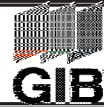


# **Approved Building Consent Documents**

**Please Note: A copy of the stamped  
approved documents must be  
available on site for all inspections.**

# GIB EzyBrace® 2011 Software



## Demand Calculation Sheet

single storey

V06/11

### Job Details

Name Bailey  
 Street and Number Lot 84 Faringdon  
 Lot and DP Number Lot 84  
 City/Town/District Rolleston  
 Designer E Lind  
 Company Name Stonewood Homes Ltd  
 Date 9/04/2013



### Building Specification

Select Lining Option 10 or 13 mm GIB® Plasterboard

|                                 |                     |                              |
|---------------------------------|---------------------|------------------------------|
| Number of storeys               | single              |                              |
| Floor Loading                   | 2kPa                |                              |
| Foundation Type                 | slab                |                              |
|                                 |                     |                              |
|                                 | <b>Single Floor</b> | <b>Complete Single Floor</b> |
|                                 | heavy               | Column only                  |
| Cladding Weight                 | light               |                              |
| Roof Weight                     | no                  |                              |
| Room in Roof Space              |                     |                              |
| Roof Pitch (degrees)            | 28                  | 25                           |
| Roof height above eaves (m)     | 3.1                 | 1.0                          |
| Building height to apex (m)     | 5.7                 |                              |
| Ground to lower floor level (m) | 0.3                 |                              |
|                                 |                     |                              |
|                                 |                     | 3.0                          |
| Stud Height (m)                 | 2.4                 | 2.4                          |
| Building Length (m)             | 19.6                | 20.0                         |
| Building Width (m)              | 15.2                | 10.0                         |
| Building Plan Area (m2)         | 202                 | 200                          |

### Building Location

|                                          |               |                                      |                         |
|------------------------------------------|---------------|--------------------------------------|-------------------------|
| <b>Wind Zone</b>                         | <b>High</b>   | <b>Earthquake Zone</b>               | <b>Soil Type</b>        |
| Select by Building Consent Authority Map |               | 2                                    | D&E (deep to very soft) |
| or Preference                            | Not Available |                                      |                         |
| Wind Region                              | A             | <b>Annual exceedance probability</b> |                         |
| Lee Zone                                 | no            | 1/500 (NZS3604:2011 default)         |                         |
| Ground Roughness                         | Open          |                                      |                         |
| Site Exposure                            | Exposed       |                                      |                         |
| Topographic Class                        | T1            |                                      |                         |

### Bracing Units required for Wind

| Demand W (BU) |      |              |
|---------------|------|--------------|
|               |      | Walls single |
| along         | slab | 992          |
| across        | slab | 1431         |

### Bracing Units required for Earthquake

| Demand along / across E (BU) |        |
|------------------------------|--------|
|                              | Walls  |
|                              | single |
| slab                         | 1263   |

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11/04/2013

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# GIB EzyBrace® 2011 Software



## Demand Calculation Sheet

single storey

V06/11

### Job Details

Name Bailey  
Street and Number Lot 84 Faringdon  
Lot and DP Number Lot 84  
City/Town/District Rolleston  
Designer E Lind  
Company Name Stonewood Homes Ltd  
Date 31/01/2013



### Building Specification

Select Lining Option 10 or 13 mm GIB® Plasterboard

Number of storeys single  
Floor Loading 2kPa  
Foundation Type slab

Cladding Weight heavy  
Roof Weight light  
Room in Roof Space no

Complete Single Floor  
Column only

Building height to apex (m) 5.6  
Ground to lower floor level (m) 0.2

Stud Height (m) 2.4

Building Plan Area (m2) 202

### Building Location

#### Wind Zone

High

Select by Building Consent Authority Map or Preference Not Available  
Wind Region A  
Lee Zone no  
Ground Roughness Open  
Site Exposure Exposed  
Topographic Class T1

#### Earthquake Zone

2

#### Soil Type

D&E (deep to very soft)

#### Annual exceedance probability

1/500 (NZS3604:2011 default)

### Bracing Units required for Wind

#### Demand W (BU)

Walls single  
along slab 988  
across slab 1426

### Bracing Units required for Earthquake

#### Demand along / across E (BU)

Walls  
single  
slab 1259

GIB EzyBrace® 2011 Software

[illegible]

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## SINGLE OR UPPER STOREY WALLS ACROSS

V06/11

[illegible]

| Wind | Earthq. |
|------|---------|
|------|---------|

|                               |   |      |    |      |      |      |
|-------------------------------|---|------|----|------|------|------|
| Totals Achieved               | W | 124% | EQ | 139% | 1774 | 1751 |
| <i>Concrete Slab</i>          |   |      |    |      | OK   | OK   |
| Totals Required (from Demand) |   |      |    |      | 1431 | 1263 |

# NZBC H1/AS1 Schedule Method

BC130229  
Date Received 4/02/13

|              |                  |                                                                                                   |  |
|--------------|------------------|---------------------------------------------------------------------------------------------------|--|
| Client       | Bailey           | Designed to:                                                                                      |  |
| Address      | Lot 84 Faringdon | NZBC H1/AS1                                                                                       |  |
| Lot & DP     | Lot 84           | NZS 4214. Method of Determining the Total Thermal                                                 |  |
| Area         | Rolleston        | Resistance of Parts of Buildings                                                                  |  |
| Job #        | 122798           | NZS 4218. Energy Efficiency - Small Building Envelope                                             |  |
| Designer     | E Lind           | BRANZ House Insulation Guide                                                                      |  |
| Climate Zone | Zone 3           | <a href="http://www.design-navigator.co.nz/CRC.php">http://www.design-navigator.co.nz/CRC.php</a> |  |

| H1 Schedule: All Walls   |                       |        |        |            | West, South & East walls only     |        |        |        |        | North walls only (Recommend 50% max-Best Practice) |        |        |        |    |
|--------------------------|-----------------------|--------|--------|------------|-----------------------------------|--------|--------|--------|--------|----------------------------------------------------|--------|--------|--------|----|
| Wall Insulation          |                       | R      | 2.4    | Pink Batts | Wall - 90x45 @ 600crs             | R      | 2.19   |        |        |                                                    |        |        |        |    |
| Ceiling Insulation       |                       | R      | 3.6    | Pink Batts | Ceiling - trusses @ 900 crs       | R      | 3.01   |        |        |                                                    |        |        |        |    |
| Glazing Vertical         |                       |        | Double | Standard   | Glazing - Standard Double glaze   | R      | 0.26   |        |        |                                                    |        |        |        |    |
| Skylights (1.5m max)     |                       |        | 0.00   | m²         | Skylight                          | R      | 0.63   |        |        |                                                    |        |        |        |    |
| Floor                    | Total Envelope m²     |        | 152.19 | 100mm conc | Floor - Standard 100mm Conc + DPM | R      | 1.61   |        |        |                                                    |        |        |        |    |
| Heated Floor             |                       | m²     | 0.00   | 100mm conc | Heated Floor                      | R      | 1.61   |        |        |                                                    |        |        |        |    |
| Downlights               | Closed & Abutted type |        |        |            | Closed & Abutted type             |        |        |        |        |                                                    |        |        |        |    |
| Ground Level             | Height                | Length |        |            |                                   | Height | Length |        |        |                                                    | Height | Length |        |    |
| Total wall length        | 2.42                  | 65.58  | 158.70 | m²         | Total wall length                 | 2.42   | 51.79  | 125.33 | m²     | Total wall length                                  | 2.42   | 13.79  | 33.37  | m² |
| First Floor              |                       |        |        |            |                                   |        |        |        |        |                                                    |        |        |        |    |
| Total wall length        | 0.00                  | 0.00   | 0.00   | m²         | Total wall length                 | 0.00   | 0.00   | 0.00   | m²     | Total wall length                                  | 0.00   | 0.00   | 0.00   | m² |
|                          |                       |        |        |            |                                   |        |        |        |        |                                                    |        |        |        |    |
| Total wall length        | 0.00                  | 0.00   | 0.00   | m²         | Total wall length                 | 0.00   | 0.00   | 0.00   | m²     | Total wall length                                  | 0.00   | 0.00   | 0.00   | m² |
|                          |                       |        |        |            |                                   |        |        |        |        |                                                    |        |        |        |    |
| Total Exterior Wall area |                       |        | 158.70 | m²         | Total Exterior Wall area          |        |        | 125.33 | m²     | Total Exterior Wall area                           |        |        | 33.37  | m² |
| Total opening area       |                       |        | 50.27  | m²         | Total opening area                |        |        | 30.62  | m²     | Total opening area                                 |        |        | 6.87   | m² |
| H1 value                 |                       |        | 31.67% | OK<30%     | H1 value                          |        |        | 24.43% | OK<30% | H1 value                                           |        |        | 20.58% |    |

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11/04/2013 geogr

# NZBC H1/AS1 Schedule Method

BC130229  
Date Received 4/02/13

|          |                  |  |  |
|----------|------------------|--|--|
| Client   | Bailey           |  |  |
| Address  | Lot 84 Faringdon |  |  |
| Lot & DP | Lot 84           |  |  |
| Area     | Rolleston        |  |  |
| Job #    | 122798           |  |  |
| Designer | E Lind           |  |  |

| <b>H1 Reference Building</b> |                    | <i>Plan (R)</i> | <i>Area</i> | <i>Reference</i> | <i>Heat Loss</i> | <b>H1 Proposed Building</b> |                    | <i>Plan</i> | <i>Area</i> | <i>Actual</i> | <i>Heat Loss</i> |
|------------------------------|--------------------|-----------------|-------------|------------------|------------------|-----------------------------|--------------------|-------------|-------------|---------------|------------------|
| Roof                         | Pink Batts         | 3.6             | 152.19      | 3.30             | 46.12            | Roof                        | Pink Batts         | 3.6         | 152.19      | 3.01          | 50.56            |
| Wall                         | Pink Batts         | 2.4             | 158.70      | 2.00             | 79.35            | Wall                        | Pink Batts         | 2.4         | 158.70      | 2.19          | 72.47            |
| Floor                        | 100mm conc         | 1.61            | 152.19      | 1.30             | 117.07           | Floor                       | 100mm conc         | 1.61        | 152.19      | 1.61          | 94.53            |
|                              | Heated Floor       | 1.90            | 0.00        | 1.90             | 0.00             |                             | Heated Floor       | 1.90        | 0.00        | 1.61          | 0.00             |
| Glazing < 30%                | Aluminium / Double | 0.26            | 47.61       | 0.26             | 183.12           | Glazing All                 | Aluminium / Double | 0.26        | 50.27       | 0.26          | 193.33           |
| Glazing > 30%                | Aluminium / Double | 0.34            | 2.65        | 0.26             | 10.21            |                             |                    |             |             |               | 0.00             |
| Skylights                    | Area               | 0               | 0.00        | 0.34             | 0.00             | Skylights                   | Area               | 0.00        | 0.00        | 0.63          | 0.00             |
| <b>Total Loss</b>            |                    |                 |             |                  | <b>435.87</b>    | <b>Total Loss</b>           |                    |             |             |               | <b>410.89</b>    |

|                          | <i>Height</i> | <i>Length</i> |        |                |
|--------------------------|---------------|---------------|--------|----------------|
| Total wall length        | 2.42          | 65.58         | 158.70 | m <sup>2</sup> |
| Total wall length        | 0.00          | 0             | 0.00   | m <sup>2</sup> |
| Total wall length        | 0.00          | 0             | 0.00   | m <sup>2</sup> |
|                          |               |               |        |                |
| Total Exterior Wall area |               |               | 158.70 | m <sup>2</sup> |
| Total Glazing area       |               |               | 50.27  | m <sup>2</sup> |
| Glazing <30%             |               |               | 47.61  | m <sup>2</sup> |
| Glazing >30%             |               |               | 2.65   | m <sup>2</sup> |

|                        | <i>Reference</i> | <i>Proposed</i> | <i>Difference</i> |
|------------------------|------------------|-----------------|-------------------|
| Roof                   | 46.12            | 50.56           | -4.44             |
| Wall                   | 79.35            | 72.47           | 6.88              |
| Floor                  | 117.07           | 94.53           | 22.54             |
| Glazing < 30%          | 183.12           | 193.33          | -10.21            |
| Glazing > 30%          | 10.21            | 0.00            | 10.21             |
| Skylights              | 0.00             | 0.00            | 0.00              |
| <b>Total Heat Loss</b> | <b>435.87</b>    | <b>410.89</b>   | <b>24.98</b>      |

A positive figure is a **PASS**

NZBC H1/AS1 Schedule Method

BC130229  
Date Received 4/02/13

| Start from front the front door - Clockwise |      |      |       |            |                       |      |      |      |  |                       |      |      |      |            |
|---------------------------------------------|------|------|-------|------------|-----------------------|------|------|------|--|-----------------------|------|------|------|------------|
| Wall Openings - ALL                         |      |      | m²    |            | Wall Openings - W,S,E |      |      | m²   |  | Wall Openings - North |      |      | m²   |            |
| Ground Level                                |      |      |       |            | Ground Level          |      |      |      |  | Ground Level          |      |      |      |            |
| 1                                           | 2.20 | 1.10 | 2.42  | Front Door | 1                     | 2.20 | 1.10 | 2.42 |  | 1                     |      |      |      |            |
| 2                                           | 1.80 | 2.40 | 4.32  |            | 2                     | 1.80 | 2.40 | 4.32 |  | 2                     |      |      |      |            |
| 3                                           | 2.13 | 0.60 | 1.28  |            | 3                     | 2.13 | 0.60 | 1.28 |  | 3                     |      |      |      |            |
| 4                                           | 2.13 | 0.60 | 1.28  |            | 4                     | 2.13 | 0.60 | 1.28 |  | 4                     |      |      |      |            |
| 5                                           | 2.13 | 2.40 | 5.11  | North Wall | 5                     |      |      |      |  | 5                     | 2.13 | 2.40 | 5.11 | North Wall |
| 6                                           | 1.40 | 2.40 | 3.36  |            | 6                     | 1.40 | 2.40 | 3.36 |  | 6                     |      |      |      |            |
| 7                                           | 2.13 | 2.40 | 5.11  |            | 7                     | 2.13 | 2.40 | 5.11 |  | 7                     |      |      |      |            |
| 8                                           | 1.40 | 0.90 | 1.26  | North Wall | 8                     |      |      |      |  | 8                     | 1.40 | 0.90 | 1.26 | North Wall |
| 9                                           | 2.13 | 3.00 | 6.39  |            | 9                     | 2.13 | 3.00 | 6.39 |  | 9                     |      |      |      |            |
| 10                                          | 1.10 | 0.45 | 0.50  | North Wall | 10                    |      |      |      |  | 10                    | 1.10 | 0.45 | 0.50 | North Wall |
| 11                                          | 1.40 | 1.60 | 2.24  |            | 11                    | 1.40 | 1.60 | 2.24 |  | 11                    |      |      |      |            |
| 12                                          | 1.10 | 0.60 | 0.66  |            | 12                    | 1.10 | 0.60 | 0.66 |  | 12                    |      |      |      |            |
| 13                                          | 1.10 | 1.20 | 1.32  |            | 13                    | 1.10 | 1.20 | 1.32 |  | 13                    |      |      |      |            |
| 14                                          | 1.40 | 1.60 | 2.24  |            | 14                    | 1.40 | 1.60 | 2.24 |  | 14                    |      |      |      |            |
| 15                                          | 1.10 | 0.60 | 0.66  | Garage     | 15                    |      |      |      |  | 15                    |      |      |      |            |
| 16                                          | 2.13 | 0.81 | 1.73  | Garage     | 16                    |      |      |      |  | 16                    |      |      |      |            |
| 17                                          | 2.13 | 4.88 | 10.39 | Garage     | 17                    |      |      |      |  | 17                    |      |      |      |            |
| 18                                          |      |      | 0.00  |            | 18                    | 0.00 | 0.00 | 0.00 |  | 18                    |      |      |      |            |
| 19                                          |      |      | 0.00  |            | 19                    | 0.00 | 0.00 | 0.00 |  | 19                    |      |      |      |            |
| 20                                          |      |      | 0.00  |            | 20                    | 0.00 | 0.00 | 0.00 |  | 20                    |      |      |      |            |
| 21                                          |      |      | 0.00  |            | 21                    | 0.00 | 0.00 | 0.00 |  | 21                    |      |      |      |            |
| 22                                          |      |      | 0.00  |            | 22                    | 0.00 | 0.00 | 0.00 |  | 22                    |      |      |      |            |
| 23                                          |      |      | 0.00  |            | 23                    | 0.00 | 0.00 | 0.00 |  | 23                    |      |      |      |            |
| 24                                          |      |      | 0.00  |            | 24                    | 0.00 | 0.00 | 0.00 |  | 24                    |      |      |      |            |
| 25                                          |      |      | 0.00  |            | 25                    | 0.00 | 0.00 | 0.00 |  | 25                    |      |      |      |            |
| 26                                          |      |      | 0.00  |            | 26                    | 0.00 | 0.00 | 0.00 |  | 26                    |      |      |      |            |
| 27                                          |      |      | 0.00  |            | 27                    | 0.00 | 0.00 | 0.00 |  | 27                    |      |      |      |            |
| 28                                          |      |      | 0.00  |            | 28                    | 0.00 | 0.00 | 0.00 |  | 28                    |      |      |      |            |
| 29                                          |      |      | 0.00  |            | 29                    | 0.00 | 0.00 | 0.00 |  | 29                    |      |      |      |            |
| 30                                          |      |      | 0.00  |            | 30                    | 0.00 | 0.00 | 0.00 |  | 30                    |      |      |      |            |
| 31                                          |      |      | 0.00  |            | 31                    | 0.00 | 0.00 | 0.00 |  | 31                    |      |      |      |            |

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**NZBC H1/AS1 Schedule Method**

**11/04/2013**

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**BC130229**

**Date Received 4/02/13**

| Clause                                     | Means of Compliance                  | References                                                                        | Waiver or Modification Required |
|--------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|
| B1 Structure                               |                                      |                                                                                   | n/a                             |
| Foundations                                | Alternative solution                 | 4 x D16 to NZS 3604 Foundation                                                    | n/a                             |
| Frames                                     | AS1                                  | NZS 3604, refer to Construction schedule for sizes (in specification)             | n/a                             |
| Trusses                                    | Specific Design (Producer Statement) | By Truss Manufacturer                                                             | n/a                             |
| B2 Durability                              | AS1                                  | To NZS 3602, refer to Construction schedule in specification                      | n/a                             |
| C1 Outbreak of Fire                        | n/a                                  |                                                                                   | n/a                             |
| C2 Means of Escape                         | AS1                                  | Shown on the Floor Plan                                                           | n/a                             |
| C3 Spread of Fire                          | n/a                                  |                                                                                   | n/a                             |
| C4 Structural Stability During Fire        | n/a                                  |                                                                                   | n/a                             |
| D1 Access                                  | AS1                                  | Refer to Floor Plan & Construction Schedule in the specification                  | n/a                             |
| D2 Mechanical Installations for Access     | n/a                                  |                                                                                   | n/a                             |
| E1 Surface Water                           | AS1                                  |                                                                                   | n/a                             |
| E2 External Moisture                       | Alternative solution                 | Cladding Junctions, WANZ Bar to windows & door (over specified size)              | n/a                             |
| E3 Internal Moisture                       | AS1                                  |                                                                                   | n/a                             |
| F1 Hazardous Agents on Site                | n/a                                  |                                                                                   | n/a                             |
| F2 Hazardous Building Materials            | AS1                                  |                                                                                   | n/a                             |
| F3 Hazardous Substances and Process        | n/a                                  |                                                                                   | n/a                             |
| F4 Safety From Falling                     | AS1                                  |                                                                                   | n/a                             |
| F5 Construction and Demolition Hazards     | AS1                                  |                                                                                   | n/a                             |
| F6 Lighting for Emergency                  | n/a                                  |                                                                                   | n/a                             |
| F7 Warning Systems                         | AS1                                  | Shown on the Floor Plan, also refer to Construction schedule in specification     | n/a                             |
| F8 Signs                                   | n/a                                  |                                                                                   | n/a                             |
| G1 Personal Hygiene                        | AS1                                  |                                                                                   | n/a                             |
| G2 Laundering                              | AS1                                  | Refer to specific note in Construction Schedule at the front of the specification | n/a                             |
| G3 Food Prep & Prevention of Contamination | AS1                                  |                                                                                   | n/a                             |
| G4 Ventilation                             | AS1                                  |                                                                                   | n/a                             |
| G5 Interior Environment                    | AS1                                  |                                                                                   | n/a                             |
| G6 Airborne and Impact Noise               | n/a                                  |                                                                                   | n/a                             |
| G7 Natural Light                           | AS1                                  |                                                                                   | n/a                             |
| G8 Artificial Light                        | AS1                                  | Note on floor plan refers to Electrical section In the specification              | n/a                             |
| G9 Electricity                             | AS1                                  | Note on floor plan refers to Electrical section In the specification              | n/a                             |
| G10 Piped Services                         | AS1                                  |                                                                                   | n/a                             |
| G11 Gas as an Energy Service               | AS1                                  |                                                                                   | n/a                             |
| G12 Water Supplies                         | AS1                                  | Refer to Specification                                                            | n/a                             |
| G13 Foul Water                             | AS1 & AS2                            | Refer to Drainage plan & Drainage section in specification                        | n/a                             |
| G14 Industrial Liquid Waste                | n/a                                  |                                                                                   | n/a                             |
| G15 Solid Waste                            | n/a                                  |                                                                                   | n/a                             |
| H1 Energy Efficiency                       | AS1                                  | Note on Floor Plan refers to H1 Calculations attached to specification            | n/a                             |

**Risk Matrix Schedule**

|                            |                  |
|----------------------------|------------------|
| <i>Client</i>              | Bailey           |
| <i>Site Address</i>        | Lot 84 Faringdon |
| <i>Lot &amp; DP Number</i> | Lot 84           |
| <i>City</i>                | Rolleston        |
| <i>Designer</i>            | E Lind           |

**Selwyn District Council**  
**Approved Building Consent Document**

11/04/2013

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| <b>Risk Area 1</b><br>Elevation A | <i>Risk Factor</i> |        |      |           |          |
|-----------------------------------|--------------------|--------|------|-----------|----------|
|                                   | low                | medium | high | very high |          |
| <i>Wind Zone</i>                  |                    |        | 1    |           | 1        |
| <i>No of Storeys</i>              | 0                  |        |      |           | 0        |
| <i>Roof/Wall</i>                  | 0                  |        |      |           | 0        |
| <i>Eaves Width</i>                |                    | 1      |      |           | 1        |
| <i>Building Envelope</i>          |                    | 1      |      |           | 1        |
| <i>Decks &amp; Balconies</i>      | 0                  |        |      |           | 0        |
| <b>Total</b>                      |                    |        |      |           | <b>3</b> |

| <b>Risk Area 2</b><br>Elevation B | <i>Risk Factor</i> |        |      |           |          |
|-----------------------------------|--------------------|--------|------|-----------|----------|
|                                   | low                | medium | high | very high |          |
| <i>Wind Zone</i>                  |                    |        | 1    |           | 1        |
| <i>No of Storeys</i>              | 0                  |        |      |           | 0        |
| <i>Roof/Wall</i>                  | 0                  |        |      |           | 0        |
| <i>Eaves Width</i>                |                    | 1      |      |           | 1        |
| <i>Building Envelope</i>          | 0                  |        |      |           | 0        |
| <i>Decks &amp; Balconies</i>      | 0                  |        |      |           | 0        |
| <b>Total</b>                      |                    |        |      |           | <b>2</b> |

| <b>Risk Area 3</b><br>Elevation C | <i>Risk Factor</i> |        |      |           |          |
|-----------------------------------|--------------------|--------|------|-----------|----------|
|                                   | low                | medium | high | very high |          |
| <i>Wind Zone</i>                  |                    |        | 1    |           | 1        |
| <i>No of Storeys</i>              | 0                  |        |      |           | 0        |
| <i>Roof/Wall</i>                  |                    | 1      |      |           | 1        |
| <i>Eaves Width</i>                |                    |        |      | 5         | 5        |
| <i>Building Envelope</i>          | 0                  |        |      |           | 0        |
| <i>Decks &amp; Balconies</i>      | 0                  |        |      |           | 0        |
| <b>Total</b>                      |                    |        |      |           | <b>7</b> |

| <b>Risk Area 4</b><br>Elevation D | <i>Risk Factor</i> |        |      |           |          |
|-----------------------------------|--------------------|--------|------|-----------|----------|
|                                   | low                | medium | high | very high |          |
| <i>Wind Zone</i>                  |                    |        | 1    |           | 1        |
| <i>No of Storeys</i>              | 0                  |        |      |           | 0        |
| <i>Roof/Wall</i>                  | 0                  |        |      |           | 0        |
| <i>Eaves Width</i>                |                    | 1      |      |           | 1        |
| <i>Building Envelope</i>          | 0                  |        |      |           | 0        |
| <i>Decks &amp; Balconies</i>      | 0                  |        |      |           | 0        |
| <b>Total</b>                      |                    |        |      |           | <b>2</b> |

17 January 2013

Our Ref: 367877

Stonewood Homes Ltd  
PO Box 11036  
Sockburn  
Christchurch 8443

Attention: Christine Negus

Dear Ms Negus

**Re: Geotechnical and Foundation Report for Bailey and Liu House - Lot 84, Stage Two Faringdon, Rolleston**

1. Introduction

Further to your instructions, we have investigated the ground conditions at the above site and are writing to confirm the foundation requirements for the proposed building.

Building plans indicate that a single storey timber framed house with a lightweight roof, brick veneer cladding and a concrete floor slab is proposed for the site.

2. Site Geology

The published geology for the area<sup>1</sup> indicates that it is underlain by brownish grey river alluvium.

We have obtained bore log data from Environment Canterbury for well M36/1849, approximately 440m to the northeast of the proposed building site, which recorded various layers of silty and sandy gravels from the surface to 49m depth. The water table was recorded at 11.5m below ground level at the time of drilling.

We have searched the GNS Active fault database<sup>2</sup> and have viewed the Geological Map<sup>1</sup> of the Christchurch area to identify if there are any active faults in the locality. The closest active fault system is the Greendale Fault, located approximately 5km northwest of the house site and is therefore well outside the minimum 20m fault avoidance zone recommended in a Ministry for the Environment publication<sup>3</sup>.

---

<sup>1</sup> *Geology of the Christchurch Area, 1:250,000 Geological Map 16 – compiled by P.J. Forsyth, D.J.A. Barrell, R. Jongens for Institute of Geological & Nuclear Sciences, Lower Hutt, 2008*

<sup>2</sup> *data.gns.cri.nz/af/*

<sup>3</sup> *Planning for Development of Land on or Close to Active Faults: A Guideline to Assist Resource Management Planners in New Zealand (Published July 2003).*

### 3. 4 September 2010 Earthquake Sequence

Peak horizontal ground accelerations (pga) measured in Rolleston from the 4 September 2010 M7.1 earthquake were around 0.42g (equivalent to  $PGA_{M7.5} = 0.38g$ ), and exceeded the pga values used for liquefaction analysis in geotechnical design<sup>4</sup> for the Serviceability Limit State ( $PGA_{7.5} = 0.13g$ ) and the Ultimate Limit State ( $PGA_{7.5} = 0.35g$ ) earthquake event.

### 4. Land Classification

On 19 May 2011 the Department of Building and Housing (now Ministry of Business and Employment) issued a notification on changes to clause B1 "Structure" of the New Zealand Building Code relating to new information on the seismic risk for the Canterbury Region. The advice also stated changes to foundation requirements for timber framed Buildings complying with NZS 3604:2011. The definition of "Good Ground" has now changed and in particular it excludes any ground which could foreseeably experience movement of 25mm or greater for any reason (including liquefaction and lateral spread).

The site has not been classified by CERA<sup>5</sup> with a technical land category as the property is located outside the area of land damage mapping.

However, a global geotechnical investigation and assessment of the liquefaction potential of the land has been undertaken by Geoscience Consulting NZ Limited as part of the subdivision consent process. Field investigations consisted of 12 test pits, 91 mechanical Scala penetrometer tests and a review of other available geotechnical data. The geotechnical investigation report<sup>6</sup> concludes that the ground conditions at the Faringdon Subdivision are equivalent to a Technical Category 1 (TC1) land classification, defined as where *"future land damage from liquefaction is unlikely, and ground settlements are expected to be within normally accepted tolerances."*

The geotechnical report<sup>6</sup> was also peer reviewed<sup>7</sup> for the Selwyn District Council and the review agreed with the TC1 Technical Classification for the land of this subdivision.

---

<sup>4</sup> *Annexure C2 of Appendix C to the Guidance Document (27 April 2012): Revised guidance on repairing and re-building houses affected by the Canterbury earthquake sequence (November 2011) Department of Building and Housing.*

<sup>5</sup> <http://cera.govt.nz/my-property>

<sup>6</sup> *Geotechnical Investigation – Foster Block, Goulds Road, Rolleston. Prepared by Geoscience Consulting NZ Limited, dated 21 December 2011*

<sup>7</sup> *Subdivision – Foster Block, Goulds Road, Rolleston, Geotechnical Peer Review. Prepared by Geotech Consulting Ltd dated 30 December 2011.*

## 5. Site Investigation

Our investigations, carried out on 10<sup>th</sup> December 2012, consisted of two spade holes and four Scala penetrometer tests. These tests indicate both the soil strata and the soil bearing capacity.

The spade holes generally revealed up to 300mm to 400mm of silty topsoil fill containing stones overlying sandy gravel to 600mm depth where the compact nature of the gravels prevented further investigation with hand equipment. Please refer to the attached site investigation records.

The Scala penetrometer results below the topsoil were well in excess of the minimum penetration resistance requirements to be termed acceptable as "Good Ground" in accordance with the Compliance Document for New Zealand Building Code, Clause B1 Structure. The Scala penetrometer was unable to penetrate beyond 750mm depth due to the compact nature of the gravels underlying the site, however well log data described in section 2 indicates that the gravels extend to a significant depth.

Following the 4 September 2010 earthquake and various significant aftershocks up until the time of our investigation the surface of the section did not show any visual evidence of deposits of sediment or tension cracking, similarly, the road surface outside the subdivision did not show any evidence of new cracking or unusual surface deformation. We can confirm that no visual evidence of liquefaction or ground damage was observed during our inspection of the site.

## 6. Foundation Requirements

With the land being confirmed as being equivalent to a TC1 classification, and our site investigation verifying compact bearing conditions at shallow depth, it is our opinion that standard foundations for buildings complying with the provisions of NZS 3604:2011 would be suitable for the site. Although it is not mandatory, we recommend constructing a slightly more resilient type of foundation due to the recent earthquake activity of the Greendale Fault and the relatively high probability of the Alpine Fault rupturing within the next 50 years, i.e. within the minimum life of a new building. We therefore recommend a stiffened and widened perimeter foundation tied into a reinforced floor slab.

For the proposed building, foundations should comply with the provisions of NZS 3604:2011 'Timber Framed Buildings' and with the following requirements –

1. All foundations should extend through the topsoil fill layer onto clean natural gravel at least 300mm to 400mm below ground level.
2. The perimeter foundation trench is to be excavated 340mm wide and the foundation boxed 300mm wide at the top and be reinforced with four D16 rods, two top and two bottom, with R10 stirrups at 600mm centres and D10 slab ties at 600mm centres extending at least 600mm into the floor slab. Please refer to the attached perimeter foundation detail.

3. The floor slab is to be reinforced with a minimum of 2.27kg/m<sup>2</sup> welded reinforcing mesh sheets and the reinforcing is to be Ductility Class E in accordance with NZS 4671. The 100mm thickness of the floor slab and the mesh reinforcing should be continuous through any step or recesses in the floor slab, such as a shower recess. If it is impractical to continue the mesh through the step or recess, then use H10 bars at 300mm centres each way and lapped at least 600mm with the floor slab mesh. A D12 trim bar should also be provided around the edge of the recess and extend at least 600mm past the edge of the recess.
4. Internal floor slab thickenings or pads supporting concentrations of weight from roof trusses should be supported on or be replaced with mass concrete filled pads of the same area excavated through the topsoil fill onto clean gravel at least 300mm to 400mm below ground level.

We enclose the duplicate 'Producer Statement-Design' for your records. The original and a copy of this report are enclosed for the Selwyn District Council.

Inspections

We do not require to inspect the foundation trench excavation and this can be carried out as normal by the Council Building Inspector. However, if ground conditions are encountered that are different than described in this report then we should be contacted.

Yours faithfully  
ELIOT SINCLAIR & PARTNERS LTD



John Aramowicz  
BE(Hons), MIPENZ, CPEng, IntPE(NZ)  
Associate  
Geotechnical Engineer

Encl.

- Site investigation records
- 4 x D16 Detail
- Producer Statement Design

Our Ref: 367877

17 January 2013

## PRODUCER STATEMENT - DESIGN

### Clause B1 Structure

Selwyn District Council  
PO Box 90  
Rolleston 7643

### FOUNDATIONS FOR BAILEY & LIU HOUSE

### LOT 84, STAGE TWO FARINGDON ROLLESTON

I, **John Aramowicz**, an Engineer, Member of IPENZ, and an **Associate** with **Eliot Sinclair & Partners Ltd**, hereby certify that:

- ☐ This Consulting Practice has been engaged by **Stonewood Homes Ltd** to carry out a soils investigation and design and execute the appropriate engineering calculations for **the foundations of the proposed house**.
- ☐ The foundation design is detailed in the attached report to **Stonewood Homes Ltd** dated **17 January 2013**.
- ☐ I have exercised reasonable control over the design processes for the works defined above which have been designed in accordance with sound and widely accepted engineering principles to support the loads specified in **AS/NZS 1170** and to meet the requirements of Compliance Document **B1/VM4** in accordance with the **New Zealand Building Code**.
- ☐ As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of \$200,000.00, I believe on reasonable grounds that the stresses in the various materials of construction of the foundations are such as to ensure the safety and stability of the foundations if the works are constructed in accordance with the above report.
- ☐ **Inspections to be carried out by us to confirm any design assumptions and that critical elements of construction meet the intent of our engineering design are: - Nil.**
- ☐ This Producer Statement is provided on the basis that it is used in support of a Building Consent that is issued by **17 January 2014**.

The name and qualifications of the principal  
Geotechnical Engineer are -

**John Aramowicz**

**BE(Hons), MIPENZ, CPEng,  
IntPE(NZ)**

Signature.....



c.c. Stonewood Homes Ltd  
PO Box 11036  
Sockburn  
Christchurch 8443

# MEMORANDUM OF DESIGN OF RESTRICTED BUILDING WORK FROM LICENSED BUILDING PRACTITIONER (LBP)

**The Building:** Lot 84, Stage 2, Faringdon Rolleston

**The Owner:** Bailey & Liu

**LBP:** John Aramowicz, CPEng No. 1008112

**Practice Area:** Structural ☐

Fire ☐

Façade ☐

Geotech ☒

**Design Legal Entity:** Eliot Sinclair & Partners Ltd, PO Box 4597, Christchurch, [ita@eliot Sinclair.co.nz](mailto:ita@eliot Sinclair.co.nz), 03 379 4014

## Identification of design work that is Restricted Building Work

| Description of Restricted Building Work | BC Clause | Means of compliance | Reliance on other LBPs | Reliance on Proprietary Elements | Waiver |
|-----------------------------------------|-----------|---------------------|------------------------|----------------------------------|--------|
| Foundation Design                       | B1        | B1/M4               | Not for design         | NA                               | NA     |

## Accompanying Documents

Drawing Register ☐ Specifications ☐ PS 1 ☒ dated 17 January 2013  
 Drawings ☒ Design Report ☐ PS 2 ☐ Eliot Sinclair & Partners  
 Calculations ☐ Geotechnical Report ☒ Other ☐

## Declaration

I, **John Aramowicz**, LBP 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 described on this form and that based on this I also state that the RBW:

- (a) complies with the Building Code clauses identified on this form; or  
 (b) complies with the Building Code subject to any waiver or modification of the Building Code recorded on this form.

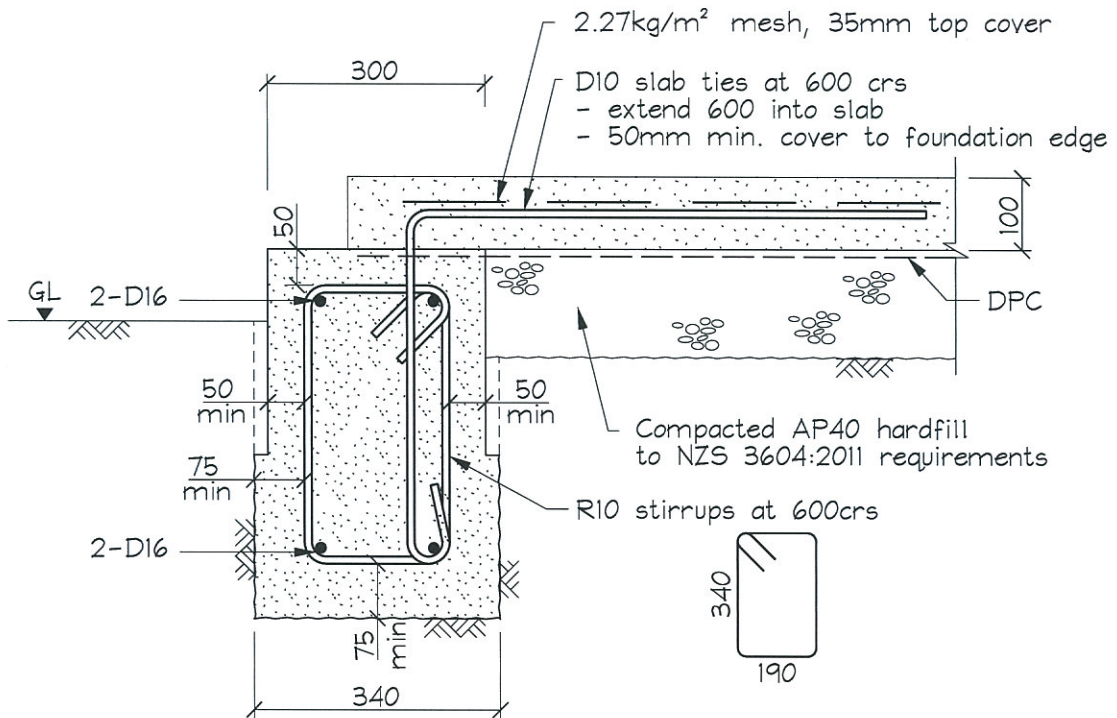
Signature:

*John Aramowicz*

Date:

*17 Jan 2013*

*Note: This form is consistent with clause 45(a) of the Building Act 2004. The form shall only be used for residential projects less than 10 metres high.*



### NOTES

- All reinforcing is to be Ductility Class E in accordance with NZS 4671.
- 50mm top and bottom cover to reinforcing against boxing
- 75mm side and bottom cover to reinforcing against ground

## TYPICAL FOUNDATION DETAIL

Scale 1:10

Scale: As Shown (A4) Date: 10/11/2011

|          |      |           |  |                  |
|----------|------|-----------|--|------------------|
| checked  | RHJW | surveyed  |  | origin of levels |
| designed | RHJW | surv.date |  |                  |
| drawn    | NMS  | Cad No.   |  | datum            |
| manager  | RHJW |           |  |                  |

**Eliot Sinclair**  
surveyors | engineers | planners

Drawing Set

367877

Sheet 1 of 1 rev.

Date Received 4/02/13

# Eliot Sinclair

surveyors | engineers | planners

Unit 4, 502 Wairakei Road, Christchurch

PO Box 4597, Christchurch N.Z.

Ph. (03) 379-4014 Fax. (03) 365-2449

Job Number

367877

Date Tested

10-Dec-2012

Page 1 of 2

D.P

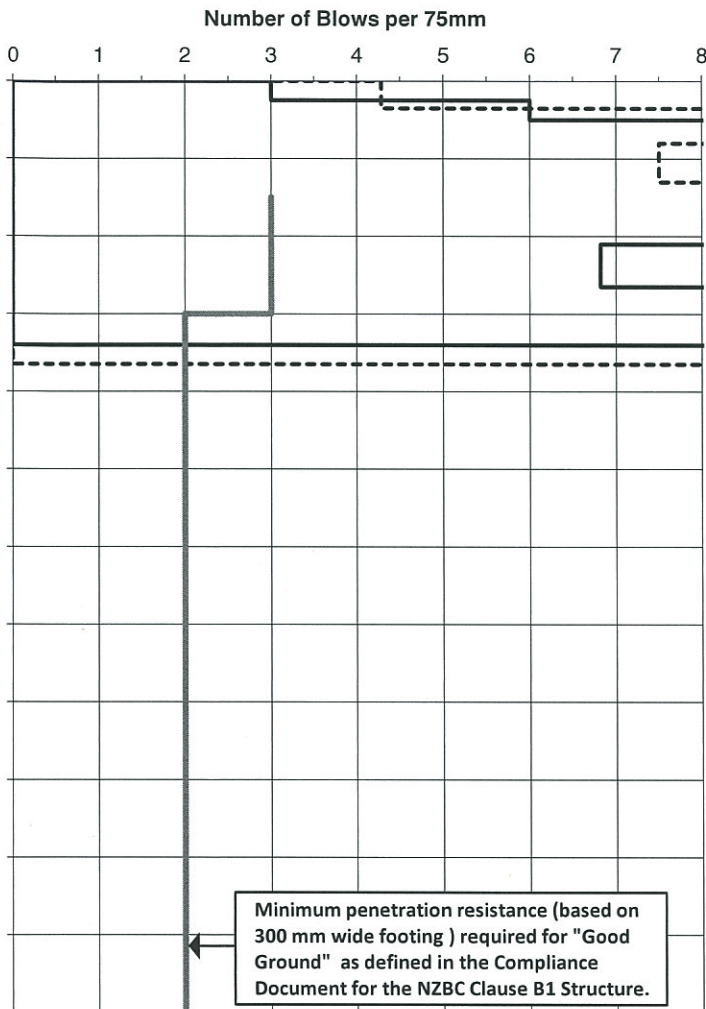
Lot 84

Project No.

## SITE INVESTIGATION RECORD

|               |                            |             |                                    |  |
|---------------|----------------------------|-------------|------------------------------------|--|
| <b>Client</b> | <b>Stonewood Homes Ltd</b> | <b>Site</b> | <b>Lot 84 Faringdon, Rolleston</b> |  |
|---------------|----------------------------|-------------|------------------------------------|--|

### SCALA PENETROMETER TESTS



— P1    - - - - P2

### DEPTH

[m]

GL

0.2

0.4

0.6

0.8

1.0

1.2

1.4

1.6

1.8

2.0

2.2

2.4

2.6

2.8

3.0

3.2

### BORE LOGS

Hand Auger ☒Machine Auger ☐Test Pit ☐

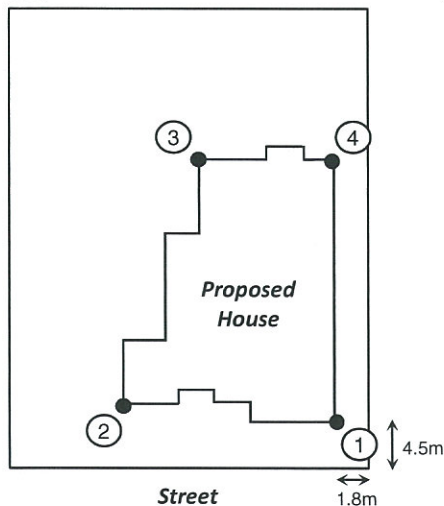
(Borehole @ 2)

Brown silty TOPSOIL FILL, compact, with stones, rootlets

Brown sandy GRAVEL, natural

STOP - gravel

### SITE PLAN (Not to Scale)



North

### COMMENTS

Civil Engineer

Date:

17 Jan 2013

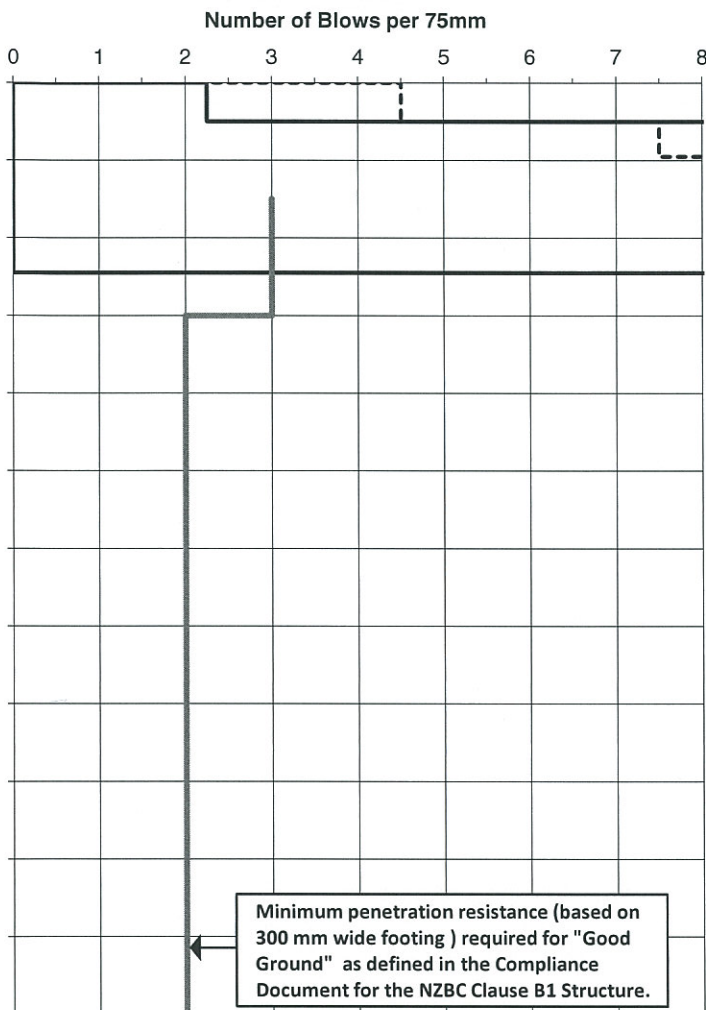
**SITE INVESTIGATION RECORD**

Client

Stonewood Homes Ltd

Site

Lot 84 Faringdon, Rolleston

**SCALA PENETROMETER TESTS**

— P3    - - - - P4

**DEPTH**

[m]

Hand Auger ☒Machine Auger ☐Test Pit ☐**BORE LOGS**

(Borehole @ 4)

GL

0.2

0.4

0.6

0.8

1.0

1.2

1.4

1.6

1.8

2.0

2.2

2.4

2.6

2.8

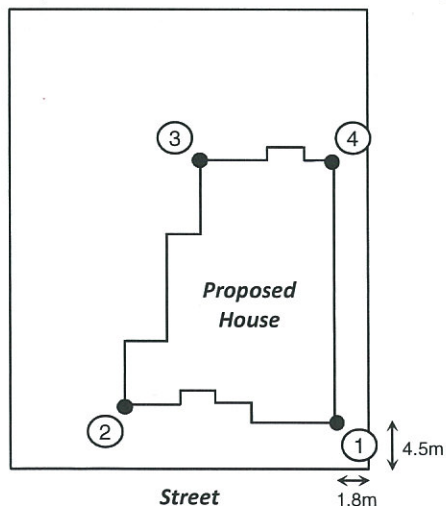
3.0

3.2

Brown silty TOPSOIL FILL, compact, with stones, rootlets

Brown sandy GRAVEL, natural  
STOP - gravel**SITE PLAN (Not to Scale)**

North

**COMMENTS**

Civil Engineer

Date:

17 Jan 2013



Correspondence from : **AUCKLAND**  
40 Neales Road, East Tamaki 2013  
PO Box 58-014, Botany 2163  
**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

MiTek 20/20 Engineering 4.6.6.169

Printed: 21:00:50 26 Jan 2013

## PRODUCER STATEMENT for MiTek 20/20<sup>®</sup> TRUSS DESIGN - Version 4.6

BC130229  
Date Received 4/02/13

ISSUED BY: **MiTek New Zealand Limited**

TO: **Carters National Office**

IN RESPECT OF: **MiTek<sup>®</sup> Truss Designs**

This producer statement covers the MiTek 20/20<sup>®</sup> truss design and the structural performance of the GANG-NAIL<sup>®</sup> connector plate for the job reference **CD098228** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20<sup>®</sup> truss design program has been developed by MiTek New Zealand Limited for the design of MiTek<sup>®</sup> timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20<sup>®</sup> 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 Fabricator 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<sup>®</sup> 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: Saturday, 26 January 2013**

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

|                                                                            |                         |                                                           |
|----------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------|
| Job: CD098228                                                              | Client: Stonewood Homes | Site: 122798<br>84 Faringdon<br>Rolleston<br>Christchurch |
| Description:<br>Building Consent No.:<br>MiTek 20/20 Engineering 4.6.6.169 | Phone:                  | Phone:                                                    |

Printed: 21:00:50 26 Jan 2013

**BC130229**  
**Date Received 4/02/13**

**MITEK FABRICATOR DESIGN STATEMENT**

This statement is issued by MiTek accredited fabricator **Carters National Office**, being licensed to use the MiTek 20/20® software, 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.

|                             |                                   |                                                 |
|-----------------------------|-----------------------------------|-------------------------------------------------|
| <b><u>Job Details</u></b>   | Importance Level : 2              | Design Working Life : 50 years                  |
| <b><u>Roof Truss</u></b>    |                                   |                                                 |
| Timber Group: MSG8 DDP H1.2 | Pitch: 28.000 deg                 | Nominal Overhang: 600 mm                        |
| <b><u>Roof</u></b>          | <b><u>Ceiling</u></b>             | <b><u>Wind</u></b>                              |
| Material: Metal Tiles       | Material: Gib 13mm/Timber Battens | Area: High (44.0 m/s )                          |
| Dead Load: 0.210 kPa        | Dead Load: 0.200 kPa              | Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20 |
| Restraints: 400 mm centres  | Restraints: 600 mm centres        | <b><u>Snow</u></b>                              |
| Live Load: Qur = 0.250 kPa  | Live Load: Qc = 1.400 kN          | Location: Christchurch (N4) at 100 m            |
| Qc = 1.100 kN               |                                   | Open Ground Load: 0.900 kPa                     |
|                             |                                   | Basic Roof Load: 0.403 kPa                      |

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, ~~✗~~ = 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) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) |
|-------|-----|-----------|-------------|--------------|-------|-----|-----------|-------------|--------------|-------|-----|-----------|-------------|--------------|
| J1C   | 1   | 3107      | 28.000      | 900          | J4B   | 1   | 2367      | 28.000      | 900          | V1    | 1   | 2956      | 28.000      | 900          |
| T1    | 1   | 8060      | 28.000      | 900          | J5    | 2   | 1467      | 28.000      | 900          | V2    | 1   | 1156      | 28.000      | 900          |
| T2    | 1   | 4780      | 28.000      | 900          | J5A   | 2   | 1467      | 28.000      | 900          | V3    | 1   | 1548      | 28.000      | 900          |
| T3    | 1   | 5770      | 28.000      | 900          | J6    | 1   | 2862      | 28.000      | 900          | V4    | 1   | 2428      | 28.000      | 900          |
| T4    | 1   | 10460     | 28.000      | 900          | J6A   | 1   | 2862      | 28.000      | 900          | V5    | 1   | 1945      | 28.000      | 900          |
| T6    | 1   | 4780      | 28.000      | 549          | J6B   | 1   | 2862      | 28.000      | 900          | V6    | 1   | 1045      | 28.000      | 900          |
| T11   | 3   | 10460     | 28.000      | 840          | J7    | 2   | 1962      | 28.000      | 900          | V7    | 1   | 1422      | 28.000      | 900          |
| TG1   | 1   | 8060      | 28.000      | 900          | J7A   | 1   | 1962      | 28.000      | 900          | *HB1  | 2   | 6494      | 20.605      | 900          |
| TG2   | 1   | 10460     | 28.000      | 900          | J7B   | 1   | 1962      | 28.000      | 900          | *HB2  | 2   | 4174      | 20.605      | 900          |
| TG2A  | 1   | 10460     | 28.000      | 900          | J8    | 1   | 2507      | 28.000      | 900          | *HB3  | 2   | 4874      | 20.605      | 900          |
| TR1   | 1   | 10460     | 28.000      | 900          | J8A   | 1   | 2507      | 28.000      | 900          | *HB4  | 1   | 8191      | 20.605      | 900          |
| TR1A  | 1   | 10460     | 28.000      | 900          | J8B   | 1   | 2507      | 28.000      | 900          | *HB5  | 2   | 3797      | 20.605      | 900          |
| TR2   | 1   | 10460     | 28.000      | 900          | J8C   | 1   | 2507      | 28.000      | 900          | *HB6  | 1   | 5000      | 20.605      | 900          |
| TR2A  | 1   | 10460     | 28.000      | 900          | J8D   | 1   | 2507      | 28.000      | 900          | *HB7  | 2   | 1996      | 20.605      | 900          |
| J1    | 1   | 3107      | 28.000      | 900          | J8E   | 1   | 2507      | 28.000      | 900          | *R1   | 2   | 998       | 28.000      | 900          |
| J1A   | 1   | 3107      | 28.000      | 900          | J8F   | 1   | 2507      | 28.000      | 900          | *R2   | 2   | 1158      | 28.000      | 900          |
| J1B   | 1   | 3107      | 28.000      | 900          | J8G   | 1   | 2507      | 28.000      | 900          | *R3   | 14  | 891       | 28.000      | 900          |
| J1D   | 1   | 3107      | 28.000      | 900          | J9    | 1   | 1607      | 28.000      | 900          | *R3A  | 1   | 891       | 28.000      | 900          |
| J2    | 1   | 2207      | 28.000      | 900          | J9A   | 1   | 1607      | 28.000      | 900          | *R4   | 2   | 1653      | 28.000      | 900          |
| J2A   | 1   | 2207      | 28.000      | 900          | J10   | 1   | 827       | 28.000      | 900          | *R5   | 2   | 1791      | 28.000      | 900          |
| J2B   | 2   | 2207      | 28.000      | 900          | T5    | 2   | 4840      | 28.000      | 880          | *R6   | 1   | 1298      | 28.000      | 900          |
| J3    | 2   | 1307      | 28.000      | 900          | T7    | 1   | 4780      | 28.000      | 549          | *R7   | 1   | 2701      | 28.000      | 900          |
| J3A   | 2   | 1307      | 28.000      | 900          | T8    | 1   | 5770      | 28.000      | 473          | *R8   | 1   | 1363      | 28.000      | 900          |
| J4    | 1   | 2367      | 28.000      | 900          | T9    | 2   | 2507      | 28.000      | 851          | *R9   | 1   | 945       | 28.000      | 900          |
| J4A   | 1   | 2367      | 28.000      | 900          | T10   | 1   | 1700      | 28.000      | 900          |       |     |           |             |              |

**Total quantity : 106**

**The computer design input has been carried out by:**

|                                |                                                                  |
|--------------------------------|------------------------------------------------------------------|
| MiTek 20/20 Software Operator: | David Stuart                                                     |
| Qualifications:                | MiTek 101, MiTek 201, MiTek 301, MiTek Certificate of Competence |
| MiTek Candidate Number:        | <b>10014</b>                                                     |

**Accredited Fabricator:**



**A Division of Carter Holt Harvey**

Dated: Saturday, 26 January 2013



**CARTERS**  
Your Building Partner

JOB No **CD098228**

|                      |             |
|----------------------|-------------|
| Pitch:               | 28.0deg     |
| Roof Material:       | Metal Tiles |
| Soffit Overhang:     | 600mm       |
| Wind Area:           | High        |
| Snow Load(factored): | 0.403kPa    |

This layout is to be read in conjunction with the Architectural plans.

|      |             |
|------|-------------|
| DATE | 26 Jan,2013 |
|------|-------------|

|      |        |
|------|--------|
| PAGE | 1 of 2 |
|------|--------|

## FIXINGS



Joist Hanger

CT 200

Multi Grips

Carbon plate



CPC

Please contact your local CARTERS Manufacturing Branch for any queries regarding this layout.



Selwyn District Council  
Approved Building Consent Document

11/04/2013 geogr

Council  
 Document  
 eorg

# BUILDING CONSENT LAYOUT

Carters National Office  
64-68 Harris Rd  
(09) 2727200

JOB No **CD098228**

Client: Stonewood Homes  
Job Name: 122798  
Address: 84 Faringdon  
Rolleston  
Christchurch

Pitch: 28.0deg  
Roof Material: Metal Tiles  
Soffit Overhang: 600mm  
Wind Area: High  
Snow Load(factored): 0.403kPa

Trusses and rafters at 900mm  
max centres unless stated otherwise.

This layout is to be read in conjunction  
with the Architectural plans.

DRAWN BY David Stuart

DATE 26 Jan,2013

PAGE 2 of 2

These lintels have been sized using  
one of the following :

The GANGLAM 04/2008 and  
FLITCH BEAM 12/2007  
selection manuals from MiTek NZ Ltd.

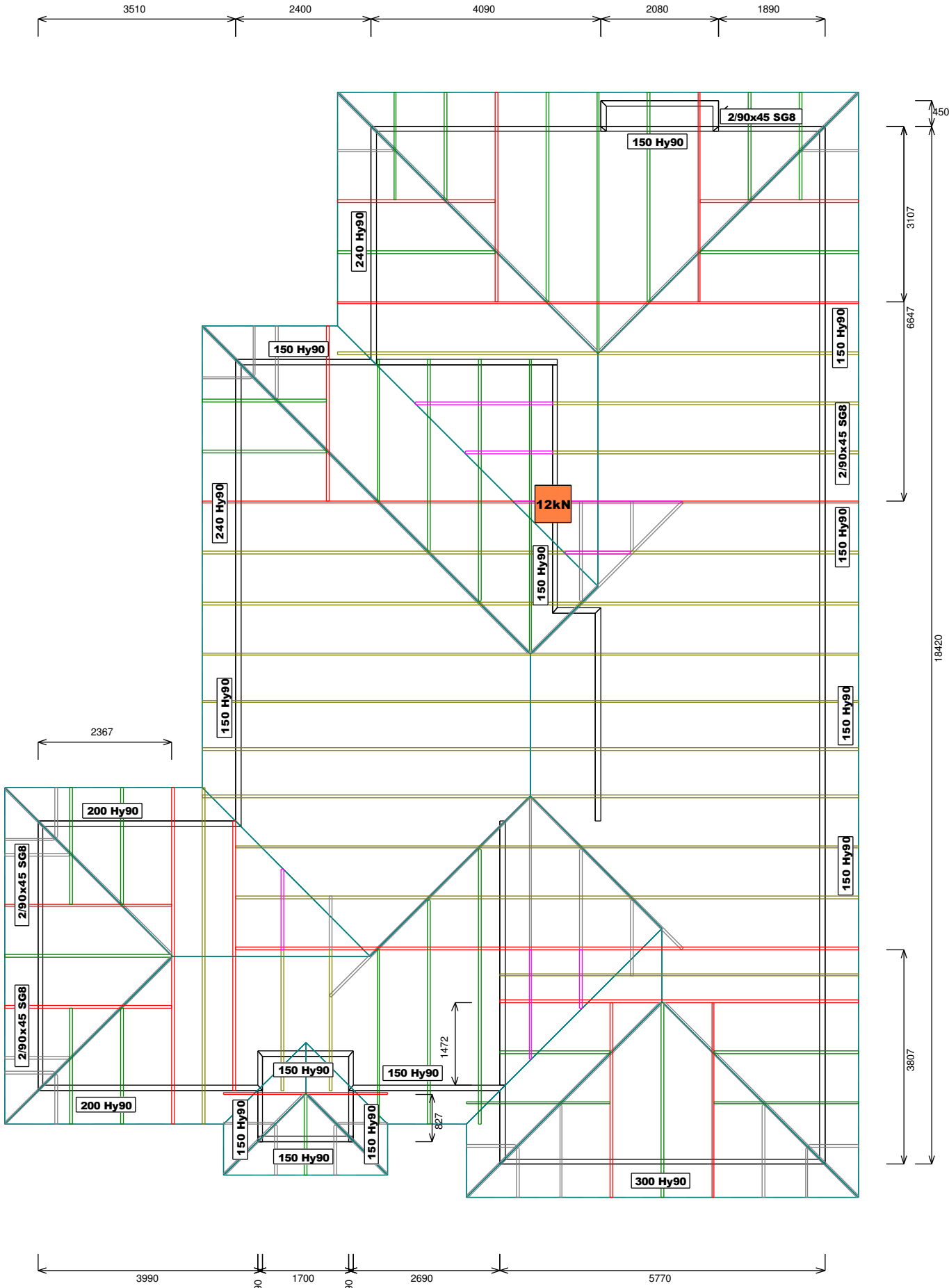
hy90 and hyONE lintels have been sized  
using designIT v5 NZ software  
(Incl. sub versions) or selection manuals,  
hy90 Edition 1, and hyONE April 2008,  
as provided by CHH Woodproducts.

Unless otherwise stated the timber grade  
for all lintels is SG8. Lintels not shown  
are to be selected as per NZS3604: 2011.

All walls shown on this layout are  
considered to be load bearing.



See Page 1 for Truss  
Layout and Fixings



BC130229  
Date Received 4/02/13

Selwyn District Council  
Approved Building Consent Document  
  
11/04/2013 georgr

**kN** NOTIFICATION OF POINT LOADED LINTELS AND POINT LOADS ON INTERNAL  
OR EXTERNAL WALLS WHERE THE DOWNLOAD IS HIGHER THAN 10kN.  
Note: If no point loads indicated, loading does not exceed 10kN.

|                                  |                           |              |
|----------------------------------|---------------------------|--------------|
| Job: CD098228                    | Client: Stonewood Homes   | Site: 122798 |
| Description:                     | Phone:                    | 84 Faringdon |
| Building Consent No.:            |                           | Rolleston    |
| MTek 20/20 Engineering 4.6.6.169 | MTek New Zealand Limited. | Christchurch |
|                                  | Phone:                    |              |

Printed: 21:01:38 26 Jan 2013

## TRUSS BEARINGS EXCEEDING 10KN REPORT - Ultimate Limit State Loads

BC130229  
Date Received 4/02/13

### MiTek® Truss List

Legend: ? = input only, ~~✗~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully

| Critical Trusses | Qty | Span<br>(mm) | Joint | Bearing Reactions (kN) |        |
|------------------|-----|--------------|-------|------------------------|--------|
|                  |     |              |       | Down                   | Uplift |
| TG2              | 1   | 10460        | S     | 11.908                 | 9.402  |

### **Note:**

1) Select appropriate Slab Thickening Detail from the MiTek 'Internal Load Bearing On Concrete Floor Slabs' brochure.