A 1268

CHRISTCHURCH CITY COUNCIL

To THE CITY ENGINEER,
CHRISTCHURCH

19/6/86

Town Planning Zone C/3
(Office Use Only)

Sir,

I/We hereby apply for permission to Erect Office & Residential Building

at No 56 Cashel 89 Street

For (Owner's Name[s]) B. G. Ullman.

of (Owner's Address) % Box 25-025.

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

PARTICULARS OF LAND

Lot No. 3 D.P. 1574 Title 20/315 Area 587 m²

PARTICULARS OF BUILDING

(The subject of this building permit application)

Area of Ground Floor: New Building — m²

Addition to Existing Building — m²

Total Area of New Building: 2090 m²

Total Area of Addition to Existing Building: NIL m²

Area of Outbuildings: New Construction / m²

Existing Buildings / m²

Estimated Value: $ 1,150,000.

Proposed use: Office & Residential.

Existing Use (if any) —

Plumber's Name: To be advised.

Builder's Name: To be advised - Armitage Williams

Builder's Address: P.O. Box 3081

Builder's Phone No: 595-901

11 WATER CHARGE
Est. 3/4 mil Connection
$50 PPO:—

RETURN TO
L. O'LOUGHLIN

Yours faithfully,

Signature of Applicant: B G Ullman pp B G Ullman

Name of Applicant: B. G. Ullman.

OFF.	DES.	SUR.	STR.	EGR.	TP.	DRN.	S.W.	T.E.	H.I.	W.W.I.	D.B.I.	C.B.I.
	done 7/7/86		11/9	15/9/86	P&R 29	11/51/100 26/6/86	24/7/86	25/7	9/7		22/9	23/9

DEPT.	APPLICATION NO. 268	PERMIT NO.	Initial
TOWN PLANNING	Zone		
	Uses		
Performance	1 2 3 4 5 6 7 8 9 10 11 12 13		
Elements & Standards Use (a)			
Use (b)			
This condition must be included.			
Special Applications (T & C.P. Act) (1)	The 7th - 9th floors inclusive not to be occupied until 1½ Floors created as apartments.		
Comments & Conditions			
Signs	Separate application required.		
Development (L.G. Act)	Paid 24/9/86 6380 6 pay		
SURVEYOR	Building Restrictions		
	Pegging Certificate		
	Certificate of Title		
	Cash in lieu of Reserve		
	D.P. or Title Amalgamation	✓	
	Unit Title		
TRAFFIC ENGINEERS	Access	Dispensation for loading facilities required to 99% car. on condition that 3.1 meniaum headroom be provided for vehicle acess to 99 p/o carpark provided	
	Off Street Loading		
	Off Street Parking		
	Turning Space		
	Motorway		
	Street Works		
	Landscaping		
STREET-WORKS	Vehicle Barriers		
	Sealing of Areas		
	Location of Gully Traps etc.		
	Culverts and Accesses	New crossing required old one to be removed	
	Drainage		
	Levels		
BUILDING INSPECTORS	Fire Zone and Resistance		
	Siting (By laws)		
	Light and Ventilation		
	Room Sizes and Stud Ht.		
	Heating and Storage		
	Toilet and Laundry Accommod.		
	Mezzanine Floors		
	Storm Water and Section Levels	stormwater crossing required	
	Entrance Levels		
	Projections over Street		
	Verandahs		
	Hoardings		
	Street Numbers		
	Insulation		
	Access for Handicapped		
	Unit Title		
STRUCTURAL ENGINEERS	Fire Resistance Requ.		
	Projections over Street	Foundation letter 15/7	
	Structural Stability		
EGRESS OFFICER	Egress and Exit Signs		
	Fire Fighting Equipment		
	Alarm Systems	See attached 15/9/86	
	Emergency Lighting		
	Fire Stops		
	Wall Linings		
	Access for Handicapped		
HEALTH INSPECTORS	Floor level, car parks, lends, stormtw OK in terms of amendments on plans in red, as advised to Planning Office.	Blackspot 18/7/86	
DESIGN OFFICE			
DANGEROUS GOODS INSPECTORS			
WATER INSPECTOR	C25 ~~C46~~ 38mm Water connection is required. C46-24-4		

P.W.A. Ltd 33265

BUILDING PERMIT CONDITIONS

APPLICATION No 1268 56 CASHEL STREET

1. The Engineer responsible for the structural design (including the foundation system) confirming in writing that the intent of his design has been complied with before the building is occupied.

2. The position of the boundary pegs on all the the boundaries being being established by discovery or redefinition.

3. Compliance with the amendments shown on the plans.

4. One commercial vehicle crossing 4.5m long being installed.

5. All areas used by motor vehicles, being formed and sealed.

6. Front fence or effective vehicle barrier being erected and maintained along entire street frontage, except opposite vehicle crossing(s).

7. Any existing vehicle crossing(s) being removed.

8. All formwork or shoring being supported from within the site where excavation is below ground level.

9. Disposal of wellpoint water being the responsibility of the builder. Discharge to street side channel only being permitted by specific approval.

10. Compliance with 2 letters from Richard Proko Ltd dated 9 July 1986 and 18 August 1986, copies attached to plans.

11. Heating and Ventilation drawings being submitted to this office for approval before construction commences.

12. The 7th to 9th floors inclusive not being occupied until 1½ of these floors are created as apartments.

13. Any advertising signs being the subject of a separate permit application.

14. Compliance with the Director of Environmental Health's requirements attached to the plans.

15. A large water connection being provided to the property. Cost and deposit will be advised on application to the Waterworks Division of this Department. (38mm water connection required)

16. A Registered Drainlayer obtaining a stormwater drainage permit and installing the stormwater drainage system.

17. All water pipes embedded in, or buried under concrete being fitted in chases or sleeves and no pipes being fitted in block walls.

18. Design levels being adjusted as shown in red on sheet SW2.

19. A minimum height of 3.1 metres headroom being provided for vehicle access to the loading facilities.

20. All internal partitions being the subject of a separate building permit application.

.../2

Building permit conditions cont...
Application No 1268

21. The street number 56 being displayed.

22. The use of wall glazing being approved only on the understanding that in the event of reflected light from the wall being established as a nuisance it shall be the responsibility of the owner to abate the nuisance.

23. All cranage and concrete pumping being contained within the site.

N.B. Your attention is drawn to the Christchurch Drainage Board's requirements attached to the plans.

BUI.CAS056.0001.5

A 126

CHRISTCHURCH CITY COUNCIL

To THE CITY ENGINEER,
CHRISTCHURCH

19/6/84

Town Planning Zone C/3 (Office Use Only)

Sir,

I/We hereby apply for permission to Erect Office & Residential Building

at No. 56 Cashel Street

For (Owner's Name[s]) B. Gallmier.

of (Owner's Address) % Box 25-028.

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

PARTICULARS OF LAND

Lot No. 3 D.P. 1574 Title 20/315 Area 587 m²

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(The subject of this building permit application)

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Addition to Existing Building — m²

Total Area of New Building: 2090 m²

Total Area of Addition to Existing Building: NIL m²

Area of Outbuildings: New Construction — m²

Existing Buildings — m²

Estimated Value: $ 1,150,000.

Proposed use: Office & Residential.

Existing Use, (if any) —

Plumber's Name: Tohu Brazier.

Builder's Name: ~~Tohu Brazier~~ - Armitage Williams

Builder's Address: P.O. Box 3081

WATER CHARGE Est. 39 mm Connect

DEPT.	APPLICATION NO. 2608	PERMIT NO.	Initial
TOWN PLANNING	Zone		
	Uses		

	1	2	3	4	5	6	7	8	9	10	11	12	13
Performance Elements & Standards Use (a)													
Use (b)													

Special Applications (T & C.P. Act) (1) This condition must be included. The 7th - 9th floors inclusive not to be occupied until 1½ Floors treated as apartments.

Comments & Conditions

Signs Paid 24/6/84 Separate application required

Development (L.G. Act) 6380 6 pay

SURVEYOR	Building Restrictions	
	Pegging Certificate	
	Certificate of Title	
	Cash in lieu of Reserve	
	D.P. or Title Amalgamation	✓
	Unit Title	
TRAFFIC ENGINEERS	Access	Dispensation for loading facilities required to 99% car. on condition that 3.1 meters headroom be provided for vehicle access to 99% carpark provided
	Off Street Loading	
	Off Street Parking	
	Turning Space	
	Motorway	
	Street Works	
	Landscaping	
STREET-WORKS	Vehicle Barriers	
	Sealing of Areas	
	Location of Gully Traps etc.	
	Culverts and Accesses	New crossing required old one to be removed
	Drainage	
	Levels	
BUILDING INSPECTORS	Fire Zone and Resistance	
	Siting (By laws)	
	Light and Ventilation	
	Room Sizes and Stud Ht.	
	Heating and Storage	
	Toilet and Laundry Accommod.	
	Mezzanine Floors	
	Storm Water and Section Levels	stormwater crossing required
	Entrance Levels	
	Projections over Street	

Total Area of Addition to Existing Building: N/C m²

Area of Outbuildings: New Construction m²

Existing Buildings m²

Estimated Value: $ 1,150,000.

Proposed use: Office & Residential.

Existing Use, (if any) —

Plumber's Name: To be advised.

Builder's Name: ~~To be advised~~ - Armitage Williams

Builder's Address: P.O. Box 3081

Builder's Phone No: 595-901

WATER CHARGE
Est. 38 mm Connect
$50 FPO: —

RETURN TO
L. O'LOUGHLIN

Yours faithfully,

Signature of Applicant: pp B Cullman

Name of Applicant: B. Cullman.

OFF.	DES.	SUR.	STR.	EGR.	TP.	DRN.	S.W.	T.E.	H.I.	W.W.I.	D.B.	C.B.
	14/7/86		11/9	15/9/86	P&R	11/5/86	24/7/86	25/7	9/9		22/9	23/9

See 3rd Copy.

Suggested that a further set of architectural plans be lodged for Development application

3RD SET WITH TP

Programming Approval Coming.

	Levels	
BUILDING INSPECTORS	Fire Zone and Resistance	
	Siting (By laws)	
	Light and Ventilation	
	Room Sizes and Stud Ht.	
	Heating and Storage	
	Toilet and Laundry Accommod.	
	Mezzanine Floors	
	Storm Water and Section Levels	stormwater crossing required
	Entrance Levels	
	Projections over Street	
	Verandahs	
	Hoardings	
	Street Numbers	
	Insulation	
	Access for Handicapped	
	Unit Title	
STRUCTURAL ENGINEERS	Fire Resistance Requ.	
	Projections over Street	Foundation letter 15/7.
	Structural Stability	
EGRESS OFFICER	Egress and Exit Signs	
	Fire Fighting Equipment	
	Alarm Systems	
	Emergency Lighting	
	Fire Stops	
	Wall Linings	
	Access for Handicapped	
HEALTH INSPECTORS	Floor level, car park levels, Stormwater OK in terms of amendments on plan in red, as advised to Mr Keay's Office.	See attached 15/9/86
DESIGN OFFICE		
DANGEROUS GOODS INSPECTORS		
WATER INSPECTOR	C25 ~~38~~ 38mm Water connection is required. C46-24-4	

P.W.A. Ltd 33265

ALAN M. REAY CONSULTING ENGINEER

147 KILMORE STREET
BOX 25-028, VICTORIA ST.
CHRISTCHURCH, 1.

Telephone: 60-434

ALAN M. REAY
B.E. (Hons.), Ph.D.
M.N.Z.I.E.
Registered Engineer
Structural Consultant

File 2389

8 September 1986

Mr Tapper,
Christchurch City Council,
P.O.Box 237,
CHRISTCHURCH.

Dear Sir,

RE: Westpark Tower - Cashel Street. P.Appl.1268
Your Ref: B.V./40/89/56.

Further to your letter of 7th August regarding foundation investigations, we have requested Soils and Foundations Ltd to carry out further tests and now enclose of copy of their report, ref. 406, dated August 1986.

This report confirms the presence of a gravel layer at 1.8m depth, adequate to support the proposed building.

The soil strata are very similar to those revealed by previous testing on the Mair & Co site, referred to in previous correspondence.

The allowable pressures under the footings are higher than those reported for the Mair's site, so that the proposed footings generally are larger than necessary. The highest pressure occurring under seismic loads is 320 KPa at the corner pads, where the allowable pressure is 380 KPa.

We hope that this confirmation is sufficient for you to issue the building permit without further delay.

Yours faithfully,

D.Harding.
Registered Engineer.

Encl.

				INT'L	DATE
MR		ACTION	REPORT	INFO	
MR	Tapper				10/9
MR					
MR					
MR					
MR					
REPLY	SENT	NIL	TO FOLLOW		
FILE No.	Bu/40/89/56				

CHRISTCHURCH CITY COUNCIL

P.O. BOX 237 CHRISTCHURCH NEW ZEALAND

/3

IN REPLY PLEASE QUOTE BU/40/89/56
IF CALLING PLEASE ASK FOR Mr Tapper
EXTENSION NO. 678

7 August 1986

Alan M Reay
Consulting Engineer
147 Kilmore Street
CHRISTCHURCH

Dear Sir

BUILDING PERMIT APPLICATION NO 1268
WESTPAC TOWER - 56 CASHEL STREET

Further to your reply of 24 July regarding the foundation investigations for the above building, we appear to be little further forward.

The Councils Building Bylaw which is modelled closely on NZS 1900 repeats NZS 1900 Clause 2.4.2(ii) "Data from investigation and tests shall be sufficient to demonstrate to the (City) Engineer that the strata will support the building without detrimental settlements."

To date you have provided ten pages of test results of tests done to determine the depth and nature of the overburden, the properties of which have little relevance to the design of the foundation of this tower structure.

You state that the rationale behind the site investigation included consideration of unspecified boreholes reported in Mr P J Alley's book. We also have examined our records of boreholes in the near vicinity of the site and have found only three. These are the Mair and Co bore, N M Peryer bore C54, and King Edwards Barracks bore W5. All three show "overburden" to about 4-8 feet being undertaken by:

- Sandy gravels - sandier with depth 3.5-10 metres
- Sandy gravels and sand 9'-60'
- Sand 9'-30'

respectively.

.../2

OVER

Hence we are by no means convinced that you are completely justified in assuming that for design purposes the site is underlain to depth by gravels.

In conclusion we can only repeat that the second paragraph of our letter of 16 July still stands (except for the uncorrected reference to NZS 4205P) and that we require you for furnish tests to satisfy the Bylaw requirements before we will issue a Building Permit.

Yours faithfully

for CITY ENGINEER

3626

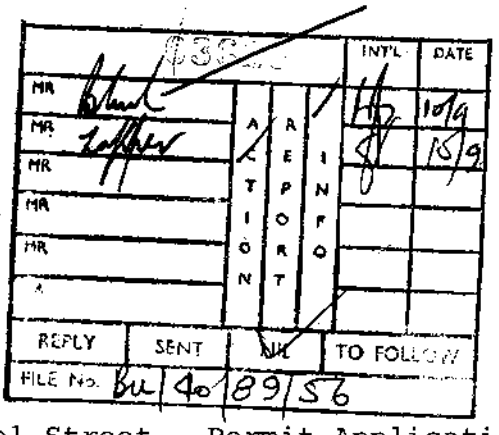
ALAN M. REAY CONSULTING ENGINEER

147 KILMORE STREET
BOX 25-028, VICTORIA ST.
CHRISTCHURCH, 1.

Telephone: 60-434

ALAN M. REAY
B.E. (Hons.), Ph.D.
M.N.Z.I.E.
Registered Engineer
Structural Consultant

File 2389



24 July 1986

Mr Tapper,
Christchurch City Council,
P.O.Box 237,
CHRISTCHURCH.

Dear Sir,

RE: Westpark Tower - Cashel Street. Permit Application No. 1268.
Your Ref: BU/40/89/56.

Thank you for your letter of 16th July 1986, which relates to foundation investigations at 56 Cashel Street, for the proposed Westpark Tower building.

why should engineer have been necessary.

It is unfortunate that your letter draws its conclusions from a "perusal of the calculations" and not from an inquiry to this office regarding the extent of investigations. Enclosed for your information are copies of test bores and scala penetrometer tests carried out by this office in March this year.

The rationale behind the site investigations, which led to the design assumptions are as follows:-

1. Deep level drilling has been carried out on a number of sites in the vicinity, as reported in P.J.Alley's book "Subsurface bores in Christchurch". These bores indicate varying layers of sediments overlying gravel at a depth from 4 feet to 8 feet deep, and this gravel is shown to be extensive with no indication of peaty layers such as may be expected in other areas further north.

2. A subsurface investigation was commissioned by this office for Soils and Foundations Ltd., to investigate the area at the corner of Cashel Street and Cambridge Terrace for the proposed Mair and Company building. The purpose of this investigation was to confirm the depth of the gravel layer, to recommend suitable bearing pressures on top of the layer, and to consider allowable loads on tension piles.

   This investigation confirmed the presence of a substantial gravel layer at a depth of about 2 metres with only minor variations across the site. A number of shallow hand auger holes were included which established the depth of this layer over the site, and noted the presence of some fill within the two metres of overburden. The allowable

cont'd...

bearing pressure established for footings bearing upon the ground layer were used for the design of both the Mair & Co building and also the adjacent building for Canterbury Aged People's Welfare Society.

3. Test bores were carried out on the Westpark Tower site to locate the surface of the gravel layer, and to determine the nature of the overburden and the depth of ground water table. These tests showed that the gravel layer occurred at a depth of 1.4 to 1.7 metres, and that ground water level was below this depth.

   Penetrometer tests were also carried out over an extended area to confirm this depth, and to indicate the suitability of the upper strata to support the ground floor slab and car park formation. The base of the proposed footings is approximately 1.8 metres below ground level, which is expected to require consistent excavation into gravel.

4. This office will be inspecting the foundation for the proposed building before any reinforcing steel is placed so that additional site concrete may be placed if any variations in the gravel surface are found.

5. Tension piles are not requried for this building, so that investigations for pile capacity are not needed.

6. Excavations for foundations of both the Mair and Co building and the C.A.P.W. building showed a consistent layer of gravel over the whole area.

On the basis of these considerations we consider completely justified in using the same allowable bearing pressures under the footings for this multistorey building, as for the other two on adjacent sites. The graph showing allowable bearing pressures was included in the calculations for completeness of that document, and were not intended to constitute a summary of our investigations on the matter.

If you have any further queries regarding this building, please contact this office and we will be pleased to assist.

Yours faithfully,

D.Harding
Registered Engineer.

Encl.

CHRISTCHURCH CITY COUNCIL

P.O. BOX 237 CHRISTCHURCH NEW ZEALAND

/4

IN REPLY PLEASE QUOTE BU/40/89/56
IF CALLING PLEASE ASK FOR Mr Tapper
EXTENSION NO. 678

16 July 1986

Alan M Reay
Consulting Engineer
147 Kilmore Street
CHRISTCHURCH

Dear Sir

BUILDING PERMIT APPLICATION NO 1268
WESTPARK TOWERS - 56 CASHEL STREET

During a perusal of the calculations for this building we were concerned to note that no foundation investigation appears to have been carried out. The suitability of the insitu ground to support the 10 storey building is based upon a report for an adjacent site and is covered in one sentence, "Site report from Soils and Foundations Ltd for the adjacent site for Mair and Co is expected to apply for this site". Frankly we expect a higher standard of foundation investigation for a single storey wooden cottage.

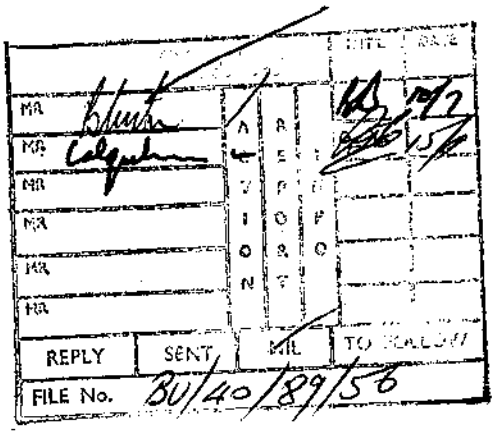
So long as the Law casts a duty of care on the Local Authority to ensure in detail that commercial buildings are designed and built in accordance with current Standards and Codes of Practice, we will have to insist that designers comply with these Standards and Codes. To this end we require you to provide a full foundation investigation report together with supporting bore logs (as envisaged by NZS 4267P) to justify your design assumptions.

Yours faithfully

for CITY ENGINEER

RICHARD PROKO LTD

ST ELMO COURTS 47 HEREFORD ST CHRISTCHURCH
NEW ZEALAND P.O.BOX 1232 TELEPHONE (03) 62-655



9 July 1986

The Engineer,
Christchurch City Council,
P O Box 237,
CHRISTCHURCH.

Dear Sir,

WESTPARK BUILDING, CASHEL STREET

Subsequent to discussing with your Mr Colgutioun, we advise as follows:-

1. The door to the Utility Room on the ground floor will be changed to open directly to the outside. There will be no door between the Utility Room and the Ground Floor lobby.

2. All external walls of the ground floor Lobby and walls between the ground floor Lobby and Utility Roomwill be 1½ hour F.R.R.

3. Walls between the stairs and toilets on typical floors will be 1½ hour F.R.R.

4. Recesses for fire hose reels will be lined with 16mm fyreline wallboard. The reverse sides of the walls will be lined with the same material across the back of the studs.

5. Mr H. Canard will furnish specifications and drawings for the Mechanical Engineering trade.

Yours faithfully,

Tim Barton, Copy attached to plans 15/9.

for R.V. PROKO

copies - A Reay

CHRISTCHURCH CITY COUNCIL

CITY WORKS & PLANNING DEPARTMENT

9.7.86

DR ALAN M. REAY
147 KILMORE ST
CHCH

Dear Sir,

Your application No. 1268 to OFFICE & RESIDENTIAL BUILDING
at 56 CASHEL ST is held up pending receipt of:

(1) AMENDED DRAWINGS SHOWING THE CORRECT FIRE RESISTANCE RATINGS IN THE SERVICE CORE AREA TO COMPLY WITH BY-LAWS
e.g. 1½ HOURS AROUND STAIR
1 HOUR SHAFTS
½ HOUR SMOKE STOP LOBBIES
PROTECTION OF HOSE REEL CABINET PENETRATIONS.

(2) DETAILED DRAWINGS OF HEATING & VENTILATING SYSTEMS SHOWING NECESSARY FIRE DAMPERS ~~AT~~ WHERE REQUIRED.

SPRINKLERS !!

Yours faithfully,

for DEPUTY GENERAL MANAGER (WORKS)

DESIGN CERTIFICATE

MEMBER OF
THE ASSOCIATION OF CONSULTING ENGINEERS
NEW ZEALAND
A Division of the New Zealand Institution of Engineers

To CHIEF ENGINEER,
CHRISTCHURCH CITY COUNCIL,
P.O.BOX 237,
CHRISTCHURCH.

I, ALAN MICHAEL REAY

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 A 9 STOREY OFFICE & RESIDENTIAL BUILDING

shown on the accompanying plan(s) prepared in my office, numbered A1 to A33, E1 to E8 SW1,SW2,S1 to S49 FILE NO 2389

titled WESTPARK TOWER, 56 CASHEL STREET,

dated JUNE 1986 and described in the accompanying specifications for a CONCRETE FRAMED STRUCTURE
[TYPE OF STRUCTURE]

proposed to be erected for MR B. GILLMAN

on lot 3 Section Deposited Plan No. 1574

Located at 56 CASHEL STREET, CHRISTCHURCH

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 NZS 4203:1984 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 NZS 3101 PART 1:1982, NZS 3603:1981.

Signature: Alan Reay Association Member Date 19/6/86

Professional Qualifications B.E. (HONS). PH.D., M.N.Z.I.E.

For and on behalf of ALAN REAY CONSULTANTS

Address 147 KILMORE STREET, CHRISTCHURCH

This Design Certificate is valid only for a Building Permit application made within one year of the date of issue of this certificate.

RICHARD PROKO LTD

ST ELMO COURTS 47 HEREFORD ST CHRISTCHURCH
NEW ZEALAND P.O.BOX 1232 TELEPHONE (03) 62-655

18 August 1986

The Engineer
Chirstchurch City Council
P O Box 237
CHRISTCHURCH

Attn: Mr Colguhoun

Dear Sir,

RE: WESTPAC BUILDING - CASHEL STREET

Subsequent to discussion with you and Dr Alan Reay we enclose a copy of Fire core wall drawing to the above project.

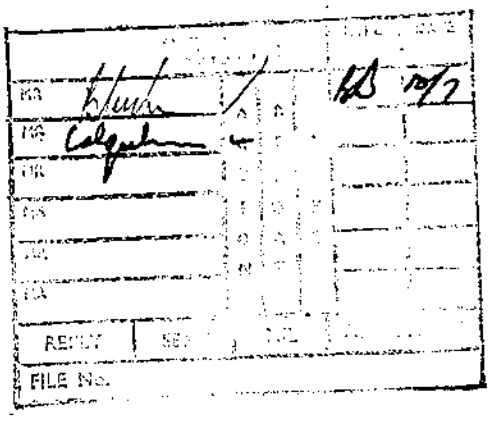
Yours faithfully

RN Proko.

R N PROKO

RICHARD PROKO LTD

ST ELMO COURTS 47 HEREFORD ST CHRISTCHURCH
NEW ZEALAND P.O.BOX 1232 TELEPHONE (03) 82-655



9 July 1986

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Yours faithfully,

Tim Barton

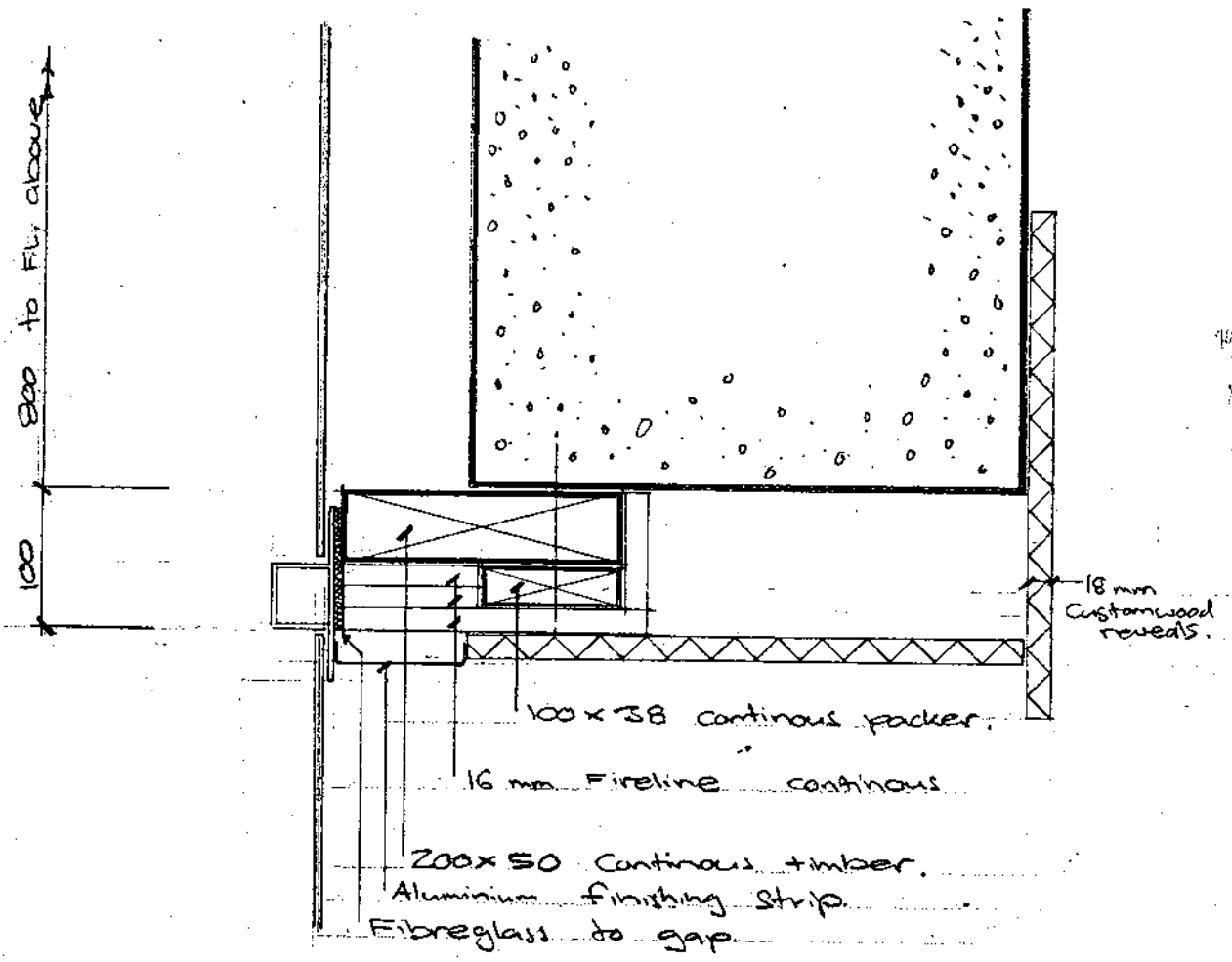
for R.V. PROKO

copies - A Reay

CONSTRUCTION DETAILS

WESTPARK TOWER — 56 CASHEL ST.

PAGE	CD2
SECT	ARCHITECTURAL
FILE	2389
DATE	MARCH 87



PERIMETER SMOKE STOP DETAIL.

BUILDING PERMIT CONDITIONS

APPLICATION No 1268 56 CASHEL STREET

1. The Engineer responsible for the structural design (including the foundation system) confirming in writing that the intent of his design has been complied with before the building is occupied.

2. The position of the boundary pegs on all the the boundaries being being established by discovery or redefinition.

3. Compliance with the amendments shown on the plans.

4. One commercial vehicle crossing 4.5m long being installed.

5. All areas used by motor vehicles, being formed and sealed.

6. Front fence or effective vehicle barrier being erected and maintained along entire street frontage, except opposite vehicle crossing(s).

7. Any existing vehicle crossing(s) being removed.

8. All formwork or shoring being supported from within the site where excavation is below ground level.

9. Disposal of wellpoint water being the responsibility of the builder. Discharge to street side channel only being permitted by specific approval.

10. Compliance with 2 letters from Richard Proko Ltd dated 9 July 1986 and 18 August 1986, copies attached to plans.

11. Heating and Ventilation drawings being submitted to this office for approval before construction commences.

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13. Any advertising signs being the subject of a separate permit application.

14. Compliance with the Director of Environmental Health's requirements attached to the plans.

15. A large water connection being provided to the property. Cost and deposit will be advised on application to the Waterworks Division of this Department. (38mm water connection required)

16. A Registered Drainlayer obtaining a stormwater drainage permit and installing the stormwater drainage system.

17. All water pipes embedded in, or buried under concrete being fitted in chases or sleeves and no pipes being fitted in block walls.

18. Design levels being adjusted as shown in red on sheet SW2.

19. A minimum height of 3.1 metres headroom being provided for vehicle access to the loading facilities.

20. All internal partitions being the subject of a separate building permit application.

.../2

Building permit conditions cont...
Application No 1268

21. The street number 56 being displayed.

22. The use of wall glazing being approved only on the understanding that in the event of reflected light from the wall being established as a nuisance it shall be the responsibility of the owner to abate the nuisance.

23. All cranage and concrete pumping being contained within the site.

N.B. Your attention is drawn to the Christchurch Drainage Board's requirements attached to the plans.

To the Foreman

Northern ~~Eastern~~
~~Footscray~~ ~~Southern~~

No. 2169

~~PRELIMINARY~~ / BUILDING PERMIT CONDITIONS

Name: 7777 (to be advised) Application No: 1268

Address: 56 Cashel Street

Type of Building: Office Block.

1. Vehicle Crossings: One comercial vehicle crossing 4.5m long being installed Charge $1125.00

~~2.~~ Any existing vehicle crossing(s) being removed.

~~3.~~ All areas used by motor vehicles, being formed and sealed.

~~4.~~ Front fence or effective vehicle barrier being erected and maintained along entire street frontage, except opposite vehicle crossing(s).

5. Vehicle crossing(s) being kept free of loose metal, chips, etc. at all times.

6. All stormwater from buildings, concrete and/or sealed areas being piped to side channel and pipes being kept clear of vehicle crossing(s).

7. Property ground levels being not lower than existing back of path or crown of road, whichever is the higher. All levels to be in terms of C.C.C. bench marks and any queries to be referred to Design Office.

8. Only stormwater being discharged to street side channel.

9. Stormwater pipes being at least 1ft. 6ins. apart at kerb line.

10. All new or altered downpipes, gully traps etc. being recessed behind street boundary line.

11. Fuel filler points being located on private property.

~~12.~~ All formwork or shoring being supported from within the site where excavation is below ground level.

~~13.~~ Disposal of wellpoint water being the responsibility of the builder. Discharge to street side channel only being permitted by specific prior approval.

14. Loading dock: .....

Conditions No 1 2 3 4 12 13 will apply

24/7/86
Date

per Streetworks Maintenance Engineer

P.W.A. LTD. 21266

CITY OF CHRISTCHURCH

CITY WORKS AND PLANNING DEPARTMENT

P.O. BOX 237, CHRISTCHURCH, NEW ZEALAND

Armitage Williams

PO Box 3081

CHRISTCHURCH

23 September 198 6

re Building Application No. 1268 BU/40/89/56
Mr L O'Loughlin

Dear Sir/Madam, your application for permission to

Erect an office and residential building at 56 Cashel Street

has now been approved. Before work is commenced the undermentioned fees must be paid and a building permit uplifted from this office.

	$	
Water Connection Charge		
Subdivision Fee		
Building Permit Fee	1,905.00	2095.50
Building Research Levy	1,150.00	1265.00
Vehicle Crossing	1,125.00	1237.50
Drainage Permit/ Footpath Opening Fee	50.00	55.00
Street Damage Deposit	Indemnity required	
	4,230.00	4653.00 WITH GST

These fees contain no allowance for GST. Permits not uplifted before 1/10/86 will incur the additional 10% GST on all fees.

The Building Permit Application is approved subject to the following amendments to your proposal.

See attached Sheet

NOTE:

A Reserve Contribution levy of $6,380 for a development application is to be paid before the permit can be issued.

86 2598
- ROW -
Sheet 1

If the permit is not uplifted within three months of this date the application will be cancelled and the plans disposed of.

Yours faithfully

For City Engineer

cc B Gillman
C/- PO Box 25 028
CHRISTCHURCH

cc Richard Proko
PO Box 1232
CHRISTCHURCH

cc Alan Reay
PO Box 25028
CHRISTCHURCH

P.W.A. Ltd 30532

CHRISTCHURCH CITY COUNCIL

P. O. BOX 237 CHRISTCHURCH NEW ZEALAND

/4

IN REPLY PLEASE QUOTE BU/40/89/56
IF CALLING PLEASE ASK FOR Mr Tapper
EXTENSION NO. 678

16 July 1986

Alan M Reay
Consulting Engineer
147 Kilmore Street
CHRISTCHURCH

Dear Sir

BUILDING PERMIT APPLICATION NO 1268
WESTPARK TOWERS - 56 CASHEL STREET

During a perusal of the calculations for this building we were concerned to note that no foundation investigation appears to have been carried out. The suitability of the insitu ground to support the 10 storey building is based upon a report for an adjacent site and is covered in one sentence, "Site report from Soils and Foundations Ltd for the adjacent site for Mair and Co is expected to apply for this site". Frankly we expect a higher standard of foundation investigation for a single storey wooden cottage.

So long as the Law casts a duty of care on the Local Authority to ensure in detail that commercial buildings are designed and built in accordance with current Standards and Codes of Practice, we will have to insist that designers comply with these Standards and Codes. To this end we require you to provide a full foundation investigation report together with supporting bore logs (as envisaged by NZS 4267P) to justify your design assumptions.

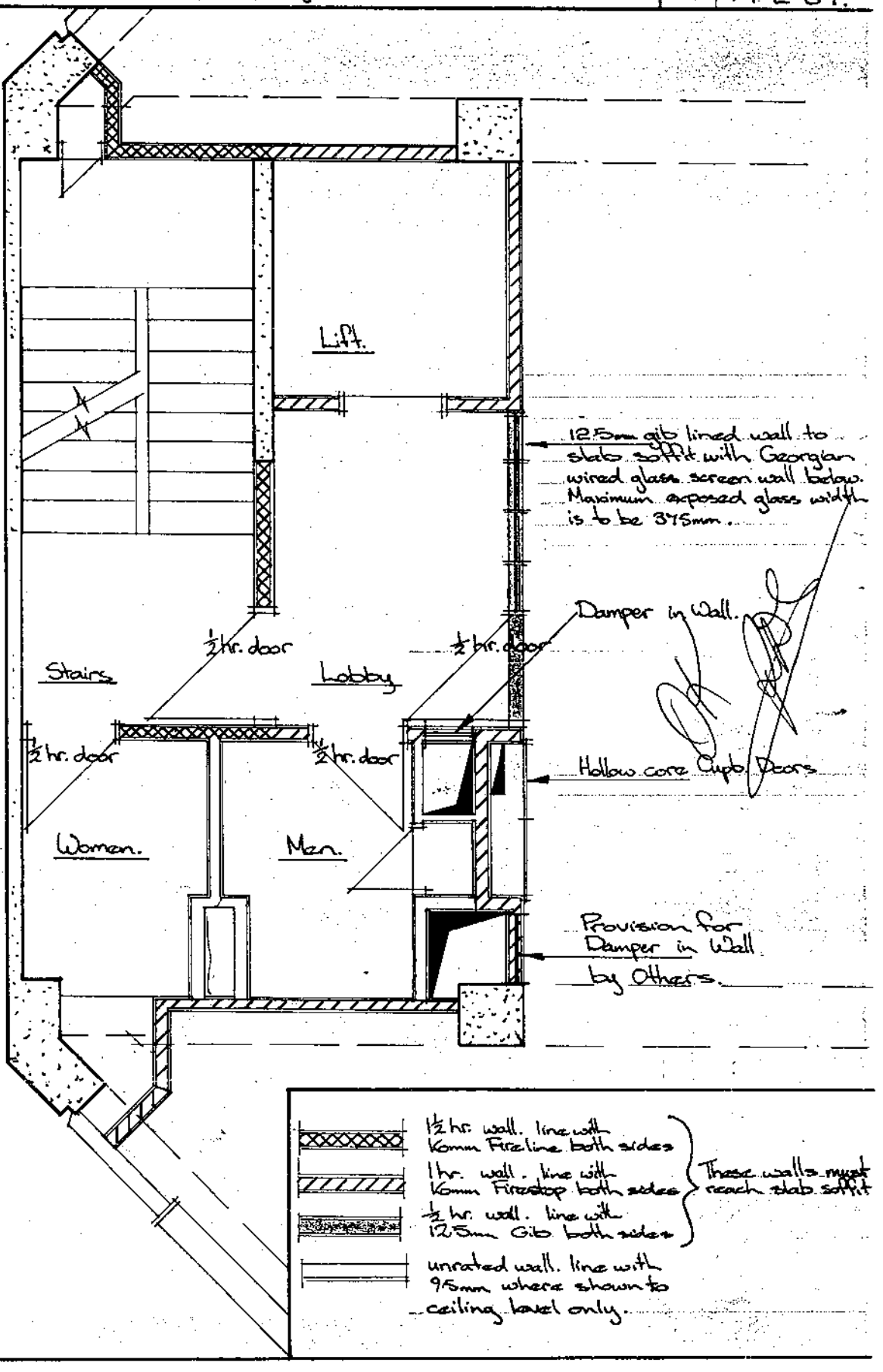
Yours faithfully

for CITY ENGINEER

CONSTRUCTION DETAILS

PAGE	C.D. 1A.
SECT	
FILE	2389
DATE	14·2·87.

Westpark Tower. Fire ratings for core walls.



ALAN M. REAY Consulting Engineer

36 CASHEL ST.
OFF BLD

A1268
15-9-86

91

Subject to:-

(1) Compliance with 2 letters from Reeland Properties Ltd. dated 9 July 1986 and 18 August 1986. copies attached to plans.

(2) Heating & Ventilating drawings being submitted to this office for approval before construction commences.

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

Of work to be done and materials to be used in the Proposed Development For:-

WESTPARK TOWERS
AT
56 CASHEL STREET
CHRISTCHURCH

According to this Specification and Instructions given by and to the entire satisfaction of the Consulting Engineer.

Alan M. Reay
Registered Engineer.
147 Kilmore Street,
CHRISTCHURCH.

INDEX

1. SPECIAL CONDITIONS OF CONTRACT

1.1 CONDITIONS OF CONTRACT
The General Conditions governing this Contract shall be 'Conditions of Contract for Building and Civil Engineering Construction, NZS 623: 1964 and amendment No.1.' This Contract is a lump sum Contract and the General Conditions of Contract shall be as amended or altered by these Special Conditions of Contract.

1.2 SITE
The site is at 56 Cashel Street, Christchurch.

1.3 ACCESS TO SITE AND CONTRACTOR'S SITE AREA
Access to site, and area for the Contractor's use shall be determined by the Engineer after consultation with the Contractor.

1.4 TENDERS
Tenders close at
and must be delivered to the office of the Consulting Engineer. All copies of Plans and Specifications must be returned with Tenders.

1.5 SUMMARY SCHEDULE
A completed schedule summary completed with the amounts and names of subcontractors is to be provided with the Tender.

1.6 POSSESSION OF SITE
Possession of the site will be given immediately upon signing the Contract.

1.7 MAINTENANCE
The maintenance period shall be three (3) calendar months.

1.8 ROOF GUARANTEE
The contractor shall provide a guarantee covering both materials and workmanship of the roof, flashing, and gutters for a period of five years from the date of final completion. Under this guarantee, the Contractor shall repair all leaks and make good the roof at his own cost.

1.9 CONTINGENCIES
The Contractor shall allow One Hundred Thousand Dollars ($100,000-00) for contingencies. The portion not used shall be deducted from the Contract on Completion of the works.

1.10 INSURANCE
The Contractor shall take out for the duration of the Contract a Public Liability Insurance of $1,000,000-00 as in NZS 623. The Contractor shall take out for the duration of the Contract a contract works All Risks Policy as required by NZS 623. The Policy must be in the joint names of the Owner and the Contractor.

1.cont'd...

1.11 PERMITS AND FEES
Unless otherwise provided, the Contractor shall obtain all permits and consents, where applicable the approval of completed work, and shall bear and pay all charges and fees whatsoever legally demanded by any municipal or other authority. However, should the non-payment of any such fees be liable to delay the Contract, it shall be lawful for the Principal to pay such sums and recover such monies from payment due to the Contractor. Where compliance with the terms of any permit or approval would require a variation of the works or affect the conditions under which they are carried out, the Engineer shall be so informed without delay.
The 0.5% development fee, as charged by the Local Authority shall be allowed for in these fees.

1.12 SETTING OUT
The Contractor is responsible for the accurate setting out of the building and must ensure that the works are within the Site boundary.

1.13 FLUCTUATIONS
Market fluctuations shall apply to materials and labour. Under Clause A22.1.2 the 12½% allowance shall be increased to 18%.

1.14 SITE MEETINGS
Meetings shall be attended by responsible representatives, the Contractor (additional to the foreman), Principal, Consulting Engineer, and Subcontractors, as required. Meetings shall be held at regular intervals as directed by the Consulting Engineer.

1.15 ACCESS OF OWNER
The Contractor shall allow to provide access to the Owner, or their representatives for the purpose of:-
a) Their authorized representative to inspect the works during normal working hours.
b) To install plant and equipment prior to the substantial completion of the building.
c) Install partitioning prior to the substantial completion of the building.

1.16 ALTERNATIVE MATERIALS
Tenderers are to base their prices on the materials as specified. Alternative materials, types and Manufacturers may only be used by the Contractor if these are approved in writing by the Engineer.

1.17 CHECKING OF DIMENSIONS
The Contractor must check all dimensions before commencing work.

1.18 SIGNS
No signs of any type (including sign writing on sheds) are to be erected without the Engineer's written approval.

1.19 INSTALLATION OF MATERIALS
All materials are to be installed in accordance with the Manufacturer's written recommendations.

1. Cont'd...

1.20 INCONSISTENCIES BETWEEN CONTRACT DOCUMENTS
Where Drawing, Specification and Schedule are inconsistent, The Contractor must obtain a written instruction from the Engineer before proceeding.

1.21 TELEPHONE
The Contractor shall install and maintain a site phone for the duration of the Contract.

1.22 NOMINATED SUBCONTRACTORS
The Owner reserves the right to let additional work on nominated basis within the Contract or outside this Contract during the Contract period.

1.23 COMPLETION
The work shall be substantially complete by

1.24 RETENTION
The retention shall be at the rate specified in the Liens Act.

1.25 LIQUIDATED DAMAGES
Liquidated Damages shall be

1.26 DOCUMENT DEPOSIT
A $500-00 document deposit is required to uplift tender documents. This deposit will be refunded when all documents (excluding the schedule of quantities) are returned to the office of the Consulting Engineer.

2. S I T E W O R K S

2.1 GENERAL

Refer to the General and Special Conditions of Contract Clauses which shall apply to all work in this section of the Specification.

2.2 SCOPE

This section of the Specification includes:-

1) Excavation for metal courses in car park.
2) Provide, lay and compact metal courses.
3) Provide, lay and compact asphaltic concrete surfacing.
4) Construction of concrete kerbs, channels, and paths, including proposed sump.
5) Provide topsoil in planter areas.

2.3 EXCAVATION

Excavate the site to remove all existing metal and other material above the proposed subgrade level. Note that this will expose concrete foundation beams for the building in some locations, as shown in the drawings. Care must be taken not to damage any structural concrete, and any damage must be made good to the satisfaction of the Engineer at the Contractor's expense.
There is an old concrete footing on the Western boundary which shall be removed.

No metalling or concrete work shall be done until the subgrade has been approved by the Engineer.

Remove all excavated material from the site.

2.4 METAL COURSES

Provide, lay and compact metal courses as shown on the drawings, in accordance with relevant sections of NRB Specification B/2. Avoid any damage to concrete columns, which will have a high grade finish. Pit run metal shall be free of fine plastic materials, and shall contain no organic material or stones larger than 100mm. Basecourse metal shall comply with NRB specification M/4 or an alternative approved by the Engineer.

2.5 ASPHALTIC CONCRETE

Asphaltic concrete shall comply with the relevant NRB specification. Prepare the basecourse surface, and apply a bitumous priming coat. Provide, lay, and compact a 20mm layer of asphaltic concrete to falls shown on the drawing. The maximum aggregate size in the asphaltic concrete shall be 5mm.

No area of the surface shall hold water, and the finished surface shall be an even dense surface free of steps, ridges, or other irregularities.

2.6 CONCRETE WORK

Construct concrete kerbs and paths as shown on the drawings. All concrete shall be 20 MPa compressive strength. Exposed surfaces shall be finished to a smooth fairface finish.

2. cont'd...

2.7 TOPSOIL
Provide 200mm minimum depth of clean screened topsoil to all planter areas.

3. EXCAVATION AND HARDFILL

3.1 GENERAL

Refer to the General and Special Conditions of Contract Clauses which shall apply to all work in this section of the Specification.

3.2 SCOPE

This section of the contract consists of:-

1. Excavation for foundations.
2. Excavation under ground slabs.
3. Backfill around foundations.

3.3 NATURE OF THE SITE

The Contractor shall visit the site to confirm details shown on the drawings. The site is generally level with a surface layer of hardfill, and is being used as a car park.
Beneath this level there is a fine light brown sand and silty sand overlying gravel at 1.4 to 1.7 metres depth. The foundation beams are to be poured against this fine natural gravel.
The water table at the time of excavation was about 2.1 metres below ground level.
There is an existing building on the western boundary and a sealed driveway against the eastern boundary.

3.4 EXCAVATE FOR FOUNDATIONS

Excavation may be by bulk excavation over the building area or excavation for each footing. Batter or shore faces of excavation as necessary.
Allow for formwork for full depth of all footings.
Consolidate bases of all excavations to the Engineer's approval, using suitable mechanical equipment.

3.5 INSPECTION

No reinforcing or site concrete shall be placed in foundations until they have been inspected by the Engineer.
No backfilling shall be placed against reinforced concrete footings until they have been inspected by the Engineer.

3.6 DEPTH OF EXCAVATION

Any soft spots found in excavations shall be reported to the Engineer. Should it be found necessary to excavate to a greater depth than shown on the drawings, the Contractor shall be paid for such greater excavations at a rate approved by the Engineer in writing, before such additional work is carried out.

3.7 EXCAVATIONS TOO DEEP

Should the Contractor excavate to a greater depth than called for by the drawings or by the Engineer's written instructions, he shall at his own cost fill to the proper level with site concrete as hereinafter described.

3... cont'd

3.8 MAINTAIN EXCAVATIONS

Secure and maintain excavations free from slips, erosion, water and other fluids or fallen materials. Provide and maintain all shoring, strutting, sheet piling, planking pumps, and other materials or plant necessary for carrying out and maintaining excavations and remove them when no longer necessary.

3.9 BACKFILLING

Backfill around foundations and thoroughly consolidate. Remove all timber, rubbish and other loose material before backfilling. Backfill and consolidate in 300mm layers using suitable mechanical equipment to the Engineer's approval. Backfilling material shall be pitrun hardfill as described in 3.11 or where approved by the Engineer excavated material such as sand or gravel with limited clay content. Material approved for backfilling shall be carefully stockpiled and kept free from soil, clay, peat, or other unsuitable material. Material used from stockpiles shall not be excessively wet, but shall, if necessary, be allowed to dry out to the satisfaction of the Engineer before use.

3.10 SURPLUS MATERIAL

Remove from site and dispose of all surplus material from the excavations.
Take every precaution to minimise dust nuisance from stripping loading and transporting surplus material.

3.11 HARDFILL

Supply, lay and consolidate and hardfill layers beneath all floor slabs against ground.
Hardfill shall be wet graded sand and gravel river-run, free of stones larger than 65mm, blinded with sand ready to receive MOISTOP dampcourse.
The minimum, consolidated depth of the hardfill shall be 200mm.
Consolidate hardfill thoroughly in 200mm layers with vibrating steel roller or similar approved.

3.12 CO-OPERATION

Co-operate with drainlayer and plumber who will be laying drains and pipes and wastes, and with the concretor who will be laying site concrete and constructing all concrete work.

4. CONCRETE & REINFORCING STEELWORK

4.1 GENERAL

Refer to the General and Special Conditions of Contract Clauses which shall apply to all work in this section of the Specification.

4.2 SCOPE

This section of the Contract consists of the supply, forming and casting of all cast-in-place, plain and reinforced concrete including all items necessary to complete the work indicated on the contract drawings and not specifically described elsewhere in this Specification.

This section of the Specification includes the supply, erection, reinforcing and casting of the components of the approved proprietary floor system specified in Clause 4.17 of this Specification.

This section of the Specification includes the erection of all precast concrete. The PRECAST CONCRETE section includes manufacturer of precast concrete units as detailed and delivery on trucks to the site if necessary.

4.3 MATERIALS AND WORKMANSHIP

The Contractor shall adhere to all requirements of NZS 3109:1980 except where specified otherwise herein or instructed otherwise by the Engineer. A copy of this standard shall be kept on the site and relevant parts read with the following clauses of the Specification.

4.4 INSPECTION

The Engineer will inspect construction in accordance with NZS 3109: Clause 1.3.

4.5 CONCRETE

Site concrete and concrete required to make good excavations shall be 10 MPa at 28 days or better.

All other concrete shall be SPECIAL or HIGH GRADE, from an approved ready mix plant, and as defined in NZS 3109: Clause 6.2 and of the following strengths:

Column Pads (isolated)	25 MPa
Foundation Beams	20 MPa
Columns	35 MPa
All other structural concrete including topping and proprietary floors	25 MPa

The maximum aggregate size generally shall be 19mm except that for toppings over proprietary floors up to 75mm thick the maximum size shall be 12mm.

4.6 CONCRETE TESTS

The ready mix supplier shall make control tests in accordance with NZS 3104, and shall pay the costs of such tests. Tests shall be made either at the ready mix plant or at the site, except that if the Engineer specifically calls for tests at the site as the result of any dissatisfaction with the plant testing procedure, these shall be done by the ready mix supplier.

4... cont'd

4.7 REINFORCEMENT

All reinforcement shall comply with NZS 3402 (1973).
Bars prefixed with a 'D' on the drawings shall be deformed Grade 275 steel.
Bars prefixed with a 'R' on the drawings shall be plain Grade 275 steel.
Bars prefixed with an 'H' on the drawings shall be deformed Grade 380 steel.
Mesh shall be hard drawn steel wire fabric to NZS 3422 (1972). All reinforcement and workmanship shall conform to the requirements of NZS 3109:1980.

4.8 FAIRFACE FINISHES

All concrete surfaces that will be visible in the finished job or covered with paint, Enduit plaster, or tiles, shall be finished fairface.
All concrete required to have a fairface finish shall be cast to a high standard using accurately constructed form work and to a high standard of workmanship. In addition to surface tolerances specified below, the finished surface shall conform for blowholes with Illustration 4 in the NZ Standard NZS 3114:1980 "Specification for Concrete Surface Finishes".
Refer to the Architect's drawings for the finish required on concrete surfaces.

4.9 SLAB FINISH

Except as specified below, all slabs shall have a steel trowelled finish. Screed off and lightly wood float. Finish slabs with approved power floating and compacting machines to leave a dense, level surface which does not vary more than 6mm from a 3 metre straight edge, and not more than ± 15mm from true level.

4.10 SITE CONCRETE

Form and cast 50mm site concrete beneath main foundations and elsewhere as necessary to provide a clean, dry working platform. Ensure ground surface is clean and dry and there is no evidence of soft spots.

4.11 FOUNDATIONS

Form and cast main foundation beams as detailed. It is envisaged that the beams will be cast in two stages with construction joints where the beams reduce in width. Allow to scabble or green cut the faces of these joints. The exact location and details of all construction joints are to be agreed with the Engineer before pouring concrete.

4.12 LIFT PIT

Form and cast lift pit walls and floor with sump as detailed. Build in P.V.C. 140mm HYDROFOIL waterstop or similar to all construction joints in floor and walls. Waterproof the concrete with SIKA Plastocrete-N-Waterproofer or approved equivalent.

4.13 GROUND FLOOR SLAB

Form and cast ground floor slab on MOISTOP damp proof course on compacted hardfill. Cast in strips and sawcut into panels, where agreed by the Engineer on site.

4... cont'd

4.14 CONCRETE COLUMNS

On the ground floor all concrete columns are to have a fairface finish to receive an acrylic paint finish. The outside face of the corner columns on grid lines B1, B4, C1, and C4 are to be formed using Glass Reinforced Conrete (GRC) premanent formwork, which will be pre-finished with Gloss acrylic paint on the outside face. The inner face of these columns and all other columns shall be formed on site. It is not expected that scaffolding of the exterior of the building will be required.
All care shall be taken to protect the outer face of the GRC from damage during construction, which may result from mis-handling or from grout spillage. Any damage shall be made good at the Contractor's expense.

4.15 BEAM COLUMN JOINTS

The location of column bars at the top of each lift shall be accurately determined by using a steel template to ensure correct location of the bars to fit into the ducts in the precast beams.
The beams shall be bedded on a cement/sand mortar around the full perimeter of the column to receive the precast beam. The void within this mortar, and between the column bars and the beam ducts shall be filled with a cement/water grout containing an expansive additive, such as INTERPLAST A, used in accordance with the Manufacturer's instructions. This may be injected using a grout pump through PVC tubes cast into the beams.

4.16 PROPPING OF PRECAST BEAMS

Precast beams on Line B shall be propped to support the full weight of the flooring units and the dead weight of the beam and topping.
Precast beams on exterior walls and at level 10 do not require any propping.

4.17 PRECAST DOUBLE TEE FLOOR SYSTEM

The double tee floor units shall be designed, constructed and delivered to site by the manufacturer, The dimensions of the floor units shall be as shown on the drawings and are all to be flange supported. In order to reduce the weights of the floor units and facilitate assembly with a mobile crane, the long span units are to be made as single tees on levels five and above.
All units shall be designed by the Manufacturer to require no temporary propping. Design loads shall include self-weight of the floor and topping, a superimposed dead load of 1.0 KPa, a live load of 2.5 KPa uniformly distributed, and a point load of 2.7KN.
All floor systems shall have a minimum Fire Resistance Rating (F.R.R.) of 1½ hours, with the nominal 60mm topping shown on the drawings.
The Manufacturer shall provide to the Engineer:-

a) Design calculations to satisfy the requirements listed.
b) Documentation of F.R.R.
c) Any camber required in the topping such that long term deflections under dead load shall be between zero and span/360 upward, and under dead plus live load, shall be less than span/360 downward.

4.18 CHASES, HOLES AND NIBS

Form all chases, holes, upstands and nibs as shown on the drawings or required by other trades. Chases and holes shall be accurately positioned and formed at the time of casting the concrete.
Set concrete shall not be hacked unless specific approval is obtained from the Engineer.

4.19 BUILDING IN

As the work proceeds, build in all necessary bolts and other fixings. The Concretor shal ascertain from all other Sub-contractors all particulars relating to their work with regard to order of its execution and details of all such provisions of fixings sleeves, chases, holes, etc., and of all necessary items to be built into concrete and shall ensure that all such items are provided for and/or positioned.

No claim will be recognized or allowed for at extra cost of cutting away or drilling concrete work already executed in consequence or any neglect of the Contractor to ascertain these particulars and make the necessary provision beforehand.

5. PRECAST CONCRETE

5.1 GENERAL

Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

5.2 SCOPE

This section of the Specification includes the manufacture and supply on site of the following precast units:-

1. Precast beams
2. Precast Wall Panels.
3. Precast Floor Slabs.

The work includes the fabrication and supply of all structural steel fittings to be built into the units as detailed on the drawings.

5.3 MATERIALS AND WORKMANSHIP

All formwork, concrete and concreting and finishing shall be in accordance with the relevant clauses of Concrete and Reinforcing Steelwork Specification except where noted otherwise in this section.

5.4 CONCRETE

All concrete shall be HIGH or SPECIAL GRADE complying with NZS 3109 Clause 6.2. Concrete for all precast work shall be 30 MPa at 28 days with 18mm maximum size aggregate.

5.5 TOLERANCES

All precast units shall be manufactured to the following tolerances unless stated otherwise on the drawings:

Length	± 6 mm
Cross Section	± 3 mm
Squareness (of cross sections and ends)	± 3 mm
Twist (dimensions from plane containing the other three corners	± 3 mm
Built in Items	± 5 mm

The above tolerances are given as a guide. Their application in any particular case shall be subject to interpretation by the Engineer.

5.6 FINISHES

All precast concrete exposed in the finished building shall be cast to a high standard using accurately constructed formwork and a high standard of workmanship. Precast items that do not meet the required standard to the satisfaction of the Engineer will be rejected. Formwork shall be such as to produce a high quality fair face finish on all exposed surfaces. Formwork shall be made from sheet steel or dressed plywood treated with a polyurethane finish to a high quality smooth surface, or similar.

In general finished surfaces shall be smooth and formed with moulds or by careful trowelling. Surfaces shall be free from honeycombing, grout loss, excessive air holes or other imperfections. Arrises shall be straight clean and sharp and free from spalling or damage.
All exposed surfaces shall have a similar appearance and standard of finish. Surfaces finished by trowelling shall be finished to the same standard and uniformly match surfaces finished against formwork.
Formwork shall be sealed at all corners, joins and inserts to prevent all grout loss.
All surfaces against which concrete is later to be cast shall be left roughened by brooming the poured face while the concrete is still plastic. Clean surfaces thoroughly from all laitance and loose concrete.

5.7 HANDLING

A high standard of finish is required and handling shall be such as to prevent any damage to units.
Approved lifting devices or hooks shall be provided in all precast units and these shall be made available to the Contractor for erection purposes and removed cleanly after use. Units shall be handled only by the hooks or devices provided. They shall be loaded and transported so that no forces are applied in excess of those occurring during normal lifting. Twisting forces shall not be permitted to occur. Units shall be strapped and secured to prevent movement or damage during transportation.

Details of lifting hooks and devices, and their positions, shall be submitted to the Engineer for approval before manufacture commences. Care shall be exercised at all times, that hooks or devices suffer no bending or other damage. Lifting hooks or devices set permanently in the units shall have a safety factor of at least 4 and for repetitive use shall have a safety factor of at least 6.

5.8 STACKING

Units shall be stacked on timber dunnage and suitable soft packing placed under the lifting points. Stacking shall at all times be such as to minimise the effects of creep and to avoid undue distortion of units.
Stacking of units shall be carried out on an area capable of withstanding the bearing pressures involved and in such a way that damage to units, lifting hooks, and to other embedded fixtures and to other units shall not occur.

5.9 MARKING

Mark all units with a mark number, orientation in finished job and date of casting. The marking shall not be permitted to affect the fairface finish.

5.10 INSPECTION

The Engineer or his representative will inspect the precast units at all stages of manufacture to ensure conformity with this specification. Units which do not conform to the required tolernaces, which shown grout leakage, which have been damaged or which are otherwise defective shall be liable to rejection and may be used in the structure only at the Engineer's descretion. No repair work shall be done without specific instruction from the Engineer.

5.11 BUILDING IN

Supply and fix all lifting bolts, cast in sockets, timber grounds and other fixings as shown on the drawings or as required for the proper erection of the units in the finished work.

5.12 PERIMETER PRECAST BEAMS

Form and cast beams as detailed. The mould for these beams shall include rods of 48mm O.D. to locate the aluminium uniflex ducts accurately in the mould and avoid distortion of the duct when fitting stirrups around the ducts.
The top surface shall be finished smooth where these beams form the finished floor in the building. The soffit and sides shall have a fairface finish.

5.13 PRECAST SHELL BEAMS

Form and cast the beams as detailed including all reinforcing starters, structural steel fixings, holes for services, rebates, etc, as detailed.
The beams have been detailed to minimise their weight and hence crane capacity. The top surface of the beams inside the stirrups shall be roughened to ensure good bond to the slab concrete. Outside the stirrups the surface shall be straight and level to receive the proprietary floor system.

Sides and soffits shall be finished as clause 5.6 where exposed in the completed building otherwise to a reasonable fairface finish.

5.14 PRECAST WALL PANELS

Form and cast these units as detailed including all recesses, holes, weldplates, starters cast-in-sockets etc.
The surfaces shall be finished as described in clause 5.6. At the top and bottom of panels, and where necessary to carry floor slab, roughen the surface to provide good key to joint mortar or cast insitu concrete.

6. GLASS REINFORCED CONCRETE

6.1 GENERAL

Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

6.2 SCOPE

This section of the Specification includes the manufacture and supply on site of all Glass Reinforced Concrete (GRC) cladding panels and permanent column forms as detailed on the drawings. Painting of the panels before erection is specified under PAINTING. Fixing of GRC panels to steel mullions is specified under STEELWORK.

6.3 MATERIALS AND WORKMANSHIP

All GRC shall be manufactured by persons experienced in GRC construction. Reasonable evidence of past experience in GRC manufacture shall be provided to the Engineer in support of this requirement.
Alkali-resistant glass fibre of approved manufacture shall be used on all panels, with a minimum glass content of 4½% in finished panels.
The concrete shall be of sand and cement, with proportions of 45% sand:55% cement by weight. Sand shall have a good spread of particle sizes between 2-5mm maximum size, with less than 5% finer than 75 microns.
An acrylic emulsifier of approved manufacture shall be included in the mix in accordance with the manufacturer's recommendations to improve mix workability, improve the waterproofness of the laminate, and to provide a suitably keyed surface for glass acrylic paint coatings on the outside of the panel.

6.4 CONSTRUCTION

All panels shall be cast so that the outside surface of the panel on the finished building is face down in the mould. Mould surfaces shall be kept clean and smooth so that a consistent finish is obtained on all panels. The minimum radius in any corner shall be 10mm to avoid "bridging" of glass fibres during construction.
The minimum thickness of GRC shall be 10mm, with additional thickness provided as shown on the drawings.
Tolerances on construction dimensions shall be as follows:-

Thickness	:plus 2mm
	:minus 0
Length & Width	:plus 2mm
	:minus 2mm
Deviation on edge	:2mm in 3 metres
Difference of Diagonals	:3mm maximum
Bow	:3mm maximum
Twist	:3mm maximum
Location of fixings cast in	:2mm

6... cont'd

6.5 TESTING

Flexural (bending) tests shall be carried out on specially constructed test pieces to determine the modulus of Rupture of the laminate. The test pieces shall be constructed using the same materials, method of construction and applicators as those proposed for the panels themselves. The minimum acceptable modulus of rupture for three test pieces shall be 21 MPa. The contractor shall allow in his tender to do three test pieces before constructing any panels. Further tests shall be taken if any variations are proposed in any of the materials, construction methods or applicators used in the manufacture of panels.

6.6 TRANSPORT

Suitable frames shall be made to protect the panels from damage during transport to the site. Note that the panels are to be painted, assembled onto steel frames and fitted with aluminium windows prior to erection on site.

8. STRUCTURAL STEELWORK

8.1 GENERAL

Refer to General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

8.2 SCOPE

This section of the Contract consists of the following:-

a) Supply, fabrication and erection of the main roof steelwork, the lift shaft, and machine room beams and posts, perimeter wall mullions and other miscellaneous items.
b) Assembly of GRC components and lifting into place.
c) Fabrication and supply of all weldplates, bolts and other fixings to concrete and GRC Sub-contractors for building in.

8.3 WORKMANSHIP AND MATERIALS

The contractor shall abide by all relevant requirements of NZS 3404:1977 "Code for Design of Steel Structures" and to NZS:4701 "Metal Arc Welding of Steel Structures."

8.4 STEEL

Steel shall be mild steel of approved origin and conforming to BS 4360:1979. The Contractor shall ascertain, at the time of tendering, whether the steel sizes detailed on the drawings will be available to do the job. The Contractor shall supply with his tender the source of supply, price list and substitute sizes for those detailed where shortage of supply is anticipated. Extra cost of substitute sizes required, but not notified at the time of tender, will be borne by the Contractor.
Butt welding of lengths will be permitted only with the approval of the Engineer.

8.5 CONNECTIONS

All connections shall be as shown on the drawings. In general these are to be welded. Welding shall be done by qualified operators and strictly according to NZS 4701:1981. Preparations of any butt joints shall be discussed in advance. Welds exposed in the finished building and in particular butt welds of stock length shall be neatly finished.

8.6 WELDING INSPECTION

The Engineer shall be given reasonable notice when each section of the work is prepared and ready for welding, and shall be given every opportunity to arrange for inspection and to satisfy himself as to the competence of the operators and as to the quality of the work.
The Engineer may arrange for specialist welding advice and inspections to amplify his own inspections. The cost of such services shall be recovered by a Nett P.C. Sum of $400-00 (Four hundred dollars).
The Contractor shall supply all necessary facilities, ladders and light scaffolding necessary for adequate access, and he shall arrange his sequence of work to allow inspections and testing to be carried out. Testing may include radiographic and ultra-sonic testing.

8... cont'd

8.7 WELDING DEFECTS

Welding defects disclosed by radiography or other investigation shall be assessed by the Engineer and if he so instructs to be cut out and remade. Joints cut out shall be examined and passed by the Engineer before rewelding. Welds will not be expected to attain an unreasonably high standard of perfection, but the weld metal, as deposited, shall be free from cracks, slag inclusion, gross porosity, cavities, and incomplete penetration. The weld metal shall be properly fused with the parent metal without serious undercutting or overlapping at the toes of the weld. The visible surfaces of all welds shall be clean, regular, and of consistently uniform colour.

When welding defects are disclosed, testing of further welds may be ordered at the Contractor's expense. If stiffeners or other concealing details have been added, these may be required to be removed to permit this additional testing.

8.8 SITE WELDING

Where site welding is required facilities shall be provided to obtain the same standard of workmanship here as in the shop. Welding in the air shall be reduced to a minimum by assembly and erection procedure. All welding in the air shall be designed to avoid overhead welding. Parts to be welded shall be firmly held in jigs or clamps. Tacking bolts or cleats, other than those detailed, shall be provided as needed but only after discussion with the Engineer. If requried, tacking cleats shall be removed after erection and bolt holes filled by welding.

8.9 BOLTS

Holes for bolts shall be drilled or punched and NOT gas cut. Bolts shall be of the correct length and with a flat or tapered washer under the nut.

Supply all bolts, nuts and washers for fixing steelwork and precast concrete including those to be built in by GRC and concrete subcontractors.

8.10 ERECTION

Erection procedure shall be agreed in advance with the Engineer. The Contractor shall provide temporary bracing as necessary to stabilise the structure until all permanent bracing and associated elements of the structural system such as purlins, are completed.

Every effort shall be made to keep steelwork true to dimension, plumb, and level. Final welding of erection connections shall be delayed until each section of the structure is proved true. Final welding up of all steelwork shall be completed before any further loads are added to the structure.

Packing under steel bases shall be steel.

8... cont'd

8.11 STEELWORK FINISHES

All structural steelwork exposed to the weather in the finished building shall be galvanised as specified in clause 8.12. This includes column protection angles.
All other steelwork shall be thoroughly cleaned by power wire brushing and hand scraping to remove all mill scale and rust in preparation for priming as in NZS 1900 Clause 9.4.69. Paint in all steelwork except weldplates and where built into concrete more than 5mm with two coats of primer in the shop, to a thickness of at least 0.1mm (4.0 thou)
After erection all damaged areas shall be cleaned and painted with two coats of primer.
Primer shall be Dulux Red Zinc Chromate Primer applied in accordance with their recommendations. The first coat shall be applied in accordance with the maker's instructions and to the satisfaction of the Engineer. Avoid spills and runs. Where timber members are fixed during the erection of the steelwork the STRUCTURAL STEELWORKER shall ensure that any cleats or steelwork inaccessible after such fixing are clean and primed under the timber.

8.12 GALVANISING

Where indicated on the drawings, steelwork shall be hot dip galvanised. Clean by sand or grit blasting to Swedish Standard S.A.2½ and dip to leave a zinc coating of 600gm/m^2. Any galvanising subsequently damaged by welding or gas cutting shall be cleaned as above and primed with Red Zinc Chromate Primer or equivalent.

8.13 MAIN ROOF FRAMING

Supply fabricate and erect the roof steelwork complete with all necessary cleats, holes and fixings as detailed on the drawings.
Allow to camber rafters as dimensioned. Ensure that the mortar packing has gained sufficient strength to fully tighten holding down nuts before any loads other than the purlins are applied.

8.14 PURLINS

Purlins are to be Fletcher GKN Brownbuilt members prepunched for bolt fixings and brace channels to standard details. All purlins shall be of 450 MPz galvanised steel.

8.15 PERIMETER WALL MULLIONS

Perimeter wall mullions shall be fixed to GRC panels, which shall be painted and fitted with aluminium windows before erection. The mullions shall be fixed to the concrete structure as detailed, with adjustment where necessary for line and level.

Assemble GRC panels as detailed, and bolt fix into place on the building using the adjustable Fixings provided. Following assembly and adjustment, site weld adjusting washers to RHS frames to prevent further movement.

CARPENTRY AND JOINERY

9.1 GENERAL

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

9.2 STANDARDS

All carpentry work shall comply with the relevant sections of NZS 1900 chapters 5 and 6 and with NZS 3604:1978.

9.3 TIMBER GENERALLY

All timber must be of the best of its class, free from large loose or dead knots, wavy edges, suitable for its purpose and in as long lengths as possible. All framing timber shall be gauged four sides. The mositure content of timber, at the middle of the timber, shall be no greater than the following percentages:-

Exterior finishing timber	16%
Interior finishing timber	12%
Framing, accepting linings	14%
Framing, not accepting linings	19%

No timber used for scaffolding, boxing or other temporary works is to be built-in.

9.4 SEASONING AND TREATMENT

All timber must be well seasoned and if necessary, preservative treated in accordance with NZ Treatment Specifications. All seasoned timber delivered to the site must be fillet stacked until required. All joinery and dressed timber shall be thoroughly air seasoned and/or kiln dried, and all machined timber shall be dry run.

9.5 GRADES

All wall and ceiling framing, wall-strapping, purlin-nailers, and miscellaneous timbers shall be Pinus Radiata to N.Z.T.P.A. Commodity Specification C8.

9.6 DIMENSIONS

All timbers must be true and square to full dimensions shown on the drawings or as specified.

9.7 BRACING

Brace Internal and External walls in accordance with NZS 3604:1978.

9.8 WORKMANSHIP

The whole of the Carpenter's work must be framed, trussed, braced and assembled in a workmanlike manner and in accordance with the best trade practice. All exposed nailing must be well punched.

9.9 ATTENDANCE

Co-operate with all other trades, and cut and provide timber as they require. Reduce the cutting of any structural members to a minimum, do not cut into beams and joists in the middle third of their length, except for drill holes which shall be on the centre line of the timber.

9.10 HILTI OR RAMSET FASTENINGS

Allow to fix timber plates etc. to concrete floor or elsewhere shown with Hilti or similar approved shot fasteners at 900mm max. centres and at all corners, intersections, etc. Powder charges and pin sizes shall be to the Manufacturer's specifications and recommendations.

9.11 BOLTS

All bolts shall be hot dipped galvanised bolts, (unless otherwise stated) and all visible bolts shall be Engineers bolts complete with round galvanised washers.
No black steel bolts will be permitted.

9.12 D.P.C.

Separate all concrete (or masonry) to timber surfaces with a damp course of 2 ply malthoid .

9.13 WALL FRAMING

Shall comply with the relevant parts of NZS 3604:1978. Space all studs and dwangs in fire rated walls in accordance with the requirements of the lining manufacturer for the fire rating specified hereunder.

9.14 EXTERNAL SEALANTS

Sealants, where shown, and where necessary for the weather-tightness of the building, shall be "Uraflex One".

9.15 SPECIAL DWANGINGS

Allow to dwang as necessary for all mirrors, joinery items, light fittings, plumbing etc.

9.16 INTERNAL GUTTERS

Frame with 250 x 50 timber bearers fixed to purlins (or wall panels as appropriate). Dwang at edges and at sheet joints with 50 x 50 dwangs. Line gutters with 17.5mm C plugged D construction ply and fix ex 32mm fillets to internal corners. (chamfer external corners). Form sumps 200mm deeper but the same width as gutters as shown.

9.17 LIFT MOTOR ROOM

Frame walls on Grids B & C with 100 x 50 timber studs at 600 centres and 100 x 50 dwangs at 800 centres. Fix 100 x 50's at 600 centres (on their flat) to the insides of cold rolled purlins and girts for fixing of linings.

Trim out for ventilation fans, louvres and ducts.

Frame wall between lift motor room and plantroom with 100 x 50 studs at 800 centres and with a central row of dwangs. Fix chain wire mesh full-width full-height as a security barrier. Fix ground treated tanalised 100 x 100 or 100 x 50 plates on top of Cooling Tower slab to form upstand. Cut through upstand to form overflow as shown.

9.18 TIMBER ROOF-FRAMING FOR FIXING OF FYRESTOP
Provide and fix 100 x 50 framing at 600 centres spanning between plates fixed to the first two purlins for fixing at linings.

9.19 EXTERNAL WALL FRAMING (EXCEPT ON GRID LINES A, D, &4)
Frame walls full-height from floor slab up to beam above with 100 x 50 studs at 600 centres and 100 x 50 dwangs at 800 centres. Trim out for windows. Line the outer face with building paper over 16mm Fyreline before tilting the walls up into place and fixing in place with 12mm "thru-bolts" at 900 centres.

9.20 EXTERNAL WALL FRAMING (GRID LINES A & D)
Frame 100 x 50 downstanding wall from the beam above. Line outer face with Fyreline before fixing in place.

Frame 100 x 50 wall under window cill and line with building paper before tilting up and fixing in place.

9.21 WALL FRAMING, GROUND FLOOR
Frame external walls with 125 x 50 studs at 600 centres and 125 x 50 dwangs at 800 centres. Ensure that the wall framing and lining does not impinge on the lift shaft.

Frame internal walls with 100 x 50 studs at 600 centres and 100 x 50 dwangs at 800 centres. Trim out for ventilation louvres, fire detector panel, dry riser etc.

9.22 WALL FRAMING, TYPICAL INTERNAL WALLS
Frame walls around lift shaft, around stair and around perimeter of core from the floor to slab up to the beam above. 100 x 50 studs at 600 centres and 100 x 50 dwangs at 800 centres. Ensure that wall framing around lift shaft does not impinge into the lift shaft, yet ensure that the wall linings on Grid 3 are flush with the column face.

Frame walls between toilets, and between ducts and toilets only up to the ceiling level.

Frame wall between Lobby and Stairs with 200 x 50 studs at 600 centres and 200 x 50 dwangs at 800 centres. Trim out for fire hose reel and main-pressure cold-water riser.

9.23 FIRST FLOOR, GRID 1

Not typical wall framing.

Fix 50 x 40 strapping to concrete wall panel at 600 centres vertically.

9.24 CEILING FRAMING

Ceiling	Construction	Height
Mens Toilets	125x50 ceiling joists at 600 centres	2.300
Womens Toilets	100x50 ceiling joists at 600 centres	2.300
Paraplegic Toilet	125x50 ceiling joists at 600 centres	2.300
Cleaners Cupboard	No ceiling	
Electrical Cupboard	No ceiling	
Stairs	No ceiling framing typically	
Ground Floor Lobby and Stairs	100x50 ceiling joists at 600 centres, with 100x50 ceiling runner	3.200
Ninth Floor Lobby and Stairs	100x50 ceiling joists at 600 centres, (trim out for lift access hatch)	2.300

9.25 ENTRY CANOPY

Fix 250x50 seasoned edge beams to mild steel brackets (provided by steel worker) with 10 gauge screws. Fix 100 x 50 joists between edgebeams and support on galv. m.s. joist hangers at 600 centres. Pack up with tapered ex 50mm packers to give 600mm cross fall, and dwang for sheet joins. Line with 15mm C plugged D construction ply.

9.26 INTERMEDIATE STAIR LANINGS

Supply 150 x 50 plates to external concrete wall panel and to internal lift shaft wall. Fix each in two places with 16mm "thru-bolts" at points one-fifth in from the ends.

Span 150 x 50 joists between plates and support on joist hangers at each end. Use double joists at edge near stairs. Space joists at 400 centres or as shown.

9.27 ROOF PARAPETS

Frame up parapets from top of ninth floor framing up to top of topmost GRC panel . Dwang for fire-resistant linings where necessary.

9.28 UNDERSIDE OF FIRST FLOOR SLAB

Frame underside of the building between Grids C & D with 100 x 50 framing at 600 centres. Frame up to underside of Beam on Line C. Provide and fix 100 x 50 ceiling runners at 2400 centres, and support ceiling runners at their midpoints from slab above.

9.29 INTERNAL GIBRALTAR BOARD LININGS

16mm Fyreline - Line both sides of wall framing floor up to slab above. Fix sheets vertically with joints staggered vertically on opposite sides of wall framing, and with all joints on timber framing. Nail as in Winstones GB11 specification. Stop all surfaces. This wall shall achieve a 1 1/2 hour F.R.R.

16mm Fyrestop - Line both sides of wall framing floor slab up to slab above. Fix sheets vertically with joints staggered vertically on opposite sides of wall framing, and with all joints on timber framing. Nail as in Winstones GB6 specification. Stop all surfaces. This wall shall acheive a 1 hour F.R.R.

12mm Gibralter Board to Walls - Line one or both sides of wall framing with 12mm gibraltar board.

12mm Gibraltar Board to Ceilings - Line underside of ceiling framing with 12mm gibraltar board.

Fixing and Stopping

Pack-out and plane back framing as necessary to acheive a planar surface. Fix as necessary for fire-rated walls, and as a minimum for non fire-rated walls as follows: 40 x 2.5mm galv. clouts at 180mm centres at edges, twin 40 x 2.5mm galv. clouts at 300mm centres up intermediate studs and twin 40 x 2.5mm galv. clouts in the middle of each dwang.
Stop all nail holes and sheet joints.
Reinforce sheet joints on walls visible to the public with perforated tape.
Finish all walls to take later paint finish with "Gib Finishing Compound" and sand with 150 grit sandpaper.

Schedule

Exterior walls, levels 1-9 (except grids A, D & 4)	16mm Fyreline both sides, full-height
Perimeter of core, (except grid 4 and as noted)	16mm Fyrestop both sides, full height
Ground floor external walls, (except grid 4 and as noted)	16mm Fyrestop both sides, full-height
Timber framed stair walls	16mm Fyreline both sides, full-height passing by faces of slabs and beams
Roof Parapets, Grid lines 1 & 4	16mm Fyreline both sides
First Floor, Grid line 1	12mm gib on strapping

Toilet and duct walls not covered above	12mm gibraltar one, or both sides as shown. Stopped for paint finish
Ground floor ceiling, Ninth floor stair and lobby ceiling Typical toilet ceilings	12mm gibraltar board stopped for paint finish

9.30 CUSTOMWOOD CEILINGS

Supply and fit 12mm customwood ceilings to the undersides of the stair flights and to the undersides of the intermediate landings between the first and ninth floors. Accurately cut to size with 10mm margin to walls at intermediate landings. Remove ariss and brad-fix with 3mm open joints.

9.31 HARDIFLEX

Supply Hardiflex in sheet sizes as elevated. Fix hardiflex over building paper and packers as necessary to acheive a planar surface, with sheets vertical. Back-seal vertical joints with Hardies black neoprene sharks-tooth jointers. Seal horizontal joints with polyurethane one-pot sealant. Fix with galvanised "Hardinails" as recommended by the manufacturers.

6mm Hardiflex

Lift machine room	- north and south walls including 45degree angles
Ground Floor Core walls.	- Part of East wall, North, West and South
Entry canopy	-Sides and fascia.

9.32 LIFT MOTOR ROOM ACCESS

Provide and fit ex 100 x 50 T & G pyrolised timber lay-in boards to lift motor room hatch. (Steel angle frame by others). Trim out for, and provide and fit an ex 100 x 50 rebated D.A. Rimu hatch frame in the Ninth Floor lobby ceiling. Opening dimension 1100 x 1400. Provide lay-in 18mm customwood panel.

9.33 STAIRS

Provide 21mm flooring-grade particle-board and glue(with construction adhesive) and nail to intermediate landing floor joists.

Take delivery of stairs and build-in as shown. Support on 100 x 100 x 6 mild steel angle. Pack-up so as to achieve level transition from each landing to adjacent tread. Line underside of stairs and landings with customwood as described above. Fix mild steel flat balusters (supplied by others) to stringers with 40mm x 10 gauge screws in three places.

Accurately cut 18mm customwood balustrade panels to shape shown. Ensure that the top and bottom of the plumb-cut at the end of a panel lines through with the top and bottom of the plumb-cut of the immediately adjacent panel. Fix with 18mm x 8 gauge counter-sunk posidrive screws.

Fix circular ex 50mm Dressing A coloured Rimu handrails to both sides of the stairs. Provide and fit Drake and Wrigley 1032 satin chrome plate brackets (plugged and screwed to concrete walls where necessary), three to each handrail.

9.34 TOILET CEILING-SPACE ACCESS
Trim out for, and provide and fit an ex 100 x 50 rebated D.A. Rimu hatch frame to typical Men's Toilet ceiling, levels 1-8 inclusive. Opening dimension 500 x 750. Provide lay-in 18mm customwood panel.

9.35INSULATION
Provide and fit 100mm fibreglass batts to all typical external timber framed walls on levels 1-9 inclusive.

Provide and fit 75mm fibreglass batts to strapped and lined external wall on level 1.

Roof insulation under "Roofer".

9.37 JOINERY UNITS
Allow to take delivery and build in where shown the following:-
Ground Floor Cornice
As detailed sheet A30. Prefabricated 16mm customwood cornice with mitred junctions and corners, glue block backing, and Customwood divisions at 600 centres. All fixing to walls to be concealed. Cornice to arrive sanded and undercoated on site.

9.38 JOINERY GENERALLY
Doors and other prepared joinery are to stand when finished the full sizes specified and/or shown on the drawings.
All dressed inside work throughout shall be machine sanded or otherwise hand finished to a smooth surfaced finish. All glue joints must be crossed tongued and finished in the best manner.

9.39 DOOR FRAMES
Refer drawings. All timber shall be Rimu D.A.H.

9.40 DOOR CLASHING STRIPS
All flush panel doors shall have clashing strips both edges to match door finish.

9.41 DOORS
Refer Door Schedule and details.

9.42 DOOR HARDWARE
Refer Hardware Section.

9.43 TOILET ROLL HOLDERS
Supply and fit where directed to all toilet cubicles "Ideal" No. 12 or similar C.P. roll holders.

9.44 SOAP DISPENSERS
Supply and fit above all basins approved chromed metal refillable tilting liquid soap dispensers.

9.45 ENGRAVING
Allow to suitably engrave the following door handle face plates with the respective symbol or wording:- read in conjunction with the hardware schedule.

101 to 901 & 102 to 902
Tenant side - "Smoke Stop Door Keep Closed"
Stair lobby side - "Smoke Stop Door Keep Closed", and the appropriate floor level numeral.

103 to 903
Stair lobby side - approved male symbol
Toilet side - "Pull"

104 to 904
Stair lobby side - approved female symbol
Toilet side - "Pull"

Typeface to be Helvetica Light.
All engraving shall be back-highlighted colour black.
Sample showing style, and set out shall be submitted to the Engineers for approval before commencing work.

9.46 ACCESS TO SERVICE DUCTS
To hatches, supply and fit Union 4147 cylinder lock, 1 per hatch and 50mm Hester double ball catches, 2 per hatch.

9.47 PARAPLEGIC TOILET
Supply and fix s.s. handrails to paraplegic toilet

DOOR SCHEDULE

Door	Nominal size	Type
G01	2200 x 1100	Aluminium Door. Refer to Aluminium Windows
G02 & G03	1980 x 810	Solid core, Hardboard faced
G04	2700 x 890 (2 leaves)	Solid core, Hardboard faced
1.1 to 9.1	1980 x 1070	Wired glass, refer details sheet A 24.
1.2 to 9.2	1980 x 1070	Solid Core hard board faced 1/2 F.R.R.
1.3 to 9.3 & 1.4 to 9.4	1980 x 750	Solid core hard board faced
1.5 to 9.5	1980 x 610	Solid core hard board faced
1.6 to 9.6	1980 x 750 (2 leaves)	Solid core hard board faced
9.7	1980 x 810	Solid core hard board faced 1/2 F.R.R.
9.8	1980 x 810	Solid core hard board faced 1/2 F.R.R.
LM1	1980 x 810	Solid core hard board faced
LM2	1980 x 810	Solid core exterior Grade hardboard faced

NOTE: Details of doors on sheet 24. All jambs, heads, sills, architraves, planted stops, packers shall be D.A. Rimu.

DOOR HARDWARE SCHEDULE

Door	Hinges	Lockset/Latchset	Closer
G01	1 Gibbons G4003 DA Floor Spring	Lockwood 590 101 Deadlock	
G02	1 1/2 pair Schlage 4451 Ball-tipped	Lockwood Push/Pull 2035/2105/75	Arrow727s
G03	1 1/2pair 100 Steel Butts	Lockwood 2001L/70 - 2003R/70	
G04	3pair 100 Steel Butts	Lockwood 570 Night latch (keyed alike to front door) Schlage 500 Pulls	2No D & W 1246 flush-bolts to one leaf
1.1 to 9.1	1 1/2pair steel butts	D & W 1429 Push and Pull Plate Lockwood 590/104 Deadlock	Arrow727s
1.2 to 9.2	1 1/2pair steel butt	Lockwood Push/Pull 2036 - 2105/75	Arrow727s
1.3 to 9.3 & 1.4 to 9.4	1 1/2pair steel butt	Lockwood Push/Pull 2036 - 2105/75	Arrow727s
1.5 to 9.5	1 1/2pair steel butt	D & W 1427 Pull 250 plate (SCP) Ball catch	
1.6 to 9.6	1 1/2pair steel butt	Lockwood 570 night latch 2 No. D & W 1427 Pulls 2 No. D & W 1246 flush bolts	

Door	Hinges	Lockset/Latchset	Closer
9.7 & 9.8	1 1/2pair steel butt	Lockwood Push/Pull, 2034 - 2105/75	Arrow727s
1m1/1m2	1 1/2pair steel butt	D & W 1429 Push/Pull 570 - 51 LHand 570 - 1RH Night Latch	

NOTE: All doors to be fitted with D & W 1408 S.C.P. Door Stops.

BUTYL RUBBER

10.1 PRELIMINARY & GENERAL

The Butyl Rubber Applicator shall be conversant with all clauses of the Conditions of Contract, the Preliminary and General Clauses of this specification and the New Zealand Standards relating to this trade, all of which shall be binding on this contract.

10.2 SCOPE

This section of the works covers the furnishing of all materials, tools, equipment, transportation, labour and supervision required to fix, complete and leave in a weatherproof condition, the Butyl rubber work as shown on the drawings.

10.3 WORKMANSHIP

The whole of the work shall be carried out by skilled tradesmen using proper equipment and methods in accordance with the best trade practice, this Specification and the Manufacturer's written instructions.

The Butyl rubber Contractor shall furnish to the Main Contractor a written guarantee that the Butyl Rubber work, together with the adhesives and underlays used will remain weather-tight and free from any defects that permit the entry of water, or detract from the general appearance of the work, including bubbling, for a period of twenty (20) years after completion of the Contract.

Such guarantee shall cover the making good of any defects that may occur, and rectifying any damage to any part of the building consequent upon defective workmanship or materials. The Contractor shall obtain from the Manufacturers of the Butyl Rubber sheeting and the adhesives, guarantees covering their materials and shall deliver these guarantees with their overall guarantee. The Butyl rubber Manufacturer shall during the course of this Sub-Contract, and at completion, make a thorough inspection of the works in order to undertake to furnish a written statement to the Main Contractor to the effect that all the Butyl rubber work has been inspected and passed as being fixed strictly in accordance with their (the Manufacturer's) recommendations and instructions.

These guarantees must be delivered to the Main Contractor and he in turn must deliver similar guarantees to the Architect before final payment will be made.

10.5 MATERIALS

1.0mm Butyl rubber: colour black

Adhesive shall be a neoprene based adhesive as recommended by the Manufacturer's of the Butyl rubber sheeting.

10.6 COMPLETION

On completion of this work, carefully and thoroughly clean off and remove all scraps and other rubbish from finished surfaces and leave in first class condition.

10.7 LAYING

General

Fix in strict accordance with the Manufacturer's written instructions. No fixing shall be done during inclement weather, or when temperature is below 10degrees celcius.

No fixing shall be done unless the Layer is satisfied that the surfaces to be covered are of an adequate standard to permit satisfactory execution of the work and to ensure satisfactory performance of the membrance.

10.8 WORK

Provide and lay butyl rubber to the following areas:-

Internal gutters including sumps.

Fabricated flashings to East wall horizontal panel joints.

Ground floor Entry roof and part of Utiliy Room roof.

Cooling tower area at lift motor room level.

HOSE REELS AND DRY RISER

11.1 GENERAL

Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

11.2 HOSE REELS

Allow to supply and install hose reels to the floors, Ground to 9th inclusive. Hose reels and isntallation are to comply with NZS 4503:1974. Hose reels are to be of recessed type, 19mm dia. x18m length connected by 20mm diameter branches to 25mm diameter mains pressure riser, all in galv. mild steel pipe, concealed in wall casting.

11.3 DRY RISER

Allow to design, supply and install a dry riser system with an inlet at ground level and outlets at half landings above the floors Ground to 9th inclusive. The Dry Riser shall comply with N.Z.S.4510:1978. Supply of the Ground floor Brigade Inlet door and frame shall be part of this trade. Supply of the intermediate landing doors and frames shall be by Joiner. Fitting of all such doors shall be by Carpenter

SUSPENDED CEILINGS

12.1 GENERAL

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

12.2 SCOPE

This section of the works covers the furnishing of all materials, tools, equipment, transportation, labour and supervision required top fix and complete the 1200 x 600 exposed two-way suspended ceiling to the areas shown on the drawings.

All components (except infill panels) shall be part of the Donn "DD System" as manufactured by Donn Pacific Ltd or similar approved.

12.3 STANDARDS

All work shall be carried out in accordance with the relevant clauses of NZS 4203.

12.4 WORKMANSHIP

The whole of the work shall be carried out by skilled tradesmen using the proper equipment and methods in accordance with the best trade practice and the work shall only be undertaken by fixers approved by the suspended ceiling Manufacturer to their (the Manufacturers) written instructions.

12.5 COMPLETION

On completion of this work, remove all surplus materials and rubbish from the site and ensure that all infill panels are free from damage and marking.

12.6 MATERIALS AND FIXING

General

All components shall be formed from glavanised commercial cold-rolled steel.

Rail Finish

The finish to all components exposed to view shall be factory applied low sheen satin white capping.

Infill Panels

Shall be 1200 x 600 pre-finished white, rebated edge 18mm pinex lay-in panels.

Set Out

Set out the ceiling grids in accordance with the reflected ceiling plans. All panels shall be clip fixed.

Services

All necessary provision shall be made to accommodate light fixtures, extract outlets etc., fixed to or passing through the ceiling system.

12.7 CERTIFICATION

When requested in writing by the Architect, the fixer shall supply a signed certificate stating that the suspended ceilings as erected and installed comply with the Manufacturer's written specification.

SEALANTS & DAMP-PROOFING

15.1 GENERAL

Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

15.2 SCOPE

This section of the contract consists of the supply and application of all sealants and the supply and laying of moisture barrier throughout the building.

15.3 WORKMANSHIP

All work described herein shall be performed by competent workmen, employed by only those firms approved and recommended by the manufacturers of the materials specified and shall be to the best standard.

15.4 ELASTOMERIC SEALANTS

Thioflex sealants shall be THIOFLEX 600 two part polysulphide sealant or other equal and approved two part polysulphide sealant complying with Poloysuphide Standard TT-S-00227 'a' and 'b'. Sealants shall be prepared and applied strictly in accordance with the manufacturer's requirements.

Polyurethane sealants shall be URAFLEX ONE one part polyurethane sealant or other equal approvd polyurethane sealant.

Clean all surfaces to which sealant is to be applied as required and prime with an appropriate and compatible primer as recommended by the manufacturer prior to the application of sealant.
Where specified or as required provide and fit closed cell polyethylene rod back up in chases or grooves to support sealant.
Particular care shall be taken not to disfigure the finished surface materials when applying sealant or primers. To this end mask or protect adjacent surfaces prior to application.

15.5 MOISTURE BARRIER

Provide and lay AHI Moistop 737 damp proof membrane over hardfill under all grade floor slabs, concrete floor slab thickenings and around all foundations.

All side and end laps shall be minimum 200mm sealed carefully with 50mm pressure sensitive tape to form a continuous and completely sealed waterproof membrane.

ROOFING

16.1 GENERAL
Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

16.2 SCOPE
This section of the works covers the supply by the Contractor or his Subcontractor of all materials, tools, equipment, transportation, labour and supervision required to fix, complete and leave in weather tight conditions all roofing, wall cladding underlay and associated flashing shown on the drawings.

16.3 WORKMANSHIP
All work shall be carried out by skilled tradesmen in accordance with the best trade practice and to the Manufacturer's written instructions.
It shall be the responsibility of the roofing contractor to consult with the Manufacturer's of the roofing materials before and during the course of the work to ensure that the work is carried out to the Manufacturer's entire satisfaction. Subcontract work shall be carried out by a firm of roofing experts, specialists in the fixing of the respective form of roof, and approved by the Manufacturer.

16.4 GUARANTEE
The long-run roofing contractor shall furnish jointly with the Main Contractor a written guarantee that the roofing and cladding will remain weatherproof and watertight and that no undue deterioration of the material or its surface protective coat shall occur for a period of five (5) years after completion of the Contract. The guarantee shall cover the making good of any defects which may appear and rectifying any damage to the building consequent upon defective workmanship or materials.

16.5 COMPLETION
At the completion of all roofing and cladding work, sweep down the entire surface of the roof and walls with a soft bristle broom to remove all iron filings. Clean up and remove all nails, screws, off-cuts and other material from the roof surface and out of gutters.

16.6 MATERIALS
The materials to be used as shown on the drawings are:-
6.1 0.4 Galvanised Trimdek Hi-Ten colour steel 5000 (colour "Titania").
6.2 Sisalation, netting and timber purlin nailers, building paper. Fix nailers with Tek Screws at 600 crs.

16.7 FIXING

Supply and fix pre-coated Trimdek to the main roof and machine room roof and walls as shown.
To the roof; over the steel purlins, lay netting 'dished' approx. 30mm and A.H.I. sisalation 420 double sided aluminium foil paper, having 150 laps and sealed at joints with A.H.I. sisalation 425 pressure sensitive tape.
Fix 50 x 50 purlin nailers pinus radiata treated N.Z.T.P.A. C3.
Lay 75mm fibreglass insulation blanket.
Crest fix trimdek to purlin nailers with 'Buildex' type 17 self drill wood screws, Hex. head with neoprene washer No. 12 x 65mm. Provide additional profiled galvanised washer and 25mm neoprene washer.
Make turn-ups and turn-downs to trays ends, fix purpose made notched flashings, ridge cappings as recommended by the Manufacturer.

To the walls and roof the the lift machine room, crest fix as for roofing but without the additional profiled galvanised and neoprene washers. Provide plastic caps to all wall fixings.
Trim around all wall penetrations as shown and flash accordingly. Fix over heavy weight breather type building paper.

16.8 0.6 GALVANISED MILD STEEL FLASHINGS
All flashings to main roof.

0.6 PRE-COATED MILD STEEL FLASHINGS
All Lift Motor Room roof and wall flashings.

16.9 HANDLING
Particular attention shall be paid to the handling of all sheets on to the site and during fixing. Damaged or disfigured sheets will be rejected and shall be replaced at the Contractors expense.

16.10 CO-OPERATION
The roofing contractor shall co-operate with all other affected subcontractors to ensure the correct completed works with regard to dimensions details and finishes. He shall ensure that all the materials are ordered in adequate time to avoid delay to the Contract in terms of supply and transportation to the site.

POST & TELEGRAPH

17.1 GENERAL

Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

17.2 TELEPHONE INSTALLATION

The Post and Telegraph Department will install telephones in the building. The Contractor shall inform the Owner of the time suitable for installation of the same and shall co-operate as required by the Owner.

VINYL FLOORING

18.1 GENERAL

Refer to General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

18.2 SCOPE

This section of the work includes the supply and laying of:-

18.2.1 Fully flexible sheet vinyl to comply with NZS 2016.

18.2.2 P.V.C. covings.

18.3 STANDARDS

The flooring and accessories shall be supplied and fixed by a bona-fide firm of Flooring Contractors duly approved by the Manufacturers. A guarantee of workmanship and materials shall be given by the Manufacturer, in conjunction with the approved flooring contractor for five years from substantial completion.

18.4 WORKMANSHIP

All materials shall be laid strictly in accordance with the Manufacturers instructions.

Scribing shall be cut neatly to fit exactly at all walls, fittings, projections, door frames etc.

18.5 PREPARATION

Inspect all surfaces to be finished and report any defects to the general contractor.

Work shall not proceed until satisfactory surfaces have been made good.

Concrete surfaces must be sufficiently dry as to negate any possible latent dampness attacking the laid flooring adhesive. Any imperfection to surface of concrete floors or oily or resinous patches shall be removed by grinding the slab.

18.6 CLEANING

On completion the flooring and accessories shall be cleaned off and dressed in accordance with the manufactuers recommendations. Remove all adhesive, marks etc. from the adjacent surfaces and materials.

18.7 MATERIALS SCHEDULE

18.7.1 Sheet Vinyl

Provide & lay Sovereign 5608 SVN II (available from Reese Bros.) to the following areas:-

Ground Level

Stairs - risers and treads as detailed.
Intermediate landings.
Paraplegic toilet area.

Levels 1 - 9

Stairs - risers and treads.
Intermediate landings
Stair lobbies - NOTE -Vinyl terminates at Door 02
Male and female toilet areas.

Plant Room & Lift Motor Room

Stairs - risers and treads (but excluding ladder).
Intermediate landing.

18.7.2 Covings

Provide and fix "Ejecta" C11 150mm or similar approved black vinyl covings to the following areas:-

Ground Level

Paraplegic toilet.
Intermediate stair landings.

Level 1 - 9

Male and female toilet areas.
Stair lobbies.
Intermediate landings

18.8 ADHESIVES

Use adhesives strictly in accordance with the Manufacturers written recommendations for their particular application.

PAINTING

PRELIMINARY & GENERAL

The Painter shall be conversant with all clauses of the Conditions of Contract, the Prelininary and General Clauses of this specification and the New Zealand Standards relating to his trade, all of which shall be binding on this contract.

MATERIALS

All materials shall be of New Zealand manufacture, delivered in unbroken packages bearing brand and maker's name complete. All primers, paints, enamels, varnishes, stains, turpentine etc., shall be of the best quality of their respective kind.

WORKMANSHIP

All work shall be of the highest standard, performed by skilled tradesmen in accordance with sound practice, using tools and equipment suitable for ensuring a first-class job. No paint containing oil is to be applied during frosty weather. Paint shall impinge on glass 3mm for weather protection. The whole of the work is to be sand-papered to a smooth surface. No coat of paint or varnish shall be applied until the undercoat is perfectly dry. All corners shall be carefully cleaned before each coat is applied. All surfaces when finished shall be left even, and free from brush-marks or other defects. A first class job only will be accepted. During progress of work, care shall be taken to keep all surfaces such as floors, joinery etc., clean. The painter shall repaint all edges of joinery where necessary after fitting and easing by Carpenter and Joiner. Make good any damage to paint surfaces by other trades.

MAKER'S INSTRUCTIONS

All paint, varnish, enamel etc, shall be aplied strictly in accordance with the maker's instructions, not only for all the coatings, but also for stoppings and other treatments.

PREPARATION OF SURFACES

It shall be the responsibility of the Painter to ensure that all surfaces are in a suitable condition to enable a first-class finish to be obtained. To this end he shall wash, dust or otherwise clean down all surfaces (including undercoats), remove imperfections by filling, sandpapering and the like, and apply sealers and neutralisers as necessary to achieve a first-class finish. No paint containing oil shall be applied to a damp surface.

PRIMING

Priming coat shall be brushed on to competely cover the whole surface and NOT flowed on. All exterior woodwork and metalwork specified to be painted shall be primed on all faces before being fixed into position. Priming shall not be exposed for more than four weeks before receiving the next coat.

Priming for all metalwork applied before fixing is specified under STEELWORKER. Priming for woodwork applied before fixing is specified under CARPENTER and JOINER. Prime all flashings with Plumbate primer before building in by CARPENTER.

STOPPING
After priming, neatly fill in and stop all cracks, shrinkages, nail holes etc. with best quality linseed-oil putty. Where transparent finishes are used, tint putty to match finished colour of the surrounding woodwork.

PAINTING GENERALLY
Allow to use a variety of colours to produce a colour scheme of a contemporary character. Allow to paint back surfaces only of all small recesses in darker colours than adjoining work. Any surfaces which will be inaccessible after installation shall receive full number of coats before erection. Unless otherwise specified the inside faces and all edges of doors, top and return over dovetails of drawerfronts and the like, shall be finished to match the face work and the inside surfaces of all cupboards and fittings shall be painted.

CLEANING UP
On completion of the job, leave the job free from dust and paint splashes.

G.R.C. PANELS, CONCRETE COLUMNS EXTERNAL, HARDIFLEX PANELS
The finish shall be a black, high-gloss finish. It shall be a specialist 4-coat recoatable urethane enamel system.

The elements to be precoated in the G.R.C. moulder's yard with allowance for on-site touch-up only.

The finish shall be gloss and shall be applied by an approved contractor working strictly in accordance with the application requirements stipulated by the manufacturer for the nominated surfaces and performance requirements.

Allow to mask the horizontal recess for fixing of tiles as shown on details.

Sample of Gloss finish and colour to be supplied for approval before application commences.

PAINTING - EXTERNAL

Scope	Preparation	Priming	Undercoat	Finish	Colour
Hardiflex Soffit	Clean down	-	-	3 Coats Acrylic Semigloss	-
Hardiflex Walls	(as for Glass Reinforced Concrete Panels)				-
Door G 04	Stop & sand	1 coat alkyd	1 coat tinted	2 coats enamel gloss	-
Steel R.H.S. Columns	Degrease	1 coat galv. iron primer	1 coat tinted	2 coats enamel gloss	-
Customwood Cornices	Stop & sand	1 coat alkyd	1 coat tinted	2 coats enamel gloss	-
Exposed external columns	(as for Glass Reinforced Concrete Panels)				-
Glass Reinforced Concrete	Special Recoatable Urethane Enamel. (See Specification)				-

PAINTING - INTERNAL

Scope	Preparation	Priming	Undercoat	Finish	Colour
Ground Fl. Lobby Ceiling	sand	-	1 coat sealer	2 coats acrylic s/gloss	-
Ground Fl. Walls	sand	-	1 coat sealer	2 coats acrylic gloss	-
Utility & Para. W.C.	-	-	1 coat	2 coat	-
Ground Fl. Cornice	Stop & sand	1 coat	1 tinted coat	2 coats gloss enamel	-
Stair Walls & Soffits	clean down sand & fill	-	Textured Gloss Acrylic Spray		-
Doors & Frames (except doors 1 & 6)	Stop & sand	1 coat	1 tinted coat	2 coats gloss enamel	-
Timber stair handrail	-	-	-	-	-
Toilets, Walls & Ceiling	Clean down	-	1 coat sealer	2 coats acrylic s/gloss	-
Lift lobby	-	unpainted			
Lettable space & Penthouse		unpainted			
Lift motor room /Plantroom Walls & Ceiling		-	1 coat sealer	1 coat acrylic s/gloss	-

TILING

PRELIMINARY & GENERAL

The Tiler shall be conversant with all clauses of the Conditions of Contract, the Prelininary and General Clauses of this specification and the New Zealand Standards relating to this trade, all of which shall be binding on this contract.

SCOPE

This section of the contract in general consists of the laying of masonry and ceramic tiles internally and externally both on walls and floors listed below.

WORKMANSHIP

All work shall be carried out by skilled tradesmen using proper and adequate methods and equipment, in accordance with best trade practice, and to the entire satisfaction of the Engineers.
It shall be the responsibility of the Tiler to ensure that a proper key is provided for all tiling, either by hacking, chemical means or by other methods.

TILING

MATERIALS

All materials shall be of the best respective kinds.
Sand shall comply with NZS 2129
Portland Cement shall comply with NZS 1844

SETTING-OUT

The Tiler shall allow to take particular care in setting-out tiles to ensure even bond with the minimum number of cut tiles, and when they occur, cut tiles shall be in the corners.
Also allow to neatly trim around service pipes, taps, electric fitments etc.

FLOOR TILES

Provide and lay slate tiles to the ground floor, both internally and externally, as shown on the drawings.
Slate tiles shall be "Port Black", 300 x300mm, available from Firth's Ltd.
Thoroughly clean floor slabs and roughen where necessary to obtain key.
Lay tiles on mortar bed to achieve finished floor level shown.
Fix tiles to lower parts of walls as shown on the wall elevations.
Grout with tinted sand/cement grout to approved colour.

WALL TILES (INTERNAL)

Provide and fix reflective ceramic tiles to the ground floor walls as shown on the wall elevations.
Reflective ceramic tiles shall be
Fix tiles with 2 part latex adhesives and with 1.5mm gaps all around.
Grout with tinted proprietrary grout to approved colour.

WALL TILES (EXTERNAL)

Provide and fix reflective ceramic tiles to the recesses in the building exterior as shown on the elevations.

Reflective ceramic tiles shall be "Metalia" AP-100-101 S tiles, supplied by Mico Wakefield Ltd.

Provide tiles to the rebate of the prefabricated glass reinforced concrete wall panels as and where shown on the wall elevations and details. Fix tiles with 2 part epoxy resin adhesives with 1.5mm gaps .

Ensure that the G.R.C. substrate is clean, level, and free of paint and grease before commencing glueing.

Glue the tiles to the panels on the ground, and allow the adhesive to fully cure before moving the panels.

PLUMBING

PRELIMINARY & GENERAL

The Plumber shall be conversant with all clauses of the Conditions of Contract, the Prelininary and General Clauses of this specification and the New Zealand Standards relating to this trade, all of which shall be binding on this contract.

SCOPE

This section of the contract in general consists of the complete plumbing for the building as shown on the drawings and as specified herein. Window flashings covered under "Metal Windows". Roof flashings under "Roofer". Fire hose reels and Dry Risers under "Fire Hose Reels"

WORKMANSHIP

The works shall be carried out in accordance with best trade practice of sound repute, by competent craftsman using equipment, materials and processes that are best suited for the purpose, and shall be of the very highest standard. Check all dimensions on the job.

REGULATIONS

All sanitary plumbing work shall be strictly in accordance with the New Zealand Plumbing and Drainage Regulations (with 1982 ammendment), and to the approval of the local authorities, inspectors and the Engineers.

MATERIALS

All materials shall be as specified and only of the best quality of their respective kinds, and shall comply to the following standards.
Copper: Pipe and tube to NZS 3501.
All copper pipework shall be of the weights and gauges specified in the Plumbing Regulations. PVC cold water to NZS 7648.
All PVC pipework and fittings shall be unplasticised PVC, complying in all respects with NZS 7641 and 7642. Soil Pipes to NZS 7642. Lugged elbows (wingbacks) shall be of metal construction.
All galvanised sheet iron unless otherwise specified shall be 0.6mm galvanised mild steel with 505 g/m2 of zinc. All sheet copper unless otherwise specified shall be 0.6mm half hard. Sheet lead shall be best milled of a minimum average weight of 20 kg/m2.

CONNECTIONS

All connections in pipework, and to fittings, and all joints in sheet metalwork, shall be made in accordance with best trade practice and applicable Codes of Practice, and shall be appropriate to the materials and to the situations to produce thoroughly watertight junctions, with all necessary and proper provisions for thermal expansion and contraction, and adequate provisions for disconnection for further repairs and maintenance.

LAYOUT AND FIXING OF PIPEWORK

All pipes, unless shown on the drawings, specified herein, or agreed with the Engineers to be otherwise, shall be concealed. All pipework shall be properly and adequately fixed in position with properly flagged fittings, saddles, straps or two-piece pipe rings, with fixings spaced in accordance with regulation requirements and code of practice recommendations. Proper and adequate provision shall be made in the installation of all pipework (and in particular all PVC pipework) to allow for thermal movement. This shall be by adequately located and properly formed special expansion joints, or by adequately sized offsets and loops. All pipework shall be laid to gradients so as to avoid the formation of air-locks.

TESTS

Subject all water installations to a full water pressure test. Subject waste and soil installations to smoke tests where appropriate.

WASTE, SOIL,VENT &FLOOR WASTE PIPES

Provide and install complete all the soil-pipes, waste pipes, vent pipes and floor waste pipes as shown on the drawings, specified hereunder and as necessary for full compliance with local authority requirements and the plumbing and Drainage regulations (with 1982 amendment).

All waste and soil-pipes shall be fitted with the necessary cleaning eyes and inspection saddles.

Soil-pipes and floor waste stacks extending up through the roof as vents shall finish with the minimum allowable projection above the lift motor room roof and shall be fitted with PVC bird-proof cages.

All junctions on the main soil-stacks and floor waste stacks shall be ring-sealed, rather than solvent-welded to give flexibility, expansion and contraction and erection tolerance.

Offsets to the main soil stacks shall be at 135 degress or more to allow free flow of waste matter.

All fittings, except the topmost to each stack, are to be back vented. All vent stacks to be vented into the top of the soil-stack at least 150mm above the overflow-level of the highest fitting. The bases of all soil-stacks shall be vented into each vent stack, and at a level at least 300mm below the connection of the lowest fitting to each soil-stack.

Fit 80mm soil pipe and 50mm vent in the same duct as the Dry Riser for future tea-making sinks.

Run the 40mm waste from the ground floor w.h.b. to the gully trap in P.V.C. wrapped in Denso tape

RAIN WATER PIPES

Rain water downpipes shall be 100mm diameter unplasticised PVC fitted with swept bends and inspection ports at the foot of vertical sections of piping. Discharge into stormwater drains as shown.

WC PANS

WC pans shall be McSkmmings Glen Afton P-trap (colour white) without vent horns. Cisterns shall be Dux Twin-line, white, polyproylene cisterns .

Fit cistern to pan with white polypropylene flush pipe and flexible white rubber seal. Fit pan to 80mm soil-pipe branch with flexible white rubber seal.

Connect each cistern to cold water supply and isolate with a proprietrary plastic valve. Discharge the cistern overflow at a low level onto the vinyl floor near the floor waste via a pipeconcealed in the wall.

Provide protection for all WC suites and seats from damage until the building is complete.

CANTILEVERING WASH HAND BASINS

Provide and fit centilevering wash hand basins to the Men's toilets.. Basins shall be McSkimmings "Gondola" basins with 3 tap holes (colour white) as shown on the drawings and as specified herein. Basins shall be complete with 3 support brackets surely fixed to timber framing with 50mm screws, and sealed to wall with mould-resistant silicone sealent.

Connect basins to 32mm diameter white polypropylene traps and flange where passing through walls.

Supply and fit basin mixer faucet sets and connect up hot and cold water supplies with copper tails neatly and symmetrically curved and with flanges at walls.Basin faucets shall be chrome plate on brass.

Provide 32mm black plastic plugs and chrome plate chains.

VANITY WASH HAND BASINS

Vanity basins shall be McSkimmings "Tudor" with three tap holes (colour white). Supply to JOINER for building in. Connect taps, faucets, plugs and chains as above.

CLEANERS SINKS

Provide and fit cleaners. Cleaners sinks 600x450x190 deep stainless steel sinks. Mount on mild steel brackets with rim of sink 500mm above floor.

Connect with 40mm outlet and trap, and 32mm vent. Supply and connect up 15mm chrome-plate hot and cold taps, and provide chrome-plate plugs and chains.

FLOOR WASTES PL-20

Floor wastes shall be 40mm diameter, trapped, with threaded gratings (all chrome-plate) for ease of cleaning. Run 40mm pipes to duct and combine in 50mm vertical stacks.

Discharge over the glazed-earthenware dish-channel at ground level

LOW PRESSURE COLD WATER SUPPLY

Supply and fit two spun poythene water storage tanks on the lift motor room level, each with a galvanised mild steel over-flow tray and 50mm over-flow pipe discharging onto the roof. Connect with 50mm pipe, and lead off with 32mm pipe decreasing in diameter as shown. Run 20mm pipe in the same duct as the Dry Riser for future tea-making sinks.

HOT WATER SUPPLY

Provide and fit 13 litre hot water cylinders to the ceiling spaces in the Men's toilets on floors 1 - 9 inclusive. Hot water cylinders shall be supplied complete with thermostat and 1kW element, and shall be constructed to withstand the head of water from above.

Approxiamate wall thicknesses for copper construction are:-

Level 9	20 gauge
Levels 8, 7, 6 & 5	16 gauge
Levels 4, 3, 2 & 1	2.0mm thickness

Connect to low-pressure cold-water supply after isolating valve. Provide and fit a drain-valve with hose-ruff to the cold water inlet. Lead off in 15mm copper pipe to fittings and tee-off in similar pipe to the 20mm combined relief vent/overflow rising up through the building and discharging into the roof tank.

HIGH PRESSURE COLD WATER SUPPLY PL-12

Apply for a new 25mm connection and fit a new meter, isolation valve and back-flow preventor in a toby box.

Run the main cold water supply up through the building to the lift motor room in 25mm galvanised mild steel pipe. Coordinate with the fitters of the fire hose reels over 20mm galv. tee offs, Terminate mains pressure cold water supply at the storage tanks with a 25mm ball-cock. Tee off from the mains pressure line at the ground floor with a 15mm hose tap and at the lift motor room with a 25mm isolation valve.

LOW PRESSURE COLD WATER SUPPLY

Supply and fit two spun poythene water storage tanks on the lift motor room level, each with a galvanised mild steel over-flow tray and 50mm over-flow pipe discharging onto the roof. Connect with 50mm pipe, and lead off with 32mm pipe decreasing in diameter as shown. Run 20mm pipe in the same duct as the Dry Riser for future tea-making sinks.

PIPEWORK, GENERAL

1. The drawings indicate the size and general layout of pipes. Their positions, however, shall not be taken as being necessarily correct as they may be shown apart, etc. for clarity. The position of pipework shown on large scale details however shall not be amended without consultation with the Engineers.

3. All valves and other such fittings shall be arranged so that they are conveniently accessible. Connection between pipes and equipment and/or valves shall be made with unions.

4. All bends except where specifically detailed shall be of long radius, elbows will not be permitted. Where bends are formed in lengths of pipe a hydraulic bender shall be used having "shoes" of the correct size for the relevant pipe. Flattening or distortion of the bore will not be accepted.

5. All pipes and fittings shall be thoroughly cleaned before erection and shall be free from burrs, and other defects. After cutting whether by pipe cutter or hacksaw, the end of every pipe shall be reamered clean and full bore. Ends of pipes, fitting and equipment shall be sealed by iron plugs or pupose made caps during storage and the progress of the work to exclude any foreign matter from entering the system.

6. All pipework shall be installed with an accurate fall of not less than 1 in 500 and be arranged to avoid air-locks and shall be accurately supported to prevent sagging.

7. All pipework shall be installed to make provision for accommodation of the expansion and contraction due to temprature variations without causing damage to itself or other work.

DRAINLAYING

PRELIMINARY & GENERAL

The Drainlayer shall be conversant with all clauses of the Conditions of Contract, the Preliminary and General Clauses of this specification and the New Zealand Standards relating to this trade, all of which shall be binding on this contract.

ACCORDANCE WITH BY-LAWS

All drainage work shall be strictly in accordance with the Plumbing and Drainage By-Laws,the Christchurch Drainage Board's District Supervision Specification and Design Manual, notwithstanding any omission herein, and to the entire satisfaction of the Christchurch Drainage Board's Inspectors.

EXCAVATION

Excavate as necessary for all drains to depths required to give proper gradients to lengths and directions shown on the drawings.

CO-OPERATE WITH CONCRETOR

Co-operate with Concretor and Blocklayer over the forming of openings in foundations etc., and in placing all necessary pipework before concrete is poured.

P.V.C. PIPES

All P.V.C.pipes shall be of unplasticsed P.V.C., Winstones "Terrain" or similar, complying with Local Authority requirenents.

EARTHENWARE PIPES

All earthenware pipes are to be approved quality glazed, true in shape and free from cracks and blemishes to comply with Local Authority requirements.

LAYING OF DRAINS

All drains shall be commenced at the points of outfall and worked back to the highest part with at least 300mm cover. All branches and other connections, cleaning eyes etc., to be connected in as work proceeds.

GULLIES AND TRAPS

All gullies, traps and other drainage connections shall be of a similar quality to the drain-pipes, and shall comply with Local Authority requirements.

CONCRETE

Any concrete used shall comply with that specified under Concretor, minimum strength of 18 M.Pa at 28 days.

SUMP

A sump shall be provided to gully trap where shown. The suroound shall be

pre-cast concrete set in concrete base, with bottom neatly finished in trowelled cement. The sump shall have a cast iron grating.

STORMWATER DRAINS
Lay 100mm dia. PVC stormwater drains as shown on the drawings complete with appurtenant fittings.

RODDING EYE
Supply and lay an angled junction and vertical riser up to and just above ground level. Seal at top with a threaded cap.

SEWER DRAINS
Lay 100mm dia. PVC sewer drains as shown on the drawings complete with appurtenant fittings.

SHINGLE HAUNCHINGS
All stormwater and sewer pipes are to be laid onto a firm crushed shingle bed, in compliance with the Christchurch Drainage Board requirements.

FIRE DETECTORS

PRELIMINARY & GENERAL

The Fire Detector System Installer shall be conversant with all clauses of the Conditions of Contract, the Prelininary and General Clauses of this specification and the New Zealand Standards relating to this trade, all of which shall be binding on this contract.

SCOPE

Installation of an automatic fire alarm system, complying in all respects with NZS 4512/1981, the Rules (1966) of the Insurance Council of New Zealand, and the following requirements. The manufacture, supply, installation, testing, commission, presentation for acceptance, servicing and maintenance of this system shall be by a specialist in this field.

Complete technical details of the system offered shall accompany the tender, and no work on the installation shall commence prior to the written approval by the Architect of the system offered.

SYSTEM

The system shall be electrical, comprising heat-actuated detectors, supplemented by manual call-points, evacuation alarms, and a control/indicator panel connected directly to the N.Z.F.S. receiving centre. It shall be of a capacity competent to accept all required circuits.

ELECTRICAL SUPPLY

The control/indicating equipment and alerting devices supplies shall be from independent secondary lead/acid batteries of the low-loss type, and associated main- powered chargers. The chargers shall be of the constant-potential limited-current type with volts/cell indicator. Mains power outlets exclusive to the fire alarm system will be provided under the General part of the Electrical Services.

A separate dry battery comprising No. 6 primary cells shall be provided to operate the outdoor street alarm bells. Alternatively they may be connected to the alerting device battery provided, a separate isolating switch is provided for thes bells.

The electrical supply units shall be located beneath the control/indicator panel in the space provided.

CONTROL/INDICATING PANEL

This panel shall be located where shown on the Drawings, subject to the approval of the N.Z.F.S. Fire Safety Officer. This approval shall be obtained by the Subcontractor.

DETECTORS

Provide and install dectors of the resettable type heat-actuated units as required. Each dector shall be permanently identified by its circuit reference.

Hand-written self-etching felt pen indentification will not be acceptable. Identification shall be clearly readable from the floor beneath the dector. Temperature rating shall be 57 deg. unless otherwise specified . The Sub-contract shall provide a certificate of compliance with NZS 2139/1967 from a reputable test laboratory, for each type of dector installed. Provide a unit-rate for each additional dector required during the installation of the main contract.

MANUAL CALL POINTS

Provide and install call points as necessary. Provide a unit rate for any additional call points required during the installation of the main contract.

ALERTING DEVICES

Provide and install alerting devices as necessary. Provide a unit rate for any additional bells required during the installation of the main contract.

CIRCUIT WIRING

All cables shall have stranded copper conductors, sized to comply strictly with voltage drop requirements but not loss than 1.5mm sq., and be of 600/1000V grade T.P.S. (red sheath). All bell wiring shall be not less than 2.5mm sq. The general electrical requirements for cabling and wiring shall apply equally to this system. All cabling shall be segregated from other services. Allow for cable tray in duct large enough to take all circuit wiring and spares. Allow for a space circuit from each floor to accommodate future extensions.

Connect all cable spares to junction box near, or in panel, properly marked.

N.Z.F.S. CONNECTION

Apply to the N.Z.F.S. in the name of the Employer for a direct-line alarm connection to the N.Z.F.S. Receiving Station and make all arrangements for this connection from the control/indicator panel.

RECORD DRAWINGS AND INSTRUCTIONS

All dectector and call-point references, and circuits shall be included on the Record Drawings, and control/indicator panel internal circuitry included in the Manuals with routine test and maintenance schedules.

INSPECTION, TESTING, COMMISSIONING.

Conduct all visual examinations and tests as required by N.Z.S. 4512/1981 and the Insurance Council Rules (1966), including removal, replacement and testing of sample dectectors.

The completed installation shall be inpected by the N.Z.F.S. Fire Safety Officer and Technical Officer of the Insurance Council of New Zealand. Certificates of compliance shall be obtained from each of these Authorities and forwarded to the Architect. Final payment will be witheld until these certificates have been fowarded.

LIFTS

26.1 GENERAL

Refer to the General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

26.2 Allow the P.C. Sum of $ .00 for the supply and installation of the lifts, and associated machinery. The Owner will nominate a Sub-Contractor for this section of the work.

GLAZING

27.1 GENERAL

Refer to General and Special Conditions of Contract clauses which shall apply to all work in this section of the Specification.

27.2 STANDARDS

Glazing shall comply with NZS 4223:1985.

27.3 MATERIALS

3.1 Glass

The whole of the glass throughout shall be selected quality, free from imperfections.

3.2 Mirrors

Mirrors shall be 6mm polished plate, protected at the back and fixed as shown with C.P. dome fixings and fibre washer spacer behind.

27.4 WORKMANSHIP

All glass shall be cut to fit rebates with due allowances for expansion.

27.5 SCOPE

<u>External</u>	
Entry Door and sidelights	6mm Clear Float
Typical Lettable Space	Silver-Grey reflective solar glass
<u>Internal</u>	
Glazed Smoke-Stop Doors and side-lights	6mm Polished georgian wired glass
Fire Windows	6mm Polished georgian wired glass
Mirrors	6mm Polished plate

METAL WINDOWS & DOORS

28.1 GENERAL

Refer to General and Special Conditions of Contract Clauses which shall apply to all work in this section of the Specification.

28.2 SCOPE

The work covered in this section of the specification includes the supply and installation of aluminium and steel windows and of Door No. G1. All items shall be installed complete with hardware. Note that windows are designed to be fitted without the benefit of scaffolding.

28.3 STANDARDS

Aluminium windows shall comply with NZS4211 :1985 and shall be designed to appropriate wind pressures for the location of the site and height of the building. Wind leakage in terms of the Standard shall be "Level 8"(for general use). Each window shall be installed with a label showing wind pressure and leakage grades.
Window sash and frame members shall be uniform up the height of the building and shall be sized to withstand the loads at the top i.e. 1,000 Pa.
Steel windows shall comply with NZS 1188.

28.4 FABRICATION

28.4.1 Aluminium Windows

All frame corners shall be mechanically butt jointed. All sashes shall be spigotted with corners machine mitred. All joints shall be well caulked to prevent leakage. All joints shall be fixed with stainless steel screws or blind sealed aluminium rivets with stainless steel pins.

28.4.2 Door

Door and door frame members shall be aluminium, square cut flush and assembled with concealed fixings. Jambs and styles shall be machine-profiled to accept hardware fitting flush within the sections.

28.4.3 Steel Windows

All steel windows shall be fully welded at corners and hot zinc sprayed.

28.5 SIZES

All windows and doors shall be to the sizes, styles and types shown on the drawings. Measure all rough openings on site before fabrication.

28.6 WEATHERSTRIPPING

All aluminium windows shall have neoprene gaskets to form a continuous seal between sashes and frame.

All glass shall be retained by neoprene gaskets on either side and by sprung alminium beads.
Main entry door G1 shall be weathersealed with silicone impregnated pile of PVC or similar approved.

28.7 FINISH
All aluminium window components shall be clear (silver) anodised to a thickness of25 microns. The ground level door (G1) and frame shall be black anodised to a similar thickness. Steel windows shall be zinc chromate primed before installation.

28.8 HARDWARE
28.8.1 Sashes
Shall be fitted with heavy duty "Interlock" friction stays, with plastic locating blocks at the cills, and with two wedge fasteners.

28.8.2 Door
Entry door G1 shall be installed complete with concealed Gibbons type double action spring hinges to suit (see Door Schedule). Allow the Nett Sum of $500 (five hundred dollars) for the supply of door handles which shall be installed by the Aluminium Window Manufacturer.

28.8.3 Steel Window Sashes
Shall be fitted with Allen-key -operated locks to restrict operation to Window Cleaners only.

28.8.4 Trim and Flashings
Provide and fix in place all necessary flashings. Note anodised "tee" and "zed" sections to heads, cills, and jambs of typical windows.

28.9 INSTALLATION
Windows above ground floor level have been designed to be fitted and glazed into prefabricated wall panels at ground level. Scaffolding is not intended to be used.

Where windows are shown continuous acoss joints in prefabricated wall panels, it is intended that the sash, already glazed, shall be fitted into the gap between the windows of adjacent prefabricated wall panels.

SERVICING/MAINTENANCE/GUARANTEE

Regular servicing checks and tests shall be carried out and recorded as required by NZS. 4512/1981 during the periods between Acceptance and Completion, and for a period of twelve (12) months from the date of certification of Completion. Copies of all test reports shall be forwarded montly to the Architect.

86-2598

SPECIFICATION

WESTPARK TOWER
56 CASHEL STREET,
CHRISTCHURCH.

ALAN M. REAY
Consulting Engineer
Christchurch

File 2389

Set No 2

86-2598-

CITY OF CHRISTCHURCH

CITY WORKS AND PLANNING DEPARTMENT

P.O. BOX 237, CHRISTCHURCH, NEW ZEALAND

Armitage Williams

PO Box 3081

CHRISTCHURCH

23 September 198 6

re Building Application No. 1268 BU/40/89/56
Mr L O'Loughlin

Dear Sir/Madam, your application for permission to

Erect an office and residential building at 56 Cashel Street

has now been approved. Before work is commenced the undermentioned fees must be paid and a building permit uplifted from this office.

	$	
Water Connection Charge		
Subdivision Fee		
Building Permit Fee	1,905.00	2095.50
Building Research Levy	1,150.00	1265.00
Vehicle Crossing	1,125.00	1237.50
Drainage Permit/ Footpath Opening Fee	50.00	55.00
Street Damage Deposit	Indemnity required	
	4,230.00	4653.00 WITH GST

These fees contain no allowance for GST. Permits not uplifted before 1/10/86 will incur the additional 10% GST on all fees.

The Building Permit Application is approved subject to the following amendments to your proposal.

See attached Sheet

NOTE:

A Reserve Contribution levy of $6,380 for a development application is to be paid before the permit can be issued.

86 2598
- ROW -
Sheet 1

If the permit is not uplifted within three months of this date the application will be cancelled and the plans disposed of.

Yours faithfully

For City Engineer

cc B Gillman
C/- PO Box 25 028
CHRISTCHURCH

cc Richard Proko
PO Box 1232
CHRISTCHURCH

cc Alan Reay
PO Box 25028
CHRISTCHURCH

P.W.A. Ltd 30532