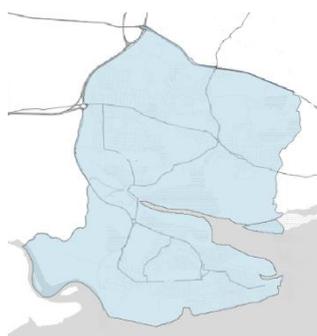


# Energy efficiency in Castle Point

How energy efficiency benefits residents and businesses in the Castle Point constituency



**Association for the  
Conservation of  
Energy**

# Key Points

Many people worry about their home energy bills, and for some people keeping their home warm is simply not affordable. For businesses, buildings with poor energy performance can be expensive to run, affecting their competitiveness. The only long term solution is to stop wasting fuel and leaking warmth from our homes and businesses by improving insulation and ensuring all buildings have modern, well controlled heating and cooling systems, and efficient lighting and appliances.

## It can be expensive to heat and power local homes

- 36,648 of the 37,407 households in Castle Point are connected to mains gas and typically pay around £1,370 a year for gas and electricity. The remaining 2,759 homes in the area have to use alternative fuels, typically spending £2,353 a year on heat and power<sup>1</sup>.
- Just over 10,600 homes in Castle Point have been given the very worst energy ratings of E, F or G, which is 25% more than the national average<sup>2</sup>. These homes waste hundreds of pounds worth of fuel every year.

## Businesses in Castle Point have also felt the impact of high energy costs.

- Many businesses in Castle Point operate out of old and poorly insulated buildings, with 32% having the very worst energy performance ratings of E, F and G<sup>3</sup>. Buildings with poor energy performance can be expensive to run. This affects business competitiveness, and makes it difficult to maintain a comfortable working environment for employees.

## Significant upgrades to the efficiency of buildings in the area been made in recent years.

- National domestic energy efficiency schemes have helped to insulate just over 6,900 lofts and 5,250 cavity walls in the area since 2005<sup>4</sup>. At the same time, nearly 10,160 efficient boilers have been installed.
- Progress has been made improving the efficiency of Castle Point's public buildings: 24% of those assessed achieved A, B or C operational energy ratings in 2016, up from just 14% in 2009. The percentage receiving the worst ratings of E, F & G has fallen from 52% to 31% over the same time period.
- 828 solar photo-voltaic systems and low carbon heating systems have been installed, enabling homes and businesses to generate their own low carbon electricity and heat<sup>5</sup>.

## There are still huge opportunities to improve the efficiency of homes and businesses in Castle Point.

- 25% of homes (around 9,200) could benefit from cavity wall insulation, 25% (around 9,300 homes) could improve the level of insulation in their lofts and 51% (around 18,900 homes) could upgrade to more efficient heating systems<sup>6</sup>.
- Two thirds of commercial and industrial buildings in Castle Point have an energy performance rating of D or worse, meaning that the businesses occupying them could reduce their energy costs significantly

## These improvements generate a wide range of benefits for the area.

- Castle Point residents spend nearly £54 million on energy bills every year<sup>7</sup>. Across Castle Point businesses spend approximately £12 million annually on energy. Cutting fuel bills means less money leaving the local economy and more spent in local shops and businesses.
- Most energy efficiency improvements are delivered by local businesses and tradespeople. An ambitious UK energy efficiency programme would create 9,600 jobs in the East of England<sup>8</sup> in the domestic retrofit market alone.
- Cold homes have been shown to be damaging to both physical and mental health. For every £1 invested in renovating cold homes the NHS saves 42 pence in reduced hospital admissions and GP visits, meaning more money for frontline services<sup>9</sup>.

## Despite this potential, current national policy commitments would result in little progress.

- Current national policy commitment would see just 283 homes helped each year to 2020<sup>10</sup>. Those in need of more significant works, such as solid wall properties, would miss out.
- Business can find it hard to access finance for energy efficiency investments, and there is no national action to change this.

Upgrading the energy efficiency of Castle Point's homes and businesses would present a huge opportunity to cut bills, improve residents' health and well-being and boost the local economy. To make this happen and unlock the benefits to the Constituency, action is needed both locally and nationally.

## The story so far

The cost of gas and electricity is 40% higher than it was ten years ago and compared to 20 years ago, prices are up by 2/3rds<sup>11</sup>. To combat these historically high prices, a local army of unsung heroes have been fighting to keep bills in check and make sure everyone can afford to keep their homes warm and healthy and their businesses productive and profitable.

### Homes

There are just over 37,400 households in the constituency with 83% owning their homes, 12% renting privately and 5% living in social housing. 7% of homes are not connected to mains gas, making their energy costs even higher.

Over the last 10 years in Castle Point the insulation of homes has been improved, inefficient heating systems have been improved or replaced and renewable energy technologies installed. We estimate that since 2005 more than 22,300 significant works have been undertaken to improve the energy performance of homes in Castle Point.

**Table 1: Estimated number of common efficiency improvements made to homes in Castle Point since 2005<sup>4</sup>.**

Lofts insulated	6,900
Cavity walls insulated	5,250
Efficient boilers installed	10,160

New insulation technologies such as cladding for solid walls have also greatly benefitted older homes which would otherwise still be leaking heat.

Castle Point residents have taken advantage of incentives that enable them to generate their own electricity and low-carbon heat.

**Table 2: Low Carbon technologies installed in homes in Castle Point since 2010<sup>5</sup>.**

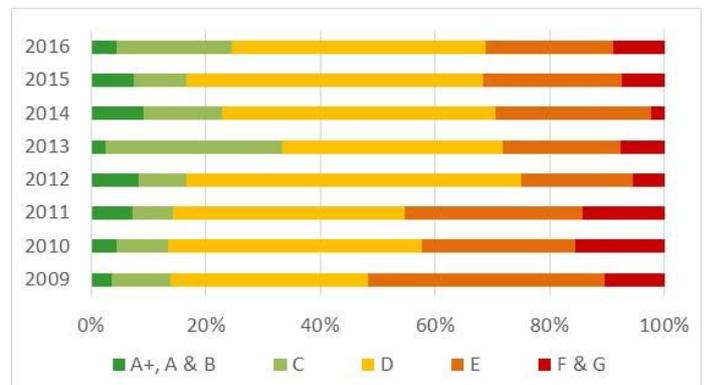
Low carbon heating	16
Solar Photovoltaic systems	806

### Businesses

The commercial and industrial stock in Castle Point comprises around 1,650 units with an average floor area of 256m<sup>2</sup>. This includes 690 retail units, 190 office units and 580 industrial units. The remaining

190 are mostly school buildings, hospitals and healthcare, and a wide variety of buildings used for leisure like restaurants and cinemas<sup>12</sup>.

Improvements have been made to non-domestic buildings. All larger public buildings, such as schools and hospitals, are required to update their display energy certificates (DECs) every year. This allows the buildings' occupants to track their energy consumption over time and helps to highlight high energy consumption. Data from these certificates have shown a steady reduction in the number of poorly performing buildings in Castle Point. In the year after DECs were introduced (2009), 52% scored E, F and G<sup>13</sup>. By 2016 the number of E, F and G-rated buildings was down to just 31%. Over the same period the number scoring A to C has gone from 14% up to 24%.



**Figure 1: DEC ratings of public buildings in Castle Point<sup>13</sup>.**

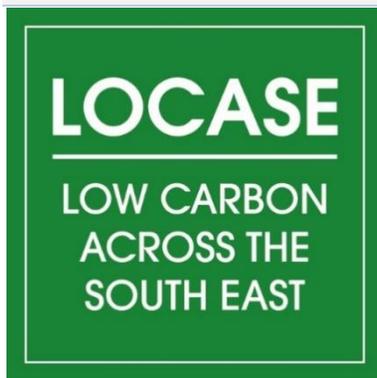
By requiring organisations to keep track of and display their energy consumption, DECs are enabling the improvements in energy consumption to be clearly demonstrated. Unfortunately, at present DECs are not required for private non-domestic buildings, such as shops and offices, so it is not possible to see what - if any - improvements are being made to those buildings.

Businesses in Castle Point have also been investing in low carbon technologies, although numbers to date are small.

National policies have played an important role at the local level. Charities in Castle Point have been able to access funds to provide low income households with the heating and insulation upgrades they desperately need, and incentive schemes have encouraged

residents and businesses alike to try new technologies like solar panels. The dedication of local businesses and charities, combined with national funding and incentive schemes, have been pivotal in the progress made so far in Castle Point.

## Low Carbon in the South East (LoCASE): supporting local businesses to manage their energy



[Low Carbon in the South East \(LoCASE\)](#) is an EU funded programme operating across the [South East Local Enterprise Partnership \(SELEP\)](#) region to support small and medium sized businesses (SMEs) with professional advice, support and match funded grants of up to £10,000 (up to 40% of project cost) to save money, reduce energy usage, lower carbon emissions and enable business growth.

There are two ways LoCASE can help businesses. Those who want to reduce their energy bills and lower their carbon emissions can be supported to identify and implement energy efficiency solutions. Alternatively, if the business supplies low carbon goods or services, LoCASE can help to grow the business through innovation support, marketing and consultancy.

So far in the Castle Point area, there have been 61 enquiries from businesses interested in the scheme, and 10 grant applications received. So far, 8 applications have been approved.

In 2016, three organisations, all based in the same building at Tarpots in Benfleet, applied for LoCASE funding. The premises, built in the 1950s, needed major refurbishment. The plans aim to create a comfortable working environment for staff, will minimise the building's environmental impact in both the immediate and long term, and will include the installation of:

- energy efficient LED lighting;
- replacement insulation to ceilings and partition walls;
- a new boiler and radiators;
- replacing over sink water heaters;
- glazing upgrades.

The three organisations involved in this refurbishment are:

1. Beck Wealth Management, a company specialising in wealth management advice. They were awarded a grant of £4,800 towards the total project cost of £12,000, a 40% contribution. Implementation of the project helped them to reduce their carbon emissions by 1.6 tonnes and achieve annual savings of £376 on their energy costs. The project will help support the creation of two new jobs, and safeguard one existing job within the organisation.
2. Mark Stephen Beckford & Company, an expanding firm of accountants. They were awarded £6,000 towards the total project costs of £15,000. Implementation of the project enabled them to reduce their carbon emissions by 2.1 tonnes and achieve annual cost savings of £509 per year. The project will help support the creation of two new jobs, and safeguard six existing jobs within the organisation.
3. PWS Group, a partnership that has been providing financial advice in the locality for several decades. They were awarded £8,500 towards the total project costs of £21,000. Implementation of the project will help them to reduce their carbon emissions by 1.9 tonnes and achieve annual costs savings of £421. The project will also help support the creation of one new job, and safeguard five existing jobs within the organisation.

LoCASE is funded by the European Regional Development Fund 2014-2020. This is a partnership project between Kent County Council, East Sussex County Council, Essex County Council, Southend-on-Sea Borough Council, Thurrock Council and the University of Brighton.

For more information, contact: [business@thurrock.gov.uk](mailto:business@thurrock.gov.uk), visit the LoCASE website: [www.locase.co.uk](http://www.locase.co.uk), find LoCASE on Facebook: @BusinessGrantFunding or on Twitter: @LoCASE\_Biz.

# Untapped potential

Whilst a promising start has been made to modernise heating systems and insulation in Castle Point, there are huge opportunities remaining and many households and businesses that have yet to benefit.

## Homes

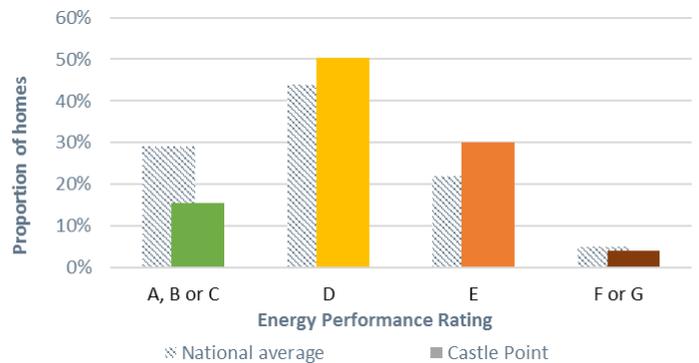
Detailed surveys of 1,398 homes representing the East of England’s housing stock were conducted as part of a nationwide housing survey<sup>9</sup>. Surveyors identified a range of opportunities to improve energy efficiency in the homes they visited.

**Table 3: Estimated number of homes in Castle Point that could benefit from basic energy efficiency measures based on survey sample<sup>6</sup>.**

	On mains gas	Off mains gas
Could improve the level of insulation in their lofts	8,400	700
Could benefit from cavity wall insulation	8,500	900
Could benefit from solid wall insulation	10,300	800
Could improve the efficiency of their heating systems	16,900	2,000

Despite the significant potential, local charities and installers have found that changes to national energy efficiency schemes in the last few years have meant that funding for low income households is harder to get hold of and support for making costlier upgrades is no longer available.

Looking to the future, current national policy commitments would see just 283 homes receive low cost improvements in Castle Point each year and those in need of more significant works, such as solid walled properties, may miss out altogether<sup>10</sup>.

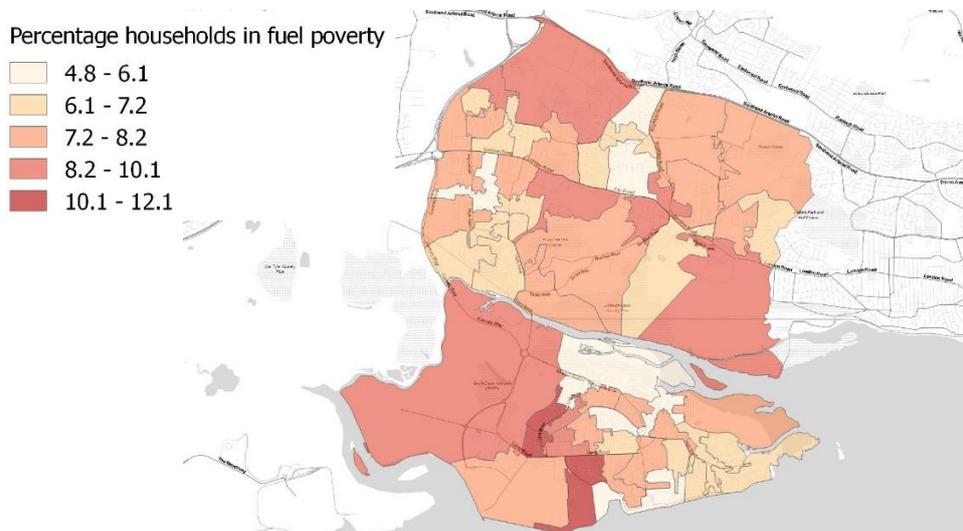


**Figure 2: Energy Performance Rating of homes in Castle Point compared to National Average<sup>2</sup>.**

There are 26,430 homes in Castle Point with an Energy Performance Rating of D or worse that could benefit from improved efficiency. Just over 1,230 of these have the very worst ratings of F or G and are likely to be in urgent need of attention<sup>2</sup>.

Upgrading the energy efficiency of these homes would present a huge opportunity to cut bills, improve residents’ health and well-being and boost the local economy. To make this happen, action is needed both locally and nationally.

From April 2018, homes that are privately rented will be subject to minimum energy efficiency standards and those with F and G ratings will have to be improved. This is a good start, but more is needed.



**Figure 3: Map showing severity of 'fuel poverty' in Castle Point. Homes in the darkly shaded areas are more likely to find keeping their homes warm unaffordable. High resolution housing data can be used to identify opportunities and target those in need<sup>14</sup>**

# Aran Services: working to insulate homes in Castle Point

Castle Point Borough Council and Rochford District Council are working in partnership with [Aran Services Ltd](#) to support residents to insulate their homes, helping to reduce fuel bills and carbon emissions.



Aran Services, with its head office in Bury St Edmunds, was created in 2004 and have advised and improved the energy efficiency of over 300,000 homes and businesses nationwide, reducing carbon emissions by over two million tonnes.



The Castle Point and Rochford Insulation Programme runs across the two council areas and offers residents free or heavily discounted loft, cavity wall and solid wall insulation using funding from the Energy Company Obligation (ECO), with some residents also being eligible for heating grants.

As part of the process, Aran Services provides residents with a free home energy assessment to identify energy saving improvements to help residents save money and feel warmer in their home.

Nina Heigham, Business Development Manager at Aran Services, said that "working closely with the two local authorities enables us to assist them in helping improve their residents' well-being and making their homes more comfortable to live in. We are still identifying homes in the area that need insulation and are entitled to 100% grant funding, and so we are asking residents to help spread the word. There are poorly insulated properties scattered throughout Castle Point and Rochford communities, and even if residents have already had work completed, they may know someone who may benefit."

## Businesses

All commercial and industrial buildings are required to have an Energy Performance Certificate (EPC) if they are sold or let to a new tenant. Since 2008, 536 EPCs have been lodged in Castle Point for non-domestic buildings. Of these certificates, almost two thirds (347 buildings) received an efficiency rating of D or worse<sup>3</sup>. These buildings would benefit from improvements to their fabric and energy services. 76 of these buildings are rated F or G, meaning that they are very inefficient and likely to be wasting a large amount of energy.

From April 2018, leased properties will be subject to minimum energy efficiency standards. This will mean that leased buildings with F and G ratings will have to be improved.

Public buildings like schools and hospitals use a significant amount of energy. Even though progress has been made, there is still huge room for improvement. In 2016, three quarters of buildings rated were given a Display Energy Rating score of D or worse, and these buildings are likely to have significant potential for improvements. Ensuring action in this area is particularly important as public buildings are well placed to demonstrate best practice in low energy buildings and provide a leadership role for building energy management.

The non-domestic building stock is extremely diverse so a wide range of solutions are needed to address their energy consumption. Innovative approaches may be required as well as more traditional fabric refurbishment.

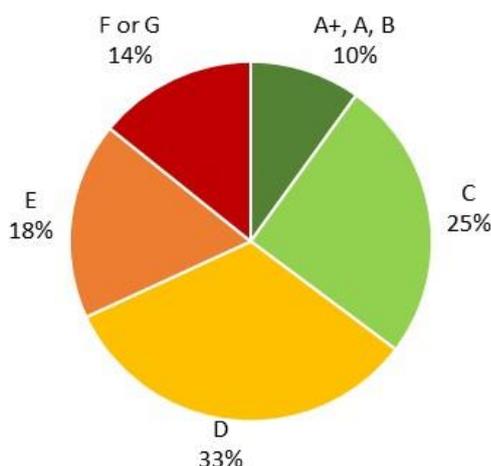


Figure 4: EPC ratings of non-domestic buildings in Castle Point.

# Real benefits for Castle Point

It is easy to see the immediate benefits of reducing your energy bills and having a warmer home and place of work, but the impact of upgrading the buildings in Castle Point goes much further.

## Well maintained homes

Energy efficiency works are a vital part of maintaining your home. Cold homes often become damp which can lead to mould and further complications in the long run. Insulated wall cladding will tackle damp permanently and can rejuvenate the appearance of a home.

## Keeping money in the local economy

We estimate that Castle Point residents spend nearly £54 million annually on domestic energy bills<sup>7</sup>. Across Castle Point, businesses spend approximately £12 million annually on energy. Money spent on fuel is mostly taken out of the local economy, so cutting bills means that local people have more money to spend in local shops and businesses.

## Creating skilled Jobs

Economists have estimated that an ambitious UK energy efficiency programme would create 9,600 jobs in the East of England<sup>8</sup> in the domestic retrofit market alone. Energy efficiency works rely on skilled tradespeople and small-scale contractors. This means that these jobs are spread across all communities and not just concentrated in a few industrial areas.

## Improving health and wellbeing

Cold homes have been shown to be damaging to both physical and mental health. Children living in cold homes are significantly more likely to suffer from respiratory problems such as asthma and bronchitis. It has been shown that for every £1 invested in renovating cold homes, the NHS saves 42 pence in reduced hospital admissions and GP visits<sup>9</sup>.

## Business productivity

Energy costs can be a significant overhead for businesses. Improving the efficiency of commercial buildings, vehicles and equipment can cut waste and add to the bottom line. In the retail sector, cutting energy costs by 20% can have the same impact on the bottom line as a 5% increase in sales<sup>15</sup>. Helping local businesses to identify these opportunities can boost productivity and make them more competitive.

Increased efficiency can also make it easier and cheaper to maintain a workplace at a comfortable temperature, and there is good evidence to show that this leads to increased worker productivity and hence financial benefits to employers<sup>16</sup>. Crucially, thermal comfort, good ventilation and lighting quality in the work environment is now well-established as a real boon to workers' health, wellbeing and productivity<sup>17</sup>.

## Improving local energy resilience

It is easy to take basic services like gas and electricity for granted, but our energy security has become a significant concern in recent years. A more efficient building stock and local generation will make Castle Point more resilient to future energy price shocks or interruptions to supply and can take the strain off local energy infrastructure.

## With thanks to

- Nina Heighnam, Business Development Manager, Aran Services Limited [www.aranservices.co.uk/](http://www.aranservices.co.uk/)
- Gemma Clarke, Marketing Executive, Suffolk Consultancy [www.suffolkconsultancy.co.uk/](http://www.suffolkconsultancy.co.uk/)
- Craig Watts, Head of Performance & Service Support and Interim Head of Housing, Castle Point Borough Council [www.castlepoint.gov.uk/](http://www.castlepoint.gov.uk/)
- Aaron Goldie-McSorley, Low Carbon Business Officer – LoCASE, Essex County Council - Environment Team <http://locase.co.uk/>

And

- Calor, for sponsoring the development of this report



## More to explore

**Nearest Super Home:** Wentworth Road, Southend-on-Sea, Essex. An Edwardian semi-detached house with an 81% carbon saving

[www.superhomes.org.uk/superhomes/essex-southend-on-sea-wentworth-road/](http://www.superhomes.org.uk/superhomes/essex-southend-on-sea-wentworth-road/)

**Nearest certified Passive House:** Centre for Disability Studies: The Peter Broughton Wing. The brief for the Peter Broughton Wing called for a sustainable building that would provide lettable open-plan space that the Centre for Disability Studies could rent out to similar organisations.

<http://passivhausbuildings.org.uk/viewproject.php?id=233>

<sup>1</sup> Based on an average electricity bill in Castle Point of £728 and on-gas properties spending an additional £685 per year on gas. These estimates are based on 2015 DECC lower super output area (LSOA) [domestic gas](#) and [electricity consumption data](#) and fuel tariffs from 2015 DECC [regional fuel price data](#). Off-gas residents assumed to spend an additional £1,704 on oil annually, the national average expenditure for oil-heated properties from the DECC [Living Cost & Food Survey](#).

<sup>2</sup> 2015 DECC LSOA-level [household energy efficiency ratings data](#).

<sup>3</sup> CLG (2016) [Live tables on Energy Performance of Buildings Certificates](#).

<sup>4</sup> Delivery of measures 2005-2012 derived from a sample of [5,241 homes in the East of England](#), adjusted to reflect the number of off-gas properties in the Castle Point Constituency. Delivery of measures after 2012 based constituency level 2015 DECC [GD & Energy Company Obligation \(ECO\)](#).

<sup>5</sup> 2015 DECC [Feed-in Tariff \(FiT\)](#) and [Renewable Heat Incentive \(RHI\)](#) statistics.

<sup>6</sup> Estimate is based on surveys of 1,398 East of England homes, adjusted to reflect the number of off-gas properties in the Castle Point Constituency. Survey data part of the 2015 DCLG [English Housing Survey](#).

<sup>7</sup> Derived estimate based on average bill data (described in end note 1) with household number data from 2015 DECC [meter data](#) and [regional statistics](#).

<sup>8</sup> Verco & Cambridge Econometrics, 2012, [Jobs, growth and warmer homes](#).

<sup>9</sup> Department of Health, 2009, [On the state of public health: Annual report of the Chief Medical Officer 2009](#).

<sup>10</sup> Based on Castle Point Constituency receiving a fair share of the [Autumn Statement pledge](#) to deliver low cost energy efficiency measures to 200,000 homes each year during this Parliament.

<sup>11</sup> DECC (2016) [Domestic Energy Price Indices](#).

<sup>12</sup> Non-domestic floor space estimate based on Valuation Office Agency (VOA) (2012) [Business Floorspace \(Experimental Statistics\)](#).

<sup>13</sup> CLG (2016) [Live tables on Energy Performance of Buildings Certificates](#): 'Table DEC1: Display Energy Certificates by local authority and energy performance operational rating'.

<sup>14</sup> 2015 DECC constituency and LSOA level [fuel poverty data](#).

<sup>15</sup> Carbon Trust's [Energy efficiency advice for retail businesses](#).

<sup>16</sup> LBNL Indoor Environment Group. 2016. "[Cost Effectiveness of Improving Indoor Environments to Increase Productivity / Indoor Air Quality \(IAQ\) Scientific Findings Resource Bank \(IAQ-SFRB\)](#)." Lawrence Berkeley National Laboratory.

<sup>17</sup> World Green Building Council, 2016, "[Health, Wellbeing and Productivity in Offices: The Next Chapter for Green Building](#)".