CODE COMPLIANCE CERTIFICATE

SECTION 95, BUILDING ACT 2004

MARLBOROUGH DISTRICT COUNCIL
P O Box 443, Blenheim
Phone: (03) 578 5249
Fax: (03) 578 6866

THE BUILDING

Street address of building:	**Taylor Pass Road BLENHEIM**	Property Reference Number **256254**
Legal description of land where building is located	**LOT 2 DP 329656**	Building Consent Number **BC050283**
Building name:		**ISO 9001:2000 FORM REF CIXXX**
Current, lawfully established, use:	Seven Dwellings With Attached Garages	

THE OWNER

Full name of Owner(s): **Myles Investment Trust**
Mailing Address: **C/O A C Myles**
Hammerichs Road
R D 3
BLENHEIM 7273

BUILDING WORK

Building Consent No: **BC050283** for

Seven Dwellings With Attached Garages

Issued by: ☑ Marlborough District Council - Building Consent Authority

Contact Person:

Postal Address: P O Box 443
Blenheim

Phone: 578 5249 *Fax:* 578 6866

Continued overleaf

BC050283

BC

SPECIFICATIONS FOR WORK AND MATERIALS

REQUIRED IN THE CONSTRUCTION OF A

NEW TOWN HOUSES FOR

MYLES INVESTMENT TRUST.

MARLBOROUGH DISTRICT COUNCIL
Approved subject to all work complying with the N.Z. Building Code.

S I Sleigh Date 10/3/05

A. GENERAL

1. The Work

The building is constructed of:-
Concrete foundations and flooring
Timber framing
Aluminium windows and exterior doors
Colorsteel roofing
70 Series brick veneer exterior cladding
& Rockcote plaster exterior cladding
Metal fascia and gutter
Gib board interior linings

Also the fabrication of all cabinets, interior and exterior joinery, the fixing of all linings, and the installation of all services.
The Contractor shall provide all labour, materials tools and plant, pay all dues, and obtain all consents, unless detailed otherwise within this specification.

The Contractor shall complete this building in the best trade practice, according to the plans and documents, and this specification, taken separately or collectively, and shall ensure that all materials shall comply to the latest relevant NZ Standard Specification.

All work shall adhere to NZS 3604 1999, and the NZ Building Code.

2. Bylaws

The Contractor shall conform in all respects to the Bylaws of the Local Authority having jurisdiction over the works, and be responsible for all damage to private or public property occasioned by the work.

3. Sub-Contractors

This specification is divided into trade sections for the convenience of reference only, and every trade jointly and severally shall assist and render all necessary assistance to complimentary trades, for the total completion of this project.

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4. Site and Setting Out

The Contractor shall visit the site before tendering, to satisfy himself regarding access, levels, and the conditions generally, as no extra will be allowed for wrong description. The Contractor shall be held responsible for the setting out of the work, and he shall be required to make good at his own expense any error that may occur. Figure dimensions are to be taken in preference to scaled ones, and all measurements are to be verified on site before work commences.
Should any discrepancy arise, the Designer must be contacted immediately.

5. Availability of Materials

Should any of the materials specified for this contract not be procurable, negotiations shall be made for the provision of substitutes to the approval of the Owners. Any price difference due to this, must be agreed upon in writing by the Owners, before the respective work shall commence.

6. Prime Cost Sum

The Prime Cost Sum where shown in this specification reserves the Owners the right to purchase items themselves, and the accounts will be adjusted on completion of the Contract.
The Contractor shall allow for the installation of the PC Sum goods.

7. Completion

At regular intervals during the building, and on completion of the Contract, the Contractor shall remove debris which may accumulate, and leave the site and building clean and ready for use.
All floors shall be left broom clean, and all glass work sound and clean inside and out.
All plaster stopping shall be left sanded to a smooth surface, on completion of all wall and ceiling linings

B. EXCAVATIONS

1. Excavate
Excavate as required for foundations and footings etc, where shown and as required to give a solid bearing.
Surplus soil shall be placed where directed by the Owners.
Any excavation that requires an Engineer to inspect, shall be arranged by the Contractor at the time.

2. Backfilling
All backfilling shall be carried out by the Contractor, and materials shall be the excavated spoil if foundations are only a maximum of 300mm deep.

3. Hardcore Filling
Hardcore filling shall be placed under all floor slabs, as detailed in 2 above, and shall consist of clean river gravels max size 100mm.
All floor slabs shall be compacted with a plate compactor, and blinded with 25mm of clean sand before pouring.

4. Over Excavations
In the event of the Contractor excavating below the proper level, he shall fill the parts over excavated with concrete at his own expense.

C. CONCRETE

1. Materials
The materials and workmanship shall be in accordance with NZS 3101.
Concrete shall be ordinary grade 17 mpa, in all pile footings, link pad etc, as described in the above specification.

2. Foundations and Footings
All foundations shall rest on solid ground, or concrete footings at least 300mm below adjacent ground level, and shall be constructed as shown on the plans.

3. Reinforcement
All reinforcing shall comply with NZS 3402, or as shown on the plans.
Horizontal bars ex D12, shall be held together with D10 stirrups or ties, wired and supported from the ground by plastic chairs or similar to give the required clearance to the concrete outside face,
ie. 80mm to the bottom, and 50mm to all sides of the foundations.
Floor starters of D10 at 600mm cts shall be tied to the reinforcing bars,
and the #665 mesh.

4. Steelwork
Allow to build in all holding down bolts, brackets, column bases etc, as required for future fittings. Holding down bolts for building perimeter shall be 12mm dia at 1.4m cts max, and not more than 300mm from corners or doorways.

5. Damp Proof Course
All concrete faces in contact with timber, shall be covered with one layer of 3 ply malthoid or other approved dampproof course, with minimum side laps of 75mm.

6. Concrete Flooring
Shall be a minimum of 100mm, reinforced with #665 Mesh placed 38mm from top of slab, and resting on plastic chairs.
Concrete shall be laid on .025mm AHI Moistop, or Gib polythene sheeting, properly sealed at all joints and exterior edges.

Where water or drainage pipes cut through the polythene membrane, ensure that all holes and chases are properly sealed to the pipes with PVC sealing tape. Hardcore filling shall be consolidated and blinded with sand before laying polythene sheeting.

Under the polythene sheeting and on top of the sand blinding, shall be placed 25mm polystyrene sheets for the full area of the dwelling, as a retention membrane to avoid heat losses to the ground.

D. CARPENTER & JOINER

1. Timber Generally
All timber shall be to the best of its class, free from large loose or dead knots or wavey edges, thicknessed, well seasoned and dry.

Framing timbers shall be H1 treated Pinus Radiata, or Dryframe, of sizes ex 100 x 50mm or 90 x 45mm minimum.

2. Standard Specifications
All timber construction shall be in accordance with NZS 3604 1999, and the NZ Building Code.

3. Framing General
The whole of the framework shall be prenailed, cut on site etc, and assembled according to the plans and specifications, with all required bracing, as detailed in the schedule attached.

4. Floor Joists
First floor joists shall be 250 x 50mm at 400mm cts as detailed.
Deck floor joists shall be 200 x 50mm at 400mm cts, and shall be placed as shown.

5. Studs
All studs shall be ex 100 x 50mm and cut to make 2430mm between floor and ceiling battens.
Opening studs to be double 100 x 50mm, one under lintel, and the other full height of frame between top and bottom plates.
Studs shall be spaced at 400mm cts for exterior walls, and internal walls may be 600mm cts.

For two storey dwellings, all ground floor framing studs shall be spaced at 400mm cts.

6. Dwangs
All walls shall be dwanged with ex 100 x 50mm or 90 x 45mm, solid dwangs at 800mm cts or to suit linings.
All first floor joists shall be solid block dwanged at centre span, to all rooms over 2.4m joist span.

7. Top Wall Plates
Top plates shall be ex 100 x 50mm, with ceiling plates of 150 x 35mm for external walls, and 200 x 35mm for internal walls.

8. Ceiling Battens
All battens shall be ex 70 x 35mm at 400mm cts, or to suit linings, and shall be fixed to underside of trusses or joists, and to ceiling plates on top of wall framing.
Steel Rhondo ceiling battens may be used, and fixed according to Gib bd specifications.

9. Lintels
Shall be to sizes stated in the NZS 3604, and supported on double studs, as detailed in Section D7 above.
Lintels may be made up of double 50mm members, or ex 100mm solid timbers, to the required depth for the opening span.

10. Roof Framing
a) Trusses
Shall be ex 100 x 50mm Douglas Fir or Dryframe, manufactured to design supplied by Gang nail or Pryda, supported by a Producer Statement.
Trusses shall be positioned at 900mm cts max, and fixed to top plates by 'Z' nails or multigrip plates.

a) Purlins
Shall be as detailed, generally ex 75 x 50mm fixed at 760mm cts to top of rafters with double nailing, except as per NZS 3604 where the perimeter and ridge etc shall be 'Z' nails.

11. Flooring
Concrete floors shall be as specified under section C5.
Timber floors shall be 20mm H D Particle board, or 20mm H D Kopine tongue and grooved sheets, glued and screw fixed to joists to manufacturers specifications.

12. Insulation
Generally all exterior walls shall be fitted with R 2.2 Fiberglass batts, and all ceilings shall be R 2.6 batts.

13. Joinery
All joinery shall be fabricated according to the best trade practice whether it be Aluminium or wooden joinery.
Care shall be taken in the assembly to avoid scratching the powder coating, or in the case of wooden joinery, no damage by glue, water or scratching.
All mitres, butt joints, dowelling or biscuit joints, mortice and tenon joints, shall be neatly executed.

a) Windows
Aluminium windows shall be constructed by an approved fabricator, to sizes and styles shown, with all opening windows as required.
Windows shall be single glazed in clear glass.
Reveals shall be ex 25mm timber and rebated for linings.
Powdercote colour shall be selected by Owners, and all window and door hardware shall be colorcoded.
Windows shall be fitted with double tongue handles, and all casement sashes over 1.2m deep, shall have 2 handles and 1 centre D handle.

b) External Doors
Doors shall be double sliders, slider and sidelight, as shown, all with colorcoded

Front Entry shall be selected raised panel Cedar door, fitted into aluminium frame and timber reveals.

c) Internal doors
Shall be flush panel coloured timber throughout, fitted into timber jambs.

d) Garage doors
Main door shall be Colorsteel sectional fitted with Dominator auto control.
Rear door shall be Aluminium single glazed style to match dwelling.

f) Joinery Fixtures
Kitchen cupboard and bench units shall be as selected in prefinished melamine or similar, with Formica tops and stainless steel sink insert.
Units may be as detailed or specified during the construction of the dwelling.
All cupboard and Pantry units shall be taken full height of walls, unless shown otherwise.
Allow P C Sum $8000 for Kitchen units ex factory, Contractor to install.

Bathroom vanity cabinets shall be as detailed or selected for each room.
Allow P C Sum $1200 for each ex factory, Contractor to install.

Laundry Cupboards as detailed or selected. Contractor to install.
Allow P C Sum $1500 ex factory.

14. Hardware
Door and cupboard hardware shall be selected by Owners, but generally all internal doors shall be fitted with two handles and one latchset.
Toilets, Bathrooms etc shall be fitted with privacy locksets.
Front Entry door(s) shall be fitted with selected locksets, together with a deadbolt of approved manufacture.
Allow P C Sum $1200 for door hardware.
Aluminium doors etc shall be supplied as a package with the exterior joinery.
Kitchen joinery hardware shall be supplied with the units from the Joiner.

15. Staircase
To be constructed with 250 x 50mm stringers, 250 x 30mm treads, and risers as specified.
Treads and risers shall be housed into routed stringers, glued and blocked.
Supply and install selected handrail and ballustrade, at minimum height of 1 metre securely fixed to wall on one side of stairs each flight.

E. ROOFER

1. Materials
Roofing shall be selected Colorsteel corrugated, with all required flashings, ridging, hip covers, and valleys in matching colour.

Barge capping, fascias, and spouting shall be colour matched to the roof, or other selected colour.

Spouting shall be colour matched external fitted, in selected profile, with all mounting brackets, mitred corners, and downpipe outlets as required.

2. Workmanship
All work shall be carried out by approved tradesmen, who shall complete the roof and accessories, for a completely waterproof dwelling.
Care shall be taken by the roofing Contractor to avoid any damage to the roof, fascia or spouting with ladders leaning against them.

F. EXTERNAL FINISHING

1. Barge and Fascia
Barge and fascia as detailed in Section E 2 above.

2. Soffit Lining
Soffits shall be framed with ex 75 x 50mm sprockets, and ribbon plate fixed to wall framing.
Fascia shall be fitted at correct level to allow soffit linings to be fixed.
Soffit materials shall be 4.75 flat Hardiflex sheets with PVC jointers to all butt joints, and nailing shall be galv 30mm Hardinails.

3. Linings
Ground wall cladding shall be 70 Series brick veneer cladding, see bricklayer below.
First floor wall cladding shall be Rockcote plaster over 40mm polystyrene, and applied according to the Rockcote manufacturers specifications.
All required PVC flashings, corner mouldings, sill and window mouldings etc, shall be correctly fitted to complete the dwelling fully waterproof.

G. BRICKLAYER

1. Materials
Bricks shall be 70 series clay bricks, colour to be selected by Owners.

2. Mortar
All mortar used for bricklaying shall be composed of one part cement, to one part hydrated lime, to four parts clean sand. A measured part of plasticiser liquid may also be added if desired.
No mortar that has become 'dead or set' shall be used in the work.

3. Workmanship
The work shall be carried up in even height using stretcher bond, and angles and intersections shall be properly bonded, with all mortar joints no more than 10mm thick, and raked back maximum of 10mm.

4. Wall Ties
Veneer walls shall be secured to wall framing by galv screw ties placed in every third course, fixed to each stud with approximately 8 - 10 ties per square metre.

5. Sill Bricks
Sills shall be laid to suit the windows and doors, but generally they shall use full bricks on flat across the opening, at right angles to the wall veneer.

H. PLASTERER

1. Materials
Cement and water shall be as specified under Concrete
Sand shall be clean, hard and sharp, and free from salt, soil, and/or other deleterious materials

2. Porches, Steps, Terraces
All porches, steps, and terraces, patios etc, shall be finished during the main floor pour, but Contractor shall allow to splatter coat the foundations, and any other edges etc during the exterior finishing work.

3. Exterior Finishing
Plaster and drag finish, or sponge finish, the external faces of all walls, foundations, columns, chimneys, parapets etc, unless directed otherwise.
Plaster shall be solid cement plaster of 25mm minimum, over galv crimped netting, and Greenwrap or building paper as supplied or directed.

I. DRAINLAYER

1. Materials
All materials used shall be in accordance with NZS / AS 3500, and the N Z Building Code.

2. Excavate
Excavate all trenches required for drains and fittings, to the depths specified, and the laying of sanitation and stormwater pipes shall conform to the N Z Building Code.

3. Stormwater Drains
From each downpipe, collect all stormwater into 100mm PVC piping, and discharge at roadside into pipe laid under footpath. An existing 100 Dia service pipe is laid up the driveway.

4. Sewer Drains
Connect up foul water from all gully traps, in 110 PVC high pressure piping, and discharge to the main sewer in road, at connection provided. An existing 110 dia service pipe is laid up the driveway.

5. Terminal Vent
Terminal vent shall be positioned at or near the end of the sewer line and shall be 75mm dia PVC, extend thru soffit and roof and flash at roof with butynol or similar.

6. Completion and Testing
On completion of the whole drainage system, Council tests shall be carried out before any backfilling takes place.

J. PLUMBER

1. Materials
All materials used by the Plumber shall be to the best of their several kinds, and must fully conform to all or any governing regulations or bylaws.

2. Flashings
All flashings shall be made in as long lengths as possible, from Butynol or Colorsteel, to suit the purpose intended.

3. Downpipes
All downpipes shall be PVC either 75 x 50mm or 62mm dia as selected, and fixed to the walls by purpose made brackets, two per downpipe.

4. Spouting
Shall be colorsteel external fascia gutter, fixed to fascia by purpose made brackets. All corners and joints shall be neatly executed.

5. Waste Pipes
Carry all wastes in PVC from all fittings to gully traps positioned as required,
Conceal all traps and wastes from view wherever possible, and all pipes shall have sufficient fall to discharge into gully traps.
Wastes shall be 40mm dia for all fittings except wash hand basins which may be 32mm dia.
Kitchen waste from Sink, Dishwasher and Waste disposal unit shall all be combined into a 50mm dia waste.

6. Cold Water Supply.
Shall be run from Road toby to dwelling in 20mm HD Polythene, and where pipe enters building, a shut off valve shall be placed to isolate dwelling.
All internal piping shall be run in 12mm or 15mm dia polybutylene, with all correct fittings, junctions, valves etc.
NOTE: All drillings in walls shall be kept to an absolute minimum.

7. Hot Water Supply
Shall be run from HW Cylinder to all fittings as shown or required, in 12mm or 15mm dia polybutylene, with all correct fittings, junctions, valves etc.
HW cylinder shall be positioned in roof space, adjacent to top stair landing, fitted with an overflow tray underneath, and connected to a 32mm dia overflow pipe to the outside of the dwelling.

8. Supply and Fit Up
All fittings shown or required shall be installed to correct procedures by a certified tradesman.
Items may be purchased by the Owners, and installed by the Contractor, provided the Contractor is in agreement.
All tests shall be provided by the Contractor before handing over to the Owners, in operating condition.

K. INTERIOR LININGS

1. Ceilings
Ceilings shall be 10mm standard Gibralter Board throughout except Bathrooms, Laundry, and Ensuites etc, which shall be 10mm Aqualine Gib.

2. Walls
Walls shall be lined throughout with 10mm standard Gibralter Board, laid horizontally, and fixed with Gibgrabber screws and gibfix adhesive.
Bathrooms and Ensuites etc which are to be tiled, shall be lined with Hardies Villa board 6mm, or 10mm Aqualine Gib.
Garage walls within 1 metre of the boundary shall be lined with 1 layer of 10mm Fyreline on each side of the framing; or exterior face with 6mm Hardiflex sheet fixed vertically, and interior face with 10mm Fyreline Gib fixed horizontally. This fire rating must be continued around the corners of non boundary walls for a distance of 600mm minimum.

3. Stopping
Where walls are lined with Gibralter board, all stopping shall be carried out by the fixer according to Winstone Wallboards specifications, and all Villa board lined walls are to be stopped according to Hardies specifications.

Gib walls and ceilings shall be sanded to a level 4 preparation, unless stipulated otherwise.

4. Mouldings
a) Scotia
Shall be 55mm Gib cove fixed to manufacturers specifications.

b) Architraves
All windows, doors, and other openings, shall have rebated jambs to conceal the edges of all Gibralter Board.

c) Skirtings
All flooring shall be coved, and finished with a timber finishing bead, placed 75mm above floor level.
Tiled floors shall be finished with 75mm of floor tiles placed on walls at floor junction.

L. ELECTRICIAN

1. Materials
Materials used by the Electrician shall conform to the Electric Power supply Authority regulations, and all wiring necessary for the completion of this contract, shall be of approved manufacture in compliance with the appropriate specifications.

All wiring shall be concealed from view, run within the framing, and the Electrician shall be carefull how and where he drills the holes, as no drillings shall be through structural timber members, without the consent of the main Contractor.

All face plates, switches, plug outlets etc shall be HPM Excell series, colour as selected by the Owner.

2. Lighting
Wire up the fittings as shown on the plans.
Ceiling lights shall be 100mm dia recessed downlights throughout except for above Bathroom vanities, Kitchen benches etc, which shall be 50mm dia recessed low voltage Halogen downlights.
Wall lights shall be selected wall wash type fittings, fitted at approx 2.0mtrs from floor.
Exterior lights shall be selected wall mounted fittings at approx 2.0mtrs from floor level.
All switching shall be positioned adjacent to doors, and where two-way or multi operational switching, they shall be linked appropriately for the room.
Wall switched shall be positioned at 1.3mtrs from floor unless directed otherwise.

3. Switched Socket Outlets
Outlets shall be provided as shown on the plans, and shall all be double HPM horizontal units, generally fitted 300mm from floor level, except for Fridges, Washing Machine, Kitchen benches and Pantry, which shall be 1.3mtrs,
or as directed.

Shaving outlets in Bathrooms shall be RCD protected double horizontal units.

Computer outlets shall be Surge arrester double power points, connected with a 'clean' line direct to the sub board.

TV, Telephone and Radio outlets shall be supplied and fitted as required.

4. Point of Entry
Provide a switchboard where shown built into the garage wall adjacent to stairway, and run a mains cable from board to the Road. A separate sub board may be installed elsewhere in the Dwelling as required.

5. Hot Water Cylinder
Cylinder shall be wired into off peak service ripple control, with all required over ride switching as necessary for safety etc.

6. Test and Completion
The Electrician shall provide for all tests required, and hand over the completed work passed and sealed by the Local Power Authority.

M. PAINTER AND DECORATOR

1. Materials
All materials shall be to the best of their respective kind, and shall be delivered to the job in unopened containers.
All surfaces to be painted shall be protected from the weather, cleaned, and free from dust and dirt.
Likewise all surfaces to be wall papered shall be properly sanded, cleaned, and treated with size, to allow 100% bonding of paper to walls.

2. Exterior Work
   a) Soffits
   Shall be sealed with approved cement sealer, then apply two coats of Acrylic low sheen paint as finishing coats.

   b) Walls
   Where walls are to be painted over solid plaster or cement based weatherboards (Hardiplanks etc), they shall be painted with two coats minimum, of Acrylic or cement based paint.

   c) Coated walls
   Where walls have been specified as Rockcote or similar, they shall be coated with precoloured texture product as supplied, and applied to the manufacturers specifications.

3. Interior Work
   a) Wallpaper
   Walls where specified after treating with size, shall be papered with all butt joints and patterns neatly matching and properly registered, free from lumps of paste or dirt, wrinkles, blisters, and smoothed off.
   Allow P C Sum of $35 per roll of paper.

   b) Painting
   Ceilings shall be sealed with an approved wallboard sealer, before being painted with two coats minimum of approved low sheen Acrylic.
   All ceilings should have been stopped and finished to a level 5 Gib finish with smooth coat prior to final sanding and sealing.
   Wet area rooms, ie Bathrooms and Ensuites may be painted with a semi gloss Enamacryl or similar.

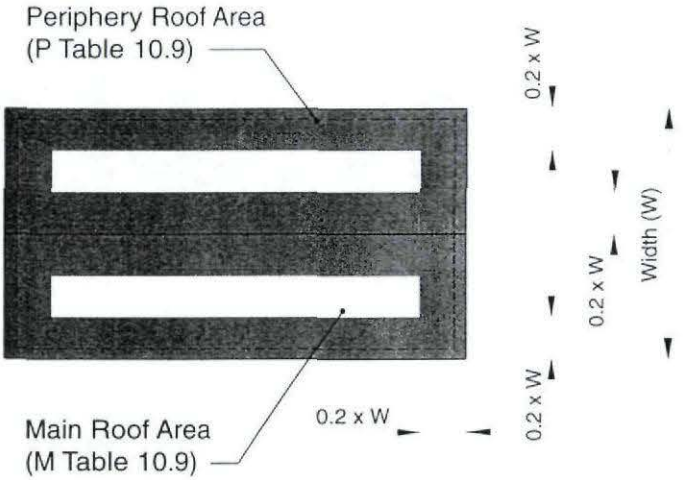
   c) Varnishing
   Where Doors, Jambs, window reveals etc require a varnished or polyurethane finish, all woodwork shall be finely sanded before sealing with an approved sanding sealer or thinned polyurethane, and then given three coats of approved polyurethane matt or semigloss finish, to manufacturers specifications.

PURLIN & BATTEN FIXING CHART

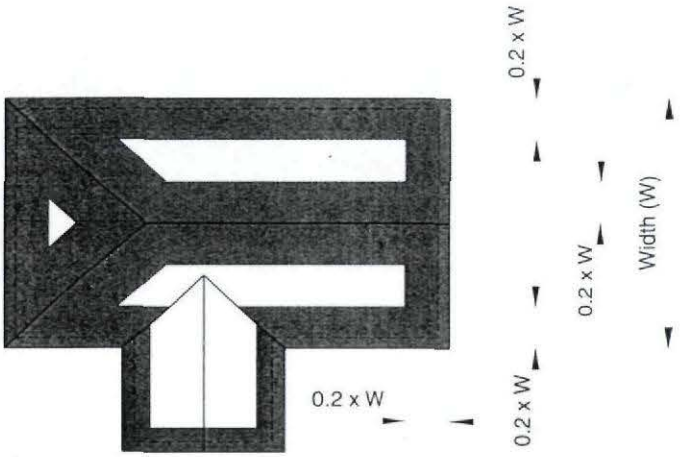
(COMPLIES WITH NZS 3604:1999 TABLE 10.10)

NOTE:

- ★ Max. truss overall roof span 12m
- ★ All purlin and batten sizes as NZS 3604:1999 Section 10.
- ★ These fixings assume purlin or battens are fixed over top of truss or rafter.



PLAN GABLE



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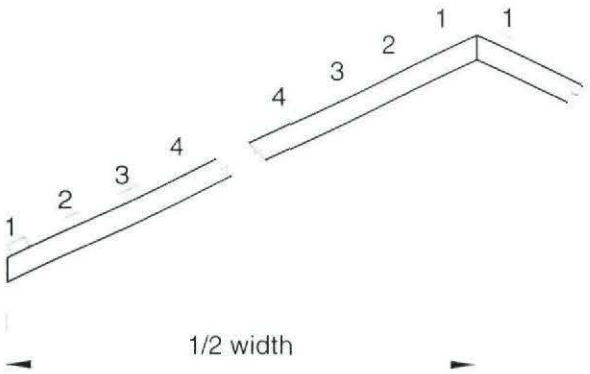
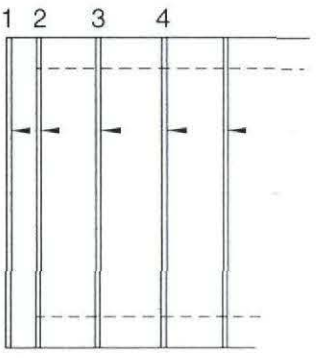


PURLIN LAYOUT (MAX 1200 crs.)



TRUSSES, RAFTERS OR SUPPORT LINE AT MAX 1200 crs.

LAYOUT ON GABLE END

LUMBERLOK®

MiTek™
MiTek New Zealand Ltd.
AUCKLAND
PO Box 58-014, Greenmount
Phone: (09) 274 7109
Fax: (09) 274 7100
CHRISTCHURCH
PO Box 8387, Riccarton
Phone: (03) 348 8691
Fax: (03) 348 0314
www.miteknz.co.nz
HOME OF **GANG-NAIL®** BUILDING SYSTEMS

SELECTION CHART
(minimum fixing requirements)

1. HEAVY ROOFS

All purlins and/or battens use fixing Type A only on roof width (w) up to 12m.

2. LIGHT ROOFS

A. BATTENS - Max. span 1200
- Max crs. 400
- Roof width (w) up to 12m.

L & M wind loads use Type B fixing on all battens.

H & VH wind loads use Type C on all battens.

B. PURLINS - Max. span 1200, Max crs. 900 or
- Max. span. 900, Max crs. 1200

L & M wind loads use Type C fixing on purlin No.2 and Type B on all other purlins for all roof widths (w) up to 12m.

H & VH wind loads

1. On roof width (w) up to 8m;
Use Type D fixing on purlin No. 2 and Type C on all other purlins.

2. On roof width (w) up to 12m;
Use Type D fixing on purlins No. 2 & 3 and Type C on all other purlins.

C. PURLINS AND BATTENS ON GABLE END
- Max. span 1200, Max crs. 900 or
- Max. span. 900, Max crs. 1200

L & M wind loads use Type B fixing on support line No. 1, Type C on support lines No. 2, 3, & 4 and all other support lines as per Section A or B above.

H & VH wind loads use Type C fixing on support line No. 1, Type D on support lines No. 2, 3, & 4 and all other support lines as per Section A or B above.

STANDARD FIXING OPTIONS

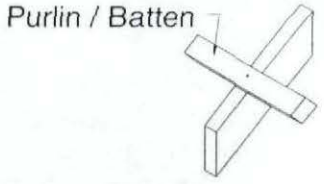
LUMBERLOK®

FIXING DEFINITIONS

NAIL = Either 90 x 3.15 Power driven
or 100 x 3.75 Hand driven
SCREW = 100 x 10 gauge **LUMBERLOK** Purlin screw
WIREDOG = Either left hand or right hand **LUMBERLOK** wiredog.

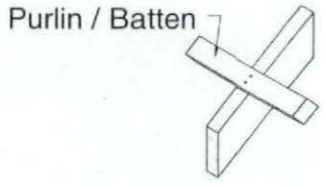
FIXING TYPE A
0.40kN

1 NAIL



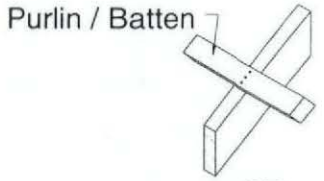
FIXING TYPE B
0.70kN

2 NAILS

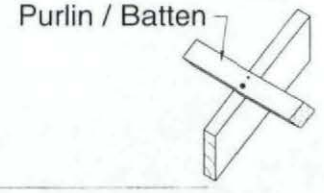


FIXING TYPE C
1.20kN

3 NAILS
OR
1 NAIL + 1 SCREW

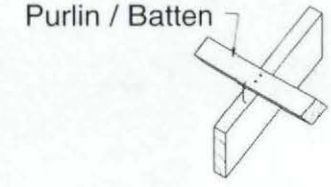


OR



FIXING TYPE D
2.00kN

2 NAILS + 1 WIREDOG
OR
2 SCREWS



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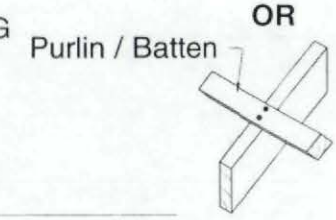
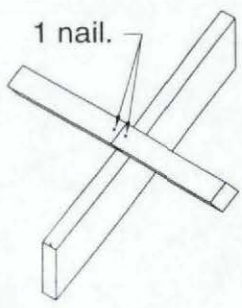
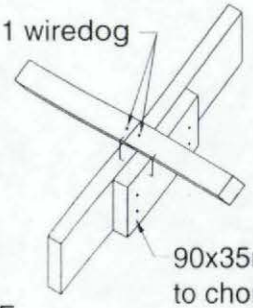


PURLIN / BATTEN SPLICE DETAIL OPTIONS

NOTE:
Skew nail when fixing to 35mm rafter or truss.



FIXING TYPE A & B OVER PURLIN SPLICE



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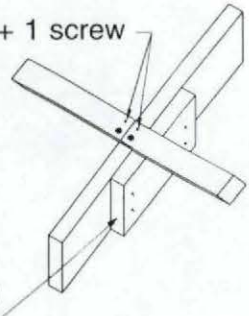


FIXING TYPE C & D OVER PURLIN SPLICE

90x35mm block fixed to chord or rafter with 4/75mm nails.

LUMBERLOK® WALL FIXING CHART

01/10

STUD TO TOP PLATE FIXING SCHEDULE

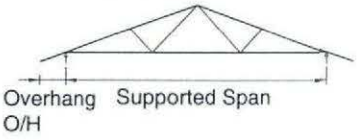
(ALTERNATIVE TO NZS 3604:1999 TABLE 8.18)

NOTE:

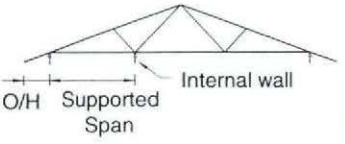
- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20kPa. Refer to table 8.19, NZS3604:1999 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made. Refer to the **LUMBERLOK®** Truss Fixing Chart.
- ★ Gable end wall top plate/stud connections require only 2x90x3.33 nails driven vertically into stud through top plate.
- ★ All Fixings assume top plate thickness of 45mm maximum.
- ★ Wall framing arrangements under girder trusses are not covered in this schedule

LOADED DIMENSION DEFINITION

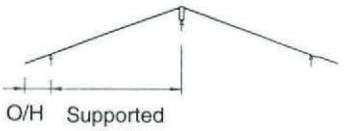
Standard truss



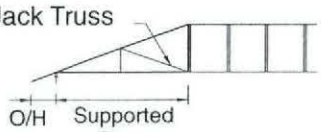
Internally supported truss



Rafter Roof



Jack Truss



$$\text{LOADED DIMENSION} = \frac{\text{SUPPORTED SPAN}}{2} + \text{OVERHANG}$$

SELECTION CHART FOR FIXING LOADS - TOP PLATE TO STUD

Loaded Dimension	Light Roof Wind Zone				Heavy Roof Wind Zone			
	L	M	H	VH	L	M	H	VH
1.5	A	A	B	B	A	A	B	B
2.0	A	B	B	C	A	A	B	B
2.5	A	B	C	C	A	A	B	C
3.0	B	B	C	D	A	A	B	C
3.5	B	B	C	D	A	A	B	D
4.0	B	C	D	D	A	A	C	D
4.5	B	C	D	D	A	B	C	D
5.0	B	C	D	D	A	B	C	D
5.5	B	C	D	D	A	B	C	D
6.0	B	C	D	-	A	B	D	D

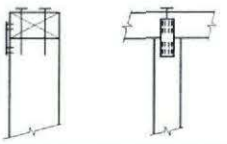
- All studs at 600 crs.
- For studs at 400 crs decrease loaded dimension by 33%.
- All trusses at 900 crs.
- For trusses at 1200 crs increase loaded dimension by 33%.

FIXING OPTION:

FIXING TYPE A 0.7kN

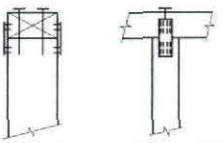
2/90x3.33 plain steel wire nails driven vertically into stud.

FIXING TYPE B 1.7kN



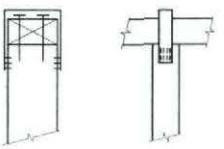
2/90x3.33 plain steel wire nails driven vertically into stud, plus single **TYLOK 2T4** plate.

FIXING TYPE C 2.7kN



2/90x3.33 plain steel wire nails driven vertically into stud, plus pair **TYLOK 2T4** plates.

FIXING TYPE D 6.0kN

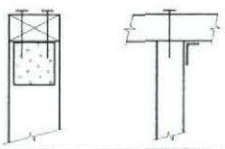


2/90x3.33 plain steel wire nails driven vertically into stud, plus **TYLOK Stud tie.**

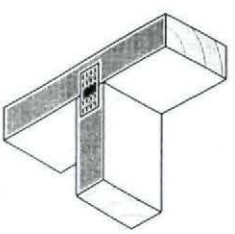
OR

Sheet brace strap 400 with 6/30x3.15 nails each stud face.

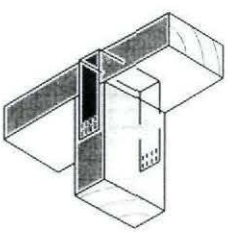
OR



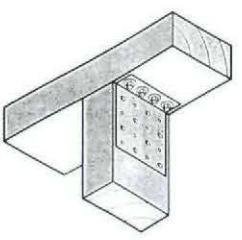
2/90x3.33 plain steel wire nails driven vertically into stud, plus **6kN Stud Anchor.**



TYLOK 2T4



TYLOK STUD TIE OR SHEET BRACE STRAP 400



6kN STUD ANCHOR

MiTek New Zealand Ltd.

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MiTek™
HOME OF **GANG-NAIL®** BUILDING SYSTEMS

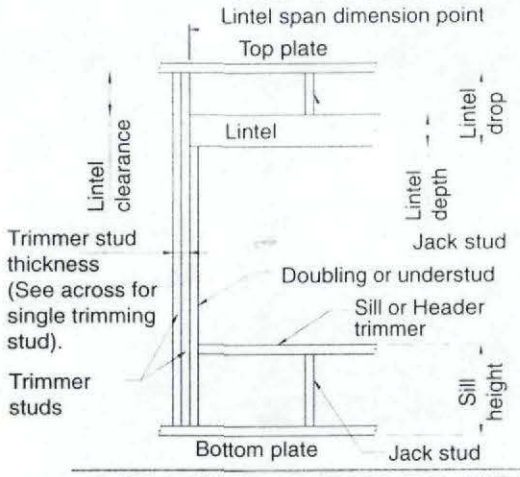
LUMBERLOK® WALL FIXING CHART

01/10

LINTEL FIXING SCHEDULE

(ALTERNATIVE TO NZS 3604:1999 TABLE 8.14 & FIGURE 8.12)

DEFINITIONS



SELECTION CHART FOR LINTEL FIXING

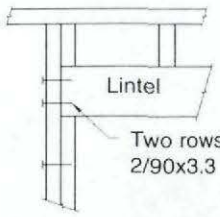
Lintel Span	Loaded Dimension *See reverse side	Light Roof Wind Zone				Heavy Roof Wind Zone			
		L	M	H	VH	L	M	H	VH
1.5	2.0	A	A	B	B	A	A	B	B
	3.0	A	B	B	C	A	A	B	B
	4.0	A	B	C	C	A	A	B	C
	5.0	B	B	C	C	A	A	C	C
	6.0	B	B	C	D	A	A	C	C
2.0	2.0	A	B	B	C	A	A	B	B
	3.0	A	B	C	C	A	A	B	C
	4.0	B	B	C	C	A	A	C	C
	5.0	B	C	C	D	A	A	C	C
	6.0	B	C	C	D	A	B	C	D
2.4	2.0	A	B	B	C	A	A	B	B
	3.0	B	B	C	C	A	A	C	C
	4.0	B	C	C	D	A	A	C	C
	5.0	B	C	C	D	A	B	C	D
	6.0	B	C	D	D	A	B	C	D
3.0	2.0	A	B	C	C	A	A	B	C
	3.0	B	B	C	D	A	A	C	C
	4.0	B	C	C	D	A	B	C	D
	5.0	B	C	D	D	A	B	C	D
	6.0	C	C	D	-	A	B	D	D
3.6	2.0	B	B	C	C	A	A	B	C
	3.0	B	C	C	D	A	B	C	C
	4.0	B	C	D	D	A	B	C	D
	5.0	C	C	D	-	A	B	D	D
	6.0	C	D	D	-	A	B	D	-
4.2	2.0	B	B	C	C	A	A	C	C
	3.0	B	C	D	D	A	B	C	D
	4.0	C	C	D	-	A	B	D	D
	5.0	C	D	D	-	A	B	D	-
	6.0	C	D	-	-	A	C	D	-
4.8	2.0	B	C	C	D	A	A	C	C
	3.0	B	C	D	D	A	B	C	D
	4.0	C	C	D	-	A	B	D	D
	5.0	C	D	-	-	A	B	D	-
	6.0	C	D	-	-	A	C	D	-

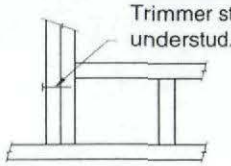
NOTES:

- Lintels accepting Girder trusses for ALL load cases use:
  Fixing type C where contributary area = 10m²
  Fixing type D where contributary area = 20m²
- All cases outside this require specific design

LINTEL FIXING TYPES

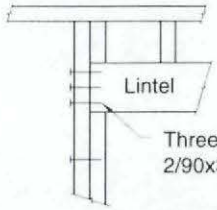
TYPE A
1.4kN

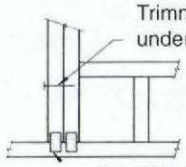




"All other nailing as Table 8.19"

TYPE B
4.0kN

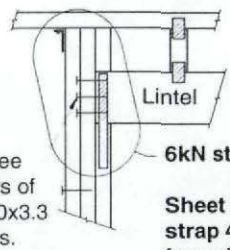




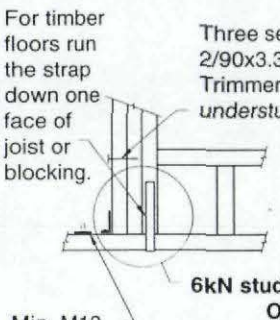
"All other nailing as Table 8.19"

Fixing of jack stud to lintel & top plate, as per top plate schedule, see reverse side.

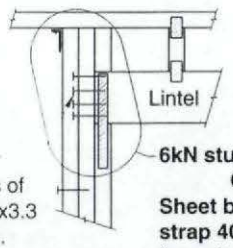
TYPE C
7.5kN



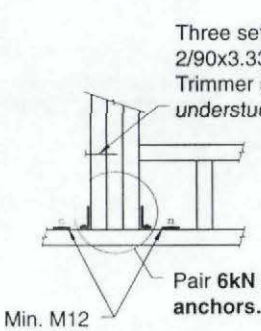
"All other nailing as Table 8.19"



TYPE D
13.5kN



"All other nailing as Table 8.19"



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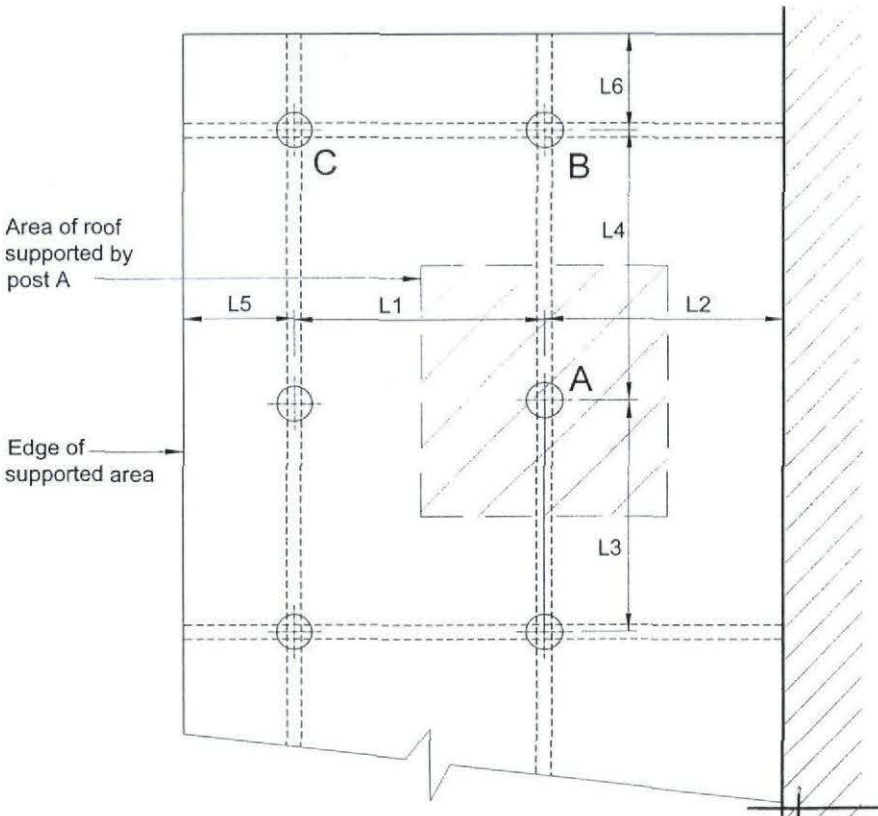
Structural Connection Details and Nailing Schedule

Bearer to Pile	
Concrete piles.	2mm wire and 2/3.5mm staples at each end.
Timber piles.	4/100 x 3.75 skew nails or 2/100 x 3.75 skew nails and 1 wire dog
Bearer Joint over a Pile	2/100 x 3.75 skew nails each side or 1 6kn nail plate each side of joint all joints over a pile.
Floor Joist to Bearer or Plate	2/100 x 3.75 skew nails
Stud to Bottom Plate Ext Walls	300mm sheet brace strap, 6/3.0 x 3.15 nails each end.
Solid Blocking to Joists	2/100 x 3.75 end nailed
Boundary Joist to Joists	2/100 x 3.75 end nailed
Bottom Plate to Conc Floor	M12 Dynabolts @ 1mtr cts, & max 300mm cts from corners.
Ribbon Plate to Wall framing	2/100 x 3.75 nails to each stud
Junctions of Top /Bottom plates	
Butt joint over a stud	4T10 Tylok plate fully nailed
Butt Joint over solid blocking	3/100 x 3.75 nails per end
Halved joint over a stud	3/75 x 3.15 minimum
Roof Trusses or Rafters to Top Plates	2/100 x 3.75 skew nails plus 2 wire dogs
Rafters to Beams	2/100 x 3.75 skew nails, plus 1 wire dog or 1 Multigrip plate each side fully nailed with 30 x 3.15 nails
Posts to Foundations	Bowmac B197 bracket set into concrete foundation M10 bolts to posts.
Posts to foundations, Braced	Posts set into concrete filled holes 300mm dia x 900mm deep.
Posts to Beam	Bowmac B38 T or L brackets M10 bolts



~~Interior post A, supported area = $\frac{L1 + L2}{2} \times \frac{L3 + L4}{2}$~~

~~Edge post B, supported area = $\frac{L1 + L2}{2} \times \left(\frac{L4 + L6}{2}\right)$~~

POST / BEAM CONNECTIONS FOR UNIT 4.

Edge post C, supported area = $\left(\frac{L1}{2} + L5\right) \times \left(\frac{L4}{2} + L6\right)$ $(1.0 \div 2 = .5 + .6) = 1.1 \times (3.9 \div 2 = 1.95 + .6) = 2.55$ ∴ $1.1 \times 2.55 = 2.8\ m^2$

Figure 9.1 – Area of roof supported by post (see 9.2.2)

Table 9.2 – Connections to posts and beams to resist uplift (see 9.3)

Roof type	Wind zone	Capacity of post and beam connections (kN) for area of roof supported						
		1 m^2	2 m^2	4 m^2	6 m^2	8 m^2	10 m^2	12 m^2
Light	Very High	2.0	4.0	7.9	11.9	15.8	19.8	23.8
	High	1.5	2.9	5.9	8.8	11.8	14.7	17.7
	Medium	1.0	1.9	3.8	5.8	7.7	9.6	11.5
	Low	0.7	1.3	2.6	3.9	5.2	6.5	7.8
Heavy	Very High	1.6	3.2	6.5	9.7	13.0	16.2	19.4
	High	1.1	2.2	4.4	6.7	8.9	11.1	13.3
	Medium and Low	No securement for uplift required						

9 POSTS

9.1 General

Amd 1 Dec '00

Isolated 100 mm x 100 mm *posts* not exceeding 3 m long may be used to support beams which directly support *rafters*. The verandah beam sizes shall be obtained from table 10.8.

9.2 Uplift: concrete volume at base

9.2.1

Amd 1 Dec '00

Where a roof is supported by *posts* and is open to wind exposure on one, two adjacent or three sides the *posts* are required to be secured against uplift. Secure each *post* against uplift by concrete *footings* complying with 9.2.2.

C9.2.1

This clause is to provide for verandah, deck or carport roofs.

9.2.2

The area of the roof supported by the *post* shall be determined from figure 9.1 and the volume of the concrete *footing* required to resist uplift shall be as given in table 9.1.

9.3 Connections

Each end of each *post* shall be provided with connections as given by table 9.2 and either figures 9.2 or 9.3 or by alternative proprietary connections of an equal or greater *capacity*.

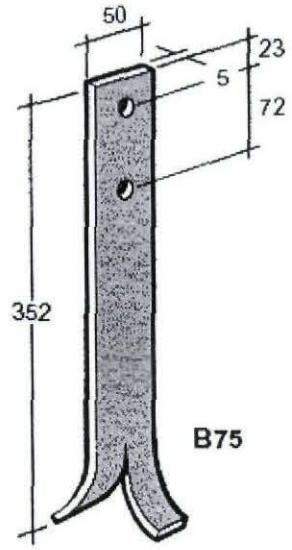
Table 9.1 – Post concrete footings to resist uplift (see 9.2.2)

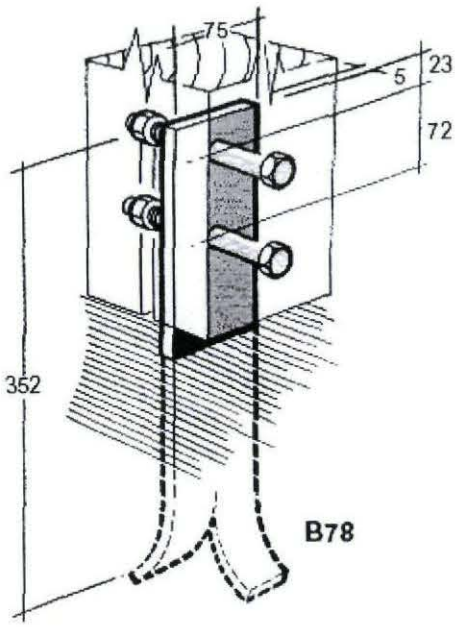
Roof type	Wind zone	Volume of footing concrete (m^3) for area of roof supported						
		1 m^2	2 m^2	4 m^2	6 m^2	8 m^2	10 m^2	12 m^2
Light	Very High	0.07	0.13	0.26	0.40	0.50	0.65	0.80
	High	0.05	0.10	0.20	0.30	0.40	0.50	0.60
	Medium	0.03	0.05	0.10	0.15	0.20	0.25	0.30
	Low	0.02	0.03	0.07	0.10	0.15	0.15	0.20
Heavy	Very High	0.04	0.07	0.13	0.20	0.26	0.32	0.40
	High	0.03	0.05	0.10	0.15	0.20	0.25	0.30
	Medium and Low	No securement for uplift required						

BOWMAC Structural Brackets

BOWMAC Straps

BOWMAC B75, B78 & B79





BOWMAC B75

Bolt Size (Bolts Not Included)

- Bolt holes accommodate **M12** Bolt.

Similar also available in stainless steel 304-2B.

Characteristic Load - Compression	20.8kN
Characteristic Load - Tension	10.4kN
• 2 x M12 H.D.G. Bolts • Bolts acting parallel to grain (90mm timber)	

BOWMAC B78

Bolt Size (Bolts Not Included)

- Bolt holes accommodate **M12** Bolt.

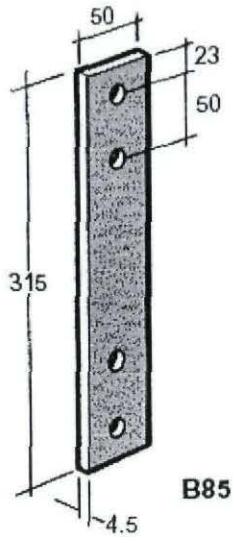
Similar also available in stainless steel 304-2B.

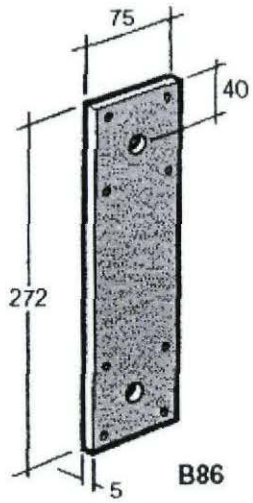
Characteristic Load - Compression	20.8kN
Characteristic Load - Tension	10.4kN
• 2 x M12 H.D.G. Bolts • Bolts acting parallel to grain (90mm timber)	

BOWMAC Structural Brackets

BOWMAC Straps

BOWMAC B85, B86 & B88





BOWMAC B85

Bolt Size (Bolts Not Included)

- Bolt holes accommodate **M12** Bolt.

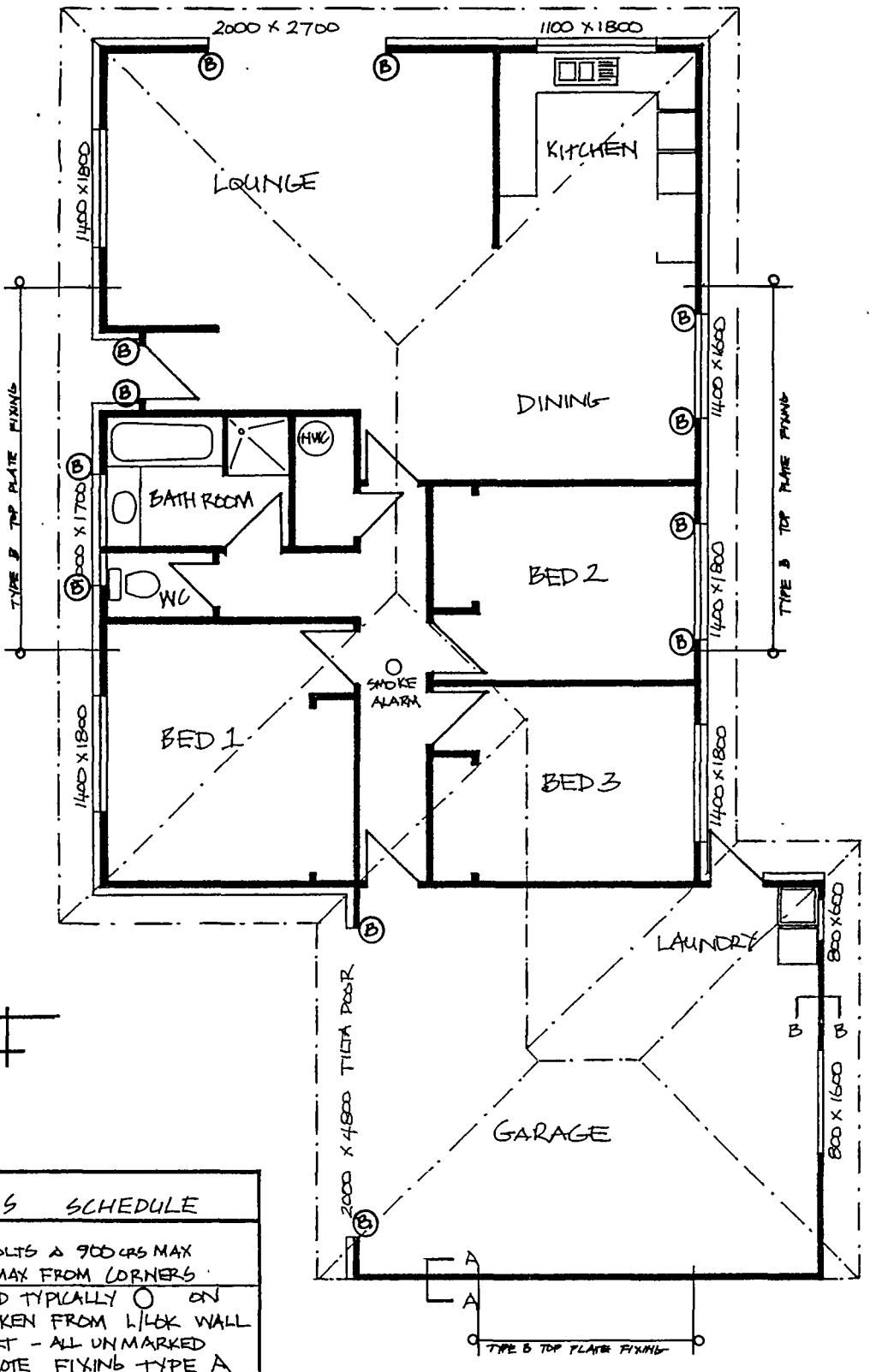
Similar also available in stainless steel 304-2B.

Characteristic Load - Compression	20.8kN
Characteristic Load - Tension	10.4kN
• 2 x M12 H.D.G. Bolts • Bolts acting parallel to grain (90mm timber)	

BOWMAC B86

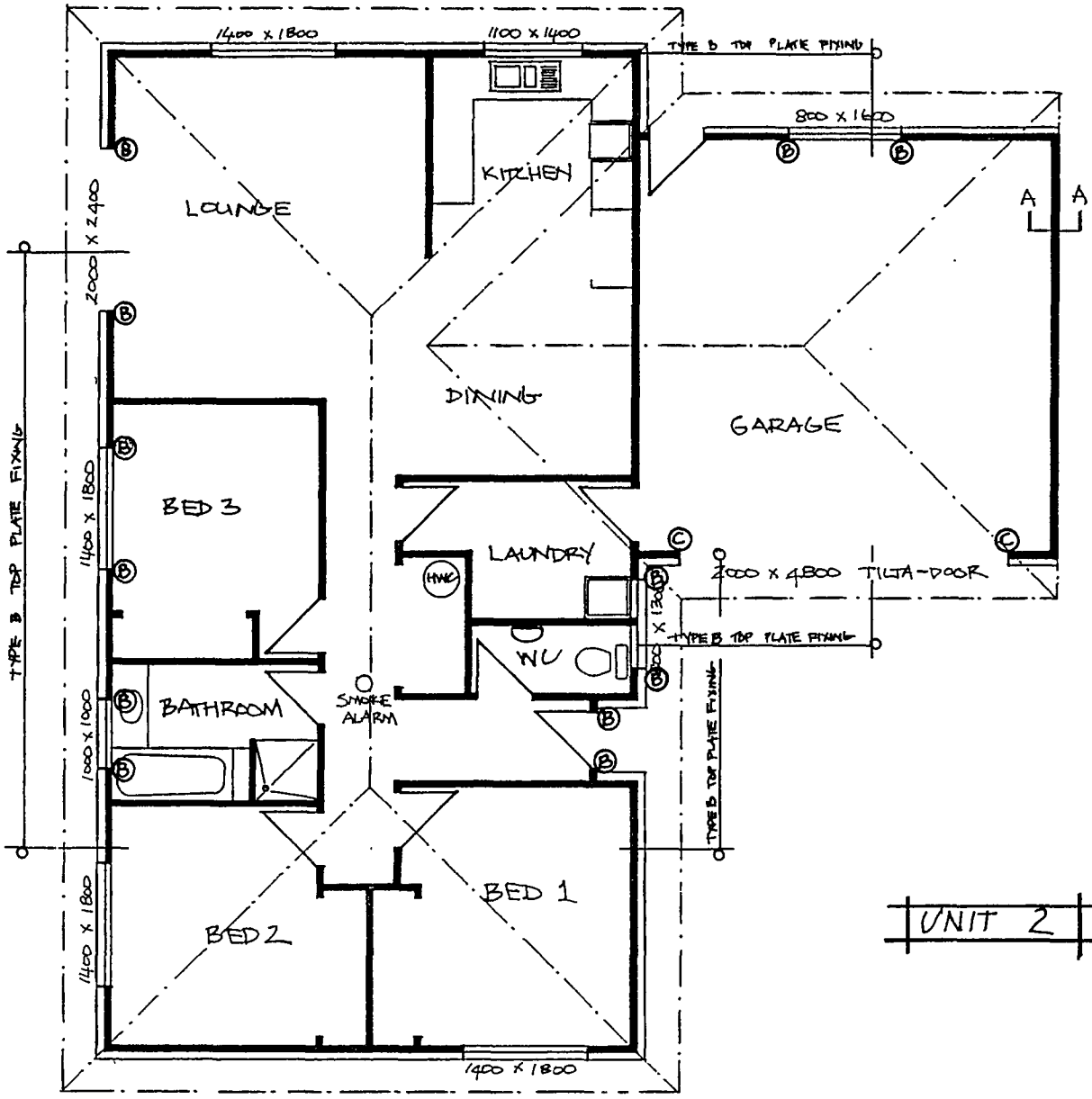
Bolt & Nail Sizes (Bolts & Nails Not Included)

- Bolt holes accommodate **M10** Bolt.
- Nail holes accommodate **40mm x 3.15**Ø F. Head square twisted shank nails. Hot dip galvanised.

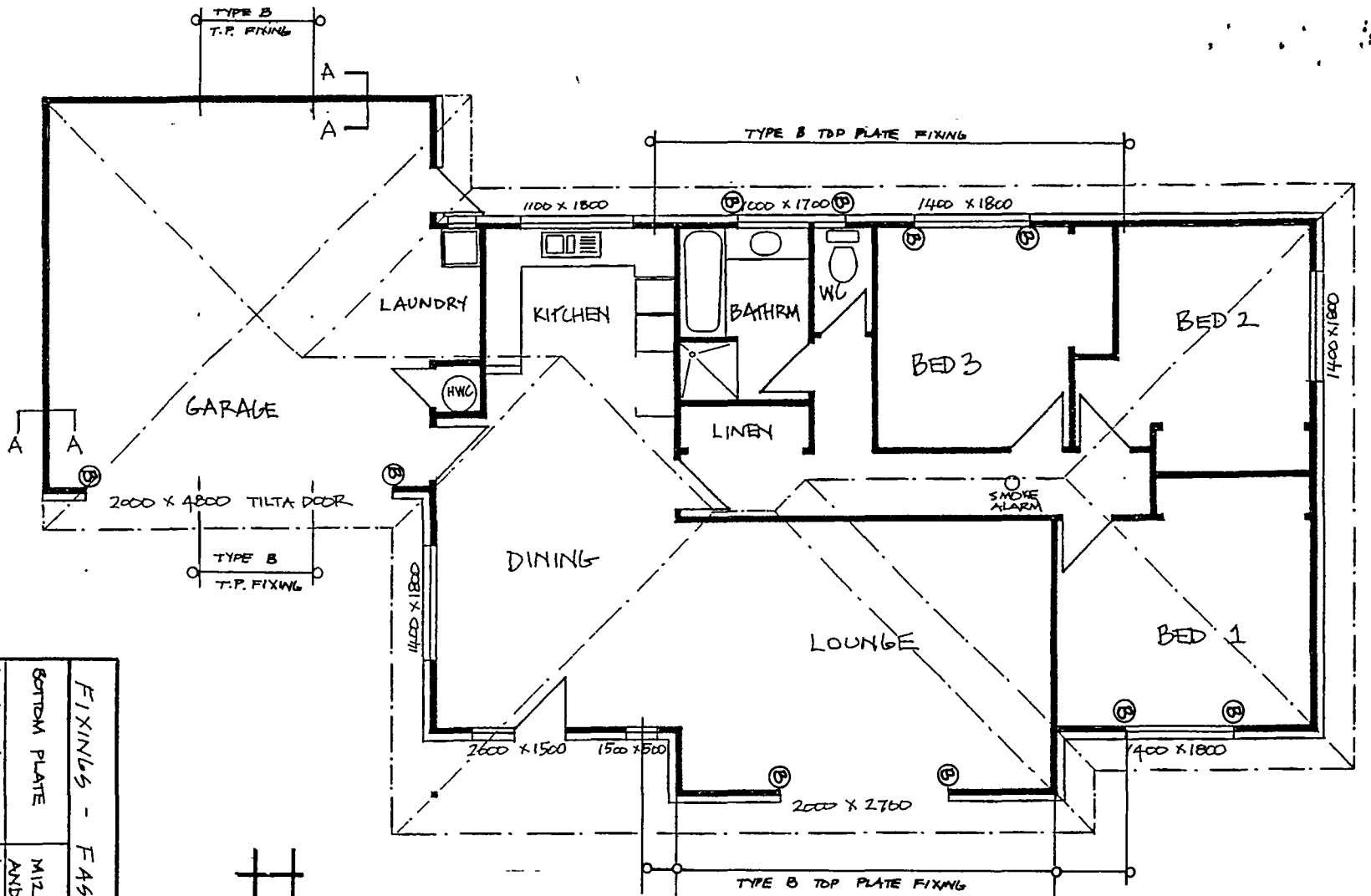


UNITS 1 & 3

FIXINGS - FASTENINGS SCHEDULE	
BOTTOM PLATE	M12 TRU BOLTS @ 900 CRS MAX AND 150 MM MAX FROM CORNERS
LINTELS	AS INDICATED TYPICALLY ○ ON PLAN AS TAKEN FROM L/LOK WALL FIXING CHART - ALL UNMARKED LINTELS DENOTE FIXING TYPE A
TOP PLATE	ALL TYPE A AS TAKEN FROM L/LOK WALL FIXING CHART EXCEPTING THOSE AS DENOTED OTHERWISE
PURLIN TO RAFTER	AS PER L/LOK PURLIN FIXING CHART TYPE C FIXING TO PURLIN NO 2 BALANCE REQUIRE TYPE B FIXING.
NOTE: FIXINGS BASED ON LIGHT ROOF - LOW WIND.	

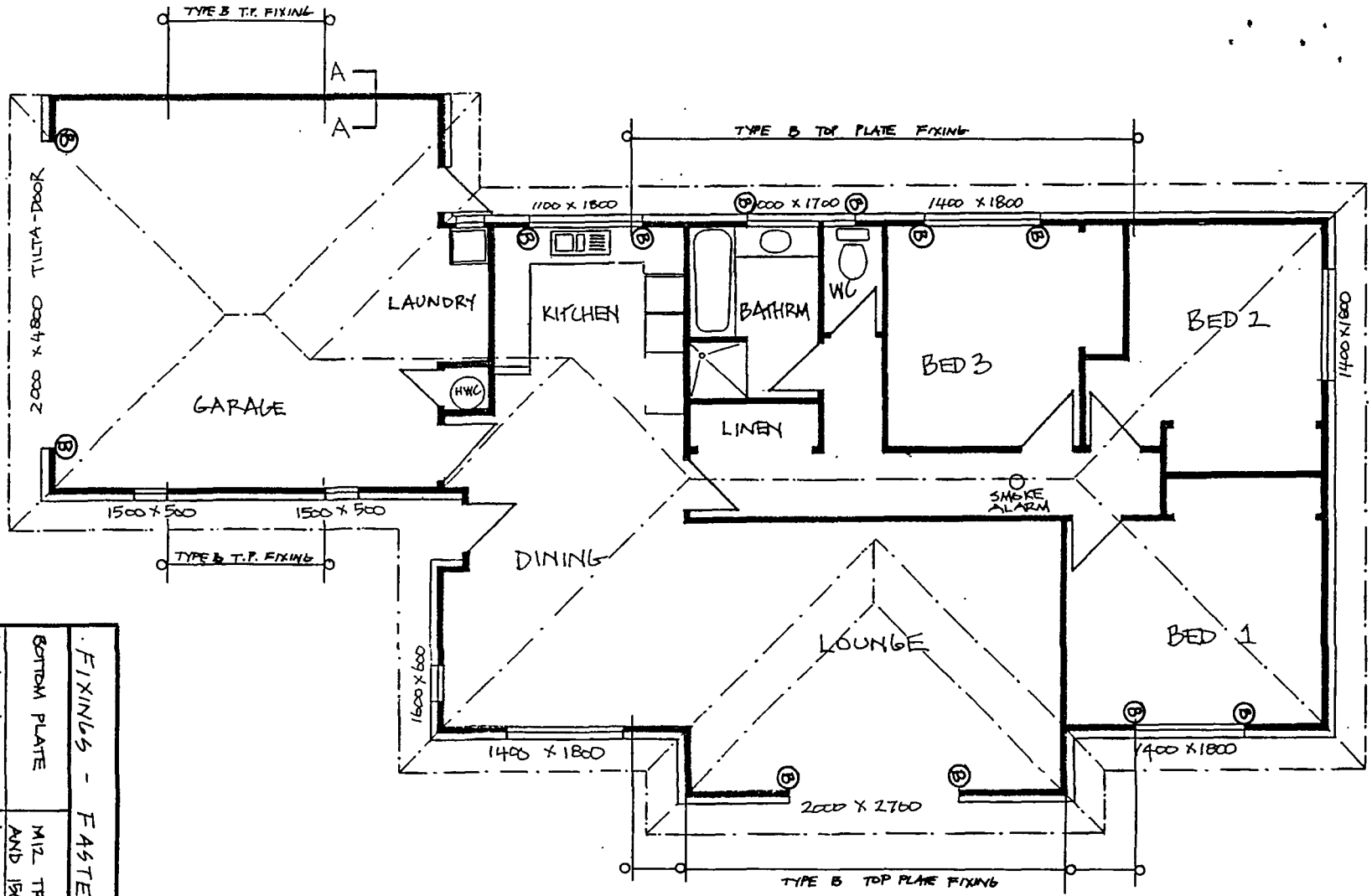


FIXINGS - FASTENINGS SCHEDULE	
BOTTOM PLATE	M12 TRU BOLTS @ 900 CRS MAX AND 150 MM MAX FROM CORNERS
LINTELS	AS INDICATED TYPICALLY O ON PLAN AS TAKEN FROM L/LOK WALL FIXING CHART - ALL UNMARKED LINTELS DENOTE FIXING TYPE A
TOP PLATE	ALL TYPE A AS TAKEN FROM L/LOK WALL FIXING CHART EXCEPTING THOSE AS DENOTED OTHERWISE
PURLIN TO RAFTER	AS PER L/LOK PURLIN FIXING CHART TYPE C FIXING TO PURLIN NR 2 BALANCE REQUIRE TYPE B FIXING.
NOTE: FIXINGS BASED ON LIGHT ROOF - LOW WIND.	



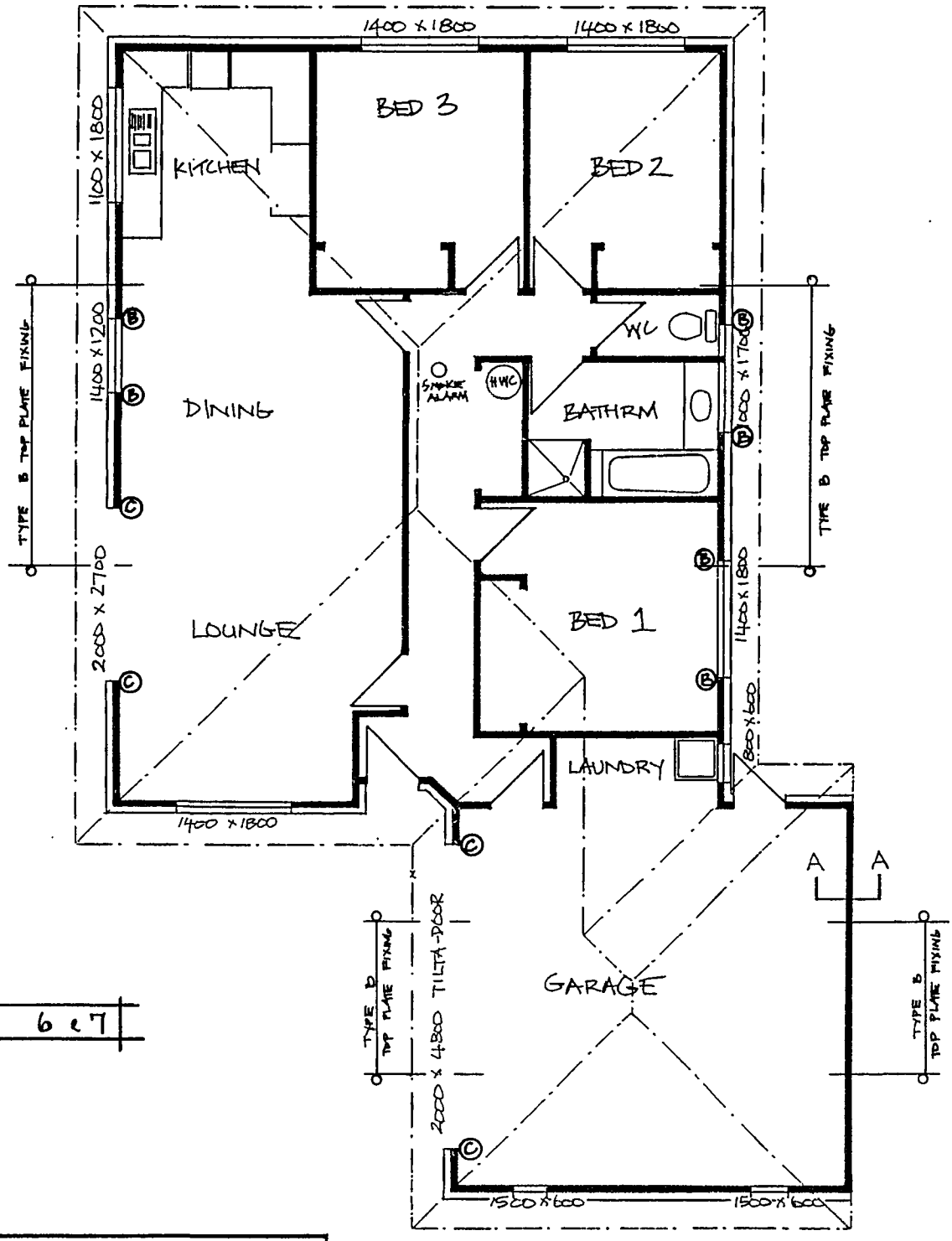
UNIT 4

FIXINGS - FASTENINGS SCHEDULE	
BOTTOM PLATE	M12 TRU BOLTS @ 900 CRS MAX AND 150mm MAX FROM CORNERS
LINTELS	AS INDICATED TYPICALLY ○ ON PLAN AS TAKEN FROM L/LOK WALL FIXING CHART - ALL UNMARKED LINTELS DENOTE FIXING TYPE A
TOP PLATE	ALL TYPE A AS TAKEN FROM L/LOK WALL FIXING CHART EXCEPTING THOSE AS DENOTED OTHERWISE
PURLIN TO RAFTER	AS PER L/LOK PURLIN FIXING CHART TYPE C FIXING TO PURLIN NO2 BALANCE REQUIRE TYPE B FIXING.
NOTE: FIXINGS BASED ON LIGHT ROOF-LOW WIND.	



UNIT 5

FIXINGS - FASTENINGS SCHEDULE	
BOTTOM PLATE	M12 TRU BOLTS @ 900 CRS MAX AND 150MM MAX FROM CORNERS
LINTELS	AS INDICATED TYPICALLY ○ ON PLAN AS TAKEN FROM L/LOK WALL FIXING CHART - ALL UNMARKED LINES DENOTE FIXING TYPE A
TOP PLATE	ALL TYPE A AS TAKEN FROM L/LOK WALL FIXING CHART EXCEPTING THOSE AS DENOTED OTHERWISE
PURLIN TO RAFTER	AS PER L/LOK PURLIN FIXING CHART TYPE C FIXING TO PURLIN NO.2 BALANCE REQUIRE TYPE B FIXING.
NOTE: FIXINGS BASED ON LIGHT ROOF - LOW WIND.	



UNITS 6 & 7

FIXINGS - FASTENINGS SCHEDULE	
BOTTOM PLATE	M12 TRU BOLTS @ 900 CRS MAX AND 150 MM MAX FROM CORNERS
LINTELS	AS INDICATED TYPICALLY ○ ON PLAN AS TAKEN FROM L/LOK WALL FIXING CHART - ALL UNMARKED LINTELS DENOTE FIXING TYPE A
TOP PLATE	ALL TYPE A AS TAKEN FROM L/LOK WALL FIXING CHART EXCEPTING THOSE AS DENOTED OTHERWISE
PURLIN TO RAFTER	AS PER L/LOK PURLIN FIXING CHART TYPE C FIXING TO PURLIN NR2 BALANCE REQUIRE TYPE B FIXING.
NOTE: FIXINGS BASED ON LIGHT ROOF - LOW WIND.	

LUMBERLOK® WALL FIXING CHART

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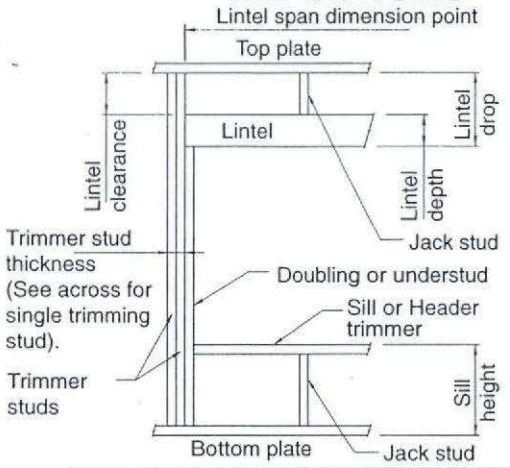
LINTEL FIXING SCHEDULE

(ALTERNATIVE TO NZS 3604:1999 TABLE 8.14 & FIGURE 8.12)

DEFINITIONS



SELECTION CHART FOR LINTEL FIXING

Lintel Span	Loaded Dimension *See reverse side	Light Roof Wind Zone				Heavy Roof Wind Zone			
		L	M	H	VH	L	M	H	VH
1.5	2.0	A	A	B	B	A	A	B	B
	3.0	A	B	B	C	A	A	B	B
	4.0	A	B	C	C	A	A	B	C
	5.0	B	B	C	C	A	A	C	C
	6.0	B	B	C	D	A	A	C	C
2.0	2.0	A	B	B	C	A	A	B	B
	3.0	A	B	C	C	A	A	B	C
	4.0	B	B	C	C	A	A	C	C
	5.0	B	C	C	D	A	A	C	C
	6.0	B	C	C	D	A	B	C	D
2.4	2.0	A	B	B	C	A	A	B	B
	3.0	B	B	C	C	A	A	C	C
	4.0	B	C	C	D	A	A	C	C
	5.0	B	C	C	D	A	B	C	D
	6.0	B	C	D	D	A	B	C	D
3.0	2.0	A	B	C	C	A	A	B	C
	3.0	B	B	C	D	A	A	C	C
	4.0	B	C	C	D	A	B	C	D
	5.0	B	C	D	D	A	B	C	D
	6.0	C	C	D	-	A	B	D	D
3.6	2.0	B	B	C	C	A	A	B	C
	3.0	B	C	C	D	A	B	C	C
	4.0	B	C	D	D	A	B	C	D
	5.0	C	C	D	-	A	B	D	D
	6.0	C	D	D	-	A	B	D	-
4.2	2.0	B	B	C	C	A	A	C	C
	3.0	B	C	D	D	A	B	C	D
	4.0	C	C	D	-	A	B	D	D
	5.0	C	D	D	-	A	B	D	-
	6.0	C	D	-	-	A	C	D	-
4.8	2.0	B	C	C	D	A	A	C	C
	3.0	B	C	D	D	A	B	C	D
	4.0	C	C	D	-	A	B	D	D
	5.0	C	D	-	-	A	B	D	-
	6.0	C	D	-	-	A	C	D	-

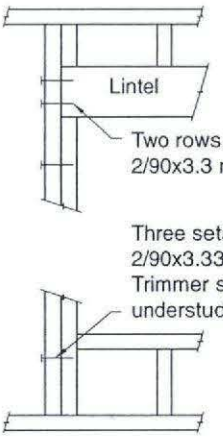
NOTES:

★ Lintels accepting Girder trusses for ALL load cases use:
Fixing type C where contributary area = 10m²
Fixing type D where contributary area = 20m²

★ All cases outside this require specific design

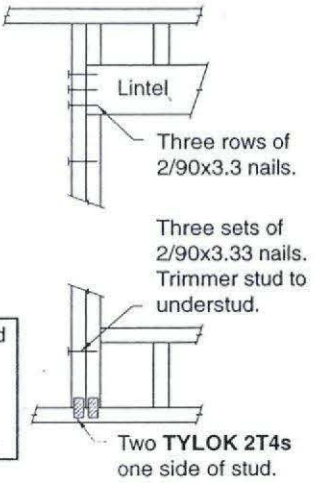
LINTEL FIXING TYPES

TYPE A 1.4kN



"All other nailing as Table 8.19"

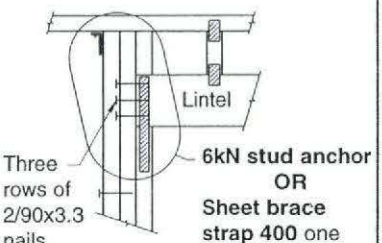
TYPE B 4.0kN



"All other nailing as Table 8.19"

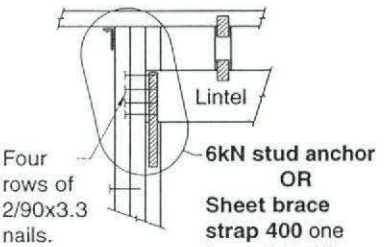
Fixing of jack stud to lintel & top plate, as per top plate schedule, see reverse side.

TYPE C 7.5kN

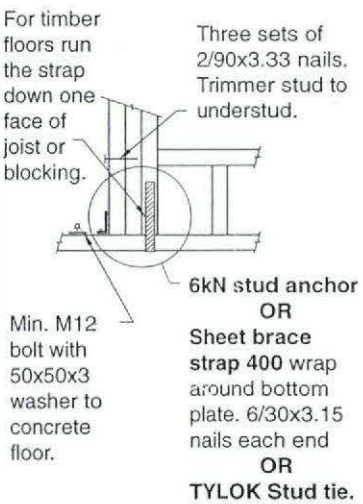


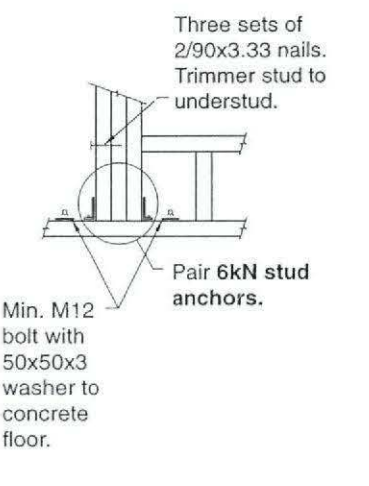
"All other nailing as Table 8.19"

TYPE D 13.5kN



"All other nailing as Table 8.19"





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STUD TO TOP PLATE FIXING SCHEDULE

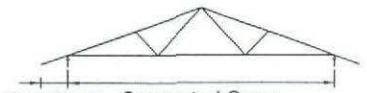
(ALTERNATIVE TO NZS 3604:1999 TABLE 8.18)

NOTE:

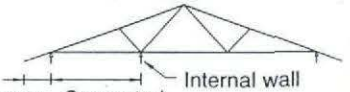
- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20kPa. Refer to table 8.19, NZS3604:1999 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made. Refer to the **LUMBERLOK®** Truss Fixing Chart.
- ★ Gable end wall top plate/stud connections require only 2x90x3.33 nails driven vertically into stud through top plate.
- ★ All Fixings assume top plate thickness of 45mm maximum.
- ★ Wall framing arrangements under girder trusses are not covered in this schedule.

LOADED DIMENSION DEFINITION

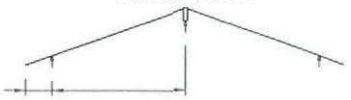
Standard truss



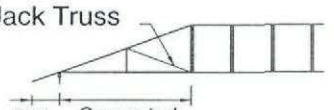
Internally supported truss



Rafter Roof



Jack Truss



$$\text{LOADED DIMENSION} = \frac{\text{SUPPORTED SPAN}}{2} + \text{OVERHANG}$$

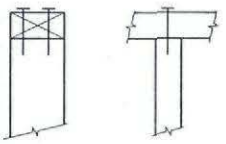
SELECTION CHART FOR FIXING LOADS - TOP PLATE TO STUD

Loaded Dimension	Light Roof Wind Zone				Heavy Roof Wind Zone			
	L	M	H	VH	L	M	H	VH
1.5	A	A	B	B	A	A	B	B
2.0	A	B	B	C	A	A	B	B
2.5	A	B	C	C	A	A	B	C
3.0	B	B	C	D	A	A	B	C
3.5	B	B	C	D	A	A	B	D
4.0	B	C	D	D	A	A	C	D
4.5	B	C	D	D	A	B	C	D
5.0	B	C	D	D	A	B	C	D
5.5	B	C	D	D	A	B	C	D
6.0	B	C	D	-	A	B	D	D

- All studs at 600 crs.
- For studs at 400 crs decrease loaded dimension by 33%.
- All trusses at 900 crs.
- For trusses at 1200 crs increase loaded dimension by 33%.

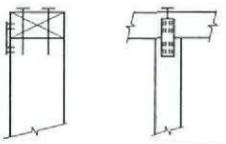
FIXING OPTIONS

FIXING TYPE A 0.7kN



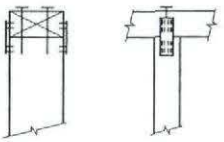
2/90x3.33 plain steel wire nails driven vertically into stud.

FIXING TYPE B 1.7kN



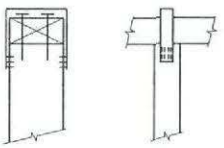
2/90x3.33 plain steel wire nails driven vertically into stud, plus single **TYLOK 2T4** plate.

FIXING TYPE C 2.7kN



2/90x3.33 plain steel wire nails driven vertically into stud, plus pair **TYLOK 2T4** plates.

FIXING TYPE D 6.0kN

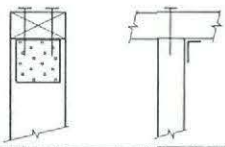


2/90x3.33 plain steel wire nails driven vertically into stud, plus **TYLOK Stud tie.**

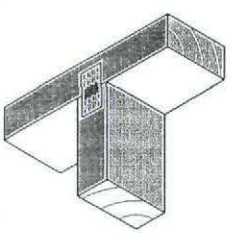
OR

Sheet brace strap 400 with 6/30x3.15 nails each stud face.

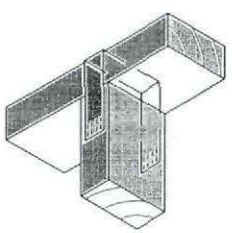
OR



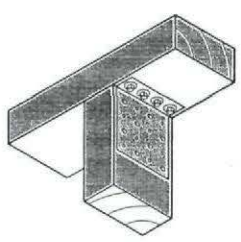
2/90x3.33 plain steel wire nails driven vertically into stud, plus **6kN Stud Anchor.**



TYLOK 2T4



TYLOK STUD TIE OR SHEET BRACE STRAP 400



6kN STUD ANCHOR

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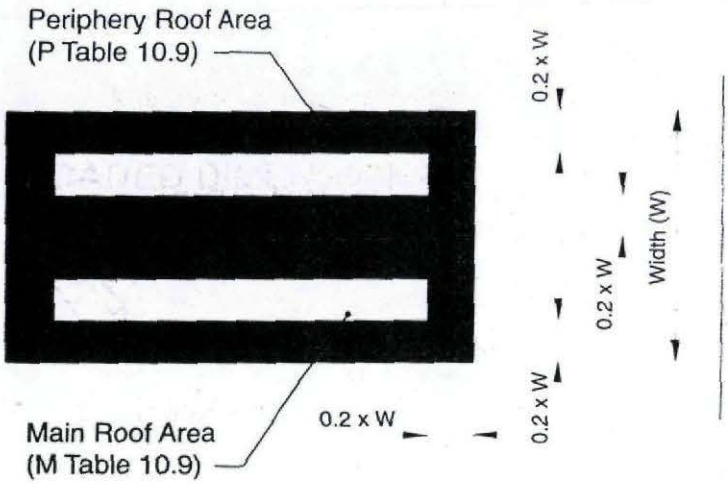
PURLIN & BATTEN FIXING CHART

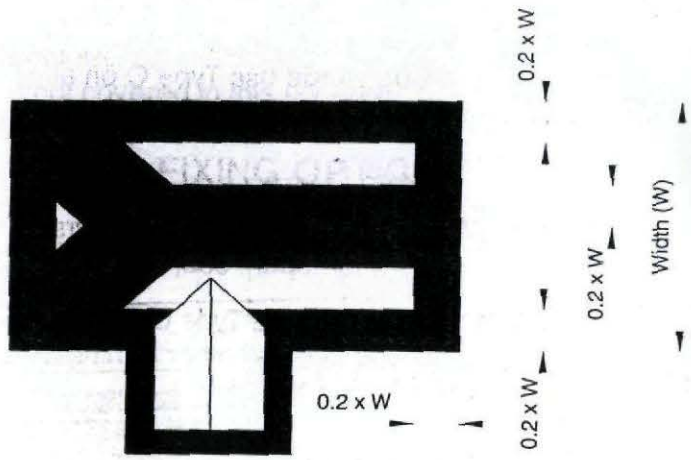
(COMPLIES WITH NZS 3604:1999 TABLE 10.10)

NOTE:

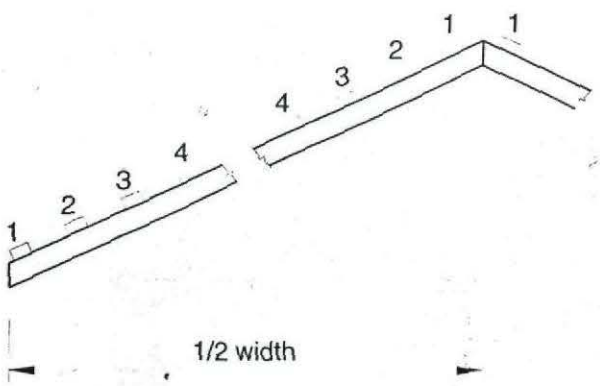
- ★ Max. truss overall roof span 12m
- ★ All purlin and batten sizes as NZS 3604:1999 Section 10.
- ★ These fixings assume purlin or battens are fixed over top of truss or rafter.



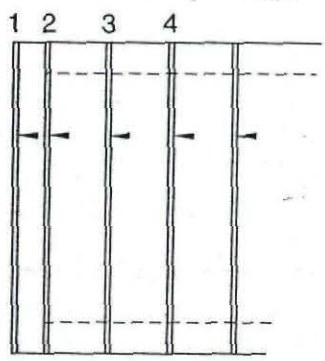
PLAN GABLE



PLAN HIP ENDS



PURLIN LAYOUT (MAX 1200 crs.)



TRUSSES, RAFTERS OR SUPPORT LINE AT MAX 1200 crs.

LAYOUT ON GABLE END

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SELECTION CHART
(minimum fixing requirements)

1. HEAVY ROOFS

All purlins and/or battens use fixing Type A only on roof width (w) up to 12m.

---

2. LIGHT ROOFS

A. BATTENS - Max. span 1200
- Max crs. 400
- Roof width (w) up to 12m.

L & M wind loads use Type B fixing on all battens.

H & VH wind loads use Type C on all battens.

B. PURLINS - Max. span 1200, Max crs. 900 or
- Max. span. 900, Max crs. 1200

L & M wind loads use Type C fixing on purlin No.2 and Type B on all other purlins for all roof widths (w) up to 12m.

H & VH wind loads

1. On roof width (w) up to 8m;
   Use Type D fixing on purlin No. 2 and Type C on all other purlins.
2. On roof width (w) up to 12m;
   Use Type D fixing on purlins No. 2 & 3 and Type C on all other purlins.

C. PURLINS AND BATTENS ON GABLE END
- Max. span 1200, Max crs. 900 or
- Max. span. 900, Max crs. 1200

L & M wind loads use Type B fixing on support line No. 1, Type C on support lines No. 2, 3, & 4 and all other support lines as per Section A or B above.

H & VH wind loads use Type C fixing on support line No. 1, Type D on support lines No. 2, 3, & 4 and all other support lines as per Section A or B above.

STANDARD FIXING OPTIONS

LUMBERLOK®

FIXING DEFINITIONS

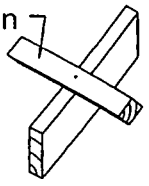
NAIL = Either 90 x 3.15 Power driven
or 100 x 3.75 Hand driven

SCREW = 100 x 3.0 dia **LUMBERLOK** Purlin screw

WIREDOG = Either left hand or right hand **LUMBERLOK** wiredog.

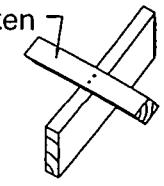
FIXING TYPE A
0.40kN

1 NAIL



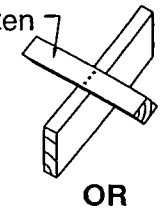
FIXING TYPE B
0.70kN

2 NAILS



FIXING TYPE C
1.20kN

3 NAILS
OR
1 NAIL + 1 SCREW



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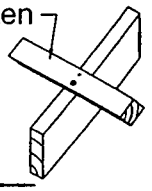
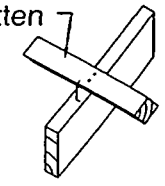


FIXING TYPE D
2.00kN

2 NAILS + 1 WIREDOG
OR
2 SCREWS



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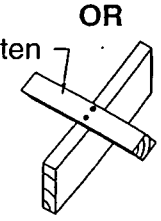
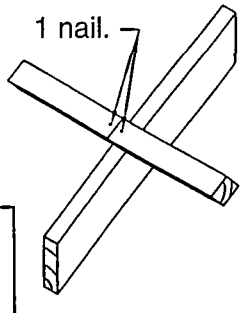


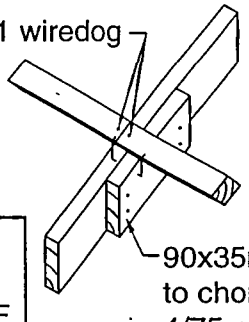
PURLIN / BATTEN SPLICE FIXING OPTIONS

NOTE:
Skew nail when fixing to 35mm rafter or truss.

FIXING TYPE A & B OVER PURLIN SPLICE



FIXING TYPE C & D OVER PURLIN SPLICE



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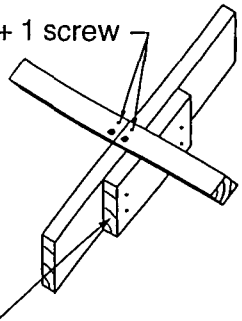

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Wall Bracing Calculation Sheet A

Job Details

box 1

Name MR A.C. MYLES

Street and Number UNIT 1 TAYLOR PASS ROAD

Lot and DP Number LOT 1 SUB DVN OF LOT 2 DP329656

City/Town/District BLENHEIM

Location of Storey: single/~~upper of two/lower of two~~ Floor load: 2kPa/~~6kPa~~

Building height to apex 5 m

Roof height above eaves 2.5 m

Stud height 2.4 m

Average roof pitch 25°

Building length BL = 19.2 m

Building width BW = 11.2 m

Roof weight light/~~heavy~~

Cladding weights:

~~Subfloor~~ ~~light/medium/heavy~~

Lower Storey ~~light/medium~~/heavy

~~Upper Storey~~ ~~light/medium/heavy~~

Room in Roof Space ~~Yes~~/ No

Gross Building Plan Area, GPA = 168 m²

Note: *When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.*

Wind Zone

box 2

Region:		Terrain:		Exposure:		Topography:	
R1	0 ✓	Inland	0 ✓	Sheltered	0 ✓	Gentle	0 ✓
R2	1	Coastal	1	Exposed	1	Moderate	1
						Extreme	3

Total points 0

Wind Zone: ✓ Low (0) ____ Very high (3)

____ Medium (1) ____ Specific Design (4)

____ High (2)

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: (A) B C

BUs required Wind

box 4

From Table W1A/W1B

W along = 41 BUs/m

W across = 41 BUs/m

Total wind load,

W ALONG:
W along x BW = 460 BUs

W ACROSS
W across x BL = 788 BUs

BUs required Earthquake

box 5

From Table ~~EQ1/EQ2~~/EQ3/~~EQ4/EQ5/EQ6~~

E = 5.2 BUs/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 874 BUs

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Wall Bracing Calculation Sheet B

Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A		A1	BR5	1.2			85	102
		A2	BR5	1.2			85	102
B		B3	BR9	.7			95	66
		B4	GIB2B	2.4			70	168
		B5	GIB2B	2.4			70	168
C		C6	GIB1B	2.4			50	120
		C7	BR5	1.2			85	102
D		D8	GIB1A	1.8			50	90
E								

Totals Achieved				
	W		E	918
From Sheet A Totals Required	W	460	E	874
Wreq/Ereq = .53 *				

*If Wreq/Ereq is 1 or less complete E column only
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M		M9	BR5	1.2			85	102
N		N10	GIB1B	2.4			50	120
		N11	GIB2B	2.4			70	168
O		O12	GIB2B	2.4			70	168
		O13	GIB2B	2.4			70	168
P		P14	GIB1B	2.4			50	120
Q		Q15	GIB1B	2.4			50	120

Totals Achieved				
	W		E	966
From Sheet A Totals Required	W	788	E	874
Wreq/Ereq = .91 *				

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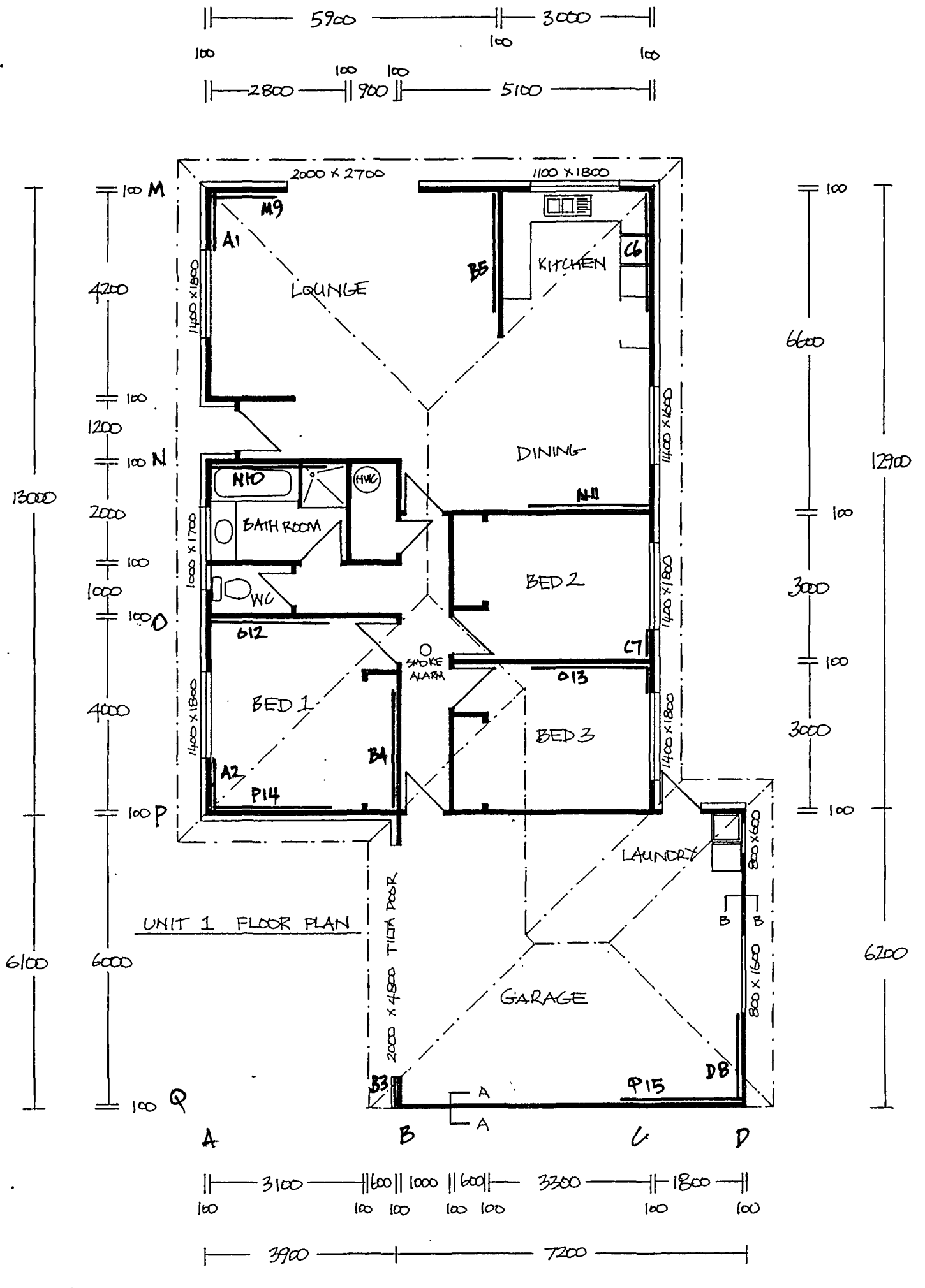
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LOUNGE
B5
KITCHEN
C6
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1400 x 1600
DINING
N10
HWC
N11
BATH ROOM
1000 x 1700
WC
BED 2
D12
SMOKE ALARM
C7
D13
BED 1
BED 3
B4
A2
P14
LAUNDRY
800 x 600
UNIT 1 FLOOR PLAN
2000 x 4800 TILT DOOR
GARAGE
800 x 1600
B3
P15
D8
A
B
C
D
M
N
O
P
Q
13000
6100
4200
1200
2000
1000
4000
6000
6600
3000
12900
6200
3100
600
1000
3300
1800
7200
3900

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Wall Bracing Calculation Sheet A

Job Details

box 1

Name MR A.L. MYLES

Street and Number UNIT 2 TAYLOR PASS ROAD

Lot and DP Number LOT 2 SUB DYN OF LOT 2 DP 329656

City/Town/District BLENHEIM

Location of Storey: single/~~upper of two/lower of two~~ Floor load: 2kPa/~~3kPa~~

Building height to apex 4.8 m

Roof height above eaves 2.2 m

Stud height 2.4 m

Average roof pitch 25°

Building length BL = 14.9 m

Building width BW = 13.9 m

Roof weight light/~~heavy~~

Cladding weights:

~~Subfloor~~ ~~light/medium/heavy~~

Lower Storey ~~light/medium~~/heavy

~~Upper Storey~~ ~~light/medium/heavy~~

Room in Roof Space ~~Yes~~/No

Gross Building

Plan Area, GPA = 157 m²

Note: *When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.*

Wind Zone

box 2

Region:		Terrain:		Exposure:		Topography:	
R1	0 ✓	Inland	0 ✓	Sheltered	0 ✓	Gentle	0 ✓
R2	1	Coastal	1	Exposed	1	Moderate	1
						Extreme	3

Total points 0

Wind Zone: ✓ Low (0) ____ Very high (3)

____ Medium (1) ____ Specific Design (4)

____ High (2)

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: (A) B C

BUs required Wind

box 4

From Table W1A/W1B

W along = 37 BUs/m

W across = 35 BUs/m

Total wind load,

W ALONG:
W along x BW = 514 BUs

W ACROSS
W across x BL = 522 BUs

BUs required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6

E = 5.2 BUs/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 817 BUs

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Wall Bracing Calculation Sheet B

Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A		A1	BR4	.9			85	76
		A2	BR5	1.2			85	102
B		B3	6IB2B	2.3			70	161
		B4	6IB2B	2.4			70	168
		B5	6IB2B	2.4			70	168
C		C6	6IB1B	2.4			50	120
		C7	6IB1B	2.4			50	120
D		D8	6IB1B	2.4			50	120
E								

Totals Achieved				
	W		E	1035

From Sheet A	Totals Required			
Wreq/Ereq = .63		W	514	E 817

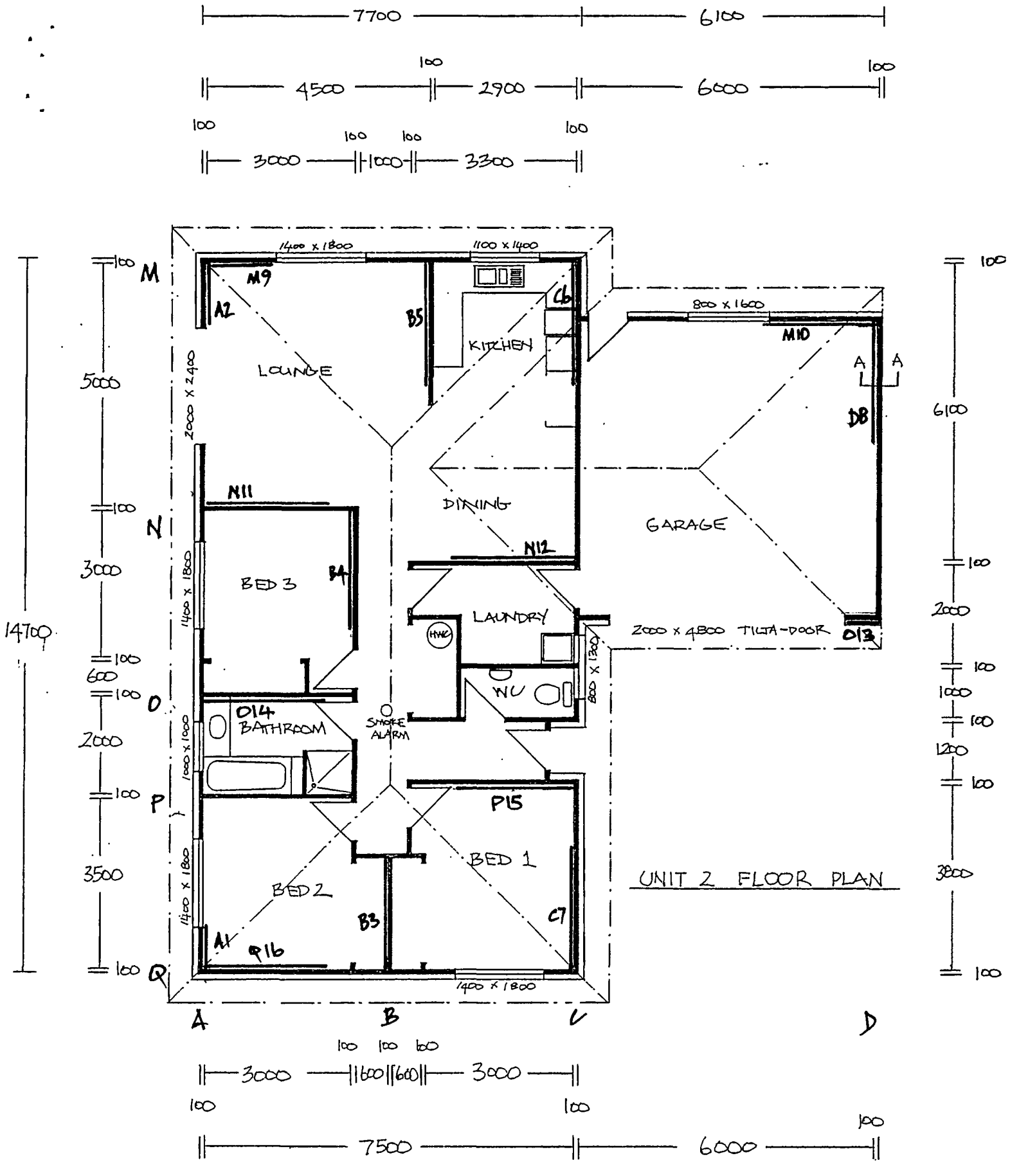
*If Wreq/Ereq is 1 or less complete E column only
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M		M9	BR5	1.2			85	102
		M10	6IB1B	2.3			50	115
N		N11	6IB2B	2.4			70	168
		N12	6IB2B	2.4			70	168
O		O13	BR9	.7			95	66
		O14	6IB2B	2.4			70	168
P		P15	4IB1B	2.4			50	120
Q		Q16	6IB1B	2.4			50	120

Totals Achieved				
	W		E	1027

From Sheet A	Totals Required			
Wreq/Ereq = .64		W	522	E 817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B5
C6
KITCHEN
LOUNGE
800 x 1600
M10
A
A
DB
2000 x 2400
N11
DINING
GARAGE
N12
BED 3
B4
LAUNDRY
2000 x 4800 TILT-DOOR
D13
WC
800 x 1300
D14
BATHROOM
SMOKE ALARM
1000 x 1000
P15
BED 1
BED 2
B3
C7
A1
P16
1400 x 1800
14700
5000
3000
600
2000
3500
6100
2000
1000
1200
3800
M
N
O
P
Q
A
B
C
D
UNIT 2 FLOOR PLAN

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Wall Bracing Calculation Sheet A

Job Details

box 1

Name MR A.L. MYLES

Street and Number UNIT 3 TAYLOR PASS ROAD

Lot and DP Number LOT 3 SUB DVN OF LOT 2 DP329656

City/Town/District BLENHEIM

Location of Storey: single/~~upper of two/lower of two~~ Floor load: 2kPa/~~3kPa~~

Building height to apex	5 m	Roof weight	light/~~heavy~~
Roof height above eaves	2.5 m	Cladding weights:	
		~~Subfloor~~	~~light/medium/heavy~~
		Lower Storey	~~light/medium~~/heavy
Stud height	2.4 m	~~Upper Storey~~	~~light/medium/heavy~~
Average roof pitch	25°	Room in Roof Space	~~Yes~~/ No
Building length BL =	19.2 m	Gross Building	
Building width BW =	11.2 m	Plan Area,	GPA = 168 m²

Note: *When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.*

Wind Zone

box 2

Region:		Terrain:		Exposure:		Topography:	
R1	0 ✓	Inland	0 ✓	Sheltered	0 ✓	Gentle	0 ✓
R2	1	Coastal	1	Exposed	1	Moderate	1
						Extreme	3

Total points 0

Wind Zone: ✓ Low (0) ____ Very high (3)

____ Medium (1) ____ Specific Design (4)

____ High (2)

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: (A) B C

BUs required Wind

box 4

From Table W1A/W1B

W along = 41 BUs/m

W across = 41 BUs/m

Total wind load,

W ALONG:
W along x BW = 460 BUs

W ACROSS
W across x BL = 788 BUs

BUs required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6

E = 5.2 BUs/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 874 BUs

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Wall Bracing Calculation Sheet B

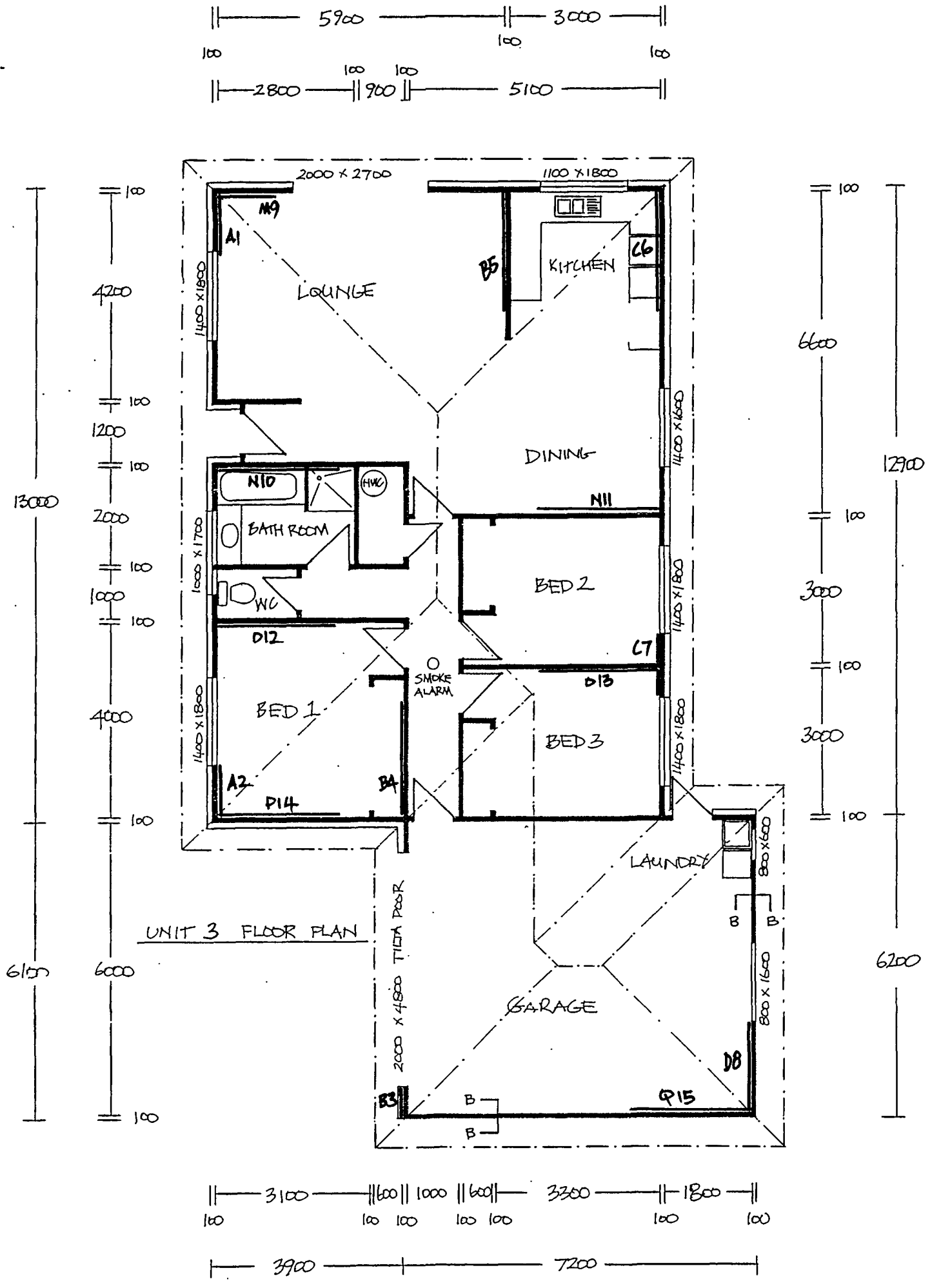
Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A		A1	BR5	1·2			85	102
		A2	BR5	1·2			85	102
B		B3	BR9	·7			95	66
		B4	GIB2B	2·4			70	168
		B5	GIB2B	2·4			70	168
C		C6	GIB1B	2·4			50	120
		C7	BR5	1·2			85	102
D		D8	GIB1A	1·8			50	90
E								
Totals Achieved					W		E	918
From Sheet A Totals Required					W	460	E	874
Wreq/Ereq = ·53 *								

***If Wreq/Ereq is 1 or less complete E column only**
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M		M9	BR5	1·2			85	102
N		N10	GIB1B	2·4			50	120
		N11	GIB2B	2·4			70	168
O		O12	GIB2B	2·4			70	168
		O13	GIB2B	2·4			70	168
P		P14	GIB1B	2·4			50	120
Q		Q15	GIB1B	2·4			50	120
Totals Achieved					W		E	966.
From Sheet A Totals Required					W	788	E	874
Wreq/Ereq = ·91 *								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LOUNGE
B5
KITCHEN
C6
1400 x 1800
1400 x 1600
DINING
N10
HWC
N11
BATH ROOM
1000 x 1700
BED 2
WC
D12
C7
SMOKE ALARM
D13
BED 1
BED 3
A2
B4
D14
LAUNDRY
800 x 600
B
B
UNIT 3 FLOOR PLAN
2000 x 4800 TILT PANEL
GARAGE
800 x 1600
D8
B3
B
B
P15
13000
4200
1200
2000
1000
4000
6100
6000
100
6600
12900
3000
6200
3100
600
1000
3300
1800
3900
7200

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Wall Bracing Calculation Sheet A

Job Details

box 1

Name MR A.C. MYLES

Street and Number UNIT 4 TAYLOR PASS ROAD

Lot and DP Number LOT 4 SUB DYN OF LOT 2 DP 329656

City/Town/District BLENHEIM

Location of Storey: single/~~upper of two/lower of two~~ Floor load: 2kPa/~~3kPa~~

Building height to apex 5.0 m

Roof height above eaves 2.5 m

Stud height 2.4 m

Average roof pitch 25°

Building length BL = 20.2 m

Building width BW = 11.1 m

Roof weight light/~~heavy~~

Cladding weights:

~~Subfloor~~ ~~light/medium/heavy~~

Lower Storey ~~light/medium~~/heavy

~~Upper Storey~~ ~~light/medium/heavy~~

Room in Roof Space ~~Yes~~ / No

Gross Building

Plan Area, GPA = 161 m²

Note: *When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.*

Wind Zone

box 2

Region:		Terrain:		Exposure:		Topography:	
R1	0 ✓	Inland	0 ✓	Sheltered	0 ✓	Gentle	0 ✓
R2	1	Coastal	1	Exposed	1	Moderate	1
						Extreme	3

Total points 0

Wind Zone: ✓ Low (0) _____ Very high (3)

_____ Medium (1) _____ Specific Design (4)

_____ High (2)

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: (A) B C

BUs required Wind

box 4

From Table W1A/W1B

W along = 41 BUs/m

W across = 41 BUs/m

Total wind load,

W ALONG:
W along x BW = 455 BUs

W ACROSS
W across x BL = 828 BUs

BUs required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6

E = 5.2 BUs/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 837. BUs

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Wall Bracing Calculation Sheet B

Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A		A1	61B1B	2.4			50	120
		A2	61B1B	2.4			50	120
B		B3	BR9	.7			95	66
		B4	61B2B	2.4			70	168
		B5	61B2B	2.4			70	168
C		C6	BR5	1.2			85	102
		C7	BR5	1.2			85	102
D		C8	SP26	.7			95	66
E								

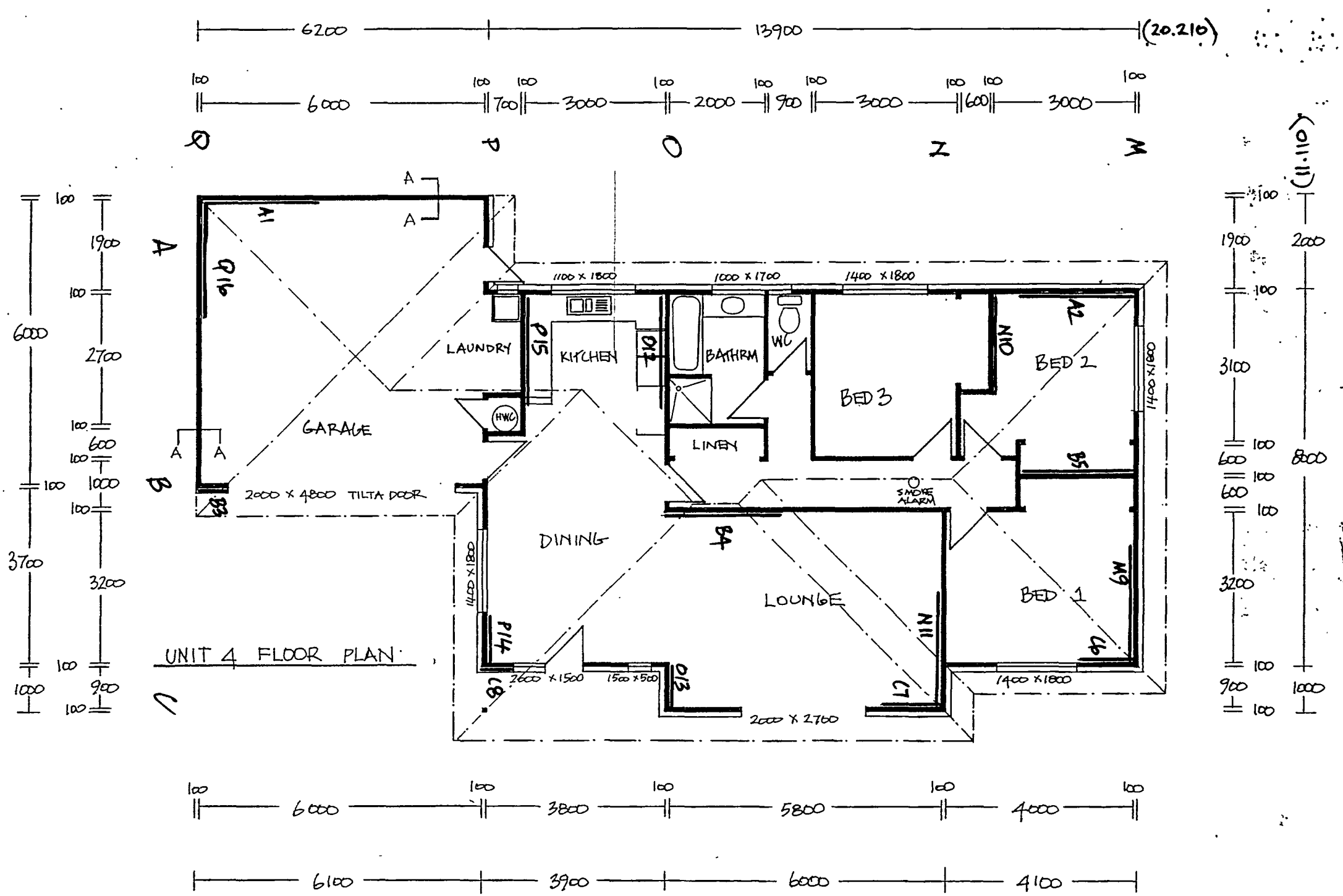
Totals Achieved		W		E	912
From Sheet A	Totals Required	W	455	E	837
Wreq/Ereq = .55	*				

*If Wreq/Ereq is 1 or less complete E column only
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M		M9	61B1B	2.4			50	120
N		N10	61B2B	2.0			60	120
		N11	61B1B	2.4			50	120
O		O12	61B2B	2.4			70	168
		O13	BR4	1.0			85	85
P		P14	BR4	1.1			85	96
		P15	61B2B	2.4			70	168
Q		Q16	61B1B	2.4			50	120

Totals Achieved		W		E	997
From Sheet A	Totals Required	W	828	E	837
Wreq/Ereq = .99	*				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LAUNDRY
KITCHEN
BATHRM
WC
BED 3
BED 2
BED 1
LINEN
GARAGE
HWC
DINING
LOUNGE
SMOKE ALARM
2000 X 4800 TILTA DOOR
1100 X 1800
1000 X 1700
1400 X 1800
2600 X 1500
1500 X 500
2000 X 2700
UNIT 4 FLOOR PLAN

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phone Gib® Information
Helpline 0800 100 442

Wall Bracing Calculation Sheet A

Job Details

box 1

Name MR A.C MYLES

Street and Number UNIT 5 TAYLOR PASS ROAD

Lot and DP Number LOT 5 SUB DYN OF LOT 2 DP 329656

City/Town/District BLENHEIM

Location of Storey: single/~~upper of two/lower of two~~ Floor load: 2kPa/~~3kPa~~

Building height to apex 5.0 m

Roof height above eaves 2.5 m

Stud height 2.4 m

Average roof pitch

Building length BL = 20.3 m

Building width BW = 11.1 m

Roof weight light/~~heavy~~

Cladding weights:

~~Subfloor~~ ~~light/medium/heavy~~

Lower Storey ~~light/medium~~/heavy

~~Upper Storey~~ ~~light/medium/heavy~~

Room in Roof Space ~~Yes~~/ No

Gross Building

Plan Area, GPA = 168 m²

Note: *When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.*

Wind Zone

box 2

Region:		Terrain:		Exposure:		Topography:	
R1	0 ✓	Inland	0 ✓	Sheltered	0 ✓	Gentle	0 ✓
R2	1	Coastal	1	Exposed	1	Moderate	1
						Extreme	3

Total points 0

Wind Zone: ✓ Low (0) ____ Very high (3)

____ Medium (1) ____ Specific Design (4)

____ High (2)

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: (A) B C

BUs required Wind

box 4

From Table W1A/W1B

W along = 41 BUs/m

W across = 41 BUs/m

Total wind load,

W ALONG:
W along x BW = 455 BUs

W ACROSS
W across x BL = 832 BUs

BUs required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6

E = 5.2 BUs/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 874 BUs

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Wall Bracing Calculation Sheet B

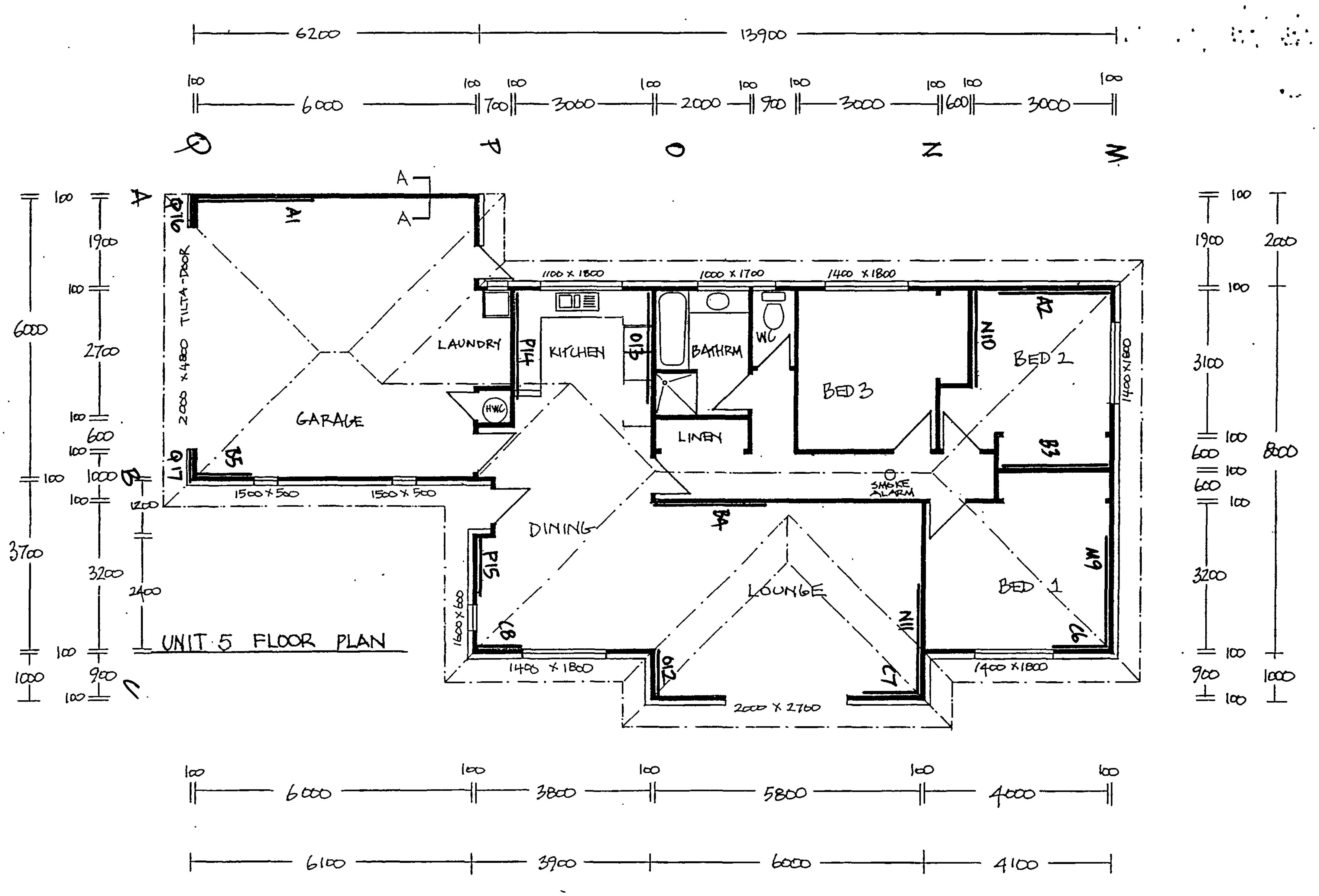
Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A		A1	GIB1B	2.4			50	120
		A2	GIB1B	2.4			50	120
B		B3	GIB2B	2.4			70	168
		B4	GIB2B	2.4			70	168
		B5	BR5	1.2			85	102
C		C6	BR5	1.2			85	102
		C7	BR5	1.2			85	102
		C8	BR4	1.0			85	85
D								
E								
Totals Achieved					W		E	967
From Sheet A Totals Required					W	455	E	874
Wreq/Ereq = ·52								

***If Wreq/Ereq is 1 or less complete E column only**
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M		M9	GIB1B	2.4			50	120
N		N10	GIB2A	2.0			60	120
		N11	GIB2B	2.4			70	168
O		O12	BR4	1.0			85	85
		O13	GIB2B	2.4			70	168
P		P14	GIB2B	2.4			70	168
		P15	BR5	1.2			85	102
Q		Q16	BR9	.7			95	66
		Q17	SP26	.7			95	66
Totals Achieved					W		E	1063
From Sheet A Totals Required					W	832	E	874
Wreq/Ereq = ·96								


UNIT 5 FLOOR PLAN
GARAGE
LAUNDRY
KITCHEN
BATHRM
WC
LINEN
BED 3
BED 2
BED 1
DINING
LOUNGE
HWC
SMOKE ALARM
TILTA-DOOR
2000 X 4800
1100 X 1800
1000 X 1700
1400 X 1800
1400 X 1800
1500 X 500
1500 X 500
1600 X 600
1400 X 1800
1400 X 1800
2000 X 2700
6200
13900
6000
3800
5800
4000
6100
3900
6000
4100

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Wall Bracing Calculation Sheet A

Job Details

box 1

Name MR A.L. MYLES

Street and Number UNITS 6 & 7 TAYLOR PASS ROAD

Lot and DP Number LOTS 6 & 7 SUB DVN OF LOT 2 DP 329656

City/Town/District BLENHEIM

Location of Storey: single/~~upper of two/lower of two~~ Floor load: 2kPa/~~6kPa~~

Building height to apex 5.0 m

Roof height above eaves 2.5 m

Stud height 2.4 m

Average roof pitch 25°

Building length BL = 18.3 m

Building width BW = 11.6 m

Roof weight light/~~heavy~~

Cladding weights:

~~Subfloor~~ ~~light/medium/heavy~~

Lower Storey ~~light/medium~~/heavy

~~Upper Storey~~ ~~light/medium/heavy~~

Room in Roof Space ~~Yes~~/ No

Gross Building Plan Area, GPA = 158 m²

Note: *When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.*

Wind Zone

box 2

Region:		Terrain:		Exposure:		Topography:	
R1	0 ✓	Inland	0 ✓	Sheltered	0 ✓	Gentle	0 ✓
R2	1	Coastal	1	Exposed	1	Moderate	1
						Extreme	3

Total points 0

Wind Zone: ✓ Low (0) ____ Very high (3)

____ Medium (1) ____ Specific Design (4)

____ High (2)

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: (A) B C

BUs required Wind

box 4

From Table W1A/W1B

W along = 41 BUs/m

W across = 41 BUs/m

Total wind load,

W ALONG:
W along x BW = 476 BUs

W ACROSS
W across x BL = 750 BUs

BUs required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6

E = 5.2 BUs/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 822 BUs

GIB®

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Wall Bracing Calculation Sheet B

Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A		A1	GIB1A	1.8			50	90
		A2	GIB1A	1.8			50	90
B		B3	BR9	.7			95	66
		B4	BR5	1.2			85	102
		B5	GIB2B	2.4			70	168
		B6	GIB2B	2.4			70	168
C		C7	GIB1B	2.4			50	120
		C8	GIB1B	2.4			50	120
D								
E								

Totals Achieved				
	W		E	924
From Sheet A Totals Required	W	476	E	822
Wreq/Ereq = .58 *				

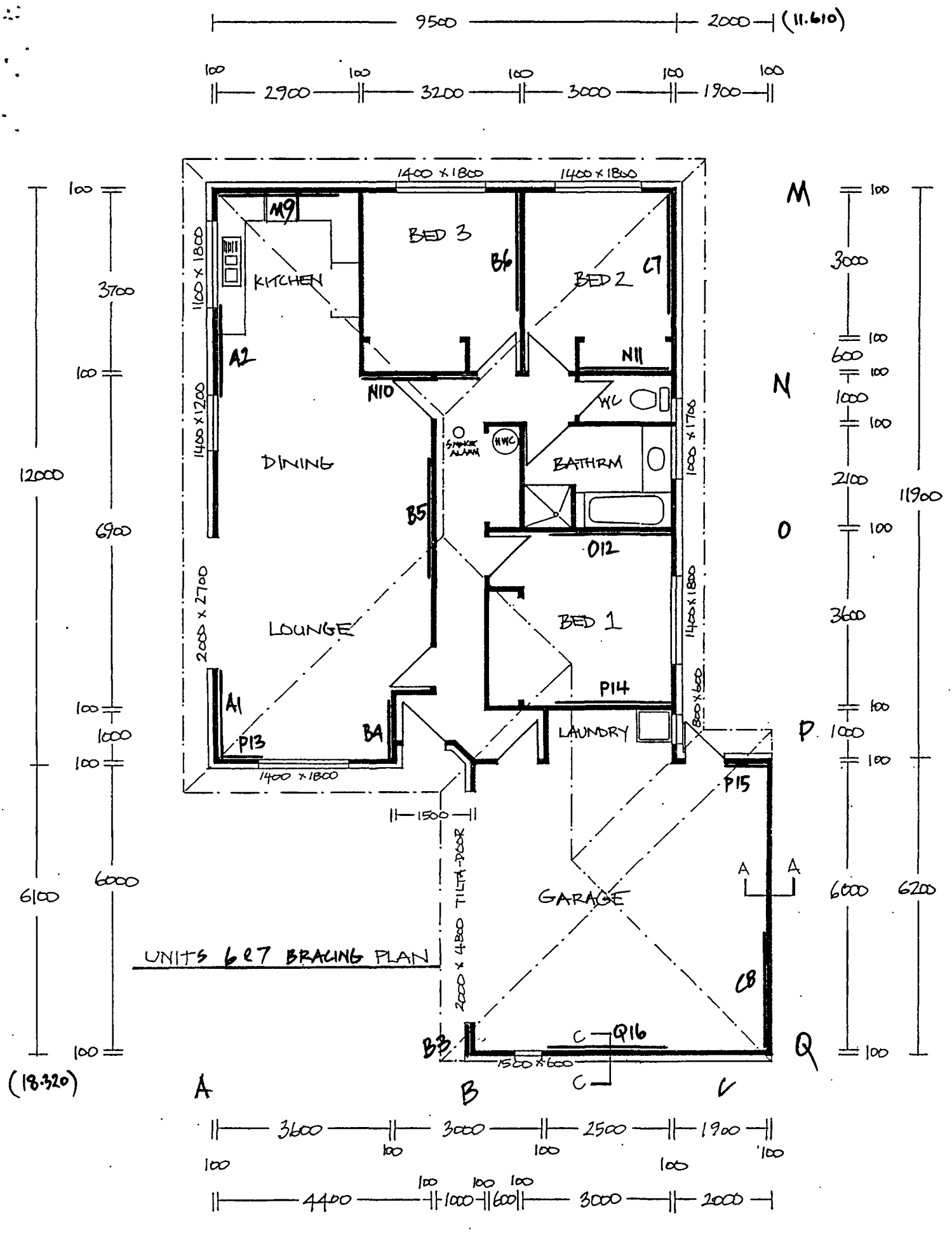
***If Wreq/Ereq is 1 or less complete E column only**
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M		M9	GIB1B	2.4			50	120
N		N10	GIB2B	2.4			70	168
		N11	GIB2A	1.8			60	108
O		O12	GIB2B	2.4			70	168
P		P13	BR4	.9			85	77
		P14	GIB2B	2.4			70	168
		P15	BR4	.9			85	77
Q		Q16	GIB1B	2.4			50	120

Totals Achieved				
	W		E	1006
From Sheet A Totals Required	W	750	E	822
Wreq/Ereq = .92 *				

GIB®


9500
2000
(11.610)
100
2900
3200
3000
1900
1400 x 1800
1400 x 1800
M9
BED 3
B6
BED 2
C7
KITCHEN
1100 x 1800
A2
N11
N10
WC
1400 x 1200
SMOKE ALARM
HWC
BATHRM
1000 x 1700
DINING
B5
012
2100
LOUNGE
2000 x 2700
BED 1
1400 x 1800
P14
A1
P13
B4
LAUNDRY
800 x 600
1400 x 1800
P15
1500
2000 x 4800 TILT-PDOR
GARAGE
A
A
UNITS 6 & 7 BRACING PLAN
C8
B3
C
Q16
1500 x 600
C
12000
3700
6900
6100
6000
(18.320)
M
N
O
P
Q
3000
600
1000
2100
3600
1000
6000
11900
6200
A
B
C
3600
3000
2500
1900
4400
1000
600
3000
2000

Design Steps 4 and 5 – Bracing Units Achieved (Wind and Earthquake)

The next step is to place selected wall bracing systems on the bracing lines. A range of Gib® bracing systems have been tested and the specifications and Bracing Unit ratings are listed below. Gib® Standard plasterboard systems often represent the majority of the wall bracing elements. Gib® Braceline or Gib® Toughline systems are used for narrow walls or when high Bracing Unit ratings are required. Gib® Noiseline and Gib® Ultraline Bracing Unit ratings generally fall between Gib® Standard plasterboard and Gib® Braceline.

Wall Heights Other Than 2.4m

The published Bracing Unit ratings are based on a 2.4 metre height. For other heights, the ratings must be multiplied by a factor $f = 2.4$ divided by actual wall height. The Bracing Unit ratings for walls higher than 2.4 metres will reduce, and the Bracing Unit rating for lower walls will increase. Factor f must not be greater than 1.3.

TABLE 1: Bracing Unit ratings for 10mm & 13mm Gib® Standard, 10mm and 13mm Gib® Ultraline, 10mm Gib® Aqualine, 10mm Gib® Fyreline, 10mm Gib® Noiseline.

Type	Minimum length (m)	Lining Requirement	Additional Requirement	Bracing Units per metre (wind)	Bracing Units per metre (Earthquake)
10mm Gib® Standard plasterboard bracing systems (these ratings also apply to 10mm Gib® Aqualine, and 10mm Gib® Fyreline)					
GIB1a	1.8 and less than 2.4	10mm Gib® Standard plasterboard one face, fixed horizontal or vertical	diagonal brace	55	50
GIB1b	2.4 and greater			75	50
GIB2a	1.8 and less than 2.4	10mm Gib® Standard plasterboard both faces, fixed horizontal or vertical	diagonal brace	75	60
GIB2b	2.4 and greater			80	70
GIB3	1.2	10mm Gib® Standard plasterboard both faces, fixed horizontal or vertical	N/A	65	60
13mm Gib® Standard plasterboard bracing systems (these ratings also apply to 13mm Gib® Ultraline)					
GIB10	1.8	13mm Gib® Standard plasterboard or 13mm Gib® Ultraline both faces, fixed horizontal or vertical	N/A	65	60
GIB11	1.2	13mm Gib® Standard plasterboard or 13mm Gib® Ultraline both faces, fixed horizontal or vertical	N/A	65	65
10mm and 13mm Gib® Ultraline bracing systems (these ratings also apply to 10mm Gib® Noiseline)					
UL1	1.2	Gib® Ultraline one face, fixed horizontal or vertical	6kN connections	70	60
UL2	1.2	Gib® Ultraline both faces, fixed horizontal or vertical	6kN connections	100	85

Design Steps 4 and 5 – Bracing Units Achieved (Wind and Earthquake)

TABLE 2: Bracing Unit ratings for 10mm Gib® Braceline and 10mm or 13mm Gib® Toughline.

Type	Minimum length (m)	Lining Requirement	Additional Requirement	Bracing Units per metre (wind)	Bracing Units per metre (Earthquake)
10mm Gib® Braceline bracing systems *(these ratings also apply to 10mm or 13mm Gib® Toughline)*					
BR1a	1.8 and less than 2.4	Gib® Braceline one face, fixed horizontal or vertical	diagonal brace	70	60
BR1b	2.4 and greater			90	75
BR2a	1.8 and less than 2.4	Gib® Braceline one face, fixed vertical	N/A	75	60
BR2b	2.4 and greater			85	60
BR3a	1.8 and less than 2.4	Gib® Braceline one face, fixed horizontal	N/A	60	45
BR3b	2.4 and greater			95	65
BR4	0.9 and less than 1.2	Gib® Braceline one face, fixed vertical or horizontal*.	6kN connections	100	85
BR5	1.2	Gib® Braceline one face, fixed vertical or horizontal*.	6kN connections	115	85
BR6	1.2	Gib® Braceline one face, 10mm Gib® Standard on the other, fixed vertical or horizontal*.	12kN connections	150	110
BR7	0.9	Gib® Braceline one face, 7.5mm plywood on the other, fixed vertical or horizontal*.	6kN connections	145	145
BR8	0.9	Gib® Braceline one face, 4.75mm hardboard on the other, fixed vertical or horizontal*.	6kN connections	120	95
BR9	0.6	Gib® Braceline one face, fixed vertical or horizontal*.	6kN connections	110	95

Notes: 1) Where linings are specified on both faces (Systems GIB2, GIB3, GIB11, UL2, BR6, BR7, BR8) each face must be fastened as a braced element. Refer page 12 for fastening systems relating to Plywood and Hardboard.
The standard 10mm Gib® Plasterboard on the reverse face of BR6 is fastened as per system GIB1.

2) See notes on Hold-Down Strap Placement, Page 12.

*3) For horizontal fixing of linings in Systems BR4, BR5, BR6, BR7, BR8, BR9, see page 18.

Construction Details

Framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604. Winstone Wallboards recommends the use of kiln-dried machine stress graded framing (KD MSG). To achieve the published bracing performance the minimum actual framing dimensions are 90 x 35mm for external walls and 70 x 35mm for internal walls. System BR9 always requires a minimum of 90 x 35mm framing.
Wall bracing tests on Gib® Systems were undertaken without nogs. Nogs are not considered to add to the bracing performance of the wall.

Fastening Gib® Plasterboard Linings

10mm and 13mm Gib® Standard, 10mm and 13mm Gib® Ultraline, 10mm and Gib® Noiseline and 13mm Gib® Toughline may all be fastened using 32mm x 6g Gib® Grabber drywall screws or 30 x 2.8mm Gib® Nails. Gib® Braceline and 10mm Gib® Toughline must be fastened with 32mm Gib® Grabber Braceline screws, or 30mm Gib® Braceline nails and washers.
Gib® linings for designated bracing elements are fastened at 150mm centres around the perimeter of the bracing element. **The first fastener is always placed 50mm away from the sheet corner. See detail page 16.**
Fastening in the field of the bracing element is conventional and the screw and glue method is recommended. (See Fastener Layout details, pages 14, 15).
When fixing part sheets of Gib® plasterboard, a minimum width of 300mm is recommended for bracing elements.
Full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs (or over the studs where horizontal fixing is permissible) and fastened at 200mm centres. Alternatively, the sheet end butt joints may be back-blocked.

Plywood (BR7) and Hardboard (BR8)

'Plywood' specified in BR7 is a grade C-D 7.5mm construction plywood manufactured to AS/NZS 2269:1994, fixed with 30 x 2.8mm Gib® Nails at 150mm centres around the perimeter of the bracing element and at 300mm centres to intermediate framing.
'Hardboard' specified in BR8 is 4.75mm standard or oil tempered hardboard manufactured by Fletcher Wood Panels Ltd., fixed with 30 x 2.8mm Gib® Nails at 150mm centres around the perimeter of the bracing element and at 300mm centres to intermediate framing.

Fire Resistance Ratings

10mm Gib® Braceline, 10mm Gib® Aqualine, 10mm Gib® Noiseline, 10mm and 13mm Gib® Ultraline and 10mm Gib® Toughline may be substituted for 10mm Gib® Fyreline in fire rated constructions.
The fastener length for the fire rated system applies. The field of the braced element must also be fastened in accordance with the fire rated specification (adhesive not permitted).

Jointing and Stopping

All sheet joints must be paper tape reinforced and stopped in accordance with the publication entitled, "Gib Living Solutions® Site Guide".

Fastening the Bracing Element to Timber Floors

Fastening of the bottom plate of a Gib® wall bracing element to a timber framed floor must be in accordance with NZS3604 with pairs of 100 x 3.75mm nails at 600mm centres. In addition 6 or 12kN connections must be installed when specified for the particular bracing element type.

Fastening the Bracing Element to Concrete Slabs

Fastening of the bottom plate of a Gib® wall bracing element to concrete floors must be in accordance with NZS3604 for external walls, which includes a 12mm bolt (complete with a 50 x 50 x 3mm square washer) or a proprietary fixing with equivalent performance within 150mm (90mm for BR6) from both ends of the wall bracing elements.
On internal bracing lines, the bottom plate of Gib® Bracing elements may be fixed using 3.8mm shot fired fasteners fitted with 16mm discs, spaced at 150mm and 300mm from the end studs and thereafter at 600mm centres. This method only applies to Systems Gib1, 2, 3, 10, 11 and BR1, 2, 3.

Hold-Down Strap Placement (Refer Illustrations Pages 17 and 18)

Where 6kN connections are specified in the 'Additional Requirements' column, they are required only if the bracing element terminates within 1.2 metres from a door or window opening (see illustration, page 18).
Where 12kN connections are specified they must be installed at both ends of the bracing element in all cases.

Openings in Bracing Elements

Openings are allowed within the middle third of a wall bracing element's length and height. Neither opening dimension shall be more than one third of the element height. Wall linings are fixed to opening trimmers at 150mm centres. Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element.

Angle Braces

Angle braces serve to keep frames square during transport and construction. They also act as part of the temporary bracing of a building under construction. Angle braces contribute only a fraction to the bracing of a completed structure. The performance of a completed building depends mainly on the wall linings and their fixings.

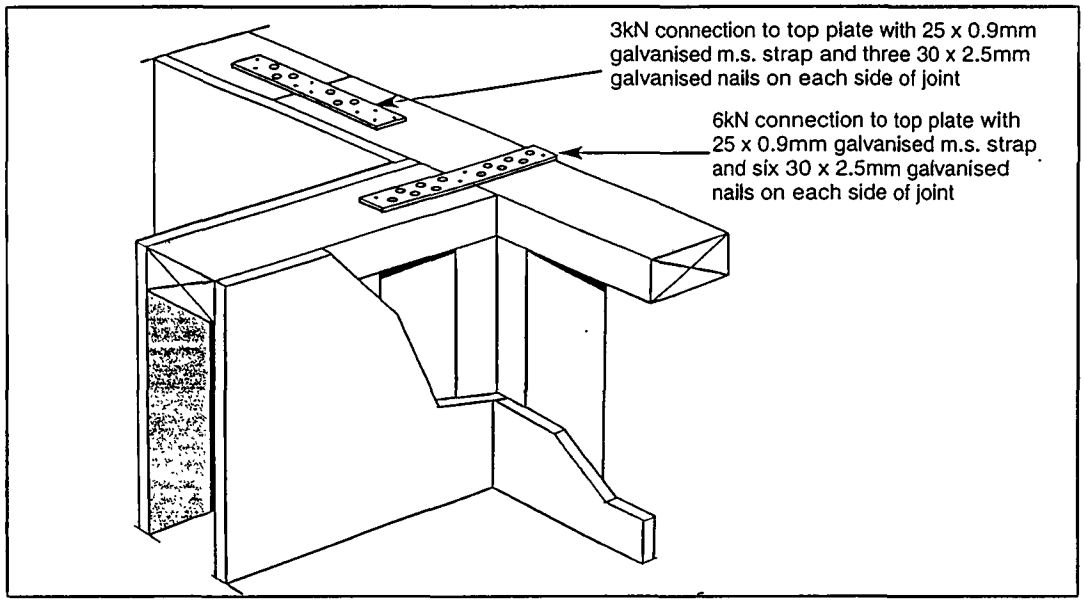
Where specified, metal angle braces must be placed at an angle no steeper than 55 degrees, and within the designated length of the bracing element. For elements longer than 3.6 metres, pairs of angle braces (in opposite directions) are required. Fixing of angle braces is with three 30 x 2.8mm Gib® nails to top and bottom plates, and two 30 x 2.8mm nails to intermediate framing.

Top Plate Connections

The top plate of a wall that contains one or more wall bracing elements shall be jointed according to the rating of the highest-rated individual wall bracing element as follows:

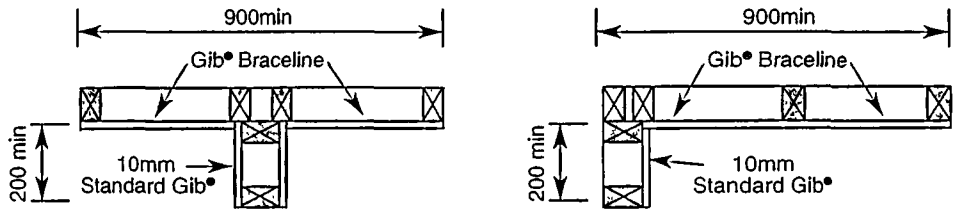
(a) Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;

(b) Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.



Guidelines for Intersecting Walls (all Gib® Bracing Sheet Types)

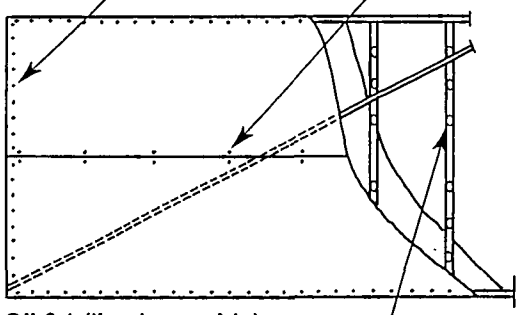
Gib® Bracing Elements may have intersecting walls with a minimum length of 200mm. Bracing element sheets shall be fixed and jointed as given on pages 14 and 15. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions (illustrated below) shall be fixed and jointed as specified for intermediate sheet joints. **The bracing element length must be no less than 900mm.**



Where Wall Bracing Elements are interrupted by T or L junctions (as illustrated in the 900mm example above) they should be considered as follows:

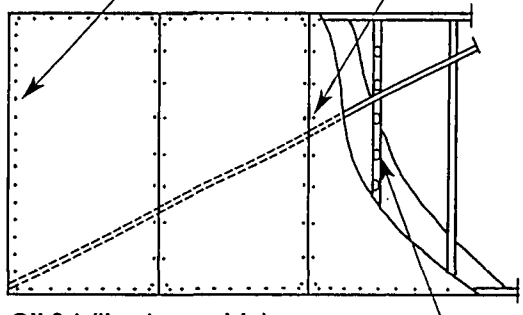
The bracing element has been cut to accommodate the junction. Nevertheless, in respect of calculating Bracing Units, the Bracing Element is deemed to be continuous for the whole length (900mm in this particular case).

Fastener Layouts



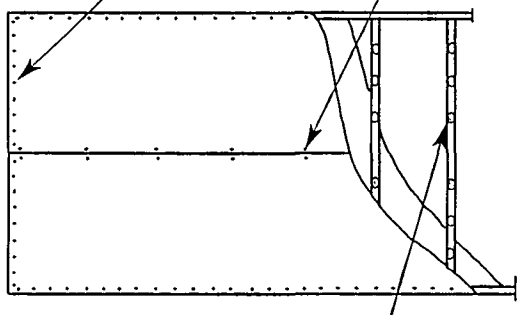
Gib® 1 (lined one side)
Gib® 2 (lined both sides)
(Horizontal Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



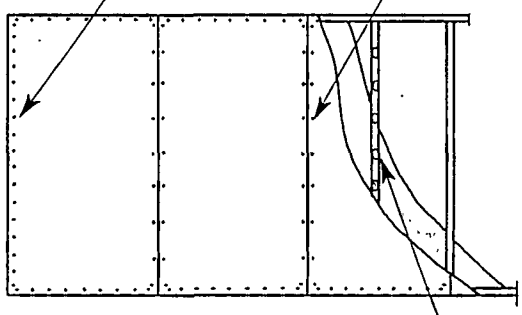
Gib® 1 (lined one side)
Gib® 2 (lined both sides)
(Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



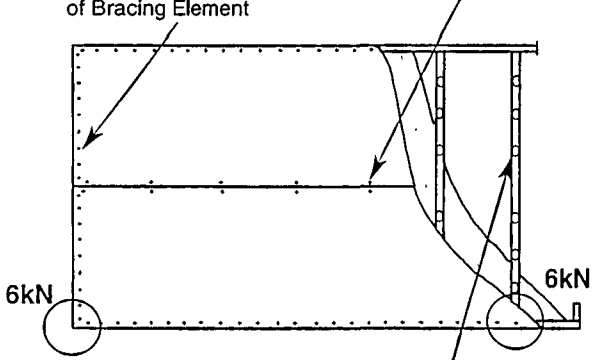
Gib® 3 (lined both sides)
Gib® 10 (lined one side)
Gib® 11 (lined both sides)
(Horizontal Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



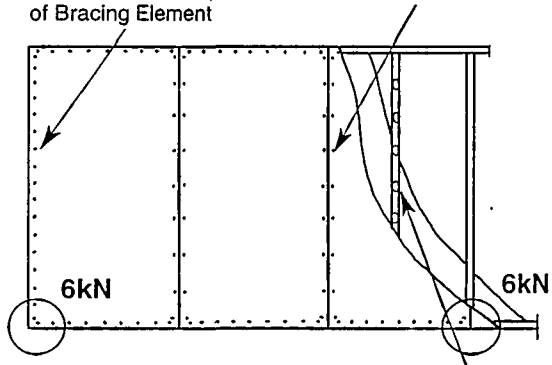
Gib® 3 (lined both sides)
Gib® 10 (lined one side)
Gib® 11 (lined both sides)
(Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



UL1 (lined one side)
UL2 (lined both sides)
(Horizontal Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs

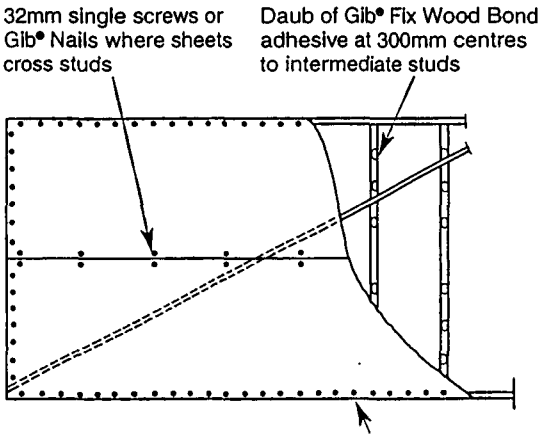


UL1 (lined one side)
UL2 (lined both sides)
(Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs

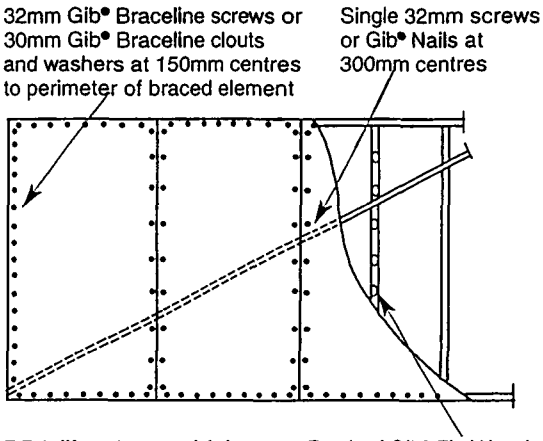
GIB®

Fastener Layouts – continued



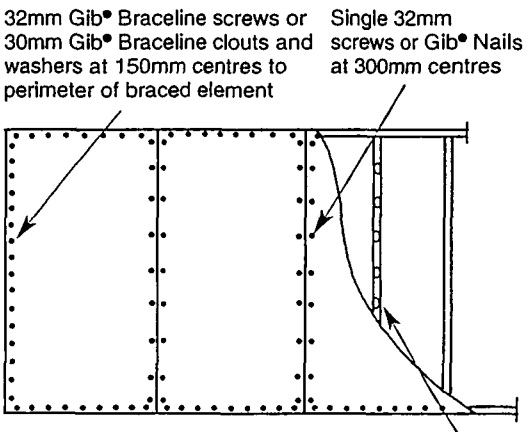
BR1 (lined one side) (Horizontal Fixing)

32mm Gib® Braceline screws or 30 mm Gib® Braceline clouts and washers at 150mm centres to perimeter of braced element



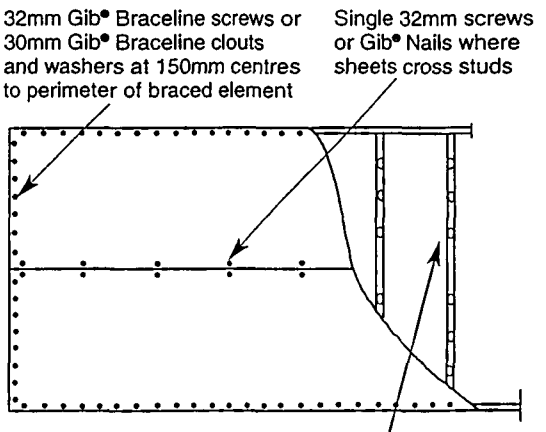
BR1 (lined one side) (Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



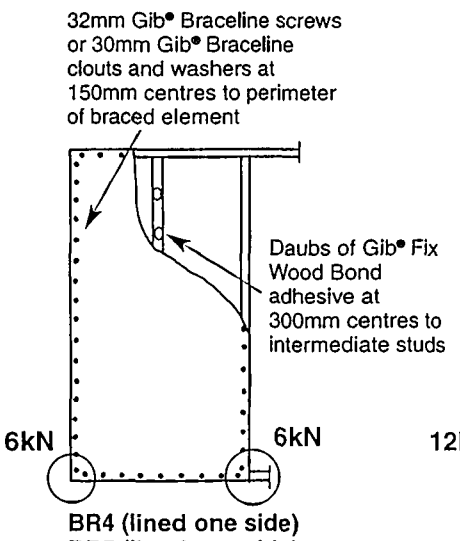
BR2 (lined one side) (Vertical Fixing Only)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs

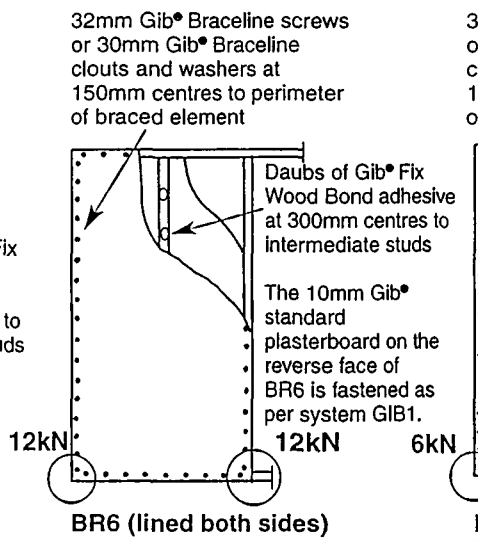


BR3 (lined one side) (Horizontal Fixing Only)

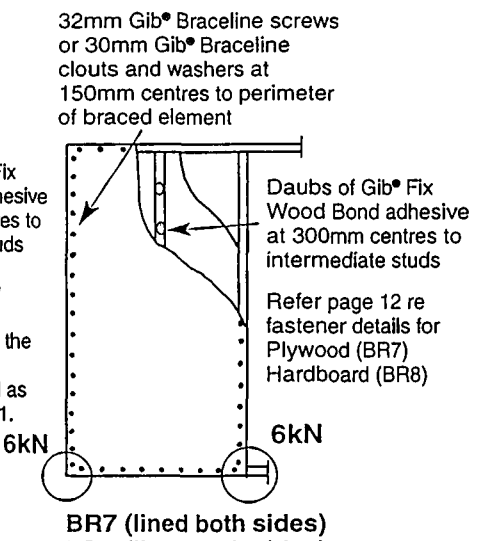
Daub of Gib® Fix Wood Bond adhesive only at 300mm centres to intermediate studs



BR4 (lined one side)
BR5 (lined one side)



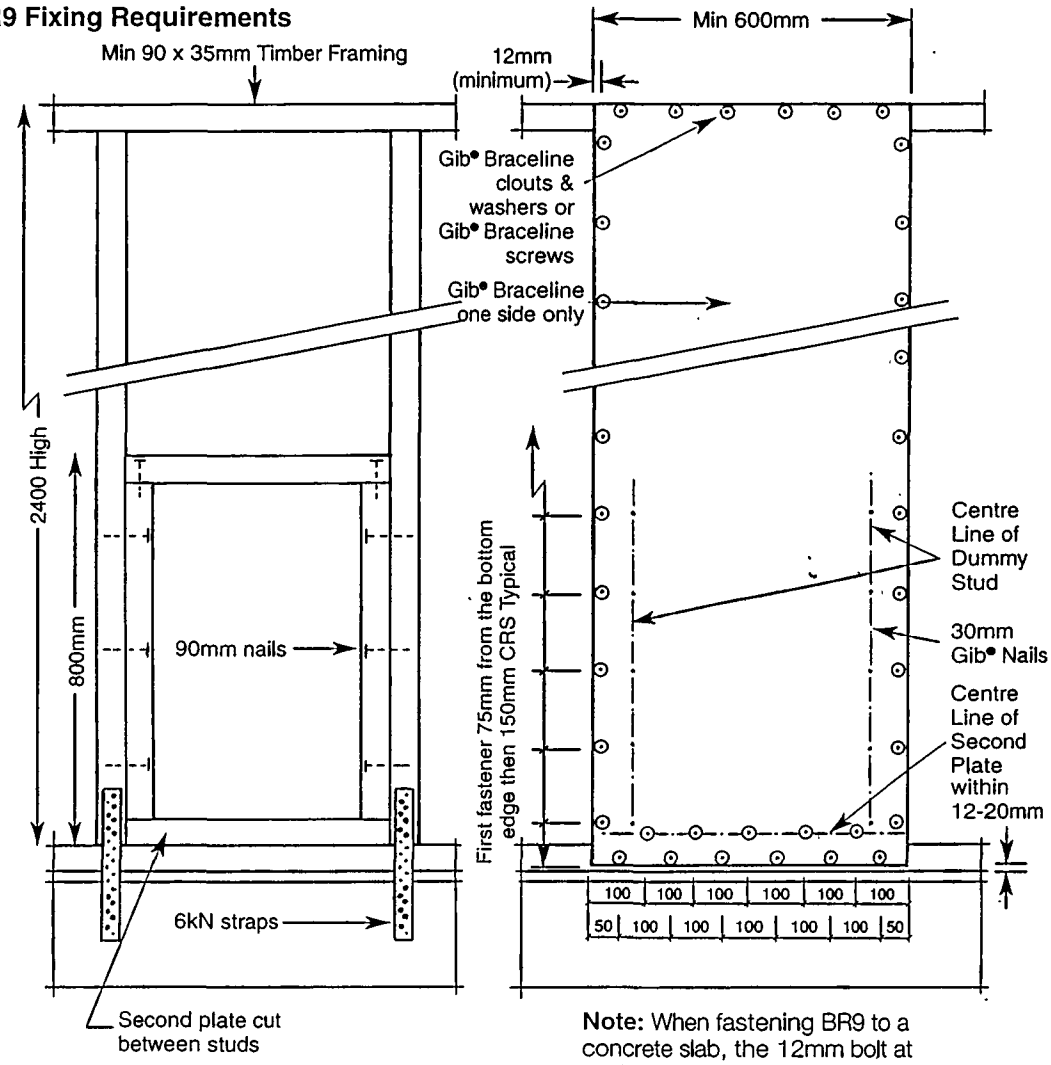
BR6 (lined both sides)



BR7 (lined both sides)
BR8 (lined both sides)

Note: If the length of the braced element using systems BR4, BR5, BR6, BR7 and BR8 exceeds 1.2m, then the sheet edges within the element are secured with single screws or nails at 300mm centres.

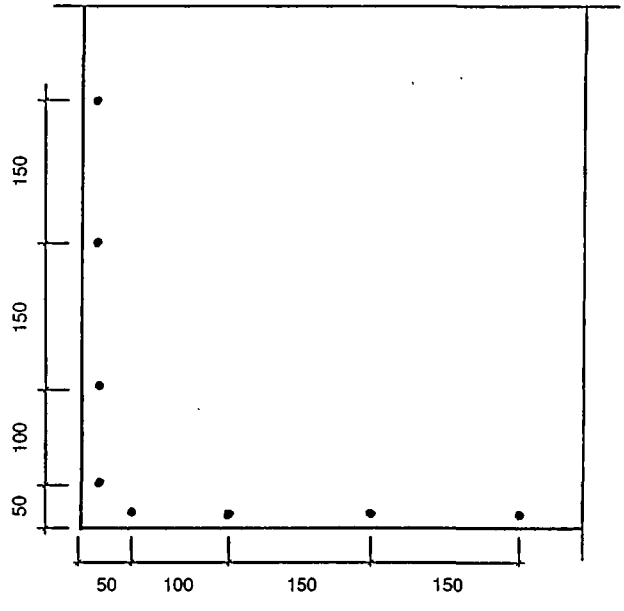
BR9 Fixing Requirements



Note: When fastening BR9 to a concrete slab, the 12mm bolt at each end of the element passes through both bottom plates.

IMPORTANT
Corner Fastening Details

This pattern applies to ceiling diaphragms and to all wall bracing elements except BR9.



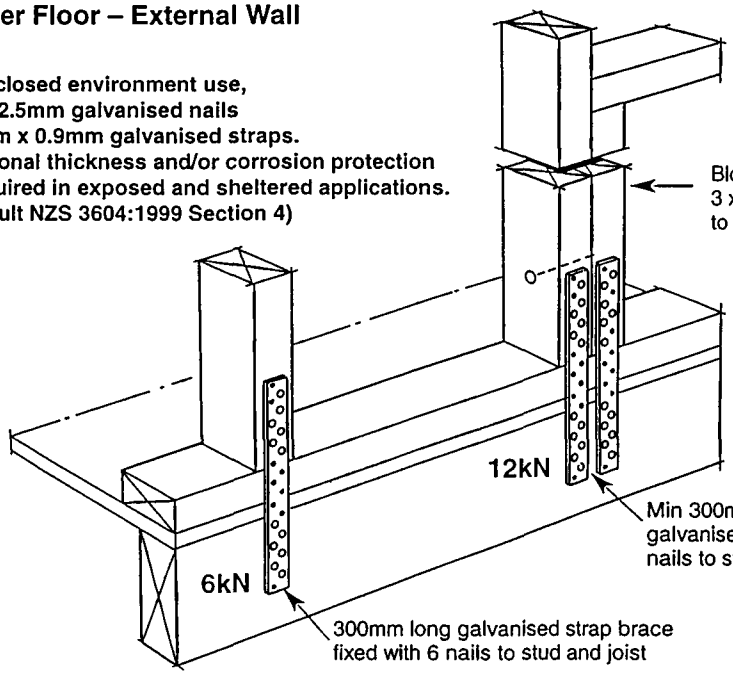
GIB®

Hold-Down Straps

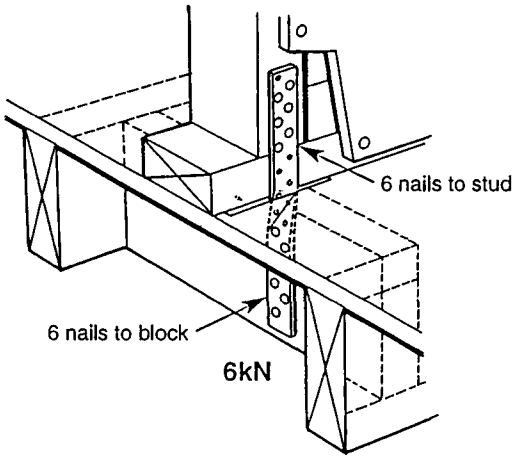
Timber Floor – External Wall

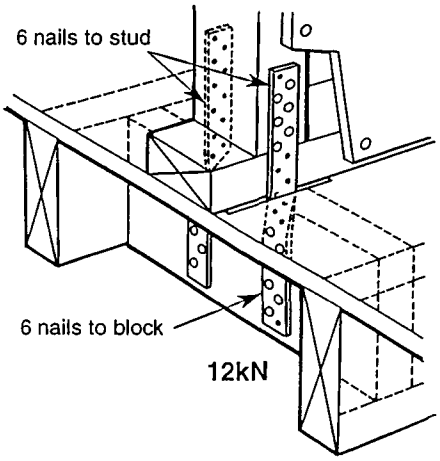
For a closed environment use,
- **30 x 2.5mm galvanised nails**
- **25mm x 0.9mm galvanised straps.**

Additional thickness and/or corrosion protection is required in exposed and sheltered applications. (Consult NZS 3604:1999 Section 4)

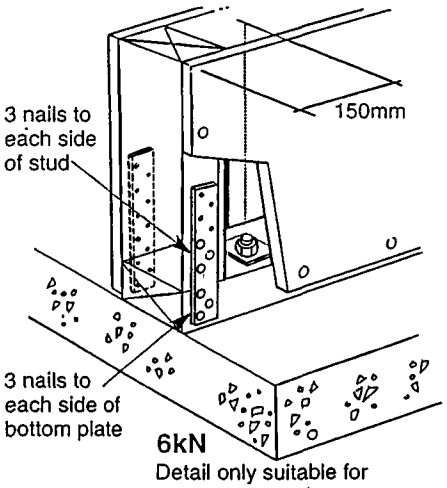


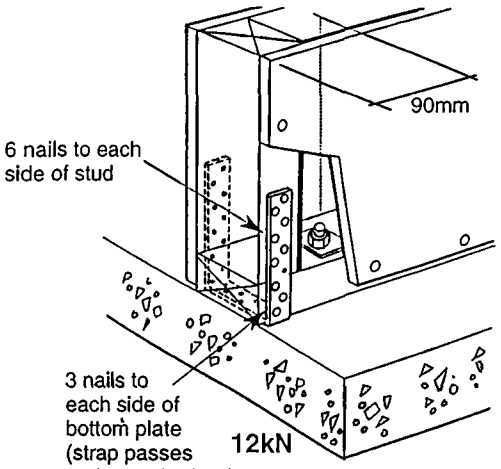
Timber Floor – Internal Wall





Concrete Floor





6kN Connections – UL1, UL2, BR4, BR5, BR7, BR8 & BR9
12kN Connections – BR6

Table 2. Ratings for 2.4m high Panelbrace wall bracing elements

These ratings apply to walls detailed in accordance with NZS 3604 and this leaflet. The hold-down value determines which details sho be used.

The 6kN hold-down is a dropped panel detail with no steel straps or a single strap at each end of the wall.

The 12kN hold-down (Type D) is two straps at each end of the wall.

Wall Type	Minimum wall length (m)	Minimum Plywood thickness(mm)	Nail* Spacing (mm)	Hold down (kN)	Stud spacing (mm)	Bracing units/m (20 bracing units = 1kN) Wind	Earthquake	
Ratings for plywood component only								
SP4	0.45	7	75	6	450	70	85	
SP2	0.6	7	150	6	600	85	85	
SP1	0.9	7	150	6	450 or 600	100	100	
SPST1	1.2	7	150	-	600	90	80	
SP6	0.9	12	150	6	450 or 600	115	110	
SP8D	0.9	7	150	12	450	125	135	
SP5D	1.2	7	75	12	600	130	135	
SP10	1.8	7	75	6	450	135	135	
Ratings for plywood one side and additional sheathing on the other								
								addition sheathi
SP2G	0.6	7	150	6	600	95	95	Gib Boa
SP1G	0.9	7	150	6	450 or 600	100	100	Gib Boa
SP11G	1.8	7	150	6	450 or 600	140	120	Gib Boa
BR7	0.9	7	150	6	450 or 600	145	145	Bracelir
SP6G	0.9	12	150	6	450 or 600	120	110	Gib Boa
SP6GD	0.9	12	150	12	450 or 600	145	135	Gib Boa

*Use these spacings at all edges and ends of sheets. Within the sheet, spacings may be double that specified.

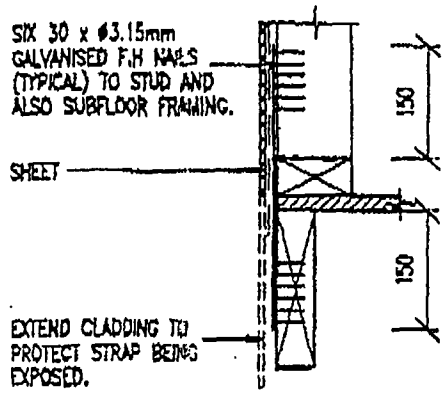
For 7mm plywood use 30 x 2.5mm galvanised flathead nails.

For 12mm Plywood use 50mm x 2.8mm or larger galvanised flathead nails.

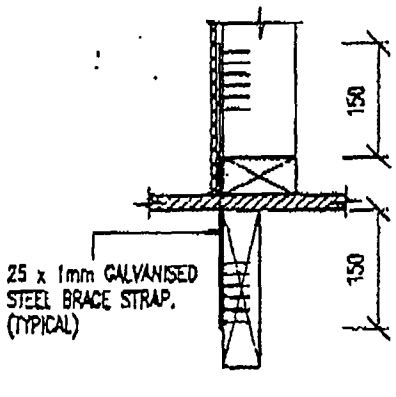
Steel Framing

Use SPST1 for plywood on light steel frames. Use button head self drilling, self tapping screws for Panelbrace and standard plywood and counter sunk stainless steel self drilling, self tapping screws cladding applications. Refer Carter Holt Harvey Plywood Technical Note "Plywood on steel frame" f more detail.

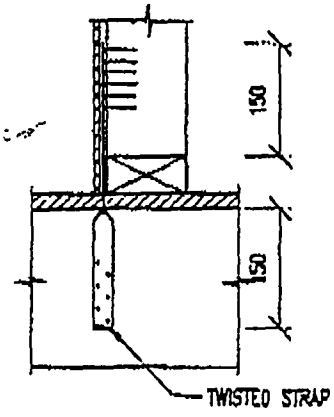
Figure 1. 6kN Strap Fixings to Each End Stud of Plywood Sheet Braces for Timber Ground Floc and Upper Storey



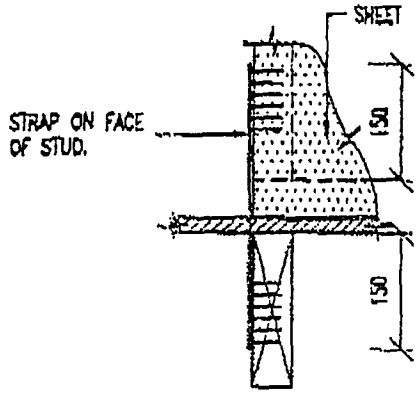
(a) Exterior or edge detail



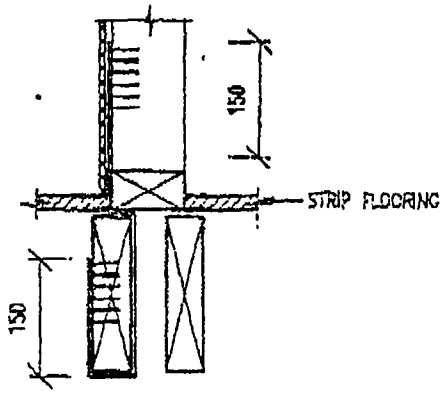
(b) Internal detail over continuous floor - wall parallel to joists



(c) Internal detail over continuous - wall across joists



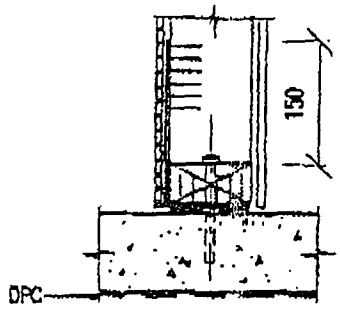
(d) Alternative to detail (c)



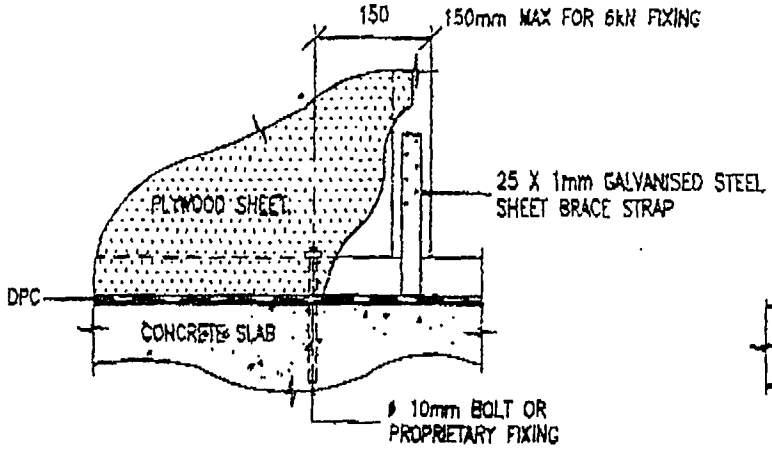
(e) Strip flooring detail

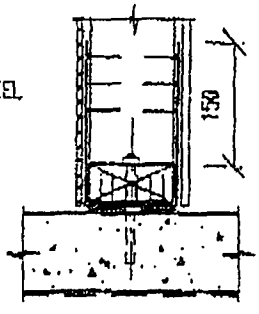
NOTE:
1. Detail (a) can be replaced by dropped panel fixing with no st See Figure 4.
2. Straps may be recessed into framing where a smooth finish required in linings over straps

Figure 2. 6kN Strap Fixings and Capacities to Each End Stud of Braced Panels on Concrete



(a) 6kN
Strap one side and under plate
6 - 30 x 3.15mm dia. Galv. F.H nails each end





(b) 6kN
Strap wrapped under pla
3 - 30 x 3.15mm dia. Galv F.H. nails each end of stud

CARTERS Manufacturing

Job: QC500242 Client: Tony Myles Site: Taylor Pass rd

Phone: Description: Phone: unit 7

MiTek 20/20 - Engineering 4.3 Gammad (Build 1228) MiTek New Zealand Ltd. Printed: 15:58:06 23 Feb 2005

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Standard	Area:	Low (32.0 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:	400 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.213 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Fix~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
CT01	1	6200	25.00	900	J02	1	2926	25.00	900	J05B	1	2776	25.00	900	T02	2	9500	25.00	818
CT01A	1	6200	25.00	900	J02A	2	2926	25.00	900	J06	1	976	25.00	900	T03	1	4200	25.00	900
TG01	1	9500	25.00	900	J02B	1	2926	25.00	900	J06A	1	976	25.00	900	V01	1	1143	25.00	900
TG01A	1	9500	25.00	900	J02C	1	2926	25.00	900	J06B	1	976	25.00	900	V02	1	1110	25.00	900
CJ01	1	2476	25.00	900	J02D	1	2926	25.00	900	J07	1	1876	25.00	900	*HB01	3	7486	18.25	900
CJ01A	1	2476	25.00	900	J02E	2	2926	25.00	900	J07A	1	1876	25.00	900	*HB02	3	4728	18.25	900
CJ01B	1	2476	25.00	900	J03	1	2026	25.00	900	J07B	1	1876	25.00	900	*HB03	1	1227	18.25	900
CJ01C	1	2476	25.00	900	J03A	1	2026	25.00	900	J07C	1	1876	25.00	900	*HB04	1	3772	18.25	900
J01	1	3826	25.00	900	J03B	1	2026	25.00	900	J07D	1	1876	25.00	900	*R01	4	914	25.00	900
J01A	1	3826	25.00	900	J03C	1	2026	25.00	900	J08	1	2686	25.00	900	*R01A	4	914	25.00	900
J01B	1	3826	25.00	900	J03D	2	2026	25.00	900	J08A	1	2686	25.00	900	*R01B	1	914	25.00	900
J01C	1	3826	25.00	900	J03E	2	2026	25.00	900	J08B	1	2686	25.00	900	*R01C	1	914	25.00	900
J01D	1	3826	25.00	900	J04	2	1126	25.00	900	J09	1	3769	25.00	900	*R02	1	867	25.00	900
J01E	1	3826	25.00	900	J04A	1	1126	25.00	900	J09A	1	3769	25.00	900	*R02A	1	867	25.00	900
J01F	1	3826	25.00	900	J05	1	2776	25.00	900	J10	1	1969	25.00	900					
J01G	1	3826	25.00	900	J05A	1	2776	25.00	900	T01	2	9500	25.00	900					

Total quantity : 79

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05

Name of Computer Operator: Richard Graham

Qualifications and Title: .....

Company: CARTERS Manufacturing

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: ..... Date: .....

Name: ..... Company: .....

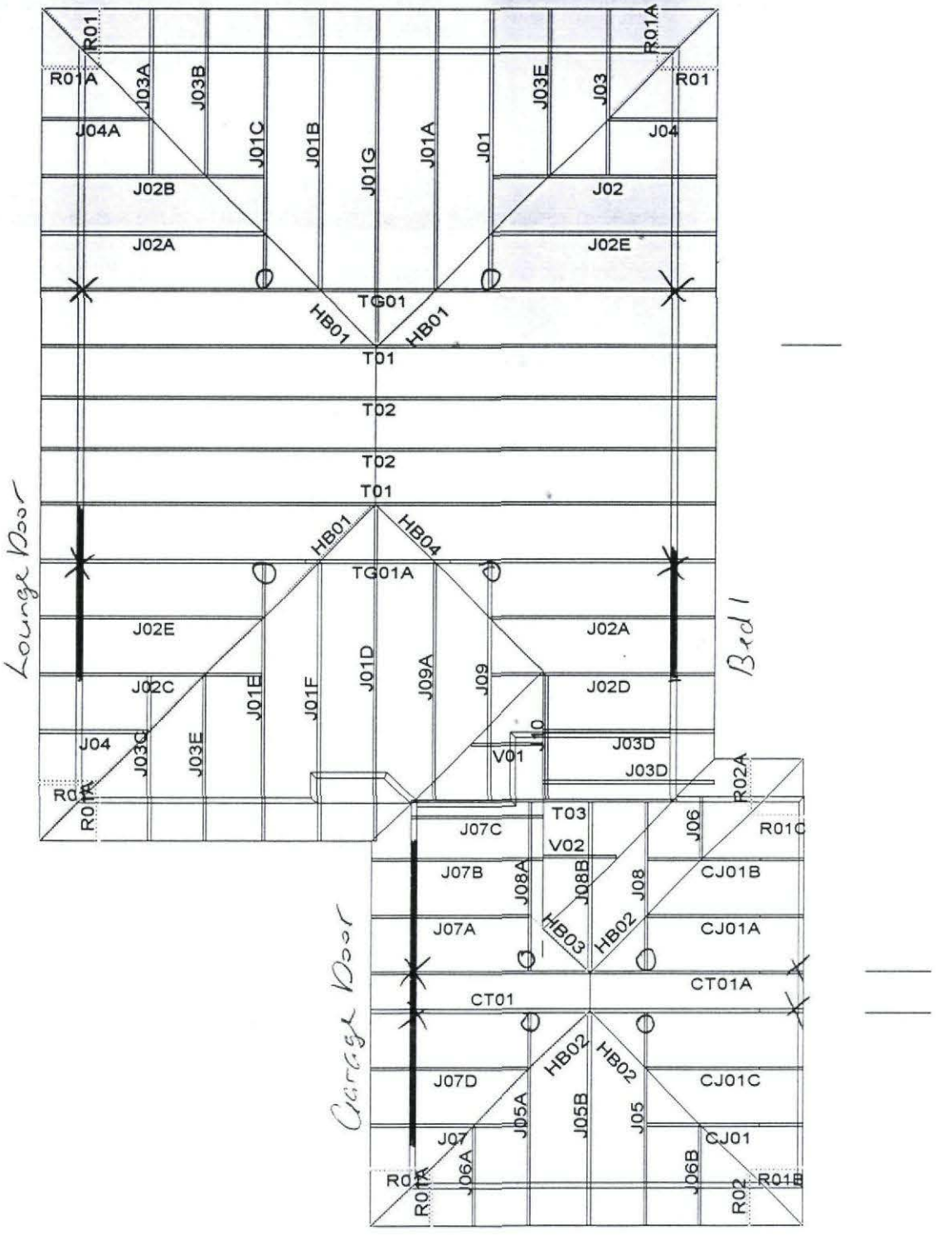
Job Details:		CARTERS Manufacturing		
Snow Zone:	Snow Altitude:	Burleigh Estate Blenheim P o Box 914 Telephone: 03 5775344 Fax:	Tony Myles Taylor Pass rd unit 7	Job: qc500242
Wind Area:	Design Wind Speed:			
TC Restraints:	BC Restraints:			
Roof Material:	Ceiling Material:			
Roof Live Load:	Snow Load:			
Roof Pitch:	Truss Centres:			

file location: C:\CTRG4\JOBS\QC500242\

Scale: 1 : 100 | Date: 23/02/20 | Drawn By: Adr

O = 94x47 Joist hanger

X = CT200 ceiling ties



MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included

Spans are horizontal dimensions

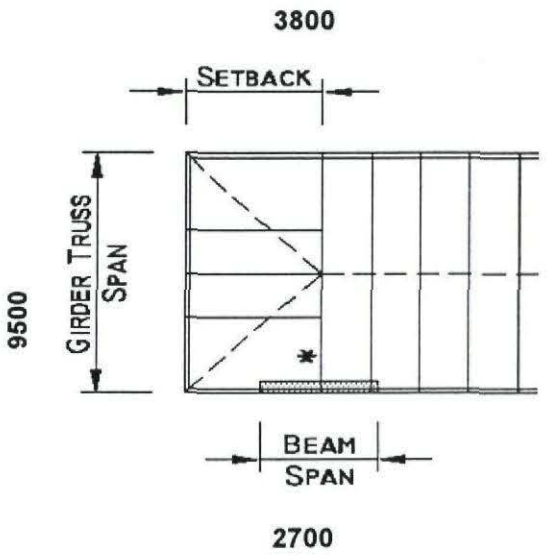
JOB NAME: Tony Myles
ADDRESS: Unit 7
Taylor Pass RD
Blenheim
DATE: 23/02/2005

BEAM NAME: Lounge Door

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	1
Wind Load	Low			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 2700 mm
Beam Size: 300 x 100 Timber
Beam Camber: 9 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: K.N. Graham Date: 23/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title: .....
Company: .....

MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included
Spans are horizontal dimensions

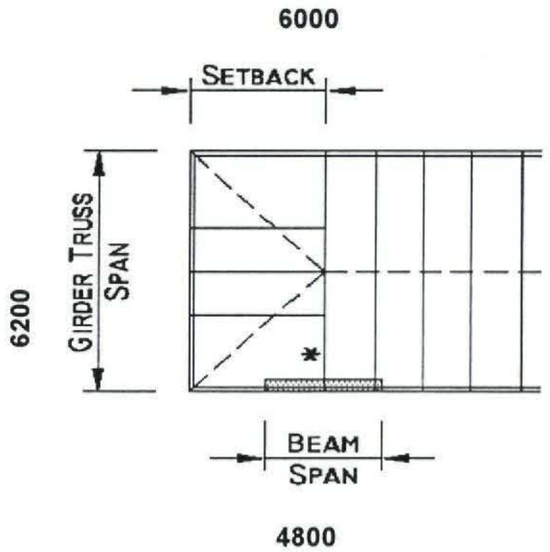
JOB NAME: Tony Myles
ADDRESS: Unit 7
Taylor Pass RD
Blenheim
DATE: 23/02/2005

BEAM NAME: Garage Door

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Flitch Beam	1
Ceiling Weight	Standard		Wind Zone	1
Wind Load	Low			1
Snow load	NIL		Beam Type	2
Is The Roof Pitch Greater than 30 deg.	No		FALSE	
				1

LOAD CONDITIONS



Beam Span: 4800 mm
Beam Size: FB30H Flitch
Beam Camber: 8 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek New Zealand Ltd.
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: RN [signature] Date: 23/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title: ....
Company: ....

Printed on 23/02/2005 at 4:07 p.m.

MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C
Overhang of 750mm has been included	
Spans are horizontal dimensions	

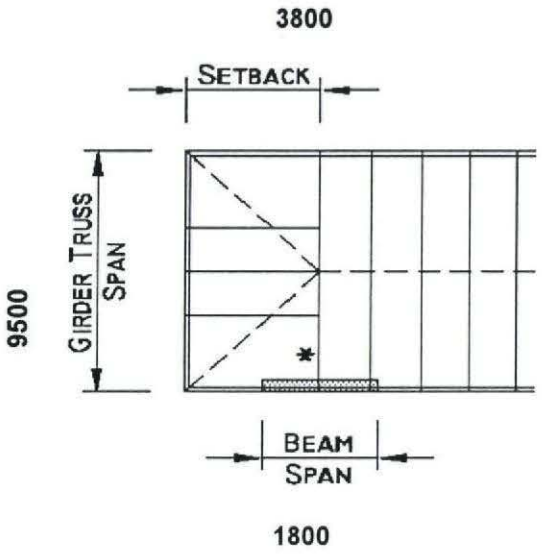
JOB NAME: Tony Myles
ADDRESS: Unit 7
Taylor Pass RD
Blenheim
DATE: 23/02/2005

BEAM NAME: Bed 1 Window

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	1
Wind Load	Low			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 1800 mm
Beam Size: 250 x 100 Timber
Beam Camber: 6 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05
Name of Computer Operator: K Mark Graham
Qualifications and Title: .....
Company: .....

Job: QC500241 Client: Tony Myles Site: Taylor Pass rd

Phone: Phone: Unit 6

Description:

MiTek 20/20 - Engineering 4.3 Gammad (Build 1228) MiTek New Zealand Ltd. Printed: 16:59:16 23 Feb 2005

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Standard	Area:	Low (32.0 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:	400 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.213 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
CT01A	1	6200	25.00	900	J01C	1	3826	25.00	900	J04	2	1126	25.00	900	*HB02	2	4728	18.25	900
CTG01	1	6110	25.00	900	J01D	1	3826	25.00	900	J04A	1	1126	25.00	900	*HB02A	1	4728	18.25	900
CTG01A	1	6110	25.00	900	J01E	1	3826	25.00	900	J05	1	976	25.00	900	*HB03	1	1227	18.25	900
T03	1	4200	25.00	900	J01F	1	3826	25.00	900	J06	1	1876	25.00	900	*HB04	1	3772	18.25	900
TG01	1	9500	25.00	900	J01G	1	3826	25.00	900	J06A	1	1876	25.00	900	*R01	3	914	25.00	900
TG01A	1	9500	25.00	900	J02	1	2926	25.00	900	J06B	1	1876	25.00	900	*R01A	3	914	25.00	900
CJ01	1	2476	25.00	900	J02A	2	2926	25.00	900	J06C	2	1876	25.00	900	*R01B	1	914	25.00	900
CJ01A	1	2476	25.00	900	J02B	1	2926	25.00	900	J06D	1	1876	25.00	900	*R01C	1	914	25.00	900
CJ01B	1	2476	25.00	900	J02C	1	2926	25.00	900	J09	1	3769	25.00	900	*R02	1	690	25.00	900
CJ01C	1	2476	25.00	900	J02D	1	2926	25.00	900	J09A	1	3769	25.00	900	*R02A	1	690	25.00	900
CJ01D	1	2476	25.00	900	J02E	2	2926	25.00	900	J10	1	1969	25.00	900	*R02B	1	690	25.00	900
CJ02	1	1576	25.00	900	J03	1	2026	25.00	900	R02C	1	690	25.00	900	*R02D	1	690	25.00	900
CJ02A	1	1576	25.00	900	J03A	1	2026	25.00	900	T01	2	9500	25.00	900	*R03	1	314	25.00	900
CT01	1	6110	25.00	900	J03B	1	2026	25.00	900	T02	2	9500	25.00	818	*R03A	1	314	25.00	900
J01	1	3826	25.00	900	J03C	1	2026	25.00	900	V01	1	1143	25.00	900					
J01A	1	3826	25.00	900	J03D	2	2026	25.00	900	V02	1	1110	25.00	900					
J01B	1	3826	25.00	900	J03E	2	2026	25.00	900	*HB01	3	7486	18.25	900					

Total quantity : 80

The computer design input has been carried out by:

Signed: ..... Date: 24/2/05

Name of Computer Operator: R Noel Graham

Qualifications and Title: .....

Company: CARTERS Manufacturing

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: ..... Date: .....

Name: ..... Company: .....

Job Details:

Snow Zone:	Blenheim	Snow Altitude:	220 m
Wind Area:	Low	Design Wind Speed:	32.0 m/s
T.C Restraints:	400 mm	BC Restraints:	400 mm
Roof Material:	Metal Tiles	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.213 kPa
Roof Pitch:	25.00 deg	Truss Centres:	900 mm

CARTERS Manufacturing

Burleigh Estate
Blenheim
P o Box 914

Telephone: 03 5775344
Fax:

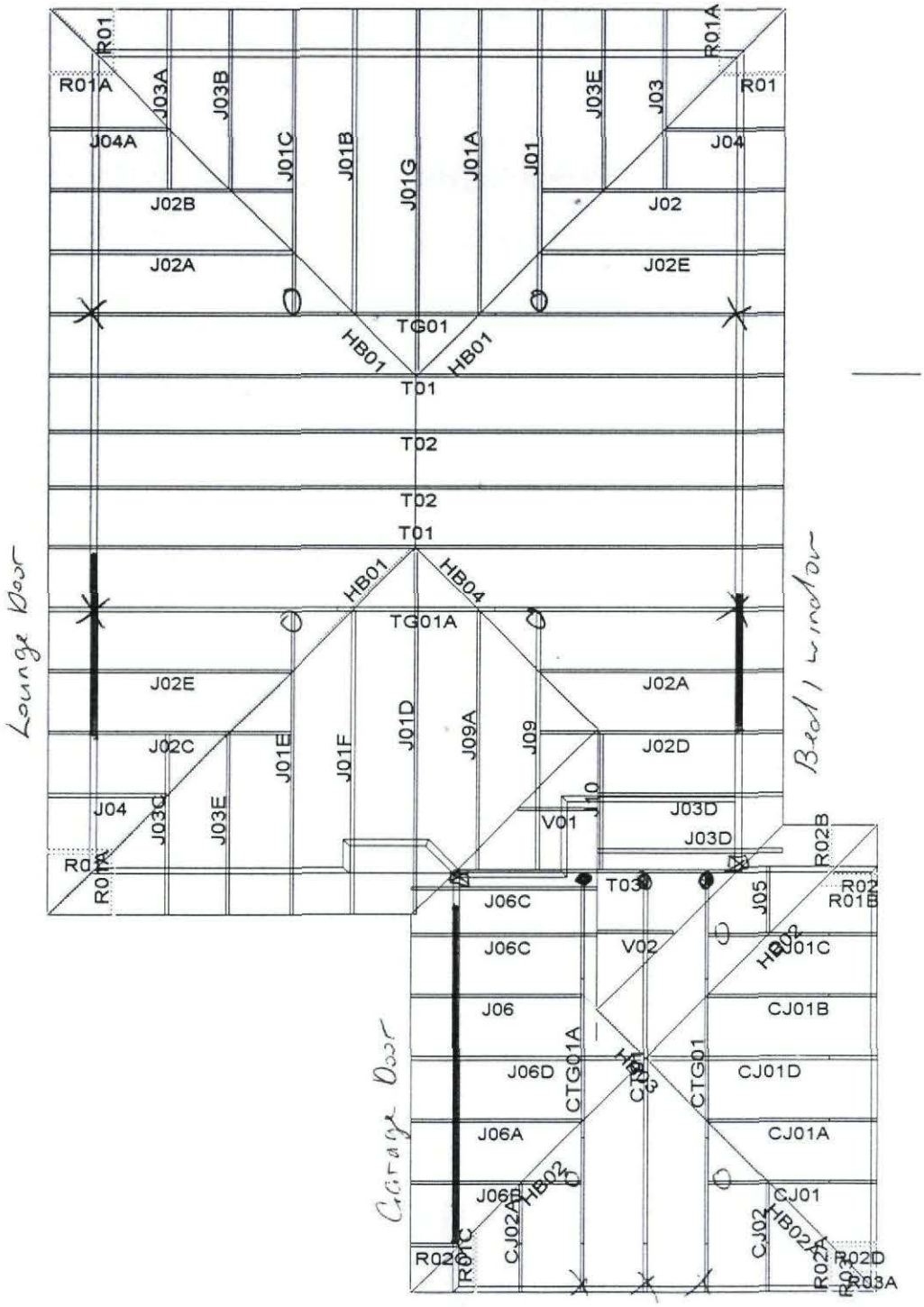
Tony Myles
Taylor Pass rd
Unit 6

Job: QC500241

file location: C:\CTRG4\JOBS\QC500241\

Scale: 1 : 100 | Date: 23/02/20 | Drawn By: Adr

O = 94x47 Joisthangers
● = 120x47 Joisthangers
X = CT202 Ceiling Tie
☒ = 6kn Fixings



MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C
Overhang of 750mm has been included	
Spans are horizontal dimensions	

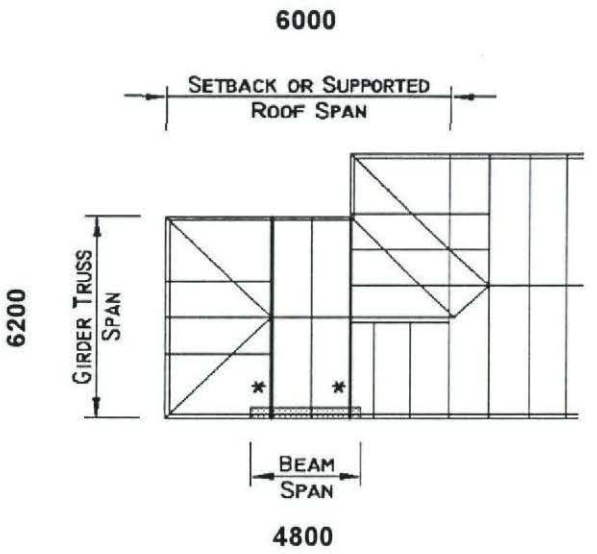
JOB NAME: Tony Myles
ADDRESS: Unit 6
Taylor Pass RD
Blenheim
DATE: 23/02/2005

BEAM NAME: Garage Door

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Flitch Beam	1
Ceiling Weight	Standard		Wind Zone	1
Wind Load	Low			1
Snow load	NIL		Beam Type	2
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 4800 mm
Beam Size: FB30H Flitch
Beam Camber: 8 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: KnR Date: 23/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title:
Company:

MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

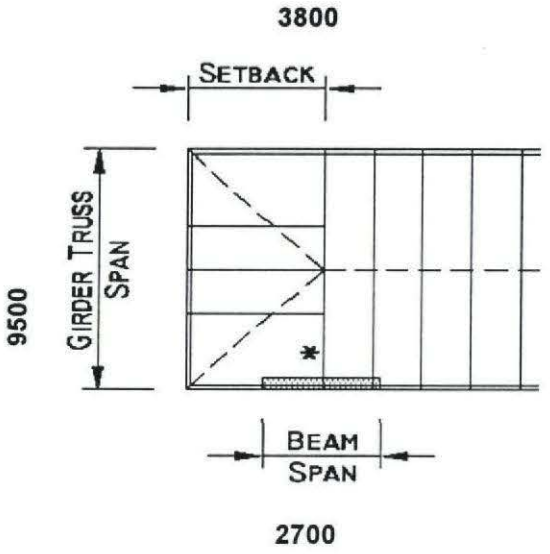
Overhang of 750mm has been included
Spans are horizontal dimensions

JOB NAME: Tony Myles
ADDRESS: Unit 6
Taylor Pass RD
Blenheim
DATE: 23/02/2005
BEAM NAME: Lounge Door

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	1
Wind Load	Low			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 2700 mm
Beam Size: 300 x 100 Timber
Beam Camber: 9 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05
Name of Computer Operator: R Noel Graham
Qualifications and Title: .....
Company: .....

MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

JOB NAME: Tony Myles
ADDRESS: Unit 6
Taylor Pass RD
Blenheim
DATE: 23/02/2005
BEAM NAME: Bed 1 Window

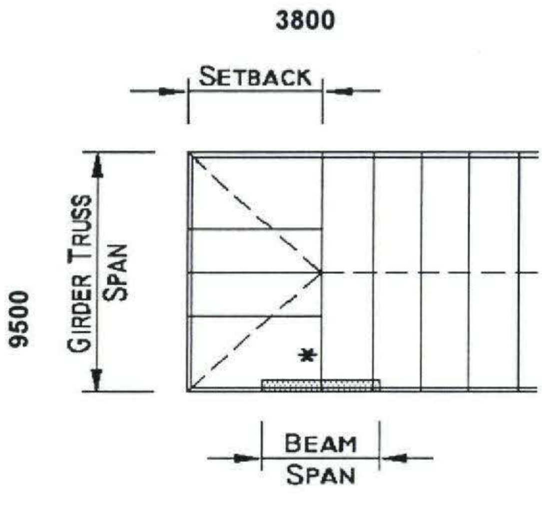
Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included
Spans are horizontal dimensions

JOB DATA

				Roof Weight	1
Roof Weight	Light	Beam type	Timber		1
Ceiling Weight	Standard			Wind Zone	1
Wind Load	Low				1
Snow load	NIL			Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE	
					1

LOAD CONDITIONS



Beam Span: 1800 mm
Beam Size: 250 x 100 Timber
Beam Camber: 6 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek New Zealand Ltd.
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: [signature] Date: 23/2/05
Name of Computer Operator: K Noel Caralan
Qualifications and Title: ....
Company: ....

Printed on 23/02/2005 at 3:38 p.m.

CARTERS Manufacturing

Job: QC500240 Client: Tony Myles Site: Taylor Pass rd

Phone: Description: Phone: Units

MiTek 20/20 - Engineering 4.3 Gammad (Build 1228) MiTek New Zealand Ltd. Printed: 14:18:14 23 Feb 2005

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Standard	Area:	Low (32.0 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:	400 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.213 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Tnx~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
CT01	1	6200	25.00	900	J02D	1	3076	25.00	900	J06B	1	976	25.00	900	V01	1	900	25.00	900
CT01A	1	6200	25.00	900	J02E	1	3076	25.00	900	J07	1	1876	25.00	900	V02	1	1200	25.00	900
T01	1	8000	25.00	900	J03	1	2176	25.00	900	J07A	1	1876	25.00	900	V03	1	1053	25.00	900
T01A	1	8000	25.00	900	J03A	1	2176	25.00	900	J07B	2	1876	25.00	900	V04	1	953	25.00	900
T01B	1	8000	25.00	900	J03B	2	2176	25.00	900	J07C	1	1876	25.00	900	V05	1	1076	25.00	900
T04	1	5877	25.00	900	J03C	1	2176	25.00	900	J08	1	2929	25.00	900	*HB01	3	6425	18.25	900
TG01	1	8000	25.00	900	J03D	2	2176	25.00	900	J08A	1	2929	25.00	900	*HB02	3	4728	18.25	900
TG02	1	5877	25.00	900	J04	2	1276	25.00	900	J08B	1	2929	25.00	900	*HB03	1	1227	18.25	900
CJ01	1	2476	25.00	900	J04A	1	1276	25.00	900	J09	1	2176	25.00	900	*HB04	1	3706	18.25	900
CJ01A	1	2476	25.00	900	J04B	1	1276	25.00	900	J10	1	2176	25.00	565	*HB05	2	5011	18.25	900
CJ01B	1	2476	25.00	900	J04C	2	1276	25.00	900	J11	1	2076	25.00	900	*R01	2	990	25.00	900
CJ01C	1	2476	25.00	900	J05	1	2776	25.00	900	J11A	1	2076	25.00	900	*R01A	1	990	25.00	900
J01	1	3976	25.00	900	J05A	1	2776	25.00	900	J11B	1	2076	25.00	900	*R02	6	914	25.00	900
J01A	1	3976	25.00	900	J05B	1	2776	25.00	900	J11C	1	2076	25.00	900	*R02A	6	914	25.00	900
J01B	1	3976	25.00	900	J05C	1	2776	25.00	900	J11D	1	2076	25.00	900	*R02B	1	914	25.00	900
J02	1	3076	25.00	900	J05D	1	2776	25.00	900	J12	1	1053	25.00	900	*R02C	1	914	25.00	900
J02A	1	3076	25.00	900	J05E	1	2776	25.00	900	J13	1	1176	25.00	900	*R02D	1	914	25.00	900
J02B	1	3076	25.00	900	J06	1	976	25.00	900	T02	1	4200	25.00	900					
J02C	1	3076	25.00	900	J06A	1	976	25.00	900	T03	6	8000	25.00	851					

Total quantity : 100

The computer design input has been carried out by:

Signed: R N [illegible] Date: 23/2/05

Name of Computer Operator: K Noel Graham

Qualifications and Title: .....

Company: CARTERS Manufacturing

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: ..... Date: .....

Name: ..... Company: .....

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Job Details:

Snow Zone:	Blenheim	Snow Altitude:	220 m
Wind Area:	Low	Design Wind Speed:	32.0 m/s
TC Restraints:	400 mm	BC Restraints:	400 mm
Roof Material:	Metal Tiles	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.213 kPa
Roof Pitch:	25.00 deg	Truss Centres:	900 mm

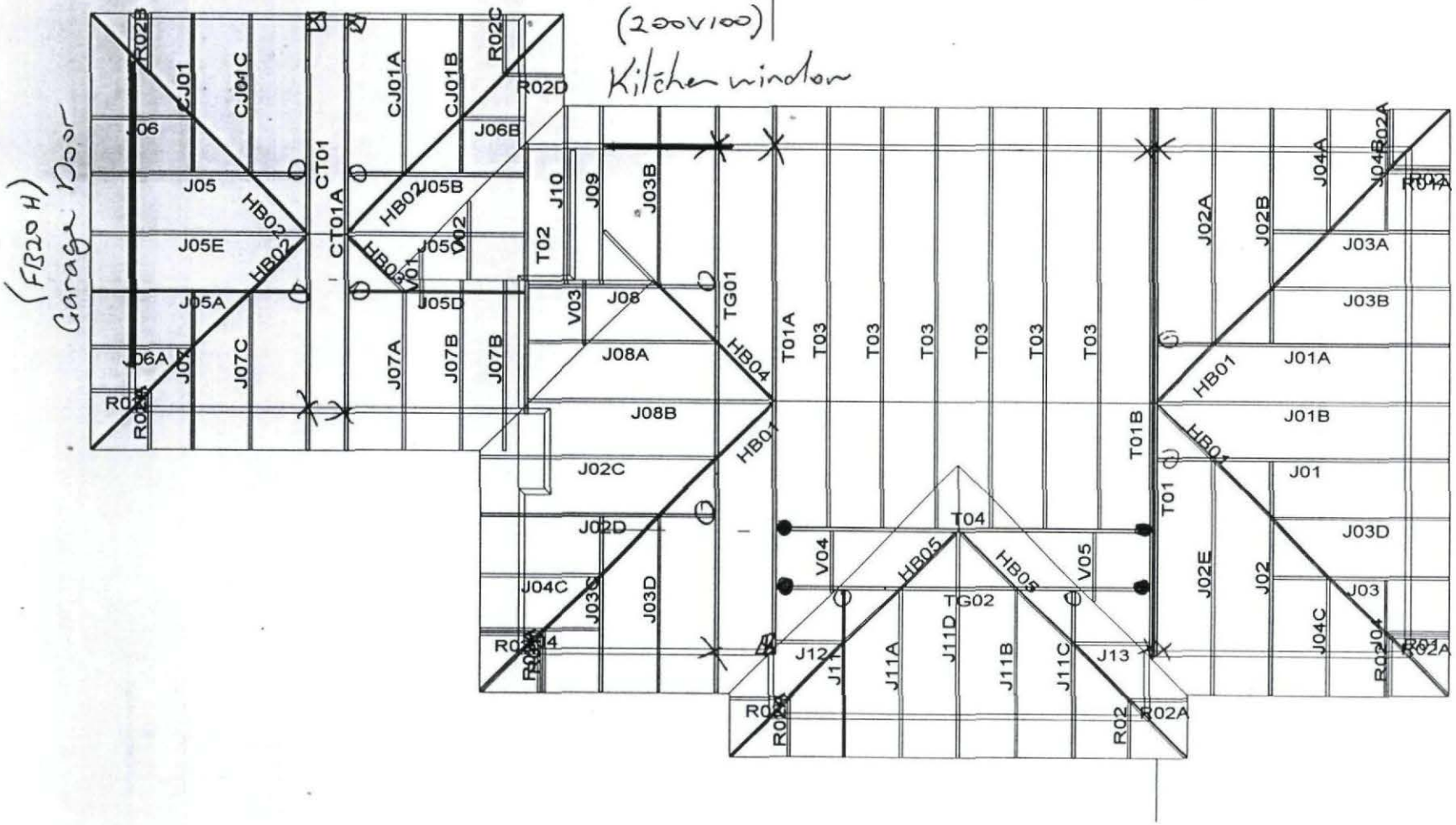
CARTERS Manufacturing

Burleigh Estate Blenheim P o Box 914 Telephone:	Tony Myles Taylor Pass rd unit 5	Job: QC500240 File location: C:\CTRG4\JOBS\QC500240\ Scale: 1 : Date: 23/ Drawn By

O = 94x47 Joisthangers
● = 120x47 Joisthangers
X = CT200 Ceiling Tie
☒ = 6Kn Fixing

(200x100) Kitchen window

(FB20 H) Garage Door



MiTek Beam

lintel supporting roof and ceiling only

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included

Spans are horizontal dimensions

JOB NAME: Tony Myles
ADDRESS: Unit 5
Taylor Pass RD
Blenheim
DATE: 23/02/2005

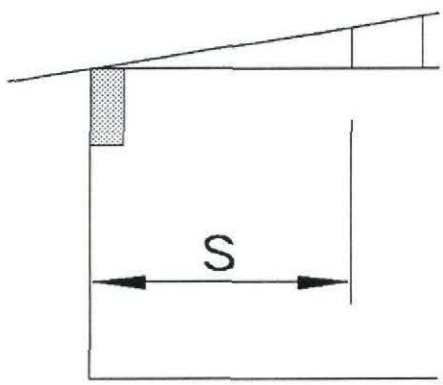
BEAM NAME: Garage Door

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Flitch Beam	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium		snow	1
Snow load	NIL		Beam Type	2
Is The Roof Pitch Greater than 30 deg.	No			FALSE
			ceiling	1

LOAD CONDITIONS

Roof Span (S) **2800**



Beam Span: 4800 mm
Beam Size: FB20H Flitch
Beam Camber: 8 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05
Name of Computer Operator: R Noel Graham
Qualifications and Title: .....
Company: .....

Printed on 23/02/2005 at 2:23 p.m.

MiTek Beam

lintel supporting girder / setback trusses

JOB NAME: Tony Myles
ADDRESS: Unit 5
Taylor Pass RD
Blenheim
DATE: 23/02/2005
BEAM NAME: Kitchen Window

DESIGN LOADS

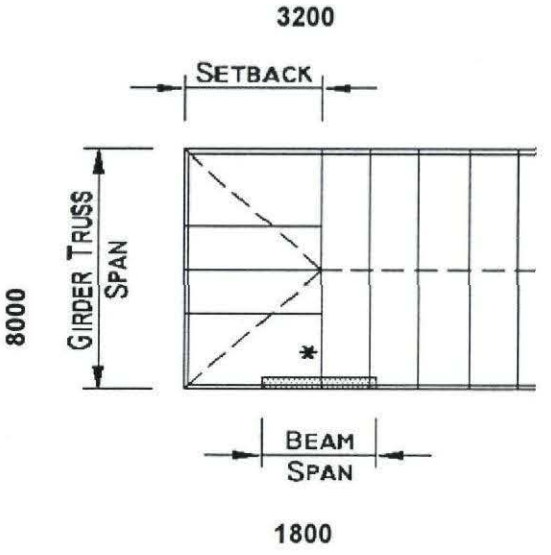
Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included
Spans are horizontal dimensions

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 1800 mm
Beam Size: 200 x 100 Timber
Beam Camber: 6 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/02/05
Name of Computer Operator: K Mark Graham
Qualifications and Title: .....
Company: .....

CARTERS Manufacturing

Job: QC500239 Client: Tony Myles Site: Taylor Pass rd

Description: Phone: Unit 4

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Standard	Area:	Low (32.0 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:	400 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.213 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Tnn~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
CTG01	1	6153	25.00	900	J04	1	3076	25.00	900	J08B	1	2676	25.00	900	*HB03	2	1227	18.25	900
CTG01A	1	6153	25.00	900	J04A	1	3076	25.00	900	J08C	1	2676	25.00	900	*HB04	2	6425	18.25	900
T02	1	8000	25.00	900	J04B	1	3076	25.00	900	J08D	2	2676	25.00	900	*HB05	2	7132	18.25	900
T02A	1	8000	25.00	900	J04C	1	3076	25.00	900	J09	1	1776	25.00	900	*HB06	1	3706	18.25	900
TG01	1	9000	25.00	900	J05	1	2176	25.00	900	J09A	1	1776	25.00	900	*R01	1	690	25.00	900
TG01A	1	9000	25.00	900	J05A	1	2176	25.00	900	J09B	1	1776	25.00	900	*R01A	1	690	25.00	900
CJ01	1	2476	25.00	900	J05B	1	2176	25.00	900	J09C	1	1776	25.00	900	*R02	1	690	25.00	900
CJ01A	1	2476	25.00	900	J05C	1	2176	25.00	900	J09D	1	1776	25.00	900	*R02B	1	690	25.00	900
CJ01B	1	2476	25.00	900	J06	1	1276	25.00	900	J10	1	3476	25.00	900	*R03	1	314	25.00	900
CJ01C	1	2476	25.00	900	J06A	1	1276	25.00	900	J10A	1	3476	25.00	900	*R03A	1	314	25.00	900
CJ01D	1	2476	25.00	900	J06B	1	1276	25.00	900	J11	1	1676	25.00	900	*R04	1	914	25.00	900
CT01	1	6153	25.00	900	J06C	1	1276	25.00	900	R02A	1	690	25.00	900	*R05	1	1590	25.00	900
J01	1	976	25.00	900	J07	1	3576	25.00	900	T01	1	4200	25.00	900	*R06	1	667	25.00	900
J02	1	1876	25.00	900	J07A	1	3576	25.00	900	T03	2	9000	25.00	900	*R07	1	990	25.00	900
J02A	1	1876	25.00	900	J07B	1	3576	25.00	900	V01	1	1300	25.00	900	*R07A	1	990	25.00	900
J02B	1	1876	25.00	900	J07C	4	3576	25.00	900	V02	1	2200	25.00	900	*R08	4	914	25.00	900
J02C	2	1876	25.00	900	J07D	1	3576	25.00	900	V03	1	3100	25.00	900	*R08A	4	914	25.00	900
J02D	1	1876	25.00	900	J07E	1	3576	25.00	900	V04	1	1153	25.00	900	*R09	1	1490	25.00	900
J03	1	3976	25.00	900	J07F	2	3576	25.00	900	V05	1	1100	25.00	900	*R09A	1	1490	25.00	900
J03A	1	3976	25.00	900	J08	1	2676	25.00	900	*HB01	1	4728	18.25	900	*R10	1	1590	25.00	900
J03B	1	3976	25.00	900	J08A	1	2676	25.00	900	*HB02	2	4728	18.25	900					

Total quantity : 100

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05

Name of Computer Operator: K Mark Buchan

Qualifications and Title: .....

Company: CARTERS Manufacturing

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: ..... Date: .....

Name: ..... Company: .....

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

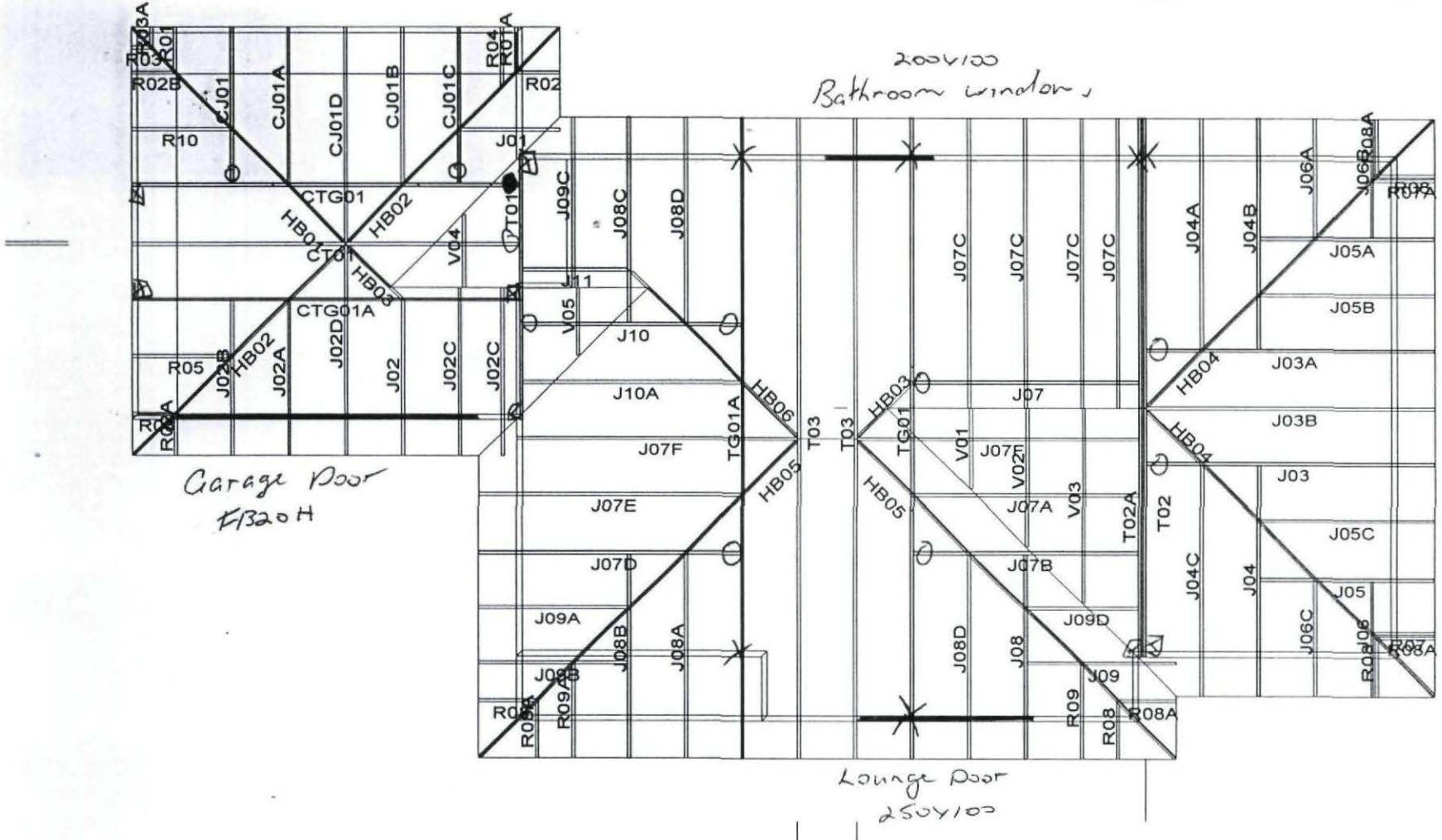
Job Details:

Snow Zone:	Blenheim	Snow Altitude:	220 m
Wind Area:	Low	Design Wind Speed:	32.0 m/s
TC Restraints:	400 mm	BC Restraints:	400 mm
Roof Material:	Metal Tiles	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.213 kPa
Roof Pitch:	25.00 deg	Truss Centres:	900 mm

CARTERS Manufacturing

Burleigh Estate Blenheim P o Box 914	Tony Myles Taylor Pass rd	Job: QC500239
Telephone:		File location: C:\CTRG4\JOBS\QC500239\ Scale: 1 : Date: 23/ Drawn By

O = 94x47 Joisthangers
● = 120x47 Joisthangers
X = CT200 Ceiling Ties
⊠ = 6 Kn Fixings



MiTek Beam

lintel supporting roof and ceiling only

DESIGN LOADS

		JOB NAME:	Tony Myles
		ADDRESS:	Unit 4
Roof Live Load	0.25kPa, 1.0kN Point Load		Taylor Pass RD
Roof Dead Load	0.25kPa, Light		Blenheim
Ceiling Dead Load	0.20kPa, Standard	**DATE:**	23/02/2005
Seismic Zone	A, B or C		
Overhang of 750mm has been included		**BEAM NAME:**	Garage Door

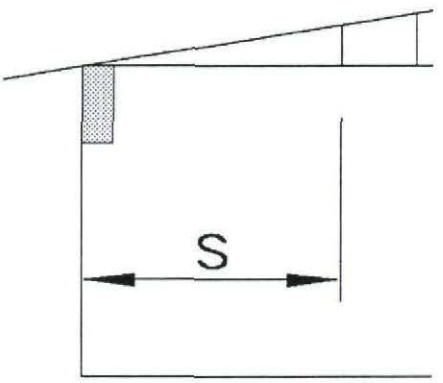
Spans are horizontal dimensions

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Flitch Beam	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium		snow	1
Snow load	NIL		Beam Type	2
Is The Roof Pitch Greater than 30 deg.	No			FALSE
			ceiling	1

LOAD CONDITIONS

Roof Span (S) **1800**



Beam Span: 4800 mm
Beam Size: FB20H Flitch
Beam Camber: 8 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title: .....
Company: .....

MiTek Beam

lintel supporting girder / setback trusses

JOB NAME: Tony Myles
ADDRESS: Unit 4
Taylor Pass RD
Blenheim
DATE: 23/02/2005
BEAM NAME: Lounge Door

DESIGN LOADS

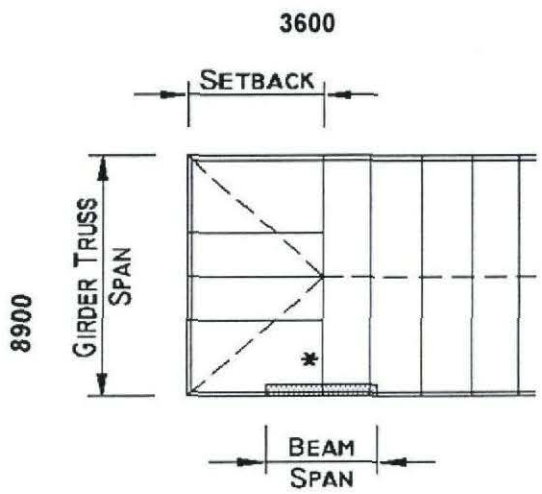
Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included
Spans are horizontal dimensions

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 2700 mm
Beam Size: 250 x 100 Timber
Beam Camber: 9 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title: .....
Company: .....

MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

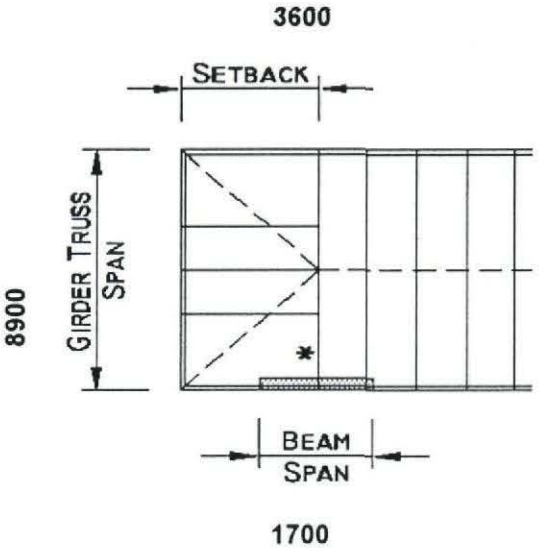
Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C
Overhang of 750mm has been included	
Spans are horizontal dimensions	

JOB NAME:	Tony Myles
ADDRESS:	Unit 4
	Taylor Pass RD
	Blenheim
DATE:	23/02/2005
BEAM NAME:	Bathroom window

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 1700 mm
Beam Size: 200 x 100 Timber
Beam Camber: 6 mm

Certification of MiTek Beam Design Program

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MiTek New Zealand Ltd.
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title: .....
Company: .....

Job: QC500238 Client: Tony Myles Site: Taylor Pass rd

Phone: Phone: Unit 3

Description:

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Standard	Area:	Low (32.0 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:	400 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.213 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
T02	1	6190	25.00	900	J02B	2	2776	25.00	900	J06B	1	3076	25.00	900	T01A	1	9200	25.00	900
T05	1	6190	25.00	477	J02C	1	2776	25.00	900	J06C	1	3076	25.00	900	T03	1	6200	25.00	900
TG01	1	9200	25.00	900	J02D	1	2776	25.00	900	J06D	2	3076	25.00	900	T04	3	9200	25.00	751
TG01A	1	9200	25.00	900	J02E	2	2776	25.00	900	J07	1	2176	25.00	900	T04A	1	9200	25.00	751
J01	1	3676	25.00	900	J03	1	1876	25.00	900	J07A	1	2176	25.00	900	V01	1	2026	25.00	900
J01A	1	3676	25.00	900	J03A	1	1876	25.00	900	J07B	1	2176	25.00	900	V02	1	1126	25.00	900
J01B	1	3676	25.00	900	J03B	1	1876	25.00	900	J07C	1	2176	25.00	900	V03	1	840	25.00	900
J01C	1	3676	25.00	900	J03C	1	1876	25.00	900	J07D	2	2176	25.00	900	V04	1	1740	25.00	900
J01D	1	3676	25.00	900	J03D	2	1876	25.00	900	J07E	1	2176	25.00	900	*HB01	3	7274	18.25	900
J01E	1	3676	25.00	900	J04	1	976	25.00	900	J08	1	1276	25.00	900	*HB02	1	3772	18.25	900
J01F	1	3676	25.00	900	J04A	1	976	25.00	900	J08A	2	1276	25.00	900	*HB03	3	5152	18.25	900
J01G	1	3676	25.00	900	J04B	1	976	25.00	900	J08B	2	1276	25.00	900	*HB04	1	1227	18.25	900
J01H	1	3676	25.00	900	J05	1	2776	25.00	900	J08C	1	1276	25.00	900	*R01	3	914	25.00	900
J01I	1	3676	25.00	900	J05A	1	2776	25.00	900	J09	1	2166	25.00	900	*R01A	3	914	25.00	900
J02	1	2776	25.00	900	J06	1	3076	25.00	900	J09A	1	2166	25.00	900	*R02	1	990	25.00	900
J02A	1	2776	25.00	900	J06A	1	3076	25.00	900	T01	1	9200	25.00	900	*R02A	2	990	25.00	900

Total quantity : 82

The computer design input has been carried out by:

Signed: ..... Date: 23/2/05

Name of Computer Operator: R Abel Perahara

Qualifications and Title: .....

Company: CARTERS Manufacturing

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: ..... Date: .....

Name: ..... Company: .....

RECEIVED
25 FEB 2005
MARLBOROUGH
DISTRICT COUNCIL

MiTek Beam

lintel supporting roof and ceiling only

DESIGN LOADS

JOB NAME: Tony Myles
ADDRESS: Unit 3, Taylor Pass RD, Blenheim
DATE: 23/02/2005
BEAM NAME: Garage Door

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included

Spans are horizontal dimensions

JOB DATA

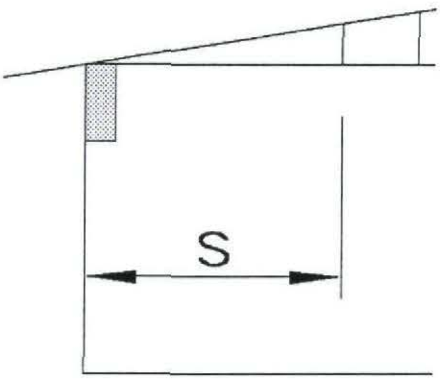
Roof Weight	Light
Ceiling Weight	Standard
Wind Load	Medium
Snow load	NIL
Is The Roof Pitch Greater than 30 deg.	No

Beam type: Flitch Beam

Roof Weight	1
	1
Wind Zone	2
snow	1
Beam Type	2
	FALSE
ceiling	1

LOAD CONDITIONS

Roof Span (S) **3100**



Beam Span: 4800 mm
Beam Size: FB20H Flitch
Beam Camber: 8 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL *Beams and Lintels in New Zealand. The beam designs* computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek New Zealand Ltd.
HOME OF GANG-NAIL® BUILDING SYSTEMS
MiTek™

The computer design input has been carried out by:

Signed: .... Date: 23/2/05
Name of Computer Operator: ....
Qualifications and Title: ....
Company: ....

Printed on 23/02/2005 at 7:41 a.m.

CARTERS Manufacturing

Burleigh Estate
Blenheim
P o Box 914

Telephone: 03 5775344
Fax:

Tony Myles
Taylor Pass rd
Unit 3

Job: QC500238

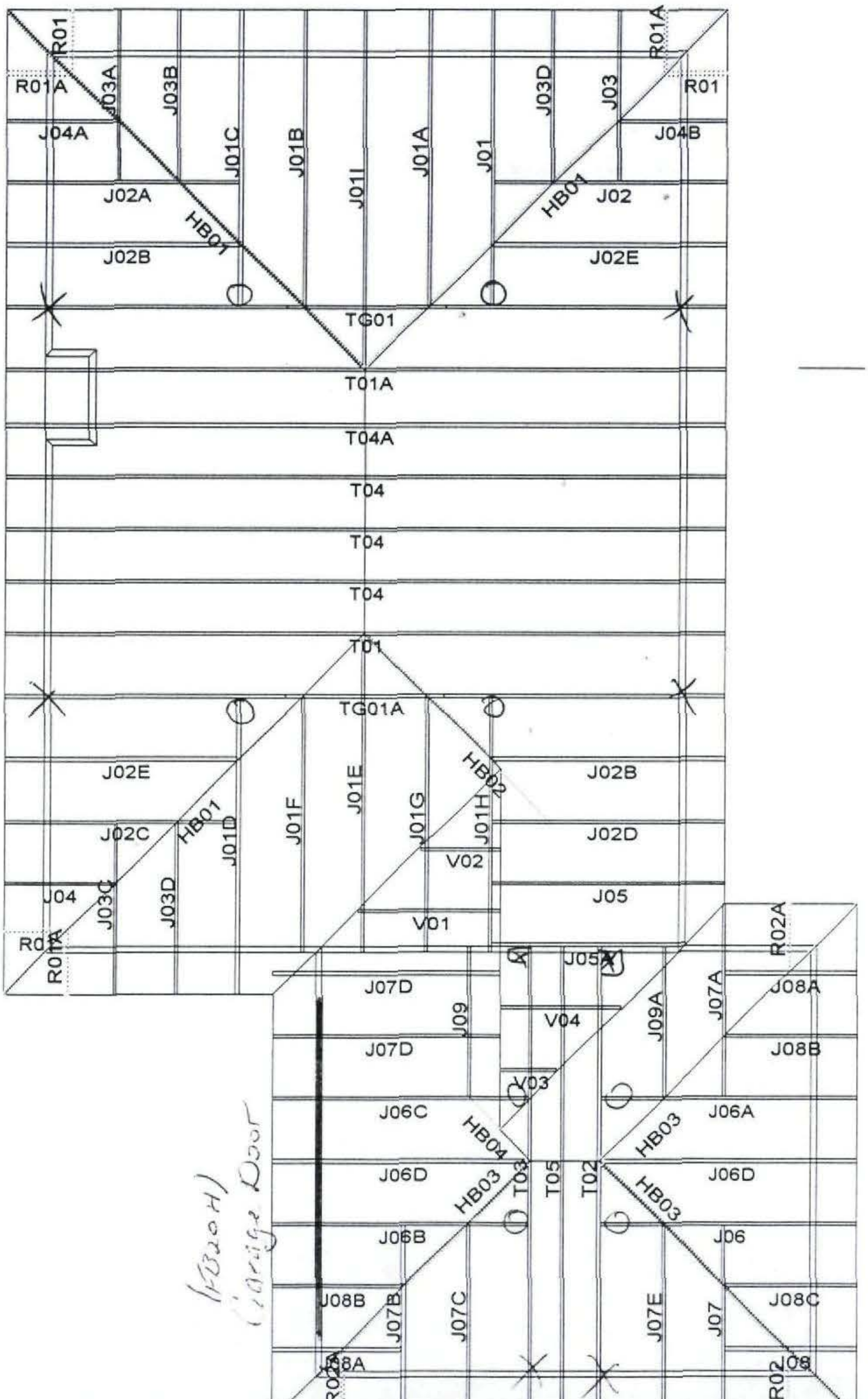
file location: C:\CTRG4\JOBS\QC500238\

Scale: 1 : 100 | Date: 22/02/20 | Drawn By: Adr

Job Details:

Snow Zone:	Blenheim	Snow Altitude:	220 m
Wind Area:	Low	Design Wind Speed:	32.0 m/s
TC Restraints:	400 mm	BC Restraints:	400 mm
Roof Material:	Metal Tiles	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.213 kPa
Roof Pitch:	25.00 deg	Truss Centres:	900 mm

O = 94x47 Joist hangers
X = CT200 Ceiling Ties
☒ = 6kn Fixings



CARTERS Manufacturing

Job: QC500308 Client: Tony Myles Site: Taylor Pass rd

Phone: unitz

Description: Phone:

MiTek 20/20 - Engineering 4.3 Gammet (Build 1228) MiTek New Zealand Ltd Printed: 09:58:43 22 Feb 2005

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		*Ceiling*		*Wind*	
Material:	Metal Tiles	Material:	Standard	Area:	Low (32.0 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:	400 mm centres	Snow	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.213 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
T04	2	7700	25.00	869	J02A	1	2926	25.00	900	J04A	2	1126	25.00	900	V02	1	2600	25.00	900
T04A	4	7700	25.00	869	J02B	2	2926	25.00	900	J05	1	1276	25.00	900	V03	1	4400	25.00	900
CJ01	1	2776	25.00	900	J02C	1	2926	25.00	900	J05A	1	1276	25.00	900	*HB01	4	6213	18.25	900
CJ01A	1	2776	25.00	900	J02D	1	2926	25.00	900	J05B	1	1276	25.00	900	*HB02	2	5152	18.25	900
CJ01B	1	2776	25.00	900	J02E	1	2926	25.00	900	J05C	1	1276	25.00	900	*R01	4	914	25.00	900
CJ01C	1	2776	25.00	900	J02F	1	2926	25.00	900	T01	1	7700	25.00	900	*R01A	4	914	25.00	900
CJ01D	1	2776	25.00	900	J03	1	2026	25.00	900	T01A	1	7700	25.00	900	*R01B	1	914	25.00	900
J01	1	3826	25.00	900	J03A	2	2026	25.00	900	T02	1	6200	25.00	900	*R01C	1	914	25.00	900
J01A	1	3826	25.00	900	J03B	1	2026	25.00	900	T03	2	6200	25.00	792	*R02	1	990	25.00	900
J01B	1	3826	25.00	900	J03C	1	2026	25.00	900	T03A	1	6200	25.00	792	*R02A	1	990	25.00	900
J01C	1	3826	25.00	900	J03D	1	2026	25.00	900	T04B	1	7700	25.00	869					
J01D	2	3826	25.00	900	J03E	2	2026	25.00	900	TG01	1	6200	25.00	900					
J02	1	2926	25.00	900	J04	2	1126	25.00	900	V01	1	1100	25.00	900					

Total quantity : 70

The computer design input has been carried out by:

Signed: R N [illegible] Date: 22/2/05

Name of Computer Operator: R Noel Graham

Qualifications and Title:

Company: CARTERS Manufacturing

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: Date:

Name: Company:

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Job Details:

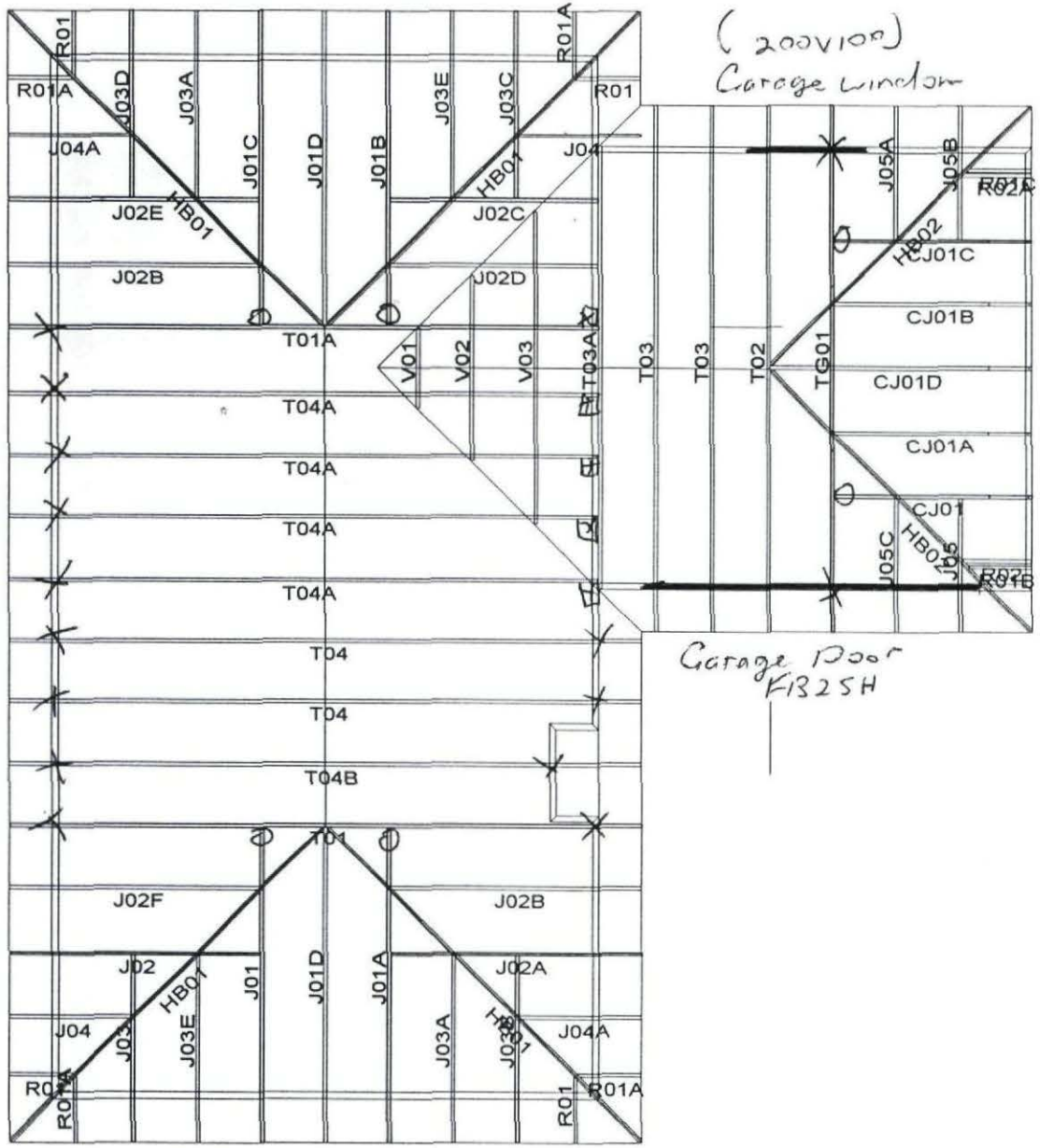
Snow Zone:	Blenheim	Snow Altitude:	220 m
Wind Area:	Low	Design Wind Speed:	32.0 m/s
TC Restraints:	400 mm	BC Restraints:	400 mm
Roof Material:	Metal Tiles	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.213 kPa
Roof Pitch:	25.00 deg	Truss Centres:	900 mm

CARTERS Manufacturing

Burleigh Estate Blenheim P o Box 914 Telephone:	Tony Myles Taylor Pass rd Unit 2	Job: QC500308

File location: C:\CTRG4\JOBS\QC500308\
Scale: 1 : | Date: 22/ | Drawn By

O = 94x47 Joisthangers
X = CT200 Ceiling Ties
☒ = 6 Kn Fixing



MiTek Beam

lintel supporting girder / setback trusses

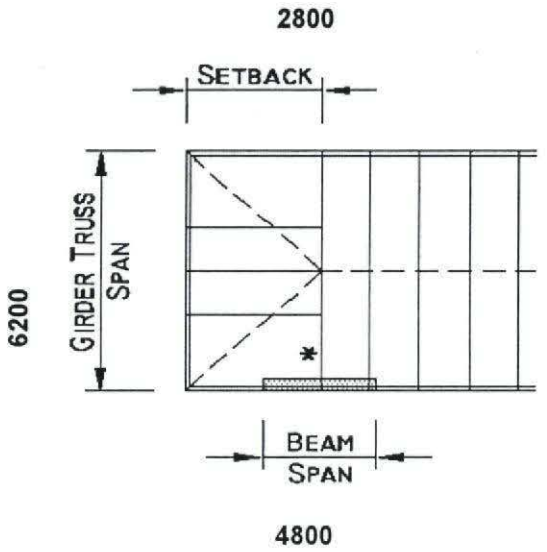
DESIGN LOADS

		JOB NAME:	Tony Myles
		ADDRESS:	Unit 2
Roof Live Load	0.25kPa, 1.0kN Point Load		Taylor Pass rd
Roof Dead Load	0.25kPa, Light		Blenheim
Ceiling Dead Load	0.20kPa, Standard	**DATE:**	22/02/2005
Seismic Zone	A, B or C		
Overhang of 750mm has been included		**BEAM NAME:**	Garage Door
Spans are horizontal dimensions			

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Flitch Beam	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium			1
Snow load	NIL		Beam Type	2
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 4800 mm
Beam Size: FB25H Flitch
Beam Camber: 8 mm

Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 22/2/05
Name of Computer Operator: K Noel Graham
Qualifications and Title: .....
Company: .....

MiTek Beam

lintel supporting girder / setback trusses

DESIGN LOADS

Roof Live Load	0.25kPa, 1.0kN Point Load
Roof Dead Load	0.25kPa, Light
Ceiling Dead Load	0.20kPa, Standard
Seismic Zone	A, B or C

Overhang of 750mm has been included

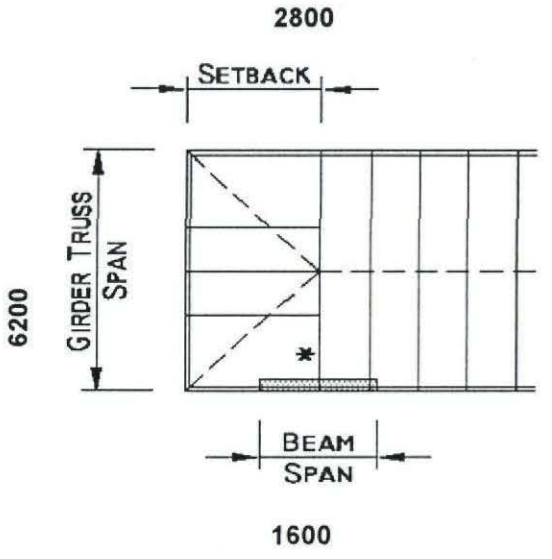
Spans are horizontal dimensions

JOB NAME: Tony Myles
ADDRESS: Unit 2
Taylor Pass rd
Blenheim
DATE: 22/02/2005
BEAM NAME: Garage Window

JOB DATA

			Roof Weight	1
Roof Weight	Light	Beam type	Timber	1
Ceiling Weight	Standard		Wind Zone	2
Wind Load	Medium			1
Snow load	NIL		Beam Type	3
Is The Roof Pitch Greater than 30 deg.	No			FALSE
				1

LOAD CONDITIONS



Beam Span: 1600 mm
Beam Size: 200 x 100 Timber
Beam Camber: 6 mm

Certification of MiTek Beam Design Program

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MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

The computer design input has been carried out by:

Signed: ..... Date: 22/2/05
Name of Computer Operator: K Noel Gopton
Qualifications and Title: .....
Company: .....

CARTERS Manufacturing

Job: QC500307 Client: Tony Myles Site: Taylor Pass rd

Phone: Phone:

Description: unit1

MiTek 20/20 - Engineering 4.3 Gammad (Build 1228) MiTek New Zealand Ltd. Printed: 08:57:15 22 Feb 2005

PRODUCER STATEMENT
MITek 20/20™ TRUSS DESIGN PROGRAM

Certification of MITek 20/20™ Truss Design Program

The MITek 20/20™ truss design program has been developed by MITek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MITek 20/20™ Truss Design Data and Output

The MITek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Trusses

Timber Group:	DF No.1 Fr x50	Pitch:	25.00 deg	Std Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Standard	Area:	Medium (37.0 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:	400 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa			Location:	Blenheim at 220 m
	Qc = 1.000 kN			Open Ground Load:	0.240 kPa
				Basic Roof Load:	0.194 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
CT01	1	6200	25.00	900	J01F	1	3676	25.00	900	J03B	1	1876	25.00	900	V04	1	1750	25.00	900
CT01A	1	6200	25.00	900	J01G	1	3676	25.00	900	J03C	1	1876	25.00	900	*HB01	3	7274	18.25	900
T01A	1	9200	25.00	900	J01H	1	3676	25.00	900	J03D	1	1876	25.00	900	*HB02	1	3772	18.25	900
TG01	1	9200	25.00	900	J01I	1	3676	25.00	900	J03E	2	1876	25.00	900	*HB03	3	4728	18.25	900
TG01A	1	9200	25.00	900	J02	1	2776	25.00	900	J04	1	2776	25.00	900	*HB04	1	1160	18.25	900
CJ01	1	2476	25.00	900	J02A	1	2776	25.00	900	J04A	2	2776	25.00	900	*R01	2	1590	25.00	900
CJ01A	1	2476	25.00	900	J02B	2	2776	25.00	900	J04B	2	2776	25.00	900	*R01A	1	1590	25.00	900
CJ01B	1	2476	25.00	900	J02C	1	2776	25.00	900	J05	1	976	25.00	900	*R02	4	914	25.00	900
CJ01C	1	2476	25.00	900	J02D	1	2776	25.00	900	J05A	1	976	25.00	900	*R02A	4	914	25.00	900
CT02	1	6200	25.00	777	J02E	1	2776	25.00	900	J06	1	990	25.00	900	*R02B	1	914	25.00	900
J01	1	3676	25.00	900	J02F	2	2776	25.00	900	T01	1	9200	25.00	900	*R02C	1	914	25.00	900
J01A	1	3676	25.00	900	J02G	1	2776	25.00	900	T02	3	9200	25.00	751	*R03	1	690	25.00	900
J01B	1	3676	25.00	900	J02H	1	2776	25.00	900	T02A	1	9200	25.00	751	*R03A	1	690	25.00	900
J01C	1	3676	25.00	900	J02I	2	2776	25.00	900	V01	1	1740	25.00	900					
J01D	1	3676	25.00	900	J03	2	1876	25.00	900	V02	1	1680	25.00	900					
J01E	1	3676	25.00	900	J03A	1	1876	25.00	900	V03	1	1700	25.00	900					

Total quantity : 81

The computer design input has been carried out by:

Signed: ..... Date: 22/2/05

Name of Computer Operator: R Noel Graham

Qualifications and Title: .....

Company: CARTERS Manufacturing

Verification / Acceptance of Input Data:

I have checked the input data against the construction drawings and specifications and verify that they are correct and suitable for this job.

Signed: ..... Date: .....

Name: ..... Company: .....

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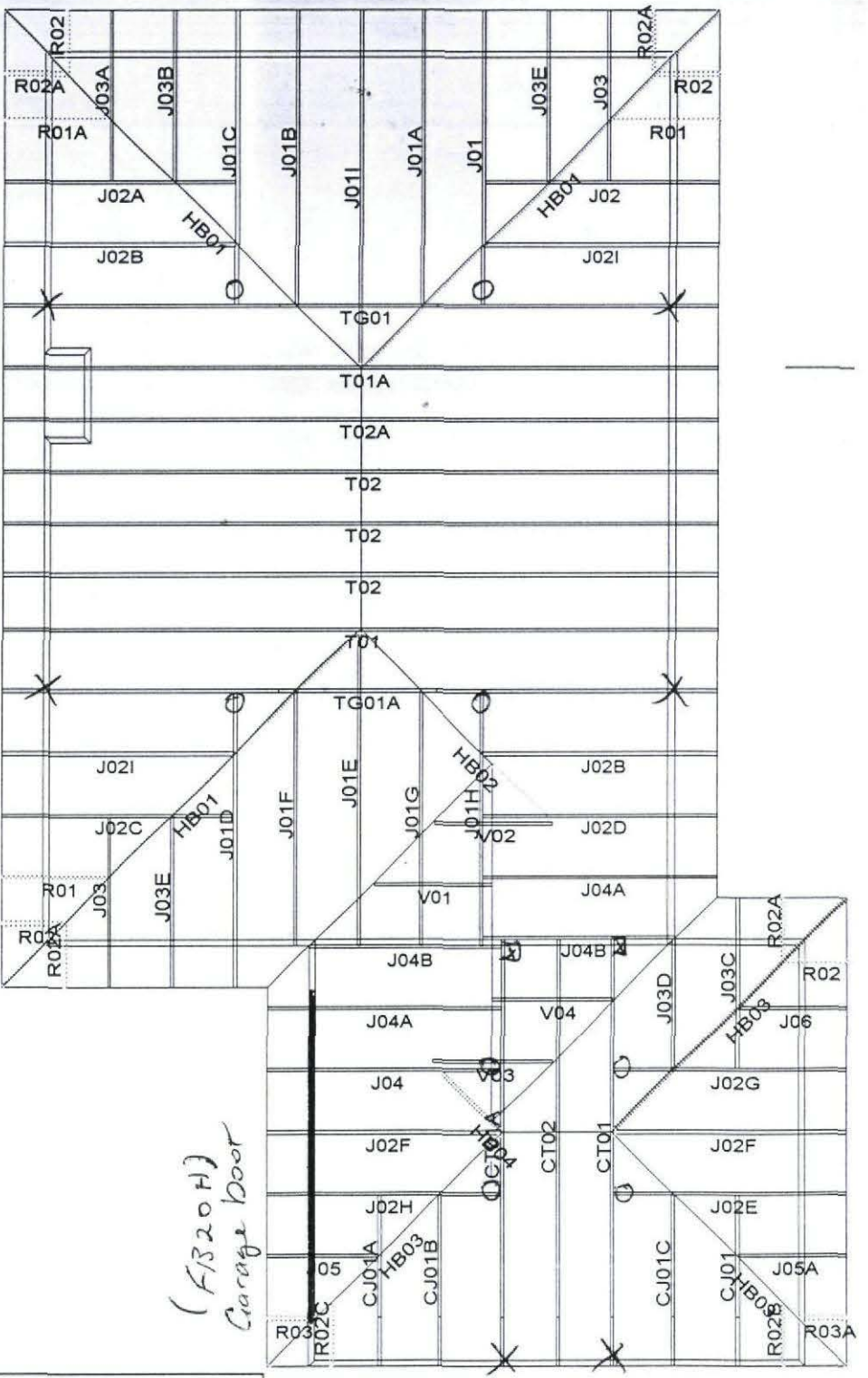
25 FEB 2005
MARLBOROUGH
DISTRICT COUNCIL

Job Details:

Snow Zone:	Blenheim	Snow Altitude:	220 m
Wind Area:	Medium	Design Wind Speed:	37.0 m/s
TC Restraints:	400 mm	BC Restraints:	400 mm
Roof Material:	Metal Tiles	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.194 kPa
Roof Pitch:	25.00 deg	Truss Centres:	900 mm

O = 94 x 47 Joisthangers
X = CT200 ceiling Tie
☒ = 6Kn Fixings



CARTERS Manufacturing

Burleigh Estate Blenheim P o Box 914 Telephone: 03 5775344 Fax:	Tony Myles Taylor Pass rd	Job: QC500307 file location: C:\CTRG4\JOBS\QC500307\ Scale: 1 : 100 Date: 22/02/20 Drawn By: Adn

MiTek Beam

lintel supporting roof and ceiling only

DESIGN LOADS

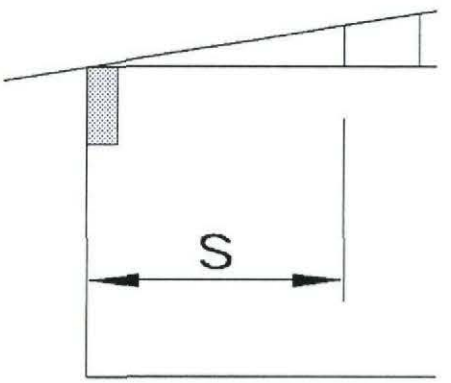
		JOB NAME:	Tony Myles
		ADDRESS:	Unit 1
Roof Live Load	0.25kPa, 1.0kN Point Load		Taylor Pass rd
Roof Dead Load	0.25kPa, Light		Blenheim
Ceiling Dead Load	0.20kPa, Standard	**DATE:**	22/02/2005
Seismic Zone	A, B or C		
Overhang of 750mm has been included		**BEAM NAME:**	Garage Door
Spans are horizontal dimensions			

JOB DATA

			Roof Weight		1
Roof Weight	Light	Beam type	Flitch Beam		1
Ceiling Weight	Standard		Wind Zone		1
Wind Load	Low		snow		1
Snow load	NIL		Beam Type		2
Is The Roof Pitch Greater than 30 deg.	No			FALSE	
			ceiling		1

LOAD CONDITIONS

Roof Span (S) **2800**



Certification of MiTek Beam Design Program

The MiTek Beam design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL Beams and Lintels in New Zealand. The beam designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents issued by the Building Industry Authority to satisfy the requirements of Clause B1:Structure of the Building Regulations 1992. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

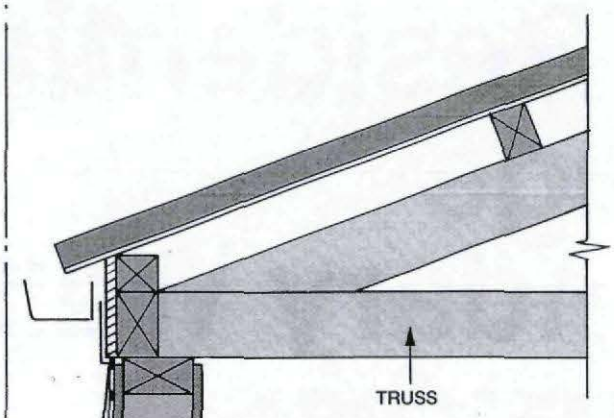
MiTek™ **MiTek New Zealand Ltd.**
HOME OF GANG-NAIL® BUILDING SYSTEMS

Beam Span:	4800 mm
Beam Size:	FB20H Flitch
Beam Camber:	8 mm

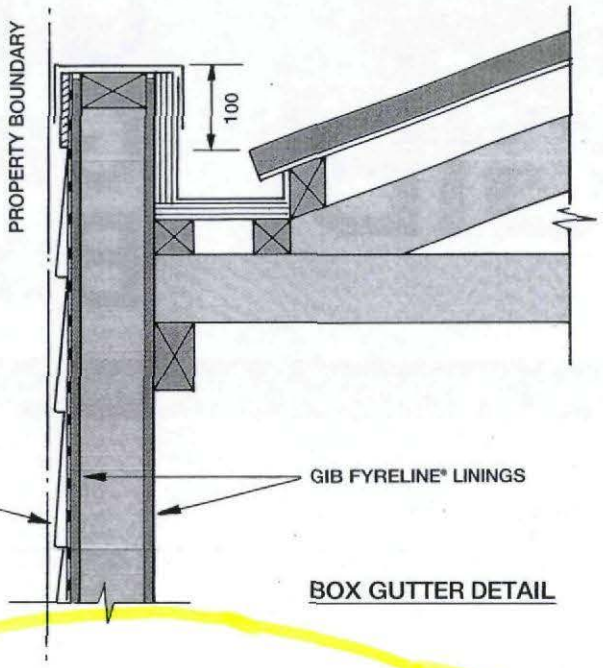
The computer design input has been carried out by:

Signed: KA Date: 22/2/05
Name of Computer Operator: Robert Graham
Qualifications and Title: .....
Company: .....

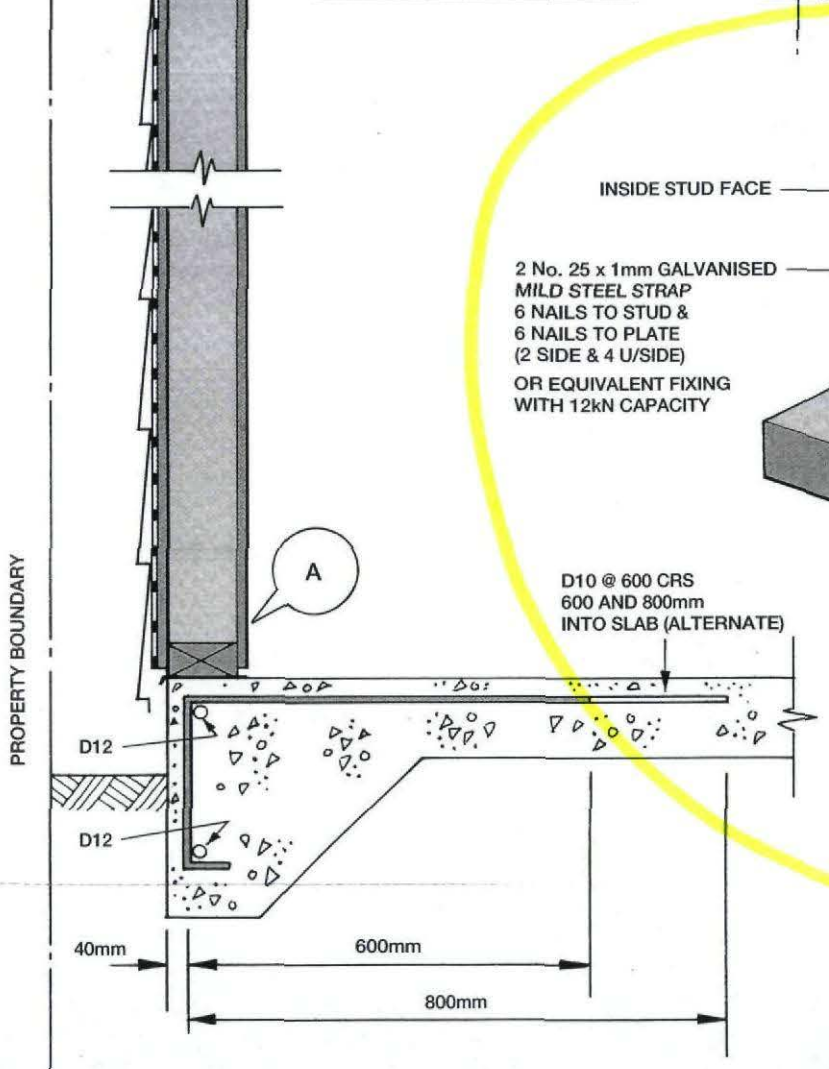
GIB®

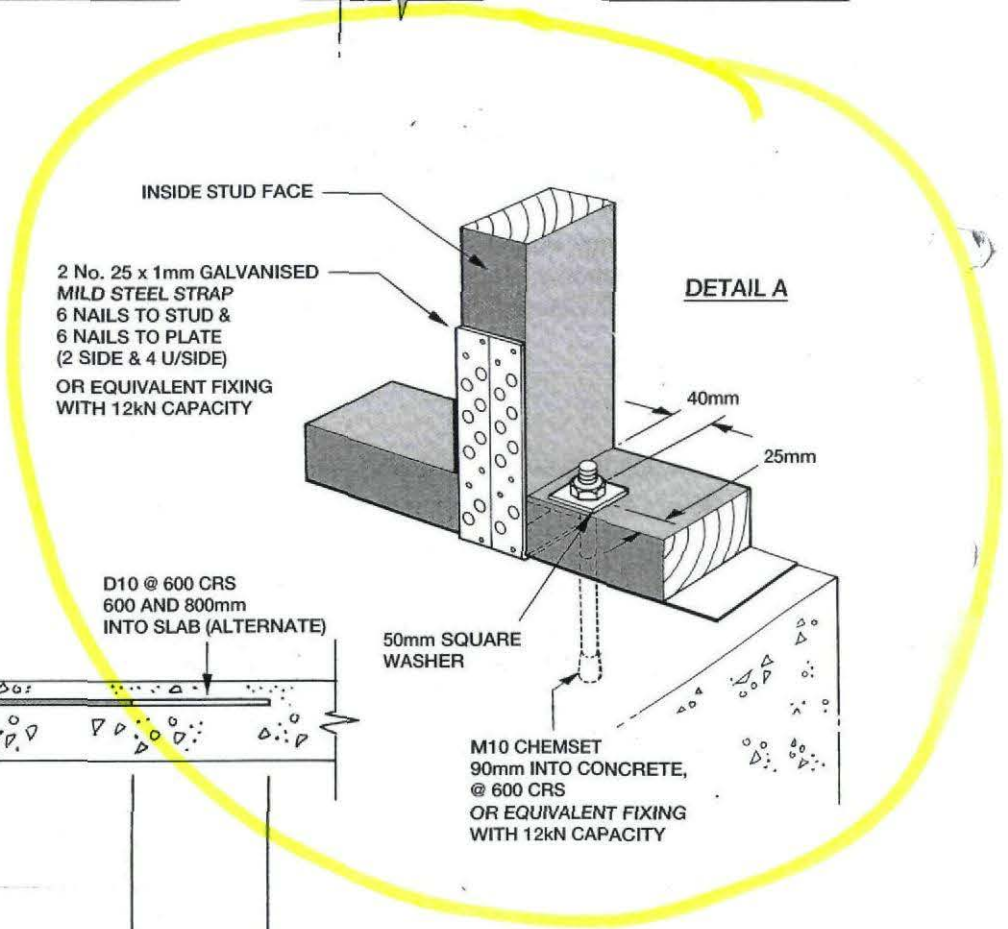


EXTERNAL GUTTER DETAIL



BOX GUTTER DETAIL





WINSTONE WALLBOARDS LTD

Auckland Tel 0-9-634 2184 Fax 0-9-634 3972
Wellington Tel 0-4-568 4293 Fax 0-4-568 7844
Christchurch Tel 0-3-332 3159 Fax 0-3-337 1014

GIB®

INFORMATION BULLETIN No. 13

March 1994

Gib® Residential Garage Boundary Walls

ADDITION TO: 'GIB BOARD® FIRE RATED SYSTEMS, 1992'

Scope of Use

The solution offered in this bulletin is intended for use when a 30/30/30 or 60/60/60 Fire Resistance Rating (FRR) is required by the NZBC Acceptable Solution C3/AS1 for single storey residential garage boundary walls.

Compliance with the NZBC

Under normal conditions of dry internal use Gib Board® Fire Rated Systems have a serviceable life in excess of 50 years and satisfy the requirements of NZBC Clause B2 – Durability.

Gib Board® Fire Rated Systems provide passive fire protection in accordance with the requirements of NZBC Clause C3 – Spread of Fire.

Gib® Residential Garage Boundary Walls have been specifically designed to fall inwards, away from the adjacent property boundary, when collapse conditions are reached during a fire and therefore satisfy the requirements of NZBC Clause C4 – Structural Stability during Fire.

NOTES:

i) Wall construction in accordance with 'Gib Board® Fire Rated Systems, 1992' GBTL 30 or GBTL 60 depending on the required Fire Resistance Rating (FRR).

ii) Sheets joints in the external Gib Fyreline® linings on the outside of the frame, i.e., under the cladding system, do not require taping and stopping.

iii) Impervious cladding materials with a ventilating air-space, such as steel or aluminium weatherboards, may be installed over building paper directly over the external Gib Fyreline® lining.

iv) Absorbent cladding materials such as plywood or fibre cement must be separated from the external Gib Fyreline® lining by means of vertical battens, with a nominal depth of 50mm, and building paper behind the cladding material.

Reference

Macdonald Barnett Partners, Consulting Civil and Structural Engineers, Report No 5109 CRB, dated 13 October 1993, and Producer Statement dated 1 March 1994.

Added Information for Taylor Pass Road
Myles Investment Trust

All Hardi-Flex , Exterior Walls to be H.1.2 or greater treatment with 40x20 H3 Battern. The rest of the Frames to be untreated, 90x45.

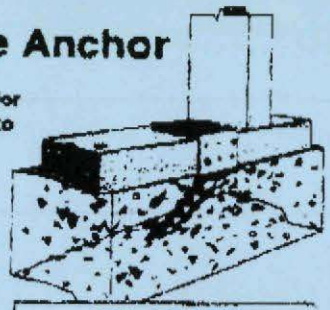
Showers to be Full Inclosure in all 7 dwellings.
(Shower Pack eg: Englefield, Clearlite)

Floor Heights
All Brick Veneer to be 150mm Minimum from Ground Level to Floor.
All other Veneer to be 225mm Minimum from Ground Level to Floor.

BOTTOM PLATE FIXINGS

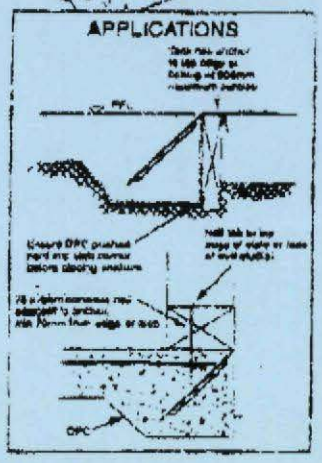
Bottom Plate Anchor

A pressed steel bracket for fixing timber wall plates to concrete floors



FEATURES

- Replaces NZS 3604:1999 Bolt/Dowel fixing of timber wall plate to concrete slab.
- Speedier concrete finishing - allows floating to slab edge and avoids messy hand trowelling around cast-in bolts.
- Easier wall frame placement - no drilling of plates and no lifting/locating over preplaced bolts.
- Cost savings over cast-in anchor bolts.



SPECIFICATION

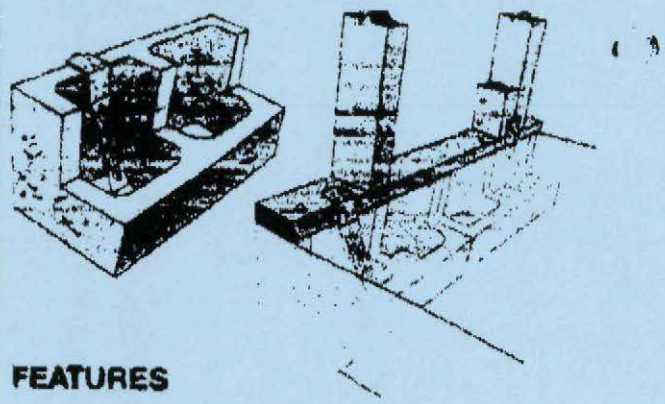
SIZE:	235 X 50 X 1.2mm.
MATERIAL:	1.2mm G250 Z450 galvanised steel coil or stainless steel.
PACKING:	50 per box (10 per box).
PRODUCT CODE:	BPA (BPA/S - Stainless Steel).

INSTALLATION

1. Tack nail anchors to top edge of boxing at maximum 900 ctrs (if wall contains sheet brace element, one anchor must be positioned 250mm from sheet edge). Position anchors with tabs horizontal and crimped end downwards at 45° angle.
2. After initial concrete cure position wall frame.
3. Bend anchor up and over plate and nail with 30 x 3.15mm Pryda Product Nails-2 into edge of plate and 2 per tab. If tabs coincide with stud position, nail to stud with 2 per tab.
4. Fix one 75 x 4mm concrete nail adjacent to anchor, minimum 70mm from edge of slab.

NOTE: Bottom plate fixings are designed to be used in DRY service conditions - i.e. with concrete protected from moisture by continuous damp proof membrane

Header Block Anchor



FEATURES

- Used in the construction of concrete header block bases
- Holds down the bottom plate of timber wall frames
- Eliminates the need to bolt down the bottom plates
- Must be fitted at 900mm centres or less

SPECIFICATION

SIZE:	230 x 50 x 1.2mm.
MATERIAL:	1.2mm G250 Z450 galvanised steel coil or stainless steel
PACKING:	50 per box (10 per box).
PRODUCT CODE:	HBA (HBA/S - Stainless Steel).

INSTALLATION

Pryda Header Block Anchors are fitted at 900mm centres or less over the outside edge of the header block before the concrete is poured.

Once the concrete has hardened, install the wall frames, then lift the exposed top flap of the Pryda Header Block Anchor back far enough to allow the wall frames to be located onto the concrete base.

Two Pryda (30 x 3.15mm) Product Nails are required to secure the Pryda Header Block Anchor to the side of the bottom plate and four Pryda Product Nails need to be fitted into the top of the bottom plate or the side of a stud. Should the Pryda Header Block Anchor not line up correctly with a stud then a block must be fitted. A 75 x 4mm concrete nail must also be fitted alongside the Pryda Header Block Anchor and within 70mm from the edge of the concrete.

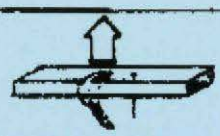
DESIGN LOADS* – (per anchor in 17MPa concrete)

ALONG PLATE

Basic Load	= 2.2 kN
Design (W or E)	= 3.9 kN
Capacity	= 6.4 kN

ACROSS PLATE

Basic Load	= 1.6 kN
Design (W or E)	= 2.8 kN
Capacity	= 5.1 kN



UPLIFT

Basic Load	= 2.5 kN
Design (W or E)	= 4.4 kN
Capacity	= 8.0 kN

Product testing by Monash University Melbourne (NATA Registered Laboratory)

INFORMATION BULLETIN NO. 13A

March 2003

GIB® Residential Garage Boundary Walls

Supplement To: 'GIB® Fire Rated Systems, August 2001'

Scope of Use

The solution offered in this bulletin is intended for use when the NZBC Acceptable Solution C/AS1 requires a Fire Resistance Rating (FRR) for a single storey residential garage boundary wall on or within 1m from a property boundary. This information bulletin assumes that the garage or carport has a Fire Hazard Category of 1 as defined in Table 2.1 of C/AS1 - a standard single household garage for use by the household occupants only (SH purpose group) and is designed to comply with the NZBC with particular reference to C/AS1.

Compliance with the NZBC

- Under normal conditions of dry internal use GIB® Fire Rated Systems have a serviceable life in excess of 50 years and satisfy the requirements of NZBC Clause B2 — Durability.
- GIB® Fire Rated Systems provide passive fire protection in accordance with the requirements of NZBC Clause C3 — Spread of Fire.
- GIB® Residential Garage Boundary Walls satisfy the requirements of NZBC Clause C4 — Structural Stability during Fire[1] and have been specifically designed to fall inwards and away from the adjacent property boundary when collapse conditions are reached during a fire.

Selecting the FRR

If the garage meets the following conditions, the FRR of the boundary walls can be assessed from this information bulletin. For situations outside these conditions Part 5 and Part 7 of NZBC Acceptable Solution C/AS1 must be followed with respect to establishing the required FRR (S-Rating) and distance to the boundary.

i) For small detached garages less than 40m² floor area and less than 1m from the boundary a 15/15/15 two way FRR is required.

ii) For attached garages, and detached garages greater than 40m² floor area, and less than 1m from the boundary, a 30/30/30 two way FRR is required.

iii) For garages 1m or more from the boundary no fire rating is required.

iv) A carport can have 100% unprotected walls and roof (no FRR) if two sides of the perimeter are open, and:

a) the roof plan is less than 40m² and no part of the roof is closer than 0.3m to the boundary

b) the roof plan is greater than 40m² and no part of the roof is closer than 1m to the boundary

If these conditions are not met then the requirements of C/AS1 clause 7.8.10 must be complied with.

A garage or carport can be connected to a house without a FRR (between the garage and house) provided that the house is under the same ownership as the garage/carport and solely for the use of the occupants of the household.

[1] **Reference:** *MacDonald Barnett Partners, Consulting Civil and Structural Engineers, Report No 5109 CRB, dated 13 October 1993, Producer Statement dated 1 March 1994, and letters/faxes dated 12/6/02, 28/6/02, 2/12/02 & 17/12/02.*

Notes

i) When the wall is less than 1m from the boundary a two way fire rated system is required, constructed in accordance with 'GIB® Fire Rated Systems, August 2001'.

ii) When the wall is less than 0.2m from the boundary, the garage walls at 90° to the boundary are required to have a fire rated return wall within the 0.2 metres from the boundary. The fire rating shall be the same rating as the boundary wall, if no fire rating is required for the boundary wall then a fire rated return wall is not required. Alternatively a fire rated wing wall complying with Table 7.3 of the NZBC Acceptable Solution C/AS1 could be constructed.

iii) Sheet joints in GIB® Plasterboard linings under an external cladding do not require taping and stopping.

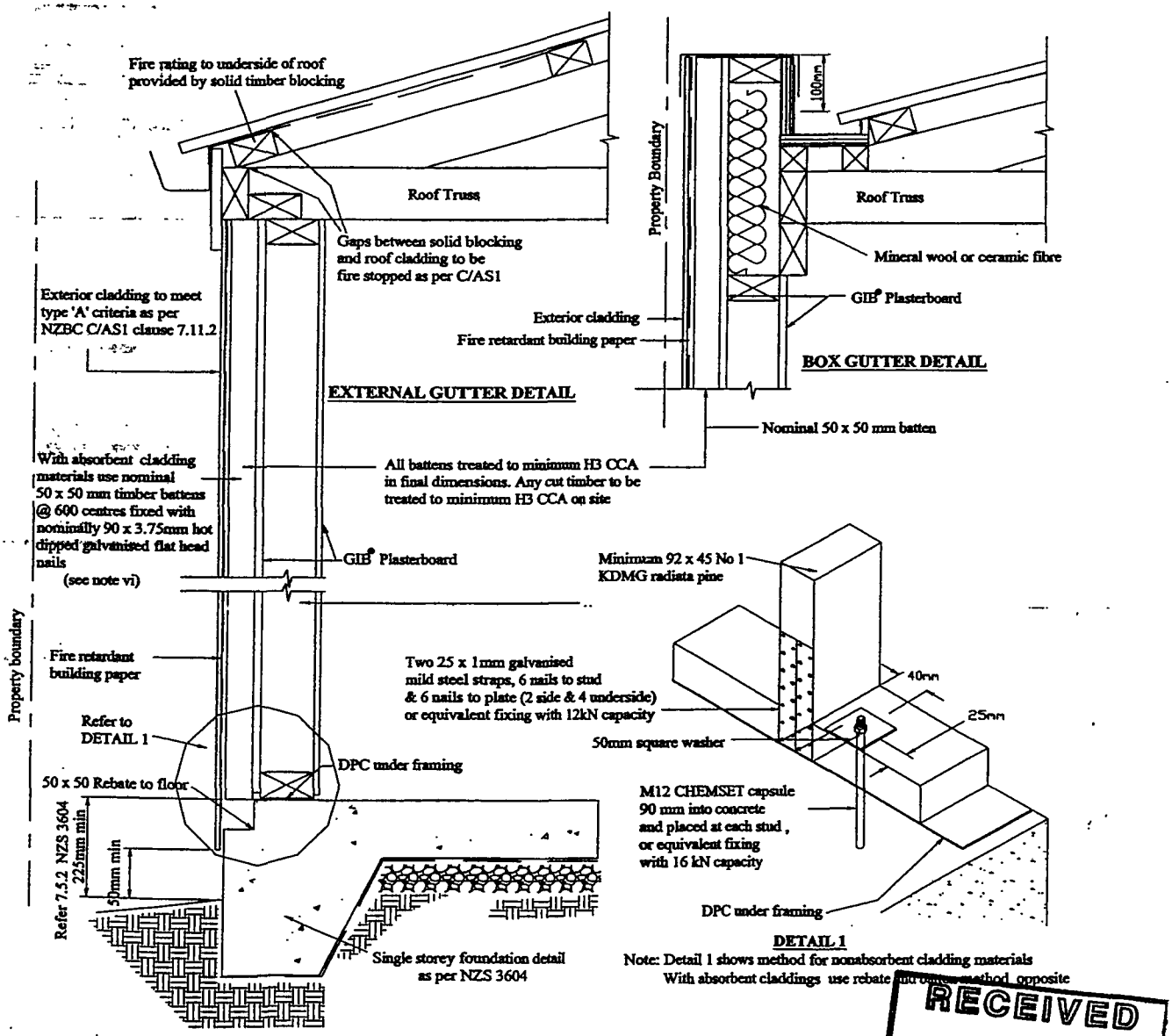
iv) Impervious cladding materials with a ventilation air-space, such as corrugated steel or aluminum/PVC weatherboards, may be installed over fire retardant building paper directly over the external GIB® linings.

v) Absorbent cladding materials, such as fibre-cement or polystyrene cladding systems, must be separated from the external GIB® linings by means of vertical battens with a nominal depth of 50mm, and fire retardant building paper behind the cladding material. The battens are to be treated to minimum H3 CCA in its final dimensions. Any cut timber is to be treated to minimum H3 CCA on site. Battens are to be fixed with nominally 90 x 3.75mm hot dip galvanised flat head nails.

vi) Cladding materials must comply with the requirements of NZBC Acceptable Solution C/AS1 clause 7.11.2. This requires a 'Type A' cladding when the wall is within 1m of the boundary[2]. Claddings classified as 'non-combustible' will meet the Type A criterion. Typical examples are concrete, brick and steel claddings. Cellulose fibre-cement with finishes/coatings less than 1mm thick will also typically be classed Type A. Products such as plywood and timber or PVC weatherboards will not meet the Type A requirement and therefore cannot be used when the wall is within 1m of the boundary.

vii) The drawings below assume a standard wall height up to 2.4m and a stud spacing of 600mm. Walls up to 2.8m require stud spacing at 450mm and walls up to 3m require studs at 400mm.

viii) For retrofit situations please contact the GIB® Helpline on 0800 100 442 for other options.

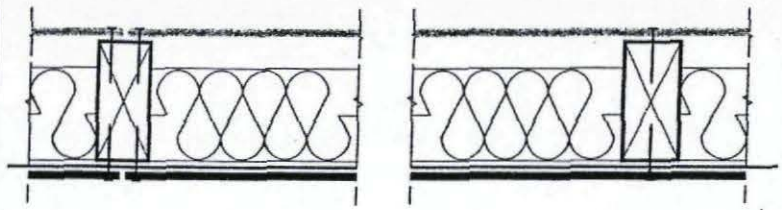


[2] The cladding is tested to AS/NZS3837 at an irradiance of 50kW/m² for a duration of 15 minutes and also is required to meet the requirements of C9.1 of the NZBC Acceptable Solution C/AS1.

EXTERNAL WALL

6.2.1 TIMBER FRAME, SINGLE STUD, LOAD BEARING

6.2.1.1 JAMES HARDIE CLADDING 9.5MM GIB® FYRELINE, 30 MINUTES

FRR 30/30/30	JHETGJ30		
• 6mm or thicker James Hardie Cladding one side • 9.5mm Gib® Fyreline one side to GBTL30 • Fibre glass R1.8 infill			
OPTIONS:			
James Hardie Cladding Thickness	6mm	7.5mm	9mm
Stud Depth	90	90	90
James Hardie Cladding	40/33	42/33	42/34
James Hardie 9mm Compressed Cladding	-	-	43/36
R Value	1.73+		
Wall Width mm	107	106	110
Wall Mass kg/m²	26	28	30
	R_w / $R_{w,tr}$ Rating		

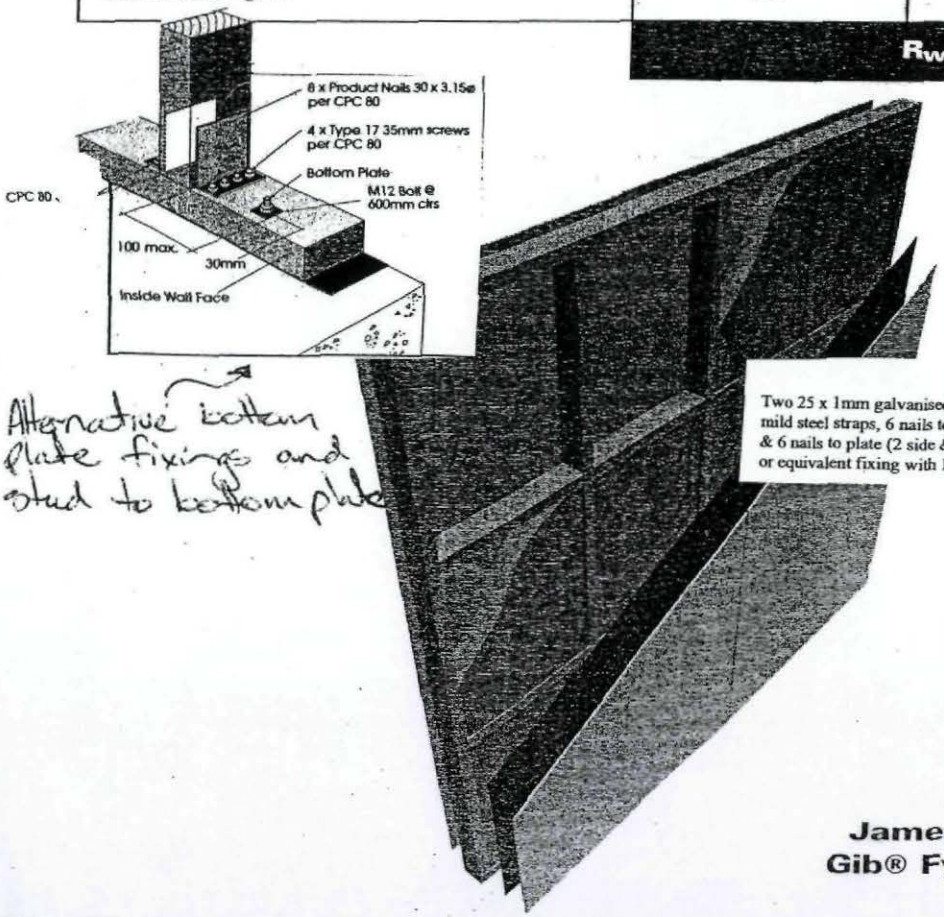
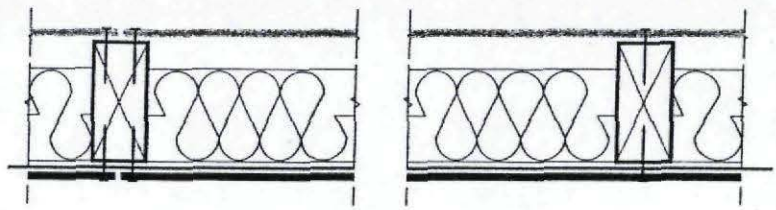


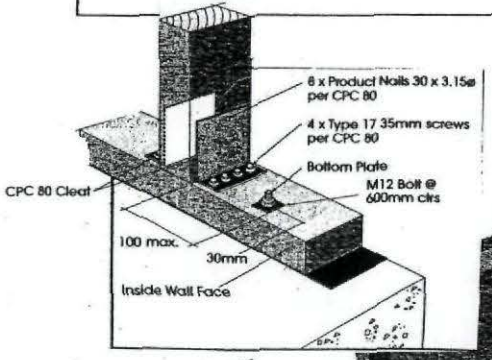
Figure 12
James Hardie Cladding / 9.5mm Gib® Fyreline, timber, 30 minutes

EXTERNAL WALL

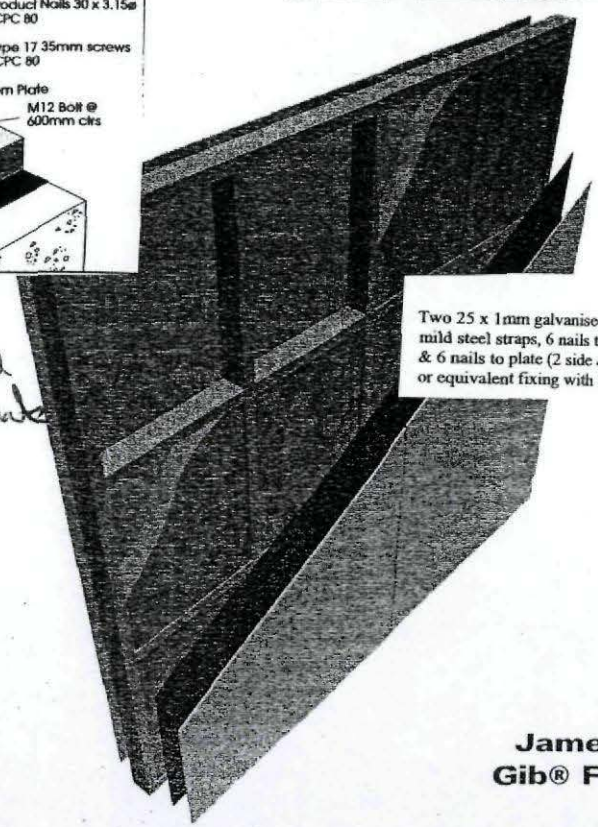
6.2.1 TIMBER FRAME, SINGLE STUD, LOAD BEARING

6.2.1.1 JAMES HARDIE CLADDING 9.5MM GIB® FYRELINE, 30 MINUTES

FRR 30/30/30	JHETGJ30		
• 6mm or thicker James Hardie Cladding one side • 9.5mm Gib® Fyreline one side to GBTL30 • Fibre glass R1.8 infill			
OPTIONS:			
James Hardie Cladding Thickness	6mm	7.5mm	9mm
Stud Depth	90	90	90
James Hardie Cladding	40/33	42/33	42/34
James Hardie 9mm Compressed Cladding	-	-	43/36
R Value	1.73+		
Wall Width mm	107	106	110
Wall Mass kg/m²	26	28	30
	R_w / $R_{w,tr}$ Rating		



Alternative bottom plate fixings and stud to bottom plate



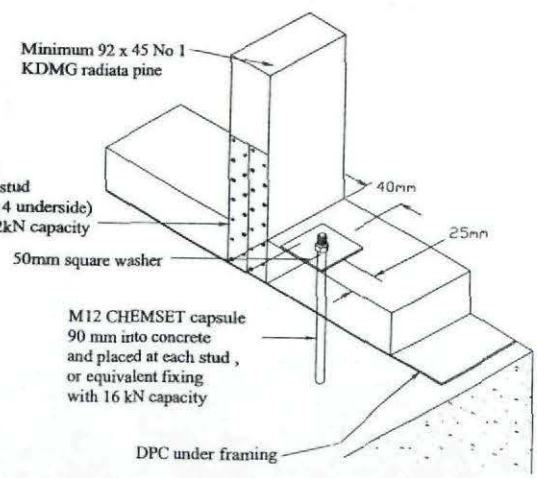


Figure 12
James Hardie Cladding / 9.5mm Gib® Fyreline, timber, 30 minutes

SMOKE ALARMS

AS from the end of April 2003, the New Zealand Building Code requires smoke alarms in all new dwellings and dwellings that are altered. Even very minor alteration work will trigger the need for new smoke alarms even water cylinder replacement or logfires.

Your Building Consent is issued on the condition that complying smoke alarms be provided and installed in a complying manner. The following information is intended to help you select and place the alarms correctly.

1. Only alarms complying with the following standards are acceptable. UL217, ULC-S531, AS3786, BS5446 Part 1. Look on the alarm or the packet for an indication that the alarm complies. If it doesn't say so then it wont be accepted as complying.

2. One alarm is required in all escape routes with at least one on every level. (Passageways, halls, lobbies, stair wells)

3. One alarm is required in every sleeping space or within 3.0) meters of every sleeping space. If the alarm is outside of the bedroom door then it needs to be loud enough to wake a sleeping person in the bedroom with the door closed. We recommend one in every bedroom.

4. Alarms must have a hush facility. (Able to be switched off for a period of at least 1 minute).

5. All alarms must have a test facility.

6. Existing alarms will not be accepted as complying unless they meet one of the standards listed above. You can keep them in the house but complying ones meeting all new requirements will also be needed.

7. Alarms do not need to be interconnected.

8. Battery powered alarms are acceptable if they meet all of the other requirements.

No Code Compliance Certificate will be issued unless fully complying alarms are in position and operating.

If you have any questions ask the Building Inspector when he is on site.

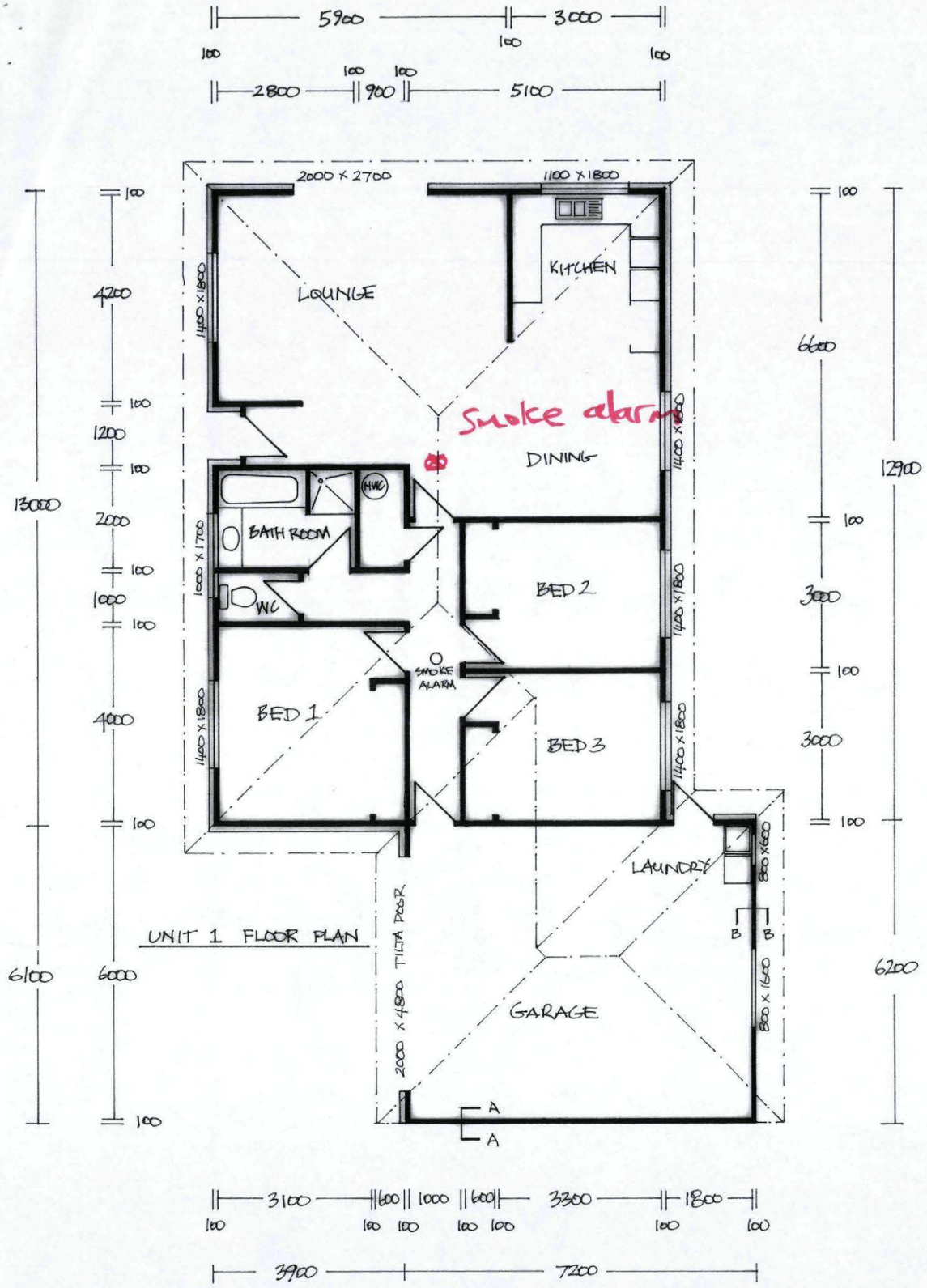
Graham Roberts
Group Leader Building Control

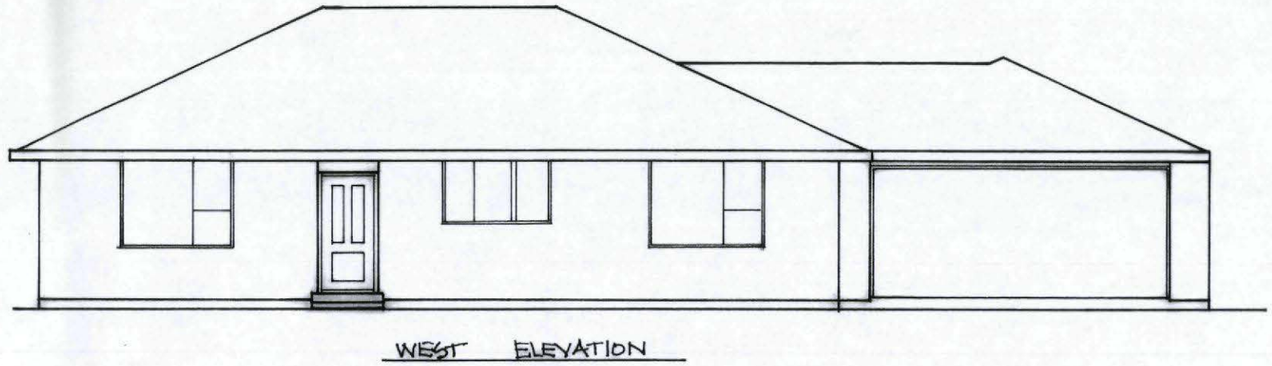
PROPOSED TOWNHOUSE DEVELOPMENT FOR MR.A.C.MYLES

Discuss with Building Control Officer on site.

Note: Builder. Floor levels are to be 150mm above crown of Road.

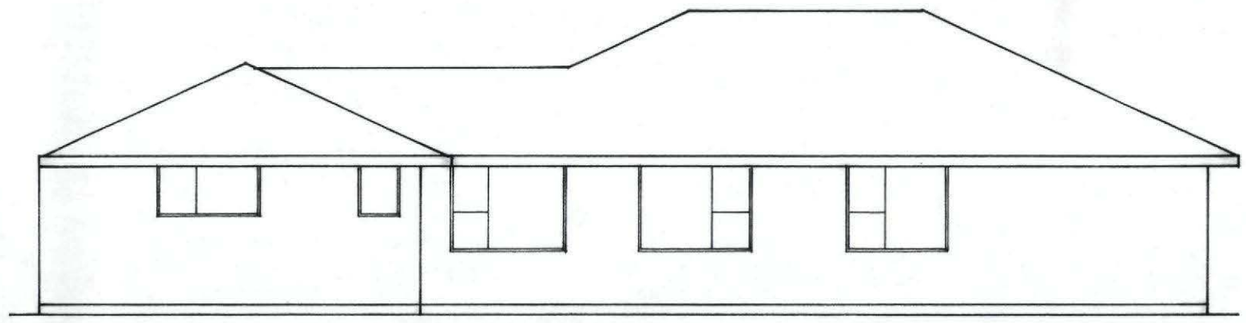
TAYLOR PASS ROAD BLENHEIM





WEST ELEVATION

NORTH ELEVATION



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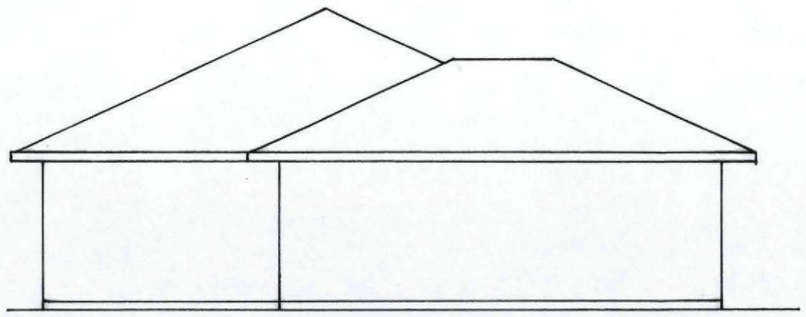
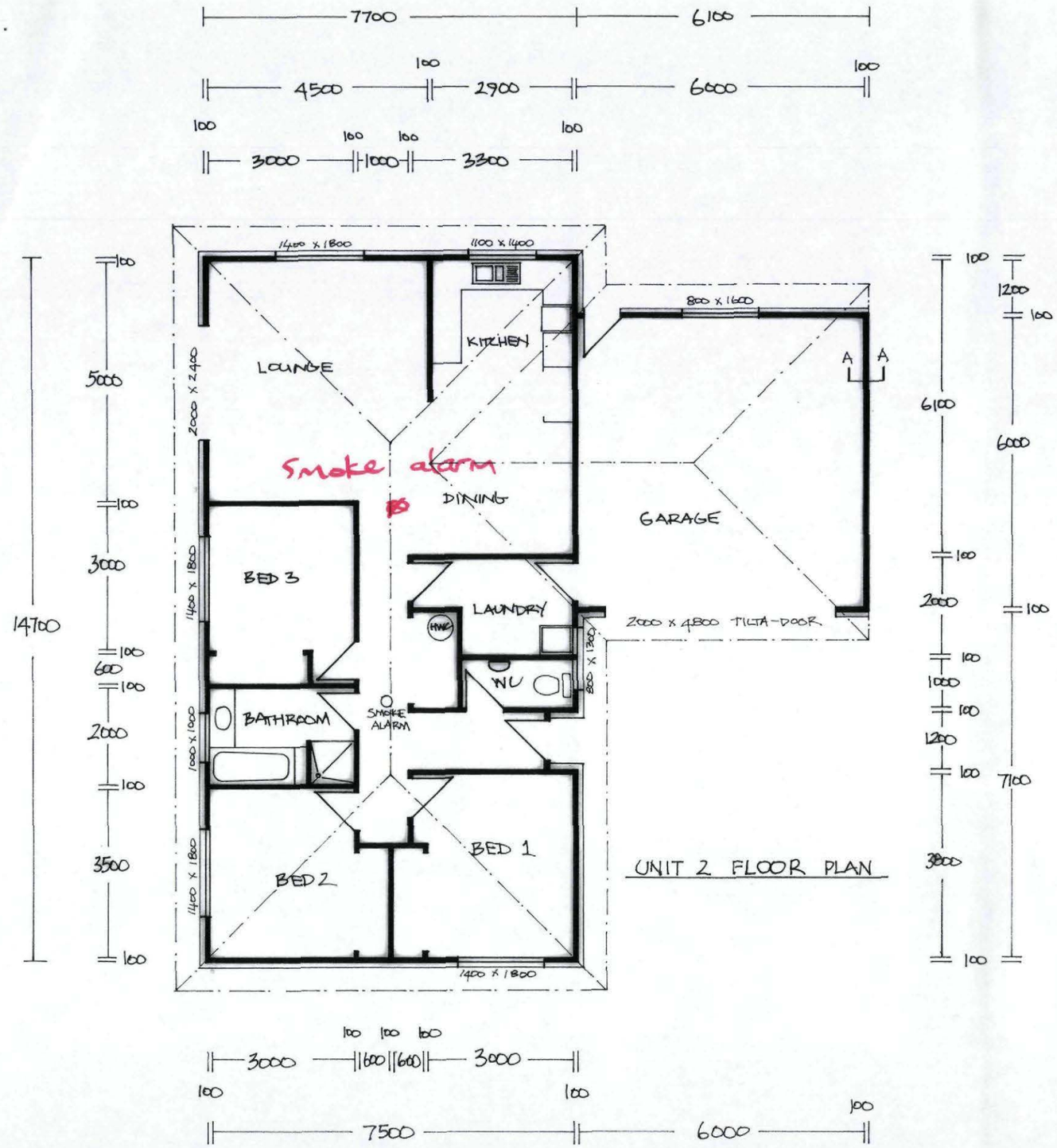
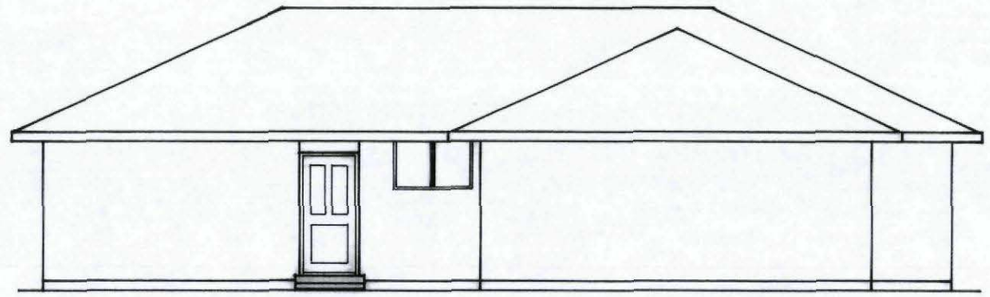


SOUTH ELEVATION

UNIT 1 FLOOR PLAN

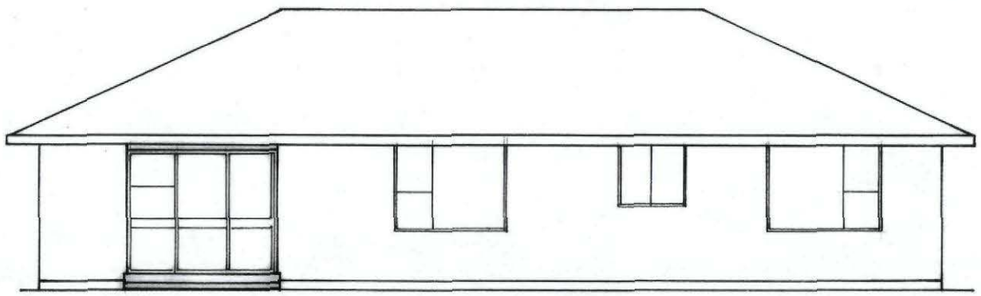


UNIT 2 FLOOR PLAN



EAST ELEVATION

NORTH ELEVATION



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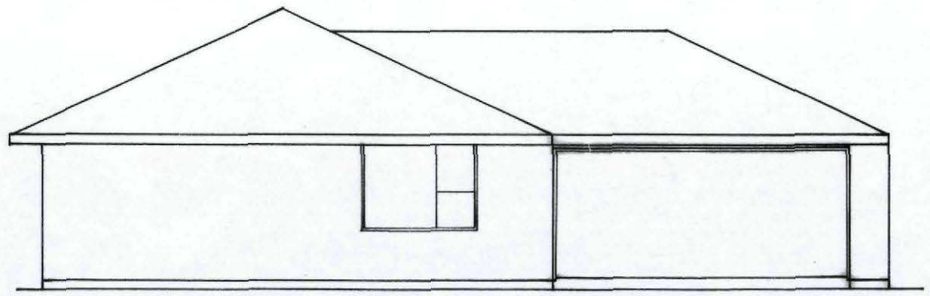

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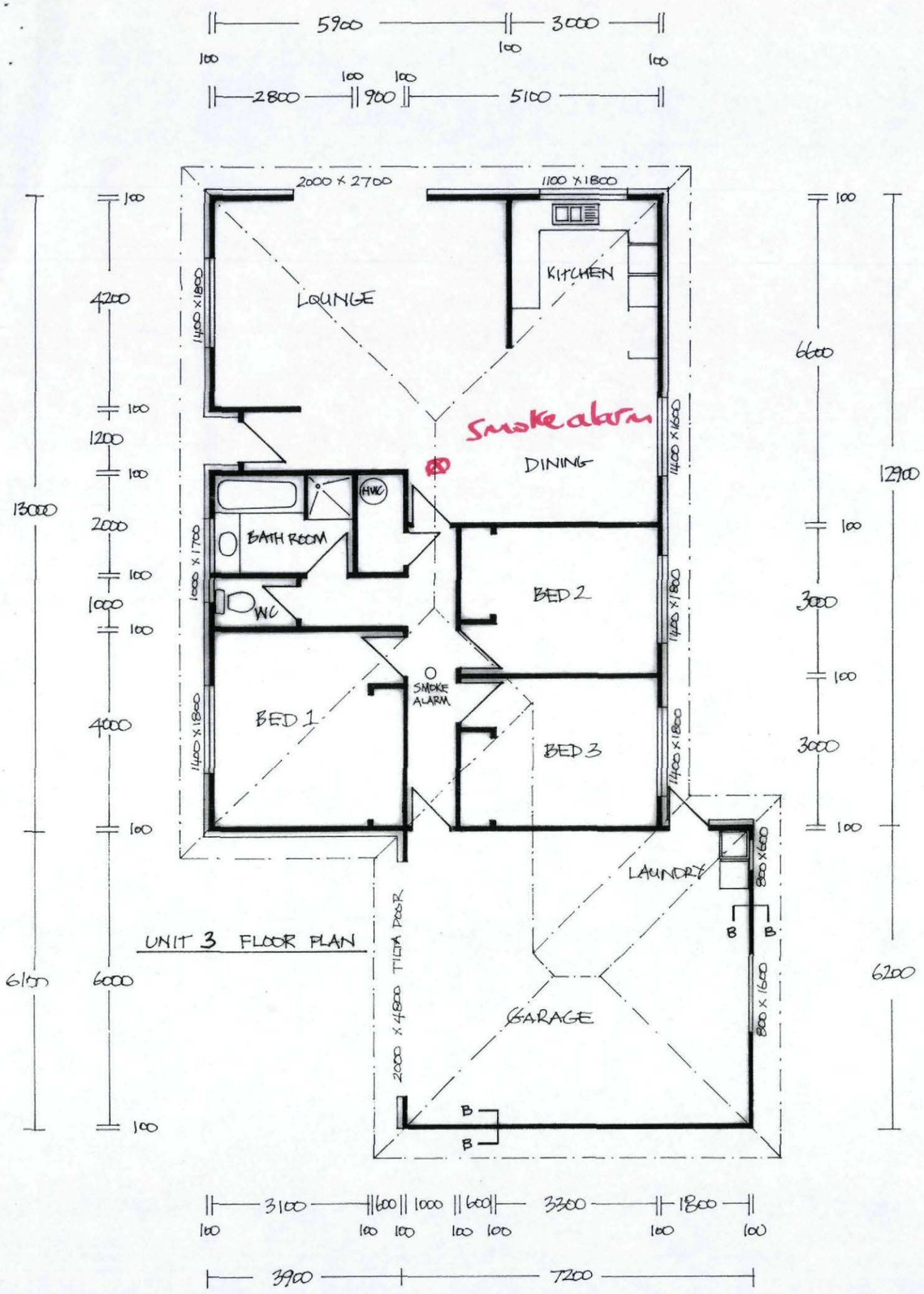
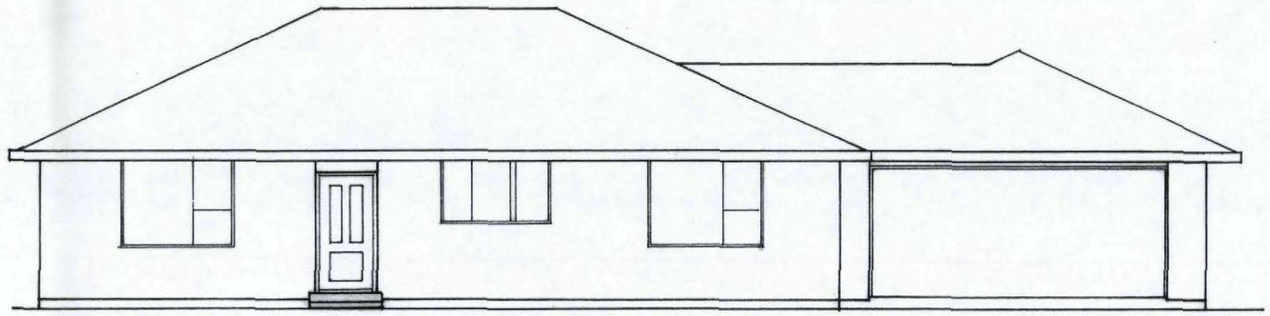


UNIT 3 FLOOR PLAN



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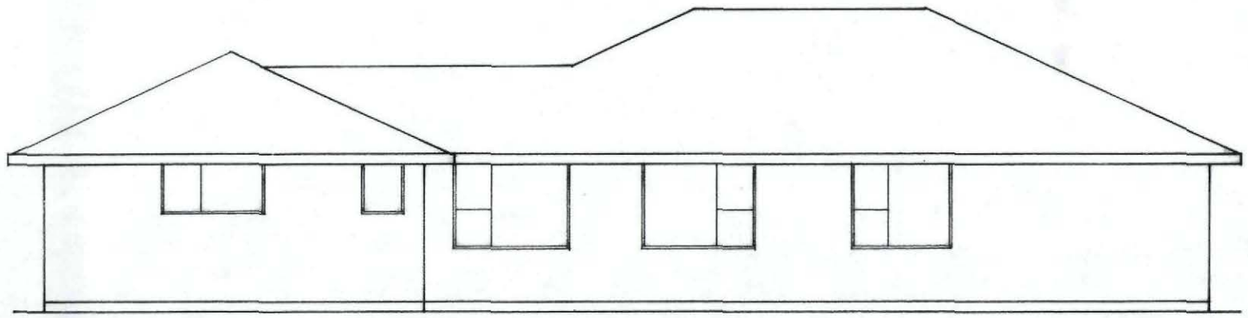

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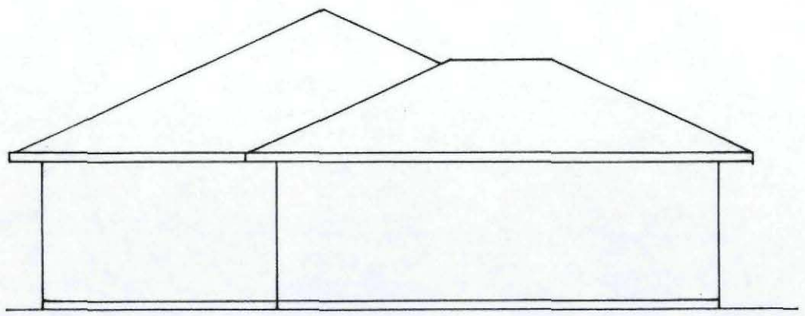

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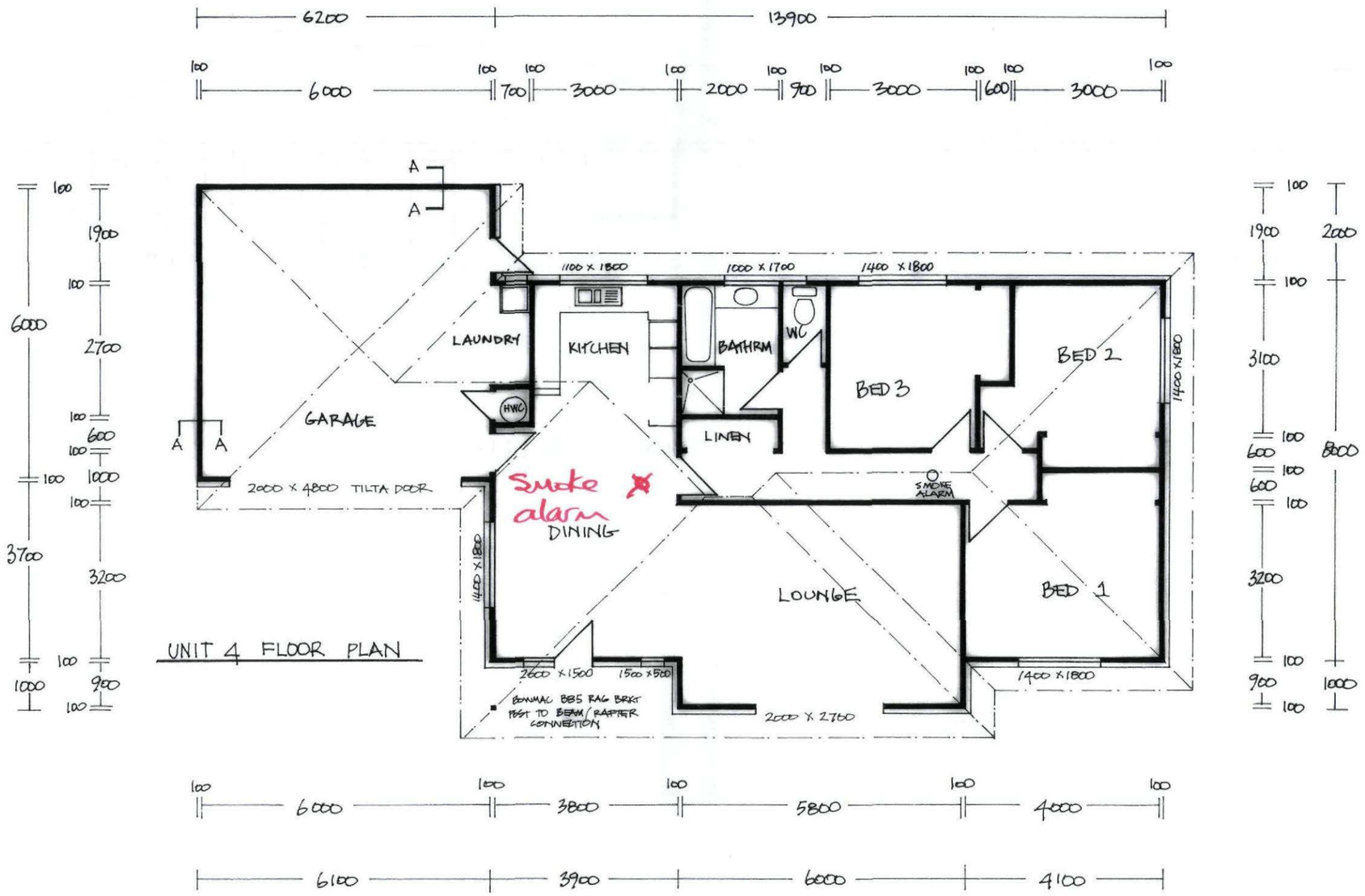
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1900
2700
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3700
3200
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A
A
GARAGE
LAUNDRY
KITCHEN
BATHRM
WC
LINEN
BED 3
BED 2
BED 1
LOUNGE
DINING
HWC
1100 x 1800
1000 x 1700
1400 x 1800
1400 x 1800
2000 x 4800 TILTA DOOR
Smoke alarm
SMOKE ALARM
1400 x 1800
2600 x 1500
1500 x 500
2000 x 2700
BONMAC BBS RAG BRKT FIXT TO BEAM/RAFTER CONNECTION
1400 x 1800
UNIT 4 FLOOR PLAN
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3100
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5800
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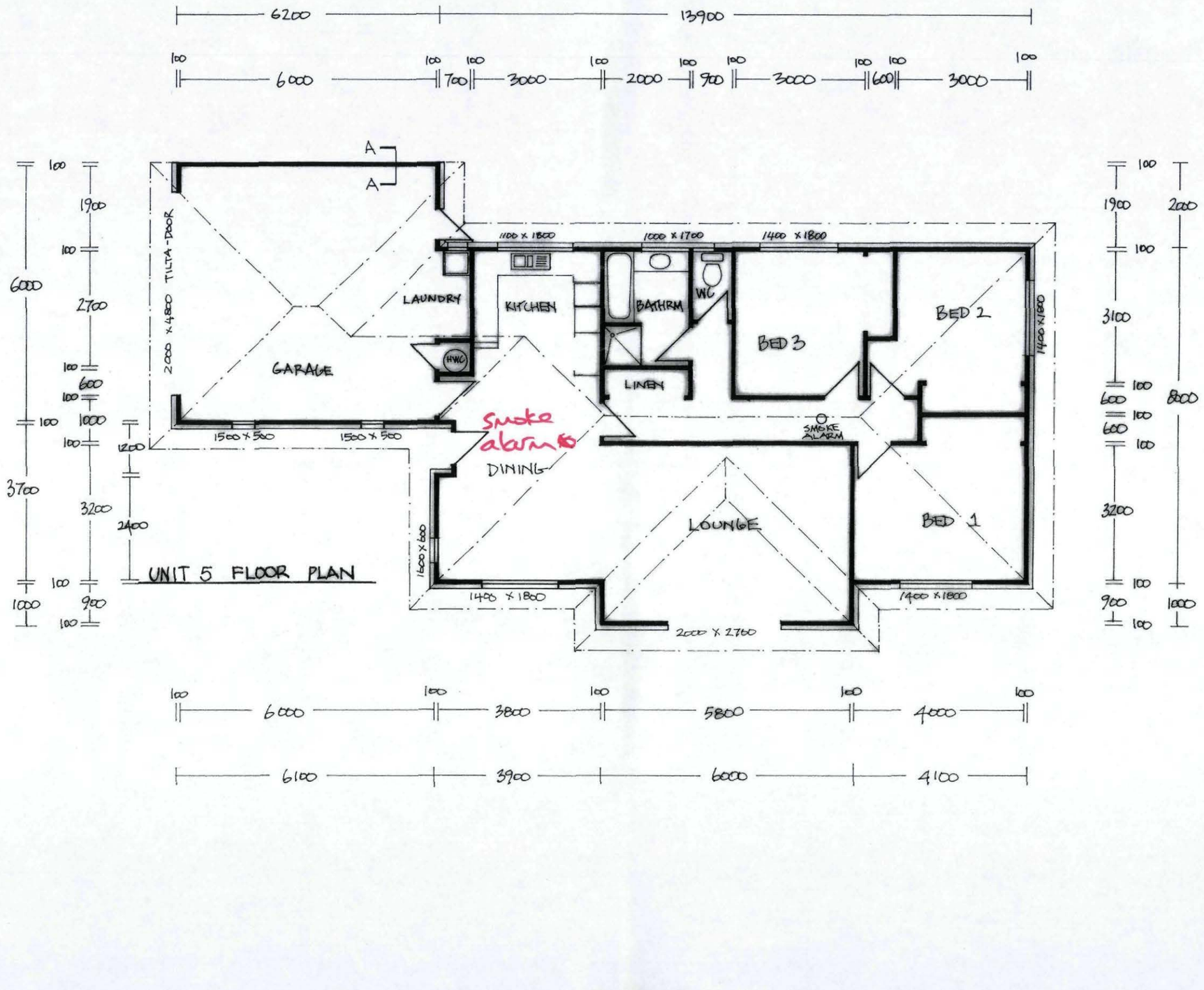
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2000 x 4800 TILTA-DOOR
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1000 x 1700
1400 x 1800
LAUNDRY
KITCHEN
BATHRM
WC
BED 2
BED 3
1400 x 1800
HWC
GARAGE
LINEN
Smoke alarm
SMOKE ALARM
1500 x 500
1500 x 500
DINING
LOUNGE
BED 1
1600 x 1800
1400 x 1800
1400 x 1800
2000 x 2700
UNIT 5 FLOOR PLAN
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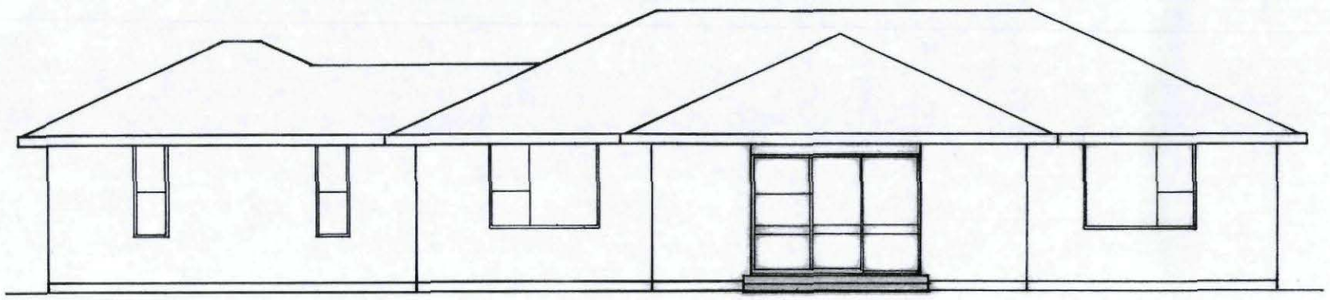

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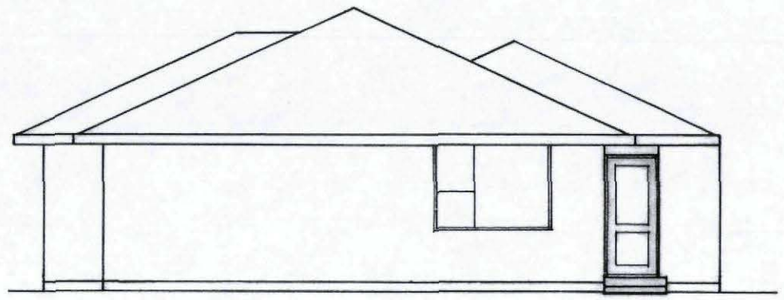
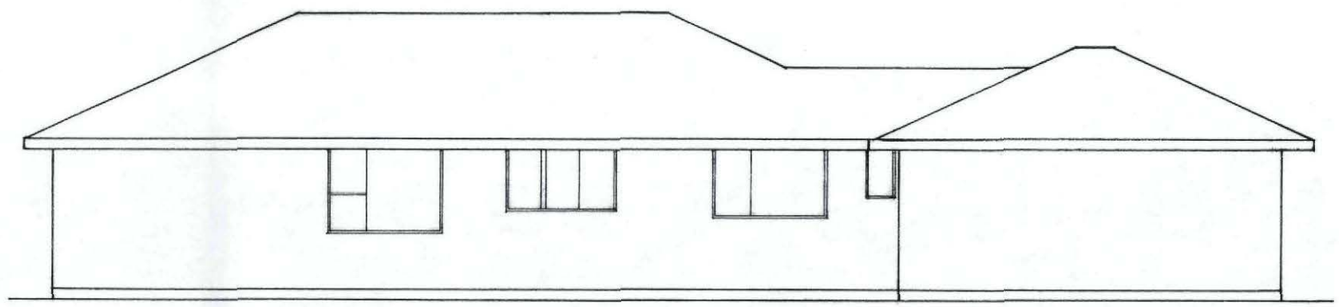


SOUTH ELEVATION

UNIT 5 ELEVATIONS

NORTH ELEVATION



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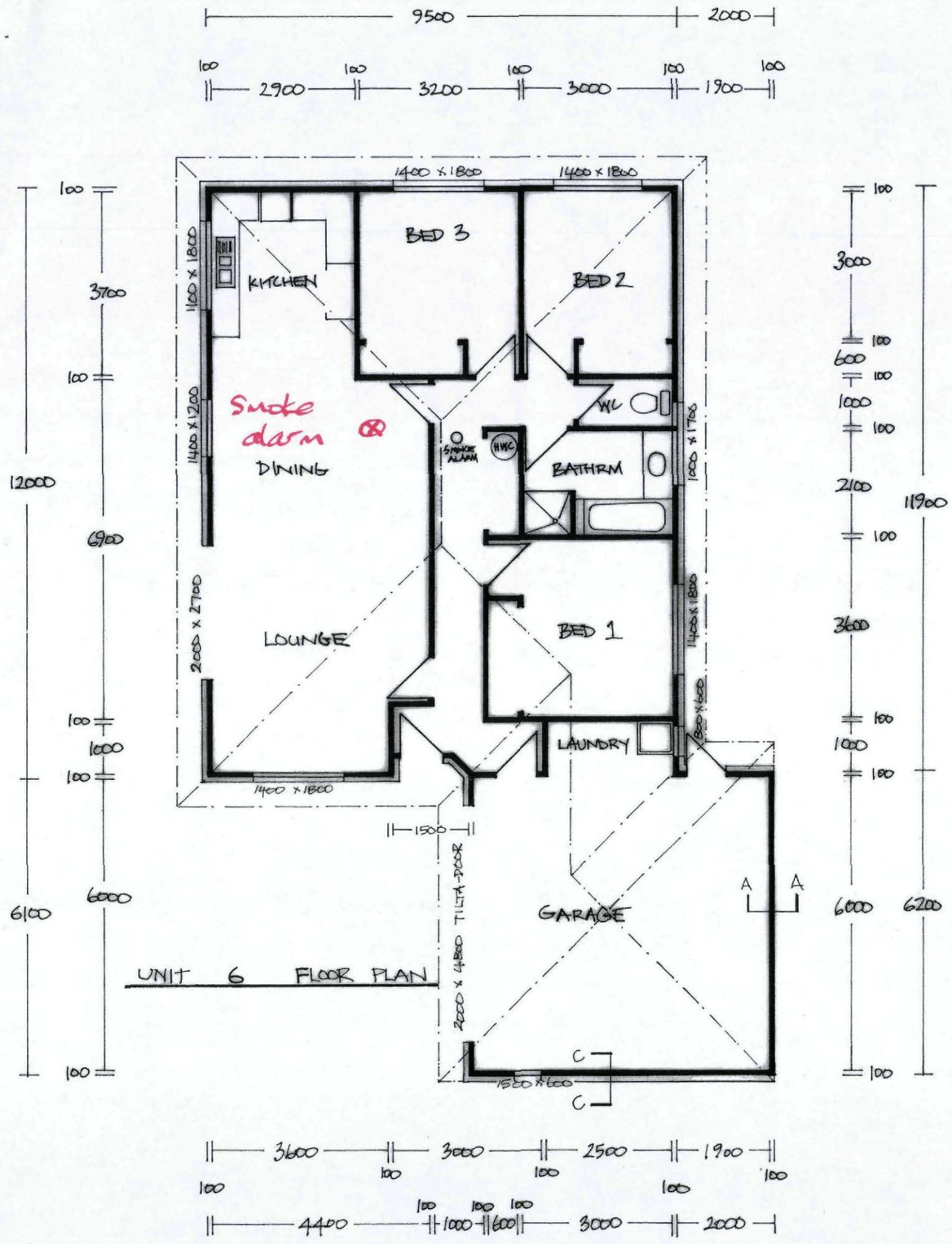
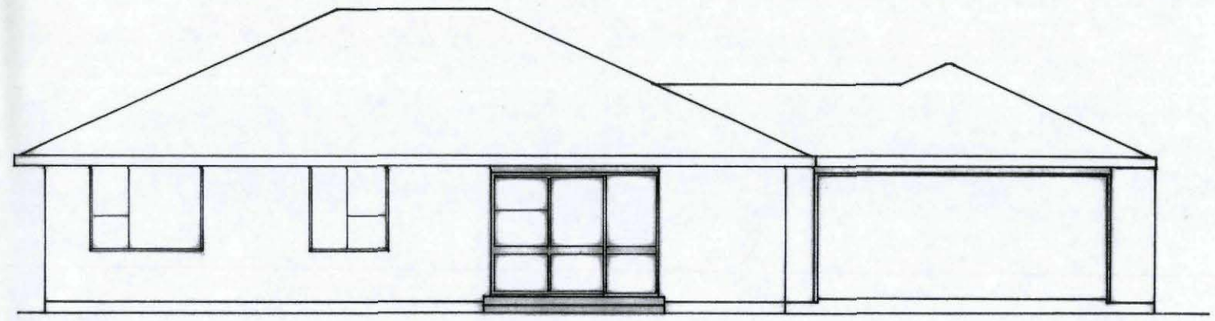
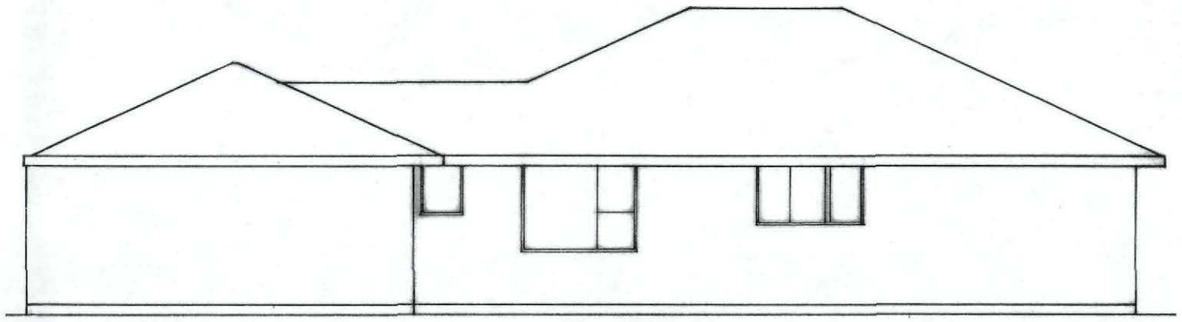




NORTH ELEVATION

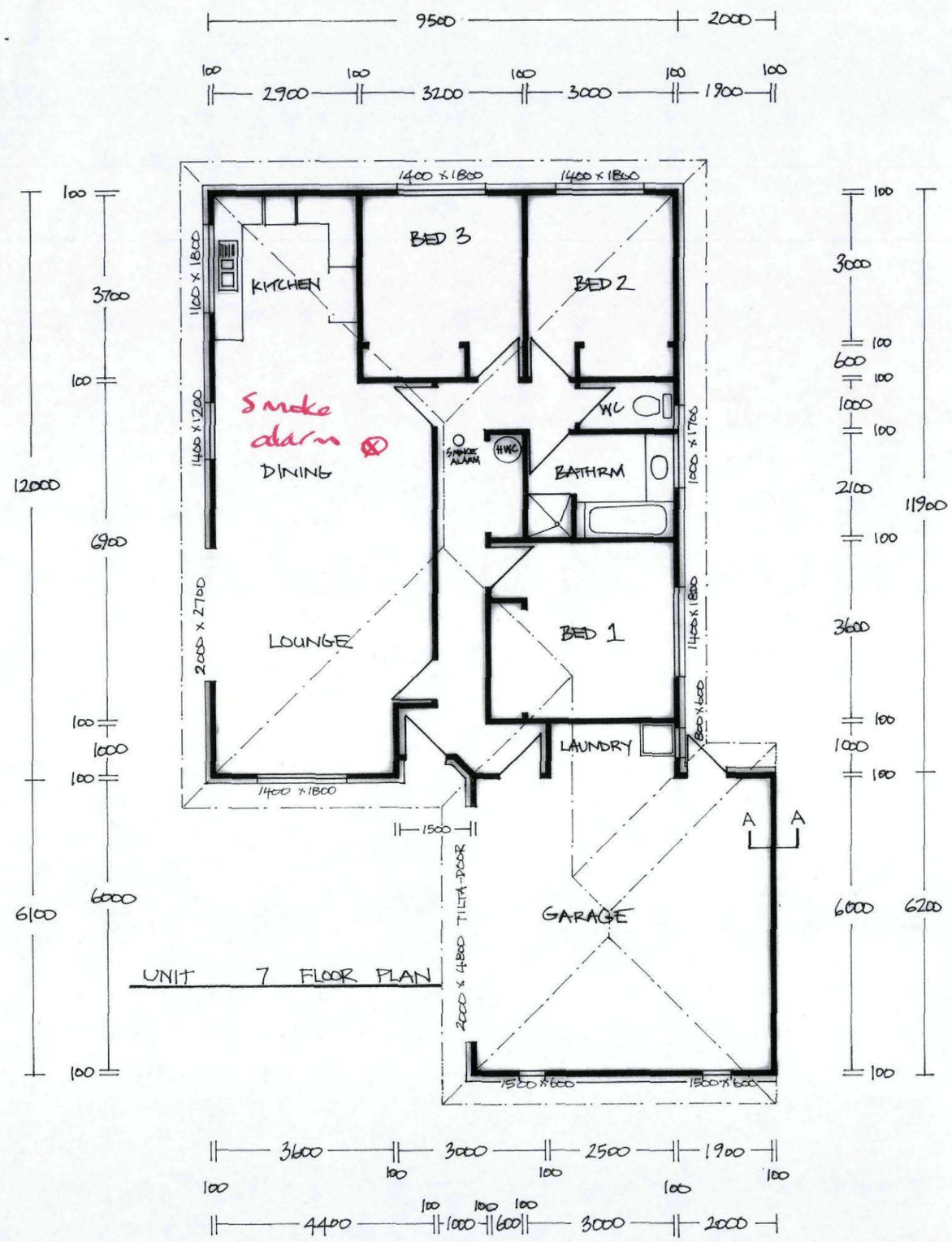
WEST ELEVATION

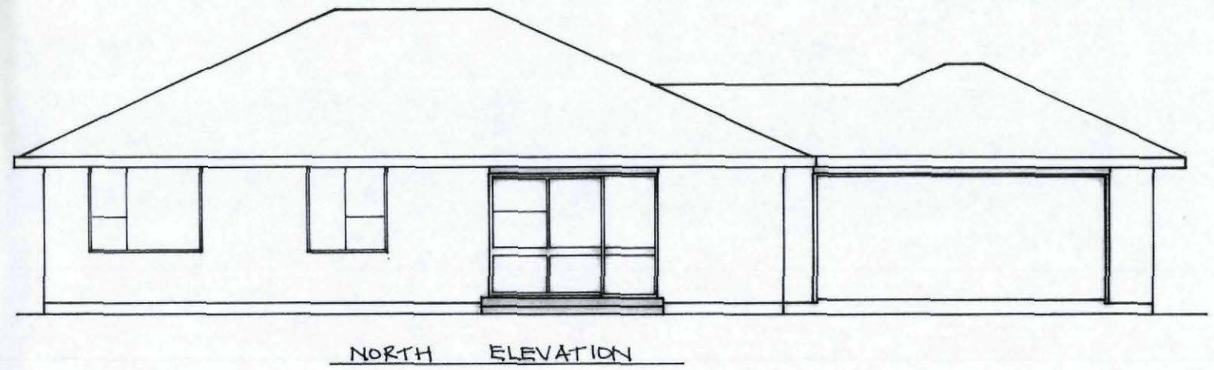


SOUTH ELEVATION

EAST ELEVATION

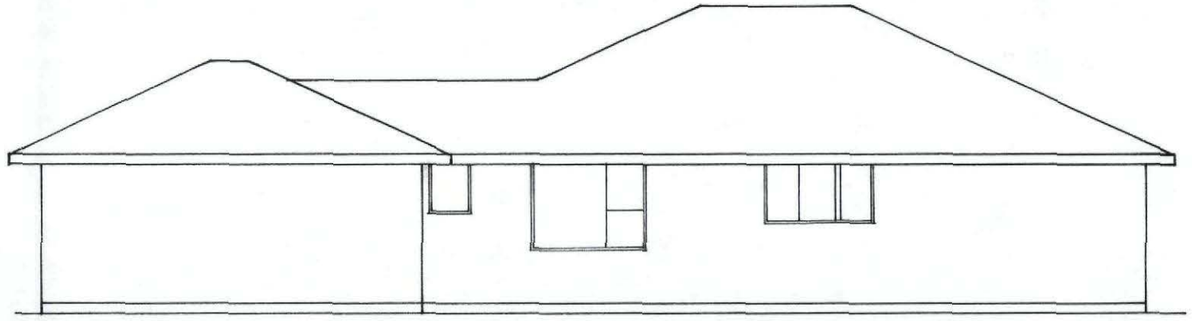
UNIT 6 FLOOR PLAN





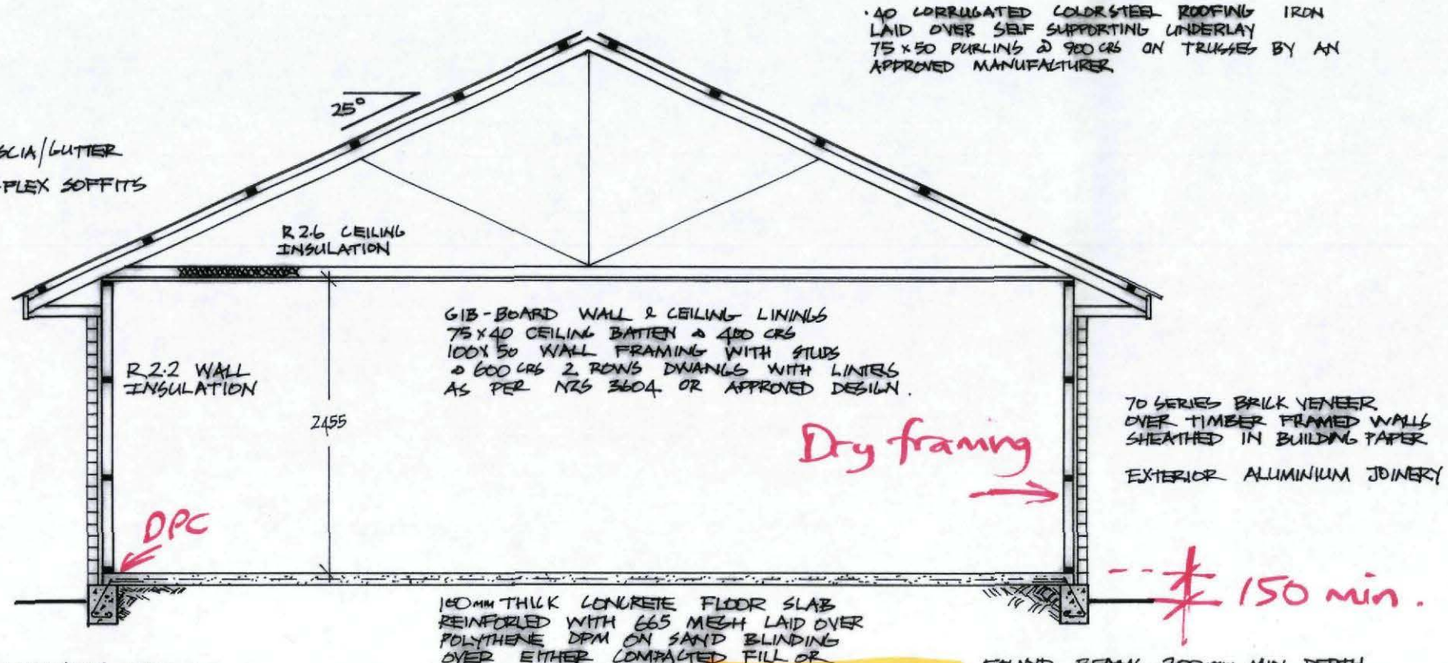
NORTH ELEVATION

WEST ELEVATION

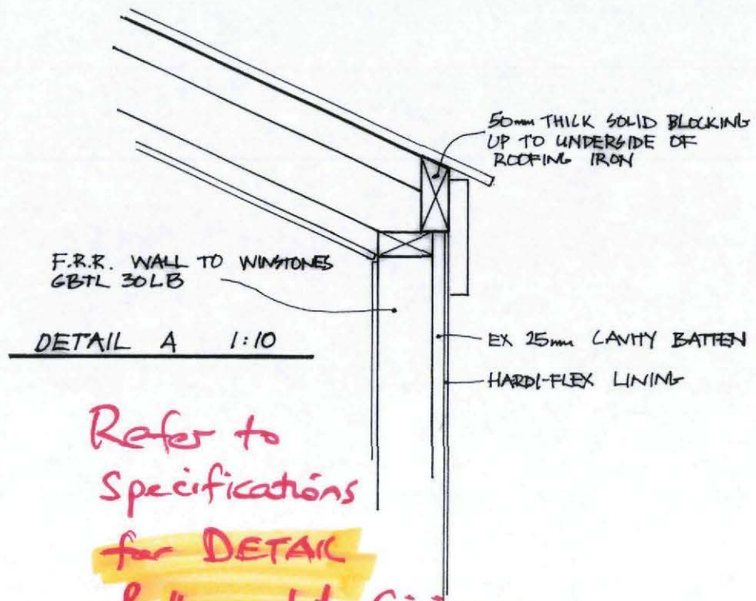


SOUTH ELEVATION

EAST ELEVATION

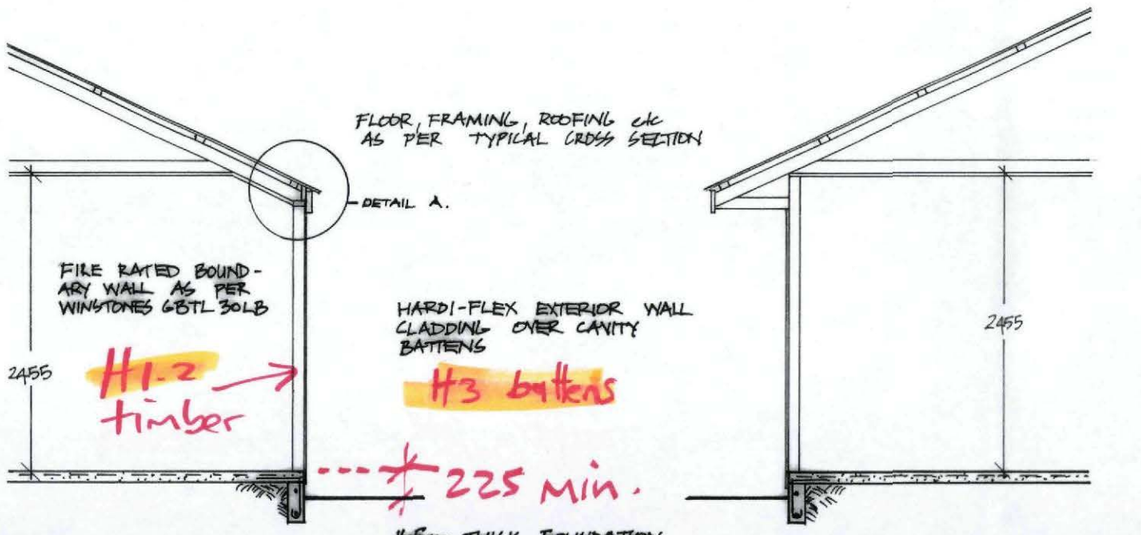


TYPICAL CROSS SECTION 1:50



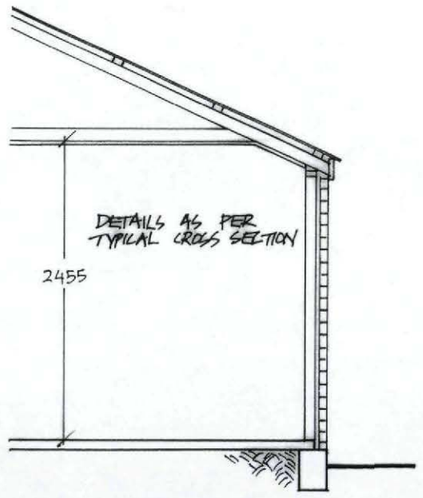
DETAIL A 1:10

Refer to Specifications for DETAIL Bottom plate fixing. Firewall.

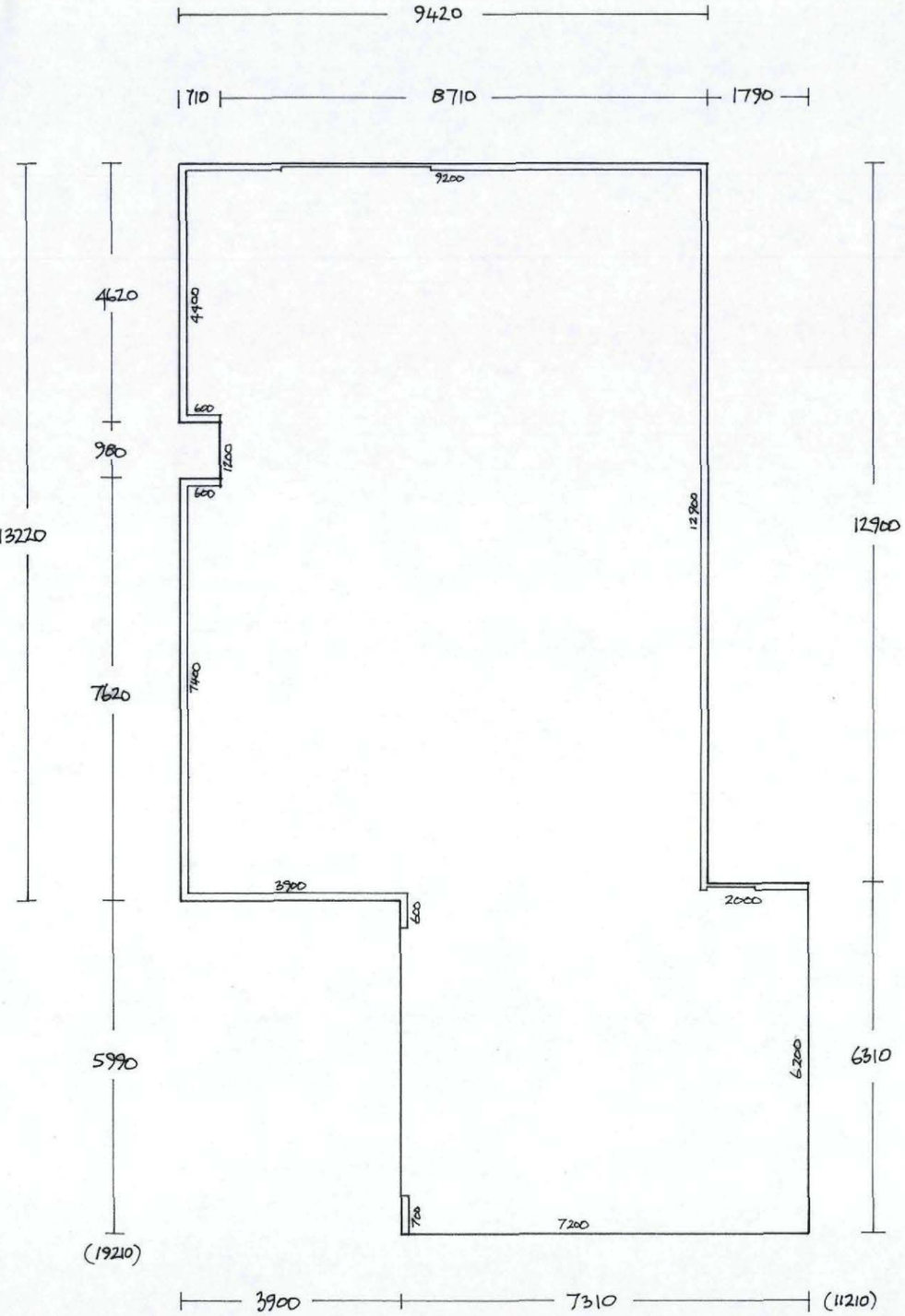


CROSS SECTION A-A

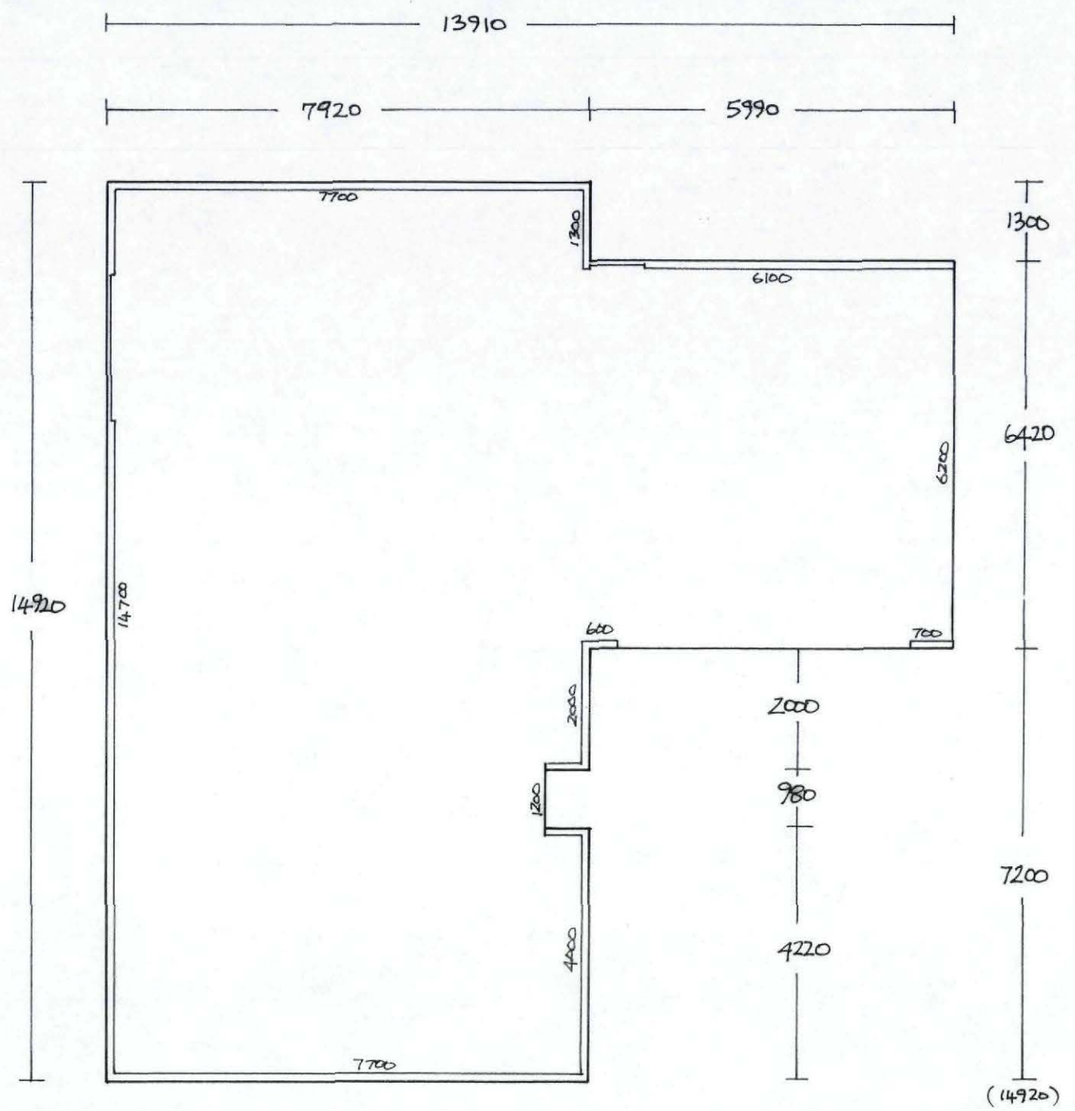
CROSS SECTION B-B



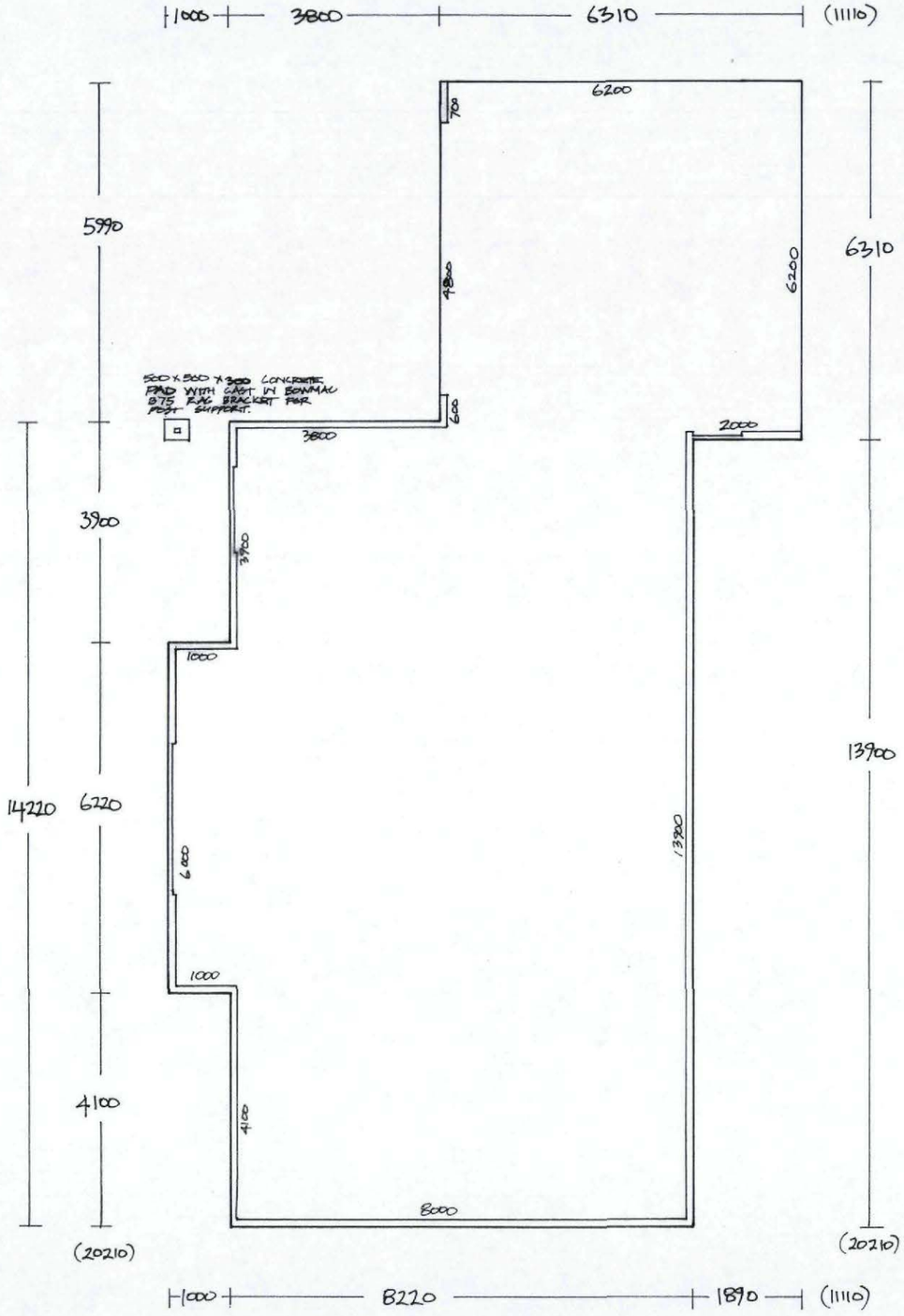
CROSS SECTION C-C



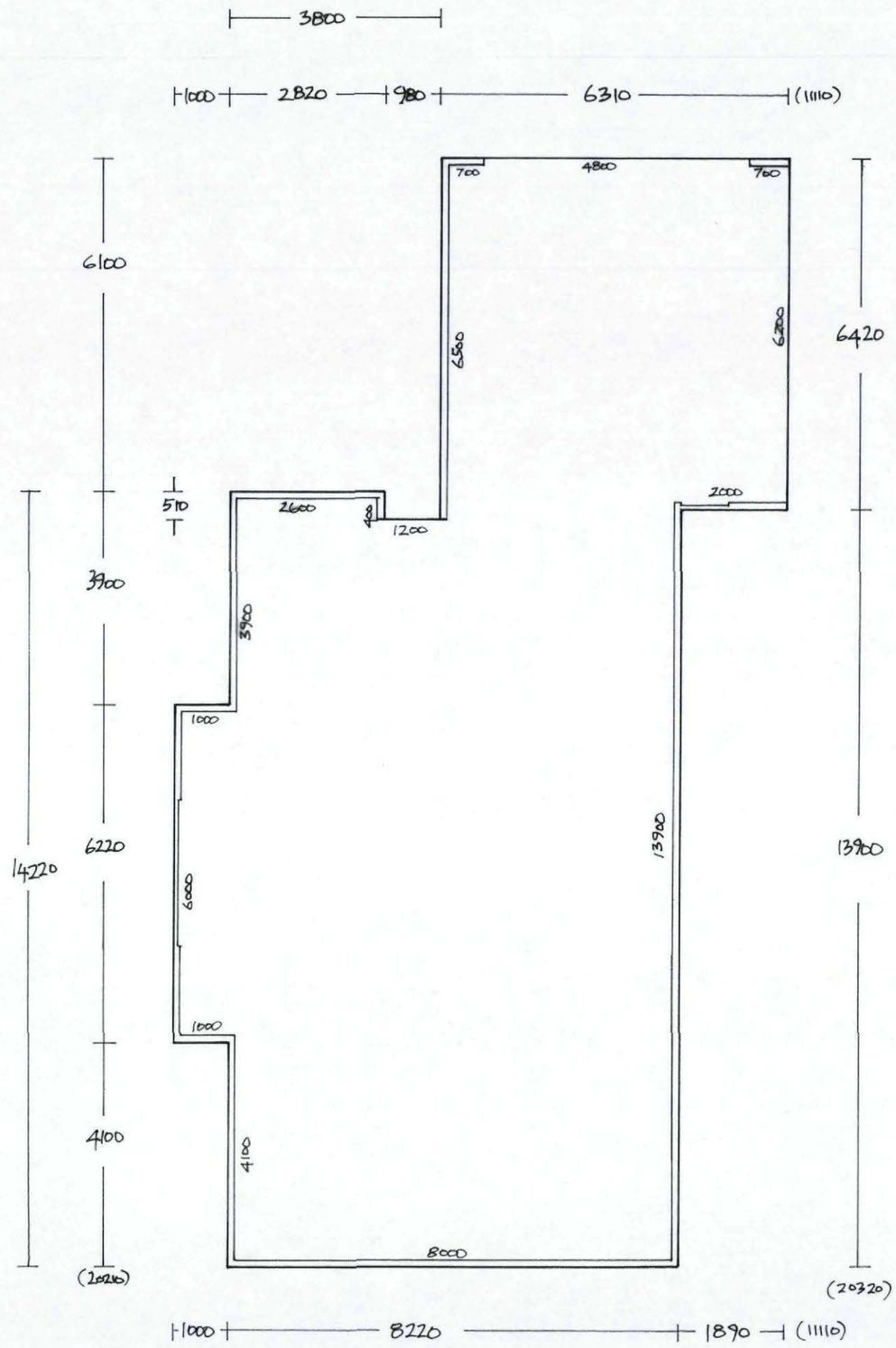
UNITS 1 & 3 FOUNDATION/SLAB PLAN



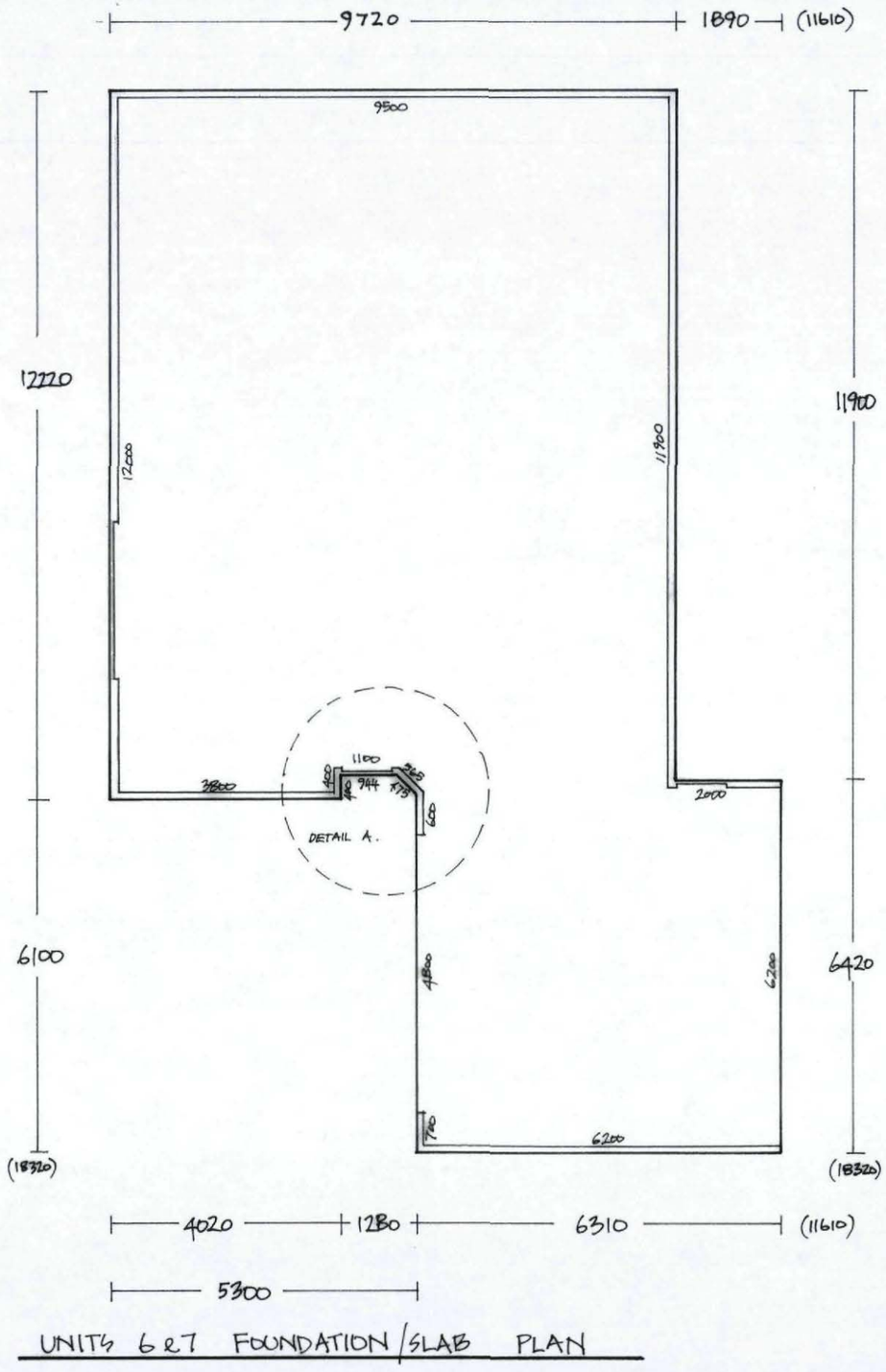
UNIT 2 FOUNDATION/SLAB PLAN



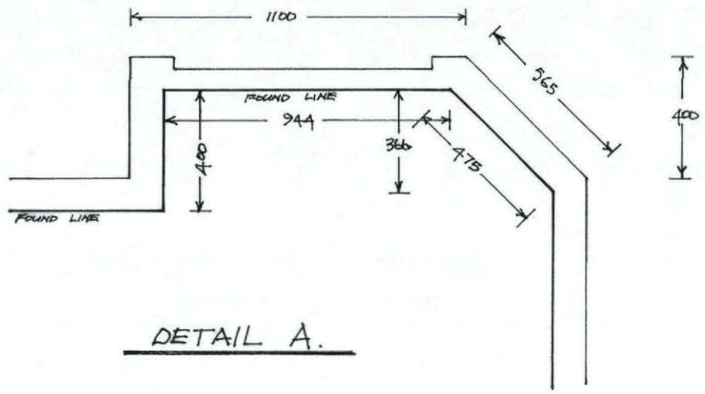
UNIT 4 FOUNDATION/SLAB PLAN



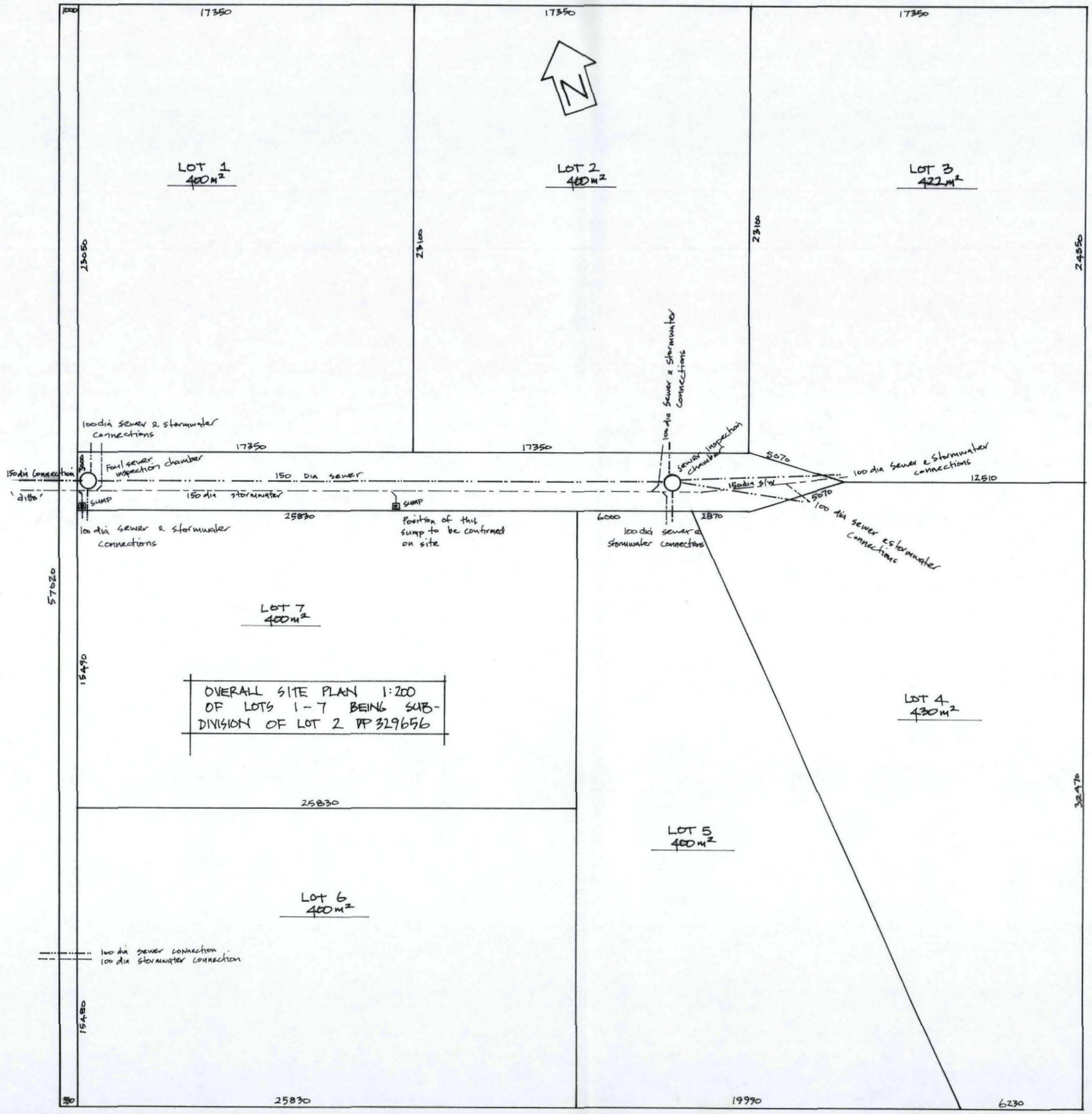
UNIT 5 FOUNDATION/SLAB PLAN

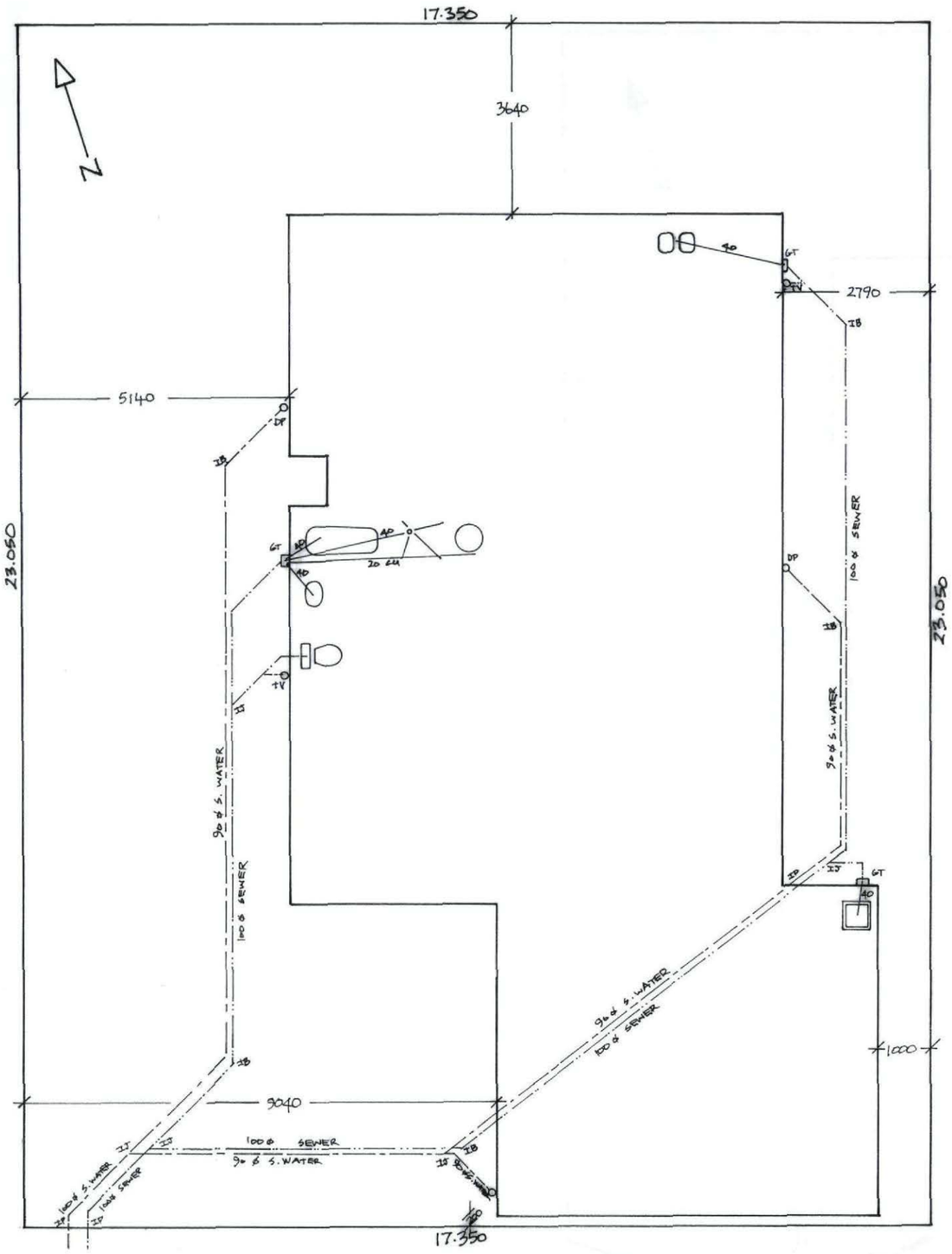


UNITS 6 & 7 FOUNDATION / SLAB PLAN

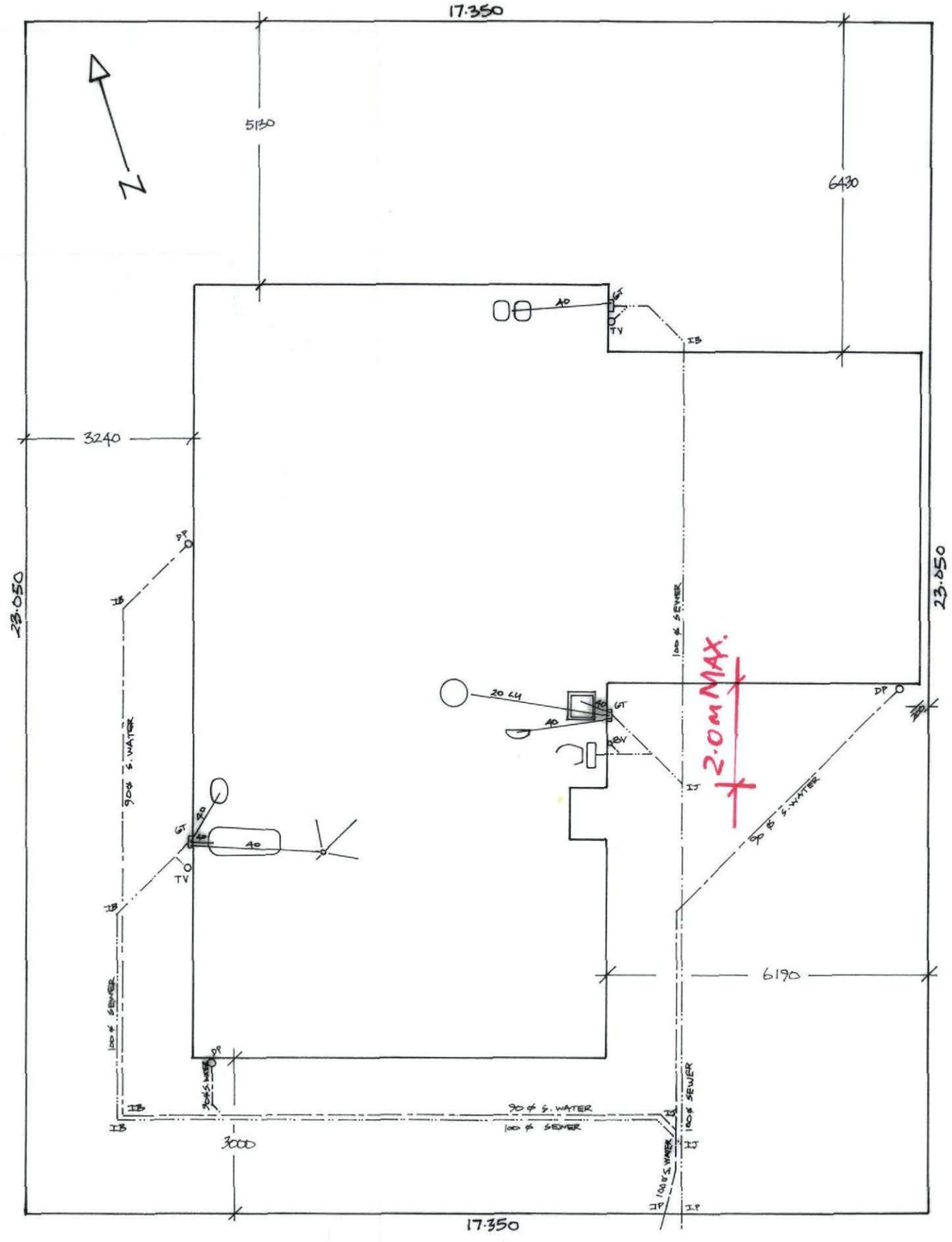


DETAIL A.

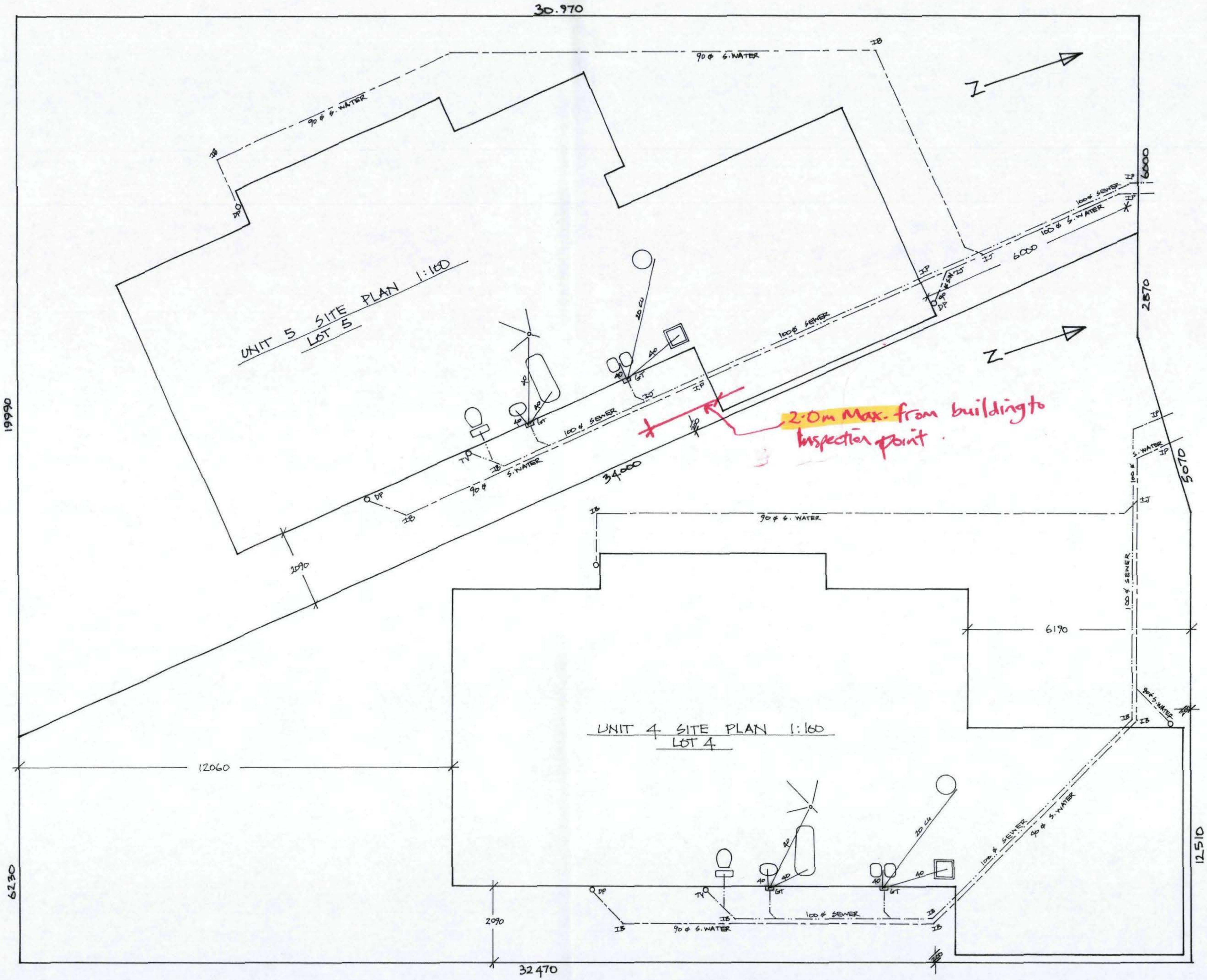

17350
17350
17350
LOT 1
400m²
LOT 2
460m²
LOT 3
422m²
23050
23100
23100
24550
100 dia sewer & stormwater connections
17350
17350
sewer inspection chamber
5070
150 dia sewer & stormwater connections
12510
150 dia Connection
'ditto'
foul sewer inspection chamber
150 Dia sewer
150 dia stormwater
SUMP
SUMP
5070
100 dia sewer & stormwater connections
25830
Position of this sump to be confirmed on site
6000
1870
100 dia sewer & stormwater connections
57020
LOT 7
400m²
15490
OVERALL SITE PLAN 1:200
OF LOTS 1-7 BEING SUB-
DIVISION OF LOT 2 DP 329656
LOT 4
430m²
25830
LOT 5
400m²
32470
LOT 6
400m²
100 dia sewer connection
100 dia stormwater connection
15480
25830
19990
6230

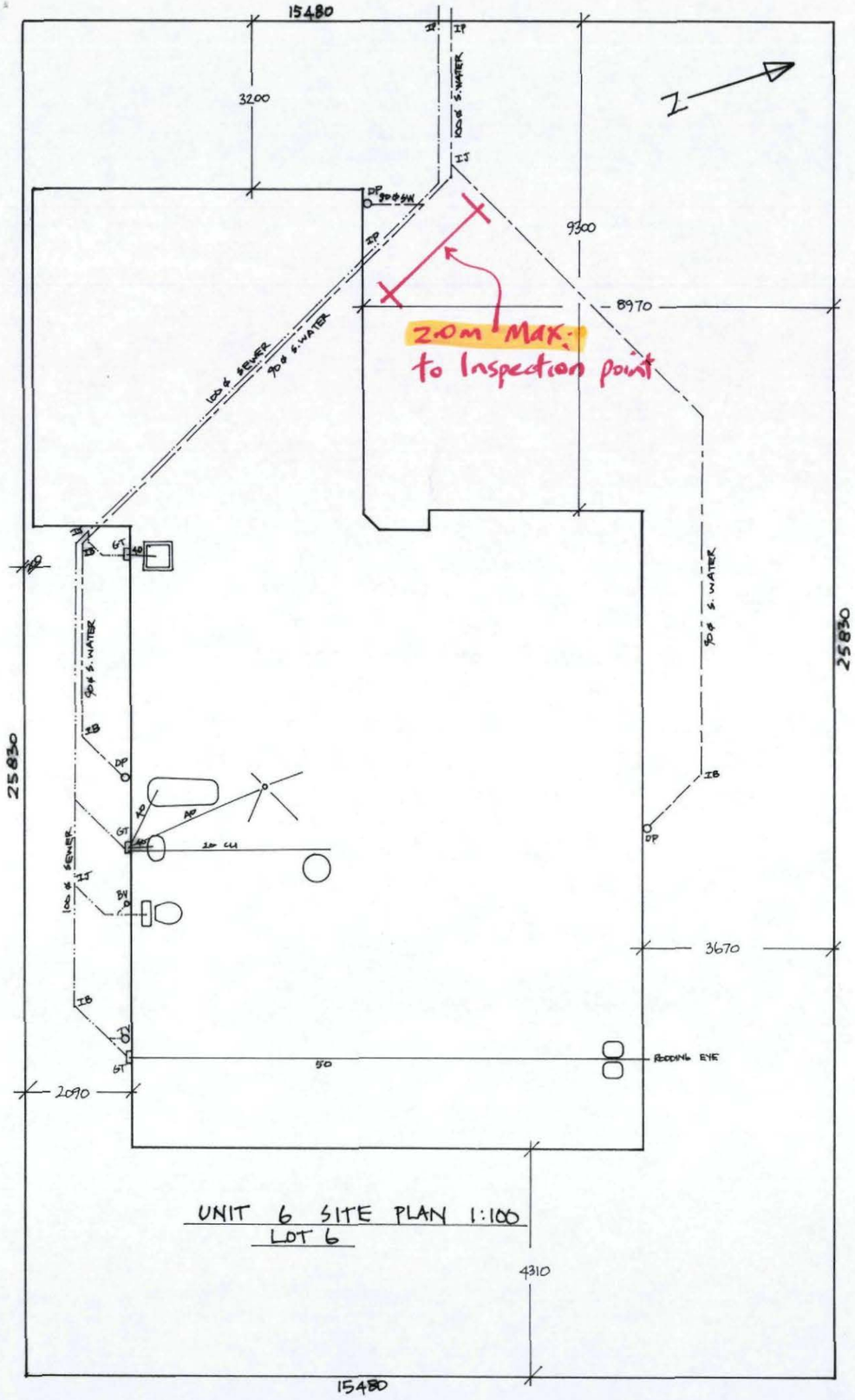


UNIT 1 SITE PLAN 1:100

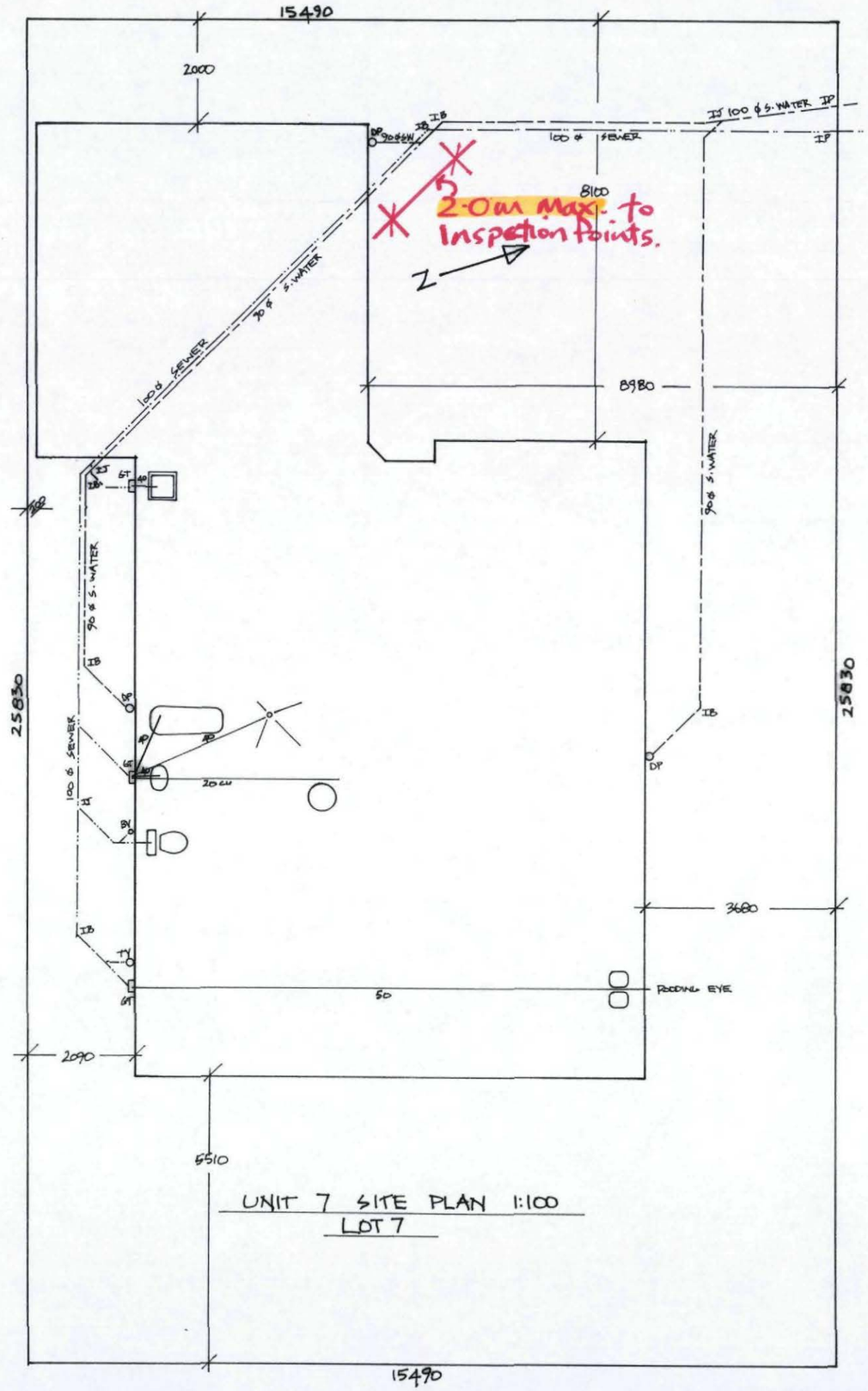


UNIT 2 SITE PLAN 1:100


30.970
90ø S.WATER
UNIT 5 SITE PLAN 1:100
LOT 5
100ø SEWER
100ø S.WATER
6000
2870
2.0m Max. from building to inspection point.
34,000
90ø S.WATER
2090
19990
3070
90ø S.WATER
100ø SEWER
6190
UNIT 4 SITE PLAN 1:100
LOT 4
12060
6230
2090
32470
12510



UNIT 6 SITE PLAN 1:100
LOT 6



UNIT 7 SITE PLAN 1:100
LOT 7

CODE COMPLIANCE

(1) The building consent authority named below is satisfied, on reasonable grounds, that
[✓ *tick applicable option(s)*]

☑ (a) the building work complies with the building consent; and

N/A (b) the specified systems in the building are capable of performing to the performance standards set out in the building consent.

ATTACHMENT

A copy of the following document is attached to this Code Compliance Certificate
[✓ *tick if applicable*]

N/A Compliance schedule

Signature _____

Position **BUILDING CONTROL OFFICER**

On behalf of **Marlborough District Council** Date: 17 August 2006

MARLBOROUGH
DISTRICT COUNCIL

A C Myles
Hammerichs Road
R D 3
BLENHEIM 7273

P O Box 443
BLENHEIM
Tel (03) 578 5249
Fax (03) 578 6866
Email mdc@marlborough.govt.nz
Web www.marlborough.govt.nz

Continued overleaf

To: The Chief Executive
Marlborough District Council
Seymour Square
PO Box 443
BLENHEIM

PIM

MARLBOROUGH DISTRICT COUNCIL

ISO 9002
Form Ref CI203

APPLICATION FOR BUILDING CONSENT

0 5 0 2 8 3

Applicant Details (refer terms & conditions note 2)

MYLES INVESTMENT TRUST.
Full Name

0274342823.
Contact Telephone number

R.D.3 HAMMERICHS ROAD
Postal Address

(03) 5705051.
Fax number

BLENHEIM.

Email address

Agent Details (if applicable)

TONY MYLES
Name

0274342823.
Contact Telephone number

R.D.3 HAMMERICHS ROAD
Address

(03) 5705051
Fax Number

Blenheim.

tony.myles@xtra.co.nz
Email address

Project Location

TAYLOR PASS ROAD. Lot 2 DP 329656.
Site address

3019 m²
Total Land area

Domestic
Current land use of property (eg: domestic, sheep farming, motel etc)

Project Details

I am applying for a: (tick one)

☑ Building Consent and a Project Information Memorandum

☐ Building Consent only in accordance with Project Information Memorandum no.....issued../../...

Describe project 7 Dwellings with Attached Garages
(Dwelling, alterations, garage, demolition etc)

Being stage 1 of an intended ..... stages.

Number of dwelling units being built 7 Number of floors (if multi-storied building) .....

Total Floor area of building work 1138 m²

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Please turn over

Type of heating: (if applicable) ☑ electric ☐ gas ☐ solid fuel

Intended life of building : (tick one) ☑ Indefinite life but not less than 50 years

☐ Specified as .....years

Total estimated value of the building work (including GST) $.....

Have you applied for, or obtained, a Resource consent under the Resource Management Act 1991 ~~yes~~ / no

If yes, what is the application / consent number **U**.....

Attach building plans and specifications

Tradesmen details (if known)

	Name	Address	Phone
Builder	MYLES CO Ltd.	R.D.3 HAMMERICHS Rd	027343828 23
Registered Drainlayer	K.J. Morgan Ltd.	Budge Street	5780060
Registered Plumber	K.J Morgan Ltd.	Budge Street	5780060

Terms and Conditions:

1. *This application is made under section 33 of the Building Act 1991*
2. *The applicant must be the Owner of the land on which building work is contemplated or a person who or which has agreed in writing, whether conditionally or unconditionally, to purchase the land or any leasehold estate or interest in the land, or to take a lease of the land, while the agreement remains in force.*
3. *The applicant is responsible for any damage caused to footpaths, vehicle crossings or services. Council Officers should be notified of any existing damage prior to construction commencing.*
4. *The applicant and his/her agent is liable for all fees and charges relating to this application. Payment is due within thirty (30) days of the issue date of the invoice. Council will charge interest on overdue invoices at 15% per annum from the date of issue to the date of payment. In the event of non-payment the applicant and/or the agent will be liable for all legal and other costs of recovery.*
5. *Where this application is completed and signed by an agent, the invoice for the fees will be sent to the agent and all communication regarding the application will be with the agent.*
6. *Information supplied with the application is subject to release, under the Local Government Official Information and Meetings Act, to trade and marketing organisations.*

I certify that the information provided is correct and I accept the above terms and conditions.

Signature ..... ~~Applicant~~ / Agent (Delete one) Date 24-2-05

If you have any queries regarding completion of this form please contact us on phone (03) 578 5249 or fax (03) 578 6866

MARLBOROUGH DISTRICT COUNCIL
SEYMOUR SQUARE, PO BOX 443
BLENHEIM
NEW ZEALAND

TELEPHONE (0064) 3 578 5249
FACSIMILE (0064) 3 578 6866
EMAIL mdc@marlborough.govt.nz
WEB www.marlborough.govt.nz

Time Per File Reference

MARLBOROUGH DISTRICT COUNCIL

File Reference: bc050283

Applicant:

Site Address:

Consent Type:

Officer	*Activity*	*Minutes*	*Date*	*$(incl GST)*	*Comments*
Ron Wass	Application	60	10/03/2005	$78.73	
Ron Wass	Application	15	10/03/2005	$19.68	
Ron Wass	Application	30	4/04/2005	$39.37	
Job Total		**105 min**		**$137.78**	

No. of minutes at no charge: 0 mins at $78.73 /hr = $0.00

OFFICER:

☐ *Job Total/Time Approved*

Name: Ron Wass *Signature:* _____ *Date:* 4/4/05

TEAM LEADER:

☐ *Job Total/Time Approved*
☐ *Non-Chargeable Time Approved*
☐ *Amended Job Total Approved*

Name: John Kennedy *Signature:* _____ *Date:* _____

Cond ID	Conditions for PIM050283 Myles
SDR50	That a 3.5 metre wide concrete vehicle crossing be constructed from the kerb to the boundary of proposed lots 1, 6 & 7, and the proposed ROW and widened where necessary to ensure a 99 percentile car can track within the vehicle crossing.
SDR 73	That 100mm diameter stormwater laterals shall be installed to serve each proposed dwelling.
SDR72	That Stormwater mains designed to Council's Code of Practice for Subdivision and Land Development be installed to serve the proposed development. (Note: Should the development be subdivided in the future the appropriate easements in gross are to be created and duly granted.)
SDR 74	That a stormwater connection fee be paid ie $800.00. This connection shall be used to service the dwelling on proposed lot 6.The applicant must complete and return an application form with payment clearly showing proposed service position.
SDR 74	That a ~~stormwater~~ Sewer. connection fee be paid ie $1,300.00. This connection shall be used to service the dwelling on proposed lot 6.The applicant must complete and return an application form with payment clearly showing proposed service position.
	That sewer be designed to Council's Code of Practice be installed the full length ot the subdivision. (Note: Should the development be subdivided in the future the appropriate easements in gross are to be created and duly granted.)
SDR71	That sewer laterals be installed to serve each proposed dwelling.
SDR74	That a water connection fee for proposed Lots1 - 7 be paid ie, $4,000.00 incl GST (3 x $600.00, and 2 x twin manifold x $1,100.00). The applicant must complete and return an application form with payment clearly showing proposed service position.
	That individual 25mm ID water pipes be laid within the ROW from the Council connection at the boundary and extended into each proposed Lots 2 - 5. As-built plans shall be provided to Council.
	That the sewer network upgrade levies of $1,314.99 including GST (CCI June 2004) per lot shall be paid ie 6 Lots x $1,314.99 = $7,889.94 including GST. Council will recalculate the levy based on the most recent Construction Cost Index (CCI) at the time of payment.
	That totally underground electrical and telecommunications reticulation be provided to all proposed lots. (A site may have to be provided for a transformer). That the subdivider liaise with an authorised electricity supplier for the provision of reticulation and then lodge with the Council written confirmation, from that authorised supplier, that the allotments are adequately serviced with low voltage electricity reticulation, and Telecommunication reticulation.

	That plans and specifications prepared by a registered engineer/chartered professional engineer or surveyor who has established credentials with Council, be provided for each stage of the development. These plans and specifications are to be in the form prescribed by the Code of Practice for Land Subdivision and Development and are to be submitted to Council prior to any work commencing.
	That the engineering works shall be carried out under the supervision of a registered engineer/chartered professional engineer. The engineer is to certify all works immediately upon completion and provide said certificate to Council. All documentation and standards are to comply with Council's Code of Practice for Land Subdivision and Development.
SDR 66 (SU6)	That "as built" plans of all services and filled areas at a scale of not less than 1:500 be provided to Council, these shall include co-ordinates (NZMG) of all surface features. (It would be appreciated if these could also be provided in an electronic form in CADD format).
	That should subdivision occurr in the future, the ROW will be required to be formed and two-coat sealed minimum a width of 3.0 metres (serving proposed lots 2 - 5), together with the installation of services underground. Drainage channels and sumps shall be constructed to collect the right of way storm water.
	That any land filling undertaken for residential development be designed and supervised by a registered engineer/chartered professional engineer and all fill works to comply with NZS 4431:1989. On completion the of works the engineer shall furnish to Council a Certificate in the form set out in NZS4431:1989.
1	That proposed Lot 1 be numbered 55 Taylor Pass Rd.
2	That proposed Lot 2 be numbered 55A Taylor Pass Rd.
3	That proposed Lot 3 be numbered 55B Taylor Pass Rd.
4	That proposed Lot 4 be numbered 55C Taylor Pass Rd.
5	That proposed Lot 5 be numbered 55D Taylor Pass Rd.
6	That proposed Lot 6 be numbered 57 Taylor Pass Rd.
7	That proposed Lot 7 be numbered 57A Taylor Pass Rd.

MARLBOROUGH
DISTRICT COUNCIL

ISO 9001:2000

PIM Processing Prompt Sheet

Consent No:	**BC050283**	Date:	**28/02/2005**
Name:	**Myles Investment Trust**	Legal Description:	**LOT 2 DP 329656**

Address **Taylor Pass Road BLENHEIM**

Project: **Seven Dwellings With Attached Garages**

This Project Memorandum is:

☑ Confirmation that the proposed building work complies with the Proposed Wairau/Awatere Resource Management Plan/~~Marlborough Sounds Resource Management Plan~~, and may be undertaken subject to the provisions of the Building Act 1991 and any requirements of the building consent

not yet applied for ☐

No: ..... attached ☐

Not yet issued ☑

☐ Notification that the proposed building may not be undertaken because a necessary authorisation has been refused.

This Project Information Memorandum includes [*Cross out each applicable box, attach relevant documents, and send a copy to any relevant network utility operators and organisations having the power to classify land and buildings]*

☐ Information identifying relevant special features of the land concerned

☐ Information about the land or building concerned notified to the Council by any statutory organisation having the power to classify land or buildings

☐ Details of relevant utility systems

☐ Details of authorisations which have been granted

☐ Notification of any other authorisations which must be obtained before the proposed building work may be undertaken

☐ Details of authorisations which have been refused.

COMPLETED (Signature) .....

Date: 4 / 4 / 05

Planning
Notes:

OK

PIM Comments:
Reserves Contribution of $31,500.00 [redacted] was paid 1 April 2005 Receipt N° 1131121.

Note Minimum floor levels from Building Consent and Marlborough Roads comments re vehicle entrances.

Signed: [signature] Date: 4/4/05

Roading
Notes:

PIM Comments:

need to apply for two new vehicle crossings. Entitled to a 6.0m wide crossing at ROW to combine with lots 1+7.
New 3.5m crossing to lot 6.
Anything further will require Resource Consent.

Signed: _____ Date: 4-4-05

****

Council Services (Engineering)
Notes:

Water levies paid as per 1021193
1x Sewer levy paid.

PIM Comments:

Refer to attached details.

Signed: _____ Date: _____

Rivers
Notes:

PIM Comments:

Signed: _____ Date: _____

****

Environmental Health
Notes:

PIM Comments:

Signed: _____ Date: _____

Building (Building Control)

Notes:

PIM Comments:

Signed: _____ Date: _____

****

Plumbing & Drainage (Building Control)

Notes:

PIM Comments:

Signed: _____ Date: _____

MARLBOROUGH
DISTRICT COUNCIL

Seymour Street
P O Box 443
Blenheim
Ph. (03) 578 5249
Fax. (03) 578 6866

TAX INVOICE

OFFICIAL RECEIPT

GST No:50-430-960

1/04/2005 Receipt No: 1131121

To AC & NJ Myles

Blenheim

Visit our Website - www.marlborough.govt.nz

Qty/ Applic	Reference	Amount
GL Rec	ReserveFundBle 1 U050171	$28,000.00
GL Rec	GST	$3,500.00
To GL Receipt		

Total Amount:	$31,500.00
Includes GST of:	$3,500.00

Amounts Tendered

Cheque	$31,500.00
Total	$31,500.00
Rounding	$0.00
Change	$0.00
Nett	$31,500.00

Thankyou for your Payment

Printed 4/04/2005 11:33:36

Cashier: CashBlen3

Consent Monitoring - Information

App No: 050171

Consent Date: 22/03/2005

Applicant: Myles Investment Trust

Duration of Consent:

Location: Taylor Pass Road Blenheim

Lapse Date: 19/04/2010

Area: Blenheim Renwick Tuamarina

Case Officer: Ian Sutherland

Monitoring Officer: Joanne Smart

Proposal: To build seven dwellings on Lot 2 DP 329656.

Application: To build seven dwellings on Lot 2 DP 329656.

Land Use - Activity

Property No. 256254

	Comments
1 That Council, being satisfied that the subdivision is adequately served by reserves requires, in terms of section 108(2)(a) of the Resource Management Act 1991, a reserve fund contribution assessed at 7.5% of the land value of the 6 newly created lots. The value shall be determined by a valuation, the fee for which shall be paid by the consent holder. The valuation must not be any older than 6 months at time of payment of the reserve fund contribution. (Please advise whether you or Council will provide the valuation).	/pd 1/4/05 $ 31,500 Rcpt 113121

MARLBOROUGH DISTRICT COUNCIL

ISO 9001:2000

Planning Prompt Sheet - Residential

Consent No: **BC050283** Date: **10 March 2005**

Name: **Myles Investment Trust** Legal Description: **LOT 2 DP 329656**

Address **Taylor Pass Road BLENHEIM**

Project: **Seven Dwellings With Attached Garages**

Proposed Plan:		**Marlborough Sounds**	✓	**Wairau/Awatere**
Zoning	Urban Residential 2 (Sheet No:)			
Activity	Controlled. RC 050171 is being processed.			
Residential Site Density	✓			
Open Space/Site Coverage	✓			
Maximum Height	✓			
Daylight Admission Control -garage exception	✓			
Garage Setback	✓			
Parking	✓			
Noise	✓			
Vehicle Access (provision, gradient, cuts, stream crossings)	Refer Mark Rowles comments			
8m from stream/river	✓			
Excavations (20m³, Hazard area, 8m from stream)	✓			
Ecological/cultural sites - check maps	✓			
Plan Scheduled Historic Site - check maps	✓			
NZHP Registered Historic Site	✓			
Hazard Site - Plan Maps - Hazard Register	✓			
Effluent Disposal - Distances - Hazard area	✓			
Stormwater	✓			
Water Supply - New Bore or intake structure	✓			
Development Levies (in standard requirements)	Payable under. RC 050171.			
Potable Water (Deferred Township Res)				
Yards (Sounds Residential over 4000m² only)				

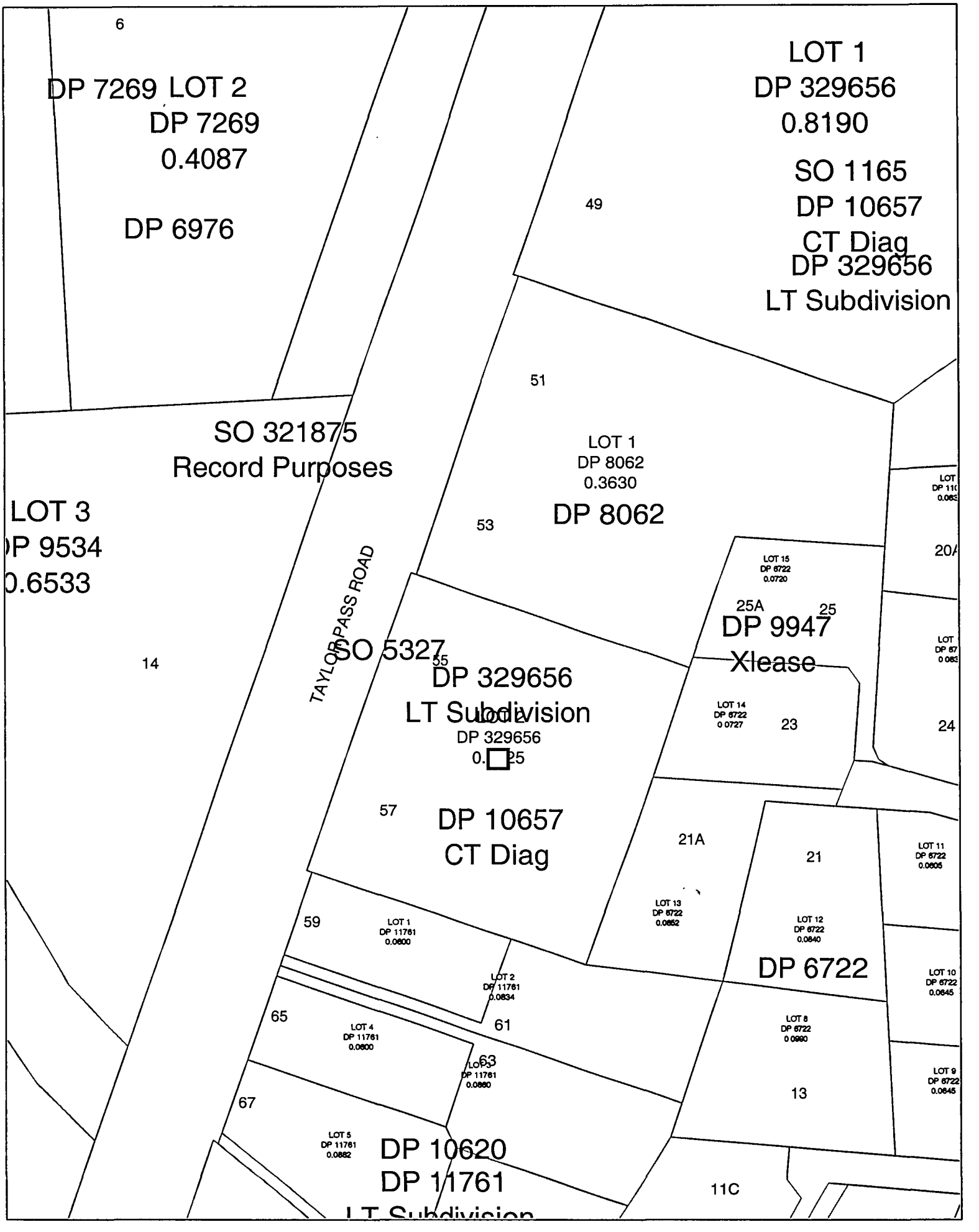
PIM only

✓ PIM/BC issued - Permitted Activity

PIM/BC issued - Resource Consent Issued

PIM/BC issued - Section 35 Form 4(A) Certificate Issued

COMPLETED (Signature) ..... Date: 4 / 4 / 05



Scale 1:850

0 20 40 60 80 100 120m

LOT 2 DP 329656

Survey and Title Data as at 4-DECEMBER-2004, Valuation and Sales Data as at 1-DECEMBER-2004 and Geodetic Mark data as at 4-DECEMBER-2004. For additonal mark data visit www.linz.govt.nz for Geodetic Database. Cadastral Information from LINZ Core Record System (

Property Report

MARLBOROUGH DISTRICT COUNCIL

Date: 25/02/2005 No000006

Property Number:	256254	***Property Address:***	Taylor Pass Road BLENHEIM
Assessment Number:	20550 32639	***Legal Description:***	LOT 2 DP 329656
Property Owners:	Myles Anthony Craig & Myles Naomi Joyce	***Area:***	Hectares
Property Ratepayers:	Anthony Craig Myles & Naomi Joyce Myles		

Land Value:	$	***Building Decade:***	
Improvements Value:	$	***Improvement Code:***	
Capital Value:	$		

Rates Annual Levy:	$	***Sewer Scheme:***	
Amount to clear current year:	$N/A	***Southern Valleys:***	

Water Meter Number(s):

Associated Memos

PrpIssCnst	U021193	SUBDIVISION - ALLOTMENT CREATION. APP. MDC
LndIssCnst	U021193	SUBDIVISION - ALLOTMENT CREATION. APP. MDC

Associated Applications

Building Consent Check Sheet

BC No 0 5 0 2 8 3

ISO 9001:2000
Form Ref CI584

CSO's TO COMPLETE

Property number 256, 254.

Parcel No(s) 838273

Legal description Lot 2 DP 329656 Valuation number 20550/32639

Applicant name(s) Myles Investment Trust Applicant Name Number(s) 47256

Agent Name Antony Myles Agent Name Number 12890

Fee Payer Name Myles Investment Trust. Fee Payer Name Number 47256.

Grid Reference E 2588377 N 5962489.

	Copies	Rec'd	To Come	Comments
Application form completed / signed		☑	☐	
Site Plans	3	☑	☐	
Floor Plans and Elevations	4	☑	☐	
Specifications	3	☑	☐	
Cross Section	2	☑	☐	
Bracing Schedule	2	☑	☐	
Truss Layout Plan / Statement	2	☑	☐	
Producer Statements (Engineer)	2	☑	☐	
Site Reports (Engineer)	3	☐	☐	N/A
Smoke Alarm location and information	2	☑	☐	

Water Requirements (~~Private~~ / Council) ✓

Septic Tanks / Engineer N/A.

Compliance Schedule (Commercial) N/A.

Services (Stormwater, Water and Sewer) Forms Received connection.

Vehicle Crossing Not yet constructed.

PROPERTY REPORT x 2 ☑

CSO Initials AC.

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Temporary form - Building Consent Office Use

INSPECTIONS REQUIRED

By Council

- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....

By Registered Engineer

- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....

FEES

	$
Resource Consent – Minor	.....
RMM Assessment	.....
Building Code Assessment	.....
BIA Levy	.....
Building Research Levy	.....
Code Compliance Certificate	.....
Inspections	.....
Lodgement Fee	.....
Roading Assessment	.....
Locating Service Connections	.....
Travel to Inspections	.....
Amendment Processing	.....
Compliance Schedule	.....
Development Levy	.....
Swimming Pool Exemption Fee	.....
Title Notation	.....
Vehicle Crossing	.....
Stormwater Connection ($30 inspection fee.)	$880.00
Sewer Connection	$1,330.00
Water Connection	$4,000.00
Assess Certifier Application	.....
Reserves Contribution	.....
Sewer Upgrade Levies	$7,889.94
Total Fees	$

Approved for issue of Building Consent

.....
Building Control Officer

Date ...../...../.....

Marlborough District Council

Notes regarding Engineering and Services
For attachment to Project Information Memoranda

Attach a copy of only the applicable parts to every PIM where they apply

THIS IS A TEMPORARY FORM FOR INTERNAL USE ONLY

BUILDING CONTROL OFFICER to tick all relevant boxes, attach location details of services where known and pass to Pim processing Officer. **PIM PROCESSING OFFICER** to ensure that all relevant items are included in the PIM.

Building Consent Number 050283

Property Number 256254

1. Sewage Connections

☐ Council sewage mains are available to service this property and the new sewage drainage shall be connected to it. Refer to attachments for location of the connection.

☐ Council sewage mains are available to service this property and the new sewage drainage shall be connected to it. There is no existing connection and a new one is required. The new connection will be provided by the Council and the costs will be payable by the property owner. The property owner should complete the application form for the new connection and indicate where the connection is required.

☐ No Council sewage mains are available to service this property. Wastewater treatment and disposal shall be contained on site and shall be in accordance with AS/NZS 1547 or specifically engineer designed.

2. Stormwater Connections

☐ Council stormwater mains are available to service this property and the new stormwater drainage shall be connected to it. Refer to attachments for location of the connection..

☐ Council stormwater mains are available to service this property and the new stormwater drainage shall be connected to it. There is no existing stormwater connection and a new one is required. The new connection will be provided by the Council and the costs will be payable by the property owner. The property owner should complete the application form for the new connection and indicate where the connection is required.

☐ There are no Council stormwater mains servicing this property and stormwater must be disposed of entirely on site.

☐ There are no Council stormwater mains servicing this property and stormwater must be disposed of by connection to the roadside channel.

3. Water Connections

☐ Council water mains are available to service this property. If a new water connection is required to the Council water supply, then the Council will provide the new connection. The costs of the connection is payable by the property owner. The property owner should complete the application form if new connections are required. Only one connection per property is allowed.

☐ There is no Council water supply available to this property. It is the owner's responsibility to provide a potable water supply.

4. Vehicle Crossings

☐ Vehicle crossings are to be constructed in concrete to a minimum width of 3.5metres and shall extend from the roadside kerb to the property boundary. Footpaths will need to be removed and reconstructed at the time the vehicle crossing is constructed. All new crossings are to be to the minimum standards required by Marlborough Roads. A standard plan showing the details is available on request from Marlborough Roads.

Marlborough Roads will provide a quotation to construct the crossing and will arrange for the work to be done on receipt of the payment for the fees. Alternatively owners can organise a contractor to construct the crossing but Marlborough Roads will inspect the work. An inspection fee of $30 is payable before the inspection can take place. 24 hours notice is required prior to pouring the concrete.

Marlborough Roads will rectify any crossing not constructed to the required standard and the cost of that recovered from the property owner. If the owner chooses to install the crossing then the work is to be completed within two years. If it is not completed by that time then Marlborough Roads will do the work and charge it to the property owner.

The property owner should complete the application form if a new vehicle crossing is required.

5. Evacuation Schemes

☐ This building will require an evacuation scheme approved by the NZ Fire Service. This must be approved before the Building is occupied.

6. Compliance Schedule Items

☐ This building has items that require a compliance schedule. Note that all safety, warning, and fire protection items must be installed, completed, tested and the Building Statement of Fitness issued, before the building can be occupied.

SPECIFICATIONS FOR WORK AND MATERIALS

REQUIRED IN THE CONSTRUCTION OF A

NEW TOWN HOUSES FOR

MYLES INVESTMENT TRUST.

A. GENERAL

1. The Work

The building is constructed of:-
Concrete foundations and flooring
Timber framing
Aluminium windows and exterior doors
Colorsteel roofing
70 Series brick veneer exterior cladding
& Rockcote plaster exterior cladding
Metal fascia and gutter
Gib board interior linings

Also the fabrication of all cabinets, interior and exterior joinery, the fixing of all linings, and the installation of all services.
The Contractor shall provide all labour, materials tools and plant, pay all dues, and obtain all consents, unless detailed otherwise within this specification.

The Contractor shall complete this building in the best trade practice, according to the plans and documents, and this specification, taken separately or collectively, and shall ensure that all materials shall comply to the latest relevant NZ Standard Specification.

All work shall adhere to NZS 3604 1999, and the NZ Building Code.

2. Bylaws

The Contractor shall conform in all respects to the Bylaws of the Local Authority having jurisdiction over the works, and be responsible for all damage to private or public property occasioned by the work.

3. Sub-Contractors

This specification is divided into trade sections for the convenience of reference only, and every trade jointly and severally shall assist and render all necessary assistance to complimentary trades, for the total completion of this project.

4. Site and Setting Out

The Contractor shall visit the site before tendering, to satisfy himself regarding access, levels, and the conditions generally, as no extra will be allowed for wrong description.
The Contractor shall be held responsible for the setting out of the work, and he shall be required to make good at his own expense any error that may occur. Figure dimensions are to be taken in preference to scaled ones, and all measurements are to be verified on site before work commences.
Should any discrepancy arise, the Designer must be contacted immediately.

5. Availability of Materials

Should any of the materials specified for this contract not be procurable, negotiations shall be made for the provision of substitutes to the approval of the Owners. Any price difference due to this, must be agreed upon in writing by the Owners, before the respective work shall commence.

6. Prime Cost Sum

The Prime Cost Sum where shown in this specification reserves the Owners the right to purchase items themselves, and the accounts will be adjusted on completion of the Contract.
The Contractor shall allow for the installation of the PC Sum goods.

7. Completion

At regular intervals during the building, and on completion of the Contract, the Contractor shall remove debris which may accumulate, and leave the site and building clean and ready for use.
All floors shall be left broom clean, and all glass work sound and clean inside and out.
All plaster stopping shall be left sanded to a smooth surface, on completion of all wall and ceiling linings

B. EXCAVATIONS

1. Excavate
Excavate as required for foundations and footings etc, where shown and as required to give a solid bearing.
Surplus soil shall be placed where directed by the Owners.
Any excavation that requires an Engineer to inspect, shall be arranged by the Contractor at the time.

2. Backfilling
All backfilling shall be carried out by the Contractor, and materials shall be the excavated spoil if foundations are only a maximum of 300mm deep.

3. Hardcore Filling
Hardcore filling shall be placed under all floor slabs, as detailed in 2 above, and shall consist of clean river gravels max size 100mm.
All floor slabs shall be compacted with a plate compactor, and blinded with 25mm of clean sand before pouring.

4. Over Excavations
In the event of the Contractor excavating below the proper level, he shall fill the parts over excavated with concrete at his own expense.

C. CONCRETE

1. Materials
The materials and workmanship shall be in accordance with NZS 3101.
Concrete shall be ordinary grade 17 mpa, in all pile footings, link pad etc, as described in the above specification.

2. Foundations and Footings
All foundations shall rest on solid ground, or concrete footings at least 300mm below adjacent ground level, and shall be constructed as shown on the plans.

3. Reinforcement
All reinforcing shall comply with NZS 3402, or as shown on the plans.
Horizontal bars ex D12, shall be held together with D10 stirrups or ties, wired and supported from the ground by plastic chairs or similar to give the required clearance to the concrete outside face,
ie. 80mm to the bottom, and 50mm to all sides of the foundations.
Floor starters of D10 at 600mm cts shall be tied to the reinforcing bars,
and the #665 mesh.

4. Steelwork
Allow to build in all holding down bolts, brackets, column bases etc, as required for future fittings. Holding down bolts for building perimeter shall be 12mm dia at 1.4m cts max, and not more than 300mm from corners or doorways.

5. Damp Proof Course
All concrete faces in contact with timber, shall be covered with one layer of 3 ply malthoid or other approved dampproof course, with minimum side laps of 75mm.

6. Concrete Flooring
Shall be a minimum of 100mm, reinforced with #665 Mesh placed 38mm from top of slab, and resting on plastic chairs.
Concrete shall be laid on .025mm AHI Moistop, or Gib polythene sheeting, properly sealed at all joints and exterior edges.

Where water or drainage pipes cut through the polythene membrane, ensure that all holes and chases are properly sealed to the pipes with PVC sealing tape. Hardcore filling shall be consolidated and blinded with sand before laying polythene sheeting.

Under the polythene sheeting and on top of the sand blinding, shall be placed 25mm polystyrene sheets for the full area of the dwelling, as a retention membrane to avoid heat losses to the ground.

D. CARPENTER & JOINER

1. Timber Generally
All timber shall be to the best of its class, free from large loose or dead knots or wavey edges, thicknessed, well seasoned and dry.

Framing timbers shall be H1 treated Pinus Radiata, or Dryframe, of sizes ex 100 x 50mm or 90 x 45mm minimum.

2. Standard Specifications
All timber construction shall be in accordance with NZS 3604 1999, and the NZ Building Code.

3. Framing General
The whole of the framework shall be prenailed, cut on site etc, and assembled according to the plans and specifications, with all required bracing, as detailed in the schedule attached.

4. Floor Joists
First floor joists shall be 250 x 50mm at 400mm cts as detailed.
Deck floor joists shall be 200 x 50mm at 400mm cts, and shall be placed as shown.

5. Studs
All studs shall be ex 100 x 50mm and cut to make 2430mm between floor and ceiling battens.
Opening studs to be double 100 x 50mm, one under lintel, and the other full height of frame between top and bottom plates.
Studs shall be spaced at 400mm cts for exterior walls, and internal walls may be 600mm cts.

For two storey dwellings, all ground floor framing studs shall be spaced at 400mm cts.

6. Dwangs
All walls shall be dwanged with ex 100 x 50mm or 90 x 45mm, solid dwangs at 800mm cts or to suit linings.
All first floor joists shall be solid block dwanged at centre span, to all rooms over 2.4m joist span.

7. Top Wall Plates
Top plates shall be ex 100 x 50mm, with ceiling plates of 150 x 35mm for external walls, and 200 x 35mm for internal walls.

8. Ceiling Battens
All battens shall be ex 70 x 35mm at 400mm cts, or to suit linings, and shall be fixed to underside of trusses or joists, and to ceiling plates on top of wall framing.
Steel Rhondo ceiling battens may be used, and fixed according to Gib bd specifications.

9. Lintels
Shall be to sizes stated in the NZS 3604, and supported on double studs, as detailed in Section D7 above.
Lintels may be made up of double 50mm members, or ex 100mm solid timbers, to the required depth for the opening span.

10. Roof Framing
a) Trusses
Shall be ex 100 x 50mm Douglas Fir or Dryframe, manufactured to design supplied by Gang nail or Pryda, supported by a Producer Statement.
Trusses shall be positioned at 900mm cts max, and fixed to top plates by 'Z' nails or multigrip plates.

a) Purlins
Shall be as detailed, generally ex 75 x 50mm fixed at 760mm cts to top of rafters with double nailing, except as per NZS 3604 where the perimeter and ridge etc shall be 'Z' nails.

11. Flooring
Concrete floors shall be as specified under section C5.
Timber floors shall be 20mm H D Particle board, or 20mm H D Kopine tongue and grooved sheets, glued and screw fixed to joists to manufacturers specifications.

12. Insulation
Generally all exterior walls shall be fitted with R 2.2 Fiberglass batts, and all ceilings shall be R 2.6 batts.

13. Joinery
All joinery shall be fabricated according to the best trade practice whether it be Aluminium or wooden joinery.
Care shall be taken in the assembly to avoid scratching the powder coating, or in the case of wooden joinery, no damage by glue, water or scratching.
All mitres, butt joints, dowelling or biscuit joints, mortice and tenon joints, shall be neatly executed.

a) Windows
Aluminium windows shall be constructed by an approved fabricator, to sizes and styles shown, with all opening windows as required.
Windows shall be single glazed in clear glass.
Reveals shall be ex 25mm timber and rebated for linings.
Powdercote colour shall be selected by Owners, and all window and door hardware shall be colorcoded.
Windows shall be fitted with double tongue handles, and all casement sashes over 1.2m deep, shall have 2 handles and 1 centre D handle.

b) External Doors
Doors shall be double sliders, slider and sidelight, as shown, all with colorcoded

Front Entry shall be selected raised panel Cedar door, fitted into aluminium frame and timber reveals.

c) Internal doors
Shall be flush panel coloured timber throughout, fitted into timber jambs.

d) Garage doors
Main door shall be Colorsteel sectional fitted with Dominator auto control.
Rear door shall be Aluminium single glazed style to match dwelling.

f) Joinery Fixtures
Kitchen cupboard and bench units shall be as selected in prefinished melamine or similar, with Formica tops and stainless steel sink insert.
Units may be as detailed or specified during the construction of the dwelling.
All cupboard and Pantry units shall be taken full height of walls, unless shown otherwise.
Allow P C Sum $8000 for Kitchen units ex factory, Contractor to install.

Bathroom vanity cabinets shall be as detailed or selected for each room.
Allow P C Sum $1200 for each ex factory, Contractor to install.

Laundry Cupboards as detailed or selected. Contractor to install.
Allow P C Sum $1500 ex factory.

14. Hardware
Door and cupboard hardware shall be selected by Owners, but generally all internal doors shall be fitted with two handles and one latchset.
Toilets, Bathrooms etc shall be fitted with privacy locksets.
Front Entry door(s) shall be fitted with selected locksets, together with a deadbolt of approved manufacture.
Allow P C Sum $1200 for door hardware.
Aluminium doors etc shall be supplied as a package with the exterior joinery.
Kitchen joinery hardware shall be supplied with the units from the Joiner.

15. Staircase
To be constructed with 250 x 50mm stringers, 250 x 30mm treads, and risers as specified.
Treads and risers shall be housed into routed stringers, glued and blocked.
Supply and install selected handrail and ballustrade, at minimum height of 1 metre securely fixed to wall on one side of stairs each flight.

E. ROOFER

1. Materials
Roofing shall be selected Colorsteel corrugated, with all required flashings, ridging, hip covers, and valleys in matching colour.

Barge capping, fascias, and spouting shall be colour matched to the roof, or other selected colour.

Spouting shall be colour matched external fitted, in selected profile, with all mounting brackets, mitred corners, and downpipe outlets as required.

2. Workmanship
All work shall be carried out by approved tradesmen, who shall complete the roof and accessories, for a completely waterproof dwelling.
Care shall be taken by the roofing Contractor to avoid any damage to the roof, fascia or spouting with ladders leaning against them.

F. EXTERNAL FINISHING

1. Barge and Fascia
Barge and fascia as detailed in Section E 2 above.

2. Soffit Lining
Soffits shall be framed with ex 75 x 50mm sprockets, and ribbon plate fixed to wall framing.
Fascia shall be fitted at correct level to allow soffit linings to be fixed.
Soffit materials shall be 4.75 flat Hardiflex sheets with PVC jointers to all butt joints, and nailing shall be galv 30mm Hardinails.

3. Linings
Ground wall cladding shall be 70 Series brick veneer cladding, see bricklayer below.
First floor wall cladding shall be Rockcote plaster over 40mm polystyrene, and applied according to the Rockcote manufacturers specifications.
All required PVC flashings, corner mouldings, sill and window mouldings etc, shall be correctly fitted to complete the dwelling fully waterproof.

G. BRICKLAYER

1. Materials
Bricks shall be 70 series clay bricks, colour to be selected by Owners.

2. Mortar
All mortar used for bricklaying shall be composed of one part cement, to one part hydrated lime, to four parts clean sand. A measured part of plasticiser liquid may also be added if desired.
No mortar that has become 'dead or set' shall be used in the work.

3. Workmanship
The work shall be carried up in even height using stretcher bond, and angles and intersections shall be properly bonded, with all mortar joints no more than 10mm thick, and raked back maximum of 10mm.

4. Wall Ties
Veneer walls shall be secured to wall framing by galv screw ties placed in every third course, fixed to each stud with approximately 8 - 10 ties per square metre.

5. Sill Bricks
Sills shall be laid to suit the windows and doors, but generally they shall use full bricks on flat across the opening, at right angles to the wall veneer.

H. PLASTERER

1. Materials
Cement and water shall be as specified under Concrete
Sand shall be clean, hard and sharp, and free from salt, soil, and/or other deleterious materials

2. Porches, Steps, Terraces
All porches, steps, and terraces, patios etc, shall be finished during the main floor pour, but Contractor shall allow to splatter coat the foundations, and any other edges etc during the exterior finishing work.

3. Exterior Finishing
Plaster and drag finish, or sponge finish, the external faces of all walls, foundations, columns, chimneys, parapets etc, unless directed otherwise.
Plaster shall be solid cement plaster of 25mm minimum, over galv crimped netting, and Greenwrap or building paper as supplied or directed.

I. DRAINLAYER

1. Materials
All materials used shall be in accordance with NZS / AS 3500, and the N Z Building Code.

2. Excavate
Excavate all trenches required for drains and fittings, to the depths specified, and the laying of sanitation and stormwater pipes shall conform to the N Z Building Code.

3. Stormwater Drains
From each downpipe, collect all stormwater into 100mm PVC piping, and discharge at roadside into pipe laid under footpath. An existing 100 Dia service pipe is laid up the driveway.

4. Sewer Drains
Connect up foul water from all gully traps, in 110 PVC high pressure piping, and discharge to the main sewer in road, at connection provided. An existing 110 dia service pipe is laid up the driveway.

5. Terminal Vent
Terminal vent shall be positioned at or near the end of the sewer line and shall be 75mm dia PVC, extend thru soffit and roof and flash at roof with butynol or similar.

6. Completion and Testing
On completion of the whole drainage system, Council tests shall be carried out before any backfilling takes place.

J. PLUMBER

1. Materials
All materials used by the Plumber shall be to the best of their several kinds, and must fully conform to all or any governing regulations or bylaws.

2. Flashings
All flashings shall be made in as long lengths as possible, from Butynol or Colorsteel, to suit the purpose intended.

3. Downpipes
All downpipes shall be PVC either 75 x 50mm or 62mm dia as selected, and fixed to the walls by purpose made brackets, two per downpipe.

4. Spouting
Shall be colorsteel external fascia gutter, fixed to fascia by purpose made brackets. All corners and joints shall be neatly executed.

5. Waste Pipes
Carry all wastes in PVC from all fittings to gully traps positioned as required,
Conceal all traps and wastes from view wherever possible, and all pipes shall have sufficient fall to discharge into gully traps.
Wastes shall be 40mm dia for all fittings except wash hand basins which may be 32mm dia.
Kitchen waste from Sink, Dishwasher and Waste disposal unit shall all be combined into a 50mm dia waste.

6. Cold Water Supply
Shall be run from Road toby to dwelling in 20mm HD Polythene, and where pipe enters building, a shut off valve shall be placed to isolate dwelling.
All internal piping shall be run in 12mm or 15mm dia polybutylene, with all correct fittings, junctions, valves etc.
NOTE: All drillings in walls shall be kept to an absolute minimum.

7. Hot Water Supply
Shall be run from HW Cylinder to all fittings as shown or required, in 12mm or 15mm dia polybutylene, with all correct fittings, junctions, valves etc.
HW cylinder shall be positioned in roof space, adjacent to top stair landing, fitted with an overflow tray underneath, and connected to a 32mm dia overflow pipe to the outside of the dwelling.

8. Supply and Fit Up
All fittings shown or required shall be installed to correct procedures by a certified tradesman.
Items may be purchased by the Owners, and installed by the Contractor, provided the Contractor is in agreement.
All tests shall be provided by the Contractor before handing over to the Owners, in operating condition.

K. INTERIOR LININGS

1. Ceilings
Ceilings shall be 10mm standard Gibralter Board throughout except Bathrooms, Laundry, and Ensuites etc, which shall be 10mm Aqualine Gib.

2. Walls
Walls shall be lined throughout with 10mm standard Gibralter Board, laid horizontally, and fixed with Gibgrabber screws and gibfix adhesive.
Bathrooms and Ensuites etc which are to be tiled, shall be lined with Hardies Villa board 6mm, or 10mm Aqualine Gib.
Garage walls within 1 metre of the boundary shall be lined with 1 layer of 10mm Fyreline on each side of the framing; or exterior face with 6mm Hardiflex sheet fixed vertically, and interior face with 10mm Fyreline Gib fixed horizontally. This fire rating must be continued around the corners of non boundary walls for a distance of 600mm minimum.

3. Stopping
Where walls are lined with Gibralter board, all stopping shall be carried out by the fixer according to Winstone Wallboards specifications, and all Villa board lined walls are to be stopped according to Hardies specifications.

Gib walls and ceilings shall be sanded to a level 4 preparation, unless stipulated otherwise.

4. Mouldings
a) Scotia
Shall be 55mm Gib cove fixed to manufacturers specifications.

b) Architraves
All windows, doors, and other openings, shall have rebated jambs to conceal the edges of all Gibralter Board.

c) Skirtings
All flooring shall be coved, and finished with a timber finishing bead, placed 75mm above floor level.
Tiled floors shall be finished with 75mm of floor tiles placed on walls at floor junction.

L. ELECTRICIAN

1. Materials
Materials used by the Electrician shall conform to the Electric Power supply Authority regulations, and all wiring necessary for the completion of this contract, shall be of approved manufacture in compliance with the appropriate specifications.

All wiring shall be concealed from view, run within the framing, and the Electrician shall be carefull how and where he drills the holes, as no drillings shall be through structural timber members, without the consent of the main Contractor.

All face plates, switches, plug outlets etc shall be HPM Excell series, colour as selected by the Owner.

2. Lighting
Wire up the fittings as shown on the plans.
Ceiling lights shall be 100mm dia recessed downlights throughout except for above Bathroom vanities, Kitchen benches etc, which shall be 50mm dia recessed low voltage Halogen downlights.
Wall lights shall be selected wall wash type fittings, fitted at approx 2.0mtrs from floor.
Exterior lights shall be selected wall mounted fittings at approx 2.0mtrs from floor level.
All switching shall be positioned adjacent to doors, and where two-way or multi operational switching, they shall be linked appropriately for the room.
Wall switched shall be positioned at 1.3mtrs from floor unless directed otherwise.

3. Switched Socket Outlets
Outlets shall be provided as shown on the plans, and shall all be double HPM horizontal units, generally fitted 300mm from floor level, except for Fridges, Washing Machine, Kitchen benches and Pantry, which shall be 1.3mtrs,
or as directed.

Shaving outlets in Bathrooms shall be RCD protected double horizontal units.

Computer outlets shall be Surge arrester double power points, connected with a 'clean' line direct to the sub board.

TV, Telephone and Radio outlets shall be supplied and fitted as required.

4. Point of Entry
Provide a switchboard where shown built into the garage wall adjacent to stairway, and run a mains cable from board to the Road. A separate sub board may be installed elsewhere in the Dwelling as required.

5. Hot Water Cylinder
Cylinder shall be wired into off peak service ripple control, with all required over ride switching as necessary for safety etc.

6. Test and Completion
The Electrician shall provide for all tests required, and hand over the completed works passed and sealed by the Local Power Authority.

M. PAINTER AND DECORATOR

1. Materials
All materials shall be to the best of their respective kind, and shall be delivered to the job in unopened containers.
All surfaces to be painted shall be protected from the weather, cleaned, and free from dust and dirt.
Likewise all surfaces to be wall papered shall be properly sanded, cleaned, and treated with size, to allow 100% bonding of paper to walls.

2. Exterior Work
   a) Soffits
   Shall be sealed with approved cement sealer, then apply two coats of Acrylic low sheen paint as finishing coats.

   b) Walls
   Where walls are to be painted over solid plaster or cement based weatherboards (Hardiplanks etc), they shall be painted with two coats minimum, of Acrylic or cement based paint.

   c) Coated walls
   Where walls have been specified as Rockcote or similar, they shall be coated with precoloured texture product as supplied, and applied to the manufacturers specifications.

3. Interior Work
   a) Wallpaper
   Walls where specified after treating with size, shall be papered with all butt joints and patterns neatly matching and properly registered, free from lumps of paste or dirt, wrinkles, blisters, and smoothed off.
   Allow P C Sum of $35 per roll of paper.

   b) Painting
   Ceilings shall be sealed with an approved wallboard sealer, before being painted with two coats minimum of approved low sheen Acrylic.
   All ceilings should have been stopped and finished to a level 5 Gib finish with smooth coat prior to final sanding and sealing.
   Wet area rooms, ie Bathrooms and Ensuites may be painted with a semi gloss Enamacryl or similar.

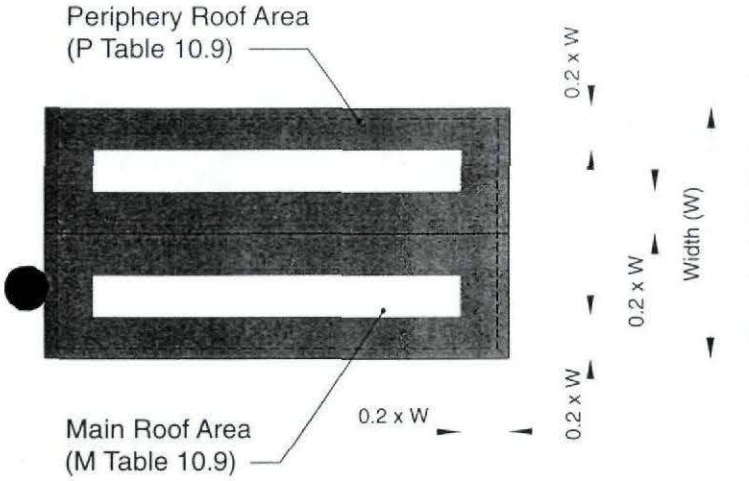
   c) Varnishing
   Where Doors, Jambs, window reveals etc require a varnished or polyurethane finish, all woodwork shall be finely sanded before sealing with an approved sanding sealer or thinned polyurethane, and then given three coats of approved polyurethane matt or semigloss finish, to manufacturers specifications.

PURLIN & BATTEN FIXING CHART

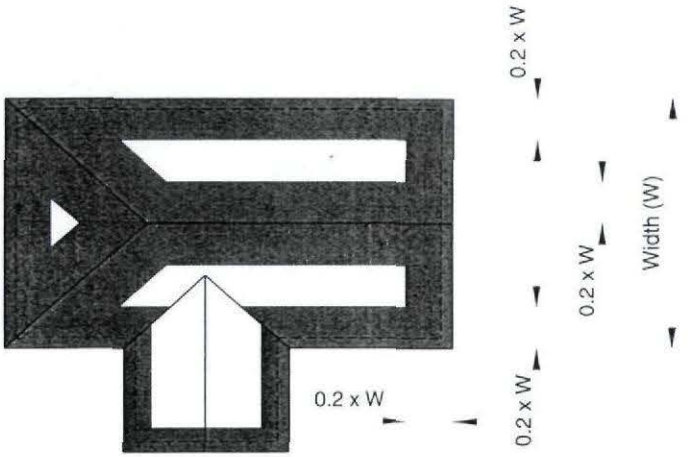
(COMPLIES WITH NZS 3604:1999 TABLE 10.10)

NOTE:

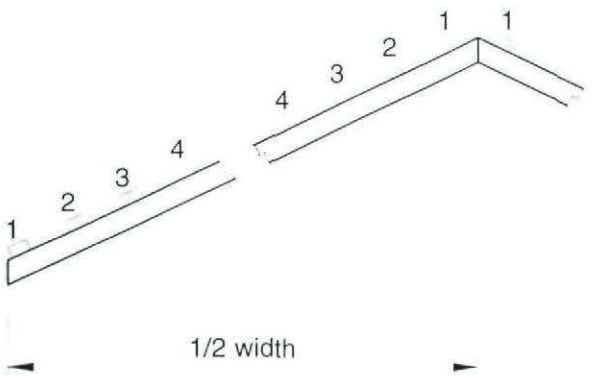
- ★ Max. truss overall roof span 12m
- ★ All purlin and batten sizes as NZS 3604:1999 Section 10.
- ★ These fixings assume purlin or battens are fixed over top of truss or rafter.



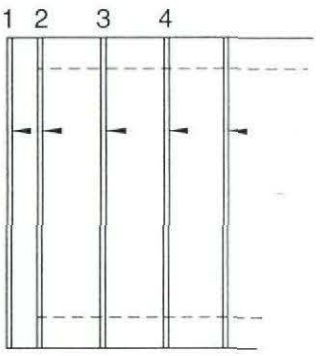
PLAN GABLE



PLAN HIP ENDS



PURLIN LAYOUT (MAX 1200 crs.)



TRUSSES, RAFTERS OR SUPPORT LINE AT MAX 1200 crs.

LAYOUT ON GABLE END

LUMBERLOK®

MiTek™
MiTek New Zealand Ltd.
AUCKLAND
PO Box 58-014, Greenmount
Phone: (09) 274 7109
Fax: (09) 274 7100
CHRISTCHURCH
PO Box 8387, Riccarton
Phone: (03) 348 8691
Fax: (03) 348 0314
www.miteknz.co.nz
HOME OF **GANG-NAIL®** BUILDING SYSTEMS

SELECTION CHART
(minimum fixing requirements)

1. HEAVY ROOFS

All purlins and/or battens use fixing Type A only on roof width (w) up to 12m.

2. LIGHT ROOFS

A. BATTENS - Max. span 1200
- Max crs. 400
- Roof width (w) up to 12m.

L & M wind loads use Type B fixing on all battens.

H & VH wind loads use Type C on all battens.

B. PURLINS - Max. span 1200, Max crs. 900 or
- Max. span. 900, Max crs. 1200

L & M wind loads use Type C fixing on purlin No.2 and Type B on all other purlins for all roof widths (w) up to 12m.

H & VH wind loads

1. On roof width (w) up to 8m;
Use Type D fixing on purlin No. 2 and Type C on all other purlins.

2. On roof width (w) up to 12m;
Use Type D fixing on purlins No. 2 & 3 and Type C on all other purlins.

C. PURLINS AND BATTENS ON GABLE END
- Max. span 1200, Max crs. 900 or
- Max. span. 900, Max crs. 1200

L & M wind loads use Type B fixing on support line No. 1, Type C on support lines No. 2, 3, & 4 and all other support lines as per Section A or B above.

H & VH wind loads use Type C fixing on support line No. 1, Type D on support lines No. 2, 3, & 4 and all other support lines as per Section A or B above.

STANDARD FIXING OPTIONS

LUMBERLOK®

FIXING DEFINITIONS

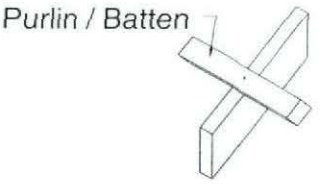
NAIL = Either 90 x 3.15 Power driven
or 100 x 3.75 Hand driven

SCREW = 100 x 10 gauge **LUMBERLOK** Purlin screw

WIREDOG = Either left hand or right hand **LUMBERLOK** wiredog.

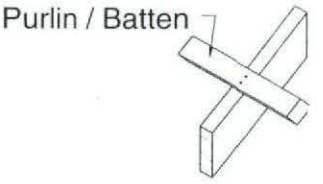
FIXING TYPE A
0.40kN

1 NAIL



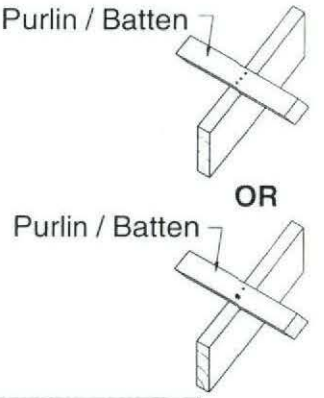
FIXING TYPE B
0.70kN

2 NAILS



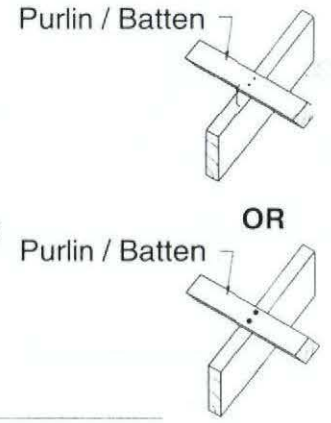
FIXING TYPE C
1.20kN

3 NAILS
OR
1 NAIL + 1 SCREW



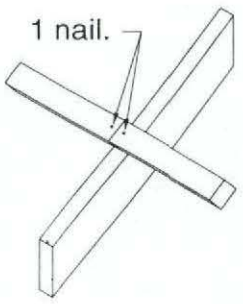
FIXING TYPE D
2.00kN

2 NAILS + 1 WIREDOG
OR
2 SCREWS

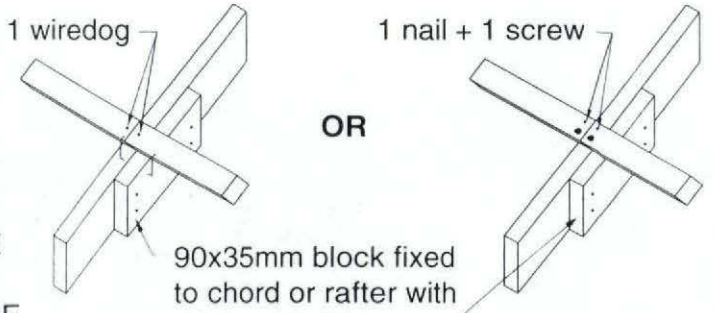


PURLIN / BATTEN SPLICE FIXING OPTIONS

NOTE:
Skew nail when fixing to 35mm rafter or truss.



FIXING TYPE A & B OVER PURLIN SPLICE



FIXING TYPE C & D OVER PURLIN SPLICE

LUMBERLOK® WALL FIXING CHART

01/10

STUD TO TOP PLATE FIXING SCHEDULE

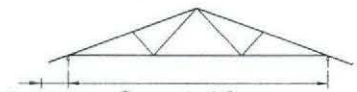
(ALTERNATIVE TO NZS 3604:1999 TABLE 8.18)

NOTE:

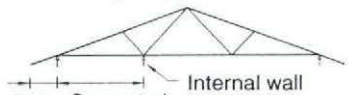
- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20kPa. Refer to table 8.19, NZS3604:1999 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made. Refer to the **LUMBERLOK®** Truss Fixing Chart.
- ★ Gable end wall top plate/stud connections require only 2x90x3.33 nails driven vertically into stud through top plate.
- ★ All Fixings assume top plate thickness of 45mm maximum.
- ★ Wall framing arrangements under girder trusses are not covered in this schedule

LOADED DIMENSION DEFINITION

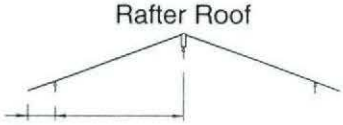
Standard truss



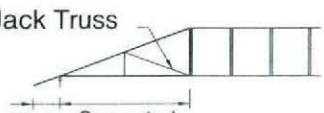
Internally supported truss



Rafter Roof



Jack Truss



$$\text{LOADED DIMENSION} = \frac{\text{SUPPORTED SPAN}}{2} + \text{OVERHANG}$$

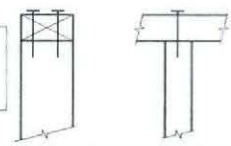
SELECTION CHART FOR FIXING LOADS - TOP PLATE TO STUD

Loaded Dimension	Light Roof Wind Zone				Heavy Roof Wind Zone			
	L	M	H	VH	L	M	H	VH
1.5	A	A	B	B	A	A	B	B
2.0	A	B	B	C	A	A	B	B
2.5	A	B	C	C	A	A	B	C
3.0	B	B	C	D	A	A	B	C
3.5	B	B	C	D	A	A	B	D
4.0	B	C	D	D	A	A	C	D
4.5	B	C	D	D	A	B	C	D
5.0	B	C	D	D	A	B	C	D
5.5	B	C	D	D	A	B	C	D
6.0	B	C	D	-	A	B	D	D

- All studs at 600 crs.
- For studs at 400 crs decrease loaded dimension by 33%.
- All trusses at 900 crs.
- For trusses at 1200 crs increase loaded dimension by 33%.

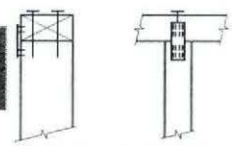
FIXING OPTION:

FIXING TYPE A 0.7kN



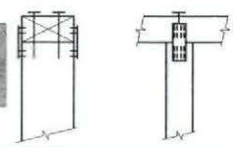
2/90x3.33 plain steel wire nails driven vertically into stud.

FIXING TYPE B 1.7kN



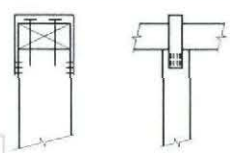
2/90x3.33 plain steel wire nails driven vertically into stud, plus single **TYLOK 2T4** plate.

FIXING TYPE C 2.7kN



2/90x3.33 plain steel wire nails driven vertically into stud, plus pair **TYLOK 2T4** plates.

FIXING TYPE D 6.0kN

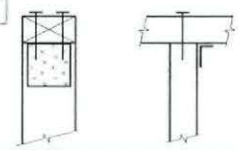


2/90x3.33 plain steel wire nails driven vertically into stud, plus **TYLOK Stud tie.**

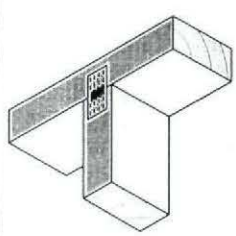
OR

Sheet brace strap 400 with 6/30x3.15 nails each stud face.

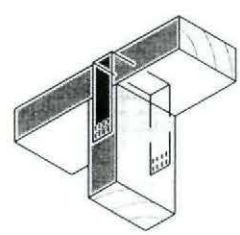
OR



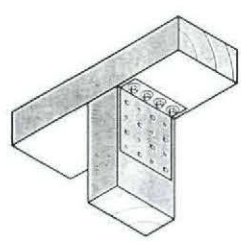
2/90x3.33 plain steel wire nails driven vertically into stud, plus **6kN Stud Anchor.**



TYLOK 2T4



TYLOK STUD TIE OR SHEET BRACE STRAP 400



6kN STUD ANCHOR

MiTek New Zealand Ltd.

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PO Box 58-014, Greenmount
Phone: (09) 274 7109
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HOME OF **GANG-NAIL®** BUILDING SYSTEMS

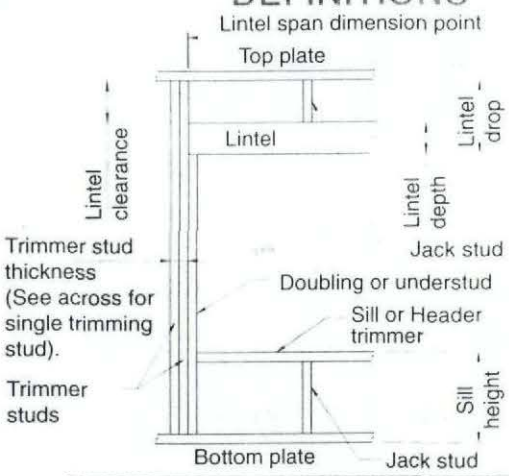
LUMBERLOK® WALL FIXING CHART

01/10

LINTEL FIXING SCHEDULE

(ALTERNATIVE TO NZS 3604:1999 TABLE 8.14 & FIGURE 8.12)

DEFINITIONS



SELECTION CHART FOR LINTEL FIXING

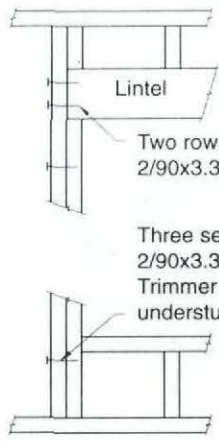
Lintel Span	Loaded Dimension *See reverse side	Light Roof Wind Zone				Heavy Roof Wind Zone			
		L	M	H	VH	L	M	H	VH
1.5	2.0	A	A	B	B	A	A	B	B
	3.0	A	B	B	C	A	A	B	B
	4.0	A	B	C	C	A	A	B	C
	5.0	B	B	C	C	A	A	C	C
	6.0	B	B	C	D	A	A	C	C
2.0	2.0	A	B	B	C	A	A	B	B
	3.0	A	B	C	C	A	A	B	C
	4.0	B	B	C	C	A	A	C	C
	5.0	B	C	C	D	A	A	C	C
	6.0	B	C	C	D	A	B	C	D
2.4	2.0	A	B	B	C	A	A	B	B
	3.0	B	B	C	C	A	A	C	C
	4.0	B	C	C	D	A	A	C	C
	5.0	B	C	C	D	A	B	C	D
	6.0	B	C	D	D	A	B	C	D
3.0	2.0	A	B	C	C	A	A	B	C
	3.0	B	B	C	D	A	A	C	C
	4.0	B	C	C	D	A	B	C	D
	5.0	B	C	D	D	A	B	C	D
	6.0	C	C	D	-	A	B	D	D
3.6	2.0	B	B	C	C	A	A	B	C
	3.0	B	C	C	D	A	B	C	C
	4.0	B	C	D	D	A	B	C	D
	5.0	C	C	D	-	A	B	D	D
	6.0	C	D	D	-	A	B	D	-
4.2	2.0	B	B	C	C	A	A	C	C
	3.0	B	C	D	D	A	B	C	D
	4.0	C	C	D	-	A	B	D	D
	5.0	C	D	D	-	A	B	D	-
	6.0	C	D	-	-	A	C	D	-
4.8	2.0	B	C	C	D	A	A	C	C
	3.0	B	C	D	D	A	B	C	D
	4.0	C	C	D	-	A	B	D	D
	5.0	C	D	-	-	A	B	D	-
	6.0	C	D	-	-	A	C	D	-

NOTES:

- Lintels accepting Girder trusses for ALL load cases use:
  Fixing type C where contributary area = 10m²
  Fixing type D where contributary area = 20m²
- All cases outside this require specific design

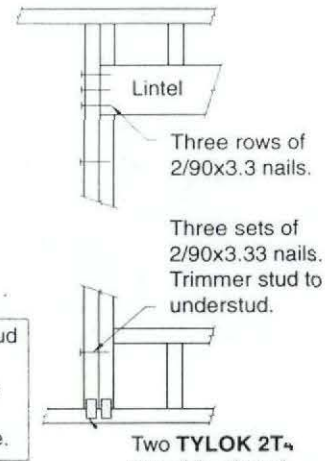
LINTEL FIXING TYPES

TYPE A
1.4kN



"All other nailing as Table 8.19"

TYPE B
4.0kN

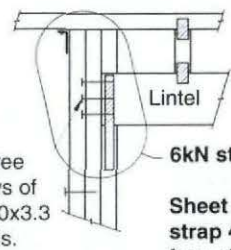


one side of stud.

"All other nailing as Table 8.19"

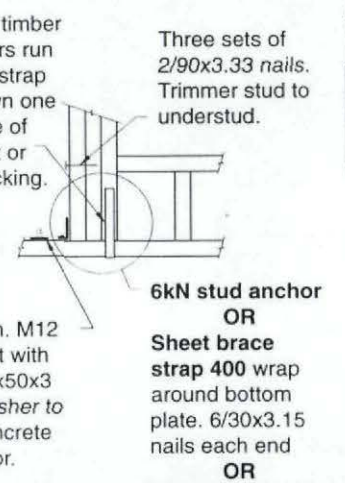
Fixing of jack stud to lintel & top plate, as per top plate schedule, see reverse side.

TYPE C
7.5kN

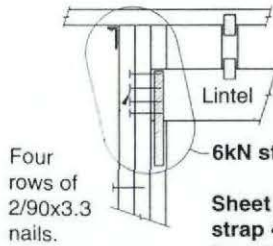


6kN stud anchor
OR
Sheet brace strap 400 one face of stud & lintel, 6/30x3.15 nails each end
OR
TYLOK Stud tie.

"All other nailing as Table 8.19"

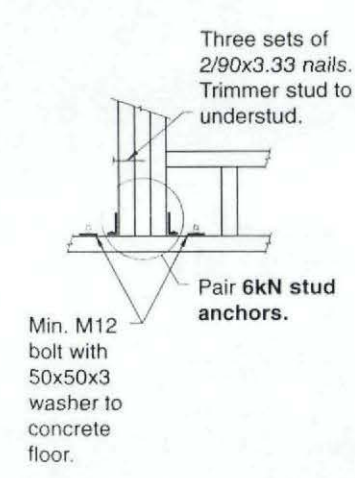


TYPE D
13.5kN



6kN stud anchor
OR
Sheet brace strap 400 one face of stud & lintel, 6/30x3.15 nails each end
OR
TYLOK Stud tie.

"All other nailing as Table 8.19"



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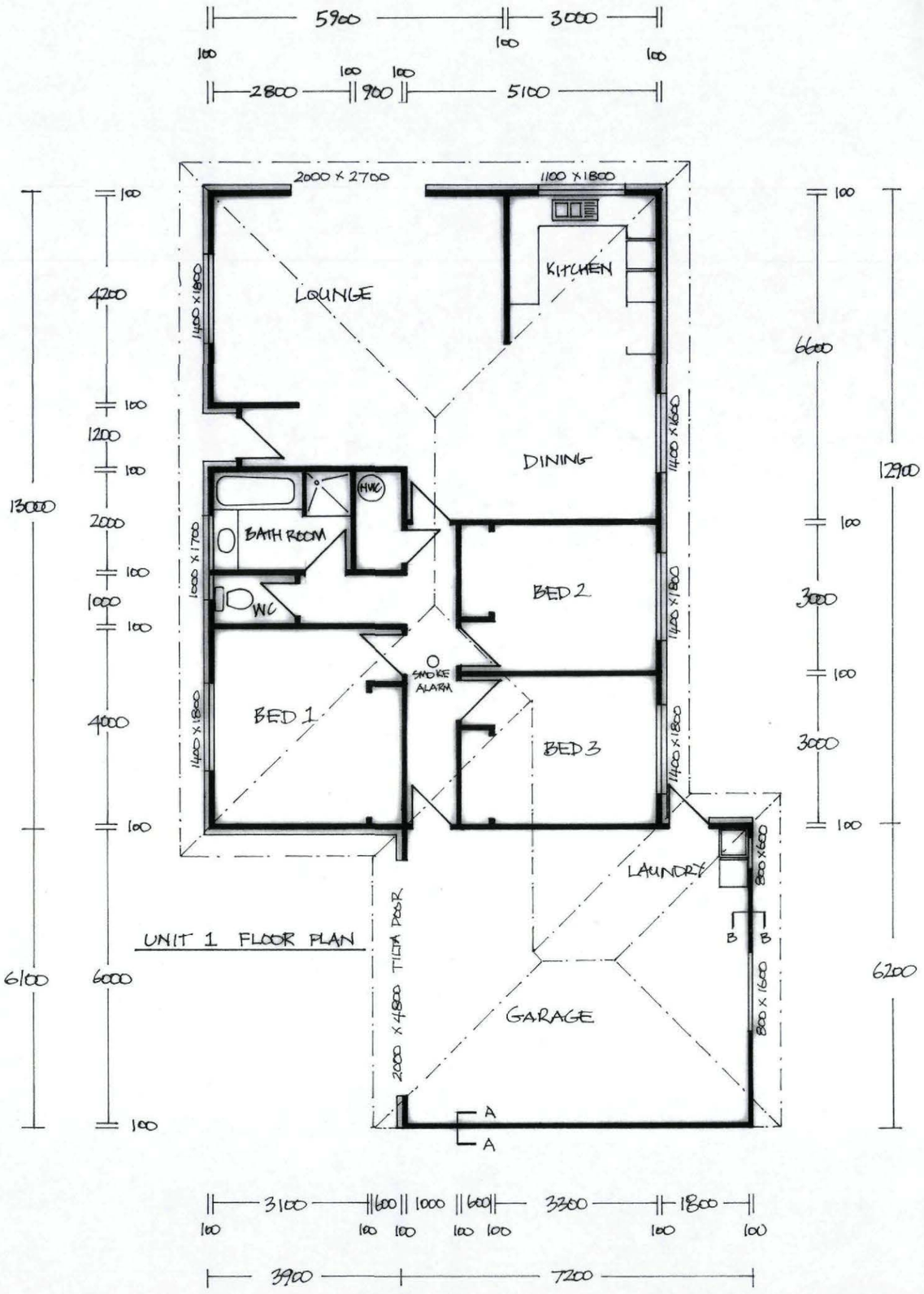
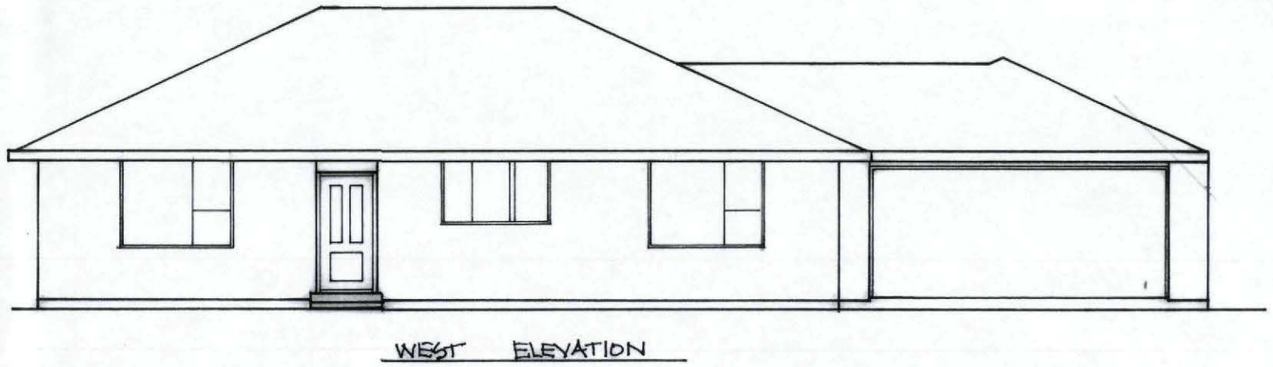
MR.A.C.MYLES

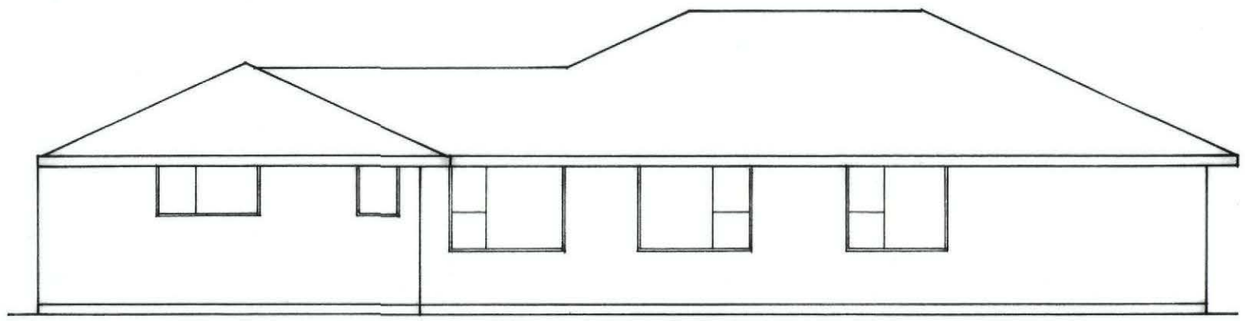
TAYLOR PASS ROAD BLENHEIM



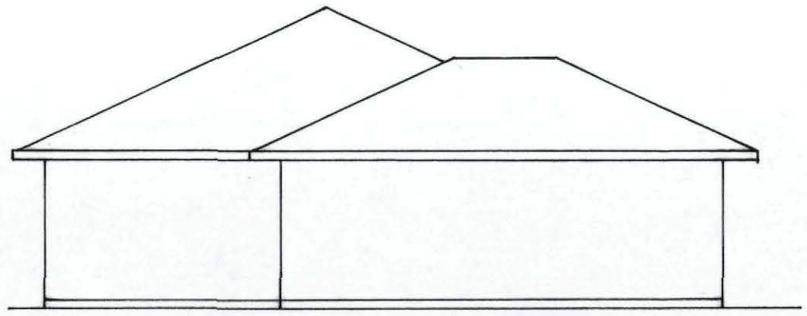


WEST ELEVATION

NORTH ELEVATION

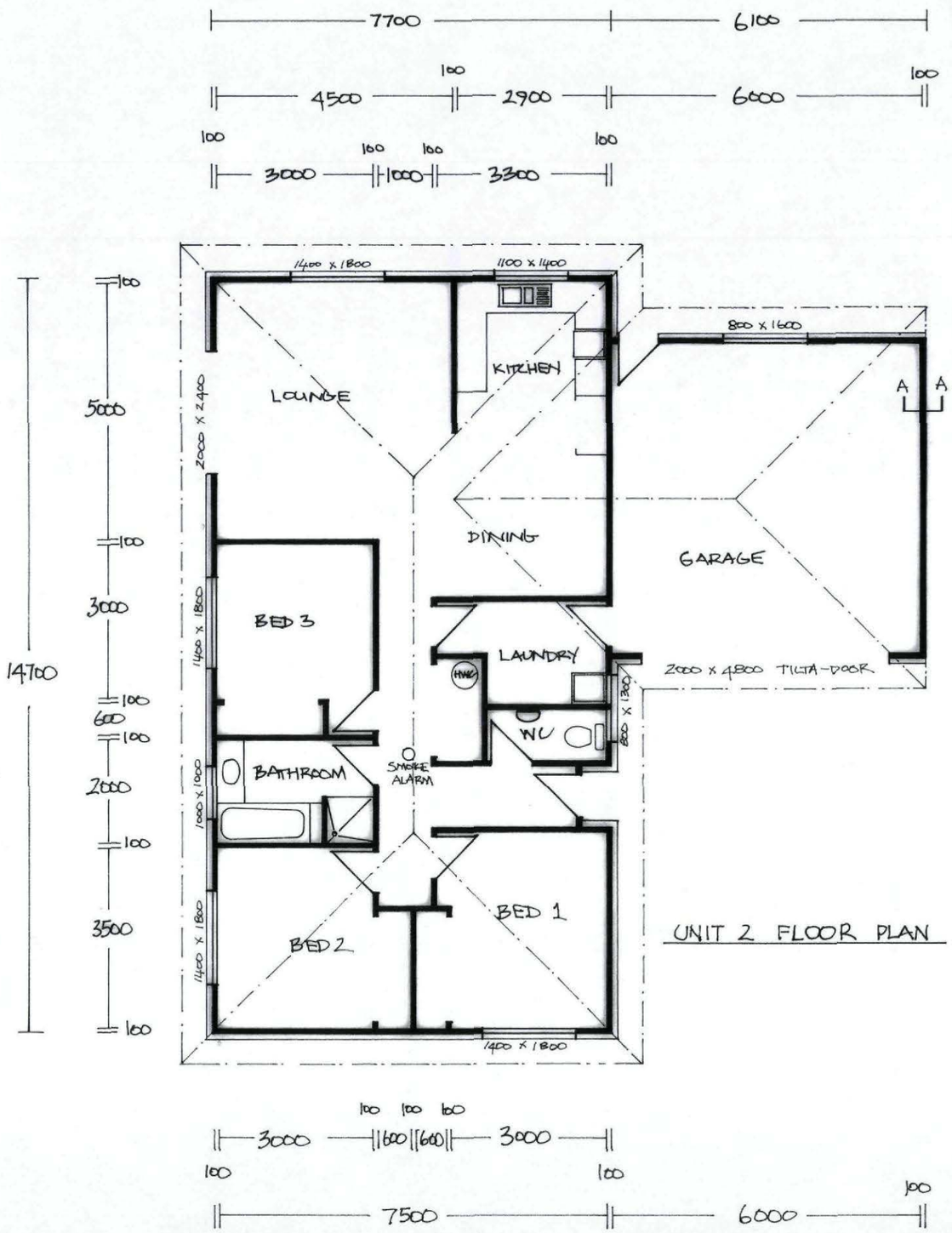


EAST ELEVATION

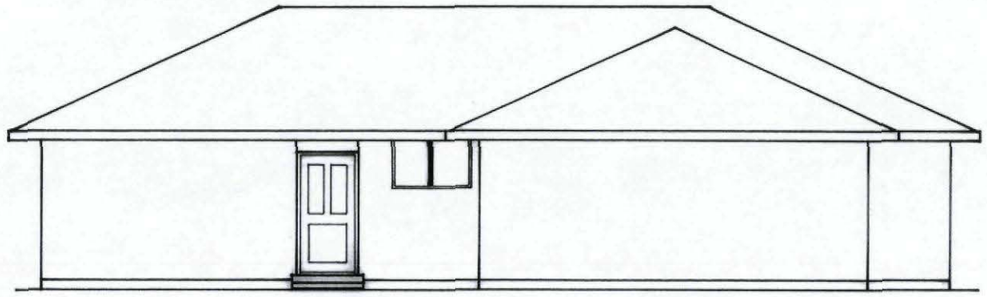


SOUTH ELEVATION

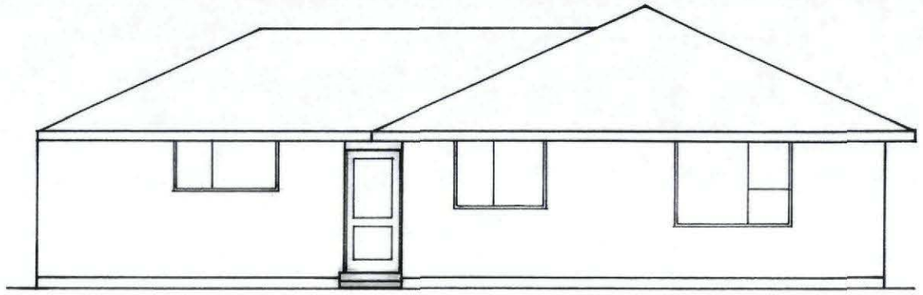
UNIT 1 FLOOR PLAN



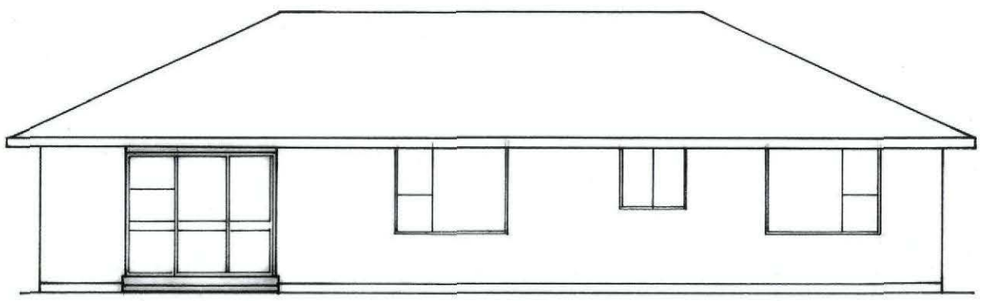
UNIT 2 FLOOR PLAN



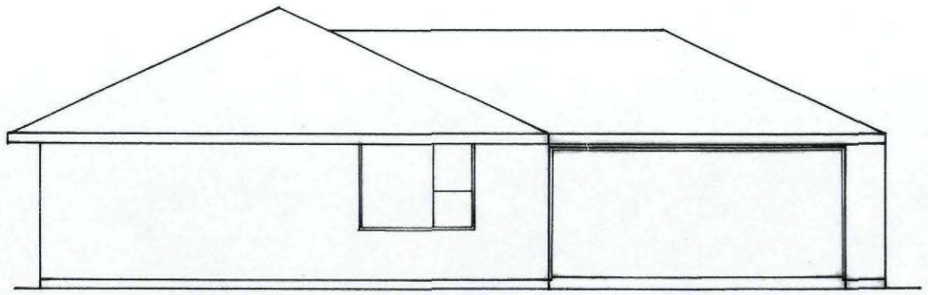
EAST ELEVATION



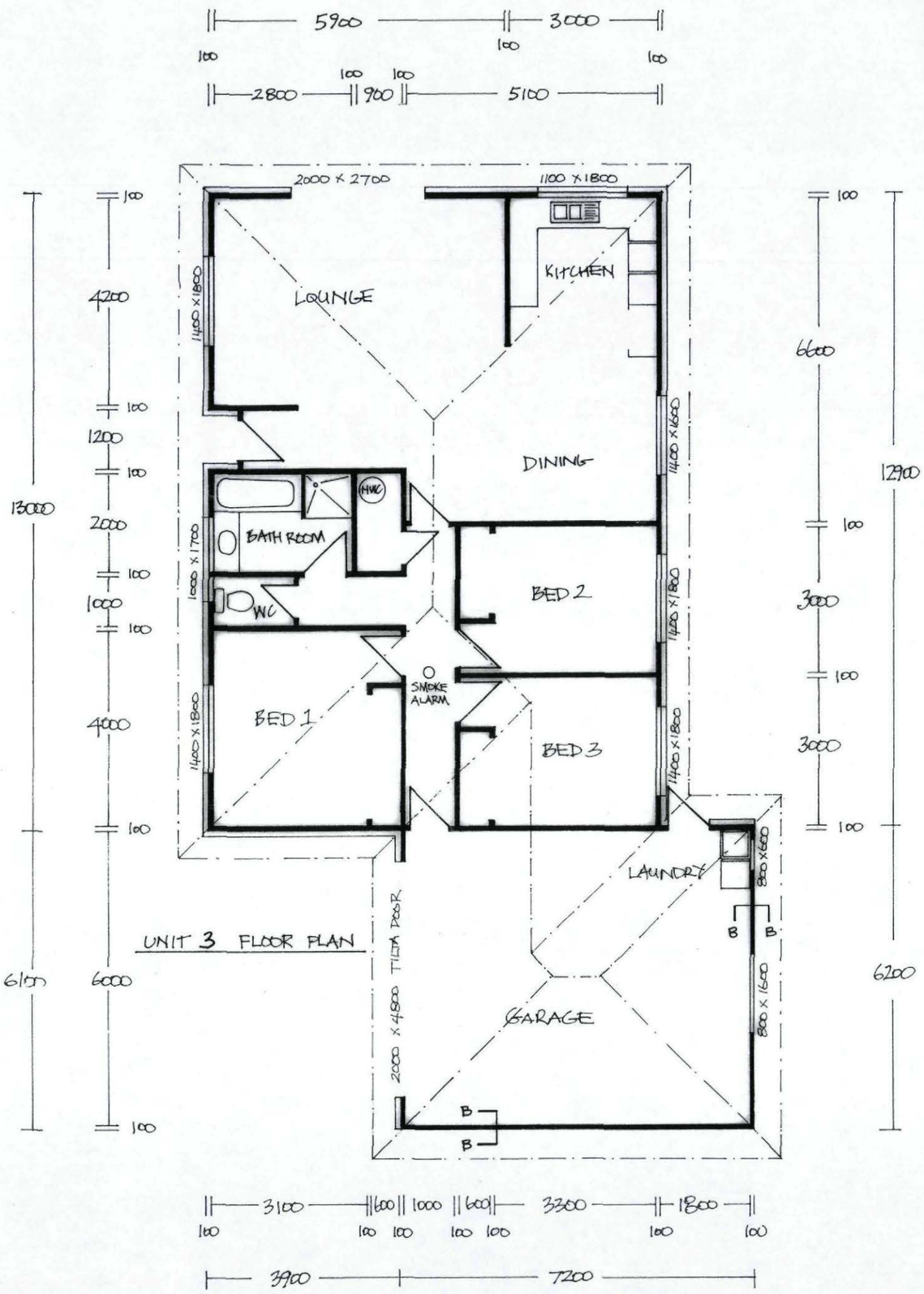
NORTH ELEVATION



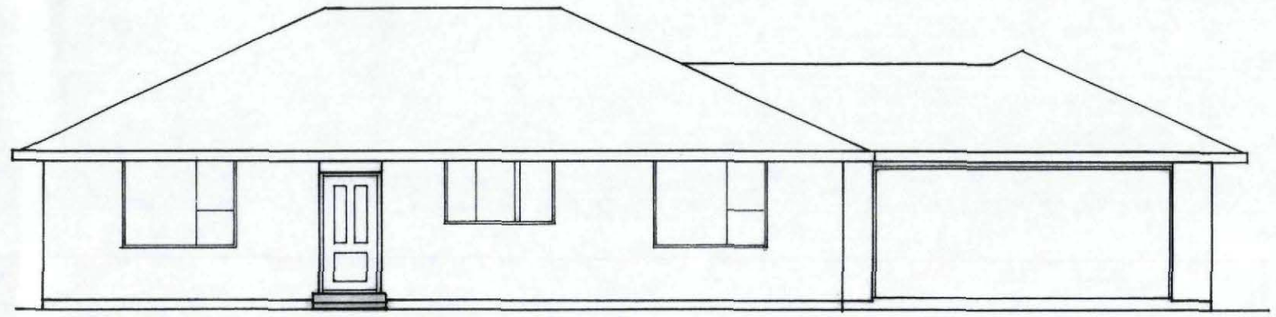
WEST ELEVATION



SOUTH ELEVATION

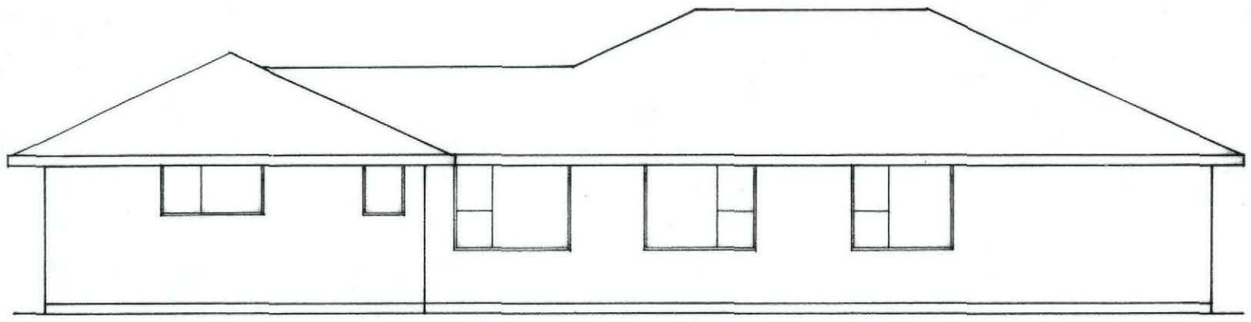


UNIT 3 FLOOR PLAN

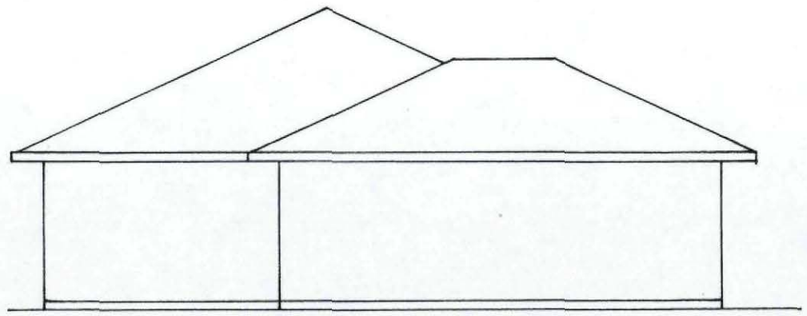


WEST ELEVATION

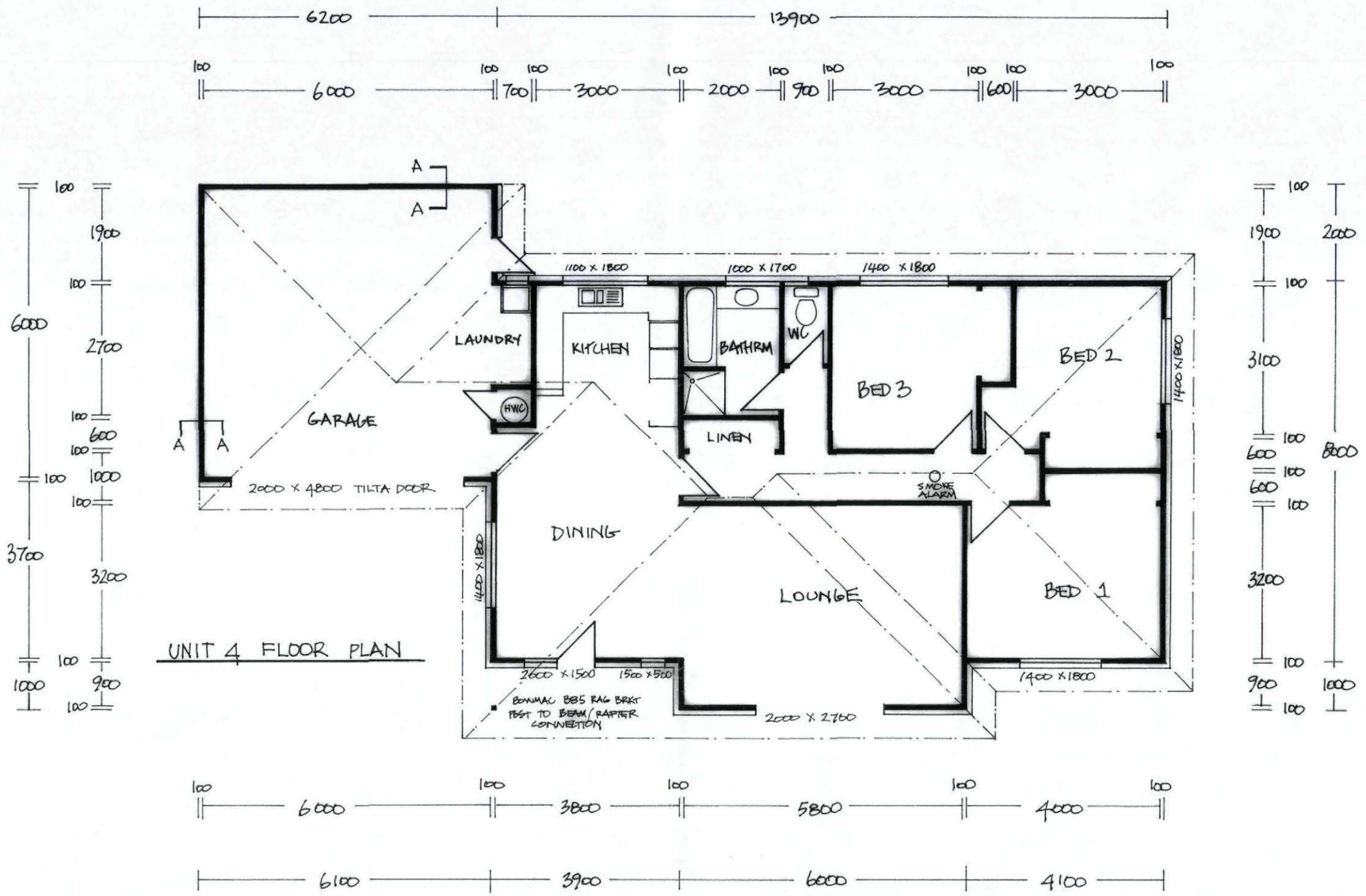
NORTH ELEVATION



EAST ELEVATION

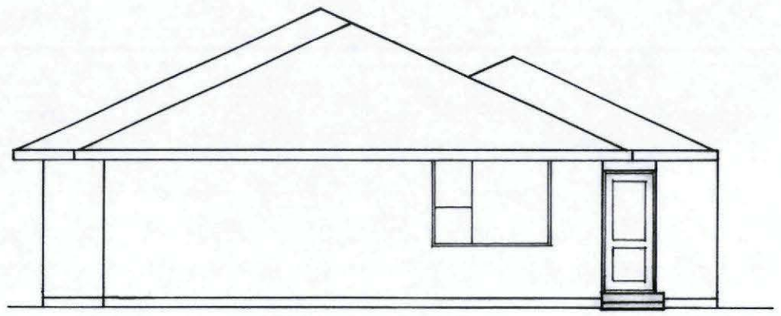


SOUTH ELEVATION



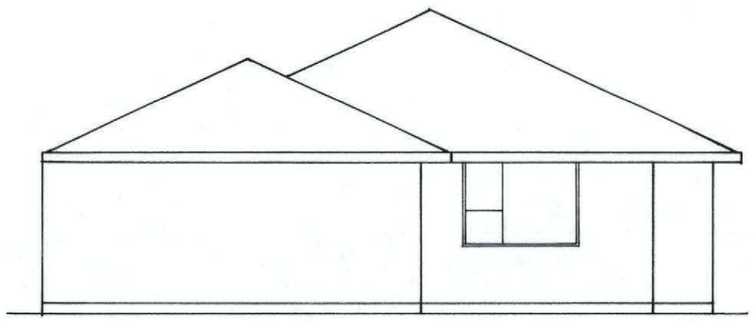
UNIT 4 FLOOR PLAN

WEST ELEVATION

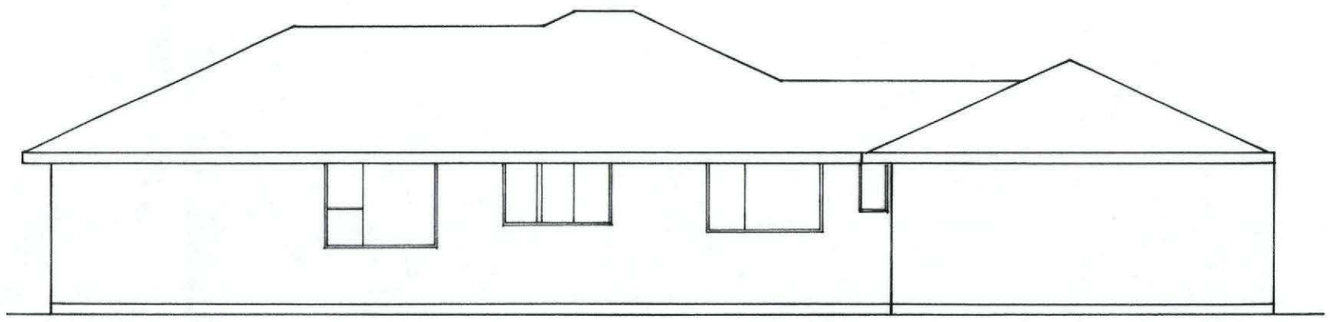


SOUTH ELEVATION

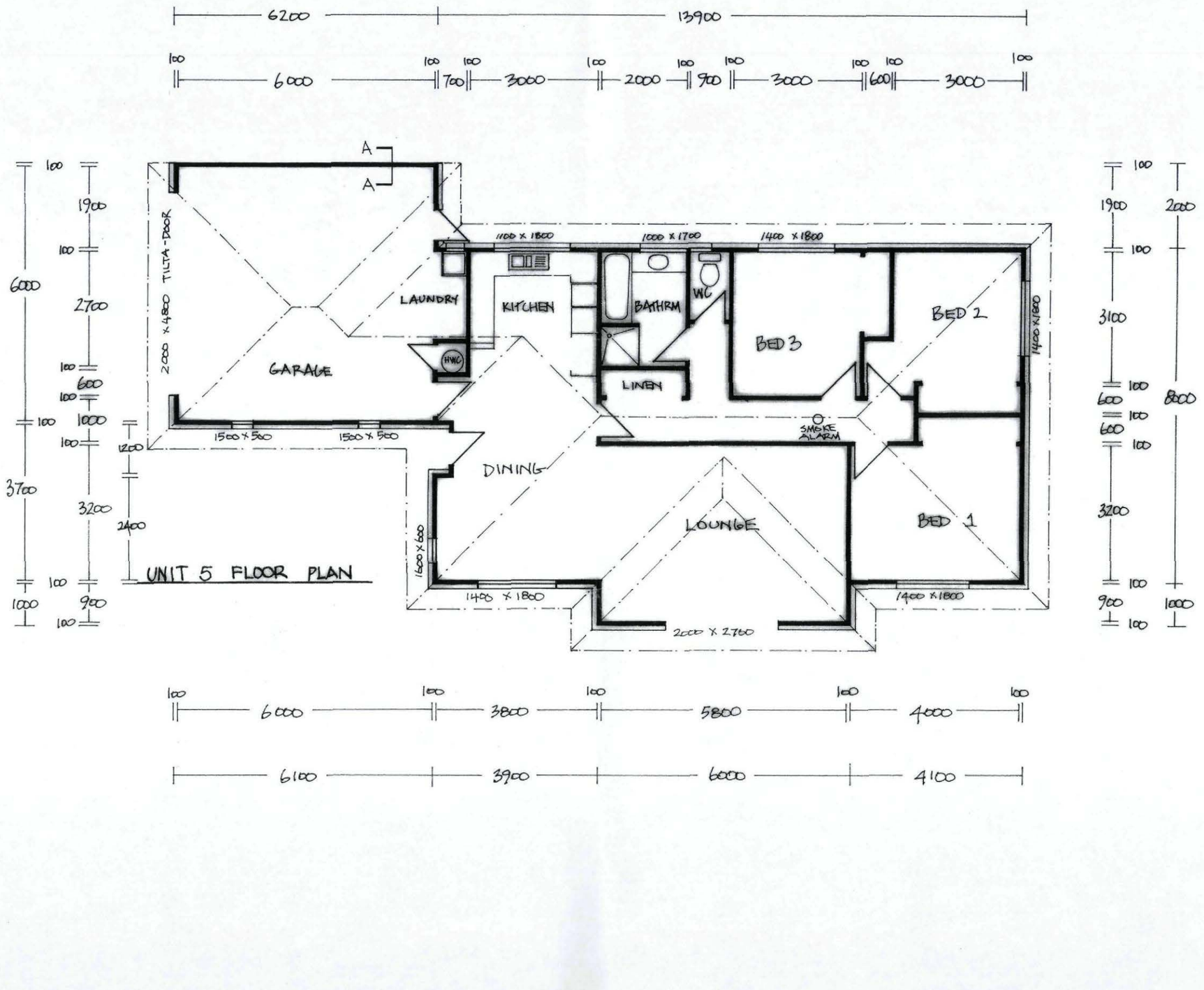
UNIT 4 ELEVATIONS



NORTH ELEVATION



EAST ELEVATION


6200
13900
100
6000
100
700
3000
2000
900
3000
600
3000
A
A
2000 x 4800 TILTA-DOOR
1100 x 1800
1000 x 1700
1400 x 1800
LAUNDRY
KITCHEN
BATHRM
WC
BED 2
BED 3
HWC
GARAGE
LINEN
SMOKE ALARM
1500 x 500
1500 x 500
DINING
LOUNGE
BED 1
1600 x 600
1400 x 1800
1400 x 1800
2000 x 2700
UNIT 5 FLOOR PLAN
100
1900
100
2700
100
600
100
1000
100
1200
2400
3700
3200
100
1000
100
900
100
100
1900
100
3100
100
600
100
600
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3200
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2000
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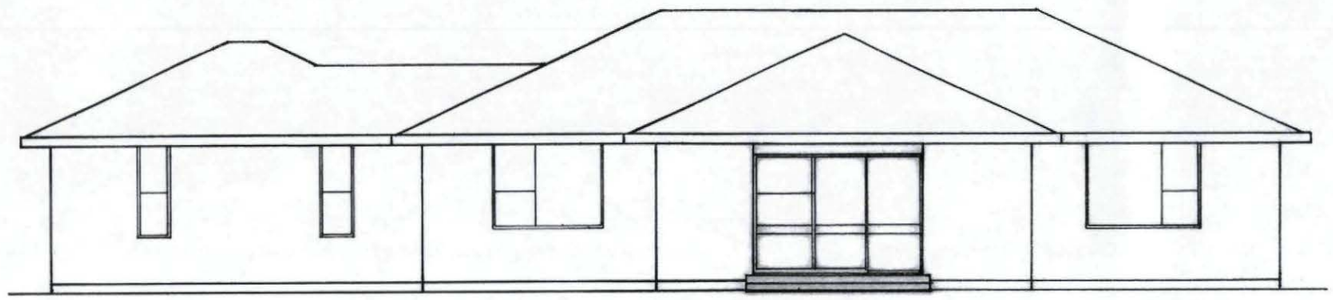
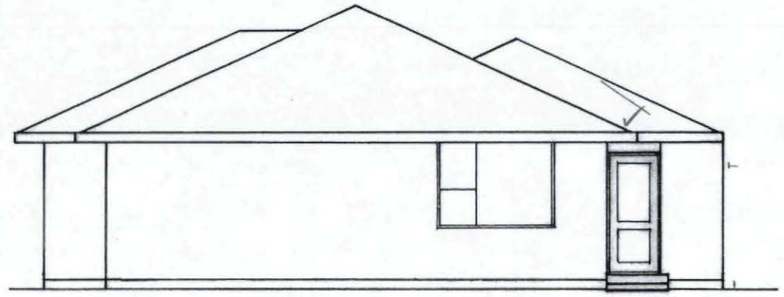
3800
5800
4000
6100
3900
6000
4100



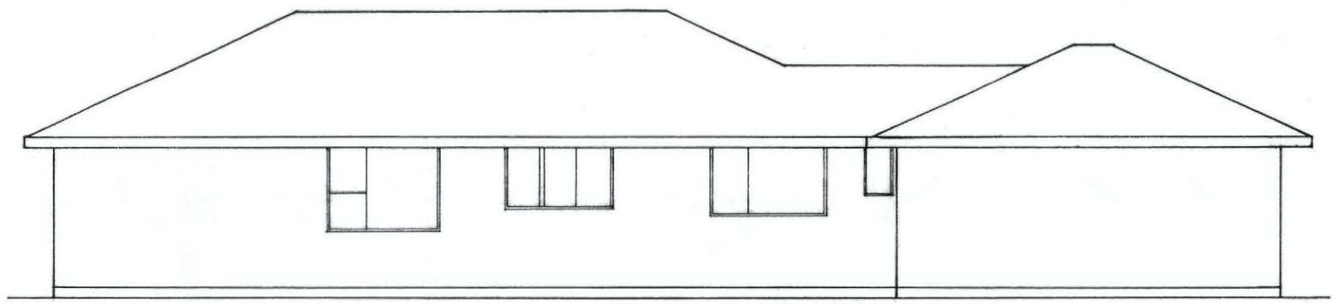
WEST ELEVATION



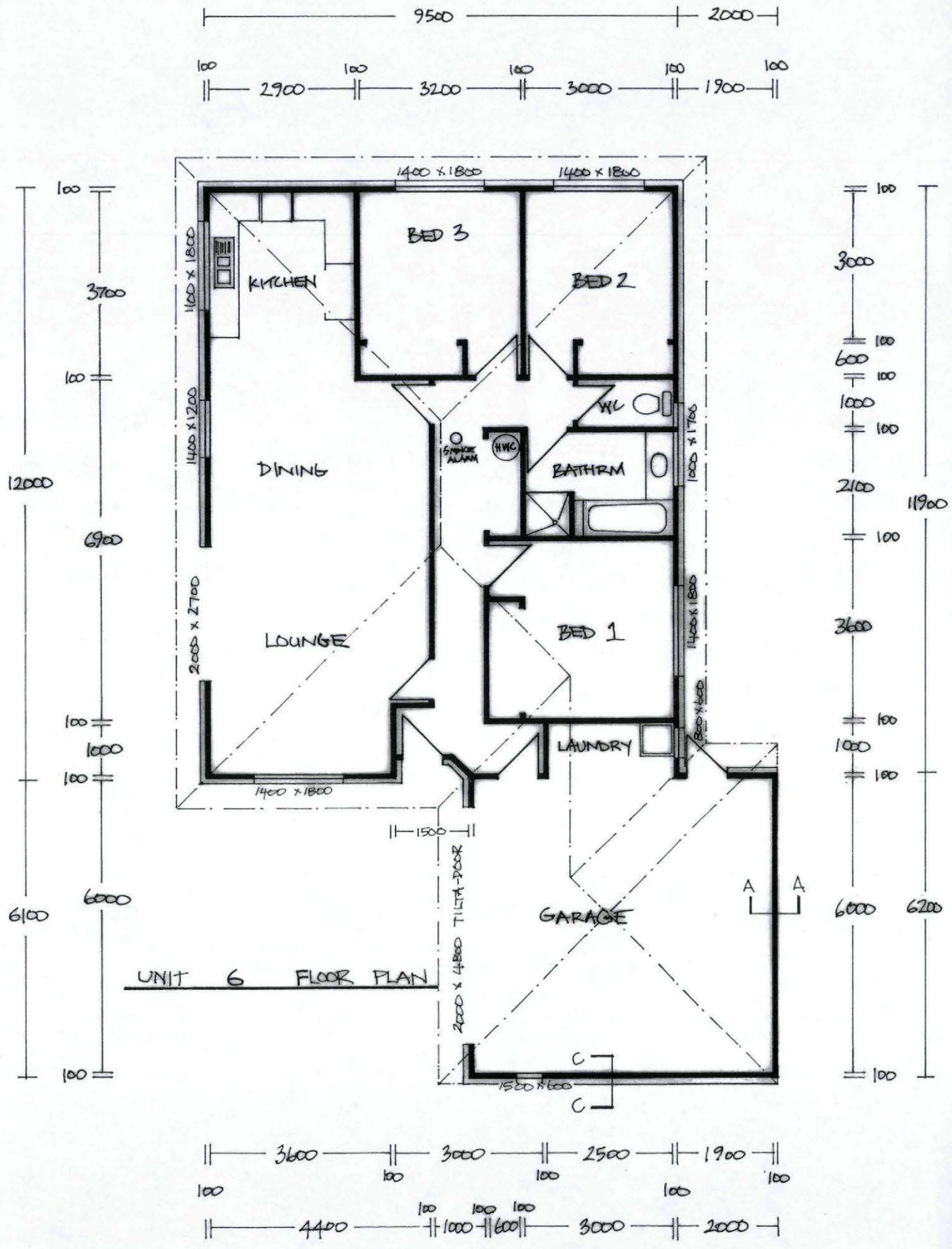
SOUTH ELEVATION

UNIT 5 ELEVATIONS

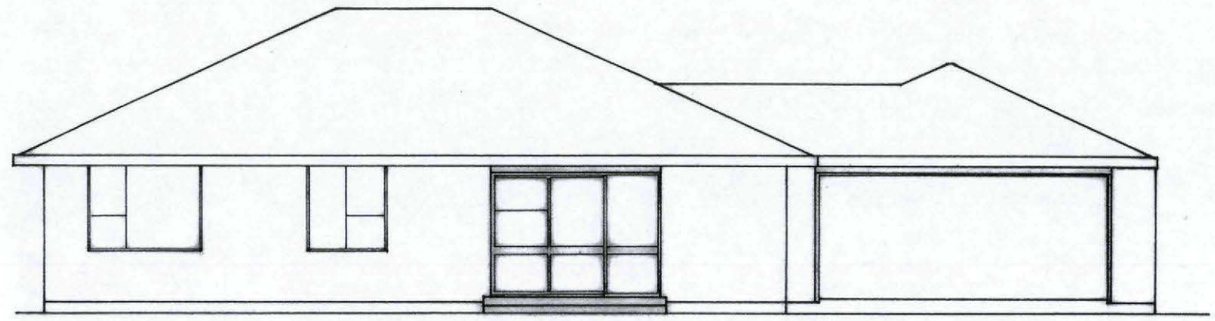
NORTH ELEVATION



EAST ELEVATION

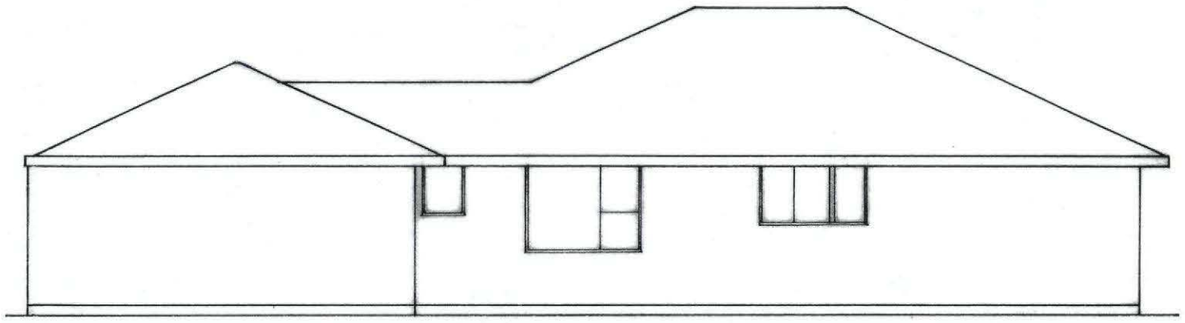


UNIT 6 FLOOR PLAN

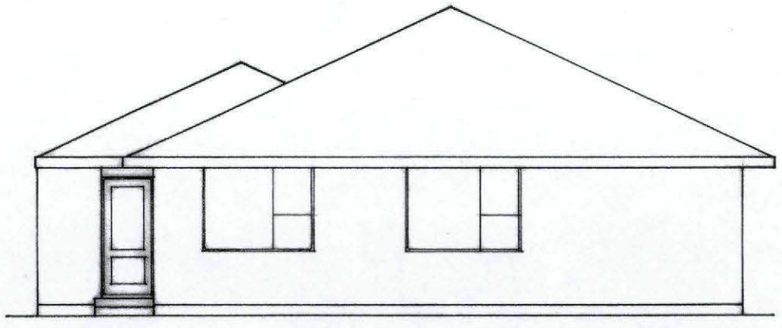


NORTH ELEVATION

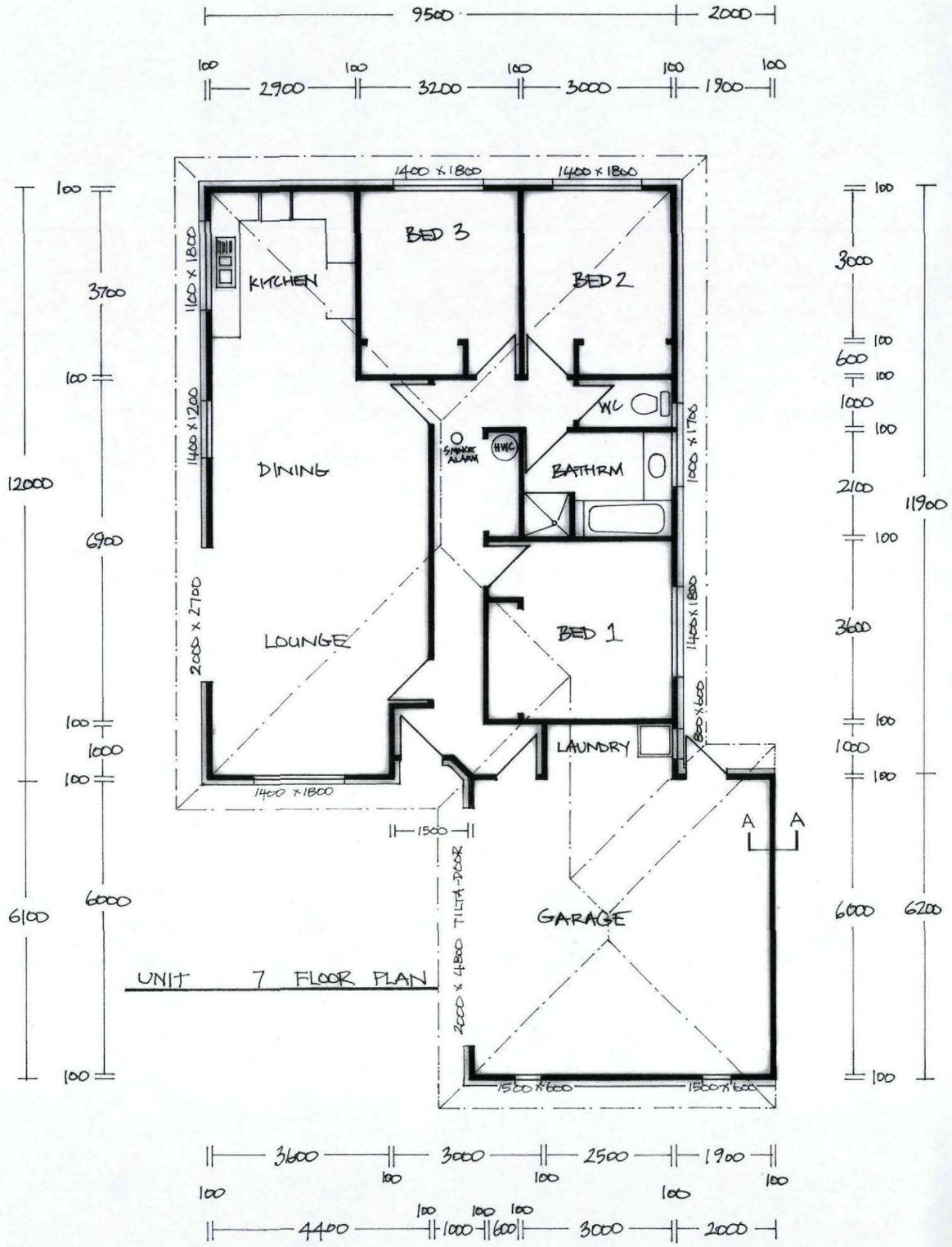
WEST ELEVATION

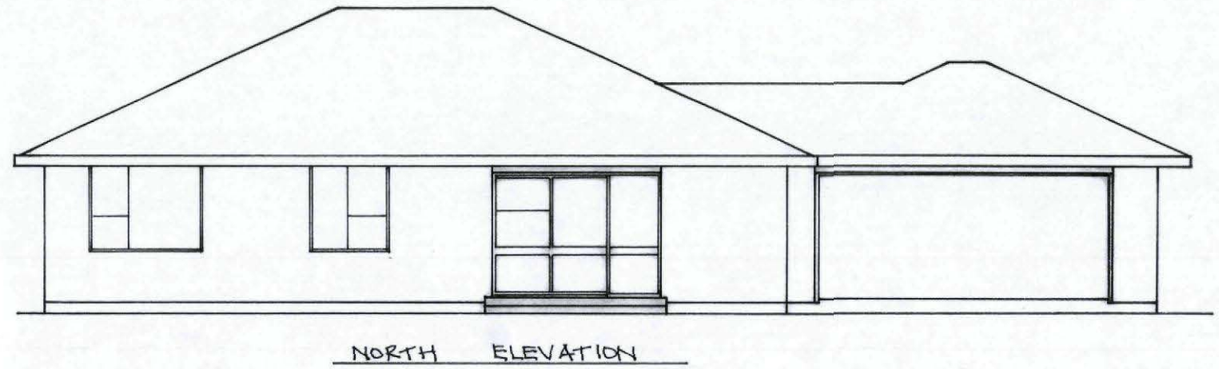


SOUTH ELEVATION



EAST ELEVATION

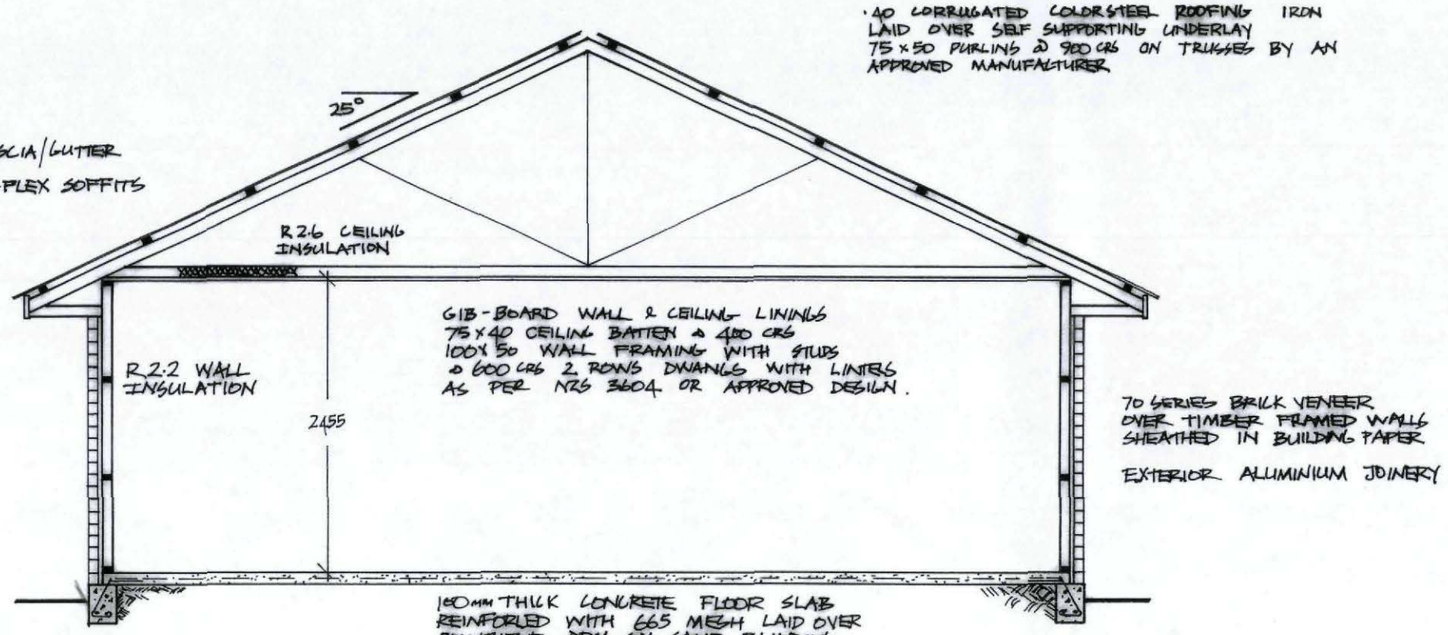

9500
2000
100
2900
3200
3000
1900
1400 x 1800
BED 3
BED 2
KITCHEN
1400 x 1200
DINING
WC
SMOKE ALARM
HWC
BATHRM
1800 x 1760
2000 x 2700
LOUNGE
BED 1
1400 x 1800
LAUNDRY
1500
A
A
GARAGE
2000 x 4800 TILT-A-DOOR
1500 x 600
12000
3700
6900
6100
6000
1000
3600
2500
4400
600
UNIT 7 FLOOR PLAN


NORTH ELEVATION

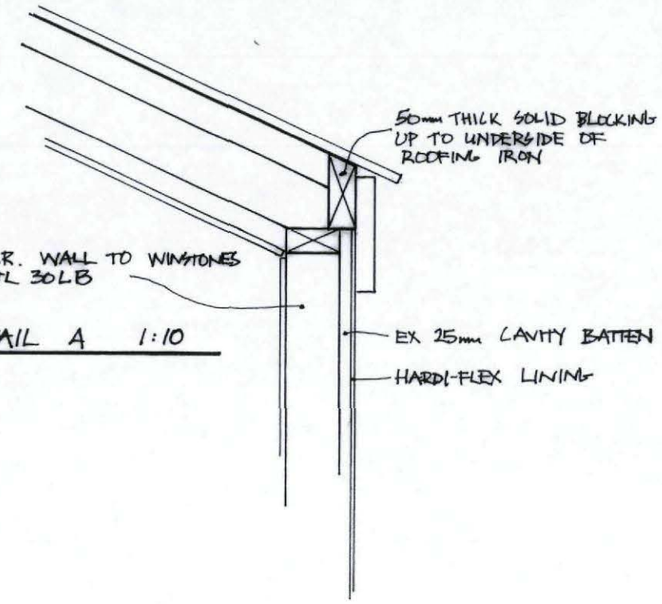

WEST ELEVATION


SOUTH ELEVATION

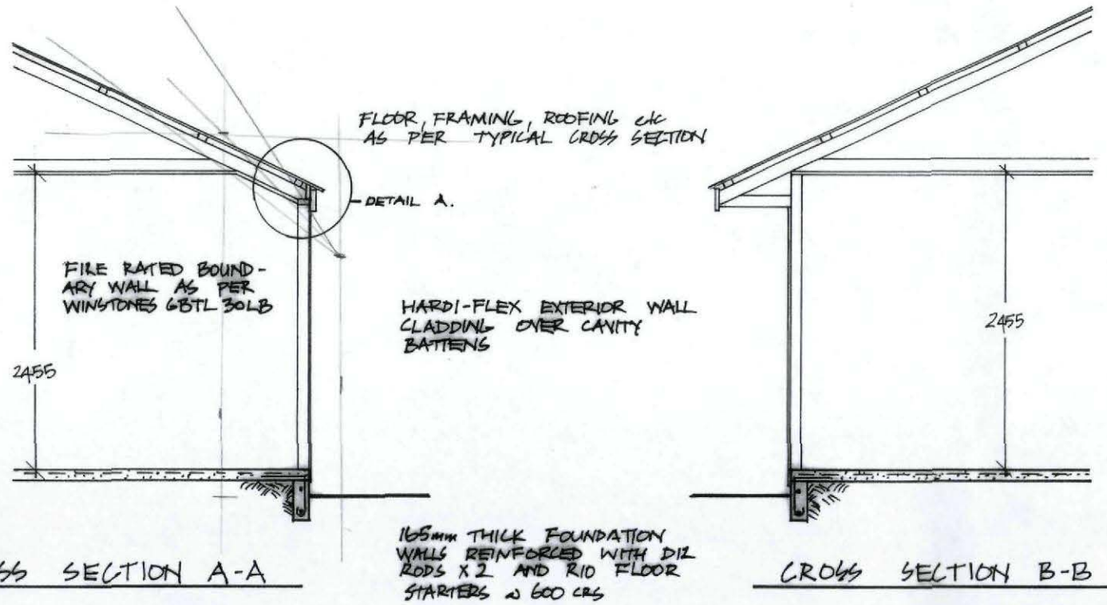

EAST ELEVATION



TYPICAL CROSS SECTION 1:50

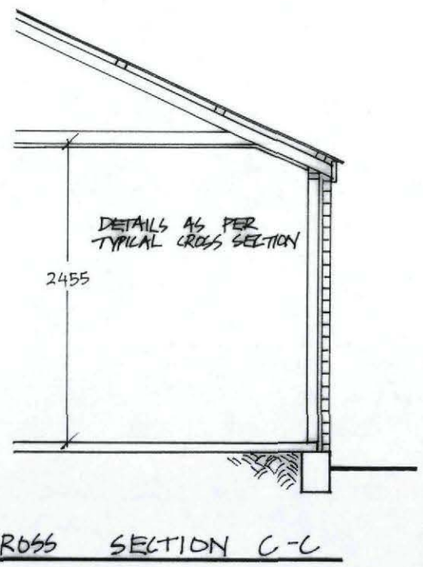


DETAIL A 1:10

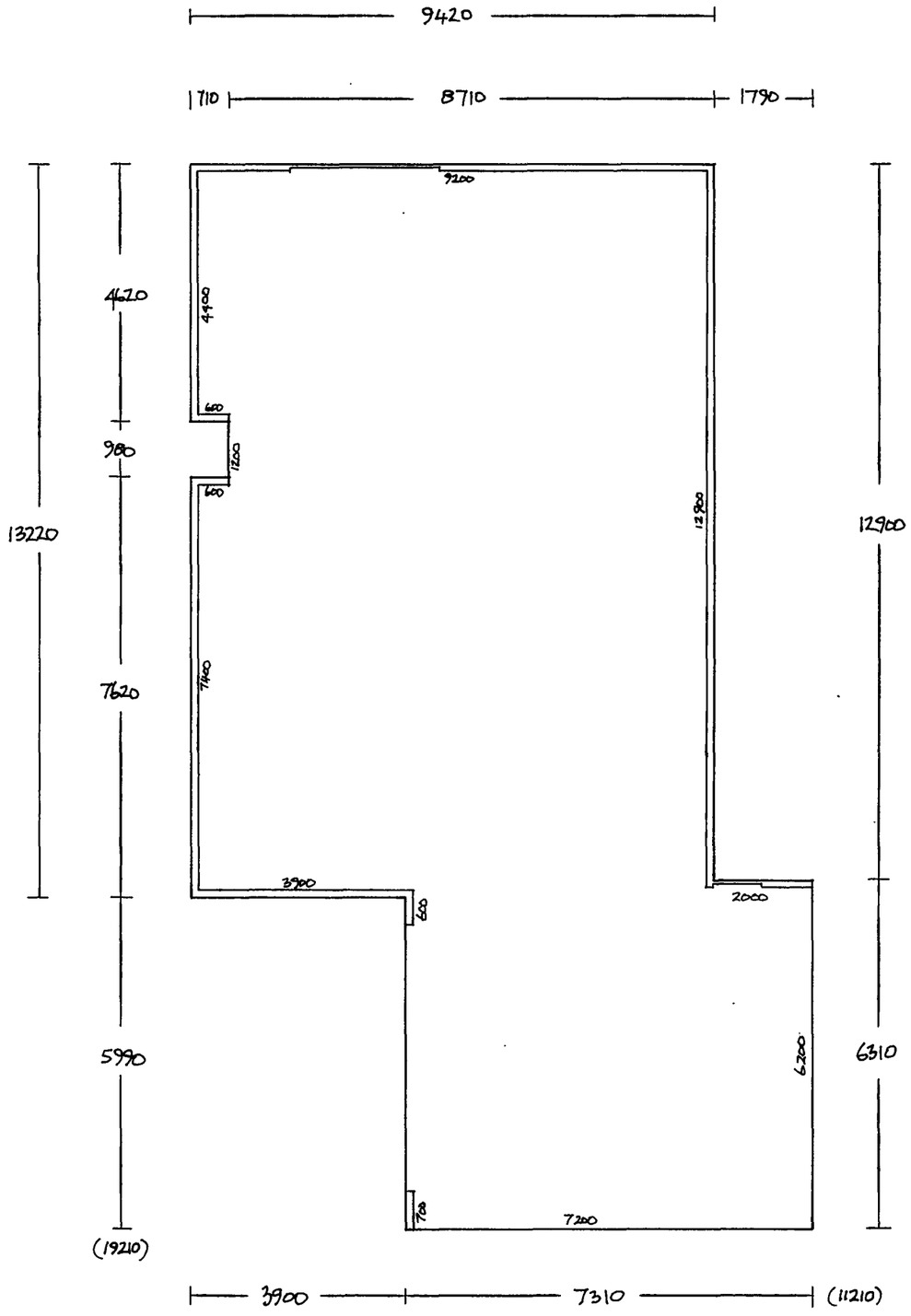


CROSS SECTION A-A

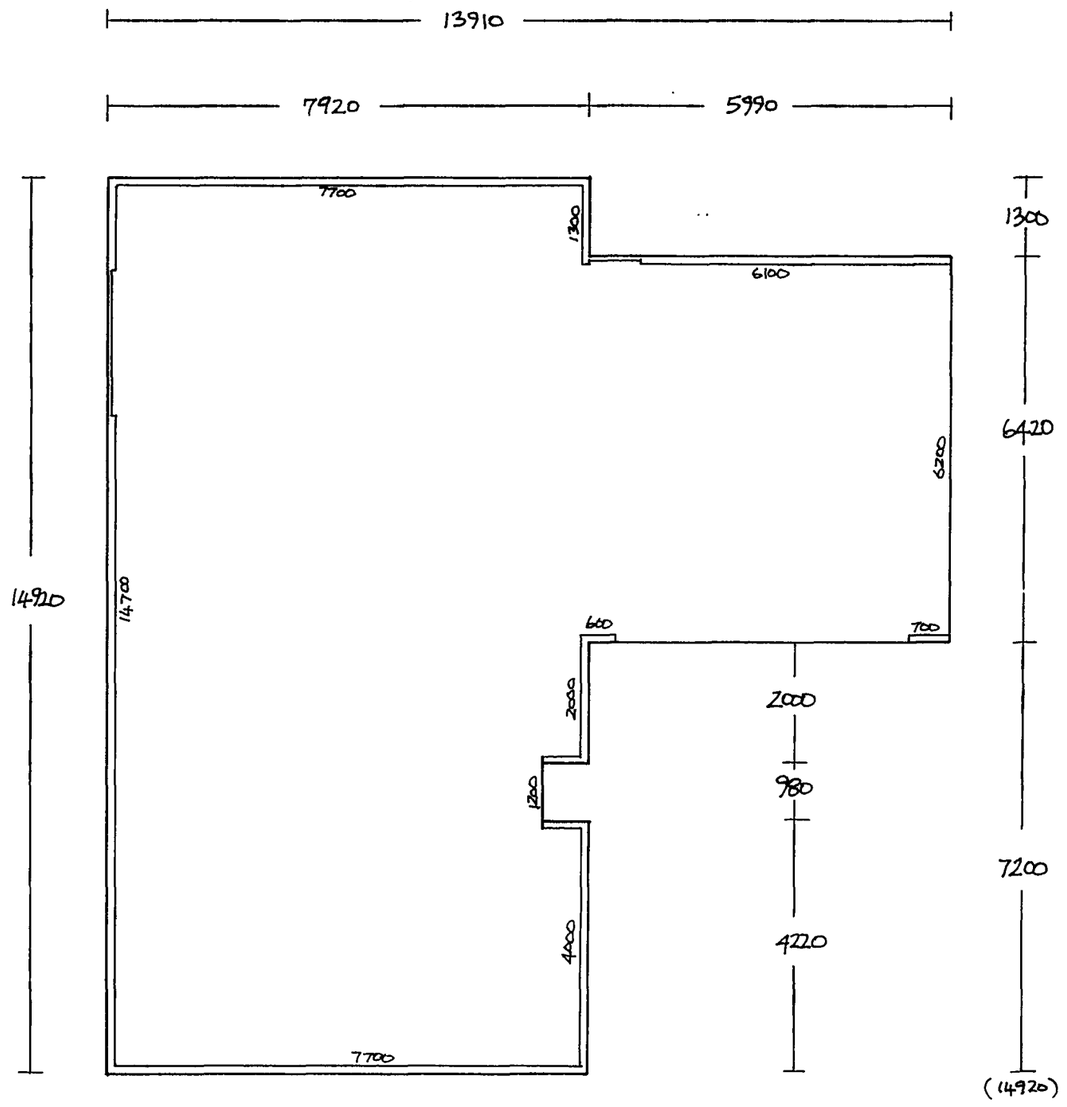
CROSS SECTION B-B



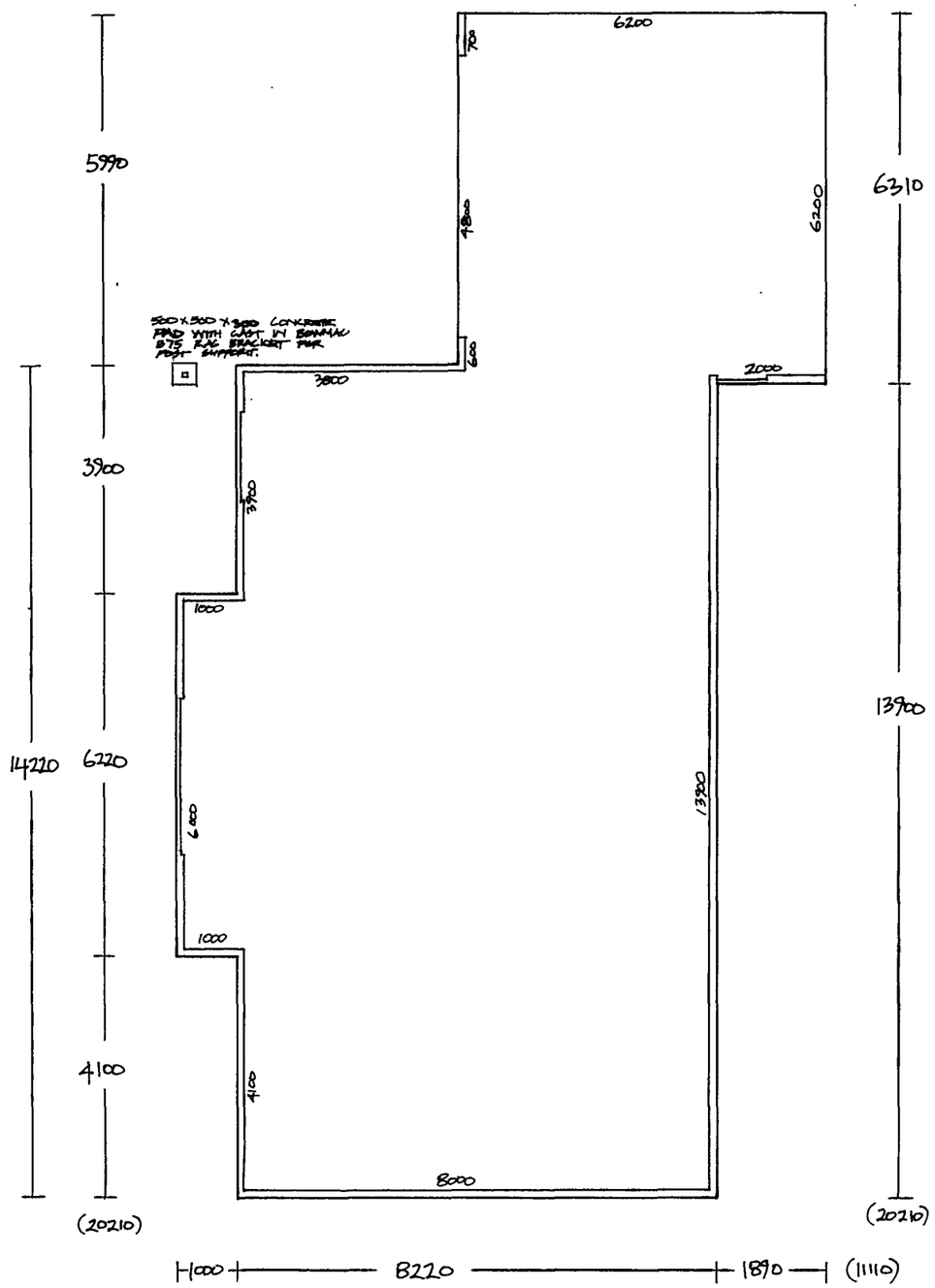
CROSS SECTION C-C



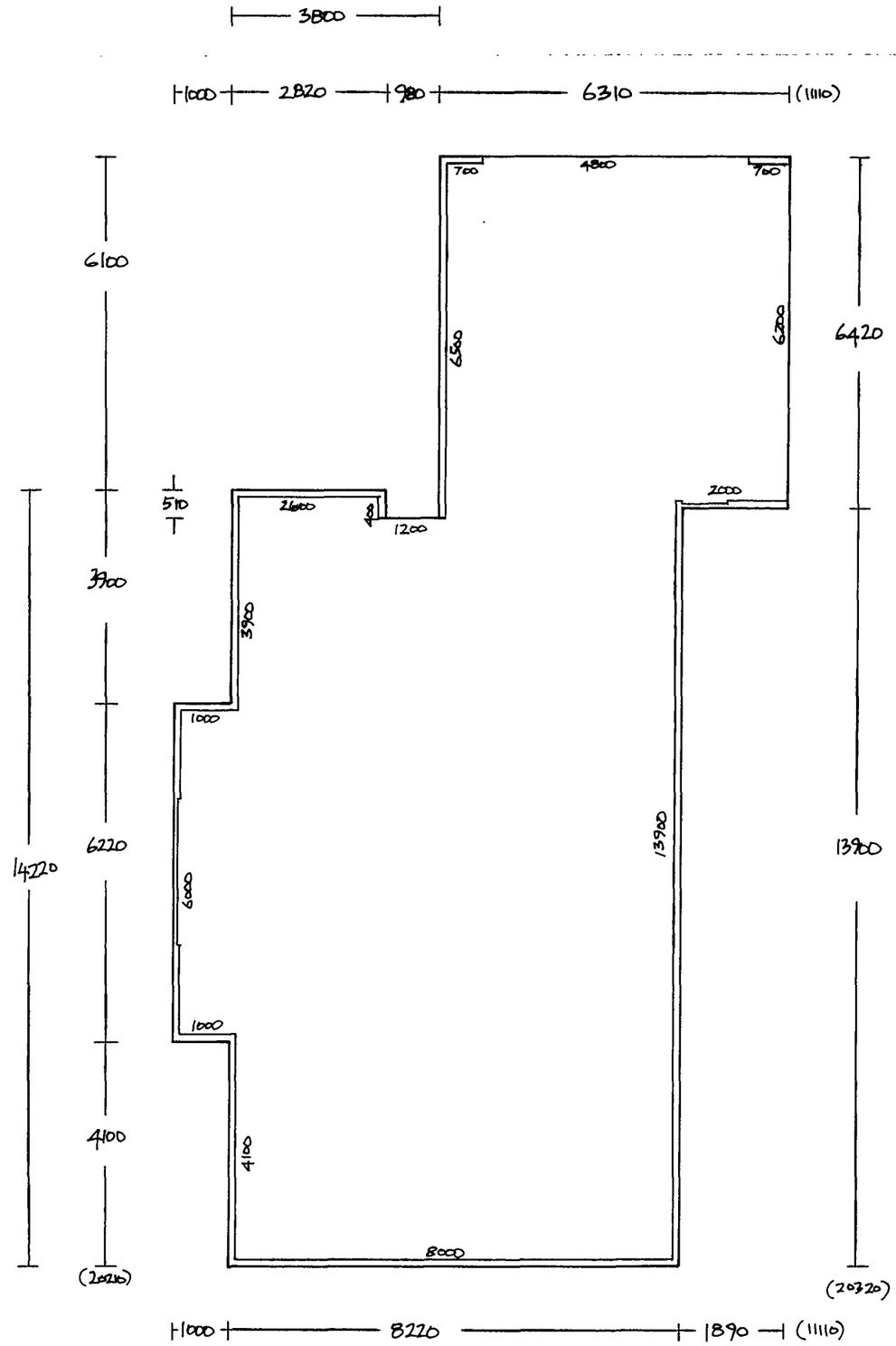
UNITS 1 & 3 FOUNDATION/SLAB PLAN



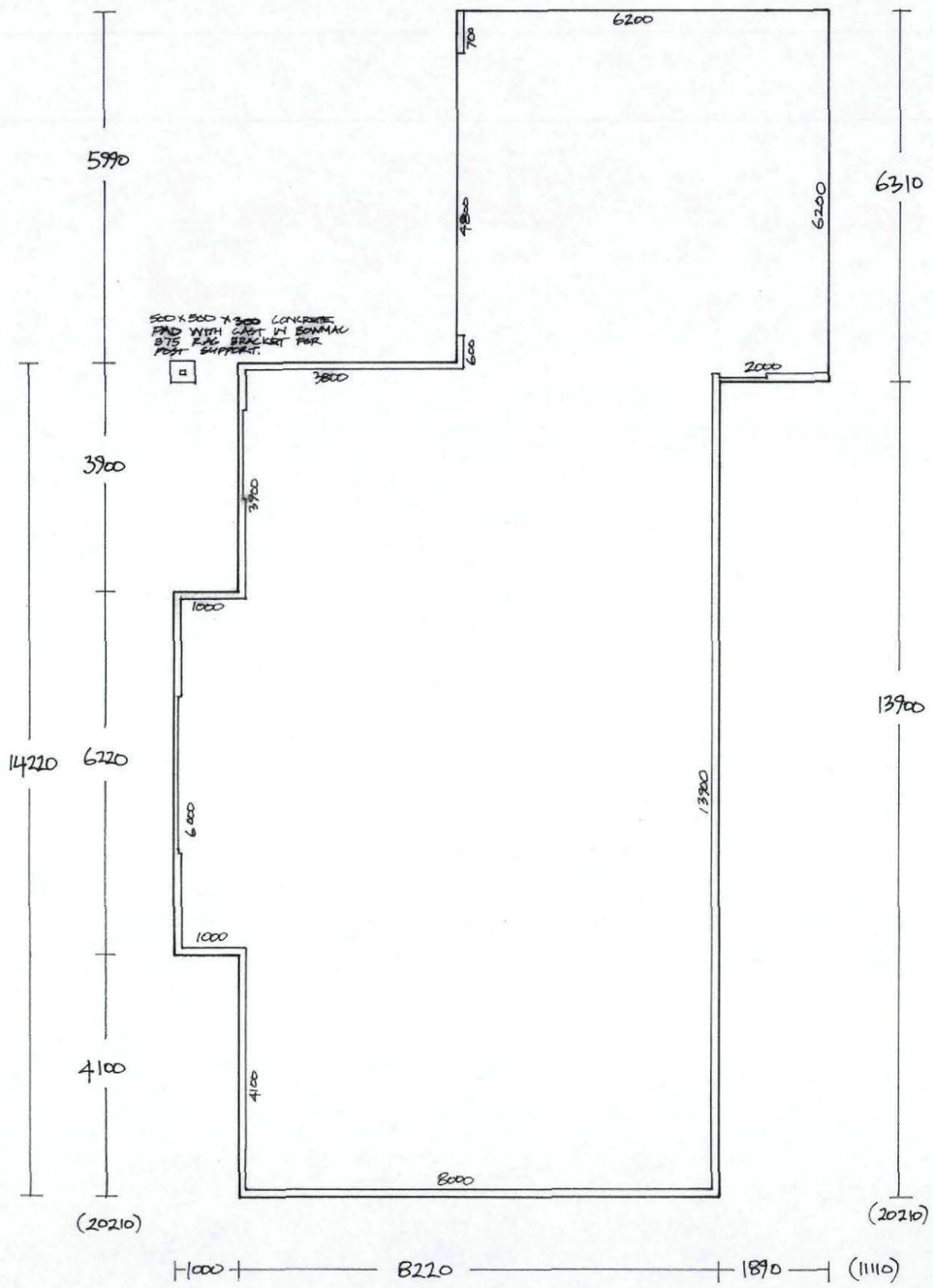
UNIT 2 FOUNDATION/SLAB PLAN



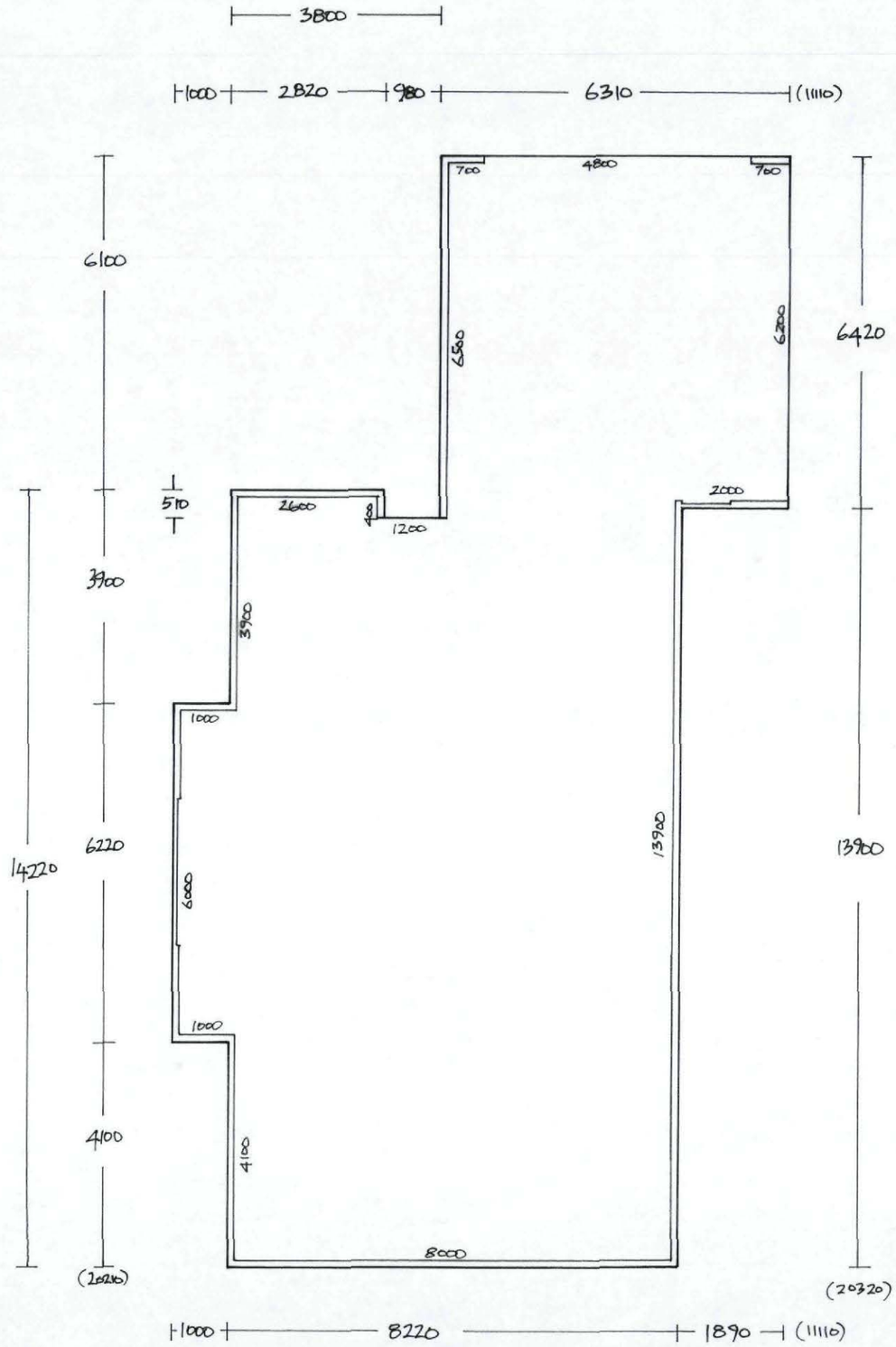
UNIT 4 FOUNDATION/SLAB PLAN



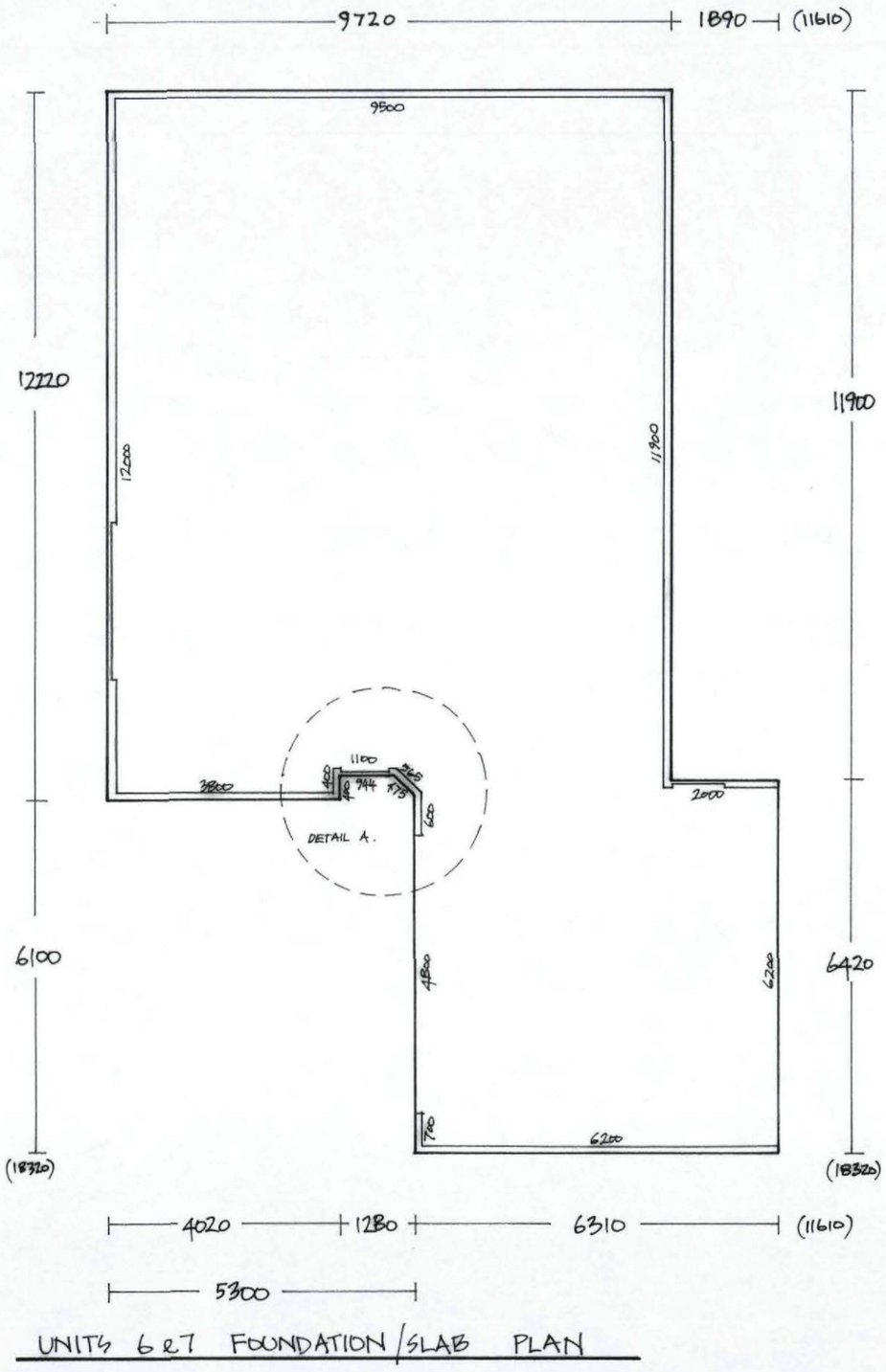
UNIT 5 FOUNDATION/SLAB PLAN



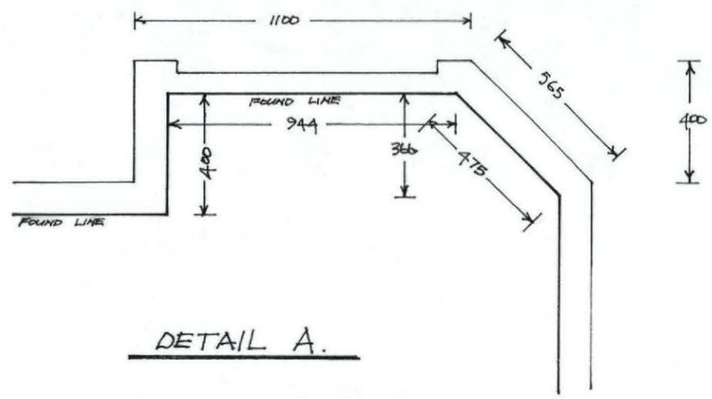
UNIT 4 FOUNDATION/SLAB PLAN



UNIT 5 FOUNDATION/SLAB PLAN

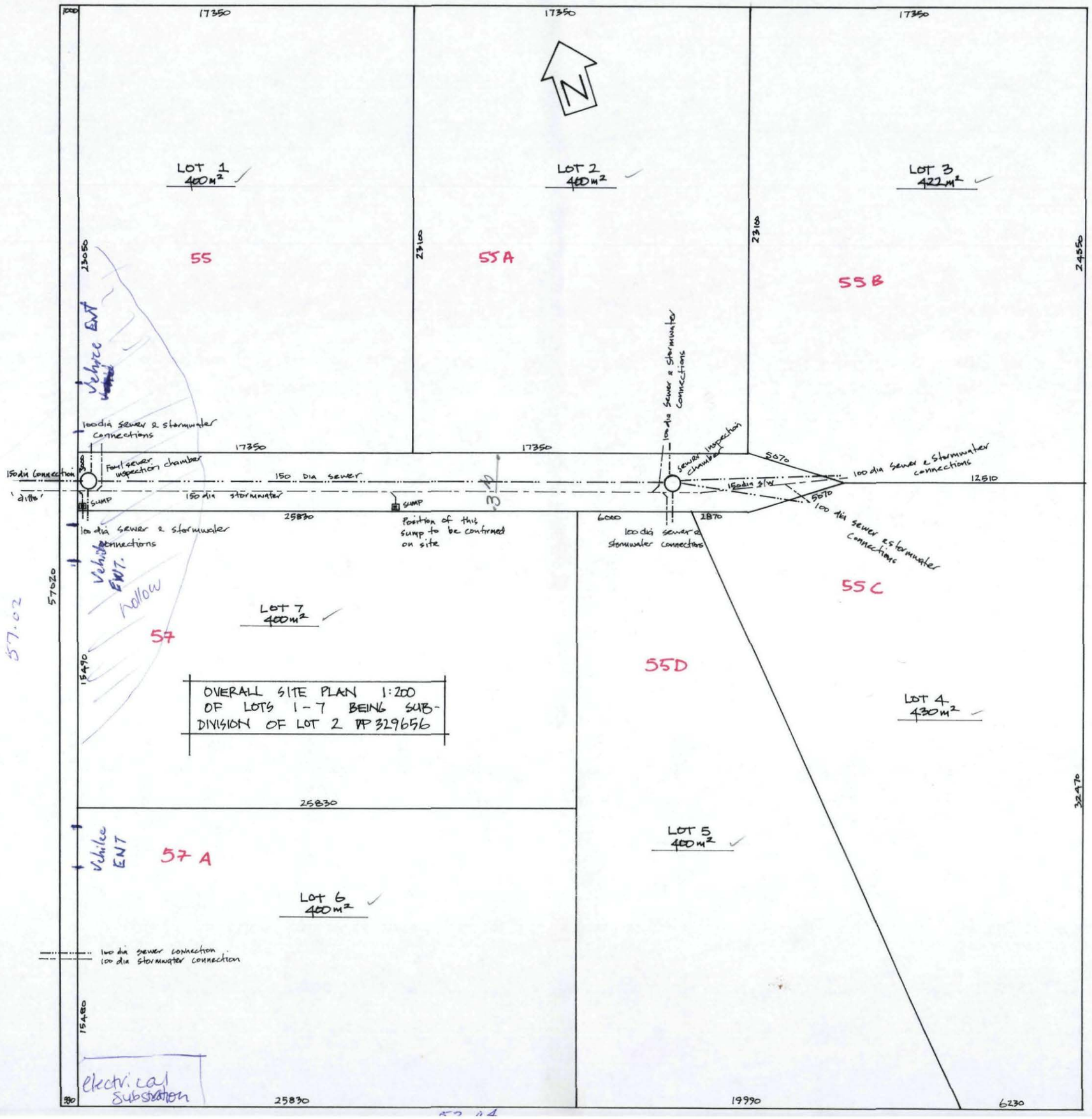


UNITS 6 & 7 FOUNDATION / SLAB PLAN



DETAIL A.

50. 53.05



Road

Pass

Taylor

57.02

Vehicle ENT.

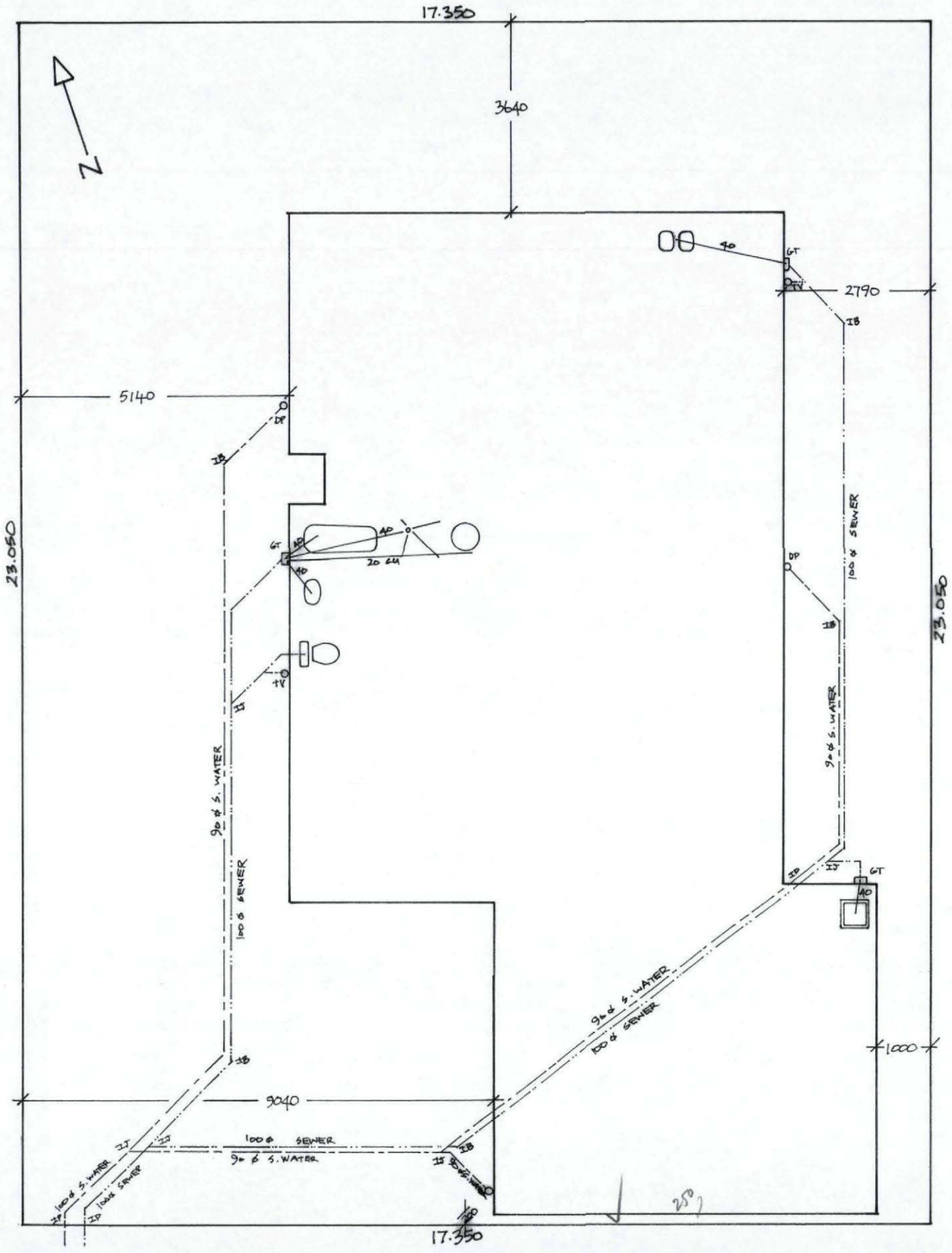
hollow

57.02

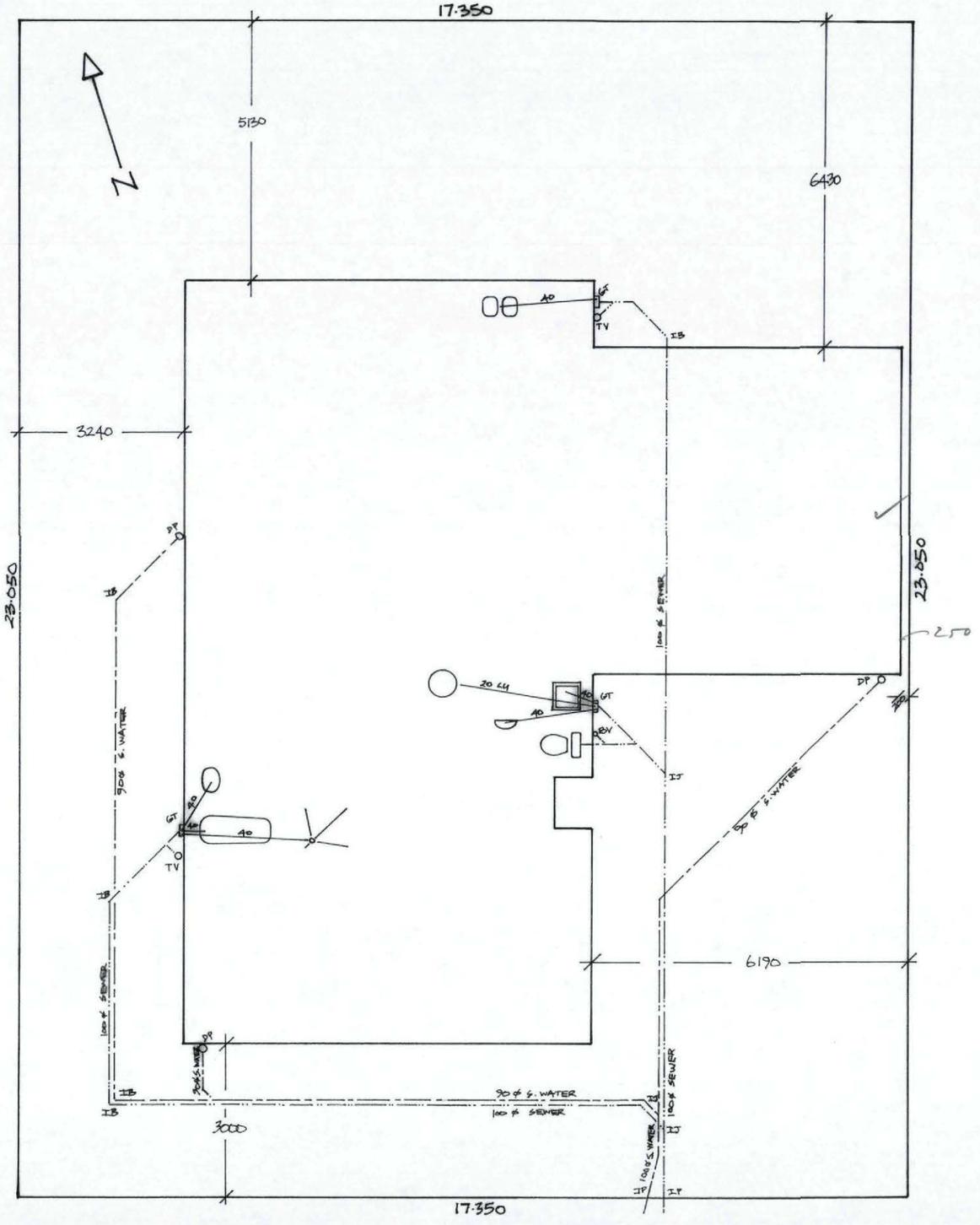
? 250

Is site to be built up?

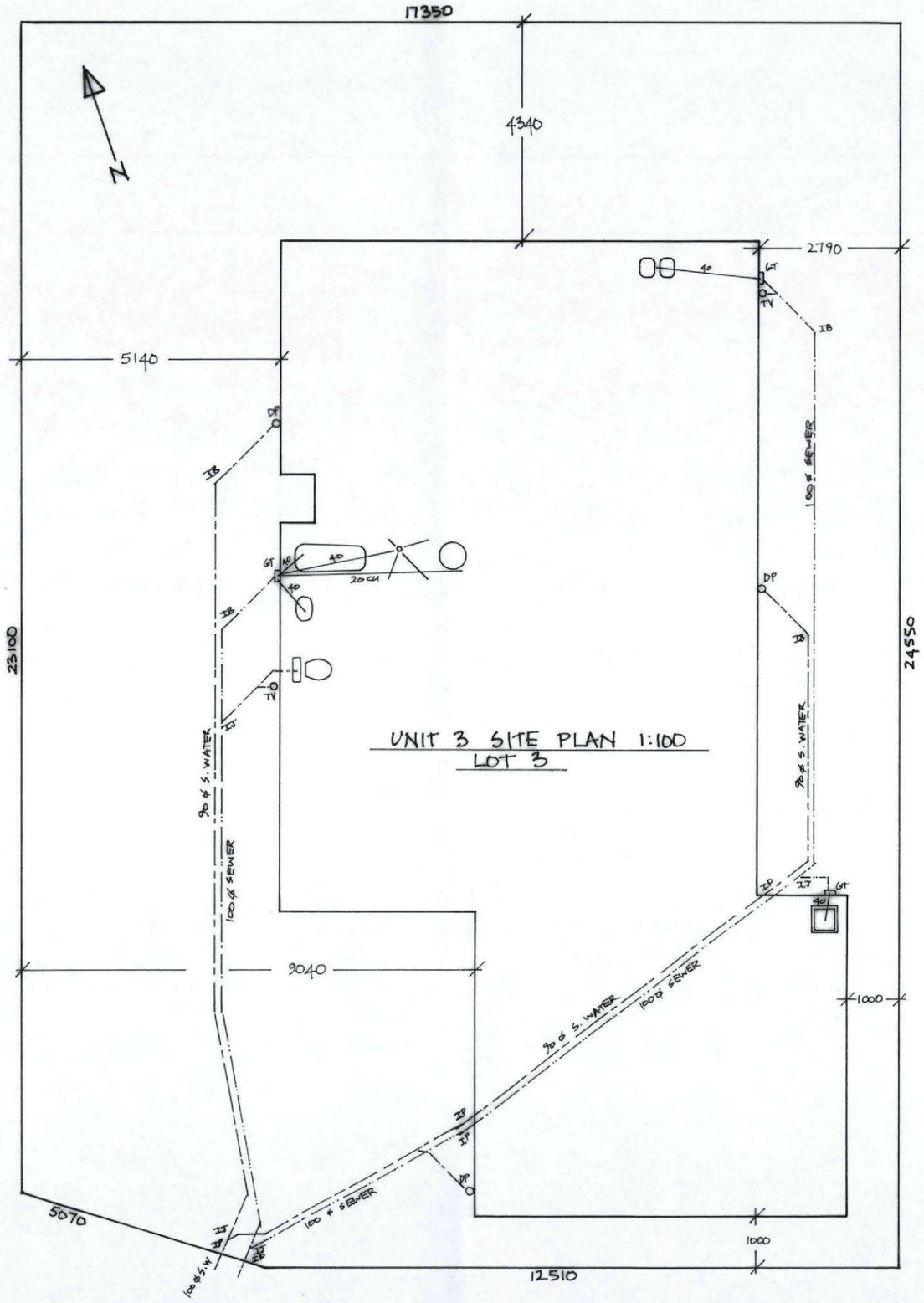
no existing services
no existing vehicle xings
power is underground in area.
telecom is underground in area.

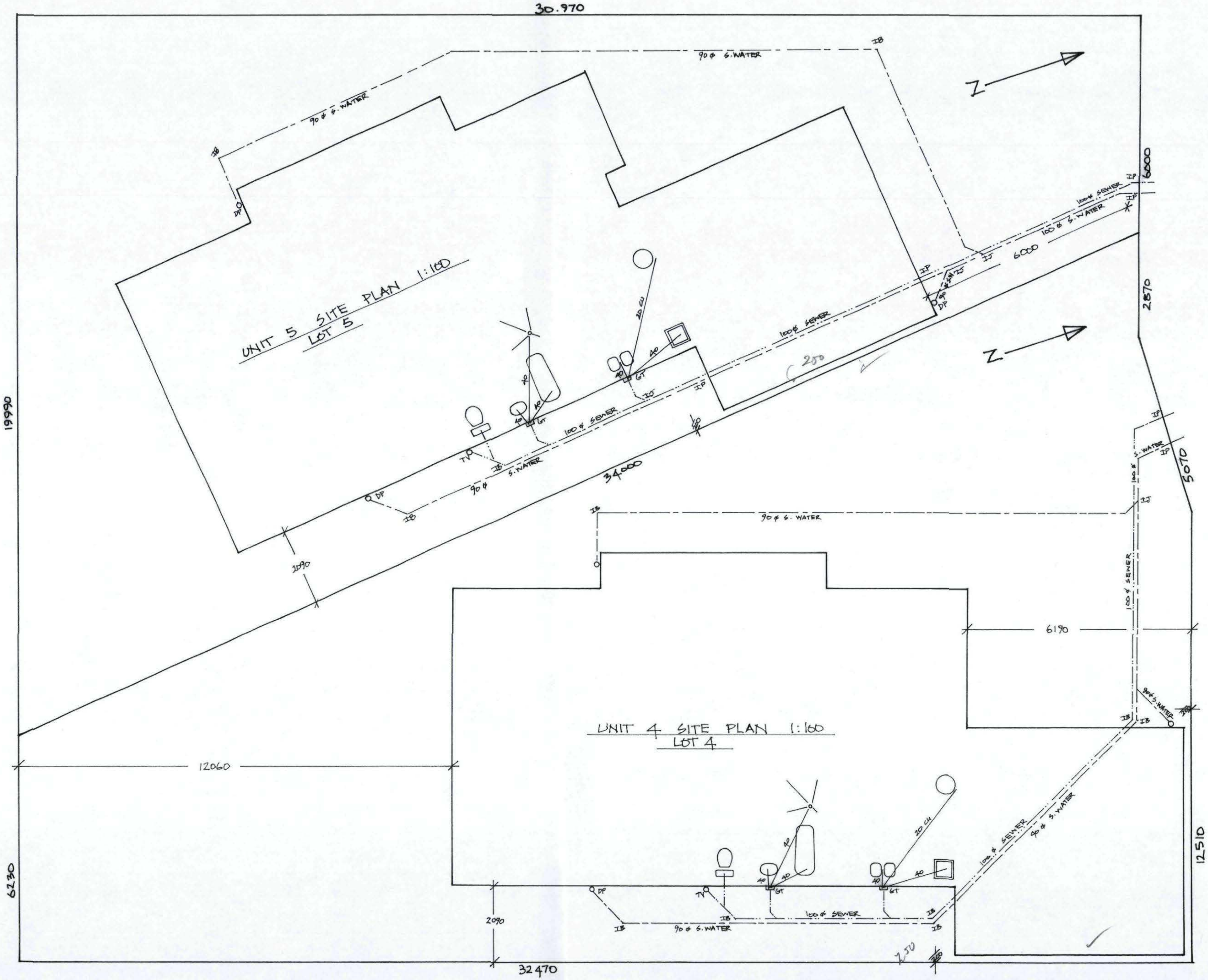


UNIT 1 SITE PLAN 1:100

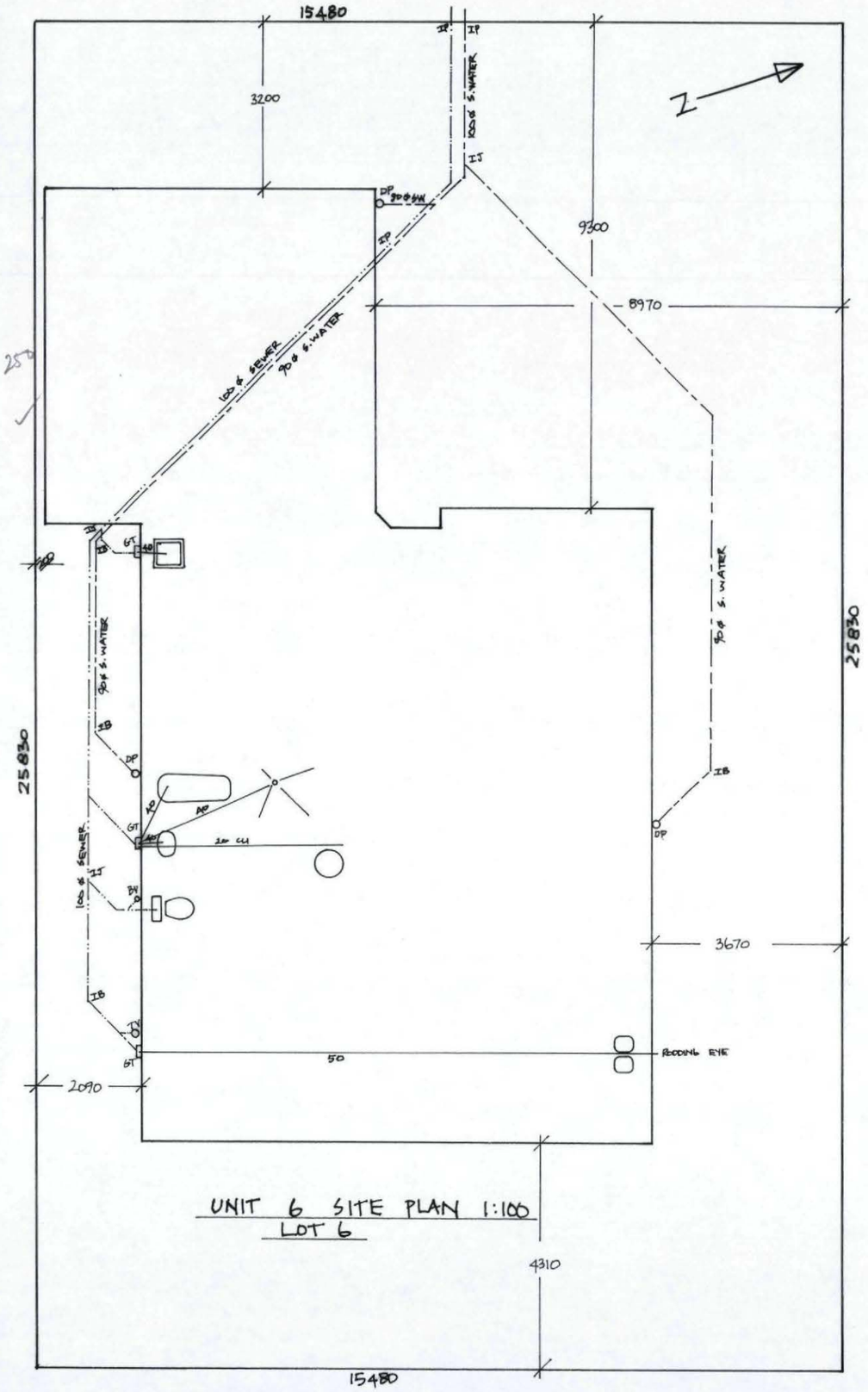


UNIT 2 SITE PLAN 1:100

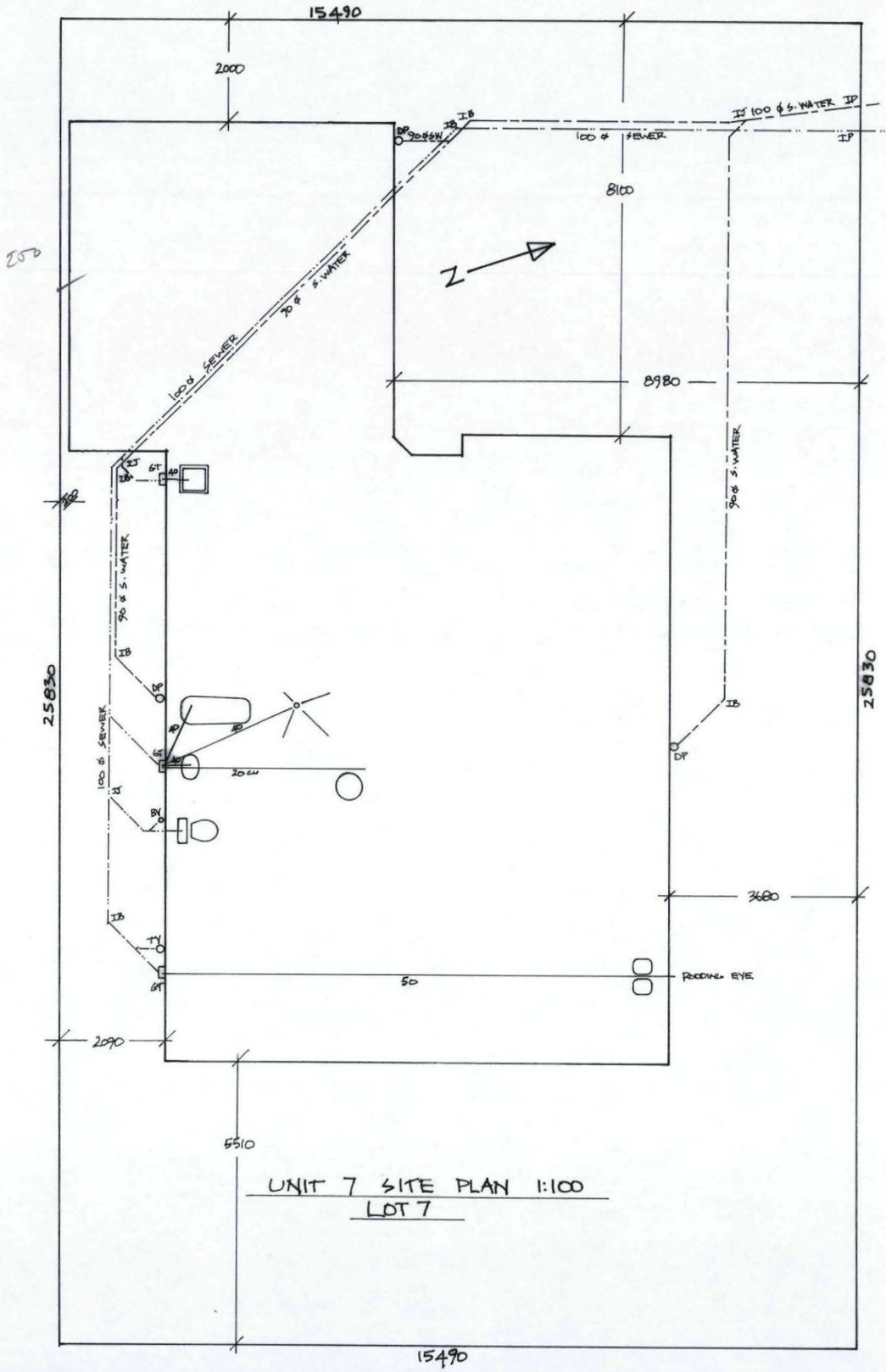

17350
4340
2790
5140
23100
24550
9040
1000
1000
5070
12510
100ø SEWER
90ø S. WATER
100ø SEWER
90ø S. WATER
100ø SEWER
90ø S. WATER
100ø SEWER
20cm
UNIT 3 SITE PLAN 1:100
LOT 3



UNIT 5 SITE PLAN 1:100
LOT 5
UNIT 4 SITE PLAN 1:100
LOT 4
30.970
19990
34.000
2090
6000
2870
5070
6190
12060
12510
6230
32470
90φ S. WATER
100φ SEWER
100φ S.WATER
20 CU



UNIT 6 SITE PLAN 1:100
LOT 6



UNIT 7 SITE PLAN 1:100
LOT 7

BUILDING CONSENT - PIM

RECEIVED
25 FEB 2005
MARLBOROUGH DISTRICT COUNCIL

Alo

Address: Taylor Pass Road

Owner: Myles Investment Trust

Builder:

Activity: Seven Dwellings With Attached Garages

Property Number: 531716 256254

050283

Building Consent #:

From # 256254

To # 531716, 531717, 531718, 531719, 531726, 531721, 531722

Reason # SUBDIVISION

To See	Comments	Date		Approved
RW Planning	050171. for seven units is being processed. The property will be subdivided in the future following construction of units. 10/3.	28/2/05 4/4/05	4/4/05	
SM Roading			4/4	
DSN Services	Upgrade levels req'd. Refer to Building Control to ensure floor levels are higher than crown of road as road is a secondary overflow path in the event of flooding	10/3/05	04/04	DSN.
~~Conditions~~			4	
JD	PIM issued	5/4/05	5/4/05	JD