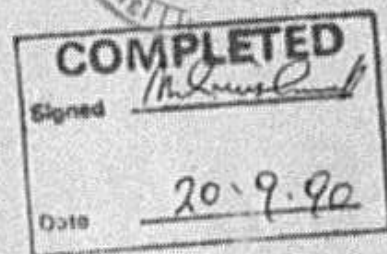
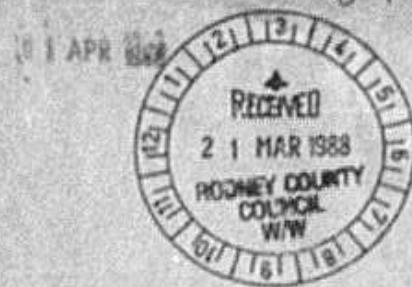


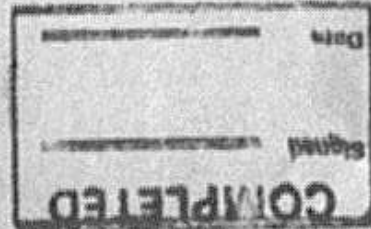
NAME KOWHAI TIMBER LTD.
 PERMIT No. F042309
 RIDING 169-03-88
 DATE 15.4.88
 ADDRESS MATAKANA WAHEY RD. MATAKANA.
DRYING SHED.

77

TYPE OF CHECK	CHECK DURING	CHECK COMPLETED
NAI TO & P FIELD CHECK		
BT FARM CHECK 28/3/88	1	✓
DISTRICT SALES		
STREET LIGHTS: SEE TGA		
COUNTY SERVICES		
STREET LIGHTS: SEE TGA		
STRUCTURAL STANDARDS	2	✓
LOCAL PLANNING		
BT CHECKS: W/W 3	3	✓
ADDITIONAL OR PREVIOUS		



SENT FOR ISSUE 13-4-88



Rochester County Council

Inspector: M

File No.

Receipt No. 169-03 88

Date Permit Issued 15/4/88

OWNER	
Name	Kowhai Timber Ltd
Mailing Address	Matukana Valley Rd Matukana

BUILDER	
Name	As Owner
Mailing Address	

PROPERTY ON WHICH BUILDING IS TO BE ERECTED/DEMOLISHED

SITE	
Street No.	
Street Name	Matukana Valley Road
Town/District	Matukana
Riding	Matukana

LEGAL DESCRIPTION	
Valuation Roll No.	900-89
Lot	31
Section	
Block	III
Survey District	Mahurangi

DESCRIPTION OF PROPOSED WORK AND MAIN PURPOSE OF USE

New Drying Shed

FLOOR AREA		DWELLING UNITS	
Whole	Sq. Metres	Number	Erected
	310		
ESTIMATED VALUES	Building	26 250	
	Plumbing		
	Drainage		
	G.S.T.		
TOTAL		36 250	

NATURE OF PERMIT (TICK BOX)	
☒	NEW BUILDING - exclude domestic garages and domestic outbuildings
☐	FOUNDATIONS ONLY
☐	ALTERED, REPAIRED, EXTENDED, CONVERTED, REBUILT - include installation of heating appliances
☐	NEW CONSTRUCTION OTHER THAN BUILDINGS - include demolitions
☐	DOMESTIC GARAGES AND DOMESTIC OUTBUILDINGS

FEES APPLICABLE

Building Permit	\$ 304	Water Connection	\$
Street Damage Deposit	\$		\$
Building Research Levy	\$ 29 70		\$
Plumbing	\$		\$
Drainage	\$		\$
Sewer Connection	\$		\$
Vehicle Crossing Levy	\$		\$
M.S. Plumbing	\$		\$
G.S.T.			\$
TOTAL			\$ 33 70

Receipt No. W 4134
Date of Payment 28/03/88
Authorized Officer [Signature]

Special Conditions:

INSPECTIONS ARE REQUIRED AS FOLLOWS

(1) FOUNDATIONS/FLOOR SLABS - WHEN STEEL IS FIXED READY TO POUR CONCRETE OR HOLES READY FOR SETTING IN FOUNDATION PILES.

(2) WHEN BOND BEAMS ARE FIXED AND STEEL PLACED READY FOR CONCRETE.

(3) WHEN FRAMEWORK IS COMPLETE AND READY FOR LINING.

(4) WHEN BUILDING WORK IS COMPLETED IN ACCORDANCE WITH APPROVED PLANS.

THE BUILDING INSPECTOR SHALL BE GIVEN 24 HOURS' NOTICE THAT WORK IS READY FOR INSPECTION.

To comply with the conditions endorsed on the approved plans and specifications

Date Inspected REMARKS (e.g. stage reached with work)

Date Inspected

COMPLETED (Signature)

Mr. [Signature]

Date

201990

APPLICATION NO. 169-03 88PERMIT NO. F042304DISTRICT OFFICE NO. 89DATE ISSUED 15 4 88LOOKED AT
DISTRICT OFFICE
RECEIVED
DATE 1 MAR 1988RECEIVED
30 MAR 1988
RODNEY COUNTY
COUNCIL**RODNEY COUNTY COUNCIL**
CENTREWAY ROAD, OREWA. PRIVATE BAG, OREWA

PHONE HBC 65-189

DISTRICT OFFICES: HUAPEPE 252-5120 WARKWORTH 8538

BUILDING PERMIT APPLICATION

IMPORTANT PLEASE READ INSTRUCTION ON PAGE 3 AND COMPLETE THE FOLLOWING INFORMATION

OWNER OF SECTION:NAME KOWHAI TIMBER LTD
(BLOCK CAPITALS)PHONE NO. BUS 47316
PHONE NO. PVT 2123 WW

PRESENT POSTAL ADDRESS _____

BUILDER:NAME C.R. CASHMORE

PHONE NO. _____

ADDRESS _____

(PERMIT WILL BE POSTED TO BUILDER UNLESS OTHERWISE REQUESTED)

PREVIOUS OWNER OF SECTION: NAME AITKEN HEND HOLDINGS LTD ← owner**LEGAL DESCRIPTION OF SECTION:**

(SEE RATES FORM)

BLK III MATAKANA RD.LOT _____ D.P. PT ALLOT 51 MATAKANA PSH BLK

STREET OR ROAD NUMBER _____

VALUATION NO 900-89STREET OR ROAD NAME MATAKANA VALLEY RDLOCALITY MATAKANAAREA OF SECTION 3.5268 HECTARES
(10000 SQ. METRES)

RIDING _____

DESCRIPTION OF PROPOSED WORK:DRYING SHED**FLOOR AREA:** 210 SQ METRES

CARPORT/GARAGE _____

ADDITION _____

BASEMENT _____

GROUND FLOOR 210

FIRST FLOOR _____

OTHERS _____

TOTAL AREA 210VALUE OF BUILDING WORK ONLY \$ 26,250

(The decision of the Building Inspector shall be final as to estimated cost)

SIGNATURE OF APPLICANT

C.R. Cashmore**FOR OFFICE USE ONLY****PERMIT FEES**

WORK	VALUE	FEE	RECEIPT NO	DATE
BUILDING	<u>26,250</u>	<u>304</u>	<u>W4134</u>	<u>27.03.88</u>
PLUMBING	<u>—</u>	<u>—</u>		
DRAINAGE	<u>—</u>	<u>—</u>		
SUB. TOTAL	<u>26,250</u>	<u>304</u>		
BUILDING RESEARCH & DEV		<u>29-70</u>		
TOTAL PERMIT FEE		<u>333-70</u>		
WATER CONNECTION		<u>—</u>		
ROAD DAMAGE DEPOSIT		<u>—</u>		
TOTAL PAYABLE		<u>333-70</u>		

SUNDRY FEES

BUILDING PERMIT APPLICATION FEES

ESTIMATED VALUE OF WORK VALUE OF WORK NOT EXCEEDING	INCLUSIVE OF GST		
	\$ 1,000	\$	33
\$ 1,001	\$ 2,000	\$	44
\$ 2,001	\$ 4,000	\$	66
\$ 4,001	\$ 6,000	\$	87
\$ 6,001	\$ 8,000	\$	113
\$ 8,001	\$ 10,000	\$	131
\$ 10,001	\$ 15,000	\$	200
\$ 15,001	\$ 20,000	\$	239
\$ 20,001	\$ 25,000	\$	271
\$ 25,001	\$ 30,000	\$	304
\$ 30,001	\$ 35,000	\$	334
\$ 35,001	\$ 40,000	\$	373
\$ 40,001	\$ 50,000	\$	400
\$ 50,001	\$ 60,000	\$	433
\$ 60,001	\$ 70,000	\$	465
\$ 70,001	\$ 80,000	\$	498
\$ 80,001	\$ 90,000	\$	530
\$ 90,001	\$ 100,000	\$	563
\$ 100,001	\$ 120,000	\$	594
\$ 120,001	\$ 140,000	\$	633
\$ 140,001	\$ 160,000	\$	659
\$ 160,001	\$ 180,000	\$	693
\$ 180,001	\$ 200,000	\$	727
\$ 200,001	\$ 250,000	\$	790

ABOVE \$250,000 AN ADDITIONAL \$25 FOR EVERY ADDITIONAL \$20,000 OR PART THEREOF.

BUILDING RESEARCH LEVY

THE LEVY IS \$1.00 (PLUS GST) FOR EACH \$1,000 (OR PART \$1,000) OF THE TOTAL VALUE.

NOTE: THIS LEVY IS PAYABLE ON ALL WORK VALUED \$10,000 AND OVER.

INSPECTION FEE FOR OLD OR USED TIMBER OR SECONDHAND BUILDINGS

- (a) INSPECTIONS OUTSIDE COUNTY \$100
(b) INSPECTIONS WITHIN THE COUNTY \$ 40

PROVIDED THAT WHERE AN INSPECTION IS REQUIRED OUTSIDE A RADIUS OF 50 KILOMETRES FROM THE APPROPRIATE DISTRICT OFFICE OR HEAD OFFICE OF THE COUNTY, PUBLIC SERVICE MILEAGE RATES SHALL BE LEVIED IN ADDITION TO THE ABOVE CHARGES.

LOCALITY SKETCH TO SHOW LOCATION OF BUILDING SITE

THIS IS NOT ACCEPTED AS A SITE PLAN

APPLICATION APPROVED BY

BUILDING INSPECTOR
 HEALTH INSPECTOR
 PLUMBING & DRAINAGE INSPECTOR
 TOWN PLANNING OFFICER
 STRUCTURAL ENGINEER
 GEOTECH. ENGINEER
 DISTRICT ENGINEER

DATE	
13.4.88	<i>An Lewicki</i>
	<i>PA</i>
	<i>PA</i>

DISTRICT SCHEME ZONING *Rural General*

INITIALS

ELECTRICITY TRANSMISSION LINES

PRESENT/NOT PRESENT

PA

COUNCIL SEWER

PRESENT/NOT PRESENT

PA

COUNCIL STORMWATER DRAIN

PRESENT/NOT PRESENT

PA

(DELETE NOT APPLICABLE)

PERMIT ISSUED SUBJECT TO FOLLOWING CONDITIONS

DATE COMMENTS BY OFFICER

22.8.88 HAVE RUNG FEES AMOUNT. CARBON TO BE DISCARDED. *AL*
 28.3.89 Site inspected OK *PA*
 30.7.89 David Gorman of New taken to General info on Deni Deck. *R L H*
 8.7.89 received *R L H*

BONE DOBSON ASSOCIATES

CONSULTING ENGINEERS AND INDUSTRIAL DESIGNERS

P.O. Box 1084, Sydney



Robert Harris
Rodney County Council

~ copy of technical info. Re: 'Purlindeck'
as requested

~ note that span for 22g is ~~is~~ greater
than recommended as 15% increase in
allowable stresses is permitted for 'Farm

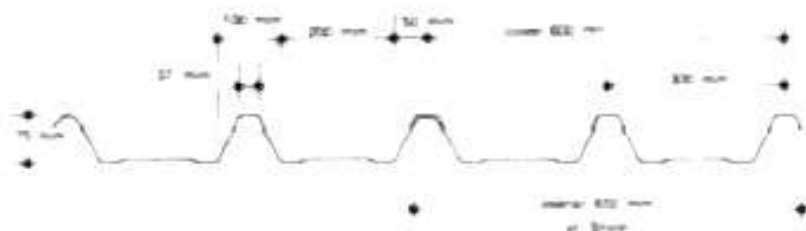
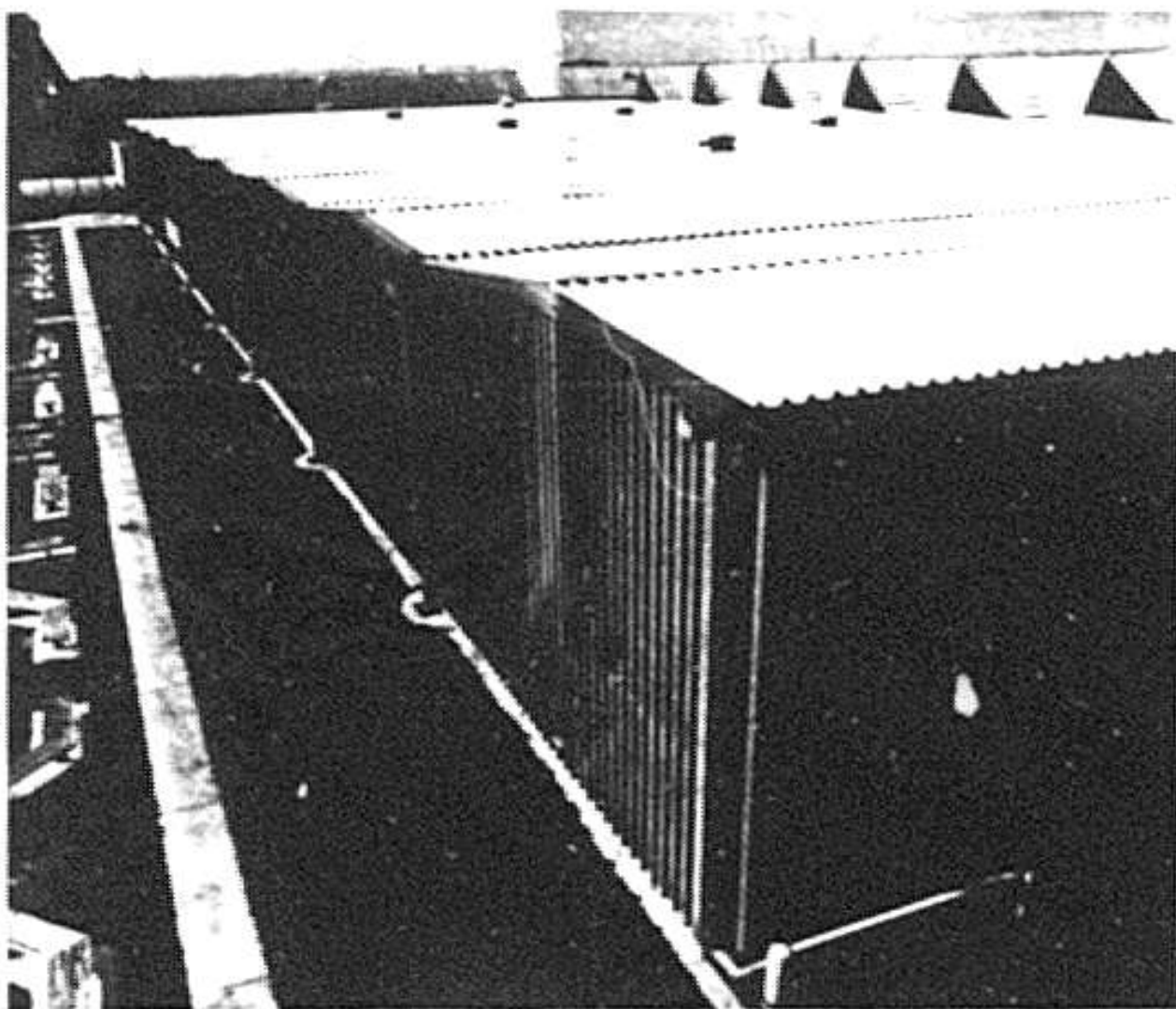
With Compliments Buildings'



PURLINERSM 20

Purlinless Roof Decking and Cladding

Formsteel Industries Ltd



PROFILE

Shaped to eliminate capillary attraction with edge protection and positive interlocking to form airtight and watertight joints.



See Figure No. 15/161

See also Figure No. 15/171

Author's Design No. ASD 14

Description

Purliner 20 is a cold rolled metal profile with a six metre load-bearing span capability designed for use as a long span roofing, wall cladding, underslung roof decking and floor flooring.

Purliner 20 is a proven product of engineering research and complies with current code requirements for loadings without purlins or sub framing. Purliner has a true profile shape to eliminate capillary attraction at edges and to promote positive interlocking of sheets to form a rigid structure.

Standards

BS 4203 1978 Code of practice for general structural design and design loadings for buildings.

BS 562 1977 Design and installation of self supporting metal roofing without intermediate supports.

BS 570 1978 Design of steel.

BS 595 1977 Specification for hot rolled mild and alloy steel.

Purlinless Roof Decking and Cladding

Formsteel Industries Ltd

Related Documentation

Reports 273/76, 326/76, 408/76 and 321/77 published by Materials and Testing Laboratory Ltd, Auckland, record loading tests conducted according to NZS 4203:1976 and AS 1562:1973. Copies of the reports are available to designers from Formsteel Industries Ltd.

Materials

Purlindek Span 20 is manufactured in the following:
Material
 Galvanised steel, galvanised to total covering of 400 g/m²
 Total coated thickness
 0.45 mm, 0.6 mm, 0.8 mm

Finish
 Pre-painted baked acrylic and epoxy chip finish available

Length
 Available up to 30 m and longer, custom-cut, dependent on available transport

Design Data

Minimum Fall
 Purlindek Span 20 should be laid to a minimum fall of 50 mm in 3 metres (1 in 60). Up to 3° pitch, Span 20 may be radius curved, where unbroken lengths are required. For changes in pitch or break in direction the ribs may be cut and capped with a custom rib capping.

Maximum Span
 Maximum load bearing span for 0.8 mm Purlindek is six metres (5m) for wind load conditions in accordance with NZS 4203:1976 and AS 1562:1973.

Gauge Thickness	Maximum span *Simple/double span roofing & cladding	Max. eaves overhang	Mass kg/m ²
22 g 0.75mm	6.0 m	1.8 m	9.076
24 g 0.55mm	4.5 m	1.2 m	6.748
26 g 0.40mm	3.0 m	0.6 m	5.623

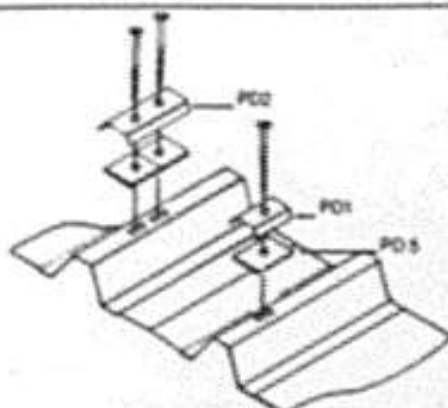
These maximum spans have been tested to support 100 kg point loading.

* It is recommended to reduce the simple spans by 500 mm if fixed without a light strongback to distribute weight from web to web, at midspan. Lap stitch 0.8 mm Purlindek with 2 rows of Tek screws at 1/3 of span points. Stop end, turn down tools available. Purlindek span 20 may be fixed to timber or steel portal frames and trusses, eliminating the need for purlins and girts.

Fixing Method A

For 0.6 and 0.8mm Purlindek the fixing method provides for fixing through the crest of the rib with 105 mm Tek screws (to steel purlins) and 120 mm wood screws (to timber purlins). Fix through metal washer (PD1) with neoprene washer (PD5) between metal washer and roofing. Expansion and contraction are allowed for when lengths exceed 25 metres by using two teflon coated neoprene washers (PD3 and PD4) with teflon faces in contact. Slotted holes are cut in roofing with tool available from the manufacturer for lengths exceeding 25 m.

General Fixing



Concrete Tray Flooring

Double fixing on spans 5m and over is recommended also at perimeter zones and high wind load areas.

Purlindek Span 20 may be used as permanent formwork for composite metalconcrete tray flooring systems. This consists of an in-situ concrete floor slab poured over reinforcing mesh within the inverted Span 20 profile.

Accessories

Suspended ceiling clip - besides its primary function this clip also provides suspension for ceiling lighting fixtures. Wire passed through upper hole is used to tension building paper and netting where necessary.

Flush strip - available for flat ceiling applications and soffits. Produces a flush surface acceptable for decorative finish applications.

Elevated roof light - Duroite F or Purlindek profiled translucent sheeting supported with galvanised steel straps at 1000 mm centres. Stop ends, ridge flashings, rib cappings, fixing clips and screws are available from Formsteel Industries Ltd.

Durability, Maintenance

Marine, salt or sulphurous atmospheres are injurious to unprotected galvanised steel surfaces. Once painted, durability depends on the maintenance of the paint film. The maintenance schedule recommended by the manufacturer allows for six months weathering before priming with zinc chromate etch primer. Prime under all flashings with two coats of cold galvanising, particularly at stop ends, under overhangs or where areas are not exposed to the washing action of rain water. Purlindek should be stored under cover at all times. Care should be taken during handling to avoid distortion or damage to the corners, ribs and the clipping edges. Where clipping edges are deformed they should be straightened before installation and fixing. Available from Formsteel Industries Ltd and through distributor fixers. The manufacturer maintains a technical design and quotation service for designers and specifiers. Technical data and laboratory test results are available to designers and specifiers. Also available are fixing instructions and details.

Storage, Handling

Supply, Service

Further Information

Contact: Formsteel Industries Ltd
 408/76-Steel
 408/76-Steel
 PO Box 23-718, Paparua
 Tel: 006-914 2750089
 Cables: FORMSTEEL

*Rise Publications Journal 7 1976

CALCULATIONS

for

NEW TIMBER DRYING SHED

for

KOWHAI TIMBER LTD

at

MATAKANA

Peter C Bone B.E. M.I.P.E.N.Z. Reg Eng
CONSULTING ENGINEER
P.O. BOX 10-084 BALMORAL
Ph 773-877 778-193

Ref: 2163.1

Date: MARCH 88

Notes to: Timber Drying Shed for Ka-hoi Timber Ltd. Matukona

by: Lands

David Branner

(i) Roof

$$\begin{aligned} \text{Dead} &= 0.15 \\ \text{Live} &= \frac{0.25}{0.4} \text{ kPa} \quad (L_e) \end{aligned}$$

$$\text{or } L_e = 10 \text{ m}$$

(ii) Wind

$$\begin{aligned} h &= 4 \text{ m} \\ S_1 &= 10 \end{aligned}$$

$$\begin{aligned} \text{class B} \\ S_2 &= 0.705 \end{aligned}$$

$$\begin{aligned} \text{GR 2} \\ V &= 31 \text{ m/s (25 yr return)} \end{aligned}$$

$$q_s = 613/1000 (1/0.705 \times 31)^2 = 0.295 \text{ kPa}$$

$$C_{pi} + C_{pe} = -3 + 10 = 13 \text{ } \Rightarrow 0.381 \text{ kPa } \uparrow$$

$$-3 + 3 = 0 \text{ } \Rightarrow 0.176 \text{ kPa } \downarrow$$

(iii) Wind Loading Cases

$$D+W \downarrow = 0.15 + 0.176 = 0.326 \text{ kPa } \downarrow$$

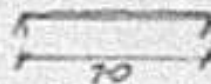
$$-D+W \uparrow = -1 \times 0.15 - 0.381 = -0.531 \text{ kPa } \uparrow$$

~ this building has been designed according to NZS 1900
Order 11.2 (form buildings)

By: Roof Members

(Bi) Roof Beam

$$\begin{aligned} w_1 &= 0.25 \times 3.5 = 0.88 \text{ kN/m} \\ L_1 &= 10 \text{ m} \quad \text{--- east wall} \end{aligned}$$



$$w_2 = 0.15 \times 3.5 = 0.53 \text{ kN/m} \quad \text{--- west wall}$$

$$M_{1a} = 8.64 \text{ kNm}$$

$$M_{1b} = 3.25 \text{ kNm}$$

check 2/250, 50 Mod F.G.

Dry Pinus Radiata

$$\begin{aligned} f_{bc, a} &= 9.95 \text{ MPa} \\ f_{bc, b} &= 14.14 \end{aligned}$$

$$\begin{aligned} f_{bc, a} &= 3.74 \text{ MPa} \\ f_{bc, b} &= 9.45 \end{aligned}$$

$$\begin{aligned} k_1 &= 15 \\ k_2 &= 144 \end{aligned}$$

$$\begin{aligned} k_3 &= 10 \\ k_4 &= 144 \end{aligned}$$

$$F_b = 8.27 \text{ (NZS 1900)}$$

note: roof sheathing will provide adequate lateral restraint to beam

Refers to: Kawharu Timber Ltd

(B1) - continued

check splice in 250 x 50

16T5 Tylak R top & bottom

$$\text{Moment capacity} = 4.91 \times 24 = 118 \text{ kNm}$$



~ as both members not spliced at same position

$$M = (118 + \frac{8.27 \times 1.5 \times 43}{f_b \times z \times k_4}) \times 114 = 7.43 \text{ kNm}$$

as splice will occur 6m from support, $M_{\text{reqd}} = 4.57 \text{ kNm} < 7.43$ (ok)

~ deflection not considered as not critical for this type of bldg.

(B1) Roof Bracing

$$C_p = 0.6 + 0.5 = 1.1$$

$$P = 0.295 \times 1.1 = 0.322 \text{ kPa}$$

$$P_1 = 0.322 \times 7.2 = 2.32 \text{ kN}$$

$$P_2 = 2.32 + 4.35 = 6.67 \text{ kN}$$

$$P_3 = 6.67 + 0.322 \times 35.2 = 18.02 \text{ kN}$$



~ strut in compression length = 7.0m

$$F_{ac} = 6.2 \times 1.5 \times 0.66 = 6.14 \text{ MPa}$$

$$P_{ac} = 6.67 \text{ kN}$$

$$1000/46 = 22 < 25$$

check 100 x 50 No 1 F.G.

Dry Pines Radiata

Teak screwed @ 1000 c/c to roofing

$$f_{ac} = 6.67 / 91 \times 46 = 1.6 \text{ MPa} < 6.14 \text{ (ok)}$$

~ end bracing length = 5.0m

$$F_{ac} = 6.2 \times 1.5 \times 0.44 = 4.14 \text{ MPa}$$

$$P_{ac} = (6.67 / \cos 45^\circ) \times 0.5 = 2.32 \text{ kN}$$

$$1000/20 = 50 < 25$$

check 100 x 100 1 1/2" F.G.

Dry Pines Radiata

$$f_{ac} = 2.32 / 91 = 0.25 \text{ MPa} < 1.3 \text{ (ok)}$$

(B)

BONE DOBSON ASSOCIATES
CONSULTING ENGINEERS

P.O. BOX 10084 BALMORAL
PH. 773-877 AUCKLAND

Sheet No. 2A File No. 263-1
Made by: DB
Date: 1/5/80

Refers to: Kowhai Timber Ltd

~ Forcing Wire as brace

$$P_{w0} = (6.77 / \cos 45^\circ) 1.3 = 12.45 \text{ kN}$$

Ø Gauge wire diam = 4.1 mm

$$F_{u2} = 410 \times 0.6 = 246 \text{ MPa}$$

$$P_{w0} = (\pi \times 4.1^2 / 4) 246 = 3.25 \text{ kN per strand}$$

∴ 4 strands required.

Refers to: Kanhai Timber Ltd

Cp Columns

(Ci) check column

$$p_{oc} = 0.4 \times 7.55 = 3.0 \text{ W}$$

abt YY axis

$$k_{12} = 3.1 \text{ ~table 26}$$

$$k_{12} = 10$$

$$L = 40$$

$$I = 2 \left[\frac{189 \times 146^3}{12} + 189 \times 146 \times 75^2 \right] + 46 \times \frac{189^3}{12} = 50.59 \times 10^6 \text{ mm}^4$$

$$A = 2 \left[189 \times 146 \right] = 17,580 \text{ mm}^2$$

$$S_y = 10 \times 3.1 \times 4000 / 35 \left(\frac{50.59 \times 10^6}{17,580} \right)^{0.5} = 38.07 < 50$$

abt XX axis

$$S = 200 / 180 = 2.16$$

→ YY axis critical $k_{12} = 0.22$

$$F_{oc} = 62.15 \times 0.22 = 2.05 \text{ MPa}$$

$$f_{oc} = 3.0 / (189 \times 146.2 + 10 \times 146) = 0.41 \text{ MPa} < 2.05 \quad \text{OK}$$

(Cii) check pole foundation

300 SED pole, 450 of hole, embedded 1000

$$p_{oc} = 3.0 \text{ W}$$

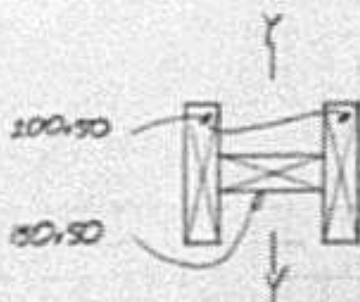
$$p_{oc} = 0.561 \times 7.55 = 4.23 \text{ W}$$

$$P_{allow} = 100 \text{ kPa}$$

$$\text{Bolt friction} = 22 \text{ kPa (per top 400)}$$

$$B_c = 225 \times \pi \times 100 + 45 \times \pi \times 5 \times 22 = 34.97 > 3.0$$

$$P_{oc} = 10.66 \text{ W} > 4.23$$



Refer to: Kaitiaki Timber Ltd

