



Leadsheet in building

# BULLETIN

## FLAT ROOF - Lead sheet goes **Upside down**



The original felt roof had suffered water penetration problems over many years and was converted to a lead sheet upside down roof to test the principle.



## Lead sheet goes **Upside down**

Inverted, or so-called Upside down roofs have long been established for a number of roofing applications. The use of lead sheet on this type of roof is likely to be seen as a new concept. While this may be the case for the United Kingdom, the system has found a growing market in the U.S.A. where it has been used for over 16 years. During this period, the system has been subject to further research and testing in the U.K. via the services of the technical department of the Lead Sheet Association.

Given, lead sheet's known longevity for roofing, offering in many cases a service life of over 100 years, it could therefore offer a viable option providing a life well in excess of that for other roofing membranes. A further benefit of using lead sheet as a membrane becomes evident when environmental and construction sustainability is considered. Lead sheet has the perfect product life cycle as it can be retrieved at the end of the life of the building and simply recycled, reformed and re-installed for further use on new buildings.

## Small Beginnings...

Small areas of roofing often present problems for a number of roofing membranes. Lead sheet offers the long-term option, in that it can be installed relatively quickly, particularly when compared with traditional methods where ventilation of roof voids may have had to be considered, and complex detailing may be required.



## Lead Sheet - The Facts...Why it stands out above other products

- Over 95% of lead sheet product reclaimed at the end of the building's life
- All reclaimed lead sheet recycled into new product without loss of performance
- Recycling involves no solvents and supports environmental strategies
- Recycling (due to lead's low melting point) requires low energy requirements and supports the Kyoto protocol
- All by-products created during re-processing are recycled
- Life cycle analysis shows proven superior environmental profile compared with any suggested substitutes
- Substitutes do not provide the same application performance - fit and forget
- Proven longevity of product application over centuries of use
- Full technical product support





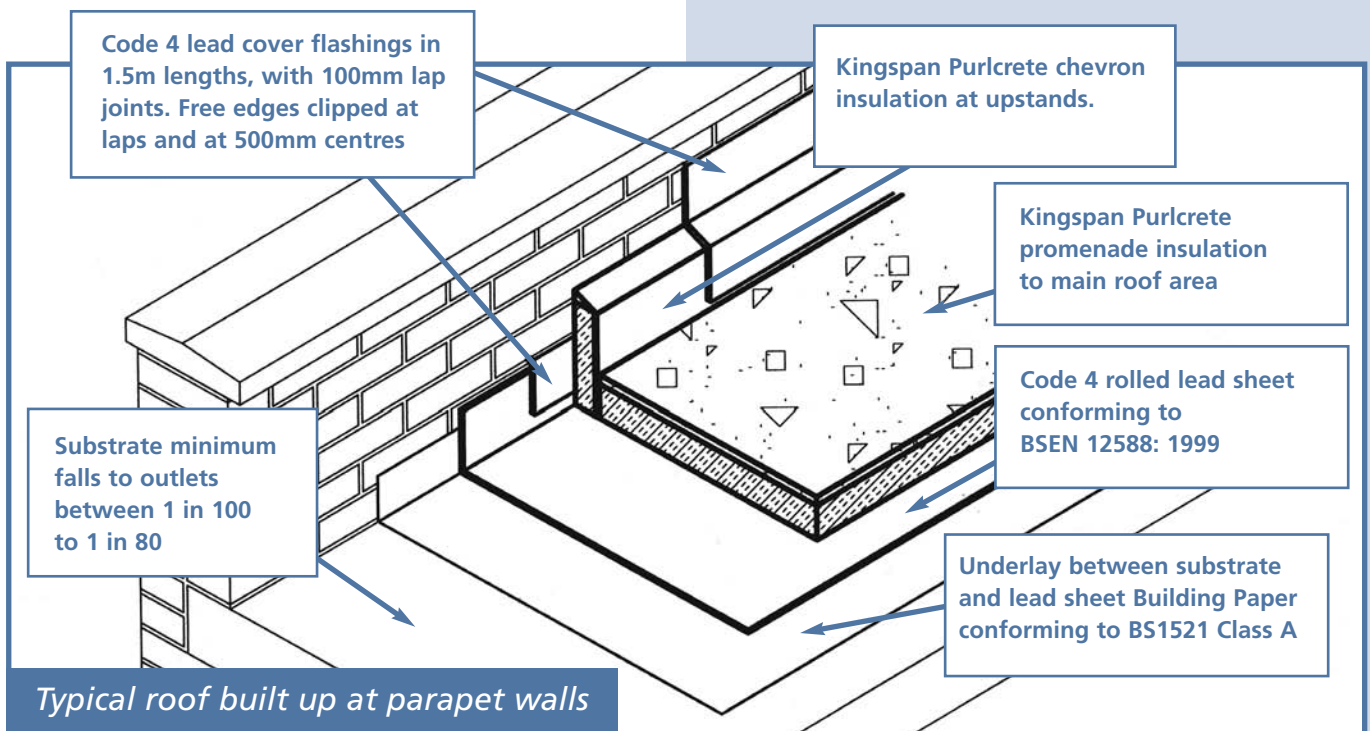
## Maximum areas

There are no maximum limits or areas of lead sheet set for an inverted lead roof system, as the surface temperature of the metal will be controlled by the overlaying insulant. It will be important to ensure that the insulation is laid as the work proceeds to reduce the risk of thermal movement particularly when dealing with large areas and working during the spring and summer periods.



## Type of insulation

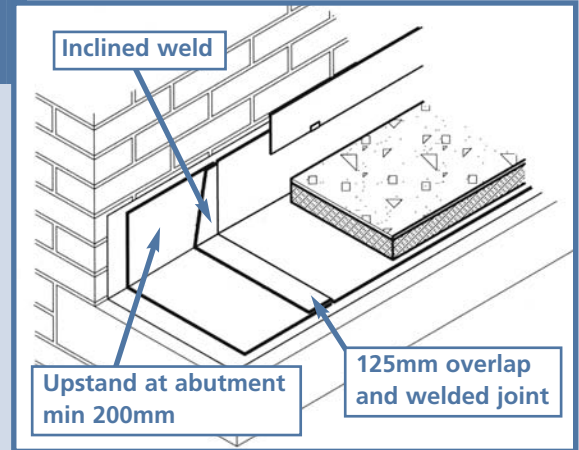
During the test programme it was found that both 600 x 600mm and 1200 x 600mm lightweight interlocking roofing panels with cementitious upper surface and water resistant extruded polystyrene backing were both easy to handle and install in a single operation whilst offering a high thermal insulation value. For guidance on lightweight inverted roof systems, U-Values condensation/dew point calculations please consult the appropriate insulation manufacturer.



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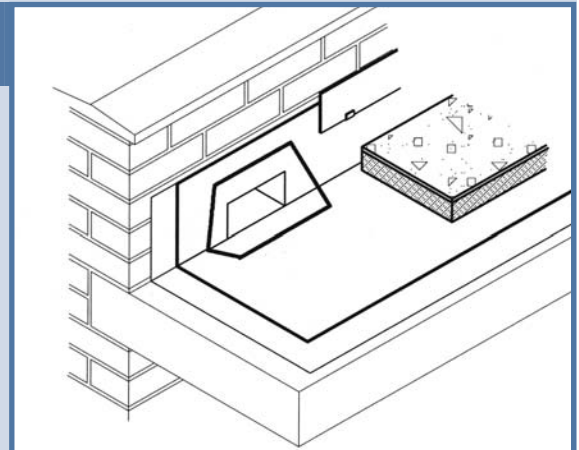
### Joining methods

Unlike the traditional jointing techniques where wood cored rolls and drips are used for forming a roof, simple lap welds between the sheets of lead can be used.



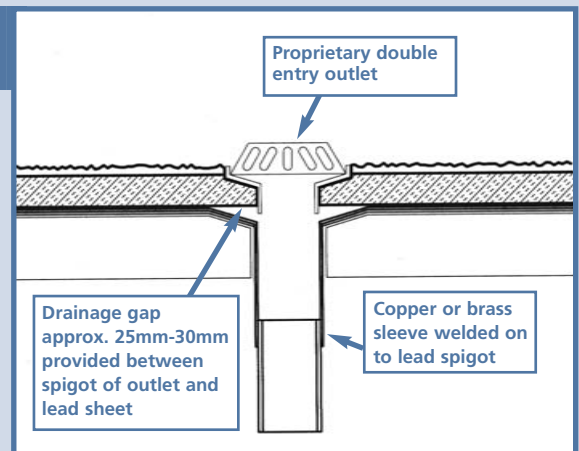
### Chute outlet

Incline and lap weld techniques are utilised to form the details. The soffit of the chute should be above the insulation to help act as an overflow in storm conditions.



### Roof outlet and Pipe Connection

Outlets can be pre-formed and lap welded in position. Insulating around the pipe penetrating the substrate may have to be considered where there may be slight risks from cold bridging.



For more information about the LSA please visit our Website: [www.leadsheetassociation.org.uk](http://www.leadsheetassociation.org.uk)

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## SPECIFICATION CLAUSES

Lead Sheet should be described as:

**Code 4 Lead Sheet** shall comply with the requirements of BS EN 12588:1999 for lead and lead alloys - Rolled lead sheet for building purposes

Weight 20.41 Kg per sq metre

Insulation for flat roof area Kingspan **Purlcrete** promenade should be described as:

The protected membrane roof insulation shall be Kingspan **Purlcrete** promenade comprising \_mm thick extruded polystyrene insulation with 20 mm thick polymer reinforced hydraulic cement facing with exposed aggregate finish, manufactured to BS EN ISO 9002: 1994 by Kingspan Insulation Limited and shall be applied in accordance with the instructions issued by them.

Insulation for upstands Kingspan **Purlcrete** chevron should be described as:

The protected membrane roof insulation shall be Kingspan **Purlcrete** chevron comprising \_mm thick extruded polystyrene insulation with 10 mm thick polymer fibre reinforced hydraulic cement facing with exposed aggregate finish, manufactured to BS EN ISO 9002: 1994 by Kingspan Insulation Limited and shall be applied in accordance with the instructions issued by them.

Underlay should be described as:

**Building Papers** shall comply with Papers conforming to BS 1521 Class A.

## CONTACT DETAILS

For full technical guidance on the use of the insulation and required U-Value for a specific application, the manufacturers of the insulation should be consulted.

### **Kingspan Insulation Technical Services**

Telephone: 0870 850 8333  
Fax: 01544 387278  
Email: [techline.uk@insulation.kingspan.com](mailto:techline.uk@insulation.kingspan.com)

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### **Lead Sheet Association**

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Website: [www.leadsheetassociation.org.uk](http://www.leadsheetassociation.org.uk)

## Members of the Lead Sheet Association

### **British Lead Mills**

Tel: 01707 324595

### **Calder Industrial Materials**

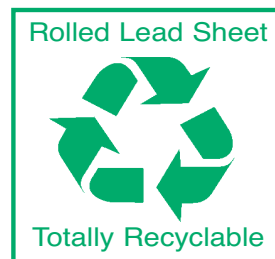
Tel: 0191 482 7350

### **Jamestown Metals Ltd**

Tel: 01543 462088

### **Metal Processors Ltd**

Tel: 00 353 1 457 3240



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