Welcome to the latest Brick Sustainability Report, which provides a detailed account of how the sector has performed against its collective sustainability strategy and illustrates the progress we have made since the launch of our first sustainability report in 2001. We continue to report against the targets set through our collaborative Resource Efficiency Action Plan and have made further progress in water consumption. We continue to invest in our people, which is demonstrated in the year-on-year increase in training days provided.

One of the strengths of this report is that it covers a diverse range of activities, from the selection of alternative raw materials, approaches to resource efficiency and the circular economy, to biodiversity, its links to developing a natural capital strategy and health and safety measures that affect the wellbeing of our employees.

The Sustainable Production Working Party’s focus in 2019 will be to develop our next phase of reporting indicators and targets, with input from our stakeholders, before we reach the 2020 milestones.

Dave Manley
Chairman of the Sustainable Production Working Party
Wellbeing

OUR ASPIRATION

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

THE CHALLENGE

Alongside embedding health and safety behaviours, employers must train the workforce of the future and retain existing talent.

WHERE WE ARE NOW

Our health and safety data methodology has changed since 2015 and may account for the fluctuations seen in this report’s Accident statistics, which do not necessarily reflect actual performance. Brick manufacturers have worked together for many years as part of the wider ceramic sector Health and Safety Pledge Scheme, to improve health and safety performance. When the BDA targets were set, the aim was to maintain performance at 2011 levels, which has been achieved. The sector will continue to work together and actively participate in the Pledge Scheme, sharing good practice and working together on health and safety initiatives.

KEY STATS

15% increase in training days provided since 2016

74 the number apprentices in 2017

4% decrease in the Accident Rate since the 2011 baseline

<$\text{LTIR}$=
The Lost Time Injury Rate (previously known as the Absence Rate) has remained stable since the 2011 baseline

11% decrease in the RIDDOR Reportable Injury Rate (previously known as the All Injury Rate) since the 2011 baseline

WHAT WE PLAN TO DO

+ Continue to invest in formal training and apprenticeship schemes
+ Engage with 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
Biodiversity & Community

**OUR ASPIRATION**

To support and enhance biodiversity through good site management and the restoration of extraction sites and, to be an active member of the communities in which we operate.

**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, the high number of reported educational visits and site tours hosted by manufacturers continues demonstrating regular engagement with communities and promoting a better understanding of brick manufacturing. A slightly lower number of site-specific restoration, biodiversity and geodiversity plans were reported in 2017, possibly due to the smaller sample of data.

**KEY STATS**

<table>
<thead>
<tr>
<th>Stat</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>55</td>
<td>The number of educational visits by schools and universities, hosted by UK brick manufacturers in 2017</td>
</tr>
<tr>
<td>17</td>
<td>The number of site tours by local community/special interest groups, hosted by UK brick manufacturers in 2017</td>
</tr>
<tr>
<td>12%</td>
<td>Increase in the number of formal lines of communication with local community</td>
</tr>
<tr>
<td>33%</td>
<td>Increase in the number of informal lines of communication with local community</td>
</tr>
<tr>
<td>4</td>
<td>The number of staff volunteer programmes</td>
</tr>
</tbody>
</table>

**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
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

Production volumes increased from 2016 to 2017. A very small increase in specific energy consumption (SEC) of 1.2% was also recorded. It is likely that this increase is the result of new facilities contributing significantly to production growth, which must build to full capacity and therefore maximum efficiency, over a period of time.

Almost all UK brick production remains covered by an ISO 50001 energy management system.

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.

KEY STATS

97% of clay brick production covered by ISO 50001 Energy Management System

0.7% reduction in SEC against 2011 baseline

ENERGY: Specific Energy Consumption

<table>
<thead>
<tr>
<th>Year</th>
<th>SEC kWh/t</th>
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</thead>
<tbody>
<tr>
<td>2011</td>
<td>710</td>
</tr>
<tr>
<td>2012</td>
<td>710</td>
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<td>2013</td>
<td>710</td>
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<td>2016</td>
<td>710</td>
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<td>2017</td>
<td>710</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Year</th>
<th>% of Production Covered by ISO 50001 Energy Management System</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>0</td>
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<tr>
<td>2013</td>
<td>10</td>
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<tr>
<td>2014</td>
<td>20</td>
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<td>2015</td>
<td>30</td>
</tr>
<tr>
<td>2016</td>
<td>40</td>
</tr>
<tr>
<td>2017</td>
<td>50</td>
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</tbody>
</table>

SEC: Specific Energy Consumption

2011 target: 700 kWh/t

2016 target: 695 kWh/t

2020 target: 706 kWh/t
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 continue to 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 highlighted inaccuracies in the sector’s previous results. Following the improved data collection exercise since 2016, overall water consumption appears to have reduced by 4% in 2017.

**NOTE**
2016 provided the industry’s new baseline, against which performance is now measured.

**KEY STATS**
4% reduction in the overall water consumption against 2016 baseline.

**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

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![Water Consumption Chart](chart.png)

**WATER: Mains & Non-Mains Specific Water Consumption**

- **Mains water used per tonne of product manufactured**
- **Non mains water used per tonne of product manufactured**
- **2016 target**

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<table>
<thead>
<tr>
<th>Year</th>
<th>Mains</th>
<th>Non Mains</th>
<th>2016 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
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<tr>
<td>2017</td>
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</tbody>
</table>
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

Production capacity certified to BES 6001: Framework Standard for Responsible Sourcing of Construction Products, remains high (97% in 2017). 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).

KEY STATS

97% of clay brick production has BES 6001 certification

WHAT WE PLAN TO DO

+ Update the BDA Generic Brick EPD in 2019
+ Continue to report on the use of MARSS materials within the brick industry

Graphic to Show the Proportion of Production Covered by BES 6001 in 2017

- Not certified
- Certified
Carbon

**OUR ASPIRATION**
To reduce the carbon emissions generated per m² of brickwork during the manufacturing process.

**THE CHALLENGE**
Similarly to the challenge in reducing energy consumption, production facilities must consistently operate near full capacity, 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**
Performance since the 2015 baseline 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.

**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.

**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
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. Total waste sent to landfill per tonne of production since 2014, has been on a downward trajectory. Volumes increased slightly in 2017, which may be a result of the significant investment by the industry in new and refurbished plants. 2017 performance sits comfortably within the 2016 target and is significantly lower than the performance recorded in 2014. A substantial increase in waste recycling rates has also been recorded over the last four years, of over 700%. Reflected in this is an increase both in performance and the level of data supplied. The sector recently published its first Waste Policy.

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
+ Review options to optimise product packaging

KEY STATS

24% reduction in waste sent to landfill per tonne of production against 2011 baseline

700% increase in the volume of recycled waste reported by members

WASTE: quantity of materials recycled

WASTE: waste to landfill per tonne of production

Waste to landfill per tonne of production

2011: 1.4
2012: 1.2
2013: 1.0
2014: 0.8
2015: 0.6
2016: 0.4
2017: 0.2

2011: 0.2
2012: 0.4
2013: 0.6
2014: 0.8
2015: 1.0
2016: 1.2
2017: 1.4
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.

KEY STATS
If installed and maintained correctly, clay bricks can have a service life in excess of 150 years.

WHAT WE PLAN TO DO
+ 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.

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 £40 million during the year 2017 in plants and machinery. During 2017 there were no reported health and safety or environment-related prosecutions.

**KEY STATS**

- 98% of production in 2016 is accounted for in this performance data
- £150 million invested in plants and machinery since 2014
- 100% of production covered by a certified Environmental Management System (EMS)
- 97% of production covered by a Quality Management System (QMS)
- 97% of production covered by the certified responsible sourcing framework BES 6001
- 97% of production covered by an Energy Management System (EnMS)

**WHAT WE PLAN TO DO**

- Continued investment, for example through the recently announced £95 million expansion to a production facility in Desford, which will add a further capacity of 95 million bricks per year
- 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
MEMBERS OF THE BRICK DEVELOPMENT ASSOCIATION

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Coleford Brick & Tile Ltd www.colefordbrick.co.uk
Forterra Building Products Ltd www.forterra.co.uk
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Copies of this document can be viewed on and downloaded from the Brick Development Association website.

Please send questions or comments to:
The Brick Development Association

The Building Centre
26 Store Street
London
WC1E 7BT

brick@brick.org.uk
020 7323 7030

www.brick.org.uk