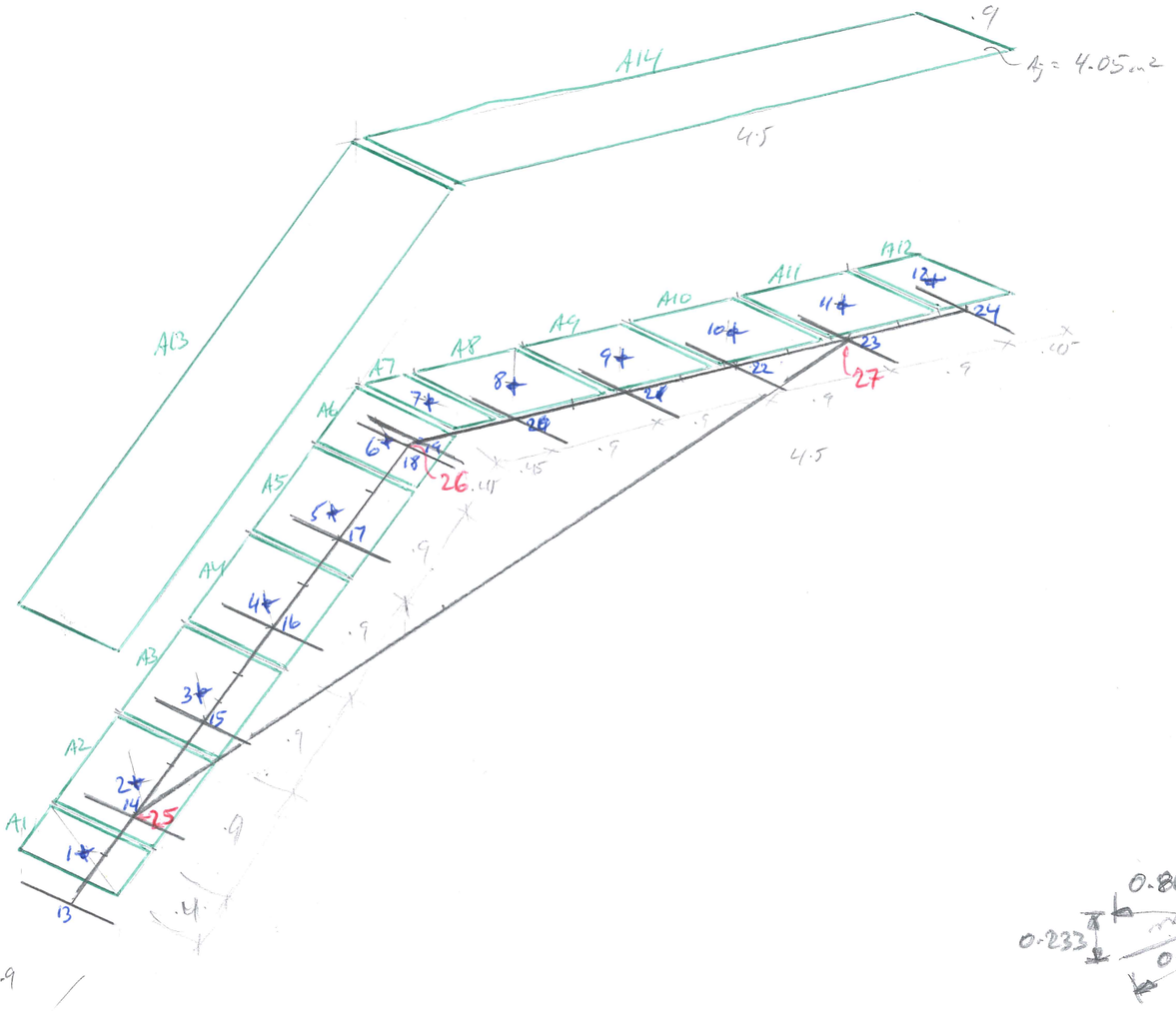
TEST SCENARIO 15



Want rafter to fail first

capacity = 19.5 kN

Load = $Cpe_{ww} \times 0.6 \times V^2 \times 10^{-3} \times 4.05 \times 0.9 \times (0.81)$

$+ Cpe_{dw} \times .6 \times V^2 \times 10^{-3} \times 4.05 \times .9 \times (0.19)$

Sheeting capacity = 4.62 kN

Load = $Cpe \times .6 \times V^2 \times 10^{-3} \times .9^2 \times 1$ $\quad Cpe = -1.5$ ⇒ Say sheeting fails at -1.5

⇒ Cpe str req'd ≥ 1.39

Make Cpe str = 1.5 strength = 15 kN

⇒ Failure wind speed = 67.6 m/s

$$Area\_w = \frac{\Sigma x_i \cdot A_i}{\Sigma A_i}$$

Total roof repair for whole Group 4 home

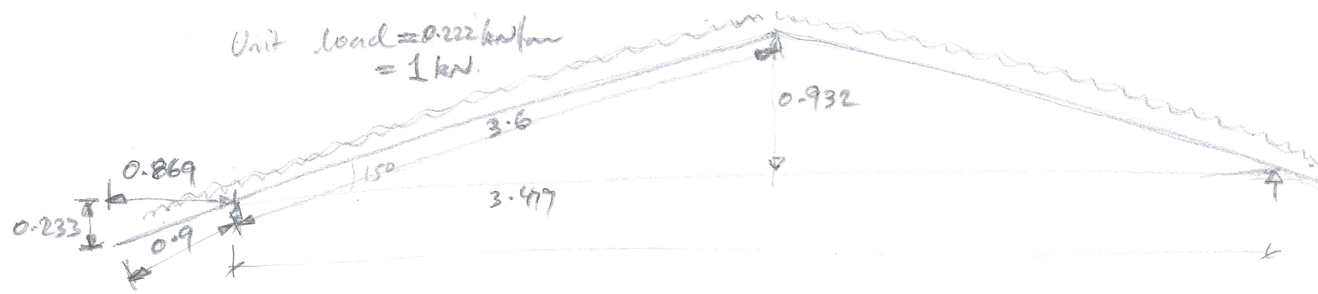
= 116,317 + 8320.97

= 45 092.97

Replacement rate for TS15

$= \frac{0.9}{12.6} \times 45\,092.97$

= 3220.93 $



Unit Force

Force = Cpe . 9z × A × IC.

$0.222 \times \frac{3.6^2}{8} = 0.36$ kN

Ridge connection: V = 0.375 kN N = 0.649 kN

Ceiling joist: V = 0 N = 0.723 kN

Reaction LH = 0.771 kN ↑ RH = 0.194 kN ↑