

BUILDING PERMIT

Permit No 9537

File 8064

To Mr *G.T. Rankin*
Address *10 Anchorage Grove*
Tauranga

Application No. *11785*

Date *27/1/71*

In pursuance of your Application for Permit to *Erect Retaining Walls.*
permission is hereby granted you to carry out the work, as proposed in your application, and in accordance with the plans, particulars and other documents submitted to me, such work to be subject at any time during progress to my inspection, and to be carried out in strict conformity with all requirements of the Building By-laws of the Tauranga City Council, and all other By-laws of the City for the time being in force and of all Acts of Parliament and regulations respectively affecting such work.

Estimated Value of Building \$ *2000.* Fee *\$10.00* Rec. No. *4462*
Estimated Value of Sanitary Plumbing and Drainage \$ Valuation Roll No. *665/125/10*
Total Value \$ *2000.* Lot No. *14* D.P. No. *5476*

House No. *10 Anchorage Grove* Road Avenue Street
Occupancy or Use *Retaining Walls.* Area ac. *1* rd. *0.5* p.
Owner *G.T. Rankin* Floor Area Sq. Ft.
M. J. Jones for City Engineer

CERTIFICATE OF COMPLETION OF WORK

I hereby certify that I have carried out the following inspections of the building work covered by this permit and that the work has now been satisfactorily completed.

No. of Units	W.C.'s	Urinals	Baths	Refuse	
INSPECTION DATE		STAGE REACHED WITH WORK			REMARKS
<i>29/1/71</i>		<i>Footings</i>			<i>Not called to N/A</i> <i>and footings</i>
<i>26/4/71</i>		<i>more well</i>			
<i>29/10/71</i>		<i>Complete</i>			

Building Inspector *J. V. Hest* Date *29/10/71*
D. Kéle Print - 8990

City Engineer

.....

Date

Date 9/12/70

All plans must be drawn to scale.

RECEIPT No. _____

TOTAL

J.P. 9/12/70.

SCALE OF FEES PAYABLE ACCORDING TO THE ESTIMATED VALUE OF WORK

N.B. In any dispute the City engineer has absolute determination of the values concerning any permit.

Estimated Value of Work			Estimated Value of Work		
		Fees \$ c			Fees \$ c
Not exceeding \$20		50c	Over \$14,001 and not exceeding \$16,000		48.00
Over \$20 and not exceeding \$200		1.00	Over \$16,001 and not exceeding \$18,000		52.00
Over \$201 and not exceeding \$400		2.00	Over \$18,001 and not exceeding \$20,000		56.00
Over \$401 and not exceeding \$600		3.00	Over \$20,001 and not exceeding \$25,000		64.00
Over \$601 and not exceeding \$800		4.00	Over \$25,001 and not exceeding \$30,000		72.00
Over \$801 and not exceeding \$1,000		5.00	Over \$30,001 and not exceeding \$35,000		80.00
Over \$1,001 and not exceeding \$1,200		6.00	Over \$35,001 and not exceeding \$40,000		88.00
Over \$1,201 and not exceeding \$1,400		7.00	Over \$40,001 and not exceeding \$50,000		98.00
Over \$1,401 and not exceeding \$1,600		8.00	Over \$50,001 and not exceeding \$60,000		108.00
Over \$1,601 and not exceeding \$1,800		9.00	Over \$60,001 and not exceeding \$70,000		118.00
Over \$1,801 and not exceeding \$2,000		10.00	Over \$70,001 and not exceeding \$80,000		128.00
Over \$2,001 and not exceeding \$2,500		12.00	Over \$80,001 and not exceeding \$90,000		138.00
Over \$2,501 and not exceeding \$3,000		14.00	Over \$90,001 and not exceeding \$100,000		148.00
Over \$3,001 and not exceeding \$3,500		16.00	Over \$100,001 and not exceeding \$120,000		158.00
Over \$3,501 and not exceeding \$4,000		18.00	Over \$120,001 and not exceeding \$140,000		168.00
Over \$4,001 and not exceeding \$5,000		21.00	Over \$140,001 and not exceeding \$160,000		178.00
Over \$5,001 and not exceeding \$6,000		24.00	Over \$160,001 and not exceeding \$180,000		188.00
Over \$6,001 and not exceeding \$7,000		27.00	Over \$180,001 and not exceeding \$200,000		198.00
Over \$7,001 and not exceeding \$8,000		30.00	Over \$200,001 and not exceeding \$240,000		210.00
Over \$8,001 and not exceeding \$9,000		33.00	Over \$240,001 and not exceeding \$280,000		220.00
Over \$9,001 and not exceeding \$10,000		36.00	For every \$40,000 or part thereof in excess of \$280,000 an additional fee of		\$10.00
Over \$10,001 and not exceeding \$12,000		40.00			
Over \$12,001 and not exceeding \$14,000		44.00			

FEES PAYABLE FOR SPECIAL DUTIES

Nature of Duty	Fees \$ c
For inspection required in the case of proposed structural alterations before plans are submitted for approval	1.00
For inspecting every detached stove, furnace, oven, close fire, or forge erected subsequently to the building50
For inspecting old timber before re-using the same in a new building	1.50
For any inspection that may be deemed necessary in connection with any building or work in respect of which no fee has otherwise been paid25



DESIGN CERTIFICATE

MEMBER OF

CONSULTING ENGINEERS DIVISION

N.Z. INSTITUTION OF ENGINEERS

To The City Engineer
Tauranga City Council

I, John Kevin Spurr

being registered under the provisions of the Engineers Registration Act 1924 and currently holding an Annual Practising Certificate, hereby certify that I have supervised the design of, and the computations for structural steelwork and reinforced concrete

retaining walls and beams
shown on the accompanying plan(s) prepared by Mr. Rankin in my office, numbered Sheets 1 and 2

titled Proposed house for Mr G.T. Rankin

dated Nov. 1970 and described in the accompanying specifications for a

house basement and first floor support structure
[TYPE OF STRUCTURE]

proposed to be erected for Mr G. T. Rankin

on lot 1A Section — Deposited Plan No. —

Located at Anchorage Grove Tauranga

I further certify that the works defined above have been designed in accordance with sound and widely accepted engineering principles; that they have been designed to support the loads specified in

Ch 8. ^{NZSS} 1900.

and further that I have ascertained to the best of my ability that the stresses and combinations of stresses in the various materials of construction under the above loads will not exceed the maxima to ensure the safety and stability of the structure if erected in accordance with these plans and specifications.

Various aspects of the design are in accord with the following relevant authorities

NZSS 1900 Ch. 9.3 9.4.

Signature: [Signature] Division Member Date 1/12/70

Professional Qualifications BE MNZIE MICE

For and on behalf of Kelly Browne & Spurr

Address P.O. Box 23 Rotana

Structural Specification.
House for Mr. E.T. Rankin
Anchorage Grove Tauranga.

Kelly & Browne,
Consulting Engineers,
P.O. Box 23,
ROTORUA

CONCRETE WORK

1. GENERAL:

Refer to General Conditions and Preliminary Clauses which shall apply to all work of this section.

2. SCOPE OF SPECIFICATION:

All concrete, plain or reinforced, for this structure shall comply with N.Z.S.S. 1900 Division 9.3 of the N.Z. Standard Code of Building By-laws, as originally set out therein or currently amended and any additional Local Body requirements.

3. DESCRIPTION:

Concrete shall be ready mixed and shall consist of a mixture of Portland Cement, aggregate and water, proportioned, manufactured and placed in accordance with this specification and the current N.Z.S.S. 2086 "Ready Mixed Concrete Production. All concrete shall be placed in its final position within 1½ hours after the water is first added to the batch. A certificate giving the slump and grade of concrete shall be furnished to the Engineer with each truck load of ready mixed concrete delivered.

4. CEMENT:

Portland cement shall conform to the requirements of the N.Z.S.S. No. 43 for Portland cement. Cement shall be so stored and handled at all times as to be protected against moisture from the air, ground or other sources. Caked cement shall not be used and shall be removed from the site immediately. High alkali cement shall not be used with potentially reactive aggregates.

5. WATER:

Water from the Local Authority's water supply system shall be acceptable for mixing cement, grout, mortar and concrete. Otherwise water shall be to the requirements of N.Z.S.S. 1051.

6. AGGREGATES:

Aggregates shall consist of natural or crushed sand and gravel or crushed stone or other inert materials having hard, strong, durable pieces free from adherent coatings. Rhyolite aggregate will not be permitted.

7. STORAGE OF MATERIALS:

Cement and aggregate shall be stored or stockpiled in such a manner as to prevent deterioration and the contamination by foreign matter. Aggregate stockpile shall be placed on a suitable impervious diaphragm or timber mats on ground to prevent the contamination of the bottom layers of any stockpiles. Contaminated materials shall not be used and shall be removed from the site.

Concrete Work Contd.

8. CONCRETE:

All concrete shall be weigh batched. The maximum aggregate size shall be not more than $\frac{3}{4}$ " and an approved air entraining agent may be used to give a computed air content of $4\% \pm 1\frac{1}{2}\%$. The grade and crushing strength of the concrete shall be ~~2500~~ ³⁰⁰⁰ p.s.i. at 28 days.

"All-in" aggregates shall not be used but each aggregate shall be batched separately in at least two grades, fine aggregate and coarse aggregate, graded to the requirements of N.Z.S.S. 1051.

9. CONSISTENCY:

Proper consistency of the concrete shall be determined in accordance with N.Z.S.S. 192 for slump tests. Slumps throughout shall be 3" maximum except in floor slabs where slump shall not exceed $2\frac{1}{2}$ ".

10. FORMWORK:

Shall be of sufficient strength to retain the wet concrete to the proper finished profile. The sheathing, if of timber, shall be not less than 1" thick pinus radiata or other non-staining timber and constructed so that it can be removed without damage to the concrete. Brace and shore as necessary. All forms shall be fixed to proper line and level and trued up before concrete is poured. Re-used panels shall be properly cleaned and repaired. All interior and exterior angles of beams and columns and at junctions with walls and slabs shall have a $\frac{3}{4}$ " chamfer strip mitred at intersections.

The standard of finish to the formwork shall be such as to produce the surface quality as specified in the concrete finish section of this specification and/or shown on the drawings.

Tie wires shall not be used to support or fix formwork unless otherwise approved in writing. All fixing and supporting shall be effected by approved removable form hardware.

Formwork shall not be removed before the following minimum times, subject to the proviso that should conditions warrant it the formwork shall be retained for further periods or stripped earlier as determined by measuring the compressive strength of the concrete from test cylinders, cast at the same time and from the same concrete as is actually placed in the forms.

	Cold weather (45° or below)	Temperate weather
	days	days
Beam sides and walls:	8	3
Columns & slabs in beam & slab construction (props to be left under span over 5' 0"):	12	7
Removal of props:	18	10
Beam soffits, arch ribs, slab spans exceeding 15':	28	21

Concrete Work Contd.

Provide cleaning traps at bases of all columns and at intervals not greater than 15' apart horizontally at the bottom of the formwork elsewhere.

Formwork shall be removed without shock or vibration and so as to allow the concrete member to gradually take its own weight.

11. CAMBER IN FORMS:

Unless otherwise shown on the plans the soffit boxing for concrete in beams shall be so set up as to give a residual camber to the beam when the forms are stripped or $\frac{1}{8}$ inch rise at the centre for each ten feet of total span. This requirement shall not apply to beams set between block or panel infills or set between glazing system.

12. REINFORCEMENT:

The main reinforcement to all beams, columns and suspended floor slabs shall be deformed steel bars complying with the conditions and tests laid down in N.Z.S.S. 1693.

Reinforcement shall be carefully formed to the shapes and sizes indicated on the drawings and shall be accurately placed and maintained in the positions shown thereon. Tie together with black iron wire. Supply and use where required concrete blocks or other approved means to maintain the reinforcement in the correct positions. Immediately before concreting, all reinforcement shall be clean and free from loose mill scale, dust, loose rust and coatings such as paint and oil or anything which will prevent a perfect bond. Welding of reinforcement shall be permitted only where shown on the drawings. Hooks shall have an internal diameter equal to four times the bar diameter or as shown on the drawings. Unless otherwise shown, bars shall be either lapped twenty-four diameters if with hooked ends, or forty diameters if without hooks. Spacers, chairs, supports and tie wires to bars shall be provided and fixed to maintain the position and cover to all reinforcements.

13. CONCRETING:

No concrete shall be deposited under unfavourable weather conditions such as excessively low temperatures, excessively hot, dry conditions or excessively wet conditions. Remove all dirt, shavings, and sawdust from the forms before concreting is commenced by hosing. Notify the Engineer after reinforcing has been placed and before any concrete has been poured so that an inspection of the reinforcement may be made.

Concrete shall be placed such that it arrives in its final position in the forms substantially in the state in which it left the mixer and free from segregation or separation of its components. Concrete may be given a free drop into the forms exceeding 4 feet, provided the above requirements are met. Wherever possible concrete shall be placed or dropped into what will be its final position. Placing concrete in heaps and slides or moving it horizontally into its final position will not be permitted. The placing shall be arranged so that the rise of the concrete in the forms proceeds in shallow layers with a horizontal top surface with the layers not exceeding two feet in thickness.

Concrete Work Contd.

All concrete shall be completely compacted by means of internal vibrators. During concreting a spare serviceable vibrator shall be continuously available to guard against stoppages otherwise likely to occur under the requirements of this provision. Construction joints shall be either vertical or horizontal and all vertical joints shall be made against a suitable vertical form. Such forms shall not be stripped for at least 24 hours.

Previous concrete in construction joints shall not be hacked or scabbled. The previous concrete shall be wire brushed and hosed to remove all laitance and expose a clean surface. This surface shall then be kept continuously wet for at least 24 hours before the next concrete is to be placed.

In horizontal construction joints the previous concrete shall have a $\frac{1}{4}$ " minimum layer of 2 : 1 cement grout, brushed or spread upon it immediately before the next concrete is placed.

All form hardware holes and any surface defects shall be filled or patched with 1 : 2 mortar immediately after the forms have been struck and before the parent concrete has had time to dry out.

14. CURING OF CONCRETE:

All concrete shall be cured by keeping it continuously wet for a period of not less than 10 days after mixing and placing. If necessary floors will be ponded to comply with this requirement. The full curing of the concrete floor slabs is critical. The Contractor's attention is drawn to the importance which this requirement will be given and the need for prior planning the provision of adequate and necessary equipment and facilities.

15. BOLTS, FIXINGS, ETC:

Set in all necessary bolts, ties fixing, blocks, as required by other trades and build in weather bars, water pipes, wastes, soil pipes, service ducts, etc. as directed.

16. GROUPS:

Continuous groups shall not be set into reinforced concrete sections only intermittent groups may be used.

17. CHASES:

Form all necessary chases, pockets, flashings, grooves, etc. as necessary for all trades. Check with Plumber and Electrician.

18. FLOOR SLABS:

(a) Ground floor slabs are to be poured in full width bays as indicated on the plans.

Contraction joints are to be provided between adjacent pours as detailed on the plans. The face of the previous pour of concrete is to be thoroughly oiled before the adjacent pour is cast against it. Form a $\frac{3}{4}$ " deep x $\frac{1}{4}$ " wide slot in the surface and fill with Formrok 28 p all as detailed. At a suitable stage after pouring the concrete make $\frac{3}{4}$ " deep transverse sawcuts in the surface where shown on the plans and fill with Formrok 28 p.

Concrete Work Contd.

(b) Suspended floor slabs are to be poured in a pattern approved by the Engineer. Vertical construction joints are to be provided where directed.

(c) Floor slabs shall be screeded level and finished off to a dense smooth surface, free from all roughness and voids with a power activated rotary vibrating trowel. Only experienced, skilled operators shall be used for this work.

19. REPAIRS TO CONCRETE:

(a) Any defects to concrete shall be made good at the Contractor's expense. Defects shall be patched or made good as soon as practicable after the forms have been stripped.

(b) Any hollows or bony areas shall be made good with plaster and finished to the same tolerance as specified for the parent concrete. If the areas are to be exposed then the Engineer may direct that white cement be used in the plaster to blend with the adjoining concrete.

(c) Tie rod holes shall be filled with mortar.

(d) Where the surface finish of the concrete does not comply with the requirements set out in the Concrete Finish section of this specification then the surface shall either plaster and/or ground down as directed. All fins, ridges and steps shall be ground off if necessary to comply with the Concrete Finish requirements.

20. STRUTTING FOUNDATIONS ACTING AS RETAINING WALLS:

Sections of foundations, beams or walls which retain filling shall be kept fully strutted and braced against movement whilst fill is placed and until 14 days after floor slab concrete has been placed.

21. CONCRETE FILLING FOR MASONRY BOND BEAMS & CORES:

Concrete blockwork filling shall be a mixture of $\frac{3}{8}$ " aggregate sand and cement generally in accordance with N.Z.S.S. 1900 Div. 9.3 to give a minimum twenty-eight day strength of 2500 p.s.i.

Where suitable equipment is available, a pump may be used to place concrete.

If clean out openings are not provided at the bottom of masonry cores, the concrete filling shall be placed in lifts of not more than 4' 0".

All vertical reinforcement must be securely wired to starters.

22. DRYPACK MORTAR:

Drypack mortar shall be used beneath base plates and steel anchor systems. The mortar shall consist of a dry volume mixture of cement and sand which will pass a No. 4 British Standard sieve in the ratio of between 1 part is to $1\frac{1}{2}$ parts and 1 part is to $2\frac{1}{2}$ parts. Sufficient water shall be added to produce a mortar which will stick together on being moulded into a ball without exuding free water in the hand or falling apart when the hand is opened.

Concrete Work Contd.

The mortar shall then be placed under the baseplate and hammered with a wooden caulker until the mortar completely fills the void and is thoroughly compacted in place.

The mortar shall be protected from direct sunlight and water cured for three days minimum.

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Consulting Engineers,
P.O. Box 23,
ROTORUA

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STRUCTURAL STEELWORK

1. GENERAL:

Refer to General Conditions, Special Conditions and preliminary clauses which shall apply to all work of this section.

2. SCOPE:

This specification refers to all structural steelwork as shown on the drawings, or herein described and necessary for the sound construction of the building.

3. SETTING OUT:

The Contractor shall be responsible for the setting out of all steelwork in this contract. All measurements horizontal or vertical, shall be checked or verified on the job before fabrication is commenced. All holding down bolts shall be centred by means of templates.

NOTE: Check with architectural requirements before setting out. The onus is on the Contractor to do this. Check all dimensions and openings. Read architectural and structural drawings together.

4. STEEL:

All steel used in the contract shall conform to the requirements of the N.Z.S.S. 309 for Structural Steel in bridges and general building construction (being B.S.15) or Structural Steel to A.S.T.M.A. 7, A.S.T.M.A. 373, or other approved equivalents. All rivets and bolts shall be made from similar grade steel. If required a test certificate for the steel shall be furnished to the Engineer.

5. STEELWORK:

The fabrication and erection of all structural steel work in this contract shall conform to this specification and to the requirements of N.Z.S.S. 1900, Division 9.4 and a copy of this specification shall be kept for reference by the Contractor both at the works and on the job.

6. WORKMANSHIP:

The workmanship and finish shall conform to the best modern practice. Materials shall have clean surfaces before being worked in the shop. The accuracy shall be as to ensure that all parts will fit properly together on erection without straining or forcing. Straightening of rolled materials shall be done so as not to injure the metal.

STRUCTURAL STEELWORK - Contd.

Sharp kinks or bends shall be cause for rejection. Members may be cut to length or shape by sawing, shearing or flame cutting, but in any case a neat cut and good fit is required. Holes may be either drilled or punched. Where parts are drilled or punched in groups all parts shall be separated after drilling and all burrs and arrises removed.

7. TRANSPORT:

As much of the work of fabrication as is reasonably practicable shall be completed in the fabricating shop. Where transporting the steelwork to the site it shall be loaded and stored so as to obviate straining or damaging any parts.

8. ERECTION:

All steelwork shall be erected true to line and level and plumb in final position. At all stages of the erection work the steelwork shall be so held or fixed as to be safe and stable and not overstressed in any way from any erection loads, or erection methods.

9. INSPECTION:

The engineer or architect or their representatives shall have the full liberty at all times during working hours to enter the fabricator's shop for the purpose of inspecting the work.

10. JACKING NUTS:

Where jacking nuts are detailed on the drawings these nuts shall be carefully levelled to the proper elevation of the bottom of the relevant steel member before erecting the steel. As soon as the steel member has been fitted on and levelled the holding down nuts shall be fitted and both jacking nuts and holding down nuts fully tightened.

11. BOLTING:

Black bolts shall be fitted into holes not more than 1/16" greater in diameter than the nominal diameter of the bolt and the alignment of holes such that the threads will not be damaged by the driving.

The threads of all bolts shall be entirely outside the holes. Provide a standard washer under each nut, tapered if necessary so that head and nut are parallel. Where nuts are not embedded in concrete they shall be secured by adequate rivetting over the bolt ends or by approved spring washers.

The minimum distance from the centre of any rivet or bolt hole to a rolled, planed or sawn edge shall be:-

1 1/2" for 1" diam. and for other edges:	1 3/4" for 1" diam.
1 1/4" for 7/8" diam.	1 1/2" for 7/8" diam.
1 1/8" for 3/4" diam.	1 1/4" for 3/4" diam.
1" for 5/8" diam.	1 1/8" for 5/8" diam.

STRUCTURAL STEELWORK - Contd.

12. WELDING: All welding shall be carried out in accordance with N.Z.S.S. 1646 "General Requirements For the Metal-Arc Welding of Mild Steel."

Only Certified welders shall work on this job.

Except where otherwise shown, all welds shall be $\frac{1}{4}$ " fillet. There shall be a sealing run to enclose all welded connections.

13. SURFACE PREPARATION: Steel which is to be concrete encased shall not be painted.

All surface to be painted shall be freshly prepared by blast cleaning to produce a grey steel finish.

14. PAINT PRIMING: All surfaces to be painted shall be given two coats of Altex Chemical Barrier metallic lead primer. The first coat coloured red is to be put on as soon as possible after cleaning in the shop and the second coat coloured yellow is to be applied immediately after erection at the site.

Any section where site welding is carried out shall be given equivalent coatings after erection.

Holding down bolts shall not be painted in the shop but exposed heads shall be painted on the site. Should steel be exposed to the weather so that rusting commences under the primer, remove primer and repaint.