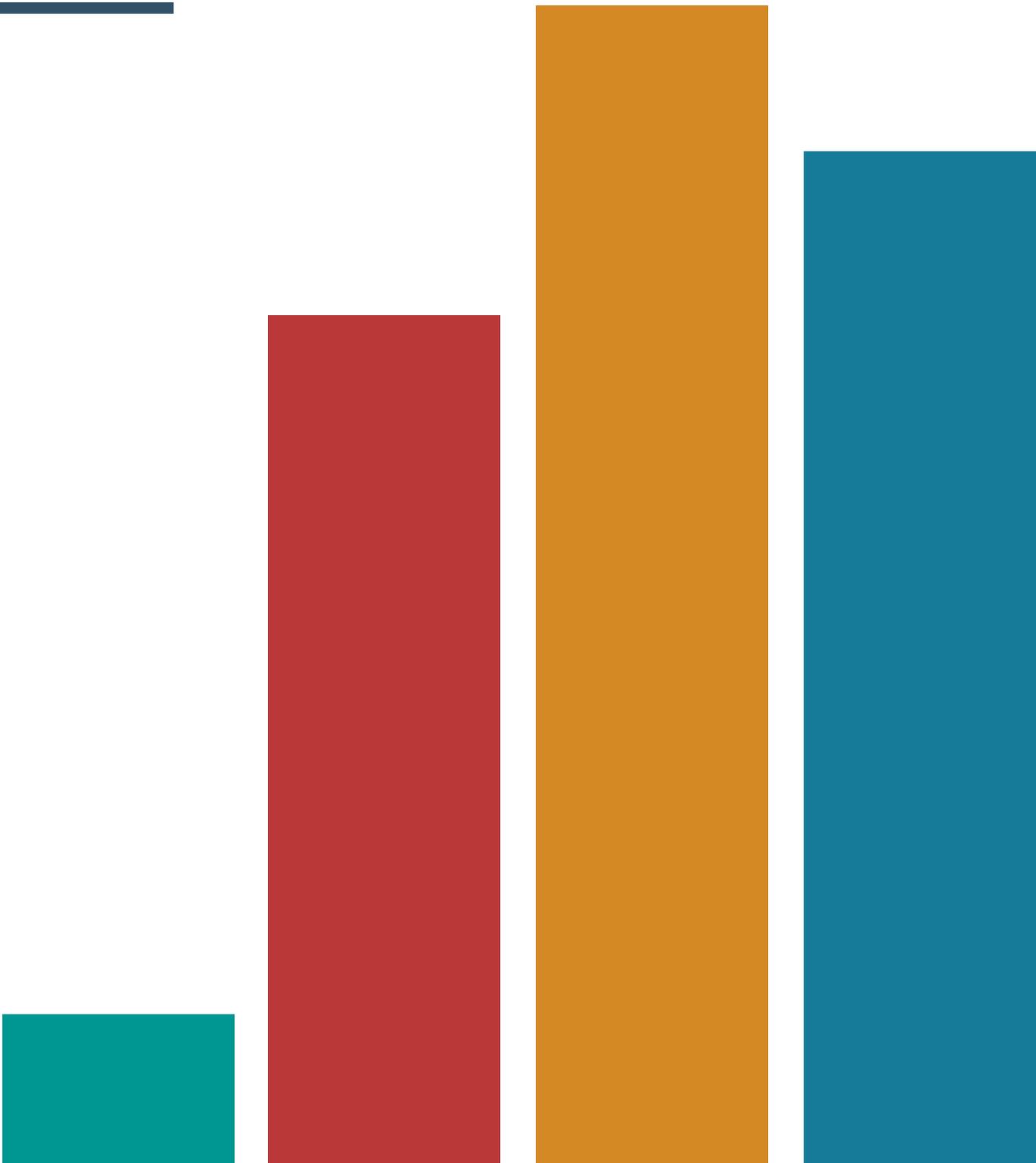




**BRICK**  
DEVELOPMENT  
ASSOCIATION

# Sustainability Report

2017



# Energy

## OUR ASPIRATION

To minimise our use of energy in the manufacturing process, evidencing reductions in specific energy consumption over the long-term.

## THE CHALLENGE

Market demand is one of the most significant influences on energy efficiency in the brick manufacturing process: the firing of clay brick to temperatures in excess of 1000°C is energy intensive, so brick kilns must maintain maximum capacity for optimum efficiency. However, there is a need to respond to market demands, which continually fluctuate.

## WHERE WE ARE NOW

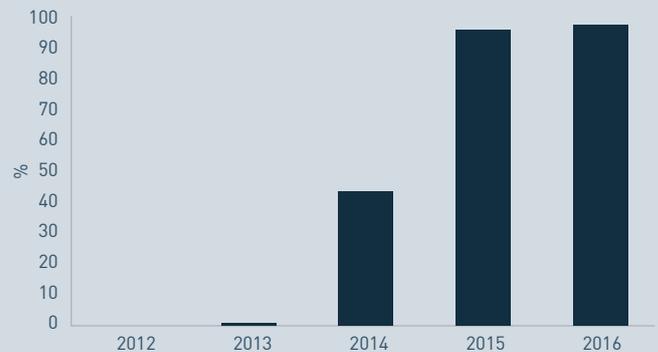
It is likely that a slight decrease in production volumes from 2015 to 2016 and bringing mothballed sites back online, led to the very small increase in specific energy consumption (SEC) of less than 1.4%.

Almost all UK brick production is now covered by an ISO 50001 energy management system, which facilitates more thorough analysis of performance and planning. Overall energy consumption in 2016 was lower than in 2015.

## WHAT WE PLAN TO DO

- + Continue progress towards the 2020 SEC target of 706 kWh/t
- + Work closely with developers to accurately forecast increased production levels in response to Government housing targets.

**ENERGY:** % of brick production covered by ISO 50001 Energy Management System



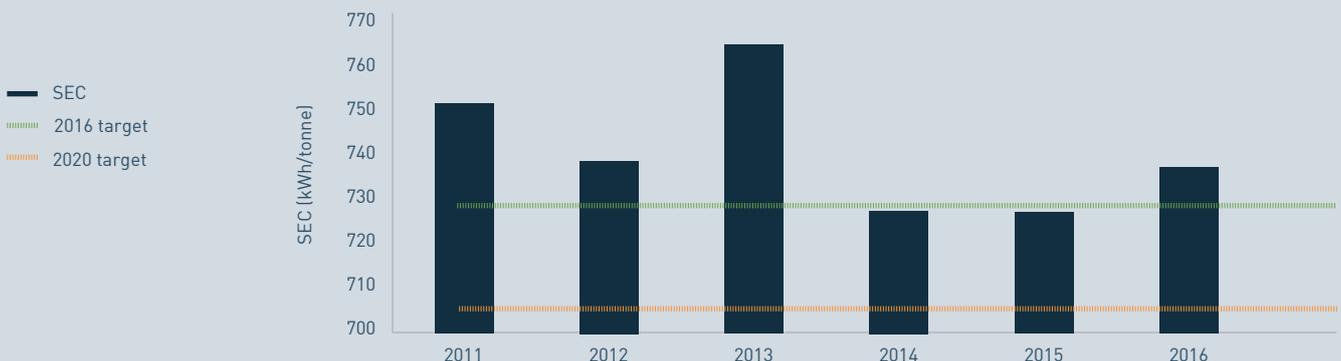
## KEY STATS

**98%**  
of clay brick production covered by ISO 50001 Energy Management System

## KEY STATS

**1.6%**  
reduction in SEC against 2011 baseline

**ENERGY:** Specific Energy Consumption



# Water

## OUR ASPIRATION

To use water as efficiently as possible in the manufacturing process and reduce our reliance on potable water supplies.

## THE CHALLENGE

Water is essential to the clay brick manufacturing process. Methods of measuring water consumption have historically been inconsistent across member businesses. Changes to regulations will inform our actions, moving towards non-mains sources of water.

## WHERE WE ARE NOW

**The sector recently published its first Water Policy.**

A significant improvement in the accuracy of several members' data collection processes has highlighted inaccuracies in the sector's previous results, and we now require a new baseline from which to measure future performance.

## WHAT WE PLAN TO DO

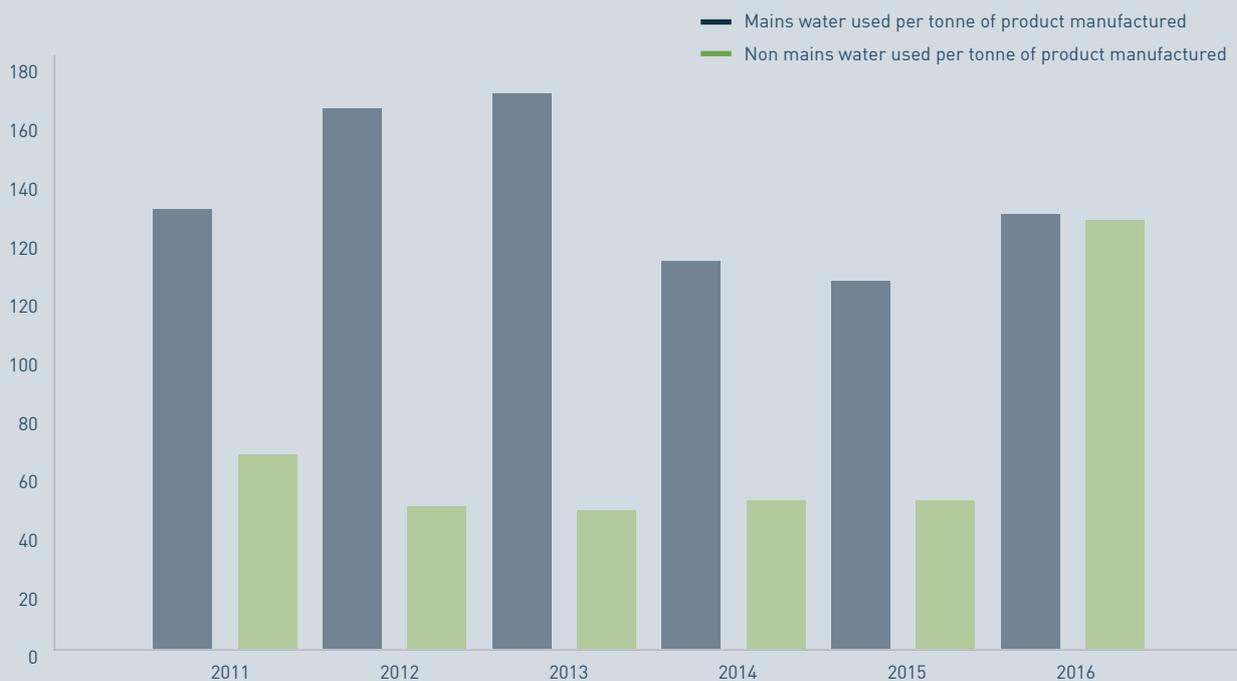
- + Consider recent changes to water abstraction regulation and take action where necessary
- + Standardize data collection methodology
- + Monitor progress against the sector's first Water Policy, published in 2017
- + Continually share best practice on the responsible use of non-mains water through member case studies

## NOTE

# 2016

will provide the industry's new baseline, from which future performance will be measured

**WATER:** mains & non-mains specific water consumption



# Materials

## OUR ASPIRATION

To use natural resources as efficiently as possible and to ensure each site is restored to at least its original ecological condition.

## THE CHALLENGE

The principal material used in the brick manufacturing process is clay, which is not easily substituted for materials with equal technical performance or durability. Further research and development is required to ensure that alternative materials available for substitution deliver the same reliable characteristics as clay.

## WHERE WE ARE NOW

The vast majority (98%) of the sector's production capacity is covered by the standard BES 6001: Framework Standard for Responsible Sourcing of Construction Products. Currently, an average of 9% of materials used in the manufacture of clay bricks can be classified as Materials from Alternative, Recycled and Secondary Sources (MARSS).

## WHAT WE PLAN TO DO

- + Update the BDA Generic Brick EPD in 2018/19
- + Continue to report on the use of MARSS materials within the brick industry

## KEY STATS

**98%**  
of clay brick production is has BES 6001 certification

The proportion of BDA members' covered by BES 6001

— Certified  
— Not certified



# Carbon

## OUR ASPIRATION

To reduce the carbon emissions generated per m<sup>2</sup> of brickwork during the manufacturing process.

## THE CHALLENGE

Similarly to the challenge in reducing energy consumption, market demand for bricks must be consistently high in order to minimise carbon emissions per square metre of brickwork. While emissions associated with direct fuels and indirect electricity consumption offer potential for carbon emission reduction, process emissions are technologically difficult to abate.

## WHERE WE ARE NOW

In 2015 we collected additional data in order to show the sources of carbon emissions from brick manufacturing (direct: natural gas, indirect: electricity, process: released from the raw materials during firing). Performance in this short space of time has remained relatively constant. The majority of members' sites continue to participate in the EU Emissions Trading Scheme (EU ETS) or UK Small Emitters Opt-Out Scheme. Furthermore, members have been involved in the wider industry's Decarbonisation and Energy Efficiency Roadmap project and related sector action plans, which consider emissions reductions to 2050.

## WHAT WE PLAN TO DO

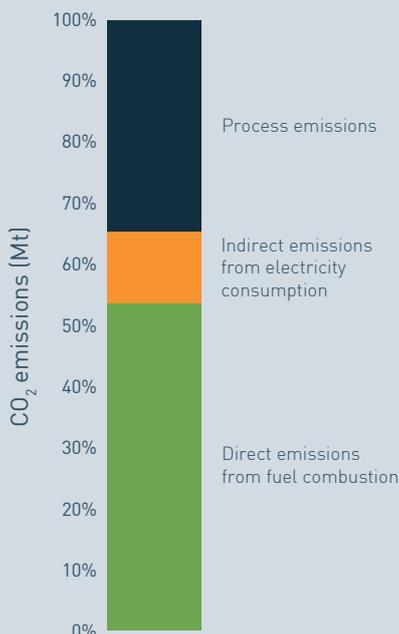
- + Continue collaboration on industry carbon emission reduction projects
- + Continue to collect data from members on the use of renewable electricity

## KEY STATS

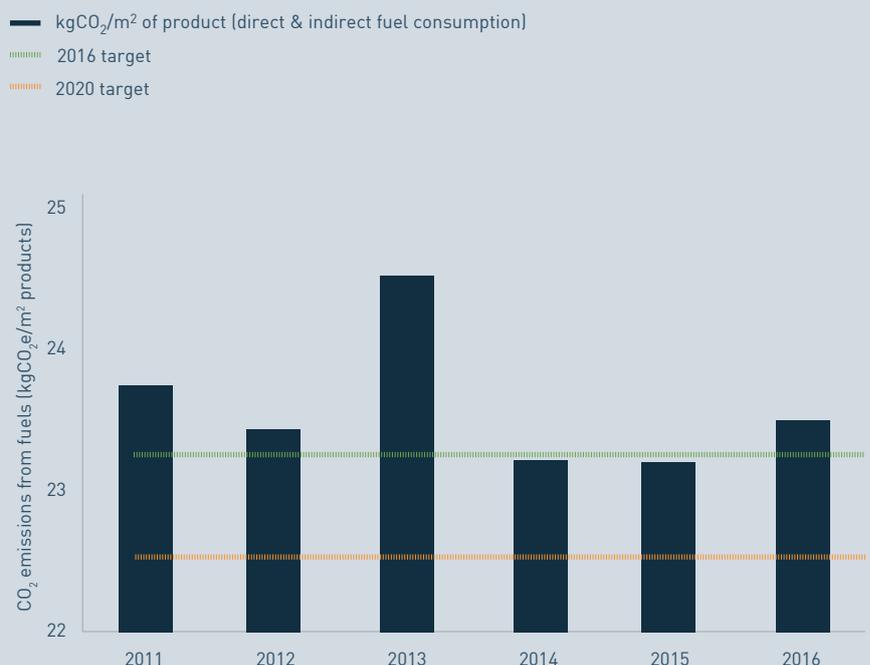
98%

of the sector's carbon emissions from direct fuel consumption and process emissions are within the scope of EU ETS providing additional incentives for carbon reduction

Total CO<sub>2</sub> emissions [MtCO<sub>2</sub>] from the brick manufacturing sector in 2016



CARBON: CO<sub>2</sub> emissions from direct & indirect fuel consumption



# Waste

## OUR ASPIRATION

To reduce the amount of waste generated and to minimise disposal to landfill.

## THE CHALLENGE

Investment in plant and machinery refurbishment can result in short-term increases in the amount of waste produced. For some materials such as abatement waste, there are limited options other than disposal.

## WHERE WE ARE NOW

The volume of waste per tonne of brick production is low. There has been a continued reduction in the total waste sent to landfill per tonne of production, since 2014, down a further 8% against 2015, comfortably meeting the 2016 target. A substantial increase in waste recycling rates has also been recorded over the last three years, of almost 300%. The sector recently published its first **Waste Policy**.

## KEY STATS

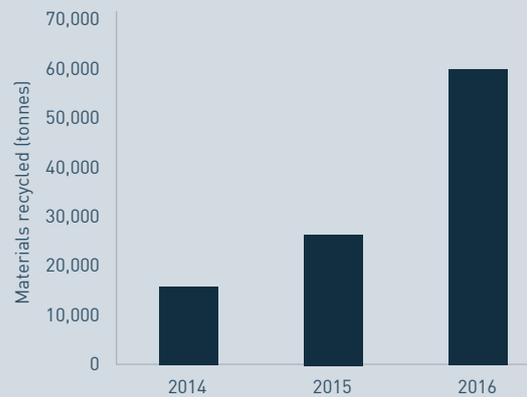
**8%**  
reduction in waste sent to landfill per tonne of production against 2015

**300%**  
increase in the volume of recycled waste reported by members

## WHAT WE PLAN TO DO

- + Monitor compliance with the sector's first Waste Policy, published in 2017
- + Create a Waste Strategy against which progress will be measured and reported
- + Consider packaging to product optimisation

WASTE: quantity of materials recycled



WASTE: waste to landfill per tonne of production



# Circular Economy

## OUR ASPIRATION

To communicate clay brick's role as a significant contributor to the circular economy, supported by a robust methodology and evidenced through case studies.

## THE CHALLENGE

To date, a significant proportion of circular economy modelling undertaken has focused on high value, short service-life products such as white goods, which does not translate easily to the built environment where the use of durable clay bricks facilitate multiple transfers of building ownership.

## WHERE WE ARE NOW

A recently published model for the circular economy in the built environment explains how buildings can be designed to facilitate circularity. We have added to this the merits of clay brick in the context of a circular economy, and the way in which both technical and practical performance should be considered in order to assess comparative performance.

### WHAT WE PLAN TO DO

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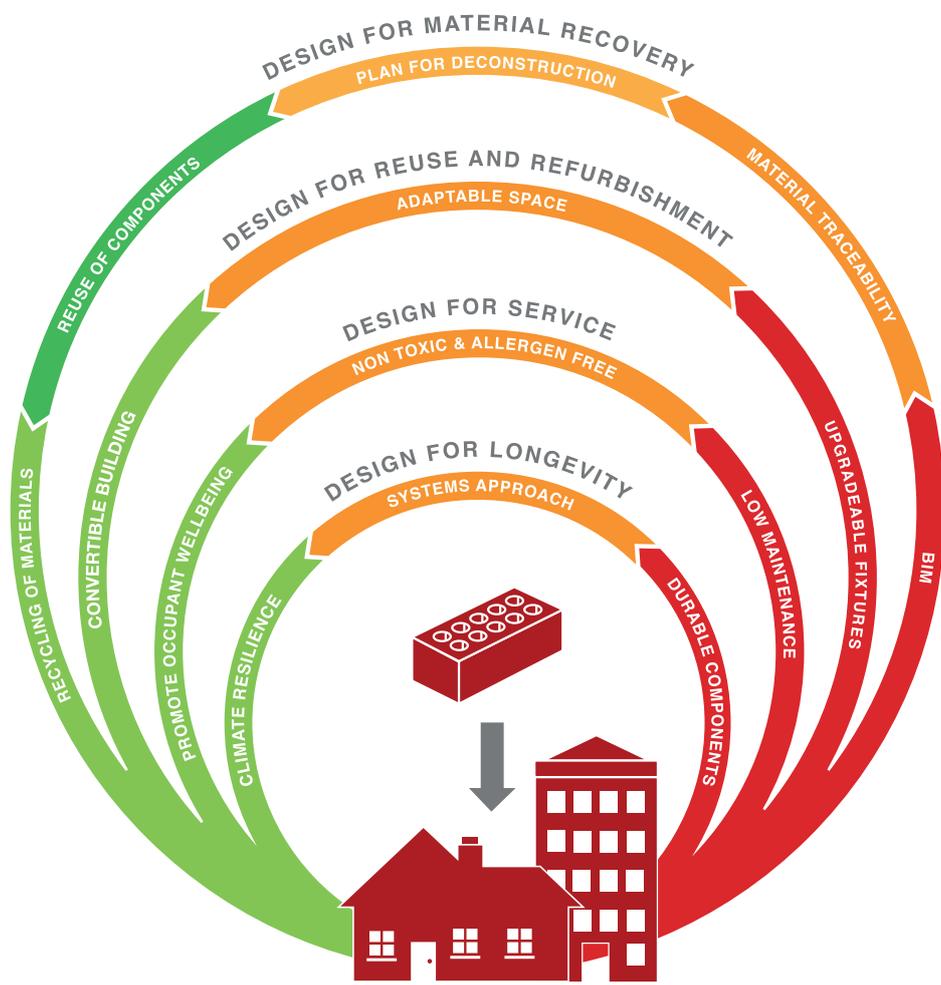
- + Continue our sector-specific modelling work and produce case studies, which can be used as a point of reference when specifying materials and ensure decisions are informed by whole-life performance.

### KEY STATS

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If installed and maintained correctly, clay bricks can have a service life in excess of

# 150 years



A CIRCULAR ECONOMY FOR THE BUILT ENVIRONMENT

# Continual Improvement

## OUR ASPIRATION

To evidence a collective commitment to continual improvement in production efficiency and quality, and to report our results annually.

## THE CHALLENGE

As a sector comprised relatively few manufacturers, even a small number of set backs can appear more significant than they are in reality over the long-term.

## WHERE WE ARE NOW

The sector demonstrates impressive statistics in relation to the implementation of formal management systems with the production process almost in its entirety covered by certified environmental, quality and energy management systems. Members report a further investment in excess of £65 million during the year 2016 in plants and machinery. During 2016 there were no reported health and safety or environment-related prosecutions.

## WHAT WE PLAN TO DO

- + Continued investment, for example through the forthcoming opening of a new 100 million brick production facility in Leicestershire
- + Maintain the high proportion of the sector operating to recognised management systems
- + Continue to participate in industry Resource Efficiency Action Plans (REAPs) to share best practice

## KEY STATS

**98%**  
of production in 2016 is accounted for in this performance data

**£65 million**  
invested in plants and machinery during 2016

**100%**  
of production covered by a certified Environmental Management System (EMS)

**97%**  
of production covered by a Quality Management System (QMS)

**98%**  
of production covered by the certified responsible sourcing framework BES 6001

**98%**  
of production covered by an Energy Management System (EnMS)

## CONTINUAL IMPROVEMENT: materials & continual improvement: management systems



# Biodiversity & Community

## OUR ASPIRATION

To support and enhance biodiversity through good site management and the restoration of extraction sites.

## THE CHALLENGE

The majority of clay brick manufacturers are landowners and therefore have an opportunity to offset the impact of quarrying activity on their sites. Manufacturers can even enhance biodiversity on their landholding both during and after excavation using site biodiversity management plans. The capacity of the sector to contribute to the UK's stock of natural capital will continue to be assessed with the sector's sustainability representatives seeking to establish an appropriate methodology

## WHERE WE ARE NOW

The regulation of planning permissions associated with mineral extraction requires sites to be restored once the minerals have been extracted. The majority of sites plan for this in advance to maximise positive outcomes for wildlife and biodiversity. Alongside an increase in logistical planning, there has been a significant increase in reported educational visits and site tours hosted by manufacturers, demonstrating regular engagement with communities and promoting a better understanding of brick manufacturing.

## WHAT WE PLAN TO DO

- + The sector will continue to facilitate community engagement
- + Continue close collaboration with conservation and wildlife organisations to inform effective biodiversity planning and management

## KEY STATS

**54%**  
increase in number of educational visits to sites compared to 2015

**28%**  
increase in number of site tours compared to 2015

# Wellbeing

## OUR ASPIRATION

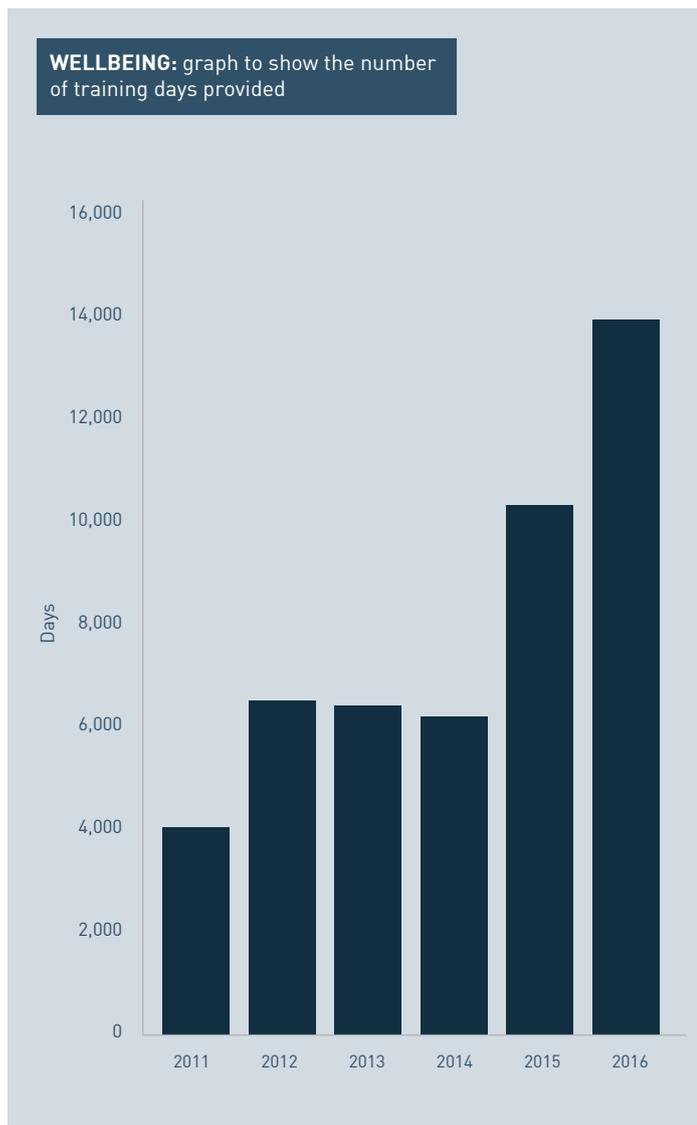
To ensure staff wellbeing remains central of business operations across the sector, through responsible health and safety practices and the provision of education and training to develop employees' skills.

## THE CHALLENGE

Engaging the workforce of the future, recruiting and retaining young people in the industry requires extensive training and educational opportunities.

## WHERE WE ARE NOW

Member manufacturers delivered a total of 13,816 training days in 2016, which is a 270% increase against the 2011 baseline. The number of apprenticeships offered by member manufacturers has also increased sharply from 59 in 2015 to a total of 79 in 2016.



## WHAT WE PLAN TO DO

- + Continue to invest in formal training and apprenticeship schemes
- + Engage with the second phase of the Health and Safety Pledge (Pledge Phase 4), which is closely aligned with the HSE's strategy
- + Continue to work closely with IOM3 to deliver a health and safety Continuing Professional Development (CPD) scheme for quarry managers and responsible persons

## KEY STATS

**36%**  
increase in training days provided since 2015

**34%**  
increase in apprenticeships since 2015

**33%**  
decrease in the Accident Rate since the 2011 baseline

**50%**  
decrease in the Lost Time Injury Rate (previously known as the Absence Rate) since the 2011 baseline

**22%**  
decrease in the RIDDOR Reportable Injury Rate (previously known as the All Injury Rate) since the 2011 baseline

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## MEMBERS OF THE BRICK DEVELOPMENT ASSOCIATION

**Bulmer Brick & Tile Co Ltd** [www.bulmerbrickandtile.co.uk](http://www.bulmerbrickandtile.co.uk)

**Coleford Brick & Tile Ltd** [www.colefordbrick.co.uk](http://www.colefordbrick.co.uk)

**Forterra Building Products Ltd** [www.forterra.co.uk](http://www.forterra.co.uk)

**H.G. Matthews** [www.hgmatthews.com](http://www.hgmatthews.com)

**Ibstock Brick Ltd** [www.ibstock.com](http://www.ibstock.com)

**Ketley Brick Company Ltd** [www.ketley-brick.co.uk](http://www.ketley-brick.co.uk)

**Matclad Ltd** [www.matclad.co.uk](http://www.matclad.co.uk)

**Michelmersh Brick Holdings Plc** [www.mbhplc.co.uk](http://www.mbhplc.co.uk)

**Northcot Brick Ltd** [www.northcotbrick.co.uk](http://www.northcotbrick.co.uk)

**Raeburn Brick** [www.raeburnbrick.co.uk](http://www.raeburnbrick.co.uk)

**W H Collier Ltd** [www.whcollier.co.uk](http://www.whcollier.co.uk)

**Wienerberger Ltd** [www.wienerberger.co.uk](http://www.wienerberger.co.uk)

**York Handmade Brick Company Ltd** [www.yorkhandmade.co.uk](http://www.yorkhandmade.co.uk)

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Copies of this document can be viewed on and downloaded from the Brick Development Association website.

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