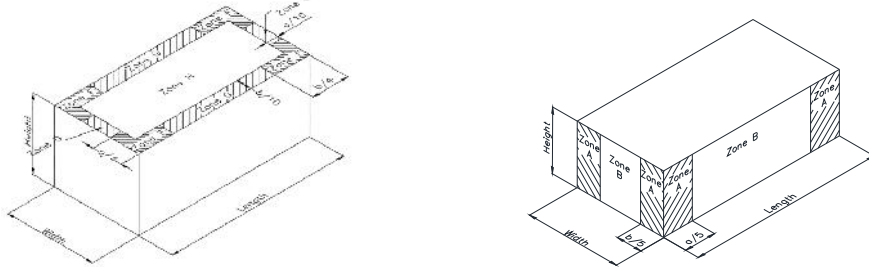


# Design Calculations

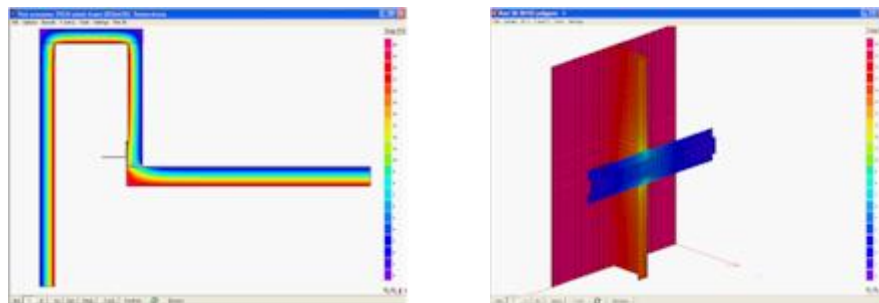
## Wind loading and fixing requirements

Wind load calculations carried out in accordance with the requirements of NA to BS EN 1991-1-4:2005 + A1:2010 the UK National Annex to Eurocode 1 – Actions on structures Part 1-4: Fixings numbers can be calculated for mechanically fixed flat roof systems profiled sheeting & cladding and composite panels.



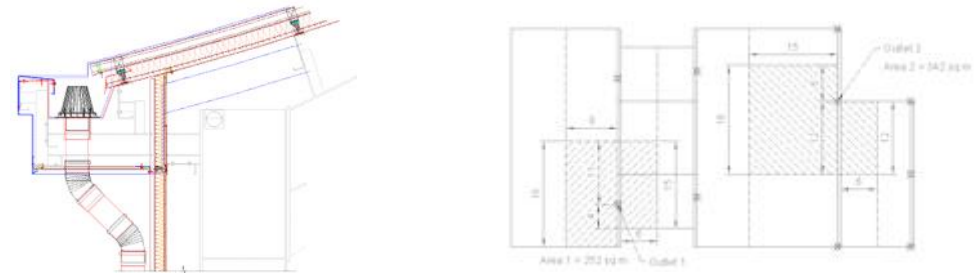
## U value and thermal bridging to comply with Part L

The calculations are been carried out using finite element analysis computer program HEAT2 & Heat 3. These program is fully compatible with BS EN ISO 10211-1:1996 Thermal bridging in building construction - Heat flows and surface temperatures Part 1. General calculation methods and so meets the requirements of Approved document L.



## Roof drainage and gutter design

Drainage calculations are carried out in accordance with the requirements of BS EN 12056 -3:2000 Gravity drainage systems inside buildings - Part 3: Roof drainage layout and calculation for eaves, parapet, valley gutters and flat roofs.



## Condensation risk analysis

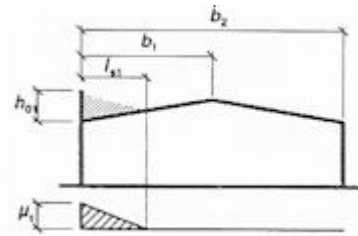
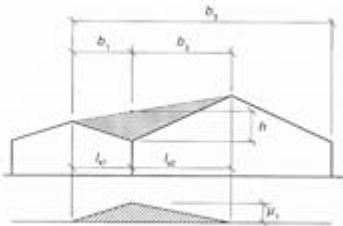
The calculations were carried out using industry recognised software JPA Designer from JPA Technical in accordance with BS 5250:2011 Code of practice for control of condensation in buildings. The equations used are from BS EN ISO 13788:2002 Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation.



# Design Calculations

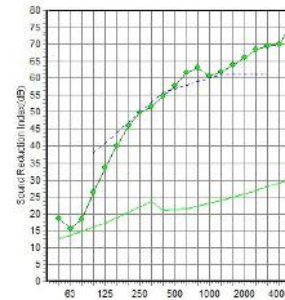
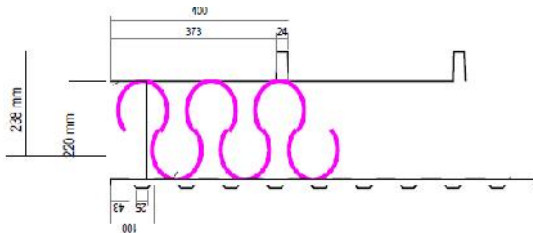
## Snow loading

Snow Load calculations are carried out in accordance with the recommendations of BS EN 1991-1-3:2003 Eurocode 1. Actions on structures. General actions. Snow loads



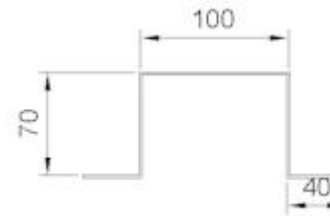
## Acoustic Properties

Using software Insul a program for predicting the sound insulation of walls, floors, roofs, ceilings and windows. Impact sound and rain noise of floors and roof.



## Light gauges steel structural supports rails

Section properties and spans calculated in accordance with BS 5950-5:1998 Code of practice for design of cold formed thin gauge sections.



Property	Value
Area	1000
Second Moment of Area	100000
Radius of Gyration	100
Plastic Modulus	10000
Section Modulus	10000
Centroidal Axis	50
Flange Width	100
Flange Thickness	10
Web Thickness	10
Web Height	70
Overall Height	90
Overall Width	100

All calculations are backed by Professional Indemnity Insurance.

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