

CITY ENGINEER,

SIR,

I hereby apply for a Building Permit to erect/demolish DWELLING & GARAGE

A32632

According to site plan and detailed plans, elevation, cross sections and specifications of building deposited herewith, in duplicate.

OWNER

Name M. EDEN

Address 88 DEVON RD
WANGANUI

Phone _____

BUILDER

Name EDEN BUILDERS

Mailing Address 88 DEVON RD

Ph: _____

PLUMBER

Mailing Address _____

Ph: _____

PROPERTY ON WHICH BUILDING IS TO BE ERECTED/DEMOLISHED

SITE

Street No 22

Street Name SHAKESPEAR RD.

Town / District WANGANUI

LEGAL DESCRIPTION

Valuation Roll No 13260/127

Lot 11 D.P. 1304

Section _____ Block _____

Survey District _____

DESCRIPTION OF PROPOSED WORK AND MAIN PURPOSE OF USE

ERECT DWELLING & GARAGE

FLOOR AREA DWELLING UNITS

Whole Sq. Metres 429 m² Number Erected ONE

NATURE OF PERMIT (TICK BOX)

NEW BUILDING
-include dwelling added, exclude domestic garages

FOUNDATIONS ONLY

ALTERED, REPAIRED, EXTENDED
-include conversions and domestic garages

NEW CONSTRUCTION OTHER THAN BUILDINGS
-include demolitions

ESTIMATED VALUES

Building	<u>152000.00</u>
Plumb & Drain (Labour)	<u>3000.00</u>
TOTAL	<u>155000.00</u>

FEES APPLICABLE

BUILDING PERMIT	\$ <u>275.00</u>	RCPT. <u>24823</u>
PLUMBING PERMIT (No. 1092)	\$ <u>72.00</u>	RCPT. <u>"</u>
PREPAID CROSSING (No. K.R.C. 57)	\$ <u>-</u>	P.W.R. _____
PREPAID SEWER CONNECTION	\$ <u>-</u>	P.W.R. <u>SEPTIC TANK</u>
PREPAID WATER CONNECTION	\$ <u>50.00</u>	P.W.R. <u>EXIST</u>
STORMWATER CONNECTION	<u>AT COST</u>	P.W.R. <u>1221</u>
BUILDERS DEPOSIT (No. K.R.C. 5)	\$ <u>-</u>	RCPT. <u>24823</u>
TOTAL COUNCIL FEES	\$ <u>347.00</u>	RCPT. <u>24823</u>
BUILDING RESEARCH LEVY	\$ <u>155.00</u>	RCPT. <u>24823</u>
TOTAL FEES	\$ <u>502.00</u>	

COMMERCIAL BUILDINGS

IF VALUED AT MORE THAN \$60,000 :

Estimated Commencing Date _____

Completion _____

Building Projects Authority No. _____

Predominant Activity of owner : _____

APPLICANTS SIGNATURE :
M. Eden

PERMIT MAY BE ISSUED SUBJECT TO THE FOLLOWING CONDITIONS :

Stormwater connection to be installed by council.

That power & telephone services to the house are laid underground

That B.I are notified when excavations for foundations are complete, for a check on bearing to be made.

13260/127

22 SHAKESPEARE RD

LOT 11 D.P. 1304

G. V. FISK.

APPROVAL FOR ISSUE OF BUILDING PERMIT

Date of Application: 05/11/82
 Application for: DWELLING & GARAGE
 Owner: M. EDEN
 Builder: EDEN BUILDERS

Lot No. 11 D.P. 1304 Sec: _____
 Locality: 22 SHAKESPEARE Rd.

Number: _____
 Not Satisfactory
 Applicable Provision Made Date Where Applicable

BUILDING INSPECTOR

1. Values on Application:
2. Builder's Footway Deposit:
3. Material of Construction:
4. Ground levels and foundations:
5. Requirements for Public Bldgs, Factories etc.
6. Description of use of Building on Application:
7. General Construction - Dwg etc.
8. Chimneys, Heating appliances flues:
9. Means of Egress Code:
10. Temporary Hoardings on footpath:
11. Crossing Fee:

Not Satisfactory Provision Made	Date	Where Applicable
	08/11	12/11
	12/11	[Signature]
		[Signature] 15-11-82

APPROVED BUILDING INSPECTOR:

HEALTH INSPECTOR

12. Plumbing & Drainage requirements and fees:
13. Stormwater drainage requirements:
14. Water connection requirements and fees:
15. Health & Food Acts & Regs. etc.
16. Storage of Dangerous Goods, fuel, oil, etc.
17. General requirements:
18. Value on application, drainage:

	10/11	
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APPROVED SANITARY INSPECTOR:

DRAINAGE ENGINEER

19. Sewer connection requirements & Fee
20. Stormwater connection requirements & Fee

4092	12/11	
	08/11	
B.Gloves.	8/11	Septic Tank No Fee
B.Gloves.	8/11	@ cost.

APPROVED DRAINAGE ENGINEER

WATER ENGINEER

21. Water connection requirement & Fees

[Signature]	10/11	Exists
	12/11	No charge

DESIGNING ENGINEER

22. Structural calculations:

APPROVED DESIGNING ENGINEER

[Signature]	12/11/82	
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TOWN PLANNING

23. Zoning, coverage, siting, height:
24. Proposed roads & service lanes:
25. Road widenings & B.L. restrict.
26. Vehicles; loading, parking, crossings:
27. General requirements (easements etc)

	05/11	
		[Signature] 11/11/82

APPROVED TOWN PLANNER:

Permit may be issued subject to the following conditions:

BUILDING INSPECTOR:

CALCULATIONS REQUIRED

- residence to be sited on original ground w/p
- Verified on site 15-11-82 w/p

HEALTH INSPECTOR:

DRAINAGE ENGINEER:

WATER ENGINEER:

DESIGN ENGINEER:

- ✓ ① Amend drawings so that beams as per Engineers calculations appear on drawings.
- ✓ ② Show details of portal frame to garage doors.
- ✓ ③ Specify rafter sizes to lounge roof.
- ✓ ④ Show details of truss to lounge.

TOWN PLANNING:

Please show location of 3rd car space. p. 8.11.82

BUILDING PERMIT APPLICATION CHECK SHEET

Application for : AGENTS TO APPROV PLAN

DATE 08/09/82

Address : 22 SHAWLPEARE RD Lot No DP Sect

Notes : _____

DATE	DEPARTMENT		REMARKS
<u>08/09</u>	Town Planning	Refer Attached Check Sheet _____ Approved _____ Date _____	
	Building Inspector	Values on Application _____ Ground Levels & Foundations _____ Materials _____ Construction _____ ✓ Bracing (3604) _____ Heating Appliances _____ Public & Commercial Buildings _____ Access for Handicapped _____ Chapter 5 Egress etc (Check Sheet Yes/No) _____ Approved <u>9/9/83</u> Date <u>[Signature]</u>	
	Drainage Engineer	SS Connection & Fee _____ Approved _____ Date _____ SW Connection & Fee _____ Approved _____ Date _____	
	Water Engineer	Water Connection & Fee _____ Approved _____ Date _____	
<u>08/09</u>	Structural Engineer	Structural Drawings & Calculations _____ Approved <u>[Signature]</u> Date <u>9/9</u>	
	Health Department	Value _____ Plumbing & Drainage Requirements _____ SW Requirements _____ General Requirements _____ Health & Food Regulations etc _____ Dangerous Goods Requirements _____ Approved _____ Date _____	

GENERAL REMARKS

TOWN PLANNING

BUILDING INSPECTOR

DRAINAGE ENGINEER

WATER ENGINEER

STRUCTURAL ENGINEER

HEALTH DEPARTMENT

BUILDING PERMIT CHECK LIST 4.11 1304.

Property Reference:

~~#8~~ ~~Denton Road~~ 22 Shakespear Road.

Type of Building:

Net Site Area

1618m²

Zoning

R.2.

Reserves

REQUIREMENTS		REQUIRED	PROVIDED	O.K.
1.	Coverage	35% = 566.3.	162.15	✓
2.	Density	1/80 . 20 .	10	✓
3.	Height	10m .	6.2 .	✓
4.	Front yard (including beautification)	9m triangles .		✓
5.	Side yards	$\frac{L+5 \times H}{10}$		✓
6.	Rear yards	$\frac{L+5 \times H}{10}$		✓
7.	Outdoor living space			✓
8.	Storage area			✓
9.	Service area			✓
10.	Car spaces	3	2	x
11.	Vehicular access			✓
12.	Loading Bay/Crossings/ Distance from intersection	3 allowed.		
13.	Trees/Historic Places			—
14.	Proposed road/service lane			—
15.	Road widening & BLR			—
16.	Easements/Site Dimensions			—
17.	Floor area ratio			—
18.	View Protection Plane			—
19.	Sunlight Protection Plane			—
20.	Services	Power & telephone cables to be laid under ground		

Design Approval Required Yes/No

Date:.....

Dispensation Required in Respect of Nos:.....

Dispensation Approved/Declined



88 DEVON ROAD,
SPRINGVALE,
WANGANUI.

TELEPHONE 46-989

EDEN BUILDERS

BUILDING CONTRACTORS

8 September 1983

Mr W J Rawstron
Engineers Department
Wanganui City Council
PO Box 637
WANGANUI

Dear Sir

RE: M EDEN HOUSE, 22 SHAKESPEARE ROAD, WANGANUI

As discussed with you yesterday please find set out below amendments to the above residence.

1. ✓ Rafters at 900mm centres ⁷⁶⁰⁴ _{4.25m} ^{200x50 @ 900} ^{@ 45° slope probably OK.} ^{OK.}
2. ✓ 150mm x 25mm NZDF Sarking over rafters. ^{Bracing requirements require design panel or diag. //}
- No. 3. X 150 x 50 Joists over garage and bedroom wing only - on grid M-S. ^{Deleted.} ^{200x50 - 600 OK.}
- BI 4. ✓ Riblath is excluded - netting on Pinex Triple S to ground floor exterior
- ✓ 5. ✓ Roof to be long run colour cote tray roofing.

Yours faithfully
EDEN BUILDERS

M E EDEN

Malcolm Eden notified re item 3
also re bracing item 2

9/9/83

EDEN HOUSE.



EDEN BUILDERS
Building Contractors
88 Devon Road,
Wanganui. Ph 46-989

Regd. Master
Builder

**McGowan
Casey &
Associates**

37 TAUPO QUAY WANGANUI
P.O. BOX 480 Telephone 56-103

Denis W. McGowan a.m.n.z.i.d.
Grant A. Casey a.m.n.z.i.d.

Architectural Draughtsmen Building Design Consultants
Residential, Commercial, Industrial, Landscapes
Interiors, Plan Printing and Photo Copying.

1. PRELIMINARY & GENERAL.

1.1. SCOPE:

The work comprised in this contract consists of the erection, finishing and completing in every respect, the building as described herein and shown or intended in the accompanying drawings.

1.2. DOCUMENTS:

This specification shall be read in conjunction with the associated drawings. All documents shall be equally binding to each other. Any P. & G. item shall be equally binding on all trades. Trade divisions within the documents are for convenience only, and any item required to complete the job as shown shall be allowed for whether shown in the respective trades, sections or elsewhere.

1.3. CONDITIONS OF CONTRACT.

The contractor shall make himself familiar with N.Z.S. 623 1974 "Conditions of Contract for Building and Civil Engineering Construction", and must be prepared to sign a contract with the owner based on this document.

1.4. SITE INSPECTION.

The contractor and his sub-contractors must visit the site before tendering and allow for any contingencies due to site conditions.

1.5. PERMITS.

The contractor shall obtain and pay for the building permit, footpath damage deposit, and all other fees; inspection and testing, to the respective local authorities.

1.6. BY-LAWS & STANDARDS:

All work shall comply with Local Body By-Laws and N.Z. Standards covered by those By-Laws whether mentioned specifically or not. All work shall be executed in accordance with good trade practice and all materials shall be the best of their respective kinds.

1.7. INSURANCES:

The contractor shall take out and maintain for the duration of the contract, the following:-

- a) Public Liability Insurance for \$100,000.
- b) Building All Risks Insurance for the full value of the contract.

1.8. TEMPORARY SERVICES:

The Contractor shall provide for all temporary services on the site - power, water and toilet accommodation. All above shall be maintained to the satisfaction of the Local Health Inspectors and Local Authorities.

1.9. SUBSTITUTION OF MATERIALS.

All tenders must be based on materials and items as specified. Any desired substitution must be referred back to the Owner or his appointed agent, before proceeding with that part of the works.

1.10. PROTECTION OF WORKS.

The Contractor shall be responsible for the complete waterproofing of the building. Upon completion the building shall be left completely watertight, free from any leaks through roofs, walls, joinery etc. Should the Contractor consider any details shown to be inadequate, he shall refer same back to the designers. Areas not specifically detailed shall be waterproofed using good trade practice.

NOTE: No glazing beads are permitted on exterior joinery unless detailed.

1.11. SETTING OUT.

Setting out of the building will be the responsibility of the builder.

Location and identification of boundary pegs shall be the responsibility of the Owner prior to the builder setting out. If the builder sets out the building without establishing the boundary pegs with Owner he shall take full responsibility for its positioning.

Any discrepancy in drawings or in specifications shall be referred to the Owner before proceeding.

1.12. VERIFICATION OF MEASUREMENTS:

It is the Main Contractor's responsibility to verify all dimensions on the job for each trade and he is responsible for the correct setting out of the job. Figured dimensions from scaled details are to be taken in preference to dimensions scaled from the drawings.

1.13. AMBIGUITIES:

In the event of any ambiguities or contradictions within the documents, these items must be verified with the Owner or his agents before pricing that portion of the work.

1.14. FINISHING:

Should any tradesman consider the work of the preceding trades is of a lesser quality than required to ensure a first class finish of his own trade, he shall, via the contractor, notify the owner and not proceed with that part of the work until some agreement has been reached.

- 1.15. CLEANING UP.
Upon completion of the works comprised in the contract, Contractor shall take down and clear away all plant and temporary work, including sanitary conveniences, sheds etc. and make good. The contractor must remove all rubbish debris and all surplus materials including that of all sub-contractors (as they accumulate). The building shall be swept out at regular intervals and when instructed to prevent dust damage to paint work etc. No debris is to be left under floors or above the ceilings. Rubbish must be carted away and must not be buried on site. At completion the contractor must sweep and clean all floors, pavings, internal and external surfaces, all glass on both sides, all sanitary fittings including removal of paper and manufacturers labels.
- 1.16. NOMINATED SUPPLIERS OR SUBCONTRACTORS:
Where a product, supplier of goods, or sub-contractor, is nominated by the Owner or his agent, the Contractor shall accept the quotation of the sub-contractor or supplier. The same relationship shall exist between such nominated sub-contractors and suppliers and the Contractor.
- 1.17. MATERIALS AND WORKMANSHIP:
Materials are to be the best of their respective kinds. Workmanship shall be in accordance with good trade practice. The Contractor shall do all necessary for the full completion of the contract as shown on the drawings and stated in the specification.
- 1.18. P.C. SUMS:
All P.C. sums shall be on the basis of "Supply only". The contractor shall allow separately for all labour, cartage, installation costs and overheads, + PROFIT.
All nominated P.C. sums shall be included in the Lump Sum tender.
P.C. sums are included in that section of the specification, to which they pertain.
- 1.19. MARKET FLUCTUATIONS:
Market fluctuations shall be recognised in accordance with Appendix A. N.Z.S.S. 623 - 1964. No adjustment shall be allowed for increases in costs of labour or materials if incurred after the date of practical completion.
- 1.20. EXTRAS:
No extra costs for job variation will be paid unless previously approved by the Owner or his agent in writing.
- 1.21. PROGRESS PAYMENTS:
Progress payments will be at no closer intervals than 4-weekly based on a claim from the contractor. Any payments shall be subject to the provision of N.Z.S.S. 623 - 1964 Part 17.
- 1.22. DEDUCTIONS:
Liens retention of 10% will be retained for 28 days from all payments and 2½ maintenance retention shall be retained for 90 days after date of practical completion.
During the 90 day maintenance period the contractor is to make good, at no cost to the owner, all items showing defects of incomplete.

1.24. SUPPLIED ITEMS:

The Owner shall supply to the Contractor for the installation all items as stated in Clause S.5 "Special Conditions of Contract".

All items must be fixed or installed as per manufacturers specifications and left in full working order.

1.25. SUPERVISION:

Unless otherwise stated in Section S6 the contract will be supervised by the Owner and all queries and claims should be made to the Owner.

1.26. MAINTENANCE PERIOD:

The maintenance period shall be 90 days after the issuing of certificate of practical completion or occupation of the Owner whichever comes first.

6. CONCRETE AND REINFORCING.

6.1. SCOPE:

The work consists of the excavation, boxing, placing and finishing of all concrete work as shown on accompanying drawings.

6.2. MATERIALS:

Aggregate shall be sharp, clean sand and crushed hard metal or river shingle.

Materials and workmanship shall conform to all requirements of N.Z.S.S. 3604 1978 and its Amendments.

6.3. BACKFILLING:

Prop all foundation walls, as necessary, and back fill as stated hereunder or shown on drawings to underside of slabs or to existing or new ground levels.

Site and surroundings to perimeter of building to be left clean and uniformly graded.

6.4. MATERIALS AND WORKMANSHIP.

All work shall comply with the following standards:-

N.Z.S.	1900:	9.3a	1970	- Concrete design & Construction.
N.Z.S.	3121:		1974	- Water & Aggregate for concrete.
N.Z.S.	3122:		1974	- Portland cement.
N.Z.S.	3402P:		1973	- Hot rolled steel bars.
N.Z.S.	2086:		1967	- Ready Mixed concrete.
N.Z.S.	3422:		1975	- Welded fabric of drawn steel wire for concrete reinforcement.

6.5. REINFORCING.

Unless stated otherwise on drawings or hereunder, all reinforcing except mesh shall be deformed mild steel except for 6mm and 10mm bars which may be plain. All bars must have a minimum lap of 40 diameters and be placed to provide the following covers:-

Against ground unboxed	-	75mm
Against ground or a surface exposed to weather (boxed)	-	50mm
Internal surface protected from weather	-	25mm

All bends shall comply with N.Z.S.S. 1900: 9.3a.

No reinforcing shall be rebent.

Welded fabric mesh shall have minimum lap of 300mm.

All reinforcing must be securely held in position during concrete placing. Bars may be tack welded or tied with soft black m.s. wires and shall be kept in place with precast concrete blocks or approved plastic spacers.

6.6. CONCRETE AND CONCRETE GRADES.

Unless otherwise stated hereunder all concrete shall be "Ready Mixed" high grade and shall be:-

21mpa (3000 p.s.i.)	crushed strength for all structural concrete slabs, beams, footings etc.
17.5 mpa (2500 p.s.i.)	concrete block infill.
14 mpa (2000 p.s.i.)	Site concrete - paths, drives, filling etc.

6.7.

FORMWORK.

All formwork shall be mortar proof.

All formwork shall be erected true to line and level with sufficient pegs, walings and strongbacks to maintain dimension accuracy upon pouring concrete and prevent bulging.

Formwork shown on drawings as "fair faced" shall be dressed boards, continuous ply or metal sheathed and present a completely smooth and uniform surface finish free from honeycombing and other imperfections.

6.8.

CONSTRUCTION JOINTS.

Shall be provided in slabs, beams and columns as shown in drawings. Any changes to that pouring pattern which may be desired by the Contractor must be referred to the owner or his appointed agent before commencing that section of the work.

6.9.

DAMP-PROOF COURSE.

Shall be .008 black polythene or Moistop 737 concrete underlay laid on 50mm of compacted sand on hardfill. The damp-course will be properly lapped on all joints to be taped with black PVC adhesive tape. The penetration of pipes through the polythene will be strapped with black PVC adhesive tape. Care must be taken during pouring to prevent tears in the membrane. Any tears must be taped before the concrete is poured.

The contractor shall notify the building inspector at the stage of placing concrete. The inspector will inspect, approve and authorise the pouring of the slab.

All filling over 150mm in depth shall be charged as an extra to the Contract.

6.10.

HOLDING DOWN BOLTS.

Place holding down bolts or dwells as per Section E.13 of N.Z.S.S. 3604: 1978.

6.11.

FINISHING.

All sizable slabs shall be screeded off-level or to prescribed falls and then to be brought to a hard surface with approved power float equipment. Power floating shall be carefully timed to suit the setting rate of concrete and shall be such as to leave the surface perfectly dense and free from ridges, the surface to be accurate to 3mm in 3 meters.

6.12.

BUILDING IN FOR SERVICES.

Provide and build in all items and fixings whatsoever necessary which may or may not be specified or shown on the drawings, but which are none the less necessary before the complete and proper execution of works.

Provision for trap for shower or bath.

Box for the siting of W.C. outlet.

Box for all piping waste outlets.

Recess footings for rebated sills.

All plumbing to be laid in sand before the laying of damp-proof course.

Service pipes to be allowed in sand for telephone wire

6.13. DOOR THRESHOLD.

At "rollerdoor" threshold form 25mm deep x 230mm rebate in concrete slab full width of door opening plus 30mm rebate behind block side walls to receive bottom rail of "Rollerdoor". Check final size required with door supplier. Driveway paving to finish flush with rebate in garage floor slab.

8. SITWORKS:

8.1. SCOPE.

The work consists of the excavation, levelling, clearing of site and providing access onto site.

8.2. SITE PREPARATION:

Excavation of the building site shall be arranged by the contractor. The contractor is responsible for the supervision of the excavation and the progress of levels to establish the required platform. In the event of excess excavation the contractor will make good any damage at his cost. For the purpose of this contract soil conditions are taken to be solid ground approved by local authority.

8.3. EXCAVATION:

Remove all vegetable matter, rubbish, rubble etc, and remove from the site. Strip topsoil from the whole of the area and dispose of where directed.

Excavate as necessary for all foundations, footings, etc. to the minimum depths and levels shown on the drawings and required for the erection of the buildings. Secure and maintain the sides of all excavations and keep them clear of water and fallen material. In the event of excavation for foundations being taken out too deeply not on the instructions of the Engineer, such portions shall be filled with concrete of 15MPa crushing strength of 28 days at the contractor's expense. Should soft areas be found they shall be dug out and remedied in one of the following ways:-

- (i) If small in extent the area dug out shall be backfilled with site concrete as specified above.
- (ii) If large in extent the area dug out shall be compacted with clean sand or hardfill compacted as specified below for backfilling.

8.4. CLEARING OF SITE.

The Contractor shall arrange and pay charges for the clearing of the building site of vegetation, scrub, trees etc. which encroach on the building platform.

8.5. LEVELS:

Foundation heights shown on plan are in approximation and should be checked on the site by the contractor. Any variation in the ground level requiring extra foundations will be charged as an extra and shall be notified to the Owner as an additional cost at the earliest opportunity. Any additional work is charged on a cost plus 10% basis.

8.6. SETTING OUT.

The owner shall be responsible for the locating and clear flagging of all survey pegs before the setting out of the building on the site.

The contractor will be responsible for the accurate setting out of all work to the dimensions shown on the drawings. The contractor will be required to make good at his own expense any errors which may occur in the setting out of all work. Refer to Section 1.10 Preliminary and General.

10. CONCRETE MASONRY.

10.1. PRELIMINARY.

Refer to the Conditions of Contract and to the General Conditions of this Specification which are equally binding on all sections. All blockwork shall comply with N.Z.S.S. 1900 Chapters 6.2 and 9.2.

10.2. MATERIALS:

10.2.1 Sand, cement and water shall comply with the 'Concrete' section of this specification. Lime shall be Wilson's hydraulic.

10.2.2 Concrete Blocks: Shall be approved 400 x 200mm hollow, together with matching special blocks as required. Blocks shall conform to N.Z.S.S. 595 for Class A quality concrete blocks, with clean sharp arrises, shall be precise in form and dimension without fractures, honeycombing, stains or chipped arrises, and of approved texture and finish. Blocks shall be 'Vibrapac' with Onoda NN additive or approved equivalent.

10.3. STORAGE.

Store all materials under cover. Blocks must be kept dry during storage.

10.4. MORTAR:

Mortar shall be in accordance with N.Z.S.S. 1900 CL. 9.2.4.1. Mortar shall be composed of:-

Sand	-	3 parts.
Cement	-	1 part
"Onoda" NN	-	4% by weight of cement.

Constituents shall be mixed as follows:-

- (a) Premix the "Onoda" NN with half the quantity of mixing water.
- (b) Add sand and Cement and mix for 7-8 minutes, adding extra water as required for workability.

Mortar shall be used within $1\frac{1}{2}$ hours of mixing. Any surplus remaining after that time must be rejected. On no account shall mortar be 'knocked up' after setting has begun. All materials in the mortar mix shall be accurately measured by volume in suitable calibrated devices. Shovel measurement shall not be permitted.

10/5. CONCRETE.

Concrete to filled cells and bond seams shall be to N.Z.S.S. 1900: 9.2.6.1. ii (b).

Concrete of 20mm maximum size aggregate shall be used and the mix shall have a compressive strength of 17.5 MPa at 28 days. The mix shall be design with a slump range of 100 to 150mm, and a maximum W/C ratio of 0.7.

The mix design, handling and placing of this concrete shall conform generally with the concrete section of this specification.

10.6. WORKMANSHIP.

All work shall be carried out by approved tradesmen skilled in concrete block construction and in accordance with the best trade practice, all as laid down in N.Z.S.S. 1900 Chapter 9.2. Concrete Blocks shall be laid dry and shall be protected from moisture for three days after laying.

Walls shall be erected as shown, plumb and true to line; in level courses, properly bonded, bedded and jointed in mortar. Special blocks shall be used as required. Where block cutting is required, it shall be neat and regular. Mortar beds shall be laid on face shells only and not on webs. Joints shall be 10mm thick. When the first course is in position, mark the position of starter rods with a pencil on the inside face of the wall. Reinforce walls as indicated in the drawings, fill all cells in 1200mm maximum lifts, lay bonds beams, reinforce and fill with concrete. No concrete shall be placed until the Engineer has inspected the placement of the reinforcement. Care shall be taken to ensure that no mortar stains damage the face of the wall.

10.7. CO-OPERATION.

Build in all bolts, etc, required for other trades; co-operate with the Plumber and Electrician for the installation of piping and conduit in blockwork cavities.

10.8. CLEANING UP.

On completion, clean down walls with a stiff brush, remove all mortar projections and irregularities. Make good any damaged corners, etc, to a texture conforming with the remainder of the work.

10.9. BLOCKWORK FINISH:

All blockwork shall be laid in stretcher bond with the exterior joints weather struck.

13. METAL WINDOWS & DOORS:

13.1 GENERAL:

The Contractor must refer to the Preliminary and General clauses that apply and to the specific Conditions of Contract following both of which are equally binding.

13.2. SCOPE:

This section precedes "Section 13a" relating to schedule of window and door frame sizes and to variations of profile such as required for glazing bar and commercial shop front sections where applicable.

13.3. SIZES:

All sizes shown on drawings or stated hereunder shall be over all frame sizes. The main contractor shall allow clearance for rough opening sized and shall confirm the required over all frame size before manufacture of joinery units begins.

13.4. MANUFACTURE:

All units shall be of the same proprietary brand - see Section 13a.

Unless otherwise specified all units shall be standard domestic weight, framed, awning hung sashes and sliding doors, with overlay frames face fitted.

13.5. FINISH:

Unless otherwise stated all aluminium joinery units shall be anodised bronze or electrostatically powder coated paint finish.

13.6. REVEALS:

Where applicable all units shall be fitted with ex 38mm timber reveals ploughed for wall linings.

All timber shall be of uniform species, dressing grade, N.Z. native and sanded to stain quality.

13.7 HANGING & HARDWARE:

All sashes shall be hung on 1 pr. of "Interlock" friction stays of a size recommended by the manufacturer for the appropriate sash sizes and weight.

All sashes shall be fitted with 2 wedge fasteners.
See also Section 13a.

13.8. GLAZING:

All window and door units shall be supplied glazed with O.Q. drawn sheet of N.Z.S.S. weights.

All glass shall be clear. See Section 13a for tinted or obscure glass if applicable.

13.9 OBSCURE GLAZING:

To those windows shown "obscure" supply and fix obscure glass as selected by Owner. For pricing purposes allow for 3mm Bronze "Maya".

13.10 VISION RAILS:

All full length frames i.e. where sill is positioned at floor level - provide 200mm deep vision rail set 800mm above finished floor level to top of vision rail aluminium.

13.11. SLIDING DOORS:

All sliding doors shall be supplied fitted with proprietary handles and internal locking only.

Sliding door suites shall have jamb liners to sill.

14. CARPENTRY:

14.1. GENERAL:

The Contractor must refer to the Preliminary and General clauses that apply and to the specific Conditions of Contract following both of which are equally binding.

14.2. STANDARDS:

All work shall comply with local body by-laws relevant to the specific job. All work shall comply (as a minimum requirement) with N.Z.S. 1900 1963.

14.3. TIMBER:

All timber shall comply with N.Z.S.S. 3602: 1975 for species and grade except where specifically noted on the drawings or hereunder to the contrary.

All timber shall be uniformly gauged.

All finishings timber shall be dressed and sanded or sawn finish as specified hereunder.

14.4. TREATMENT.

All timber shall be treated to the approval of the "N.Z. Timber Preservation Authority".

All exposed timber to be stained, varnished or uncoated shall be left free from treatment dye.

14.5. PROTECTION OF TIMBER:

Provide 2 Ply "Malthoid" p.d.c. between all concrete and timber or protect from moisture in accordance with N.Z.S.S. 1900. Timber embedded in concrete or in the ground shall be treated to C3.

14.6. FRAMING:

All framing shall be erected plumb, square and true to line. 3 studs to all corners, dwangs at 800 c/c max, and full thickness of walls.

All joints shall be well spiked with all plates halved at joints or butt jointed with approved nail plates.

Provide appropriate seating for all beams and lintels as per N.Z.S. 1900.

Provide solid backing behind all edges and ends of linings, Sheathings and weatherboard and extra blocks for fixing of fittings and other trades.

14.7. LINTELS:

Not exceeding 1350

100 x 75

Over 1350 but not exceeding 1800

100 x 100 (2/100 x 50)

Over 1800 but not exceeding 2250

125 x 100 (2/125 x 50)

Over 2250 but not exceeding 2700

150 x 100 (2/150 x 50)

N.B. All internal and external joinery (i.e. windows doors and ranch sliders) trim lintels at 2m above finished floor level.

14.8. BRACING:

Generally shall comply with the alternative methods required by N.Z.S. 1900:1963

As a minimum requirement provide 1 Pryde galv. angle brace from top to bottom plate at 45° for each exterior wall up to 5m long and 2 braces per wall over 5m long.

Provide all necessary temporary props and braces to prevent damage to uncompleted work.

- 14.9. HOLES & CHASES:
The bolting of all structural members and the provision of other holes and chases etc shall comply with N.Z.S.S. 1900: 9.1.
- 14.10. WORKMANSHIP.
All work shall be neatly executed and finished in accordance with good trade practice.
All finishing timber shall be free from hammer marks and other surface imperfections and where specified to be dressed and sanded shall have all machine planing marks sanded out, arrises removed, shall not be split and all nails shall be punched. Nails and panel pins appropriate to the timber size shall be used.
- 14.11. PRIMING:
All exterior finishing timber specified to be paint finished shall prior to fixing have all laps and joints and backs primed with an approved oil based primer.
- 14.12. BUILDING PAPER:
Walls - To all external walls fix A.H.I. flamestop building paper prior to fixing sheathing.
- 14.13. JOINERY:
Take delivery of all joinery units shown on drawings and specified hereunder and fix in place.
- 14.14. WORK WITH OTHER TRADES.
Cut away for, attend upon and make good for all other trades. Provide all necessary blocks and fixings for securing work of other trades. Cutting, checking and boring shall be restricted to the minimum necessary.

16. ROOFING: HARDIES A.C. SHINGLES.

16.1. GENERAL:

The Contractor must refer to the Preliminary and General clauses that apply and to the specific Conditions of Contract following both of which are equally binding.

16.2. SCOPE:

The work consists of the supply and fixing and completion of the nominated roof finish system including all flashings skylights, gutters, accessories, and fixing of compatible materials sufficient to render watertight the roof element subsequently described.

The roofing contractor shall include for all plant and equipment and labour needed all things necessary at all stages except that storage scaffolding and power will be supplied by the main contractor. It includes attendance on the main contractor and co-ordination with related services subcontractor at all stages.

16.3. MATERIALS:

The roof shall be a single faced asbestos sheet guillotine cut to create the appearance of a traditional shingle roof using four shingles in one sheet. Shingles shall be laid to a minimum roof pitch of $12\frac{1}{2}^{\circ}$.

16.4. PURLINS:

Roofs should be framed in accordance with good building practice and local building codes. For rafters spaced up to 900mm, 45 x 35mm timber battens must be used. For rafter spacings of between 900mm and 1200mm the timber battens should be increased to 45 x 45mm. All ridge and hip boards should be set level with the top of the rafters. The fascia should be nailed to the end of the rafters with the front edge projecting above the rafters by the thickness of the batten plus 2 mm.

16.5. UNDERLAY:

Specified under carpenter.

16.6. FLASHINGS AND ACCESSORIES:

The roofing contractor should supply and lay all Butynol underflashings, hip flashings, valley gutters etc necessary to render the complete roof watertight.

17. PLUMBING.

17.1. SCOPE.

This section consists of the supply of all materials and labour involved in the whole of the water supply, stormwater and drainage reticulation systems, together with all flashings required to render the building weather tight.

17.2. STANDARDS:

All work shall comply with Plumbing and Drainage Regulations 1978 and local body by-laws.

17.3. MATERIALS:

All materials and fittings shall be the best of their respective kinds.

Copper tube shall comply with N.Z.S.S. 1755.

Aluminium shall comply with B.S. 1476.

All hot and cold water piping shall be polybutylene with proprietary fittings etc.

17.4 WORKMANSHIP.

All work shall be in accordance with best trade practice.

All pipework shall be concealed in framing, walls or floor.

All pipe runs shall be in straight lines with minimum bends and junctions.

Any pipework set into concrete shall be copper and shall be fully lagged with "Denso" tape or similar to allow for mechanical or thermal movement.

17.5. DISSIMILAR METALS:

Pack between or separate dissimilar metals to prevent electrolytic action.

17.6. WATER SUPPLY:

Allow for connecting all fittings, water heaters, and pressure reducing valves etc. with hot or cold supply as required. Unless otherwise specified all branches to fittings to be 12mm ϕ .

17.7. WASTES:

Provide u/p.v.c. wastes to all appropriate fittings.

Run as shown on drawings or to nearest gully trap.

All wastes to discharge below the gully gate.

Wastes sizes to comply with Cl. 17.2.

17.8. VENTS:

Provide terminal vent where shown on drawing and back vents to fittings as required by Cl. 17.2.

17.9. FLASHINGS:

See also "Roofing".

Provide .60mm galv. flashings (lead edged where necessary for profiles) to apron flashings, parapet and wall caps, pipes and flues penetrating roof.

Provide other flashings as required and shown on drawings for exterior joinery, sheet joints etc.

Provide A1. folded flashings for all aluminium windows.

17.10. GUTTERS AND DOWNPIPES:

All gutters to be fully supported on proprietary clips as per manufacturer's specifications, and all downpipes to be fixed with stand off clips to walls at positions shown on drawings.

All downpipes shall terminate at ground in spring bends of the same material and nominal size. (Refer Section 18.6).

Spouting shall be 125 x 125 x 88 square galv. (dimondek or similar) of longest possible lengths. Any length of fascia less than 6m must be of 1 length of spouting; joints will only be accepted in fascia lengths greater than 6m and they must be of 6m modules.

Downpipes shall be 90mm P.V.C. of longest possible lengths.

18. DRAINAGE:
- 18.1. GENERAL:
The Contractor must refer to the Preliminary and General clauses that apply and to the specific Conditions of contract following both of which are equally binding.
- 18.2. SCOPE:
This section includes supply and installation of all sanitary, sewer and stormwater reticulation.
- 18.3. STANDARDS:
All work shall comply with Plumbing and Drainage Regulations 1978 and local body by-laws.
- 18.4. SEWERAGE:
Sanitary sewer to be 100mm ϕ P.V.C. or G.E.W. with neoprene sleeves and stainless steel wires, laid true to line and grade (Min. 1:60 fall).
- 18/5. GULLY TRAPS:
Provide P.V.C. with precast concrete surround with approved grate.
- 18.6. STORMWATER:
Provide 90mm ϕ P.V.C. with approved drain run to kerb or piped system as shown. Connect all downpipes by providing reducers if necessary to seal into drain. Drain risers not to project more than 100mm above ground level. Seal D.P.s into drain with approved ring seal capping.
- 18.7. TRENCHES:
All trenches to be dug to provide adequate cover and fall to pipes.
Lay pipes on graded consolidated sand bed.
Backfill trench and grade surrounding ground level upon completion.
- 18.8. SITE CHECKING:
Tenderer is advised to check the site plan prior to submitting his price and allow for site conditions and the drainage line required by Local Body.

21. ELECTRICAL:

21.1. SCOPE:

The work consists of complete wiring, fixing of all lights power points etc. meter and switchboards.

21.2. GENERAL:

The Contractor must refer to the Preliminary and General clauses that apply and to the specific Conditions of Contract following both of which are equally binding.

21.3. STANDARDS:

All installation shall be made in a sound, safe practical and workmanship manner in conformity with modern practice, in accordance with the Wiring Regulations, 1969, and to the satisfaction of the local authority. Allow for all the labour and materials necessary for the complete installation and service of all the points indicated on plan and attached schedule.

21.4. PERMITS:

Obtain the necessary permits from the supply authority prior to commencing work.

21.5. WIRING:

All wiring shall be concealed and well supported by clipping back.

Wire all fittings back to Mains Board.

Final location of all fittings shall be as directed on site or as shown on electrical plan.

21.6. MAINS BOARD:

Mains board shall be as shown on drawings. The Electrician shall advise the Contractor of the size of the mains board required and opening through wall to expose windows of meters. Mains board shall be recessed into timber framing as far as practicable still allowing for the metal door to open. Mains board shall control all electrical control gear. Provide push button resetting fuse blocks for all groups of lighting, heating and power circuits. Cable shall be of sufficient size and capacity. All switches fuses etc., shall be clearly labelled.

21.7. HEIGHTS:

Power outlets to be 300 above floor level generally.

In service rooms power outlets and appliance switches to be mounted directly above bench upstands and as close as practicable to their related fitting.

Power points shall be Ring-grip "Champagne" series.

21.8. LIGHTS:

All lights fittings shall be supplied by owner. Allow to take delivery of an install.

21.9. LIGHT SWITCHES:

Light switches shall be P.D.L. "Champagne" series mounted 1.2m above floor. Where shown wall light, the switch and power point must be mounted directly below each other.

30. PAINING & WALLPAPERING:

30.1. GENERAL:

The contractor must refer to the Preliminary and General clauses that apply and to the specific Conditions of Contract following both of which are equally binding.

30.2. SCOPE:

The work consists of the preparation, painting and wallpapering of building described or shown on accompanying drawings.

30.3. MATERIALS:

All shall be of the best of their respective kinds. All materials shall be used strictly in accordance with their respective manufacturer's instructions. Selection of all preliminary primers and under coats shall be as recommended by top coat manufacturer.

30.4. WORKMANSHIP:

All workmanship shall be in accordance with best trade practice and shall comply with C.P. 5.

All preparation of surfaces shall be sufficient to produce a 1st class finish and any work by other trades not adequate in this respect shall be brought to the attention of the Owner prior to proceeding with that section of the work. All exterior timber shall be primed.

30.5. PREPARATION:

All work shall be prepared and given primer and / or undercoats as specified by top coat manufacturer. All work is to have a 1st class finish and the Painter is to ensure that preliminary carpentry work is up to required standard.

30.6. RELATION TO OTHER TRADES:

Inspect the work of other trades upon which material is to be applied and report any defect to the general contractor. Work shall not proceed until a satisfactory surface has been obtained.

Failure to examine and report will be construed as acceptance that the preparatory work is satisfactory.

30.7. PREPARATION OF SURFACES:

No painting, enamelling, distempering or similar finishing shall be done on concrete plaster, or similar surfaces unless and until such surfaces are in a suitable condition to receive the finish.

No painting on exterior work shall be done during wet or foggy weather.

30.8. SYSTEMS:

The following systems shall be used:-

stain	- interior only	- 2 coats Resene Colourwood spirit stain and Resene satin polyurethane mixed.
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Stain	- exterior	- 2 coats oil based stain directly
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Semigloss acrylic	- on timber or chipboard.	- 1 oil based sealer 2 coats semigloss acrylic
Semigloss acrylic	- on concrete or masonry	- 2 coats semigloss acrylic directly applied.
Full gloss acrylic	- on galvanised steel	- 1 coat etching primer 2 coats full gloss acrylic.
Full gloss acrylic.	- on P.V.C.	- 2 coats full gloss acrylic directly applied.
Enamel (interior & exterior)	- on timber	- 1 tinted oil based undercoat - tinted 1 coat oil based high gloss enamel.

30.9.

WALLPAPER:

To all Gibraltar board walls - stop flush ready for paper and fix wallpaper to all Gib. surfaces.

All papers to be hung plumb, well stuck down, with all patterns registering and pattern sequences level. All ends neatly trimmed.

Size walls as required by paper manufacturer. Paste shall contain an anti-fungicide.

Allow a P.C. Sum of \$18-00 per roll for supply only of paper. Allow separately for all labour, profit and overheads.

Roof Beams

① Dining area span 3m
carrying 1.5m floor & 3m roof + 1.5/2 of roof.
+ 3m hgt of wall
say allow for 3m roof @ 360 kg DL x 2 = 720
210 LL 210
610 kg DL+LL 970
floor DL+LL = 2.5 kN/m 20 DL+LL = 3.0
of load to beam = $3 \times 61 + 15 \times 2.5 = 5.6 \text{ kN/m}$
∴ require for 2 DL+LL = 7.4 kN/m
+ wall = $0.75 \times 2 = 1.5 \text{ kN/m}$ + above roof = $0.9 \times 97 = 0.87 \text{ i.e. } 9.8 \text{ kN/m}$
∴ 250 x 100 OK as wall above
∴ acts as beam as well

② between Dining & Casual Dining
Floor load only but spans much less
∴ 250 x 100 OK

③ Kitchen alcove:
Corner tip: loading from roof only
DL+LL = 610 kg
span = 900 mm
∴ load = 61 kN/m
span = 2.5m
Support 150 x 50
or 125 x 50

④ Kitchen alcove: Cantilever lintels.
Carry floor & roof & some wall from above
+ 1/2 lean to roof
ie. uDL from floor = $\frac{3}{2} \times 2.5 = 3.75 \text{ kN/m}$
roof = $\frac{6}{2} \times 61 = 183 \text{ kN/m}$
leanto = $\frac{1.5}{2} \times 61 = \frac{45.75 \text{ kN/m}}{6.06}$
+ pt load at corner = $61 \times 2.5 = 0.76 \text{ kN}$

∴ that per beam as cantilever
loading = 6.06 kN/m
∴ as propped cantilever w/ pt load = $6.06 \times \frac{3}{8} = 2.265 \text{ kN}$
∴ to other beam too $2.265 + \frac{0.76}{2}$
∴ beam (a) xl = $6.06 \times 1.6 + \frac{0.76 \times 1.6}{2} = 2.54 \text{ kNm}$

beam 4(b)

$$\begin{aligned} \text{Span} &= 1.4 \text{ m} \\ M &= 2.26 \times 1.4 + 0.76 \times \frac{2.4}{2} \\ &= 4.08 \text{ kNm} \end{aligned}$$

for 250 x 100 $Z = 932.7 \times 10^3$

$$\text{O.O Max } f = \frac{4.08 \times 10^3}{933} = 4.4 \text{ N/mm}^2 \text{ OK}$$

in fact moments would be more equal with distribution due to deflection.

⑤

Guests Room:

Beam span 3.6 m

$$\text{Carries } \frac{1.5}{2} \text{ of light floor } \times 2.5 = 3.75$$

$$+ \frac{3.5}{2} \text{ roof } \times 0.97 = \frac{1.7}{5.45 \text{ kN/m}}$$

O.O. 250 x 100 OK

⑥

Bedroom Beam:

carries wall (sliders) above
+ roof above
+ floor above

$$\begin{aligned} \text{ie wall } 2.4 \times 0.5 &= \\ \text{roof } \frac{3.5}{2} \times 0.97 &= \\ \text{floor } \frac{5}{2} \times 3.0 &= \end{aligned} \left. \vphantom{\begin{aligned} \text{ie wall } 2.4 \times 0.5 \\ \text{roof } \frac{3.5}{2} \times 0.97 \\ \text{floor } \frac{5}{2} \times 3.0 \end{aligned}} \right\} 10.4 \text{ kN/m}$$

Span 3 m. 250 x 100 OK as = last
LL for bedroom only needs to be 1.52 kN/m.
check DL + LL only.

$$\begin{aligned} 2.4 \times 0.5 \\ \frac{3.5}{2} \times 0.61 \\ \frac{5}{2} \times 2.0 \end{aligned} \left. \vphantom{\begin{aligned} 2.4 \times 0.5 \\ \frac{3.5}{2} \times 0.61 \\ \frac{5}{2} \times 2.0 \end{aligned}} \right\} = 7.3 \text{ kN/m.}$$

require 300 x 100

⑦

Bathroom Beam: carries part roof $\frac{5}{2} \times 0.97 = 6 \text{ kN/m}$.

some light floor $\frac{1}{2} \times 2.5$

Span = 2.5 m

O.O. 250 x 100 OK.

⑧

Bedroom Beam: carries roof only span 2.2 m

O.O. 200 x 100 OK.

(7) Gallery beam: Span 2.3m
 Carrying wall above 2.4 x 5 }
 + floor of garage 1 1/2 x 3.0 } = 5.7 kN/m
 + roof 1/2 x 9.1 }
 0% 250 x 100 OK.

(10) a) Bedroom Carrying roof only 1.25 x 50 OK from kitchen design.

(10b) Caries wall above = 2.4 x 5 = }
 + roof 7 1/2 x 9.1 = } 8.97 kN/m
 + floor 3 1/2 x 3.0 = } (2 DL + LL)
 (DL + LL = 6.2 kN/m)

Span = 3.5m
 300 x 100 OK would pay to select good grade for this load.

(10c) Caries Roof over only + perhaps some floor depending on direction of joists
 Make same as 10b1 to match i.e. 300 x 100

Suggest post 100 x 100 c/c for 31 kN

(11) Joists over garage
 Span 2.5m rained use 200 because of upper shear loadings in partition walls
 @ 400cs multigrade or for 40 kN/c

(12) Workshops: Caries roof = 4 x 0.61 }
 wall = 2.6 x 4 } = 7.8 kN/m
 floor = 3.5/2 x 25 }

Span = 5.8m M = 7.8 x 5.8^2 / 8 = 33 kNm

if f = 100 MPa Z = 33 x 10^6 / 100 = 330 x 10^3

i.e. 250 UB 31

but as bathroom bedroom over use 200 UB 25 OK

(13)

Garage beams: Span 6.8m
Carry 2 floors + roof

$$\begin{aligned} \text{Floor 1 DL+LL} &= 2.5 \text{ kPa} \\ \text{Floor 2 DL+LL} &= 2.0 \text{ kPa} \\ \text{Roof UL+LL} &= 0.6 \\ &= \underline{5.1 \text{ kPa}} \end{aligned}$$

Spacing room 2.5m

$$\therefore M = \frac{5.1 \times 2.5 \times 6.8^2}{8} = 74 \text{ kNm}$$

$$\text{Try } \frac{310 \text{ UB } 40}{f} = \frac{74 \times 10^3}{561} = 132 \text{ N/mm}^2$$

$$\begin{aligned} \text{check } \delta &= \frac{5}{32} \times \frac{12.75 \times 6.8^4 \times (10^3)^4}{201.5 \times 10^3 \times 85.2 \times 10^6} \\ &= 20.7 \text{ mm} \quad \frac{1}{318} \text{ span OK} \\ &\text{provide say } 8 \text{ mm} \end{aligned}$$

(14)

Beams over games room:

span = 5.6m
Carry effectively two floors + no roof

$$\therefore M = \frac{2 \times 2.5 \times 5.6^2}{8} = 53 \text{ kNm}$$

$$\text{Try } \frac{250 \text{ UB } 31}{f} = \frac{53 \times 10^3}{150} = 353 \text{ N/mm}^2$$

Must use 250 UB 37 or 300 UB 40

$$\begin{aligned} \text{check } \delta &= \frac{5}{32} \times \frac{12.75 \times 5.6^4 \times (10^3)^4}{201.5 \times 10^3 \times 55.6 \times 10^6} \\ &= 15.5 \text{ mm} \\ &\text{provide } 6 \text{ mm} \end{aligned}$$

(15)

Posts under ends of UB's
= 6kPa load $6.8 \times 12.75 = 43.4 \text{ kN}$

$$\text{In games room} = \frac{5.6}{2} \times 12.75 = 35 \text{ kN}$$

require timber posts 150 x 100

(16)

Ridge beam over lounge

Span 3m normal

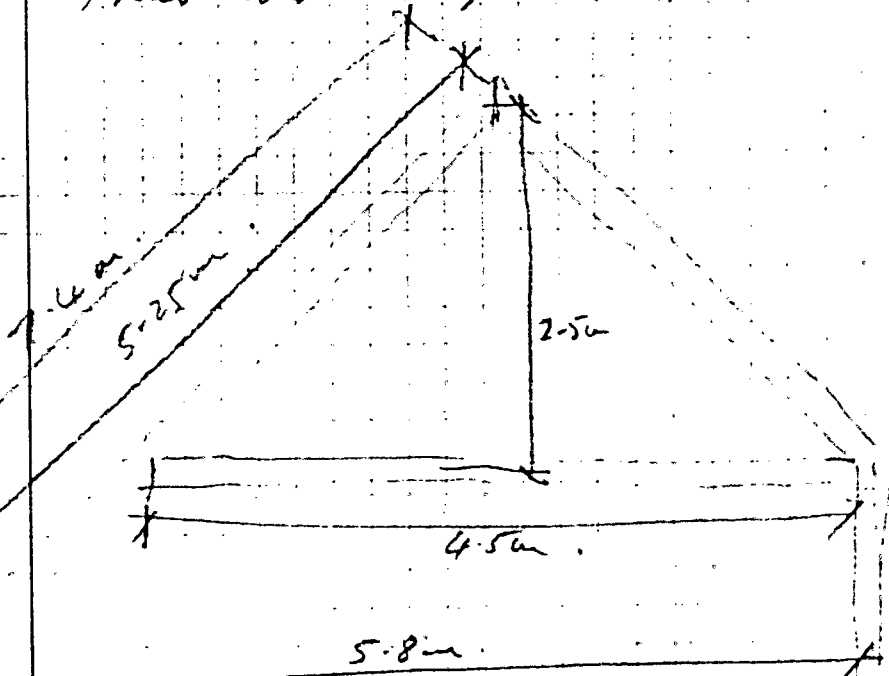
$$\text{Roof load } 2DL+LL = \frac{6}{2} \times 1.91 = 2.76 \text{ kN/m}$$

$$DL+LL = 1.22 \text{ kN/m}$$

∴ require 200x100

(17)

Truss over lounge at 3m cov.



$$2DL+LL \text{ on roof} = 1.97 \text{ kPa}$$

$$\therefore \text{ reactions on walls} = \frac{5.8}{2} \times 1.97 \times 3 = 8.5 \text{ kN}$$

— on covered portion (neglect restraining nature of lower level wall over kitchen)

$$\therefore \text{ M in covered beam} = 2.5 \times 1.3 = 11.1 \text{ kNm}$$

check loading on roof:

$$\begin{aligned} \text{shingles } 15 \text{ kg/m}^2 &= 147 \text{ Pa} \\ \text{gutter } 150 \times 500 \text{ g/corr} &= 53 \text{ Pa} \\ \text{10mm wet debris p.b. } 6.1 \text{ kg/m}^2 &= 60 \text{ Pa} \\ &= 260 \text{ Pa} \end{aligned}$$

$$\text{at } 45^\circ = 367 \text{ Pa}$$

$$\therefore DL+LL = 367 + 240 = 607 \text{ Pa}$$

$$2DL+LL = 984 \text{ Pa OK}$$

for 300 x 100 $E = 1350 \times 10^3$
 $f = \frac{11.1 \times 10^3}{1350} = 8.2 \text{ N/mm}^2$ (for tie)

Use of one laminated timber beam.

Assume Radiata Pine No 1 spanning 10% etc

Applied load $= 1.6 \times 8.5 = 11.9 \text{ kN}$.

∴ Try 90 wide x 315 from 50 mm lam.

∴ $f_c = \frac{11.9 \times 10^3}{27.7 \times 10^3} = 0.43 \text{ N/mm}^2$

$f_b = \frac{10.1 \times 10^3}{1455} = 7.6 \text{ N/mm}^2$

∴ $\frac{0.43}{10.9} + \frac{7.6}{10.6} = \text{OK. } \checkmark$

Bottom chord tie load $= 1.416 \times 8.5 = 12 \text{ kN}$.

∴ use 225 x 88 for appearance.

Under compression OK as approx 22 kN under use condns.

Provide bolted connection for 12 kN

i.e. 6 mm dia

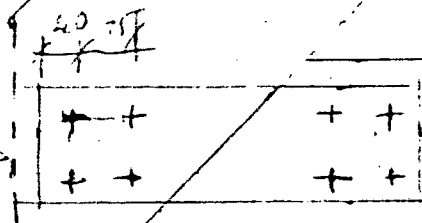
16 mm bolts OK for $2 \times 2.76 \text{ kN} = 5.52 \text{ kN}$

perp to grain

at 45° OK for $3.6 \text{ kN} \times 2 = 7.2$

∴ require 2 - 16 mm ϕ bolts.

Opp side



500 x 150 x 5 ply.

4 - 12 ϕ bolts each side

or 2 - 16 ϕ each side.

(18)

Garage doorway 6.8m span

Total sldg area above garage = $10.5 \times 7 = 73.5 \text{ m}^2$

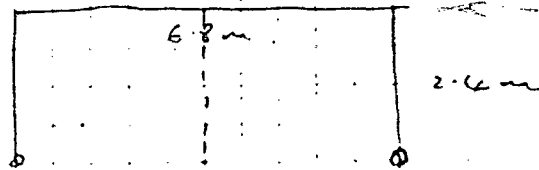
Total DL + CL₂ =

Roof	73.5×0.62	=	45.6 kN
Top floor	30×1.0	=	30
1st floor	73.5×1.2	=	88.2 kN
Walls	73.5×1.0	=	73.5
			<u>237 kN</u>

For portal frame of steel

$$Cd = 0.8 \times 0.1 \times 0.15 = 0.096$$

$$\therefore \text{load to portal} = \frac{237 \times 0.096}{2} = 11.4 \text{ kN}$$

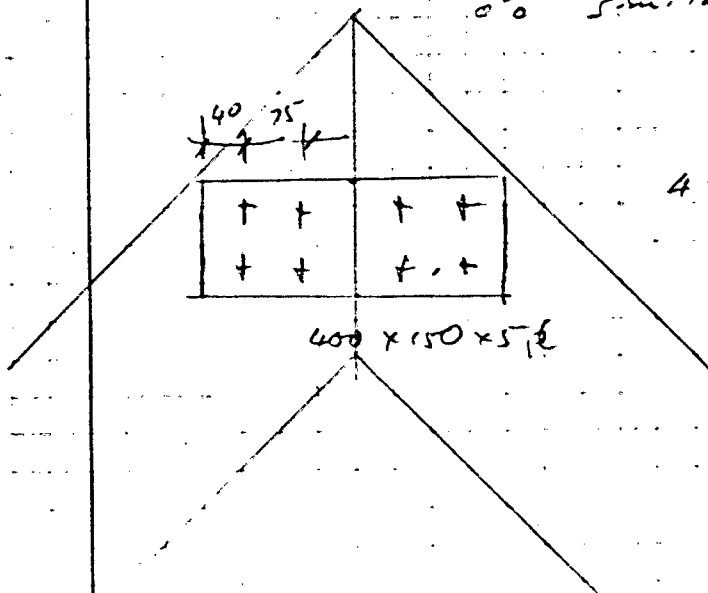


$$M_{max} = 11.4 \times 2.4 = 27.4 \text{ kNm}$$

$$\therefore 200UB25 \quad f = \frac{27.4 \times 10^3}{\frac{32}{2}} = 118 \text{ N/mm}^2 \text{ OK}$$

provide 64x64 x 3.2 RHS column to centre

(17) Cont'd. apex plate load similar to tie load.
 \therefore similar to

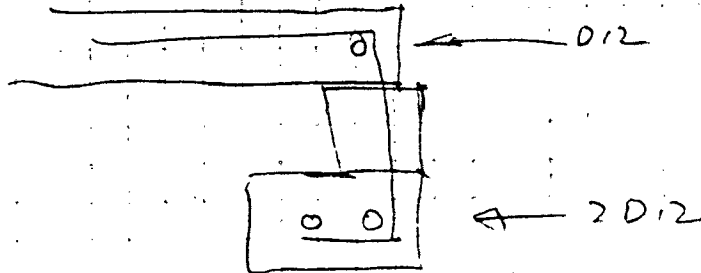


4 - 12 ϕ bolts each side
or 2 - 16 ϕ

Studs as per 1255 3604
 At first floor level 100 x 75 top plate
 all other 100 x 50
 studs @ 480 c.c.s 100 x 50
 joints @ 600 c.c.

Foundation - good ground conditions.
 Reinforced floor slab

As per 1604
 300 x 200 c.c. with 2 D12 + 1 D10
 in slab.



D10 starter @ 600 c.c.
 Topped 75 into slab.

Lamont Bycroft & Partners

Architects Engineers & Valuers
162 Wicksteed Street
Wanganui Phone 53959

Client: M. Eden

Subject: Proposed House
Shakespeare Road.

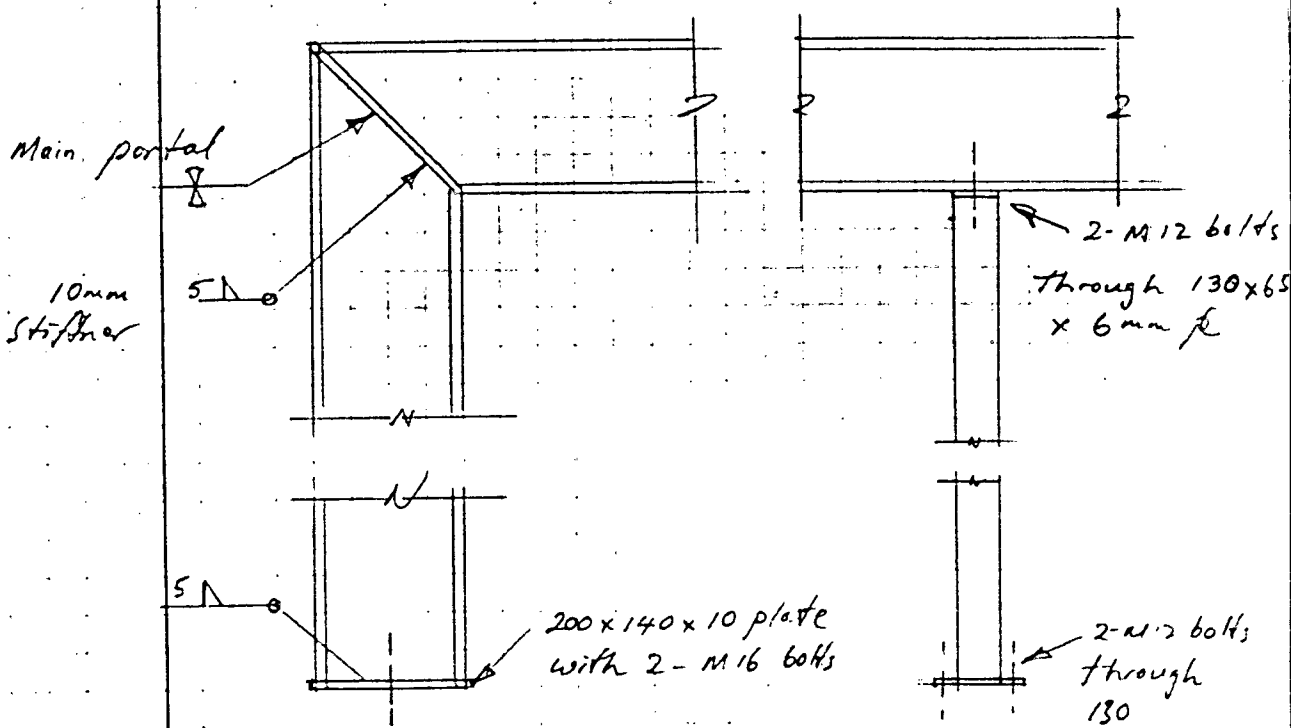
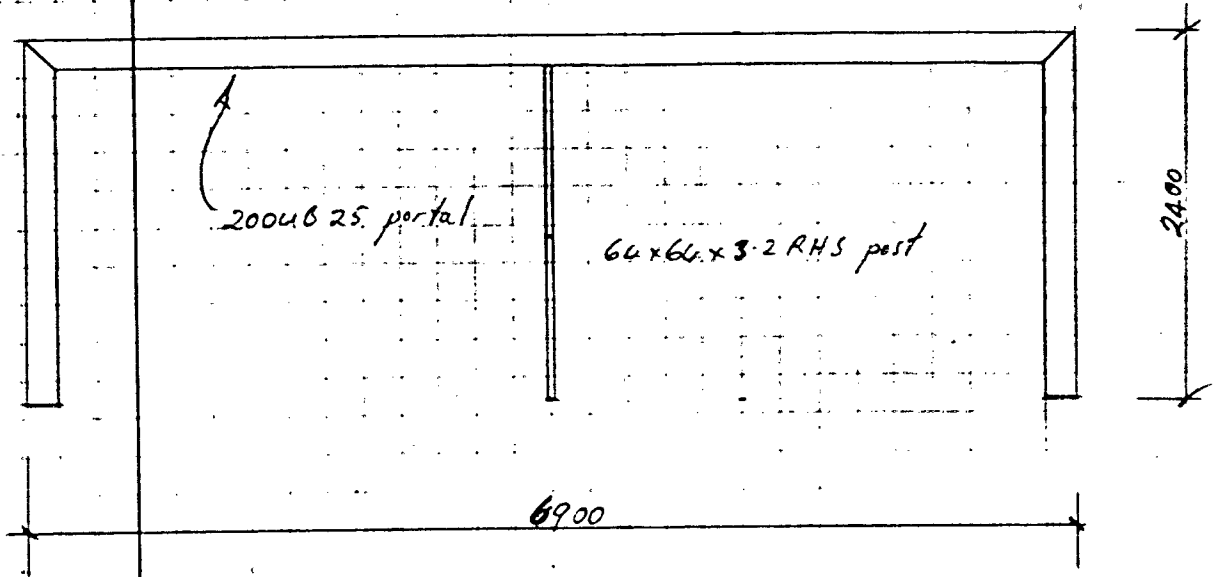
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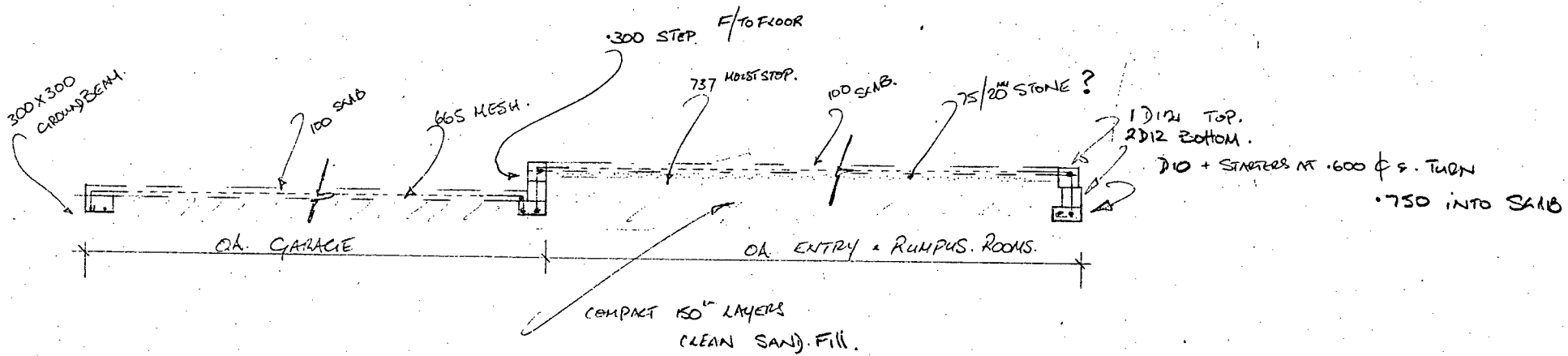
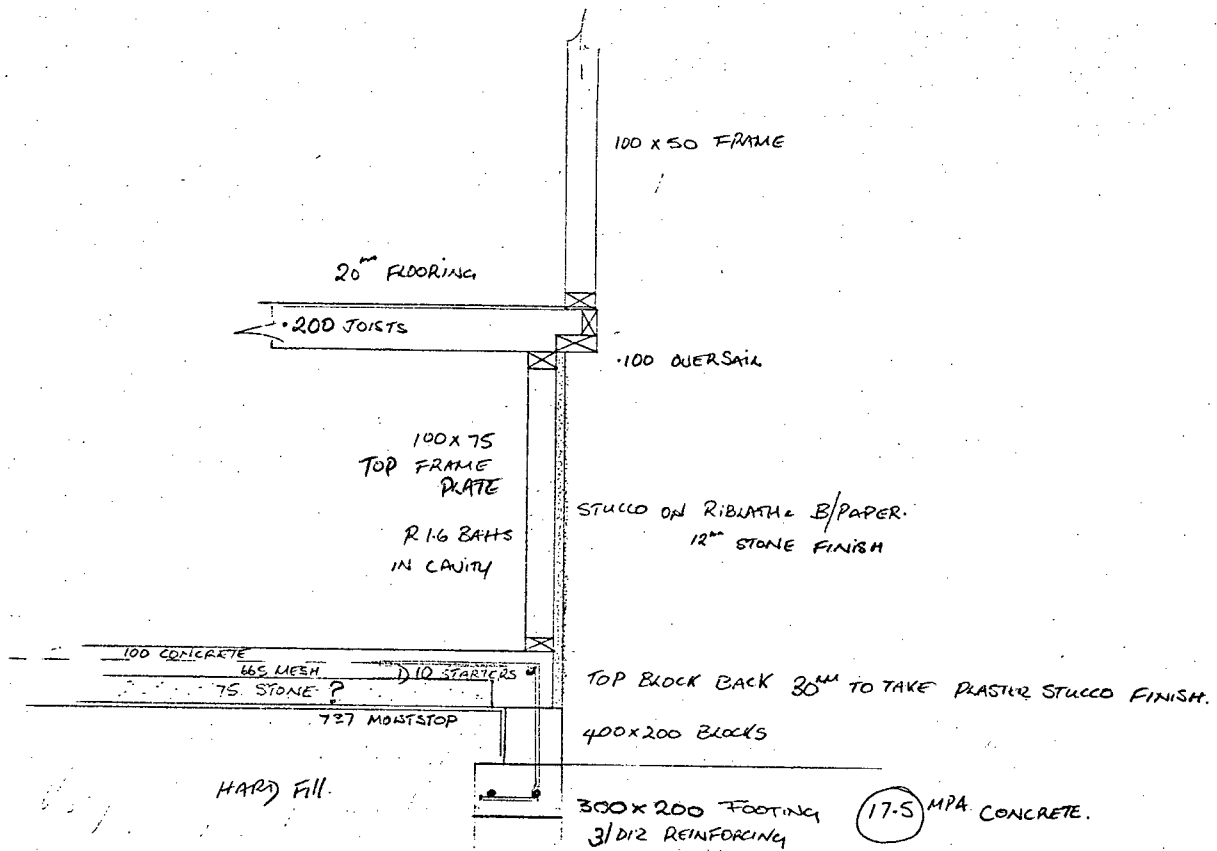
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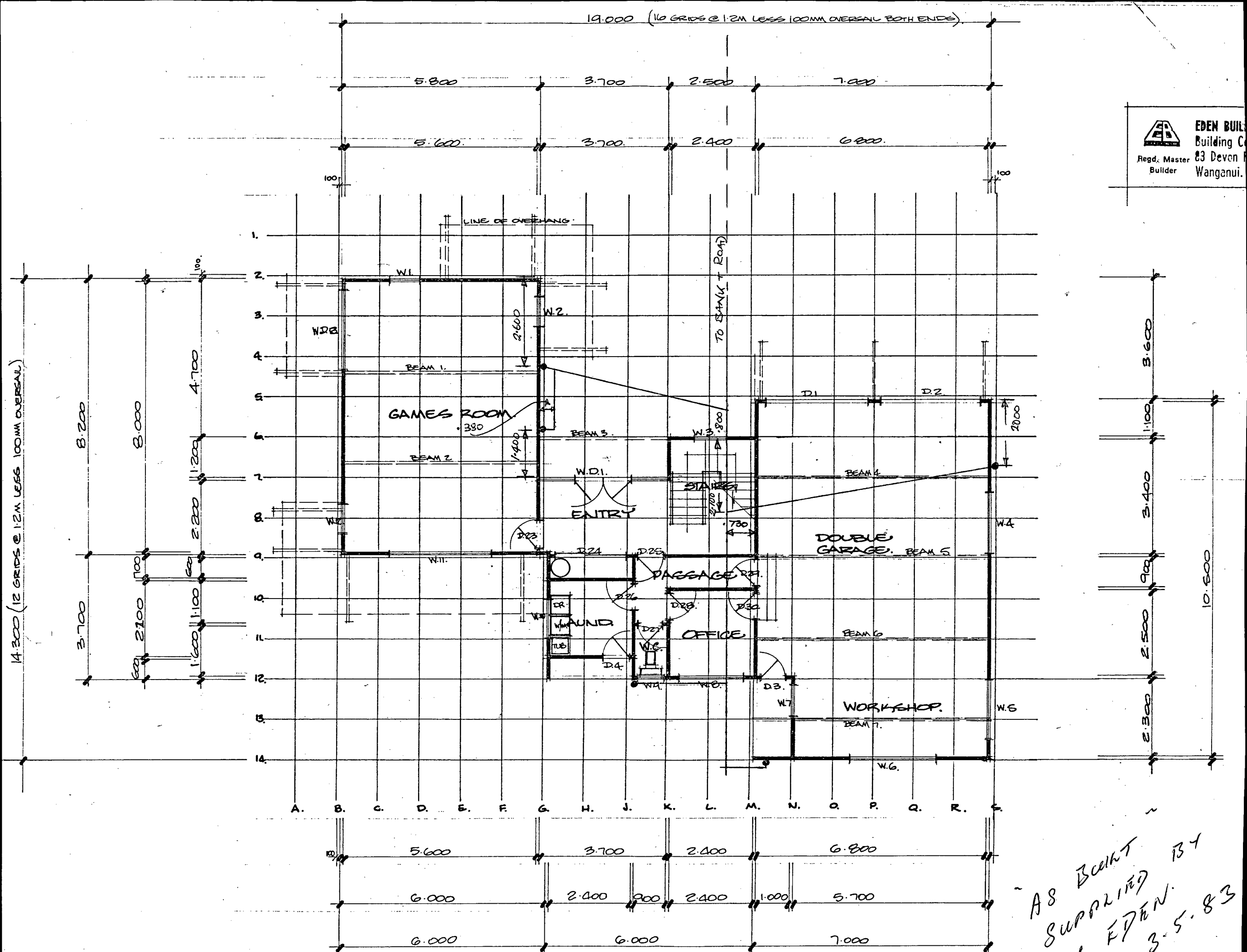
12/11/82

By



J. E. Bycroft





GROUND FLOOR PLAN. STORMWATER / EDEN / 22 SHAWESPEAR ROAD
 SCALE: 1:100

WANGANUI CITY COUNCILBUILDING PERMIT

Owner: M. EDEN
 Builder: EDEN BUILDERS
 Type of Work: ERECT DWELLING AND GARAGE
 \$155,000

Footway No.:
 Valuation No.: 13260/127
 Permit No.: A 32632
 30.11.82

INSPECTIONS

DATE	
17.12.82	NOT STARTED
28.2.82	GAR & HOUSE FOUNDATION
8/4/83	" " "
13/6/83	no further progress
22/6/83	Floor slab inspection OK.
5/9/83	Start of wall framing
15/10/83	Framing
16/12/83	Roofing & start of wall cladding
17/2/84	Roof on, partly closed in.
28/6/84	Exterior cladding and windows.
17/8/84	" " " "
19/9/84	" " " "
29/11/84	" " " "

22 SHAKESPEARE RD Street Lot 11 DPS 1304 Section Block

DATE

17/1/85	Exterior finishing
9/10/85	slow progress to exterior finishing
22/4/86	" " " " "
1/11/88	Complete

VALUATION ROLL No.

1326/127/00

LEGAL DESCRIPTION

Lot 11 DB 1304

13558

22A Shakespeare Road

DRAINAGE & PLUMBING PERMITS

BUILDING PERMITS

Existing Use

Dwell

Permit No.

Date

Permit No.

Date

Nature of Work

Designation

~~3179~~ 2/3/51

Dwelling

~~5068~~ 6/5/54

Garage

Zoning

R2

~~3527~~ 9.9.80~~J034149 CANCELLED DWELLING & GARAGE~~

4092

12.11.82

A 32632 30.11.82

DWELLING & GARAGE

Undersize Section

Building Line Restriction

Proposed Street

Proposed Service Lane

Proposed Access Way

Dangerous Goods Licence

Fill Points

Housing File No.

Underground Tank

Type

Capacity gals

Water Connection

Reg. No.

Amt. Paid.

Conditional Use

File:

Water Meter

Water Bore

Drainage Connection

Reg. No.

Amt. Pd.

Specified Departure

File:

Pool

Filtered

Unfiltered

Back Flow Preventer

Stormwater Connection

Reg. No.

Amt. Pd.

Dispensations

Reference

Date

1221

AT Cost

Reg. No.

Amt. Pd.

Kerb Crossing

Heating

Gas

Oil-fired

Coal-Wood

Electric

Other