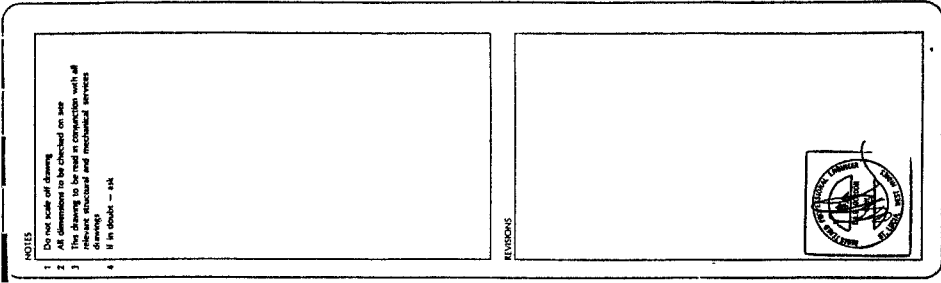


**Appendix B**

**(TVA drawings)**



**NOTES**

1. Do not scale off drawing
2. All dimensions to be checked on site
3. This drawing to be read in conjunction with all relevant structural and mechanical services
4. If in doubt - ask

ELEVATIONS



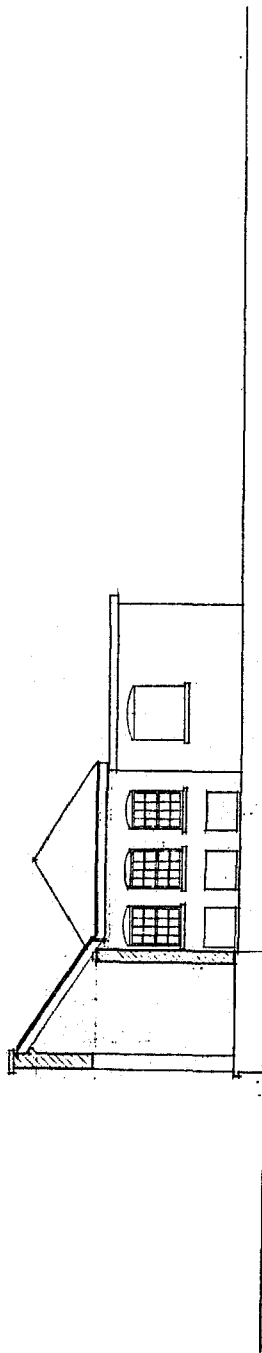
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**PROJECT**  
 OREGON DISASTER MITIGATION AND  
 PREPAREDNESS PROJECT  
**DRAWING**  
 GROUND FLOOR PLAN  
 SCALE: 1/8" = 1'-0" DATE: JUNE 88 DRAWN: J.S.  
 FOR NO. 9702 REVISED: 01

TENDER ONLY



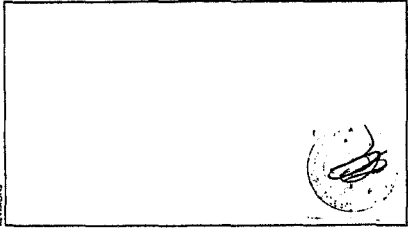


ELEVATION

NOTES

1. Fit on scale off drawing.
2. All dimensions to be checked on site.
3. The drawing to be used in conjunction with all relevant structural and mechanical services drawings.
4. B & G/2021 - 1/11.

STUDIOS



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DRAWING  
 ELEVATIONS

DATE: 1-07 DATE A/S: 92 DRAWN: P.A.S.  
 JOB NO: 9202 DDC NO: 03

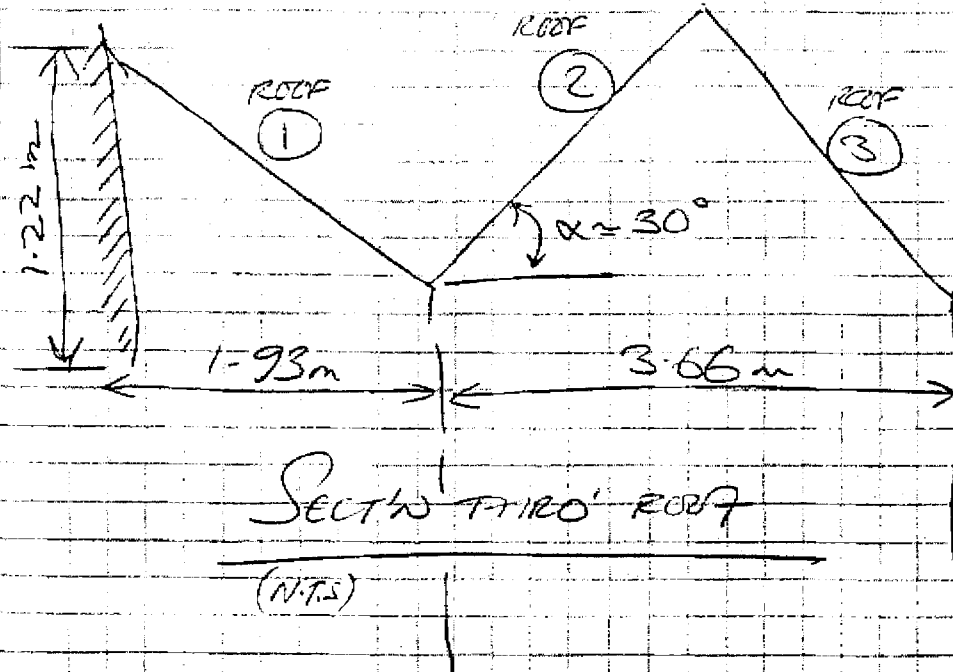
## **Appendix C**

**(CEP calculations)**

Member  
Ref.

CALCULATIONS

OUTPUT



Member  
Ref.

**CALCULATIONS**

**OUTPUT**

USING BAPE WIND CODE:

$V = 58 \text{ m/s}$  (BASIC WIND SPEED)

$S_1 = 1.1$  (EXPOSED SITE)

$S_2$  (BASED ON CLASS A - FIXINGS & CLADDING) = 0.83 FOR STRUCTURES 3m OR LESS IN HEIGHT.

$S_3 = 1.0$  (50 YR RETURN STORM)

$V_s = 1.1 \times 0.83 \times 1.0 \times 58 = 52.95 \text{ m/s}$

$q = kV_s^2$ , WHERE  $k = 0.6128$

$\therefore q = 0.6128 \times 52.95^2 \times 10^{-3} = \underline{\underline{1.718 \text{ kN/m}^2}}$   
(DYNAMIC PRESS)

FOR ULTIMATE DESIGN LOADS, LOAD FACTOR,  $\gamma_f$ ,

FOR WIND = 1.4

$\therefore q_{ULT} = 1.4 \times 1.718 = \underline{\underline{2.41 \text{ kN/m}^2}}$

EXTERNAL PRESSURE COEFFS. ARE MOST CRITICAL FOR WIND AT 60° TO ROOF:-

REGION                      COEFFS FOR EA ROOF AREA

	(1)	(2)	(3)
A	-2.06	-2.06	-0.74
B	-2.33	-2.33	-0.74
C	-2.17	-2.17	"
D	-1.22	-1.22	-0.27
E	-1.03	-1.03	-0.62
F	-0.8	-0.8	-0.27
K	-	-1.25	-1.25
M	-	-0.5	-

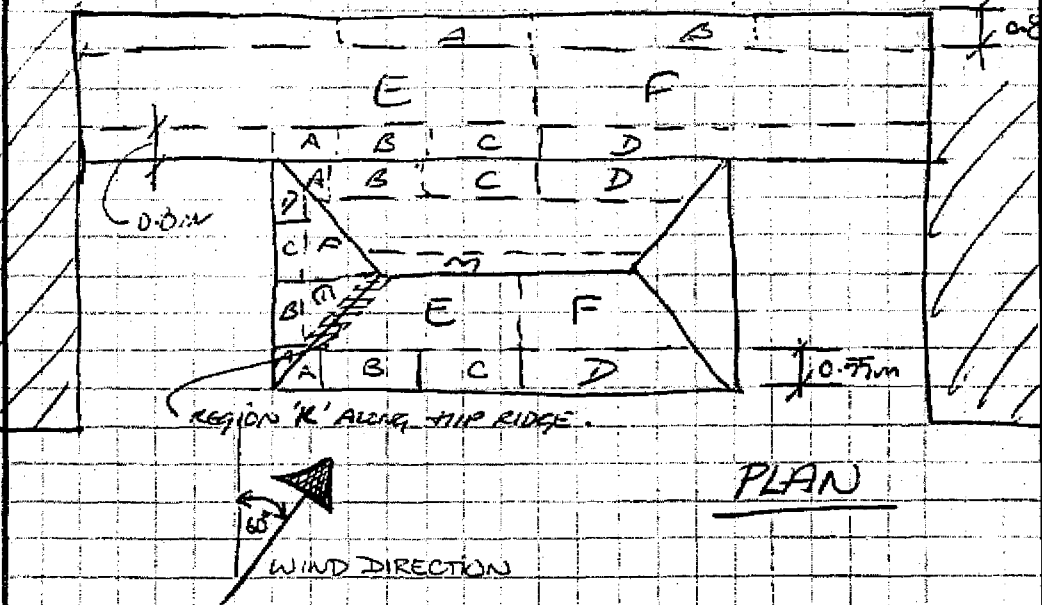
\* N.B. IN CONSIDERING THE WIND AT 60° TO THE BLDG. THE SHELTERING EFFECT OF THE ADJACENT SLIGHTLY TALLER STRUCTURES HAS NOT BEEN CONSIDERED - THIS WILL GIVE

Member  
Ref.

**CALCULATIONS**

**OUTPUT**

WIND DISTCN BY REGION



TAKE  $C_{pi} = 0.2$  (INTERNAL PRESSURE)

RESULTANT PRESSURES ARE ( $kN/m^2$ )

REGION	PRESSURE / SUCTION		
	①	②	③
A	-5.45	S	-2.27
B	-6.10	A	-2.27
C	-5.71	M	-2.27
D	-3.42	A	-1.13
E	-2.96	S	-1.98
F	-2.41	①	-1.13
K	—	↓	-3.49
M	—	-3.49	-3.49
		-1.71	-1.71

WHERE PRESSURE,  $P = q (C_{pe} - C_{pi})$

Member  
Ref.

CALCULATIONS

OUTPUT

From BCC SAFE LOAD TABLES for  
0.5mm (26 gauge) R-PANEL SHEET :-

ALLOWABLE SUCTION  
A' SPACING 3.2 kN/m<sup>2</sup>  
2' SPACING ~ 12 kN/m<sup>2</sup> (EQUIVALENT)

∴ 4 FOOT BATTEN SPACING O.K.  
FOR MIDDLE OF ROOF IN SECTIONS E & F  
& ALL OF ROOF ③

BUT,

2 FT. SPACING REQ'D IN HIGH SUCTION  
AREAS OF ROOFS ① & ②.

Fixings : 40mm S-POINT TIMBER SELF-  
TAPPING SCREWS OR EQUIV.

SAFE PULL-OUT LOAD = 0.67 kN

Max pressure = 6.1 kN/m<sup>2</sup> AT EAVES (2 FT BATTENS)

TOT. LOAD / SHEET (2 FT. SPACING)

$$= (0.61 \times 0.915 \times 6.1) / 0.67 = \underline{5 \text{ FIXINGS}} / \text{SHEET}$$

Max. pressure = 2.96 kN/m<sup>2</sup> AT MID ROOF (4 FT)

~~LOAD~~ FIXINGS REQ'D =  $0.915 \times 1.219 \times 2.96 / 0.67$

$$= \underline{5 \text{ FIXINGS}}$$

Member  
Ref.

**CALCULATIONS**

**OUTPUT**

RAFTERS ARE 2x6 TR. PP.

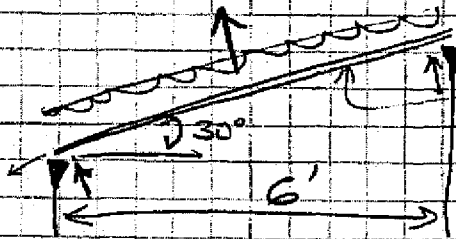
DESIGN PRESS. FOR REGION E W. RESULT. COEFF  
(MAX.) = -1.23

$S_2 = 0.78$

$V_s = 49.76 \text{ m/s} \quad \therefore q = 1.517 \text{ kN/m}^2$

$\therefore q_{int} (C_d = 1.4 W_e) = \underline{2.12 \text{ kN/m}^2}$

$\therefore$  DESIGN SUCTION =  $2.61 \text{ kN/m}^2$  ( $C_{pr} \times q_{int}$ )



$h_r = 6' \tan 30^\circ$   
 $= 6.92' (\sim 2.11 \text{ m})$

$M_{RAFTER} = 2.61 \times 0.61 \times \frac{2.11^2}{8} = \underline{0.89 \text{ kN-m}}$

$V_{RAFTER} = 2.61 \times 0.61 \times 2.11 / 1 = \underline{1.68 \text{ kN} \times 2}$

$\sigma = \frac{M}{I} \quad Z = \frac{bd^2}{6} = \frac{60 \times 150^2}{6} \text{ for } 2 \times 6$   
 $= 187500 \text{ mm}^3$

$\therefore \sigma_b = \frac{0.89 \times 10^6}{187500}$   
 $= 4.75 \text{ N/mm}^2$

$\rightarrow C_{pr}$  1<sup>st</sup> TO 9<sup>th</sup> DIVISION  
 $= \frac{1.68 \times 10^3}{50 \times 150}$   
 $= 0.22 \text{ N/mm}^2$   
 $\ll 2.8 \text{ N/mm}^2$   
 $\therefore$  O.K. COMP  
1<sup>st</sup> TO 9<sup>th</sup> DIVISION

On 2x6 TR. PP. GRADE SCS =  $7.4 \text{ N/mm}^2$  w/o  
APPLY A PROTECTIVE