, 5.34	2.5, 5.47	3.0, 5.60	3.5, 5.74	4.0, 5.84	4.5, 6.01	5.0, 6.14	5.5, 6.27	6.0, 6.41
4	3.0	3.5 3	4 3	5 3	6 3	7 3	8 3	9 3	10 3	11 3	12 3
	3.6	3.5 3.6	4 3.6	5 3.6	6 3.6	7 3.6	8 3.6	9 3.6	10 3.6	11 3.6	12 3.6
	4.2	3.5 4.2	4 4.2	5 4.2	6 4.2	7 4.2	8 4.2	9 4.2	10 4.2	11 4.2	12 4.2
	4.8	3.5 4.8	4 4.8	5 4.8	6 4.8	7 4.8	8 4.8	9 4.8	10 4.8	11 4.8	12 4.8
5	3.0	3.5 0	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	12 0
	3.6	3.5 0	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	12 0
	4.2	3.5 0	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	12 0
	4.8	3.5 0	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	12 0

LOAD CASES

SPAN 6M WALLS $\leq 3.0m$

T.C.2

WIND	S35					S45					S50				
BM SPACING S	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
$(1.2G + 1.6Q)S$															
$1.2(0.015 + \frac{0.015}{1.0} + 0.01)$	LC1	LC2	LC3			LC1	LC2	LC3			LC1	LC2	LC3		
$+ 1.6 \times 0.25 S$	1.29	1.30	1.71	2.13	2.56	1.29	1.30	1.71	2.13	2.56	1.29	1.30	1.71	2.13	2.56
$(0.9G - W)$	$q = 0.57$	11	12			$q = 0.62$	11	12			$q = 0.76$	11	12		
W/W 0.75g	0.78	0.91	1.04	1.30	1.53	1.30	1.53	1.74	2.17	1.40	1.60	1.66	2.13	2.66	3.19
W/W 0.9(0.015 + $\frac{0.015}{1.0} + 0.01$)															
$- C_{pe} S$	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
A/R Factor	0.96	0.96	0.91	0.89	0.89	0.96	0.96	0.91	0.89	0.89	0.96	0.96	0.91	0.89	0.89
C_{pe}	LC4	LC5	LC6	LC7		LC8	LC9				LC10	LC11	LC12		
0.70	0.68	0.77	0.86	1.05	1.27	1.44	1.51	1.50	1.83	2.20	1.65	1.76	1.86	2.27	2.72
0.60															
0.56															
0.50															
q_x 0.9G - 0.55g															
A/R Factor	0.96	0.94	0.91	0.89	0.89	0.96	0.94	0.91	0.89	0.89	0.96	0.94	0.91	0.89	0.89
	0.47	0.53	0.59	0.72	0.87	0.93	1.04	1.05	1.28	1.52	1.03	1.17	1.20	1.55	1.91
q_x 0.35g	0.33	0.39	0.44	0.55	0.67	0.76	0.86	0.74	0.93	1.12	0.68	0.80	0.91	1.14	1.37
	13	5	8			14	6	9			15	7	10		

9M SPAN

WALL HT

4.8m

$(1.2G + 1.6Q)$															
$1.2(0.015 + \frac{0.015}{1.0} + 0.02)$	1.29	1.30	1.71	2.13	2.56	1.29	1.30	1.71	2.13	2.56	1.29	1.30	1.71	2.13	2.56
$+ 1.6 \times 0.25 S$	1	2	3												
$(0.9G - W)$	$q = 0.47$					$q = 0.69$					$q = 0.85$				
W/W 0.75g	0.88	1.03	1.18	1.27	1.76	1.45	1.44	1.93	2.42	2.40	1.79	2.02	2.38	2.98	3.57
W/W 0.9(0.015 + $\frac{0.015}{1.0} + 0.02$)															
$- C_{pe} S$	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
A/R Factor	0.90	0.89	0.89	0.86	0.86	0.90	0.89	0.89	0.86	0.86	0.90	0.89	0.89	0.86	0.86
	0.77	0.88	1.01	1.22	1.45	1.30	1.49	1.71	2.07	2.47	1.58	1.84	1.75	2.57	2.40
q_x 0.9G - 0.55g															
A/R Factor	0.90	0.89	0.89	0.86	0.86	0.90	0.89	0.89	0.86	0.86	0.90	0.89	0.89	0.86	0.86
	0.43	0.57	0.58	0.79	1.13	0.85	0.99	1.15	1.13	1.65	1.08	1.24	1.43	1.73	2.06
q_x 0.35g	0.34	0.40	0.45	0.54	0.76	0.72	0.68	0.74	0.89	1.26	0.69	0.80	0.91	1.10	1.33
	4	7	10			5	8	11			6	9	12		

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LOAD CASES

8 M SPAN WALLS ≤ 3.0 M

T.C 2

WIND	SSS					S45					SSO				
RAY SPREADS FRAME CORNER	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
(1.2G + 1.6W)															
$1.2(0.015 + \frac{0.018}{1.03} + 0.09)$	1.29	1.50	1.71	2.13	2.58	1.29	1.50	1.71	2.13	2.58	1.29	1.50	1.71	2.13	2.58
+ 1.6 x 0.255	1		2	3											
(0.9G - W)															
W/W 0.75q	0.78	0.91	1.04	1.30	1.55	1.30	1.52	1.74	2.17	2.60	1.60	1.56	2.13	2.66	3.19
W/V 0.9G Cpe	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
- Cpe q S.H.F. H.F.	0.91	0.90	0.89	0.88	0.86	0.91	0.90	0.89	0.88	0.86	0.91	0.90	0.89	0.88	0.86
	0.53	0.52	0.50	0.47	0.42	0.95	1.09	1.23	1.53	1.74	1.17	1.55	1.93	1.90	2.23
q _r 0.9G - 0.55q H.F.	0.43	0.40	0.37	0.31	0.22	0.77	0.89	1.01	1.26	1.45	0.97	1.12	1.26	1.36	1.44
q _w 0.35q	0.33	0.34	0.46	0.55	0.67	0.58	0.66	0.74	0.93	1.12	0.68	0.58	0.91	1.14	1.57
	4		7	10		5		8	11		6		9	12	

W
W/W
W/V
q_r
q_w

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LOAD CASES

9 M SPAN WALLS ≤ 3.0 M

T.C.2

WIND	SSS					SSS					SSS				
RAY SPACING FRAME CENTRE	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
(1.22 + 1.00)															
1.2(0.015 + $\frac{0.085}{1.16}$ + 0.02)	1.24	1.50	1.71	2.13	2.52										
+ 1.6 x 0.25 S	1		2	3											
(0.92 - w)	g = 0.37					g = 0.62					g = 0.76				
w/w 0.75 q	0.78	0.91	1.02	1.30	1.55	1.30	1.52	1.74	2.17	2.60	1.60	1.87	2.15	2.66	3.19
w/v 0.92 Cpe	0.52	0.53	0.52	0.53	0.52	0.52	0.53	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
- Cpe q S MF MF	0.90	0.89	0.89	0.86	0.85	0.90	0.89	0.89	0.86	0.85	0.90	0.89	0.89	0.86	0.85
	0.49	0.56	0.66	0.79	0.94	0.87	1.00	1.16	1.39	1.65	1.08	1.25	1.43	1.73	2.15
q _r 0.92 - 0.5 q MF	0.43	0.50	0.58	0.70	0.87	0.77	0.89	1.02	1.23	1.46	0.96	1.10	1.27	1.53	1.82
q _w 0.35 q	0.33	0.37	0.44	0.55	0.67	0.53	0.66	0.74	0.93	1.12	0.68	0.80	0.91	1.12	1.37
	4	7	10			5	8	11			6	9	12		

i/L
0.08
0.08
0.09
0.11
0.13

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LOAD CASES

12M SPAN WALLS ≤ 3.0 M

T.C 2

WIND	SSS					S45					SSD				
RAISED BEAMS & PLATE CORNERS	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
(1.2 G.F.C.D)															
1.2(0.015 + 0.015 + 0.015 + 0.015 + 0.015)	1.31	1.52	1.73	2.16	2.58										
+ 1.6 x 0.25 S	1	2	3												
(0.9 G - W)	q = 0.37					q = 0.62					q = 0.76				
W/W 0.75 q	0.78	0.91	1.04	1.30	1.55	1.30	1.52	1.74	2.17	2.60	1.60	1.87	2.13	2.66	3.10
W/V 0.9 G: Cpe	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
- Cpe q: AF AF	0.59	0.57	0.56	0.54	0.53	0.59	0.57	0.56	0.54	0.53	0.59	0.57	0.56	0.54	0.53
q 0.9 G - 0.55 q AF	0.41	0.47	0.52	0.58	0.70	0.75	0.55	0.97	1.19	1.41	0.93	1.07	1.21	1.48	1.75
q 0.35 q	0.41	0.45	0.52	0.66	0.78	0.75	0.56	0.97	1.19	1.40	0.93	1.07	1.21	1.48	1.75
q 0.35 q	0.33	0.34	0.46	0.55	0.67	0.55	0.66	0.74	0.93	1.12	0.65	0.50	0.91	1.14	1.37
	4	7	10			5	8	11			6	9	12		

q
0.09
0.10
0.11
0.13
0.15

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LONG ONES

12 m SPAN WALL HT. 4.8 m

T.C.2

WIND RAM SPACINGS FRAME CENTRES	S35					S45					S50				
	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
(24+60)s															
12 (0.015 + 0.015 1.24 to 0.04)	1.21	1.52	1.73	2.16	2.58										
1.6 x 0.255	1	2	3												
(0.96-w)															
u/w 0.75g	0.58	1.03	1.18	1.47	1.76	1.45	1.69	1.93	2.42	2.90	1.79	2.34	2.38	2.98	3.57
u/w 0.9 (0.015 + 0.015 1.24 to 0.04)															
-C _{pe} C _{pe}	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
APR. B. tr	0.89	0.57	0.56	0.54	0.53	0.54	0.57	0.56	0.54	0.53	0.59	0.57	0.56	0.54	0.53
	0.62	0.70	0.79	0.98	1.16	1.06	1.21	1.37	1.70	1.94	1.24	1.36	1.69	2.09	2.42
u/w 0.96 - 0.5g															
APR. factor	0.54	0.87	0.86	0.82	0.83	0.84	0.87	0.86	0.84	0.83	0.89	0.87	0.86	0.84	0.83
	0.48	0.55	0.74	0.77	0.91	0.84	0.96	1.09	1.33	1.55	1.05	1.20	1.41	1.67	1.98
u/w 0.35g															
	0.38	0.45	0.51	0.63	0.76	0.62	0.74	0.83	1.04	1.24	0.77	0.90	1.02	1.23	1.53
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	4	7	10			5	8	11			6	9	12		
	4	7	10			5	8	11			6	9	12		

MICROSTEAN ANALYSIS PROGRAM

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SECTION	AREA mm ²	I _z mm ⁴	Z _x mm ³	f _t MPa	φM kNm	φN _t kN	φN _c kN
C15010	306		14200	500	7.2	138	100
C15012	367		17066	500	8.2	165	
C22010	376		26100	500	11.8	169	
C22012	451	8.3x10 ⁶	29764	500	14.1	209	153
C15015	459		21206	450	9.1	186	
C22015	584		37202	450	15.1	255	
C15019	581		26786	450	11.5		
C22019	714	5.2x10 ⁶	7126	450	14.1	289	
C22024	902			450	25.5	405	

C15010

$$\phi M = \phi f_y Z_e$$

$$= 0.95 \times 500 \times 14200 \times 10^{-6}$$

$$= 7.2 \text{ kNm}$$

$$\phi N_t = \phi A_e f_y$$

$$= 0.9 \times 306 \times 500$$

$$= 138 \text{ kN}$$

$$\phi N_c = \phi A_e f_u$$

$$= 0.85 \times 306 \times 500$$

$$= 100 \text{ kN}$$

$$\text{where } \left(\frac{L}{r_x}\right)^2 = \left(\frac{3000}{60}\right)^2$$

$$= 2500$$

$$f_{ac} = \frac{\pi^2 E}{(L/r_x)^2}$$

$$= \frac{\pi^2 \times 205000}{2500}$$

$$= 809 \text{ MPa}$$

$$\lambda_c = \sqrt{f_y / f_{ac}}$$

$$= 0.79 < 1.5$$

$$f_{cr} = (0.658^{\lambda_c^2}) f_y$$

$$= 386 \text{ MPa}$$

$$\text{or } \phi N_c = \phi A_e f_y$$

$$= 0.85 \times 306 \times 500$$

$$= 145 \text{ kN}$$

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C 23012

$$\phi M = 0.95 \times 500 \times 29764 \times 10^{-6}$$

$$= 14.1 \text{ kNm}$$

$$\phi N_b = 0.9 \times 451 \times 500$$

$$= 202 \text{ kN}$$

$$\phi N_c = 0.85 \times 451 \times 500$$

$$= 191 \text{ kN}$$

$$\text{or } \phi N_c = \phi A_e f_u$$

$$= 0.85 \times 451 \times 400$$

$$= 153 \text{ kN}$$

$$\left(\frac{1}{\gamma_{m0}}\right) = \left(\frac{3000}{88}\right)^2$$

$$= 116.2$$

$$f_{oc} = \frac{\sigma^2 E}{(4.5)^2}$$

$$= 1758 \text{ MPa}$$

$$\lambda_c = \sqrt{f_u / f_{oc}}$$

$$= 0.53 < 1.5$$

$$\lambda_c^2 = 0.28$$

$$f_u = (0.658^{\lambda_c^2}) f_y$$

$$= 400 \text{ MPa}$$

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KNEE JOINTS T.C.2

SPAN X WALL HT X SPACING	LOAD CASE	M ⁺ 0.8M ⁺	N ⁺	SECTION	φ M	φ Nc	φ NT	max φ M	N ⁺ φ N
6 x 3 x 3m	1.2A + 1.6D	2.9 ^{2.3}	4.4	C15010	7.2	100	13.8	0.45	
	0.9A - W35	3.8 ^{3.0}	2.8	C15010				0.55	
	0.9A - W45	6.5 ^{5.2}	4.8	C15010				0.94	
	0.9A - W50	6.8 ^{5.4}	5.8	C15010				0.99	
6 x 3 x 4m	1.2A + 1.6D	3.8 ^{3.0}	5.3	C15010				0.58	
	0.9A - W35	5.0 ^{4.0}	3.5	C15010				0.72	
	0.9A - W45	8.6 ^{6.9}	6.2	C15010 C15019 C22010	11.5 11.8	100	20.2	0.79 0.76	
	0.9A - W50	10.5 ^{8.4}	7.6	C15012 C15015 C22010				0.72 0.93	
6 x 3 x 5m	1.2A + 1.6D	4.8 ^{3.8}	6.6	C15010				0.73	
	0.9A - W35	6.2 ^{4.9}	4.4	C15010				0.89	
	0.9A - W45	10.6 ^{8.5}	7.6	C15012 C15019 C22010	11.5 11.8			0.98 0.94	
	0.9A - W50	13.1 ^{10.5}	9.4	C15019 C22012	14.1			0.98	
8 x 3 x 3m	1.2A + 1.6D	5.3 ^{4.2}	5.3	C15010	7.2			0.79	
	0.9A - W35	4.6 ^{3.7}	2.7	C15010				0.66	
	0.9A - W45	7.8 ^{6.2}	4.8	C15012	8.2			0.99	
	0.9A - W50	9.7 ^{7.8}	5.9	C15012 C15019 C22010	11.5 11.8			0.89 0.55	
8 x 3 x 4m	1.2A + 1.6D	7.1 ^{5.7}	7.1	C15010 C15012	8.2			0.94	
	0.9A - W35	6.3 ^{5.0}	3.6	C15010	7.2			0.90	
	0.9A - W45	10.4 ^{8.3}	6.3	C15012 C15015 C22010	11.5 11.8			0.95 0.91	
	0.9A - W50	12.8 ^{10.2}	7.7	C15019 C22012	14.1			0.95	
8 x 3 x 5m	1.2A + 1.6D	8.7 ^{7.0}	8.8	C15010 C15019 C22010	11.5 11.8			0.84 0.78	
	0.9A - W35	7.6 ^{6.1}	4.5	C15010	8.2			0.96	
	0.9A - W45	13.0 ^{10.4}	7.8	C15019 C22012	14.1			0.96	
	0.9A - W50	16.0 ^{12.8}	9.6	C15010 C22019 NTB	20.2			0.85	
9 x 3 x 3m	1.2A + 1.6D	6.7 ^{5.4}	6.0	C15010	7.2			0.99	
	0.9A - W35	5.0 ^{4.0}	2.7	C15010	7.2			0.71	
	0.9A - W45	8.7 ^{7.0}	4.8	C15019 C15015 C22010	11.5 11.8			0.99 0.76	
	0.9A - W50	10.7 ^{8.6}	6.0	C15012 C15019 C22010	11.5 11.8			0.97 0.94	

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KNUZ JOINTS T.C.2

SPIN ORIENT HT & SPACING	LOAD CASE	M ⁺ 0.8M ⁺	N ⁺	SECTION	φM	φN _c	φNT	M ⁺ + N ⁺ φM + φN
9 x 3 x 4m	1.2G + 1.6Q	8.9	-8.0	C15015 C22010	7.7 11.8	100		0.80 0.59
	0.9G - W35	6.7	3.7	C15010 C15012	11.8 8.2			0.84
	0.9G - W45	11.6	6.5	C15019 C22012	14.1			0.87
	0.9G - W50	14.2	8.0	C15019 K/B				
9 x 3 x 5m	1.2G + 1.6Q	11.1	-9.9	C15015 C22012	14.1			0.82
	0.9G - W35	8.3	4.5	C15010 C22010	11.8			0.73
	0.9G - W45	14.2	7.8	C15019 K/B				
	0.9G - W50	17.5	9.7	C15010 K/B				
12 x 3 x 3m	1.2G + 1.6Q	12.1	-8.1	C15019 C22012	14.1			0.90
	0.9G - W35	6.4	3.0	C15010 C22010	11.8			0.58
	0.9G - W45	10.4	5.1	C15015 C22010	11.8			0.91
	0.9G - W50	13.4	6.5	C15019 C22012	14.1			1.00
12 x 3 x 4m	1.2G + 1.6Q	16.0	-10.7	C15010 K/B				
	0.9G - W35	8.5	3.9	C15010 -				
	0.9G - W45	14.4	6.8	C15019 -				
	0.9G - W50	17.6	8.5	C15010 -				
12 x 3 x 5m	1.2G + 1.6Q	20.0	-13.4	C15012 K/B				
	0.9G - W35	10.7	4.9	C15015 -				
	0.9G - W45	17.8	8.4	C15012 -				
	0.9G - W50	21.7	10.4	C15015 -				
9 x 4.8 x 3m	1.2G + 1.6Q	11.9	-8.0	C15019 C22012	14.1	19.1	20.2	0.89
	0.9G - W35	12.8	5.4	C15019 C22012	14.1			0.93
	0.9G - W45	22.2	9.4	C15015 K/B				
	0.9G - W50	27.1	11.4	C15019 K/B				
9 x 4.8 x 4m	1.2G + 1.6Q	15.7	-10.6	C15010 K/B				
	0.9G - W35	17.1	7.2	C15015 -				
	0.9G - W45	29.1	12.3	C15019 -				
	0.9G - W50	34.3	13.5	-				

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KINER 2012 T.C.2 0.6m²

SPAN OR WALL HT & SPACING	LOAD CASE	M*	N*	SBEITEN	ϕM	ϕN_c	ϕN_T	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
9 x 4.8 x 5m	1.2G+1.6Q	19.6	15.7	BC15012				
			-13.2	K/B				
	0.9G-W35	20.9	8.7	BC15015				
	0.9G-W45	35.7	15.0	-				
	0.9G-W50	44.3	18.6	-				
12 x 4.8 x 3m	1.2G+1.6Q	12.1	9.7	C15014				
			-5.1	C22012	14.1			0.90
	0.9G-W35	12.6	4.8	C15014				
			-4.8	C22012	14.1			0.92
	0.9G-W45	21.1	13.7	BC15010				
	0.9G-W50	26.0	16.5	BC15015				
12 x 4.8 x 4m	1.2G+1.6Q	15.9	12.7	BC15010				
			-10.7	K/B				
	0.9G-W35	17.1	6.8	BC15015				
			-5.2					
	0.9G-W45	27.8	10.7	BC15019				
	0.9G-W50	34.5	13.3	-				
12 x 4.8 x 5m	1.2G+1.6Q	19.9	15.9	BC15012				
			-13.4	K/B				
	0.9G-W35	20.6	10.8	BC15014				
			-10.1					
	0.9G-W45	34.5	13.3	-				
	0.9G-W50	42.6	16.4	-				
ADD KNBB SLABES TO 9m x 12m FRAMES								

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Apex JOINTS T-C-2

SPAN OR WALL HT & SPACING	LOAD CASE	M*	N*	SECTION	ϕM	ϕN_c	ϕN_T	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
6x3 x 3m	1.2G+1.6Q	2.5	0.9	C15010	7.2			
	W35	1.3	0.3					
	W45	2.2	0.5					
	W50	3.2	0.1					
6x3 x 4m	1.2G+1.6Q	3.1	-1.2	C15010	7.2			
	W35	1.59	0.3					
	W45	2.8	0.6					
	W50	3.4	0.8					
6x3 x 5m	1.2G+1.6Q	3.8	-1.5	C15010	7.2			
	W35	1.9	0.4					
	W45	3.4	0.7					
	W50	4.2	0.9					
8x3 x 3m	1.2G+1.6Q	3.5	-1.7	C15010	7.2			
	W35	1.5	0.5					
	W45	2.7	0.9					
	W50	3.4	1.1					
8x3 x 4m	1.2G+1.6Q	4.6	-2.3	C15010	7.2			
	W35	1.9	0.7					
	W45	3.5	1.1					
	W50	4.4	1.4					
8x3 x 5m	1.2G+1.6Q	5.8	-2.8	C15010	7.2			
	W35	2.5	0.8					
	W45	4.4	1.4					
	W50	5.4	1.7					
8x3 x 3m	1.2G+1.6Q	4.1	-2.2	C15010	7.2			
	W35	1.7	0.6					
	W45	3.0	1.1					
	W50	3.7	1.4					

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APPX JOINTS T.C-2

SPAN OR WALL HT & SPACING	LOAD CASE	M*	N*	SECTION	φM	φN _c	φN _T	$\frac{M^*}{φM} + \frac{N^*}{φN}$
9 x 3 x 4m	1.2G+1.6Q	5.4	-2.9	C15010	7.2			
	W35	2.3	0.8					
	W45	4.0	1.5					
	W50	4.9	1.8					
9 x 3 x 5m	1.2G+1.6Q	6.7	-3.6	C15010	7.2			
	W35	2.7	1.0					
	W45	4.8	1.8					
	W50	5.9	2.2					
12 x 3 x 3m	1.2G+1.6Q	5.8	3.9	C15010	7.2			
	W35	2.1	1.1					
	W45	4.1	1.6					
	W50	4.9	2.2					
12 x 3 x 4m	1.2G+1.6Q	7.7	5.1	C22010	11.8			
	W35	2.7	1.4					
	W45	5.1	2.3					
	W50	6.3	2.8					
12 x 3 x 5m	1.2G+1.6Q	9.6	6.4	C22010	11.8			
	W35	3.4	1.8					
	W45	6.2	2.8					
	W50	7.8	3.5					
9 x 4.8 x 3m	1.2G+1.6Q	8.2	-2.4	C22010	11.8			
	W35	4.5	0.7					
	W45	7.9	1.4					
	W50	9.8	1.7					
9 x 4.8 x 4m	1.2G+1.6Q	10.8	-3.2	C22012	14.1			
	W35	6.0	0.9					
	W45	10.6	1.8					
	W50	11.9	2.1					

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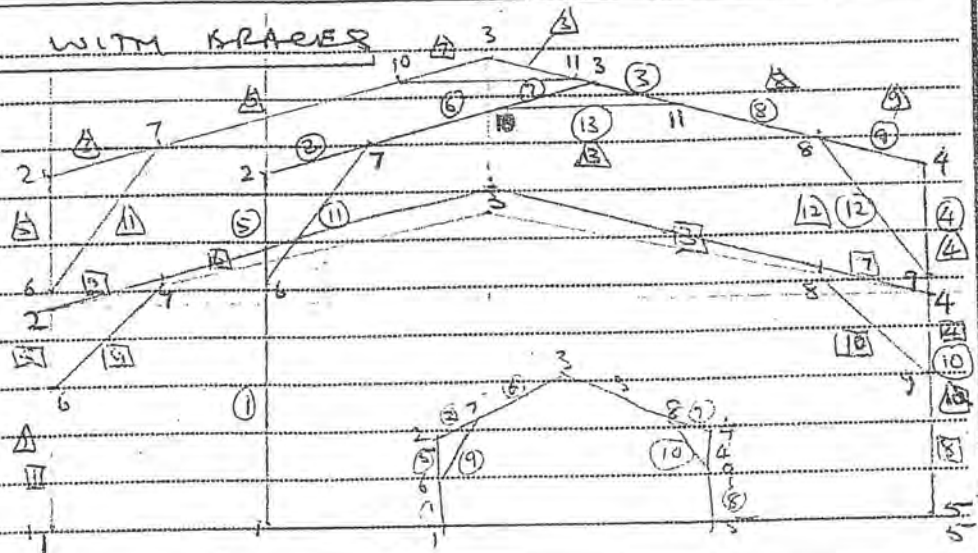
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ADDITIONAL JOINTS T.C.2

SPAN OR TOTAL HT & SPACING	LOAD CASE	M*	N*	SECTION	ΦM	ΦN _c	ΦNT	M* ΦM + N* ΦN
9 x 4.8 x 5m	1.2G + 1.6Q	13.5	-4.0	C22012	14.1			
	W _{SC}	7.3	1.1					
	W ₄₅	12.9	2.1					
	W ₅₀	16.0	2.7	A/B				
12 x 4.8 x 3m	1.2G + 1.6Q	8.3	-2.4	C22010	11.8			
	W ₃₅	4.1	0.7					
	W ₄₅	5.7	1.1					
	W ₅₀	6.6	1.2					
12 x 4.8 x 4m	1.2G + 1.6Q	11.0	-3.2	C22012	14.1			
	W ₃₅	7.1	1.3					
	W ₄₅	9.2	1.7					
	W ₅₀	11.3	2.1					
12 x 4.8 x 5m	1.2G + 1.6Q	13.7	-4.0	C22012	14.1			
	W ₃₅	8.7	1.6					
	W ₄₅	11.5	2.2					
	W ₅₀	14.0	2.6	A/B				

ROOF FRAMES WITH SPACES

NODES



NODE	WALL HT	FRAME SPAN	
		9	12
1	3.0	0.0	0.0
	4.8	0.0	0.0
2	3.0	0.3	0.3
	4.8	0.4.8	0.4.8
3	3.0	4.5, 4.2	6, 4.6
	4.8	4.5, 6.0	6, 6.4
4	3.0	9, 3	12, 3
	4.8	9, 4.8	12, 4.8
5	3.0	9, 0	12, 0
	4.8	9, 0	12, 0
6	3.0	0, 2	0, 2
	4.8	0, 3.3	0, 3.3
7	3.0	1.4, 3.4	1.4, 3.4
	4.8	1.4, 5.2	1.4, 5.2
8	3.0	7.6, 3.4	10.6, 3.4
	4.8	7.6, 5.2	10.6, 5.2
9	3.0	9, 2	12, 2
	4.8	9, 3.3	12, 3.3
10	3.0		
	4.8	3.2, 5.7	4.75, 6
11	3.0		
	4.8	5.8, 5.7	7.25, 6

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T.C.2

FRAME DESIGN WITH KNEE BRACES

SPAN OR WALL HT & SPACING	LOAD CASE	M* 10 ³ kNm	N* kN	SECTION	ϕM	ϕN	ϕNT	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
9x3 x 4m	0.94-WSD	12.7 ^{10.2}	8.0	C15019 C22012	14.1		20.2	0.94
9x3 x 5m	W45	12.7 ^{10.2}	7.8	C15019 C22012	14.1			0.94
	W50	15.6 ^{12.5}	9.7	BC15010 C22019	20.1			0.82
12x3 x 4m	1.24+1.60	12.2 ^{9.8}	-10.7	C15019 C22012	14.1	15.3		0.94
	W35	7.3 ^{5.8}	3.9	C15010 C22010	11.8			0.65
	W45	12.3 ^{9.8}	6.8	C15019 C22012	14.1			0.92
	W50	15.1 ^{12.1}	8.5	BC15010 C22015	15.9			0.99
12x3 x 5m	1.24+1.60	15.3 ^{12.2}	-13.4	BC15010 C22019	20.1			0.85
	W35	9.1 ^{7.3}	4.9	C15012 C22010	11.8			0.83
	W45	15.2 ^{12.2}	8.4	BC15010 C22019	20.1			1.00
	W50	18.5 ^{14.8}	10.4	BC15012 C22019	20.1			0.97
9x4.8 x 3m	W45	16.7 ^{13.3}	8.2	BC15012 C22019	20.1			0.87
	W50	20.5 ^{16.4}	10.0	BC15012 C22024	25.5			0.85
9x4.5 x 4m	1.24+1.60	7.6 ^{6.1}	-7.9	C15010 C22010	11.8			0.72
	W35	13.1 ^{10.5}	6.3	C15019 C22012	14.1			0.97
	W45	22.0 ^{17.6}	10.7	BC15015 C22024	25.5			0.90
	W50	26.4 ^{21.1}	12.0	BC15019 BC22012	28.3			0.99
9x4.5 x 5m	1.24+1.60	8.5 ^{6.8}	-9.9	C15010 C22010	11.8			0.90
	W35	16.1 ^{12.9}	7.6	BC15010 C22019	20.1			0.85
	W45	27.2 ^{21.8}	13.1	BC15019 BC22012	28.3			1.00
+ Apex Gable	W50	32.3 ^{25.8}	16.2	BC22019	40.3			0.84
12x4.5 x 4m	1.24+1.60	15.3 ^{10.6}	-10.7	C15019 C22012	14.1			1.00
	W35	15.8 ^{12.6}	6.5	BC15010 C22019	20.1			0.86
	W45	25.7 ^{20.6}	10.7	BC15019 BC22012	28.3			0.94
	W50	31.9 ^{25.5}	13.3	BC22019	40.3			0.84

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CHECK T.C. 3 MOMENTS & LOADS FROM T.C. 2

V		S35				S45				S50			
		3.0	3.6	4.2	4.8	3.0	3.6	4.2	4.8	3.0	3.6	4.2	4.8
WALL HT	h												
T.C. 2	q b/a	0.37	0.34	0.21	0.42	0.62	0.64	0.67	0.69	0.76	0.50	0.53	0.55
T.C. 3	q b/a	0.24	0.24	0.24	0.24	0.45	0.45	0.45	0.45	0.59	0.59	0.59	0.59
MULTIPLY	M* & N* X	0.78	0.74	0.71	0.69	0.77	0.75	0.72	0.70	0.78	0.74	0.71	0.69

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T.C.3

SPAN CONTAIN MT & SPACING	LOAD CASE	M*	N*	SECTION	ϕM	ϕN	ϕNT	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
6 x 3 x 3	C+Q	2.3	3.4	C15010				
	W35	3.0	2.2					
	W45	5.0	3.7					
	W50	8.2	4.5					
6 x 3 x 4	C+Q	2.9	4.1	C15010				
	W35	3.8	2.7	C15010				
	W45	6.6	4.8	C15010				
	W50	8.1 ^{6.5}	5.8	C15010 C22010				
6 x 3 x 5	C+Q	3.7	5.1	C15010				
	W35	4.8	3.4	C15010				
	W45	8.2 ^{6.0}	5.8	C15010 C22010				
	W50	10.1 ^{8.1}	7.2	C15012 C22010				
8 x 3 x 3	C+Q	4.1	4.1	C15010				
	W35	3.5	2.1	C15010				
	W45	6.0 ^{4.8}	3.7	C15010 C15012				
	W50	7.5 ^{6.0}	4.5	C15010 C22010				
8 x 3 x 4	C+Q	5.5	5.5	C15010				
	W35	4.8	2.8	C15010				
	W45	8.0 ^{6.4}	4.9	C15010 C22010				
	W50	9.9 ^{7.9}	5.9	C15012 C22010				
8 x 3 x 5	C+Q	6.7 ^{5.4}	6.8	C15010 C15012				
	W35	5.4	3.5	C15010				
	W45	10.0 ^{8.0}	6.0	C15012 C22010				
	W50	12.3 ^{9.8}	7.4	C15012 C22012				
9 x 3 x 3	C+Q	5.2	4.6	C15010				
	W35	3.9	2.1	C15010				
	W45	6.7 ^{5.4}	3.7	C15010 C15012				
	W50	8.2 ^{6.6}	4.6	C15010 C22010				

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KNEE JOINTS

T.C. 3

0.5m

SPAN AND ALL MT & SCHED	LOAD CASE	M [#]	N [#]	SECTION	φ _M	φ _{N_c}	φ _{N_t}	$\frac{M^*}{Q_m} + \frac{N^*}{Q_n}$
9 x 3 x 4	G+Q	6.9 ^{5.5}	6.2	C15010 C15012				
	W ₃₅	5.2	2.8	C15010				
	W ₄₅	8.9 ^{7.1}	5.8	C15012 C22010				
	W ₅₀	10.9 ^{8.7}	6.2	C15015 C22010				
9 x 3 x 5	G+Q	8.5 ^{6.8}	7.6	C15010 C22010				
	W ₃₅	6.4 ^{5.1}	3.5	C15010 C15012				
	W ₄₅	10.9 ^{8.7}	6.0	C15012 C22010				
	W ₅₀	13.5 ^{10.8}	7.5	C15019 C22012				
12 x 3 x 3	G+Q	9.3 ^{7.4}	6.2	C15012 C22010				
	W ₃₅	4.9	2.3	C15010				
	W ₄₅	8.0 ^{6.4}	3.9	C15010 C22010				
	W ₅₀	10.3 ^{8.2}	5.0	C15015 C22010				
12 x 3 x 4	G+Q	12.3 ^{9.8}	8.2	C15015 C22012				
	W ₃₅	6.5 ^{5.2}	3.0	C15010 C15012				
	W ₄₅	11.1 ^{8.9}	5.2	C15015 C22012				
	W ₅₀	13.6 ^{10.9}	6.5	C15019 C22015				
12 x 3 x 5	G+Q	15.4 ^{12.8}	10.3	BC15010 C22019				
	W ₃₅	8.2 ^{6.6}	3.8	C15010 C22010				
	W ₄₅	13.7 ^{11.0}	6.5	C15019 C22012				
	W ₅₀	16.7 ^{13.3}	8.0	BC15010 C22019				
9 x 4.8 x 3	G+Q	9.2 ^{7.4}	6.2	C15012 C22010				
	W ₃₅	9.9 ^{7.9}	4.2	C15015 C22010				
	W ₄₅	17.2 ^{13.8}	7.2	BC15010 C22019				
	W ₅₀	20.9 ^{16.7}	8.8	BC15015 BC22010				
9 x 4.8 x 4	G+Q	12.1 ^{9.7}	8.2	C15019 C22012				
	W ₃₅	13.2 ^{10.6}	5.5	C15019 C22015				
	W ₄₅	22.4 ^{17.9}	9.5	BC15015 BC22012				
	W ₅₀	26.4 ^{21.1}	10.4	BC15019 BC22012				

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T.C. 3

SPRINT CONTROL KIT W/SPRING	LEAD CASE	M [#]	N [#]	SECTION	ΦM	ΦN _c	ΦNT	M [#] + N [#] M [#] + N [#]
9x4.8x5	G+Q	15.1	12.1	BC15010 C22015				
	W35	16.1	12.9	BC15010 C22019				
	W45	27.5	22.0	BC15019 BC22012	X/13			
	W50	34.1	29.3	BC22019	X/12			
12x4.8x3	G+Q	9.3	7.4	C15012 C22010				
	W35	9.7	7.8	C15012 C22010				
	W45	13.2	10.6	C15019 C22012				
	W50	15.4	12.7	BC15010 C22019				
12x4.8x4	G+Q	12.2	9.6	C15019 C22012				
	W35	16.2	13.0	BC15010 C22019				
	W45	21.4	17.1	BC22010 C22024	BC15015			
	W50	26.6	21.2	BC15019 BC22012				
12x4.8x5	G+Q	15.3	12.2	BC15010 C22019				
	W35	20.0	16.0	BC22010 C22024	BC15015			
	W45	26.6	21.3	BC22012	BC15019			
	W50	32.8	26.3	BC22019				

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Apex joints T.C.3

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APEX SOUTS T.C.3

SPAN CONTROL HT & SLOPING	LOAD CASE	M*	N*	SECTION	φM	φN _c	φNT	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
9 x 3 x 4				C15010				
9 x 3 x 5				C15010				
12 x 3 x 3				C15010				
12 x 3 x 4	4+0	5.9	3.9	C15010				
	W35	2.8	1.4	C15010				
	W45	3.9	1.8	C15010				
	W50	4.9	2.2	C15010				
9 x 4.5 x 3		6.3	1.8	C15010				
		3.5	0.5	C15010				
		6.1	1.1	C15010				
		7.5	1.3	C15012				
9 x 4.5 x 4		8.3	2.5	C22010				
		4.6	0.7	C15010				
		8.2	1.4	C22010				
		9.2	1.6	C22010				
12 x 3 x 5		7.4	4.9	C15012				
		2.6	1.4	C15010				
		4.8	2.2	C15010				
		6.0	2.7	C15010				

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T.C.3

SPAN OR WALL HT & SPACING	LOAD CASE	M [#]	N [#]	SECTION	φ _M	φ _{N_c}	φ _{N_t}	$\frac{M^*}{M} + \frac{N^*}{N}$
9 x 4.8 x 5		10.4	3.1	C22010				
		5.6	0.8	C15012				
		9.9	1.6	C22010				
		12.3	2.1	C22012				
12 x 4.8 x 3		6.4	1.8	C15012				
		3.2	0.5	C15010				
		4.4	0.8	C15010				
		5.1	0.9	C15010				
12 x 4.8 x 4		8.5	2.5	C22010				
		5.5	1.0	C15010				
		7.1	1.3	C15012				
		8.7	1.6	C22010				
12 x 4.8 x 5		10.5	3.1	C22010				
		6.8	1.2	C15012				
		9.0	1.7	C22010				
		10.9	2.0	C22010				

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LOAD CASES

6 m SPAN

3.6 m WALL HT

T.C. 2

WIND	SSS					S4S					SSO				
BM STATIONS, S	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
(1.2G + 1.6Q)															
1.2(0.015 + $\frac{0.015}{1} + 0.01$)	1.24	1.50	1.71	2.13	2.56	1.24	1.50	1.71	2.13	2.56	1.24	1.50	1.71	2.13	2.56
+ 1.6 x 0.255	LC1	LC1A	LC2	LC2A	LC3	LC1	LC1A	LC2	LC2A	LC3	LC1	LC1A	LC2	LC2A	LC3
(0.9G - W)	$q = 0.39 \text{ kPa}$					$q = 0.64 \text{ kPa}$					$q = 0.80 \text{ kPa}$				
W/W 0.75q	0.82	0.96	1.09	1.37	1.64	1.32	1.57	1.79	2.26	2.69	1.68	1.96	2.24	2.80	3.36
W/V 0.9G Cpe	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
- CpG AF AF	0.96	0.94	0.91	0.89	0.89	0.96	0.94	0.91	0.89	0.89	0.96	0.94	0.91	0.89	0.89
	0.79	0.91	1.03	1.26	1.45	1.34	1.55	1.75	2.11	2.47	1.69	1.91	2.13	2.62	3.12
2x 0.9G - 0.55q AF	0.50	0.58	0.66	0.79	0.91	0.86	0.97	1.08	1.33	1.58	1.09	1.23	1.38	1.69	2.01
2x 0.25q	0.33	0.41	0.47	0.57	0.70	0.57	0.67	0.77	0.96	1.15	0.72	0.84	0.96	1.20	1.44
L.C.	4	13	22	5	14	23	6	15	24						

6 m SPAN

4.2 m WALL HT

T.C. 2

(1.2G + 1.6Q)															
1.2(0.015 + $\frac{0.015}{1} + 0.01$)	1.24	1.50	1.71	2.13	2.56	1.24	1.50	1.71	2.13	2.56	1.24	1.50	1.71	2.13	2.56
+ 1.6 x 0.255															
L.C.	1	2	3	1	2	3	1	2	3	1	2	3			
(0.9G - W)	$q = 0.4 \text{ kPa}$					$q = 0.67 \text{ kPa}$					$q = 0.83 \text{ kPa}$				
W/W 0.75q	0.86	1.00	1.15	1.44	1.72	1.41	1.64	1.88	2.35	2.81	1.74	2.03	2.32	2.91	3.49
W/V 0.9G Cpe	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
- CpG AF AF	0.96	0.94	0.91	0.89	0.89	0.96	0.94	0.91	0.89	0.89	0.96	0.94	0.91	0.89	0.89
	0.91	1.05	1.14	1.40	1.67	1.52	1.72	1.92	2.36	2.80	1.90	2.15	2.40	2.95	3.50
2x 0.9G - 0.55q AF	0.83	0.60	0.67	0.82	0.96	0.90	1.02	1.14	1.40	1.66	1.14	1.24	1.45	1.76	2.09
2x 0.25q	0.37	0.43	0.49	0.62	0.74	0.60	0.70	0.81	1.01	1.20	0.75	0.87	0.99	1.25	1.50
L.C.	7	16	25	8	17	26	9	18	27						

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LOAD CASES

6m SPAN

4:30 M while HT

T.C. - 2

WIND	S35					S45					S50				
RAM STRAINS, S	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
(1.2G + 1.6G)															
1/2(0.015 + 0.015 + 0.01)	1.29	1.50	1.71	2.13	2.56	1.29	1.50	1.71	2.13	2.56	1.29	1.50	1.71	2.13	2.56
+ 1.6 x 0.255															
L.C.	1		2		3	1		2		3	1		2		3
(0.9G - W)	$q = 0.42 \text{ kN}$					$q = 0.69 \text{ kN}$					$q = 0.85 \text{ kN}$				
W/W 0.75g	1.09	1.27	1.46	1.52	2.18	1.45	1.61	1.93	2.42	2.90	1.79	2.02	2.38	2.98	3.57
W/W 0.9G Cpe	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
- Cp G A/F A/F	0.96	0.96	0.91	0.89	0.89	0.96	0.96	0.91	0.89	0.89	0.96	0.96	0.91	0.89	0.89
	1.00	1.14	1.27	1.52	1.84	1.69	1.91	2.13	2.62	3.11	2.09	2.37	2.64	3.25	3.86
2x 0.9G - 0.55g A/R	0.24	0.61	0.65	0.84	1.00	0.93	1.06	1.18	1.45	1.71	1.16	1.32	1.47	1.80	2.14
2x 0.35g	0.47	0.84	0.63	0.78	0.93	0.62	0.72	0.83	1.04	1.24	0.77	0.89	1.02	1.28	1.53
L.C.	10		19		28	11		20		29	12		21		30

 ~~$\Delta \leq 0.22$~~

in white

T.C.

$(1.2G + 1.6Q)$
 $1.2(0.015 + \frac{0.015}{10.0}) + 1.6 \times 0.255$
 $(0.9G - W)$
 $W/W \quad 0.75g$
 $W/V \quad 0.9G \quad Cpe$
 $- Cpe \leq MF \quad MF$
 $W/V \quad 0.9G - 0.55g \quad MF$
 $Q/W \quad 0.25g$
 $L.C.$

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4:2 m with MT

255

6

pub

$$q = 0.59 \text{ kPa}$$

1.24	1.45	1.65
------	------	------

0.96	0.94	0.91
------	------	------

0.52	0.48	0.55
------	------	------

0.79	0.90	1.40
------	------	------

0.72	0.54	0.46
------	------	------

L. 5.

m. 10466-117

T. L.

416 Xu 255

$Q =$

- Cpqs A/T

L.C.

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SECTION	AREA mm ²	STRENGTH KN m		ALTERNATIVE SECTION
C15010	306	7.2		
C15012	367	8.2		
C22010	376	11.8		
C22012	451	14.1	B	BC15010
C15015	459	9.1		
C22015	564	15.1	B	BC15012
C15019	581	11.5		
BC15010	612	14.4	B	BC15010
C22019	714	19.1	B	
BC15012	734	16.4	B	BC15012
BC22010	752	23.6	B	BC22010
BC22012	902	28.2		
BC15015	918	18.2		
BC22015	1125	30.2		
BC15019	1162	23.0		
BC22019	1428	38.2		

C15010	306	7.2
C15012	367	8.2
C15015	459	9.1
C15019	581	11.5
BC15010	612	14.4
BC15012	734	16.4
BC15015	918	18.2
BC15019	1162	23.0



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TC 2

 0.8m²

SPAN CONTROL HT & SHTING	LOAD CASE	M*	N*	SECTION	φ _M	φ _N	φ _{NT}	M* + N* φ _M + φ _N
6 x 3.6 x 3m	1.2G+1.6Q	2.8	-4.0	C15010				
	W35	5.2 ^{4.2}	3.5	C15010				
	W45	8.6 ^{6.9}	5.8	C15012				
	W50	10.8 ^{8.6}	7.4	C22010 C15019	C15015			
6 x 3.6 x 4m	1.2G+1.6Q	3.7	-5.3	C15010				
	W35	6.9 ^{5.5}	4.6	C15010				
	W45	11.4 ^{9.1}	7.7	C22012 C15019	C15019			
	W50	14.2 ^{11.4}	9.5	BC15010				
6 x 3.6 x 5m	1.2G+1.6Q							
	W35							
	W45							
	W50							
6 x 3.6 x 6m	1.2G+1.6Q	5.6	-7.9	C15010				
	W35	10.2 ^{8.2}	6.6	C15015				
	W45	16.4 ^{13.5}	11.1	BC15010				
	W50	21.2 ^{17.0}	14.0	BC15015				
6 x 4.2 x 3m	1.2G+1.6Q	2.7	-4.0	C15010				
	W35	6.9 ^{5.5}	4.3	C15010				
	W45	11.4 ^{9.1}	7.2	C15019				
	W50	14.2 ^{11.4}	9.0	BC15010				
6 x 4.2 x 4m	G+Q	3.6	-5.3	C15010				
	W35	9.1 ^{7.3}	5.6	C15012				
	W45	15.1 ^{12.1}	9.3	BC15010				
	W50	18.6 ^{14.9}	11.5	BC15012				
6 x 4.2 x 6m	G+Q	5.4	-7.9	C15010				
	W35	13.6 ^{10.9}	8.2	C15019				
	W45	22.3 ^{17.8}	13.7	BC15015				
	W50	27.8 ^{22.2}	17.1	BC15019				

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TC 2

0.8m*

SPAN OR WALL HT & SPACING	LOAD CASE	M*	N*	SECTION	ϕM	ϕN_c	ϕN_T	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
6 x 4.6 x 3m	C+D	2.6	4.0	C15010				
	W15	10.5 ^{8.4}	5.7	C15015				
	W45	14.5 ^{11.6}	8.6	RC15010				
	W50	17.9 ^{14.3}	10.7	RC15012				
4m	C+D	3.4	5.3	C15010				
	W35	13.1 ^{11.1}	7.5	C15014				
	W45	19.1 ^{15.3}	11.2	RC15012				
	W50	23.5 ^{18.8}	13.8	RC15014				
5m	C+D							
	W35							
	W45							
	W50							
6m	C+D	5.2	7.9	C15010				
	W35	20.6 ^{16.5}	11.0	RC15015				
	W45	28.5 ^{22.8}	16.5	RC15014				
	W50	35.2 ^{28.2}	20.4	-				

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TC 3

PRER PCB 39

SPAN OR WALL HT & SPACING	LOAD CASE	M ₁ & M ₂	B _M N*	SECTION	Φ _M	Φ _{N_c}	Φ _{NT}	M ₁ & M ₂ EN
6 x 3.6 x 3m	W35	3.8		C15010				
	W45	6.4		C15010				
	W50	8.0		C15012				
6 x 3.6 x 4m	W35	5.1		C15010				
	W45	6.7		C15010				
	W50	8.4		C15015				
6 x 3.6 x 6m	W35	6.1		C15010				
	W45	10.0		C15015				
	W50	12.6		C15019				
6 x 4.2 x 3m	W35	4.9		C15010				
	W45	6.5		C15010				
	W50	8.1		C15012				
6 x 4.2 x 4m	W35	5.2		C15010				
	W45	8.6		C15015				
	W50	10.6		C15015				
6 x 4.2 x 6m	W35	7.7		C15012				
	W45	12.6		C15019				
	W50	15.7		C15010				
6 x 4.8 x 3m	W35	5.8		C15010				
	W45	8.0		C15012				
	W50	9.8		C15015				
6 x 4.8 x 4m	W35	7.6		C15010				
	W45	10.5		C15012				
	W50	13.0		C15015				
6 x 4.8 x 6m	W35	11.4		C15019				
	W45	15.7		C15010				
	W50	19.4		C15012				

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T.C.2

0.8M*

SPAN CONTROL MT & SPACING	LOAD CASE	M*	N*	SECTION	ϕM	ϕN	ϕNT	$\frac{M^*}{\phi M} + \frac{N^*}{\phi N}$
8 x 3.6 x 3	L+Q	5.2 ^{4.0}		C15010				
	W35	6.5 ^{2.8} 5.2		C15010				
	W45	10.8 ^{4.7} 8.6		C15015				
	W50	13.6 ^{5.7} 10.9		C15019				
8 x 3.6 x 4	L+Q	6.9 ^{3.2} 5.5		C15010				
	W35	8.6 ^{3.7} 6.9		C15010				
	W45	14.2 ^{6.1} 11.4		RC15010				
	W50	17.7 ^{7.7} 14.2		RC15012				
8 x 3.6 x 6	L+Q	10.4 ^{4.4} 8.3		C15015				
	W35	12.5 ^{5.4} 10.0		C15019				
	W45	20.9 ^{9.0} 16.7		RC15015				
	W50	26.3 ^{11.4} 21.0		RC15019				
T.C.3								
8 x 3.6 x 3	L+Q	3.8		C15010				
	W35	3.8		C15010				
<u>T.C.2 x 0.74</u>	W45	6.4		C15010				
	W50	8.1		C15015				
8 x 3.6 x 4	L+Q	4.1		C15010				
	W35	6.4		C15010				
	W45	8.4		C15015				
	W50	10.5		C15019				
8 x 3.6 x 6	L+Q	7.7		C15012				
	W35	9.3		C15019				
	W45	15.5		RC15012				
	W50	19.5		RC15019				

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F.C. 2

0.5 M*

SPAN OR WALL HT & SPACING	LOAD CASE	M*	N*	SHEAR	ΦM	ΦN	ΦNT	$\frac{M^*}{M} + \frac{N^*}{N}$
8 x 4.2 x 3m	A4Q	4.3 5.1						
	W35	5.8 8.4 6.7						
	W45	6.2 13.6 11.0						
	W50	7.7 17.2 13.8						
8 x 4.2 x 4m	A4Q	5.5 6.8						
	W35	5.0 10.9 5.7						
	W45	6.2 16.1 14.5						
	W50	10.1 22.4 17.3						
8 x 4.2 x 6m	A4Q	8.5 10.1 8.1						
	W35	7.5 16.2 13.0						
	W45	12.1 26.6 21.4						
	W50	15.2 33.2 26.7						
8 x 4.8 x 3m	A4Q	4.6 5.0						
	W35	6.2 12.0 9.6						
	W45	8.1 17.1 13.7						
	W50	10.1 21.1 16.3						
8 x 4.8 x 4m	A4Q	6.1 6.6						
	W35	8.3 15.4 12.7						
	W45	10.8 22.4 17.9						
	W50	13.3 27.8 22.2						
8 x 4.8 x 6m	A4Q	9.1 9.9 9.5						
	W35	11.5 23.5 18.8						
	W45	16.2 33.3 26.6						
	W50	20.0 41.2 33.0						

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T.C. 3

SPAN CONTINUOUS WITH SPACING	LOAD CASE	M [*]	N [*]	SECTION	ΦM	ΦN _c	ΦNT	N [*] / ΦM + N [*] / ΦN
8 x 4.2 x 3	C+Q	3.6						
	W35	4.6						
T.C. 2 x 0.71	W45	7.8						
	W50	9.8						
8 x 4.2 x 4	C+Q	4.8						
	W35	6.2						
	W45	10.3						
	W50	12.7						
8 x 4.2 x 6	C+Q	5.8						
	W35	9.2						
	W45	15.2						
	W50	19.0						
8 x 4.8 x 3	C+Q	3.6						
	W35	6.8						
T.C. 2 x 0.70	W45	9.7						
	W50	12.0						
8 x 4.8 x 4	C+Q	4.7						
	W35	9.0						
	W45	12.7						
	W50	15.8						
8 x 4.8 x 6	C+Q	6.8						
	W35	13.3						
	W45	18.9						
	W50	23.4						

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LOAD CASES

10m SPAN

$\frac{1}{4} \sim 2\text{ m}$ wall HT

T.C.

[illegible]

T. L.

10 Mr SOAN

48 m wall HT

[illegible]

LOAD CASES

3 m SPAN

3.6 m WALL HT

T.C. 2

WINDS

S35

S45

S50

AW SP/REINGS, S

3

3.5

4

5

6

3

3.5

4

5

6

(1.2G + 1.6Q)

1.2(0.015 + 0.015 + 0.02)

1.29

1.71

2.56

1.29

1.71

2.56

1.29

1.71

2.56

+1.6x0.25S

already done

(0.9G - W)

$q = 0.39$

$q = 0.64$

$q = 0.80$

w/w 0.75q

0.82

1.09

1.64

1.34

1.79

2.69

1.68

2.24

3.36

w/v 0.9G Cpe

-Cpqs A/F A/F

0.79

1.03

1.45

1.34

1.75

2.47

1.69

2.13

3.12

q/v 0.9G - 0.55q A/F

0.5

0.66

0.91

0.86

1.08

1.55

1.49

1.35

2.01

q/v 0.25q

0.55

0.47

0.70

0.57

0.77

1.15

0.72

0.96

1.44

L.C.

3 m SPAN

4.2 m WALL HT

T.C. 2

(1.2G + 1.6Q)

1.2(0.015 + 0.015 + 0.02)

1.29

1.71

2.56

1.29

1.71

2.56

1.29

1.71

2.56

+1.6x0.25S

(0.9G - W)

$q = 0.41$

$q = 0.67$

$q = 0.83$

w/w 0.75q

0.86

1.15

1.72

1.41

1.88

2.81

1.74

2.32

3.49

w/v 0.9G Cpe

-Cpqs A/F A/F

0.91

1.14

1.67

1.52

1.92

2.80

1.90

2.40

3.50

q/v 0.9G - 0.55q A/F

0.53

0.67

0.96

0.90

1.14

1.66

1.14

1.43

2.09

q/v 0.25q

0.57

0.49

0.76

0.60

0.81

1.20

0.75

0.94

1.50

L.C.

page

60

4:2 M. while HT

[illegible]

42 m wall HT

$(1.2G + 1.6Q)$
 $1.2(0.015 + \frac{0.015}{10.0})$
 $+ 1.6 \times 0.255$

 $(0.9G - W)$ $f =$ $L =$ $q =$
 $w/w \quad 0.75q$
 $w/r \quad 0.9G \quad Cpe$
 $- Cpe \leq AF \quad AF$

 $q/r \quad 0.9G - 0.55q \quad AF$
 $q/w \quad 0.25q$
 $L.C.$

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LOTO CASES

3.5m SPAN

王峰 M while HT

TC-2

[illegible]

3.5 M SPM 30 m water HT

T.C.2

[illegible]

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T.C.2

20% DISCOUNTS

SPAN x WALL HT x SPACING	LOAD CASE	M*	0.8M*	N*	SECTION	φM	φN	$\frac{M^*}{φM} + \frac{N^*}{φN}$
3.5 x 2.4 x 3	CHP	0.9 ^{0.9}		-2.3				
	W ₃₅	2.1 ^{0.6}	1.7	2.3				
	W ₄₅	2.8 ^{0.8}	2.4	3.1				
	W ₅₀	4.2 ^{1.2}	3.2	4.7				
3.5 x 2.4 x 4	CHP	1.2 ^{1.2}		-3.1				
	35	3.5 ^{1.1}	2.8	4.0				
	45	4.7 ^{1.4}	3.7	5.3				
	50	7.0 ^{2.1}	5.6	7.7				
3.5 x 2.4 x 6	CHP	1.8 ^{1.8}		-4.6				
	35	4.4 ^{1.3}	3.5	4.9				
	45	5.2 ^{1.8}	4.6	6.6				
	50	8.5 ^{2.6}	6.9	9.5				
3.5 x 3.0 x 3	CHP	0.8 ^{1.0}		-2.3				
	35	2.9 ^{0.8}	2.3	3.0				
	45	5.0 ^{1.2}	4.0	5.0				
	50	6.1 ^{1.6}	4.9	6.2				
3.5 x 3.0 x 4	CHP	1.2 ^{1.4}		-3.1				
	35	4.0 ^{1.0}	3.2	4.0				
	45	6.7 ^{1.8}	5.4	6.7				
	50	8.2 ^{2.2}	6.6	8.2				
3.5 x 3.0 x 6	CHP	1.7 ^{2.1}		-4.6				
	35	5.9 ^{1.6}	4.7	5.9				
	45	10.0 ^{2.7}	8.0	10.0				
	50	12.2 ^{3.3}	9.8	12.4				

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LOAD CASES

3.5 M SPAN

2.8 M WALL HT

T.C.

WIND

535

545

550

BM SRAINGS, S

3

3.5

4

5

6

3

3.5

4

5

6

3

3.5

4

5

6

(1.2G + 1.6Q)

1.2(0.015 + 0.015 + 0.01)

+ 1.6 x 0.255

(0.9G - W)

$q = 0.42$

$q = 0.69$

$q = 0.85$

W/W 0.75q

W/W 0.9G

Cpe

- Cp q s A/F A/F

El 0.9G - 0.55q A/F

El 0.25q

L.C.

M SPAN

m WALL HT

T.C.

(1.2G + 1.6Q)

1.2(0.015 + 0.015 + 0.01)

+ 1.6 x 0.255

(0.9G - W)

$q =$

$q =$

$q =$

W/W 0.75q

W/W 0.9G

Cpe

- Cp q s A/F A/F

El 0.9G - 0.55q A/F

El 0.25q

L.C.

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job

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T.C.

20% RESISTANCE

SPAN x WALL HT x SPACING	LOAD CASE	M [*]	O.S.M [*]	N [*]	SECTION	φM	φN	M [*] / φM + N [*] / φN
3.5 x 4.8 x 3	G+Q	0.7 ^{1.2}		-2.3				
	35	7.5 ^{1.4}	6.0	6.0				
	45	12.4 ^{2.4}	9.9	10.0				
	50	15.3 ^{2.9}	12.2	12.4				
3.5 x 4.8 x 4	G+Q	0.9 ^{1.6}		-3.1				
	35	10.1 ^{1.9}	8.1	8.0				
	45	16.5 ^{2.1}	13.2	13.2				
	50	20.4 ^{2.8}	16.3	16.4				
3.5 x 4.8 x 6	G+Q	1.4 ^{2.5}		-4.6				
	35	14.9 ^{2.7}	11.9	11.8				
	45	26.1 ^{3.0}	16.7	19.6				
	50	30.6 ^{3.7}	21.5	24.1				

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CHREX

LOAD CASES

12 m SPAN

3.0 m WALL HT

T.C. 2

WINDS

SSS

SSS

SSS

WIND SPEEDS, S

3

3.5

4

5

6

3

3.5

4

5

6

3

3.5

4

5

6

(1.2G + 1.6Q)

1.2(0.015 + 0.015 + 0.00) + 0.00

-1.31

-1.73

-2.58

+1.6 x 0.25 S

(0.9G - W)

$q = 0.37 \text{ kPa}$

$q = 0.62$

$q = 0.76$

W/W 0.75 q

0.78

1.02

1.55

1.50

1.74

2.60

1.60

2.13

3.19

W/r 0.9G Cpe

0.50

0.50

0.50

0.50

0.50

0.50

0.50

0.50

0.50

-Cp q s A/F A/F

0.89

0.86

0.83

0.89

0.86

0.83

0.89

0.86

0.83

q/r 0.9G - 0.55 q A/F

0.41

0.34

0.29

0.25

0.47

1.41

0.93

1.21

1.76

q/r 0.75 q

0.33

0.45

0.76

0.56

0.75

1.11

0.69

0.91

1.57

L.C.

12 m SPAN

4.8 m WALL HT

T.C. 2

(1.2G + 1.6Q)

1.2(0.015 + 0.015 + 0.00) + 0.00

-1.31

-1.73

-2.58

+1.6 x 0.25 S

(0.9G - W)

$q = 0.42 \text{ kPa}$

$q = 0.69$

$q = 0.85$

W/W 0.75 q

0.88

1.18

1.76

1.45

1.93

2.90

1.79

2.38

3.57

W/r 0.9G Cpe

0.50

0.50

0.50

0.50

0.50

0.50

0.50

0.50

0.50

-Cp q s A/F A/F

0.89

0.86

0.83

0.89

0.86

0.83

0.89

0.86

0.83

q/r 0.9G - 0.55 q A/F

0.41

0.34

0.29

0.25

0.47

1.41

0.93

1.21

1.76

q/r 0.75 q

0.33

0.45

0.76

0.56

0.75

1.11

0.69

0.91

1.57

L.C.

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CHECK

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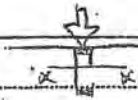
T.C. 2

20% REDUCTIONS

SPAN x WALL HT x SPRING	LOAD CASE	M*	O.E.M.*	N*	SECTION	φM	φN	M* φM	N* φN
12 x 3 x 3	C+R	12.1 ^{5.8}	9.7	-8.1					
	W35	6.5 ^{2.1}	5.1	3.0					
	W45	10.4 ^{4.1}	8.3	5.1					
	W50	13.5 ^{4.9}	10.7	6.5					
12 x 3 x 4	C+R	16.0 ^{7.7}	12.8	-10.7					
	W35	8.6 ^{2.7}	6.8	3.9					
	W45	14.4 ^{5.1}	11.5	6.8					
	W50	17.6 ^{6.3}	14.1	8.5					
12 x 3 x 6	C+R	23.9 ^{11.4}	19.1	-16.0					
	W35	12.9 ^{4.3}	10.3	5.9					
	W45	21.3 ^{7.5}	17.0	10.1					
	W50	26.1 ^{9.3}	22.9	12.5					
12 x 4.8 x 3	C+R	12.1 ^{8.3}	9.7	-8.1					
	W35	12.6 ^{4.1}	10.1	4.8					
	W45	17.1 ^{5.7}	13.7	6.5					
	W50	22.6 ^{6.6}	16.5	7.8					
12 x 4.8 x 4	C+R	15.4 ^{11.0}	12.7	-10.7					
	W35	21.1 ^{7.1}	16.9	8.2					
	W45	27.8 ^{9.2}	22.2	10.7					
	W50	34.6 ^{11.3}	27.7	13.3					
12 x 4.8 x 6	C+R	23.9 ^{16.4}	19.1	-16.1					
	W35	31.2 ^{10.24}	25.0	12.1					
	W45	41.5 ^{12.8}	33.2	16.0					
	W50	51.1 ^{16.8}	40.9	19.7					

END WALL POSTS

T.C. 2



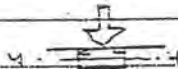
$$M^* = \frac{C_{wL} L^2}{8}$$

CENTRE POST

		2.4						2.7					
SPAN	WIDTH	POST	SSS		SAS		SSD	POST	SSS		SAS		SSD
		HT.	C _g 0.73		C _g 0.58		C _g 0.72	HT.	C _g 0.35		C _g 0.60		C _g 0.74
m	m	m	M*	SECT.	M*	SECT.	M*	SECT.	m	M*	SECT.	M*	SECT.
3.5	1.75	2.9	0.61	C8070	1.07	C8070	1.33	C8070	3.2	0.78	C8070	1.34	C8070
4	2	3.0	0.74	"	1.30	"	1.61	C8080	3.3	0.95	"	1.63	C8080
5	2.5	3.1	1.00	"	1.76	RC8070	2.18	RC8070	3.4	1.26	"	2.16	RC8070
6	3	3.2	1.27	"	2.23	"	2.77	"	3.5	1.61	C8080	2.76	"
7	3.5	3.3	1.57	C8080	2.76	"	3.43	C10	3.6	1.98	RC8070	3.39	C10
8	2	3.5	1.01	C8070	1.31	C8070	1.63	C8080	3.7	1.20	C8070	2.06	RC8070
9	2.5	3.6	1.23	"	1.60	C8080	1.99	RC8070	3.9	1.53	C8075	2.62	"
10	2.5	3.7	1.41	"	1.83	RC8070	2.28	"	4.0	1.75	RC8070	3.00	RC8075
11	2.75	3.9	1.73	RC8070	2.25	"	2.79	"	4.1	2.02	"	3.46	C10
12	3	4.0	1.98	"	2.57	"	3.20	RC8080	4.3	2.43	"	4.17	"

CENTRE POST

T.C. 2



		2.4						2.7					
SPAN	WIDTH	POST	SSS		SAS		SSD	POST	SSS		SAS		SSD
		HT.	C _g 0.73		C _g 0.58		C _g 0.72	HT.	C _g 0.35		C _g 0.60		C _g 0.74
m	m	m	M*	SECT.	M*	SECT.	M*	SECT.	m	M*	SECT.	M*	SECT.
3.5	1.75	2.9	0.61	C8070	1.07	RC8070	1.33	RC8080		0.78	C8075	1.34	RC8075
4	2	3.0	0.74	C8070	1.30	RC8075	1.61	C15010		0.95	RC8070	1.63	C15010
5	2.5	3.1	1.00	RC8070	1.76	C15010	2.18	C15010		1.26	RC8070	2.16	C15010
6	3	3.2	1.27	RC8070	2.23	C15010	2.77	C15010		1.61	C15010	2.76	C15010
7	3.5	3.3	1.57	C15010	2.76	C15010	3.43	C15012		1.98	C15010	3.39	C15012
8	2	3.5	1.01	RC8070	1.31	RC8075	1.63	C15010		1.20	RC8070	2.06	C15010
9	2.5	3.6	1.23	RC8070	1.60	C15010	1.99	C15010		1.53	C15010	2.62	C15010
10	2.5	3.7	1.41	C15010	1.83	C15010	2.28	C15010		1.75	C15010	3.00	C15012
11	2.75	3.9	1.73	C15010	2.25	C15010	2.79	C15010		2.02	C15010	3.46	C15012
12	3	4.0	1.98	C15010	2.57	C15010	3.20	C15012		2.43	C15010	4.17	C15015

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END WALL POSTS

T.C. 2



$$M^* = \frac{C_g W L^2}{8}$$

CENTRE POST

		TRAILER		3.0						3.6					
SPAN	WIDTH	POST	SSS		S45		SSD		POST	SSS		S45		SSD	
		HT.	C _g	0.37	C _g	0.62	C _g	0.76	HT	C _g	0.39	C _g	0.64	C _g	0.80
m	W	H _e	M*	SECT.	M*	SECT.	M*	SECT.		M*	SECT.	M*	SECT.	M*	SECT.
3.5	1.75	3.5	0.99	BC8070	1.66	BC8080	2.03	BC8070	4.1	1.43	BC8070	2.35	BC8070	2.93	BC8075
4	2	3.6	1.20	"	2.01	BC8070	2.46	"	4.2	1.72	BC8070	2.82	"	3.53	C10
5	2.5	3.7	1.58	BC8080	2.65	"	3.25	BC8080	4.3	2.25	"	3.69	C10	4.62	"
6	3	3.8	2.00	BC8070	3.35	C10	4.11	C10	4.4	2.83	"	4.64	"	5.81	"
7	3.5	3.9	2.46	"	4.12	"	5.05	"	4.5	3.26	C10	5.68	"	7.10	"
8	2	4.0	1.48	BC8070	2.48	BC8070	3.04	BC8080	4.6	2.06	BC8070	3.38	"	4.23	"
9	2.3	4.2	1.58	BC8070	3.15	BC8080	3.65	C10	4.8	2.58	"	4.23	"	5.29	"
10	2.5	4.3	2.14	"	3.59	C10	4.60	"	4.9	2.93	BC8075	4.61	"	6.01	"
11	3.75	4.4	2.46	"	4.13	"	"	"	5.0	3.35	C10	5.50	"	6.87	"
12	3	4.6	2.94	BC8075	4.92	"	5.03	"	5.2	3.95	"	6.48	"	8.10	C12

CENTRE POST

TC 2

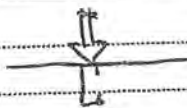


		3.0						3.6					
SPAN		SSS		S45		SSD		SSS		S45		SSD	
3.5			BC8070		C10		C10		C10		C10		C10
4			BC8070		C10		C10		C10		C10		C12
5			C10		C10		C12		C10		C15		C19
6			C10		C12		C15		C10		C19		BC10
7			C10		C15		C19		C12		C19		BC12
8			C10		C10		C12		C10		C12		C15
9			C10		C12		C15		C10		C15		C19
10			C10		C12		C15		C10		C19		BC10
11			C10		C15		C19		C12		C19		BC10
12			C10		C19		BC10		C15		BC10		BC15

page

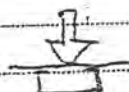
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T.C.



$$M^* = \frac{C_p \omega h^2}{8}$$

QUARTER POSTS

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END WALL POSTS
CENTRAL POST

T.C. 2

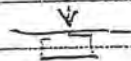


$$MT = \frac{C_{wL} L^2}{8}$$

4.2										4.8					
SPAN	WIDTH	POST	SSS		SAS		SSD		POST	SSS		SAS		SSD	
		MT.	C _w	0.41	C _w	0.67	C _w	0.83	MT	C _w	0.42	C _w	0.69	C _w	0.85
m	w	h _e	MT*	SECT.	MT*	SECT.	MT*	SECT.		MT*	SECT.	MT*	SECT.	MT*	SECT.
3.5	1.75	4.7	1.98	BC8070	3.24	BC8080	4.01	C10	5.3	2.58	BC8070	4.24	C10	5.22	C10
4	2	4.8	2.36	"	3.86	C10	4.78	"	5.4	3.06	BC8075	5.03	"	6.19	"
5	2.5	4.9	3.08	BC8075	5.03	"	6.22	"	5.5	3.97	C10	6.52	"	8.03	C12
6	3	5.0	3.84	C10	6.28	"	7.77	C12	5.6	4.94	"	8.12	C12	10.00	C14
7	3.5	5.1	4.67	"	7.63	C12	9.45	C15	5.7	5.97	"	9.81	C14	12.08	BC10
8	2	5.2	2.77	BC8070	4.53	C10	5.61	C10	5.8	3.53	"	5.20	C10	7.74	C10
9	2.3	5.4	3.44	C10	5.62	"	6.46	"	6.0	4.35	"	7.15	"	8.90	C15
10	2.5	5.5	3.88	"	6.34	"	7.25	C12	6.1	4.88	"	8.02	C12	9.88	C14
11	2.75	5.6	4.42	"	7.22	"	8.95	C15	6.2	5.55	"	9.12	C15	11.23	"
12	3	5.8	5.17	"	8.45	C15	10.47	C14	6.4	6.45	"	10.60	C14	13.05	BC10

CENTRAL POST

T.C. 2



4.2						4.8			
SPAN		SSS	SAS	SSD		SSS	SAS	SSD	
3.5		C10	C12	C15		C10	C15	C14	
4		C10	C15	C14		C12	C14	BC10	
5		C12	C14	BC10		C15	BC10	BC15	
6		C15	BC10	BC15		C14	BC15	BC14	
7		C14	BC15	BC14		BC10	BC14	—	
8		C10	C14	C14		C12	BC10	BC12	
9		C12	C14	BC12		C15	BC12	BC15	
10		C15	BC10	BC15		C14	BC15	BC14	
11		C15	BC12	BC14		C14	BC14	—	
12		C14	BC15	BC14		BC10	BC14	—	

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END WALL POSTS
CENTRE POST

T.C. 3

$C(0.740.5) = 1.0$

$$MT = \frac{C_{wL} L^2}{8}$$

		2.4								2.7							
SPAN	WIDTH	POST	SSS		S45		SSD		POST	SSS		S45		SSD			
		HT.	C _L	0.24	C _L	0.48	C _L	0.74	MT	C _L	0.24	C _L	0.48	C _L	0.74		
m	W	h _L	M*	SECT.	M*	SECT.	M*	SECT.		M*	SECT.	M*	SECT.	M*	SECT.		
3.5	1.75	2.9	0.53	C8070	0.88	C8070	1.08	C8070	3.2	0.65	C8070	1.08	C8070	1.32	C8070		
4	2	3.0	0.65	"	1.08	"	1.62	"	3.3	0.79	"	1.31	"	1.61	C8080		
5	2.5	3.1	0.87	"	1.44	"	1.77	BC8070	3.4	1.05	"	1.74	BC8070	2.14	BC8070		
6	3	3.2	1.11	"	1.84	BC8070	2.26	"	3.5	1.33	"	2.20	"	2.71	"		
7	3.5	3.3	1.38	"	2.28	"	2.81	"	3.6	1.64	C8080	2.71	"	3.64	C10		
8	2	3.5	0.89	"	1.47	C8075	1.81	BC8070	3.7	0.94	C8070	1.64	"	2.01	BC8070		
9	2.3	3.6	1.08	"	1.79	BC8070	2.20	"	3.9	1.27	"	2.10	"	2.58	"		
10	2.5	3.7	1.24	"	2.05	"	2.52	"	4.0	1.45	"	2.20	"	2.95	BC8075		
11	2.75	3.8	1.52	C8075	2.52	"	3.04	BC8075	4.1	1.68	C8080	2.78	"	3.42	C10		
12	3	4.0	1.74	BC8070	2.88	"	3.54	C10	4.3	2.01	BC8070	3.33	C10	4.09	"		

CENTRE POST

T.C. 3

		2.4				2.7			
SPAN		SSS		S45		SSD		SSS	
3.5		C8070		C8080		BC8070		C8070	
4		C8070		BC8070		BC8075		C8075	
5		C8080		C10		C10		BC8070	
6		BC8070		C10		C10		BC8075	
7		BC8080		C10		C10		C10	
8		C8080		C10		C10		BC8070	
9		BC8070		C10		C10		BC8070	
10		BC8070		C10		C10		C10	
11		C10		C10		C12		C10	
12		C10		C10		C12		C10	

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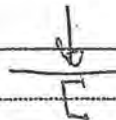
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END WALL POSTS
CENTRE POST

T.C. 3

MT = $\frac{C_{WLT2}}{8}$

		3.0								3.6							
SPAN	WIDTH	POST	S35		S45		SSD		POST	S35		S45		SSD			
		MT	C ₁ 0.29		C ₉ 0.48		C ₉ 0.59		MT	C ₂ 0.29		C ₂ 0.48		C ₉ 0.59			
m	W	h ₂	MT	SECT.	MT	SECT.	MT	SECT.		MT	SECT.	MT	SECT.	MT	SECT.		
3.5	1.75	3.5	0.78	CB070	1.29	CB070	1.59	CB080	4.1	1.07	CB070	1.77	CB070	2.18	CB070		
4	2	3.6	0.94	"	1.58	CB075	1.91	CB070	4.2	1.28	"	2.12	"	2.60	"		
5	2.5	3.7	1.20	"	2.05	CB070	2.52	"	4.3	1.68	CB080	2.78	"	3.42	C10		
6	3	3.8	1.57	CB080	2.60	"	3.19	CB080	4.4	2.11	CB070	3.49	C10	4.29	"		
7	3.5	3.9	1.93	CB070	3.19	CB080	3.93	C10	4.5	2.57	"	4.25	"	5.25	"		
8	2	4.0	1.16	CB070	1.92	CB070	2.36	CB070	4.6	1.16	CB070	1.92	CB070	2.35	CB070		
9	2.3	4.2	1.47	"	2.43	CB070	2.99	CB075	4.8	1.92	CB070	3.18	CB080	3.91	C10		
10	2.5	4.3	1.68	CB080	2.78	"	3.42	C10	4.9	2.18	"	3.61	C10	4.44	"		
11	2.75	4.4	1.93	CB070	3.19	CB080	3.93	"	5.0	2.49	"	4.12	"	5.07	"		
12	3	4.6	2.30	"	3.81	C10	4.68	"	5.2	2.94	CB075	4.87	"	5.98	"		

CENTRE POST

T.C. 3



		3.0			3.6		
SPAN		S35	S45	SSD	S35	S45	SSD
3.5		CB075	CB070	C10	CB070	C10	C10
4		CB070	C10	C10	CB070	C10	C10
5		CB070	C10	C10	C10	C10	C12
6		C10	C10	C12	C10	C12	C15
7		C10	C12	C15	C10	C15	C19
8		CB070	C10	C10	CB070	C10	C10
9		C10	C10	C10	C10	C12	C12
10		C10	C10	C12	C10	C15	C15
11		C10	C12	C15	C10	C15	C19
12		C10	C12	C19	C10	C19	CB10

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END WALL POSTS
CENTER POST

T.C. 3

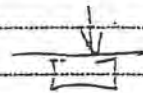


$$M^* = \frac{C_g W L^2}{8}$$

		4.2								4.8							
SPAN	WIDTH	POST	SSS		S45		SSD		POST	SSS		S45		SSD			
		HT.	C _g	0.24	C _g	0.48	C _g	0.54	HT	C _g	0.24	C _g	0.48	C _g	0.54		
m	W	H _e	M*	FEET	M*	FEET	M*	FEET		M*	FEET	M*	FEET	M*	FEET		
3.5	1.75	4.7	1.40	BC8070	2.32	BC8070	2.85	BC8070	5.3	1.78	BC8070	2.95	BC8075	3.62	C10		
4	2	4.8	1.67	BC8080	2.76	"	3.40	C10	5.4	2.11	"	3.49	C10	4.29	"		
5	2.5	4.9	2.18	BC8070	3.61	C10	4.44	"	5.5	2.74	"	4.58	"	5.57	"		
6	3	5.0	2.72	"	4.50	"	5.53	"	5.6	3.41	C10	5.64	"	6.92	"		
7	3.5	5.1	3.30	C10	5.46	"	6.71	"	5.7	4.12	"	6.82	"	8.38	C15		
8	2	5.2	1.96	BC8070	3.24	BC8080	3.99	"	5.8	2.46	BC8070	4.04	"	4.96	C10		
9	2.3	5.4	2.43	"	4.02	C10	4.92	"	6.0	3.00	BC8075	4.97	"	6.10	"		
10	2.5	5.5	2.70	"	4.52	"	5.57	"	6.1	3.37	C10	5.58	"	6.56	"		
11	2.75	5.6	3.13	BC8080	5.18	"	6.37	"	6.2	3.83	"	6.34	"	7.79	C12		
12	3	5.8	3.66	C10	6.06	"	7.45	C12	6.4	4.45	"	7.37	C12	9.05	C15		

CENTER POST

T.C. 3



		4.2								4.8							
Span		SSS		S45		SSD				SSS		S45		SSD			
3.5		BC8080		C10		C10				C10		C10		C15			
4		C10		C10		C12				C10		C12		C15			
5		C10		C12		C15				C10		C19		C19			
6		C10		C15		C19				C12		C19		BC12			
7		C12		C19		BC10				C15		BC10		BC15			
8		C10		C12		C15				C10		C15		C19			
9		C10		C15		C19				C10		C19		BC10			
10		C10		C19		C19				C12		C19		BC10			
11		C12		C19		BC10				C15		BC10		BC15			
12		C15		BC10		BC12				C15		BC12		BC19			

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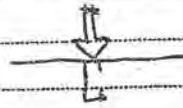
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END WALL POSTS

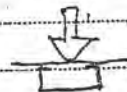
T.C.2



$$M^* = \frac{C_g w h^2}{8}$$

QUARTER POSTS

SPAN	TRIS WIDTH	WALL HT				2.4				2.7			
		POST HT	S35	S45	S50	POST HT	S35	S45	S50	POST HT	S35	S45	S50
m	mm	h _t	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT
3.5													
4													
5													
6													
7													
8	2	2.63	0.57 CB070	0.92 CB070	1.25 CB080	3.24	0.92 CB070	1.57 CB075	1.94 CB070				
9	2.3	3.00	0.85 CB080	1.37 CB070	1.86 BC080	3.30	1.10 CB070	1.88 BC070	2.32 BC070				
10	2.5	3.07	0.97 CB070	1.56 CB075	2.12 BC075	3.37	1.24 CB070	2.13 BC070	2.63 BC070				
11	2.75	3.14	1.12 CB070	1.80 BC070	2.44 BC075	3.44	1.42 CB070	2.44 BC070	3.01 BC075				
12	3	3.20	1.27 CB070	2.04 BC070	2.76 BC075	3.50	1.61 CB080	2.76 BC070	3.40 BC080				



3.5													
4													
5													
6													
7													
8			CB070	BC070	BC075		BC070	C10	C10				
9			CB080	BC075	C10		BC070	C10	C10				
10			BC070	C10	C10		BC070	C10	C10				
11			BC070	C10	C10		C10	C10	C12				
12			BC070	C10	C10		C10	C10	C12				

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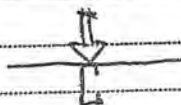
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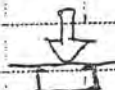
T.C. 2



$$M^* = \frac{C_g w h^2}{8}$$

QUARTER POSTS

		3.0				3.6			
SPAN	WALL HT	POST	S35	S45	S50	POST	S35	S45	S50
		HT	Cg 0.33	Cg 0.53	Cg 0.72	HT	Cg 0.35	Cg 0.60	Cg 0.74
m	m	ht	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT
3.5									
4									
5									
6									
7									
8	2	3.53	1.43 BC8070	1.66 BC8070	2.25 BC8070	4.14	1.50 BC8075	1.57 BC8070	3.17 BC8080
9	2.3	3.62	1.26 BC8070	1.49 BC8070	2.71 BC8070	4.22	1.79 BC8070	3.07 BC8075	3.79 C10
10	2.5	3.67	1.39 BC8070	2.23 BC8070	3.03 BC8075	4.27	1.44 BC8070	3.42 C10	4.22 C10
11	2.75	3.74	1.57 BC8080	2.55 BC8070	3.47 C10	4.34	2.27 BC8070	3.88 C10	4.79 C10
12	3	3.80	1.74 BC8070	2.87 BC8070	3.91 C10	4.40	2.54 BC8070	4.36 C10	5.37 C10



3.5									
4									
5									
6									
7									
8			BC8070	C10	C10		C10	C10	C12
9			BC8070	C10	C10		C10	C12	C15
10			BC8080	C10	C12		C10	C12	C15
11			C10	C10	C12		C10	C15	C19
12			C10	C10	C15		C10	C15	C19

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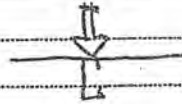
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job

END WALL POSTS

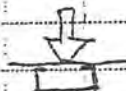
T.C. 2



$$M^* = \frac{C_g W h^2}{8}$$

QUARTER POSTS

		WALL HT.		4.2		4.8			
SPAN	WIDTH	POST HT	S35	S45	S50	POST HT	S35	S45	S50
			$C_g 0.33$	$C_g 0.53$	$C_g 0.72$	HT	$C_g 0.35$	$C_g 0.60$	$C_g 0.74$
m	m	h6	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT
3.5									
4									
5									
6									
7									
8	2	4.74	1.55 BC8070	2.97 BC8075	4.04 C10	5.34	2.50 BC8070	4.29 C10	5.29 C10
9	2.3	4.82	2.20 BC8070	3.53 C10	4.80 C10	5.42	2.96 BC8075	5.07 C10	6.26 C10
10	2.5	4.87	2.45 BC8070	3.93 C10	5.35 C10	5.47	3.27 BC8080	5.61 C10	6.91 C10
11	2.75	4.94	2.77 BC8070	4.45 C10	6.04 C10	5.54	3.69 C10	6.33 C10	7.50 C12
12	3	5.0	3.09 BC8075	4.96 C10	6.75 C10	5.60	4.12 C10	7.06 C10	8.71 C15



3.5									
4									
5									
6									
7									
8			C10	C10	C15		C10	C15	C19
9			C10	C12	C14		C10	C19	BC10
10			C10	C15	C14		C12	C19	BC10
11			C10	C15	BC10		C15	BC10	BC15
12			C12	C19	BC10		C15	BC12	BC19

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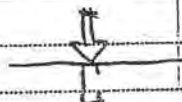
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END WALL POSTS

T.C.3



$$M^* = \frac{C_{\phi} W H^2}{8}$$

QUARTER POSTS

SPAN	RIB WIDTH	WALL HT				2.4				2.7			
		POST HT	S35	S45	S50	POST HT	S35	S45	S50	POST HT	S35	S45	S50
m	m	ht	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT
3.5													
4													
5													
6													
7													
8	2	2.94	0.63 C8070	1.04 C8070	1.27 C8070	3.24	0.76 C8070	1.26 C8070	1.54 C8080				
9	2.3	3.02	0.76 C8070	1.26 C8070	1.53 C8075	3.32	0.92 C8070	1.52 C8075	1.87 C8070				
10	2.5	3.07	0.85 C8070	1.41 C8070	1.74 C8070	3.37	1.03 C8070	1.70 C8070	2.09 C8070				
11	2.75	3.14	0.98 C8070	1.63 C8080	2.00 C8070	3.44	1.18 C8070	1.95 C8070	2.40 C8070				
12	3	3.20	1.11 C8070	1.84 C8070	2.27 C8070	3.50	1.33 C8070	2.21 C8070	2.71 C8070				



3.5													
4													
5													
6													
7													
8			C8070	RC8070	RC8075		C8075	RC8070	C10				
9			RC8075	RC8070	C10		RC8070	C10	C10				
10			C8080	C10	C10		RC8070	C10	C10				
11			RC8070	C10	C10		RC8070	C10	C10				
12			RC8070	C10	C10		RC8075	C10	C10				

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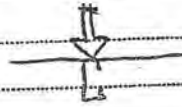
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END WALL POSTS

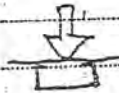
T.C.3



$$M^* = \frac{C_g w h^2}{8}$$

QUARTER POSTS

SPAN	IRIS WIDTH	WALL HT		3.0		3.6		POST HT	3.5		3.6		SSO
		POST HT	SSS	SSS	SSS	SSS	SSS		SSS	SSS	SSS	SSS	
m	m	h _t	M* SECT	M* SECT	M* SECT	M* SECT	M* SECT	m	M* SECT	M* SECT	M* SECT	M* SECT	M* SECT
3.5													
4													
5													
6													
7													
8	2	3.74	0.91 C8070	1.50 C8075	1.54 C8070	4.14	1.24 C8070	2.06 C8070	2.53 C8070				
9	2.3	3.62	1.04 C8070	1.50 C8070	2.22 C8070	4.22	1.48 C8070	2.40 C8070	3.02 C8075				
10	2.5	3.67	1.22 C8070	2.02 C8070	2.48 C8070	4.27	1.65 C8080	2.73 C8070	3.36 C10				
11	2.75	3.72	1.39 C8070	2.31 C8070	2.54 C8070	4.34	1.88 C8070	3.11 C8080	3.52 C10				
12	3	3.60	1.57 C8075	2.60 C8070	3.19 C8080	4.40	2.11 C8070	3.45 C10	4.23 C10				



3.5													
4													
5													
6													
7													
8			C8070	C10	C10		C8075	C10	C10				
9			C8070	C10	C10		C10	C10	C10				
10			C8070	C10	C10		C10	C10	C12				
11			C8080	C10	C10		C10	C12	C15				
12			C10	C10	C12		C10	C12	C15				

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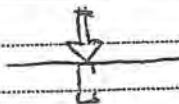
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END WALL POSTS

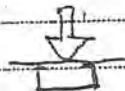
T.C.3



$$M^* = \frac{C_g w h^2}{8}$$

QUARTER POSTS

QUARTER POSTS															
SPAN	WALL WIDTH	WALL HT				4.2				4.8					
		POST	S3.5	S4.5	S5.0	POST	S3.5	S4.5	S5.0						
		HT	Cg 0.29	Cg 0.48	Cg 0.59	HT	Cg 0.29	Cg 0.48	Cg 0.59						
m	m	h _t	M*	SECT	M*	SECT	M*	SECT	m	M*	SECT	M*	SECT	M*	SECT
3.5															
4															
5															
6															
7															
8	2	4.74	1.63	BCB070	2.70	BCB070	3.32	C10	5.34	2.67	BCB070	3.43	C10	6.21	C15
9	2.3	4.52	1.44	BCB070	3.21	BCB080	3.95	C10	5.42	2.45	BCB070	4.06	C10	4.98	C10
10	2.5	4.87	2.15	BCB070	3.56	C10	4.37	C10	5.47	2.71	BCB070	4.49	C10	5.31	C10
11	2.75	4.96	2.43	BCB070	4.02	C10	4.94	C10	5.54	3.06	BCB075	5.06	C10	6.22	C10
12	3	5.00	2.72	BCB070	4.50	C10	5.53	C10	5.60	3.41	C10	5.64	C10	6.94	C10



3.5															
4															
5															
6															
7															
8				C10		C10		C12			C10		C12		C15
9				C10		C12		C15			C10		C15		C19
10				C10		C12		C15			C10		C15		C19
11				C10		C15		C19			C12		C19		BC10
12				C10		C15		C19			C12		C19		BC12

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WINDS - redesign to eliminate C15010
refer page 17

$$C = (6.7 + 0.3) = 1.0$$

Wall Ht 2.4m

net gust pressure = 1.2m

$$W_e = \left[(0.65 + \frac{0.08 \times \text{span}}{\text{eq. dist.}}) q \right] \text{ girt pressure}$$

Wind	SSS $C_g = 0.33$ k/h					SSS $C_g = 0.58$					SSD $C_g = 0.72$				
3	3.5	4	5	6		3	3.5	4	5	6	3	3.5	4	5	6
3.5	0.24	0.24	0.24	0.24	0.24					0.28					0.60
4	0.30	0.30	0.29	0.24	0.28	0.53		0.51		0.49	0.65		0.63		0.61
5	0.31				0.24					0.50					0.62
6	0.32		0.30		0.24	0.56		0.54		0.51	0.70		0.67		0.63
7	0.33				0.30					0.52					0.64
8	0.34		0.32		0.30	0.60		0.56		0.53	0.75		0.70		0.65
9	0.35				0.31					0.53					0.67
10	0.36		0.33		0.31	0.64		0.59		0.55	0.74		0.73		0.68
11	0.37				0.32					0.56					0.69
12	0.38	0.57	0.55	0.53	0.52	0.68		0.62		0.56	0.84		0.77		0.70
W22															
3.5	0.33	0.44	0.58	0.88	1.26	0.59	0.80	1.00	1.58	2.16	0.70	0.96	1.22	1.96	2.70
4	0.34	0.46	0.58	0.92	1.26	0.60	0.81	1.02	1.61	2.21	0.73	1.00	1.26	2.01	2.75
5	0.35	0.47	0.59	0.95	1.31	0.61	0.83	1.05	1.15	2.25	0.76	1.03	1.30	2.05	2.79
6	0.36	0.48	0.60	0.96	1.31	0.63	1.00	1.08	1.69	2.30	0.79	1.07	1.34	2.09	2.84
7	0.37	0.50	0.62	0.99	1.35	0.65	0.87	1.10	1.72	2.34	0.81	1.09	1.37	2.13	2.88
8	0.38	0.51	0.64	1.00	1.35	0.68	0.89	1.12	1.76	2.39	0.84	1.12	1.40	2.17	2.93
9	0.39	0.52	0.65	1.03	1.40	0.70	0.93	1.15	1.77	2.39	0.86	1.15	1.43	2.23	3.02
10	0.41	0.54	0.66	1.03	1.40	0.72	0.95	1.18	1.83	2.48	0.89	1.18	1.46	2.26	3.06
11	0.42	0.55	0.68	1.06	1.44	0.74	0.98	1.21	1.87	2.52	0.92	1.21	1.50	2.31	3.11
12	0.43	0.57	0.70	1.08	1.44	0.77	1.01	1.24	1.88	2.52	0.95	1.24	1.54	2.35	3.15

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Wall Mt 2.7m

max girt spacing 1.5m



$$W_e = 2(0.65 + \frac{0.08 \text{ span}}{\text{bay span}}) q \text{ girt spacing}$$

Wind	S35 $q = 0.19$					S45 $q = 0.28$					S50 $q = 0.37$				
Ray	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5															
4															
5															
6															
7															
We 8															
9															
10															
11															
12															
At 12															
1	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					1.33					2.27					2.75
4					1.42					2.44					2.84
5					1.46					2.49					2.90
6					1.49					2.43					2.45
At 7					1.51					2.48					2.49
8					1.53					2.50					3.04
9					1.55					2.52					3.08
10					1.58					2.57					3.15
11					1.60					2.59					3.20
12					1.62					2.63					3.24

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Wall Ht 2.70m

rec. girt spacing 1.5m



$$W_e = 1 \left(0.65 + \frac{0.08 \text{ span}}{\text{span}} \right) q \text{ girt spacing}$$

Wind	S35 $q = 0.29$					S45 $q = 0.48$					S50 $q = 0.59$				
Bay Spacing	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					0.13					0.22					0.27
4					0.14					0.23					0.28
5					0.15					0.24					0.29
6					0.15					0.24					0.29
7					0.15					0.25					0.30
8					0.15					0.25					0.30
9					0.16					0.26					0.31
10					0.16					0.26					0.31
11					0.16					0.26					0.32
12					0.16					0.26					0.32
$M_{\text{max}} W_e [2]$															
1	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					0.59					0.91					1.22
4					0.63					1.04					1.26
5					0.65					1.06					1.29
6					0.66					1.08					1.31
7					0.67					1.10					1.33
8					0.68					1.11					1.35
9					0.69					1.12					1.37
10					0.70					1.14					1.40
11					0.71					1.15					1.42
12					0.72					1.17					1.44

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Wall Mt 3.0m

max girt spacing 1.0m



$$W_e = \left(0.65 + \frac{0.08 \text{ ft}}{\text{height}} \right) q \quad \text{girt spacing}$$

Wind Any Spacing	SSS $q = 0.37$					SSS $q = 0.62$					SSS $q = 0.76$				
	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5	0.28				0.26					0.43					0.53
4	0.28		0.27		0.26	0.47				0.44	0.58				0.53
5				0.27						0.45					0.54
6	0.30		0.28		0.27	0.50				0.45	0.62				0.55
7				0.28						0.46					0.56
W _e 8	0.32		0.30		0.28	0.54				0.47	0.66				0.58
9				0.29						0.48					0.59
10	0.34		0.31		0.29	0.57				0.49	0.70				0.60
11				0.30						0.50					0.61
12	0.36		0.33		0.30	0.60				0.50	0.74				0.62
Max W _e 12															
1	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5	0.31	0.52	0.74	0.94	1.14					1.94					2.37
4	0.32	0.53	0.75	0.96	1.17	0.53				1.98	0.85				2.39
5	0.33	0.54	0.76	0.98	1.20					2.03					2.43
6	0.34	0.56	0.78	1.00	1.22	0.56				2.03	0.70				2.48
7	0.35	0.57	0.79	1.02	1.24					2.07					2.52
8	0.36	0.59	0.81	1.04	1.26	0.41				2.10	0.74				2.61
9	0.37	0.60	0.83	1.07	1.30					2.15					2.66
10	0.38	0.62	0.85	1.08	1.31	0.43				2.21	0.79				2.70
11	0.40	0.63	0.86	1.10	1.33					2.25					2.75
12	0.41	0.65	0.88	1.12	1.35	0.46				2.25	0.83				2.79

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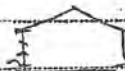
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checkr

job

Wall Mt 3.6m

max girt spacing 1.2m



$$W_e = 1 \left(0.65 + \frac{0.05 \text{ span}}{\text{height}} \right) q \quad \text{girt spacing}$$

Wind	S35 $q = 0.39$					S45 $q = 0.64$					S50 $q = 0.80$				
Ray Spacing	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					0.23					0.38					0.47
4					0.23					0.38					0.47
5					0.24					0.39					0.48
6					0.24					0.39					0.49
7					0.25					0.40					0.50
W _e 8					0.25					0.41					0.51
9					0.26					0.42					0.52
10					0.26					0.42					0.52
11					0.26					0.43					0.53
12					0.26					0.43					0.54
W _e 12															
8	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					1.01					1.71					2.12
4					1.01					1.71					2.12
5					1.08					1.76					2.16
6					1.08					1.76					2.21
W _e 7					1.13					1.80					2.25
8					1.13					1.85					2.30
9					1.17					1.89					2.34
10					1.17					1.89					2.34
11					1.17					1.94					2.39
12					1.17					1.94					2.43

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checkr job

Wall Mt 3.6m

max gut flange 1.2m



$$W_e = (0.65 + \frac{0.08 \text{ from } 1.2 \text{ m}}{1.2 \text{ m}}) q \text{ girt spacing}$$

Wind	S35 q =					S45 q =					S50 q =				
Any Spacing	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5															
4															
5															
6															
7															
We 8															
9															
10															
11															
12															
At We 12															
1	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					1.40					2.41					3.00
4					1.45					2.46					3.05
5					1.50					2.51					3.12
6					1.55					2.56					3.18
At 7					1.59					2.61					3.25
8					1.63					2.66					3.31
9					1.65					2.69					3.36
10					1.67					2.73					3.40
11					1.69					2.76					3.45
12					1.70					2.79					3.50

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Wall Mt 4.2m
max girt spacing 1.5m



$$W_e = 2 \left(0.65 + \frac{0.08 \text{ (max girt spacing)}}{4.2} \right) q_{\text{girt spacing}}$$

Wind	S35 $q = 0.41$					S45 $q = 0.67$					S50 $q = 0.83$				
Bay Spacing	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5															
4	0.47	0.46	0.45	0.44	0.43	0.76	0.75	0.73	0.72	0.71	0.94		0.91		0.88
5															
6	0.50	0.48	0.47	0.46	0.45	0.82		0.77		0.74	1.01		0.96		0.91
7															
W _e 8	0.53	0.51	0.50	0.48	0.47	0.87		0.81		0.77	1.07		1.01		0.95
9															
10	0.56	0.54	0.52	0.50	0.48	0.92		0.86		0.79	1.12		1.06		0.98
11															
12	0.60	0.57	0.55	0.52	0.50	0.97		0.89		0.81	1.21		1.11		1.01
W _e 12															
W _e 12	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5	0.52	0.70	0.83	1.35	1.40	0.83	1.18	1.43	2.40	3.17	1.02	1.20	1.79	2.82	3.42
4	0.53	0.71	0.90	1.38	1.94	0.86	1.16	1.46	2.33	3.10	1.06	1.44	1.82	2.89	3.96
5	0.54	0.73	0.92	1.41	1.99	0.89	1.20	1.50	2.38	3.27	1.10	1.48	1.87	2.95	4.04
6	0.56	0.75	0.94	1.44	2.03	0.92	1.23	1.54	2.41	3.34	1.14	1.53	1.92	3.02	4.12
W _e 7	0.58	0.77	0.97	1.47	2.08	0.95	1.25	1.58	2.45	3.41	1.17	1.57	1.97	3.08	4.20
8	0.60	0.80	1.00	1.50	2.12	0.98	1.30	1.62	2.51	3.47	1.20	1.61	2.01	3.15	4.28
9	0.61	0.81	1.02	1.53	2.16	1.01	1.34	1.67	2.59	3.52	1.24	1.65	2.07	3.21	4.35
10	0.63	0.83	1.04	1.56	2.19	1.04	1.38	1.72	2.64	3.56	1.28	1.70	2.12	3.27	4.42
11	0.65	0.86	1.07	1.59	2.22	1.06	1.41	1.75	2.68	3.61	1.32	1.74	2.17	3.33	4.49
12	0.68	0.89	1.10	1.63	2.25	1.09	1.44	1.79	2.72	3.65	1.36	1.79	2.22	3.39	4.55

FREDERICK R SMITH

desgr date

file

page

REGISTERED PROFESSIONAL ENGINEER

P.O. Box 35 422, Browns Bay, Auckland

Phone/Fax 09 473 1262

checkr. job

ref page 17

Wall Mt 4.8m

max girt spacing 1.2m



$$W_e = [(0.85 + \frac{0.08 \text{ height}}{\text{bay span}}) q] \text{ girt spacing}$$

Wind	S35 $q = 0.212$					S45 $q = 0.69$					S50 $q = 0.85$				
Bay Spacing	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					0.35										
4					0.35										
5					0.36										
6					0.37										
7					0.37										
W _e 8					0.38										
9					0.38										
10					0.39										
11					0.40										
12					0.41										
$\frac{W_e}{A} = \frac{W_e L^2}{8}$															
1	3	3.5	4	5	6	3	3.5	4	5	6	3	3.5	4	5	6
Span 3.5					1.58				1.51	2.61				2.25	3.26
4					1.58				1.51	2.61				2.28	3.24
5					1.62				1.58	2.66				2.31	3.24
6					1.67				1.64	2.70				2.38	3.53
7					1.67				1.67	2.75				2.44	3.58
8					1.71				2.03	2.84				2.50	3.67
9					1.71				2.06	2.88				2.53	3.57
10					1.76				2.09	2.93				2.59	3.60
11					1.80				2.16	2.97				2.63	3.65
12					1.85				2.22	3.02				2.72	3.74

FREDERICK R SMITH

Consulting Structural and Civil Engineer

23 Glamorgan Drive, Torbay, Auckland, P O Box 35 422, Browns Bay, Auckland
Telephone/Facsimile 64 9 473 1262 or 0800 87 00 77
Mobile Telephone 025 997 139 E mail - frederick.smith@clear.net.nz

FACSIMILE

attn: MAUR PRIST

copy to:

firm: VERSATILE

firm:

fax no.: 03 349 1286

fax no.:

date: 15/5/01

copy to:

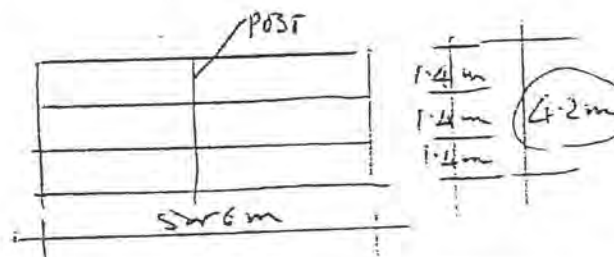
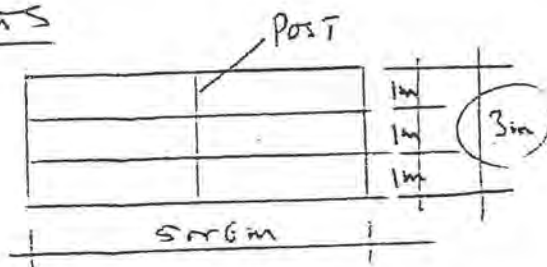
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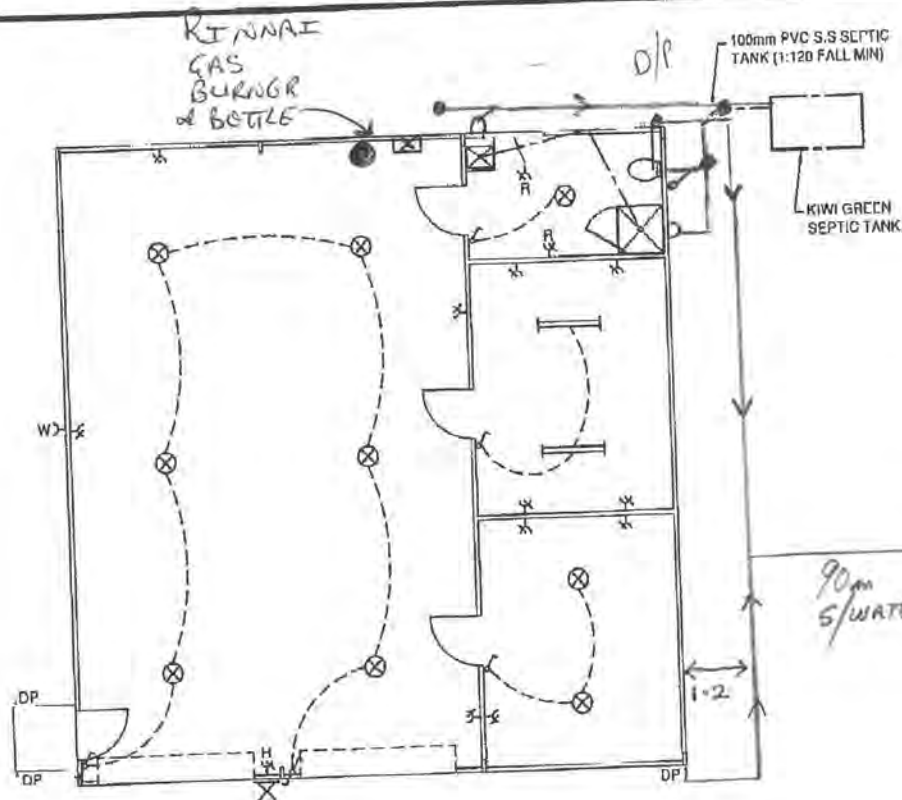
CIRTS



T-C.2.

	S35		S45		S50		S35		S45		S50	
	5m	6m	5m	6m	5m	6m	5m	6m	5m	6m	5m	6m
125	80L	80L	80L	80L	80L	80L(2)	80L	80L	80L(1)	80L	80L(2)	80L
125	80L	80L	80L	80L	80L	80L	15010					15010

FR SMITH B.E.(Civil), M.I.C.E., M.I.P.E.N.Z., M.A.C.E.N.Z., M.N.Z.I.W., Regd. Eng., - Auckland
JF SMITH N.Z.C.E., N.Z.C.A.D., - Christchurch



SERVICES PLAN

SCALE: 1:100

ELECTRICAL LEGEND

- ⊗ CEILING MOUNTED LIGHT FITTING
- ⌌ FLUORESCENT LIGHT FITTING
- ⊗ WEATHERPROOF WALL MOUNTED SENSOR SPOTLIGHT
- ⌌ LIGHT SWITCH
- ⌌ TWO WAY LIGHT SWITCH
- ⊗ DOUBLE SOCKET OUTLET 1.3m A.F.L. UNLESS NOTED OTHERWISE
- R - FED FROM RCD PROTECTED CIRCUIT
- H - MOUNTED AT 2.8m A.F.L.
- ⊗ WEATHERPROOF SINGLE SOCKET OUTLET

O/FLOW TO CREEK

NOTES:

- ALL ELECTRICAL WORK TO BE CARRIED OUT BY (OR UNDER THE SUPERVISION OF) A CERTIFIED PRACTITIONER UNDER THE ELECTRICAL REGULATIONS 1993. UPON COMPLETION, TEST ALL WORK AND PROVIDE A CERTIFICATE OF COMPLIANCE FOR THE ENTIRE WORKS. CONTRACTOR TO ALLOW TO SUPPLY, INSTALL, CONNECT AND SERVICE ALL ELECTRICAL FITTINGS AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE OWNER. REFER TO THE ELECTRICAL SERVICES DRAWING AND LEGEND FOR GUIDANCE. CONTRACTOR SHALL ALSO ALLOW FOR CONNECTION AT THE MAINS SUPPLY, FATHING, TRENCHING AND CABLE TO THE DISTRIBUTION BOARD, INSTALLATION OF METER PANEL AND MAIN SWITCH.
- ALL WATER PIPEWORK TO COMPLY WITH G12/AS1. MAKE CONNECTION, TRENCH, LAY AND BACKFILL FOR NEW 20mm POLYETHYLENE COLD WATER MAIN. INSTALL ISOLATION VALVE AND BRANCH OFF TO EXTERIOR TAPS AND VARIOUS SANITARY/APPLIANCES WITH 12mm POLYBUTYLENE PIPEWORK.
- ALL SANITARY SEWER WORK TO COMPLY WITH G13/AS1 & AS2. LAY IN TRENCH TO FALL ON APPROVED BEDDING. 100mm NOMINAL BORE UPVC SEWER PIPES WITH A MINIMUM DISTANCE TO INVERT LEVEL OF 600mm BELOW GROUND LEVEL. INSTALL INSPECTION BENDS AT ALL CHANGES OF DIRECTION AND CLEANING EYES AT BRANCH TERMINATIONS. POSITION OVERFLOW RELIEF GULLY AS INDICATED ON THE DRAWINGS. INSTALL THE APPROPRIATE TRAPS ON ALL SANITARY FITTINGS TO MATCH THE DIAMETER OF THE DISCHARGE PIPES AND CONNECT R/FLOW GRATE LEVEL ON THE OVERFLOW RELIEF GULLY. INSTALL TERMINAL VENT TO DRAINAGE SYSTEM IN THE POSITION INDICATED. PIPE TO SEPTIC TANK AS INDICATED.
- ALL STORMWATER WORK TO COMPLY WITH F1/AS1. INSTALL 85mm OR 80mm DIAMETER COLOURSTEEL DOWNPIPES, AS INDICATED, FROM GUTTERS. SECURELY FIX TO STRUCTURE WITH PROPRIETARY BRACKETS AT 1200mm CENTRES VERTICAL (MAX). CONNECT DOWN PIPES. LAY 100mm NOMINAL BORE UPVC STORM WATER PIPES IN 1:125 GRADE TRENCHES ON APPROVED BEDDING AND CONNECT EACH DOWNPIPE AT BASE WITH A 95° ONE PIECE BEND AND NFOPRENE COLLAR. TERMINATE PIPEWORK AT SOAKPIT AS SHOWN ON THE DRAINAGE PLAN.
- ENSURE ALL DRAINAGE WORK IS PROPERLY TESTED AND INSPECTED PRIOR TO BACKFILLING AND COMPACTION OF TRENCHES.
- WASTE PIPES FROM SHOWER AND TUB TO BE 40mm Ø UPVC. WASTE PIPE FROM WC TO BE 100mm Ø UPVC WITH MINIMUM GRADIENTS AS FOLLOWS:

400	1:40
1000	1:60

TOTALSPAN
STEEL SILEDS & BUILDINGS

Drawings Prepared By:

TOTALSPAN WELLINGTON
LINDALE TOURIST COMPLEX Ph: (04) 297 0033
PO BOX 376 Fax: (04) 297 0031
PARAPARAUMU Mobile: (027) 252 6232
e-mail: wellington@totalspan.co.nz

Proposed Building For:

PEACH 14 TRUST
P.O. BOX 7072
WELLINGTON SOUTH

Site Address:

LOT 18
TE HORO
COUNTRY ESTATE

11.750m SPAN
S50 (VERY HIGH)
BASIC WIND SPEED
V = 50m/s T.C.2

Date Drawn:

14-Oct-08

Order #:

806362

[Close](#)[Print](#)

REU 55FT (Muliti-Point) - Specification

[click to enlarge](#)

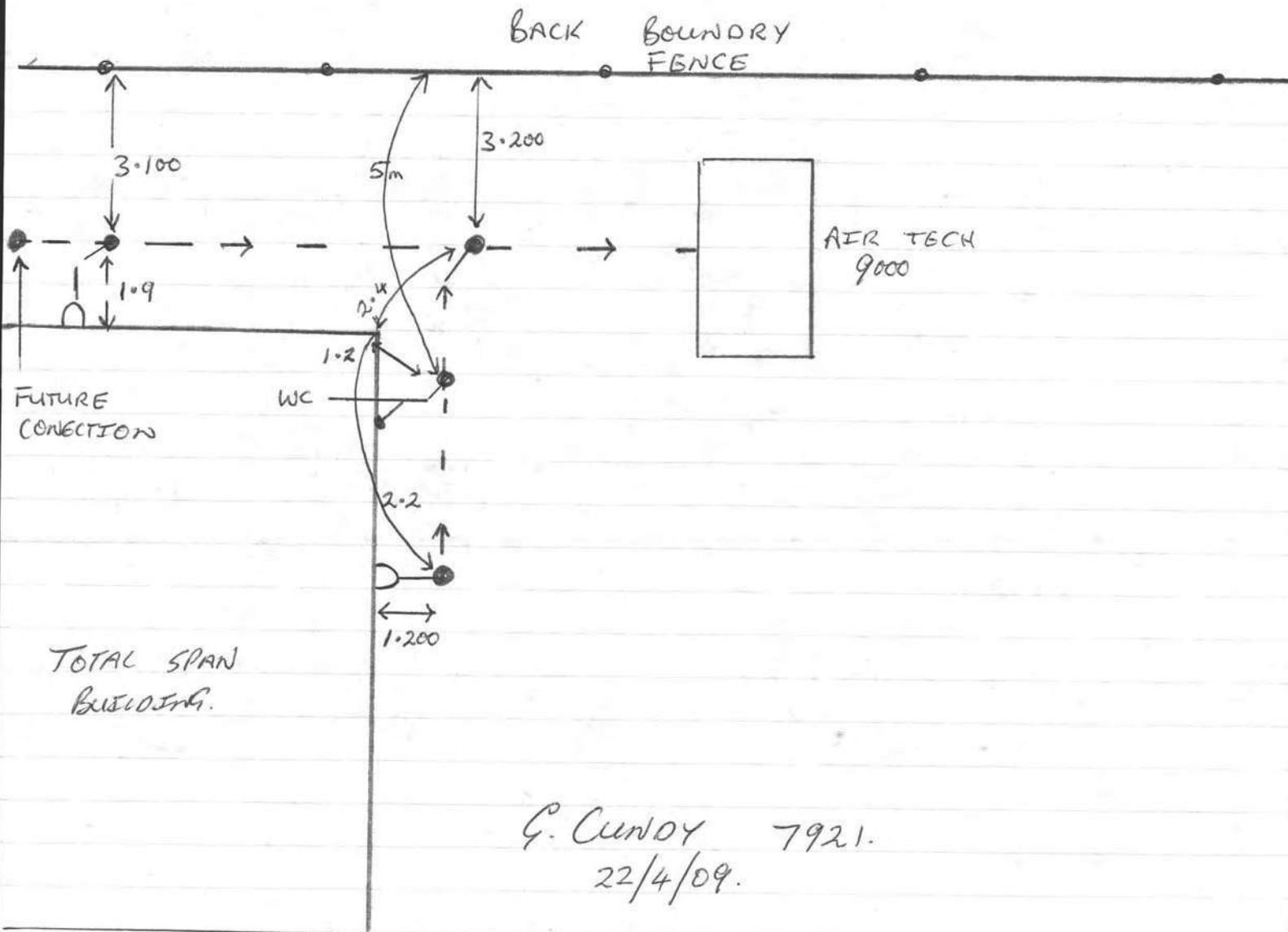
The REU 55FT is a multipoint, wall mounted water heating system suited for smaller applications. It is compact, easy to install and has an automatic electronic ignition system and temperature selector. For use as a multipoint a flue must be installed.

SPECIFICATION SUMMARY

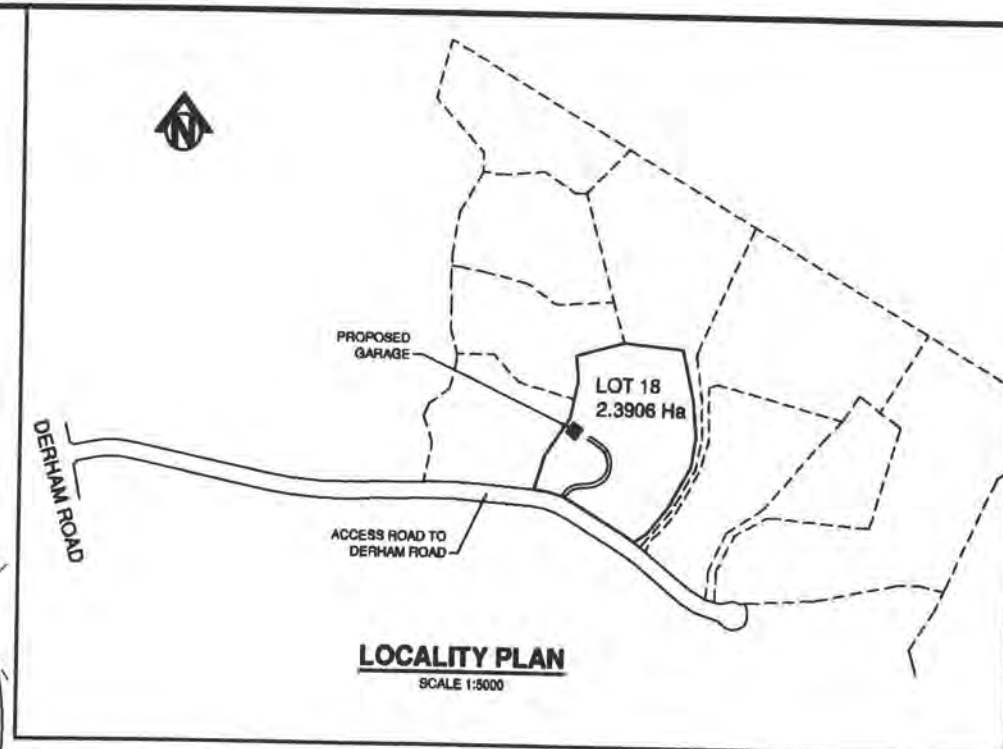
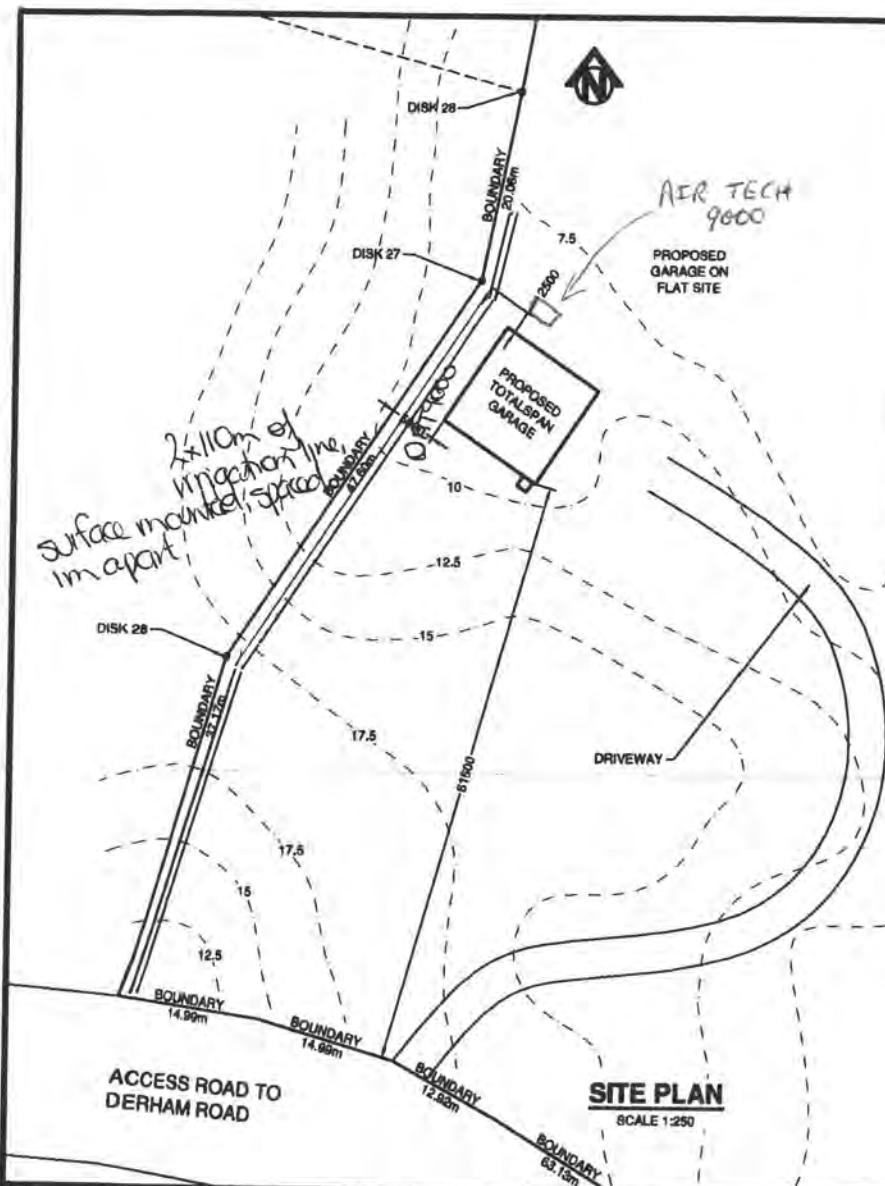
- Colour: white
- Dimensions: H-370mm, W-290mm, D-132mm
- Hot Water Capacity: 2.5 - 5 litres/min at 25°C rise (300 litres/hr)
- Rating: 21 MJ/h (min) and 40 MJ/h (max)
- Minimum Operating Water Pressure: 34.3 kPa
- Thermal Efficiency: 79%

Accessories	battery, screws, hose-end fitting, packing	
Burner	Bunsen	
Connections	gas	R ½ 15A
	water inlet	R ½ 15A
	hot water outlet	R ½ 15A
Gas Type	LPG	
Ignition System	Continuous charge direct ignition	
Noise Level	46 dB(A)	
Temperature Control	can be adjusted by turning the temperature selector to a suitable position between 'Hi' and 'Lo'	
Safety Devices	<ul style="list-style-type: none">• flame failure safety device• incomplete combustion prevention safety device• extra safety timer device	
Water Flow	Maximum flow rate 5.5 litres/min	
Weight	6.2kg	

© Rinnai New Zealand Ltd



G. CUNOY 7921.
22/4/09.



SITE COVERAGE			
TOTAL SITE AREA:	23906m ²		
EXISTING BUILDINGS:	0m ²	0%	
PROPOSED NEW BUILDINGS:	138m ²	0.58%	
TOTAL COVERAGE:	138m²	0.58%	

SITE DETAILS	
LOT:	18 OF LOT 20
DP:	394017
CT:	418182
VALUATION #:	
AREA:	23906m ²
ZONING:	RURAL
WIND ZONE:	VERY HIGH

TOTALSPAN.
STEEL SHEETS & BUILDINGS

Drawings Prepared By:
TOTALSPAN WELLINGTON
LINDALE TOURIST COMPLEX Ph: (04) 297 0033
PO BOX 376 Fax: (04) 297 0031
PARAPARAUMU Mobile: (027) 443 0849
e-mail: wellington@totalspan.co.nz

Proposed Building For:
PEACH 14 TRUST
P.O. BOX 7072
WELLINGTON SOUTH

Site Address:
LOT 18
TE HORO
COUNTRY ESTATE

SITE PLAN

Date Drawn:
09-Jul-08
Order #:
806362
Revision 0

21 October 2008

Totalspan Wellington/Horowhenua
PO Box 376
Lindale Tourist Complex
Paraparaumu 5032

Building Consent: 080625A

Dear Sir/Madam

Request for further information

Description: New Drainage showing septic tank
Location: 132 Derham Rd, Te Horo
Legal Description: Lot 18 Te Horo Country Estate

Unfortunately, we are unable to process your *Building Consent* until we receive the information detailed below.

Information Needed:

Please provide a full sewage treatment system including the effluent layout on a site plan show design calculations.
Show method and location of heating water.
Provide details for storage of potable water.

You will be invoiced for the additional inspections that will need to be carried out.

We have suspended your application and will not proceed any further until the above information is received. Please send it to us by *4th October 2008*. If we do not receive it by this date, we may not be able to issue your *Building Consent*.

Please contact me if you would like to discuss this matter.

Yours sincerely

Simon Copp

Building Control Officer



22 May 2009

John O'Hagan
ISP
P O Box 537
Paraparaumu 5254

Dear John

The concrete floor for Glenn and Stephanie Peach – Lot 18 Te Horo Country Estate has been constructed as per the Engineers specific design of the foundations for the Totalspan shed.

Yours faithfully

Glen Silverwood

Kokari Ltd trading as:

Totalspan Wellington-Horowhenua

Lindale Tourist Complex, 111 State Highway One

PO Box 376 Paraparaumu, Kapiti 5032

Phone 04 297 0033 - Fax 04 297 0031

Email wellington@totalspan.co.nz - Website www.totalspan.co.nz

PILE LOG

PILING & DRILLING SERVICES LTD

P.O. Box 238, Paraparaumu
Ph/Fax 04 298 1133

Date: 24 9 8

Job No: 22764

30/10/08

Client Name: TOTAL SPAN

Job Address: COUNTRY GARDEN
LOT 12 TE HONO

Builder: TOTAL SPAN

Engineer: ISP

Operators: DALE ANDERSON

Notes:

RECEIVED

15 OCT 2008

ISP

4X	1X	3X	11X
5X	2X	13X	12X
6X	8X	15X	14X
9X	10X	16X	17X
17	19	21	
18	20	22	

Pile No.	Length (m)	Embed (m)	Set (mm)	Comments
1	42	33	9	TEST
2	42	31	10	TEST
3	36	30	10	
4	36	31	10	
5	36	31	7	
6	36	31	10	
7	36	31	7	
8	36	30	5	
9	36	33	10	
10	36	31	5	
11	36	28	4	
12	36	29	6	
13	36	30	4	
14	36	30	6	
15	36	30	4	
16	36	31	5	
17	36	31	9	
18	36	31	7	
19	36	29	5	
20	36	27	4	

Pile No.	Length (m)	Embed (m)	Set (mm)	Comments
21	36	30	5	
22	36	30	4	
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

Pile No.	Length (m)	Embed (m)	Set (mm)	Comments
41				
42				
43				
44				
45				
46				
47				
48				
49				
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56				
57				
58				
59				
60				

CHECKSHEET (Effective from 31 March 2005)

Single Residential Dwelling and Accessory Building

Use for single stand-alone dwellings, dwelling additions and/or alterations, repiles, garages, decks, gazebos, sheds, retaining walls, etc

For use with applications for building consent

Address LOT 18, TE HORO COUNTRY ESTATE, TE HORO

This checklist shows you the information that has to be supplied with your building consent application. Please attach 2 copies of the following information (unless otherwise specified) with your completed Building Consent Application form.

Please tick each relevant box in the Customer Use column as you attach the information. If the box is not relevant to your application, write NA across the box. Please check each section carefully and complete those sections that are relevant to your project.

A guidance document is available to help complete the section in the application form on 'means of compliance' for each building code clause

Once you have attached all the required information, please check for completeness as an incomplete application or lack of any supporting information will mean that your application cannot be accepted for processing.

Customer
use

1. GENERAL

COMPLETE FOR ALL APPLICATIONS

- ☒ a **Building Consent Application Form (1 copy)**
Completed and signed by the owner or by an agent on behalf of the owner.
- * ☒ b **Proof of ownership (1 copy)**
One recent copy of current certificate/s of title (i.e. not older than 3 months) or one copy of purchase agreement (if recently purchased) or one copy of relevant portions of current lease
- ☒ c **Locality plan (1:500) showing:** 1:5000 & 1:250
Physical location of the subject building in relation to streets or landmarks, north point, name of building and lot and DP number
- ☒ d **Inspections and monitoring**
Details of proposed inspection regime including monitoring by council officers and other professionals eg architects, engineers, surveyors and certification to be supplied on completion.
- ☒ e **Application fee**

For office use
only



Applications will not be accepted without payment of the appropriate fees. Fees payable are set out in the published fee schedule of the council that has jurisdiction over the project site.

2. DEMOLITION / REMOVAL

COMPLETE FOR ALL PROJECTS INVOLVING DEMOLITION OF SIGNIFICANT PARTS OF BUILDINGS OR THE DEMOLITION OR REMOVAL OF WHOLE BUILDINGS.

Note: Where the project is only for the complete removal or demolition of a building you are not required to complete any further sections

- N/A
- ☐ a **Means of barricading the site**
Provide details of temporary barriers, gates which swing inwards or other means of restricting public access to the area
 - ☐ b **Proposed tipping location for demolition materials (address/landfill)**
 - ☐ c **Hazardous building materials**
Provide safety plan detailing the safe handling and disposal of hazardous materials
 - ☐ d **Site management plan covering**
management to control silt run off, noise and dust
 - ☐ e **Proposed destination for relocated building:**
 - ☐ f **Access to and from the site including (use of kerb and crossings)**
 - ☐ g **Specify termination of existing services**
 - Water
 - Sewer
 - Stormwater
 - ☐ h **Details about the building such as:**
Number of storeys, type of materials the building is constructed of (note: Photographs of the building would be useful)

Note: You will need to contact the relevant service authorities specified below to advise them of the extent of your work:

Electricity, gas, drainage, water, transport, telecommunications, cable television or any other services that may be affected.

Note: Transportation of relocated building -

You will be required to contact and provide details to Council's Transportation and Traffic Department

3. FOUNDATIONS / FLOOR

COMPLETE FOR ALL NEW BUILDINGS, FOR EXISTING BUILDINGS WHERE THE FOOTPRINT OF THE BUILDING WILL CHANGE OR WHERE AN ADDITIONAL STOREY IS BEING ADDED

- ☒ a **Site Plan (1:100) showing** *1:250*
Dimensions of all boundaries, north point, finished floor levels, ground contours (extended to boundaries) and/or levels, site area, street name and number, lot and DP number, outline of building and distances to boundaries. Include on the site plan the designated wind zone of the site (e.g. specific design, very high, high, medium or low)
- ☒ b **Foundation plan (1:100/1:50) showing:** *1:200*
 - dimensions of all new foundations
 - sub-floor, including bracing
 - footing details
 - if a concrete slab, show basic details including reinforcing and contractions joints
 - piles and footings
 - if the addition is an upper storey show details on upgrading existing foundations, joints, piles, etc
 - indicate ventilation to sub floor spaces
- ☒ c **Subfloor bracing**
Provide subfloor bracing plan and calculations for all piled structures. Where the structure is specifically engineered, this should be included with the structural calculations
Subfloor bracing plan and calculations are required where an additional storey is to be added.
- ☒ d **Foundation details**
Details including reinforcing and connections

4. CONSTRUCTION

COMPLETE FOR ALL NEW STRUCTURES OR ALTERATIONS TO EXISTING STRUCTURES

N/A

- ☐ a Existing floor plan (1:100/1:50) showing (for additions and alterations only)
- all levels
 - all designated spaces
 - all removals
 - sanitary fixtures
 - smoke detectors
- ☒ a Proposed floor plans (1:100/1:50) showing:
- room dimensions
 - location of partitions
 - all designated spaces
 - all floors (new or altered)
 - location of sanitary fixtures
 - stairs, barriers, handrails, floor joists and beams
 - floor joist layout for each level with timber floors
 - smoke detectors
- ☒ b Wall bracing plan (1:100/1:50) showing:
- Bracing details and calculations for wall bracing (also required for existing lower storeys where an additional storey is being added)
- Sub-floor bracing for decks projecting more than 2m from the house
- Location, type and number of bracing elements to indicate compliance with NZS 3604:1900 (include calculations)
- If the bracing was specifically designed by a structural engineer, provide calculations (required for specific design wind zones and lateral distribution of upper floor loads where lower storey bracing is provided in walls beyond the upper storey footprint)
- ☒ c Sections and details (1:50/1:20/1:10) showing:
- stairs, handrails, decks and decking
 - insulation systems and materials to floors, walls and roof
 - barriers providing safety from falling. Specific engineering design required where detail does not comply with NZBC B1/AS2
 - framing sizes, beams, lintels, trusses including fixing and other structural items. Lintels carrying point loads, such as from girder trusses, require specific engineering design
 - roof cladding, eaves, fascias, gutters, flashings to openings
 - fire rated systems on all walls - closer than 1 metre to boundary
 - stud heights of rooms and total height from lowest ground floor level to top of ridge
 - truss layout supported by design certificate and design of fixing details and load path to ground
 - retaining wall details e.g. type, height of retained ground, relationship to boundary, waterproof membrane and proposed drainage.
 - truss design details
- ☒ d Fire report:
- For domestic dwellings of 4 storeys or more, or buildings providing more than one household unit.

5. STRUCTURAL

COMPLETE FOR ALL PROJECTS INCORPORATING SPECIFIC STRUCTURAL

- ☒ a Structural calculations *CD AVAILABLE*
- If any design work required the services of a structural engineer, attach 2 copies of the calculations with this application along with structural drawings
- The calculations must be prefaced with information explaining the design philosophy and justification of assumptions and methodologies used in analysis
- ☒ b Producer statements:
- If this application for consent relies on any producer statements certifying compliance with the New Zealand Building Code, a copy must be attached with this application. (Note all structural producer statements are required to have accompanying calculations)

☐ * TO BE SUBMITTED later

6. EXTERNAL

COMPLETE FOR NEW BUILDINGS OR EXISTING BUILDINGS WITH ALTERATIONS TO THE EXTERNAL SHELL

- ☒ a **Elevations (1:100/1:50) showing:**
Accurate lines from boundary to boundary on each elevation, relevant District Plan daylight control lines, the maximum height on each elevation, location of door and window openings, fixed and opening sashes, sill heights, floor levels in relation to ground levels, exterior cladding nominated to all elevations, down pipes and spouting, ventilators to sub-floor area (suspended floors only)
- ☒ b **Risk assessment**
(Risk matrix in E2/AS1 may be used)
Consider exposure, design and detailing to support appropriate selection of cladding
- ☒ c **Cladding details (1:50/1:20/1:10)**
Provide details around all penetrations, joinery and other junctions at a level appropriate to the level of risk e.g. roof/wall, balcony/ wall, junction of different types of cladding, backflashing details for cavity systems
- ☒ d **Product certification**
Supply copies of product certificates relied on as compliance documents
- ☒ e **Alternative solutions**
If the proposal uses products or systems that are not covered in the Acceptable Solutions of clause E2 of the building code provide supporting current information including independent test results (full signed reports), case studies, expert opinion (including evidence of experience/qualification, basis for forming opinion, and statement of independence) etc to demonstrate compliance

7. SERVICES

COMPLETE FOR ALL PROJECTS WITH NEW INSTALLATION OR ALTERATION OF PLUMBING OR DRAINAGE SERVICES

- ☒ a **Plumbing and Drainage plan (1:100) showing:** 1:200
Note: If you have supplied drainage details for surface water disposal on the site plan, no drainage plan is required
- fixtures and fittings, hotwater system(s)
 - if the building is more than one storey with sanitary fittings on upper floors, provide an isometric layout showing wastes, pipes and falls
 - drainage layout with inspection bends and junctions indicated for both sewer and stormwater
 - any other drainage on site including council mains and retaining wall field drains
 - ventilation of sanitary rooms
 - calculations for sizing of downpipes

8. CHANGE OF USE

COMPLETE FOR ALL EXISTING BUILDINGS WHERE THE PROPOSAL INVOLVES FORMING A HOUSEHOLD UNIT WHERE ONE DID NOT EXIST BEFORE

Example: the conversion of a garage or shed into a residential unit

- ☒ a **Assessment of the building for compliance with the building code**
Section 115(a) of the Building Act 2004 requires that the work comply fully with all clauses of the building code.
- ☒ b **Reasonably practicable**
The above assessment must relate to all building code clauses. If the proposal is for the project to meet anything less than full compliance with any clauses, your application must clearly state your reasoning, with supporting documentation, and show how you will meet the highest level of compliance that can be considered reasonably practicable.

9. SPECIFICATIONS

COMPLETE FOR ALL APPLICATIONS

Note: The specification must be specific to the project and cover all aspects of the proposed work.



a Specification: General

- elements of structure (size, spacing, timber treatment)
- finish of fixings to meet durability requirements
- plumbing and drainage materials and design that installation is to comply with
- wet area surfaces
- ventilation systems
- flooring slip resistance for access routes
- glazing
- type of smoke detectors (including existing smoke detectors where they will remain)



b External claddings

For each of the following claddings provide details of the product name, manufacturer, maintenance requirements and warranties offered

- Building wraps
- Wall claddings
- Roof claddings
- Membranes (roofs and decks)
- Tanking
- Joinery

NOTES

The issue of a building consent does not relieve the owner of any duty or responsibility under any other act

Please check with your local territorial authority regarding the requirement for other approvals required and fees payable. These may include:

- Consents under the Resource Management Act
- Approvals under bylaws including earthworks, vehicle crossings and road openings

Form 436

BC...080625

PROCESSING CHECKLIST

No = Plans, specifications & documentation not complying with the Building Code (specified alongside each prompt)

Yes = Plans, specifications & documentation complying with the Building Code. (specified alongside each prompt)

N/A = Not Applicable to this application.

Category.....

Site Plan (NZS 3604 Sec 3.4, 4, 5 Code clB1, F1 & F2)

Comments

N/A NO YES

- ☐ ☐ ☐ Wind zone High / High Specific..... NZS 3604 — PLANS TO 'VERY HIGH'
- ☒ ☐ ☐ Flooding / pondingGIS District plan
- ☒ ☐ ☐ Hazards.....F1 F2 & Sec 71-74 Bld Act
- ☒ ☐ ☐ Corrosion zoneB2 & NZS 3604
- ☐ ☐ ☒ Soil conditionsB1 NZS 3604 — AS PER INSPECTION NOTES
- ☐ ☐ ☒ Distances to boundaries/siting..... District plan
- ☐ ☒ ☒ Floor levels/ contours.....E2/AS1 & NZS 3604 E1
- ☒ ☐ ☐ Two or More Allotments.....Sec 75 - 83 Bld Act
- ☐ ☐ ☒ Specific Design (list all items)

Note :- all critical engineering to be accompanied by a design and calculations

PSI Provided.

All Engineering Calcs provided on disc

Concrete / Foundation Plan (NZS 3604 NZS 4210 & 4229 E2/AS1)

Comments

Layout

- ☐ ☐ ☒ Layout dimensions..... NZS 3604.
- ☒ ☐ ☐ Control joints..... NZS 3604
- ☐ ☒ ☐ Slab thickening..... NZS 3604
- ☒ ☐ ☐ Plumbing layout.....NZS 3500

N/A

Section

- ☐ ☐ ☒ Depth & width..... NZS 3604
- ☐ ☐ ☒ Reinforcement..... NZS 3604;B2
- ☐ ☐ ☒ Plate fixings..... NZS 3604;B2
- ☒ ☐ ☒ DPM NZS 3604;B2
- ☒ ☐ ☒ Engineer design and Calcs.....B1;B2
- ☐ ☐ ☒ Concrete strength..... B1;B2

Timber / Subfloor Plan (NZS3604 NZS 3602 & 3640, B1)

Comments

Layout

- ☐ ☐ ☐ Layout dimensions
- ☐ ☐ ☐ Bearers details.....B1;B2
- ☐ ☐ ☐ Joist details.....B1;B2

Section

- ☐ ☐ ☐ Foundation type/size..... NZS 3604;B2
- ☐ ☐ ☐ Piles post sizes & treatment NZS 3604;3602;3640;B2
- ☐ ☐ ☐ Pile c/c..... NZS 3604
- ☐ ☐ ☐ Fixing..... NZS 3604;B2
- ☐ ☐ ☐ Ventilation & Access to sub floor spaces NZS 3604

N/A

If the addition is an upper storey show details on upgrading existing foundations, joints, piles, etc (may require Engineer design)

Floor plans / layout

Comments

General

N/A NO YES

- ☒ ☐ ☒ Room dimensions
- ☐ ☐ ☒ Sectional lines
- ☐ ☐ ☒ Location of partitions
- ☐ ☐ ☒ All designated spaces
- ☒ ☐ ☐ Location of sanitary fixtures
- ☒ ☐ ☐ Lintels..... NZS 3604:B2
- ☒ ☐ ☐ Beams..... NZS 3604, by engineer
- ☒ ☐ ☐ Point loads by engineer or pre-nailer....B1 B2
- ☒ ☐ ☐ Smoke detectors.....F7

Changes to existing work requires both an existing floor plan & a proposed floor plans

Kitchen

- ☒ ☐ ☐ SinkG3/AS1
- ☒ ☐ ☐ Hot & cold supply.....G12
- ☒ ☐ ☐ Food preparation surface.....G3/AS1
- ☒ ☐ ☐ Waste water....G13.
- ☒ ☐ ☐ Cooking area.....G3
- ☒ ☐ ☐ Space for refrigerator.....G3
- ☒ ☐ ☐ Energy source....G11& G9
- ☒ ☐ ☐ Impervious surfaces.....G3

N/A

Facility provided for washing utensils / food G3, Section 1.1 & Figure 1:
Preparation Area and Access to Facility Paragraphs 1.1.2 and 1.5

Wet areas / WCs NZS 3602: 2003 sec. 10.3.1 ;D1, Table 2.

- ☒ ☐ ☐ Non-slip flooring.....D1 table2
- ☒ ☐ ☐ Waterproofing membrane.....B2 & E2
- ☒ ☐ ☐ Safety glazing.....F2
- ☒ ☐ ☐ Accidental overflow provision if multi-unit dwelling

N/A

Laundry G2/AS1, cl 1.01&2; E3/AS1 cl 3.1.

- ☒ ☐ ☐ Laundry tub or spaceG2/AS1
- ☒ ☐ ☐ Water and electric powerG9
- ☒ ☐ ☐ Splash protectionE3/AS1

N/A

Wall / Framing

Comments

General

- ☒ ☐ ☒ Identify engineering / Structural items.B1 B2
- ☒ ☐ ☐ By pre-nailer or to NZS 3604
- ☐ ☐ ☒ Fixing types NZS 3604
- ☒ ☐ ☒ Stud c/c as per wind zone.... NZS 3604
- ☒ ☐ ☐ Building wrap..... NZS 3604 E2/AS1
- ☒ ☐ ☐ Stud heights of rooms..... NZS 3604
- ☐ ☐ ☒ Wall claddings (see below)

Roof.....NZS 3604,3602 &3640 B1B2E2

Comments

Trussed / by pre-nailer

N/A NO YES

- ☐ ☐ ☐ Fixing layout & details.....B1 B2
- ☐ ☐ ☐ Correct layout.....B1
- ☐ ☐ ☐ Max span (12m or Engineer).....B1
- ☐ ☐ ☐ Purlin or batten c/c.....B1 B2

Framed roof NZS 3604

- ☐ ☐ ☐ Purlins.....B1 B2
- ☐ ☐ ☐ Grade.....B1 B2
- ☐ ☐ ☐ Rafters.....B1 B2
- ☐ ☐ ☐ Ridge beams.....B1 B2
- ☐ ☐ ☐ Ceiling joists.....B1 B2
- ☐ ☐ ☐ Ceiling battens.....B1 B2
- ☐ ☐ ☐ Collar ties.....B1 B2
- ☐ ☐ ☐ Strong backs.....B1 B2
- ☐ ☐ ☐ Valley boards.....B1 B2
- ☐ ☐ ☐ Under purlins.....B1 B2
- ☐ ☐ ☐ Strutting beam.....B1 B2

Masonry ; Metal or Profiled Metal

- ☐ ☐ ☒ Pitch / profile.....B1
- ☐ ☐ ☒ Underlay.....E2
- ☐ ☐ ☒ Flashings.....E3;E2
- ☐ ☐ ☒ Parapets.....B1 E2 B2
- ☐ ☐ ☒ Gutters, Barges & Fascias detail Refer E2, section 8.3, cl 8.3.9

Installation of profiled metal roof cladding shall be by trained installers, approved by the tile manufacturer or NZ agent. In some cases experienced builders undertake installation, refer E2, section 8.4, cl 8.4.2 'General'.

Membrane Roofs Code E2/AS1 B2

- ☐ ☐ ☒ Flashings.....E3
- ☐ ☐ ☒ Limitations.....E2 B2
- ☐ ☐ ☒ Approved installer.....B2
- ☐ ☐ ☒ Substrate thickness.....B2
- ☐ ☐ ☒ Substrate treatment.....B2
- ☐ ☐ ☒ Fall.....E1 E2
- ☐ ☐ ☒ Overflow.....E1
- ☐ ☐ ☒ Wall roof junctionsE2

Refer also E2, Section 8.5, cl 8.5.4, 'Butyl & EPDM' Note:- a roof plan layout is required for all of the above

Claddings Code E2/AS1, Branz good practice Guides & Weather tightness Vol 12&3			Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Risk matrix Cavity or direct.....E2	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Brick Veneer.....E2 "The brick book" Branz Masonry Guide	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Timber Weatherboard ....E2 Branz Timber Guide Vol 1&2	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Stucco .....B1 NZS 3604 Branz good practice guide	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Profiled Metal.....E2 Metal Roofing Practice	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Plywood .....E2	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Fiber Cement W/b.....E2	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Weatherboard.....E2 Branz Timber Guide	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Fiber Cement Sheet.....E2	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Board & Batten..... Branz good practice guide	

Bracing NZS 3604

Comments

N/A NO YES

- ☒ ☐ ☐ Subfloor bracing.....B1 & NZS 3604
- ☐ ☐ ☒ Wall bracing..... B1 & NZS 3604
- ☐ ☐ ☒ Roof bracing..... B1 & NZS 3604
- ☐ ☐ ☒ Bracing calculations..... B1 & NZS 3604
- ☐ ☐ ☒ Provide bracing plan layout..... B1 & NZS 3604
- ☒ ☐ ☐ Double top plate (if > 5m)..... B1 & NZS 3604
- ☒ ☐ ☐ Indicate dragon tie (if > 6m)..... B1 & NZS 3604
- ☒ ☐ ☐ Diaphragm ceilings (if > 7.5m)..... B1 & NZS 3604
- ☐ ☐ ☒ Check for distribution B1 & NZS 3604

Light & Ventilation G4, Clause 1.2 ; G4, clause 1.3 G7 F2

Comments

General

- ☐ ☐ ☒ Vent 5%.....G4
- ☐ ☐ ☒ Light 10%.....G7
- ☐ ☐ ☒ Electrical.....G9
- ☒ ☐ ☐ Mechanical ventilation.....G4
- ☐ ☐ ☒ Exterior space for awareness.....G7

Glazing

- ☐ ☐ ☒ Safety glass.....F2 NZS 4223,NZS 4211
- ☐ ☐ ☒ Wind zone..... B1 & NZS 3604

Insulation BRANZ Home Insulation Guide, NZS 4218, AS/NZS 2918

Comments

- ☐ ☐ ☐ FloorH1
- ☐ ☐ ☐ Wall.....H1
- ☐ ☐ ☐ Roof.....H1
- ☐ ☐ ☐ Windows/glazing.....H1

Stairs / Landings / Handrails D1, sec 4

Comments

- ☐ ☐ ☐ Stair tread & risers.....D1
- ☐ ☐ ☐ Landing size.....D1
- ☐ ☐ ☐ Handrail.....D1
- ☐ ☐ ☐ Riser opening (min) where children.....D1
- ☐ ☐ ☐ Accessibility.....D1

Stair type

Minor Private: Max rise 220mm/Min tread 220mm,

Secondary Private: Max rise 200mm/Min tread 250mm,

Main Private: Max rise 190mm/Min tread 280mm. (Main private includes exterior stairs)

Decks / Balconies / Barriers <i>D1, F4 & NZS 3604, Section 6 & 7,</i>	Comments
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Barrier & deck fixing durability.....D1 B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Top rails, balusters, bottom rails, palings.....D1 B1	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> If Engineer then calculations required.....B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Max 3m height or Engineer.....B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Deck joist sizes, grade, treatment, span & spacing.....D1 B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Piles & bearers the correct grade, treatment, size, spacing & span.....D1 B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Slip resistance .....D1	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Appropriate waterproofing membrane..... B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Stringer size & connections .....D1 B1 B2	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Thresholds.....D1 E2	

Wood burners /Outbreak of Fire (Solid Fuel / Gas) <i>G12/ AS1 NZS 5261 C/AS1 part 9 – 9.5</i>	Comments
---	----------

- | | |
|--|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Manufacturer specifications including hearth dimensions | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Flue details | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Wetback | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Seismic restraint | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Gas appliances NZS 5261 | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Ventilation | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open fires c/as1 part 9 – 9.5 | |

Fire <i>NZBC F7;Cdoc</i>	Comments
--------------------------	----------

- | | |
|--|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Travel distances max 24m.....C3.15 | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Smoke detectors.....F7 | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Garage fire wall details .....C7 (C7.10 C7.8) | |

Swimming Pool & Fencing <i>Fencing of Swimming Pools Act 1987'</i>	Comments
--	----------

- | | |
|--|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Refer to Compliance for sign off | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Specific Engineering Design | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Proprietary system/design | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Section/construction | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Pool backwash discharging the sewer | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Fence height | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Gate(s) / door(s) open outward | |

Effluent Disposal Systems	Comments
---------------------------	----------

- | | |
|---|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Engineering Site Investigation | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Design Specification & Producer Statement | |
| <i>(The design criteria should include; Capacity based on bedroom numbers, Loading calculation, site evaluation, soil profile, site characteristics.)</i> | |



Water Supplies		<i>Comments</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Town supply, <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Private scheme <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Type & location <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Size	N/A		
Sanitary Drainage		<i>Comments</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Layout <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Council availability or <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Septic tank design & calcs <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Registration/qualification	N/A		
Stormwater Drainage		<i>Comments</i>	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Layout <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Council availability <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Registration/qualification			
Sanitary Plumbing		<i>Comments</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Layout <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Council availability <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Registration/qualification	N/A		
Sign below if all the plans, specifications & documentation comply with the Building Code.	Refer to the associate code clause along side each prompt above for compliance		
Signature, name & date P+D checked O.K. Simon Gopp 25/7/08			

Date / Time	Dialogue Record List Further Information Requested – Record / Reference Communication:	Summary of dialogue. (Reference to documents sent/received)
	Phone / Email / letter / counter / fax	
Date		
Time		
Date		
Time		
Date		
Time		
Date		
Time		
Date		
Time		
Date		
Time		
Alternative Solutions: Record assessment, decision and reasons for decisions below. Has the designer substantiated why they believe the proposal complies with the building code? Is there a determination on a similar proposal? Has corroborative evidence been provided (peer review, appraisal or determination)? Include reference to comparison with acceptable solutions, other documents / standards / best practice guides / publications, expert opinion, determinations, in-service history, product certification, professional judgment, building code objectives. Refer BRANZ Bulletin # 456 (Dec 2004). List any conditions / communications / actions:		
Date:		
Waiver – Sec. 67 - 69: (Record assessment, decision and reason for decisions below - confirm that notification has been sent to CE of DBH). List conditions / communications / actions:		
Date:		
Compliance Schedule – Sec 100 - 107: (record if new / amended compliance schedule required, and attach copy of replica compliance schedule. Ensure that note is recorded on building consent that new / amended compliance schedule will be issued).		
Date:		
Alteration to Existing Building – Sec 112: (record decisions and basis for decisions – confirm whether sec 118 applies and if so, has it been complied with?). List conditions / communications / actions:		
Date:		

Addenda to Form 436

Allocation of work to approvals officer outside current competency

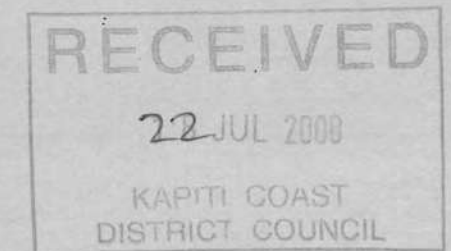
Building Consent No.	
Building Category	Circle appropriate category 0 1 2 3

1) Authorized by Team leader or delegate	Level of supervision reqd	Reason for decision
Name, Signature & date	Coaching Mentoring Peer review on completion	
2) Approval Officer undertaking training	Record of Learning	Decision
Name, Signature & date 28/7/08 		Approved
Current competency level Category 0, 1 or 2		
3) Coach/Mentor/Peer reviewer	Training needs identified	Comments
Name, Signature & date 	None required.	Tina has got these sorted
Current competency level Category 1, 2 or 3		

Allocation notes

- Categories of building are determined on receipt of application
- All applications are placed in processing shelves according to category
- Approvals staff are aware of their own competency level and have access to staff competency matrix
- Approval staff will select work from category range for which they are deemed competent
- Approvals staff may select, for training purpose, a consent 1 (one) category higher than their current competency for the purpose of increasing their skill level provided they gain approval from the Team Leader Building Consent Approvals. Once approval is given the Team Leader Building Consent Approvals will arrange for the appropriate supervision and final peer review.

**Processing Check Sheet
for
Project Information Memorandum (PIM)**



Property Address: 132 Derham Road, Te Horo					
Legal Description: Lot: 18 DP: 405220					
Building Project: New Garage					
Building Consent/PIM Number: BC 080625P					
Zone: Rural					
Items to check	Yes	No	Action reqd	Actioned	Date & Signature
Certificate of Title	✓		Received		
Easements	✓		Drainage Rights		
Section 221	✓		Include copy of S221		
Section 72		✓	Advise Approvals Team of S72 reqd		24.7.08
Existing Resource Consent	✓		Include copy 040393 070283 080012		
District Plan features		✓			
Designations	✓		Coastal Dune Policy Area		
Heritage register		✓			
Flood hazards	✓		Stream Overflow Path		
Min floor level reqd	*		Advise F.F. level		
Other hazards		✓	Refer to Greater Wellington Regional		
EQ faults		✓	Vicinity Hazardous Site Council		
Services		✓	SH1 (Ngatararua 2FG)		
ECO sites		✓			
Yards		✓	Neighbours approval for one yard encroachment		
HIRB		✓			
Maximum height		✓			
Site coverage		✓			
Earthworks		✓			
Permeable surface area		✓			
Onsite parking		✓			
DIF fees		✓	Calculate fees		
Recourse Consent reqd		✓	Apply Section 37		



Project Information Memorandum No...080625P

Building Project...Non-Habitable Garage

Lot 18

Te Horo Country Estate

Te Horo

Decision: (delete items that don't apply)
Application complies and PIM can be issued.

PIM can be issued subject to section 37 Certificate
PIM is refused.

* Requested CT. ~ received
24.7.08 28.8.08 *
J. Lee

FOR OFFICE USE ONLY

FEES	PIM Fee	\$.....
\$.....	RECEIPT NO.	DATE
\$.....	INVOICE NO	DATE
\$.....	RECEIPT NO	DATE
SUBTOTAL		
Less Deposit Paid		
TOTAL		
GST INCLUDED		



Project Information Memorandum

Section 34, Building Act 2004

Application

Total Span Wellington/Horowhenua
PO Box 376
Lindale Tourist Complex
Paraparaumu 5032

No. 080625P
Issue date 28/08/08
Application date 22/07/08

Project

Description Domestic only - garages
Being Stage 1 of an intended 1 Stages
Non-habitable Garage
Intended Life Specified as 50 years
Intended Use Rural, Residential
Estimated Value \$65,000
Location 132 Derham Rd, Te 400
Legal Description Lot 18 Te 400 Country Estate
Valuation No.

This project information memorandum is confirmation that the proposed building work may be undertaken, subject to the provisions of the Building Act 2004, and any requirements of the building consent.

This project information memorandum includes:

- ___ Information identifying special features of the land concerned
- ___ Details of relevant utility systems
- ___ Details of authorisations which have been granted

Signed for and on behalf of the Council:

Name:

Date:

2/9/08



PROJECT INFORMATION MEMORANDUM - BC 080625P

Application Details

Applicant Name :
Contact Address :
Location :
Legal Description :
Proposal :

Application Details

Use Permitted :	Permitted activity
Resource consent granted :	RM040393,070283,080012 (previous consents)
Designations on property :	Coastal Dune Policy Area
Easements :	Drainage Rights
Site subject to inundation :	Stream Overflow Path
Relocatable zone :	N/A
Coastal building line restriction :	N/A
Minimum floor level (50 year event) :	Refer to Greater Wellington Regional Council
Floor level (100 year event) :	Refer to Greater Wellington Regional Council
Yard and height requirements :	Comply
Tree/building preservation :	None listed

Comments

Consent notices, covenants, and like listings registered on the title are the responsibility of the applicant. Search this property title for any impediments to this proposal. All work shall be carried out in accordance with Resource Consent RM040393 and Section 221 Consent Notices.

Note: Minimum floor levels must use Mean Sea Level Wellington Datum 1953. Certification that the floor level complies with the minimum floor level will be required from a registered surveyor prior to foundation inspection.

Special Features of the Land

Potential erosion :	Not known to be
Potential avulsion :	Not known to be
Potential subsidence :	Not known to be
Potential slippage :	Not known to be
Potential alluvion :	Not known to be
Potential inundation :	Stream Overflow Path
Presence of hazardous contaminants :	Not known to be

Other features

For the purposes of subdivision and development this property is located within the Coastal Dune Policy Area of the Operative KCDC District Plan 1999.

Plumbing and Drainage Details

Sewer available / connected :	Not available
Water available / connected :	Not available
Site plan of existing services :	Not supplied
Location of sewer lateral :	none
Location and size of water toby :	none
Location of public drains (if any) :	N/A
Location of easments (if any) :	unknown ensure that the building is clear of any
Stormwater disposal to :	Soak pit

Plumbing and drainage notes

Kapiti Coast District Council
Private Bag 601
Paraparaumu 5254

Tel. (04) 296 4700
Fax (04) 296 4830

E: kapiti.council@kapiticoast.govt.nz
W: www.kapiticoast.govt.nz



15 January 2008

Pritchard Group Ltd
20 Addington Road
RD1
OTAKI



Attn: Brian Warburton

Dear Brian

**RM070283: SECTION 127 CHANGE CONDITIONS 1, 2 AND 24 OF RM040393 AT
STATE HIGHWAY 1, TE HORO**

We are pleased to enclose the decision for the above planning application.

If you do not agree with the decision you may object and have the matter considered by Hearing Commissioners. This is done by lodging an objection in accordance with Section 357 of the Resource Management Act 1991. Please note that, if you do wish to object, you must advise the Resource Consents Manager within 15 working days from the date of receiving this consent.

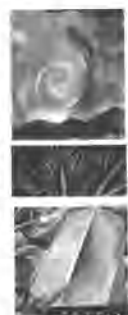
There is no deposit for an objection. However, a fee of \$180.00 (including GST) is required if Council's Subdivisional Engineer is involved. Time and costs will also be charged unless waived by the Hearing Commissioners and if an objection is upheld there will be no charges; if upheld in part then a proportion of costs will be charged.

If you have any concerns or enquiries please contact me on (04) 296 4819.

Thank you for dealing with the Kapiti Coast District Council.

Yours sincerely

Dean Raymond
Resource Consents Planner



**CHANGE OF CONDITIONS UNDER
S.127 OF THE RESOURCE MANAGEMENT ACT 1991
CONSENT NO: RM070283**

APPLICANT:	Pritchard Group Ltd
LOCATION OF ACTIVITY:	Derham Road, Te Horo
DESCRIPTION OF ACTIVITY:	Change to Conditions 1, 2, and 24 of RM040393

DECISION: Granted on 14 January 2008.

Officers acting under Delegated Authority from Council and pursuant to Section 127 of the Resource Management Act 1991 granted consent to change conditions 1, 2 and 24 of RM040393 Faith Farm Estate Ltd) for subdivision at Derham Road, Te Horo at 132 State Highway 1, Te Horo (Lot 29 DP 365855) as follows:

Note: Changes to conditions are shown underlined.

Condition 1

The title plan or e-survey data set must conform generally to the subdivision consent proposal shown on Pritchard Group Limited drawing number SC.5.FH.1, dated 25/01/05 and submitted with the application no. RM040393, except for the second stage of the subdivision in which case the title plan or e-survey data set must generally conform to the subdivision consent proposal shown on Pritchard Group Ltd plan no. SC.5.FH.1 (rev C) dated 11/12/07 in which case the second stage may be sub-staged as shown on Pritchard Group Ltd plan nos SC.5.FH.1 (rev C) Stage 2A and SC.5.FH.1 (rev C) Stage 2B, and SC.5.FH.1 (rev C) Stage 2C all dated 11/12/07.

Condition 2

The earthworks and roading must generally conform with the proposal shown on Pritchard Group Limited Earthworks plan, drawing number FH-EW-01-A3, dated 9/04/05 and submitted with the application no. RM040393, except for earthworks for the house site in Lot 22 in which case the earthworks must generally conform with the proposal shown on Pritchard Group Ltd plan no. FH-EW-01-A3 (rev A), dated 03/09/07

Condition 24

Rights-of-way (where those correspond to right-of-way easements shown in a

memorandum of easements on the survey plan) shall, as a minimum, be formed and metalled, except for the rights of way within Area A on Pritchard Group Ltd plan no. SC.5.FH.1 (rev C) stage 2A, and within Area B on Pritchard Group Ltd plan nos. SC.5.FH.1 (rev C) stage 2B and SC.5.FH.1 (rev C) Stage 2C. The entrance at the road berm shall be formed, metalled and sealed in accordance with a design included with the engineering drawings to be submitted to Council for the Subdivision Engineer's approval.

Reasons for Decision:

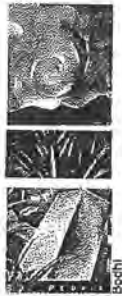
In accordance with Sections 104 and 104B of the Resource Management Act 1991 the actual and potential effects associated with the proposed activity have been assessed and are outlined in the report. It is considered that the adverse effects of the proposed activity on the environment will be minor and that the proposed activity is not contrary to the relevant Objectives, Policies and Assessment Criteria of the Kapiti Coast District Plan.

Dean Raymond
Resource Consents Planner

Kapiti Coast District Council
Private Bag 601
Paraparaumu 5254

Tel. (04) 296 4700
Fax (04) 296 4830

E: kapiti.council@kapiticoast.govt.nz
W: www.kapiticoast.govt.nz



**CONSENT NOTICE
PURSUANT TO SECTION 221 OF
THE RESOURCE MANAGEMENT ACT 1991**

**IN THE MATTER OF A PLAN LODGED FOR
DEPOSIT UNDER NUMBER 405220
AND RESOURCE CONSENT NO. RM040393**

**(BEING THE SUBDIVISION OF LOT 29 DP 394017),
AT DERHAM ROAD, TE HORO
FOR PRITCHARD GROUP LTD**

COPY FOR
Pim

The Regional Regulatory Titles Officer at Wellington

PURSUANT to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and in respect to Lots 13 to 22 and Lot 24 the following conditions are to be complied with on a continuing basis:

1. **With respect to Lots 13 to 22 and Lot 24:** The following works shall take into account the findings and recommendations within the Report prepared by Hamish Wells in relation to Faith Country Estate, Lots 13-24, submitted to Council in relation to application Number RM040393:
 - (a) Foundation design and construction for any new building or additions and alterations to a building;
 - (b) The installation and ongoing maintenance of any on-site wastewater treatment and disposal system, which shall be managed in a manner that ensures that any adverse effects on the environment are minor;
 - (c) The provision, maintenance and monitoring of any water supply system that provides a minimum storage capacity of 30,000 litres. It is the ongoing responsibility of the owner to maintain and monitor the water supply so that any adverse effects on the environment are minor.

A copy of the report is available in Council's Office at any time the office is open to the public.

2. **With respect to Lots 13 to 22 and Lot 24:** Any habitable buildings constructed on this lot shall have their floor level no lower than the flood level arising from the 1 in 100 year flood event current at the time of building, as advised by Greater Wellington Regional Council.
3. **With respect to Lots 13, 14 15 and 24:** No part of any building or structure shall be located, or earthworks undertaken (except that work necessary to establish and maintain vegetation), within the following areas of the dominant dune landform identified on DP 405220:
 - (a) That part of Lot 15 shown as area "H" (above 27.5 metres above mean sea level);
 - (b) Those parts of Lot 14 shown as areas "I" and "J" (above 32.5 metres above mean sea level);

- (c) That part of Lot 13 shown as area "K" (above 32.5 metres above mean sea level).
- (d) That part of Lot 24 shown as area "M" (above 32.5 metres above mean sea level).
4. With respect to Lot 24 and in particular that part of Lot 24 shown as area "L" on DP 405220:
- (a) It shall be the ongoing responsibility of the owners of Lot 24 to maintain a 7 wire post and batten fence to a standard to prevent stock from entering the wetland area shown as "L" on DP 404220 at all times;
 - (b) It shall be the ongoing responsibility of the owners of Lot 24 to control environmental weeds which are referred to in the Regional Pest Management Strategy within the wetland area;
 - (c) Within the area shown as "L" on DP 405220 (the wetland area) the following activities shall be prohibited:
 - all buildings and structures;
 - all stock;
 - vehicles;
 - fire or any device or activity which could result in a fire;
 - earthworks (except for earthworks necessary to construct and maintain the fence referred to in Condition 4(a) above;
 - the damage, removal, destruction, felling of any indigenous vegetation unless the species involved are identified by the Department of Conservation, the QEII National Trust, or Greater Wellington Regional Council as being an ecological threat to the site, and its removal is recommended by one of these authorities as a necessary part of the successful ongoing management of the site.
5. With respect to Lots 16, 17, 20 and 22: It shall be the ongoing responsibility of the owners of these lots to maintain the planting in accordance with the approved planting plan labelled 'Mission Estate Landscape Plan to meet the requirements of Condition 52' submitted to Council in relation to application Number RM040393. A copy of the report is available in Council's Office at any time the office is open to the public.

Issued in respect of application No. RM040393 on this 18th day of June 2008.



Dean Philip Raymond
AUTHORISED OFFICER



David Wayne Gair
AUTHORISED OFFICER

**Processing Check Sheet
for
Project Information Memorandum (PIM)**

Property Address: <u>132 Derham Rd, Te Horo</u>					
Legal Description: Lot: <u>18</u> DP: <u></u>					
Building Project: <u>Amendment: New drainage showing</u>					
Building Consent/PIM Number: BC <u>080625A</u> <u>Septic Tank</u>					
Zone: <u>Rural</u>					
Items to check	Yes	No	Action reqd	Actioned	Date & Signature
Certificate of Title					
Easements					
Section 221			Include copy of S221		
Section 72			Advise Approvals Team of S72 reqd		
Existing Resource Consent			Include copy		
District Plan features					
Designations					
Heritage register					
Flood hazards					
Min floor level reqd			Advise F.F.level		
Other hazards					
EQ faults					
Services					
ECO sites					
Yards			Neighbours approval for one yard encroachment		
HIRB					
Maximum height					
Site coverage					
Earthworks					
Permeable surface area					
Onsite parking					
DIF fees			Calculate fees		
Recourse			Apply Section 37		
Consent reqd					

Decision: (delete items that don't apply)
 Application complies and PIM can be issued.
 PIM can be issued subject to section 37 Certificate
 PIM is refused

* Nil Planning issues indicated with 'amended plans' submitted *
Lee 21.10.08.



Project Information Memorandum No... 080625A

Building Project...

New Drainage showing
 Septic Tank
 Lot 18 - Te Horo Country
 Estate
 TE HORO

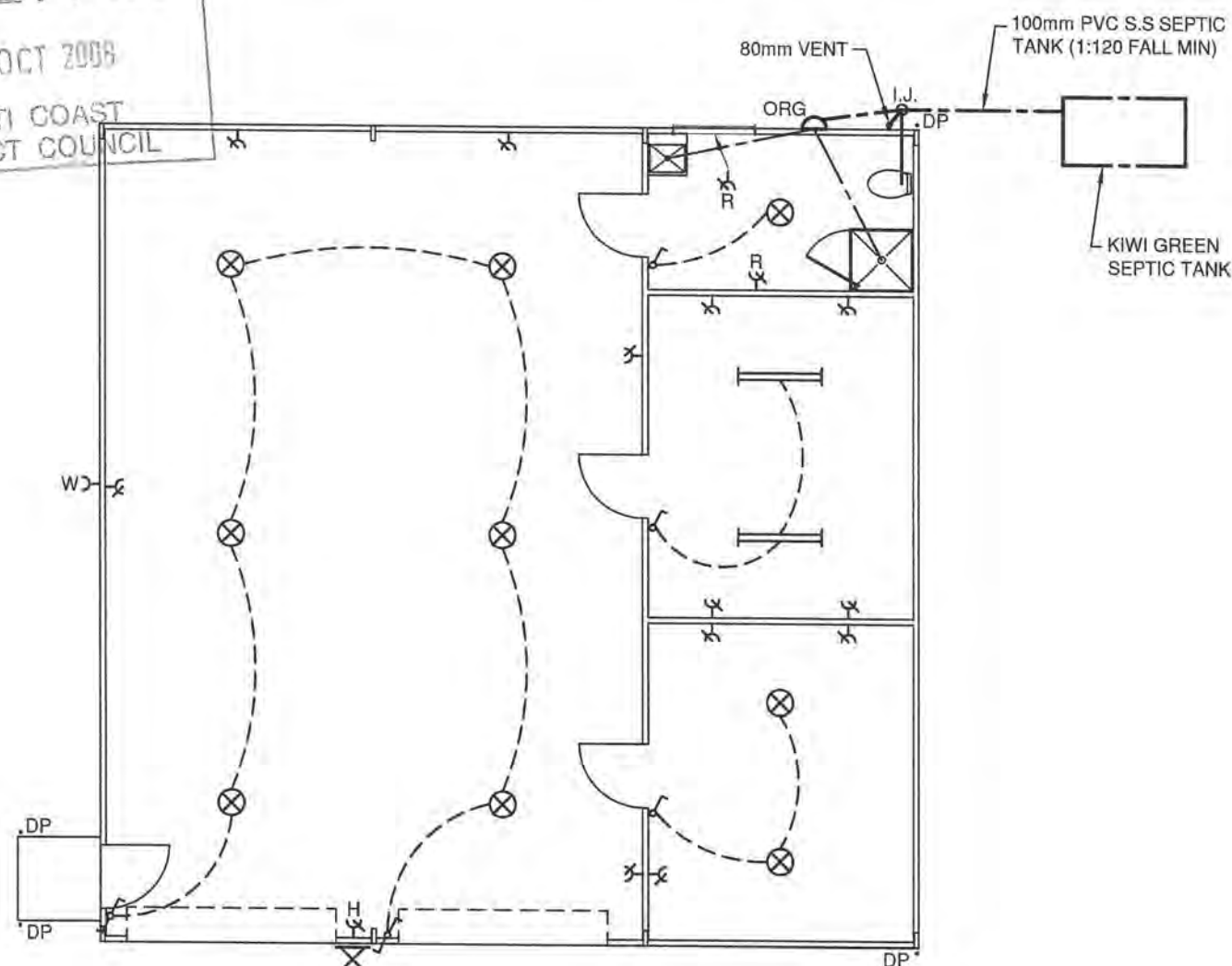
FOR OFFICE USE ONLY

FEES	PIM Fee	\$.....
\$.....	RECEIPT NO.	DATE
\$.....	INVOICE NO	DATE
\$.....	RECEIPT NO	DATE
SUBTOTAL		
Less Deposit Paid		
TOTAL		
GST INCLUDED		

RECEIVED

17 OCT 2008

KAPITI COAST
DISTRICT COUNCIL



SERVICES PLAN

SCALE: 1:100

ELECTRICAL LEGEND

- ⊗ CEILING MOUNTED LIGHT FITTING
- == FLUORESCENT LIGHT FITTING
- ⊗ WEATHERPROOF WALL MOUNTED SENSOR SPOTLIGHT
- ⌋ LIGHT SWITCH
- ⌋ TWO WAY LIGHT SWITCH
- ⊕ DOUBLE SOCKET OUTLET 1.3m A.F.L. UNLESS NOTED OTHERWISE
R = FED FROM RCD PROTECTED CIRCUIT
H = MOUNTED AT 2.8m A.F.L.
- W ⊕ WEATHERPROOF SINGLE SOCKET OUTLET

NOTES:

1. ALL ELECTRICAL WORK TO BE CARRIED OUT BY (OR UNDER THE SUPERVISION OF) A CERTIFIED PRACTITIONER UNDER THE ELECTRICAL REGULATIONS 1993. UPON COMPLETION, TEST ALL WORK AND PROVIDE A CERTIFICATE OF COMPLIANCE FOR THE ENTIRE WORKS. CONTRACTOR TO ALLOW TO SUPPLY, INSTALL, CONNECT AND SERVICE ALL ELECTRICAL FITTINGS AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE OWNER. REFER TO THE ELECTRICAL SERVICES DRAWING AND LEGEND FOR GUIDANCE. CONTRACTOR SHALL ALSO ALLOW FOR CONNECTION AT THE MAINS SUPPLY, EARTHING, TRENCHING AND CABLEING TO THE DISTRIBUTION BOARD, INSTALLATION OF METER PANEL AND MAIN SWITCH.
2. ALL WATER PIPEWORK TO COMPLY WITH G12/AS1. MAKE CONNECTION, TRENCH, LAY AND BACKFILL FOR NEW 20mm POLYETHYLENE COLD WATER MAIN. INSTALL ISOLATION VALVE AND BRANCH OFF TO EXTERIOR TAPS AND VARIOUS SANITARY/APPLIANCES WITH 12mm POLYBUTYLENE PIPEWORK.
3. ALL SANITARY SEWER WORK TO COMPLY WITH G13/AS1 & AS2. LAY IN TRENCH TO FALL ON APPROVED BEDDING. 100mm NOMINAL BORE UPVC SEWER PIPES WITH A MINIMUM DISTANCE TO INVERT LEVEL OF 600mm BELOW GROUND LEVEL. INSTALL INSPECTION BENDS AT ALL CHANGES OF DIRECTION AND CLEANING EYES AT BRANCH TERMINATIONS. POSITION OVERFLOW RELIEF GULLY AS INDICATED ON THE DRAWINGS. INSTALL THE APPROPRIATE TRAPS ON ALL SANITARY FITTINGS TO MATCH THE DIAMETER OF THE DISCHARGE PIPES AND CONNECT BELOW GRATE LEVEL ON THE OVERFLOW RELIEF GULLY. INSTALL TERMINAL VENT TO DRAINAGE SYSTEM IN THE POSITION INDICATED. PIPE TO SEPTIC TANK AS INDICATED.
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6. WASTE PIPES FROM SHOWER AND TUB TO BE 40mmØ UPVC. WASTE PIPE FROM WC TO BE 100mmØ UPVC WITH MINIMUM GRADIENTS AS FOLLOWS:

40Ø	1 : 40
100Ø	1 : 60

TOTALSPAN
STEEL SHEDS & BUILDINGS

Drawings Prepared By:

TOTALSPAN WELLINGTON

LINDALE TOURIST COMPLEX Ph: (04) 297 0033
PO BOX 376 Fax: (04) 297 0031
PARAPARAUMU Mobile: (027) 252 6232
e-mail: wellington@totalspan.co.nz

Proposed Building For:

PEACH 14 TRUST
P.O. BOX 7072
WELLINGTON SOUTH

Site Address:

LOT 18
TE HORO
COUNTRY ESTATE

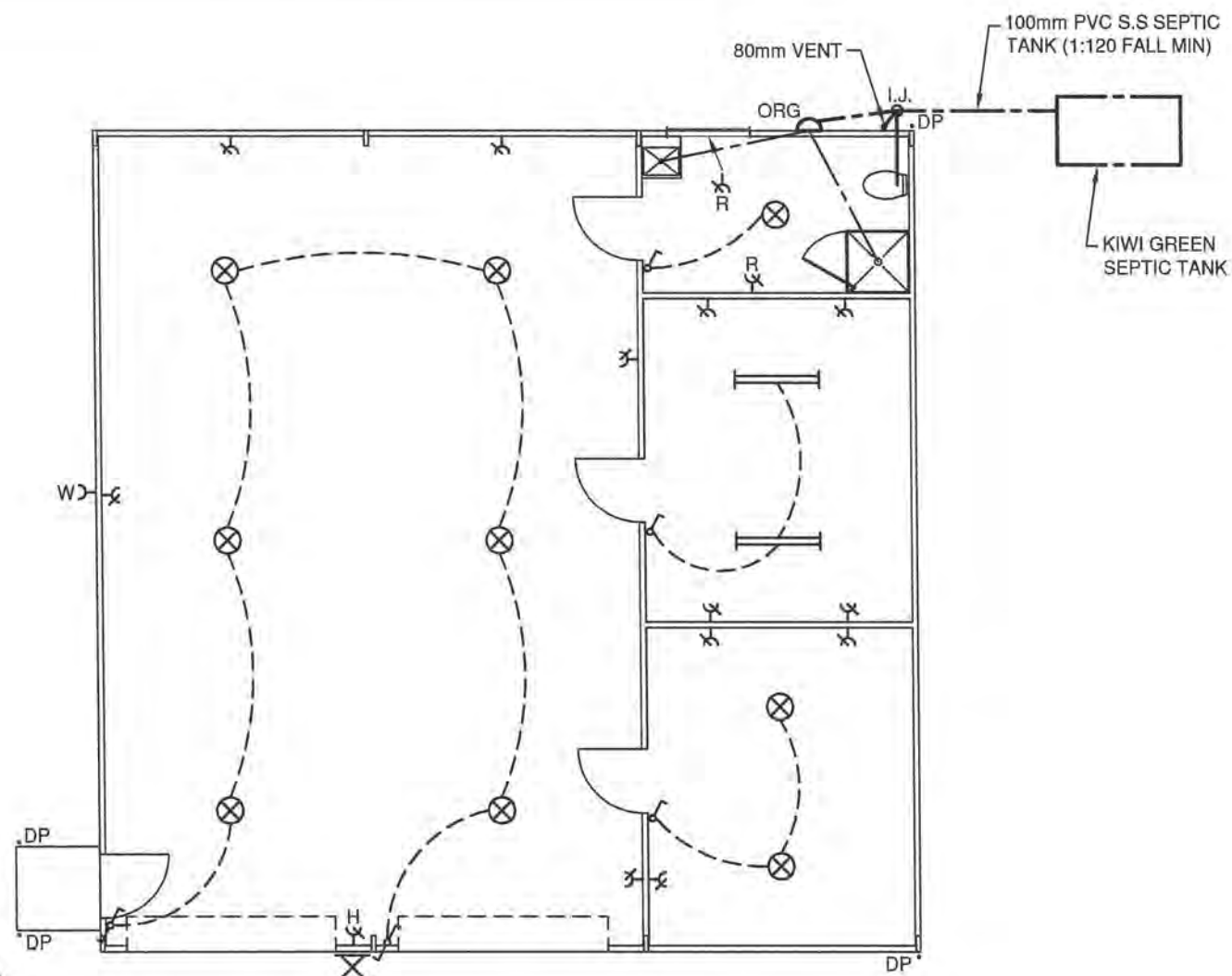
11.750m SPAN
S50 (VERY HIGH)
BASIC WIND SPEED
V = 50m/s T.C.2

Date Drawn:

14-Oct-08

Order #:

806362



SERVICES PLAN

SCALE: 1:100

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S50 (VERY HIGH)
BASIC WIND SPEED
V = 50m/s T.C.2

Date Drawn:
14-Oct-08
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806362

KCDC Building Consent Authority
Building Consent AMENDMENTS Documentation

RECEIVED

Filed 17 OCT 2008

KAPITI COAST
DISTRICT COUNCIL

BC No.
Street Address.

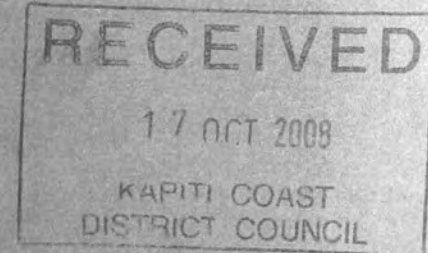
**New Drainage showing
Septic Tank
Lot 18 – Te Horo Country
Estate
TE HORO**

Tick indicates document(s) included in this Building Consent

Tick indicates document(s) included in this Building Consent								
Amendment Consent Application,								<input checked="" type="checkbox"/>
Costing schedule,								<input checked="" type="checkbox"/>
Amended Plans and specifications,								<input checked="" type="checkbox"/>
Invoice and receipt,								
Processing records/checksheets,								
Inspection page printouts								
Amended Building consent and memorandum,								
Producer statements and supporting documentation,								
Peer review documents,								
Fire design documents,								
Requests for further information and other correspondence,								
Supplementary information,								

This form comprises part of the Building Consent documentation and indicates the contents of the Building Consent File. Refer KCDC Policy 029.

DEPARTMENT	TICK FOR REFERRAL	COMMENTS	APPROVING OFFICER DATE
Planning	✓		
Plumbing and Drainage	✓		
Building	✓	Shun H. Ng	28/10/08
Fire Design			
Compliance Schedule			
Structural			
Hazardous Substances			
Environmental Health			
NOTES:			



Amended BC Application

Building Consent No.....080625A.....

Building Project

New Drainage showing
Septic Tank
Lot 18 - Te Horo Country
Estate
TE HORO

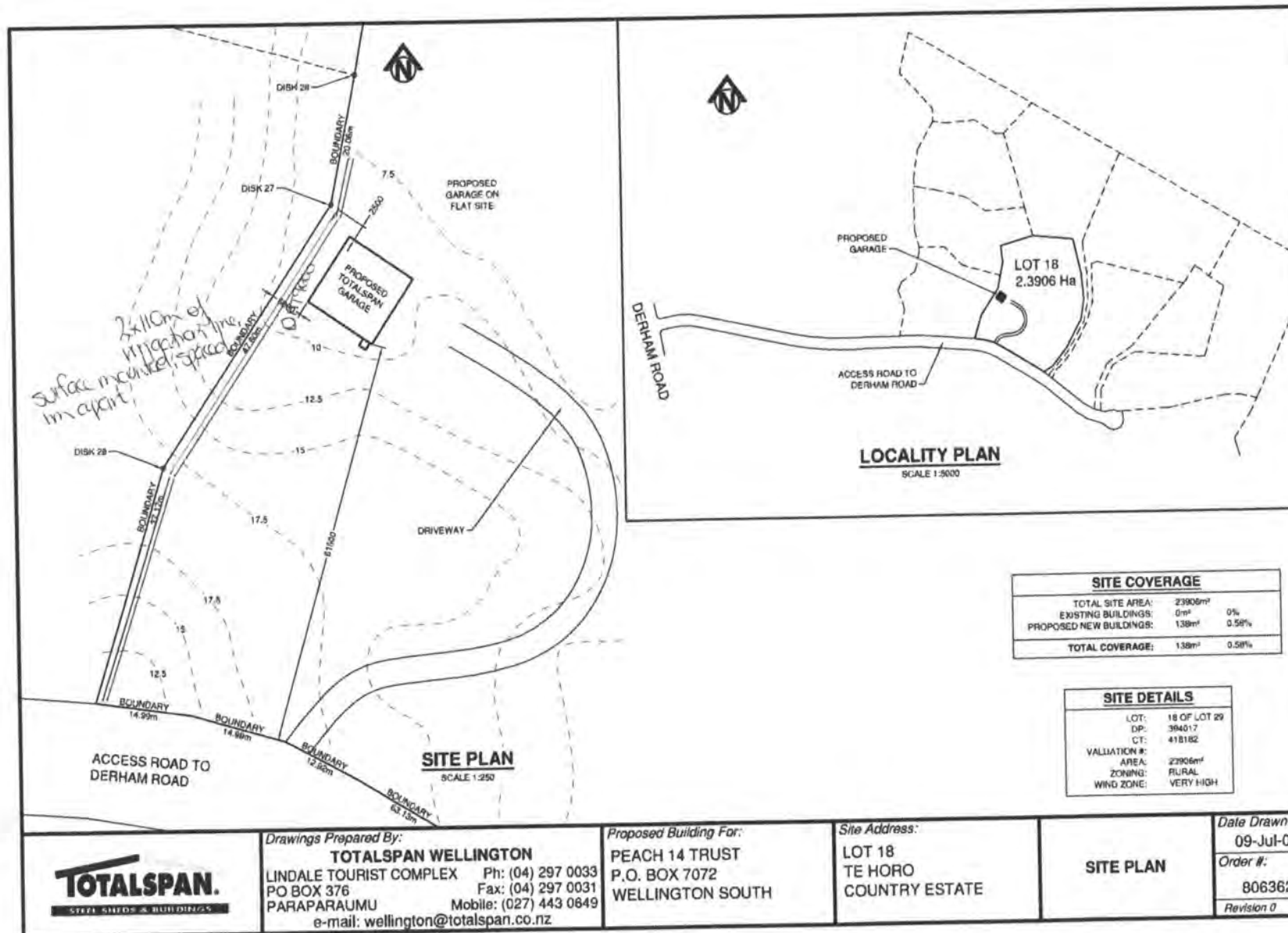
Scanned 20/10/08

CONSENT DATA INPUT REQUIREMENTS

REQUIRED INSPECTIONS		32	✓	Lapse and cancellation after 12mths of consent	23		Installation of solid fuel appliance (wood burner) comply and secured
	Foundation/Piles						
	Block	2		Engineer design specific components	23A		Second hand wood burner certified
	Pre-Slab (Plumbing)	3		Foundations to solid bearing of 200mm	25		Contractor to leave site clean and clear
	Pre-Slab (Building)	4		NZS3604 as acceptable solution in terms of NZ Building Code	30		To comply with Food Hygiene Regulations 1974
	Sub-Floor	6		Not approved as Habitable Room	31		As in CCZ, all fixings need to be stainless steel
	Drainage	9		Note and comply with all endorsements on approved plans	33		Approval only given for relocation purposes
	Pre-Wrap	10		Names and Registration of plumber and drain-layer required	34		If cladding to have pre-finished colour coating, to be appropriate for coastal conditions
	Pre-Clad						
	Weathertightness						
	Pre-lining (Building)	11		Concealed soil and TV pipes and gas flues only allowed in ducts or minimum framed	38		Window sashes on upper levels less than 760mm above floor to have stays fixed
	Pre-lining (Plumbing)						
	Wet areas - membrane	12		Hot & Cold water pipes tested to 1500kPa	39		Construction of playground to comply with NZS5628
	Post Lining						
	Brick Veneer	13		Roof stormwater to be connected to existing	40		Fencing, gates, doors directly leading to swimming pool to comply with Pool Act 1987
	Retaining Wall						
	Final (Dwelling)	14		Copper water pipes not permitted	43		Textured systems should be applied by licensed, trained applicators – supply warranty
	Final (Commercial & Multi-resd)						
		15		Owner/builder to ensure prop foundation height will allow satisfactory connection	44		Exterior cladding system to be completed and inspected prior to internal lining
		21		Minimum FFL to comply with NZS3604			

STANDARD CONSENT CONDITIONS		
	37	
	72	
	80	

NON-STANDARD ADDENDA



21 October 2008

Totalspan Wellington/Horowhenua
PO Box 376
Lindale Tourist Complex
Paraparaumu 5032

Building Consent: 080625A

Dear Sir/Madam

Request for further information

Description: New Drainage showing septic tank
Location: 132 Derham Rd, Te Horo
Legal Description: Lot 18 Te Horo Country Estate

Unfortunately, we are unable to process your *Building Consent* until we receive the information detailed below.

Information Needed:

Please provide a full sewage treatment system including the effluent layout on a site plan
show design calculations. *provided*
Show method and location of heating water.
Provide details for storage of potable water.] *not provided 16/2/09*

You will be invoiced for the additional inspections that will need to be carried out.

We have suspended your application and will not proceed any further until the above information is received. Please send it to us by 4th October 2008. If we do not receive it by this date, we may not be able to issue your *Building Consent*.

Please contact me if you would like to discuss this matter.

owner Rung 5/3/2009

Yours sincerely

Simon Copp

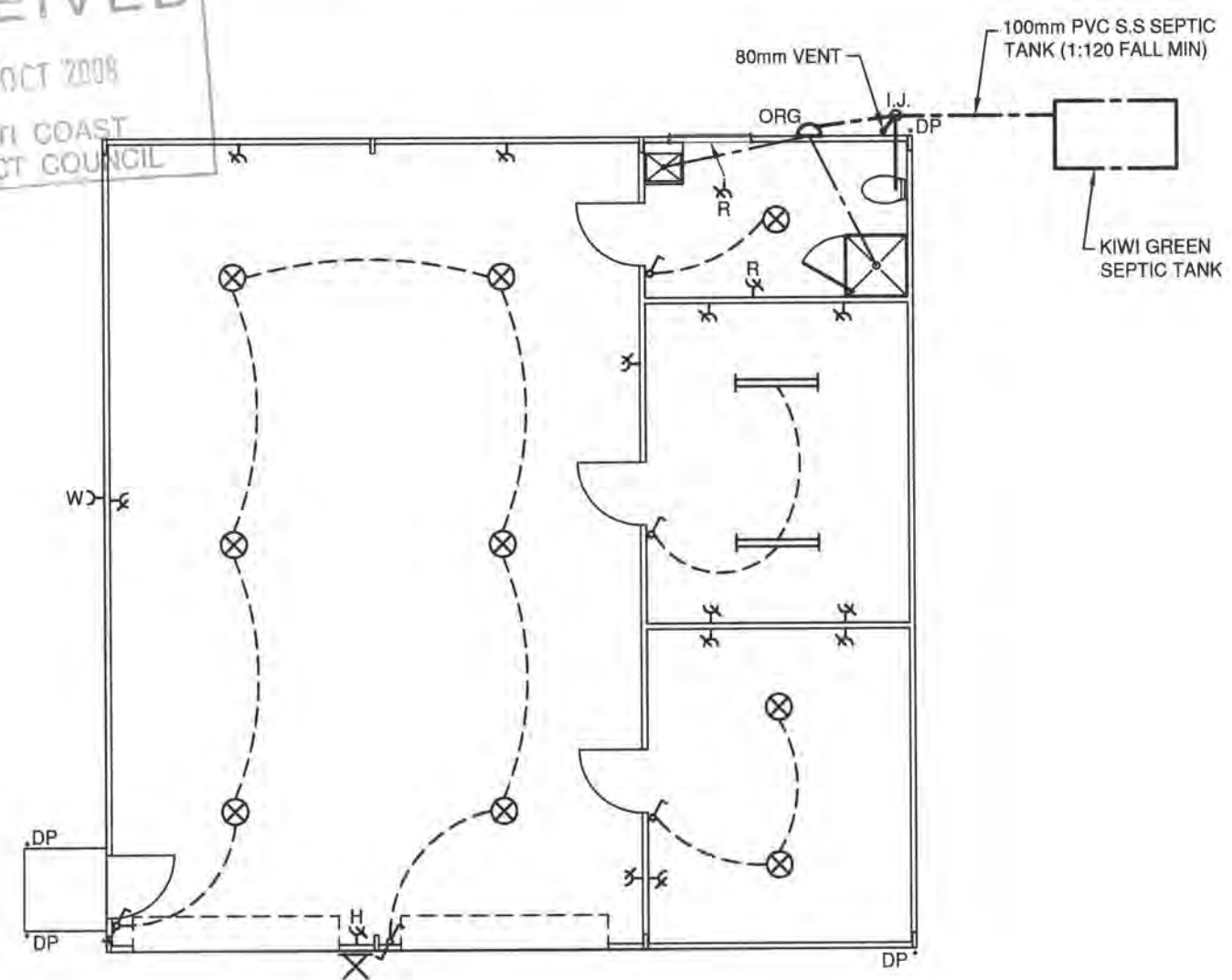
Building Control Officer

*= Grey Cured Plumber + Drainlayer
= Gas fitter
= Electrical cent.*

COPY

*a copy of the letter resent to the owners
address 16/12/08 Simon*

RECEIVED
17 OCT 2008
KAPITI COAST
DISTRICT COUNCIL



SERVICES PLAN
SCALE: 1:100

ELECTRICAL LEGEND

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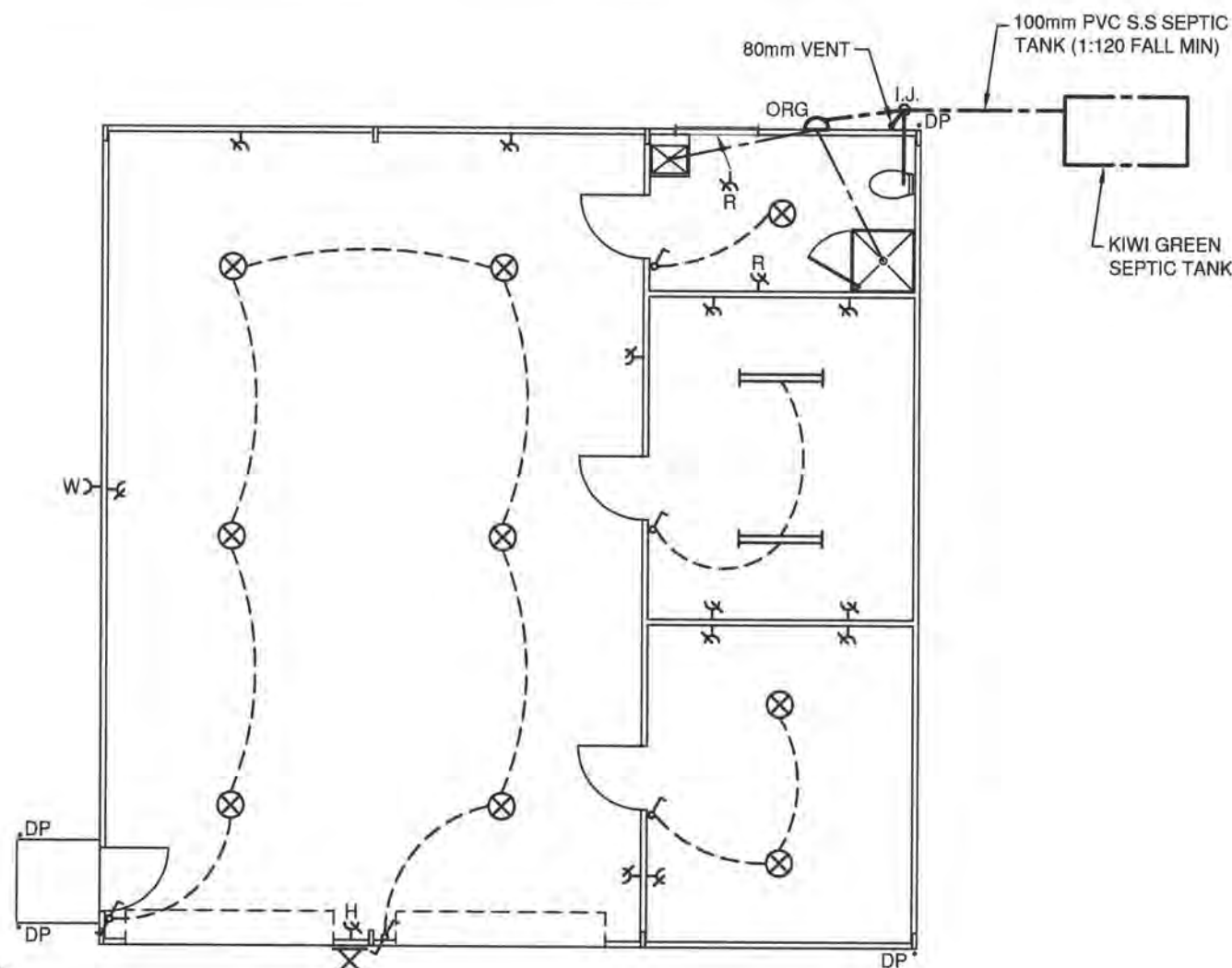
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Site Address:
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11.750m SPAN
S50 (VERY HIGH)
BASIC WIND SPEED
V = 50m/s T.C.2

Date Drawn:
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SCALE: 1:100

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NOTES:

- ALL ELECTRICAL WORK TO BE CARRIED OUT BY (OR UNDER THE SUPERVISION OF) A CERTIFIED PRACTITIONER UNDER THE ELECTRICAL REGULATIONS 1993. UPON COMPLETION, TEST ALL WORK AND PROVIDE A CERTIFICATE OF COMPLIANCE FOR THE ENTIRE WORKS. CONTRACTOR TO ALLOW TO SUPPLY, INSTALL, CONNECT AND SERVICE ALL ELECTRICAL FITTINGS AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE OWNER. REFER TO THE ELECTRICAL SERVICES DRAWING AND LEGEND FOR GUIDANCE. CONTRACTOR SHALL ALSO ALLOW FOR CONNECTION AT THE MAINS SUPPLY, EARTHING, TRENCHING AND CABLING TO THE DISTRIBUTION BOARD, INSTALLATION OF METER PANEL AND MAIN SWITCH.
- ALL WATER PIPEWORK TO COMPLY WITH G12/AS1. MAKE CONNECTION, TRENCH, LAY AND BACKFILL FOR NEW 20mm POLYETHYLENE COLD WATER MAIN. INSTALL ISOLATION VALVE AND BRANCH OFF TO EXTERIOR TAPS AND VARIOUS SANITARY/APPLIANCES WITH 12mm POLYBUTYLENE PIPEWORK.
- ALL SANITARY SEWER WORK TO COMPLY WITH G13/AS1 & AS2. LAY IN TRENCH TO FALL ON APPROVED BEDDING. 100mm NOMINAL BORE UPVC SEWER PIPES WITH A MINIMUM DISTANCE TO INVERT LEVEL OF 600mm BELOW GROUND LEVEL. INSTALL INSPECTION BENDS AT ALL CHANGES OF DIRECTION AND CLEANING EYES AT BRANCH TERMINATIONS. POSITION OVERFLOW RELIEF GULLY AS INDICATED ON THE DRAWINGS. INSTALL THE APPROPRIATE TRAPS ON ALL SANITARY FITTINGS TO MATCH THE DIAMETER OF THE DISCHARGE PIPES AND CONNECT BELOW GRATE LEVEL ON THE OVERFLOW RELIEF GULLY. INSTALL TERMINAL VENT TO DRAINAGE SYSTEM IN THE POSITION INDICATED. PIPE TO SEPTIC TANK AS INDICATED.
- ALL STORMWATER WORK TO COMPLY WITH E1/AS1. INSTALL 65mm OR 80mm DIAMETER COLOURSTEEL DOWNPIPES, AS INDICATED, FROM GUTTERS. SECURELY FIX TO STRUCTURE WITH PROPRIETARY BRACKETS AT 1200mm CENTRES VERTICAL (MAX). CONNECT DOWN PIPES. LAY 100mm NOMINAL BORE UPVC STORM WATER PIPES IN 1:125 GRADED TRENCHES ON APPROVED BEDDING AND CONNECT EACH DOWNPIPE AT BASE WITH A 95° ONE PIECE BEND AND NEOPRENE COLLAR. TERMINATE PIPEWORK AT SOAKPIT AS SHOWN ON THE DRAINAGE PLAN.
- ENSURE ALL DRAINAGE WORK IS PROPERLY TESTED AND INSPECTED PRIOR TO BACKFILLING AND COMPACTION OF TRENCHES.
- WASTE PIPES FROM SHOWER AND TUB TO BE 40mmØ UPVC. WASTE PIPE FROM WC TO BE 100mmØ UPVC WITH MINIMUM GRADIENTS AS FOLLOWS:
40Ø 1 : 40
100Ø 1 : 60

TOTALSPAN
STEEL SHEDS & BUILDINGS

Drawings Prepared By:

TOTALSPAN WELLINGTON
LINDALE TOURIST COMPLEX Ph: (04) 297 0033
PO BOX 376 Fax: (04) 297 0031
PARAPARAUMU Mobile: (027) 252 6232
e-mail: wellington@totalspan.co.nz

Proposed Building For:

PEACH 14 TRUST
P.O. BOX 7072
WELLINGTON SOUTH

Site Address:

LOT 18
TE HORO
COUNTRY ESTATE

11.750m SPAN
S50 (VERY HIGH)

BASIC WIND SPEED
V = 50m/s T.C.2

Date Drawn:

14-Oct-08

Order #:

806362



Kiwi Green Contracting Ltd

Installers of Aerated Wastewater Treatment Systems

AIR TECH
9000



Lisa 0274 540515
Greg 027 2436866
Ph/Fax 04 905 2757
kiwigreen@paradise.net.nz

PRODUCER STATEMENT

In respect of:	Air Tech™ 9000 A.W.T.S Household Sewage Treatment Systems
Attn:	Kapiti Coast District Council
For:	G & S Peach, Lot 18 Te Horo Country Estate, Te Horo

We believe that we have designed the above wastewater treatment system having regard to the basic performance criteria incorporated in the following standards and guidelines:

AS/NZ 1546:1.1998:	On-site Wastewater Treatment Units Part 1 – Septic Tanks
AS/NZ 1547:2000	On-site Domestic-Wastewater Management
NZS 4610 : 1982	Household Septic Tank Systems
ARC Environment:	TP 58 November 1994 – On-site Wastewater Disposal from Household and Institutions

and the requirements of:

NZ Building Code:	Section B2 Durability
	Section G13 Foul Water
	Section G14 Industrial Wastes

PERFORMANCE:

The system is designed to achieve the following quality of effluent treatment:

BOD	:	15 to 20mg/1
Total Suspended Solids	:	20 to 30mg/1
Faecal Coliforms	:	0 to 200/100ml (after disinfection/soil treatment)



RX PLASTICS LTD


EFFLUENT DISPOSAL:

The design of the effluent disposal system is based on the discharge of 1320 litres per day of treated effluent, at a hydraulic loading of 4mm per square metre. The required disposal area is 330 square metres.

The effluent is to be dispersed through a subsurface Naan dripline irrigation system. 220m of Naan pipe will be laid. The proposed sitting and layout of the disposal area is shown on the attached plan. The irrigation line will be surface mounted, mulched and planted with suitable vegetation.

The on-site contractor is ultimately responsible for ensuring the system is installed in accordance with the Company's installation specifications.

An approved installation Agent will be responsible for the commissioning of the system.



Lisa Burns
DIRECTOR



RX PLASTICS LTD

Kiwi Green Contracting Ltd

Installers of Aerated Wastewater Treatment Systems



Lisa 0274 540515
Greg 027 2436866
Ph/Fax 04 905 2757
kiwgreen@paradise.net.nz

SEWAGE TREATMENT AND EFFLUENT DISPOSAL DESIGN

Treatment Process	:	Aerated Wastewater Treatment System (A.W.T.S)
System Design	:	Air Tech™ 9000
Design Capacity	:	2000ltrs per day (maximum)

DESIGN LOADINGS : AS/NZ 1547:2000

Number of Bedrooms	:	4 + 1
Number of persons	:	8
Water Supply	:	Tank: Roof Water Storage
Wastewater Flow	:	165ltrs per person per day
Total Wastewater Flow	:	8 x 165 = 1320 lts per day
Soil Category Type	:	4mm D.I.R per day

1320 litres/4mm = 330²m of irrigation disposal area required

EFFLUENT DISPOSAL

Effluent dispersement will be NAAN DAN purple compensating emitter irrigation lateral. Emitters will be at .600mm spacings with a 2.1ltr per/hr flow rate. The irrigation system will incorporate a vacuum break and line flushing valve. An Arkal inline ring disc filter will protect the dripper lateral.

SOIL TYPE

The elevated site has a north west aspect and receives good sun exposure. The area designated for the effluent disposal via drip irrigation lateral will be planted with suitable vegetation that will have very good nutrient uptake. Evapotranspiration will be greatly assisted given the sunny aspect of the site.



RX PLASTICS LTD

The soil condition is 200mm-300mm of topsoil over sand. Given the elevated nature of the site, soil type has been assessed at – 4mm D.I.R per day.

RESERVE DISPOSAL AREA

There is available land and landscape for additional disposal if required.



Lisa Burns
DIRECTOR



RX PLASTICS LTD

KCDC Building Consent Authority
Building Consent AMENDMENTS Documentation Filed



BC No.
Street Address.

080625A
New Drainage showing
Septic Tank
Lot 18 – Te Horo Country
Estate
TE HORO

Tick indicates document(s) included in this Building Consent

Amendment Consent Application,	<input checked="" type="checkbox"/>
Costing schedule,	<input checked="" type="checkbox"/>
Amended Plans and specifications,	<input checked="" type="checkbox"/>
Invoice and receipt,	<input type="checkbox"/>
Processing records/checksheets,	<input type="checkbox"/>
Inspection page printouts	<input type="checkbox"/>
Amended Building consent and memorandum,	<input type="checkbox"/>
Producer statements and supporting documentation,	<input type="checkbox"/>
Peer review documents,	<input type="checkbox"/>
Fire design documents,	<input type="checkbox"/>
Requests for further information and other correspondence,	<input type="checkbox"/>
Supplementary information,	<input type="checkbox"/>

This form comprises part of the Building Consent documentation and indicates the contents of the Building Consent File. Refer KCDC Policy 029.

Quin Buildings Direct
PO Box 1087
Levin 5540

23 December 2021

Dear Building Owner

Exemption from the need to obtain a Building Consent (EX0292)

Site Address: 51 Paul Faith Lane, Te Horo
Legal Description: LOT 18 DP 405220 C/T 418182
Project Description: Build a 1 bay pole shed under exemption - importance level 1

We recently received from you an application for an exemption from the need to obtain a building consent relating to the above building/site.

Having examined the application, the Council wishes to advise you that under the Building Act 2004, Schedule 1, the project as described in the application is exempt from the requirement to obtain a building consent under clause 2 for the following reason:

2(a) the completed building work is likely to comply with the building code.

Please note that if the proposed building work is changed from that stated in your current application, you may subsequently need to apply for a building consent. Please seek advice from me if this situation arises.

If you have any questions or would like to discuss this matter, please contact me on (04) 296 4700 or 0800 486 486.

Yours sincerely



Leon Smith
Team Leader Building Approvals

BCEX0292
Received by
Kapiti Coast District Council
23/11/21

PROPOSED 4.5m x 6m POLE SHED
FOR
Stephanie & Glenn Peach
AT
51 Paul Faith Lane, Te Horo

Drainage as per council requirements with as-laid supplied by drainlayer (if applicable)
No Storm water to runoff to neighbouring properties

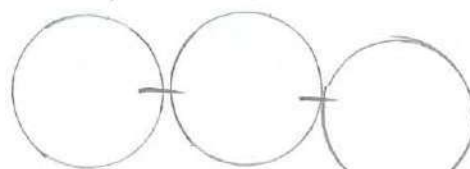
Site assumed as good ground as per NZS3604:2011. Pre foundation inspection by council to confirm assumption and/or remedial design if required



NOT TO SCALE

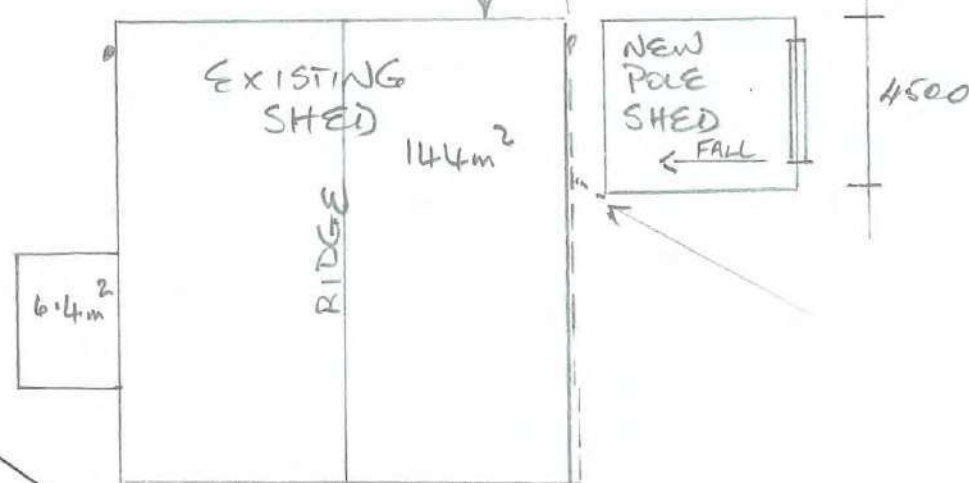
OVER FLOW
NATURAL
RUNOFF
ON PROPERTY
AWAY FROM
BOUNDARY

3x25,000LT TANKS



EXISTING S/WATER

1000 6000







PROPOSED
S/WATER
TO EXISTING

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Received by
Kapiti Coast District Council
23/11/21

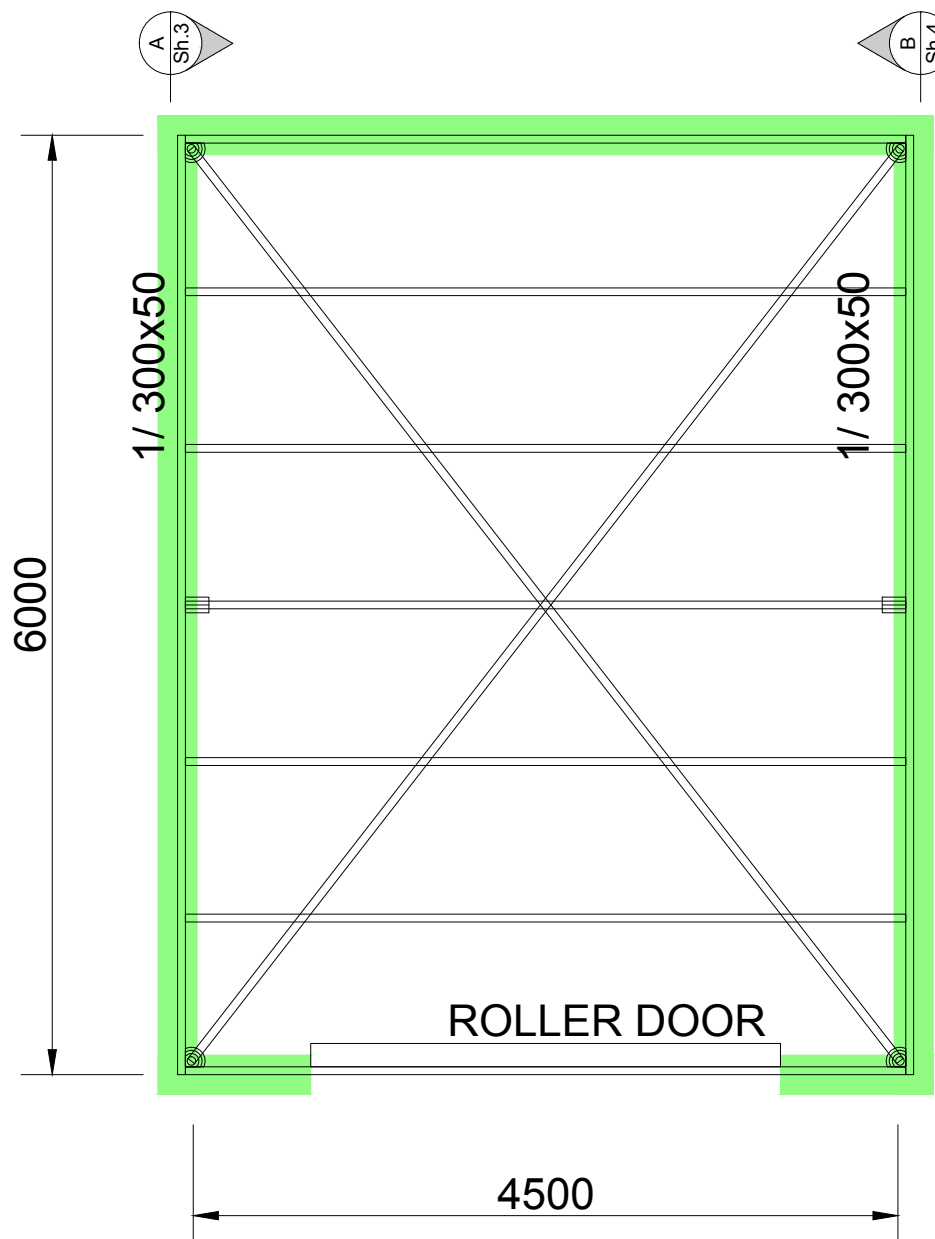
Roof Pitch: 3.8 deg
Wind Load: High
Snow Load: $S_g = 0 \text{ kPa}$
Earthquake Zone: 3
Timber Grade: SG8
Bay Spacing: 4500mm
Purlin Size: 200x50
Purlin Centres: 1000mm
Girt Size: 150x50, 200x50 (Rear)
Girt Centres: 1100mm
Wind Column Size: 2/ 200x50, NA (Rear)
Pole Size: 175 SED
Pole Embedment: 1200mm
Rafter Size: 300x50
Rafter Span: 6000mm
Props Required: NA
Max Pole Height: 3750mm
Low Pole Height: 3350mm
Floor Type: Concrete
Front Overhang: None
Rear Overhang: None

Key:

-  = Clad Walls
-  = Column
-  = Pole
-  = Single Row of Tensioned Multibrace

Notes:	Order #: 8822
---------------	---------------

BCEX0292
Received by
Kapiti Coast District Council
23/11/21

**MiTek New Zealand Ltd.**

CHRISTCHURCH	AUCKLAND
Phone: (03) 348 8691	Phone: (09) 274 7109
Fax: (03) 348 0314	Fax: (09) 274 7100

www.mitekznz.co.nz
Emails to: farm.buildings@miteknz.co.nz

MITEK® LUMBERLOK® BOWMAC®

Job Name: Peach

Job Site: 51 Paul Faith Lane, Te Horo

Client Name:
Bruce Love

Drawn by:
Jake Goodridge

Date: 28 / 10 / 21

Scale:	drawings to scale
--------	-------------------

Drawing Number:

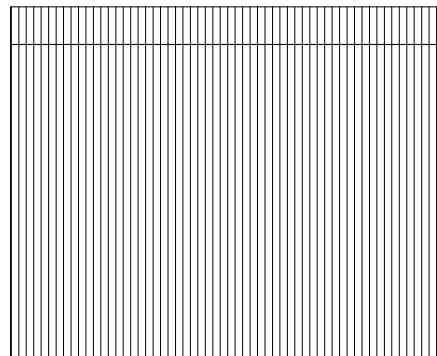
FB72439

Sheet Number:

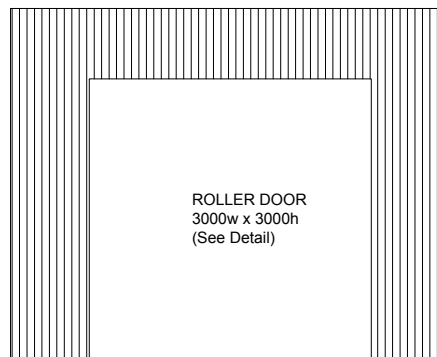
Notes:

N.B. This design does not include any design or detail for flashing and/or drainage requirements.

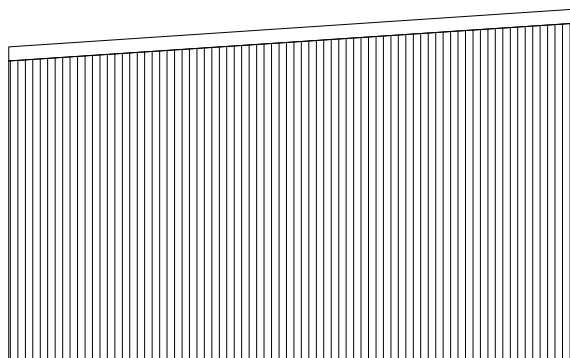
BCEX0292
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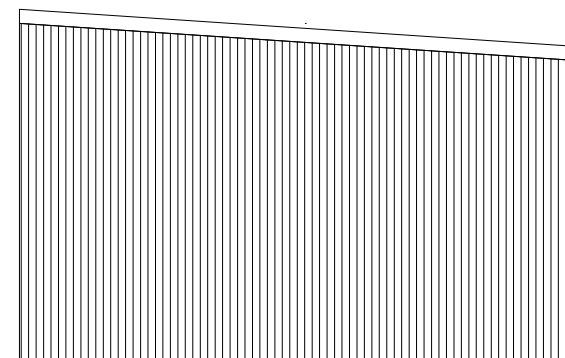
REAR ELEVATION



FRONT ELEVATION



LEFT END ELEVATION



RIGHT END ELEVATION



MiTek New Zealand Ltd.

CHRISTCHURCH
 Phone: (03) 348 8691
 Fax: (03) 348 0314

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 Emails to: farm.buildings@mitেকnz.co.nz

MITEK® LUMBERLOK® BOWMAC®

AUCKLAND
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28 / 10 / 21

Scale:
 drawings to scale

Drawing Number:

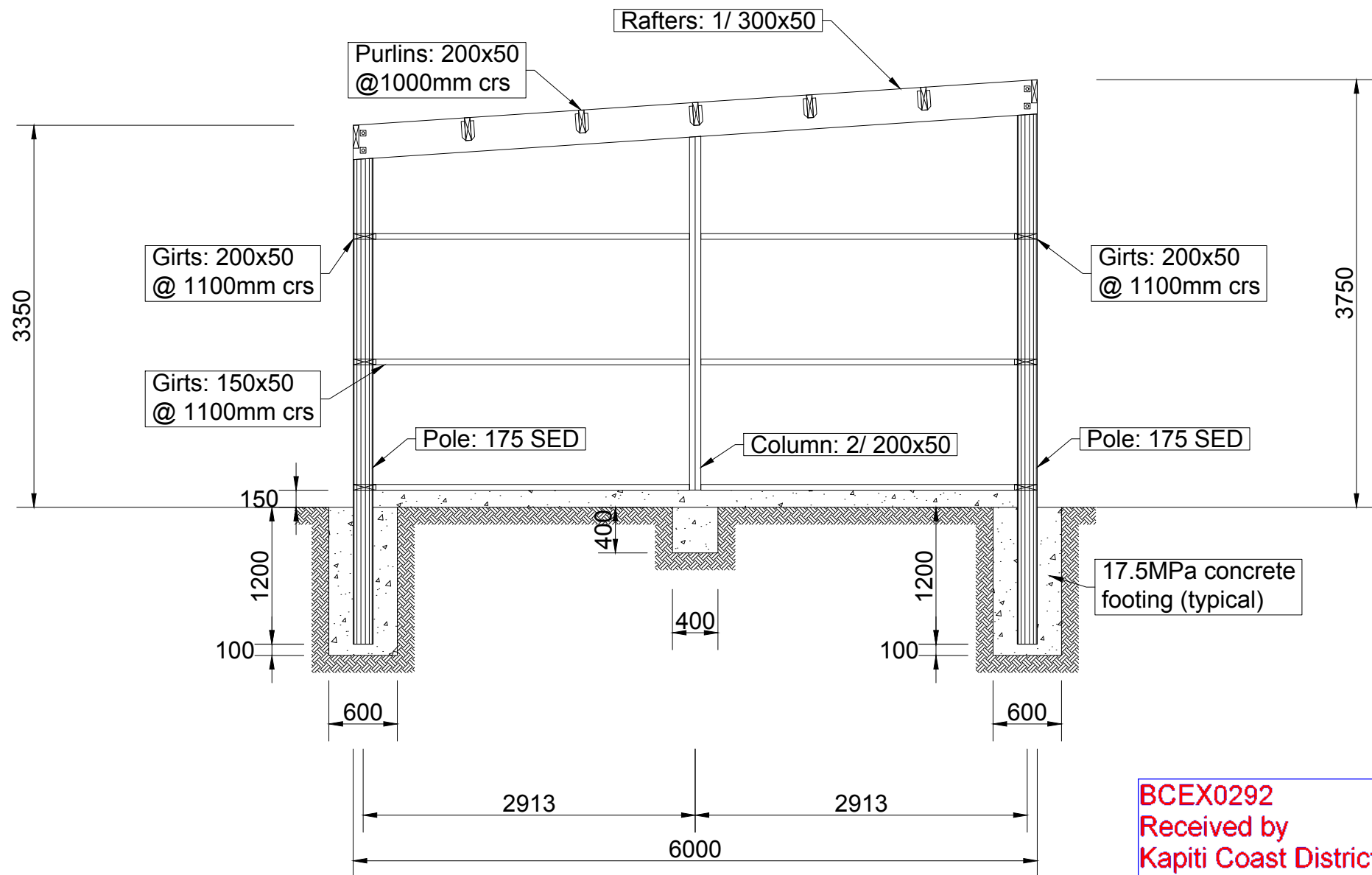
FB72439

Sheet Number:

2

Elevations

Note: Girt pattern may vary, as long as spacings do not exceed 1100mm.



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Pitch: 3.8 deg.



MiTek New Zealand Ltd.

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MITEK® **LUMBERLOK®** **BOWMAC®**

Job Name: Peach

Job Site: 51 Paul Faith Lane, Te Horo

Client Name:
 Bruce Love

Drawn by:
 Jake Goodridge

Date:
 28 / 10 / 21

Scale:
 drawings to scale

Drawing Number:

FB72439

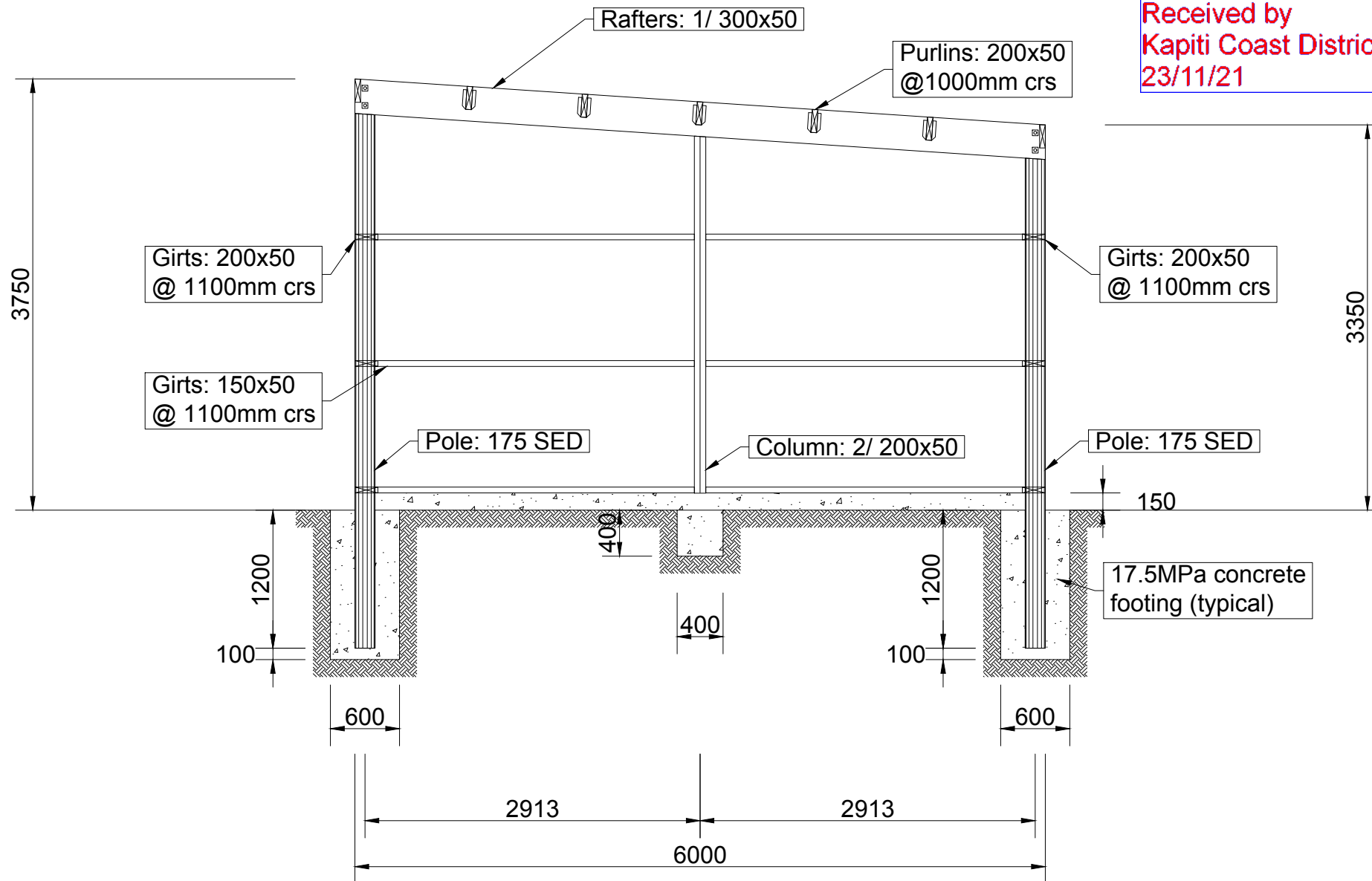
Sheet Number:

3

Section A

Note: Girt pattern may vary, as long as spacings do not exceed 1100mm.

BCEX0292
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23/11/21



Pitch: 3.8 deg.



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MITEK® LUMBERLOK® BOWMAC®

Job Name: Peach

Job Site: 51 Paul Faith Lane, Te Horo

Client Name:
Bruce Love

Drawn by:
Jake Goodridge

Date:
28 / 10 / 21

Scale:
drawings to scale

Drawing Number:

FB72439

Sheet Number:

4

Section B

1/ BOWMAC **B75** bracket positioned between column members.
(150mm minimum embedment into concrete footing)

2/M12 bolts

DPC underneath column end is recommended

400mm

Refer to Alternative Column Fixing Detail

400mm

DOOR / WINDOW COLUMN FOOTING

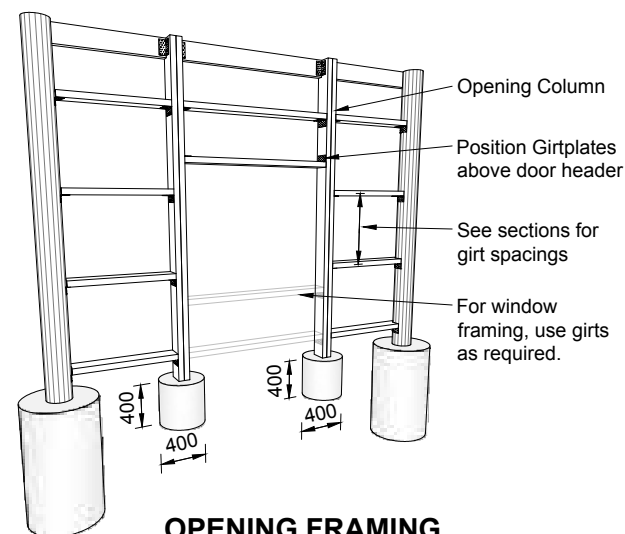
DW01

2/ LUMBERLOK **Girt Plate**
Fix with 6/ 30x3.15mm nails
or
3/ Type 17-12gx35mm screws per flange

Fix both column members with 90mm nails @250crs staggered from each side.

DOOR & WINDOW COLUMN FIXING

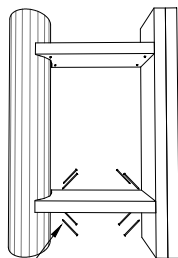
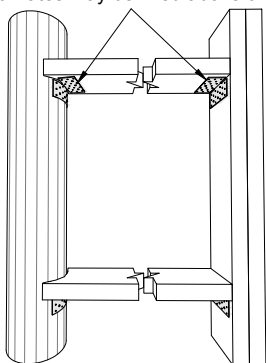
DW02



DW03

Girt connected to pole or column with LUMBERLOK **Girt plate** (x1 each end)
Fix with 6/ 30x3.15 nails per flange
or

3/Type 17-12g x 35mm screws per flange.
Girt Plates may be fixed above or below girt.



1200mm or less

Girts spanning less than 1200mm may be skew-nailed to pole/column using 4/90mm nails each end. This is at the builders discretion.

OPENING FRAMING FIXING

DW04

2/ LUMBERLOK **Girt Plate**
Fix with 6/ 30x3.15mm nails
or
3/ Type 17-12gx35mm screws per flange

Fix both column members with 90mm nails @250crs staggered from each side.

WIND COLUMN FIXING

IC01

2/ BOWMAC **B75** brackets.
(150mm minimum embedment into concrete footing)

2/M12 bolts

DPC underneath column end is recommended

Refer to Alternative Column Fixing Detail

400

400mm

WIND COLUMN FOOTING DETAIL

IC02



MiTek New Zealand Ltd.

CHRISTCHURCH
Phone: (03) 348 8691
Fax: (03) 348 0314

AUCKLAND
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www.mitekznz.co.nz
Emails to: farm.buildings@mitekznz.co.nz

MITEK® LUMBERLOK® BOWMAC®

Job Name: Peach

Job Site: 51 Paul Faith Lane, Te Horo

Client Name:
Bruce Love

BCEX0292
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23/11/21

Drawn by:
Jake Goodridge

Date:
28 / 10 / 21

Details

Scale:
drawings to scale

Drawing Number:

FB72439

Sheet Number:

5

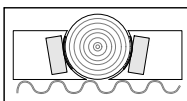
ED
EMBEDMENT DEPTH
 (Ground level to
 underside of pole)

See Sections
 for Cover

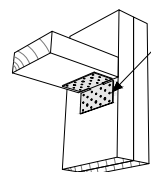
See Sections

POLE FOOTING

LT12



Girt connected to pole with
LUMBERLOK Girt plate (x1 each end)
 Fix with 6/ 30x3.15 nails per flange
 or
 3/ Type 17-12g x 35mm screws
 per flange.
 Girt Plates may be fixed above
 or below girt.

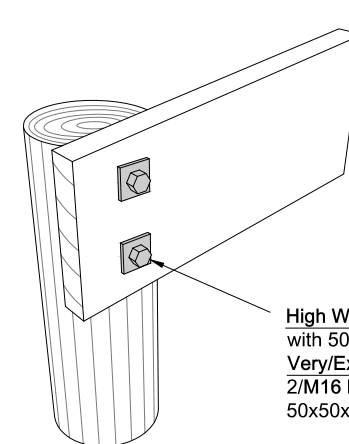


Use the same
 fixing detail for
 intermediate columns

Align Girts flush with
 outside edge of pole
 Cut girts to suit
**Do Not Check Girts
 Into Pole!**

GIRT FIXING DETAIL

RF09

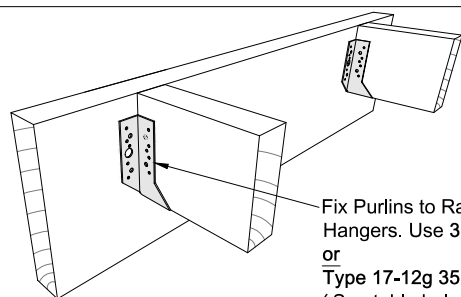


Rafter may
 be checked
 into pole

High Wind = 2/M12 bolts
 with 50x50x3mm washers
 Very/Extra High Wind =
 2/M16 bolts with
 50x50x6mm washers

SINGLE RAFTER BOLT FIXING

RF01



Fix Purlins to Rafters with Joist
 Hangers. Use 30x3.15mm nails
 or
 Type 17-12g 35mm screws
 (See table below)

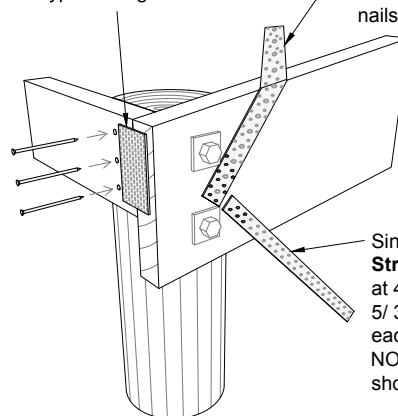
Purlin Size	LUMBERLOK Joist Hanger	No. of Nails per flange	No. of Screws per flange
140/ 190x45	JH 47x120	4	2
150/ 200x50	JH 52x120		
240/ 290x45	JH 47x190	6	3
250/ 300x50	JH 52x190		

PURLIN FIXING

RF07

Eaves purlin fixed with
 LUMBERLOK Tylok 4T10 and
 3/ Type 17-14g x75mm screws

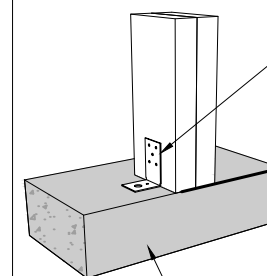
Single row of tensioned
Multi-brace. Fix each end
 with 11/ 30x3.15 nails and 3
 nails at each purlin crossing



Single row of Tensioned
Strip-brace (non structural)
 at 45-55°. Fix each end with
 5/ 30x3.15 nails and 1 nail at
 each girt crossing.
 NOTE: Only applicable when
 shown in sections.

FLUSH PURLIN & BRACING FIXING

RF10



BOWMAC HANDIBRAC.
 Fix with 5/ Tek Screws and
 1/ Screw Bolt (as provided
 with bracket)

Bottom girt may be
 used as a bottom plate
 (at builders discretion)

Concrete floor
 (not part of this design)

PLEASE NOTE:
 For wind columns please
 fix 1 HandiBrac on each
 side (2 per column).

ALTERNATIVE COLUMN FIXING

IC06



MiTek New Zealand Ltd.

CHRISTCHURCH **AUCKLAND**
 Phone: (03) 348 8691 Phone: (09) 274 7109
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www.mitekzn.co.nz
 Emails to: farm.buildings@mitekzn.co.nz

MITEK® LUMBERLOK® BOWMAC®

Job Name: Peach

Job Site: 51 Paul Faith Lane, Te Horo

Client Name:
 Bruce Love

BCEX0292

Received by
Kapiti Coast District Council
 23/11/21

Drawn by
 Jake Goodridge

Date:
 28 / 10 / 21

Details

Scale:
 drawings to scale

Drawing Number:

FB72439

Sheet Number:

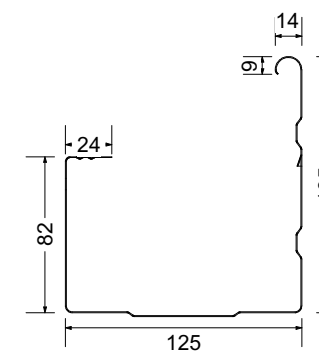
6

Scheduled Materials:

Roof Pitch:	3.8°
Roof Material:	0.40mm G550 AZ150 Colorcote Zinacore - Trapezoidal Profiled Metal
Spouting type:	125 Box Gutter
Spouting Material:	0.40mm G300 AZ150 Colorcote Zinacore
Down Pipe- Size & type	80mm Ø uPVC
Flashings:	0.40mm G300 AZ150 Colorcote Zinacore
Roof Underlay:	Thermakraft Covertex 401
Roof Netting:	75mm Hexagonal galvanised wire netting - Closed Bay only

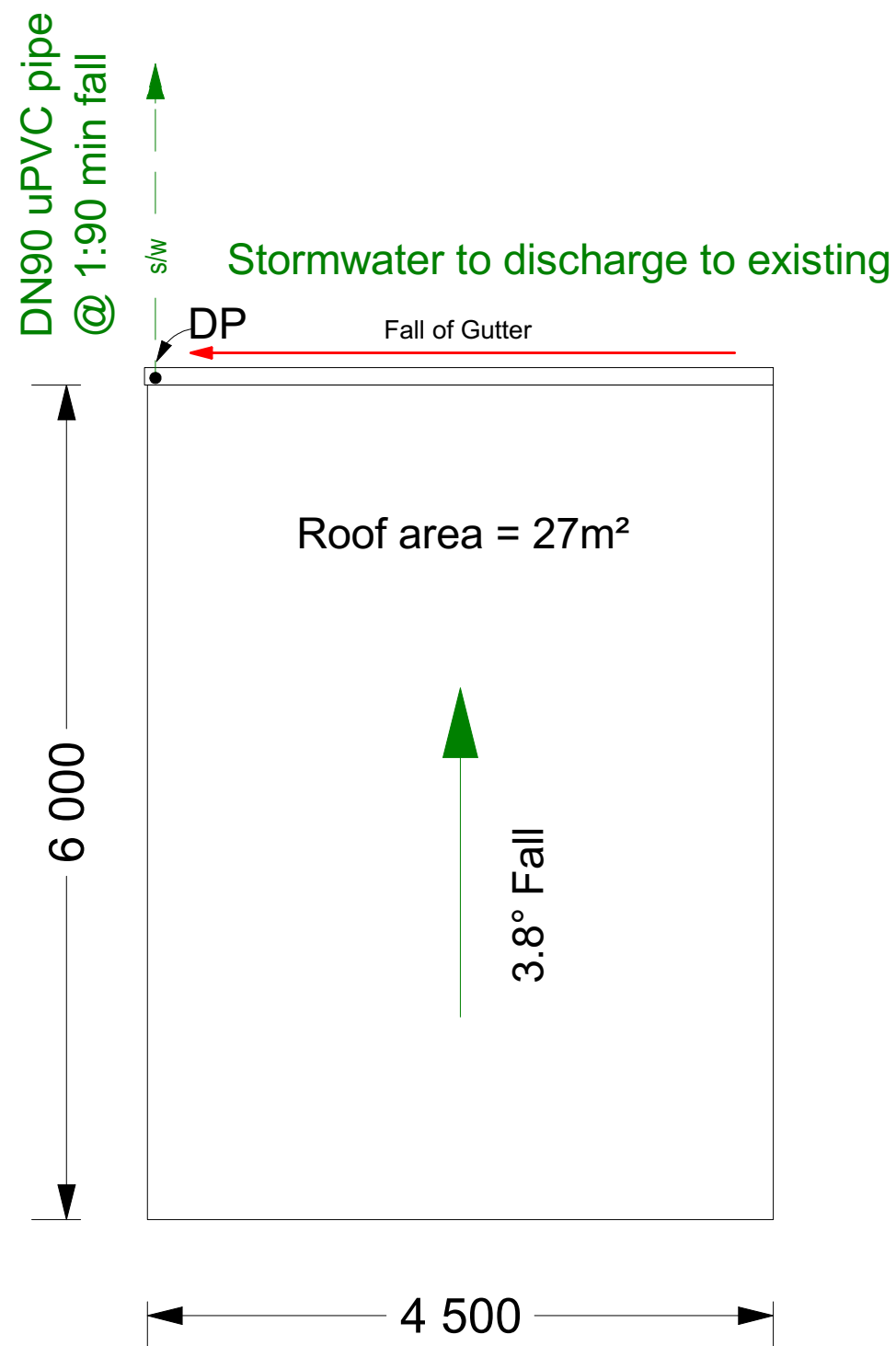
Note:
Refer to owner supplied site plan for siting.
Stormwater to discharge to existing.

DN = Diameter Nominal
DP = Downpipe
S/W = Storm Water



Quin 125 Box Gutter

Effective cross sectional area: 9577mm²
Material: 0.40mm G300 AZ150 Colorcote Zinacore
Max. roof area per 80mm Ø Downpipe: 85m²
Minimum recommended fall: 1:2000
Bracket system: Internal coated steel brackets fixed @ 1m centres with 2/30x2.8 clouts



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23/11/21

Figure 15: Cross-sectional Area of External Gutter
Paragraphs 5.1.2 and 5.1.3

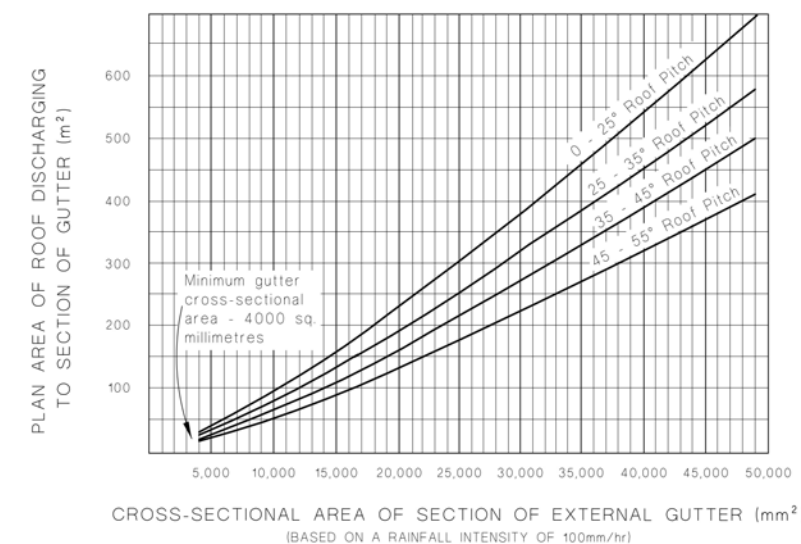


Figure 15- Cross sectional area external gutter - E1/AS1
Table 5 downpipe for given roof pitch and area- E1/AS1

Downpipe size (mm) (minimum internal sizes)	Roof pitch			
	0-25°	25-35°	35-45°	45-55°
Plan area of roof served by the downpipe (m²)				
63 mm diameter	60	50	40	35
74 mm diameter	85	70	60	50
100 mm diameter	155	130	110	90
150 mm diameter	350	290	250	200
65 x 50 rectangular	60	50	40	35
100 x 50 rectangular	100	80	70	60
75 x 75 rectangular	110	90	80	65
100 x 75 rectangular	150	120	105	90

All plans are to be read in conjunction with specifications



Site Location:	Owners Name:	Stephanie & Glenn Peach	CT:	418182	Page Description: Roof Layout & Preliminary Drainage Layout	Bracing & Durability		Scale:	1:50	Sheet A3 Landscape	Contract type
	51 Paul Faith Lane Te Horo	Lot:	18	Area		Wind:	High	Plan Issue Type:	B/Consent Set	Build	
		DP:	405220			Earthquake:	3	Plan Issue Date:	Job Number:	Sheet Number	
		Area	2.3906ha			Corrossion Zone:	C	9/11/2021	8822	5 of 9	
						Rainfall intensity:	70-80	Drawn: BR			

BCEX0292
Further Information Received
22/12/21

21 December 2021

Quin Buildings Direct
PO Box 1087
Levin 5540

Dear Building Consent Applicant/Building Owner

Request for Further Information – Building Consent: EX0292

Site Address: 51 Paul Faith Lane, Te Horo
Legal Description: LOT 18 DP 405220 C/T 418182
Project Description: Build a 1 bay pole shed under exemption - importance level 1

Following checking of your Building Consent it is apparent that further information is required.

Information needed:

BUILDING

1. B1- Please demonstrate how the ground bearing capacity was tested and confirm that the proposed foundation system is adequate for this site. **Testing as attached**

VETTING

1. The KCDC GIS maps identify the site as having uncertain, poorly constrained terrain. Please advise whether and how this has been accounted for with the proposed foundation design.
See note on ground test, this has been considered with good ground has been established

We have suspended your application pending receipt of the above information. Please send it to us by 31 January 2022. We are unable to issue your Building Consent until these matters are resolved.

Information can be posted, emailed to Building.Approvals@kapiticoast.govt.nz or dropped in at one of Council's service centres.

If you need more time, have any questions or you would like to discuss this matter, please contact me on (04) 296 4700 or Elisha.Khan@kapiticoast.govt.nz referencing Building Consent No EX0292.

Yours sincerely



Elisha Khan
Building Officer

cc Building Owner



Test Site:	51 Paul Faith Lane		
Town:	Te Horo		
Date:	22-Dec-21	Client:	G & S Peach
Weather:	Overcast	Project:	New pole shed
Soil type:	Alluvial sands with 400mm layer of base course		
Tested to:	NZS 4402: 1988, Test 6.5.2	By:	Donald McFedries

QUIN BUILDINGS LTD PENETROMETER TESTING

Depth	A	B	C	D	E	F	G	H	G.G
0									5
100	1	3							5
200	3	4							5
300	3	4							5
400	3	1							5
500	4	2							5
600	3	1							5
700	4	3							3
800	4	4							3
900	5	4							3
1000	5	5							
1100									
1200									
1300									
1400									
1500									
1600									

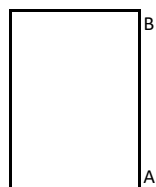
5 blows per 100mm is the equivalent of 300Kpa

For Dwellings a test requires to be conducted by an appropriate Qualified Engineer

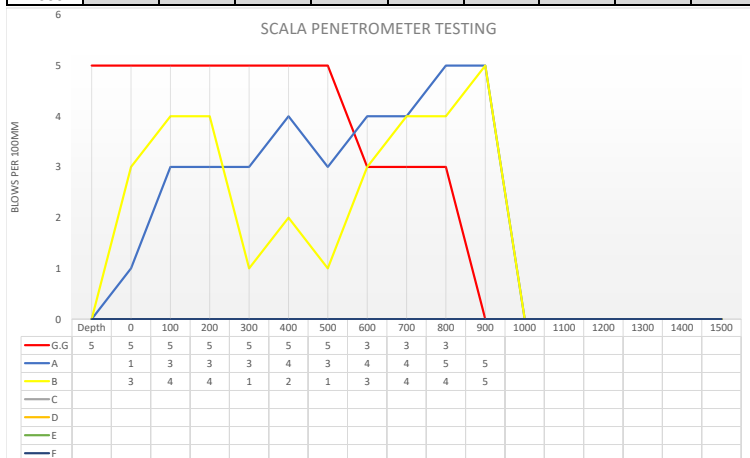
RESULT: Good ground encountered at all sites sites.
BB = Probe bouncing on large boulders
X = unable to test as could not penetrate any further

SIGNED: *Donald McFedries*

Both areas were tested to the outside of the prepared site
A **400mm** layer of hard compacted base course is over the area
Could not penetrate the site where shed is going
Te site has a well compacted area that is beyond the building platform
by over 3m



Front



LIMITATIONS

The following recommendations and opinions are based upon data from DCP testing and observations made on-site on the date shown in the report header.
On-site DCP testing is completed in accordance with NZS:3604-2011 Section 3.3 by a suitably qualified person.
Results are supplied to our nominated structural engineer in analysing the suitability of the foundation design for the nominated site only.
The resistance of the soil was tested using a steel cone driven (DCP) by a 9 kg falling mass

BCEX0292
Received by
Kapiti Coast District Council
23/11/21



JOB SPECIFICATIONS

(project name)

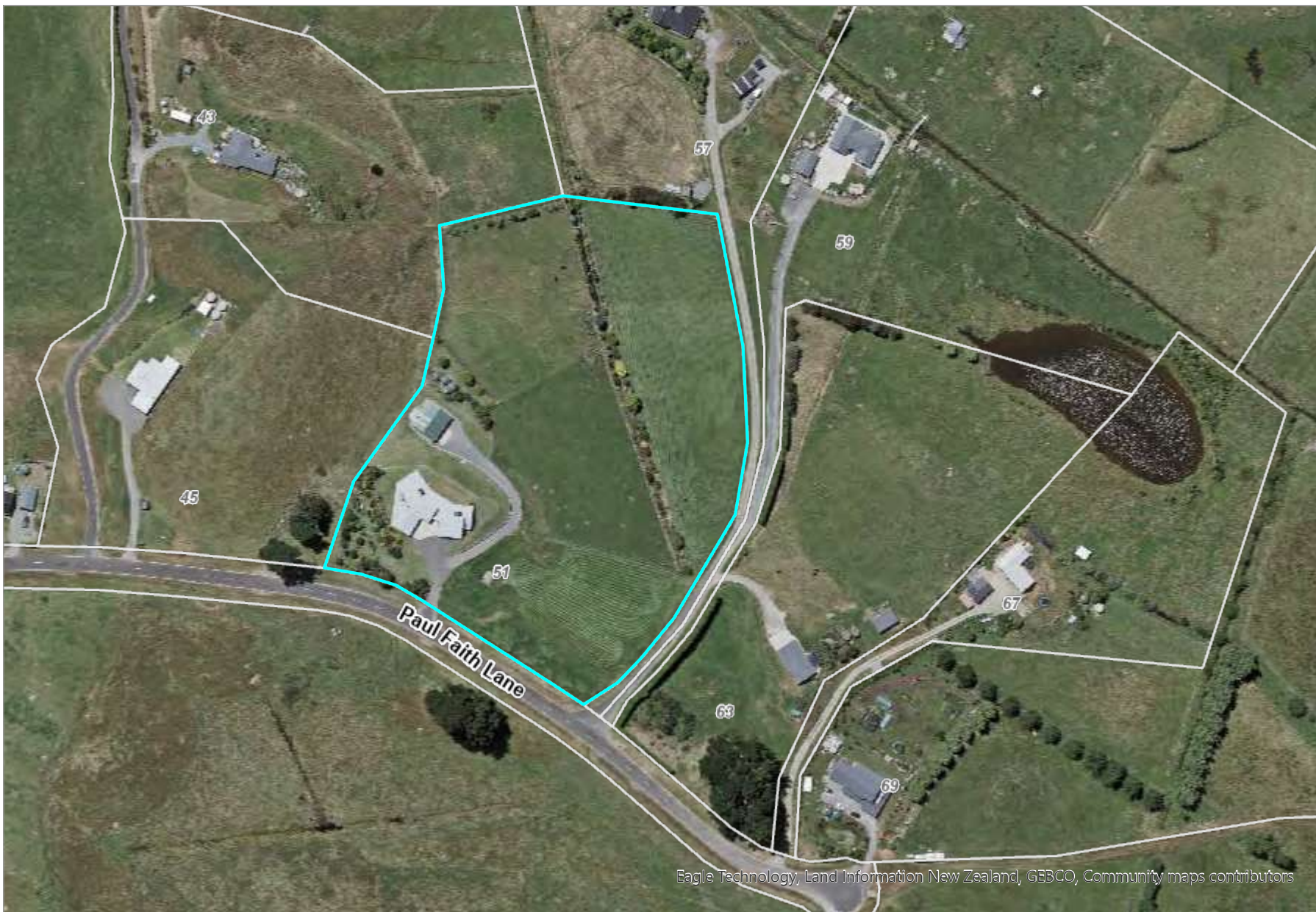
(project address)

(owner's name)

A COPY OF THE COUNCIL
APPROVED PLANS MUST BE
KEPT ON SITE AT ALL TIMES

51 Paul Faith Lane, Te Horo

14



Key to map symbols

- Property
- Parcel Boundaries
- Street Numbers
- Road Names



0 50 100 Metres
1:2,257

Date Printed: November 9, 2021

Kapiti Coast District Council accepts no responsibility for incomplete or inaccurate information contained on this map. Use of this website is subject to, and constitutes acceptance of the conditions set out in our disclaimer. This publication is copyright reserved by the Kapiti Coast District Council. Cadastral and Topographic information is derived from Land Information New Zealand, CROWN COPYRIGHT RESERVED.



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BCEX0292

Received by

Kapiti Coast District Council

23/11/21

To Whom It May Concern: Kapiti Coast District Council

Client name: Stephanie & Glenn Peach
 Re: Pole shed to be constructed at: 51 Paul Faith Lane, Te Horo

Appellation: Lot 18 DP 405220
 Earthquake Zone: Zone 3
 Exposure Zone: Zone C
 Lee Zone: No
 Rainfall Range: 70 - 80
 Wind Region: A
 Wind Zone: High

In regard to B2 Durability, below is treatment and grade information for all timber and fixings.

Timber Treatment

In direct contact with the ground
 All other timber

H5
 Pine H3.2 CCA (Exposed)
 Douglas Fir H1.2 (Sheltered & Enclosed)

Fixing Schedule

Pole > Rafter bolts
 Roof Bracing (multibrace)
 Girt plates
 Joist hangers
 Tylok plates
 Type 17 screws to all fixings

Hot dipped galvanised steel 600g/m2 average cover
 0.91 x 53 G300 Z275 Galvanised Steel
 0.91 G300 Z275 Galvanised Steel
 0.91 G300 Z275 Galvanised Steel
 0.95 G300 Z275 Galvanised Steel
 Class 5

Roof Cladding

Roof Underlay
 Wall Cladding
 Flashing material

0.4mm G550 Colorcote Zinacore Trapezoidal profiled metal
 Thermakraft Covertek 401 over Ausmesh Safety Netting
 0.4mm G550 Colorcote Zinacore Corrugated profiled metal
 0.4mm G300 Colorcote Zinacore



MiTek New Zealand Ltd.

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Emails to: farm.buildings@miteknz.co.nz

MITEK®

LUMBERLOK®

BOWMAC®

Producer Statement - PS1 - Design

BCEX0292
Received by
Kapiti Coast District Council
23/11/21

ISSUED BY: MiTek New Zealand Ltd.

TO BE SUPPLIED TO: Building Consent Authorities in New Zealand

IN RESPECT OF: Proposed Lean-To Farm Building - FB72439

AT: 51 Paul Faith Lane, Te Horo

We have been engaged to provide engineering design services in respect of the requirements of Clause B1 of the New Zealand Building Code for

- ☐ All ☒ Part only as specified: Purlins, Rafters, Girts, Poles, Columns, Trusses if applicable (including fixings as specified) and Pole embedment of the proposed building work.

The design carried out by us has been prepared in accordance with Compliance Documents issued by MBIE and Verification Method B1/VM1. The proposed building work covered by this producer statement is described on MiTek New Zealand Limited drawings numbered FB72439.

On behalf of the Design Firm, and subject to:

1. Site verification of the following design assumptions:
 - i) Building Importance Level 1 with a 50 year working life (refer to AS/NZS 1170.0:2002)
 - ii) Light roof and no ceiling
 - iii) Modified High Wind Zone
 - iv) Snow Load $s_g = 0$ kPa
 - v) Foundations on good ground with a min. ultimate bearing capacity of 300 kPa (NZS3604:2011, Section 3).
- vi) Refer attached Design Information for other assumptions
2. All proprietary products meeting the performance specification requirements, the drawings, specifications, and other documents according to which the building is proposed to be constructed should comply with the relevant provisions of the building code.

I believe on reasonable grounds that:

- a) The building, if constructed in accordance with the drawings, specifications, and other documents provided, will comply with the relevant provisions of the Building Code.
- b) The persons who have undertaken the design have the necessary competency to do so.

I, In Ling Ng am a Chartered Member of ENZ and CPEng #146585 and hold the following qualifications BE Civil (Hons). The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.

On behalf of MiTek New Zealand Limited

.....
In Ling Ng
BE (Hons), CMEngNZ, IntPE, CPEng (146585)
Engineering Manager New Zealand

Date: 28 / 10 / 21

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.



MiTek New Zealand Ltd.

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DESIGN INFORMATION - FARM BUILDING FB72439

LOADS and TIMBER

- Poles : Poles, Outer Zone Density Normal 350 kg/m³ $f_b = 38$ MPa, Pole taper 6mm per 1.0m length
- Purlins : Radiata Pine or Douglas Fir - SG8
- Girts : Radiata Pine or Douglas Fir - SG8
- Rafters : Radiata Pine or Douglas Fir - SG8
- Moisture content can be green. Our recommendation is 20% or less at time of installation.

DESIGN LOADS

- Dead loads for Light Roof - 0.25kPa (includes weight of purlins, associated framing and galvanized iron roof).
- Live loads - 1.1kN concentrated load, 0.25kPa uniform Load.
- The enclosed documentation has been designed for a Building Importance level 1, with 50 years working life. Refer to AS/NZS 1170.0:2002.
- Wind loads - building designed for a modified High Wind Zone.
- Snow Loads - building designed for $s_g = 0$ kPa (calculated specifically for the job site in this documentation)
- Seismic Zone - 3 (Annual Probability of Exceedance - 1/100)
- Soil conditions - ALL foundations to be into natural ground with a ultimate bearing capacity of 300 kPa, $\phi_b = 0.5$.

DESIGN LOAD REFERENCES

Compliance Document for the New Zealand Building Code Clause B1 Structure Amendment 8	
NZS3603:1993 Amendment 4	Cited Verification Method
NZS3604 Amendment 2	Cited Acceptable Solution
AS/NZS 1170 Part 0: 2002	Cited Verification Method
AS/NZS 1170 Part 1: 2002	Cited Verification Method
AS/NZS 1170 Part 2: 2011	Cited Verification Method
AS/NZS 1170 Part 3: 2003	Cited Verification Method
ANSI/TPI1 - 2002	Alternative Solution
Rutledge Method	Alternative Solution - Footing Design for Cantilever Poles.

BUILDING ERECTION

Proper bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixings must be installed before applying any loads.

LOAD DETAILS

These drawings have been prepared using the above design loads. It is the responsibility of the user to ensure that the design data and loads are still correct at the time of construction.

PRODUCT SPECIFICATION

These details have been designed using specific MITEK®, LUMBERLOK® and BOWMAC® products and the performance of the building and validity of the Producer Statement is reliant on the correct choice of product.

COPYRIGHT

These drawings are the property of MiTek New Zealand Limited and must not be copied or reproduced without permission.



MiTek New Zealand Limited

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 PO Box 58-014, Botany 2163
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 14 Pilkington Way, Wigram 8042
 PO Box 8387, Riccarton 8440
 Phone: 03-348 8691
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MITEK® LUMBERLOK® BOWMAC®

January 2018

PRODUCT STATEMENT

FOR

LUMBERLOK® TIMBER CONNECTORS

This document is issued by MiTek New Zealand Limited for the purpose of informing users of **LUMBERLOK** Connectors as to the appropriate conditions under which they are to be used and their durability, as required by the New Zealand Building Code, Clause B2, Durability.

1. PRODUCT DESCRIPTION

The **LUMBERLOK** Connector is a metal plate connector manufactured from pre-galvanised steel (Z275) coil or wire. A selection of **LUMBERLOK** products is also available in stainless steel Grade 304-2B.

2. PRODUCT USE

LUMBERLOK Connectors are designed and manufactured for use in connecting timber to timber, timber to steel, and timber to concrete, and as braces and supports for various types of timber construction.

LUMBERLOK Connectors should be used only for the purpose for which each of them is designed and manufactured in accordance with technical information supplied. In case of doubt as to use, MiTek New Zealand Limited should be contacted for guidance.

3. HANDLING, STORAGE, AND INSTALLATION

Pending use, **LUMBERLOK** Connectors should be stored in a weatherproof environment, protected from weather and moisture, remain in original packaging and be handled in such a manner as to avoid damage to the galvanised surface.

Structures incorporating **LUMBERLOK** Connectors should also be handled and installed in such a manner as to avoid stress or damage to the connector.

4. DURABILITY

This Product Statement is to be read in conjunction with the MiTek Durability Product Selection and Durability Flow Chart in Section 4 of the current MiTek Structural Fixings On-Site Guide. These selection charts are an alternative solution to Table 4.1 NZS 3604:2011.

When used, handled, stored and installed in accordance with the above conditions **LUMBERLOK** Connectors meet the NZBC clause requirement for 50 years life expectancy.

5. GENERAL

This statement is limited to the use of **LUMBERLOK** Connectors in New Zealand. No statement, representation or warranty is made or given in relation to any other country.

LUMBERLOK makes and gives no statement, representation, or warranty except as expressly set out in this statement and all conditions, statements, representations, or warranties implied by law or trade custom are excluded.



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MITEK® LUMBERLOK® BOWMAC®

January 2018

PRODUCT STATEMENT FOR **BOWMAC® STRUCTURAL BRACKETS**

This document is issued by MiTek New Zealand Limited for the purpose of informing users of **BOWMAC** Structural Brackets as to the appropriate conditions under which they are to be used and their durability, as required by the New Zealand Building Code, Clause B2, Durability.

1. **PRODUCT DESCRIPTION**

BOWMAC Structural Brackets are fixing brackets, supports and braces manufactured from steel hot dip galvanised after manufacture. A selection of **BOWMAC** Structural Brackets is also available in stainless steel Grade 304-2B.

2. **PRODUCT USE**

BOWMAC Structural Brackets are designed and manufactured for use in connecting timber to timber, timber to concrete, and timber to steel, and to provide structural support to timber constructions.

BOWMAC Structural Brackets should be used only for the purpose for which each of them is designed and manufactured in accordance with technical information supplied. In case of doubt as to use, MiTek New Zealand Limited should be contacted for guidance.

3. **HANDLING, STORAGE, AND INSTALLATION**

Pending use, **BOWMAC** Structural Brackets should be stored in a weatherproof environment, protected from weather and moisture, remain in original packaging and be handled in such a manner as to avoid damage to the galvanised surface.

Structures incorporating **BOWMAC** Structural Brackets should also be handled and installed in such a manner as to avoid stress or damage to the galvanised surface.

4. **DURABILITY**

This Product Statement is to be read in conjunction with the MiTek Durability Product Selection and Durability Flow Chart in Section 4 of the current MiTek Structural Fixings On-Site Guide. These selection charts are an alternative solution to Table 4.1 NZS 3604:2011.

When used, handled, stored and installed in accordance with the above conditions **BOWMAC** Structural Brackets meet the NZBC Clause B2 for 50 years durability performance requirements.

5. **GENERAL**

This statement is limited to the use of **BOWMAC** Structural Brackets in New Zealand. No statement, representation or warranty is made or given in relation to any other country.

BOWMAC makes and gives no statement, representation, or warranty except as expressly set out in this statement and all conditions, statements, representations, or warranties implied by law or trade custom are excluded.



Product Data Sheet

AUSMESH

BCEX0292
Received by
Kapiti Coast District Council
23/11/21

Galvanised roof safety mesh

Ausmesh is a superior quality roof underlay support and fall safety mesh for use on a variety of commercial buildings. Ausmesh is constructed of high tensile galvanised wire exceeding 450MPa and when used for roofing becomes a permanent fixture in the building. Available with PVC coating for high corrosive or aesthetic applications.

Ausmesh comes in sizes up to 2400 wide and can be cut to length for efficiency:

1800mm x 50m	Available cut to length*	Available PVC Coated - Black and White
2400mm x 50m	Available cut to length*	

* **Note:** Production time allowance may vary - contact your Thermakraft Representative for more information.

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thermakraft.co.nz



Ausmesh

Galvanised roof safety mesh

Product Description

Width	Mesh Size	Wire Diameter	Tensile Strength	Wire Coating	Length	Weight
1800mm 2250mm 2400mm	300mm x 150mm	2mm galvanised	Crosswire/ Transverse Wire min 450MPa	Standard AS/NZS 4534:2006 WO2	Standard roll size 50m	1800 width = ~23.5kg per roll.
			Line Wire/ Longitudinal Wire min 500 MPa			2250 width = ~29kg per roll.
						2400 width = ~31kg per roll.

Scope of Use

- Roof safety mesh as a primary means for fall protection when working at heights in domestic, commercial and industrial building applications that use steel or timber structure.
- Suitable for the support of foil underlays (Thermakraft Thermabar 344 and Thermabar 397) in exposed roof spaces, and synthetic underlays (Thermakraft Covertek 407, 405 and 403) in enclosed roof spaces.
- May be used to support insulation. Usage intent and compatibility must be checked by the designer with the insulation manufacturer.

General

- Constructed of 2mm high tensile galvanised steel wire.
- Longitudinal wires are spaced at 150mm centres with cross wires spaced at 300mm centres forming a rectangular shape.
- Roof application only for fall protection and underlay support.

Limitations

- To be used in enclosed buildings.
- Exposed structures such as canopies/awnings will compromise Ausmesh's durability.

Compliance

- Can be used on roofs up to and including NZS 3604 'Extra High' wind zones.
- Ausmesh complies to AS/NZS 4389:2015 standard (Roof Safety Mesh).

Durability

Meets the Performance Requirements outlined in AS/NZS 4389:2015 standard providing;

- It is not damaged.
- Is installed in accordance with instructions.
- Is installed by or under guidance of Licensed Building Practitioners.
- Is compatible with building structure materials used*.

* **Note:** Specifiers and product user must test for building structure materials' compatibility with Ausmesh before installation.

Product Warranty

Standard Thermakraft warranty applies. Refer to Thermakraft Warranty Statement for further details. This is available online at thermakraft.co.nz or call **0800 806 595**.

Thermakraft Limited / 0800 806 595

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Product Data Sheet

BCEX0292
Received by
Kapiti Coast District Council
23/11/21

COVERTEK 401

Self-supporting synthetic roof underlay

Covertex 401 is an affordable lightweight roof underlay designed to keep water out and allow moisture to escape. Covertex 401 is a more affordable option if your project does not require a fire-retardant underlay. It is stable, shrink resistant, easy to handle and easy to install.

Covertex 401 comes in three roll sizes:

1350mm wide	18.6m long	25m ² coverage*
1350mm wide	37m long	50m ² coverage*
1350mm wide	55m long	75m ² coverage*

* **Note:** m2 is the roll size for actual coverage, allow for laps and joins.

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thermakraft.co.nz



Covertex 401

Self-Supporting Synthetic roof underlay

Scope of Use

- Suitable with masonry tile, metal tile or profiled metal roof cladding.
- Suitable for timber or steel framed buildings - Direct fix or cavity fix.
- Self-supporting in roof pitch application greater than or equal to 10 degrees (Refer to installation guide)
- Will provide temporary weather protection during construction (maximum 7 days), same day coverage recommended.
- Covertex 401 may be installed during adverse conditions (rain/snow) without affecting durability or performance.
- Suitable for use under dark coloured roofs.

General

- Covertex 401 is NOT fire retardant.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in a well ventilated area. Recommended minimum 7 days.
- Tear resistant and strong.

Limitations

- Cannot be used as a wall underlay.
- Must NOT be exposed to the weather or UV for more than 7 days.

Compliance

Designed for use as a roof underlay within the following scope:

- The scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, with regards to building height and floor plan area.
- Situated in NZS3604 Wind Zones up to, and including, 'Extra High' (ROOF ONLY).
- Refer BRANZ Appraisal No 943 (2016) for full details.

Durability

Contributes to meeting the Performance Requirements of NZBC Clauses B2, Durability (B2.3.1 (a) 50 years, B2.3.1 (b) 15 years and B2.3.2), E2 External Moisture E2.3.2), and F2 Hazardous Building Materials F2.3.1, providing:

- It is not damaged.

Property Performance

NZBC E2/AS1 Table 23 (NZS2295) Wall Underlay Properties	Absorbency	Vapour Resistance	pH of Extract	Shrinkage	Water Resistance
Property Performance Requirement	≥ 150gsm	≤ 0.5 MN.s/g	≥ 5.5 and ≤ 8	≤ 0.5%	≥ 100mm
Property Performance	Pass	Pass	Pass	Pass	Pass

- Is installed in accordance with instructions.
- Is not left exposed for more than 7 days (roof), same day coverage recommended.
- Is installed by or under guidance of Licensed Building Practitioners.
- Is compatible with cladding system used. (**Note:** specifiers and product users must test for roof cladding system compatibility with the underlay before installation.)

Control of Condensation

In climatic regions where condensation risks are high, such as cold or high humidity areas, care needs to be taken in specifying the correct design and installation to prevent moisture build-up in the roof cavities.

Factors which adversely affect the condensation risk in roofing systems include:

- Humid, and/or cold climatic regions.
- Warm/Skillion roof construction.
- Low roof cavity air volume and restricted air movement.
- Omitting Vapour Control Layers.
- Ceiling penetrations and entry of warm air into roof cavities.
- Occupancy activities which have high moisture loading on conditioned spaces.
- Low pitched roof.
- Bulk insulation.
- Building structures ability to naturally dry construction moisture.

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer MRM Code of Practice for details.

For passive ventilation of the roof space, it is recommended that all roof underlays are terminated at the ridge, and if not it should be slit or slotted to allow for passive ventilation. (For further information refer to the NZ MRM Roofing Code of Practice).

Product Warranty

Standard Thermakraft warranty applies. Refer to Thermakraft Warranty Statement for further details. This is available online at thermakraft.co.nz or call **0800 806 595**.

Thermakraft Limited / 0800 806 595

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The recommendations contained in Thermakraft's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Thermakraft (for example quality of workmanship and design), Thermakraft shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found on the website. E&OE.

General Information

Notes:

Refer to roof fixing pattern details for roof fixing pattern

PS-001 for upto High Wind - corrugate roof

PS-002 for Very High Wind - corrugate roof

PS-003 for Extra High Wind - corrugate roof

PS-004 for Trapezoidal fixing patterns

For Corrugate wall fixing, fix every second crest along each girt line.

At the top of the cladding fix in every second trough so flashings can fit over nicely.

For Trapezoidal wall cladding, fix every crest along each girt line.

At the top of the cladding fix in every second trough so flashings can fit over nicely.

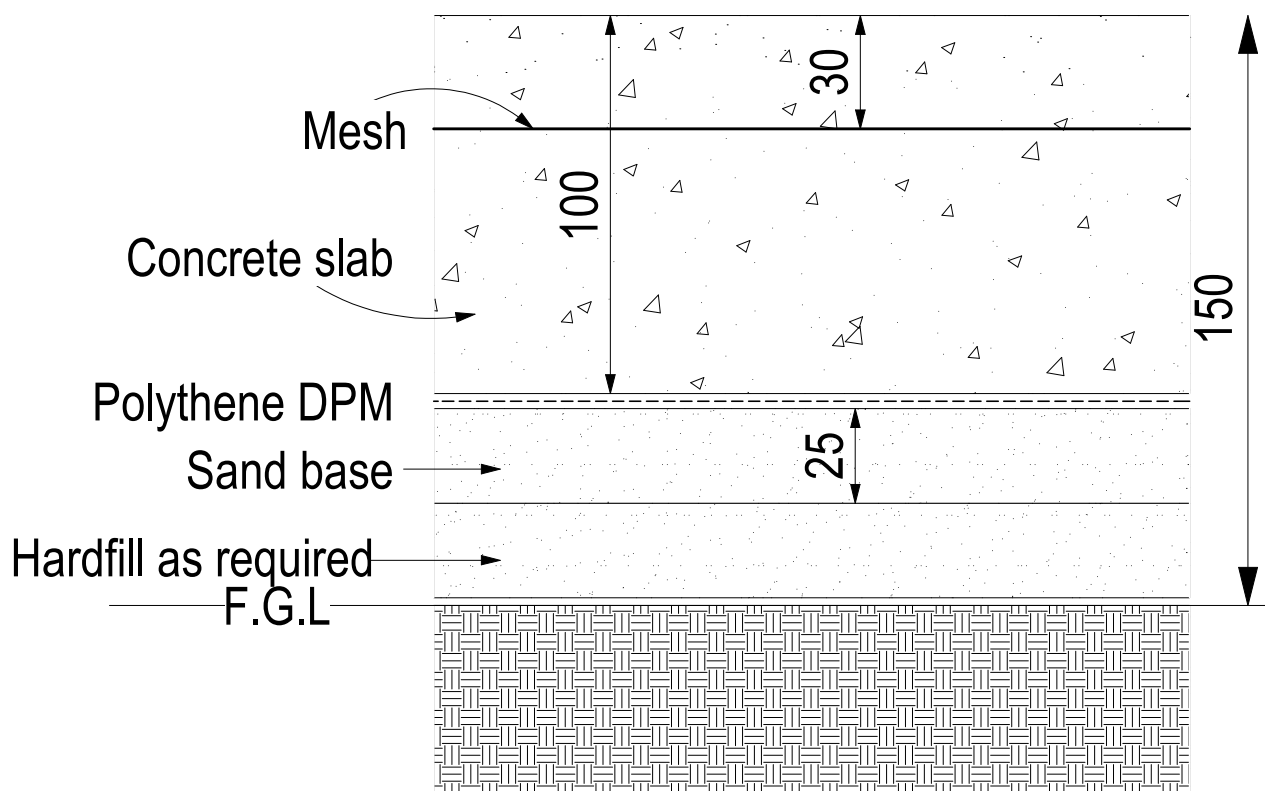
Refer to details in this document for further information.

Table 1 (see Below) gives fixing type to use for the various cladding types that we use

Table 1	
Fixing Type	Cladding Type
Class 5 12x65 with washer	Trapezoidal
Class 5 12x55 with washer	Corrugate

Nearly all structural/ framing details will be covered in the plans from Mitek. Certain situations may require additional framing and fixing which Mitek don't take into account, these situations will be detailed in this document and will be noted as being a variation to the Mitek plans.





Concrete Strength after 28 days:

Zone B - 17.5MPa

Zone C - 20 MPa

Zone D - 25MPa

Saw cuts to be 25mm deep and no more than 5m apart

Mesh to stop short of slab edges by 75mm.

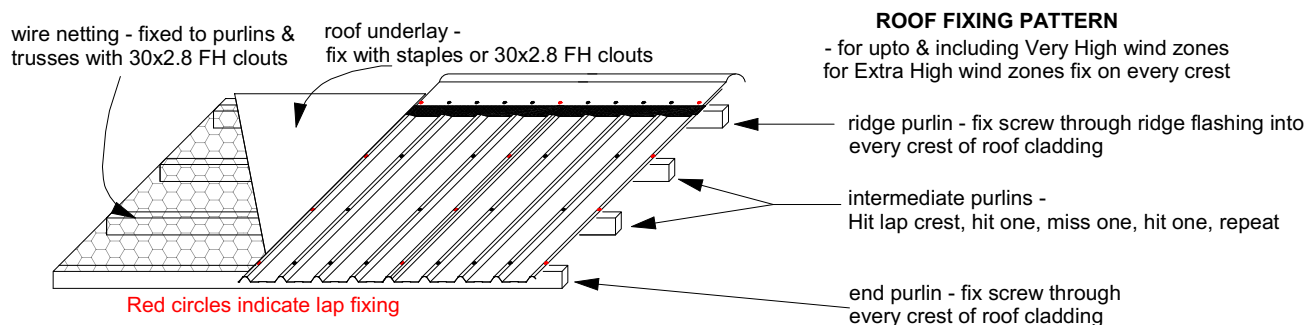
NOTE:

This is a non-structural concrete slab and does not form part of the structural integrity of the building

Non Structural Concrete Slab

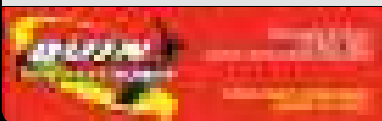
Quin Buildings - Pole
Shed Flashing Detail
Manual - Nov 2019

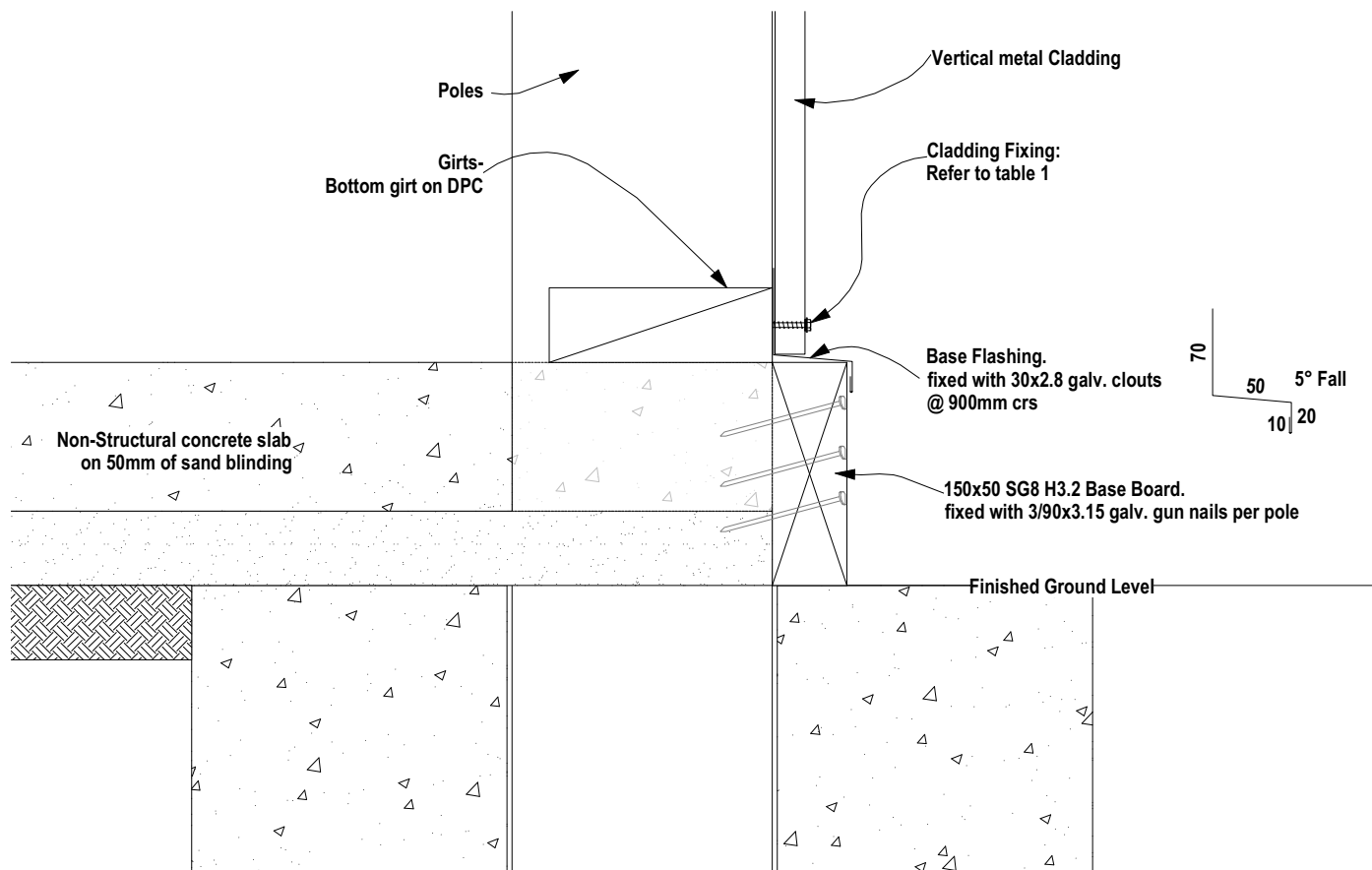
Abbreviations:	CM=Corrugated Metal	Ref:
QB= Quin Buildings	TM= Trapezoidal Metal	
QB-TDM= Quin Technical Detail Manual		
QC= Q-Clad		
DF= Direct Fix		
C=Cavity		Sht:



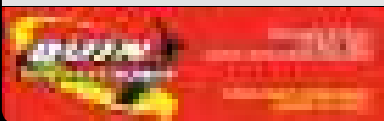
Detail: PS-004c

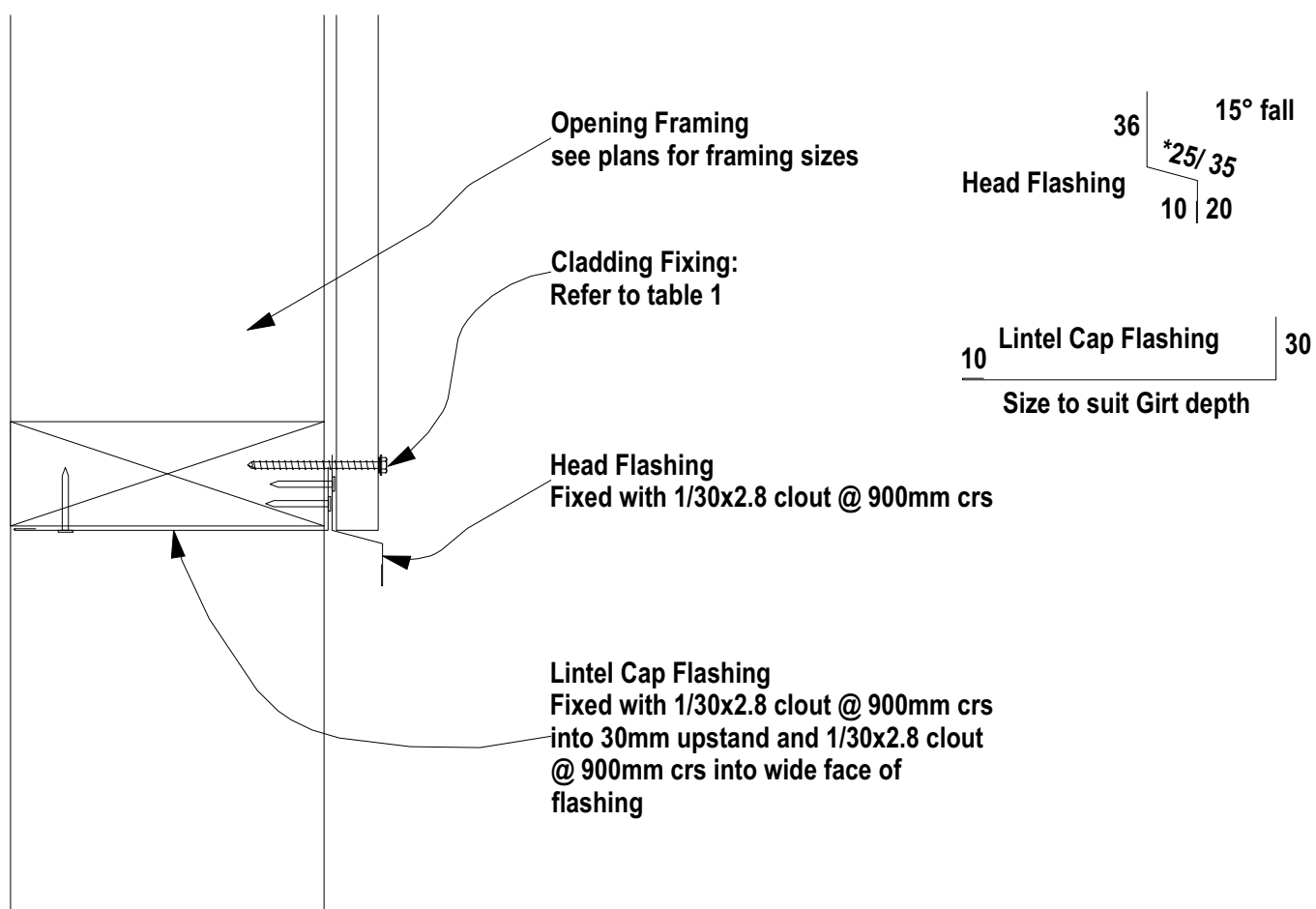
Trapezoidal (QD5) Roof Fixing Pattern - Enclosed Bays




Detail: PS-006a

Base of Cladding to Base Board - Vertical profiled metal cladding





*** Note:**
25mm for Corrugate wall cladding
35mm for trapezoidal wall cladding

See Mitek plans for all structural/ timber elements

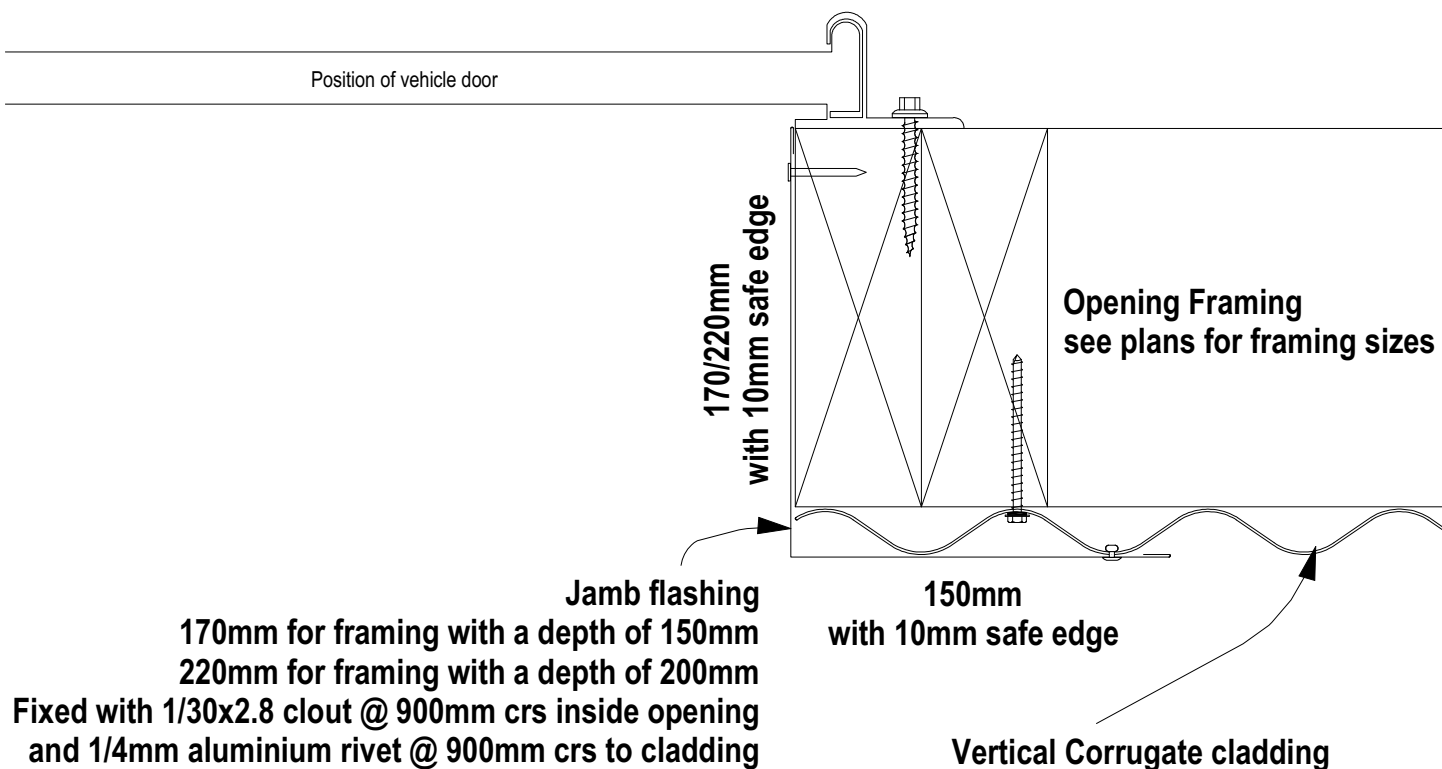
Detail: PS-011

Door Opening Head Flashing

Quin Buildings - Pole
Shed Flashing Detail
Manual - Nov 2019

Base of Cladding- Base Boards

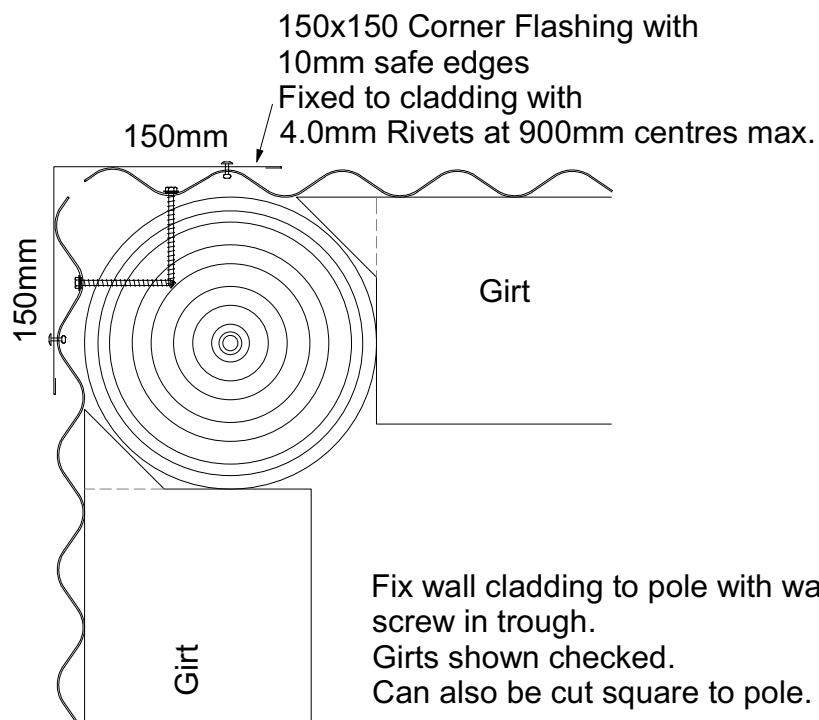
Abbreviations:	CM=Corrugated Metal	Ref:
QB= Quin Buildings	TM= Trapezoidal Metal	
QB-TDM= Quin Technical Detail Manual		
QC= Q-Clad		
DF= Direct Fix		
C=Cavity		Sht:



See Mitek plans for all structural/ timber elements

Detail: PS-012

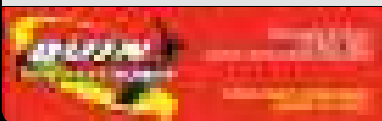
Vehicle Door Jamb Flashing - Corrugate



See Mitek plans for all structural/ timber elements

Detail: PS-016

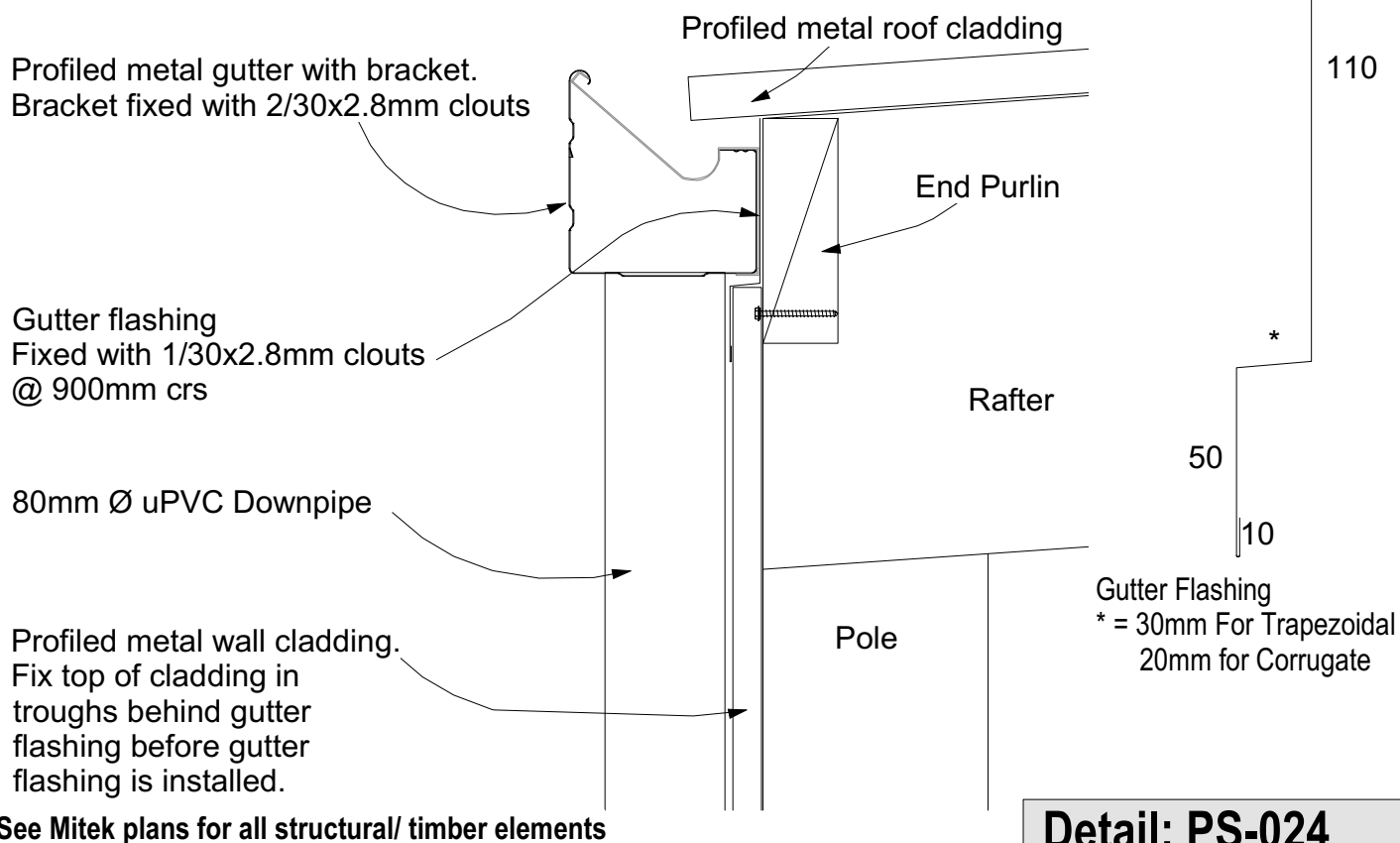
Corner Flashing Detail - Corrugate, Clad both sides



Quin Buildings - Pole
Shed Flashing Detail
Manual - Nov 2019

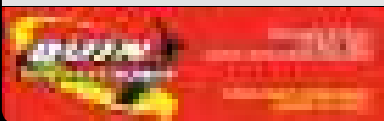
External Corner Flashing Details -
Cladding both sides

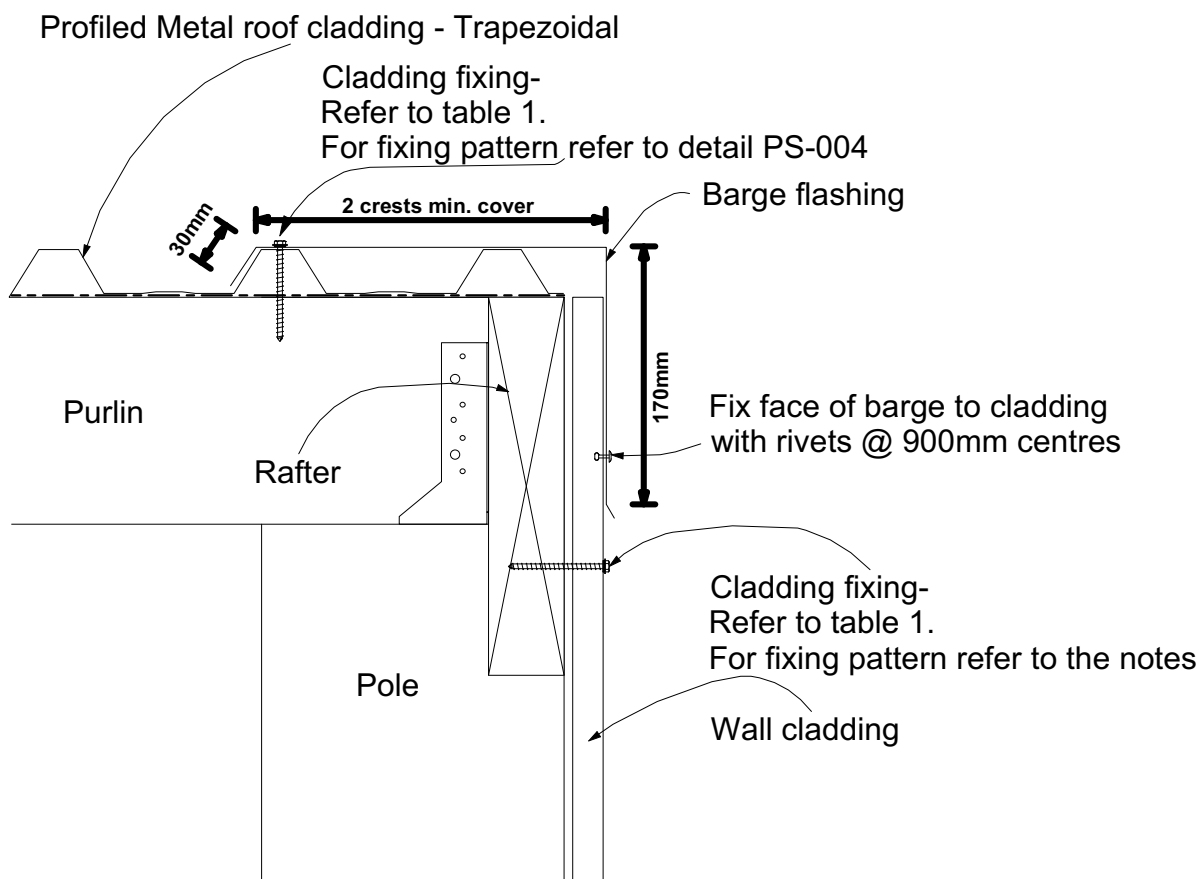
Abbreviations:	CM=Corrugated Metal	Ref:
QB= Quin Buildings	TM= Trapezoidal Metal	
QB-TDM= Quin Technical Detail Manual		
QC= Q-Clad		
DF= Direct Fix		
C=Cavity		
		Sht:



Detail: PS-024

Lower Roof Edge - With Gutter

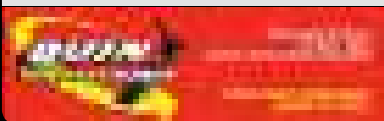




See Mitek plans for all structural/ timber elements

Detail: PS-027

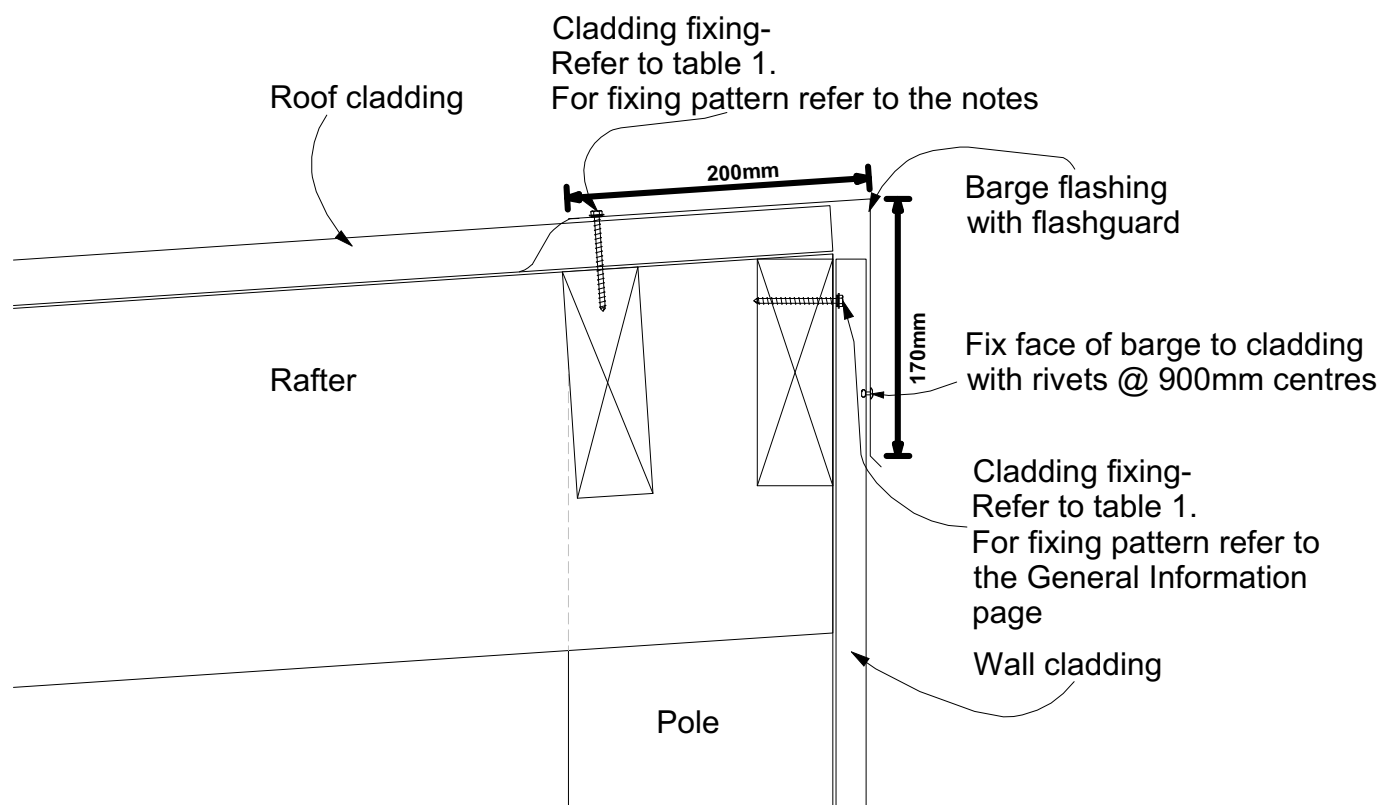
Barge Detail- trapezoidal roof, clad walls



Quin Buildings - Pole
Shed Flashing Detail
Manual - Nov 2019

Trapezoidal Barge Deatals

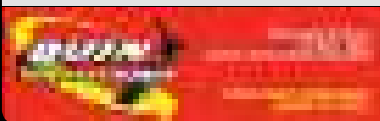
Abbreviations:	CM=Corrugated Metal	Ref:
QB= Quin Buildings	TM= Trapezoidal Metal	
QB-TDM= Quin Technical Detail Manual		
QC= Q-Clad		
DF= Direct Fix		
C=Cavity		Sht:



See Mitek plans for all structural/ timber elements

Detail: PS-033

Mono Ridge Detail - no overhang, clad walls



Quin Buildings - Pole
Shed Flashing Detail
Manual - Nov 2019

Mono Ridge Details- no
overhangs

Abbreviations:	CM=Corrugated Metal	Ref:
QB= Quin Buildings	TM= Trapezoidal Metal	
QB-TDM= Quin Technical Detail Manual		
QC= Q-Clad		
DF= Direct Fix		
C=Cavity		Sht:

Quins 125 Box gutter has a cross sectional area of 9577mm².
The 125 Box gutter has a capacity of 88m² of roof area upto a 25° roof pitch.

Maximum roof area for 125 Box gutter discharging to 1x80mm ØuPVC downpipe = 85m²

Maximum roof area for 125 Box gutter discharging to 2x80mm ØuPVC downpipe = 170m²

Maximum roof area for 125 Box gutter discharging to 3x80mm ØuPVC downpipe = 255m²

Maximum roof area for 125 Box gutter discharging to 4x80mm ØuPVC downpipe = 340m²

Maximum roof area for 125 Box gutter discharging to 5x80mm ØuPVC downpipe = 425m²

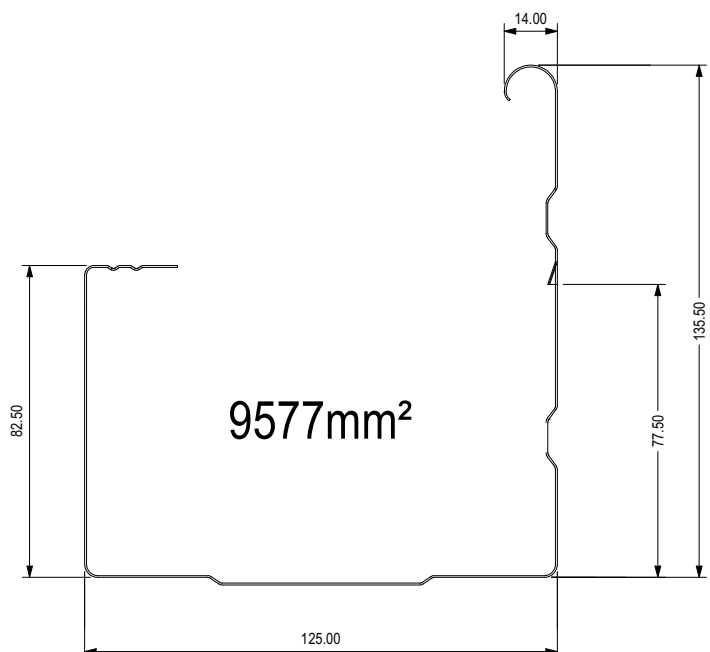
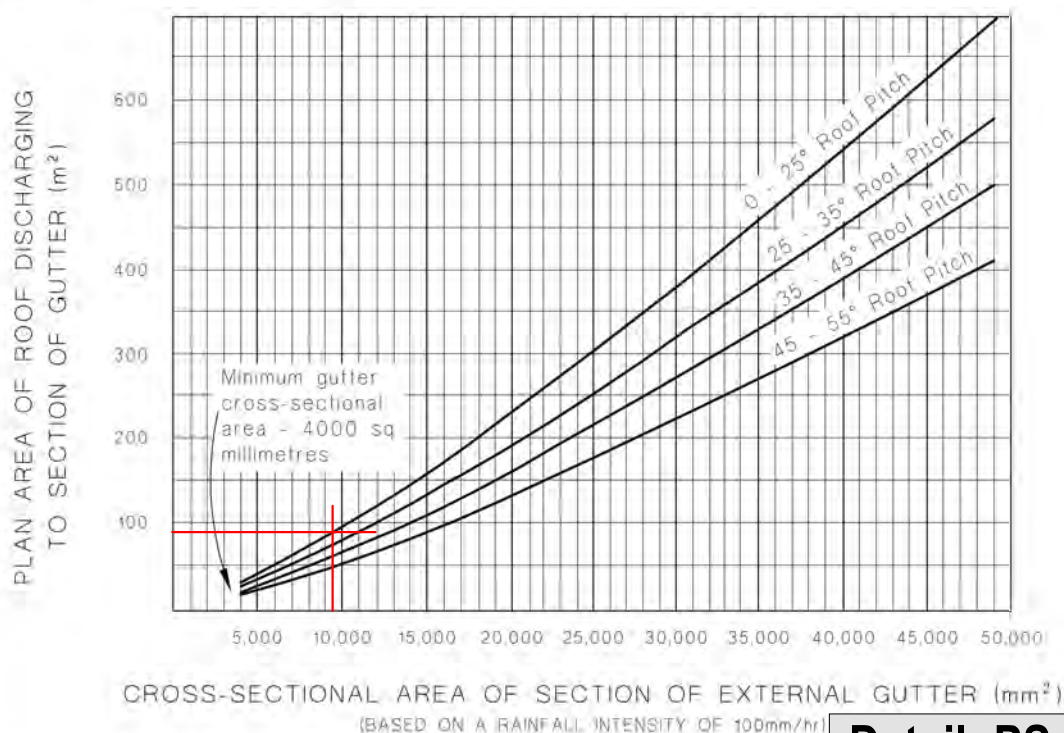


Table 5: Downpipe Sizes for Given Roof Pitch and Area
Paragraph 4.2.1

Downpipe size (mm) (minimum internal sizes)	Roof pitch			
	0-25°	25-35°	35-45°	45-55°
Plan area of roof served by the downpipe (m ²)				
63 mm diameter	60	50	40	35
74 mm diameter	85	70	60	50
100 mm diameter	155	130	110	90
150 mm diameter	350	290	250	200
65 x 50 rectangular	60	50	40	35
100 x 50 rectangular	100	80	70	60
75 x 75 rectangular	110	90	80	65
100 x 75 rectangular	150	120	105	90

Figure 15: Cross-sectional Area of External Gutter
Paragraphs 5.1.2 and 5.1.3



Detail: PS-041

Abbreviations:	CM=Corrugated Metal	Ref:
QB=Quin Buildings	TM=Trapezoidal Metal	
QB-TDM=Quin Technical Detail Manual		
QC=Q-Clad		
DF=Direct Fix		
C=Cavity		Sht:



**CONSENT NOTICE PURSUANT TO SECTION 221
OF THE RESOURCE MANAGEMENT ACT 1991**

**IN THE MATTER OF A PLAN LODGED FOR DEPOSIT UNDER
NUMBER 335543
AND RESOURCE CONSENT NO. RM 040013**

**(BEING THE SUBDIVISION OF PT SEC. 5 BLK II, KAITAWA S.D.
and LOT 1 DP 62585),
AT 737 - 757 STATE HIGHWAY NO. 1, TE HORO
FOR PRITCHARD GROUP LIMITED**

The Regional Regulatory Titles Officer at Wellington

PURSUANT to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and that the following conditions are to be complied with on a continuing basis:

1. **With respect to Lots 1, 2 and 4:** Vehicular accesses to State Highway One from Lots 1, 2 and 4 must be via the Right of Way shown as "A" on DP335543. Any variation must be approved by both Transit New Zealand and the Kapiti Coast District Council.

2. **With respect to Lots 1, 2 and 3:** The following works shall take into account the findings contained within the report from Hamish Wells, Civil Engineer in relation to suitability for building, site effluent disposal and on site water supply for the "Proposed Subdivision of Faith Farm - 757 SH1 Te Horo" dated 24.04.04 and submitted to Council in relation to application No. RM040013:
 - the installation and ongoing management of any on site wastewater system in a manner that ensures that any adverse effects on the environment from the operation of the system are minor;
 - the provision, maintenance and monitoring of any on site water supply system that provides a minimum storage capacity of 30000 litres or other minimum storage approved by the Subdivision Engineer in a manner that ensures that any adverse effects on the environment from the operation of the system are minor.

A copy of the above report is available on file RM040013 in Council's Resource Consents Office at any time the office is open to the public.

Kapiti Coast District Council

Phone (04) 904 5700, Fax (04) 904 5830 175 Rimu Road, Private Bag 601, Paraparaumu. Website www.kcdc.govt.nz

3. **With respect to Lot 4:** The following works shall take into account the findings contained within the report from Hamish Wells, Civil Engineer in relation to suitability for building, site effluent disposal and on site water supply for the "Proposed Subdivision of Faith Farm – 757 SH1 Te Horo" dated 24.04.04 and submitted to Council in relation to application No. RM040013:

- the foundation design and construction for any new building or additions and alterations to a building;
- the installation and ongoing management of any on site wastewater system in a manner that ensures that any adverse effects on the environment from the operation of the system are minor;

Any on-site wastewater treatment and disposal system shall be designed, constructed and operated to meet the following performance criteria:

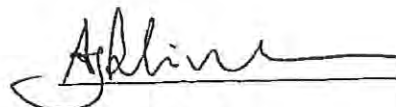
- (i) It shall be designed with sufficient wastewater retention time to enable adequate treatment in relation to any constraints identified in the site investigation;
 - (ii) The wastewater shall be evenly distributed to the entire filtration surface of the disposal field;
 - (iii) The bottom of the wastewater disposal system shall be sufficiently above the groundwater at its highest level, in relation to any constraints identified in the site investigation, to prevent any contamination of groundwater;
 - (iv) The area available for on-site treatment shall be appropriate for the volume of the discharge and any constraints identified in the site investigation.
- the provision, maintenance and monitoring of any on site water supply system that provides a minimum storage capacity of 30000 litres or other minimum storage approved by the Subdivision Engineer in a manner that ensures that any adverse effects on the environment from the operation of the system are minor.

A copy of the above report is available on file RM040013 in Council's Resource Consents Office at any time the office is open to the public.

Issued in respect of application No. RM040013 on this 15th day of October 2004.



Wayne Gair
AUTHORISED OFFICER



Aidan Robinson
AUTHORISED OFFICER



**CONSENT NOTICE PURSUANT TO SECTION 221
OF THE RESOURCE MANAGEMENT ACT 1991**

**IN THE MATTER OF A PLAN LODGED FOR DEPOSIT UNDER
NUMBER 365855
AND RESOURCE CONSENT NO. RM 040393**

**(BEING THE SUBDIVISION OF LOT 4 DP 335543),
AT DERHAM ROAD AND STATE HIGHWAY ONE, TE HORO
FOR FAITH FARMS LIMITED**

The Regional Regulatory Titles Officer at Wellington

PURSUANT to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and that the following conditions are to be complied with on a continuing basis:

1. **With respect to Lots 1 to 12, 25 and 28:** The following works shall take into account the findings and recommendations within the Engineering Report prepared by Hamish Wells in relation to Faith Country Estate, Lots 1 to 12 and 25, submitted to Council in relation to application Number RM040393:
 - Foundation design and construction for any new building or additions and alterations to a building;
 - The installation and ongoing maintenance of any on-site wastewater treatment and disposal system, which shall be managed in a manner that ensures that any adverse effects on the environment are minor;
 - The provision, maintenance and monitoring of any water supply system that provides a minimum storage capacity of 30,000 litres. It is the ongoing responsibility of the owner to maintain and monitor the water supply so that any adverse effects on the environment are minor.

A copy of the engineering report is available in Council's Office at any time the office is open to the public. /
2. **With respect to Lots 1 to 12, 25, 28 and 29:** Any habitable buildings constructed on any lot shall have their floor level no lower than the flood level arising from the 1 in 100 year flood event current at the time of building, as advised by Greater Wellington Regional Council.
3. **With respect to Lots 4, 5 and 6:** No part of any building or structure shall be located, or earthworks undertaken (except that work necessary to establish and maintain vegetation), within the following areas of the dominant dune landform (above 27.5 metres above mean sea level) identified on DP365855:
 - That part of Lot 4 shown as areas "F" and "G";
 - That part of Lot 5 shown as area "E";
 - That part of Lot 6 shown as areas "H" and "P".

Kapiti Coast District Council

Phone (04) 904 5700, Fax (04) 904 5830 175 Rimu Road, Private Bag 601, Paraparaumu. Website www.kapiticoast.govt.nz

4. **With respect to Lots 3, 12 and 25:** No part of any building or structure shall be located, or earthworks undertaken (except that work necessary to establish and maintain vegetation), within the following areas of the dominant dune landform (above 32.5 metres above mean sea level) identified on DP365855:
- That part of Lot 3 shown as areas "I" and "J";
 - That part of Lot 12 shown as area "O";
 - That part of Lot 25 shown as areas "K" and "L".
5. **With respect to Lot 28:**
- (1) It shall be the ongoing responsibility of the owners of Lot 28 to maintain a 7 wire post and batten fence to a standard to prevent stock from entering the area shown as "A" on DP365855 (the wetland area) at all times.
 - (2) It shall be the ongoing responsibility of the owners of Lot 28 to control environmental weeds which are referred to in the Regional Pest Management Strategy within the area shown as "A" on DP365855 (the wetland area).
 - (3) Within the area shown as "A" on DP365855 (the wetland area) the following activities shall be prohibited:
 - all buildings and structures;
 - all stock ;
 - vehicles;
 - fire or any device or activity which could result in a fire;
 - earthworks (except for earthworks necessary to construct and maintain the fence required by condition 49);
 - the damage, removal, destruction, felling of any indigenous vegetation unless the species involved are identified by the Department of Conservation, the QEII National Trust, or Greater Wellington Regional Council as being an ecological threat to the site, and its removal is recommended by one of these authorities as a necessary part of the successful ongoing management of the site.
6. **With respect to Lot 7:**
- a) Buildings and structures, or any part of a building or structure located to the south of Tower 230 of the Bunnythorpe-Haywards A transmission line, must not be located within 11 metres vertically and 22.5 metres horizontally of the conductors on the Bunnythorpe-Haywards A transmission line. Please note that the distances specified must include an allowance for climatic conditions (i.e. maximum conductor swing and sag).
 - b) Buildings and structures, or any part of a building or structure located to the north of Tower 230 of the Bunnythorpe-Haywards A transmission line, require engineering advice to determine the minimum safe distances from transmission line conductors.
 Prior to construction, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that any building or structure on Lot 7 complies with the minimum safe distances from the Bunnythorpe-Haywards A line as specified in Table 3 of the NZECP 34:2001.
 - c) Buildings and structures, or any part of a building or structure must not be located within 11 metres vertically and 22.5 metres horizontally of the conductors on the Bunnythorpe-Haywards B transmission line. Please

note that the distances specified must include an allowance for climatic conditions (i.e. maximum conductor swing and sag).

Where any part of a building or structure needs to be constructed within these restricted areas, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that the buildings or structures comply with the minimum safe distances specified in Table 3 of the NZECP 34:2001.

Where any part of a building or structure needs to be constructed within this restricted area, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that the buildings or structures comply with the minimum safe distances specified in Table 3 of the NZECP 34:2001.

7. With respect to Lot 8:

- a) Buildings and structures, or any part of a building or structure located to the south of Tower 229 of the Bunnythorpe–Haywards A transmission line, require engineering advice to determine the minimum safe distances from transmission line conductors.

Prior to construction, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that any building or structure on Lot 8 complies with the minimum safe distances from the Bunnythorpe–Haywards A transmission line as specified in Table 3 of the NZECP 34:2001.

- b) Buildings and structures, or any part of a building or structure located to the north of Tower 229 of the Bunnythorpe–Haywards A transmission line, must not be located within 11 metres vertically and 22.5 metres horizontally of the conductors on the Bunnythorpe–Haywards A transmission line. Please note that the distances specified must include an allowance for climatic conditions (i.e. maximum conductor swing and sag).

- c) Buildings and structures, or any part of a building or structure located to the south of Tower 217 of the Bunnythorpe–Haywards B transmission line, must not be located within 11 metres vertically and 22.5 metres horizontally of the conductors on the Bunnythorpe – Haywards B transmission line. Please note that the distances specified must include an allowance for climatic conditions (i.e. maximum conductor swing and sag).

- d) Buildings and structures, or any part of a building or structure located to the north of Tower 217 of the Bunnythorpe–Haywards B transmission line, require engineering advice to determine the minimum safe distances from transmission line conductors.

Prior to construction, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that any building or structure on Lot 8 complies with the minimum safe distances from the Bunnythorpe–Haywards A line as specified in Table 3 of the NZECP 34:2001.

Where any part of a building or structure needs to be constructed within this restricted area, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that the buildings or structures comply with the minimum safe distances specified in Table 3 of the NZECP 34:2001.

8. With respect to Lots 7 and 8:

Buildings or any part of a building must not be located within 12 metres of the closest visible edge of any high voltage transmission line support structure foundation.

All machinery and mobile plant operated on the land must maintain a minimum clearance distance of 4 metres from the transmission line conductors at all times.

All buildings, structures and vegetation located on Lots 7 & 8 must not be located to preclude existing 4-wheel drive access to the existing support towers on these lots.

In the case of any tower supporting any conductor no person may excavate or otherwise interfere with any land:

- a) at a depth greater than 300mm within 6 metres of the tower; or
- b) at a depth greater than 3 metres between 6 metres and 12 metres of the outer edge of the visible foundation of the tower; or
- c) in such a way as to create an unstable batter.


Excavated or other material shall not be stockpiled or deposited under or near the Bunnythorpe-Haywards A and Bunnythorpe-Haywards B transmission lines so as to reduce the vertical distance from the ground to the conductors to a distance less than:

- a) 7.5 metres vertically, across or along roads or driveways or on any other land traversable by vehicles;
- b) 6.0 metres vertically, on any land not traversable by vehicles due to inaccessibility; and
- c) 4.5 metres in any distance other than vertical on all land.

The consent holder must ensure that the discharge of dust created on the subject site does not create any dust hazard or nuisance to the Bunnythorpe-Haywards A and Bunnythorpe-Haywards B high voltage transmission lines.

Prior to the commencement of the activity on the site, the consent holder must submit a Dust Management Plan for the activity for the approval of the Consents Manager, Kapiti Coast District Council. In particular, the Dust Management Plan shall specify the potential dust sources and the mitigation measures to be undertaken to minimise dust in order to protect the existing Bunnythorpe-Haywards A and Bunnythorpe-Haywards B 220kV high voltage transmission lines. The approved plan must subsequently be complied with.

Issued in respect of application No. RM 040393 on this 9th day of May, 2006.



**Wayne Gair
AUTHORISED OFFICER**



**Mike Mackiggan
AUTHORISED OFFICER**

Kapiti Coast District Council
Private Bag 601
Paraparaumu 5254

Tel. (04) 296 4700
Fax (04) 296 4830

E: kapiti.council@kapiticoast.govt.nz
W: www.kapiticoast.govt.nz



**CONSENT NOTICE
PURSUANT TO SECTION 221 OF
THE RESOURCE MANAGEMENT ACT 1991**

**IN THE MATTER OF A PLAN LODGED FOR
DEPOSIT UNDER NUMBER 405220
AND RESOURCE CONSENT NO. RM040393**

**(BEING THE SUBDIVISION OF LOT 29 DP 394017),
AT DERHAM ROAD, TE HORO
FOR PRITCHARD GROUP LTD**

CONO 7901901.2 Consen

Cpy - 01/01, Pgs - 002, 07/08/08, 12:11



DocID: 412013828

The Regional Regulatory Titles Officer at Wellington

PURSUANT to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and in respect to Lots 13 to 22 and Lot 24 the following conditions are to be complied with on a continuing basis:

1. **With respect to Lots 13 to 22 and Lot 24:** The following works shall take into account the findings and recommendations within the Report prepared by Hamish Wells in relation to Faith Country Estate, Lots 13-24, submitted to Council in relation to application Number RM040393:
 - (a) Foundation design and construction for any new building or additions and alterations to a building;
 - (b) The installation and ongoing maintenance of any on-site wastewater treatment and disposal system, which shall be managed in a manner that ensures that any adverse effects on the environment are minor;
 - (c) The provision, maintenance and monitoring of any water supply system that provides a minimum storage capacity of 30,000 litres. It is the ongoing responsibility of the owner to maintain and monitor the water supply so that any adverse effects on the environment are minor.

A copy of the report is available in Council's Office at any time the office is open to the public.

2. **With respect to Lots 13 to 22 and Lot 24:** Any habitable buildings constructed on this lot shall have their floor level no lower than the flood level arising from the 1 in 100 year flood event current at the time of building, as advised by Greater Wellington Regional Council.
3. **With respect to Lots 13, 14 15 and 24:** No part of any building or structure shall be located, or earthworks undertaken (except that work necessary to establish and maintain vegetation), within the following areas of the dominant dune landform identified on DP 405220:
 - (a) That part of Lot 15 shown as area "H" (above 27.5 metres above mean sea level);
 - (b) Those parts of Lot 14 shown as areas "I" and "J" (above 32.5 metres above mean sea level);

- (c) That part of Lot 13 shown as area "K" (above 32.5 metres above mean sea level).
- (d) That part of Lot 24 shown as area "M" (above 32.5 metres above mean sea level).
4. With respect to Lot 24 and in particular that part of Lot 24 shown as area "L" on DP 405220:
- (a) It shall be the ongoing responsibility of the owners of Lot 24 to maintain a 7 wire post and batten fence to a standard to prevent stock from entering the wetland area shown as "L" on DP 404220 at all times;
 - (b) It shall be the ongoing responsibility of the owners of Lot 24 to control environmental weeds which are referred to in the Regional Pest Management Strategy within the wetland area;
 - (c) Within the area shown as "L" on DP 405220 (the wetland area) the following activities shall be prohibited:
 - all buildings and structures;
 - all stock;
 - vehicles;
 - fire or any device or activity which could result in a fire;
 - earthworks (except for earthworks necessary to construct and maintain the fence referred to in Condition 4(a) above;
 - the damage, removal, destruction, felling of any indigenous vegetation unless the species involved are identified by the Department of Conservation, the QEII National Trust, or Greater Wellington Regional Council as being an ecological threat to the site, and its removal is recommended by one of these authorities as a necessary part of the successful ongoing management of the site.
5. With respect to Lots 16, 17, 20 and 22: It shall be the ongoing responsibility of the owners of these lots to maintain the planting in accordance with the approved planting plan labelled 'Mission Estate Landscape Plan to meet the requirements of Condition 52' submitted to Council in relation to application Number RM040393. A copy of the report is available in Council's Office at any time the office is open to the public.

Issued in respect of application No. RM040393 on this 18th day of June 2008.



Dean Philip Raymond
AUTHORISED OFFICER



David Wayne Gair
AUTHORISED OFFICER

CHECKSHEET FOR APPLICATION FOR DISCRETIONARY EXEMPTION

Schedule 1, Part 1, Section 2 of the Building Act 2004



Address of Project: St Paul Faith Lane, Tettors

Once you have attached all the required information to your application, please check for completeness as an incomplete application or lack of any support information will mean that your application cannot be accepted for processing.

Customer Use			For Office Use Only
<input checked="" type="checkbox"/>	a	Schedule 1, Part 1, Section 2 Form (1 copy) Completed and signed by the owner.	<input type="checkbox"/>
<input checked="" type="checkbox"/>	b	Proof of ownership (1 copy) One recent copy of current certificate/s of title (i.e. not older than 3 months) or where applicable one copy of purchase agreement (if recently purchased) or one copy of relevant portions of current lease.	<input type="checkbox"/>
<input checked="" type="checkbox"/>	c	Locality plan (1:500) showing: Physical location of the subject building in relation to streets or landmarks, north point, name of Building and lot and DP number.	<input type="checkbox"/>
<input checked="" type="checkbox"/>	d	Plans, specifications and engineers design (if applicable) Ensure enough information is provided to clearly demonstrate compliance with the New Zealand Building Act and Code.	<input type="checkbox"/>
<input type="checkbox"/>	e	Application fee <u>Email Invoice</u> Applications will not be accepted without payment of the appropriate fees. Fees payable are set out on the application form.	<input type="checkbox"/>

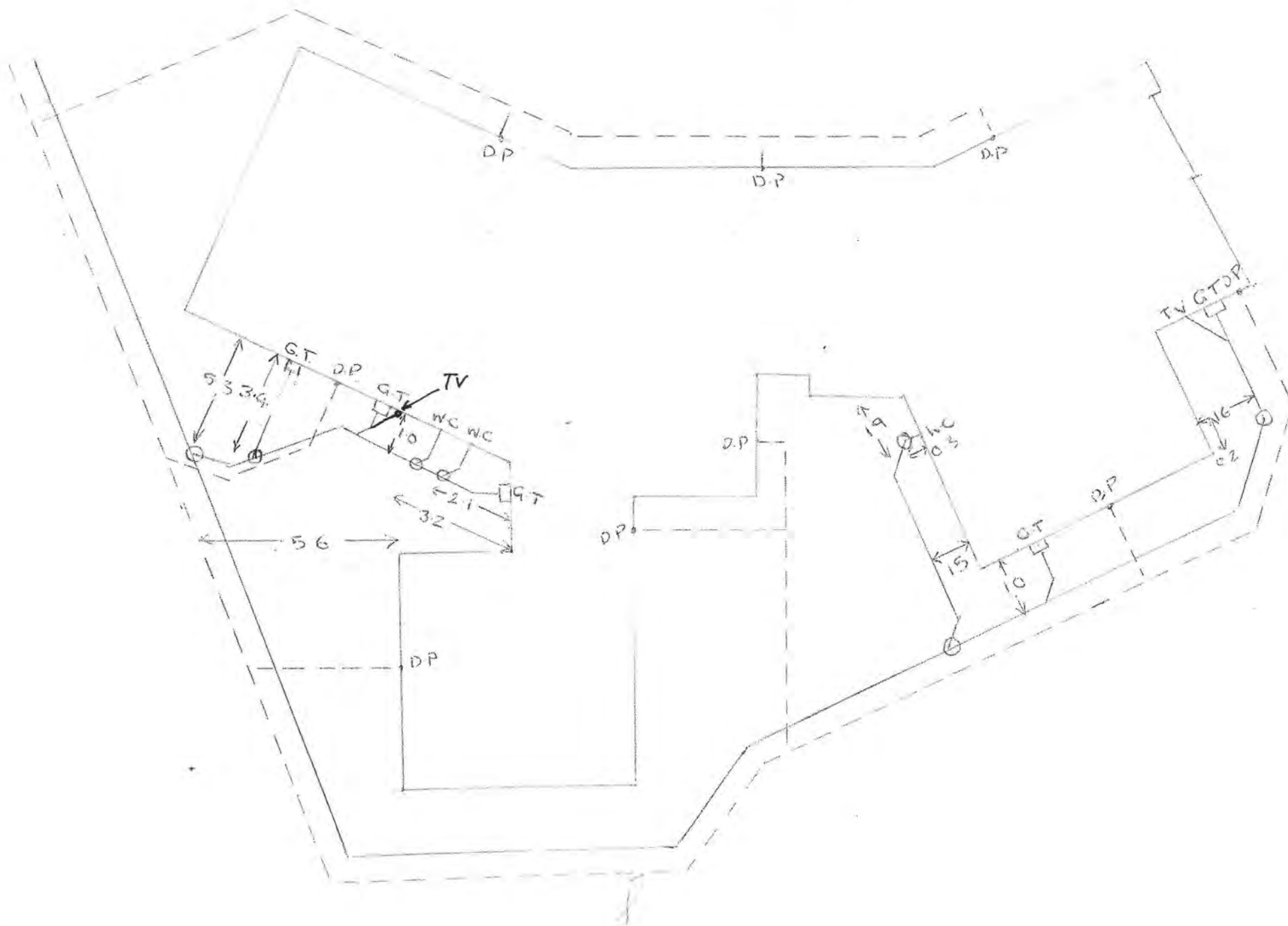
For office use only Received on the grounds that all information appears to have been provided to enable assessment for compliance in accordance with the Building Act 2004 and the NZ Building Code.

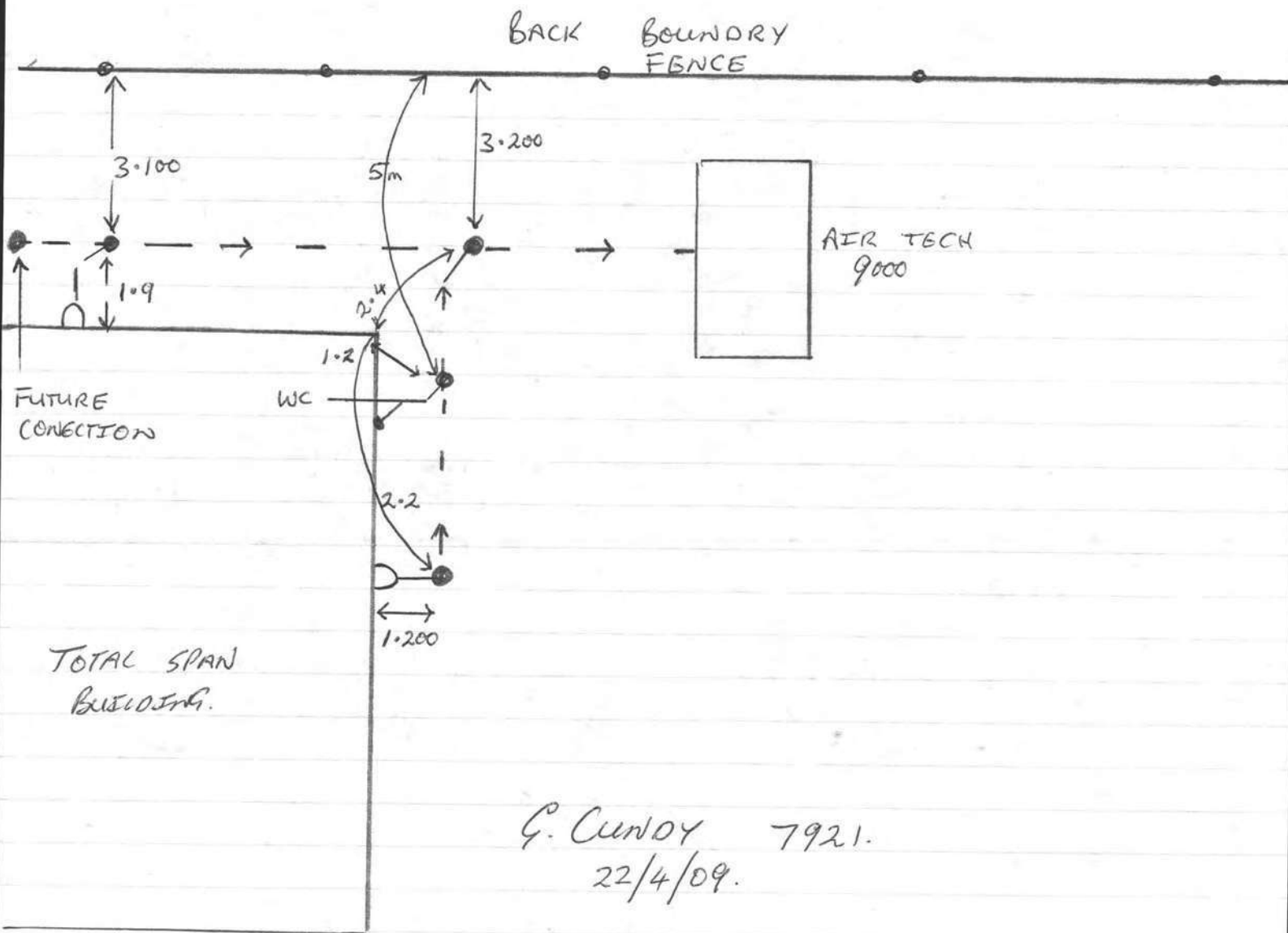
Name:

Signature:

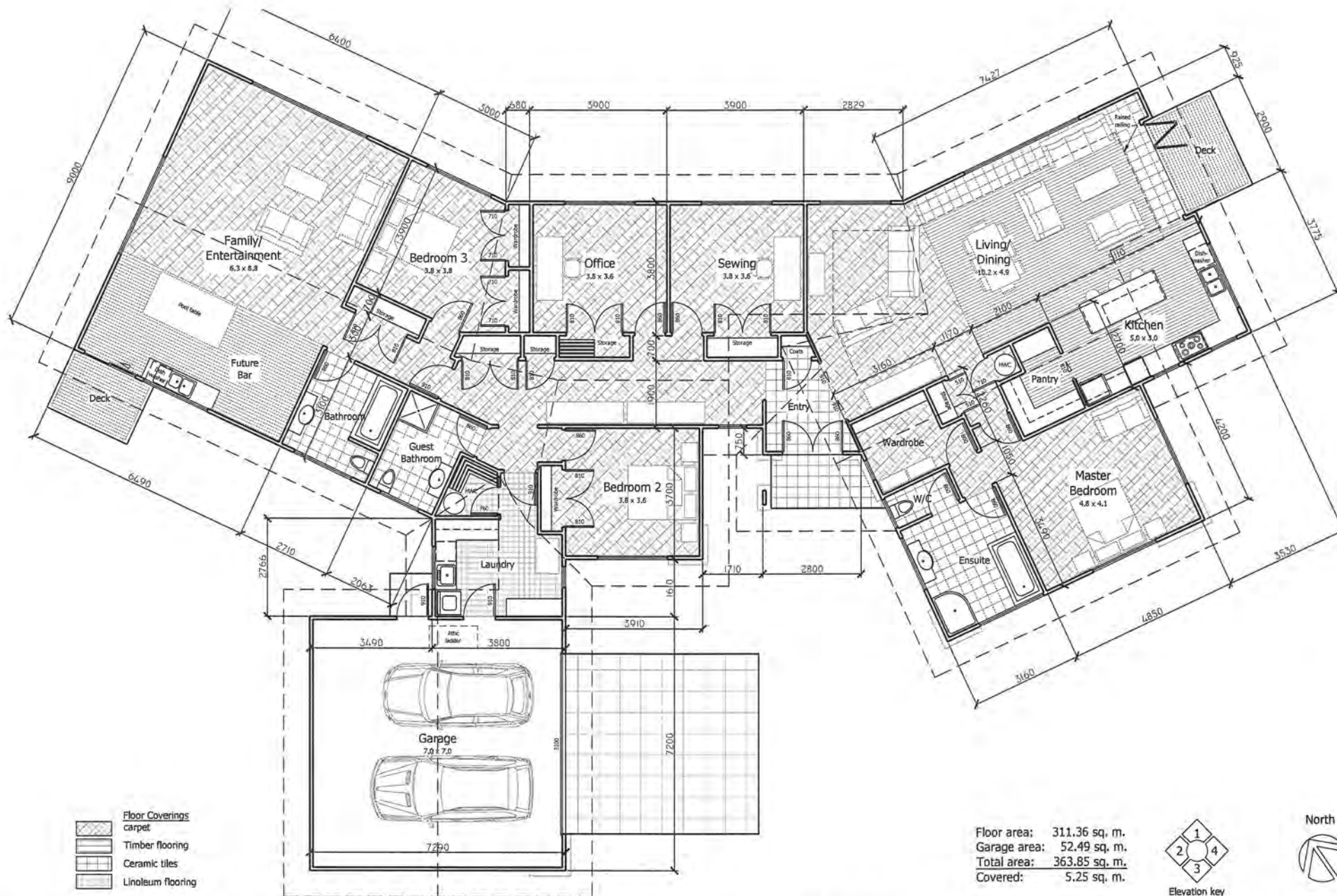
Date:

TE HORC





G. CUNOY 7921.
22/4/09.



Floor area: 311.36 sq. m.
Garage area: 52.49 sq. m.
Total area: 363.85 sq. m.
Covered: 5.25 sq. m.



Job Title:
Glenn & Stephanie Peach

Drawing Title:
Concept Floor Plan

Site Address:
Te Horo

Job: 22260
Drawn: Graham Devey
Checked: -
Scale: 1:100
Date: 23/7/10

These drawings have been prepared on the understanding that the Building Contractor has a sound knowledge of the NZ Building Code and NZS 3604: 1999. The main Contractor, Sub Contractor or Authorized Agent of the owner or builder shall ensure that all works comply with these codes in addition to any requirements of the Territorial Authority. Any work undertaken outside these requirements without prior written approval of the Designer, Engineer and/or the Territorial Authority hereby indemnifies the Designer or his Agent against any claim, or claims, in respect of the said work.

These plans are copyright of Signature Homes.