Building Act 1993 Building Regulations 2006
REGULATION 1505: CERTIFICATE OF COMPLIANCE—DESIGN
Building Name & Location: D/D 3 BED D/GARAGE RESIDENCE & NO: 17 FROME COURT, TAYLORS HILL

To:

Relevant Building Surveyor:

Postal address: P.O. Box 197, Werribee, Victoria

Postcode: 3030

From:

Building Practitioner: Priyan Wijeyeratne

Category and class: Registration No: EC 19060

Postal address: 9 Numering Court, Melton 3337

Postcode: 3337

Property details:

Number:	**Street: Frome Court**	**City/Town: Taylors Hill**	
Lot(s) No: 17	**LP/LS:**	**Volume:**	**Folio:**
Crown Allotment:	**Section:**	**Parish:**	
County	**Municipal District: Melton CC**		

Compliance:

I have designed/reviewed design and produced computations/reviewed computations and certify they comply with relevant Australian Standards including the following:

Building Code of Australia Vol.1/2, AS 1170.0, AS1170.1, AS1170.2, AS1684, AS1720, AS2870, AS 4100, AS 4600, AS 3600, AS3700.

I did / did not draw the plans for structural design.

	Title	Sheet/Drg. Nos
Drawings	D/S 3 BED D/G Residence	1 to 8
	Stiffened Raft Slab (SLOG)	1 to 2
Computations	Beams	
	B1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17	One page each
	18,19,20,21,22,23,24,25,26	

Signature:
Signed: Date: 28/10/2015

Priyan Wijeyeratne
EC 19060

Registered Civil Engineer / Builder
Priyan Wijeyeratne
EC 19060 / DBU 22220

Signature: ..... Date 28/10/2015.

INPUT DATA

Footing Analysis by: SLOG

Site: 17 FROME COURT, TAYLORS HILL
Reference: WB/2015/N/2
Date: 02/09/2015

Structure geometry

Length of Structure L:	22.6	m
Breadth of Structure:	12.76	m
No. beams parallel to Long Span:	6	
No. beams parallel to Short Span:	9	
Deflection Ratio △/L:	400	
Maximum Allowable Deflection △:	30	mm
Depth Footing not Embedded:	0.2	m

Soil Properties

Soil Heave Ym:	60	mm
Depth of suction change Hs:	2	m
Mound stiffness k:	1000	kPa/m

Structure loads

Edge Load on West End:	10	kN/m
Edge Load on East End:	10	kN/m
Edge Load on North Side:	8	kN/m
Edge Load on South Side:	8	kN/m
North-South Centre Load:	4	kN/m
East-West Centre Load:	4	kN/m
Uniform distributed load:	2	kPa

Raft Footing Properties (for Input Steel)

Sub-Beam Width:	300	mm
Sub-Beam Top Bars:	334	mm^2
Sub-Beam Bottom Bars:	334	mm^2
Sub-Beam Steel Grade:	500	MPa
Top Concrete Cover:	30	mm
Bottom Concrete Cover:	30	mm
Slab Thickness:	100	mm
Area Slab Steel:	290	mm^2/m
Slab Steel Grade:	500	MPa
Concrete Compressive Strength f'c:	20	MPa
Concrete Tensile Strength Hogging:	1.8	MPa
Concrete Tensile Strength Sagging:	2.7	MPa
Young's Modulus of Concrete:	15000	MPa
Requested Mu/Mcr Ratio Hogging:	1.2	
Requested Mu/Mcr Ratio Sagging:	1.2	
Slab Panel Width:	1276	mm

Additional Properties

Soil Edge Heave:	60	mm
Beam Side Friction:	25	kPa

OUTPUT - Raft Footing

Footing Analysis by: SLOG

Site: 17 FROME COURT, TAYLORS HILL
Reference: WB/2015/N/2
Date: 02/09/2015

Required Capacities per Beam

	Long Span		Short Span	
Centre Heave				
Ultimate Negative Moment:	-86.8	kNm	-89.9	kNm
Ultimate Positive Moment:	13.7	kNm	0.0	kNm
Max Shear:	33.5	kN	37.8	kN
Required Stiffness:	40.972	MNm^2	38.784	MNm^2
Edge Heave				
Ultimate Negative Moment:	-0.3	kNm	-3.7	kNm
Ultimate Positive Moment:	13.9	kNm	14.2	kNm
Max Shear:	-8.2	kN	-10.7	kN
Required Stiffness:	2.127	MNm^2	2.511	MNm^2

RAFT REQUIREMENTS

Sub-beams:	300	**mm wide x**	480	**mm deep**		
Slab:	100	**mm**	290	**mm^2/m Steel**	500	**MPa**
Subbeam top bars:	334	**mm^2 Steel**	500	**MPa**		
Subbeam bottom bars:	334	**mm^2 Steel**	500	**MPa**		
Concrete:	20	**MPa**				

Actual Capacities per Beam

	Centre Heave		Edge Heave	
Sub-beam depth:	480	mm	480	mm
Input top bars	334	mm^2		
Input bottom bars			334	mm^2
Ultimate Moment Mu:	146.0	kNm	74.5	kNm
Cracking Moment Mcr:	54.5	kNm	42.2	kNm
Mu/M* =	2.03		6.57	
Mu/Mcr =	2.68		1.77	
Stiffness:	42.345	MNm^2	74.192	MNm^2

PROJECT:FLOOR BEAMS
ADDRESS: 17 FROME COURT
BUILDER:

Job No: TAYLORS HILLS
Designed: PW
Date: 2 Sep 15

FLOOR BEAM STEEL B1 B2 B16

STEEL ROOF BEAM V5.00 — WB Civil Structural Engineers

Member:	**(FLOOR BEAM STEEL B1 B2 B16) 200x75PFC (G300) - No flybracing**	
Bending:	**M.dn*(max) = 34.5kNm < øMb(1500,αm=1.00) = 48.8kNm**	**OK (0.71)**
	M.up* = 0.0kNm (No uplift)	
Deflection:	**δdl = L/1102 (2mm), δll = L/1233 (2mm), δwl = L/2717 (1mm)**	**OK**
Precamber:	**Not required**	
Reactions:	**(Each end) Rdl = 14.6kN, Rll = 12.7kN, Rwl* = -9.9kN, R.dn* = 36.6kN, R.up* = -3.2kN**	

Geometry

Span (L) = 2750 mm
Centres (cts) = 7500 mm
Design at = M mm from LHS, (M)ax, (S)eg

Top flange restraint/purlin cts (Le) = 1500 mm (Top flange)
αm = 1.00
αm = 1.00
Top (Le) = 1500
Flybraces / Leb = 0 (> 500 for seg. length)
Bottom (Leb) = 2750 mm
Calc. αmb = 1.00

Loadings

Roof area (A) = 20.6 m²
LL = 1.8/A+0.12 ≥ 0.25 = 0.25 kPa AS 1170.1 T3.2

Apply wind reduction = Y (Y)es,(N)o
Roof reduction (ka) = 0.93 AS 1170.2 Table 5.4
Ratio Ws/Wu = 0.68 (Refer wind analysis)

Uniform dead loads

Roof dead load (wdl) =	0.40 kPa *	7500 mm +		kN/m =	3.00	kN/m
Other dead load (wdl) =	0.50 kPa *	7500 mm +		kN/m =	3.75	kN/m
Down only load (wdl) =	kPa *	mm +		kN/m =	0.00	kN/m
Include S.Wt =	Y (Y)es,(N)o			S.Wt =	0.23	kN/m
		Σwdl.up =	6.98 kN/m	Σwdl =	6.98	kN/m

Uniform live loads

Roof live load (wll) =	0.25 kPa *	7500 mm +		kN/m =	1.88	kN/m
Other live load (wll) =	0.50 kPa *	7500 mm +		kN/m =	3.75	kN/m
Alternate point live load =	1.40 kN	Distr. to	1 members	Σwll =	5.63	kN/m

Uniform wind loads

Ult. wind load (Wu) = 0.75 kPa * 7500 mm
Cp,e = 0.7 Cp,i = 0.5 w.wl* = -6.47 kN/m (up)

Point loads

Dead load (pdl) = 10.0 kN
Live load (pll) = 10.0 kN
Wind load (pwl*) = -2.0 kN (up)
Position = 1375 mm from LHS
(Point load positioned mid-span)

w* = 1.2*wdl + 1.5*wll =	16.81 kN/m	Rdl =	14.6 kN
p* = 1.2*pdl + 1.5*pll =	27.00 kN	Rll =	12.73 kN
w.up* = 0.9*wdl.up + wwl* =	0.19 kN/m (up)	Rwl* =	-9.9 kN
p.up* = 0.9*pdl + pwl* =	-7.00 kN (down)	R.dn* =	36.6 kN
M* =	34.5 kNm (Max at 1375mm)	R.up* =	-3.2 kN (downward)
M.up* =	0.0 kNm (Max at 0mm)		

Capacity

Description =	200x75PFC (G300)	Warping constant (Iw) =	10.6 x10⁹ mm⁶
Flange yield (fyf) =	300 MPa	Torsional constant (J) =	101 x10³ mm⁴
Web yield (fyw) =	320 MPa	Effective section mod. (Zex) =	221 x10³ mm³
Area (Ag) =	2920 mm²	Effective section mod. (Zey) =	46.7 x10³ mm³
Stiffness (Ix) =	19.1 x10⁶ mm⁴	Elastic modulus (E) =	200000 MPa - Cl 1.4
ø =	0.9 Table 3.4	Shear modulus (G) =	80000 MPa - Cl 1.4

Msx = min(fyf,fyw)*Zex =	66.3 kNm - Cl 5.2.1		øMsx =	59.7 kNm		øMsy =	12.6 kNm
Down: Moa =	158.6 kNm	αs =	0.818	αm = 1.00		øMbx.d =	48.8 kNm
Uplift: Moa =	68.3 kNm	αsb =	0.609	αmb = 1.00		øMbx.u =	36.3 kNm

Deflections

Ireq'd DL (L/250) =	4.3 x10⁶ mm⁴	< Critical	δDL =	2.5 mm	Span / 1102
Ireq'd LL (L/240) =	3.7 x10⁶ mm⁴		δLL =	2.2 mm	Span / 1233
Ireq'd WLs (L/250) =	1.8 x10⁶ mm⁴		δWLs =	1.0 mm	Span / 2717

Max. precamber (0.3%*span) =	8 mm	Min. precamber =	15 mm
Precamber 80% of δDL =	2 mm	Adopted precamber =	0 mm

PROJECT:FLOOR BEAMS
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Designed: PW
Date: 2 Sep 15

FLOOR BEAM STEEL B3 B4

STEEL ROOF BEAM V5.00 — WB Civil Structural Engineers

Member:	**(FLOOR BEAM STEEL B3 B4) 250x90PFC (G300) - No flybracing**	
Bending:	**M.dn*(max) = 98.5kNm < øMb(1500,αm=1.00) = 98.6kNm**	**OK (1.00)**
	M.up* = 0.0kNm (No uplift)	
Deflection:	**δdl = L/224 (33mm), δll = L/479 (16mm), δwl = L/573 (13mm)**	**OK**
Precamber:	**20 mm, δdl = L/559 (13mm)**	
Reactions:	**(Each end) Rdl = 27.1kN, Rll = 12.8kN, Rwl* = -15.2kN, R.dn* = 51.7kN, R.up* = -9.2kN**	

Geometry

Span (L) = 7500 mm
Centres (cts) = 4500 mm
Design at = M mm from LHS, (M)ax, (S)eg

Top flange restraint/purlin cts (Le) = 1500 mm (Top flange)
αm = 1.00
αm = 1.00
Top (Le) = 1500
Flybraces / Leb = 0 (> 500 for seg. length)
Bottom (Leb) = 7500 mm
Calc. αmb = 1.00

Loadings

Roof area (A) = 33.8 m²
LL = 1.8/A+0.12 ≥ 0.25 = 0.25 kPa AS 1170.1 T3.2
Apply wind reduction = Y (Y)es,(N)o
Roof reduction (ka) = 0.89 AS 1170.2 Table 5.4
Ratio Ws/Wu = 0.68 (Refer wind analysis)

Uniform dead loads

Roof dead load (wdl) =	1.00 kPa *	4500 mm +		kN/m =		4.50 kN/m
Other dead load (wdl) =	0.50 kPa *	4500 mm +		kN/m =		2.25 kN/m
Down only load (wdl) =	kPa *	mm +		kN/m =		0.00 kN/m
Include S.Wt =	Y (Y)es,(N)o			S.Wt =		0.36 kN/m
		Σwdl.up =	7.11 kN/m	Σwdl =		7.11 kN/m

Uniform live loads

Roof live load (wll) =	0.25 kPa *	4500 mm +		kN/m =	1.13 kN/m
Other live load (wll) =	0.50 kPa *	4500 mm +		kN/m =	2.25 kN/m
Alternate point live load =	1.40 kN	Distr. to	1 members	Σwll =	3.38 kN/m

Uniform wind loads

Ult. wind load (Wu) = 0.75 kPa * 4500 mm
Cp,e = 0.7 Cp,i = 0.5 w.wl* = -3.79 kN/m (up)

Point loads

Dead load (pdl) = 1.0 kN
Live load (pll) = 0.3 kN
Wind load (pwl*) = -2.0 kN (up)
Position = 3750 mm from LHS
(Point load positioned mid-span)

w* = 1.2*wdl + 1.5*wll =	13.59 kN/m	Rdl =	27.1 kN
p* = 1.2*pdl + 1.5*pll =	1.58 kN	Rll =	12.78 kN
w.up* = 0.9*wdl.up + wwl* =	-2.61 kN/m (down)	Rwl* =	-15.2 kN
p.up* = 0.9*pdl + pwl* =	1.10 kN (up)	R.dn* =	51.7 kN
M* =	98.5 kNm (Max at 3750mm)	R.up* =	-9.2 kN (downward)
M.up* =	0.0 kNm (Max at 0mm)		

Capacity

Description =	250x90PFC (G300)			Warping constant (Iw) =	35.9 x10⁹ mm⁶
Flange yield (fyf) =	300 MPa			Torsional constant (J) =	238 x10³ mm⁴
Web yield (fyw) =	320 MPa			Effective section mod. (Zex) =	421 x10³ mm³
Area (Ag) =	4520 mm²			Effective section mod. (Zey) =	88.7 x10³ mm³
Stiffness (Ix) =	45.1 x10⁶ mm⁴			Elastic modulus (E) =	200000 MPa - Cl 1.4
ø =	0.9 Table 3.4			Shear modulus (G) =	80000 MPa - Cl 1.4
Msx = min(fyf,fyw)*Zex =	126.3 kNm - Cl 5.2.1		øMsx =	113.7 kNm	øMsy = 23.9 kNm
Down: Moa =	401.7 kNm	αs = 0.868		αm = 1.00	øMbx.d = 98.6 kNm
Uplift: Moa =	50.9 kNm	αsb = 0.327		αmb = 1.00	øMbx.u = 37.2 kNm

Deflections

Ireq'd DL (L/250) =	50.3 x10⁶ mm⁴	< Critical	δDL =	33.4 mm	Span / 224
Ireq'd LL (L/240) =	22.6 x10⁶ mm⁴		δLL =	15.7 mm	Span / 479
Ireq'd WLs (L/250) =	19.7 x10⁶ mm⁴		δWLs =	13.1 mm	Span / 573

Max. precamber (0.3%*span) = 23 mm
Precamber 80% of δDL = 27 mm
Min. precamber = 15 mm
Adopted precamber = 20 mm

PROJECT:FLOOR BEAMS
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Job No: TAYLORS HILLS
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Date: 2 Sep 15

FLOOR BEAM TIMBER B5 B6

TIMBER FLOOR BEAM V5.00

WB Civil Structural Engineers

Beam:	**(FLOOR BEAM TIMBER B5 B6) 290mm x 45mm F17 KD HW (Single span)**	
Bending:	**M(dl)* = 4.75kNm < øM(dl) = 11.80kNm, M* = 5.96kNm < øM = 16.55kNm**	**OK (0.40,0.36)**
Shear:	**V(dl)* = 4.49kN < øV(dl) = 16.96kN, V* = 5.47kN < øV = 23.80kN**	**OK (0.26,0.23)**
Deflection:	**δ(dl+ΨI*ll) = L/536 (7mm) , Ψs.δll = L/2396 (1mm), 1kN midspan δ =0.7mm**	**OK**
Reactions:	**(Each end) Rdl = 2.8kN, Rll = 1.4kN, R* = 5.5kN**	

Geometry

(For a member in a house or secondary member in a building)

Category = 1 (1) House, (2) Primary building elements, (3) Important

Span (L) = 3500 mm
Centres (cts) = 1000 mm
Lay = 900 mm

Span type = S (S)ingle,(D)ouble
Edge restrained = C (T)ension, (C)omp.
(Downward)

Loadings

Floor area (A) = 3.50 m²

Live load type = N (N)ormal, (S)torage, (M)anual
AS/NZS 1170.0 - Table 4.1

Uniform dead loads

Floor dead load (wdl) =	0.50 kPa *	1000 mm +	kN/m =		0.50 kN/m
Wall dead load (wdl) =	kPa *	mm +	0.25 kN/m =		0.25 kN/m
Other dead load (wdl) =	0.50 kPa *	1000 mm +	kN/m =		0.50 kN/m
Include S.Wt =	Y (Y)es,(N)o		S.Wt =		0.08 kN/m
				Σwdl =	1.33 kN/m

Uniform live loads

Floor live load (wll) =	0.50 kPa *	1000 mm +	kN/m =		0.50 kN/m
Partitions (wll) =	kPa *	1000 mm +	kN/m =		0.00 kN/m
Alternate point live load =	0.50 kN	Distr. to 1 members		Σwll =	0.50 kN/m

Point loads

Dead load (pdl) = 1.00 kN
Live load (pll) = 1.00 kN

Position = 1750 mm from LHS
Shear using PL at support = N (Y)es,(N)o

Short term LL factor (Ψsu) =	1.00	(Ψsp) =	1.00
Long term LL factor (Ψlu) =	0.33	(Ψlp) =	0.40
w(dl+ΨI.ll)* = 1.35*wdl+1.5*ΨI*wll) =	2.02 kN/m	M(dl+ΨI.ll)* =	4.75 kNm (Max at 1750mm)
w* = 1.2*wdl+1.5*wll =	2.35 kN/m	M* =	5.96 kNm (Max at 1750mm)
p(dl+ΨI.ll)* = 1.35*pdl+1.5*ΨI*pll) =	1.89 kN	V(dl+ΨI.ll)* =	4.49 kN
p* = 1.2*pdl+1.5*pll =	2.70 kN	V* =	5.47 kN

Bending and Shear Capacity - Cl 3.2 & Cl 3.2.5

Member = 290mm x 45mm F17 KD HW
Description = F17 seasoned hardwood
Design depth (dD) = 290 mm
Design width (dW) = 45 mm

Area (A) = 13050 mm²
Section modulus (Zx) = 631 x10³ mm³
Stiffness (Ix) = 91.5 x10⁶ mm⁴
Modulus of elasticity (E) = 14000 MPa - Table H2.1

S1=1.25*dD/dW*(Lay/dD)^0.5 =	14.19	For comp. edge restrained - Cl 3.2.3.2		
k12 = 1.5-0.05*ρb*S =	0.822	for 10 < ρb*S ≤ 20 - Cl 3.2.4	f'b =	42.0 MPa
Strength reduction factor (ø) =	0.95	Table 2.1	f's =	3.6 MPa
			Material constant (ρb) =	0.96 (rb=0.41)
øM(dl) = ø*(k1=0.57)*k4*k6*k9*k12*f'b*Zx =	11.80 kNm		Duration factor (k1) =	0.80
øM = ø*k1*k4*k6*k9*k12*f'b*Zx =	16.55 kNm		Moisture factor (k4) =	1.00
			Temp. factor (k6) =	1.00
øV(dl) = ø*(k1=0.57)*k4*k6*f's*(2/3*A) =	16.96 kN		Sharing factor (k9) =	1.00
øV = ø*k1*k4*k6*f's*(2/3*A) =	23.80 kN		Size modifer (mod.b) =	1.00
			Size modifer (mod.s) =	1.00

Deflections

Ireq'd DL+ΨI.LL (L/300) =	51.2 x10⁶ mm⁴	< Critical	δDL+ΨI.LL=	6.5 mm	Span / 536
Ireq'd Ψs.LL (L/300) =	11.5 x10⁶ mm⁴		Ψs.δLL =	1.5 mm	Span / 2396
j2 =	2.0		1kN midspan δ =	0.7 mm	

PROJECT:FLOOR BEAMS
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FLOOR BEAM TIMBER B7-15, B20,B23-26

TIMBER FLOOR BEAM V5.00 — WB Civil Structural Engineers

Beam:	**(FLOOR BEAM TIMBER B7-15, B20,B23-26) 240mm x 45mm F17 KD HW (Single span)**	
Bending:	**M(dl)* = 0.82kNm < øM(dl) = 8.61kNm, M* = 0.98kNm < øM = 12.09kNm**	**OK (0.10,0.08)**
Shear:	**V(dl)* = 1.83kN < øV(dl) = 14.04kN, V* = 2.18kN < øV = 19.70kN**	**OK (0.13,0.11)**
Deflection:	**δ(dl+Ψl*ll) = L/3190 (1mm) , Ψs.δll = L/21504 (0mm), 1kN midspan δ =0.2mm**	**OK**
Reactions:	**(Each end) Rdl = 1.2kN, Rll = 0.5kN, R* = 2.2kN**	

Geometry

(For a member in a house or secondary member in a building)

Category = 1 (1) House, (2) Primary building elements, (3) Important

Span (L) = 1800 mm
Centres (cts) = 1000 mm
Lay = 900 mm

Span type = S (S)ingle,(D)ouble
Edge restrained = C (T)ension, (C)omp. (Downward)

Loadings

Floor area (A) = 1.80 m²

Live load type = N (N)ormal, (S)torage, (M)anual AS/NZS 1170.0 - Table 4.1

Uniform dead loads

Floor dead load (wdl) =	0.50 kPa *	1000 mm +	kN/m =		0.50 kN/m
Wall dead load (wdl) =	kPa *	mm +	0.25 kN/m =		0.25 kN/m
Other dead load (wdl) =	0.50 kPa *	1000 mm +	kN/m =		0.50 kN/m
Include S.Wt =	Y (Y)es,(N)o		S.Wt =		0.07 kN/m
				Σwdl =	1.32 kN/m

Uniform live loads

Floor live load (wll) =	0.50 kPa *	1000 mm +	kN/m =		0.50 kN/m
Partitions (wll) =	kPa *	1000 mm +	kN/m =		0.00 kN/m
Alternate point live load =	0.50 kN (critical)	Distr. to 1 members		Σwll =	0.56 kN/m

Point loads

Dead load (pdl) = kN
Live load (pll) = kN

Position = 900 mm from LHS
Shear using PL at support = N (Y)es,(N)o

Short term LL factor (Ψsu) =	1.00	(Ψsp) =	1.00
Long term LL factor (Ψlu) =	0.33	(Ψlp) =	0.40
w(dl+Ψl.ll)* = 1.35*wdl+1.5*Ψl*wll) =	2.03 kN/m	M(dl+Ψl.ll)* =	0.82 kNm (Max at 900mm)
w* = 1.2*wdl+1.5*wll =	2.42 kN/m	M* =	0.98 kNm (Max at 900mm)
p(dl+Ψl.ll)* = 1.35*pdl+1.5*Ψl*pll) =	0.00 kN	V(dl+Ψl.ll)* =	1.83 kN
p* = 1.2*pdl+1.5*pll =	0.00 kN	V* =	2.18 kN

Bending and Shear Capacity - Cl 3.2 & Cl 3.2.5

Member = 240mm x 45mm F17 KD HW
Description = F17 seasoned hardwood
Design depth (dD) = 240 mm
Design width (dW) = 45 mm

Area (A) = 10800 mm²
Section modulus (Zx) = 432 x10³ mm³
Stiffness (Ix) = 51.8 x10⁶ mm⁴
Modulus of elasticity (E) = 14000 MPa - Table H2.1

S1=1.25*dD/dW*(Lay/dD)^0.5 =	12.91	For comp. edge restrained - Cl 3.2.3.2		
k12 = 1.5-0.05*ρb*S =	0.877	for 10 < ρb*S ≤ 20 - Cl 3.2.4	f'b =	42.0 MPa
Strength reduction factor (ø) =	0.95	Table 2.1	f's =	3.6 MPa
			Material constant (ρb) =	0.97 (rb=0.34)
øM(dl) = ø*(k1=0.57)*k4*k6*k9*k12*f'b*Zx =	8.61 kNm		Duration factor (k1) =	0.80
øM = ø*k1*k4*k6*k9*k12*f'b*Zx =	12.09 kNm		Moisture factor (k4) =	1.00
			Temp. factor (k6) =	1.00
øV(dl) = ø*(k1=0.57)*k4*k6*f's*(2/3*A) =	14.04 kN		Sharing factor (k9) =	1.00
øV = ø*k1*k4*k6*f's*(2/3*A) =	19.70 kN		Size modifer (mod.b) =	1.00
			Size modifer (mod.s) =	1.00

Deflections

Ireq'd DL+Ψl.LL (L/300) =	4.9 x10⁶ mm⁴	< Critical	δDL+Ψl.LL=	0.6 mm	Span / 3190
Ireq'd Ψs.LL (L/300) =	0.7 x10⁶ mm⁴		Ψs.δLL =	0.1 mm	Span / 21504
j2 =	2.0		1kN midspan δ =	0.2 mm	

PROJECT:FLOOR BEAMS
ADDRESS: 17 FROME COURT
BUILDER:

Job No: TAYLORS HILLS
Designed: PW
Date: 2 Sep 15

FLOOR BEAM TIMBER B17-19

TIMBER FLOOR BEAM V5.00 — WB Civil Structural Engineers

Beam:	**(FLOOR BEAM TIMBER B17-19) 190mm x 45mm F17 KD HW (Single span)**	
Bending:	**M(dl)* = 0.23kNm < øM(dl) = 5.90kNm, M* = 0.33kNm < øM = 8.29kNm**	**OK (0.04,0.04)**
Shear:	**V(dl)* = 1.02kN < øV(dl) = 11.11kN, V* = 1.46kN < øV = 15.60kN**	**OK (0.09,0.09)**
Deflection:	**δ(dl+Ψl*ll) = L/11419 (0mm) , Ψs.δll = L/42678 (0mm), 1kN midspan δ =0.0mm**	**OK**
Reactions:	**(Each end) Rdl = 0.6kN, Rll = 0.5kN, R* = 1.5kN**	

Geometry (For a member in a house or secondary member in a building)

Category = 1 (1) House, (2) Primary building elements, (3) Important

Span (L) =	900 mm	Span type =	S (S)ingle,(D)ouble
Centres (cts) =	1000 mm	Edge restrained =	C (T)ension, (C)omp.
Lay =	900 mm		(Downward)

Loadings

Floor area (A) = 0.90 m² — Live load type = N (N)ormal, (S)torage, (M)anual — AS/NZS 1170.0 - Table 4.1

Uniform dead loads

Floor dead load (wdl) =	0.50 kPa *	1000 mm +		kN/m =		0.50 kN/m
Wall dead load (wdl) =	kPa *	mm +	0.25	kN/m =		0.25 kN/m
Other dead load (wdl) =	0.50 kPa *	1000 mm +		kN/m =		0.50 kN/m
Include S.Wt =	Y (Y)es,(N)o			S.Wt =		0.06 kN/m
				Σwdl =		1.31 kN/m

Uniform live loads

Floor live load (wll) =	0.50 kPa *	1000 mm +		kN/m =		0.50 kN/m
Partitions (wll) =	kPa *	1000 mm +		kN/m =		0.00 kN/m
Alternate point live load =	0.50 kN (critical)	Distr. to	1 members		Σwll =	1.11 kN/m

Point loads

Dead load (pdl) = kN — Position = 450 mm from LHS
Live load (pll) = kN — Shear using PL at support = N (Y)es,(N)o

Short term LL factor (Ψsu) =	1.00	(Ψsp) =	1.00
Long term LL factor (Ψlu) =	0.33	(Ψlp) =	0.40
w(dl+Ψl.ll)* = 1.35*wdl+1.5*Ψl*wll) =	2.26 kN/m	M(dl+Ψl.ll)* =	0.23 kNm (Max at 450mm)
w* = 1.2*wdl+1.5*wll =	3.23 kN/m	M* =	0.33 kNm (Max at 450mm)
p(dl+Ψl.ll)* = 1.35*pdl+1.5*Ψl*pll) =	0.00 kN	V(dl+Ψl.ll)* =	1.02 kN
p* = 1.2*pdl+1.5*pll =	0.00 kN	V* =	1.46 kN

Bending and Shear Capacity - Cl 3.2 & Cl 3.2.5

Member =	190mm x 45mm F17 KD HW	Area (A) =	8550 mm²
Description =	F17 seasoned hardwood	Section modulus (Zx) =	271 x10³ mm³
Design depth (dD) =	190 mm	Stiffness (Ix) =	25.7 x10⁶ mm⁴
Design width (dW) =	45 mm	Modulus of elasticity (E) =	14000 MPa - Table H2.1

S1=1.25*dD/dW*(Lay/dD)^0.5 =	11.49	For comp. edge restrained - Cl 3.2.3.2			
k12 = 1.5-0.05*pb*S =	0.959	for 10 < pb*S ≤ 20 - Cl 3.2.4	f'b =	42.0	MPa
Strength reduction factor (ø) =	0.95	Table 2.1	f's =	3.6	MPa
			Material constant (pb) =	0.94	(rb=0.52)
øM(dl) = ø*(k1=0.57)*k4*k6*k9*k12*f'b*Zx =	5.90 kNm		Duration factor (k1) =	0.80	
øM = ø*k1*k4*k6*k9*k12*f'b*Zx =	8.29 kNm		Moisture factor (k4) =	1.00	
			Temp. factor (k6) =	1.00	
øV(dl) = ø*(k1=0.57)*k4*k6*f's*(2/3*A) =	11.11 kN		Sharing factor (k9) =	1.00	
øV = ø*k1*k4*k6*f's*(2/3*A) =	15.60 kN		Size modifer (mod.b) =	1.00	
			Size modifer (mod.s) =	1.00	

Deflections

Ireq'd DL+Ψl.LL (L/300) =	0.7 x10⁶ mm⁴	< Critical	δDL+Ψl.LL=	0.1 mm	Span / 11419
Ireq'd Ψs.LL (L/300) =	0.2 x10⁶ mm⁴		Ψs.δLL =	0.0 mm	Span / 42678
j2 =	2.0		1kN midspan δ =	0.0 mm	

PROJECT:FLOOR BEAMS | Job No: TAYLORS HILLS
ADDRESS: 17 FROME COURT | Designed: PW
BUILDER: | Date: 2 Sep 15

FLOOR BEAM TIMBER B21-22

TIMBER FLOOR BEAM V5.00 — WB Civil Structural Engineers

Beam:	**(FLOOR BEAM TIMBER B21-22) 90mm x 45mm F17 KD HW (Single span)**	
Bending:	**M(dl)* = 0.19kNm < øM(dl) = 1.38kNm, M* = 0.28kNm < øM = 1.94kNm**	**OK (0.14,0.15)**
Shear:	**V(dl)* = 0.93kN < øV(dl) = 5.26kN, V* = 1.38kN < øV = 7.39kN**	**OK (0.18,0.19)**
Deflection:	**δ(dl+ΨI*ll) = L/1599 (1mm) , Ψs.δll = L/5464 (0mm), 1kN midspan δ =0.3mm**	**OK**
Reactions:	**(Each end) Rdl = 0.5kN, Rll = 0.5kN, R* = 1.4kN**	

Geometry

(For a member in a house or secondary member in a building)

Category = 1 (1) House, (2) Primary building elements, (3) Important

Span (L) = 820 mm — Span type = S (S)ingle,(D)ouble
Centres (cts) = 1000 mm — Edge restrained = C (T)ension, (C)omp.
Lay = 900 mm — (Downward)

Loadings

Floor area (A) = 0.82 m² — Live load type = N (N)ormal, (S)torage, (M)anual
AS/NZS 1170.0 - Table 4.1

Uniform dead loads

Floor dead load (wdl) =	0.50 kPa *	1000 mm +		kN/m =	0.50	kN/m
Wall dead load (wdl) =	kPa *	mm +	0.25	kN/m =	0.25	kN/m
Other dead load (wdl) =	0.50 kPa *	1000 mm +		kN/m =	0.50	kN/m
Include S.Wt =	Y (Y)es,(N)o			S.Wt =	0.03	kN/m
				Σwdl =	1.28	kN/m

Uniform live loads

Floor live load (wll) =	0.50 kPa *	1000 mm +		kN/m =	0.50	kN/m
Partitions (wll) =	kPa *	1000 mm +		kN/m =	0.00	kN/m
Alternate point live load =	0.50 kN (critical)	Distr. to	1 members	Σwll =	1.22	kN/m

Point loads

Dead load (pdl) = kN — Position = 410 mm from LHS
Live load (pll) = kN — Shear using PL at support = N (Y)es,(N)o

Short term LL factor (Ψsu) =	1.00	(Ψsp) =	1.00
Long term LL factor (Ψlu) =	0.33	(Ψlp) =	0.40
w(dl+ΨI.ll)* = 1.35*wdl+1.5*ΨI*wll) =	2.27 kN/m	M(dl+ΨI.ll)* =	0.19 kNm (Max at 410mm)
w* = 1.2*wdl+1.5*wll =	3.36 kN/m	M* =	0.28 kNm (Max at 410mm)
p(dl+ΨI.ll)* = 1.35*pdl+1.5*ΨI*pll) =	0.00 kN	V(dl+ΨI.ll)* =	0.93 kN
p* = 1.2*pdl+1.5*pll =	0.00 kN	V* =	1.38 kN

Bending and Shear Capacity - Cl 3.2 & Cl 3.2.5

Member = 90mm x 45mm F17 KD HW — Area (A) = 4050 mm²
Description = F17 seasoned hardwood — Section modulus (Zx) = 61 x10³ mm³
Design depth (dD) = 90 mm — Stiffness (Ix) = 2.7 x10⁶ mm⁴
Design width (dW) = 45 mm — Modulus of elasticity (E) = 14000 MPa - Table H2.1

S1=1.25*dD/dW*(Lay/dD)^0.5 =	7.91	For comp. edge restrained - Cl 3.2.3.2			
k12 =	1.000	for pb*S < 10 - Cl 3.2.4	f'b =	42.0	MPa
Strength reduction factor (ø) =	0.95	Table 2.1	f's =	3.6	MPa
			Material constant (pb) =	0.94	(rb=0.54)
øM(dl) = ø*(k1=0.57)*k4*k6*k9*k12*f'b*Zx =	1.38 kNm		Duration factor (k1) =	0.80	
øM = ø*k1*k4*k6*k9*k12*f'b*Zx =	1.94 kNm		Moisture factor (k4) =	1.00	
			Temp. factor (k6) =	1.00	
øV(dl) = ø*(k1=0.57)*k4*k6*f's*(2/3*A) =	5.26 kN		Sharing factor (k9) =	1.00	
øV = ø*k1*k4*k6*f's*(2/3*A) =	7.39 kN		Size modifer (mod.b) =	1.00	
			Size modifer (mod.s) =	1.00	

Deflections

Ireq'd DL+ΨI.LL (L/300) =	0.5 x10⁶ mm⁴	< Critical	δDL+ΨI.LL=	0.5 mm	Span / 1599
Ireq'd Ψs.LL (L/300) =	0.2 x10⁶ mm⁴		Ψs.δLL =	0.2 mm	Span / 5464
j2 =	2.0		1kN midspan δ =	0.3 mm	

PROPOSED DEVELOPMENT: **D/S 3 BED D/GARAGE RESIDENCE**

PROJECT ADDRESS: NO 17, FROME COURT, TAYLORS HILL

PROJECT: **FOUNDATION & BEAMS DESIGN**

CLIENT: **MEGA HOMES**

DATE: 01/09/2015

WB CIVIL STRUCTURAL ENGINEERS
ABN: 84119322438

PRIYAN WIJEYERATNE, EC 19060
9 NUMERING COURT,
MELTON 3337

MOBILE: 0401023328
EMAIL: wbcseng@gmail.com.

Rev.	Remarks/comments	Date	Aprv.
A	Remarks/comments	Date	Aprv.

CLIENT:
Mr & Mrs P.A. & P.C. FERNANDO

WB CIVIL STRUCTURAL ENGINEERS
ENGINEERS & BUILDERS
ABN: 84119322436
OFFICE:
NO: 9, NUMERING COURT, MELTON, VIC 3337
Mobile: 0401023328 / Ph: 03 9746 0089
Email: wbcseng@gmail.com

Registered Civil/Structural Engineer
Priyan Wijeyeratne
EC 19060

PROJECT:
D/S 3 BED RESIDENCE
PROJECT ADDRESS:
No: 17, Frome Court, Taylors Hill

SHEET NO: **1/9**

STANDARDS, MATERIALS, AND WORKMANSHIP REQUIREMENTS

THESE NOTES TO BE FOLLOWED UNLESS NOTED OTHERWISE BY THE ENGINEER

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATION AND OTHER WORKING DRAWINGS. ANY DISCREPANCIES SHALL BE NOTIFIED TO THE ENGINEER IMMEDIATELY.

G2. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED. THE ENGINEER'S DRAWINGS SHALL NOT BE SCALED.

G4. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, THE CURRENT REVISION OF ALL RELEVANT SAA CODES, THE REQUIREMENTS OF THE VICTORIAN BUILDING REGULATIONS, THE BUILDING CODE OF AUSTRALIA AND THE RELEVANT AUTHORITY.

G5. CONTRACTORS SHALL ENSURE THAT LOCATIONS OF ALL UNDERGROUND SERVICES ARE IDENTIFIED PRIOR TO COMMENCEMENT OF WORKS AND EXCAVATIONS. THE WORK COMMENCES.

G6. RELEVANT STANDARDS USED:

1	Structural Steel Design	AS4100
2	Structural Reinforced Concrete Design	AS3600
3	Structural Timber Framing	AS1684
4	Timber Structures Design	AS1720
5	Domestic Slab Design	AS2870
6	Brickwork	AS3700
6	Wind Analysis & Design	AS1170
7	Access & Mobility	AS1428
8	Welding	AS1554
9	Bolts & Nuts	AS1252
10	Cold formed Steel	AS 4600
11	Bolts & Nuts	AS1252
12	Stormwater Drainage	AS3500
13	Glazing	AS1288/AS2047
14	Water Proofing to Wet Areas	AS3740/BCA 4-3-1

LIVE LOADS

L1. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS:-

ROOF ..... 0.25 kPa OR [1.8/ A + 0.12] WHICHEVER IS GREATER

FLOOR ..... 1.5 kPa. (OR AS USED FOR COPUTATIONS)

Balcony ..... 2.0 kPa. (OR AS USED FOR COPUTATIONS)

TEMPORARY BRACING

TB1. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVER STRESSED.

TB2. THE CONTRACTOR SHALL PROVIDE AND INSTALL ANY ADDITIONAL BRACING EQUIPMENT NECESSARY TO ADEQUATELY AND SAFELY HOLD THE STRUCTURE IN POSITION DURING CONSTRUCTION.

CONCRETE

C1. All CONCRETE AND WORKMANSHIP TO CONFORM TO THE REQUIREMENTS OF AS 3600.

C2. ALL INSET CONCRETE SHALL BE A CHARACTERISTIC STRENGTH TO BE AS NOTED BELOW AT 28 DAYS UNLESS NOTED OTHERWISE:-

BLINDING CONCRETE 15 MPa
STRIP FOOTINGS 20 MPa.
PAD FOOTINGS 20 MPa
SLAB ON GROUND 20 MPa
ALL OTHER MEMBERS TO BE 32 MPa (OR AS NOTED OTHERWISE).

MAXIMUM SLUMP TO BE 75mm
MAXIMUM AGGREGATE TO BE 20mm

C3 CONCRETE ELEMENTS SHOWN ON THE DRAWINGS MUST NOT BE REDUCED IN ANY WAY WITHOUT THE ENGINEER'S APPROVAL. NO HOLES, CHASES DRY EMBEDMENT'S OTHER THAN THOSE SHOWN WILL BE PERMITTED IN ANY CONCRETE ELEMENTS WITHOUT THE ENGINEER'S APPROVAL

C4. REINFORCEMENT NOTATION:-
N - DENOTES HOT-ROLLED DEFORMED BARS TO AS 4671
RL - DENOTES RECTANGULAR REINFORCEMENT FABRIC TO AS/NZS 4671
SL - DENOTES SQUARE REINFORCEMENT FABRIC TO AS/NZS 4671
LXTM - DENOTES TRENCH MESH REINFORCEMENT TO AS/NZS 4671.

LAPPING REINFORCEMENT:-

REINFORCEMENT SPLICES SHALL BE LAP SPLICES AS REQUIRED BY THE CURRENT CONCRETE CODE UNLESS NOTED IN THE DRAWINGS. FOR FABRIC, THE MINIMUM SPLICE SHALL BE 220mm MINIMUM WITH THE OVERLAP MEASURED BETWEEN THE OUTERMOST WIRES AND NOT LESS THAN THE PITCH OF THE SECONDARY WIRES.

C5. CLEAR COVER TO REINFORCEMENT AS NOTED ON THE DRAWINGS.

C6. CONCRETE COVER TO BE MAINTAINED BY THE USE OF APPROVED BAR CHAIRS AND/OR CONCRETE BLOCKS SPACED AT APPROXIMATELY 1000 CROSS CTS. CONDUITS, PIPES ETC. ARE NOT TO BE PLACED IN CONCRETE COVER.

C7. CONCRETE TO BE KEPT FREE OF SUPPORTING BRICKWORK BY TWO LAYERS OF A SUITABLE MEMBRANE; VERTICAL FACES OF CONCRETE TO BE KEPT FREE BY 12mm THICKNESS OF BITUMINOUS CANEITE.

C8. ALL MILD STEEL BRACKETS, SLOTS ETC. EMBEDDED IN THE CONCRETE SHALL BE HOT-DIP GALVANISED.

C9. DIRECTION OF MESH ON PLAN INDICATES THE DIRECTION OF MAIN WIRES WHICH SHOULD BE PLACED NEAREST THE RELEVANT SLAB SURFACE.

C10. ALL CONCRETE SHALL BE PROPERLY COMPACTED BY MEANS OF APPROVED VIBRATORS.

C11. CONSTRUCTION JOINTS WHERE NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

C12. FORM WORK SHALL NOT BE STRIPPED UNTIL 3 DAYS HAS ELAPSED FROM TIME OF POUR - UNLESS APPROVED OTHERWISE BY THE ENGINEER. NO LOADS APPLIED FOR 28 DAYS.

C13. ENGINEER TO BE NOTIFIED 48 HOURS PRIOR TO POURING CONCRETE.

C14. ALL PIPE WORK CAST INTO CONCRETE IS TO BE SLEEVED OR LAGGED WITH APPROPRIATE COMPRESSIBLE MATERIAL FOR THE FULL LENGTH OF EMBEDMENT.

BRICKWORK - BLOCKWORK

B1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3700.

B2. LOAD BEARING BRICKS SHALL HAVE A MINIMUM CHARACTERISTIC UNCONFINED STRENGTH OF 20 MPa AND LOAD BEARING BLOCKS SHALL HAVE A CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF 15 MPa. UNLESS OTHERWISE NOTED.

B3. MORTAR SHALL BE FRESHLY PREPARED AND UNIFORMLY MIXED IN THE RATIO OF ONE PART CEMENT, ONE PART LIME AND SIX

B4. BLOCKWORK CORE FILLING CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE: 20 MPa.

B5. BRICKWORK OR BLOCKWORK SUPPORTING CONCRETE SHALL BE TROWELLED SMOOTH AND SEPARATED AT THE BEARING SURFACE BY A LAYER OF GALVANIZED STRIP OR TWO LAYERS OF BITUMINOUS BUILDING PAPER.

B6. JOINT REINFORCEMENT WHERE SHOWN ON THE PLAN SHALL BE AT EVERY 600mm. WITH AN EXTRA COURSE OVER AND UNDER WINDOW OPENINGS USING 'RECTOR', 'BLOTTER' OR SIMILAR.

B7. NO BRICKWORK OR BLOCKWORK WHICH IS SUPPORTED BY CONCRETE SHALL BE ERECTED UNTIL SUPPORTING FORMWORK HAS BEEN REMOVED.

B8. CAVITY WALL TIES TO BE IN ACCORDANCE WITH THE CURRENT BCA REQUIREMENTS.

STRUCTURAL STEELWORK

S1. ALL WORKMANSHIP, FABRICATION, ERECTION AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 4100.

S2. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BEFORE FABRICATION IS COMMENCED.

S3. EXCEPT AS SHOWN, STEEL MEMBERS SHALL NOT BE SPLICED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

S4. WELDING OF STEELWORK TO BE IN ACCORDANCE WITH AS 1554 AND UNLESS OTHERWISE NOTED, SHALL BE 6mm FILLET WELD ALL AROUND.

S5. ALL HIGH STRENGTH BOLTS SHALL BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH AS 1252.

8.8/S BOLTS ARE HIGH STRENGTH BOLTS.
8.8/TB BOLTS ARE HIGH STRENGTH BEARING TYPE SLOTS BIB/FT. BOLTS ARE HIGH STRENGTH FRICTION TYPE BELTS.

S6. STEEL WORK TO BE ENCASED IN CONCRETE SHALL NOT BE PAINTED, BUT SHALL BE GIVEN ONE COAT OF CEMENT WASH.

S7. STEEL WORK NOT ENCASED OR OTHERWISE NOTED SHALL BE GIVEN ONE COAT OF APPROVED METALLIC PRIMER AT LEAST 48 HOURS BEFORE DISPATCH.

S8. STEEL WORK TO BE ENCASED SHALL BE WRAPPED WITH 3mm WIRE AT 100mm PITCH AND ENCASED IN 4:2:1 CONCRETE WITH A MINIMUM COVER OF 50mm.

S9. ALL STEEL WORK BELOW GROUND SHALL BE ENCASED IN CONCRETE AND IF EXPOSED, GALVANISE TO HAVE 600 g/sq.m OF GALVANISE.

S10. ALL CLEATS AND DRILLING FOR FIXING OF ARCHITECTURAL ELEMENTS, TIMBER FRAMING ETC. SHALL BE PROVIDED BY THE FABRICATOR. THE STRUCTURAL DRAWINGS ARE DEEMED TO PROVIDE FOR ALL THE NECESSARY MAJOR STRUCTURAL STEEL WORK AND CONNECTIONS. MINOR NON-STRUCTURAL ITEMS SUCH AS TRIMMERS, CLEATS AND OTHER ITEMS SHOWN ON THE ARCHITECTURAL DRAWINGS, BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED FOR BY THE CONTRACTOR IN HIS TENDER PRICE, AND DETAILED.

S11 THE CONTRACTOR SHALL PROVIDE BRACING AND LEAVE IN PLACE UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED OR CLEATS, ETC. AS IS NECESSARY TO STABILISE THE STRUCTURE DURING ERECTION.

S12. ALL UB, UC AND PFC MEMBERS TO HAVE F_Y = 300 MPa MINIMUM.

TIMBER NOTES

T1. ALL TIMBER MATERIALS, WORKMANSHIP AND PRACTICE SHALL BE IN ACCORDANCE WITH THE TIMBER ENGINEERING CODE AS 1720 AND THE TIMBER FRAMING CODE AS 1684. ALL LINTELS, BEAMS ETC. NECESSARY FOR THE PROPER SUPPORT OF ROOF FRAMING SHALL BE PROVIDED EITHER AS SHOWN ON THE DRAWINGS OR AS REQUIRED IN ACCORDANCE WITH AS 1684.

T2. All TIMBER SHALL BE IN ACCORDANCE WITH THE STRESS GRADE NOMINATED ON THE DRAWINGS AND SHALL BE FREE OF DEFECTS, SPLITS, ROT ETC. THE ENGINEER RESERVES THE RIGHT TO REJECT UNSUITABLE TIMBER.

T3. All BOLTED TIMBER CONNECTIONS SHALL BE MADE WITH M12 BOLTS UNLESS NOTED OTHERWISE MILO STEEL WASHERS SHALL BE PLACED UNDER THE HEAD AND NUT IN ACCORDANCE WITH THE TABLE BELOW:-

WASHER SIZE

50x50x3mm	BOLTS UP TO M12
65x65x5mm	M16, M2D BOLTS
75x75x5mm	BOLTS GREATER THAN MO

ALL EXPOSED BOLTS AND FITTINGS SHALL BE HOT-DIP GALVANISHED.

T4. ALL BOLTS SHALL BE RE-TIGHTENED AT THE COMPLETION OF THE CONTRACT AND AGAIN AT THE END OF THE MAINTENANCE PERIOD. BOLTS WHICH ARE INACCESSIBLE AT THE COMPLETION OF THE STRUCTURAL WORKS SHALL BE RE-TIGHTENED IMMEDIATELY BEFORE BEING BUILT-IN.

TSO ALL PROPRIETARY FIXINGS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS, OR AS NOTED ON THE STRUCTURAL DRAWINGS.

T6. THE STRUCTURAL DRAWINGS ARE DEEMED TO PROVIDE FOR ALL NECESSARY MAJOR STRUCTURAL TIMBER AND CONNECTIONS. MINOR NON-STRUCTURAL ITEMS SUCH AS TRIMMERS, CLEATS AND OTHER ITEMS AS SHOWN ON THE ARCHITECTURAL DRAWINGS, BUT ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS, SHALL BE ALLOWED FOR BY THE CONTRACTOR IN HIS TENDER PRICE, AND DETAILED AT THE SHOP DRAWING STAGE IF REQUIRED

CLIENT:
Mr & Mrs P.A. & P.C. FERNANDO

WB CIVIL STRUCTURAL ENGINEERS
ENGINEERS & BUILDERS
ABN: 84119322436
OFFICE:
NO: 9, NUMERING COURT, MELTON, VIC 3337
Mobile: 0401023328 / Ph: 03 9746 0089
Email: wbcseng@gmail.com

Registered Civil/Structural Engineer
Priyan Wijeyeratne
EC 19060

PROJECT:
D/S 3 BED RESIDENCE

PROJECT ADDRESS:
No: 17, Frome Court, Taylors Hill

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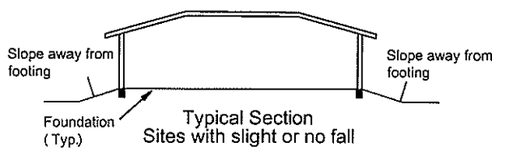
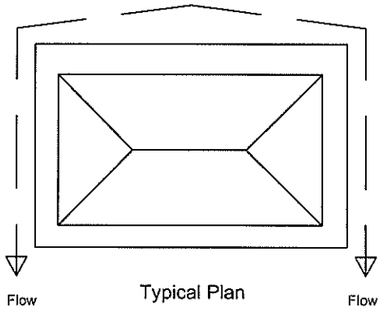
SITE DRAINAGE REQUIREMENTS

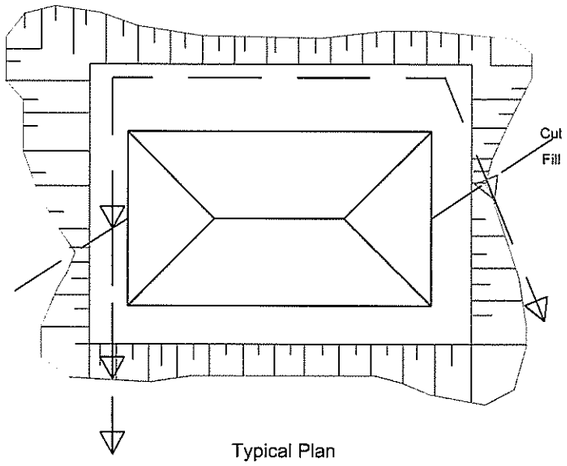
TYPICAL STORMWATER DRAINAGE



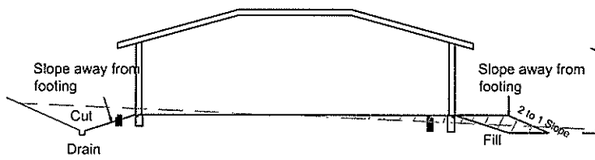
Typical Section
Sites with slight or no fall



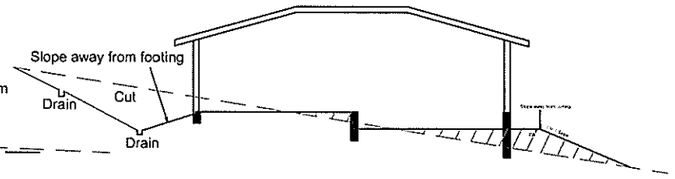
Typical Plan



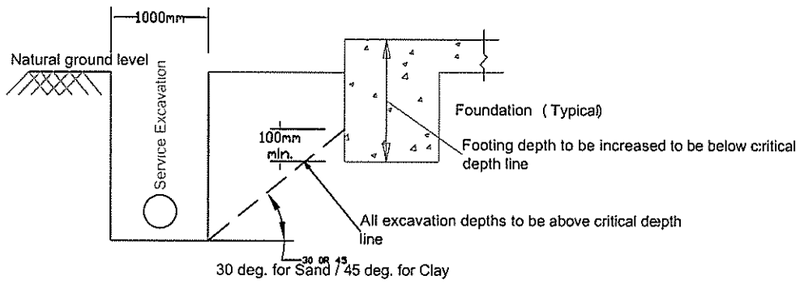
Typical Plan



Typical Section
Sites with fall up to 1:8



Typical Section
Sites with fall greater than 1:8



SERVICE TRENCH EXCAVATION ADJACENT TO FOUNDATIONS

MAINTENANCE:

- THE MAINTENANCE OF THE SITE AROUND A NEW HOME IS AN IMPORTANT FACTOR IN THE LONG-TERM PERFORMANCE OF THE FOOTING SYSTEM
- THE PRIMARY OBJECTIVE OF THIS MAINTENANCE IS TO MINIMISE THE VARIAT ION IN SOIL MOISTUE LE' AROUND THE FOOTING THAT COULD LEAD THE EXCESSIVE SOIL MOVEMENT AND POSSIBLE DISTRESS THE SUPERSTUCTURE AND/OR FOOTING. WHEN THE SLAB FORMS PART OF THE TERMITE BARRIER SY FOR THE HOUSE, THEN IT IS ASLO NECESSARY TO MAINTAIN THE EFFECTIVENESS OF THAT BARRIER V APPOPRIATE MAINTANCE ACTIVITIES
- WHEN A CONCRETE SLAB-ON-GROUND IS USED AS PART OF THE TERMITE BARRIER SYSTEM AS OUTLI AS3660.0. THEN IT CANNOT BE TOO HIGHLY STRESSES THAT REGULAR INSPECTION AND MAINTENANC THE SLAB SURROUNDING BY A COMPETENT PROFESSIONAL IS REQUIRED TO ENSUE THAT ANY TERMI' INFESTATION IS DETECTED AND TREATED PROMPTLY.
- ONGOING MAINTENANCE AND INSPECTION ON A REGULAR BASIS IS A REQUIREMENT OF AS3660.1 AND OWNER SHOULD BE CLEARLY ADVISED IF THEIR RESPONSIBILITIES TO ENSURE THAT THEIR INVESTME PROPERLY PROTECTED.
- LEAKING TAPS, DOWNPIPES, SEWERS GUTIERS AND DRAINAGE CAN ALSO AFFECT THE MOISTURE CO' OF THE SOIL AND THESE MUST BE INSPECTE D REGULARLY TO ENSURE AGAINST DAMAGE TO THE FOOTINGS. SIMILARLY, GUTIERS, DOWNPIPES AND COLLECTION POINTS CAN GET BLOCKED WITH LEA\ AND OTHER DEBRIS, PREVENTING THE EFFECTIVE DRAINAGE OF STORMWATER AWAY FROM THE HOU AGAIN. REGULAR INSPECTIONS AND MAINTENANCE SHOULD BE CARRIED OUT TO PREVENT BLOCKAGI
- IT IS IMPORTANT FOR BUILDER TO MAKE THE HOMEOWNER AWARE OF THE MAINTENANCE ISSUES ASSOCIATED WITH ENSURING THE LONG-TERM PERFORMANCE OF THE FOOTING SYSTEM

DRAINAGE REQUIREMENTS

GENERAL

THESE DRAINAGE AND OTHER REQUIREMENTS FORM PART OF THE FOOTING DESIGN.

DEFECTIVE SURFACE DRAINAGE IS A COMMON FACTOR IN REACTIVE CLAY FOUNDATION MOVEMENT PROBLEMS. THE EFFECTIVE DRAINAGE OF THE SITE IS A PREREQUISITE FOR SATISFACTORY PERFORMANCE OF A FOUNDATION SYSTEM.

THE BUILDER'S RESPONSIBILITY IS TO MAKE THE OWNER AWARE OF THE IMPORTANCE OF SURFACE DRAINAGE, EVEN IF IT IS NOT PART OF BUILDER'S CONTRACT TO CONSTRUCT SURFACE DRAINAGE.

LANDSCAPING AND OTHER FINISHING SITE WORKS MUST BE INCORPORATED WITH WELL DESIGNED SURFACE DRAINAGE TO MITIGATE ANY ADVERSE IMPACT ON A FOUNDATION SYSTEM.

DRAINAGE NOTES

- ALL SURFACE DRAINAGE WORKS SHALL BE INSTALLED IN ACCORDANCE WITH CLAUSE 5.6.3 DRAINAGE REQUIREMENTS OF AS 2871-201 1, WHEREIN FOR BUILDINGS ON MODERATELY, HIGH AND REACTIVE SITES
- SURFACE DRAINAGE SHALL BE CONTROLLED THROUGHOUT CONSTRUCTION AND BE COMPLETED BY THE FINISH OF CONSTRUCTION
- THE BASES OF TRENCHES SHALL SLOPE AWAY FROM THE BUILDING
- WHERE PIPES PASS UNDER THE FOOTING SYSTEM. CLAY PLUGS ARE TO BE ADOPT ED TO PREVENT THE INGRESS OF WATER
- FOR BUILDINGS ON HIGHLY REACTIVE SITES, DRAINER SHALL PROVIDE DRAINAGE ARTICULATION TO ALL STORMWATER, SANITARY PLUMBING DRAINS AND DISCHARGE PIPES IN ACCORDANC E WITH CLAUSE 5.6.4 PLUMBING REQUIREMENTS. WHEREIN FLEXIBLE JOINTS IMMEDIAT ELY OUTSIDE BUILDING AND COMMENCING WITHIN 1m OF THE BUILDING PERIMETER ARE REQUIRED TO ACCOMMODAT E THE REQUIRED DIFFERENTIAL MOVEMENT BASED ON THE SOIL CLASSIFICATION . REFER TO TABLE BELOW FOR 'MIN. REQUIREMENTS FOR EXPANS ION AND ALLOWABLE IN FITIINGS
- FLEXIBLE JOINTS ARE REQUIRED AT ENTRY & EXIT OF SLAB/FOOTINGS. SURFACE WATER MUST BE DIVERTED AWAY FROM THE DWELLING AND GRADED AWAY FROM ALL FOUNDATIONS TO GIVE A SLOPE OF NOT LESS THAN 50mm OVER THE FIRST 1000mm FROM THE DWELLING
- SUBSURFACE DRAINS TO REMOVE GROUND WATER SHALL BE DETAILED BY THE DESIGN ENGINEER. FURTHERMORE, DAMP-PROOF MEMBRANE IN ACCORDANC E WITH CLAUSE 5.3.3 OF AS 2870 SHALL BE INSTALLED FOR GROUNDWATER DRAINAGE ON AGGRESSIVE SOILS

LANDSCAPING

- THE WORKS ON GARDENS SHALL NOT IMPACT ON DRAINAGE REQUIREMENTS, SUBFLOOR VENTILATION AND WEEPHOLE DRAINAGE SYSTEMS. GARDEN BEDS ADJACENT TO THE BUILDING SHALL BE AVOIDED. CARE SHALL BE TAKEN TO AVOID OVERWATERING OF GARDENS CLOSE TO THE BUILDING FOOTINGS. (AS 2870 Cl. B2.3(b))
- PLANTING OF TREES SHALL BE AVOIDE D NEAR THE FOUNDAT ION OF A BUILDING OR NEIGHBOURING BUILDING AS THEY CAN CAUSE DAMAGE DUE TO DRYING OF THE CLAY AT SUBSTANT IAL DISTANCES. TO REDUCE THE POSSIBILITY OF DAMAGE TREES SHOULD BE RESTRICTED TO A DISTANGE FROM THE HOUSE AS FOLLOWS
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS E SITES
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS H1 AND CLASS H2 SITES
- 1 1/2 x MATURE TREE HEIGHTFOR CLASS M SITES
- WHERE ROWS OR GROUPS OF TREES ARE INVOLED, THE DISTANGE FROM THE BUILDING SHOULD BE INCREASED. REMOVAL OF TREES FROM THE SITE CAN ALSO CAUSE SIMILAR PROBLEMS. (AS 2870 B2.3 (c))

MINIMUM REQUIREMENTS FOR SEWER RETICULATION

SITE CLASS	SEWER EXIT POINTS		MIN. EXPANSION JOINT CAPACITY	ALLOWABLE ROTATION	LAGGING
	SWIVEL	EXPANDER			
M	0	0	-	-	MIN. 20
H1	1	1	60MM	15°	MIN. 40
H2/H2-D	2	1	90MM	15°	MIN. 40
E	2	1	120MM	15°	MIN. 40
P	2	1	90MM (UNO)	15°	MIN. 40

SITE DRAINAGE REQUIREMENTS

CONSTRUCTION STAGE

THE GEOTECHNICAL REPORT HAS RECOMMED THE USE OF A CERTAIN FOOTING THAT IS APPROPRIATE FOR THIS SITE. WHILE MAKING THIS RECOMMENDATION IT HAS BEEN ASSUMES THAT CERTAIN SITE DRAINAGE REQUIREMENTS AS PER AS2870-2001 HAS BEEN MET.

DURING THE CONSTRUCTION OF THE FOOTING THE FOLLOWING SITE DRAINAGE REQUIREMENTS ARE LISTED AS BEING PART OF THE FINAL FOOTING DESIGN BY THE DESIGN ENGINEER.

- MUST PREVENT WATER PONDING AGAINST OR NEAR THE FOOTING
- THE GROUND IN THE IMMEDIATE VICINITY OF THE PERIMETER FOOTING SHALL BE GREADED TO A FALL OF 50mm MIN. AWAY FROM THE FOOTING OVER A DISTANCE OF 1000mm (1:20) AND SHAPED TO PREVENT PONDING OF WATER (THIS INCLUDES THE GROUND UPHILL FROM THE FOOTING ON A CUT/FILL SITE). - WHERE FILLING IS PLACED ADJACENT TO THE BUILDING. THE FILLING SHALL BE COMPACTED AND GRADED TO ENSURE DRAINAGE AWAY FROM FOOTINGS OR
- ALL COLLECTED STORMWATER MUST BE DISCHARGED TO A LEGAL POIT OF DISCHARGE
- SURFACE DRAINAGE OF THE SITE SHALL BE CONTROLLED FROM THE START OF THE SITE PREPARATION AND CONSTRUCTION. SURFACE DRAINAGE INCLUDES SURFACE WATER RUN-OFF AND BUILDING WATER (ROOF/FLOOR/CONCRETE) RUN-OFF
- ALL WATER RUN-OF F SHALL BE CONTROLLED AT ALL TIMES
- USE TEMPORARY DOWNPIPES TO COLLECT WATER FROM A ROOFED BUILDING FRAME
- WHEN SILT PITS ARE USED TO GATHER SURFACE WATER FROM AREAS ADJACENT TO THE FOOTINGS. THESE SILT PITS ARE TO BE AT LEAST 1000mm AWAY FROM THE FOOTING AND CONNECTED TO THE STORMWATER SYSTEM WITH A SOLID PIPE
- STORMWATER DRAINS SHALL BE AT LEAST 90mm AND HAVE A MINIMUM FALL OF 1:100 AND 100mm COVER UNDER THE SOIL AND OR PAVED AREAS
- INSPECTION OPENINGS SHOULD BE PROVIDED AT EACH PIPE CONNECTION POINT AND AT A NOMINAL SPACING OF 25m
- AVOID UNDERMINING THE FOOTING WITH ANY TRENCHES OR PIPE OR PITS UNLESS THE FOOTING HAS BEEN DESIGNED TO ALLOW FOR SUCH SITUATION SUB-SURFACE DRAINAGE IS REQUIRED TO REMOVE ANY UNWANTED GROUND WATER BY MEANS OF 90mm SLOTED PIPE IN A 300mm WIDE TRENCH (MIN. FALL OF 1:100). BASE OF THE TRENCH IS FILLED WITH 10mm CRUSHED ROCK OR SIMILAR COVERING THE SLOTED PIPE
- AG DRAINS MUST NOT BE INSTALLED WITHIN 1500mm FROM ANY FOOTING
- AG DRAINS MUST BE INSTALLED AT THE BASE OF ALL SITE CUTS THAT EXCEED 400mm IN HEIGHT, ALONG THE HIGH SIDE OF A SLOPING SITE AND POSSIBLY ALONG THE LOW SIDE OF A SLOPING SITE ALONG THE BOUNDARY, TO BE CONNECTED TO

CLIENT:
Mr & Mrs P.A. & P.C. FERNANDO

WB CIVIL STRUCTURAL ENGINEERS
ENGINEERS & BUILDERS
ABN: 84119322436
OFFICE:
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Mobile: 0401023328 / Ph: 03 9746 0089
Email: wbcseng@gmail.com

Registered Civil/Structural Engineer
Priyan Wijeyeratne
EC 19060

PROJECT:
D/S 3 BED RESIDENCE

PROJECT ADDRESS:
No: 17, Frome Court, Taylors Hill

SHEET NO: 3/9

SLAB & BEAM CONSTRUCTION REQUIREMENTS

THESE NOTES TO BE FOLLOWED UNLESS NOTED OTHERWISE BY THE ENGINEER

1. THE SLAB SUBGRADE SHALL BE SCALPED CLEAR OF GRASS, VEGETATION AND ORGANIC MATIER AND BE PREPARED IN ACCORDANCE WITH SECTION 6 - AS 2870 - 2011.
2. EXCAVATIONS ARE TO BE EXAMINED CAREFULLY AND ANY UNUSUAL FEATURES REPORTED TO THE GEOTECHNICAL ENGINEER. CARE MUST BE TAKEN TO ENSURE THAT ALL FOOTINGS ARE FOUNDED ON & IN MATERIAL SPECIFIED IN THE SOIL REPORT.
3. THE INTERIOR SLAB PANELS SHALL BE FOUNDED IN SOIL IN ACCORDANCE WITH GEOTECHNICAL REPORT UNLES NOTE OTHERWISE.
4. THE VAPOUR BARRIER SHALL BE WELL LAPPED (MINIMUM 300MM) AND TAPED AT JOINTS. CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT PUNCTURE OF MEMBRANE.
5. THE SITE IS TO BE GRADED AWAY FROM THE SLAB SO THAT WATER WILL NOT POND AGAINST THE SLAB.
6. ALL DRAINAGE AND SEWERAGE PIPES ADJACENTTO THE BUILDING ARE TO BE SET BACK AT A DEPTH SUCH THAT IS BEYOND THE INFLUENCE OF THE FOOTINGS. ANGLE OF REPOSE = 45°. PROVIDE LAGGING WHERE SUCH PIPES PASS THROUGH SLAB BEAMS TO ALLOW FOR DIFFERENTIAL MOVEMENT.
7. ALL CONCRETE TO BE PLACED IN POSITION IS TO BE ADEQUATELY MECHANICALLY VIBRATED.
8. THE OWNER AND BUILDER ARE TO REFER TO RELEVANT APPENDICES OF SOIL REPORT, AS2870 ON FOUNDATION MAINTENANCE AND TO C.S.I.R.O.'s PUBLICATION SHEET No. 10-91 "GUIDE TO HOME OWNERS MAINTENANCE AND FOOTING PERFORMANCE"' .
9. SITE DRAINAGE SHALL BE IN ACCORDANCE WITH PLUMBING REQUIREMENTS CLAUSE 5.6.4 OF AS2870 - 2011 & DRAINAGE REQUIREMENTS CLAUSE 5.6.3 OF AS2870 - 2011.
10. WHERE EXISTING OR PROPOSED TREES ARE WITHIN THE ZONE OF INFLUENCE OF ANY FOOTING (I.e. 1.0XMATURE TREE HEIGHT), THEN THE FOOTINGS ARE TO BE DEEPENED AND FOUNDED DIRECTLY ONTO WEATHRED BEDROCK OR VERY STIFF CLAY IF PRESENT OR 2000MM DEEP; WHICHEVER IS SHALLOWER. ALTRNATIVELY THE TREES COULD BE REMOVED (WITH RELEVANT PERMITS OBTAINED) OR TREE ROOT-BARRIERS PLACED.
11. PROVIDE ADDITIONAL CONTROL JOINTS IN MASONARY WALLS ABOVE JUNCTIONS BETWEEN BEAMS FOUNDED ON DIFFERENT SOIL TYPES.

SITE DRAINAGE & PLUMBING REQUIREMENTS

THE REQUIREMENTS STATED IN THE LATEST VERSION OF AS 2870 MUST BE STRICTLY ADHERED TO ALL THE TIME BY THE BUILDER.

PARTICULAR ATTENTION MUST BE PAID TO THE CLAUSED 5.6.3 & 5.6.4 OF AS 2870 REGARDING SITE DRAINAGE AND PLUMBING CONSTRUCTION.

IF ANY OF THE REQUIREMENTS CANNOT BE ACCOMPLISHED, THE BUILDER MUST IMMEDIATELY INFORM THE ENGINEER FOR INSTRUCTIONS.

STEEL & TIMBER BEAMS/LINTELS

- Steel/Timber beams/Lintels to be supported a minimum of 90/100mm UNO.
- Steel beams/Lintels to be protected from corrosion as per Note S9 on sheet 2/6 of this set of plans.

CLIENT:
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WB CIVIL STRUCTURAL ENGINEERS
ENGINEERS & BUILDERS
ABN: 84119322436
OFFICE:
NO: 9, NUMERING COURT, MELTON, VIC 3337
Mobile: 0401023328 / Ph: 03 9746 0089
Email: wbcseng@gmail.com

Registered Civil/Structural Engineer
Priyan Wijeyeratne
EC 19060

PROJECT:
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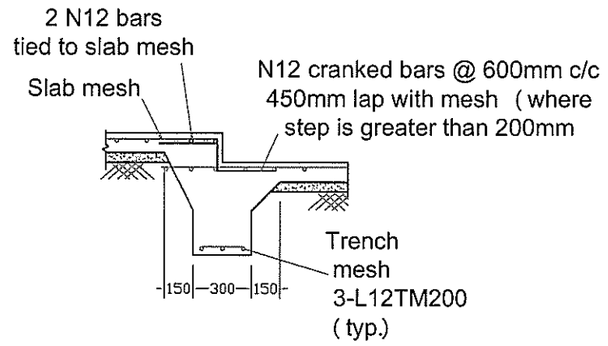
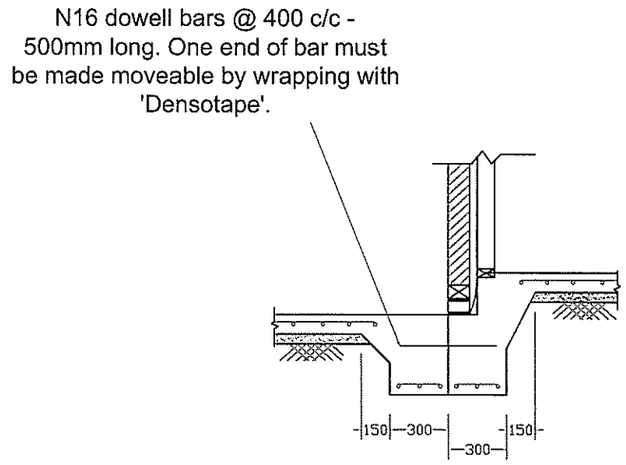
SHEET NO: **4/9**

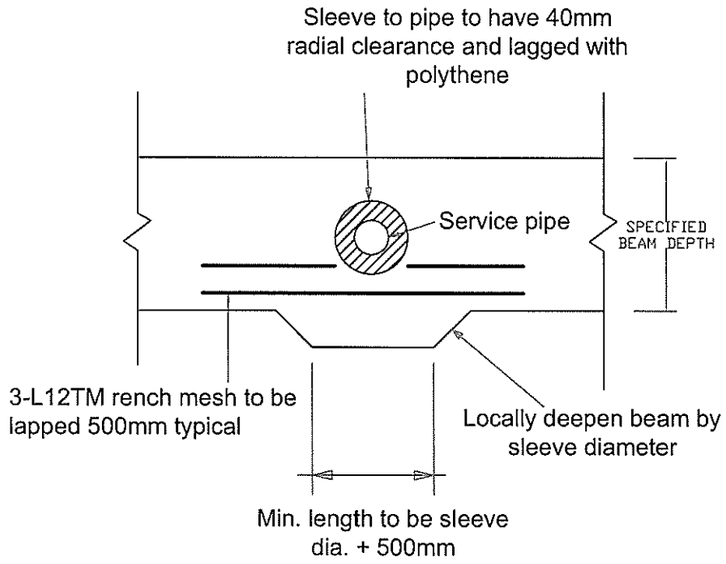
STIFFENED RAFT SLAB ON GROUND - TYPICAL DETAILS



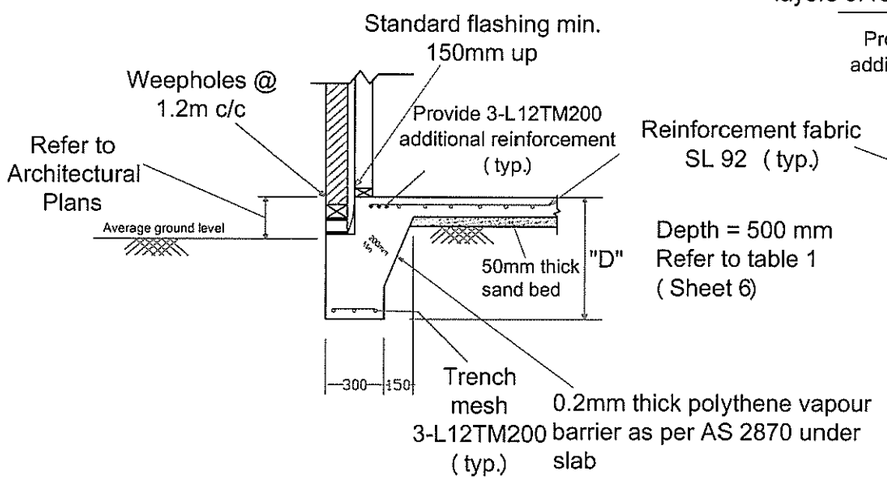
STEP-DOWN



CONSTRUCTION JOINT

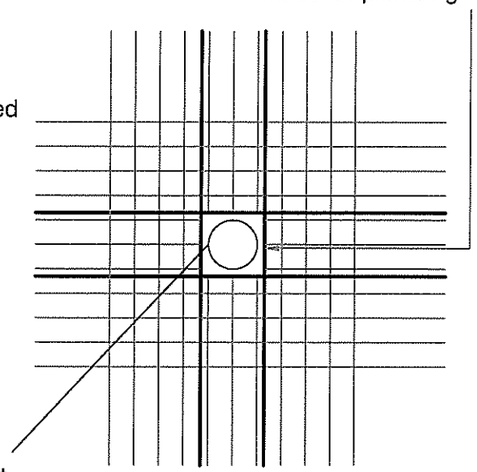


SERVICE PENETRATION IN SLABS & BEAMS



EDGE BEAM

STIFFENING BEAM



SCALE: NOT TO SCALE

CLIENT:
Mr & Mrs P.A. & P.C. FERNANDO

WB CIVIL STRUCTURAL ENGINEERS
ENGINEERS & BUILDERS
ABN: 84119322436
OFFICE:
NO: 9, NUMERING COURT, MELTON, VIC 3337
Mobile: 0401023328 / Ph: 03 9746 0089
Email: wbcseng@gmail.com

Registered Civil/Structural Engineer
Priyan Wijeyeratne
EC 19060

PROJECT:
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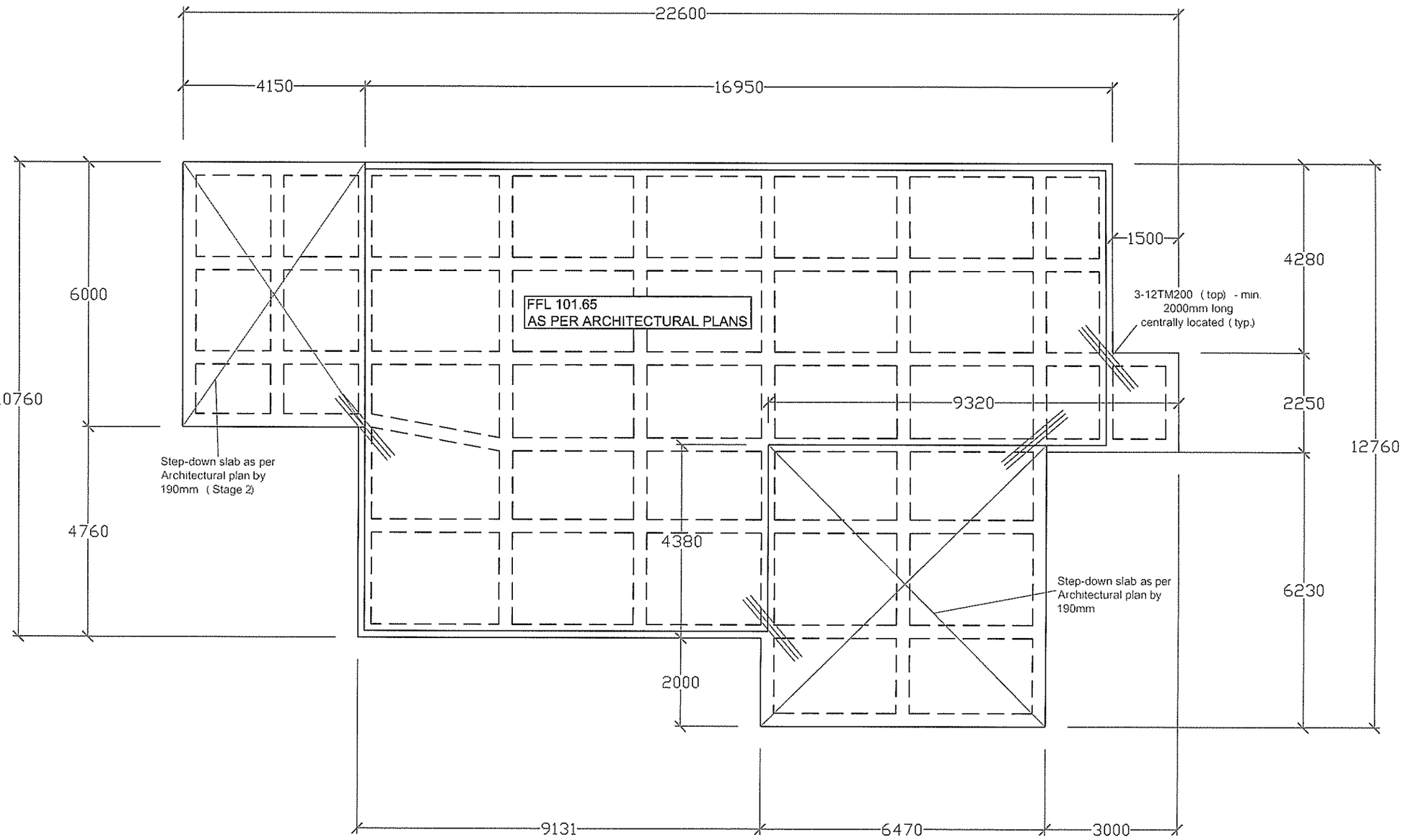
STIFFENED RAFT SLAB ON GROUND

NOTE:
SETTING-OUT OF SLAB MUST BE DONE AS PER AIRCHITECTURAL PLANS.
DIMENSIONS PROVIDED ON THIS SHEET MUST ALWAYS BE CHIECKED AGAINST ARCHITECTURAL PLANS.

STRUCTURAL ENGINEER (MOBILE: 0401023328) MUST BE KEPT INFORMED IMMEDIATELY OF ANY DISCREPANCY AND CLARIFICATION SOUGHT BEFORE SETTING-OUT AND CONCRETING IS ORGANISED.



Notes:
If the builder to encounters Sand, Gravel or chalk during excavations, such excavations shall be deepened until a clean Clay base is found and verified by the Engineer. Also, if the total depth of rolled material exceeds 600mm (sandy soils) or 300mm (clay soils), the slab to be thickened to 120mm and use additional S82(T) & SL72(B) reinforcement mesh (cover 30mm).

SOIL REPORT BY GEOCORE PTY LTD
Soil Classification – H1 (AS 2870 – 2011) – Job No: ST-23441
Slab Design: Stiffened Raft Slab
Builder to follow site drainage requirements as recommended on these plans and soil report

RAFT SLAB & BEAM REINFORCEMENT DETAIL – TABLE 1
Beams - Depth=500mm x width=300mm / Reinforcement – 3-L12TM200 (T&B)
Founding depths from ground level – Beams=300mm
Slab thickness = 100mm
Minimum grade of concrete used in slab to be 20MPa
Use Mesh SL92 for SLAB Reinforcement (*Min. Lap 300mm*)
Minimum Cover to Reinforcement 30mm
Use 0.2mm Vapour Barrier Under SLAB
Approved Fill Material Under SLAB Laid and Compacted in Max.150mm Layers

SCALE: 1 : 100

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OFFICE:
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EC 19060

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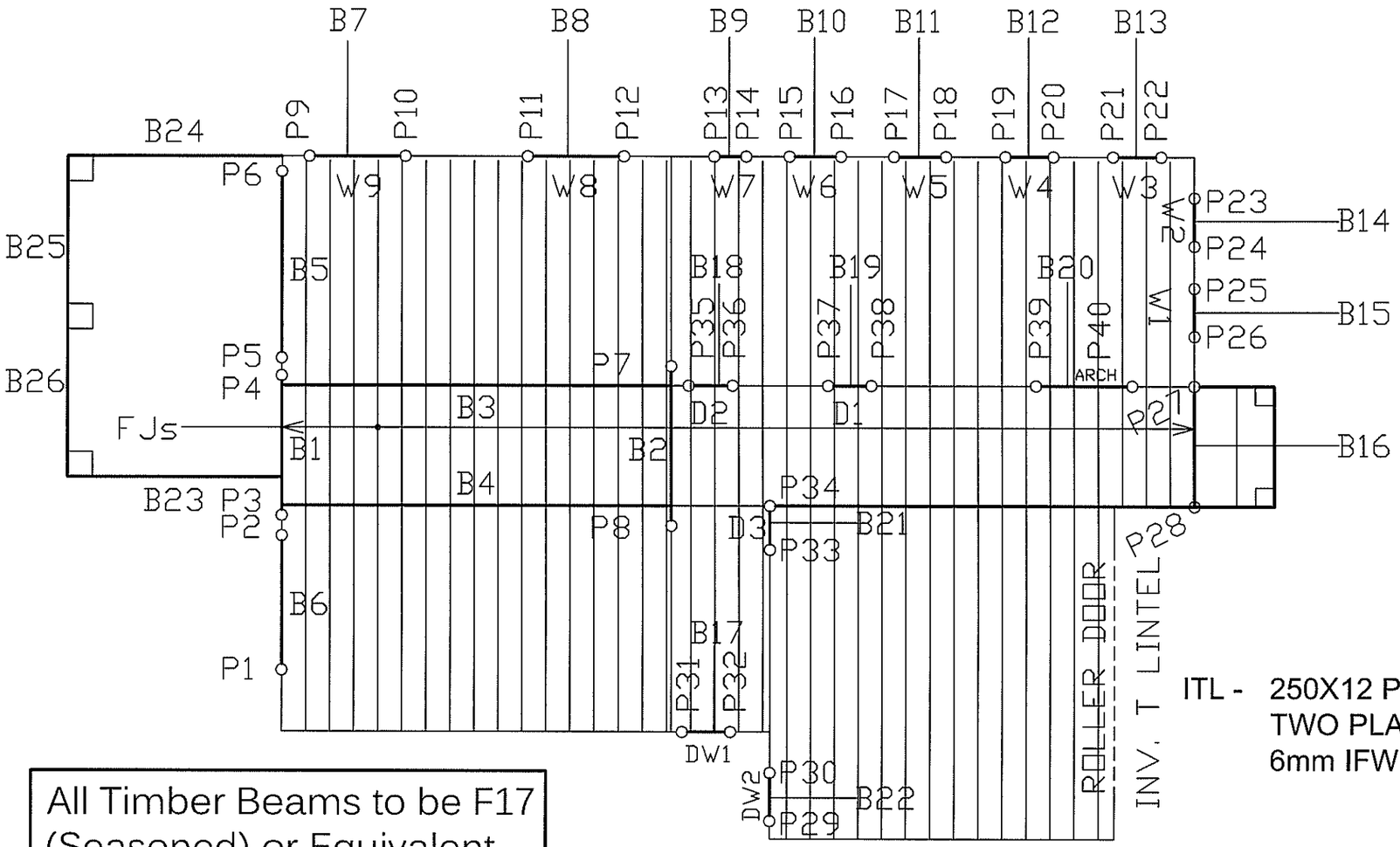
UPPER FLOOR FRAMING PLAN



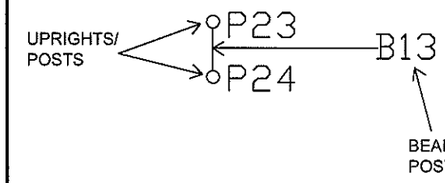
ITL - 250X12 PL VER. & 200X10 PL HOR. TWO PLATES WELDED WITH 6mm IFW

All Timber Beams to be F17 (Seasoned) or Equivalent

B1	- 200X75 PFC	B14	- 240X45 F17	P1&P2	- 3/STUDS	P21&22	- 2/STUDS
B2	- 200X75 PFC	B15	- 240X45 F17	P3&P4	- 89X89X3.6SHS	P23&24	- 2/STUDS
B3	- 250X90 PFC	B16	- 200X75 PFC	P5&P6	- 3/STUDS	P25&26	- 2/STUDS
B4	- 250X90 PFC	B17	- 190X45 F17	P7&P8	- 89X89X3.6SHS	P27&28	- 2/STUDS
B5	- 290X38 F17	B18	- 190X45 F17	P9&P10	- 2/STUDS	P29&30	- 2/STUDS
B6	- 290X38 F17	B19	- 190X45 F17	P11&P12	- 2/STUDS	P31&32	- 2/STUDS
B7	- 240X45 F17	B20	- 240X45 F17	P13&P14	- 2/STUDS	P33&34	- 2/STUDS
B8	- 240X45 F17	B21	- 90X45 F17	P15&P16	- 2/STUDS	P35&36	- 2/STUDS
B9	- 240X45 F17	B22	- 90X45 F17	P17&18	- 2/STUDS	P37&38	- 2/STUDS
B10	- 240X45 F17	B23	- 240X45 F17	P19&20	- 2/STUDS	P39&40	- 3/STUDS
B11	- 240X45 F17	B24	- 240X45 F17				
B12	- 240X45 F17	B25	- 240X45 F17				
B13	- 240X45 F17	B26	- 240X45 F17				

FJs - POSI OR SIMILAR FLOOR TRUSSES @450mm c/c AS PER MANUFACTURERS SPECIFICATIONS

LEGEND



P - Posts
B - Beams
D - Doors
ITL - Inverted 'T' Steel Lintel

SCALE: 1 : 100

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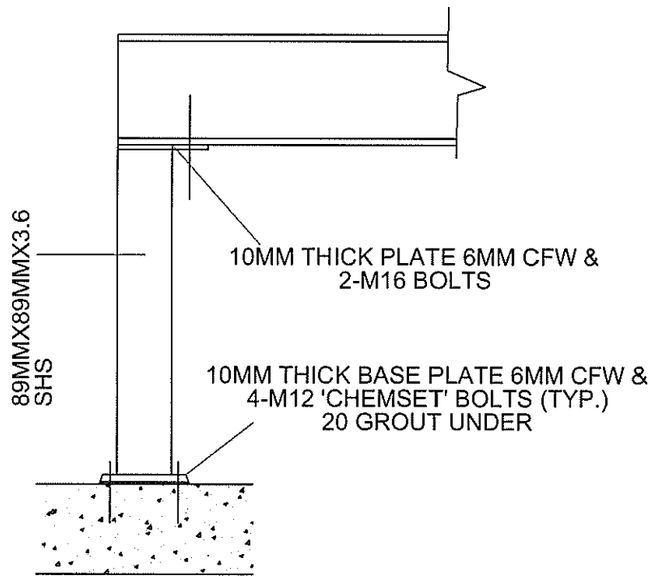
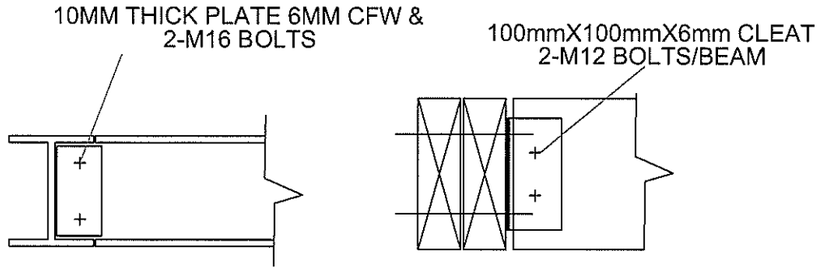
UPPER FLOOR FRAMING FIXING PLAN



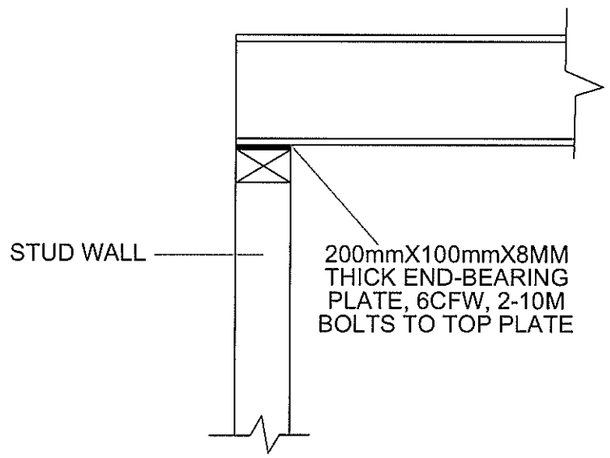
STEEL UB AND POST FIXING DETAIL (TYP.) - N.T.S.



BEAM CONNECTION DETAIL (TYP.) - N.T.S.

GENERAL FRAMING NOTES:

- ALL BEAMS TO HAVE MIN. 110MM END BEARING UNO. & BUTTED AT SAME LEVEL.
- THE TIE DOWN REQUIREMENTS AND BRACING SHALL BE N ACCORDANCE WITH AS1682.2-2010.
- SAMPLE BRACING DETAILS PROVIDED ON SHEET 9/9.



STEEL BEAM - STUD WALL FIXING DETAIL (TYP.) - N.T.S.

SCALE: 1 : 100

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ABN: 84119322436
OFFICE:
NO: 9, NUMERING COURT, MELTON, VIC 3337
Mobile: 0401023328 / Ph: 03 9746 0089
Email: wbcseng@gmail.com

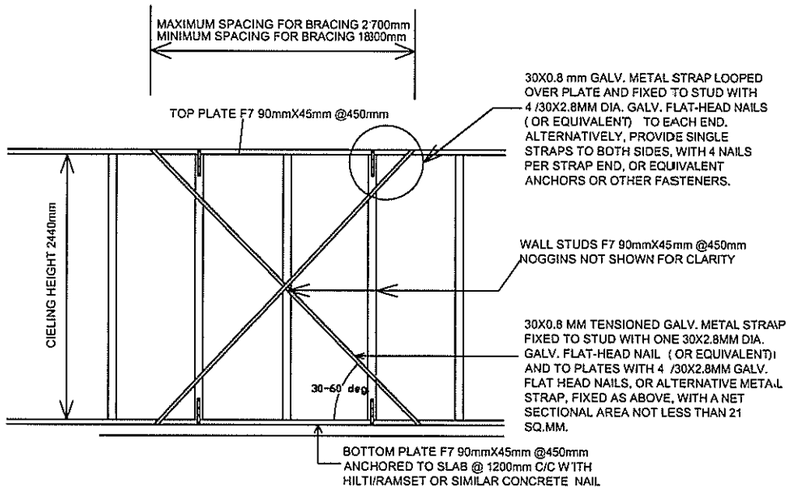
Registered Civil/Structural Engineer
Priyan Wijeyeratne
EC 19060

PROJECT:
D/S 3 BED RESIDENCE

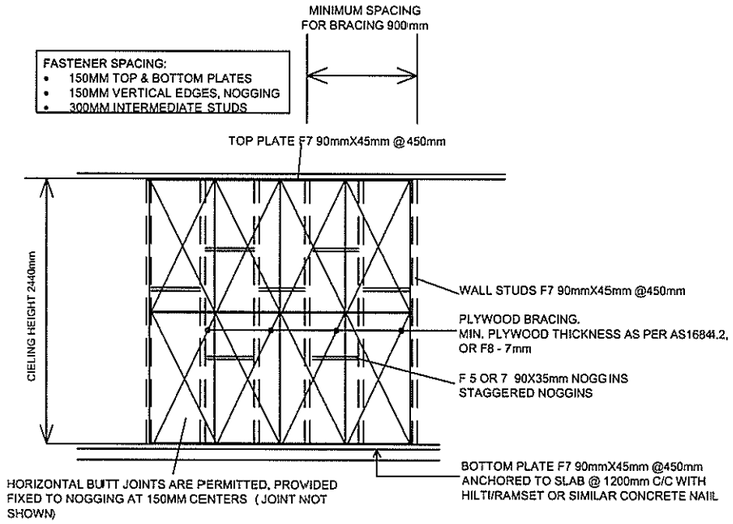
PROJECT ADDRESS:
No: 17, Frome Court, Taylors Hill

SHEET NO: **8/9**

WALL & ROOF BRACING INFORMATION



DOUBLE DIAGONAL METAL TENSION STRAPS - TYPE A
(OR DIAGONAL METAL ANGLE BRACES)
(BRACING CAPACITY 3.0 kN/m)



PLYWOOD BRACING SYSTEM - TYPE B
(BRACING CAPACITY 3.4 kN/m)

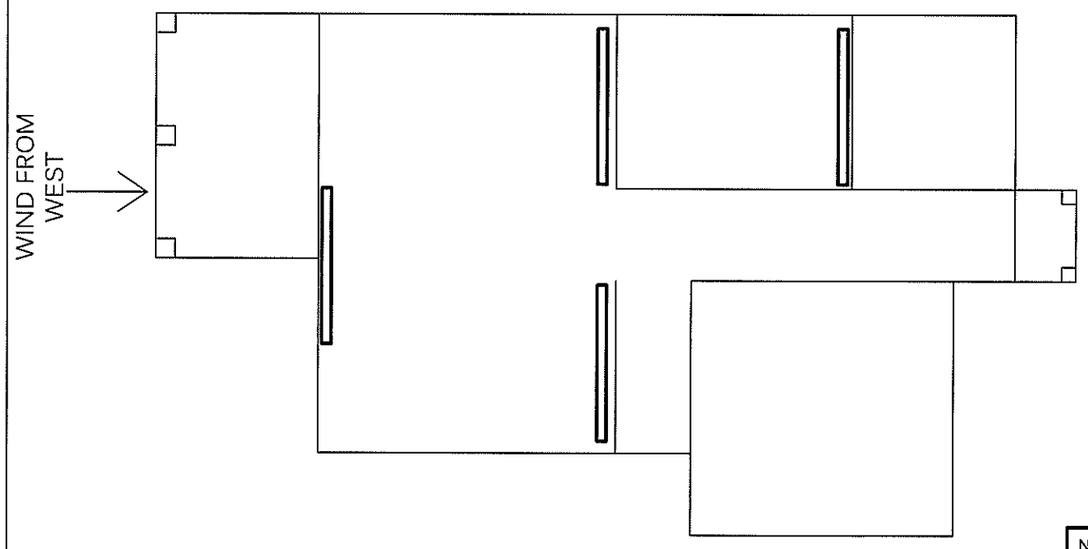
NOTE 1:
ALL WALL & ROOF BRACING (FOLLOW TRUSS MANUFACTURER'S DETAIL FOR ROOF BRACING) TO BE INSTALLED AS PER AS 1684.2. WHERE METAL BRACING CANNOT BE INSTALLED DUE TO INADEQUATE SPACE PLYWOOD BRACING TO BE USED. PLYWOOD BRACING IS PREFERRED AT WALL CORNERS. BRACING CAPACITIES AS PER AS 1684.2.

NOTE 2:
BRACING TYPES SHOWN IN COLOR IS MANDATORY MINIMUM TO BE INSTALLED AS PER AS1684. BUILDER MAY CHANGE LOCATIONS SHOWN FOR EASE OF FIXING, PROVIDED TOTAL LENGTH/NUMBER INDICATED IS MAINTAINED.

NOTE: 3
BRACING TYPES (METAL (A) & PLY (B)) MAY BE INTERCHANGED AS LONG AS TOTAL CAPACITY IS SAME. BRACING CAPACITIES ARE PROVIDED IN BRACKETS - AS PER AS 1684.2.

NOTE 4:

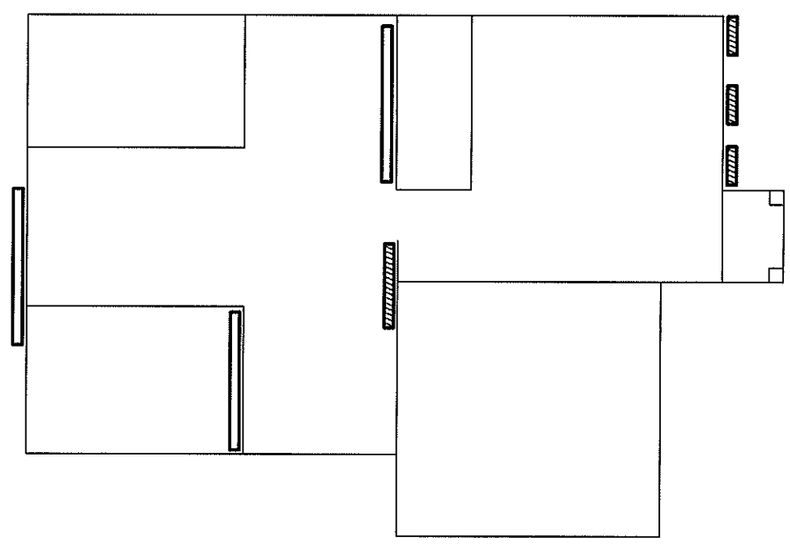
RAKING FORCE SOUTHERLY DIRECTION =	30X0.5 = 15 kN (F/F)
	20X0.5 = 10 kN (G/F)
RAKING FORCE WESTERLY DIRECTION =	12X0.5 = 6 kN (F/F)
	11X0.5 = 5.5 kN (G/F)



GROUND FLOOR (G/F) PLAN
NTS

NOTE:
ALL INTERNAL WALLS NOT SHOWN

WIND FROM SOUTH



FIRST FLOOR (F/F) PLAN
NTS

SCALE: 1 : 100

CLIENT:
Mr & Mrs P.A. & P.C. FERNANDO

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