

FO 31847



200

91

~~CONFIDENTIAL~~

Q10

FO 51547

108 - 01 - 83

10387

Q1

House



Inspector M. 89

Kauai County Council

No.

Plan No.

Receipt No. 103-01-89

Date Permit Issued 16/3/89

OWNER	
Name	R M & M L Oates
Mailing Address	P.O. Box 8 Kaukapakapa

BUILDER	
Name	As owner
Mailing Address	

PROPERTY ON WHICH BUILDING IS TO BE ERECTED/DEMOLISHED

SITE	
Street No.	
Street Name	Makaraw Road
Town/District	Kaukapakapa
Planning	Kaukapakapa

LEGAL DESCRIPTION	
Valuation Roll No.	30710-21-3
Lot	3
D.P.	114673
Section	
Block	
Survey District	

BUILDING DESCRIPTION	
Greenhouse	

FLOOR AREA		BUILDING UNITS	
Whole	18	Area	
Part		Units	11,000
ESTIMATED VALUES			
Plumbing			
Drainage			
G.S.T.			
TOTAL			11,000

NATURE OF PERMIT (Tick Box)	
<input checked="" type="checkbox"/>	NEW BUILDING - exclude domestic garages and domestic outbuildings
<input type="checkbox"/>	FOUNDATIONS ONLY
<input type="checkbox"/>	ALTERED, REPAIRED, EXTENDED, CONVERTED, REBUILT - include installation of heating appliances
<input type="checkbox"/>	NEW CONSTRUCTION OTHER THAN CARPOUSES - include demolition
<input type="checkbox"/>	DOMESTIC GARAGES AND DOMESTIC OUTBUILDINGS

FEES APPLICABLE		Receipt No. 115661	
Building Permit	2000	Date of Payment	22/4/89
Direct Damage Deposit		Authorized Officer	
Building Research Levy			
Plumbing			
Drainage			
Sewer Connection			
Vehicle Crossing Levy			
M.S. Plumbing			
G.S.T.			
TOTAL			

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 INSPECTION SHALL BE GIVEN 24 HOURS NOTICE THAT WORK IS READY FOR INSPECTION.

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

1) Vehicle crossing to be constructed to Council specifications prior to Building work commencing.

Date Inspected

REMARKS (e.g. stage reached with work)

10/5/89
20/4/90

Ftg as per plan
20 days prior to placing plastic on ker

(CONTINUED OVER)

Date Inspected

11-1-91

Complete

[Signature]

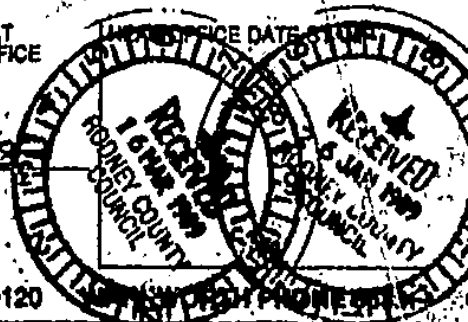
COMPLETED (Signature)

[Signature]

Date 11-1-91

Application No 108-01-89 Permit No F051847
District Office No 2/27 Date Issued 16.3.89

LODGED AT
DISTRICT OFFICE



RODNEY COUNTY COUNCIL
CENTREWAY ROAD, OREWA. PRIVATE BAG, OREWA
PHONE HBC 65-169 DISTRICT OFFICES: HUAPAI PHONE 412-9120

BUILDING PERMIT APPLICATION

IMPORTANT: PLEASE READ INSTRUCTIONS ON PAGE 3 AND COMPLETE THE FOLLOWING INFORMATION

OWNER OF SECTION:

PHONE No. Bus 444 3161 06
PHONE No. Pw 444 4965

NAME R M & M L DATES
(BLOCK CAPITALS)

PHONE No. Pw 0880 4044

PRESENT POSTAL ADDRESS P.O. Box 8 KAWAKAPAKA

BUILDER:

NAME SELF

PHONE No.

ADDRESS
PERMIT WILL BE POSTED TO BUILDER UNLESS OTHERWISE REQUESTED

PREVIOUS OWNER OF SECTION: NAME P. BUTCHER

LEGAL DESCRIPTION OF SECTION: (SEE RATES FORM)

LOT 114 673

STREET JAN NO.

VALUATION No 30710-21-3

STREET OR ROAD NAME MAKARAUA ROAD

LOCALITY KAWAKAPAKA

AREA OF SECTION 1.7847

HECTARES
CORRECTED

RIDING KAWAKAPAKA

DESCRIPTION OF PROPOSED WORK:

FLOOR AREA: 189 SQ. METRES

Assembly Plastic
House

CARPORT/GARAGE

ADDITION

BASEMENT

GROUND FLOOR

FIRST FLOOR

OTHERS

TOTAL AREA

189

VALUE OF BUILDING WORK ONLY: 11,000.00

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

SIGNATURE OF APPLICANT

R. M. & M. L. DATES

FOR OFFICE USE ONLY

PERMIT FEES	WORK	VALUE	FEE	RECEIPT No.	DATE
	BUILDING	<u>11,000.00</u>	<u>222.00</u>	<u>14-11-1</u>	<u>23.1.89</u>
	PLUMBING				
	DRAINAGE				
	SUB: TOTAL				
	BUILDING RESEARCH LEVY				
	TOTAL PERMIT FEE				
	WATER CONNECTION				
	ROAD DAMAGE DEPOSIT				
	TOTAL PAYABLE				

SUNDRY FEES

BUILDING PERMIT FEES

(Payable on Application)

VALUE OF WORK	FEE WITH NO STRUCTURAL CHECK	STRUCTURAL CHECK FEE WHERE RELEVANT	TOTAL FEE INCLUDING STRUCTURAL CHECK
NOT EXCEEDING \$ 1,000	\$ 38	\$ 4.00	\$ 40.00
\$ 1,001 TO \$ 2,000	\$ 49	\$ 6.00	\$ 55.00
\$ 2,001 TO \$ 4,000	\$ 75	\$ 9.00	\$ 84.00
\$ 4,001 TO \$ 6,000	\$ 101	\$ 12.00	\$ 113.00
\$ 6,001 TO \$ 8,000	\$ 127	\$ 15.00	\$ 142.00
\$ 8,001 TO \$ 10,000	\$ 153	\$ 19.00	\$ 172.00
\$ 10,001 TO \$ 15,000	\$ 188	\$ 24.00	\$ 222.00
\$ 15,001 TO \$ 20,000	\$ 243	\$ 30.00	\$ 273.00
\$ 20,001 TO \$ 25,000	\$ 288	\$ 36.00	\$ 324.00
\$ 25,001 TO \$ 30,000	\$ 333	\$ 41.00	\$ 374.00
\$ 30,001 TO \$ 35,000	\$ 378	\$ 47.00	\$ 425.00
\$ 35,001 TO \$ 40,000	\$ 423	\$ 52.00	\$ 475.00
\$ 40,001 TO \$ 50,000	\$ 459	\$ 57.00	\$ 515.00
\$ 50,001 TO \$ 60,000	\$ 493	\$ 61.00	\$ 554.00
\$ 60,001 TO \$ 70,000	\$ 528	\$ 66.00	\$ 594.00
\$ 70,001 TO \$ 80,000	\$ 563	\$ 70.00	\$ 633.00
\$ 80,001 TO \$ 90,000	\$ 598	\$ 74.00	\$ 672.00
\$ 90,001 TO \$ 100,000	\$ 633	\$ 79.00	\$ 712.00
\$ 100,001 TO \$ 120,000	\$ 668	\$ 167.00	\$ 835.00
\$ 120,001 TO \$ 140,000	\$ 703	\$ 175.00	\$ 879.00
\$ 140,001 TO \$ 160,000	\$ 738	\$ 184.00	\$ 922.00
\$ 160,001 TO \$ 180,000	\$ 773	\$ 193.00	\$ 966.00
\$ 180,001 TO \$ 200,000	\$ 808	\$ 202.00	\$ 1,010.00
\$ 200,001 TO \$ 225,000	\$ 843	\$ 210.00	\$ 1,053.00
\$ 225,001 TO \$ 250,000	\$ 878	\$ 219.00	\$ 1,097.00
\$ 250,001 TO \$ 275,000	\$ 913	\$ 228.00	\$ 1,141.00
\$ 275,001 TO \$ 300,000	\$ 948	\$ 237.00	\$ 1,185.00
\$ 300,001 TO \$ 325,000	\$ 983	\$ 246.00	\$ 1,228.00
\$ 325,001 TO \$ 350,000	\$ 1,018	\$ 254.00	\$ 1,272.00
\$ 350,001 TO \$ 375,000	\$ 1,053	\$ 263.00	\$ 1,316.00
\$ 375,001 TO \$ 400,000	\$ 1,088	\$ 272.00	\$ 1,360.00
\$ 400,001 TO \$ 425,000	\$ 1,123	\$ 280.00	\$ 1,403.00
\$ 425,001 TO \$ 450,000	\$ 1,158	\$ 289.00	\$ 1,447.00
\$ 450,001 TO \$ 475,000	\$ 1,193	\$ 298.00	\$ 1,491.00
\$ 475,001 TO \$ 500,000	\$ 1,228	\$ 307.00	\$ 1,535.00

Over \$500,000 the recommended scale continues as at \$35 for each \$25,000 or part thereof plus structural fee (where relevant) at 25% (excluding cents) of permit fee.

STRUCTURAL CHECKING

NOTE: Where such checking involves a single structural element supporting a roof load or deck only, a maximum fee of \$22 shall be payable in addition to the relevant building permit fee.

LOCALITY SKETCH TO SHOW LOCATION OF BUILDING SITE

11km North Karamakuru
Village, turn Right into
MAKARA RD
500 metres on Right
NAME ON POST AT
ENTRANCE TO PROPERTY

THIS IS NOT ACCEPTED AS A SITE PLAN

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 \$20,000 and over.

DEVIATION FROM APPROVED PLANS

Deviation from approved plans after issue of a building permit incurs a fee of \$36 per amended plan sheet and/or set of calculations submitted for approval.

INSPECTION FEE FOR OLD OR USED TIMBER OR SECONDHAND BUILDINGS

(A) INSPECTIONS OUTSIDE COUNTY \$160
(B) INSPECTIONS WITHIN THE COUNTY \$75
Provided that where an inspector 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.

		DATE
APPLICATION APPROVED		
BUILDING INSPECTOR	<i>[Signature]</i>	15-3-89
ENVIRONMENTAL HEALTH OFFICER		
PLUMBING & DRAINAGE INSPECTOR		
TOWN PLANNING OFFICER	<i>P. Kirk</i>	27.1.89
STRUCTURAL ENGINEER	<i>[Signature]</i>	14.2.89
GEOTECH. ENGINEER		
DEVELOPMENT ENGINEER	<i>[Signature]</i>	13/3/89
SERVICES ENGINEER		

DISTRICT SCHEME ZONING *Rural 1/25 Sth - Rur 1*

INITIALS

ELECTRICITY TRANSMISSION LINES

PRESENT/NOT PRESENT

COUNCIL SEWER

PRESENT/NOT PRESENT

COUNCIL STORMWATER DRAIN

PRESENT/NOT PRESENT

(DELETE NOT APPLICABLE)

PERMIT ISSUED SUBJECT TO FOLLOWING CONDITIONS

conditions

- ① To comply with endorsements on approved plans & specifications
 - ② Vehicle ring to be constructed before work commences.
- As to county specifications*

OFFICERS COMMENTS

013
 20.1.89 Fees £122.00. Home owner notified by phone. £
 25/1/89 Site Insp. OK. No legal entry to site.
 29.1.89 owner came to see. will post map - hopes to build 2 more on
 next 2 yrs. £
 26.1.89 Fees recd. £
 27.1.89 R/37/19. L/H 3 is an intensive use! lot. S306 issued 3.12.88
 14/3/89 will need 3 x 2.25' reinforced concrete pipe vehicle ring to County
 Standard S306.
 17.5.89 Collected by N.Z. Carriers Br owner at Oranga.

MEMO TO : S.B.I. J. Skilleter
FROM : A.B.I. Huapoi
SUBJECT : SHADE HOUSE
DATE : 24 December 1991

23 December 1991 an inspection of the property at Lot 3 P.P. 114-673 Makarua Road owned by Mr & Mrs Oato confirmed that a shade house has been erected to the required specification and size. There is also a plastic (tunnel) house on site.
B/P. N2 ~~114-673~~

[Signature]

[Handwritten notes:]
Shade house
plastic tunnel house
B/P. N2

MEMO TO : S.B.I. J. Skilleter
 FROM : A.B.I. Huapai
 SUBJECT : SHADE HOUSE.
 DATE : 24 December 1991

23 December 1991 an inspection of the property at Lot 3 D.P. 114673 Makarau Road owned by Mr & Mrs Oate confirmed that a shade house has been erected to the required specification and size.

There is also a (small) house on site.
 E/P No FOS 1847

Please place on E/P
 file No FOS 1847
 completed 11/1/91

20-1-89

ATTENTION

Miss A BENNETT

ENCLOSED ARE 2 COPIES OF ALL DOCUMENTS & PLANS AS SUPPLIED TO US BY REDPATH GREENHOUSES. IF YOU REQUIRE ANY FURTHER INFORMATION PLEASE CONTACT ME AND I WILL CONTACT THEIR LOCAL REPRESENTATIVE.

I HAVE DRAWN IN, IN PENCIL ON THE PLAN THE POSITION OF THE GREENHOUSE & EXISTING 6'x6' SHED, BUT THEY ARE NOT TO SCALE.

WHEN YOU HAVE WORKED OUT THE PERMIT FEE, PHONE ME AND I WILL ARRANGE FOR A CHEQUE TO BE SENT.

THANK YOU I AM ROY DAVES

County Inspector (2) TP/970/5/88
N/A Objections
County Treasurer "Please review
as appropriate the rating of
property."

TP/96/88

Mrs Tyrrell
DB

June 1988

Mr and Mrs Oates
Box 8
KAPAKAPA

Dear Mr and Mrs Oates

NOTIFIED APPLICATION: R AND M OATES

At its meeting held on Tuesday, 17 May 1988 the Rural and Coastal Planning Committee resolved:-

THAT THE APPLICATION PURSUANT TO SECTION 72 OF THE TOWN AND COUNTRY PLANNING ACT 1977, FROM R M AND M L OATES, FOR CONSENT TO BUILD A DWELLING HOUSE ON AN INTENSIVE USE LOT, ON A SITE SITUATED AT MAKARAU ROAD, BEING LOT 3, DP 114673, HAVING A TOTAL AREA OF 1.7807 HECTARES AND ZONED RURAL GENERAL (EOUTH) BE CONSENTED TO SUBJECT TO THE FOLLOWING CONDITIONS:

1. THAT DEVELOPMENT PROCEEDS IN GENERAL ACCORDANCE WITH THE PLANS AND APPLICATION SUBMITTED.
2. THAT PRIOR TO THE ISSUE OF A BUILDING PERMIT FOR THE DWELLING THE APPLICANTS SHALL ENTER INTO A BINDING AGREEMENT WITH THE COUNCIL BY WAY OF A GUARANTEED BOND FOR \$35,000 REQUIRING THE CONSTRUCTION OF 800 SQUARE METRES OF GREENHOUSE WITHIN THREE YEARS OF THIS CONSENT.

NOTE: THE COUNCIL HAS ISSUED A CERTIFICATE OF COMPLIANCE (SECTION 306 OF THE LOCAL GOVERNMENT ACT 1974) FOR SCHEME PLAN R13719. ISSUE OF A BUILDING PERMIT FOR THE DWELLING IS SUBJECT TO THE APPROVAL OF THE DEPOSITED PLAN BY THE CHIEF SURVEYOR.

THE REASONS FOR CONSENTING TO THIS APPLICATION ARE:

1. THE COUNCIL IS SATISFIED THAT THE APPLICANT'S SITE IS SUITABLE FOR THE PROPOSED USE OF A HYDROPONIC SYSTEM AND THAT THE USE WOULD BE COMPATIBLE WITH THE EXISTING AMENITIES OF THE NEIGHBOURHOOD.

Page 2
and N.O. Co.
June 1978

2. IN GRANTING CONSENT THE COUNCIL HAS HAD REGARD TO THE PROVISIONS OF ORDINANCE 7.1.5(o) OF THE DISTRICT SCHEME APPROVED CHANGE 75 AND CONSIDERS THAT, IN VIEW OF THE LIMITED AMOUNT OF PERMANENT IMPROVEMENTS SO FAR UNDERTAKEN ON THE PROPERTY, A BOND TO REQUIRE AT LEAST 800 m² OF GREENHOUSE BE ESTABLISHED WITHIN THREE YEARS OF THIS CONSENT IS APPROPRIATE. THE COUNCIL HAS REQUIRED AN AREA OF GREENHOUSE WHICH IS LESS THAN IS NORMALLY REQUIRED ON THE BASIS OF THE HYDROPONICS OPERATION BEING MORE INTENSIVE THAN TRADITIONAL GREENHOUSE ACTIVITIES."

Pursuant to the provisions of Section 70 of the Town and Country Planning Act 1977, this consent lapses on the expiry of a period of two years after the date on which it was given, or in the event of a consent given on appeal, two years after the date on which the appeal was determined, or on the expiry of such longer period as the Council in any particular case may allow, unless—

- (a) The person to whom it was granted has within that period given effect to the consent;
or
(b) The Council has, on application made within three months after the expiry of that period, determined that the person has made substantial progress towards giving effect to the consent and is continuing to do so.

You may within 1 (one) month after notification of this decision, appeal to the Planning Tribunal, Tribunal Division, Department of Justice, Private Bag, Postal Centre, Wellington, against the Council's decision or against any condition, restriction or prohibition imposed in respect of the decision. The Tribunal requires that such appeals be lodged in proper form and if you decide to take that course of action, I suggest that you seek legal advice.

Yours faithfully

COUNTY MANAGER

B. D. Sharples

1990

1998

Abstract

WILL

UNITED STATES

PRIVATE BAG ONE

207-84032

07 94 0049

0121018

好! 好! 好!

Bluebird

15-00000

NEIL A CLIMO NS (1944) 128
Registered Engineer

11 David Street
Waikanae
Telephone (0563) 4844

DESIGN CERTIFICATE

FOR

7000 C1 TWIN - BAY GREENHOUSE

I, Neil Alexander Climo, being a registered Engineer and holding a current Annual Practising Certificate certify that:

* I have been engaged to check the design of the 7000C1 Greenhouse shown on the attached drawings by Redpath Greenhouses (signed by me) and as described in my attached calculations.

* The structure has been designed for a 40 m/s "basic" wind speed on a sheltered site in accordance with NZS4201 and assumes all large doors and vents closed in high winds. I believe the stresses in the various materials of construction and force resisting elements are such as to ensure the safety of the structure if constructed to the above described drawings.

Signed 
(N.A. Climo, N.E., B.E. (Hons), M.I.P.E.N.Z.)

Date 5/7/87

11 David Street
Waikeke
Telephone (0603) 4049

Red path 7000 ci

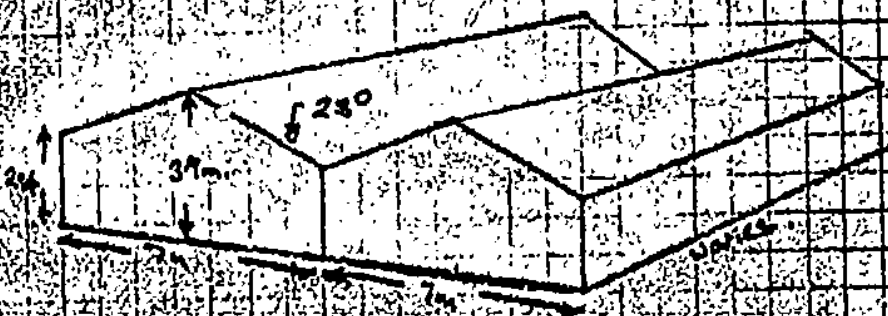
Date: _____

By: _____

Green house

Design Covers

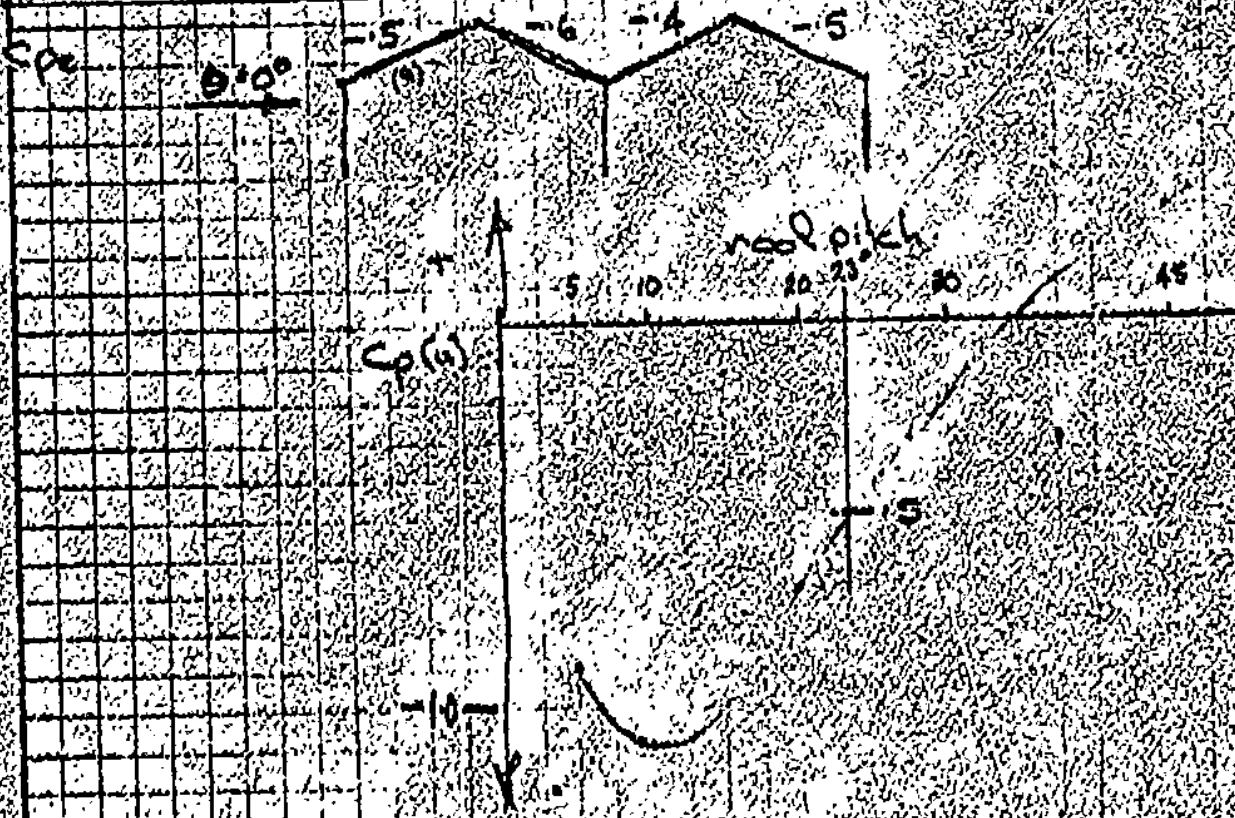
Twin & single skin, single & double vents



Wind loads

As these are controlled environment houses not unreasonable to require all large doors closed during storm conditions.
- This should provide a $C_{pe} = 0.4(3)$ cpe

NZS 4203:1984



End use 0.290

0.18	0.16	0.12
0.07	0.07	0.07

waist case $C_{pe} = 0.67$

11 David Street
Wickham
Telephone (0663) 4640

Date: _____

By: _____

Roof Load

1. No Vents



Load (kN)

2. Vents



Pressure

For basic 10 m/s on sheltered site 5.1 m/s^2

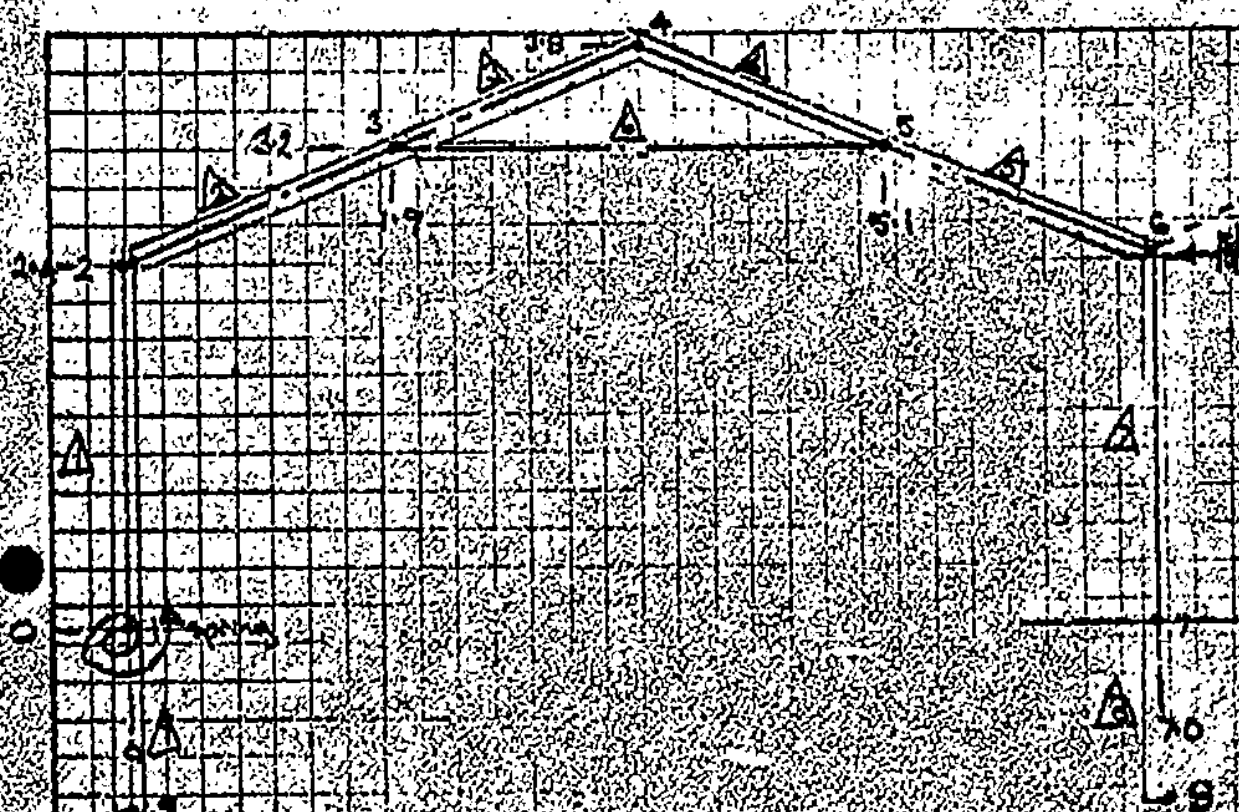
$Q_s = 2.4 \text{ m/s}^2$ $q_s = 35.3 \text{ kPa}$

$C_{pe} = 0.7$ $C_{pi} = -0.3$ $p = 0.7 \times 35.3 = 24.71 \text{ kPa}$

11 David Street
Waikanae
Telephone (0563) 4849

Date: _____

By: _____



Members

1/ rafters - 152×52 $I = 15.2 \times 10^6 \text{ m}^4$ $A = 0.0079 \text{ m}^2$ $Z = 52.152 \times 10^3 \text{ m}^3$

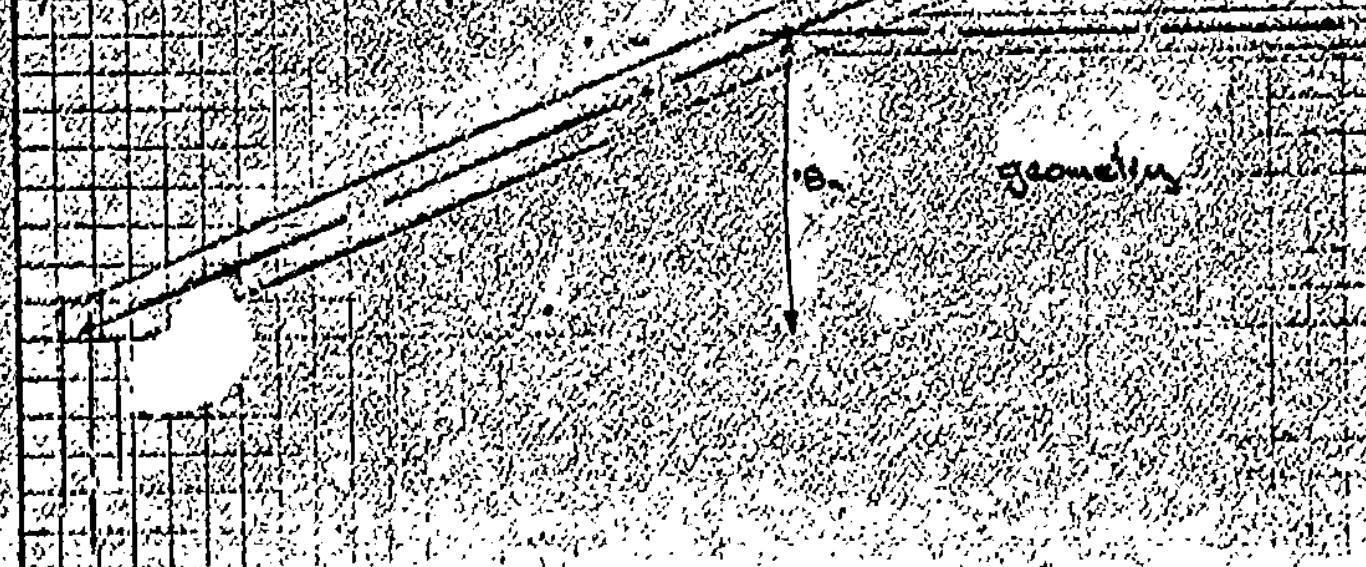
2/ tie - 100×50 $I = 4.2 \times 10^6 \text{ m}^4$ $A = 0.008 \text{ m}^2$

3/ purlins - 150×60 3.4 m long $I = 4 \times 10^6$ $A = 0.0227 \text{ m}^2$
- typical taper 10 mm/m
- use 170 (structural diameter)

Material

1/ rafters $E = 10526 \text{ kPa}$

2/ purlins $E = 9866 \text{ kPa}$



11 David Street
Vancouver
Telephone (604) 4649

Date: _____

By: _____

Spring supports
est. movement

Pole charts for $\frac{1}{2}$ " movement & offset
in average (100 kpa) soil 12' base.

Let 4' embedment 1000 lb load B above ground
will cause $\frac{1}{2}$ " movement

$$\text{rotation} = \frac{12}{5000} = 0.15 \text{ radians}$$

$$\text{moment} = 5000 \times 4 = 20,000 \text{ lb-ft}$$

$$K = \frac{10,000}{0.15} = 720 \text{ kN/radian}$$

$$\text{Total} = 12 \text{ base} = 64 = 400 \times 10^6 = 400 \times 10^6 \text{ lb-ft}$$

$$E = 20 \text{ EC kpa}$$

$$A = 0.007$$



check for 1500 embed
 $m = 1200 \times 8 = 12,960 \text{ lb-ft}$
rotation = 0.136 radians
spring = 953 kN/radian

1000 lb load

1000 lb load
1000 lb load
1000 lb load



11 David Street

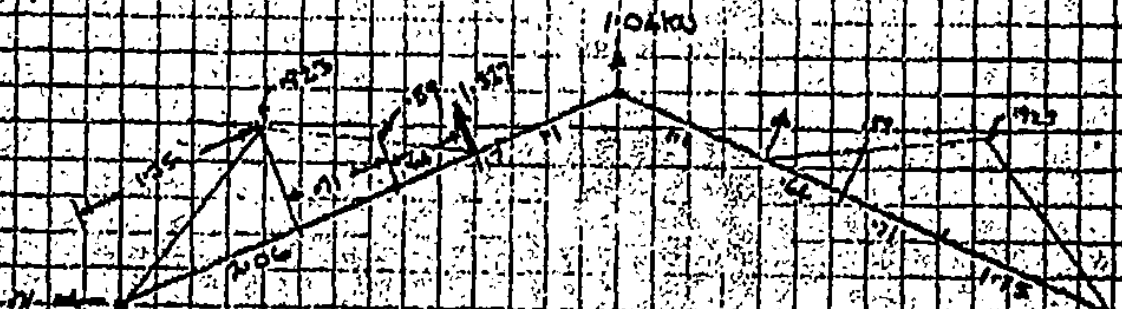
References

Telephone (0863) 4640

Date: _____

By:

40-100000-100000



Reflex (See computer analysis)

1964

Work done = 2.9 kJ.

11-00000002

on 152,52 = 14.5 mpa + 15.967

So we are looking to Engineering grade or better
Not really a collar tie connection point
This applies to only 4 rather / double houses

2000

the cooler to only 4 rafters / double house

2000

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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14 May 2007 2.9 = 2.88 kD.m

6-11-75 11:52 7:94

SECRET

Roller must be supported a collar tie position
a selected to Eng grade at bill@rolla-tie
best 1/2 in

2 selected 40 Eng. grade at biller's mill - 10

11/11/11

Actual Total = 6,900 + 642 = 7,542

2025.2.25.21

02-01-64-27.1-2.843-40 27

15-32

WUZZ

15x50 powder 01

~~74X60 101~~



4-22-63 3510

$$z = \frac{\pi d^3}{32} \cdot \frac{T}{J_p} = 148 \times 10^4$$

6-57292

2000

150 350 1st outside 1250 1st inside

11 David Street

Waltham

Telephone (0863) 4849

Date: _____

By: _____

Up: 1.5

Wash case

$$\text{soil load wash case} = 3 \times 3.5 \times 342 = 3.6 \text{ kN external}$$

$$7.2 \text{ kN total}$$

Dn @ 350/40 (5.6 kN/m)

$$\text{cable} = 3.5 \times 1.52 \times 0.5 \times 1.6 = 1.68$$

$$\text{tie} = 1.6 \times 1.05 \times 5.6 = 9.45$$

$$\text{Bolt} = 1.6 \times 0.01 \times 0.5 \times 1.6 = 0.05$$

$$\text{steel} = 1.6 \times 0.01 \times 0.5 \times 1.6 = 0.05$$

$$\text{cable} = 1.6 \times 1.05 \times 0.5 \times 1.6 = 0.23$$

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$$\text{soil load to be resisted by soil adhesion} = 7.2 - 2.4 = 4.8 \text{ kN}$$

$$\text{Surface area} = \pi \times 3 \times 1.3 = 12.2 \text{ m}^2$$

$$\text{Stress on soil} = \frac{4.8}{12.2} = 0.393 \text{ kPa}$$

W.D. recommended adhesion value of 96 = 38.5 kPa
for soft clay & silts, giving F.S. > 2.0

The 400mm soil backfill @ 800 c/s

$$\text{Load} = 1.6 \times 1.05 \times 0.5 \times 1.6 = 0.23 \text{ kN}$$

soil load to be resisted by soil adhesion

$$7.2 - 1.6 = 5.6 \text{ kN on } 12.2 \text{ m}^2$$

$$= 0.459 \text{ kPa}$$

at 7.16 kPa stress on soil

now: soil specified as 100 kPa soils i.e. c (scale prediction) or 85 kPa per blow and no layers or silts, they will be (4.5 m)

W.D. publication COP 702/c July 1973 recommended adhesion value 38.5 kPa or 575 kPa for stiff & hard clays

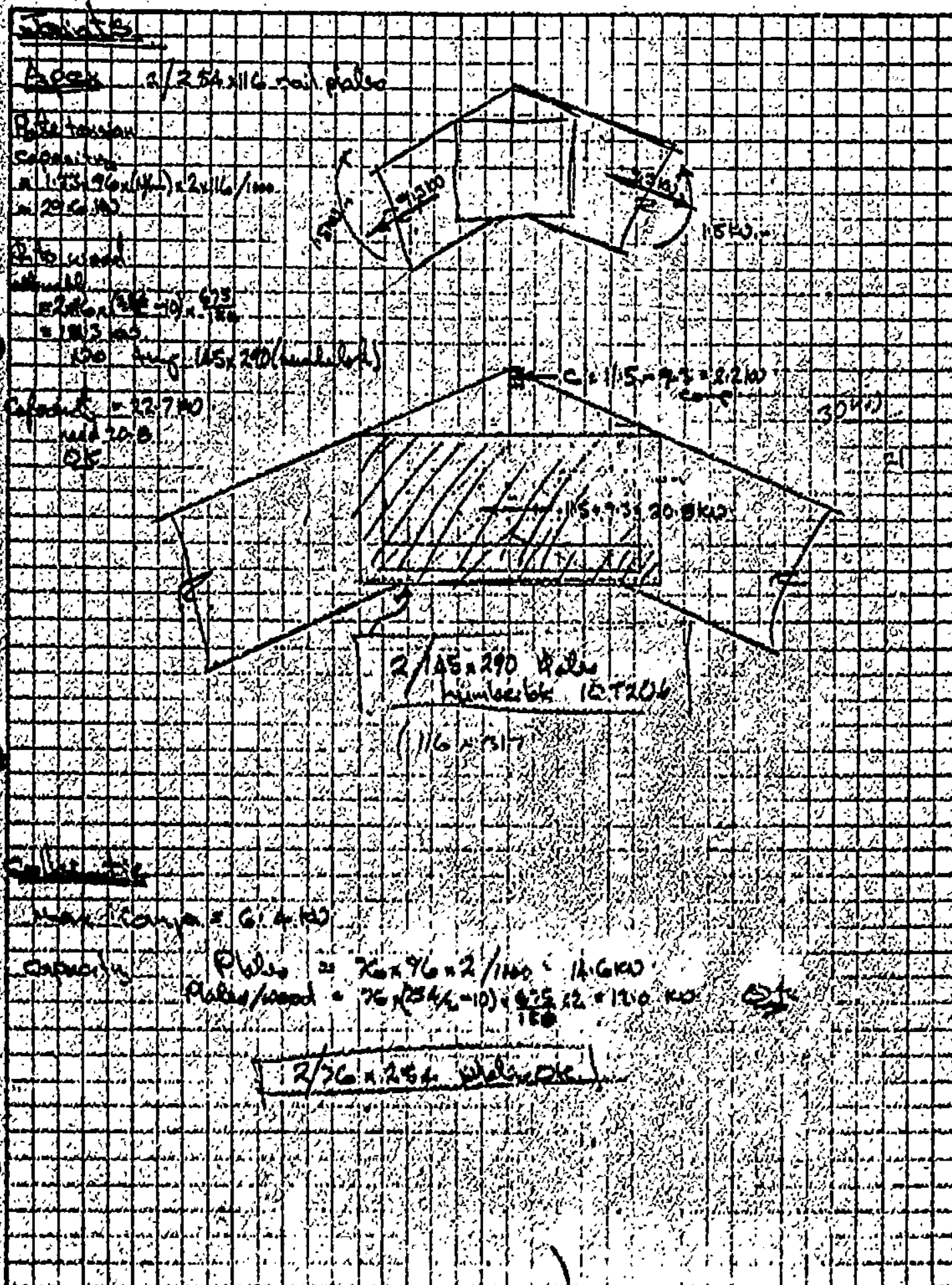
adequate F.S.

Poles may be back filled ^{signed} upto 400mm with soil
Pilot then connected to base 800mm

11 David Street
Waltham
Telephone (0583) 4646

Date: _____

By: _____



NEIL A CLIMO

Registered Engineer

BC (1990) 142

CALCULATION SHEET

No.

01

11 David Street

Waikanae

Telephone (0583) 4849

Date:

By:

Side / gutter load
 uplift = 3.6 kN/side
 lateral = 2.37 kN/side



lateral force by wind (5 nails/side)

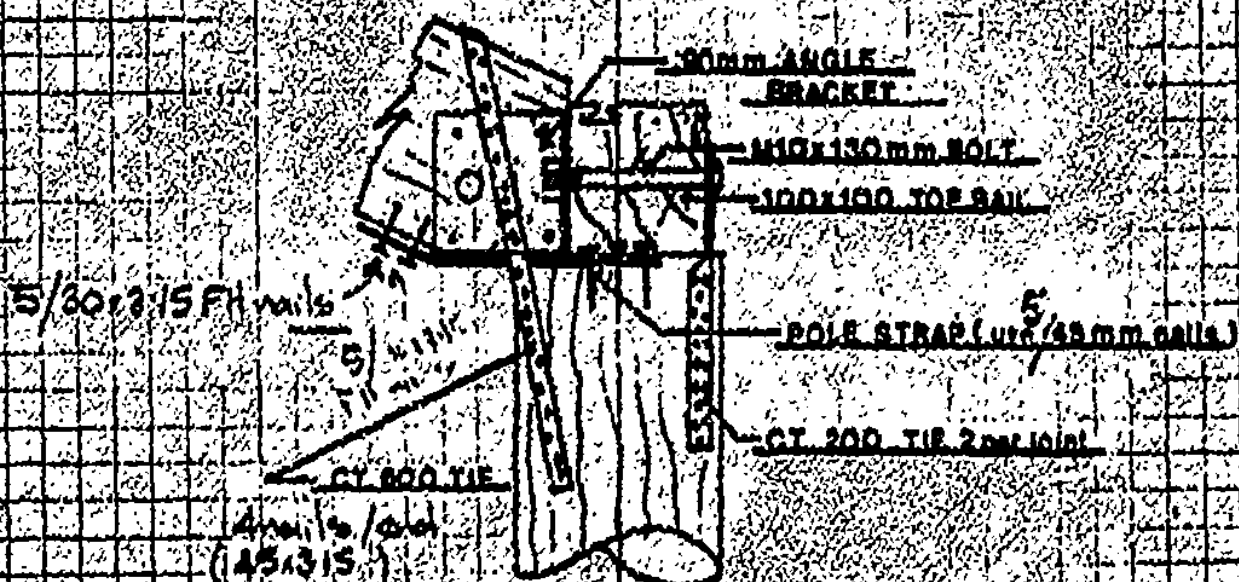
uplift = 3.6 kN (4.3 kN, all)

Cyclone tie 4 nails, leg capacity 10 kN

Example

uplift = 3.6 kN/side
lateral = 2.37 kN/side

OUTSIDE POST

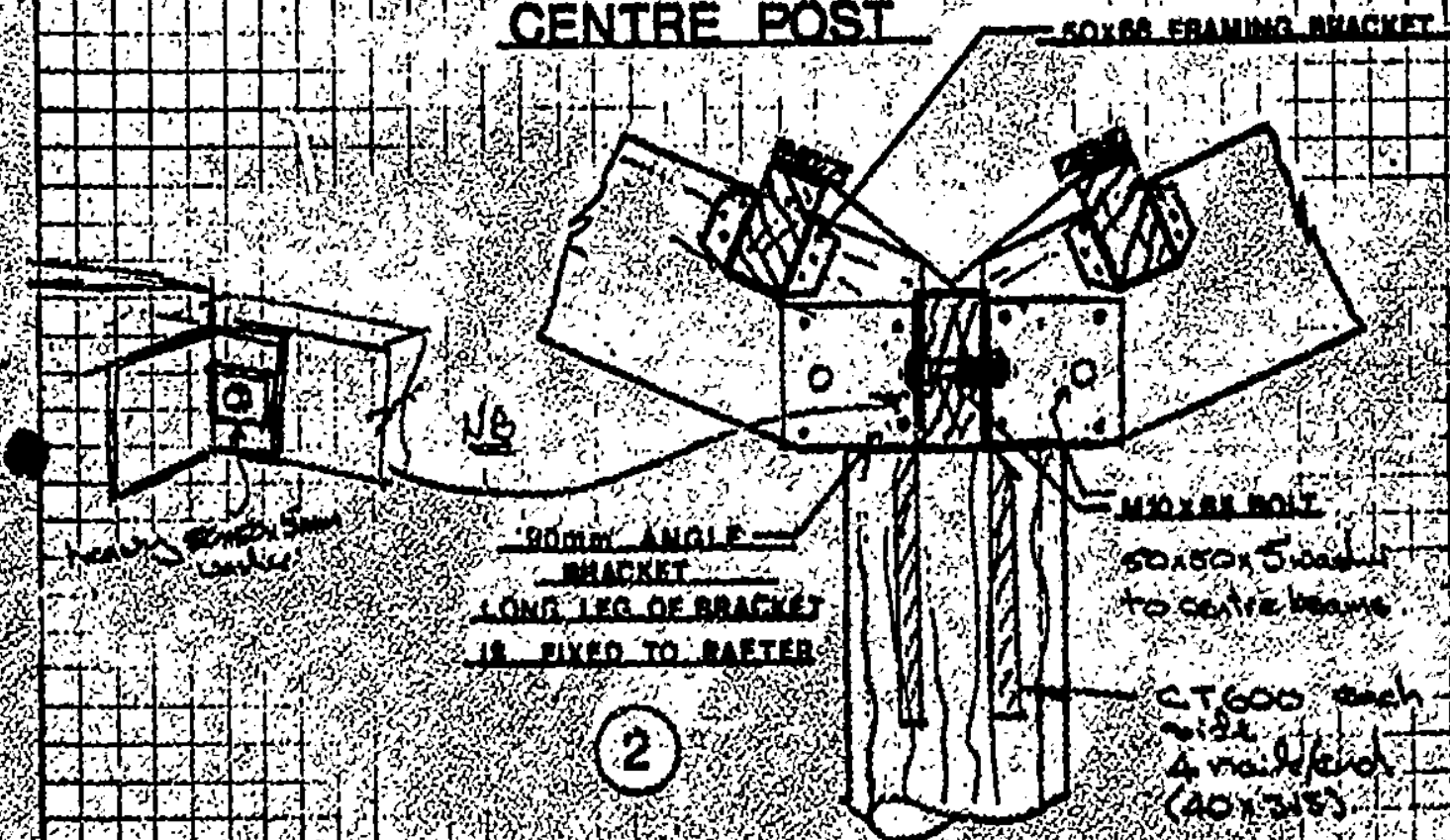


11 David Street
Wellness
Telephone (0663) 4849

Date: _____

By: _____

CENTRE POST



loads

up lift/side = 3.6 kN

Lateral pull = 2.37 kN

15 mm dia
 $P_b = 2.107 \times 10^2 \text{ or } 15.52 \times 107.10$
 $1.5 \times 2.107 = 3.16$

$51.6 \times 10^2 = 147.383 \times 10^2 \text{ or } 15.52 \times 383 \times 10$
 $1.5 \text{ or } 10$

2.37×1.5

$5.52 \times 1.5 = 8.28 > 4.31 \text{ OK}$

2 CT600 OK based on

11 David Street
Wellman
Telephone (0553) 4649

Date: _____

By: _____

Side rails.

$P_{2.16P} = 77 \text{ kN}$

$1760 \text{ N} \leftarrow \square \leftarrow 100 \times 100 \quad Z = \frac{95.95^3}{6} = 143 \quad I = \frac{95.95^3}{12} = 6.78 \times 10^6$

Transverse bending = $\frac{26.23}{8} = 285 \text{ kN/m} \quad r = 2.0 \text{ mm} \quad Q_5$

1 kV pt load $M = \frac{PL}{4} = \frac{1.3}{4} = .75 \quad r = 5.2 \text{ mm OK}$

100x100
105x105

Skin pressure

P = Dam water (1 kPa)



$T_{1.5} = \frac{0.1^2}{8}$
 $\Delta = \frac{0.1^2}{8.5} = \frac{1.63 \times 10^{-2}}{8.5} = 1.9 \text{ kN/m} \quad \text{some } \frac{0.1^2}{8} = 1.0 \text{ kN (biggest load)}$
 $\Delta = \frac{1.9 \times 10^{-2}}{8.5 \times 10} = 17.5 \text{ mm}$

length $35 + 52.5 \text{ mm}$

patch over inflation.

2-way skin pressure
3 hold on corners

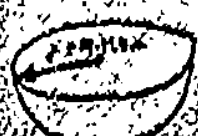
3 way sphere

curvature $2 \times 200 = 2.8$

$M_{1.0} = \frac{1.3 \times 10^{-2}}{8} = \frac{1.3}{8} = .16 \text{ kN/m}$
 $\therefore 456 \text{ kN/m} \approx \frac{1}{2} \text{ of above}$
 much better



$\frac{1.9^2}{8} = (1.100)^2$
 $\frac{1.9^2}{8} = 400$
 $r = 9.125 \text{ mm}$



Fix plastic down with high shear tape on all 4 there

100x100 - OK.

11 David Street

Waikanae

Telephone (0563) 4648

Date:

By:

700.50 Ridge

$$W = \frac{456 \times 10.3}{2} = 2358.6$$


Mid-span moment

$$M = \frac{456 \times 10.3^2}{8} = 608.4 \text{ kNm}$$

708 (single skin)
1308 kNm (double skin)
C = 8.5 up

3.1.1.1

$$S_x = \frac{3}{8} \times 6 = 2.25 \text{ m}$$

(continuously supported)
(on one edge)

700.50 OK

uplift = 2107 P = 2 kN Framing bracket OK

Wind rule

Roof slope 10/12



$$I = 2.25 \times 10^6$$

(from plasticity work)

Wind uplift

Pitch up = 2.23 m² skin

$$P = 2.23 \times 342 = 763 \text{ kN}$$

$$S_x = \frac{763 \times 2.23}{2} = 0.38 \text{ kNm}$$

use clear for this = 9 axes 14m OK

Side sway from skin

P = 456 kN/m (skin lined down)

$$I = \frac{456 \times 10.3^3}{12} = 3.53 \times 10^6$$

$$Z_{max} = 10707 \times 10^3$$



With one strip

$$M = \frac{456 \times 10.3^2}{8} = 608.4 \text{ kNm}$$

$$\Delta = \frac{456 \times 10.3^4}{384 \times 353} = 1 \text{ mm}$$

1 strip OK

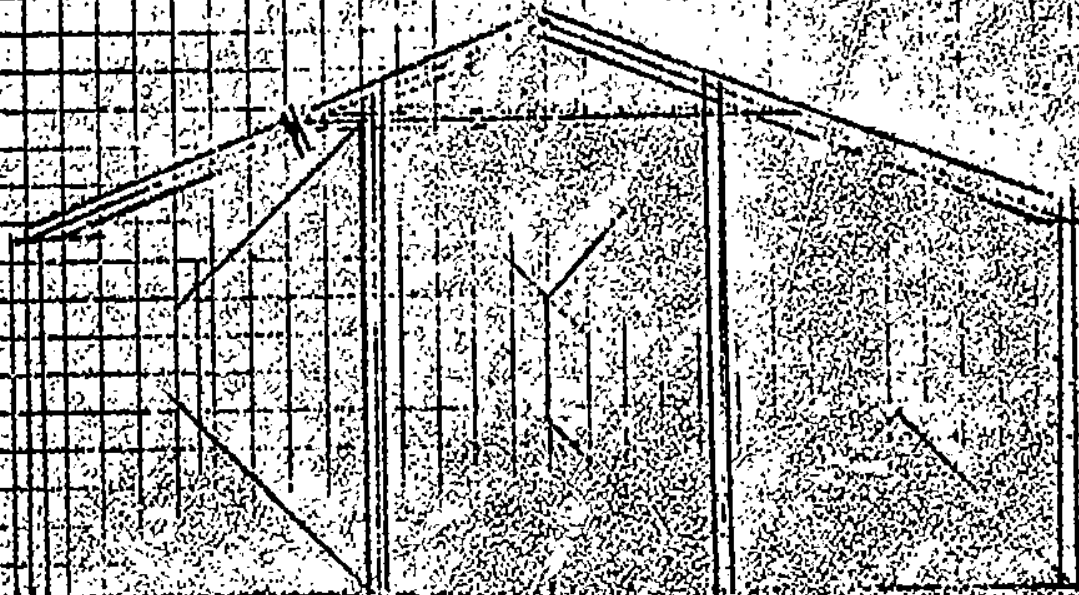
Total uplift = 763 kN. nothing falling down OK

11 David Street
 Wellesbourne
 Telephone (0563) 4840

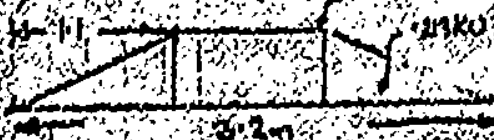
Date: _____

By: _____

End Wall Framing



$$P = 4.8 \times (1.1) \times 363 = 388 \text{ kgm} = 136.905 \text{ kN/m}$$



$$M = \frac{136.905 \times 3.2^2}{8} = 1.00 \text{ kNm}$$

$f = 6.0 \text{ mpm} - \text{OK}$

$$\Delta = \frac{5.705 \times 3.2^4}{384 \times 10^9 \times 0.035} = 18 \text{ mm} \text{ OK}$$



Bay 124/5
 = 1400mm

$$2.100/100 = 2.1\%$$

$$2.1 \times 1167 = 2450 \text{ mm}$$

End Wall (2.0 bay)

$$P = 2.0 \times 388 = 776 \text{ kgm}$$

$$M = \frac{P \times L}{4} = \frac{776 \times 3.2}{4} = 622 \text{ kgm}$$

$$2.75 \times 2.2 = 6.05 \text{ mpm}$$

$f = 7.3 \text{ mpm} - \text{OK}$

125 squared poles OK

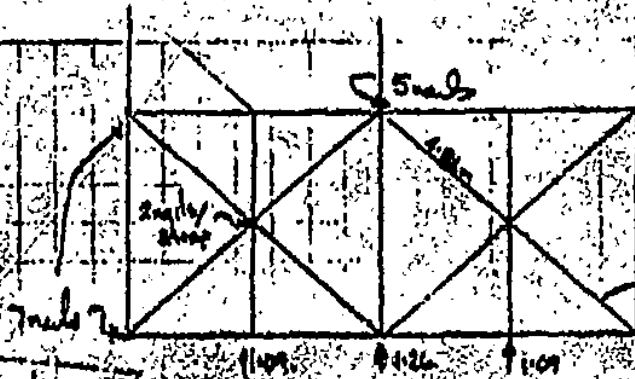


11 David Street
Cape Town
Telephone (0853) 4649

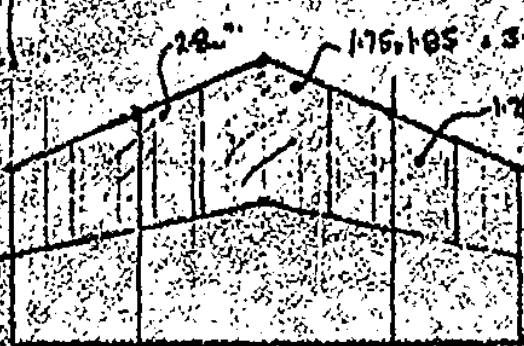
Date: _____

By: _____

Roof Bracing



Standard wall looks



Front Wall with door

Take pick up 125 wall $W = 1.49m$ $h = 2.2m$
 $m = \frac{1}{2} \times 1.49 \times 2.2 = 1.64$ $2 \times 1.64 = 3.28$
 $W = 1.3m$ $h = 2.2m$ $W = 1.3m$ $h = 2.2m$
 $A = \frac{1}{2} \times 1.3 \times 2.2 = 1.43$ $2 \times 1.43 = 2.86$
 $W = 1.3m$ $h = 2.2m$ $W = 1.3m$ $h = 2.2m$
 $A = \frac{1}{2} \times 1.3 \times 2.2 = 1.43$ $2 \times 1.43 = 2.86$

Use 2/75x50 to door jamb
 & brace collar tie back to ridge

11 David Street
Waikanae
Telephone (0633) 4648

Date: _____

By: _____

- 1/ Designed for 40mph "basic" wind speed on sheltered site.
- 2/ All doors & vents closed in high winds.
- 3/ Rafter to be selected to Eng. grade near collar tie connection. Use best rafters for first frame in from each end.
- 4/ Rafter splice 2/145x290 R.
- 5/ Angle bracket but to have 50x50x5 washer through valley beam.

(C) COPYRIGHT 1984, 1985, 1986, 1987:
Engineering Systems

>>> M I C R O S T R A N - 3 D <<<

(Version 3.30 SEP86)

A COMPUTER PROGRAM FOR THE STRUCTURAL ANALYSIS
OF
SPACE FRAMES AND TRUSSES

PROGRAM LICENSED TO:
Neil Climo
Reg. No. 81708

JOB: 700001
DATE: 10 JUL 87 08:30:41

Number of Nodes	7
Number of Members	9
Number of Spring Supports	2
Number of Sections	1
Number of Materials	1
Number of Primary Load Cases	2
Number of Combination Load Cases	0

Main Frame 7000C1 Greenhouse

-- NODE COORDINATES --

NODE	X	Y	Z	RESTRAINT
1	.000	.000	.000	001110
2	.000	2.400	.000	001110
3	1.900	3.200	.000	001110
4	3.500	3.800	.000	001110
5	5.100	3.200	.000	001110
6	7.000	2.400	.000	001110
7	7.000	.000	.000	001110
8	7.000	.800	.000	111110
9	.000	.800	.000	111110

-- SPRING RESTRAINTS --

NODE	COMPONENT	SPRING CONSTANT
8	M2	953.000
9	M2	953.000

-- MEMBER CONNECTIVITY --

MEMBER	NODE A	NODE B	NODE C	PROPERTY	MATERIAL	RELEASES	LENGTH
1	1	2	X	3	2	0000	2.400
2	2	3	Y	1	1	0100	2.062
3	3	4	Y	1	1	0000	1.709
4	4	5	Y	1	1	0000	1.709
5	5	6	Y	1	1	0001	2.062
6	3	5	Y	2	1	0000	3.200
7	5	7	X	3	2	0000	2.400
8	7	8	X	4	3	0000	.800
9	1	9	X	4	3	0000	.800

-- STANDARD SECTIONS --

SECTION	NAME	AXIS / NODE C
1	162x52 rafter	
2	100x50 tie	
3	170 dia pole	
4	conc encasement	

microSTRAN-3D Reg. No. 91708 Neil Cline
Version 3.30 NOV86

Main Frame 7000C1 Greenhouse

PAGE
10 JUL
03:30

-- MEMBER SECTION PROPERTIES --

SECTION	- ix -	- iy -	- iz -	- Ax -	- Ay -	- Az -
1	.000E+00	.000E+00	1.520E-03	7.900E-03	.000E+00	.000E+
2	.000E+00	.000E+00	4.200E-06	5.000E-03	.000E+00	.000E+
3	.000E+00	.000E+00	4.100E-03	2.270E-02	.000E+00	.000E+
4	.000E+00	.000E+00	4.000E-04	7.070E-02	.000E+00	.000E+

-- MATERIAL PROPERTIES --

MATERIAL	- E -	- u -	DENSITY	ALPHA
1	1.000E+07	.0000	.000	.000E+00
2	9.000E+06	.0000	.000	.000E+00
3	2.000E+07	.2700	.000	1.080E-03

MAXIMUM CONDITION NUMBER: 1.187E+02 AT NODE: 2 DDFW

Main Frame 700001 Greenhouse

-- APPLIED STRUCTURE LOADING --

CASE 1: Wind heave no vents

NODAL LOADS

NODE	X FORCE	Y FORCE	Z FORCE	X MOMENT	Y MOMENT	Z MOMENT
2	-.760	.000	.000	.000	.000	.000
4	.000	.000	.000	.000	.000	.000

MEMBER LOADS

MEMB	FORM	T	A	B	F1	X1	F2	X2
2	TRAP	FY	LD	LE	1.026	1.500	1.026	2.050
2	TRAP	FY	LD	LE	.000	.000	1.026	1.500
3	TRAP	FY	LD	LE	1.026	.200	.000	1.700
3	TRAP	FY	LD	LE	1.026	.000	1.026	.200
4	TRAP	FY	LD	LE	1.026	1.500	1.026	1.700
4	TRAP	FY	LD	LE	.000	.000	1.026	1.500
5	TRAP	FY	LD	LE	1.026	.560	.000	2.050
5	TRAP	FY	LD	LE	1.026	.000	1.026	.560

SUM OF APPLIED LOADS (GLOBAL AXES)

FX: -.760 FY: 3.719 FZ: .000

-- NODAL DEFLECTIONS --

CASE 1: Wind heave no vents

NODE	X DISP	Y DISP	Z DISP	X ROTN	Y ROTN	Z ROTN
1	.0041	.0000	.0000	.00000	.00000	-.00328
2	.0355	.0000	.0000	.00000	.00000	-.01891
3	.0179	.0420	.0000	.00000	.00000	.00826
4	.0177	.0430	.0000	.00200	.00000	-.00001
5	.0176	.0419	.0000	.00000	.00000	-.00327
6	.0000	.0000	.0000	.00000	.00000	.00000
7	.0000	.0000	.0000	.00000	.00000	.00000
8	.0000	.0000	.0000	.00000	.00000	.00000
9	.0000	.0000	.0000	.00000	.00000	-.00486

Main Frame 7000C1 Greenhouse

--- MEMBER FORCES ---

CASE 1: Wind heave no vents

POSITIVE FORCES (MEMBER AXES):

Axial -- Tension; Shear -- End A up wrt B
Torque -- Rt hand twist; Moment -- Sagging

MEMB	NODE	AXIAL	SHEAR-Y	SHEAR-Z	TORQUE	MOMENT-Y	MOMENT-Z
1	1	2.861	1.478	.000	.000	.000	3.547
2	2	2.861	1.478	.000	.000	.000	.000
3	3	3.173	1.768	.000	.000	.000	.000
4	4	3.173	.424	.000	.000	.000	-2.657
5	5	8.682	-1.523	.000	.000	.000	-2.450
6	6	8.682	-2.498	.000	.000	.000	1.251
7	7	8.680	2.501	.000	.000	.000	1.251
8	8	8.680	1.526	.000	.000	.000	-2.444
9	9	3.171	-.421	.000	.000	.000	-2.657
10	10	3.171	-1.765	.000	.000	.000	.000
11	11	-5.904	.000	.000	.000	.000	-.211
12	12	-5.904	.000	.000	.000	.000	-.211
13	13	2.858	.000	.000	.000	.000	.000
14	14	2.858	.000	.000	.000	.000	.000
15	15	2.858	.000	.000	.000	.000	.000
16	16	2.858	.000	.000	.000	.000	.000
17	17	2.861	-1.478	.000	.000	.000	3.544
18	18	2.861	-1.478	.000	.000	.000	4.722

--- NODAL REACTIONS ---

CASE 1: Wind heave no vents

(Applied to structure along the Positive Global Axes)

NODE	FORCE X	FORCE Y	FORCE Z	MOMENT X	MOMENT Y	MOMENT Z
6	2.238	.000	.000	.000	.000	.000
8	.000	-2.658	.000	.000	.000	.000
9	-1.478	-2.861	.000	.000	.000	4.722
SUM	.760	-5.719	.000	.000	.000	.000

MAX RESIDUAL: -8.471E-13 AT DOF# 7

Main Frame 700001 Greenhouse

-- APPLIED STRUCTURE LOADING --

CASE 2: Roof heave with vents

NODAL LOADS

NODE	X FORCE	Y FORCE	Z FORCE	X MOMENT	Y MOMENT	Z MOMENT
2	-.760	.000	.000	.000	.000	.000
4	.000	1.040	.000	.000	.000	.000

MEMBER LOADS

MEMB	FORM	T	A	B	F1	X1	F2	X2
2	TRAP	FY	LD	LE	.923	1.350	.590	2.060
2	TRAP	FY	LD	LE	.000	.000	.923	1.350
3	TRAP	FY	LD	LE	.590	.000	.000	.640
3	CONC	FY	LD	LE	1.327	.640		
4	CONC	FY	LD	LE	1.327	1.100		
4	TRAP	FY	LD	LE	.000	1.100	.590	1.700
5	TRAP	FY	LD	LE	.923	.710	.000	2.060
5	TRAP	FY	LD	LE	.590	.000	.923	.710

SUM OF APPLIED LOADS (GLOBAL AXES)

FX: -.764 FY: 6.006 FZ: .000

-- NODAL DEFLECTIONS --

CASE 2: Roof heave with vents

NODE	X DISP	Y DISP	Z DISP	X ROTN	Y ROTN	Z ROTN
1	.0045	.0000	.0000	.00000	.00000	-.00385
2	.0385	.0000	.0000	.00000	.00000	-.01840
3	.0125	.0436	.0000	.00000	.00000	.00941
4	.0193	.0468	.0000	.00000	.00000	.00001
5	.0191	.0487	.0000	.00000	.00000	.00339
6	.0000	.0000	.0000	.00000	.00000	.00000
7	.0000	.0000	.0000	.00000	.00000	.00000
8	.0000	.0000	.0000	.00000	.00000	.00000
9	.0000	.0000	.0000	.00000	.00000	-.00340

Main Frame 7000C1 Greenhouse

MEMBER FORCES

CASE 2: Roof heave with vents

POSITIVE FORCES (MEMBER AXES):

Axial --- Tension; Shear --- End A sags wrt B
Torque --- Rt hand twist; Moment --- Sagging

MEMB	NODE	AXIAL	SHEAR-Y	SHEAR-Z	TORQUE	MOMENT-Y	MOMENT-Z
1	1	2.999	1.608	.000	.000	.000	3.850
	2	2.999	1.608	.000	.000	.000	.000
2	2	3.346	1.845	.000	.000	.000	.000
	3	3.346	.685	.000	.000	.000	-2.874
3	3	9.313	-1.432	.000	.000	.000	-2.628
	4	9.313	-2.948	.000	.000	.000	1.520
	4	9.320	2.929	.000	.000	.000	1.520
	5	9.320	1.425	.000	.000	.000	-2.641
5	5	3.353	-.691	.000	.000	.000	-2.688
	6	3.353	-1.851	.000	.000	.000	.000
6	3	-6.404	.001	.000	.000	.000	-.246
	5	-6.404	.001	.000	.000	.000	-.248
7	5	3.007	.000	.000	.000	.000	.000
	7	3.007	.000	.000	.000	.000	.000
8	7	3.007	.000	.000	.000	.000	.000
	8	3.007	.000	.000	.000	.000	.000
9	1	2.999	-1.608	.000	.000	.000	3.850
	9	2.999	-1.608	.000	.000	.000	5.147

NODAL REACTIONS

CASE 2: Roof heave with vents

(Applied to structure along the Positive Global Axes)

NODE	FORCE X	FORCE Y	FORCE Z	MOMENT X	MOMENT Y	MOMENT Z
6	2.372	.000	.000	.000	.000	.000
8	.000	-3.007	.000	.000	.000	.000
9	-1.608	-2.999	.000	.000	.000	5.147

SUM: .764 -6.006 .000 (all nodes)

MAX RESIDUAL: -2.522E-13 AT DOF# 4

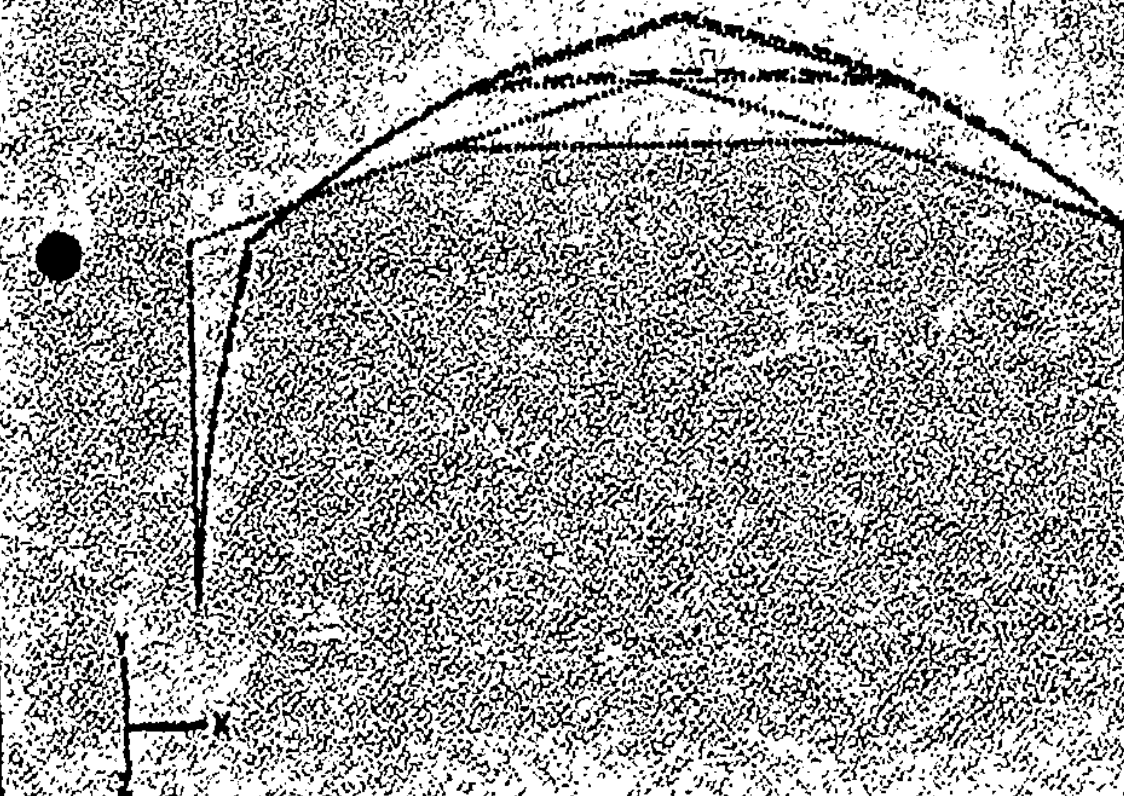
ALCOSTRAN

153

CASE

1

2



5.000 3.1.971E-02

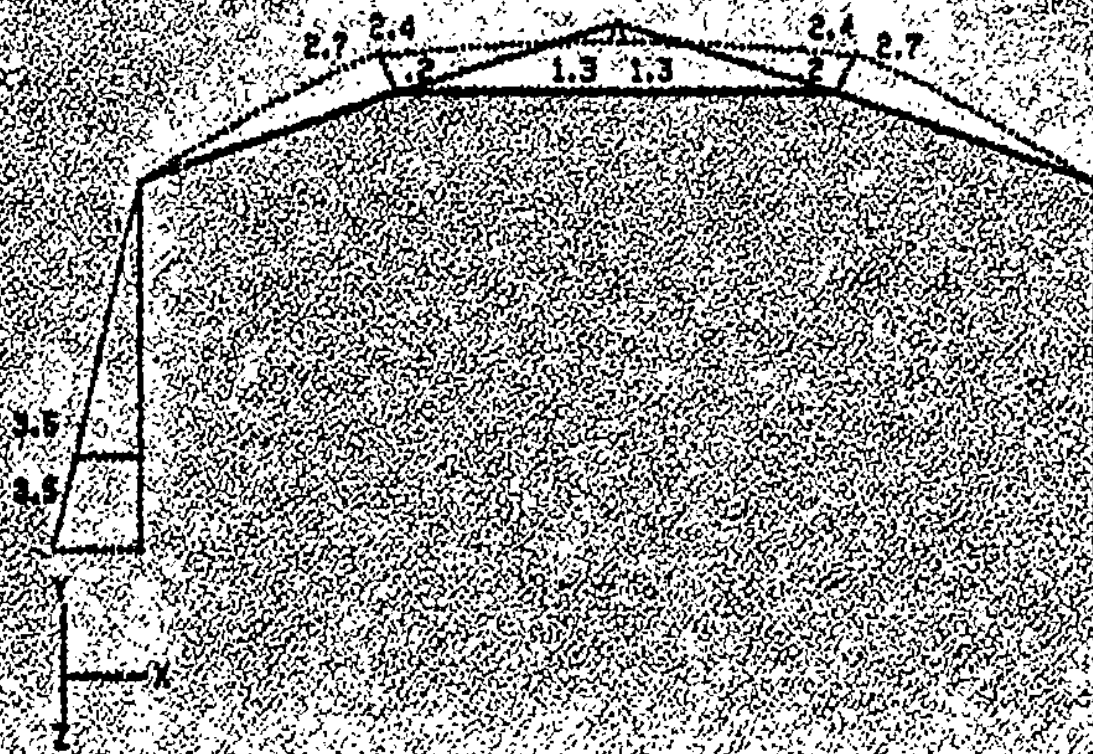
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SHADE

010705ZRRN

ES

05E

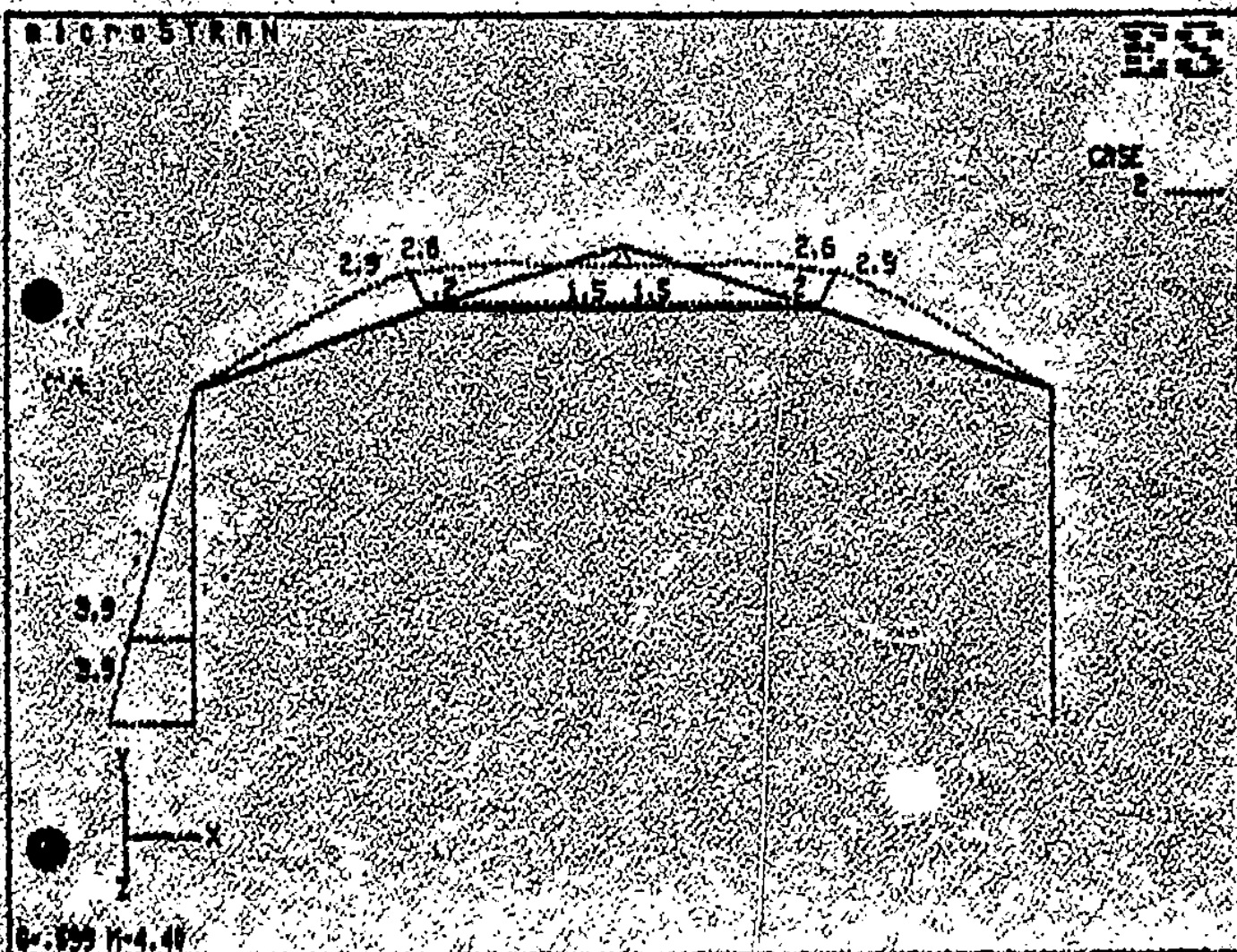


6-695 H-4.48

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BNL

132

1



JOB. 700001 PLOTTED AT 05:23:33 10-JUL-87

REDPATH 7,000 C-I GREENHOUSE

STAGES OF ASSEMBLY

1. Set up profiles with string lines.
2. Stand Posts accurately to string lines.
3. Position Topside Rails and centre Beams.
4. Position End 2 Trusses and Brace Level.
5. Stand remaining Trusses.
6. Fit Ridges.
7. Fit gutter side beams and Galvanised Gutters.
8. Fit ventilation framework, rack and pinion.
9. Cut in end framing.
10. Tape all sharp edges.
11. Skin house and inflate.

PLANS AND
SPECIFICATIONS

APPROVED

SUBJECT TO SUCH
CONDITIONS AS ARE
TO BE ENDORSED ON
OR APPENDED TO
BUILDING PERMIT

SIGNED:

[Signature]

Building Inspector

DATE: 15-3-89

Screws

12x25 steel and aluminium

12x40 timber structure

Small steel pins - not included

NOTE:

VENTILATION HARDWARE IS REQUIRED TO BE FIXED
TO STRUCTURE BEFORE ERECTING

(A) RAFTERS — fix pipe bearings

(B) RIDGES — fix hinges strap brace

(SEE VENT PLAN)

2

INSTRUCTIONS FOR ERECTING OF
REDPATH MULTI-BAY GROWING HOUSES
MODEL T S 7000 C-1

Introduction:

The Redpath Model 7000 C-1 Series Twinskin Greenhouse Kitset are a development from the Model 6000 Twinskin 6.0m arch.

Engineers Report:

These instructions are to be read in conjunction with the Engineers Design Report and drawings.

Tools necessary:

Shovel, Spade, level, two step ladders, plank, saw, hammer, electric drill, hand stapler, Allan Keys, string line.

Position:

Growing house position should be on ground as near level as possible and in a well sheltered area. Good shelter prolongs the life of the plastic and maximises heat savings.

Materials:

All timber is tanalised to C7 standard and painted with two coats of White Acrylic Paint.

Piles, Posts and Ground Door Guides:

Are not supplied with the Kitset, as they can be purchased in most districts at less cost than if they are freighted from the factory. All piles and posts are to be treated to ground retention standard C3, and are to be as specified in the Engineers Report.

Refer to Post set out and specification.

MAIN STRUCTURE

③

(Fit Top Rails and centre beams before erecting trusses)

(NB: 100 x 100 side wall top rails set 75mm outwards of centre line).

COMPONENTS:

Side Wall Top Rails (100 x 100) Set 75mm outwards of centre line
3.000 metres (grooved)

Position rails temporarily with 75mm nails. Fix using 2 CT200 metal ties nailed to rail using 30mm dome head nails and into post using 45mm spiral nails. NB Fully nail ties. Align outside of all beams to a string line positioned down length of house. NB Use CT200 ties on outside of Top Rail only.

Centre Beams (100 x 50) set on centre line
3.000 metres (plain)

Position rails temporarily with 75mm nails, to a string line down length of Greenhouse. Nail fish plates either side of joint on posts.

Trusses (150 x 50) (refer to drawings 74716/2 and 74716/1)

Are forwarded in 3 parts

(a) 2 Rafters - (150 x 50)

(b) 1 Collar tie (100 x 50)

Truss span is 6.950 metres to fit between centre beams and/or side wall top rails. Use 254 x 110 nail plate to locate apex joint and 254 x 76 nail plates to fix collar tie. Set one truss up to specifications and use as a template to assemble remaining trusses.

NB: Check distance between rafters before fixing
Nail plates. (5.950 metres)

End Trusses

Packed separate

~~End Truss Rafters~~ are grooved. Grooves are positioned

to outside of Greenhouse

- NR (a) Outside face of end truss is positioned flush with end of top Rails
- (b) Outside apex nail plate for end truss has been chamfered so as to not be nailed over Lookstrip grooves.

Ridges (100 x 50)

(Rounded edges to top 2.943 metres)

Ridges are fixed between trusses using 50 x 68 framing brackets and 30mm dome head nails. Fix ridge so as to be flush with apex of truss to avoid any sharp edges. Nail Plate across from ridge to ridge using (190 x 38) nail plates, and from ridge to end truss

NE Screw vent hinges 35mm in from end of each ridge before lifting into place.

IMPORTANT The ridge has been cut taking the thickness of the nail plates into account. Ensure ridge is nailed so as to sit hard into truss and over face of nail plate.

End Ridge (100 x 50)

(Rounded edges to top 2.920 metres)

End Ridges have been cut shorter and packed separately. This is to allow for end trusses to fit flush with end of top rails.

End Bracing Purlins

(Rounded edges to top - 100 x 50) 2.920 metres

End bracing Purlins are to be fixed 1.420 metres down from Apex and Flush with bottom of rafter using 50 x 68 framing brackets. Fit strap brace and tensioner (see plan)

NE Fully nail strap brace using 45mm spiral nails to under face of 100 x 100 top rail and under side of ridge at apex and held up from ridge and nail securely.

Centre Bay Brace

⑤

Brace all centre bays of Greenhouse in excess of 27 metres in length. Use bracing purlins as in end bracing. Purlin length 2.943.

Gutter Side Beams (75 x 50)

2.945 metres in length

See separate instruction.

NE It will be necessary to trim end side beams to suit.

Base Rails (100 x 50)

6.000 metres (grooved)

*Steel Type C Fix Base Rail Bracket To Poles using 12x45s
Fix To small A/c using 12x55 steel screws*

Fix base rails to outside face of foundation posts using 100 mm nails 50mm off ground. Rail is supported at midspan by digging in half round post 450mm below ground to finish flush with top of rail.

WIRE BRACING 7,000 CI GREENHOUSE

1. Nail metal bars beside end bracing purlin outside centre of rafter at each end of House and drill through 6mm holes.
2. Loop wire through truss and wind to secure.
3. Hand tension wire and secure to end of strainer and to metal bar at opposite end of Greenhouse.
4. Tension wire lengthways with strainer and staple wire to bottom edge of each truss using large barbed staples.

IMPORTANT

Staple must be hammered in securely to grip wire.

END FRAMING

⑦

(All end framing is required to be nail plated across joints on inside of Greenhouse)

- (a) End Framing is to be fitted flush with outside face of end trusses.
- (b) Trim top of Studs to fit angle of truss at point of contact.
- (c) Fix framing using 75mm nails.
- (d) Position bottom plates. Centralise lintel on plate between opening and level door studs up. Mark and trim to suit.

Components: 75 x 50

Bottom Plates: 2.200 metres grooved

Two lengths to be cut and nailed using 100mm nails to small piles across house.

Door Studs: 3.900 metres (grooved) *Ground Retention (Concrete into Ground) and bolt to Rafter*

Two lengths to site on plate in plumb position and cut in under truss. Use to trim down opening. Distance between door studs is 2000mm.

Centre Studs: 2.900 metres (plain) *check half stud over Base Rail and screw*

Two lengths to site on plate in plumb position and cut in under truss. Positioned between Door stud and End stud.

Jack Studs: 1.300 metre (plain)

Two lengths to be cut to fit between top lintel and truss collar tie. Use small nail plates to fix Jack stud to collar tie and Lintel. DO NOT NAIL OVER LOCKSTRIP GROOVES. 1 per joint

Dwangs: 1.300 (plain)

Four lengths to be cut to fit between all studs in level position. Position halfway between Lintel and bottom plate.

NR: Sliding door track acts as a Dwang when fixed on inside across framing.

Lintel: 2.000 metres (grooved)

Lintel has already been cut to length. Fit between door studs with bottom of Lintel at a height to give doors 25mm of clearance from ground.

Side Wall Vertical End Battens:
90 x 19 (2.300 metres grooved)

At each corner post fix the grooved 90 x 19 batten vertically to take end wall sheet. Pack bottom of batten flush with Base Rail and taper on angle so batten is nailed hard against Post at top. Chamfer top of rail to remove sharp edges.

TO FIT SLIDING DOORS (also doors are powered track)

DOOR TRACKS are supplied in two lengths to be cut and nailed on inside of house flush with top of Lintel and to all studs to act as a Dwang across Greenhouse.

The groove in the timber track is designed to take the H section aluminium guides to be fixed 100mm in from top of door.

NB: Short leg of guide is positioned flush with outside edge of top rail.

Bottom door retainers are not supplied with Kitset but can be made simply by driving lengths of 16mm pipe and leaving sufficient length aboveground as a retainer for door. Slip over a short length of black polythene pipe of a size which will fit loosely and turn as door is moved.

If door is too high above ground, fill gap by fitting a 150 mm x 25mm board between bottom of doorway studs. This can be removed when necessary to allow sash access if two cleats are nailed to each stud, so that the board slides down between the cleats.

COVERING GREENHOUSE

⑨

(All Main Roof Covers require to be immediately inflated. Vent Covers do not)

TIP

A rope positioned midspan down rafter will help support and stop sagging through the duration of fitting the plastic.

LOCKSTRIP

For locking polythene into grooves the Redpath L shaped PVC Lockstrip is used, with retaining clip sprung into place.

NB: Lockstrip clips must be no further than 150mm apart

*** IMPORTANT: The long leg of the Lockstrip goes into the groove and points towards the main body of the sheet being fitted.
NB: Lockstrip clips 150mm maximum apart.
Clips can readily be removed for re-tensioning using tool provided.

FITTING PLASTIC

Ridge Vents (see detail on plans)

Vents are skinned first. In the case of a Single Ridge Vent, lock plastic in Ridge Batten and roll plastic in a tube along length of house and temporarily hold, using cleats of timber taking care not to puncture plastic.

Work through vent and lock roof cover in Ridge Batten. Completely Lockstrip roof cover in all perimeter Lockstrip grooves EG Ridge, Top Rail or Gutter, End trusses, before re-commencing to fix vent plastic.

NB: Allow only minimum plastic for flashing on outside 100 x 100 top rails with all excess pulled up and over Single Ridge vent. This will ensure you do not run out of plastic for vent after first fixing main roof plastic.

END WALLS

Ends are skinned in complete sheet.
Lockstrip in outside perimeter grooves of framing members.
Cut out plastic carefully for door opening

INFLATING POLYTHENE:

⑩

Pump Box

A box is supplied containing a fan fitted with air outlets. Box edge is to be drilled for skew nailing to Lintel. Fit between Jack studs and dwang around using grooved dwangs supplied ensuring to allow clearance for Door stay.

Fitting Air Pipes:

65mm plastic pipe is supplied for air transfer. Main air pipes to pump box are supplied in 1.900metre lengths. Hold open end of pipe to pump outlet and fix using foil tape. Curve pipe upwards and mark where it touches polythene.

Approx. 500mm in from any framing members.

Clean and dry polythene. Apply air pipe flange and using a razor blade cut around hole ensuring NOT TO CUT OUTSIDE POLY SHEET.

Thread open end of pipe carefully through hole, and tie air pipe to a framing member to avoid shaking loose in high winds.

AIR PIPES

(a) Air pipe from Pump boxes are positioned in roof sections either side of ridge. e.g. NOT IN VENTS

(b) Vent air pipes. Air transfer into vent is from Roof section far end of house. Pipe is positioned from roof section under vent upstand close to Ridge. One pipe for single Ridge, Two for Double Ridge.

NB: Pipes must not be positioned too close to a ridge or vent arm as to restrict air flow approx. 200mm in. Tie air pipe to framing member.

(c) End and Side wall pipe. Air is taped from Roof section in either side or end walls.

IMPORTANT Where side wall inflatavent has been fitted air transfer pipes must be positioned down length of side wall at approx 9 metres intervals.

(d) Interconnection air pipes are positioned under gutters to equalize air pressure between air pumps, positioned under gutters at either end of Greenhouse. Nail to underside of gutter beam through pipe using a 100mm nail.

IMPORTANT

We have supplied the required number of air pipes and flanges to suit each internal greenhouse.

In the advent of (a) uneven pressure
(b) excess pressure
(c) Low pressure

Please advise and we will forward the appropriate equipment to stabilize air pressure.

PLASTIC FITTING INSTRUCTIONS

11

Redpath Lockstrip is supplied in short leg and long leg strip.
When using in excess of 300 microns and when fitting shade cloth
use short leg strip.

NB: Customer has been supplied

Long leg

TWIN-SKIN INELATABLE - FIT skins in WARM CALM WEATHER

DO NOT attempt to fit plastic in cold conditions

These instructions are to be read in conjunction with photographs and
the plastic cutting list

NB: Position a rope midspan on all main roof coverings to stop sagging
of plastic while fixing.

FIXING PLASTIC

STEP 1 Cut both plastic sheets to required length allowing 1.000
metre over length. Lay one sheet directly on top of the other
and fold together.

STEP 2 Unroll plastic down length of house over 20 metres in
length. For house in excess of 21 metres work from
centre of house toward each end.

STEP 3 Tension edge of plastic longitudinally along framing members
into which plastic is being locked. e.g. Ridge, Top Rail,
vent upstand. Secure using lockstrip off cuts and clip.
Leave 100mm of excess plastic when plastic is locked to form
a flashing e.g. vent upstand. Pull down and secure plastic
at base of each rafter using an off cut of lockstrip and clip.

STEP 4 Begin in centre of house and work towards each end. Peel
one 2m length of lockstrip with white glide fixer tool
supplied making sure not to move too far ahead of yourself.

NB: **LONG LEG OF LOCKSTRIP POINTS TOWARDS MAIN BODY OF SHEET**
Force lockstrip hard back in place and at 1/3 centres fold
behind with clips. Slide into groove, bend, then snap to