

PRODUCER STATEMENT – PS1 – DESIGN

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

ISSUED BY:.....BASE CONSULTING ENGINEERS LTD.....
(Design Firm)

TO:.....KAPITI COLLEGE.....
(Owner/Developer)

TO BE SUPPLIED TO:.....KAPITI COAST DISTRICT COUNCIL.....
(Building Consent Authority)

IN RESPECT OF:.....KAPITI COLLEGE TEMPORARY CLASSROOMS.....
(Description of Building Work)

AT:.....MARGARET ROAD, RAUMATI.....
(Address)
.....LOT.....101 LT 49672..... DP..... SO.....

We have been engaged by the owner/developer referred to above to provide THE STRUCTURAL DESIGN FOR:-

Foundations services in respect of the requirements of
(Extent of Engagement)

Clause(s) ...B1: VM1.....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 B1 VM1: AS/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 KAPITI COLLEGE

TEMPORARY CLASSROOMS and numbered 15164.....;
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:

- (i) Site verification of the following design assumptions ASSUMED UNSATISFACTORY
- (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:

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

I,.....PETER BOLTON..... am:
(Name of Design Professional)

☒ CPEng56179.....#

☐ Reg Arch#

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications:.....BE CIVIL.....

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.....PETER BOLTON..... ON BEHALF OF BASE CONSULTING ENGINEERS LTD
(Design Firm)

Date.....04/11/15..... (signature).....

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*.

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional Engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011²

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ) or the New Zealand Institute of Architects (NZIA), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

*Professional Indemnity Insurance

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to \$500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers³). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

- ¹ Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
- ² NZIA Standard Conditions of Contract SCC 2011
- ³ Guideline on the Billing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)
- ⁴ PN Guidelines on Producer Statements

www.acenz.org.nz
www.ipenz.org.nz
www.nzia.co.nz



Memorandum from licensed building practitioner: Certificate of design work
Section 45 and Section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: MARGARET ROAD

Suburb:

Town/City: RAUMATI

Postcode:

THE OWNER

Name: KAPITI COLLEGE

Mailing address:

Suburb:

PO Box/Private Bag:

Town/City:

Postcode:

Phone number:

Email address:

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies (✓)	
<input type="checkbox"/>	sole designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project
<input type="checkbox"/>	lead designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project
<input type="checkbox"/>	lead designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design
<input checked="" type="checkbox"/>	specialist designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I, Peter Bolton, carried out the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is restricted building work	Description	Carried out/ supervised	Reference to plans and specifications
Tick (✓) if included Cross (X) if excluded	[If appropriate, provide details of the restricted building work]	[Specify whether you carried out this design work or supervised someone else carrying	[If appropriate, specify references]

		out this design work)	
--	--	-----------------------	--

Primary structure

All RBW Design work relating to B1	()		() Carried out () Supervised	
Foundations and subfloor framing	(✓)	Foundations	(✓) Carried out () Supervised	15164
Walls	()		() Carried out () Supervised	
Roof	()		() Carried out () Supervised	
Columns and beams	()		() Carried out () Supervised	
Bracing	()		() Carried out () Supervised	
Other	()		() Carried out () Supervised	

EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2

All RBW design work relating to E2	()		() Carried out () Supervised	
Damp proofing	()		() Carried out () Supervised	
Roof cladding or roof cladding system	()		() Carried out () Supervised	
Ventilation system (for example, subfloor or cavity)	()		() Carried out () Supervised	
Wall cladding or wall cladding system	()		() Carried out () Supervised	
Waterproofing	()		() Carried out () Supervised	
Other	()		() Carried out () Supervised	

FIRE SAFETY SYSTEMS: C1 – C8

Emergency warning systems, evacuation and fire service operation systems, suppression or	()		() Carried out () Supervised	
--	-----	--	-----------------------------------	--

control systems, or
other

Note: The design of fire safety systems is only restricted building work when it involves small to medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

Note: continue on another page if necessary.

WAIVERS AND MODIFICATIONS

Waivers or modifications of the building code are required ☐ Yes ☒ No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
<i>[List relevant clause numbers of building code]</i>	<i>[Specify nature of waiver or modification of building code]</i>

Note: continue on another page if necessary.

ISSUED BY

Name: Peter Bolton	LBP or Registration number: 56179
The practitioner is a:	<input type="checkbox"/> Design LBP <input type="checkbox"/> Registered architect <input checked="" type="checkbox"/> Chartered Professional Engineer
Design Entity or Company (optional): Base Consulting Engineers Ltd	
Mailing address (if different from below):	
Street address / Registered office: 279 Oxford Street	
Suburb:	Town/City: Levin
PO Box/Private Bag:	Postcode:
Phone number:	Mobile: 0274 444 080
After Hours:	Fax:
Email address: peter@basecon.co.nz	Website:

DECLARATION

I, Peter Bolton *[name of practitioner]*, CP Eng,

state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code; or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form

Signature: 

Date: 04 November 2015



Job Koem Cause Temporary Classrooms
Marabou River Krauman

By P Bolton

Date 29/10/15

PRELIM

To provide the structural design for the foundation for
3 temporary classrooms.

From our knowledge of the area, ground comprises
loose sand, driven timber piles have been
used in previous structures.

Design to be in accordance with

AS/NZS 1170 Structural Design Action
S301 Concrete Code
S303 Timber Code

LOADINGS

Roof	cl	dead	live
		0.40 kPa	0.25 kPa
Walls	wlb	dead	0.40 kPa
Floor	wpl	dead	0.40 kPa
		live	3.00 kPa

Importance Level IL 2

Design Working Life = 5 yrs

Probability of Exceedance
wind = $1/250$
seismic = $1/250$

Design
Working
Life 5 yrs

WIND

$$V_s = V_z M_1 M_2$$

$$= 43 \times 0.83 \times 1.0$$

$$= 35.7 \text{ m/s}$$

$$V_z = 43 \text{ m/s } 1/250$$

$$M_2 = 0.83 \text{ cat 3 reg 5}$$

$$p = 0.5 \rho a V_s^2 C_f$$

$$= 0.92 \text{ kPa}$$

$$M_1 = 1.0$$

$$G = 0.7 + 0.5 = 1.2$$

Design
Wind
Pressure
= 920 Pa



Job

By

Date

SEISMIC

$V = cd \times$

$$C_d(T) = C_a(T) Z R N$$

$$= 3.0 \times 0.4 \times 0.75 \times 1.0$$

$$= 0.9$$

$$R_u = \frac{(\mu - 1) T_1}{0.7} + 1$$

$$= 2.14$$

$$cd = \frac{C_d(T) S_p}{R}$$

$$= \frac{0.9 \times 1.0}{2.14}$$

$$= 0.42$$

$$L_f = 6 + 40$$

$$= 0.4 + 0.3(30)$$

$$= 1.3 \text{ m}$$

$$R = 0.75$$

$$N = 1.0$$

$$Z = 0.4$$

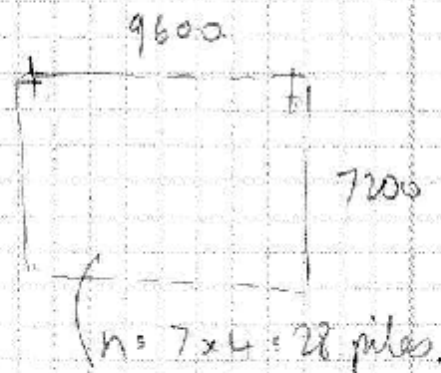
$$C_a(T) = 3.0$$

$$T_1 = 0.4 \text{ sec.}$$

$$\mu = 3.0 \text{ dtp}$$

$$S_p = 1.0 \text{ stability}$$

CONSIDER LAYOUT



Determine Pile Capacity ϕ_{ku}

$$\phi_{ku} = \eta \frac{W N k}{s + C_r}$$

$$= \frac{480 \times 9.8}{1000} \times \frac{0.55 \times 0.8 \times 1000}{4 \times 13}$$

$$= 40 \text{ kN}$$

480 kg hammer
1000 mm fall
10 set



Job

By

Date

Determine Pile Load R^*

$$R^* = 1.2G + 1.5Q$$

$$= (1.2(0.4) + 1.5(3.0)) \times 1.56 \times 2.39$$

$$= 18.6 \text{ kN}$$

4 ØR - driven piles ok

For surface pile

Try 140 x 300

Apr 42000 mm²

Bearing Pressure for

$$R_p = R^*$$

$$= \frac{18.6 \text{ kN}}{42000 \text{ mm}^2}$$

$$= 440 \text{ kN/m}^2 \text{ too high}$$

For $R_p = 150 \text{ kN/m}^2$ use

$$A_p = \frac{18.6}{0.15}$$

$$400 \times 300$$

$$= 15514$$

$$\text{or } 450 \times 290$$

H.S.
450 x 290
piled

For fixity

use Lunkerhölz 12kN RFT

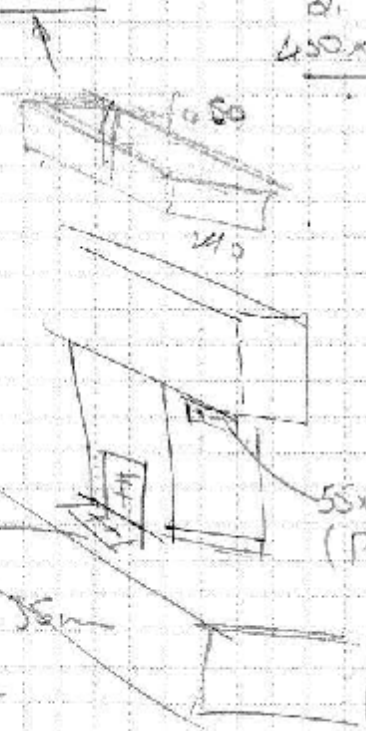
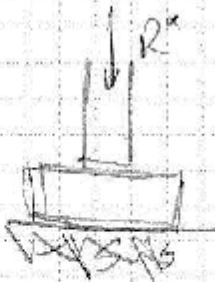
Retro Subfloor fixing s/s

100 x 100 x 120
(pair)

3 each 100 x Type 17-12g x 56mm
hex head screw

55 x 55 x 160
(pair)

use Retro
12kN
fixings





Job _____

By _____

Date _____

Consider Sideways

1/ Overall - checked by dtp $F_{u, 8}$

SR seismic

$S_{R_s} = \text{sidway}$

$$= 0.42 \{ 1.3 \times 9.6 \times 7.2 \} + 2 \{ 2.6 \times 0.4 \times 1.6 \}$$

$$+ 1.15 \times 9.6 \times 7.2 \times 0.4$$

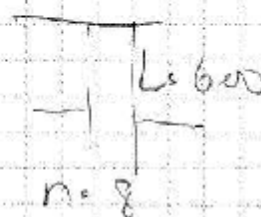
$$= 66 \text{ kN}$$

Consider Pile in Bending M_p^*

$$M_p^* = \frac{S_{R_s}}{n L}$$

$$= \frac{66.0 \times 10^3}{8 \times 0.6}$$

$$= 13.7 \text{ kN.m}$$



$$R = 66 \frac{1}{8} = 8.25 \text{ kN}$$

each
Use 11mm

Moment Capacity ϕM_b

$$\phi M_b = k_1 k_2 F_y Z$$

$$= 0.45 \times 38.0 \times 0.401$$

$$= 13.0 \text{ kN.m} - \text{ok}$$

150 SED

$$Z = \frac{I_d}{32}$$

$$= 401 \text{ cm}^3$$

Consider Individual Piles

$$R = 0.42 \times 1.56 \times 1.3 \times 2.3$$

$$= 2.0 \text{ kN}$$

Sliding Resistance ϕR_s

$$\phi R_s = S_{R_s}$$

$$= 0.4 \times 18.6 \times 0.42$$

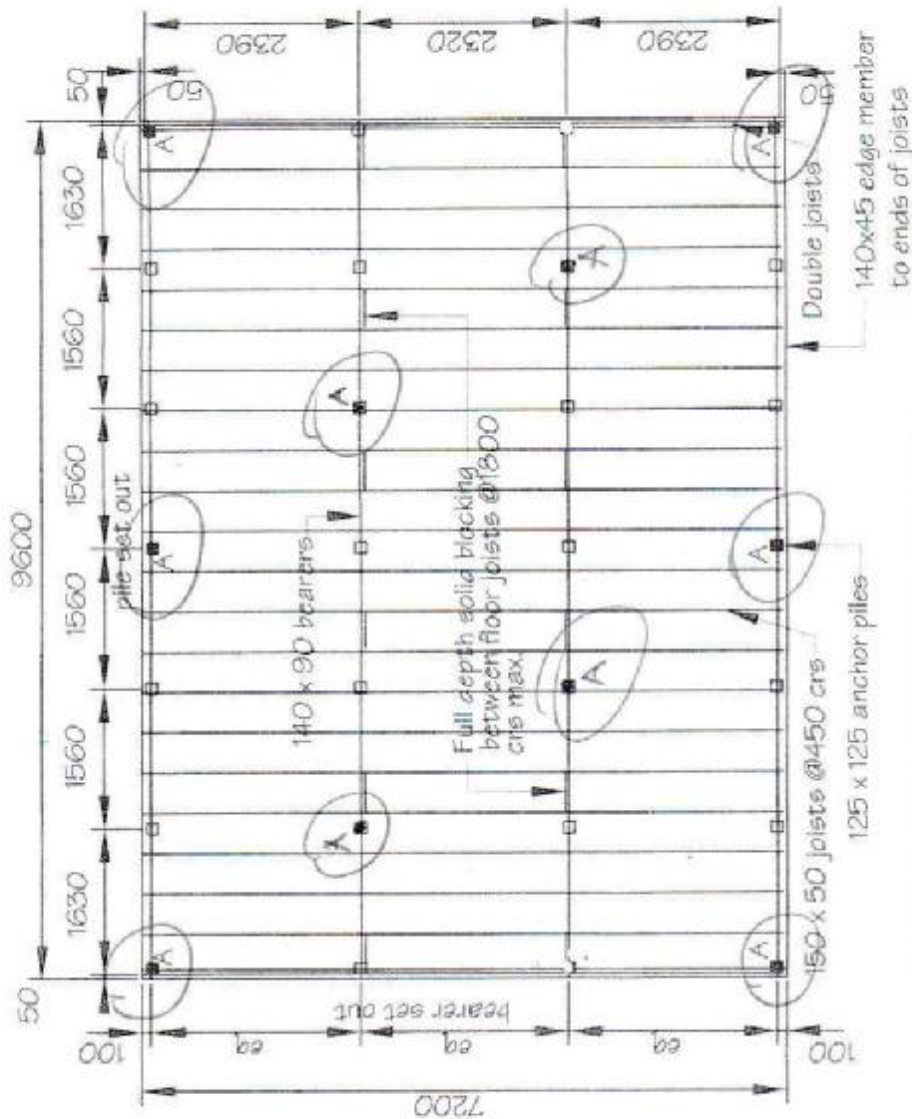
$$= 1.0 \text{ kN}$$

concrete/soil



50% loading taken by pile in 20%

$$= 0.18 \text{ m}^2$$



LEGEND

- Ordinary pile to FD2/SS1
- Anchor pile set 900 into ground & encase in 350 x 350 concrete surround
- Bearer
- Floor joist
- Line of walls over

NOTE

All piles to exterior to be 125x125 H5 timber piles to take baseboards

15164-SK1
29/10/15

Base Consulting
Engineers Ltd

NOTE: Foundation design to suit very high wind & earthquake Zone A