



metrotile
LIGHTWEIGHT ROOFING

STRUCTURAL ENGINEERING REPORT 12m SPAN RESIDENTIAL TRUSSES

Client and Property Details

Property Address	N/A - Generic case study
Client Name	Metrotile UK Ltd
Client Address	Unit 3, Sheldon Business Park, Sheldon Corner, Chippenham, Wilts SN14 0RQ
Revision	2.0
Date	17 th September 2012
Report Reference	C120708



Synopsis

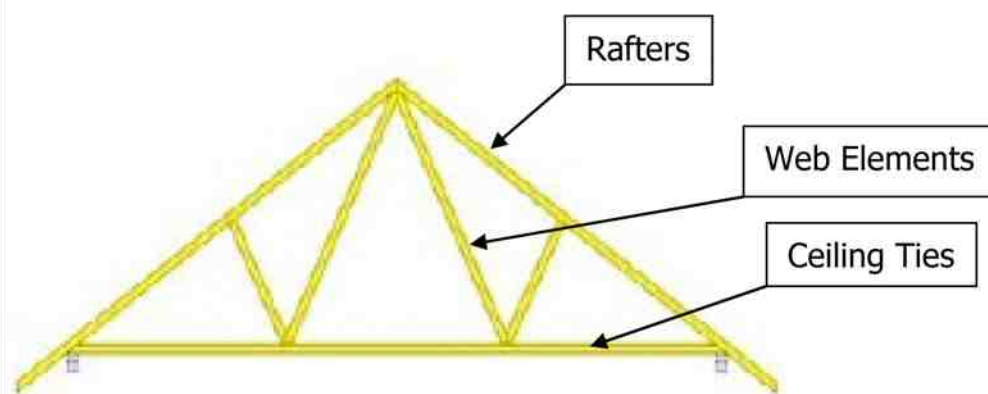
It was found that a weight saving of up to 30% by weight of timber roof trusses can be achieved by the use of light-weight Metrotile roofing as compared to industry standard concrete interlocking tiles when trusses were re-analysed using the reduced loads offered by Metrotile's system.

Brief

Pinnacle was asked on behalf of Metrotile UK Ltd to evaluate the potential weight savings in structural roof elements achieved by the substitution of concrete roof tiles by Metrotile's Lightweight Roofing system.

The case study was carried out for standard 12m span 26.5 degree pitch timber Fink trusses at 600mm centres as commonly encountered in the UK housing industry - see illustration below. The comparison was based on an initial design using concrete roof tiles as per specification tables in the timber British Standard BS 5268 part 3 as commonly used by designers within the industry. Further to this a computer analysis and design was carried out using the reduced loadings of the Metrotile system and the results compared.

Typical domestic truss configuration:



Roof Loadings

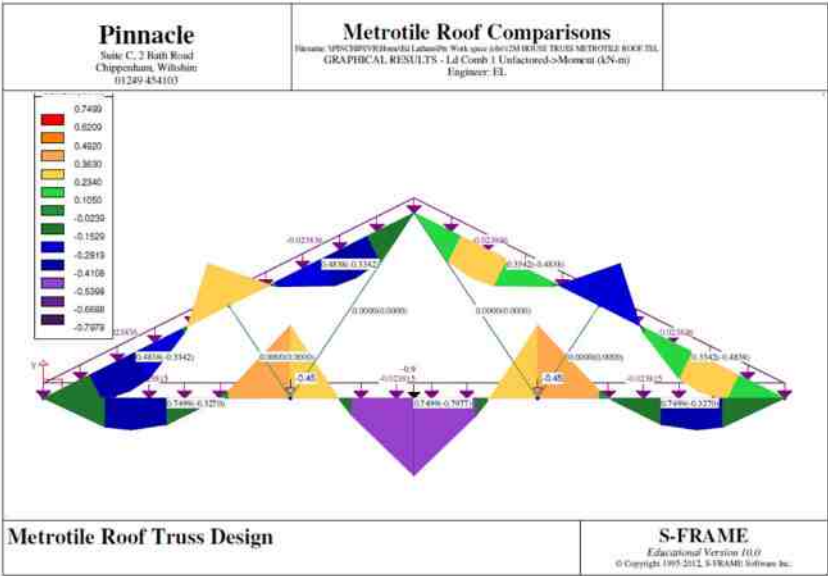
Concrete tiles/timber battens/felt underlay - **0.68 kN/m²**

VS

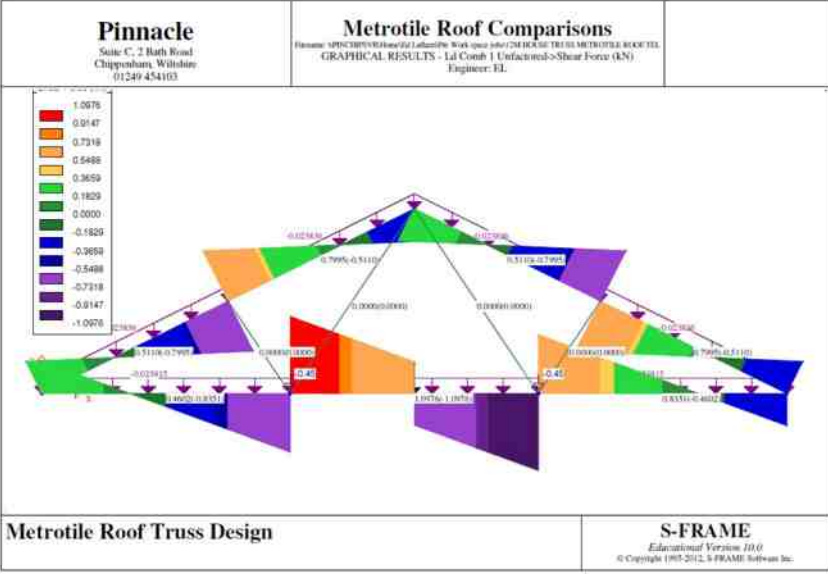
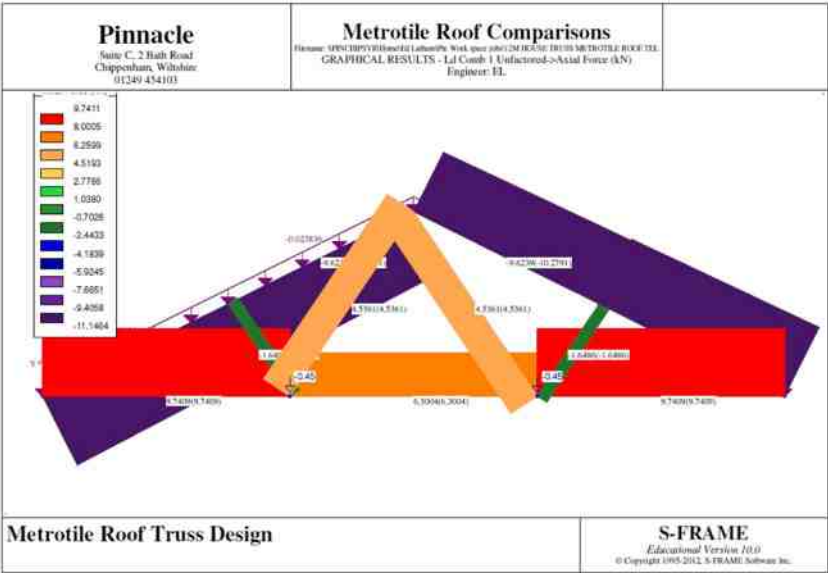
Metrotile 0.45mm tiles/timber battens/felt underlay - **0.11 kN/m²**

All other loads applied in accordance with BS 6399 part 1 and BS 5268 part 3:

Imposed/snow load	0.6 kN/m ²
Water tank allowance (point loads)	2x0.45 kN
Ceiling/insulation	0.25 kN/m ²
Loft accommodation	0.25 kN/m ²
Imposed point load on ceiling chord	0.9 kN



Analysis output from S-Frame software shows bending moments, axial forces and shears in the truss elements.





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