Sheet No. 11

BUILDING APPLICATION FORM

WELLINGTON,

To the City Engineer,
Wellington.

Date ..... 194....

Sir,—

I hereby apply for permission to ERECT / ALTER / CONVERT / REINSTATE Raid Shelter

at Courtenay Pl (House No. and Street) for National Bank of NZ (Owner)

of Courtenay Pl (Owner's Address) according to Plans

and Specifications deposited herewith.

Particulars of Land—Lot No. ..... TOWN ACRE or D/P .....

Frontage ..... By Depth of ..... Area .....

Particulars of Building—Foundations ..... Walls .....

Roof ..... Area of Ground Floor ..... square feet

Area of Outbuildings ..... square feet.

Estimated cost of:

Building £ ..... Plumbing and Drainage £ ..... Total £ 748

Yours faithfully,

Love Constr Co ..... Builder

Postal Address .....

G. Deslandes Ltd. 3910

AIR RAID SHELTER. Date. 16-3-42

INSPECTION SHEET. Locality. ~~Zo~~ ~~Aeo~~ No 3

B.

CITY ENGINEER'S DEPARTMENT.

BUILDING BRANCH.

Application for Raid Shelter for National Bank Bld. Courtenay Pl

OWNER: National Bank of N.Z. Ltd.

		Checked By	Date.
1. Description of Lot, Locality & House No.	✓	[illegible]	16.3.42
2. Builders and Owners address	✓	[illegible]	16.3.42
3. Value on application			
4. By-laws general	✓	[illegible]	16.3.42
5. Plumbing & Drainage Department.		[illegible]	17-3-42
6. Deposit £5/-/-		[illegible]	16/3/42

REMARKS: Metal Bonding to brickwork.
Closets to be made flyproof.

AIR RAID SHELTERS. Date 16-3-42

INSPECTION SHEET. Locality Te Aro 3

8.

CITY ENGINEER'S DEPARTMENT.

BUILDING BRANCH.

Application for Raid Shelter for National Bank Bld. Courtenay Pl.

OWNER: National Bank of N.Z. Ltd.

	Checked By	Date.
1. Lateral Protection		
2. Overhead Protection		
3. Protection against falling debris		
4. Stability		
5. Gas proofing		
6. Space required in shelter		
7. Accessibility	J.J.	16/3/42
8. Entrance and exits		
9. Drainage		
10. Sanitary facilities		
11. Lighting		
12. Dangerous pipes etc.		
13. Structural calculations		

REMARKS:

S P E C I F I C A T I O N

OF

Work required to be done and
materials to be used in the
construction of

R A I D S H E L T E R

FOR

THE NATIONAL BANK OF NEW ZEALAND LIMITED

BUILDING

COURTENAY PLACE - WELLINGTON

in accordance with The Emergency Shelter Regulations 1942, The New Zealand Emergency Standard Code for Raid Shelter, and drawings prepared by, instructions to be given by, and to the entire satisfaction of the Architects

MITCHELL & MITCHELL

(C.H. Mitchell, A.R.I.B.A.)

(Allan H. Mitchell, A.R.I.B.A.)

National Bank Chambers,

WELLINGTON.

G E N E R A L C L A U S E S

(See also other trades and special clauses)

(G.1) SITE. The site is that of **the basement of the Courtenay Place premises of the National Bank of New Zealand Limited,** and the Raid Shelter is in the position shown on the drawings.

(G.2) DRAWINGS. The drawings forming part of this contract and herein referred to are as follows:

Drawing No.1. Plans and sections as existing and as altered to a scale of 8ft. to 1 inch. Details to a scale of 2ft. to 1 inch Block plan to a scale of 40ft. to 1 inch.

(G.3) TENDERS CLOSE. Tenders close at ——— on ——— ——— and must be delivered by that time to the Architects' Office, Wellington, and marked "TENDER" on outside.

(G.4) DEPOSIT CHEQUE. A deposit cheque of ——— made payable to the Architects must be forwarded with the tender.

(G.5) CONDITIONS. The General Conditions of Contract are those issued by the New Zealand Institute of Architects together with additional clauses, a copy of which may be seen at the Architects' Office, and will form part of this contract.

(G.6) INDEMNITY. The policy of insurance to cover compensation to workers required under Clause 25 of the General Conditions of Contract shall be a comprehensive policy taken out by the Contractor to cover all workmen employed on the work under this contract, whether directly employed or employed by any person, firm or company carrying out work in connection with the contract as subcontractor and such policy

shall be deposited by the Contractor with the Architects before work under the contract is commenced, notwithstanding anything contained or implied in Clause 25 of the General Conditions of Contract.

(G.7) PUBLIC RISK INSURANCE. Before any work under this contract is commenced the Contractor shall take out a policy of insurance with an approved Company to cover Public Risk Claims for an amount of **£2000. 0.0 (Two thousand pounds) --------** for any one claim. This insurance policy shall be for the duration of the contract and must be taken out in the joint names of the Contractor, Subcontractors and Employer, and the Company shall be instructed to forward the relative cover note to the Architects.

(G.8) DATE OF COMPLETION. If any tender is accepted the site will be handed over immediately and the Contractor must be prepared to commence building operations forthwith and complete the whole of the works **within 5** weeks from date of acceptance of tender.

(G.9) OVERTIME. In view of the urgency of the work it has been determined that overtime should be worked on Raid Shelter contracts and in addition to normal weekly working hours Contractors are to allow for working overtime up to ten hours weekly.

(G.10) CONTINGENCIES. The Contractor shall allow the lump sum of **£50. 0. 0 (Fifty pounds) ---------** for contingencies. This sum is to be expended only as the Architects may direct and will be deducted if not required in whole or in part from the amount due to the Contractor on completion of the work.

(G.11) PERMITS. All work to be carried out in conformity with the local by-laws. All building, water, lighting, drainage or other permit as required by the local or other authorities must be taken out by the Contractor before each particular

work is commenced. No fees will be charged for permits for Raid Shelter construction work.

(G.12) MATERIALS, LABOUR & SERVICE. The Contractor shall provide all materials, labour and temporary services, except where otherwise specified, necessary for the execution and completion of the work described in this specification.

He shall finish the work to the true intent of drawings and specifications taken together, whether a portion may or may not be particularly shown or described, provided same is to be reasonably inferred therefrom.

(G.13) SETTING OUT. The Contractor is to do the setting out of all works and is to be responsible for their accuracy and must amend any errors. Figured dimensions on drawings are to be followed in preference to scaled ones.

(G.14) FOREMAN. A competent general foreman shall be constantly on the works, and any directions or explanations given by the Architects or their representative to such foreman shall be held to have been given to the Contractor.

(G.15) PURCHASE OF SPECIAL GOODS. All fittings, etc. for which p.c. prices or lump sums are specified are to be purchased from firms as directed by the Architects. The p.c. prices quoted shall be the p.c. prices in Wellington and the Contractor will be entitled only to the usual trade discount. Where lump sums are specified such as for special goods, the amounts allowed are nett, and the Contractor must add his own profit to such sums specified, as no discounts will be allowed. Should the cost be more or less than these amounts the nett difference shall be added to or deducted from the contract price and the Contractor shall not be allowed any further profit.

(G.16) ROADS AND ADJOINING PROPERTIES ETC. The Contractor shall make good at his own expense any damage that may be done to roads, footpaths, channels, adjoining properties or buildings during the progress of the work.

(G.17) PROTECTION OF COMPLETED WORK. The Contractor must properly protect his work, and any work erected by subcontractors, from injury until the final completion.

(G.18) ATTENDANCE. The Contractor shall attend on, cut away for, and make good after all trades.

(G.19) CLEANING UP. The Contractor shall leave the whole of the work at the completion of the contract perfectly clean and fit for immediate use.

(G.20) REMOVALS. The Contractor shall pull down and remove all debris from site and that portion of the existing building and any walls, partitions, floor s, staircases, etc. not required to produce the results shown upon the drawings.

Every precaution shall be taken by the Contractor that no injury or damage shall accrue to other portions of the building or property, and he shall be held responsible for and shall make good as the Architects may direct any such injury or damage.

(G.21) REMOVALS AND ALTERATIONS TO EXISTING WORK. Form new opening in wall at foot of stairs from tenants' entrance to basement. Form new opening in wall of present Vouchers Store as access to Compartment 2 of shelter. Cut openings through slab of entrance steps and front basement wall, and prepare to be formed as emergency exit in recess beside main entrance. Remove wrought iron railing enclosing front of recessed space.

Where Neuchatel dampcourse, both vertical and horizontal is cut in forming new openings, it is to be made good in a similar manner to existing work, and completely watertight.

Form new opening in wall of present Vouchers Store as emergency exit between compartments 2 and 3 of shelter.

C O N C R E T O R.

(See also other trades and special clauses)

(Co.1) GENERAL. The concrete for this work, where it can be conveniently arranged, shall be pre-mixed concrete obtained from the Certified Concrete Company, the grade being their 2500 lbs. mix. The object of this is to obtain the supply of concrete necessary by the quickest means in view of the urgency of Raid Shelter work. Should, however, the Contractor have satisfactory equipment and organisation for mixing concrete on the job, and the Architects are satisfied that no loss of time would be occasioned thereby, the Contractor will be permitted to carry out the work in this way subject to the following specification.

(Co.2) CONCRETE. All concrete shall be composed of by measure four parts of approved perfectly clean shingle and two parts of sand to one part of approved, fresh, best Portland cement. Sand to be pit or river sand, and must be well washed if so directed, and shingle to be clean angular aggregate graded from 3/4" to 1/8".

(Co.3) MIXING CONCRETE. Concrete to be mixed in an approved batch type mixer in a proper workmanlike manner, and only enough water is to be used to allow proper mixing and reasonable workability of concrete when filling boxing. Excess of mixing water to be strictly avoided. Water to be fresh and clean. Concrete must be used immediately after mixing. All concrete to be properly tamped when filling boxing.

(Co.4) BOXING. Properly box where and as necessary. Boxing to be rigid, plumb and well braced, with tight joints, easily removable without injury to concrete, and the whole must be well wetted before concrete is poured.

(Co.5) CONCRETE BLOCKS. In lieu of boxing the Contractor will be permitted for any standard 14" thick wall work to use the approved special interlocking hollow concrete block available for Raid Shelter work. These blocks are to be laid

true and plumb without cement mortar joints and then the whole of the cavities filled solid with concrete as before specified.

(Co.6) REINFORCEMENT. All reinforcing steel where specified or shown on drawings shall be round mild steel rods free from rust, scale, dirt, and to comply with British Standard Specification for reinforced concrete construction. Rods to be perfectly straight between bends, to be bent cold and placed as described. Bind all intersections with No.16 gauge black iron wire, and maintain reinforcement in position until concrete is poured. All ends of rods to be hooked.

(Co.7) BUILDING IN. Build in all bolts and fixings shown on the drawings or required for the proper securing of timber to the concrete work.

(Co.8) WORK. The Contractor shall carry out the whole of the work coloured purple on the drawings in concrete of the thickness and sizes shown and reinforced where specified as described below.

Walls surrounding compartments of Raid Shelter and screen walls to entrances, exits, windows, emergency exits, etc., to be formed of concrete 14" thick, unless otherwise indicated, and of the heights shown on the drawings.

Compartment walls unless otherwise shown on drawings or specified, to be carried up to soffit of beams or slabs over and filled in solid.

Where new concrete work abuts against existing concrete brick or plaster the surface shall be thoroughly hacked and roughened. Where the existing adjoining surfaces are finished with plaster, distemper, paint or other finish, this finish has to be removed in order to expose the original structural surface before hacking and before new concrete is poured the surface must be thoroughly wetted and slurried. This does not apply to the whole surface of walls shown to be thickened by the addition of new concrete work, but only to

beam, pier, floor, wall or ceiling slabs against which the tops, sides or bottoms of new concrete walls abut. Compartment walls unless otherwise specified are to be built upon the existing floor slabs. Where such walls and screen walls to entrances, exits and windows are built upon the ground, they shall have footings 27" wide by 9" deep unreinforced, the foundation to be upon an approved bottom and in no case less than 1'6" below ground.

All exposed concrete work to be left with fair face and any irregularities to be filled flush with surface.

Entrances to compartments generally to be 3'0" wide by 6'6" high in all walls except those 8'0" high or less, in which case entrances shall be full height of wall.

Emergency exit openings between compartments shall be of the sizes indicated on the drawings but shall in no case exceed 2'9" wide by 3'6" high.

Ventilation openings shall be left in compartment walls where directed on site, 6" x 3" in size and spaced approximately every 6'0" of length of wall.

Where existing brick or concrete walls are shown on drawings to be thicknessed, the additional thickness to be as indicated on drawings.

(Co.9) MANHOLE EXIT. Where opening is cut through slab of entrance steps beside main entrance as described in 0.21 above, prepare opening for and fix in position two cast iron manhole covers and frames and make good surrounding work watertight. Enclose space beneath slab with 6" thick concrete walls & floors.

(Co.10) CONCRETE STEPS. Form two new concrete steps at foot of stair from tenants' entrance to basement in new openings described above under 0.21.

B R I C K L A Y E R

(See also other trades and special clauses)

(B.1) MORTAR. The mortar in all brickwork to be composed of, by measure, two and one-half parts of sand to one of lime, to be mixed not earlier than the day before using, and one part of cement added at time of using.

(B.2) BRICKWORK. Where brickwork is indicated coloured red on drawings it is to be built either loosely or with mortar joints as specified hereunder. Bricks are to be of standard quality and well wetted before laying in mortar and the whole is to be built true and plumb to the thicknesses as shown or specified hereunder.

(B.3) BLOCKING UP WINDOWS. Where windows are shown blocked up with brickwork the glass shall be removed, carefully packed, and stored where directed. Unless otherwise shown to the contrary the windows shown blocked shall be built up with brickwork in two thicknesses, the inner portion to be 4.1/2" thick placed wherever possible inside and slightly clear of the window, and the outer portion 9" thick similarly placed on the outside of the window. This is the system to be adopted where the wall is of sufficient thickness. Where windows however are in thin walls and the above arrangement is not practicable, both thicknesses may be built externally on a small concrete foundation with a concrete weathered top. Both walls in all cases are to be honeycombed every 9" for a 2.1/4" space. The inner wall is to have two rows of honeycombing near the top and the outer wall two rows near the bottom.

Where emergency exit openings are shown coloured red on drawings they are to be bricked up with bricks laid loose 14" thickness. The whole is then secured by means of 2" timber sheathing to each face. The sheathing is to be held together by two pieces of 4" x 2" on each side and should project 3" beyond the limits of the hole all round. Both faces of the sheathing are to be bolted together through the loose brickwork with 3/8" diameter bolts provided with wing nuts on the inside.

C A R P E N T E R

(See also other trades and special clauses)

(Ca.1) TIMBER. The whole of the constructional timber required for the work is to be Building A Rimu. All timber for tops and backs of seats, doors and frames, etc., unless otherwise specified, to be Building A Rimu dressed.

(Ca.2) TIMBER STRUTTING. Where timber strutting is indicated upon the plans it shall be constructed with timber of the scantlings and forms as shown on the details. All timbers are to be strongly spiked or bolted together where shown to ensure the most substantial work.

Where material of the size shown is not immediately procurable, members must be built up of smaller size scantlings to the required size, viz. 8" x 4" beams to be constructed out of two 8" x 2" scantlings, 8" x 6" posts out of three 8" x 2" or four 6" x 2". Where such built up sections are adopted the various scantlings must be securely spiked or bolted or otherwise fixed together so that the built up member will function as a solid piece.

Posts, beams and joists are to be securely wedged up to give continuous bearing at all points of support and also where joists or plates bear against soffits of floor slabs or beams. Grillage bases or sole plates are to be constructed as detailed to spread loads from posts on to floor slabs. All posts are to be cut slightly longer than required and are to be forced into position.

(Ca.3) SEATING. The seating shown on plan shall be constructed in positions shown with framed bearers of 3" x 2" timber spaced not more than 3'0" apart. Each frame to have 3" x 2" upright at back 3'0" high above floor sloping 3" from back of seat. Tops of seats to be 1'6" above floor and 1'3" wide and formed of 1" thick Building A Rimu dressed. Fix 4" x 1" back rail at tops of uprights with top 3'0" above floor. Where seats are shown over grillage bases of posts they are to be built up from the timber of these

bases. Where grillage bases occur other than directly covered by seats the whole or portions not so covered shall be encased with 1" thick boarding to vertical and top faces.

(Ca.4) CLOSET PARTITIONS. Where closets are shown on plan the partitions are to be formed with 3" x 2" studs and plates covered on both sides with 1/4" thick Gibraltar Board fixed with close butted joints and nailed in accordance with the maker's instructions.

Where closets are contained in a separate compartment partitions are to be 6'6" high. Where closets open directly off a portion of the shelter the front partitions and any end return partitions are to be carried full height to ceiling, the divisions between closets being 6'6" high.

Studs are to be spaced not more than 18" apart and are to be dwanged at skirting level and at 2'0" intervals in height. Provide and fix 3" x 1" skirting to foot of partitions.

Door frames to be 1.1/2" thick by width required and rebatted to take door finished with 2" x 1/2" batten to form architrave. The tops of 6'6" high divisions or walls of closets to be finished with 4" x 1" capping.

The doors to all W.C. compartments to be ledged and braced doors made out of 6" x 1" T & G flooring and securely fitted together and each hung with a pair of 12" tee hinges and fitted with strong rim lock with brass furniture.

Provide the lump sum of £7.10.0 (Seven pounds ten shillings) nett for chemical closet unit for each compartment shown and take delivery of and fit same in position shown.

E L E C T R I C I A N

(See also other trades and special clauses)

The Contractor shall allow the lump sum of £75. 0.0 (Seventy five pounds) nett for altering as necessary the existing electric light system, and also for the supply and installation of emergency lighting equipment. This work shall be undertaken by a competent electrical contractor capable of efficiently carrying out the work necessary.

PLUMBER AND GASFITTER

(See also other trades and special clauses)

The Contractor shall allow the lump sum of £25. 0.0 (Twenty five pounds) nett for alterations to any plumbing and gas fitting service runs that may be in the way of new construction work.

P A I N T E R.

(See also other trades and special clauses)

(Pa.1) INTERNAL DISTEMPER. The whole of the surfaces of all new walls, together with any existing work disturbed by the construction of shelter, is to be given one liberal coat of approved oil bound distemper in tint to be directed.

(Pa.2) INTERNAL WOODWORK. The whole of the internal dressed woodwork including closet doors, etc. but excluding seating, is to be treated with oil stain and spirited.

(Pa.3) SIGNWRITING. Provide three boards signwritten with bold 6" block letters the words "EMERGENCY EXIT". Fix one beside emergency exit between compartments 5 and 4 on compartment 5 side of wall. Fix one similarly on Bank side of emergency exit between Bank space and compartment 3, and fix one beside emergency exit in compartment 2 to manhole.

Provide board signwritten with words "RAID SHELTER PUBLIC ENTRY FOR 102 PERSONS" and fix in prominent position where directed at tenants' entrance doorway, and similar board signwritten with words "OCCUPANTS' ENTRY TO RAID SHELTER" and fix inside tenants' entrance.

Road Shelter. Feb 1942

The National Bank of New Zealand Limited,
Building, Courtenay Place, Wellington

Calculations for strutting portion of Ground Floor slab to sustain debris load of 400 lbs/ft².

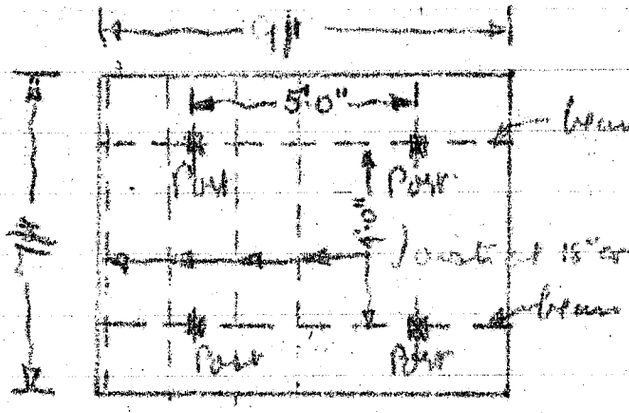


Diagram of Typical Slab Bay.

Building is of reinforced concrete construction.

Compartments Nos 3. 4 & 5 are situated below light areas which commence above Ground Floor ceiling and are flanked by adjoining buildings of considerable height.

It is considered desirable to strengthen roofs of these compartments to sustain a debris load of 400 lbs/ft².

Joists Load 400 x 1.5 = 600 lbs/ft.

Max span 4 ft/ft BM $600 \times 4^2 \times \frac{13}{10}$ = 11,520 in lbs

Cantilever end 1'6" BM $600 \times 1.5^2 \times \frac{13}{2}$ = 7,700 in lbs

For 2" thick joist and max stress 1200 lbs/in².

$200 \times 2 \times d^2 = 11,520$

$d = 5.4$

Use 6"x2" joists @ 16" ctrs.

Beams. Load. 400 x 3.5 = 1400 lbs/ft.

Max span 5 ft. BM $1400 \times 5^2 \times \frac{13}{10}$ = 42,000 in lbs

Cantilever 2 ft/ft BM $1400 \times 2^2 \times \frac{13}{2}$ = 18,200 in lbs.

For 4" thick beam

$200 \times 4 \times d^2 = 42,000$

$d = 9.3$.

Use 5"x4" beams.

Posts

Load: $1400 \times 4.5 = 6,300$ lbs.

Area required to bearing at 500 lbs/in² perpendicular to grain

$$\frac{6300}{500} = 12.6 \text{ in}^2.$$

4" x 4" post sufficient.

Height 7'6" $\quad l/d = \frac{90}{4} = 22.$

Working stress $\quad 1200\left(1 - \frac{1}{60} \times 22\right)$

$= 760$ lbs/in²

Load capacity 12,160 lbs.

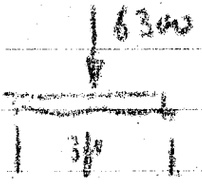
Use 4" x 4" posts.

Beam

Bearing 6" x 6" sole plate 3ft long.

Allowing 6" spread of load in thickness of slab

Reaction to slab $\quad \frac{6300}{4 \times 1.5} = 1,050$ lbs/ft².



Reaction to slab $\quad \frac{6300}{3} = 2100$ lbs/ft.

BM $\quad 2100 \times 1.5^2 \times \frac{1}{2} = 2,362.$

For 6" width

$200 \times 6 \times d^2 = 2,362.$

$d = 5.$

Use 6" x 6" Sole Plates 3ft long.

Copy from Lee

CITY ENGINEER'S OFFICE
W.C.C.
PERMIT MAY BE ISSUED
Deposit
Water
Drainage
Date
BUILDING SUPERINTENDENT
10-2-43

THE NATIONAL BANK OF NEW ZEALAND LIMITED

PREMISES COURTENAY PLACE WELLINGTON

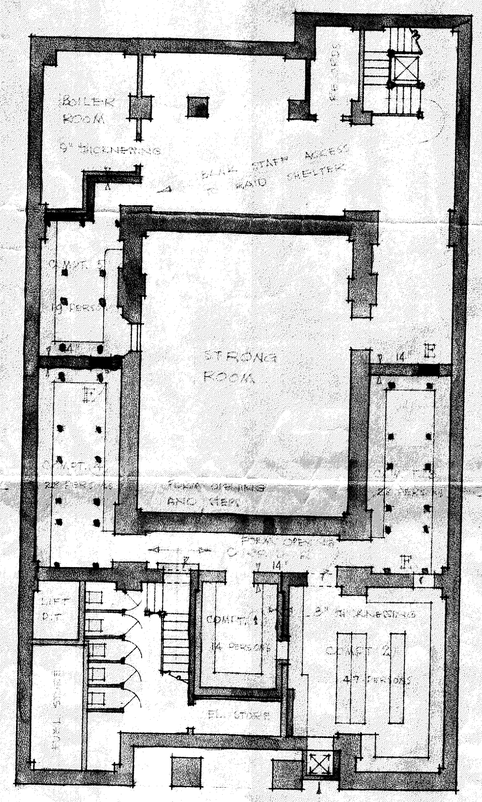
LAYOUT PLAN OF RAID SHELTERS IN BASEMENT

SCALE : 8 feet to an inch.

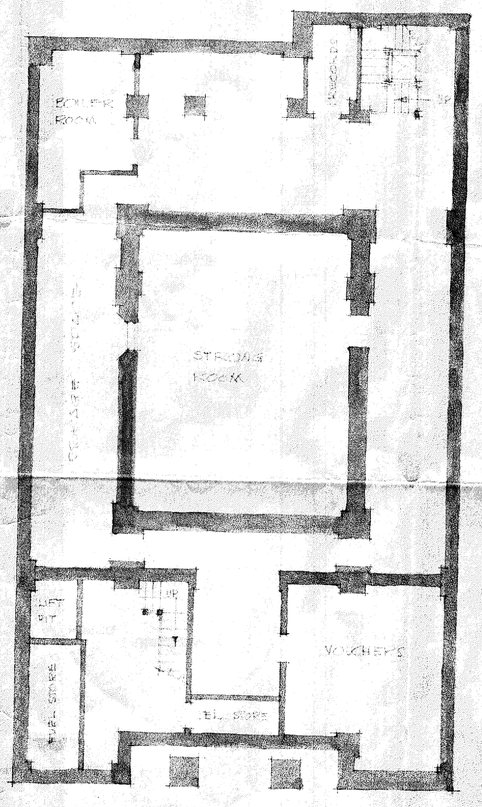
B 22588

TOTAL CAPACITY OF SHELTERS 136 PERSONS

BANK STAFF ACCOMMODATED		15	PERSONS
TENANTS	"	19	"
PUBLIC	"	102	"
	TOTAL	136	PERSONS

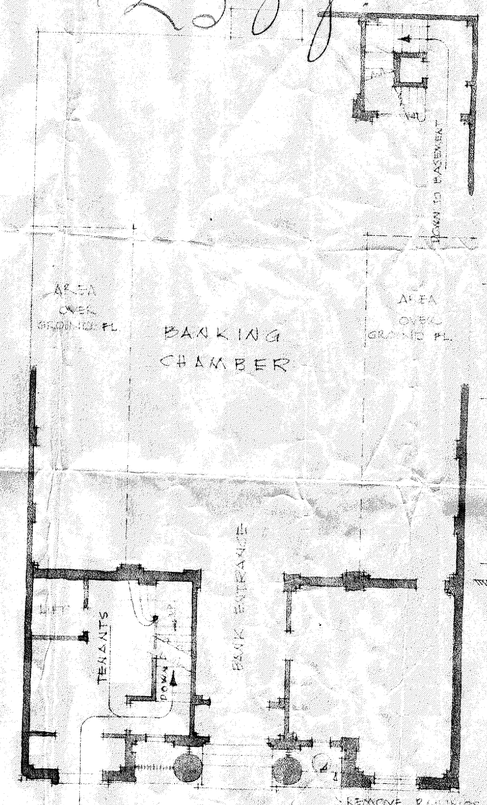


BASEMENT PLAN AS ALTERED SHOWING RAID SHELTERS

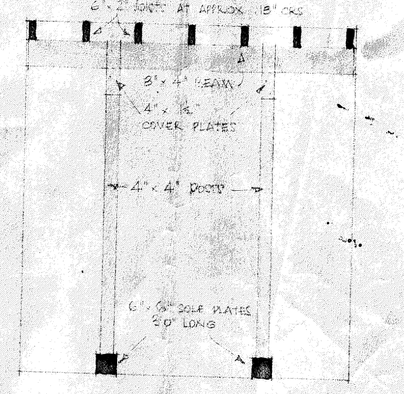


BASEMENT PLAN AS EXISTING

NOTE : H DENOTES EMERGENCY EXIT 2'6" WIDE BY 3'6" HIGH WITH SILL 3'0" ABOVE FLOOR

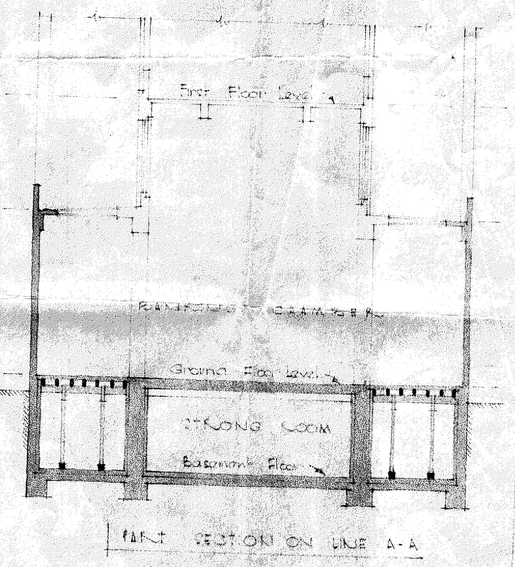


PART GROUND FLOOR PLAN



CROSS SECTION OF STRUTTING

Scale ½" to 1'0"



PART SECTION ON LINE A-A

MITCHELL & MITCHELL
A/ARTEA F/ANZIA
ARCHITECTS WELLINGTON
February 1942

This is the plan referred to in letters
To City Engr
From Mitchell & Mitchell
Dated 13.3.42