I am pleased to introduce this report on the three award schemes run by the Federation for Health & Safety, Sustainability and Innovation. It shows that significant investment as well as continuing effort and imagination is being applied in the industry towards self-improvement. Cost pressures on us are intense at the present time, as are the impacts of legislation. Those reasons alone should be incentive enough to redouble our efforts in 2007. These awards stimulate competition and are helping to transform the industry into being safer, greener and more innovative. I urge members to continue to support all three schemes and our Concrete Targets 2010 scheme.

David Szymanski
President of The British Precast Concrete Federation

May I thank all those people who took the trouble to enter our awards schemes this year. I hope that this publication continues to have impact through the supply chain in demonstrating that this is a vibrant and positive industry looking to growth in market share and earnings through self-improvement. Participation in our awards schemes has a bottom-line payoff. I would urge all precast producers not yet in membership of British Precast to join and take advantage of what we have to offer.

Martin Clarke
Chief Executive of The British Precast Concrete Federation

The 2006 Best Practice Awards were presented by eminent guest speaker Professor Peter Robery of Halcrow. Peter is the current President of the Concrete Society. We are grateful for his support this year.

Professor Peter Robery
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HEALTH & SAFETY AWARD

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This year's Health & Safety award focused on reducing the impact of noise and vibration on the working environment

WINNER

Company Aggregate Industries - StoneFlair
Site Newark
Title – Noise and Vibration, who needs it?
Task
Through an essential plant re-siting taking place at the end of 2005 the opportunity to produce StoneFlair’s edging range of products presented itself at the Newark site.

Problem
On commissioning of the plant, risk assessment identified that methods used to manufacture the edging range involved excessive use of impact tools, creating unacceptable noise levels.

Solution
Through brainstorming sessions, safety meetings and the involvement of site production and engineering departments, ideas evolved to change the mould design and production methods. The company technical department was called in to put the ideas into practice.

Result
The developments have completely eradicated the use of vibration tools at the re-built section of the machine with a noise reduction of 27dB. Manual handling improvements and a resultant productivity improvement of 50% through that section have all been additional benefits.

Contact Details
Paul Sanders,
Aggregate Industries - StoneFlair,
Roseland Business Park,
Hangar 8, Normanton Airfield,
Long Bennington, Newark,
Nottingham, NG23 5FF
Tel: 08706 009 111
Fax: 08706 009 112
paul.sanders@aggregate.com

Collecting the prize on behalf of StoneFlair is Paul Saunders. Presented by Peter Robery (L) and Charles Law - Lafarge Cement UK (R)
**JOINT 2ND PLACE**

Company: Marshalls  
Site: Sandy  
**Title**: The Application of Self Compacting Concrete to Eliminate Vibration and Noise in Bollard Production  
**Task**: Filling bollard moulds mounted on a vibration table. The operator controls the concrete flow and supports the reinforcement frame.  
**Problem**: The operator is subjected to high noise levels emitted by the bollard vibration table. It is also necessary for the operator to handle the vibrating mould and reinforcement frame during filling.  
**Solution**: Develop the application of using self compacting concrete (SCC) for bollard filling using the existing equipment. SCC does not require vibration, therefore removing both noise and vibration health risks.  
**Result**: Complete elimination of vibration and noise from this operation with minimal implementation cost and no capital expenditure. In addition an improvement in production times and no increase in materials costs.  

**Contact Details**  
John Galubickas,  
Marshalls, 64 Sunderland Rd, Sandy,  
Beds, SG19 1C9  
Tel: 01332 794 023  
Fax: 01332 794 050  
john.galubickas@marshalls.co.uk

**HIGHLY COMMENDED**

Company: Acheson & Glover  
Site: Fivemiletown  
**Title**: Reducing Noise and Vibration of Primary Aggregate Crusher  
**Task**: The project was identified as improving the environmental working conditions in relation to the control and operation of the primary crusher.  
**Problem**: Occupational hazards in the form of noise, vibration, dust, poor ventilation, lighting and isolation.  
**Solution**: The primary issues were due to the crusher operators’ location. By relocating the cabin, the operator was able to control the crusher in a better environment.  
**Result**: The results were as follows: casual absence was eliminated, productivity increased, cost savings were made, and health and general working environment improved significantly for the operator.  

**Contact Details**  
Lee Weir,  
Acheson & Glover,  
127 Crewehill Road, Fivemiletown,  
County Tyrone, BT75 0SY  
Tel: 02879 633 027  
Fax: 02879 633 597  
lee.weir@acheson-glover.com

**Contact Details**  
John Galubickas,  
Marshalls, 64 Sunderland Rd, Sandy,  
Beds, SG19 1C9  
Tel: 01332 794 023  
Fax: 01332 794 050  
john.galubickas@marshalls.co.uk

**HIGHLY COMMENDED**

Company: Aggregate Industries - Bradstone  
Site: Baston Fen  
**Title**: Noise and Vibration  
**Task**: Reduce the impact of noise and vibration within the factory environment.  
**Problem**: Vibration within this environment is an essential part of the process. Minimisation of the adverse effects was the only option available.  
**Solution**: Purchase new equipment and re-work old machinery to help dilute the impact of noise.  
**Result**: A reduction of 15dB was achieved within the factory, while vibration at the fill points has been reduced as has the impact of excessive exposure to vibration on the operatives.  

**Contact Details**  
Allen Jolley,  
Aggregate Industries - Bradstone,  
Manor Farm Works, Baston Fen,  
Peterborough, PE6 9PT  
Tel: 01778 560 372  
Fax: 01778 560 694  
allen.jolley@aggregate.com

**Contact Details**  
John Galubickas,  
Marshalls, 64 Sunderland Rd, Sandy,  
Beds, SG19 1C9  
Tel: 01332 794 023  
Fax: 01332 794 050  
john.galubickas@marshalls.co.uk

**HIGHLY COMMENDED**

Company: Acheson & Glover  
Site: Fivemiletown  
**Title**: The Application of Self Compacting Concrete to Eliminate Vibration  
**Task**: Manufacturing precast concrete stairs and landings in various configurations.  
**Problem**: The concrete requires compaction by vibrating pokers and fixed vibrating units. Operators were exposed to high noise levels, hand/arm and whole body vibration exposure levels were also problematical.  
**Solution**: Working in partnership with their concrete additives supplier, self compacting concrete was developed to manufacture stairs and landings in the department.  
**Result**: The introduction of self compacting concrete has eliminated exposure to noise and vibratory hazards.  

**Contact Details**  
Clive Richardson,  
Hanson Building Products, Hoveringham Lane,  
Hoveringham, Nottingham, NG14 7JX  
Tel: 01636 832 000  
Fax: 01636 832 000  
clive.richardson@hanson.biz

**Contact Details**  
John Galubickas,  
Marshalls, 64 Sunderland Rd, Sandy,  
Beds, SG19 1C9  
Tel: 01332 794 023  
Fax: 01332 794 050  
john.galubickas@marshalls.co.uk

**HIGHLY COMMENDED**

Company: Aggregate Industries - Bradstone  
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Allen Jolley,  
Aggregate Industries - Bradstone,  
Manor Farm Works, Baston Fen,  
Peterborough, PE6 9PT  
Tel: 01778 560 372  
Fax: 01778 560 694  
allen.jolley@aggregate.com

**Contact Details**  
Clive Richardson,  
Hanson Building Products, Hoveringham Lane,  
Hoveringham, Nottingham, NG14 7JX  
Tel: 01636 832 000  
Fax: 01636 832 000  
clive.richardson@hanson.biz
When using it, the net result of the new hopper was to reduce the time spent cleaning. Time using a pneumatic tool was reduced by 75% to less than 30 minutes.

Solution

As automation was being planned, a new design of hopper was introduced to eliminate the need to use jiggers.

Result

The existing hand held method of compaction needed to be engineered out of the task.

Solution

Job rotation is used to reduce exposure, training is given on the best grip/pressure when using the jig, gantries reduce the need to hold the tool and there is a reduction in vibration exposure from 12mD to 6mD.

Result

The problems were high energy usage and material wastage combined with noise, vibration, environmental concerns, dust control and unsafe and poor working conditions.

Problem

Energy, waste, dust and noise are reduced by eliminating the secondary block making process. All trip hazards were removed, water channels were created to remove water for recycling and a welfare facility was created.

Solution

Install an acoustic enclosure to the slab conveyor and stacking table area leaving sufficient open space for the operatives to work. Install lighting and CCTV and make the top panels of the enclosure easily removable to facilitate product change overs.

Result

Noise levels reduced significantly, although change overs.

Company Aggregate Industries - Bradstone

Site - Hulland Ward Site C

Title - Noise and Vibration

Task

To reduce the noise associated with the vibration table on the auto line at Hulland Ward.

Problem

Improved reliability of the vibrating tables increased the noise levels during the production process. The aim was to reduce the noise levels to a reasonable level.

The existing hand held method of compaction needed to be engineered out of the task.

Solution

The problems were high energy usage and material wastage combined with noise, vibration, environmental concerns, dust control and unsafe and poor working conditions.

Problem

Noise levels reduced significantly, although change overs.

Company Aggregate Industries - Bradstone

Site - Hulland Ward Site C

Title - Noise and Vibration

Task

To reduce the noise associated with the vibration table by the use of electromagnets. These in turn had to be securely fastened to the vibrating table so the pan/table/magnet acted as one.

Result

With the unit acting as one this removed the noise associated with the pan vibrating. Noise levels were reduced to less than 85dBA with a potential to go lower, and with the benefit of improved energy efficiency.

Solution

The solution included removing high energy waste, water, dust and noise creating equipment and extending the existing building. The solution also included creating maximum natural light and a recycling system.

Result

Energy, waste, dust and noise are reduced by eliminating the secondary block making process. All trip hazards were removed, water channels were created to remove water for recycling and a welfare facility was created.

Company Aggregate Industries - Bradstone

Site - Cleveland Farm

Title - HAVS in the Cast Stone Industry

Task

The task was to reduce exposure to operatives from hand-held vibrating hammers during the compaction of the mix into the moulds.

Problem

To assess how high the vibration levels were, to find out how long the equipment should be used for, how awkward it is to use the equipment, it has to be gripped, and how cold the operators got when using it.

Solution

An automation was being planned, a new design of hopper was introduced to eliminate the need to use jiggers.
RUNNER UP
Company Aggregate Industries - Masterblock
Site North End Works
Title - Containment of Noise on Site
Task
To ensure compliance with environmental legislation regarding noise emissions.

Problem
North Wiltshire District Council Environmental Office registered a noise complaint.

Solution
Advane, Environmental, an independent company, were employed to carry out a noise level monitoring assessment during the night.

It was found that the vibrator on an outside aggregate hopper was the problem. Production planning was changed to negate use of vibrators at night. The vibrator was not used between 2000-0600 hours and a time clock was fitted to ensure this. A letter received from the North Wiltshire District Council Environmental Office confirms resolution.

Contact Details
Dave Warriner, Aggregate Industries - Masterblock, North End Works, Ashton Keynes, Wiltshire, SN6 6QX. Tel: 01285 646 810. Fax: 01285 646 897. dave.warriner@aggregate.com

RUNNER UP
Company Aggregate Industries - Bradstone
Site North End Works
Title - Noise and Vibration
Task
To control vibration through hand held vibration and fixed vibration tools within the factory environment and to reduce wherever possible vibration from machinery or experienced by individuals using the equipment.

Problem
Vibration within the production facilities and the maintenance department creates a daily problem depending on what tools are required for use.

Solution
To carry out assessments on hand held vibration (power tools) and fixed vibration (tables used to manufacture concrete products) to establish the most efficient equipment to reduce vibration.

Result
By using equipment with lowest typical weighted acceleration value (m/s²) along with job rotation, and aided by personal protective equipment, the severity of vibration exposure to users of the equipment has been reduced. This in turn reduces the risk of HAVS to users of power tools or vibrating tables.

Contact Details
Way Minute, Aggregate Industries - Bradstone, North End Works, Ashton Keynes, Wiltshire, SN6 6QX. Tel: 01285 646 915. Fax: 01285 646 855. raywinter@aggregate.com

RUNNER UP
Company Brett Landscaping and Building Products
Site Barrow Upon Soar
Title - Reduction in Exposure to Vibration from Wacker Vibrating Pokers
Task
To reduce the level of hand/arm vibration exposure to operatives when removing excess air from concrete in bespoke moulds.

Problem
Vibrating pokers were also used, which caused noise and vibration issues.

Solution
After trials with gloves which were all unsatisfactory, Brett looked at alternative pokers with the help of the Worker representative.

Result
A significant reduction in vibration exposure and a poker that an operator could use all day without exceeding safe levels of exposure.

Contact Details
Robert Godfrey, Brett Landscaping and Building Products, Sileby Road, Barrow upon Soar, Nr Loughborough, Leicester, LE12 8LX. Tel: 01509 817 180. Fax: 01509 817 197. robert.godfrey@brett.co.uk

RUNNER UP
Company CEMEX Rail Products
Site Washwood Heath
Title - Noise and Vibration Reduction
Task
The production facility has 8 gang moulds and 8 pokers mounted onto a travelling casting bucket/machine.

Problem
It was a noisy casting process and hand-held vibrating pokers were also used, which caused noise and vibration issues.

Solution
Self Compacting Concrete (SCC) was developed and implemented which met client specification for precast concrete sleepers.

Result
The introduction of SCC to the production process reduced the noise levels by approximately 20dB as a result of the removal of vibrating equipment from the machine.

Contact Details
Phil Tromans, CEMEX Rail Products, Aston Church Road, Saltley, Birmingham, B8 1QF. Tel: 0121 370 844. Fax: 0121 277 5405. phil.tromans@cemex.co.uk

RUNNER UP
Company Forticrete
Site Burton
Title - Besser Noise Reduction
Task
To reduce noise and vibration levels in and around the ‘Besser’ block manufacturing area.

Problem
Following the fitting of an acoustic enclosure, noise levels within the workstation remained unsatisfactorily high, with the typical reading being 90dB.

As part of the Forticrete ‘Raising the Bar in Health & Safety’ initiative, further noise reductions were felt necessary.

Solution
A specific cross-functional improvement team was set up to investigate noise reduction. Following a thorough survey, an action plan was raised and subsequently introduced. Key developments included; replacing the main drive gears and replacing existing steel guides with polyethylene guides.

Result
A 50% reduction in noise levels and a noticeable reduction in through-floor vibration.

Contact Details
Mike Aspinall, Forticrete, Hillhead Quarry, Harpur Hill, Buxton, Derbyshire, SK17 9PS. Tel: 01298 233 333. Fax: 01298 235 200. m.aspinall@forticrete.com

RUNNER UP
Company Aggregate Industries - Masterblock
Site North End Works
Title - Containment of Noise on Site
Task
To ensure compliance with environmental legislation regarding noise emissions.

Problem
North Wiltshire District Council Environmental Office registered a noise complaint.

Solution
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Contact Details
Dave Warriner, Aggregate Industries - Masterblock, North End Works, Ashton Keynes, Wiltshire, SN6 6QX. Tel: 01285 646 810. Fax: 01285 646 897. dave.warriner@aggregate.com
RUNNER UP

Company: Hanson Building Products
Site: Derby
Title: Noise and Vibration Reduction
Task: Securing and removing fixing bolts to culvert moulds using electric impact wrenches.
Problem: The electric impact wrenches generate high levels of noise and vibration that would increase the likelihood of noise-induced hearing loss and hand/arm vibration syndrome.

Solution: Source and install air compressors and air-powered torque tools into the three manufacturing departments.
Result: Both the compressors and torque tools operate silently, eliminating noise from this part of the process. The torque tools operate with little or no vibration, virtually eliminating the likelihood of hand/arm vibration syndrome.

Contact Details: Clive Richardson, Hanson Building Products, Derby Works, Attenor, Derby, Derbyshire, DE2 4BN
Tel: 01332 546 301
Fax: 01332 372 208
clev@hanson.co.uk

RUNNER UP

Company: H+H Celcon
Site: Westbury
Title: Noise and Vibration
Task: Filling and emptying autoclaves of product. High pressure steam is then used to cure the product.
Problem: Working in the danger area meant that employees would be exposed to levels of high noise and hot pipework.

Solution: Trial lagging of exposed steam blow-down pipework with the possibility of extending it to all exposed pipework.
Result: Reduction of exposed hot pipework and noise levels by 8dB, resulting in all exposed pipe work being lagged by early 2007. It is not known at present what the noise reduction will be when all the work has been completed.

Contact Details: Iain Gordon, H+H Celcon, Quarrington Road, West Wilts Trading Estate, Westbury, BA13 4JT
Tel: 01747 823 871
Fax: 01747 827 631
iain_gordon@celcon.co.uk

RUNNER UP

Company: Marley Eternit
Site: Burton on Trent
Title: Clanger Noise Reduction
Task: The goal was to reduce noise output from the ‘clanger unit’ caused by the chains hitting aluminium pallet moulds.
Problem: The root cause of the problem was a build-up of material on the aluminium pallet moulds and the need for it to be removed. Because the material build-up contained cement the heavy chains acted as hammers to dislodge any excess material. The noise emitted by the chains striking the pallets was in the region of 100dB.

Solution: After calling in a specialist noise control company, the intention was to enclose the conveyor area where the clanger unit was installed in an acoustic enclosure containing sound absorbing material.
Result: By fitting the enclosure, emitted noise was reduced by 20dB.

Contact Details: David Grew, Marley Eternit, Lithfield Road, Brandon, Burton on Trent, Staffordshire, D44 3HD
Tel: 01283 722 232
Fax: 01283 722 242
david.grew@marleyeternit.co.uk

RUNNER UP

Company: Marley Eternit
Site: Delamere
Title: Knife and Strim Unit Noise Reduction
Task: To reduce noise emissions from the pneumatic knife unit and from the electrically driven strim unit following a noise survey.
Problem: The tile machine area was historically a noisy location with noise levels >100dB, the project set about reducing noise levels in this area.

Solution: The knife unit was connected to a high level exhaust/silencer, while the strim unit was housed.
Result: This project demonstrated the ability for a local project team using local knowledge and expertise to provide a low cost/high benefit solution to two difficult problems. The total outlay of the two improvements was only £570.

Contact Details: Philip Hill, Marley Eternit, Station Road, Delamere, Northwich, Cheshire, CW8 2JF
Tel: 01606 884 801
Fax: 01606 884 829
philhills@marleyeternit.co.uk

RUNNER UP

Company: Marley Eternit
Site: Beetham
Title: Replacement of Impact (Torque) Guns
Task: To reduce the vibration effect of pneumatic impact guns which are used primarily in the removal of moulds, peaked at 120dB (it is normally 95dB).

Solution: The team investigated alternative equipment and identified potential occupational health and safety benefits.
Result: The newly sourced tools reduced both vibration and noise to 83dB, and tools were also lighter in weight.

Contact Details: Brian Butcher, Marley Eternit, Grange Lane, Bath Road, Beetham, Reading, Berkshire
Tel: 01189 715 555
Fax: 01189 715 599
brianbutcher@marleyeternit.co.uk

RUNNER UP

Company: Marley Eternit
Site: Glasgow
Title: Noise Reduction
Task: Following a workplace noise assessment it was decided that noise levels at the reject tiles throw-off point were unacceptable.
Problem: Rejected tiles hitting the metal skip caused over 100dB of noise, while noise generated from a steel conveyor turntable, due to the impact of tile mounds, peaked at 120dB (it is normally 95dB).

Solution: The waste skips were lined with rubber and the turntable was fully enclosed to reduce noise.
Result: The impact noise from throwing off the tiles was reduced to 95dB and the noise generated by the turntable was reduced to 100dB.

Contact Details: Robert McEwan, Marley Eternit, Kirkstall Road, Bishopbriggs, Glasgow, G64 2FY
Tel: 0141 654 0550
Fax: 0141 654 203
robertmcewan@marleyeternit.co.uk
**RUNNER UP**

Company: Tarmac Topblock  
Site: Alfreton  
Title: HAVS - Control  

Task: Following the company’s health screening program it was identified that several individual employees were suffering from HAVS.  

Problem: Initial assessment of the site highlighted that there were numerous hand-held tools producing varying levels of vibration, with no means for measuring the vibration levels and no maintenance scheme to ensure their efficiency.  

Solution: After an independent survey, a tool amnesty was held so that all hand-held power tools could be assessed and where necessary new tools were bought. Training was also offered and regular vibration measurements taken.  

Result: Employees that could have been at risk were identified and control measures were put in place to prevent any worsening of existing cases. It is hoped that these new measures will prevent new cases from developing.  

**Contact Details**  
Alan Thompson,  
Tarmac Topblock,  
Bluebell Close, Clover Nook Ind. Est.  
Alfreton, Derbyshire, DE55 4RA  
Tel: 07773 835 124  
Fax: 07773 836 726  
alan.thompson@tarmac.co.uk

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**RUNNER UP**

Company: Marley Eternit  
Site: Sawston  
Title: Automatic Mixer Wash down System  

Task: To find out how to safely clean down the mixer at the end of the shift.  

Problem: The main issues were: confined space, use of vibration tools, damage to mixer internals and noise being greater than 95dB.  

Solution: The solution was to have automatic cleaning in situ using high pressure water jets.  

Result: Its implementation generated a 90% reduction in the use of vibrating chisels which significantly reduced the risk of vibration-induced injuries.  

**Contact Details**  
Nick Cardon,  
Marley Eternit,  
Dales Manor Business Park, Sawston,  
Cambridge, CB2 4TJ  
Tel: 01223 495 409  
Fax: 01223 495 444  
nick.cardon@marleyeternit.co.uk

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**RUNNER UP**

Company: Tarmac Building Products  
Site: Company Wide  
Title: Employee Occupational Health Risk Assessment and Action Plans  

Task: The company wanted, by the end of 2005, to eliminate any new cases or progression of existing cases of: Noise Induced Hearing Loss (NIHL), Hand Arm Vibration Syndrome (HAVS), dermatitis and occupational lung disease.  

Problem: Instances of the above conditions were not fully recorded across the company. Individuals were known to site managers but there was no clear and consistent plan for the management of their condition or their continuing risk.  

Solution: All operatives were subject to an individual risk assessment based on any existing conditions and their working environment. They were then given appropriate actions for controlling existing conditions and site-wide proceedings were identified to prevent any new cases being caused.  

Result: The scheme is still in its early stages but it has already delivered many changes, including replacement of high-vibration hand tools and the installation of sound proof enclosures.  

**Contact Details**  
Graham Green,  
Tarmac Building Products,  
SD Dept, Millfields Road, Ettingshall,  
Wolverhampton, WV8 6JP  
Tel: 01902 353 522  
Fax: 01902 353 920  
graham.green@tarmac.co.uk
SUSTAINABILITY SINGLE SITE AWARD
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www.concretecentre.com

SINGLE SITE WINNER

Company Marley Eternit
Site Delamere
Project – Competence Training and Awareness at Delamere
Marley Eternit has actively developed the skills and knowledge of its workforce to raise environmental awareness.
The comprehensive training package targets site-specific practice, control measures and responsibilities. Success of the training is assessed by an ‘End Test’ where trainees answer questions in relation to an environmental booklet. A pass mark of 80% provides the benchmark for competency. A computer-based training programme, TESS, is used to provide a more detailed insight into the impacts of industry upon the environment.
This project describes how the culture of employees has improved the overall environmental performance of the site as a result of increased competency.

Benefits include: reduced risk of environmental pollution, improved housekeeping, early identification of environmental hazards, quick and effective responses to incidents, positive environmental culture and improved environmental performance with minimal capital spend.

As a result of the training package, employees have significantly contributed to the continued reduction of environmental non-conformity during BSI audits, internal performance and management system audits, and reduced pollution incidents.

Contact Details
Nick Mace,
Marley Eternit,
Lichfield Road, Branston, Burton upon Trent, Staffordshire, DE14 3HD
Tel: 01283 722 512
Fax: 01283 722 242
nickmace@marleyeternit.co.uk

SINGLE SITE 2ND PLACE

Company Marshalls
Site Maltby
Project - Biodiversity and Conservation
The site formed a partnership with the local Wildlife Trust and over the last twelve months it has been working towards the new Wildlife Trust’s Biodiversity Benchmark. To get to this point the site has had to change the way in which it manages its Integrated Management System and incorporate biodiversity/wildlife conservation into it. At present no other manufacturing business in Britain has gained accreditation. Having achieved this they are rolling the benchmark out to other sites enabling them to demonstrate that they can work alongside and help to protect wildlife.
Good biodiversity and environmental practices form part of the company’s social and economic responsibilities, as well as being paramount for long-term sustainability.

Contact Details
Ian Manley,
Marshalls,
Ruddle Mill Lane, Stanton, Rotherham, South Yorkshire, S66 7RH
Tel: 01709 810 013
Fax: 01709 817 779
ian.manley@marshalls.co.uk

SINGLE SITE 3RD PLACE

Company Marshalls
Site Brookfoot
Project – Waste Management Helping to Support the Local Community
All waste generates a cost and in 2001 the site reviewed its packaging waste streams to facilitate sustainability and improve the Environmental Management Systems.
The site now runs a full packaging waste recycling scheme and has reduced costs to landfill whilst simultaneously converting waste into profit. In 2001 the site generated around 1200 tonnes of packaging waste culminating in a landfill cost of around £20,000 p.a. To stem this rising trend, a new employee initiative was launched resulting in a saving of 350 tonnes in the first year of the scheme and around 850 tonnes by 2003. At the end of 2005 total waste packaging has reduced to a mere 40.5 tonnes equating to savings of over £19,000. Furthermore, they have generated a profit of £11,000 from sales of the waste and have channelled these returns into projects to help the community.

Contact Details
Andrew Ambler,
Marshalls,
Brookfoot Works, Southowram, Halifax, West Yorkshire, HX3 9SY
Tel: 01422 434 152
Fax: 01422 434 160
andrew.ambler@marshalls.co.uk

This year’s award scheme rewarded excellence in the sustainability field. The broad scope of sustainability covered environmental, social and economic issues. The category was again split into two sections - single-site and corporate entries.
**HIGHLY COMMENDED**

**Company**: Hanson Building Products  
**Site**: Purfleet - Thermalite  
**Project**: Boiler House Efficiency

During October 2005 a fundamental review was undertaken of the boiler house operations of the Purfleet plant. The main aspect of the project was concerned with energy savings and better steam utilisation, once the data was gathered from the existing system. A contract company was employed to re-survey the system and assess the performance, and quantify and validate energy and utility savings based on measured performance of the system. The decision was made to redirect pipe work to an 8 tonne tank in the boiler house roof and connect it to the boilers. The tank was connected to the blow down water to elevate the temperature from ambient to 80°C. When called for, water is now pumped to the 8 tonne tank at 80°C, and is then heated to 90°C by the boiler. Savings in fuel were seen by using blow over to heat 8 tonnes of water by 10°C rather than heating 30 tonnes by around 45°C. The follow up survey shows a current cost saving in excess of £40,000 per annum is now being achieved. Hanson is now in a position to purge the autoclaves and has seen a significant increase in product strengths.

**Contact Details**  
Adrian Wilson,  
Hanson Building Products,  
Motherwell Way, West Thurrock,  
Essex, RM20 3LB  
Tel: 01708 682 235  
Fax: 01708 682 256  
adrian.wilson@hanson.biz

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**HIGHLY COMMENDED**

**Company**: Marshalls  
**Site**: Hambrook  
**Project**: Sustainability Through Benchmarking

For a number of years the site has maintained and improved an effective and robust Integrated Management System which meets the current needs of the business. This year the site has introduced benchmarking in conjunction with the British Standards Institute. During the assessment Hambrook achieved a BSI Gold Award. As part of the exercise it was recognised that they had to listen to “the voice of the customer,” in this case the customer being stakeholders, shareholders, Local Authorities and the local community. It was decided that the site would need to develop an effective environmental plan to protect the future, making prudent use of natural resources whilst at the same time maintaining stable economic growth and employment.

**Contact Details**  
Steve Hambury,  
Marshalls,  
Hambrook Works, Broad Road,  
Hambrook, Nr. Chichester,  
West Sussex, PO18 9RQ  
Tel: 01243 578 106  
Fax: 01243 578 117  
steve.hambury@marshalls.co.uk

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**RUNNER UP**

**Company**: Aggregate Industries - Bracstone  
**Site**: Hulland Ward  
**Project**: Water Harvesting product range

The system allows collection, storage and re-use of rainwater that would otherwise have gone to waste. Rainwater is collected in the holding tank beneath the patio, lawn or drive. Leaves and other debris are first filtered through a geotextile membrane and the water is drawn off via a hand or electric pump. Odours are kept at bay by the action of water and is then treated. The follow up survey shows a current cost saving in excess of £45,000 per annum is now being achieved. Hambrook is now in a position to purge the autoclaves and has seen a significant increase in product strengths.

**Contact Details**  
Adrian Wilson,  
Hanson Building Products,  
Motherwell Way, West Thurrock,  
Essex, RM20 3LB  
Tel: 01708 682 235  
Fax: 01708 682 256  
adrian.wilson@hanson.biz

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**RUNNER UP**

**Company**: Aggregate Industries - Bradstone  
**Site**: Hulland Ward  
**Project**: Water Use Reduction

Hulland Ward site is deeply committed to the recycling and conservation of water not only for today but for the future, to deliver continuous improvement, sustainability and ISO 14001 standards. The financial benefits to the company are substantial as fresh water from the local supplier costs 50.1p per cubic metre. Use of abstraction, collection and recycling cuts this consumption by approximately 82%.

Since January 2002, abstraction, collection and recycling activities have saved the company over £245,000. The amount of water saved would fill almost 200 Olympic sized swimming pools.

**Contact Details**  
Phil Montgomery,  
Aggregate Industries - Bracstone,  
Smith Hall Lane, Hulland Ward,  
Ashbourne, Derbyshire DE6 5JH  
Tel: 01335 372 222  
Fax: 01335 372 070
phil.montgomery@aggregate.com
**SUSTAINABILITY AWARD**

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**RUNNER UP**

Company: Bison Concrete Products
Site: Swadlincote
Project: Recycling at Swadlincote

Swadlincote factory is the first carousel recycling system was conceived as an integral part of the production process from the earliest stages of development and is Bison's first attempt at fully integrating recycling in the production process. The lessons learnt can be applied to traditional plants in the future.

The company recycles the waste water from site. Bison now recycle all waste water into storage tanks. This is then recycled back into the concrete mixers and equates to over 1000m³.

Not only have they optimised the use of site water but made significant cost reductions in the disposal of waste water.

---

**RUNNER UP**

Company: Buchan Concrete Solutions
Site: Byley
Project: University of the West of England - Bristol

The company was awarded the sub-contract to provide the precast concrete frame solution for the new £77million Student Village at the University of the West of England.

The sustainability of this project will be measured in the long term reduction of CO₂ emissions, combined with minimal maintenance costs and the architectural individuality achieved on the external elevations. This will ensure the project not only becomes a local landmark, but will also be a long term investment reinforcing the successful future of the University of the West of England.

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**RUNNER UP**

Company: Forticrete
Site: Leighton Buzzard
Project: Water Harvesting

The company recycles the waste water produced from the production facility and created waste water storage capacity of 40,060 m³. Part of the manufacturing process requires the washing down of paint and resin applications, (both water-based fluids). In the past this would have been disposed of by using waste carriers to remove the waste from site. Forticrete now recycle all waste water into storage tanks. This is then recycled back into the concrete mixers and equates to over 1000m³.

Not only have they optimised the use of site water but made significant cost reductions in the disposal of waste water.

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**RUNNER UP**

Company: Hanson Building Products - Thermalite
Site: Hams Hall
Project: Recycling of Condensate Water

The project involved the installation of new steam pipework and cleansing of existing pipework as well as the installation of new condensate pumping systems.

The processes could be made by a simple review of how the company dealt with waste and its packaging. It was identified that significant savings could be made by a simple review of how the company dealt with waste and its packaging. A review of waste streams was undertaken. All waste contractors were asked to re-quote and offer full cost breakdowns. A fully automated sprinkler system using concrete cutting jetting equipment and installing more efficient water pumps. Carrying out this work allowed savings of 20.6% of total annual usage, which equates to a cost saving of £30,918. This recovers 20.6% of total annual waste water production costs.

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**RUNNER UP**

Company: Hanson Building Products - Thermalite
Site: Hams Hall
Project: Waste Streams

The project's objective was to minimise the use of mains water by recycling condensate water produced from the factory's steam autoclaves.

The project involved the installation of new pipework and cleansing of existing pipework for business. Training and involvement of personnel was carried out. The result of this was a significant saving on annual waste costs. Benefits include no capital investment required as current facilities exist to achieve goals. A simple change in work ethic and culture will be required to enable the project to move forward.

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**RUNNER UP**

Company: Hanson Building Products - Thermalite
Site: Ringwood
Project: Dust Suppression

Land use changes around the Ringwood site increased environmental concerns. These concerns included airborne dust caused by vehicle movements and 'wind whipping' of aggregates from storage bays.

Consultations with the local Environment Agency started and site visits were made. The concerns identified by the employees were confirmed by the Agency with specific emphasis being put on the minimisation and control of dust.

A fully automated sprinkler system using water abstracted from the adjacent lake was installed, which allowed full control of all airborne dust on site without impacting on the local environment.
Company Hanson Building Products - Thermalite
Site Newbury - Thermalite
Project - Waste Management
As part of the factory’s ‘waste management objective’, a study was carried out to identify and categorise all of the waste streams produced on site, in order to establish potential areas for reductions.

Contact Details
Gerry Maley,
Marshalls,
Bleachfield Works, Dollar Industrial Estate,
Falkirk, FK2 7YS
Tel: 01324 614 900
Fax: 01324 614 905
gerry.maley@marshalls.co.uk

Company Marshalls
Site Ramsbottom
Project - Water and Materials Recycling System
In August 2005 Marshalls commissioned a new manufacturing unit at their Ramsbottom site. Employees were involved from project conception and assisted with the planning, design, location and innovative ideas incorporated into the project.
Part of the projects aims were to: reduce the amount of mains water consumed by the manufacturing process, maximise the use of free water available on site, reduce and recycle all wet-tipped concrete waste, reduce and recycle all rejected concrete products and reduce the use of virgin material and the impact on the local community by reducing inbound haulage.
All the targets were successfully achieved resulting in annual benefits including: a reduction of 2,880m³ of mains water consumption, a reduction in landfill requirements of 9,725 tonnes, a reduction in consumption of 7180 tonnes of virgin material, the elimination of 292 articulated vehicle journeys, a reduction of 13,340 miles of road haulage (8,500 litres of diesel) and a saving of over £150,000.

Contact Details
Sean Butler,
Marshalls,
Fletcher Bank Works, Ramsbottom,
Bury, Lancashire, BL0 0DD
Tel: 01706 282 723
Fax: 01706 282 726
sean.butler@marshalls.co.uk

Company Marshalls
Site Eaglescliffe
Project - Sand Martin Colony
Segregation of waste is part of the daily routine along with recycling wooden pallets, steel and concrete. However, there has been an opportunity regarding sustaining biodiversity in the local environment and attracting bird species from afar. Recycled fine aggregate from the segregated waste concrete is used as a replacement for sand and there was an opportunity on site to use the same material to construct a bird bund and have a Sand Martin colony. Marshalls’ Eaglescliffe has worked with a local bird club over the years who have carried out a number of on-site surveys. This collaboration has encouraged the bird population.

Contact Details
Edward Trainer,
Marshalls,
Eaglescliffe Works, Durham Lane,
Eaglescliffe, Stockton-on-Tees,
Cleveland, TS16 0PS
Tel: 01642 792 500
Fax: 01642 792 506
edward.trainer@marshalls.co.uk

Company Roger Bullivant
Site Burton upon Trent
Project - Bespoke Mesh
The problem faced by the company was the amount of waste generated by using bought-in mesh. It was felt that the waste was excessive and it was decided to install an automated mesh machine.
The machine has reduced waste and saved the company in excess of £100k a year.

Contact Details
Stephen Parker,
Roger Bullivant,
Walton Road, Drakelow, Burton upon Trent,
Staffordshire, DE5 9UA
Tel: 01283 525 070
Fax: 01283 743 828
steve.parker@roger-bullivant.co.uk

Company Marshalls
Site Falkirk
Project - Fuel Farm
The present fuel farm, built some 30 years ago, was situated at the main entrance to the site and caused severe traffic congestion when vehicles were refuelling at the end of the day. At the fuel farm there were two fuel tanks above ground level and one underground tank. The present tank farm had no protection from the elements and the bund would fill up with rain water.
Discussions were held with SEPA (Scottish Environmental Protection Agency) about the concerns with the present fuel tank. The tank farm did not breach environmental legislation, but, like Marshalls, they were concerned about the potential impact if a major spillage occurred. As a result, a new and improved fuel tank was installed.

Contact Details
Gerry Maley,
Marshalls,
Beachfield Works, Dollar Industrial Estate,
Falkirk, FK2 7YS
Tel: 03324 614 900
Fax: 03324 614 949
gerry.maley@marshalls.co.uk
In 2004 Tarmac set out on a campaign to reduce energy by 15% per unit production across the business. The campaign was badged as SavE (Save Energy). To achieve such a reduction required a significant amount of input from employees at all levels and rewarding the best ones. The result has been a much-heightened awareness amongst all levels about what the company sites and areas for continual improvement.

The company suggestion scheme has been put to good use collecting energy saving ideas from employees at all levels and rewarding the best ones. The result has been a much-heightened awareness amongst all levels about what the company sites and areas for continual improvement.

Secondly, a regular two-page newsletter was issued to every employee that outlined general advice on energy saving at work and at home. Thirdly, periodicals such as the in-house ‘Tarmac World’ and intranet site ‘T-junction’ carried SavE articles. The company suggestion scheme has been put to good use collecting energy saving ideas from employees at all levels and rewarding the best ones. The result has been a much-heightened awareness amongst all levels about what the company sites and areas for continual improvement.

The Enviromasonry range is manufactured on modern automated plants and produced from specially selected secondary recycled aggregates. Cement replacement materials are also incorporated to minimise environmental impact whilst maintaining quality throughout. Fyfestone Enviromasonry complies with BS EN 771-3. All products are manufactured under the quality procedures of BS EN ISO 9001 and Environmental Standard BS EN ISO 14001. Production processes and inputs/outputs are analysed to measure performance and determine areas for continual improvement.

The company has gone above and beyond the Packaging (Waste) Regulations by looking at product packaging (e.g. optimising plastic thickness, cardboard interleafing and use of timber pallets) in order to reduce usage wherever possible. Additionally the company has looked at the packaging that raw materials are delivered in with the intention of minimising such packaging wherever possible. For example, the bulk delivery of raw materials where appropriate and ensuring that suppliers take back Intermediate Bulk Containers. Compared with 2004, the packaging savings in 2005 amounted to 163 tonnes of timber pallets (approximately 10,000 in number), 43 tonnes of cardboard and 119 tonnes of plastic wrap. This amounted to a financial saving of approximately £10,000.

The overall final benefits are in the region of £15k for minimal outlay. This has led to a number of regular employee initiatives and reduced cost. Bulk oil tanks are bailed and sold-on rather than being disposed of in a skip. Bulk oil is used instead of oil drums to reduce cost. Bulk oil tanks are easier to handle and may involve no disposal costs.
The innovation award is open to a wide interpretation of innovation from factory to site, software to concrete materials, marketing to logistics. The award is open to Full and Associate members.

**WINNER**

**Company** Bison Concrete Products  
**Project** Swadlincote hollowcore flooring plant

The new factory at Swadlincote is designed in an innovative way, with the objective of manufacturing Bison precast pre-stressed hollow core flooring of high quality and in volume at a very economic cost. In conventional hollow core plants machines move along stationary beds laying concrete onto pre-stressed wires. At Swadlincote the casting beds move in a carousel formation through the production process.

Swadlincote is a pioneer in drawing office to plant technology. Details from drawings are transmitted online to the computerised control system at Swadlincote enabling today’s drawing to be tomorrow’s product without human intervention or delay.

Additionally every individual slab produced at the plant is identified with a transponder card containing full details of its size, weight, project and eventual on-site position.

There is no wastage at Swadlincote. At every point during production, waste material, both wet and dry, is conveyed to a recycling area which it passes through to reclaim the constituent parts of the concrete.

The entire production process takes only 12 hours and since the process is highly efficient the resulting product combines very high quality and accuracy with significant economy, enabling it be delivered at highly competitive rates to a radius of 200 plus miles from the plant.

**Contact Details**

Alan Clucas,  
Bison Concrete Products,  
Millennium Court, First Avenue,  
Centrum 100, Burton upon Trent,  
Derbyshire, DE14 2WR  
Tel: 01283 495 000  
Fax: 01283 544 900  
concrete@bison.co.uk
2ND PLACE

Company: Bison Concrete Products

Project - Lifting Hooks Investment

Following demands from their customers to offer a product with cast-in lifting hooks, Bison sourced a patented technology for the automatic installation of lifting hooks. The project involved extensive R & D and investment in excess of £2 million. The resultant equipment installs lifting hooks to all hollow core flooring unit product depths (100mm to 450mm) with a minimum factor of safety 5.6.

The benefits to the customer are:
- Improved health and safety on site
- Much greater speed of erection
- Elimination of damage to soffit of product
- Significantly reduced damage to blockwork bearings during erection.

Contact Details
David Skey,
Bison Concrete Products,
Tetron Point, William Nadine Way,
Swadlincote, Derbyshire, DE11 0BB
Tel: 01494 681 600
Fax: 01283 544 900
info@consortcom.co.uk

3RD PLACE

Company: Buchan Concrete Solutions

Project - Wide Prestressed Flat Slabs

Buchan Concrete Solutions was awarded the sub-contract to provide the precast concrete frame solution for the new £77million Student Village at the University of the West of England. At the start of the construction period main contractor Carillion had incurred a two week delay to the contract programme resulting from planning issues and Buchan was challenged with its recovery.

Twelve months later and 4 weeks early, Buchan completed the challenge and delivered 1,974 student accommodation rooms, 288 kitchen/diner areas and associated core access areas. This put the precast concrete frame solution for the new £77million Student Village at the University of the West of England. At the start of the construction period main contractor Carillion had incurred a two week delay to the contract programme resulting from planning issues and Buchan was challenged with its recovery.

Twelve months later and 4 weeks early, Buchan completed the challenge and delivered 1,974 student accommodation rooms, 288 kitchen/diner areas and associated core access areas. This put the precast concrete frame solution for the new £77million Student Village at the University of the West of England. At the start of the construction period main contractor Carillion had incurred a two week delay to the contract programme resulting from planning issues and Buchan was challenged with its recovery.

They developed wide prestressed flat slabs to increase the speed of build.

Contact Details
Julie Cagna,
Buchan Concrete Solutions,
Kings Lane, Blythe, Middlewich,
Cheshire, CW10 9NB
Tel: 01606 843 500
Fax: 01606 842 215
julie.cagna@amec.com

INNOVATION AWARD

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RUNNER UP

Company: Aggregate Industries

Project - Sustainability In Action

Recycled materials and sustainable drainage are two of the methods used by Aggregate Industries to achieve sustainability within their industry. Aggregate Industries have been developing Sustainable Drainage Systems (SUDS) in response to general concern over the way that the built environment reduces the permeability of the surface, which results in rapid overland flow of rainwater into rivers. Also by providing products with contain recycled or secondary materials there is a simple correlation with both reduced waste materials to landfill and reduced requirement to extract primary materials from quarries. In 2005, Aggregate Industries recovered and recycled 3 million tonnes of materials in the UK.

Contact Details
Kevin Greaves,
Aggregate Industries,
Hulland Ward, Ashbourne,
Derbyshire, DE6 3ET
Tel: 01335 372 326
Fax: 01335 370 034
kevin.greaves@aggregate.com

RUNNER UP

Company: Bison Concrete Products

Project - Transponder Technology

Bison's project allows for equipment that inputs data onto a transponder card and then applies it to varying depths of flooring product. It also allows for the development of software to input the data to transponder card including delivery load number, location of unit on load and unique bed serial number.

The use of this technology eliminates human error in transferring data from the office to the shop floor. It provides accurate calculations and CDM regulations at a later date. The system also has hand held readers to abstract data from the card. The system enables a fail-safe approach to identifying a specific slab during the production process and in transport. It also provides a lifetime access to data, should change of use of the building be required.

Contact Details
David Skey,
Bison Concrete Products,
Tetron Point, William Nadine Way,
Swadlincote, Derbyshire, DE11 0BB
Tel: 01494 681 600
Fax: 01283 544 900
info@consortcom.co.uk

RUNNER UP

Company: Bison Concrete Products

Project - CAD CAM Technology

The use of this technology eliminates human error in transferring data from the office to the shop floor. It provides accurate guidelines to add detail to the product, i.e. skewed ends to units, open cores, cut out holes,weep holes and location of lifting hooks.

The technology has the ability to print technical data onto the unit providing traceability and unit weight. There is also the provision of additional print heads allowing marketing data to be printed onto the unit, increasing brand or customer awareness. A visual aid can be provided to assist in unit checking.

Data, load number and location can be printed on the product to ensure sequential loading and erection on site.

Contact Details
David Skey,
Bison Concrete Products,
Tetron Point, William Nadine Way,
Swadlincote, Derbyshire, DE11 0BB
Tel: 01494 681 600
Fax: 01283 544 900
info@consortcom.co.uk

Runner-Up Photo: Peter Dunnion (2nd Left) and Alistair Jack (R)

Runner-Up Photo: Peter Dunnion (2nd Left) and Alistair Jack (R)

Runner-Up Photo: Peter Dunnion (2nd Left) and Alistair Jack (R)
Stephenson Construction developed a technique to build in an in-situ reveal joint to cope with the tolerances of the semi-precast product. This has resulted in an exceptional finish throughout. The Cobiaxdeck offers 20% time improvements over traditional methods, eliminates beams and reduces the number of columns. In addition, by void forming the slab with the Cobiaxdeck product, the amount of embodied CO2 can be reduced by between 30% and 50%. The result is more manageable, lighter structures with less risk, higher qualities of finish and a flat slab.

The combined sewer outfall (CSO) was used by the water company's customers was numbered in days – rather than the more usual weeks – for such installations. Speaking on behalf of the client, Paul Laybourne said: “Northumbrian Water are regularly looking at ways to improve processes already in place and to minimise disruption to our customers. The CSO in a box product provides flexibility to the project programme and significantly reduces overall work timescales.

Hanson Formpave overcame these problems by designing a terraced sustainable drainage system that would substantially slow the volume of rainwater discharged from the site. This would restrict the outflow of rainwater to Environmental Agency requirements, for green-field run-off. Formpave’s design used its Aquaflow permeable paving blocks and storm water source control system to attenuate the rainwater that fell on the areas of the car park, thereby managing peak flows.

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The ‘CSO in a box’ product provides flexibility to such installations. Speaking on behalf of the client, Paul Laybourne said: “Northumbrian Water are regularly looking at ways to improve processes already in place and to minimise disruption to our customers. The CSO in a box product provides flexibility to the project programme and significantly reduces overall work timescales.

The machine will deliver value engineering as mesh links are designed to demand, eliminating human error. This plant is just one of the stages in further automating production at RBL Drakelow, and will eventually be linked to the proposed pre-cast carousel plant. The biggest saving will be the reduction in mesh wastage which currently costs the company in excess of £100k every year. This saving will continue to increase as the business grows.

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The company had the additional task of providing a drainage system that could deliver a low volume of water discharge - only 5 litres per second per hectare for a 1 in 100 year storm event – in conjunction with being constructed on a 1:14 slope.

The machine will deliver value engineering as mesh links are designed to demand, eliminating human error. This plant is just one of the stages in further automating production at RBL Drakelow, and will eventually be linked to the proposed pre-cast carousel plant. The biggest saving will be the reduction in mesh wastage which currently costs the company in excess of £100k every year. This saving will continue to increase as the business grows.

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The replacement of traditional steel reinforcement with synthetic macro fibre technology from Grace Construction Products, called STRUX 90/40, was used in large precast revetment units for a major coastal defence project at Blackpool. Replacing steel reinforcement not only led to a more efficient production process but gave the precast units a significant enhancement in durability. This is due to the elimination of the potential for reinforcement corrosion during the serviceable life of the structure. The performance of STRUX 90/40 synthetic structural fibres in the design mix for precast concrete revetment units for the project at Blackpool has been demonstrated by testing concrete beams. The tests demonstrate the ability of STRUX 90/40 fibre reinforcement to provide the concrete with a residual flexural strength.

Contact Details
John Edwards,
SLP Precast/Grace Construction Products,
Hamilton House, Battery Green Road,
Lowestoft, Suffolk, NR32 1DE
Tel: 01502 587 322
Fax: 01502 585 525
john.edwards@slp-eng.com

If concrete were to be invented now it would be hailed as a miracle. To find out why get your copy of “A Little Book Of Concrete - A guide to one hundred advantages”

CONCRETE TARGETS HEALTH & SAFETY SCHEME 2005 WINNERS
The winners of the final year of The Concrete Targets Scheme 2000 - 2005 were announced at the inaugural dinner in May at the Arena Conference Centre, Leicester.

4 STAR
- Acheson & Glover Precast
- Buchan Concrete Solutions
- Hanson Building Products
- Lofarge Roofing
- Marley Eternit
- Marshalls
- Tarmac Topblock
- CEMEX Concrete Products
- CEMEX Precast

3 STAR
- Forticrete
- H+H Celcon
- Tarmac Precast Concrete
- Tarmac Toppave

2 STAR
- Aggregate Industries UK

ROLL CALL OF HONOURS
Over the last 5 years of the scheme the following companies have reduced their accidents by at least 50%
- Buchan Concrete Solutions 75%
- Tarmac Building Products 63%
- CEMEX UK Building Products 63%
- Hanson Building Products 61%
- Aggregate Industries 60%
- Marley Eternit 50%
CONCRETE TARGETS 2010
HEALTH & SAFETY SCHEME

Acheson & Glover
ACP (Concrete)
Aggregate Industries
Bell & Webster
Bison Concrete Products
Brett Landscaping
Buchan Concrete Solutions
Carter Concrete
CEMEX UK Building Products
Ebor Concretes
Ennstone Building Products
Forticrete
Hanson Building Products
H+H Celcon
Lafarge Roofing
Marley Eternit
Marshalls
Merseybeams
Milbank Floors
Milton Precast
Robeslee Concrete
Sandtoft Roof Tiles
SCC
Stanton Bonna
Tarmac Building Products
Thorpe Precast
Titan Precast
Trent Concrete

THE ABOVE MEMBERS* HAVE ALL SIGNED UP FOR THE CONCRETE TARGETS 2010 SCHEME ALREADY. HAVE YOU?

For further information about the awards schemes please contact:
Colin Nessfield, Technical Manager on:
Tel: 0116 222 9848
Email: concrete2010@britishprecast.org

*list correct as of October 2006

www.britishprecast.org/concretetargets

THE NIGHT!

British Precast staff get all dressed up!
The Venue

The ladies...
...and gentlemen arriving

Norman Brown from ABC Structures switches to his night duties
Competition was tough on the Scalextric track
Quick, is there a doctor in the house?
‘Operation’ gave some quite a buzz!
The dancing was definitely 70’s inspired
British Precast Concrete Federation Limited
60 Charles Street, Leicester, LE1 1FB
www.britishprecast.org/awards

DRINKS RECEPTION
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BAR & TABLE SPONSOR
Sponsored by Roger Bullivant

We raised £1500 on the night for Diabetes UK
and thank everyone for their kind donations

British Precast thanks our partners for their support

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