

# GREEN COPPER

In the last issue of Copper Forum [24/2008] architect Chris Hodson reported on sustainability considerations for building construction in the UK. Since then, there has been a rush of developments which impact on the environmental credentials of copper in architecture, with important lessons for other countries as well.

**T**he long awaited BRE (Building Research Establishment) Green Guide to Specification has now been launched in the UK. Although discussions will continue between the copper industry and BRE to resolve some issues, the Guide provides independent endorsement of the low environmental impact of both copper roofing and cladding. The Green Guide is a new, on-line tool – available at [www.thegreenguide.org.uk](http://www.thegreenguide.org.uk) - providing architects with straightforward and independent guidance on making the best environmental choices for building materials. It looks at specifications for complete building elements, including structure, insulation, weatherproofing and internal finishes - not individual materials. It then rates a wide range of these elements from 'A+' for best environmental performance to 'E' for the worst, using Life Cycle Analysis (LCA) techniques.

## COPPER RATED

The copper industry has been working alongside BRE for some time, providing the most popular copper-based roofing and walling specifications for consideration in the Guide, together with the most current LCA data. All the copper-finished roofs and most copper wall cladding specifications achieved the best 'A+' or 'A' summary ratings. Even the few cladding specifications with lower ratings could easily be improved by replac-

ing particular components – but not the copper cladding itself - with more sustainable alternatives, something that the copper industry is still exploring with BRE.

Apart from providing architects with useful guidance when selecting materials, Guide ratings form an important component of other environmental assessment tools such as BREEAM 2008 and the Code for Sustainable Homes. BREEAM is the Building Research Establishment's Environmental Assessment Method, a widely used environmental assessment method for buildings in the UK and other countries, with the new version taking effect from August 2008. Various versions of BREEAM 2008 have been created to suit common building types – such as healthcare, schools, industrial, offices, retail, law courts and prisons - as well as a bespoke version for others types of building. With BREEAM 2008, credits are awarded in nine categories according to performance and added together to produce a single overall score on a scale ranging from 'Pass' to the newly added 'Outstanding' category.

## SUSTAINABLE HOMES

A similar approach is also taken with the Code for Sustainable Homes, which replaces BREEAM Ecohomes. Homes are rated from Code Level 1 – “above regulatory standards” to the highest Level 6,





an “aspirational standard based on zero carbon emissions for the dwelling and high performance across all environmental categories”. The British government has confirmed that it is mandatory for all new homes to have a rating against the Code and it is also expected that national building regulations across the UK will one day require new housing to achieve specific Levels.

For use of materials, both BREEAM 2008 and the Code for Sustainable Homes include ‘credits’ directly related to BRE Green Guide ratings for key elements such as external walls and roofs. These credits range from 3 for an A+ Guide rating to 0.25 for D and none for E ratings. So, we can see that selecting constructions made up of environmentally sound materials has a direct influence on the sustainability assessment of buildings. And in future, this in turn will determine whether or not the building complies with UK law.

### THE GREEN HOUSE

However, it is still early days for the Code for Sustainable Homes and there are few examples achieving the higher Levels built yet. But on one new house achieving the highest ‘Level 6’, copper cladding helps demonstrate that there is no reason why meeting the highest sustainability standards should stifle architectural design. Opened in May this year, Green

House is the first home by a “volume” house-builder to achieve Code Level 6. Designed by Gaunt Francis Architects, it aims to make sustainable housing mainstream and is designed as a test bed for Code-compliant materials, technologies, systems and strategies - with potential for mass production in mind. This prototype building will be rigorously tested over the next two years to assess its design, construction and materials. Green House achieved an overall score of 15 Code credits for its key materials.

Copper was chosen by the architects for its special architectural cladding qualities to contrast with white rendered walls, alongside its sound environmental credentials. The three-storey, three-bedroom family home was specifically designed to look more conventional than its neighbouring projects at the BRE Innovation Park - comprising the most progressive, experimental, sustainable homes in Europe. Green House has proved very popular with consumers as well, winning the 2007 Home for the Future competition with 22,000 readers of a national newspaper voting for it.

By Chris Hodson