

Section E (Tile Calculations)

Method 1 "Moment Based Tile Calculations Per RAS 127"

For Moment based tile systems, use Method 1. Compare the values for Mr with the values from Mf. If the Mf values are greater than or equal to the Mr values, for each area of the roof, then the tile attachment method is acceptable.

$$\begin{aligned}
 P1: & \boxed{} \times l \boxed{} = \boxed{} - Mg: \boxed{} = Mr1: \boxed{} \text{ \pounds } \boxed{} \text{ NOA Mf} \\
 P2: & \boxed{} \times l \boxed{} = \boxed{} - Mg: \boxed{} = Mr2: \boxed{} \text{ \pounds } \boxed{} \text{ NOA Mf} \\
 P3: & \boxed{} \times l \boxed{} = \boxed{} - Mg: \boxed{} = Mr3: \boxed{} \text{ \pounds } \boxed{} \text{ NOA Mf}
 \end{aligned}$$

Method 3 "Uplift Based Tile Calculations Per RAS 127"

For Uplift based tile systems use Method 3. Compare the values for F' with the values for Fr. If the F' values are greater than or equal to the Fr values, for each area of the roof, then the tile attachment method is acceptable.

$$\begin{aligned}
 P1: & \boxed{} \times l: \boxed{} = \boxed{} \times w: \boxed{} = \boxed{} - W: \boxed{} = \boxed{} \times \cos q: \boxed{} = Fr1: \boxed{} \text{ \pounds } \boxed{} \text{ NOA F'} \\
 P2: & \boxed{} \times l: \boxed{} = \boxed{} \times w: \boxed{} = \boxed{} - W: \boxed{} = \boxed{} \times \cos q: \boxed{} = Fr2: \boxed{} \text{ \pounds } \boxed{} \text{ NOA F'} \\
 P3: & \boxed{} \times l: \boxed{} = \boxed{} \times w: \boxed{} = \boxed{} - W: \boxed{} = \boxed{} \times \cos q: \boxed{} = Fr3: \boxed{} \text{ \pounds } \boxed{} \text{ NOA F'}
 \end{aligned}$$

Where to Obtain Information to complete tile calculations

Description	Symbol	Where to Find
Design Pressure	P1 or P2 or P3	Table 1 RAS 127, or by an engineer analysis prepared, signed and sealed by a professional engineer based on ASCE 7.
Mean Roof Height	H	Job Site
Roof Slope	q	Job Site
Aerodynamic Multiplier	l	Product Approval (NOA)
Restoring Moment due to Gravity	Mg	Product Approval (NOA)
Attachment Resistance	Mf	Product Approval (NOA)
Required Moment Resistance	Mr	Calculated
Minimum Attachment Resistance	F'	Product Approval (NOA)
Required Uplift Resistance	Fr	Calculated
Average Tile Weight	W	Product Approval (NOA)
Tile Dimensions	l = length w = width	Product Approval (NOA)