

Lightweight,
Enduring and
Attractive Roof Systems

Flat-to-pitched Roof Conversions

Old flat-roof problems solved quickly, economically, effectively



Forget flat-roof problems

with an attractive, lightweight and durable pitched roof directly over an existing flat roof.



The expensive problems of old flat roofs

■ During the nineteen-fifties and -sixties specifiers all over the world – especially in Britain – abandoned traditional pitched roofs in favour of flat. At the time flat roofs were thought to be both cheaper to construct and more suitable for the pre-fabricated forms of construction widely used at that time. These savings have proved illusory as spiralling maintenance and repair costs now far outweigh the original savings ■

The common causes of flat roof failure

■ Roof failure and poor insulation combine to bring leaks, water-damage and dangerous fungal growth to otherwise sound buildings. The common causes of flat roof failure are easy to identify but harder – and expensive – to fix. They include: ultra-violet degradation of coverings, cracking and splitting due to differential thermal movements in the decking, and blistering often caused by concentrated vapour pressure. Gradual sagging of wood-based elements nullifies the very low falls and causes ponding which only increases the leak problems and, in extreme cases, can lead to roof collapse. Maintenance surveys of an old flat roof, often leading to repairs, should be carried out at least annually. Total replacement is expensive and adding efficient thermal insulation is difficult and costly. The conventional alternative – refurbishment to a pitched form using traditional heavyweight materials – is usually impossible due to building's structural design meant to bear only lightweight felt or mastic asphalt ■

The AHI Roofing solution

■ An AHI Roofing pitched roof is strong and durable, and yet so lightweight it can usually be installed over a flat roof without needing to strengthen the building. It also makes it easy to upgrade the roof insulation. Capable of installation at pitches as low as 12 degrees, AHI Roofing systems allow the architect or specifier to achieve maximum weathertightness while maintaining and enhancing the design integrity of the original building ■

AHI Roofing provides a stylish, modern solution to tired, flat roofs.



From this...



...to this



From this...



...to this



From this...



...to this

Enhance building value and add visual elegance

New tiled porches were added to complete the transformation

■ The enlightened refurbishment of these Hallam maisonettes is a vivid example of what can be achieved with lightweight AHI Roofing.

- The buildings were first reduced to a more human scale by removing the top floor and reducing the overall length.
- The truncated blocks were then re-clad.
- An AHI Roofing system was specified as it could be fitted to the original volumetric structure without expensive strengthening.
- The terracotta-coloured tiles were fitted at a 35 degree pitch to provide visual variety in a neighbourhood of shallower-pitched roofs ■

Maintenance-free street appeal

This pitched roof conversion made a remarkable and immediate improvement to the appearance of these houses as well as eliminating the maintenance problems of the ageing flat roof

- The original roof of these houses in South Wales was a timber construction with rafters supporting 50 mm-thick woodwool slabs and three layers of felt.
- Steelwork was installed over the windows to align with the parapet wall.
- A 100 x 50 mm wall plate was fixed to the steelwork and parapet wall.
- Timber roof trusses were positioned at 1200 mm centres.
- Roof felt was laid over the widely-spaced trusses, supported by rot-proof tape to prevent sagging.
- 50 x 50 mm tile battens were then fixed to the trusses to take the AHI Roofing tiles.
- On the two-story blocks (show here) the charcoal grey tiling was installed with hip ends ■

Substantial savings and longer building life

The new roof has not only refreshed the old building but has permanently solved the weatherproofing and maintenance problems of the old roof

- When they were built these Bison wall-frame flats were roofed with three layers of bituminous felt over a pre-cast concrete deck. Converting them to a pitched roof, using AHI Roofing systems, was simple.
- Steel beams were attached to concrete pads, and wall plates were fixed to the perimeter parapet wall.
- Trusses were then fitted to the beams and wall [5]plates at 1200 mm centres resulting in substantial cost savings.
- Roofing felt, supported by polypropylene tape, was fitted to the trusses. 50 x 50 mm timber battens were then installed to carry the lightweight AHI Roofing tiles.
- Ventilation tiles were fitted to provide ventilation to BS 5250 ■

An AHI pitched roof conversion

goes directly over the existing flat roof.

Light weight construction means residents are unaffected by the work and can remain in occupation

■ AHI Roofing tiles weigh only one seventh the weight of concrete tiles which means a pitched roof can, in most case, be installed directly over an existing flat roof with trusses positioned to suit the required design and located at up to 1200 mm centres. The dry-fix system is quick and clean meaning the roof can be rapidly completed, even in bad weather. And the building's tenants can remain in residence throughout the construction and installation process ■



■ The difference a pitched roof can make to any flat-roof refurbishment is exemplified in this photo. The flat-roofed block of flats in the foreground will receive the same pitch roof conversion as its newly refurbished neighbour.

- A wall plate was first installed over the windows.
- 150 mm of insulation was laid over the existing roof.
- Rafters were fixed at 450 mm centres to a four-hip 30 degree pitch design.
- 40 x 25 mm tile battens were fixed in place on the rafters.
- AHI Roofing tiles, in charcoal grey, were then secured to the battens with fixing nails ■



AHI Roofing at a glance...

- Lightweight and strong.
- Can be installed on to steel or timber battens.
- Easily installed on a simple frame or structure.
- Engineered to be safe in strong winds.
- Variety of colours and textures.
- Tile, Shake or Shingle profiles.



AHI ROOFING SYSTEMS. THE SIMPLE SOLUTION.

AHI Roofing is the world leader in the development, manufacture and marketing of stone-coated steel roofing materials which provide safety, security and peace of mind in the most extreme environments and weather conditions.

ENDURING ROOF SYSTEMS. Crafted in nature's image. Manufactured to the highest international standards.

AHI Roofing is registered to ISO 9001 which recognises the quality management systems standards now accepted in more than one hundred and fifty countries. This certification recognises the commitment of AHI Roofing to quality, productivity, cost competitiveness and customer satisfaction.

TESTED AND PROVEN.

AHI Roofing systems have been tested and proven under a wide range of extreme natural conditions. Copies of test reports and appraisals are available from your AHI Roofing distributor.



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