



Concrete Industry Sustainability Performance Report

9th report: 2015 performance data

Our Strategy 2020

Vision

To be recognised as a leader in sustainable construction, by taking a dynamic role in delivering a sustainable, low carbon built environment in a socially, environmentally and economically responsible manner.

Strategic Objectives

1. Commit to our role in achieving a sustainable environment and contribute to construction industry and government initiatives.
2. Engage with the broader supply chain to inform good practice and continue to explore new ways of improving or sustainable production performance.
3. Communicate with clients to provide knowledge of concrete solutions to enable the design and construction of a sustainable built environment

Commitments

1. Contribute to the delivery of a low carbon built environment
2. Provide Life Cycle Assessment data compliant with codes and standards
3. Develop a Material and Resource Efficiency Programme to inform best practice across the life cycle of concrete in the built environment
4. Develop a low carbon freight initiative to support improvement in transport through the concrete supply chain to construction sites.
5. Develop a water strategy to support the measurement of sustainability performance and target setting
6. Target continuous improvement of sustainable production performance and report annually.

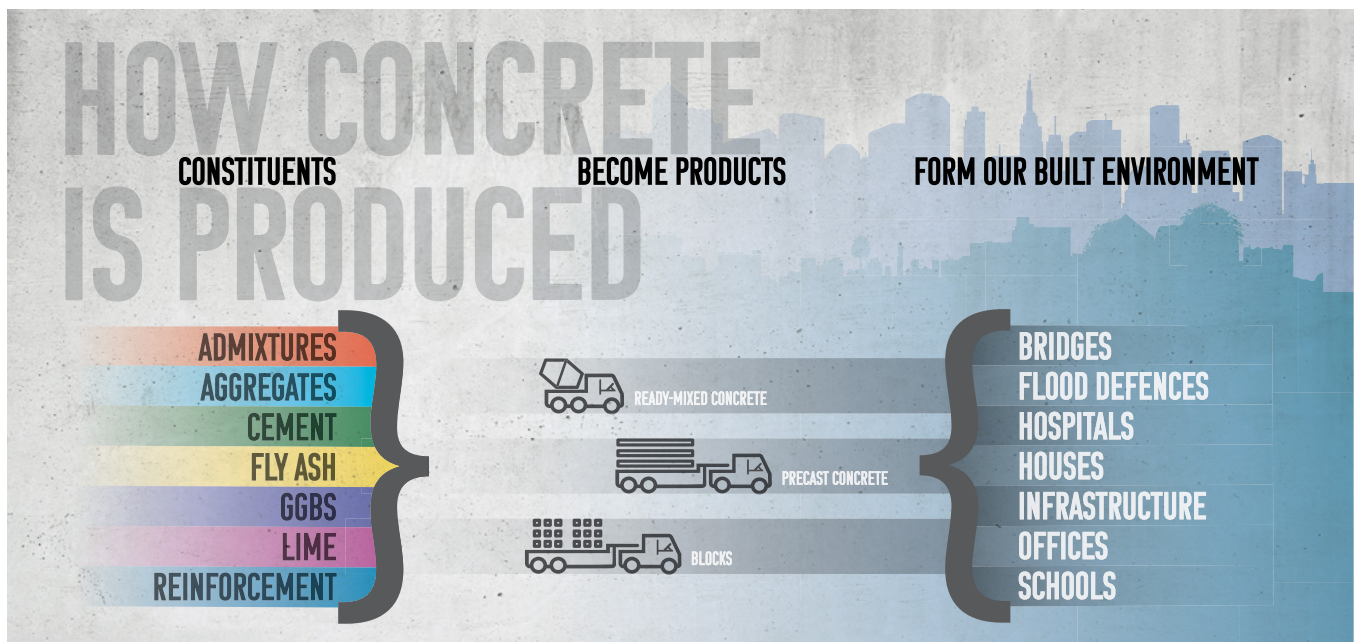
Our Ninth Report

This 9th annual report provides an update and detailed record of progress against the strategic objectives and commitments. It summarises performance from 2008 to 2015 against 2020 targets for a range of performance indicators (pages 14 and 15 give a quick reference summary).

All of the indicators are based on data collated for concrete production. In addition, some also report on the additional effects of including a contribution from the reinforcing steel provided by BAR under the heading 'concrete + reinforcement'

More details of the background and methodology for these indicators can be obtained from the publication *Concrete Industry Guidance on Performance Indicators* available through the sustainable concrete website link below.

An online version of the report can be viewed at www.sustainableconcrete.org.uk where you can also give your views on the strategy and its progress.



The concrete industry consists of nine key production sectors that together provide products and solutions to deliver a sustainable built environment.

Our Progress

An update from our Chairman



Andy Spencer, Chairman of the Sustainable Concrete Forum

The UK's referendum vote to leave the European Union will without doubt set challenges and opportunities for the UK economy and its industries. Despite this uncertainty, the concrete industry continues to be committed to our sustainable construction strategy.

Having reviewed the performance data in the report, we are encouraged and proud that overall progress is positive. Many indicators are showing a high likelihood of reaching the ambitious targets set when we introduced the strategy in 2008.

However we are not complacent and will ensure that efforts are focussed on improving the areas where progress is a little slower. For example, after several years of good progress, our health and safety performance during 2015 has given us some cause for concern and as our top priority in the sector, work to reverse this trend is being treated with urgency.

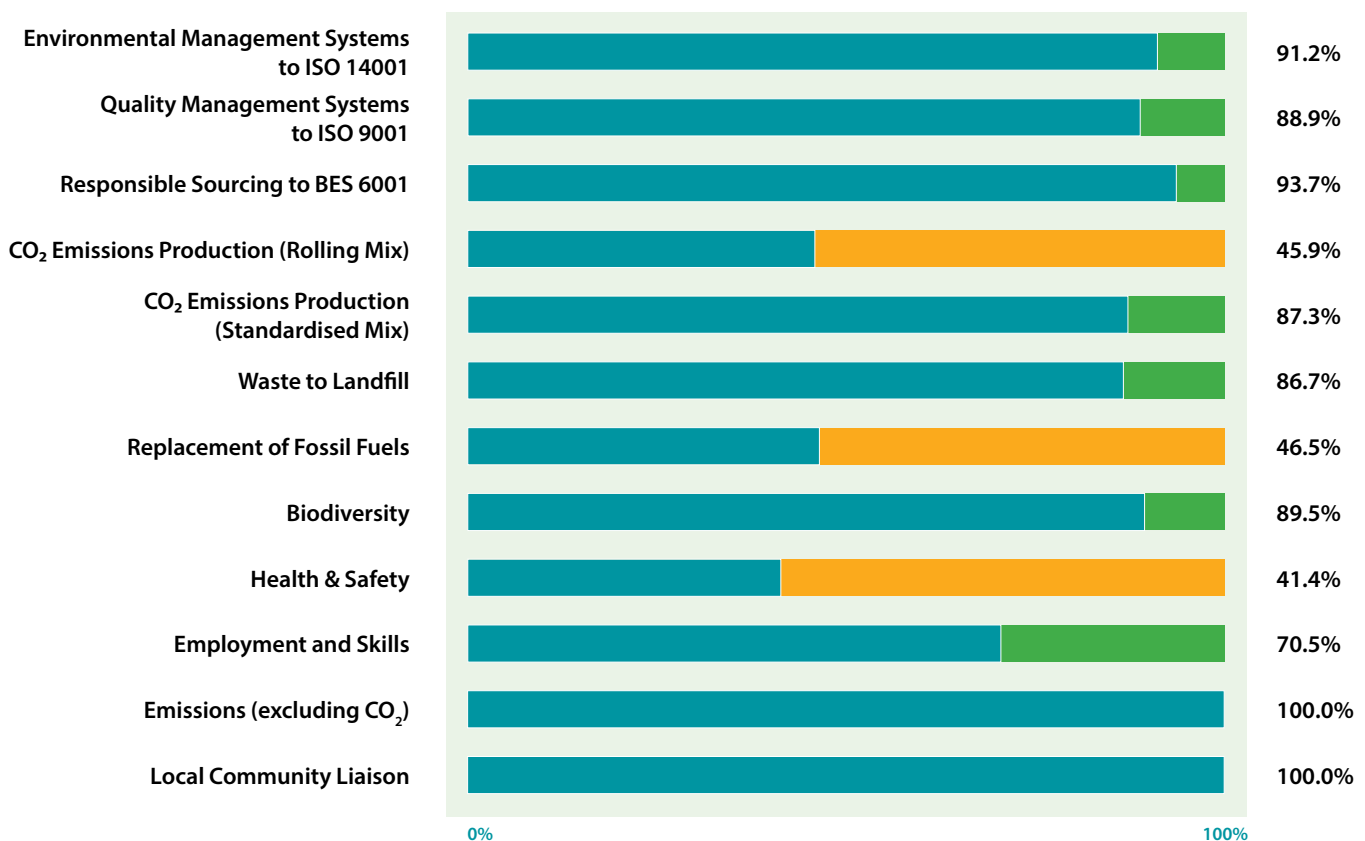
A key element of our strategy is to provide construction designers and specifiers with reliable and accurate information on which to base decisions. I'm delighted to say that we now have a number of generic verified Environmental Product Declarations available for concrete and are working on the tools to enable companies to develop product specific versions.

The Concrete Centre continues to publish excellent guidance and run high quality events focussed on all aspect of sustainable construction. These are available on our sustainable concrete website www.sustainableconcrete.org.uk or www.concretecentre.com.

Our next step will be to carry out a significant review of the direction we need to be taking. We will be discussing this with a range of stakeholders to ensure that we are meeting their needs and that our report provides them with the information they value. I'm looking forward to sharing our progress on this important work, along with continuing to drive the core performance indicators towards our targets.

Andy Spencer, Chairman of the Sustainable Concrete Forum

Progress to 2020 targets based on 2015 performance



The graph above is based on a 2008 baseline year.

Action on Materials

Concrete is a locally produced and responsibly sourced material

Our Strategy 2020 Commitment

- Target continuous improvement of sustainable production performance and report annually

To target continuous improvement requires effective management systems, a consistent methodology for measurement and open and transparent reporting of progress.

The concrete industry reports on Environmental management through ISO 14001, Quality Management through ISO 9001 and demonstration of responsible sourcing through BRE BES6001 which provide an effective framework for managing production and materials procurement sustainably. These independent third party certifications provide confidence that these systems are put into practice effectively with regular review and that performance data generated is credible and reliable.

The concrete industry sustainable construction strategy and the supporting performance indicators provide a framework for a common, transparent approach for the industry to target appropriate improvements and report progress openly, with regular input from a wide range of stakeholders. This, the ninth consecutive annual report, provides details of the industry's progress towards its performance improvement targets for 2020.

- Provide Life Cycle Assessment data compliant with codes and standards

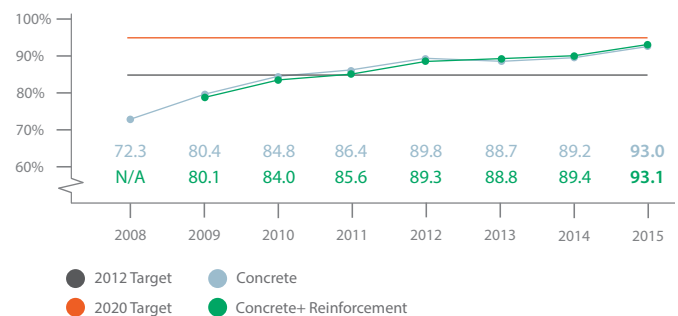
Designers and specifiers need credible data to be able to quantitatively assess sustainable construction. Environmental Product Declarations (EPD) based on Life Cycle Analysis (LCA) provide a reliable method in compliance with European and International standards.

Generic EPD for concrete and concrete products are available from British Precast and BRMCA. The verified methodology used for these was developed into a tool kit that provides concrete producers with a means to improve their values and ultimately allow individual product EPD.

Two key publications from The Concrete Centre provide valuable guidance for sustainable construction in concrete. *Specifying Sustainable Concrete* and *Concrete and BREEAM* are available free for download at: www.concretencentre.com/publications

Environmental Management

Percentage of production sites covered by a certified ISO 14001 EMS



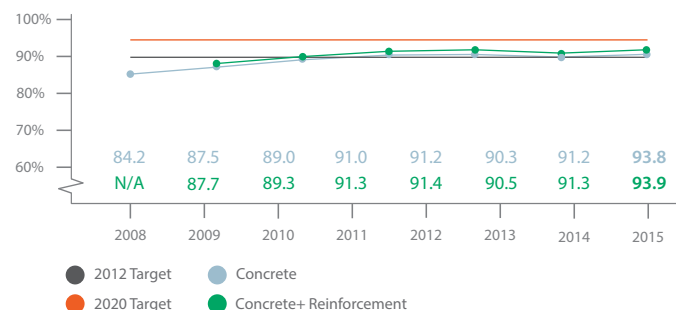
Controlling and managing the environmental impacts of procuring materials and manufacturing products is an essential requirement for sustainable development.

Environmental Management Systems, particularly when meeting the requirements of ISO 14001, are a best practice approach to identifying impacts, assessing their importance and providing a structured approach to controlling, reporting and managing performance improvement.

Our indicator reports on the percentage of the total concrete production and constituent materials sites that are independently certified to ISO 14001. 2015 data shows that the proportion of certified sites has continued its steady increase now reaching 93%. The 2020 target is 95%.

Quality and Performance

Percentage of production sites covered by a certified ISO 9001 QMS



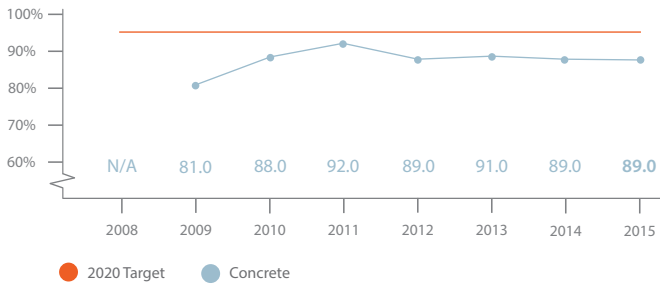
Product consistency, performance and being fit for purpose are crucial to sustainability and ensuring that materials are not rejected or potentially wasted, which is costly both economically and environmentally.

Quality management systems have a vital role and our indicator reports on the percentage of the total concrete and constituent material production sites that are independently certified to ISO 9001.

2015 data shows a continued increase in certification to 93.8%. The 2020 target is 95%.

Responsible Sourcing

Percentage of production certified to BES 6001



Providing evidence of the responsible sourcing of building products and materials continues to be crucial with the need to demonstrate compliance with a recognised responsible sourcing scheme, certified by a third party. Our indicator reports the proportion of concrete and constituent materials production that is currently certified to BES 6001.

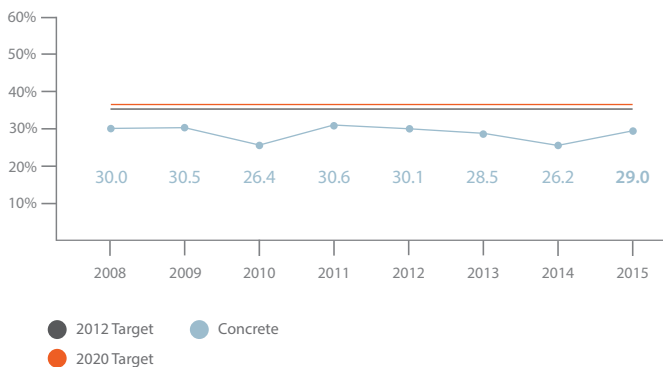
During 2015 certification of concrete products to BES 6001 was maintained at 89% of production tonnage as companies transferred to the upgraded Issue 3.0 (2014 version). Over 90% of this certified tonnage achieved a performance rating of Very Good or Excellent.

The 2020 target for BES 6001 certification is 95%.

Resource Efficiency

Additional cementitious materials

The amount of additional cementitious materials as a proportion of total cementitious materials



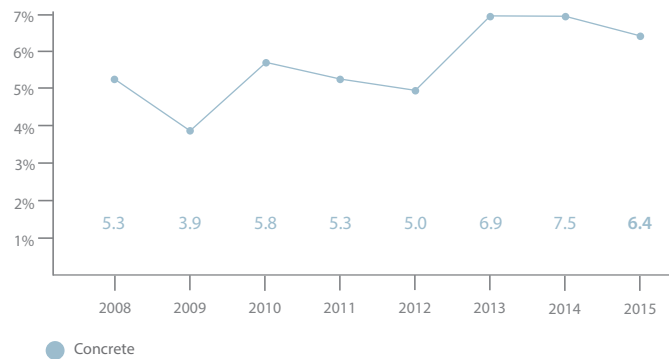
By-product materials such as ground granulated blastfurnace slag (GGBS) and fly ash can act as part of the cementitious binder in concrete. These materials have a lower embodied carbon than cement and can also influence the appearance and performance of concrete.

This indicator, which is strongly influenced by the types of concrete required by the construction sector, reports the proportion of additional cementitious material as a percentage of the total cementitious materials.

In 2015, 29% of the total cementitious materials used were additional cementitious materials. The 2020 target is 35%.

Recycled/secondary aggregates

The use of recycled/secondary aggregates as a proportion of total aggregates used in concrete



Depending on the application and the type of concrete there is often an opportunity to incorporate recycled aggregates previously used in other projects and secondary aggregates that may be by-products from other industrial processes.

The specification of recycled and secondary aggregates is a balance of resource efficiency, transportation CO₂ and the implications on mix design. Consequently, these aggregates should be used in concrete production where it is technically and environmentally beneficial to do so. The industry continues to operate on this principle and uses recycled materials where possible and appropriate. In 2015 6.4% of aggregates used in concrete were from recycled or secondary sources.

Guidance on using recycled materials is provided in *Specifying Sustainable Concrete* and *Concrete and BREEAM* available for download at www.concretecentre.com/publications

Recycled steel reinforcement

Steel reinforcement manufacturing BAR members used approximately 93% of recycled ferrous metal waste as a proportion of the raw materials consumed in their electric arc furnaces (EAF).

Action on Carbon

Concrete uses its thermal mass to save energy and carbon

Our Strategy 2020 Commitment

• Contribute to the delivery of a low carbon built environment

Carbon emissions from the built environment arise from two main sources; 'operational' from using buildings and infrastructure and those 'embodied' in the manufacture of construction materials.

Operational carbon from buildings is significantly greater than the embodied carbon in their construction materials. Concrete construction can make a significant contribution to reducing operational carbon through its unique combination of properties, in particular thermal mass. The Concrete Centre continues to provide best practice advice on low carbon design supported by regular events to share knowledge from exemplar projects.

The concrete industry is fully committed to reducing the embodied carbon within concrete, and reports on carbon intensity - kg of CO₂ per tonne of concrete produced and energy intensity in kWh/tonne. This data includes the emissions and energy use from the supply of constituent materials.

Data is reported based on two average proportions of materials; the 'Rolling mix' based on an average of materials used per tonne of concrete for the reporting year and the 'Standardised mix' based on the materials proportions in 2008 when the strategy was introduced so that progress can be clearly assessed.

The 2020 target is a 30% reduction based on a 1990 baseline.

• Develop a Low Carbon Freight Initiative to support improvement in transport performance through the concrete supply chain to construction sites

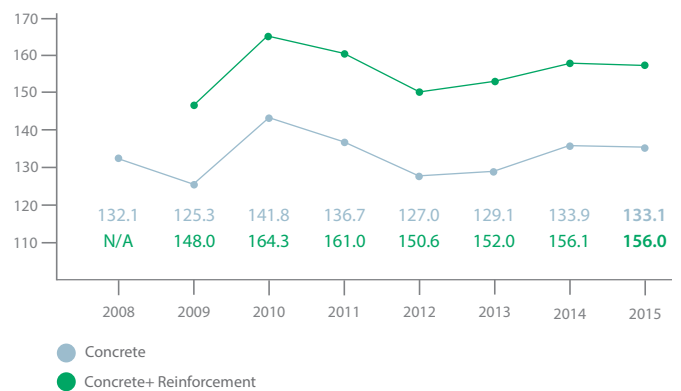
Concrete is a UK manufactured product that is locally sourced, helping to reduce the CO₂ associated with transport of materials to a construction project.

Our current indicator is based on the CO₂ emissions related to delivery transport.

Efforts are underway to address the wider social and environmental impacts of transport through improved scheduling, vehicle quality and driver training. There are also examples of manufacturers investing in more efficient fleet and sector initiatives to encourage and enable a greater use of rail freight.

Energy Efficiency

Energy used in production as a proportion of production output - Rolling Mix (kWh/tonne)

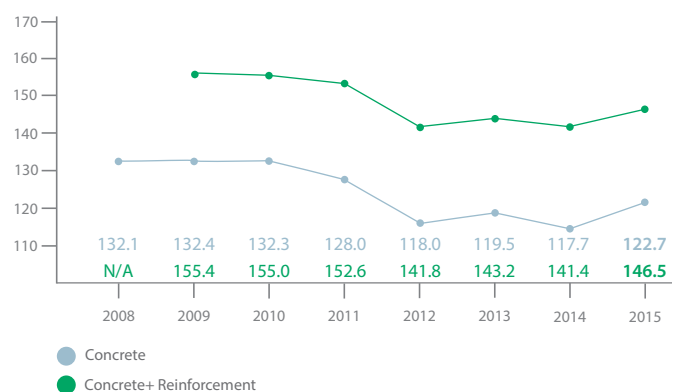


Reducing the carbon emissions associated with the production of concrete and its constituent materials can be achieved by improving energy efficiency and reducing consumption. The indicator (kWh/tonne) also referred to as 'energy intensity' reports energy consumption during the manufacture of concrete products added to proportional contributions from each of the constituent materials. This is effectively a measure of the average embodied energy of all concrete produced (by the Forum members).

Energy intensity is reported based on two overall 'mix' types; the 'Rolling mix' and the 'Standardised mix'. See the box (left) for further definition of these terms.

In 2015, the energy intensity figure for the Rolling mix is 133.1 kWh/t. The figure for concrete and reinforcement is 156.0 kWh/t. The energy intensity figure for the Standardised mix is 122.7 kWh/t. The figure for concrete and reinforcement is 146.5 kWh/t.

Energy used in production as a proportion of production output - Standardised Mix (kWh/tonne)

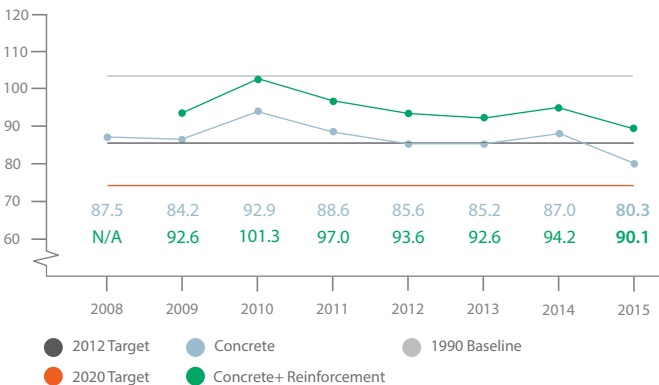


CO₂ Emissions – Production

The indicator for production CO₂ is carbon intensity or CO₂/tonne of concrete produced. Data from the energy use of concrete production and a proportional contribution from constituent materials are converted to carbon emissions using factors published by DEFRA** with an adjustment for the process carbon emissions from cement. The resulting value of our indicator is influenced by both CO₂ emissions from production and changes in the average proportions of concrete represented by the data collected. These proportions, termed the 'Rolling mix' are directly affected by the relative market demand for different types of concrete.

In 2015, the Rolling mix value was 80.3 kg CO₂/tonne for concrete (21.7% reduction from 1990 baseline) and 90.1 kg CO₂/tonne for concrete + reinforcement.

CO₂ emissions – Production (Rolling mix) (kg CO₂/tonne)



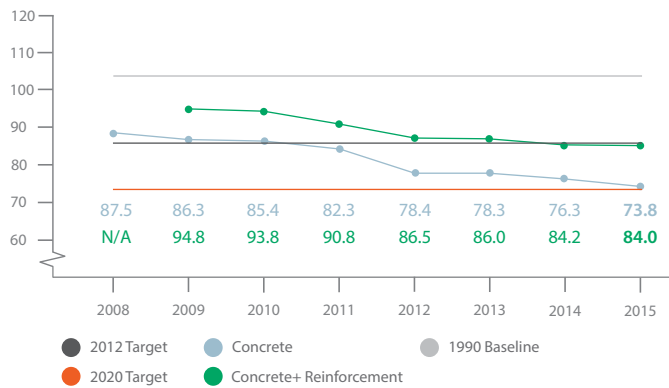
The Standardised or Baseline mix is based on the average proportions of materials in concrete when the strategy was launched in 2008. By using these mix proportions with each year's carbon values, the industry reports the overall carbon intensity and shows the performance directly under its control.

In 2015 the Standardised mix value was 73.8 kg CO₂/tonne for concrete (28% reduction from 1990 baseline) and 84.0 kg CO₂/tonne for concrete + reinforcement.

The 2020 target is to reduce CO₂ emissions by 30% from the 1990 baseline equivalent to a value of 72.2 kg CO₂/tonne of concrete produced.

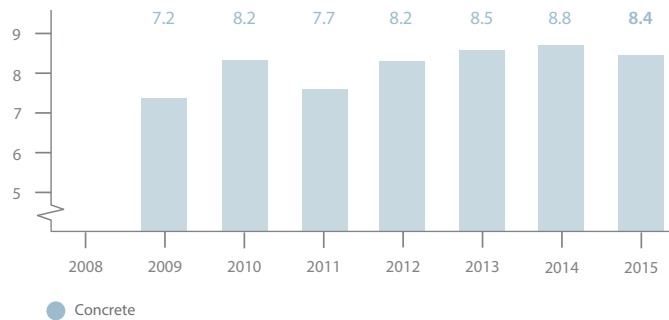
**See www.ukconversionfactorscarbonsmart.co.uk/

CO₂ emissions – Production (Standardised mix) (kg CO₂/tonne)



CO₂ Emissions – Transport

CO₂ emissions of total delivery transport through the industry supply chain (kg CO₂/tonne)



Within the concrete supply chain, some elements of transport are relatively simple to measure; others are more complex potentially involving multiple modes of delivery with sub-contracted vehicles scheduling return loads to make efficient use of vehicles.

This indicator of kg CO₂/tonne is calculated from the conversion of concrete data and proportioned materials delivery (to a construction site) data using DEFRA carbon factors. The value for 2015 was 8.4 kg CO₂/tonne.

In 2015 the average delivery distance for all concrete was 46 km (or 28.8 miles).

The average delivery distance for all raw materials for concrete in 2015 was 72km.

Action on Waste

Concrete is a net user of waste and provides material efficient structures

Our Strategy 2020 Commitment

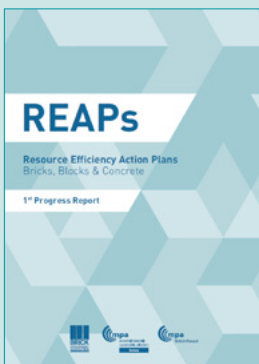
- Develop a Material and Resource Efficiency Programme to inform best practice across the life cycle of concrete in the built environment

The Resource Efficiency Action Plan (REAP) initiative is a collaboration of the clay, precast concrete and ready-mixed concrete sectors. The framework used to establish the actions is based on the lifecycle of a construction product in line with EN 15804: Manufacture; Logistics & Packaging, Design for Use and Reuse, Construction, and Demolition.

The REAPs were developed through a process of stakeholder engagement with the aim of assisting the supply chain in identifying and creating an actionable strategy for improving resource efficiency. The action plans identify key challenges and actions that each sector and its supply chain need to address in order to make improvements in resource efficiency.

The initiative has encouraged further collaboration in the supply chain, for example the sectors have worked with the National Federation of Demolition Contractors (NFDC) to update *Demolition and Refurbishment Information Data Sheets (DRIDS)* which help identify recyclable materials in demolition sites and put contractors in touch with outlets for the materials. DRIDS for our products are available from the NFDC at www.nfdc-drids.com, listed within the INERT product listing or search for:

- I2 – Concrete
- I3 – Bricks
- I4 – Concrete Blocks
- I5 – Precast Concrete Products
- I9 – Roof tiles

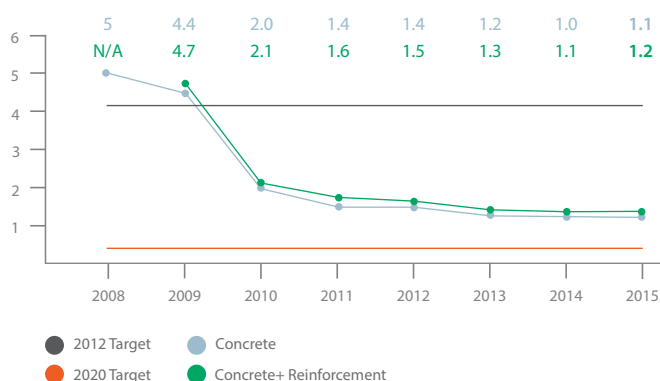


The first progress report of the REAP initiative will be launched at Ecobuild 2017.

The report can be downloaded from www.sustainableconcrete.org.uk

Waste Minimisation

Waste to landfill as a proportion of production output (kg/tonne)

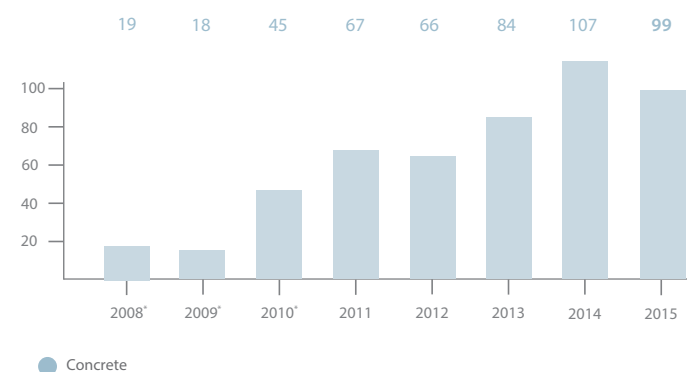


The indicator for waste minimisation relates to waste disposed to landfill per tonne of concrete production and includes waste related to the constituent materials attributed by their proportion in the concrete. During 2015 the value was 1.1 kg/tonne, performance similar to 2014.

The equivalent value for concrete + reinforcement is 1.2kg/tonne.

The 2020 target is a 90% reduction from the 2008 baseline, equivalent to 0.5kg/tonne. Our longer-term aspiration is zero waste to landfill.

Net waste consumption ratio



The net waste consumption ratio gives an overall indicator for the industry's use of waste and by-products relative to its own waste to landfill, specifically:

Waste and by-products used in concrete manufacture + materials diverted from the waste stream for use as fuels

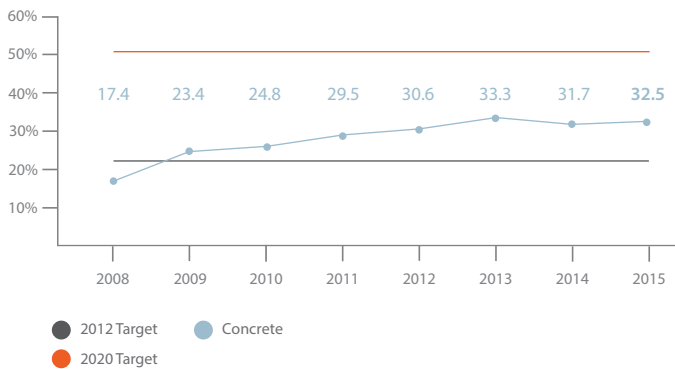
Waste to landfill generated by concrete production and its constituent materials

In 2015, concrete was a net user of waste, consuming 99 times more recovered and waste materials than the waste it sent to landfill.

Natural Resource Protection and enhancing the environment

Replacement of fossil fuels

Material diverted from the waste stream for use as a fuel source, as a percentage of total energy use



The industry requires high temperatures for production, primarily in cement manufacture, and this is an opportunity to safely utilise alternative combustible materials instead of non-renewable fossil fuels. Where fuels used are recognised as carbon neutral under EU Emissions Trading Scheme (EU ETS), this has the additional benefit of reducing the embodied carbon of cement.

The concrete industry indicator shows the proportion of energy derived from materials diverted from the waste stream as a percentage of total energy use. In 2015, 32.5% of total energy use was from waste-derived fuels. The 2020 target is to increase this to 50%.

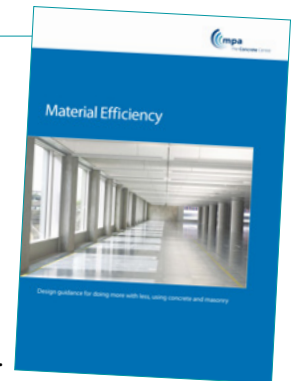
New Material Efficiency Guidance for Specifiers

Material Efficiency is a publication from The Concrete Centre providing guidance on waste minimisation and material efficiency to inform designers and other construction professionals and to help them to optimise the performance of concrete and masonry.

First published in 2010, this edition has been revised to reflect the progress and latest thinking on resource efficiency addressing circular economy and waste hierarchy models.

The document offers suggestions for material efficiency using concrete and masonry at every stage of development, with opportunities to do more with less. One particularly useful strategy is to expose the concrete soffits and structure, thereby reducing the need for internal finishes, whilst optimising the benefits of thermal mass. Over the life of the building, this also reduces the resources associated with the replacement and maintenance by avoiding the use of less robust finishes. Other tips relate to principles of structural design, choice of construction solution and design for longevity.

Download *Material Efficiency* from www.concretecentre.com/publications



Laban Centre, Deptford. The green roof is constructed of crushed concrete from demolition material sourced from the site prior to construction.

Image courtesy of Dusty Gedge

Action on Biodiversity

Restoring quarries and providing product to protect and enhance biodiversity

Our Strategy 2020 Commitment

- **Support the Mineral Products Association (MPA) Biodiversity Strategy “Building on our legacy... realising our potential”**

Protecting and enhancing the state of nature and biodiversity is a key aim for the MPA and sites of mineral extraction are uniquely placed to make a difference, more than any other.

MPA is working with members to develop an MPA Charter which features a strategic priority for ‘Natural Environment’.

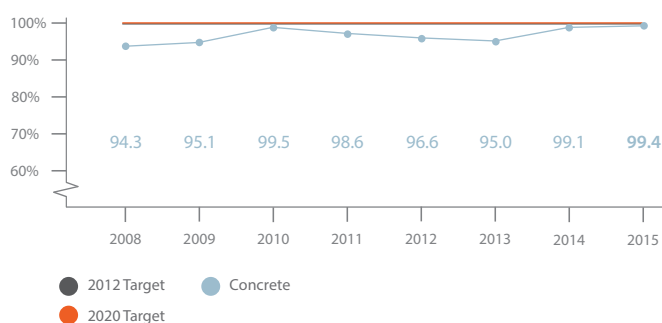
This includes commitments to:

- **Biodiversity:** protect and enhance biodiversity and deliver net gain whenever possible
- **Land Restoration:** restore land to a high quality and undertake good aftercare
- **Natural Capital:** protect natural capital and enhance where possible
- **Geodiversity:** protect geodiversity and enhance where possible
- **Heritage:** protect national and local heritage assets appropriately
- **Environmental Protection:** minimise and mitigate operational impacts
- **Develop a water strategy to support the measurement of sustainability performance and target setting.**

Using the principles of the MPA Water Strategy, in conjunction with the World Business Council Sustainable Development Cement Sustainability Initiative Water reporting and Water accounting tools (see www.wbcscement.org), the Sustainable Concrete Forum (SCF) has modified its data collection methodology for water consumption to obtain a more accurate indicator for water. This will enable the setting of a meaningful water consumption improvement target in 2018.

Biodiversity

Percentage of relevant production sites that have site specific action plans



The concrete industry makes a significant contribution to biodiversity and nature conservation through the management and restoration of sites of mineral extraction.

The industry strategy prioritises its actions within quarries and the indicator reports on the proportion of relevant production sites that have an action plan relating to site restoration, biodiversity or geodiversity.

The value reported for 2015 is 99.4% against our 2020 target of 100%.

Working with Nature After Minerals

The MPA is a key part of a partnership programme Nature after Minerals (NAM).

Developed with Natural England and led by the RSPB, NAM works with mineral planners, industry, statutory bodies, conservation organisations and local communities, to make substantial contributions to priority habitat creation and boost priority species populations, while providing richer places for people to enjoy.

NAM has stated that the restoration of sites of mineral extraction represents the largest expansion of habitat in the UK. The industry's investment in restoration is uniquely placed to enable the UK to achieve biodiversity targets that will directly safeguard the future of 960 priority species.

Case studies, advice and further information can be found at www.afterminerals.com and www.mineralproducts.org

Water

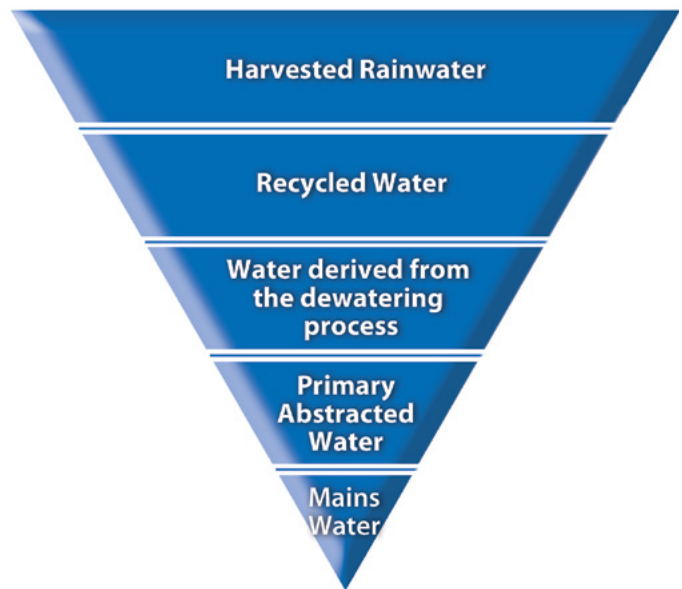
Mains water consumption as a proportion of production output (litres/tonne)



Water is an essential ingredient for the hydration of cement and is an important resource for concrete and its materials supply chain.

The industry indicator reports mains water in litres per tonne of concrete used directly in concrete production added to a proportioned contribution from raw materials production.

The annual indicator continues to show a trend of reduction of mains water per tonne of concrete produced with the 2015 value at 74.3 litres/tonne and an equivalent value of 78.3 litres/tonne for concrete + reinforcement.



Various water sources are available for use in both the extraction and production processes of the products represented by MPA. The hierarchy of water sources, that forms part of the MPA water policy is shown.

Protecting the Twite

The population in England of this songbird has fallen by more than 90% over the last 20 years. Working with the RSPB, an MPA member's quarry in Derbyshire has provided the cracks and fissures needed for safe nesting and the site has been further enhanced to provide both breeding and feeding grounds, and a better future for the twite.



Action on Wellbeing

Protecting life and quality of life is a priority

Our Strategy 2020

- **The industry aim is to achieve zero harm**

The concrete industry sustainable construction strategy supports the industry targets for Health and Safety set by the Mineral Products Association (MPA).

From 2009-2014 the target was to reduce lost time incidents (LTI) by 50%, with the aim of zero harm. Concrete industry data shows that between 2010 and 2014, the industry achieved a 48% reduction in LTI and in the same period achieved a 54% reduction in reportable injuries.

In 2014 a new five year target for the MPA started. This target has been adopted by the Concrete Industry Sustainable Construction Strategy. The target is to reduce lost time incidents, by a further 65% by 2019, from the 2014 baseline.

In addition to lost time incidents, the concrete industry also reports on reportable injuries. The definitions of these benchmarks are:

Reportable Injury: Any injury that is reportable under the Reporting of Injuries, Disease and Dangerous Occurrences Regulations 1995 (RIDDOR). In 2012 the HSE definition of reportable changed from three days to seven days. The concrete industry indicator will remain at three days.

Lost Time Injury: An occupational injury resulting in the absence of the injured party for one or more working shifts.

For more information visit www.mineralproducts.org

Vulnerable Road Users

As well as the health & safety of employees, the industry is also committed to the protection of the public. MPA's Cycle Safe campaign aims to prevent collisions between cyclists and lorries and a vulnerable road user (VRU) safety policy was launched in 2012. The policy refers to driver training and vehicle equipment requirements and applies to all vehicles delivering on behalf of members which are over 3.5tonnes GVW.

To achieve clarity and consistency, construction and haulage interests facilitated by TfL have developed a national VRU Standard for Construction Logistics (known as CLOCS) which is now being rolled out across the construction sector. MPA and its members have been leading contributors in the development of the CLOCS standard, and the MPA policy adheres to CLOCS.

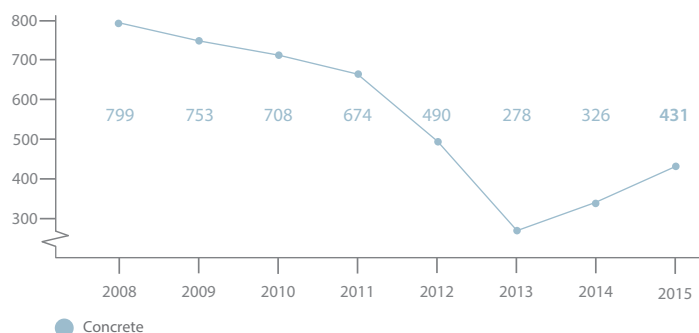
For more information visit www.mineralproducts.org

Health & Safety

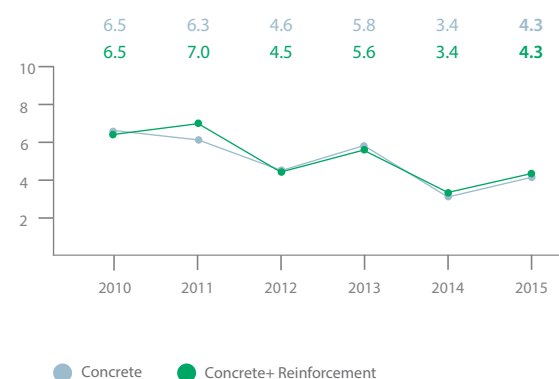
Health and safety of its employees is a key focus of the concrete industry strategy. Two indicators are used to report performance. These are established benchmarks of health and safety:

- The number of Reportable Injuries per 100,000 direct employees per annum
- Lost Time Injuries for direct employee per 1 million hours worked

Reportable injuries per 100,000 direct employees per annum



Lost Time Incidents (LTI) for direct employees per 1 million hours worked

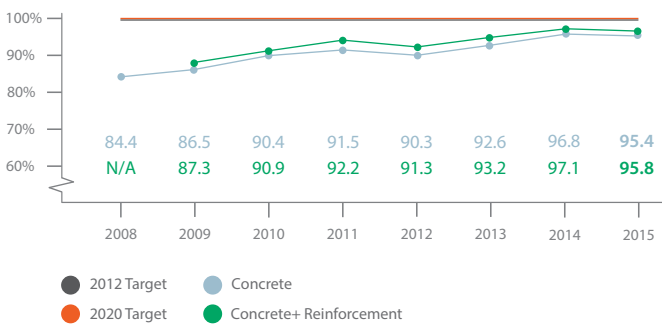


The lost time injuries value for 2015 was 4.3 for both concrete and concrete + reinforcement. The improvement target is for a 1.19 LTI reduction to be achieved by 2019.

2015 has shown an increase for both Reportable Injuries and Lost Time Incidents. The concrete industry is committed to continuous improvement and Health and Safety is our first priority. Incidents are reviewed and key learning points are shared across sectors to improve future performance.

Employment and Skills

Percentage of employees covered by certified training and evaluation processes



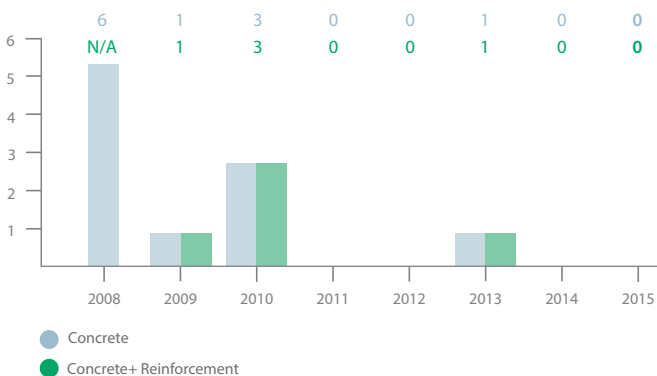
Having a skilled, competent and informed workforce is essential for the industry to remain competitive, safe and capable of meeting the objectives of the concrete industry strategy.

Measurement of competency can be challenging and the current indicator essentially measures the management of training by reporting on the proportion of employees whose training is monitored and managed within certified management systems such as ISO 9001, ISO 14001, OHSAS 18001 and others.

The industry figure for 2015 is approximately 96% for both concrete and for concrete + reinforcement. The 2020 target is 100%.

Emissions (excluding CO₂)

Number of convictions per annum for air and water emissions



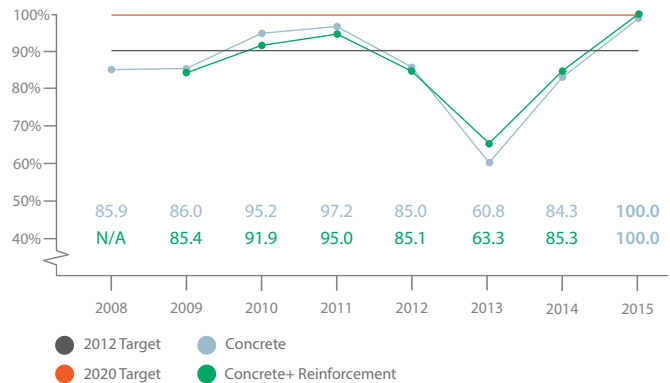
Our indicator relating to emissions excluding CO₂ reports the number of convictions for emissions to air and water within the industry per annum.

During 2015 the industry showed no convictions.

Our 2020 target is for zero convictions and the industry is reviewing other potential indicators to ensure the focus is on continuous improvement.

Local Community

Percentage of relevant sites that have community liaison activities



It is often the case that concrete supply chain production sites have close links with the local communities through the employment of local people and the use of local materials. However, because of the potential impacts from vehicle movements, dust and noise, some sites may be regarded as relevant for having more formal local community liaison activities.

'Relevant' sites are defined by the industry as mineral extraction sites in the cement and aggregates sectors and also other specific operations that members consider to have a potential significant impact on the local community.

Any production site that receives a level of complaints would also be considered a 'relevant' site.

In 2015 100% of relevant sites undertook regular community liaison activities such as liaison groups or council meetings open days, public meetings, community newsletters, social, recreational and educational activities involving the local community.

www.sustainableconcrete.org.uk

Copies of this report can be downloaded from this concrete industry website. There is also more information about the concrete industry sustainable construction strategy as well as useful links to relevant guidance, literature and sector trade associations.

We would welcome your comments relating to this report. Please email info@concretecentre.com

Concrete Industry Sustainable Construction Targets

Sustainable Consumption and Production **Action on Materials**

Sustainability Principle	Performance Indicator	Baseline Concrete		Performance Concrete			Performance Concrete + reinforcement			Target
		Value	Year	2013	2014	2015	2013	2014	2015	2020
Environmental Management	% of production sites covered by a 'UKAS' Environmental Management System (EMS).	72.3%	2008	88.7%	89.2%	93.0%	88.8%	89.4%	93.1%	95.0%
Quality and Performance	% of production sites covered by a 'UKAS' certified ISO 9001 quality management system.	84.2%	2008	90.3%	91.2%	93.8%	90.5%	91.3%	93.9%	95.0%
Resource Efficiency	% of additional cementitious materials (GGBS, fly ash, etc.) as a proportion of total cementitious materials used.	30.0%	2008	28.5%	26.2%	29.0%	N/A			35.0%
	Recycled/secondary aggregates as a proportion of total concrete aggregates.	5.3%	2008	6.9%	7.5%	6.4%	N/A			No targets have been set as increasing recycled content is not always indicative of sustainable performance
	% of recycled scrap as a proportion of total constituent raw materials used.	97.0%	2009	N/A	N/A	N/A	95.4%	90.7%	93.2%	
Responsible Sourcing	% of production certified to BES 6001.	81.0%	2009	91.0%	89.0%	89.0%				95.0%

Climate Change and Energy **Action on Carbon**

Sustainability Principle	Performance Indicator	Baseline Concrete		Performance Concrete			Performance Concrete + reinforcement			Target
		Value	Year	2013	2014	2015	2013	2014	2015	2020
Energy Efficiency	Kilowatt hours of energy used in production as a proportion of production output. (kWh/tonne).	132.1	2008	129.1	133.9	133.1	152.0	156.1	156.0	Deliver the industry CO ₂ target and achieve sector climate change agreement targets
	Energy intensity as a proportion of production output Standard Mix (kWh/tonne)	132.1	2008	119.5	117.7	122.7	143.2	141.4	146.5	
CO ₂ Emissions - Production	CO ₂ emissions as a proportion of production output. Rolling Mix (kg CO ₂ /tonne).	102.6	1990	85.2	87.0	80.3	92.6	94.2	90.1	Reduce by 30% from 1990 baseline (72.2)
	CO ₂ emissions as a proportion of production output. Standardised Mix (kg CO ₂ /tonne).	102.6	1990	78.3	76.3	73.8	86.0	84.2	84.0	
CO ₂ Emissions - Transport	CO ₂ emissions from delivery transport through the industry supply chain as a proportion of production output. (kg CO ₂ /tonne).	7.2	2009	8.5	8.8	8.4				Indicators and targets are still under review

Natural Resource Protection and Enhancing the Environment **Action on Waste/Biodiversity/Water**

		Baseline Concrete		Performance Concrete			Performance Concrete + reinforcement			Target
Sustainability Principle	Performance Indicator	Value	Year	2013	2014	2015	2013	2014	2015	2020
Waste Minimisation	Materials diverted from the waste stream for use as a fuel source, as a % of total energy use.	17.3%	2008	33.3%	31.7%	32.5%				50%
	Waste to landfill as a proportion of production output (kg/tonne).	5	2008	1.2	1.0	1.1	1.3	1.1	1.2	90% reduction from 2008 baseline (0.5)
	Net waste consumption ratio.	19	2008	84	107	99				
Water	Mains water consumption as a proportion of production output. (litres/tonne).	86.0	2008	83.1	80.2	74.3	87.9	85.3	78.3	The current water strategy programme will result in targets being in place by 2018.
Site Stewardship & Biodiversity	% of relevant production sites that have specific action plans.	94.3%	2008	95.0%	99.1%	99.4%				100%

Creating Sustainable Communities **Action on Wellbeing**

		Baseline Concrete		Performance Concrete			Performance Concrete + reinforcement			Target
Sustainability Principle	Performance Indicator	Value	Year	2013	2014	2015	2013	2014	2015	2020
Health & Safety	Reportable injuries per 100,000 direct employees per annum.	799	2008	278	326	431				
	Lost Time injuries (LTI) for direct employee per 1,000,000 hours worked.	6.5	2010	5.8	3.4	4.3	5.6	3.4	4.3	From 2014-2019, reduce lost time incidents by 65% with an aim of zero harm
Employment & Skills	% of employees covered by 'UKAS' certified training and evaluation process.	84.4%	2008	92.6%	96.8%	95.4%	93.2%	97.1%	95.8%	100%
Emissions (excluding CO ₂)	Number of convictions for air and water emissions per annum.	6	2008	1	0	0	1	0	0	Zero per Annum
Local Community	% of relevant sites that have community liaison activities.	85.9%	2008	60.8%	84.3%	100.0%	63.3%	85.3%	100.0%	100%

The data is sourced from the following sector associations, and we are grateful for their cooperation:

- British Association of Reinforcement (BAR) www.uk-bar.org
- British Precast www.britishprecast.org
- British Ready-Mixed Concrete Association www.brmca.org.uk
- Cement Admixtures Association www.admixtures.org.uk
- Cementitious Slag Makers Association www.ukcsma.co.uk
- Mineral Products Association www.mineralproducts.org
- MPA - Cement www.cementindustry.co.uk
- UK Quality Ash Association www.ukqaa.org.uk

We acknowledge the founders and members of the Sustainable Concrete Forum:

- Aggregate Industries www.aggregate.com
- Brett Group www.brett.co.uk
- CEMEX www.cemex.co.uk
- Hanson UK www.hanson.co.uk/en
- Marshalls plc www.marshalls.co.uk
- Tarmac www.tarmac.com

www.sustainableconcrete.org.uk

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Burntwood School, London, winner of the 2015 RIBA Stirling Prize. Image courtesy of Tim Soar.