

SPECIFICATIONS



034



Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: T. Drupsteen Consulting Engineer
(Design Firm)

TO: Mr Michael O'Halloran
(Owner/Developer)

TO BE SUPPLIED TO: Far North District Council
(Building Consent Authority)

IN RESPECT OF: Proposed (and partly constructed) residential Garage
(Description of Building Work)

AT: No 3 State Highway 12, Opononi
(Address)
LOT 1 DP 171461
(-SO by others)

We have been engaged by the owner/developer referred to above to provide Structural Engineering consultancy services in respect of the requirements of Clause(s) B1 of the Building Code for All or Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

- Compliance Documents issued by the Ministry of Business, Innovation & Employment. NZS 1170, NZS 3603 or (verification method / acceptable solution)
- Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled O'Halloran Proposed Garage by HM Design and numbered sheets 2, 3, 4, 6 together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- Site verification of the following design assumptions
- (ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation: Normal Council Inspections

CM1 CM2 CM3 CM4 CM5 (Engineering Categories) or as per agreement with owner/developer (Architectural)

I, Thijs Drupsteen am: CPEng 61652 #
(Name of Design Professional) Reg Arch #

I am a Member of: IPENZ NZIA and hold the following qualifications: BE, CPEng, IntPE, MNZIE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.

The Design Firm is a member of ACENZ:
SIGNED BY Thijs Drupsteen ON BEHALF OF T. Drupsteen Consulting Engineer
(Design Firm)

Date 07 05 2015 (signature) T. Drupsteen

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.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

15/5
 T. Drupsteen
 26 0315

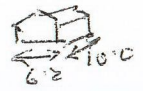
O'Halloran Garage Struct Calcs.

Basic Input Data.

Windage

NZS 3604 Very High

Roofwalls Floor Earthquake


 $V_w = 50 \text{ m/sec}$
 $q_w = 1.5 \text{ kPa}$
 Light timber < concrete - much less than wind.

Assumed Ground Ultimate strength

300 kPa Ultimate

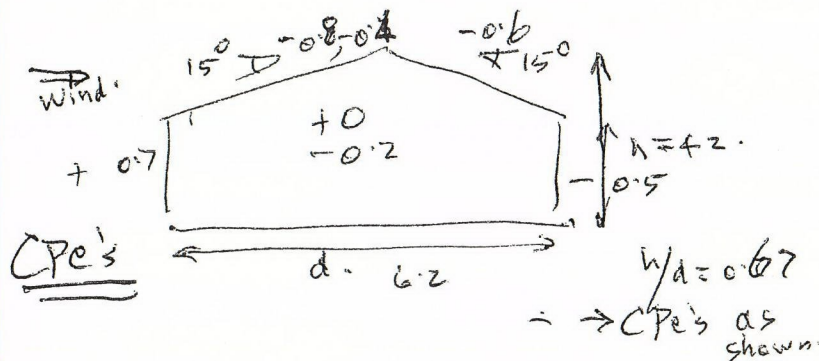
Soil design skin friction with concrete

Clay $\rightarrow 11 \text{ kPa}$

Roof G

0.3 kPa (no ceiling or insulation)
 $Q = 0.25 \text{ kPa}$
 $1.2G + 1.5Q = 0.735 \text{ kPa}$
 $LC = 1.1 \text{ kPa}$

Wind uplift



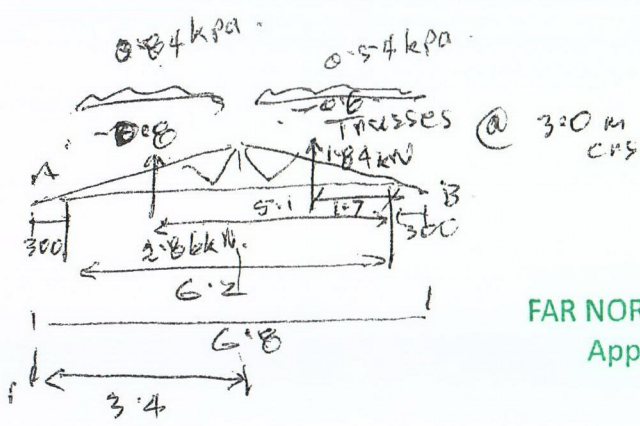
Roof
 $A_v C_{pe}$
 $= \frac{-0.8 - 0.6}{2}$
 $= -0.7$
 $\therefore 0.7$
 $= 0.7 \times 1.5 = 1.05$
 $= 0.78 \text{ kPa}$

Trusses Designed By

Mitek NZ Ltd
 29 Sept 2010
 Kaipara Trusses
 Signed: J. Hansen

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27 03 15

Trusses uplift.



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$$R_A = \frac{1}{6.2} \left[\frac{2.86}{2} \times 6.2 + 1.84 \times 1.2 \right]$$

$$= 2.86 \text{ kN/m}$$

$$R_B = (2.86 + 1.84) \text{ kN/m} \times 2.86 \text{ kN} = 1.84 \text{ kN}$$

Truss Eng 3.0m \rightarrow $\frac{2.86 \times 3}{2} = 4.29 \text{ kN}$ Design point.
 $3.8 + 3.0 \rightarrow 3.4 \text{ m} \rightarrow 2.86 \times 3.4 = 9.72 \text{ kN}$
 M12 Ndes $7.0 \text{ kN} \times 0.7 \text{ m} = 4.9 \text{ kN}$
 $2 \times 4.9 = 9.8 \text{ kN} = \text{OK}$
 (79.74 kN N^*)

N/P/pole
= 8.57 kN

Pole size
Poles against uplift.

225 Q.

600 Q x 1600 des

sking adhesion Ndes \downarrow

$$= 11 \text{ kPa} \times \pi \times 0.6 \times 1.6$$

$$= 33 \text{ kN} \gg \text{N}^* \text{ of } 8.57 \text{ kN}$$

2/M12
OK.
225 Q ample for vertical loads by inspect!

600 Q x 1.6 deep conc. surround

\downarrow on pole founds

Roof $\sigma^* \downarrow$

$$\frac{3.0 \times 6.8}{2} \times 0.735 \text{ kPa} = 7.50 \text{ kN}$$

7.50 kN

OK 600 Q Ndes @ 150 kPa = 42.3 kN OK pole founds

600 Q pole OK founds

External wall studs studs 3.0m

40x45 high 600 crs

Utilitarian

$$\xi C_p 0.9$$

$$w^*_{u/m} = 1.35 \times 0.6 = 0.81 \text{ kN/m}$$

$$M^*_{u} = \frac{3^2}{8} \times 0.81 = 0.911 \text{ kNm/stud}$$

$$\text{Mdes } SGB \ 90 \times 45 = 0.68$$

Assume studs already in @ 600 crs; need to double up studs.

$$\rightarrow M^*_{u}/\text{stud} = 0.456$$

$$f_b \text{ can be as low as } 14 \times \frac{0.456}{0.68} = 9.4 \text{ MPa}$$

External wall studs: @ 400 crs.

BUT: studs not in yet, \therefore can be $\frac{600 \times 0.68}{0.911} = 0.448 \text{ crs} \rightarrow 400 \text{ crs}$

Internal wall studs

$\leq C_p 0.6 \rightarrow 0.9 \text{ kPa}$ If $0.6 \text{ m} \rightarrow W_u^* = 0.15 \text{ f}$
 $M^*_{u}/\text{stud} = \frac{3.0^2}{8} \times 0.154 = 0.1608 \text{ kNm}$

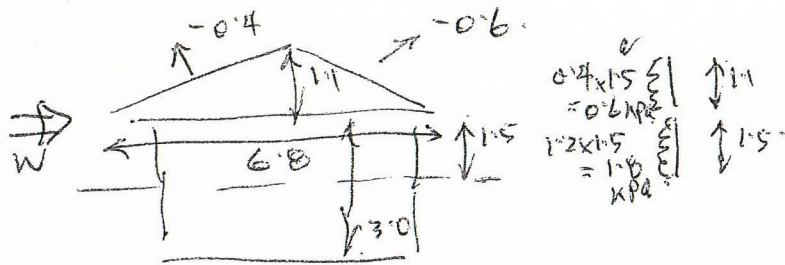
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GB 90x45 @ 600 CRS.

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< $M_{des}/668$ studs

Lateral loads Across



$1.1 \times 0.6 + 1.8 \times 1.5 = 3.36 \text{ kN/m}$

3.4m max loaded dimension to a pole $\rightarrow 11.4 \text{ kN}$

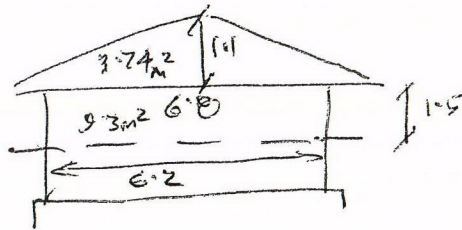
$M^*_{u}/\text{pole} = \left(\frac{11.4}{2}\right) \times 3 = 5.7 \times 3 = 17.1 \text{ kNm}$

$M_{des}/\text{pole} \text{ fb } 23 \times 1.05 \text{ E} = 24.2 \text{ kNm} - \text{OK}$

Transverse*
 $P^*_{max}/\text{pole} = 5.7 \text{ kN}$

poles OK for Transverse

Longitudinal.



Total Long $W = 1.2 \times 1.5 (3.74 + 9.30) = 23.5 \text{ kN}$ Total

4 poles in row ea side wall

$\frac{23.5}{4 \times 2} = 2.94 \text{ kN}$

$P^*_{max} = 2.94 \text{ kN}$

Longest force/pole top

(< than transverse)

Embedment.

under transverse

$A = \frac{1.17 P}{SB} = \frac{1.17 \times 570}{134 \times 0.6} = 0.083$

~~without conc. floor~~
 equiv to 150kpa des. strength

$H = \sqrt{4.25 \frac{PL}{SB}} = \sqrt{\frac{4.25 \times 17.1}{134 \times 0.6}} = 0.95 \text{ m}$

actual = 1.6m - OK

1.6m x 0.6m conc surround OK for both



MiTek New Zealand Limited

Correspondence from : **AUCKLAND**
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2183
Phone: 09 274 7109
Fax: 09 274 7100

CHRISTCHURCH
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
Phone: 03 348 8691
Fax: 03 348 0314

www.mitek.nz.co.nz

Printed: 11:25:52 03 Aug 2015

MiTek 20/20 Engineering 4.6.6.285

PRODUCER STATEMENT for MiTek 20/20[®] TRUSS DESIGN - Version 4.6

ISSUED BY: MiTek New Zealand Limited

TO: Hans Mitt

IN RESPECT OF: MiTek[®] Truss Designs

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This producer statement covers the MiTek 20/20[®] truss design and the structural performance of the GANG-NAIL[®] connector plate for the job reference **24246** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20[®] truss design program has been developed by MiTek New Zealand Limited for the design of MiTek[®] timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20[®] are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution to satisfy the requirements of Clause B1 of the New Zealand Building Code.

On behalf of MiTek New Zealand Limited, and subject to:

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Truss Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20[®] truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

On behalf of MiTek New Zealand Limited,

Date: Monday, 3 August 2015

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

Job: 24246

Client: Hans Mitt
Phone:Site: O'Halloran Truss Design
3 State Hwy 12,
Opononi
Northland

Phone:

Description:
Building Consent No.:
MITek 2020 Rebuilding 4 & 8 2018

MITek New Zealand Limited

Printed: 11:26:42 03 Aug 2018

TRUSS DESIGN STATEMENT

This statement is issued by MITek New Zealand Limited, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

MITek 20/20° TRUSS DESIGN DATA

The MITek 20/20° computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MITek® trusses.

<u>Job Details</u>		Importance Level :	1	Design Working Life :	50 years
<u>Roof Truss</u>		Pitch:	15.000 deg	Nominal Overhang:	400 mm
Timber Group:	Master Inventory	Ceiling		Wind	
Roof		Material:	None	Area:	Very High (46.0 m/s)
Material:	Galv Iron .5mm	Dead Load:	0.050 kPa	Pressure Coeff:	Cpe = varies; Cpi = -0.30, 0.20
Dead Load:	0.210 kPa	Restraints:	3000 mm centres		
Restraints:	800 mm centres	Live Load:	Qc = 1.400 kN		
Live Load:	Qur = 0.250 kPa Qc = 1.100 kN				

The timber for these MITek® trusses shall be treated to the requirements of NZS 3602:2003 and shall be graded to the requirements of NZS 3603:1993. Unless otherwise noted, this design assumes that the steel fixings and timber connectors proposed are located in a "closed environment", as defined by NZS3604:2011 Section 4.

MITek® Truss List

Legend: * = detail only, ? = input only, ~~xxx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
T01	1D	6000	15.000	3900

Total quantity : 1

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24246
Pg 1

KAIPARA TRUSSES

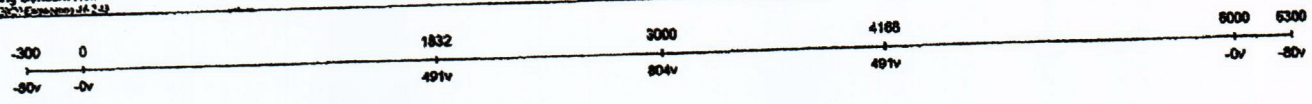
Shop Drawing - EX1: Page 1
Job: HELL

tree: EX Qty: 6 of 8 Ply: 1 Bundle: None
to: HELL
description:
Adding Consent No.:

Client: 001
Phone:

Site:

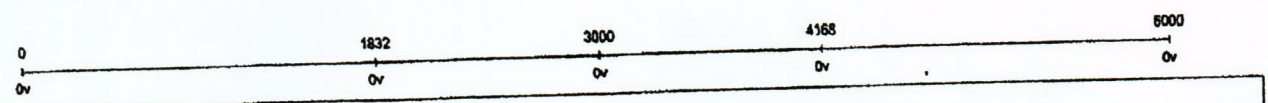
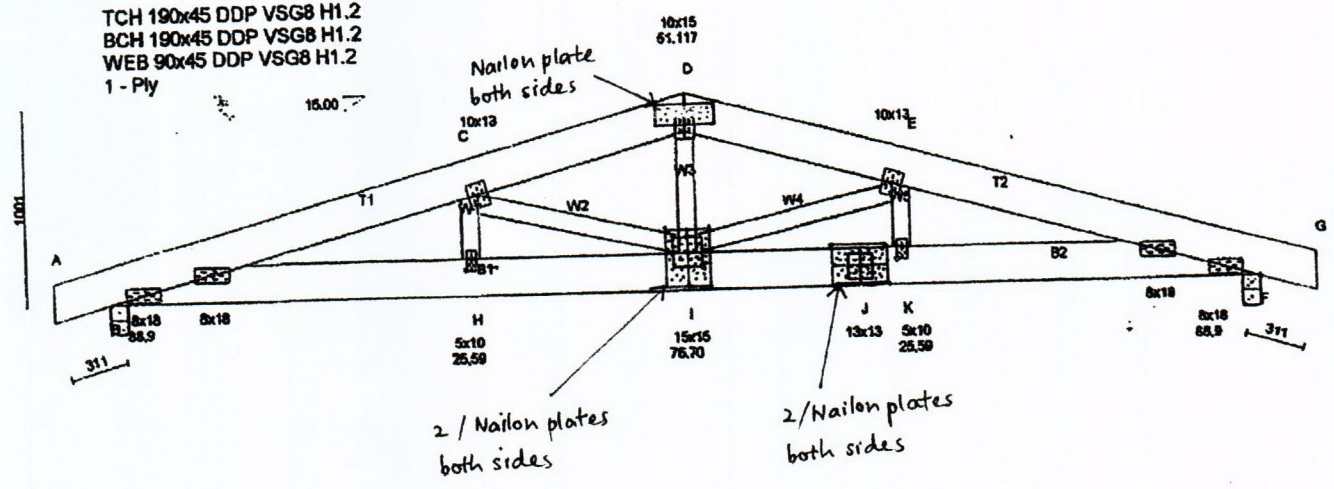
Phone: Postal 05 4416 20 200



Existing Truss

- All nailon plates to be 110x280x1mm, fully nailed, on both sides of truss
- Use Paslode hardened tip 44x3.15 dia. nails to penetrate existing GNA plates

TCH 190x45 DDP VSG8 H1.2
BCH 190x45 DDP VSG8 H1.2
WEB 90x45 DDP VSG8 H1.2
1 - Ply



Designed

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GOCRETE CONCRETE

Phone: 021882286

To whom it may concern

April 2015

I Mike O'Halloran am the owner of Number 3, State Highway 12, Opononi where the proposed shed is being built.

I have been in business 25 years plus as a Concreter with many year's experience setting up house floors, shed floors of all kinds, pole shed, raft slabs and pod floors.

If any references are required please phone Firth Industries, Whangarei or Dargaville, Carters Dargaville, ITM, Carter Builders Opononi, Inspectors at the Kaipara District Council.

The holes for the shed were bored by Wayne Baker of Opononi

Thank you

Mike O'Halloran

G.N. Carter Builders

Qualified, Certified, Licensed and Local



C/-Opononi PDC, State Highway 12
South Hokianga 0452
carterbuilt@gmail.com
Ph – 021616245
094058694

Date: 26/04/15

Customer: To whom it may concern

G N Carter Builders undertook two days work for Mr Mike Ohaloran, To Help with the new Shed On his Opononi property We Installed the top girts and beams , they were bolted to the existing poles to the specifications provided on the day, new factory designed and fabricated roof trusses have been fixed on top of those, with all the necessary proprietary fixings.

Roof purlins ,roof strap braces and long run iron was all fixed by us, but no flashings were required at that time.

The small part of this building we took part in , to my knowledge has been built, as per the plans provided and up to the current building code at the time of construction

**Any further questions please feel free to contact us
Regards**

G N CARTER BUILDERS

Thank you for supporting your community by choosing a local builder