MARLEY ROOFING

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Green guide to roofing

Marley Roofing's environmental policies and practices

Going green is a major commitment that Marley Roofing has already made.

We've already invested time, effort and money into our commitment. This brochure tells you more and could help you to be greener too.

Contents

Sustainability is the key

Idealists are not the only ones pursuing sound environmental practices.

Marley's approach is both practical and effective.

The issues of global warming, climate change and their effect on our environment are becoming increasingly more important throughout the construction industry. Government legislation is becoming stringent and public opinion is becoming more vocal in its demands for companies to be environmentally responsible.

At Marley Roofing we recognised these trends many years ago and have been at the forefront of this important environmental debate. We recognised the need to move toward environmentally friendly manufacturing and working processes in the 1990s. And, ever since, we've taken practical steps that help us and others in the industry to be as environmentally responsible as possible.

Our aim is to help others – our customers and suppliers – to put environmental best practice at the top of the agenda. We already have an outstanding track record of success in the field. Marley Roofing was the first in the roofing industry to have our LCA (Life Cycle Assessment) data reviewed, to be awarded certified Environmental Profiles by BRE (Building Research Establishment) certification, and to be awarded ISO 14001 – the internationally recognised standard for environmental management systems. Every Marley Roofing site in the UK is constantly assessed and training needs for staff are identified and met. Manufacturing processes are constantly reviewed to minimise their environmental impact and, each year, we actively look for ways to improve our procedures even further.

Adopting best practice

The driving force behind our environmental practices is the need for sustainable use of natural resources. 'Sustainability' is more than the latest buzzword, used by environmentalists. It makes sound business sense.

The official definition, by the United Nations World Commission on the Environment and Development says:

"sustainability is that which meets the needs of the present without compromising the ability of future generations to meet their own needs."

Marley Roofing is leading the way by taking practical steps to turn 'sustainability' into an everyday part of our working life.

Here are just some of the measures we've adopted:

Reducing waste. Wherever possible, all our sites recycle waste rather than send it to landfill. We've even installed waste-to-energy power plants at two of our factories, converting all sorts of waste – from cement bags to irreparably damaged timber pallets – to heat. And, at the end of their life, Marley Roofing tiles and slates can be recycled and used as aggregate in other concrete products.

Saving energy. As well as producing energy from waste, we're always aiming to reduce the overall amount of energy our factories consume. Electricity, gas, oil and water consumption is measured and compared across our factories. The monthly data helps us to identify where improvements can be made. On one site, we even use methane produced by a local landfill to generate heat that cures tiles and warms the workplace.

Cutting pollution. Marley Roofing's products provide no direct risk of pollution to either the air or water. Stable and inert waste products can either be recycled or – where that's not possible –used as bulk material for landscaping etc.

On the roads, our transport division uses eco-friendly, low-emission and fuel-efficient trucks that are regularly serviced. We also make sure that there's a return load for every trip, where possible, to optimise vehicle usage.

We carry out supplier appraisals to make sure that our supply chain is as environmentally responsible as possible.

Our environmental policy

The Board is firmly committed to meeting our customer requirements with regard to the quality of our products and services, whilst recognising the impact that our business activities can have on the environment. We therefore manage all of our activities to minimise this impact by adopting good sustainable practice.

In developing its business, products and services, the company will aim to:

- Comply promptly with all applicable laws, regulations and standards concerning the environment and quality.
- Develop operational procedures and manufacturing processes to minimise pollution risks to the environment and to improve the quality of its products and services.
- Take positive action to reduce the waste generated by the company's activities and encourage energy conservation, recycling and re-use.
- Provide the necessary training and support to employees to enable them to maximise their contribution towards product/service quality and protection of the environment.
- Encourage suppliers, contractors and customers to share in our aims to promote excellence in Quality and Environmental Management.
- Consider the needs and expectations of all customers and other interested parties.

The management at each site is responsible for setting objectives and targets and implementing improvement programmes, in line with this Policy.

The Quality and Environmental Department will:

- Monitor the progress with respect to the Company's objectives and targets and compliance with this Policy.
- Assist in establishing improvement programmes for the business.
- Provide regular feedback to the Board on the effectiveness of the Quality and Environmental Management Systems.

The Board recognises the benefits of continual improvement in its product/service quality and its environmental performance, taking into account technological and financial constraints.

The Company will continue to manage its Quality and Environmental Management Systems to meet the requirements of ISO 9001 and ISO 14001.

Measuring success

A number of standards have now been accepted as measures of environmental performance. Marley Roofing can help you to meet them.

Saying you're green is one thing. Proving it is another. At Marley Roofing, we were among the first in the industry to earn official accreditation for our environmental policies and procedures.

Notable 'firsts' include our internationally recognised ISO 14001 award for environmental management systems. We were also the first in the construction industry to have our LCA (Life Cycle Assessment) data independently reviewed and to be awarded certified Environmental Profiles by BRE (Building Research Establishment) Certification.

Environmental Profiles

For many years, the BRE, through its Centre for Sustainable Construction, has been encouraging the use of LCA to allow architects, builders and clients to make informed environmental comparisons between construction products. LCA is an assessment method that measures the environmental impact of a product by assessing the energy and materials used and released to the environment over it's full life cycle, from cradle to grave. LCA results are presented in the form of an Environmental Profile.

Embodied Energy

The total energy used in the manufacture of a product is called embodied energy. As different manufacturing processes use different mixes of fuel and electricity and different types of energy have different environmental impacts, embodied energy is not always a good measure of overall environmental impact.

Many products with minimal energy use in their production (e.g. natural slate) can still have a considerable impact in terms of mineral extraction, waste generation and water usage, resulting in a more detrimental environmental impact.

Ecopoints

To improve the usefulness of environmental data and to make it easier to understand, BRE has developed an Ecopoint rating, which is based on weighting 13 environmental issues. This involves a method of ranking and scoring different environmental impacts and is set to become the standard measure of any building material's 'greenness'. By comparing Ecopoint scores informed environmental comparisons can be made between construction products. Ecopoints allow a wide range of environmental impacts (e.g. energy use and mineral extraction) to be compared using the same measure. The lower the Ecopoints score, the lower the environmental impact. As a benchmark, it has been determined that 100 Ecopoints are equal to the impact of one UK citizen on the environment for one year. A single Ecopoint would be equivalent to, say, water for 1000 baths or the manufacture of 250 bricks.

Putting Ecopoints in context

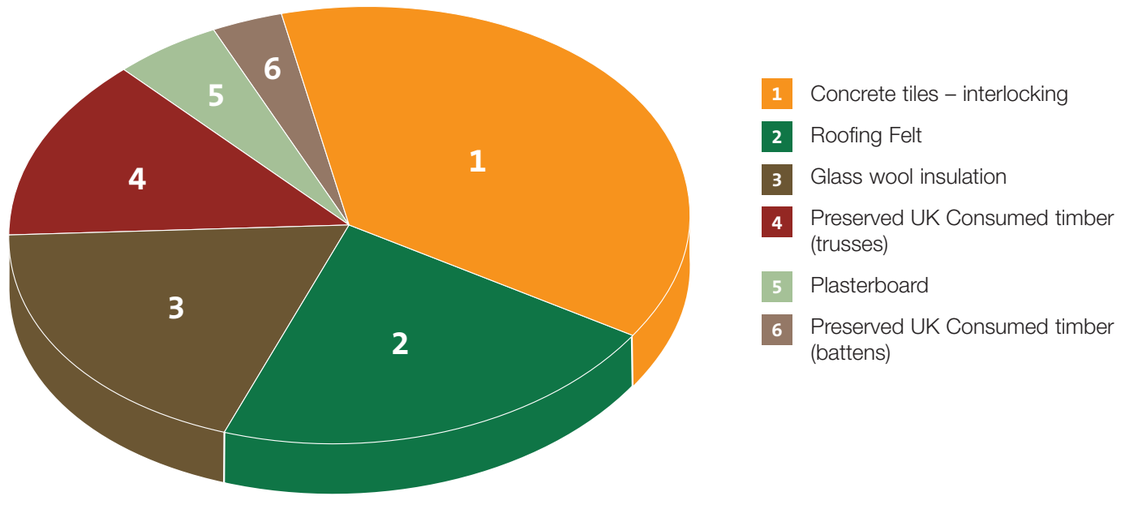
At its simplest level, the profiling method can assess the impact of a single building product, such as a roof tile. However, to make valid comparison, specifiers need information about a building element, such as a roof. A building element is likely to be made up of several products (such as roof tiles, felt and battens), so Environmental Profiles take this into account by adding together the contribution of the component parts, allowing comparison between one construction element and another.

The pie chart below illustrates the relative significance of various components of a roof and illustrates how roof tiles contribute less than 40% of the total environmental impact of roof construction.

For Marley Roofing, the achievement of certification under the BRE Environmental Profiles scheme is further proof of how we work to minimise the environmental impact of products. It also provides our customers with the reassurance they need that our products are produced in an environmentally responsible way.

As environmental considerations become an increasing part of the specification process, the ability of any company to provide this level of reassurance to customers and clients makes sound business sense.

Breakdown of environmental impact by material for a 35° pitched roof over a 60 year life.



How is the sustainability of buildings assessed?

BREEAM and the Green Guide to Specification

The BRE's Environmental Assessment Method (BREEAM) is a design and management stage assessment tool that provides an environmental label for buildings, based on good practice. BREEAM is widely used to specify overall environmental performance. One of the aims of BREEAM is to encourage the use of materials that have lower impact on the environment, taking account of the full life cycle of the materials in question.

EcoHomes and the Green Guide to Housing Specification

EcoHomes is the housing version of BREEAM. As with BREEAM, one of the aims of EcoHomes is to encourage the use of materials with the lowest environmental impact, taking into account their full life cycle.

The Green Guides provide a quick and easy way to assess the environmental performance of over 250 construction specifications. Credits for the materials section of BREEAM (and EcoHomes) are awarded for choosing a specified proportion of major building elements that achieve an A rating in the Green Guide to Specification.

How does BREEAM work?

BREEAM assesses the performance of buildings in the following areas:

- management: overall management policy, commissioning site management and procedural issues
- energy use: operational energy and carbon dioxide (CO_2) issues
- health and well-being: indoor and external issues affecting health and well-being
- pollution: air and water pollution issues
- transport: Transport-related CO_2 and location related factors
- land use: greenfield and brownfield sites
- ecology: ecological value conservation and enhancement of the site
- materials: environmental implication of building materials, including life-cycle impacts
- water: consumption and water efficiency

Credits are awarded in each area according to performance. A set of environmental weightings then enable the credits to be added to produce a single overall score.

The building is then rated on a scale of PASS, GOOD, VERY GOOD, or EXCELLENT.

Specifiers are encouraged to consider these issues at the earliest opportunity to maximise their chances of achieving a high BREEAM rating.

What types of building does BREEAM cover?

Offices

BREEAM Offices can be carried out on both new and existing office buildings, whether they are occupied or not, as follows:

- new build or refurbishment
- existing office (occupied)
- existing office (empty)

Homes *(known as EcoHomes)*

EcoHomes covers houses as well as apartment buildings and sheltered accommodation and can be applied to both new, converted or renovated homes. The issues assessed are grouped into seven categories: energy; water; pollution; materials; transport; ecology and land use; health and well being.

Industrial Units

This version of BREEAM assesses the environmental impact of industrial buildings, warehousing and non-food retail units.

Retail Units

The BREEAM Retail assessment methodology can be applied to existing or new-build retail developments.

Schools

BREEAM Schools assesses school buildings against a diverse range of environmental issues covering the impacts of buildings on the environment at global, regional, local and indoor levels.

Other Building Types

Other building types, such as leisure centres and laboratories, can be assessed using a bespoke version of BREEAM.

How do materials credits within BREEAM and EcoHomes work?

BREEAM

Within BREEAM, materials credits are achieved by obtaining an 'A' overall rating in the Green Guide to Specification, where at least;

- *80% of roof specifications achieve an 'A' overall rating*

Credits are also available where significant use of crushed aggregate or masonry is specified for use in the building structure, ground slabs, roads etc.

EcoHomes

Within EcoHomes, materials credits are achieved by obtaining an 'A' overall rating from the Green Guide to Specification, where at least;

- *80% of roof specifications achieve an 'A' overall rating*

The green guide to specification

Green Guide Product	Generic Green Guide Rating	Marley Roofing Comparable Product	Green Guide Rating
Concrete Roof Tiles	A	Plain and Interlocking Concrete Roof Tiles	A
Polymer/resin bonded slates	C	Monarch, Marquess, Duo Marquess, Melbourn and Dalestone Interlocking Slates	A

What are the Green Guides?

Green Guides are books written by the BRE that enable the reader to assess the environmental performance of construction specifications ranging from external walls, roofs and landscaping to internal elements such as partitioning, raised floors, insulation and doors.

Green Guides categorise each specification by giving it an A, B or C rating. An 'A' rating means the least environmental impact, where a 'C' rating represents the worst or highest level of impact.

There are two Green Guides available, firstly, for commercial buildings;

The Green Guide to Specification
and secondly for homes;
The Green Guide to Housing Specification

Where does data in the Green Guides come from?

The environmental rankings in the Green Guides are based on LCA studies of environmental impacts of construction materials. The data behind these ratings was provided by various trade associations or was the best available data on the environmental impacts of construction materials available at the time of publication.

Green Guides contain generic data on different construction specifications (i.e. they are not manufacturer specific). Consequently, **at Marley Roofing we are able to use our own independently certified environmental profiles and Ecopoints to determine the Green Guide rating of our products.**

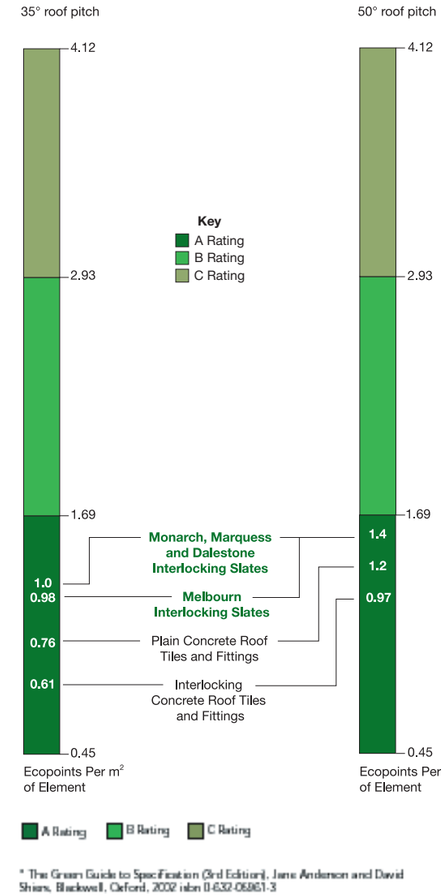
The current edition of the 'Green Guide to Specification' contains tables showing the summary ratings, measured in Ecopoints per square metre for all elements included in the Green Guide.

The diagram, right, shows the Green Guide ratings for 1m^2 of a typical complete roof structure over a 60 year life for a 35° pitched roof and 1m^2 over a 60 year life for a 50° pitched roof. In both cases all Marley Roofing products achieved an 'A' rating.

Under this scheme Marley Roofing was the first company to submit data on our manufacturing process and obtain Certified Environmental Profiles and Green Guide ratings for our products.

Applying the Green Guide to Specification

Whilst all specification choices are important, designers may wish to pay particular attention to the selection for the building elements which have the potential for the least environmental impact.



* The Green Guide to Specification (3rd Edition), Jane Anderson and David Shiers, Blackwell, Oxford, 2002 isbn 0-632-06861-3

Social responsibility

All of our activities at Marley Roofing are undertaken with a high regard given to the health and welfare of our workforce, the employees of our suppliers and to the community. We actively participate in raising money and supporting local charities through various fundraising events.

Purchasing Code of Conduct

Marley Roofing follows a strict code of conduct in the purchase of materials and products. We ensure that we are only purchasing from an environmentally responsible supply chain. All of our suppliers are assessed to check, that amongst other things, they; do not use sweat shops, do not employ child labour, implement Health and Safety legislation, do not pirate intellectual property rights and do not damage the environment. Examples of this in action include visits to suppliers to check on these credentials.

Furthermore, we have employed charities as suppliers, which can not only aid dexterity, but also provide a source of income.

Marley SolarTile®

Solar power is one of the fastest growing markets in the world and at Marley Roofing we have recognised the potential for photovoltaic (PV) technology to be used in the roofscape, turning sunlight into electricity.

PV is a proven and safe technology. Products using PV systems do not release any harmful emissions that contribute to global warming, unlike conventional electricity producers.

The Marley SolarTile was developed to harness PV technology and encourages the construction of environmentally friendly roofs. Roofs that are installed with Marley SolarTiles provide an efficient source of electricity, which can be generated in all weather conditions.

The use of Marley SolarTiles contributes towards the reductions of total CO_2 emissions from buildings and can play an important role in sustainable construction practice.

For further information, please visit www.marleyroofing.co.uk/solar

Marley Roofing

As one of the industry's foremost innovators for over 80 years, Marley has done more than any other roofing manufacturer to shape the roofscape of Modern Britain. From familiar regional styles to the radically modern, urban or rural, new build or refurbishment, Marley offers the specifier a comprehensive selection of complete pitched roofing solutions.

- Interlocking tiles
- Interlocking slates
- Plain tiles
- SolarTile
- Dry fix and ventilation systems
- Fittings and accessories

Information for all these products is available on request.

Visit www.marleyroofing.co.uk or call 08705 626400

Turning good intentions into positive actions

Marley is serious about its commitment to green working. Here are just a few of the practical ways in which we're helping to build a greener construction industry.

Waste reduction

Our roof tiles are delivered on pallets. Until we introduced a returnable pallet scheme some years ago, these often used to be scrapped or burnt. By reusing pallets, we're saving around 1,000 tonnes of timber each and every year. Although the idea was prompted by legislation – The Producer Responsibility Obligations (Packaging Waste) Regulations 1997, pallets weren't covered by the original rules. So, introducing the scheme - where customers pay a deposit for each pallet and get the money back when the pallet is returned - meant that we applied the spirit of the law as well as the letter.

Any pallets that are beyond repair are fed into the waste-to-energy incinerator at our Burton plant, helping to reduce our overall consumption of energy from other sources.

Better use of aggregate

In 2000, we introduced a scheme to make sure that all of the crushed hardcore produced at our Burton site could be used as aggregate replacement. The scheme has been introduced at other locations. Of the 450,000 tonnes of aggregate we use each year, an astonishing 100,000 tonnes comes from recycling. As well as saving valuable resources, this reduces our impact on local neighbourhoods and reduces the haulage of raw materials.

Water recycling

We're saving around 2,000 cubic metres of water each year by recycling water recovered from manufacturing processes.

Conservation and restoration

Traditionally, our manufacturing sites are close to deposits of aggregate. At our largest sites where aggregate has been extracted, we've been involved in significant regeneration. Landscaping and conservation work – in conjunction with bodies such as the Environmental Agency and Wildlife Trust – have created new leisure facilities for the local community and new habitats for wildlife.

Energy usage monitoring

Many organisations simply rely on information from a single meter to gauge energy consumption. We've introduced sub-meters and mobile metering that enable us to identify precisely how much energy is used by different facilities on our sites. This means that energy usage can be managed in a much more sophisticated and informed way.

Glossary of terms

BRE. Building Research Establishment

BRE Certification. A sister company to BRE

BREEAM. Building Research Establishment Environmental Assessment Method – a way of reviewing the environmental performance of buildings; eg offices, retail, non-residential, industrial units and schools

EcoHomes. The BREEAM method used for assessing residential buildings.

Ecopoints. A measure of the overall environmental impact of a particular product or process based on 13 selected environmental impacts.

Environmental Management System. A system that an organisation uses to manage its impact on the environment.

Green Guide Books. Written by the BRE and based on Life Cycle Assessment data that enable the environmental impact of construction specifications to be assessed. Two versions are published – one for commercial and one for residential buildings.

Green Guide Rating. Each entry in the Green Guide is rated A to C, with A indicating the least impact on the environment and C indicating the highest.

ISO 14001. The internationally recognised standard for environmental management systems, accredited by the International Organisation For Standardisation.

Life Cycle Assessment (LCA). Cradle-to-grave analysis of the environmental impact of a product at every stage of its life cycle, from raw materials to final disposal. Often used to compare two different products that perform the same task, e.g. concrete or slate roof tiles.

Sustainability. That which meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable Development. Based on three broad principles – environmental, social and economic accountability. Sustainable development is the idea of creating a better quality of life for everyone, now and for generations to come.

Whole Life Costing (WLC). The true monetary cost of a product or service over its lifetime.

How to find out more

Marley Roofing is already at the forefront of initiatives that are helping to make the construction industry greener. To find out more about how we help our customers and suppliers to become greener too, call us on 08705 626400 or visit the website www.marleyroofing.co.uk/environmental

Environmental Profiles Scheme
Certificate numbers:
ENP 167, ENP 169, ENP 172

EMS 56790

MARLEY ROOFING

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