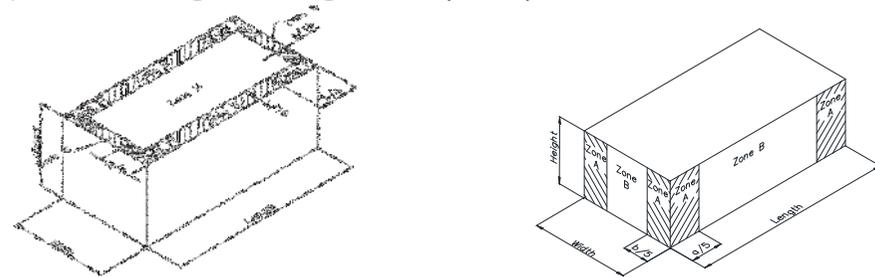


# Design Calculations

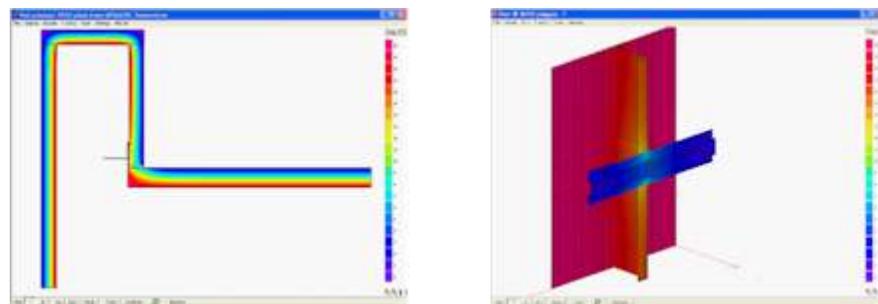
## Wind loading and fixing requirements

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.



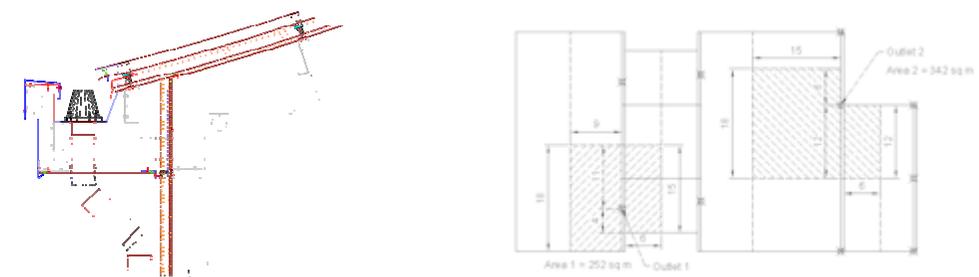
## U value and thermal bridging to comply with Part L

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

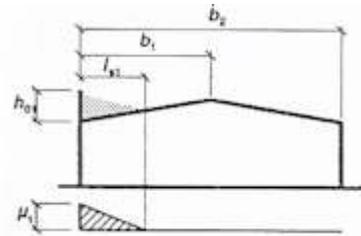
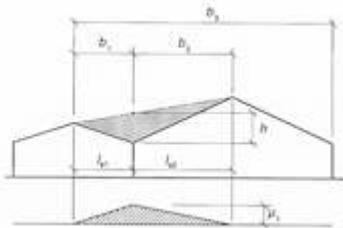
The calculations were carried out using industry recognised software JPA Designer from JPA Technical in accordance with BS 5250:2011 Code of practice for control of condensation in buildings. The equations used are from BS EN ISO 13788:2002 Hygrothermal performance of building components and building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



# Design Calculations

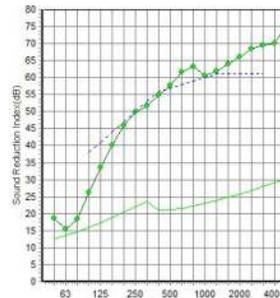
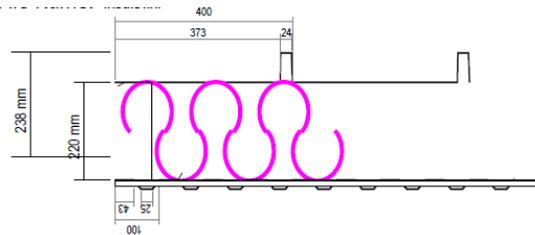
## Snow loading

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



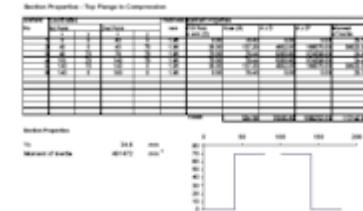
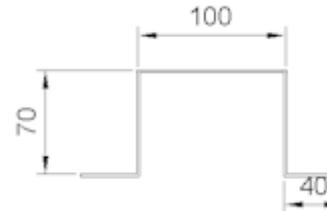
## Acoustic Properties

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.



All calculations are backed by Professional Indemnity Insurance.

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