

22
APPLICATION FORM
BUILDING PERMIT

NOTE: No work is to be commenced until plans and specifications have been lodged as provided for in the Borough Bylaws and until a Building Permit and all other necessary Permits have been issued for the work and ALL fees paid

BOROUGH OF FEATHERSTON - BUILDING APPLICATION FORM

Application No: 1168
Date Received 23-6-86
Permit No: 22290
Date Issued 23-6-86

10: The Borough Building Inspector

I, hereby apply for permission to erect, repair, alter, add to, demolish, remove a building at:
..... 34 Wallau St for .. G. R. Warren .. (owner)
of u (address)
according to locality plan and detailed plans, elevations, cross section and specifications deposited herewith in DUPLICATE.

Previous Owner
(If section has been recently transferred)

Type of Building
Foundations Tan Poles
Walls Roof Iron
Total floor area of building 42 sq/ft or sq/m

Value of Work - Estimated/Contract (Delete whichever is not applicable)

Building	\$ <u>2000</u> —	<u>FEES PAYABLE</u>	
Drainage/Plumbing	\$	Building	\$ <u>16</u> —
TOTAL VALUE:	\$ <u>2000</u> —	Plumbing & Drainage	\$
		Building Reseach Levy	\$
		(on total value of	
		\$10,000 and over)	
		Sewer Connection	\$
		Water Connection	\$
		Footpath Deposit	\$
Receipt No.: <u>1766 (23.6.86)</u>		TOTAL FEES PAYABLE:	\$ <u>16</u> —

PARTICULARS OF LAND

Valuation Roll No: 4.75-3 Area:
Lot No: 1 D.P.: 24731 Section No:

And I do hereby agree to abide by all the provisions of the Featherston Borough Council Bylaws governing and regulating all matters the subject of the foregoing.

Signature of Applicant:
(As Builder or Owner)

CHAMBERS & RUDD

CONSULTING ENGINEERS

~~ROOM 6 ULLAMARES BUILDING, HUNTERS CORNER. P.O. BOX 25841, HUNTERS CNR. PAPAETOE. Ph 278 1072 - 278 2185~~

3 AVERILL STREET PAPAOKURA P.O. BOX 273 PAPAOKURA Ph 298 7222

Our Ref. P102/1438

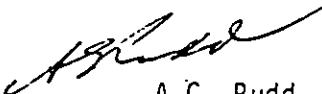
29th July 1986

I, ARTHUR C. RUDD, 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 the Standard Carports detailed on Drawing C.P.1 issued July 1986.

I FURTHER CERTIFY that these Standard Carports have been designed in accordance with sound and widely accepted engineering principles; that they have been designed to support the dead, live and wind loads as noted on the drawings, 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 safety and stability if constructed in accordance with these plans.

For and on behalf of:

CHAMBERS & RUDD
Consulting Engineers



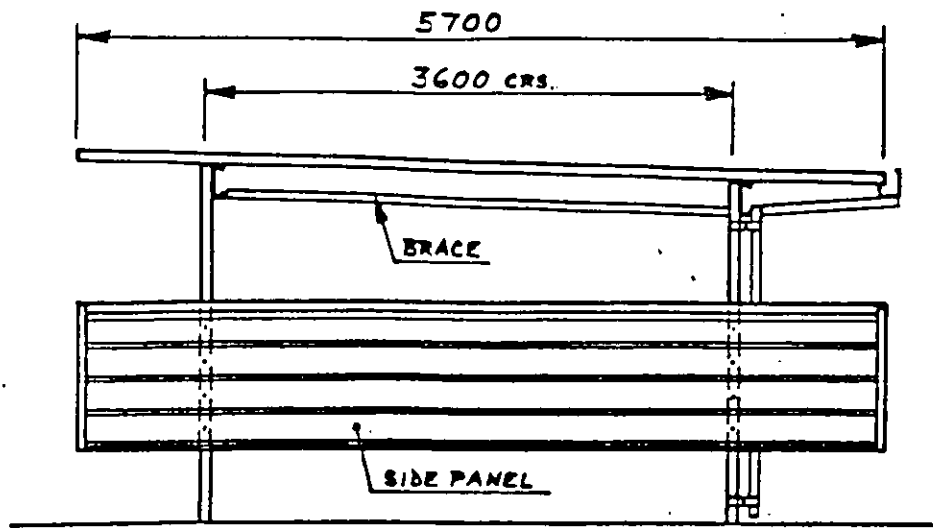
A.C. Rudd
REGISTERED ENGINEER



Member of the Association of
Consulting Engineers New Zealand

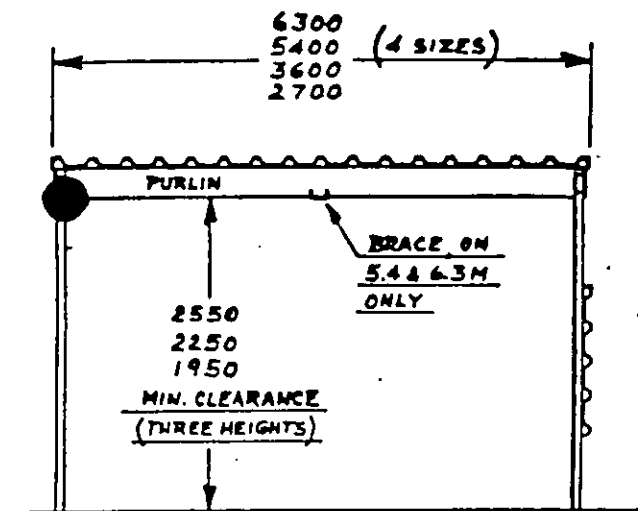
PRINCIPALS

ALISTER A. CHAMBERS, B.E., C.Eng., M.I.C.E., F.I.P.E.N.Z., Registered Engineer. Res. Phone 582-911
ARTHUR C. RUDD, C.Eng., M.I.Struct. E., M.I.P.E.N.Z., Registered Engineer. Res. Phone 582-256

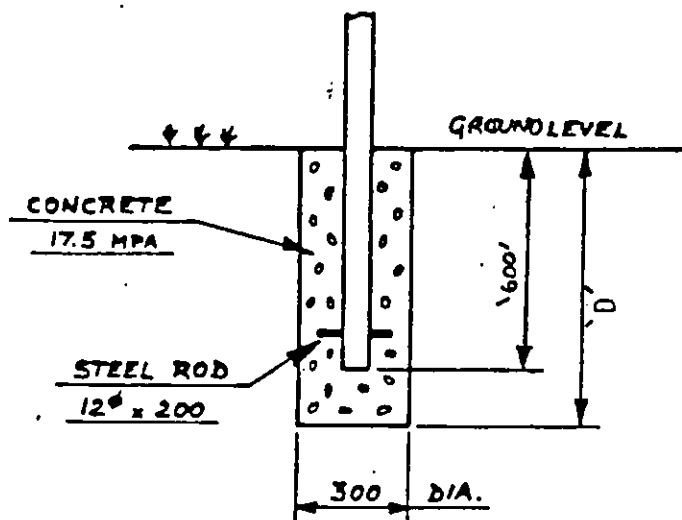


ELEVATION

1:50



SECTION



FOOTING-DETAIL

1:20

'D' = 750 for wind speed 40 m,
=1000 for wind speed 50 m.

A Design Wind Speed 40 m/s
Ground Roughness Class 3.

SPECIFICATIONS:

- POSTS: 76 x 51 x 3.2 Galv. Steel RHS
- ROOFING & SIDE PANEL: .55 BMT. Galv. Steel Longrun Roofing
Steelspan 900. Profile Depth 58mm
Fixed with No. 12 x 20 Tek-Screws (Self Tapping) @ 220crs
- PURLINS: 200/19 Galv. Steel Channel.
Fixed at each post with 2 - M12 x 100 Bolt & Nut (Galv).
- BRACE (WHERE FITTED): 64 x 34 x 1.15 R.H.S. Galv. or 102x51x1.2 Lipped Channel Galv.
Fixed to Purlins with 2 No 12 x 20 Tek-Screws.
- FLASHING & SPOUTINGS: .55 BMT Galv Steel (Downpipe, .40 BMT Galv. Steel).
- CONCRETE STRENGTH: 17.5 mPa

B Design Wind Speed 50 m/s
Ground Roughness Class 3

PURLINS: 200/25 Galv Steel Channel for 6300 wide carport.

STELTECH DEVELOPMENTS LIMITED	
SKYPORT	/S/TEELSPAN CARPORT
SCALE AS SHOWN	DRWG # CP1 JULY 06

CHAMBERS & RUDD

CONSULTING CIVIL AND
STRUCTURAL ENGINEERS

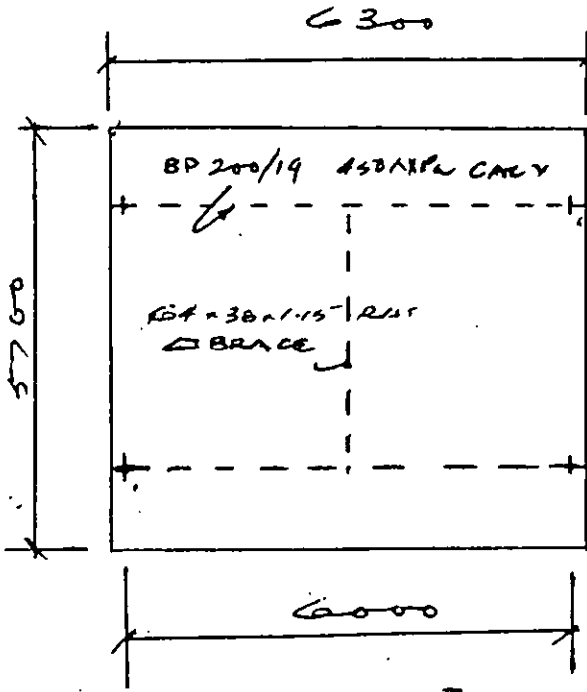
~~PAPAKURA OFFICE PHONE 278 1872 278 2165~~
PAPAKURA OFFICE PHONE 298-7222

P.O. BOX 23641 HUNTERS CORNER
P.O. BOX 273 PAPAKURA

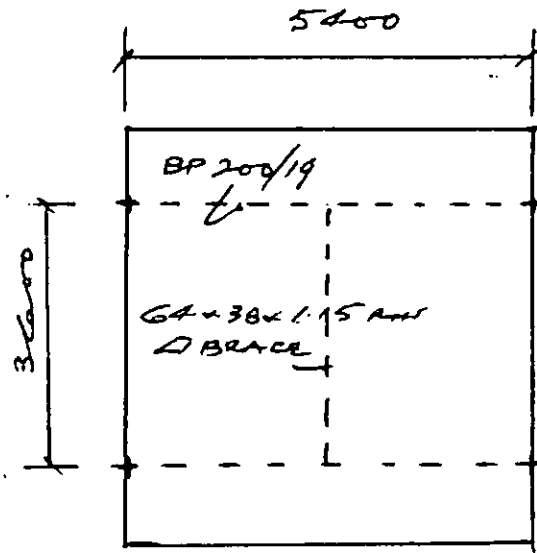
CLIENT: N. Z. STEEL LTD
ADDRESS:
PROJECT: STANDARD CARPORTS

PAGE: 7
JOB No: P102/14
DATE: JUNE 8
BY: ACR

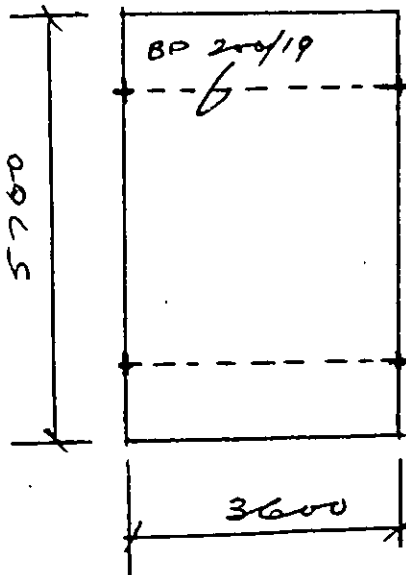
55mm TROUGH SECTION ROOFING 58mm /m



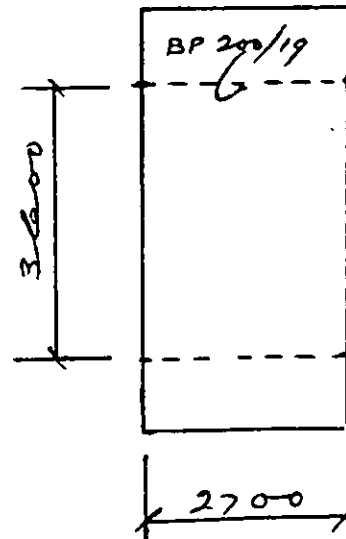
TYPE I



TYPE II



TYPE III



TYPE IV

PLAN OF CARPORTS
1:100

- 1/ REAR RWS 15 FOR DETAIL
- 2/ ALL FOUNDATIONS
250 x 750 DEEP 175mm
- 3/ ALL POSTS 76x51x3.2
RWS ONLY
- 4/ 2-4/19 NOT TO BE ONLY BR.

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NOTE: ORIGINAL CALC P102/1438 INT 1 -- 6 INCL.
FOR WIND SPEED OF 35 m/s.

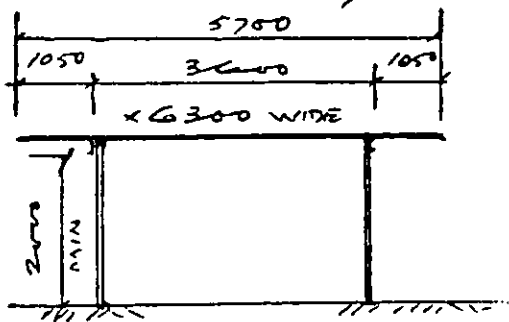
THESE STANDARD CARPORTS AS DETAILED IN
PLAN FOR WIND SPEED 40 m/s

TYPE I CARPORT 5700 x 6300

D.L. = 0.10 kPa

L.L. = 0.25

TOTAL = 0.35 kPa



ELEV 1:100

$$\text{LOAD TO RAFTERS} = \frac{5700}{2} \times 0.35 = 0.99 \text{ k/m}$$

$$\text{END REA.} = 0.99 \times \frac{6.3}{2} = 3.12 \text{ kN}$$

WIND

$$V_s = 5.5 \text{ m/s}$$

$$1.00 \times C = 40 = 24$$

$$q = 0.353 \text{ kPa}$$

NZS 4203 P77 CLAUSE 4.7.4

$$p = C_p$$

$$C_p = -2.00$$

$$\therefore \text{UPLIFT} = -2.00 \times 0.353 = 0.706 \text{ kPa} \quad \uparrow \uparrow \text{ m}$$

$$.20 \times 0.353 = 0.07 \text{ kPa} \quad \text{m}$$

$$\text{ADAPT AVEG UPLIFT} = -1.75 \times 0.353 = 0.617 \text{ kPa} \quad \uparrow \uparrow$$

AVEG

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TOTAL UPLIFT ON RAFTER

$$= 1 \times \frac{5.7}{2} \times 0.617 = 1.75 \text{ KN/m}$$

LESS D.C. ROOF $1 \times \frac{5.7}{2} \times 0.08 \times 1.7 = 0.16$
 $1.59 \text{ KN/m} \uparrow$

POSTS @ CROSS/S

ADOPT BP 200/19 CALV. 450 MPa MATERIAL

ROOF U.D.L. = 0.99 KN/m

ROOF FULLY FIXED BP 200/19 = 2.46 KN/m

$$S = 0.006 = 1.85$$

UPLIFT @ $1.59 \text{ KN/m} \uparrow \div 1.33$

$$= 1.19 \text{ KN/m DESIGN REQ.}$$

CALV BP 200/19 ONE BRACE 1.31 KN/m $\uparrow \uparrow$
 450 MPa

CHECK COMP IN BRACE

$$BR = \frac{wL^2}{8} = 1.59 \times \frac{6^2}{8} = 7.155 \text{ KN/m}$$

BP 200/19 COMP IN FLANGE $\frac{7.155}{0.155} = 38.67 \text{ KN}$

$$\frac{203}{15} = 13.5$$

\therefore COMP IN BRACE $38.67 \times 2 \frac{1}{2} = 0.966 \text{ KN}$

~~LENGTH BRACE 3600~~
~~I BRACE $102 \times 51 \times 3.00$~~
 ~~$A = 619$~~
 ~~$A_y = 280 \text{ MPa}$~~
 ~~$I_{yy} = \sqrt{\frac{I}{A}}$~~
 ~~$\frac{158 \times 10^3}{619} = 15.99$~~
 ~~$I_{yy} = 158.00 \times 10^3$~~
 ~~$Z_{yy} = 4.30 \times 10^3$~~
 ~~$\sigma = 4.40 \text{ KN/m}$~~
~~MAX COMP N2 1900 COMP 9.4 P133~~

REFER SH 16 FOR DESIGN OF
 $64 \times 38 \times 1.15$ R.H.S MAX COMP 4.45 KN
 PROVIDE 2 - 12 x 20 TEK SCREWS TO
 FLANGE OF 200/19 PURLIN

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FRICATION FORCE ON ROOF P97

$$F = C' f_g A = 0.04 \times 353 \times 5.7 \times 6.3 = 0.51 \text{ KN}$$

$$\therefore 4 \text{ POSTS} = 0.13 \text{ KN EACH}$$

MAX HEIGHT 2850

$$\text{BRN ON POST} = 0.13 \times 285 = 0.37 \text{ KN/M (1)}$$

$$\text{VEAT LOAD} = 3.12 \text{ KN}$$

WIND ON SIDE PANEL 950 DEEP & 1500 TO TOP FROM GND

FORCE COEFF P55 U25 4203

$$C_f: 1.2$$

$$\text{WIND PRESSURE} = 1.2 \times 353 = 0.424 \text{ KN/M} \rightarrow$$

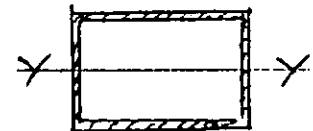
WITH PARTIAL ACTION OF FRAME DUE TO DEEP PURUM
BOULED AT TOP CONSIDER COLUMN AS SIMPLY SUPPORTED
EA END

$$W = \frac{5.7 \times 0.45 \times 0.424}{2} = 1.148 \text{ KN}$$

$$\text{BRN} = \frac{W \times L}{L} = \frac{1.148 \times 1 \times 1.7}{2.7} = 0.727 \text{ KN/M (2)}$$

$$\text{COMBING (1) + (2) MAX = 1.04 \text{ KN/M (3)}$$

PROVIDE $76 \times 51 \times 3.2$ RAYS POST
 0.578 kg/m



$$F_y = 350 \text{ MPa} \quad Z_{xx} = 14.8 \times 10^3$$

$$A = 737 \text{ mm}^2 \quad Z_{yy} = 11.9 \times 10^3$$

$$r_{xx} = 27.7$$

$$r_{yy} = 20.2$$

$$b/c = 13.9$$

$$\frac{Z}{r_{yy}} = \frac{2650}{20.2} = 131$$

$$F_{AC} = 56 \text{ MPa}$$

$$F_{BC} = 157 \text{ MPa}$$

$$\frac{f_u}{\gamma_m} = \frac{3.12}{1.33} = 2.33 \text{ MPa}$$

$$f_{BC} = \frac{1.04 \times 10^3}{11.9} = 87.39 \text{ MPa}$$

$$\text{COMBINING} \quad \frac{2.33}{56} + \frac{87.39}{157} = 0.63$$

$\therefore 76 \times 51 \times 3.2$ RAYS POST OK

$$\text{BRACING} = 3.6 \times 1.33 = 4.88 \text{ KN}$$

BOULED CONNECTION PURUM 200/19 TO POST

$$\text{BRN} = 0.317 \text{ KN/M} \quad \therefore \text{SHEAR} = \frac{317}{114} = 2.78 \text{ KN}$$

$$12^\circ \text{ BOLT NOT DIP GBLV} \quad \text{MAX. SHEAR} = 4.05 \times 1.33 = 12.04 \text{ KN}$$

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BY: RCR

UPLIFT PER POST

$$S_{107} 9 = 1.59 + 3.15 = 5.01 \text{ KN } \uparrow \uparrow$$

PROVIDE 250 ϕ BORE HOLE + 750 DEEP ANCHOR

$$\text{WEIGHT PILE } \frac{\pi D^2}{4} \times 24 = 0.884$$

SKIN FRICTION BOTTOM TOO

$$\pi D \times 30 \text{ MPa} \times .4 = 9.42$$

$$= 9.42$$

$$10.31 \text{ KN } \therefore \text{OK}$$

CHECK FOUNDATION DESIGN

HPD 11C

$$P = 0.13 \text{ KN/m}^2$$

$$C = 8 \text{ MPa (ASSUMED)}$$

$$H = 2500$$

$$B = 0.25$$

FOUNDATION DEPTH

$$A \left(1 + \sqrt{1 + \frac{2.15 \times L}{A}} \right) \quad A = \frac{1.17 \times P}{5 \times B}$$

$$A = \frac{1.17 \times .13}{80 \times .25} = .008$$

$$\text{DEPTH} = .008 \left(1 + \sqrt{1 + \frac{2.15 \times 2.8}{.008}} \right)$$

$$= .008 = 28.64 = 0.279$$

$$\text{SHAFTING} = .300$$

$$.579 \text{ MN}$$

PROVIDE 250 ϕ + 750 DEEP BORE

17.5 MPa CONC

TYPE I CARPORT 6300 x 5700

- 1/ FOUNDATIONS 250 ϕ + 750 DEEP 17.5 MPa CONC
- 2/ POSTS 76 x 51 x 32 RAS
- 3/ PURVINS BP 204/19 450 MPa GALVANISED
WITH GA 38 x 1.15 RAS \square BRACE MID-SPAN
2 - 12 x 20 TRK SCREWS
- 4/ 2 - 12 ϕ HOT DIP GALVANISED BOLTS BR. END

TYPE II REPEAT TYPE I

TYPE III - TYPE IV REPEAT ABOVE BUT
DELETE R.H.S BRACE

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TYPE II CARPORT
PLAN 5700 x 5400 of RW
COL C/S 5324

LOAD TO RAFTER $1 \times 5.7/2 \times 0.35 = 0.99 \text{ kN/m}$

END REA = $0.99 \times 5.9/2 = 2.97 \text{ kN}$

WIND UPLIFT SFT 8 = 0.617 kPa ↑↑

UPLIFT ON RAFTER

$1 \times 5.7/2 \times 0.617 = 1.75 \text{ kN/m}$

SFT 9 LESS D.L. ROOF = 0.16

1.59 kN/m ↑↑

POSTS @ 5324 c/s

RAFTER LOAD U.D.L. = 0.99 kN/m

ROOF FULLY FIXED BP 200/19 = 2.92 kN/m

$8 = 0.06$

2.42

UPLIFT = $1.59 \text{ kN/m} \div 1.33$

= 1.19 kN/m

B.P. 200/19 ONE BRACE = 1.79 kN/m

∴ PROVIDE $102 \times 51 \times 3.00$ L BRACE

ALL OTHER DETAILS REPEAT TYPE I CARPORT

TYPE II CARPORT 5700 x 5400

1/ FOUNDATIONS $250^{\circ} \times 750$ DEEP 17.5 MPa CONC

2/ POSTS $76 \times 51 \times 3.2$ RNS

3/ RAFTERS BP 200/19 450 MPa GALV.

$64 \times 38 = 1.15$ RNS L BRACE

4/ 2×12 HOT DIP GALVANISED BOLTS EA. END



ARTHUR C. RUDD
C.Eng., M.I.Struct.E., M.I.P.E.N.Z.
Registered Engineer

CHAMBERS & RUDD

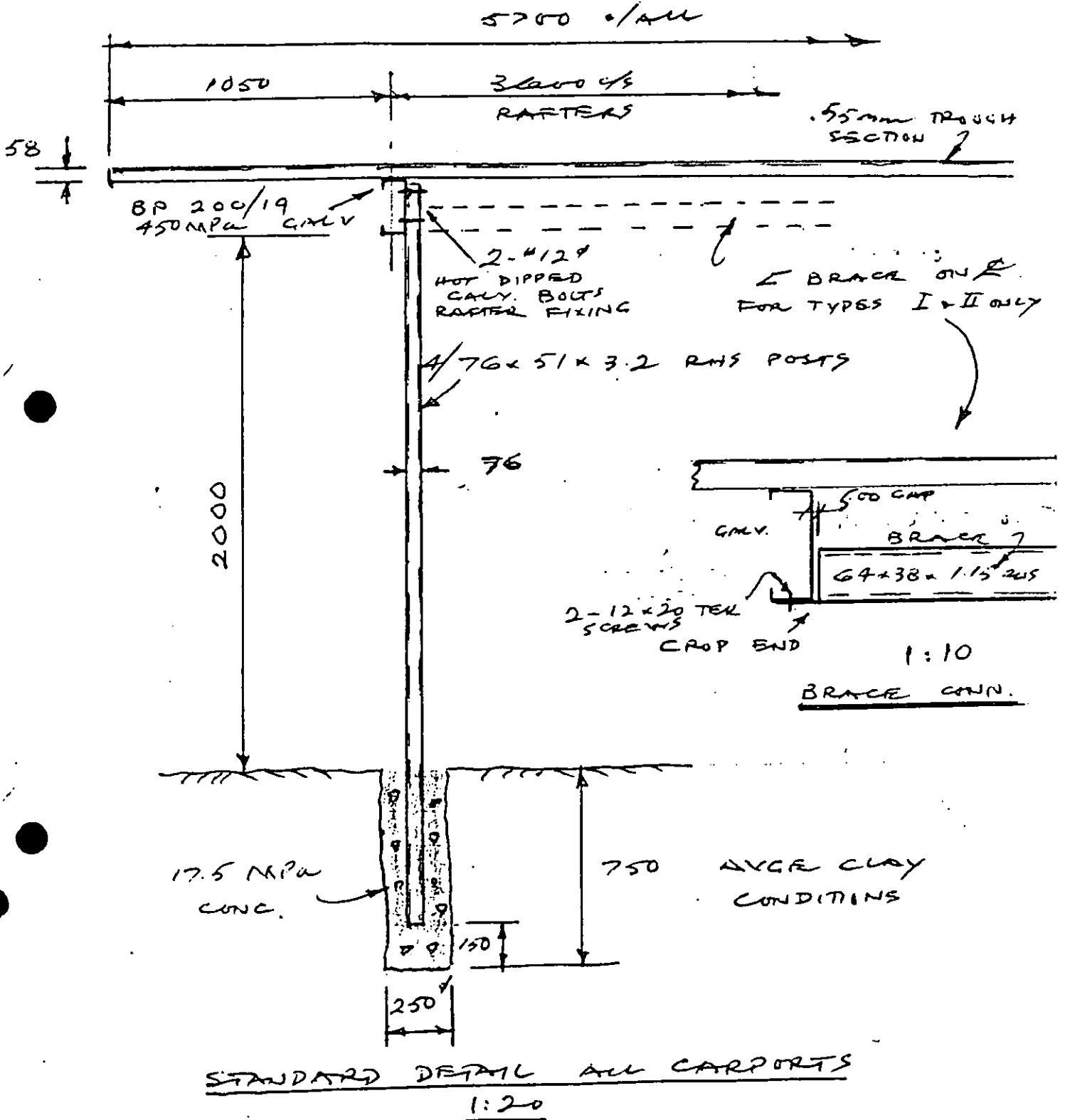
PAPAKURA OFFICE PHONE 270-1072 270-2165
 PAPA KURA OFFICE PHONE 298-7222

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 P.O. BOX 273 PAPA KURA

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 STRUCTURAL ENGINEERS.

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 BY: KCR



NOTE : ONLY TYPE I 5700 x 6300
 TYPE II 5700 x 5400 HAVE
 CENTRAL BRACE ~~64x38x1.15~~
 64x38x1.15 RHS

ARTHUR C. RUDD
 C.Eng., M.I.Struct.E., M.I.P.E.N.Z.
 Registered Engineer

CHAMBERS & RUDD

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TYPE III CARPORT 5700 x 3600
COL C/S 3524

LOAD TO RAFTER $1 \times 5.7/2 = 0.35$ = 0.99 kN/m
END RFR $0.99 \times 3.6/2$ = 1.78 kN

WIND UPLIFT SWS 8 = 0.617 kN

POSTS @ 3524 C/S

ROOF U.D.L = 0.99 kN/m

ROOF F/WY FIXED BP 200/19 = 7.22 kN/m

$S = 0.006$

UPLIFT @ 1.19 kN/m SWS 9

BP 200/19 NO BRACE = 1.87 kN/m

TYPE III CARPORT 5700 x 3600

- 1/ FOUNDATIONS 250' x 750 DEEP 17.5 MPa CONC.
- 2/ POSTS 76 x 51 x 3.2 R.H.S. GALV.
- 3/ RAFTERS BP 200/19 450 MPa GALV
NO CENTRAL BRACE
- 4/ 2 #12' HOT DIP GALV. BOLTS ED. END

TYPE IV CARPORT 5700 x 2700

REPEAT DETAILS FOR TYPE III

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C.Eng., M.I.Struct.E., M.I.P.E.N.Z.
Registered Engineer

CHAMBERS & RUDD

PRINCIPAL OFFICE PHONE 278-1612 278-2166
PAPAKURA OFFICE PHONE 298-7222

P.O. BOX 23641 MOUNTAIN GARDENS
P.O. BOX 273 PAPA KURA

1987 JUL 26 10 57 AM

CLIENT: STEELTECH LTD
ADDRESS: SPARTAN RD TAKAHITI
PROJECT: CARPORAT

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BY: HR

ORIGINAL CALCULATIONS P102/438 NOV 83
LINE 84

JUNE 84 WIND SPEED 40m/s

THESE CALCULATIONS FOR WIND SPEED 50m/s

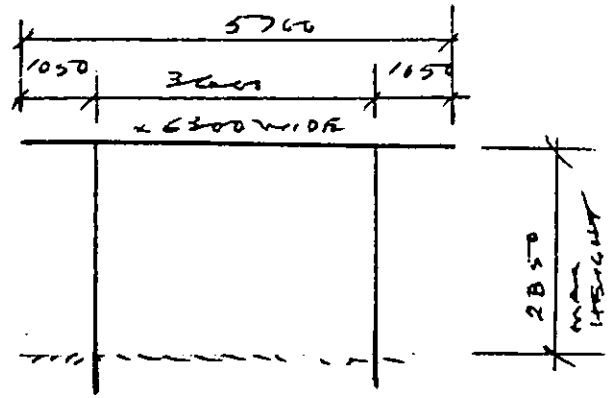
TYPE I CARPORT

5700 x 6300

D.L. 2 0.10

L.L. 2 0.25

TOTAL 2 0.35 kPa



Roof Load

LOAD TO RAFTERS

$$\frac{5700 \times 1 \times 0.35}{2} = 0.99 \text{ kN/m}$$

$$\text{END RAIN} = 0.99 \times \frac{63}{2} = 3.12 \text{ kN}$$

WIND

$V_{52} = 5.52$

$$2 \times 1 \times 6 \times 50 = 30$$

$$\therefore q = 0.552 \text{ kPa} \rightarrow$$

NZS 4203 P77 clause 4.7.4

$$p = C_p q$$

$$C_p = -2.00$$

$$\text{UPLIFT} = -2.00 \times 0.552 = 1.104 \text{ kPa} \uparrow \uparrow \text{ MAX}$$

$$0.25 \times 0.552 = 0.11 \text{ kPa} \uparrow \uparrow \text{ MIN}$$

$$\text{ADJUT UPLIFT} = -1.75 \times 0.552 = 0.966 \text{ kPa} \uparrow \uparrow$$

AYG

TOTAL UPLIFT ON RAFTER

$$= 1 \times \frac{5.7}{2} \times 0.966 \text{ kPa} = 2.75 \text{ kN/m}$$

$$\text{LESS P.C. AND } 1 \times \frac{5.7}{2} \times 0.08 \times 7 = 0.16$$

$$2.59 \text{ kN/m}$$

CHAMBERS & RUDD

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P.O. BOX 23641 HUNTENS CORNER
P.O. BOX 273 PAPA KURA

CONTRACT NO. 278-1072
278-2160

CLIENT

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BY HCR

POSTS @ 6000/4

ROOF UPLIFT U.P.L = 0.99 kN/m

BP 200/25 → 3.03 kN/m
FULLY FIXED

AA UPLIFT @ 2.54 kN/m ÷ 1.33
= 1.90 kN/m

ADURO BP 200/25 450 N/A
ONE BRACE ONLY
= 2.34 kN/m

ROOF PURLINS BP 200/25 ONE BRACE
450 N/A ONLY

COMP IN BRACE

2x2 $\frac{wL^2}{8}$ = $2.54 \times \frac{6^2}{8}$ = 11.65 kN/m

BP 200/25

COMP IN RANGE = $\frac{11.65}{0.185}$ = 62.97 kN

COMP IN BRACE = $62.97 \times 2\frac{1}{2}$
= 1.57 ~~KN~~ KN

LENGTH BRACE 3600

1/ 64 x 38 x 1.15 RHS START $E_y = 350 \text{ N/A}$

max ryy = 0.416 = $0.416 \times 38 = 15.58$

$\frac{2}{r_{yy}} = \frac{3600}{15.58}$ = 231

A = 225 mm²

F_{cr} = 19.08 N/A

∴ MAX COMP = 225 x 19 = 4.45 kN ∴ OK
1.57 kN MINOR

BRACE 64 x 38 x 1.15 RHS

PROVIDE 2 - 12 x 20 TENS SCREWS TO RANGE
OF 200/25 PURLIN

WIND SPEED 50 m/s

CHAMBERS & RUDD

REMITTANCE OFFICE PHONE 278-1072 278-2155
PAPAKURA OFFICE PHONE 298-7222

P.O. BOX 336 11 HUNTERS CORNER
P.O. BOX 273 PAPAKURA

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17
1702/1738
JULY 56
JCR

FRICTIONAL FORCE ON ROOF P97

$$F' = C' f_e A$$

$$2.04 \times .552 \times 5.7 \times 6.3 = 0.79 \text{ KN}$$

$$\div 4 \text{ POTS} = 0.20 \text{ KN EACH}$$

MAX HEIGHT POST 2850

$$\text{BN ON POST} = 0.20 \times 285 = 0.57 \text{ KN/10(1)}$$

SIDE PANEL 950 DEEP \times 1500 TO TOP FROM GROUND

FRAME CORR P85 N.25 4203

$$Cf = 1.2$$

$$\text{WIND PRESS} = 1.2 \times .552 = 0.662 \text{ KN}$$

WITH POINT ACTION OF FRAME DUE TO DEEP

PURIN BOWEN AT TOP CONSIDER COLUMN A SIMPLY SUPPORT

$$W = \frac{5.7}{2} \times .95 \times .662 = 1.79 \text{ KN}$$

$$\text{BN} = \frac{W \times b}{L} = \frac{1.79 \times 1 \times 1.7}{2.7} = 1.128 \text{ KN/m (2)}$$

$$(1) (2) \text{ MAXIMUM } 1.69 \text{ KN/m}$$

PROVIDE 76 \times 51 \times 3.2 RIBS POST @ 5.78 kg/m

$$F_y = 350 \text{ MPa} \quad Z_{xx} = 14.8 \times 10^3$$

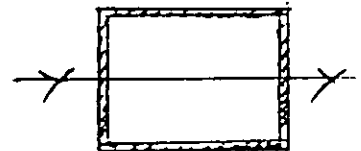
$$Z_{yy} = 11.9 \times 10^3$$

$$r_{xx} = 27.7$$

$$r_{yy} = 20.2$$

$$A = 737 \text{ mm}^2$$

$$\frac{Z}{r_{yy}} = \frac{2650}{20.2} = 131$$



$$F_{ac} = 56 \text{ MPa}$$

$$F_{bc} = 157 \text{ MPa}$$

COLUMNS USED @ 3.12 KN

$$I_{ac} = \frac{3.12}{737} = 1.23 \text{ MPa}$$

$$I_{bc} = \frac{1.59 \times 10^3}{11.9} = 132 \text{ MPa}$$

$$\text{COMBINE} = \frac{1.23}{56} + \frac{132}{157} = 0.98$$

\therefore OK

76 \times 51 \times 3.2 RIBS POST OK

WIND SPEED 50 m/s

CHAMBERS & RUDD

PAPAKURA OFFICE PHONE 270 1072 270 2166
PAPAKURA OFFICE PHONE 298-7222

P.O. BOX 23041 MURFLES BURNETT
P.O. BOX 273 PAPA KURA

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JOB NO. P102/1434
DATE JUNE 86
BY MCR

CLIENT
ADDRESS
PROJECT

SPLICE ON POST

$$= 2.75 \times \frac{6.3}{2} = 8.66 \text{ KN} \uparrow \uparrow$$

PROVIDE 250^Ø BORE x 1000 DEEP
 WINDIGHT $\frac{\pi}{4} D^2 \times 1 \times 24 = 1.17 \text{ MN}$

SKIN FRICTION ON BOTTOM 650
 $\pi D \times 30 \text{ KN} \times 1.6 = 14.13$
 $\frac{15.30 \text{ MN}}{1.17 \text{ MN}}$
 i.e. OK

CHECK FOUNDATION DESIGN

$P = 0.20 \text{ MN} \rightarrow$
 $H = 2800$

$C = 80 \text{ KN} \text{ (ASSUMED)}$
 $B = 0.25$

FOUNDATION DEPTH

$$A \left(1 + \sqrt{1 + \frac{2.15 \times L}{A}} \right)$$

$$A = \frac{1.17 \times P}{5 \times B}$$

$$= \frac{1.17 \times 2}{80 \times 0.25} = 0.12$$

$$\therefore \text{DEPTH} = 0.012 \left(1 + \sqrt{1 + \frac{2.15 \times 2.8}{0.012}} \right)$$

$$= 0.012 \times 23.57 = 0.283$$

STRUTTING = 0.300

MIN DEPTH = 0.583

PROVIDE 250^Ø x 1000 DEEP BORE
17.5 MN CONC

TYPE I LARPIAT 6300 x 5700
FOR WIND SPEED 50 m/s

- 1/ FOUNDATIONS 250^Ø x 1000 DEEP 17.5 MN CONC
- 2/ POSTS 76 x 51 x 3.2 PMS
- 3/ PURUNS BP 20/25 450 MN GALVANISED
 WITH 64 x 38 x 115 PMS BRACE MID-SPAN
 2 x 12 x 20 TBK SCREWS

2 x 12^Ø HOT DIP GALVANISED BOLTS PURUN TO POST

WIND SPEED 50 m/s

Arthur C. Rudd
 ARTHUR C. RUDD
 C.Eng., M.I. Struct. E., M.I.P.E.N.Z.
 Registered Engineer

CHAMBERS & RUDD

PAPAKURA OFFICE PHONE 278-1072 278-2155
 PAPAKURA OFFICE PHONE 298-7222

P.O. BOX 23641 HUNTERS HILLS
 P.O. BOX 273 PAPAURA

ST. BRADSHAW STREET
 PAPAURA

CLIENT
 ADDRESS
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DATE 19
 JOB NO. P102/1945
 DATE WCY 86
 BY ACK

TYPE II 5700 x 5400

LOAD TO RAFTER

$$\frac{5700}{2} \times 1 \times 1.35 = 0.99 \text{ kN/m}$$

BP 200/19 FULLY FIXED U.D.L = 2.42 kN/m

PP UPLIFT = 2.59 kN/m ÷ 1.33
 = 1.94 kN/m

ADAPT BP 200/19
 ONE BRACE

450 kN/m ONLY

= 1.94 kN/m

~~ADAPT BP 200/19~~


= 2.24 kN/m

TYPE III 5700 x 3600

ADAPT AS ABOVE BP 200/19 FULLY FIXED

PP UPLIFT = 2.59 kN/m ÷ 1.33
 = 1.94 kN/m

ADAPT BP 200/19 NO BRACE
 U.D.L = 4.15 kN/m



ARTHUR C. RUDD
 C.Eng., M.I.Struct.E., M.I.P.E.N.Z.
 Registered Engineer

WIND SPEED 50 m/s

Proposed Carport for Mr. G. Warren.

34 Wallace Street Featherston.

Existing House

RAFTERS
Spans
150 x 50
3.5 M

Boric Pine

250 x 50
Span 3.5 M

12 mm round rod.

2 x 250 x 50 Douglas Fir Beam
Span 6 M

Beam
250 x 50

type.

Replaced by *Kiln* free standing
steel strap bracing
in one bay.

250 x 50 Doubled
Span 5.5 M

2 9mm Bolts
Welded Rest.

75mm
Galv. Pipe
or 125 x
125
poles

Set in
Concrete
750mm

Footing

IF 1200 mm deep

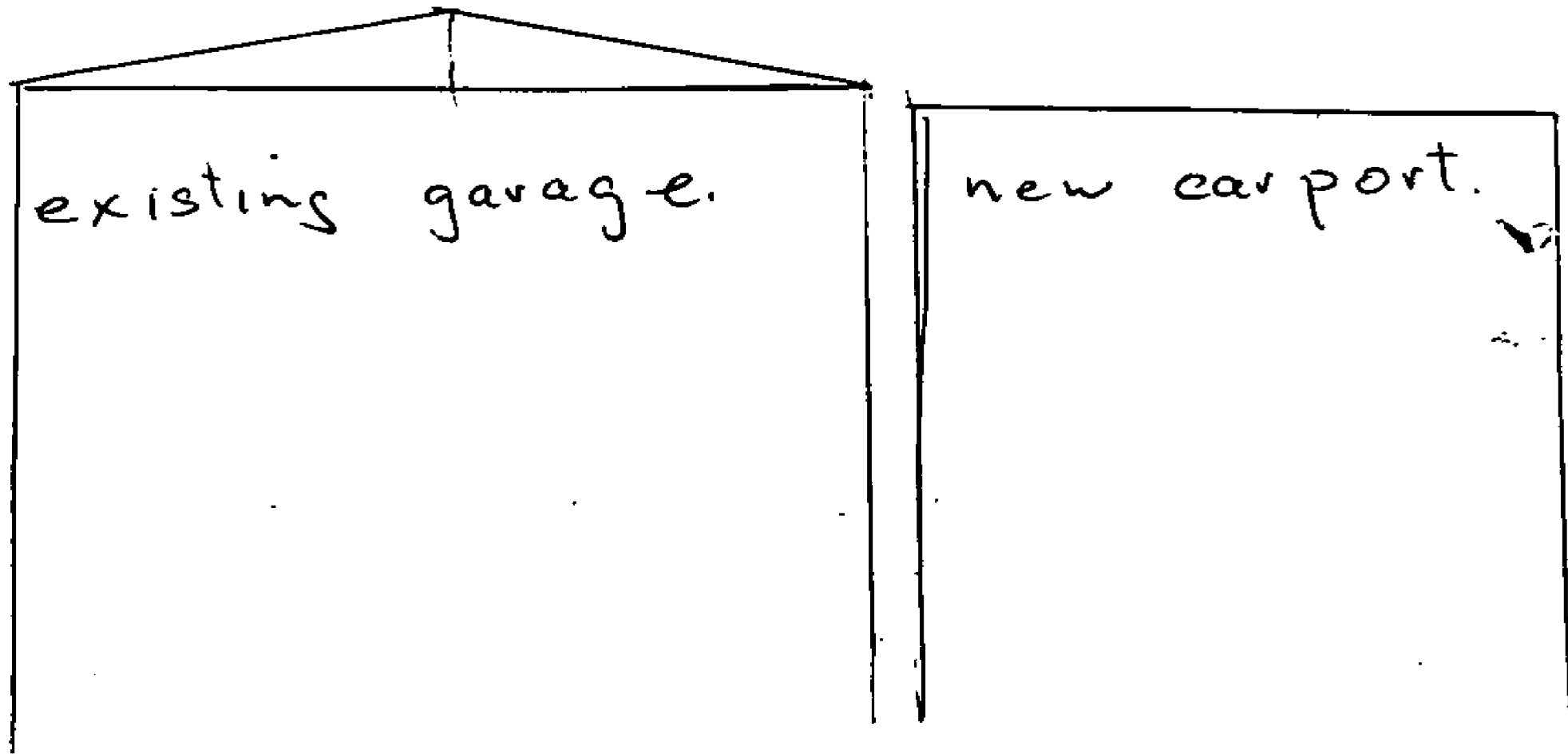
no X bracing required
between poles.

Estimated cost \$2000

Builder C. Lee.

Carport. Height 2 m.
width 3.6 m
length 5.7 m.

1 m. in ground.



G R Warren