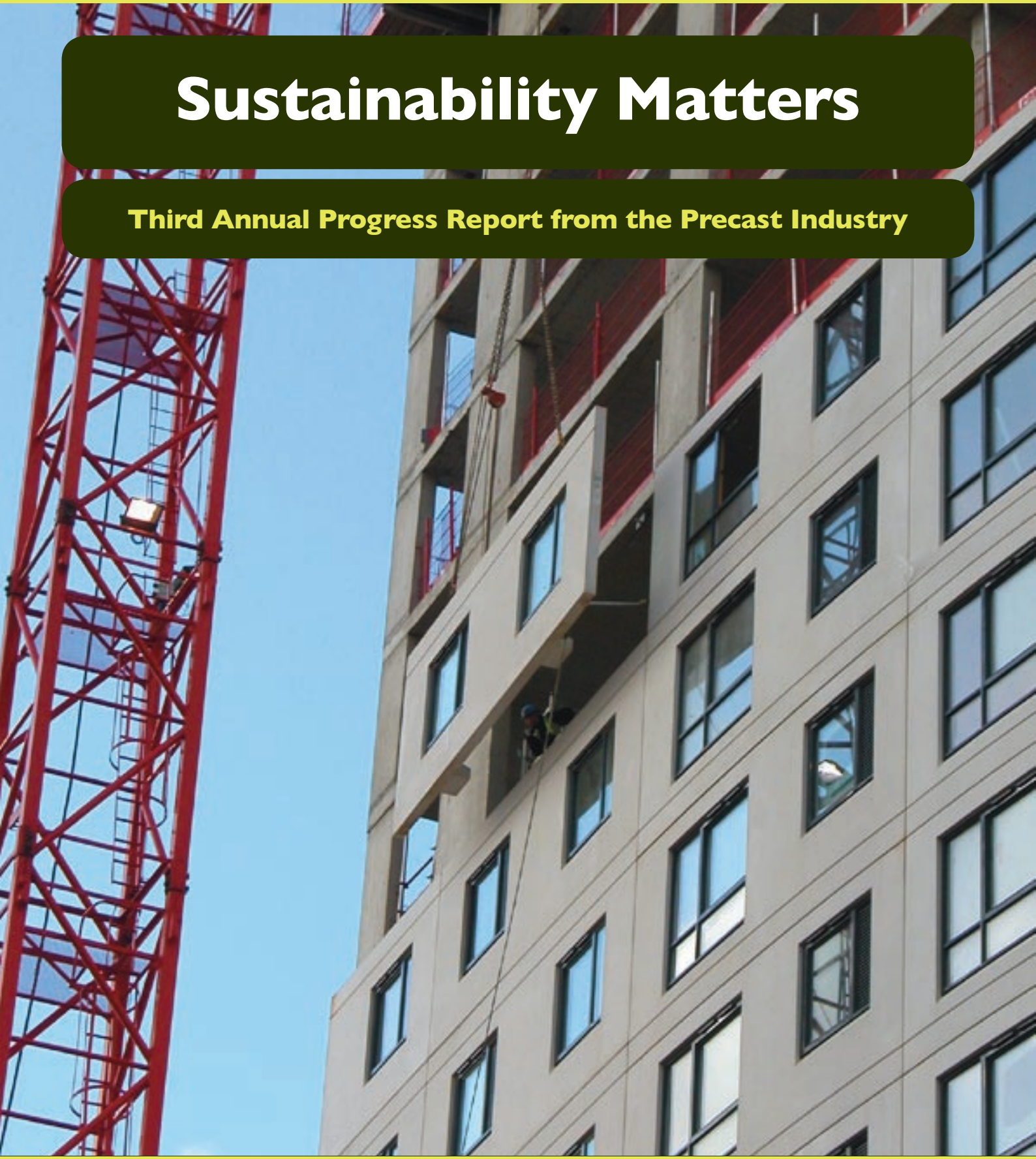
Sustainability Matters

Third Annual Progress Report from the Precast Industry



BRITISH PRECAST

Published February 2008

MORE FROM LESS

Introduction

This is the third report from British Precast on the precast concrete industry's progress on sustainability, produced as part of our 'More from Less' programme. It marks a significant step forward for the precast industry with the introduction of the first in a series of measures designed to improve performance across the industry on sustainability. Those measures include reporting quantitative data in the form of KPI's and making voluntary commitments to take actions to improve performance on a broad range of sustainability issues. Also in this report are examples of the progress being made by our product groups and member companies.

A message from the President

I have been pleased to see the real progress in Sustainability made in the Precast sector in the last 12 months. Our Spring 2007 White paper consultation proved a very useful initiative and there now seems to be a real appreciation of the need to reduce the environmental impact of our products by improving the use of material and energy resources. Most precast producers can now see for themselves that a systematic approach to more sustainable operations can produce a real benefit on the bottom line - more and more clients and specifiers are demanding sustainable solutions. I commend the new Sustainability Charter not only to fellow member companies in British Precast but also to those producers who still remain outside. We have signed up to it - so should you.

British Precast President, David Sarti, Chief Operating Officer, Marshalls plc

The Precast Industry

The precast concrete industry is an important national industry producing over 36 million tonnes of products annually for the construction sector, worth in excess of £2.3 billion. There are around 800 precast factories located across the UK, which provide direct employment for over 20,000 people and many more in upstream and downstream sectors. Precast concrete products make a significant contribution to the built environment; they are widely used in public and private sector projects of many sizes, from housing and landscaping, through commercial buildings to highways and infrastructure.

Precast products are made to consistent high quality standards using a combination of skilled labour and automated processes. Mass produced products range from small hydraulically pressed items such as concrete blocks, paving and roof tiles, to larger extruded or wet-cast items such as pipes, piles and floor beams. Bespoke items include large wet-cast products such as cladding panels and structural units designed and manufactured to specific architectural and engineering requirements.

British Precast

British Precast is the trade federation for precast concrete manufacturers in the UK. Founded in 1964, its federated structure acknowledges that the precast sector is, in fact, a matrix of industries, each with its own characteristic markets and supply chains, technologies, standards and lobbying issues. British Precast exists to manage this matrix through a number of product groups and associations, each with its own agenda and devolved budget. Spanning all product areas are a number of overarching issues common to all members. The management of these issues – research, building regulations, design codes, health and safety, training, government relations and sustainability – is the other role of British Precast and is growing in its importance.

British Precast is committed to the development of a more sustainable precast industry and is working to deliver on that commitment through its committees, Best Practice Awards and dedicated Sustainability Programme. An increasing number of our members are recognising the importance of adopting more sustainable practices and are supporting our work in order to ensure a better future for the industry.

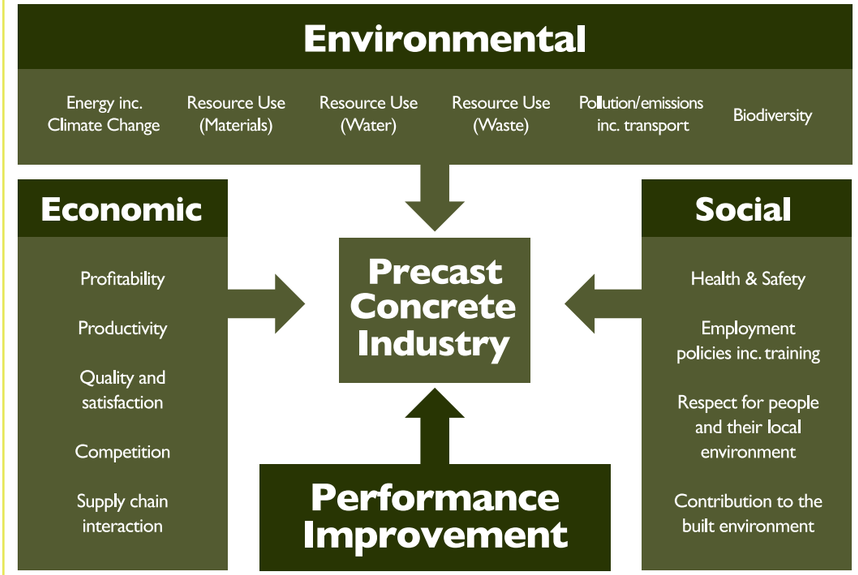
The range of precast concrete products includes:

Sustainability Programme

In March 2007, the British Precast Council approved a programme of measures designed to improve performance across the precast industry on sustainability, comprising:

- Key Performance Indicators
- A Sustainability Charter
- A Certification Scheme
- A Best Practice Forum
- Objectives, Indicators and Targets for Improvement

The overall aim of the programme is to demonstrate to key stakeholders that the industry is committed to sustainability, and that measurable progress towards a more sustainable precast concrete industry is being achieved. It was developed as part of the Sector Sustainability Strategy project, being undertaken in conjunction with Loughborough University, and will be introduced in stages over the next two years. A consultation paper outlining the programme received favourable comments from stakeholders, and many companies have pledged their support for it.



Sustainability Issues

The programme focuses on the 16 key sustainability issues facing the precast industry shown in the diagram on the left. These have been identified following consultation with the industry and examination of the priorities and concerns of its primary stakeholders. In addition to recognising the economic, environmental and social pressures on the industry, the need to demonstrate performance improvement is now considered to be a key issue.

Health & Safety Programme

The Sustainability Programme sits alongside and complements the CT2010 Health & Safety Scheme operated by British Precast. Following the success of the British Precast 'Four Star Scheme' from 2001 to 2005, launched in response to the Government-led initiative, 'Revitalising Health and Safety', a new scheme was created. Starting in 2006, the CT2010 scheme is committed to maintaining and improving the Industry's Health & Safety Record with members pledging to reduce RIDDOR reportable accidents and lost time by a minimum of 50% in five years, working towards an overriding goal of zero accidents.

The scheme promotes sharing of Health & Safety information, both across companies and the industry, but also actively within companies, from top to bottom of the management structure. All companies signing up to the scheme agree to hold regular H&S committee meetings within their organisations.

The scheme recognises members' performance at the annual Best Practice awards dinner.

Data Collection

All members of the scheme are required to submit statistical Health and Safety information every six months. Data monitored includes RIDDOR reportable accidents and major injuries, chronic injuries (injury that occurs but cannot be associated to a specific event), time lost due to accidents, sub-contractor reportable accidents and HSE enforcement notices.

Awards

The CT2010 Awards are presented each year to member companies who have successfully implemented scheme elements, ranging from Bronze to Gold award levels and an additional 'Seal' to indicate those companies whose performance is in line with or ahead of the scheme targets.

As well as the annual awards, the scheme seeks to recognise the valuable contributions made by individuals and small teams that such schemes rarely reward by the presentation of an 'Outstanding Contribution to Health & Safety' award.

Further details of the CT2010 scheme are available at www.concretetargets.org

Key Performance Indicators

This initial set of indicators provides an overview of the precast industry, and demonstrates that it is being managed responsibly. It is envisaged that the set will be expanded in time to include all of the sustainability issues facing the industry. The figures reported here relate to the 2006 calendar year. As this is the first year for which data has been collected, only the basic figures can be reported. However, these will provide the benchmark against which future performance will be assessed.

Coverage

- Data has been provided by 19 companies relating to 132 production units and approximately 17 million tonnes of production; there are believed to be in the region of 800 precast production units in the country and the total production output for the industry is estimated to be 38 million tonnes.

The following statistics have been calculated from the data supplied.

Productivity

- 8,309 full-time equivalent staff were employed during the year, and 1,648 tonnes of concrete was produced per employee.

Quality and satisfaction

- 14 million tonnes (81.5%) of production was covered by an ISO 9000 series certified quality management system or a recognised Manufacturers Quality Assurance Scheme.

Energy including climate change

- 54.9 kWh of energy was used per tonne of concrete produced, of which 53% was gas, 20% electricity, and 24% gas oil or diesel. This is equivalent to 13.9 kg of CO_2 per tonne of concrete produced.

Resource use - materials

- 0.140 tonnes of cementitious materials were used per tonne of concrete produced, of which 22% was fly ash and 6% ground granulated blast-furnace slag.

- 0.747 tonnes of aggregates were used per tonne of concrete produced, of which 84% was primary aggregate and 16% secondary aggregate.

- 3.0 kg of packaging materials were used per tonne of concrete produced, of which 82% was timber and 17% plastic.

Resource use - water

- 163 litres of water was used per tonne of concrete produced, of which 71% came from mains supplies and 29% from licensed non-mains sources.

  Note: Water from other sources such as harvesting and recycling is not included in this figure.

Resource use - waste

- 32 kg of waste was produced per tonne of concrete produced, of which 14% was disposed of to landfill, 29% was recycled on site and 57% recycled off site.

Pollution/emissions including transport

- 12.9 million tonnes (75%) of production was covered by an ISO 14000 series or EMAS certified environmental management system.

- 14 environmental incidents were reported to external regulatory authorities during the year, equivalent to one incident per 1.2 million tonnes of concrete produced.

- The majority of concrete products were delivered by road with the average delivery being 27.4 tonnes and the average delivery distance being 108 miles.

  Note: Limited transport data coverage.

Health & Safety

- 4.4 million tonnes (25%) of production was covered by an OHSHS 18000 series certified H&S management system.

- The British Precast Four Star scheme closed in 2005, having reduced accidents by 45% compared to the commencement of the scheme in 2000. Continuing the progress of the earlier scheme, the Concrete Targets CT2010 scheme has just completed its second year and now reports a combined reduction from the two schemes of over 60%, from the original baseline performance.

Employment policies including training

- 7,083 (85%) employees were covered by formal training and development policies.

- An average of 8.9 hours of training was provided per employee.

Respect for people and their local environment

- 31 factories operated formal local liaison schemes during the year, equivalent to one scheme per 4.25 factories.

Sustainability Charter

The objective of the Sustainability Charter is to engender commitment from companies to a set of industry-based principles; these will contribute to the economic viability, social progress and environmental responsibility in the precast concrete sector.

British Precast requires that Sustainability Charter Members shall make a formal declaration to:

- Develop products that improve the quality and sustainability of the built environment
- Liaise effectively with local communities to foster mutual understanding and respect
- Manage all waste streams effectively and minimise waste disposed to landfill
- Measure, report and improve performance on sustainability issues
- Minimise pollution and emissions associated with production and transportation
- Operate in a responsible manner to protect employees, contractors and visitors
- Operate in an efficient and financially sustainable manner without compromising legal, quality or sustainability principles
- Operate to the highest ethical standards necessary to develop a skilled and competent workforce
- Operate to the highest quality standards necessary to satisfy customers and consumers
- Protect and enhance the natural environment adjacent to or affected by precast production
- Recognise that competition encourages the development of more sustainable products and practices
- Use energy more efficiently and reduce carbon footprint
- Use primary materials more efficiently and promote the use of secondary materials
- Use water more efficiently and minimise demand on mains water supplies
- Work constructively with other organisations to deliver sustainable policies and practices

Although the commitment is made voluntarily by companies, during 2008, British Precast will be introducing an audit process to ensure that signatory companies are fulfilling that commitment.

At the launch of the Charter on 29 November 2007, Paul King, Chief Executive of the UK Green Building Council, praised British Precast for the comprehensive range of issues covered in the Charter and encouraged other sectors to adopt similar initiatives. Since it was launched, the following companies have signed the Charter:

- **Aggregate Industries**
- **Coltman Precast**
- **Cornish Concrete Products**
- **FP McCann**
- **H+H UK**
- **Hanson Building Products**
- **Litecast**
- **Marley Eternit**
- **Marshalls**
- **Tarmac Group**
- **Trent Concrete**

Paul King, Chief Executive of the UK Green Building Council, and Martin Clarke, Chief Executive of British Precast, with some of the first Charter signatories.

Sustainable Paving

Sustainable Drainage Systems (SUDS) have grown in popularity in the UK over the last 20 years and are now a firm planning requirement. Concrete block permeable pavements are one of the most important SUDS techniques, providing a structural pavement whilst allowing water to pass straight into the pavement construction for temporary storage and dispersal into the ground or for collection.

Interpave, which represents the UK's leading precast concrete paving and kerb manufacturers, is particularly active in promoting best practice with this versatile technology to ensure that it is accepted by all as a mainstream drainage and paving technique with predictable, long-term performance. Interpave's extensive on-line technical resource - found at www.paving.org.uk - is designed to help local authority planning, drainage, highways and adoption officers, as well as developers and their consultants, with all aspects of permeable pavements. The website covers updated comprehensive design and construction information, including detailing and management of service runs, as well as case studies. Other guidelines review the legal background for sustainable drainage, including the latest document 'Permeable Paving for Adoption'.

Interpave has also developed guidance on responsible rain water management around the home based upon the edict of not discharging run off from driveways, paths and patios into drains. This approach alleviates concerns of local authorities, the Royal Horticultural Society and others about "concreting over front gardens". Based on design calculations using sound engineering principles, it offers a step-by-step process for choosing the right type of sustainable drainage system – including 'rain gardens' or bio-retention areas.

To support its own activities in this area, Interpave sponsors and supports Landform and SUDSnet. Both of these organisations provide a UK-wide network for researchers, practitioners, agencies, developers and all those who are interested in SUDS as well as presenting training seminars.

Drainage isn't the only area of activity for Interpave. Other initiatives include commissioning an independent Life Cycle Assessment from the Building Research Establishment (BRE) comparing precast concrete paving with sandstone flags imported from India, ahead of the new BRE 'Green Guide'. This research concluded that the precast concrete paving manufactured in the UK by Interpave members had significantly better environmental performance than equivalent imported sandstone products.

John Howe, Development Manager, Interpave

Architectural Cladding & Sustainability

In a society where many products have a short life and disposability is often built in, the construction industry is ploughing a totally different furrow by putting sustainability at the top of its agenda. Members of the ACA are committed to playing a leading role in this, responsibly promoting and developing sustainable precast concrete cladding construction techniques. These not only apply to issues arising from the manufacture of cladding panels, but, as importantly, extend to their design and subsequent installation.

Decisions at the design stage have a fundamental impact on the sustainability of a building from initial construction, through its life and eventual demolition. Design can increase the building's performance during its life and eliminate unnecessary waste during its construction. Obvious lifetime implications are energy and maintenance costs. Sustainable design demands that the whole design/construction team works together to develop design that drives out waste and inefficiency.

Manufacturing building components in factory conditions with permanently employed skilled workers has several immediate effects, notably elimination of the effects of weather. Materials are ordered in accordance with production requirements and are carefully stored and protected against contamination, minimising waste. Also, product defects are close to zero and energy consumption is lower.

Sustainable construction will often lead to more efficient and more cost-effective construction, the precaster providing expert advice on the impact of a particular design on the efficiency of off-site manufacture, transport and site erection. To do this, the precast specialist must be appointed early to make a significant contribution to the design development process and to help the sustainability strategy of the project.

Uniquely, concrete is 100% recyclable after crushing. Some construction companies are reporting a recycling rate of 70–90% of concrete from their waste streams returning as aggregate. A further sustainable benefit of concrete is its inherent fire resistance, robustness, durability and long-term performance.

Stephen Maddalena, Managing Director, Marble Mosaic Company

Industry Firsts

Biodiversity Benchmark

The Wildlife Trust's Biodiversity Benchmark enables organisations across the country to assess the quality of their land management, improve their contribution to the environment and demonstrate their commitment to biodiversity. In February 2007, Marshalls' Maltby works was awarded the Biodiversty Benchmark, the first time that an active manufacturing site has received the rigorously audited accreditation in the UK.

To achieve the Biodiversity Benchmark, the works produced an exacting Biodiversity Action Plan to ensure that their site would be properly managed to improve its wildlife value, long term. The plan included creating a new conservation area around its old pump lagoon. A bespoke man-made island retreat was created using more than 200 tonnes of soil, with reeds placed to form new wetland areas. Some 150 new trees were planted and areas were sown with grass and wild flower seed. Maltby is now also actively managing its hedgerows and remaining habitats to encourage new flora, fauna and wildlife. This action has already led to new breeding pairs of birds visiting the site to accompany the yearly return of a flock of Sand Martins who make home around the lagoon area.

With an already keen interest from within, its site employees have been actively involved throughout the process. This has now grown to include the involvement of the local community, arranging site visits for schools and developing partnerships with a range of local groups.

Ian Manley, Health & Safety Coordinator, Marshalls' Maltby Works, who was pivotal in managing the Biodiversity Action Plan commented: "We are delighted to have achieved accreditation to The Wildlife Trust's Biodiversity Benchmark. Whilst it has been hard work, we feel that it has been well worth the effort and have been pleasantly surprised by the amount of flora, fauna and wildlife already within our site boundary."

Following the success of the project, Marshalls is now looking forward to working in partnership with The Wildlife Trust to improve biodiversity at additional sites.

Energy Efficiency Accreditation Scheme

H+H UK has become the first aircrete manufacturer and the first company in the precast concrete industry to achieve accreditation under the Energy Efficiency Accreditation Scheme (EEAS), the UK's independent benchmark for energy efficiency. Colin Cook, process systems manager for H+H UK, commented: "The award emphasises our commitment to the principles of sustainability. Not only are Celcon products 'light on the planet' in use, but this award demonstrates that we go to extraordinary efforts to minimise energy consumption in manufacture as well".

EEAS assessor Bob Spain was impressed by the level of investment in energy efficiency measures. These include recycling steam from the autoclaves used to cure aircrete, recovering combustion heat to raise the temperature of boiler feed water and a recent innovation, the installation of wind turbines to generate power.

The assessor was also impressed by the efforts made to increase awareness of energy efficiency with regular in-house briefing sessions and staff being sent on training courses. H+H already has plans for further investment in ways to reduce their CO_2 emissions through energy efficiency, Bob Spain commented "these plans for further investment reflect a continual search for improvement of technology and best practices - most commendable".

H+H UK Limited joins a network of over 200 organisations accredited under the scheme for their active reduction of CO_2 emissions.

Achieving accreditation meant maintaining and improving on good practice in energy management, keeping up to date with new energy saving initiatives and above all, encouraging staff and the public to be energy aware.

Zero Carbon

British Precast signed the Government's Zero Carbon pledge in 2007, committing us to work with others to ensure that all new homes are built to zero carbon performance standards by 2016. Our main efforts are being channeled through the Futures Group run between the Home Builders Federation and the Modern Masonry Alliance, whilst in the non-housing field we are following with interest the development of the Code for Sustainable Buildings through our membership of the UK Green Building Council.

Concrete Pipeline Systems Association

Sustainability is a key issue for the CPSA, as it is for all of our product groups. Following its earlier work on the environmental impact of concrete and plastic pipeline systems, the CPSA has introduced a web-based calculator to show just how much virgin aggregate bedding can be saved by the specification of concrete pipes. The CPSA has also been lobbying for greater and better targeted investment in improving Britain's storm-water and combined sewerage systems. A copy of the six point plan can be downloaded from www.concretepipes.co.uk

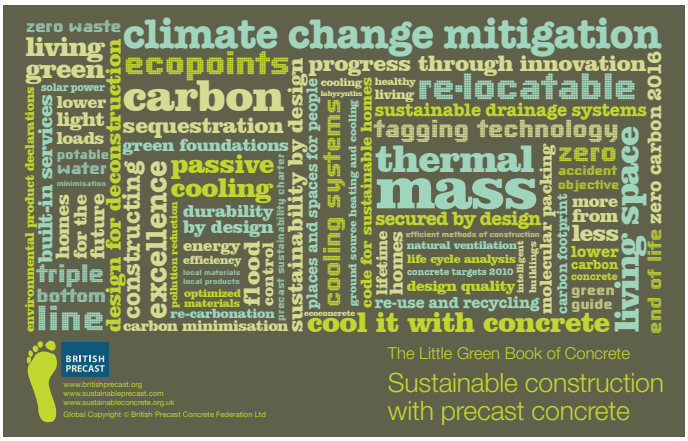
UK Concrete Platform Sustainable Construction Task Group

The UK Concrete Platform brings representative bodies from across the concrete industry together to address a range of key issues. British Precast and its members have been prominent in the work of the Platform's Sustainable Construction Task Group, with Martin Clarke of British Precast taking over as mentor of the Group for 2008 from Mike Gilbert of the BCA. During 2007 the Task Group and British Precast fed into the BERR Sustainable Construction Strategy consultation at workshops and with written submissions. Individually and collectively the Task Group has been constantly feeding into the development of the Green Guide by the BRE - a complex role for all – and is now focusing on chain of custody issues and on developing a broad sustainability strategy for the whole cement and concrete sector. The Task Group has also sponsored a new website www.sustainableconcrete.org.uk

Carbon Labelling

Those of you who eat crisps may have noticed a carbon label now features on all Walkers crisp packets. Two British Precast members Marshalls and Aggregate Industries are key members of a Carbon Trust scheme to broaden carbon labelling into other product areas. It won't be long before UK-made paving and other concrete products carry similar messages. The two companies also sponsored a study by BRE in 2007 which showed that the carbon footprint of UK made paving was half that of imported Indian sandstone. Since then reports are coming out that the environmental cost of shipping has been seriously underestimated by upto three times adding considerable weight to our arguments for locally sourced products.

Little Green Book of Precast



This new volume is due to be published in May 2008 and copies will be available via the website.

Print Commitment

At British Precast we aim to be sustainable in everything we do, and that includes our print. All our publications are printed on recycled paper that has a minimum of 50% post-consumer waste content and is FSC certified and we only use vegetable based inks. We audit all our printers to ensure they have ISO 14001 or equivalent standards and have their own sustainability strategy.

Comments and Further Information

British Precast welcomes your views on this report and our approach to developing a more sustainable precast industry. You can give us your comments by writing to Ian Holton at British Precast or email Ian at ian.holton@britishprecast.org.

Further information is published in the sustainability section of our website and Annual Report.

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