Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

ISSUED BY: TH Consultants Ltd
(Design Firm)

TO: Health Based Building Ltd
(Owner/Developer)

TO BE SUPPLIED TO: The Relevant Territorial Authority
(Building Consent Authority)

IN RESPECT OF: Health Based Building Earthen Castellated 40 mm Cavity Battens
(Description of Building Work)

AT: Various - local (NZS 3604) Wind Zones to be considered
(Address)

Town/City:..... **LOT**..... **DP**..... **SO**.....
(Address)

We have been engaged by the owner/developer referred to above to provide:

Structural engineering design for the Earthen 40 mm Castellated Cavity Batten supporting Earthen Vertical Shiplap cladding to take account of the requirements of the various wind loadings provided in NZS 3604: 2011
(Extent of Engagement)

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 B1/VM1, B1/AS1 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:

Earthen 40 mm Castellated Batten Fixings and numbered Diagram 1 (attached);
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 Construction in accordance with Earthen Technical Manual
(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)

I, Noel Hanham am: ☒ CPEng # 35759
(Name of Design Professional)

I am a member of: ☒ Engineering New Zealand and hold the following qualifications: CPEng, FEngNZ, IntPE(NZ), BE(Hons).....

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 ACE New Zealand: ☐

SIGNED BY Noel Hanham (Signature)
(Name of Design Professional)

ON BEHALF OF TH Consultants Ltd Date 1 July 2021
(Design Firm)

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 ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND

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 (now Engineering New Zealand), ACE 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 2011[2]

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 ACE New Zealand and Engineering New Zealand 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 as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand (formerly IPENZ) provides additional assurance of the designer's standing within the profession. If the design firm is a member of ACE New Zealand, 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, ACE New Zealand 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 Engineers[3]). 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

Guideline on the Briefing & Engagement for Consulting Engineering Services (ACE New Zealand/Engineering New Zealand 2004)

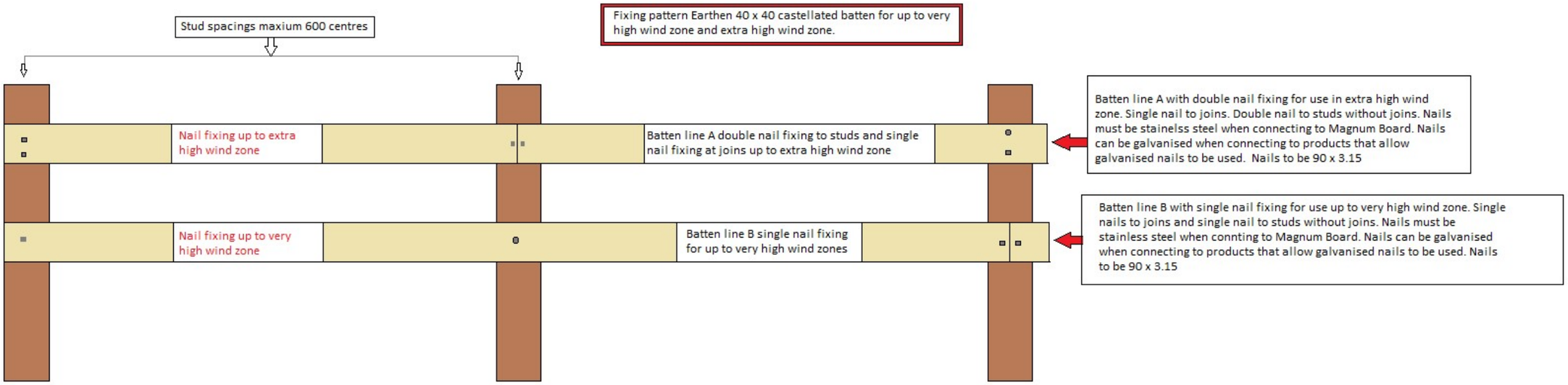
4 PN Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org

engineering new zealand

ace new zealand

association of consulting and engineering



Earthen 40 mm Castellated Batten Fixings

Diagram 1

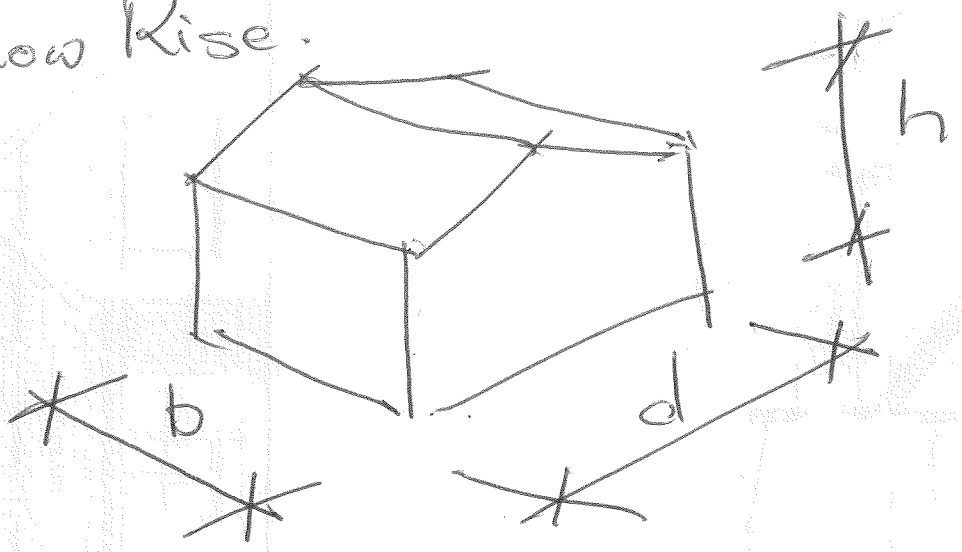
CAVITY BATTENS

4113-01 (1)

Applicable to buildings constructed to NZS 3604 : 2011.

Building size limitation

Low Rise.



$h < b$

$h < d$.

Cladding is Health Based Building Earthen Vertical shiplap

Battens are Earthen Radiata castellated 40 x 40

Support framing is maximum 600 centres

Battens are maximum 400 centres

Wind loadings considered are based on NZS 3604 classifications.

Wind Zone	Wind Speed	Design Wind Pressure (kPa)
Low	up to 32 M/s	0.62 C_{fig}
Medium	33 to 37 M/s	0.82 C_{fig}
High	38 to 44 M/s	1.16 C_{fig}
Very High	45 to 50 M/s	1.50 C_{fig}
Extra High	51 to 55 M/s	1.82 C_{fig}

C_{fig} is based upon worst case AS/NZS 1170.2 2011

External Pressure Coefficient

$$C_{pe} = -0.65$$

Local Pressure Factor

$$K_l = 2.0$$

Thus $C_{fig} = -\underline{\underline{1.3}}$

Design Pressures

Low	0.62×-1.3	$= -0.81$ kPa
Medium	0.82×-1.3	$= -1.07$ kPa
High	1.16×-1.3	$= -1.51$ kPa
Very High	1.50×-1.3	$= -1.95$ kPa
Extra High	1.82×-1.3	$= -2.37$ kPa

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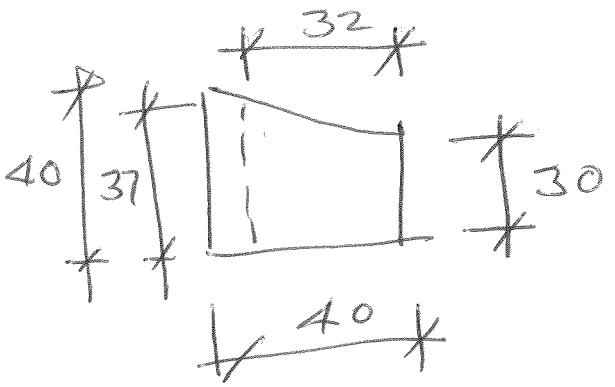
Castellated Cavity Batten



Use ave thickness 33

$$Z = \frac{3.3 \times 3.2^2}{6}$$

$$= 5.6 \text{ cm}^3$$

Assume damp conditions

N25 3603 : 1993 $f_b = 11.7$ MPa.

$$M_n = 0.0117 \times 5.6$$

$$= \underline{0.066} \text{ kN-m}$$

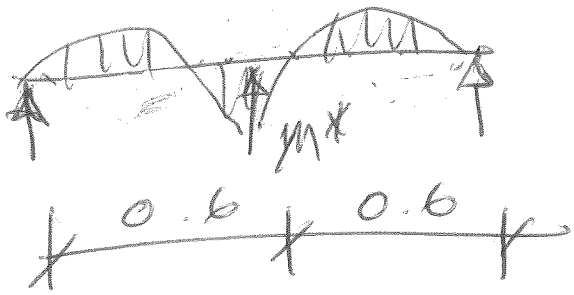
Capacity

Wind $\phi = 0.8$

$$\phi M_n = \underline{\underline{0.052}} \text{ kN-m}$$

For Extra High

Batten Spans 600 mm between studs.



0.4×2.37

$= \underline{0.95}$ kN/m

$$M^* = \frac{0.95 \times 0.6^2}{8}$$

$$= \underline{\underline{0.043}} \text{ kN.m}$$

$\phi M_n > M^*$

Thus batten OK for all wind zones.

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BATTEN FIXINGS

Battens are fixed with 90 x 3.15 Power Driven Nails

Capacity is taken from NZS 3604 Table 2.2 with reference to the BRANZ Engineering Basis of NZS 3604

Single Nail	0.55	kN
Double Nail	0.8	kN

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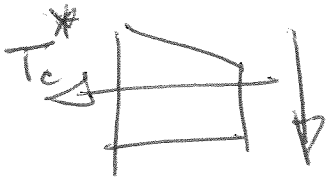
Extra High Wind

$T^* = 0.6 \times 0.4 \times 2.37 = \underline{0.57}$ kN

+ self weight of cladding



0.025 kN $\quad T_c^* = \underline{0.05}$ kN

$\leq T^* = \underline{0.62}$ kN

$0.8 > T^* > 0.55$

Thus

Extra High Wind

Requires 2 Nails

at each stud

Single nail to each batten

at joins.

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Very High Wind

$T^* = 0.6 \times 0.4 \times 1.95 = \underline{0.47\,kN}$

+ Self Wt Cladding $\underline{0.05\,kN}$

$\Sigma T^* \rightarrow \underline{0.52\,kN}$

Single nail in all locations

for all wind zones

Very High and Less.