



# CIOB

THE CHARTERED INSTITUTE OF BUILDING



# THE REAL FACE OF CONSTRUCTION

A SOCIO-ECONOMIC ANALYSIS OF THE TRUE VALUE OF THE BUILT ENVIRONMENT

Researched and written by Brian Green, construction analyst and commentator.

Follow Brian on Twitter: @brickconomics

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**CIOB, 1 Arlington Square, Downshire Way, Bracknell, RG12 1WA, UK**

Registered Charity No. (England and Wales) 280795 and (Scotland) SC041725

**[www.ciob.org](http://www.ciob.org)**

**Tel: +44 (0) 1344 630700**

**Email: [policy@ciob.org.uk](mailto:policy@ciob.org.uk)**

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# EXECUTIVE SUMMARY

This report seeks to display the Real Face of Construction; how it provides employment and support for millions; allows British expertise to be exported abroad; improves energy efficiency and, ultimately, how it affects every member of society.

Within the report, we have analysed each economic region of Great Britain\*, highlighting how the construction sector has performed relative to its peak before the recession. Additionally, we have picked out areas of major upcoming investment that will provide regions with vital employment opportunities.

The report illustrates that, regionally, London is the only area where the industry has actually expanded over the past six years. In fact, the capital now accounts for a vast, and perhaps disproportionate, 20% of all construction work.

Construction's recovery outside of London is beginning to take hold. While this is undoubtedly good news, it will bring with it the growing pains associated with rebuilding capacity after deep recession. As is routine with the boom and bust cycles that accompany construction, many personnel have left the sector since 2008 and the skills gap is widening. This is nothing new – previous CIOB research has consistently shown that there are severe skills shortages in the industry. But rather than accept this as the norm, construction's rapidly modernising image instead presents a huge opportunity to attract a more diverse and lasting workforce. After all, a critical shortage of skilled workers could slow down the very projects that are important for economic growth.

The CIOB believes that regional investment is required to boost construction employment and encourage a new generation into the industry in areas harder hit by the recession, as well as to improve infrastructure and regenerate regional cities. In key regions, it would be advantageous to establish hubs of construction-related businesses, each to act as a centre for excellence. Strategically located near universities, they would help to stimulate innovation, open up greater scope for collaboration and ensure that firms are far more effective in their local markets. This close physical proximity would mean that research, training and support could be delivered more efficiently and effectively.

Public investment needs to be tied to training and job creation. The CIOB considers that this should be geared to the long-term aim of developing skilled young people who will be retained by the industry. This means not just training, but properly structured apprenticeship schemes, qualifications and mentoring, developed and/or accredited by professional bodies.

Finally, it is essential that long-term policies are put in place. This allows businesses and their supply chains to effectively plan their training, innovation and investment while eliminating the demands of adapting and readapting to rapidly changing regulations.

With the right planning, vision and of course people, the construction industry reduces pressure on the public purse and improves quality of life. If we are to rebalance the economy, then construction is surely the solution.

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\*Due to variations in how the region measures and reports data, Northern Ireland is not included within this report.

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# INTRODUCTION

The construction industry has a profound impact on the British economy and an even deeper effect on the lives of everyone. It creates the built environment in which we work, rest and play.

It is all too easy in our busy lives to take for granted or accept without question the quality of our built environment. But it affects every member of society. It influences productivity and wellbeing at home and at work.

For most people outside the industry, understanding how the construction industry operates and its impact on our lives is vague at best. This is to be expected. Most of the construction process happens away from view.

The aim of this document is to provide a clearer picture of the construction industry, what it is, what it does and how it influences communities throughout Britain. It seeks also to emphasise its immense economic, social and environmental importance.

We consider this will aid policy making and lead to sharper focus on how the industry can be improved. More importantly, we want to reveal the potential for the construction industry not just to build buildings and structures, but to create a better economy, a better society and a better environment.

The official figures suggest that the industry accounts for 6.3% of all national economic output. At about £100 billion annually, that is huge. But this figure grossly underestimates the true reach of the industry.

Calculations by one of the Britain's leading construction economists, Dr Stephen Gruneberg at the University of Westminster, based on official sources, suggest that construction is equivalent to 15.3% of GDP. That amounts to almost £250 billion annually.

The industry, as defined by its sponsoring Government department, Business, Innovation & Skills, provides almost 3 million jobs. That's one in 10. According to the Office for National Statistics (ONS) employment figures, it accounts for 40% of non-service sector employment.

It is huge and central to the British economy. It is pivotal in the effort to reduce greenhouse gas emissions, cut water and energy consumption and reduce waste. It is essential for building the homes, schools, hospitals and workplaces the nation desperately needs. The infrastructure it provides is crucial to improving the nation's productivity.

With a weak construction industry we will fail to reshape adequately the nation's built environment to meet the rapidly changing challenges we face in the coming decades.

But with a strong construction industry we can take advantage of the huge opportunities opening up to sell our expertise around the globe, while improving the lives of our citizens at home.

It would be a mistake to take our built environment and the construction industry that creates it for granted. Construction will determine our futures and the futures of our children.

# WHAT DOES THE CONSTRUCTION INDUSTRY CREATE?

“Construction shapes and connects the places where we live and work. Those places sculpt our communities, our health, our wealth and our welfare. Construction, through creating our built environment, ultimately shapes who we are.”

Economies grow and people prosper through the accumulation of physical and human capital.

In 2013 the UK economy channelled about £190 billion into expanding and improving its physical capital (Chart 1, excluding intangible fixed assets). £140 billion of that (73%) went into dwelling and other new buildings and structures, broadly the products of construction<sup>1</sup>. This is a huge investment. We might ask, however, is it enough?

The total stock of UK homes, other buildings and structures, as they stand and excluding land, was worth more than £3,100 billion in 2012<sup>2</sup>. That stock represents more than 83% of the accumulated value of all the nation’s physical assets (Net Capital Stock in chart 2).

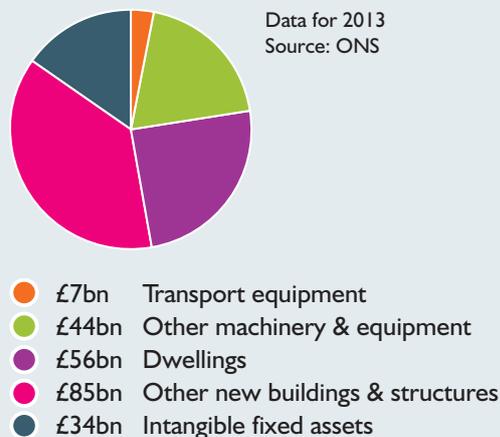
That the proportion of stock of buildings and structures is far higher than the relative share of the annual investment is worth noting. Buildings and structures last for many years if not generations.

These are the product of the construction industry: our homes; schools; hospitals; factories; offices; shops; roads; railways; tunnels; bridges; and the like. These buildings and structures in turn greatly influence how we as a nation accumulate human capital.

It is worth noting too, if we include the value of land on which homes are built, which is increased because homes are built on it, the total asset value of the built environment is vastly increased.

1

THE ASSETS WE INVEST IN: GROSS FIXED CAPITAL FORMATION BY TYPE

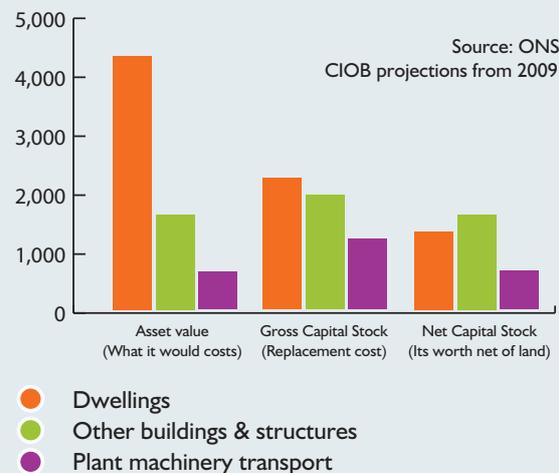


Valued this way the UK’s built environment accounts for 90% of the nation’s physical assets and 84% of the entire nation’s total net worth, according to the national accounts<sup>3</sup> (Asset Value in chart 2).

Excluding land, we estimate it would cost about £4,500 billion to replace the UK’s stock of buildings and structures<sup>4</sup> (Gross Capital Stock in chart 2). Allowing for necessary changes and improvements along the way, at current rates of construction it would take almost half a century to rebuild the UK’s built environment.

2

THE VALUE OF THE UK’S BUILT ENVIRONMENT IN CONTEXT  
(£bn in current prices in 2012)



# WHY IS IMPROVING THE BUILT ENVIRONMENT SO IMPORTANT?

3

“The buildings and structures we create are not just for today. Not just for a term of a Government. They last often for generations. Investment in construction truly is long-term investment.”

## Construction is the most vital cog in the economy for creating physical assets.

But its impact on human capital should not be ignored. Where would we be without good homes, schools, sanitation, hospitals, roads and railways?

Numerous studies have shown how poor buildings and poor infrastructure burden the economy and reduce our health, wealth and wellbeing. Here are just two examples.

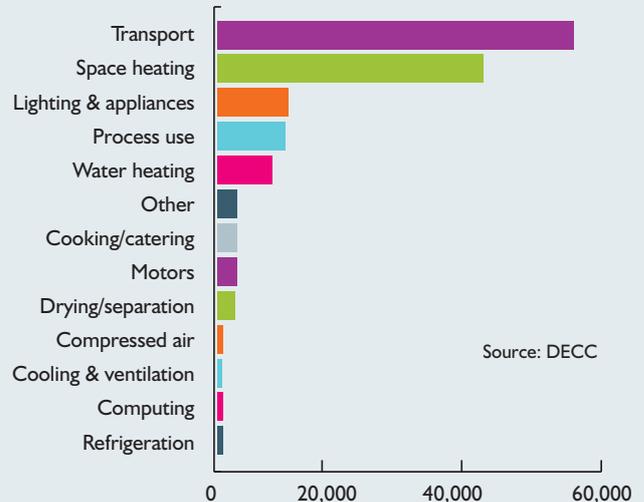
Research by Ecotec in 2010 on the social impact of poor housing illustrates the importance to the public purse of good homes. It estimated that poor housing creates extra health costs of £2.5 billion a year, increases the cost of crime prevention by £1.8 billion and costs the economy £14.8 billion a year, through lowering educational standards<sup>5</sup>.

Meanwhile, the Confederation of British Industry (CBI) estimates that congestion on UK roads costs the economy up to £8 billion each year<sup>6</sup>.

The precise figures for the cost of a poor built environment are less important than the scale and the message they send. We pay heavily as a nation.

Furthermore, the built environment influences society and our quality of life. A lack of affordable housing or highly congested transport systems creates high levels of stress. Taking homelessness as just one of many indicators flashing red, 57,550 families were in temporary accommodation at the end of 2013.

HOW THE UK CONSUMES ENERGY  
(THOUSAND TONNES OIL EQUIVALENT - ktoe)



Better buildings make us more efficient and are more sustainable. Energy used in our homes and buildings accounts for an estimated 45% of the nation's carbon emissions<sup>7</sup>.

As Chart 3 shows, space heating is the second largest component of consumption of energy after transport<sup>8</sup>. Here the construction industry is making huge strides to reduce inefficiency in new and existing buildings.

The challenge for the construction industry is not just to maintain the old and build the new. It is to greatly improve and repurpose buildings and structures to meet the demands of the future.

Our buildings need to be more resource efficient, using less energy, water and other materials. They need to adapt to cope with the climate change experts expect will take place over the next few decades. They need also to be adapted to match the extraordinary change technology is creating in how we live and work.

Construction is not only the vital cog in accumulating physical capital. It is vital to the accumulation of human capital and central in transforming the lives of everyone and improving the environment within which they live.

# WHAT REALLY IS THE CONSTRUCTION INDUSTRY?

4

“To the outside construction can be seen as men in hard hats building things. From the inside it is a complex of interconnected businesses and specialisms that reach into every corner of the economy.”

The official statistics provide an incomplete view of construction. But here are a few headline figures from official sources to provide some scale and shape:

- Employment: 2,236,000<sup>1</sup>
- Employees: 1,292,000<sup>1</sup>
- Self-employed: 926,000<sup>1</sup>
- Men: 1,956,000<sup>1</sup>
- Women: 279,000<sup>1</sup>
- Output: £121.2 billion<sup>2</sup>
- Number of firms: 257,125<sup>3</sup>
- Total purchases of goods, materials and services: £117 million<sup>3</sup>
- Gross value added: £85.4 billion<sup>4</sup>

Sources: 1 ONS, Labour Market Statistics, March 2014; 2 ONS, Output in the Construction Industry, March 2014; 3 ONS, Annual Business Survey, 2012; 4 ONS, GDP(O) Low Level Aggregates 2014 Q1 - Month 2

As chart 4<sup>9</sup> shows, the industry has had a rough ride over recent years. The volatility in GVA (gross value added) shows how susceptible construction is to fluctuations in the wider economy. Sustained low economic growth leads to a construction recession. High economic growth leads to rapid acceleration in construction activity.

The statistics most often used to describe the progress of construction are the monthly output figures. These put construction activity at about £121 billion in cash terms in 2013<sup>10</sup>. Even five years later with strong inflation this is below the 2008 peak of almost £129 million. In real terms, the industry in 2013 was 13% smaller than in 2008. A breakdown of the elements of construction output can be seen in Appendix 1.

ANNUAL GROWTH RATES FOR CONSTRUCTION AND THE OVERALL ECONOMY  
(% CHANGE QUARTER ON SAME QUARTER A YEAR EARLIER)



While industry output is put at £121 billion, this ignores much of what most people think of as construction or construction-related. It ignores design work contributed by architects and engineers, the cash-in-hard work that goes on, construction work undertaken directly by non-construction firms, and it ignores all the real estate activities central to the development, management and sale of the built environment.

Meanwhile the GVA data, which suggests construction is 6.3% of the economy, is defined more narrowly. It considers just activities occurring on sites. It ignores the value added within equipment rental, building materials manufacturing, consultancy and design, and component production. In 2011, 56% of the inputs to construction came from outside the industry<sup>11</sup>.

When drawing up its construction industry strategy, the Department for Business, Innovation & Skills recognised the disparity between how construction is measured and what it really is. It defined the sector as: (i) the construction contracting industry; (ii) the provision of construction related professional services; and (iii) construction-related products and materials<sup>12</sup>. On this basis it estimated the industry to comprise of over 280,000 businesses, covering some 2.93 million jobs; 10% of total UK employment.

Calculations by Dr Stephen Gruneberg at the University of Westminster, based on official sources, suggest that construction is actually equivalent to 15.3% of GDP<sup>13</sup>. That would make its contribution equivalent to about £250 billion annually.

# WHY IS THE EXISTENCE OF THE CONSTRUCTION INDUSTRY IMPORTANT?

5

“The construction industry does not just shape the lives of those who consume its output. It shapes the lives of those who work within it, their families and neighbours. It spreads income and wealth deep into our communities. Furthermore, it provides a growing share of opportunities for those keen to work in manual employment.”

When judging the total value of an industry it is important to look beyond simply what it creates and look at what its very existence means to society and the wider economy.

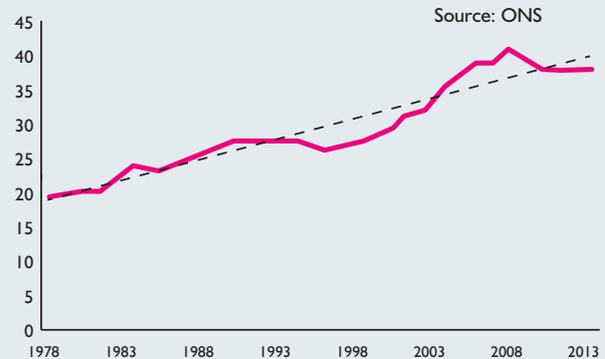
One much undervalued benefit of construction is that it continues to employ large numbers of skilled and semi-skilled workers as employment in other non-service industries disappears.

Chart 5<sup>14</sup> shows how the share of construction jobs within the pool of non-service sector jobs has grown from below 20% in the 1970s to about 40% today.

For those who either struggle with academic life or prefer a more manual job, construction provides a route to a solid career. It allows those who start in trade roles to progress through to a professional status. It opens the way for them to create businesses of their own. And in a world where career paths are often determined from a young age and by one's background, it offers a real chance of upward social mobility.

Many of the owners of successful construction businesses started out “on the tools”. Through graft, learning and the opportunities construction offers, they built firms that today generate revenues of tens if not hundreds of millions of pounds a year. To name just two: Laing O'Rourke founder Ray O'Rourke claims a “managed revenue” of £4.4 billion<sup>15</sup>; and Stewart Milne, of Stewart Milne Homes, generated revenues of £211 million<sup>16</sup> in 2013.

CONSTRUCTION JOBS AS A PERCENTAGE OF ALL NON-SERVICE SECTOR WORKFORCE JOBS



The structure of the construction industry makes it easier than in other industries to grow firms from small beginnings. Yes, there are large firms. But they do not necessarily dominate. There are large numbers of firms across the size spectrum. Of the 257,125 firms<sup>17</sup> counted in 2012 there were: 239,130 employing fewer than 10; 15,824 employing 10 to 49, 1,854 employing 50 to 249 and 317 firms employing more than 250 people.

Construction also provides a pool of lower-skilled jobs, some casual, some longer-term. This means that in areas of high and embedded unemployment it can open up a potential pathway back into employment. If suitably delivered this provides jobs that engage local people in employment that directly benefits their local community.

Many, if not most, of the resources used in construction are sourced locally. Most labour is local. This makes investment in construction particularly attractive. The industry reaches deep into local economies and the benefits are felt nearby. There are the social and economic benefits created by the buildings and structures themselves. But importantly the money invested flows into local firms, who employ more people. These people then spend their earnings in local shops and on local services.

While there may be questions over the precise level of the multiplier effect caused by construction activity, economists see construction as one of the most effective ways to boost economic activity both in the short and longer term.

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# CONSTRUCTION'S ROLE IN BUILDING A BETTER WORLD

## Example 1: The need and the benefits of more and better housing

Currently house building in the UK is at a historic low. In 2013 fewer than 150,000 new homes were completed in the UK. That compares with a peak of more than 226,000 in 2007<sup>18</sup>.

Even at peak in 2007 there was concern that more homes needed to be built. The Labour Government strategy “Homes for the Future” set a target for 2016 of 240,000 additional homes a year for England alone<sup>19</sup>.

A Government report “Estimating Housing Need”, published in November 2010<sup>20</sup>, estimated that England was short about 2 million homes if the aim were to eliminate housing need as it was defined. Need is hard to measure, but the study highlights the scale of the challenge.

Poor housing costs the nation dear, leaving aside the misery it brings to individuals and families. It makes health, education, crime prevention and welfare provision much harder and more expensive, and raises the cost to the Exchequer of housing-related benefits. It restricts economic performance through reducing labour mobility and reduces both incomes and potential tax revenues. This is not in dispute.

Assessing the cost is not easy, although attempts have been made. The Building Research Establishment in 2010<sup>21</sup> assessed the costs of poor housing to the NHS in England at £600 million a year at least and wider societal cost at £1.5 billion.

In 2010 Ecotec<sup>22</sup> produced various estimates of impact of poor housing. All estimates can be challenged, but that study put the added cost to the police of responding to crimes related to poor housing at £1.8 billion a year. It suggested the cost of lost earnings to the current generation from poor education was £14.8 billion. And it assessed costs associated with poor health at £2.5 billion a year.

There are other costs. Lack of housing reduces household mobility. This frustrates both households and employers and reduces economic activity. A 2010 study by Shelter<sup>23</sup>, “Counting the Cost”, found among social housing tenants alone the cost of lack of mobility was more than £300 million, suggesting a far larger sum when all households are considered.

Whatever the precise economic cost of inadequate housing, the sum appears to be measureable in many billions of pounds a year.

Naturally it takes investment to build homes. But this investment does not only result in better housing and reduced costs. There are huge economic benefits that stem from building new and improving old homes. Construction creates jobs, boosts the economy, creates tax revenue and can radically reduce energy consumption.

## Example 2: Reducing the carbon footprint of NHS Property Services

The creation of NHS Property Services under the Health and Social Care Act 2012 formed a huge operation to oversee the massive health service estate, which, including facilities, is valued at £3 billion<sup>24</sup>.

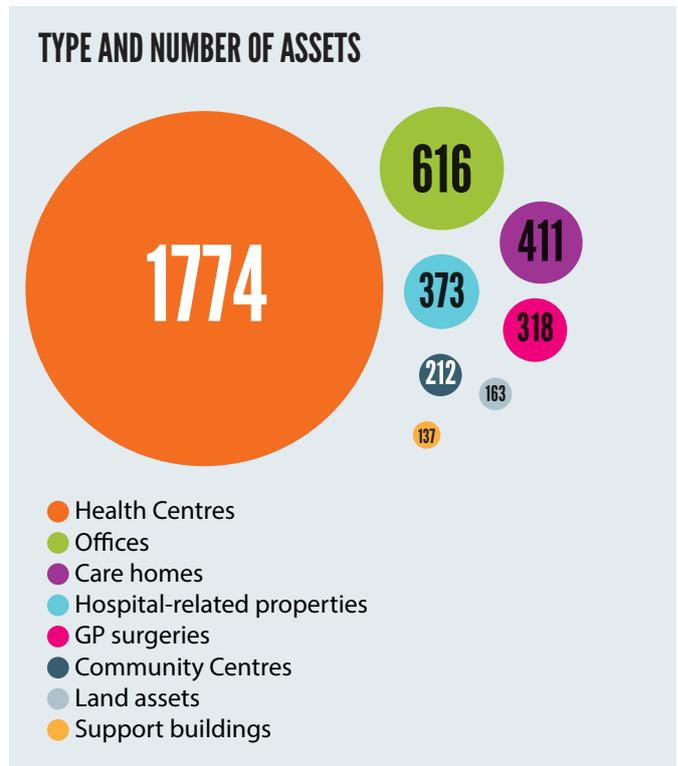
This is testimony to the efforts of the construction industry over past years in creating what now stands. It also represents a major challenge for industry in terms of renewal, adaption, replacement and improvement.

Looking solely at energy efficiency, there is a leading role for the industry. The buildings consume over £410 million worth of energy and produce 3.7 million tonnes of CO<sub>2</sub> every year<sup>25</sup>. This presents huge scope within each building for energy saving and efficiency. This in turn allows the savings to be directly reinvested into patient care.

The NHS, however, is bigger than its buildings and has set ambitious targets to cut carbon dioxide emissions not just from buildings, but from travel and the procurement of goods and services.

And its approach states that: “All decisions about design and build of healthcare facilities must be explicit about how they encourage a broader approach to sustainability including transport, delivery of service and community engagement.”<sup>26</sup>

This means the construction industry must not only look at how to make individual buildings less energy hungry, but how the total of the built assets within the organisation can work holistically more efficiently, while supporting the aims of NHS staff seeking to improve the nation’s health.



As the NHS adapts to address changes in demographics, changes in procedures, and changes in available treatments and technology, so the buildings too have to be adapted. This means the role of construction in supporting the NHS estate is, and should be, far more than simply building buildings to order.

Construction is helping the NHS save money; money that can be invested in improving people’s health and wellbeing.

# HOW HAS THE CONSTRUCTION INDUSTRY RIDDEN THE RECESSION?

6

“The construction industry’s decline into recession in 2008 was more rapid than at any time in the modern era. It came also at a time of extreme economic uncertainty and against a background of unprecedented global and technological change.”

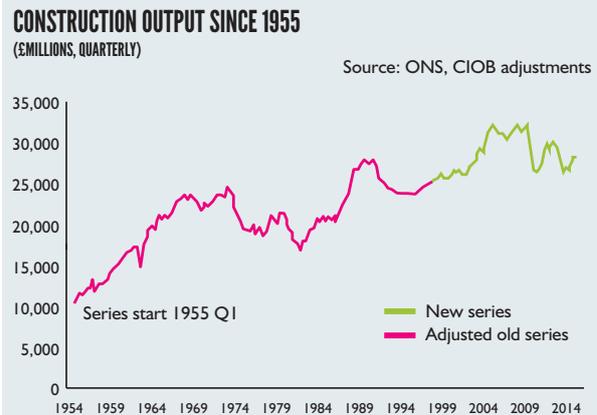


Chart 6 illustrates how construction suffers badly from deep and prolonged recessions<sup>27</sup>. However, the plunge into the recession of 2008 was more severe than those that went before it. Within a year of peaking in the first quarter of 2008, output fell more than 15.5%. Since the data series was first collected in 1955 the fastest collapse into recession had been in 1980 when output fell 13.2% in the year from its peak in the final quarter on 1979.

Furthermore the plunge into recession came at a time of extreme economic uncertainty not witnessed since the interwar period of the early 20th century.

Surprisingly and encouragingly, as in other sectors of the economy, the cost to the industry in terms of job losses was less severe than might have been expected. The milder 1990s recession cost 19% of workforce jobs, whereas the numbers of jobs are now beginning to increase having dropped, at their lowest point, by less than 14% from peak<sup>28</sup>. However, the loss of jobs should be not underestimated. It deepened already through very deep structural faults.

It may surprise some when they see how the various sub-sectors of construction have fared through the recession. Public building output is in fact greater than in 2007. This, however, is because spending in 2007 was at a low relative to previous years and it was accelerated as the rest of the industry collapsed into recession. This provided a slight cushion, particularly for those larger contracting companies active in school building. The surge we see in Chart 7 was in large part down to this acceleration of public funded work. Work on new public buildings has, however, fallen sharply since 2010.

Infrastructure work was also in a lull in 2007 and this too flatters its relative performance since the recession. However, it has remained the darling sector of construction throughout recent years, with public investment of £100bn planned up to the year 2020.

We see elsewhere the ravages of recession. The huge new-housing and commercial sectors remain well below peak, despite recent strong growth in house building. The commercial sector tends to be slower to rebound. There are positive signs and the latest forecast from the Construction Products Association suggests the commercial sector will see annual growth of 5% by 2015<sup>29</sup>.

The industry still has much ground to catch up but the forecast for construction is positive, suggesting a growth rate in excess of 4% for the next three years. This hopefully will provide confidence for investment in the supply chain and in recruitment and training.

7

**CHANGE IN CONSTRUCTION OUTPUT (%), 2007 to 2013**



# WHAT ARE THE CHALLENGES AND THE OPPORTUNITIES FOR CONSTRUCTION?

8

“Globalisation, climate change and information technology are reshaping our environment. The construction industry is critical to reshaping the built environment to match rapidly changing demands. Meanwhile the industry must step up to its own direct challenges and improve.”

As with all industries the challenges faced by construction are both from within and from outside. These challenges are, of course, brought into stark relief after a prolonged slump.

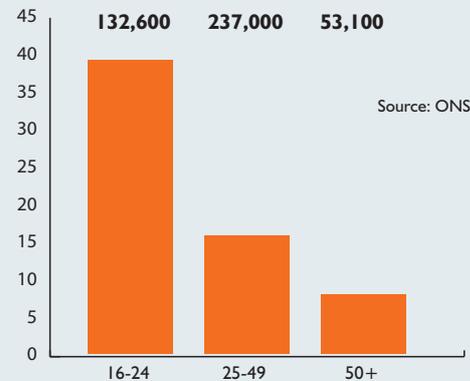
The industry needs to rebuild its supply base and, of paramount importance, it must attract new blood and train a new generation. The recession disproportionately robbed the industry of youth. Chart 8<sup>30</sup> shows how the pool of people employed in the industry younger than 25 years old shrank by 39%. Those aged 25 to 49 dropped 16% and those older than 50 fell by 8%.

Even before the recession, the industry was concerned at the lack of young blood. Skills from Eastern Europe provided a lifeline for companies eager to expand and find replacements for those leaving the industry. Since the recession the average age has risen by, on estimation, two years. Almost a third of the workforce is now older than 50.

Much of what is true of the site skills, as seen in Chart 8, will be reflected in the professions. Here too recruitment has been tight until fairly recently.

The post-Great Recession world will be different to what went before, not just economically. The industry must reshape itself to meet new demands, rethinking the services it provides. It will need to provide cost effective ways to repurpose and adapt the existing built environment. Structural changes in the economy, climate change, rapidly developing technology and major shifts in the demographic structure of the population mean that many existing building will become outmoded or redundant.

FALL IN CONSTRUCTION EMPLOYMENT BY AGE GROUP FROM DEC 2008 to DEC 2013  
(number above, % on scale)



The need to create new clean energy sources and reduce energy consumption in buildings will mean radical changes to the design and construction of new buildings and demand a major programme of retrofitting and modification. Meanwhile, very evident stresses on the nation’s housing stock have created huge pressure to boost the production of new homes.

Construction is pivotal in solving some of the toughest social, political and economic challenges of our time within the UK.

Looking beyond our shores, transformative information technology has meant it is easier to win work abroad and “on-shore” it to UK offices. In part encouraged by recession at home, overseas trade in the services of construction professionals mushroomed in recent years. The ONS Pink Book shows a step change in exports of construction-related services. In 2012 the UK exported £1.5 billion of construction services, £342 million of architectural services, £202 million of surveying services and £5.9 billion of engineering services, a large slice of which will be related to built-environment projects<sup>31</sup>.

This opens the possibility of the UK becoming a global hub for the rapidly growing market for construction-related services throughout the world. If realised, this in turn would underpin significant advances in the services delivered within the UK.

## HOW ARE WE IMPROVING THE CONSTRUCTION INDUSTRY?

9

“Construction is a powerful industry for good or harm. Mistakes leave deep scars. Successes breed success. Over the past two decades the industry has worked hard to rethink its social, economic and environmental responsibilities and reshape its role as an employer.”

Few people working in construction would or should deny the industry’s chequered past. But for two decades the industry has been more united than ever to drive improvement, be that in the safety of its workforce, the education and training of its talent, its attitude to the public, its impact on the environment, nurturing innovation, improving efficiency or raising ethical standards.

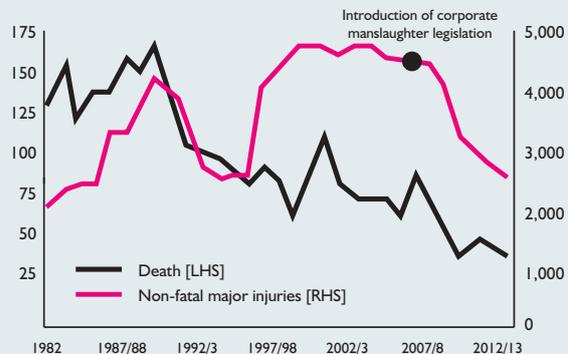
This desire within the industry for improvement has in turn made it easier for legislators and policy makers to develop policies and regulation that are far more effective.

Health and safety is a key issue for construction. Chart 9<sup>32</sup> shows the impressive progress. In the 1980s, each year an average of almost 130 workers and 12 members of the public were killed. Today, though one death is of course too many, it is more likely to be a third of those figures. The statistics on major injuries are harder to interpret. Changes to procedure and practice of what is recorded can cause confusion. But it is clear there was a major improvement after the enactment of the Corporate Manslaughter and Corporate Homicide Act 2007. This has helped drive less ethical firms to raise their game and the results have been notable.

The drive to improve the industry that emerged after the 1990s recession also saw the creation of the Considerate Constructors Scheme, in which the CIOB was very active. The noisy, dirty, dangerous building sites of the past provided no advert for the industry and were often disrespectful of the local community. The change has been dramatic and improvements continue to be made.

### REPORTED DEATHS AND NON-FATAL MAJOR INJURIES IN CONSTRUCTION

Source: HSE



The industry has looked to its relationship with the environment. For instance, it is the biggest single source of waste, producing about 100 million tonnes a year, about a third of the national total<sup>33</sup>. Working together the industry is cutting waste. Hard data on construction waste are sparse, but between 2004 and 2008 there was an 11% drop in waste despite rising construction activity<sup>34</sup>. Between 2008 and 2010 there appears to have been a further 18% fall<sup>35</sup>, although industry activity was 6% lower in 2010. Again legislation, such as the Landfill Tax, and policy support has prompted improvement.

The CIOB’s membership is drawn from a wide range of professional disciplines working within the built environment and the field of construction management. This includes clients, consultants and contractors as well as more specialist areas such as research, education and facilities management. We accredit university degrees, training programmes and vocational courses, and our qualifications are an indicator of the highest levels of professionalism.

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Training and education is therefore central to CIOB activities and critical to the industry as a whole. Construction is quite unique in terms of representing a growing proportion of non-service jobs alongside chartered professions. Many in the industry establish their own businesses while others follow a well-trodden path, especially through the CIOB, from skilled tradesperson to a professional with degree-level qualifications and more. This inclusive approach to recognising and qualifying members from different backgrounds offers significant career development opportunities.

The CIOB, along with the Construction Industry Training Board (CITB), recently supported a cross-party parliamentarians' inquiry under the title *No More Lost Generations*<sup>36</sup>. The CIOB fully endorses the words printed on the cover: "One million NEETs aged 16-24. 182,000 construction jobs to be filled by 2018. Yet just 7,280 completed a construction apprenticeship last year. We have to do better."

**This is one area where the industry needs more support from parliamentarians.**

The industry is regarded as slow to innovate. High risks and the high cost of mistakes do tend to favour a level of conservatism compared to other industries. Change tends to be iterative and cautious. However, the industry is currently embracing new technology in a transformative way.

Digital construction through BIM (Building Information Modelling) is potentially one of the most transformative developments to hit the industry in generations. In May 2011 the Government stated that it intended for all its "central projects" to have collaborative 3D BIM (with all project and asset information, documentation and data being electronic) by 2016<sup>37</sup>.

What does this mean? Two things. Firstly, all the plans and documentation for every Government construction project will be electronic and structured for collaborative working. Secondly, this will in turn lead to an increasing share of private sector projects adopting BIM. This is another case of where the industry and policy makers can work together towards a common goal.

BIM has the potential to reduce waste, increase efficiency on site, reduce the carbon footprint of buildings, streamline after-care and maintenance, as well as reduce travel time and costs for professionals as they can collaborate remotely more easily. It will also document more precisely the development of a building, making it easier to learn lessons and make improvements on subsequent building projects. Furthermore, it provides the client with a far better idea of a structure's layout and facilities before it is even built, so it will be better suited to its purpose. This should reduce costly changes. The system will also make it easier to manage the running, maintenance and improvements of the building throughout its life. Put bluntly, we will have better buildings.

# THE REGIONAL PERSPECTIVE – A NATIONAL COMPARISON

**“Construction both benefits from regional economic growth and drives future growth. Business investment is drawn to regions with good infrastructure and an attractive building stock.”**

The popular view is that the woes of the construction sector are behind and the industry is again on a strong growth path. This view misses significant nuances. There are large regional variations in fortune across construction as whole and, importantly, even larger regional variations between subsectors of the industry. To pick just one example, new housing work in London doubled in cash terms between 2007 and 2013. In the North West it shrank 40%.

Economic activity severely influences the amount and type of construction work in any place at any time. Where economic activity is low, expect a flagging construction sector. However, the relationship between economic activity and construction is symbiotic.

Construction is an essential building block of prosperity, providing it is directed to create the right things to meet the right needs at the right time. The political challenge, when economies wane, is to provide the vision and leadership to invest in construction and channel its creative skills to support economic rejuvenation. The political challenge when economies surge is to ensure the buildings and infrastructure delivered are sustainable in the long term. Buildings have a long legacy.

The challenge for construction, both nationally and locally, is to be flexible to those often rapidly changing demands and to provide its expertise in helping guide the decisions of policy makers.

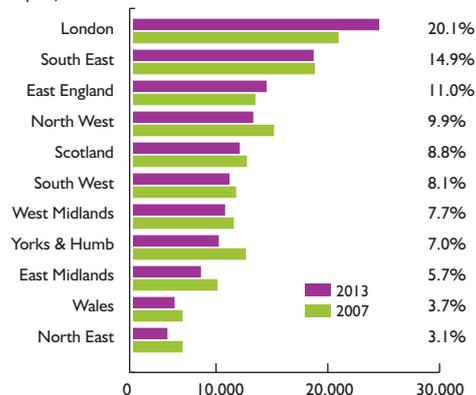
Chart 10<sup>38</sup> shows the change in construction output in cash terms by region between 2007 and 2013. Even at this highly-aggregate level, fortunes vary widely. When we take account of inflation, London grew 10%, the East of England held steady, while activity elsewhere dropped – in some cases, very sharply. London’s share of British construction output rose from 16% in 2007 to 20% in 2013.

This variation in fortune underlines the importance of economic growth to construction activity regionally.

**CONSTRUCTION OUTPUT BY REGION 2007 AND 2013**

(£m, current prices)

Source: ONS



10

**CONSTRUCTION'S SHARE IN 2011 OF REGIONAL GROSS VALUE ADDED**

Source: ONS



11

But the link is not straightforward. Chart 11<sup>39</sup> shows how London is bottom of the league when comparing construction as a share of economic activity (GVA), because it has a plethora of high-value-adding sectors.

Construction outside of London, on the narrow measure of the industrial sector’s GVA, accounts for between 6% and 9% on average each year of the total economic activity. Naturally much of the materials supply base (which is not included in the narrow measure) is situated outside London, while a large slice of the professionals that design construction works (also not included) are located in London and in other major cities throughout Britain.

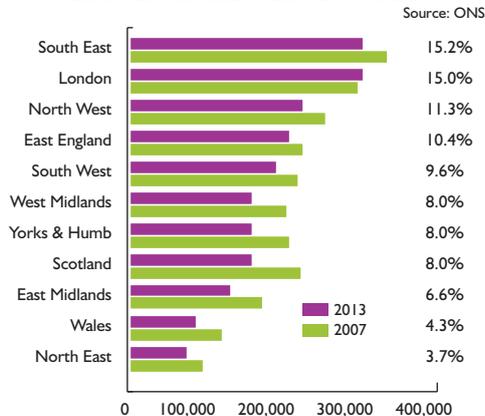
When comparing regions, it is important to note that the spread of jobs does not directly match the spread of aggregate workloads. The type of work influences employment. In broad terms, refurbishment work is far more labour intensive than new-build work. Meanwhile, civil engineering is less labour intensive as it relies more heavily on plant and machinery than building work.

This is very evident in the regional spread of employment and the changes over time. Chart 12<sup>40</sup> shows the change in construction employment by region between 2007 and 2013. It also shows the regional spread of construction employment as a percentage of the total in 2013. Comparing regional employment with the regional output may suggest different levels of productivity across Britain, but this simple measure ignores the influence of workload mix of employment.

Chart 13<sup>41</sup> illustrates the proportion of those in work who are employed in construction within each region. London is bottom, reflecting to some extent construction's lesser proportion of the capital's economic activity. However, a wider interpretation of construction, including professionals associated with construction, would probably reduce this disparity.

An important feature of the British construction workforce is the high and growing level of self-employment. The geographical pattern here is striking (Chart 14<sup>42</sup>). The further south, the higher the self-employment share. Another point of note is self-employment has grown fastest of late in regions such as the South West and Wales.

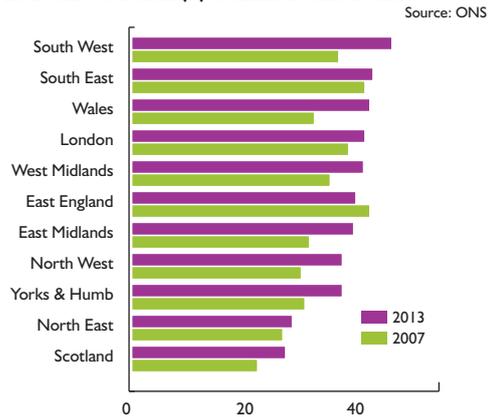
**CONSTRUCTION EMPLOYMENT AND SHARE BY REGION 2007 AND 2013**



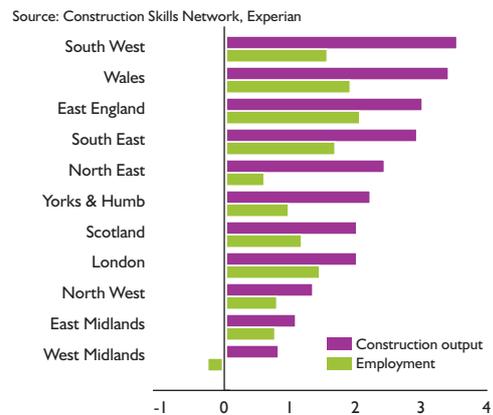
**CONSTRUCTION'S SHARE OF REGIONAL EMPLOYMENT AT DECEMBER 2013**



**SELF-EMPLOYMENT AS A SHARE (%) OF ALL EMPLOYMENT BY REGION**



**AVERAGE ANNUAL GROWTH CONSTRUCTION OUTPUT & EMPLOYMENT TO 2018(%)**



12

Chart 15<sup>43</sup> shows the projections produced by the Construction Skills Network (an operation run by the CITB) for growth in both construction output and employment over the five years 2014 to 2018. The pattern of expected growth is far from even and likewise the demand for workers will vary.

The need to recruit is not simply a function of expanding workloads. It is influenced by the age of the existing workforce. Even in the West Midlands, where overall employment is set to fall, the region's firms will still have to recruit almost 400 workers a year on these estimates. Nationally the industry needs to recruit about 36,400 new people a year. And with the economy performing better than expected when the forecast was made, these figures may in fact be an underestimate.

13

The next section explores recent construction data for each region of Great Britain. This includes construction performance before, during and after the recession; employment data; details on existing building stock, and key upcoming projects. Please note that Northern Ireland is excluded due to variations in how the region measures and reports data.

14

15

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# SCOTLAND

Since the recession, construction activity in Scotland has been on a rollercoaster ride. Initially it had more momentum than many other regions, but activity dipped hard in 2009, rose sharply in 2010 and then dipped again. It now appears to be on the rise, but in real terms is still well below peak levels<sup>44</sup>.

Relative to other sectors, Scottish construction suffered badly. It lost 68,600 jobs between 2007 and 2013<sup>45</sup>. But worse was avoided thanks to expanding infrastructure work, which grew its share of output from less than 10% to almost 20%.

Both orders<sup>46</sup> and output are now rising and the current forecast from the Construction Skills Network (CSN)<sup>47</sup> is for an average regional construction growth over the next four years of 2% against a UK average of 2.2%. It is reasonable to hope this is an underestimate as economic prospects have recently improved above expectations.

CSN is expecting housing, both new and refurbishments, to drive this growth, although all sectors should see growth with the exception of public non-housing new buildings.

Underlying this growth in construction is the expanding economy, which is expected to grow averagely at about 1.7% annually up to 2018 against a 2% UK average.

This leads CSN to forecast a need to recruit about 6,000 new people into construction each year between 2014 and 2018.

## Building Stock<sup>48</sup>

Homes	2,508,000
Shops	53,000
Offices	39,000
Industrial	48,000
Other building	16,000

## Key Projects<sup>49</sup>

As a nation eager to express its identity and tap into its natural resources, Scotland's portfolio of major construction projects is revealing. Green power is extremely evident in the top projects in Barbour ABI's database. The massive carbon capture project at Peterhead Power Station progresses after the award of the Government FEED contract, while progress is also being made on Inch Cape, Stevenson, Viking and Neart Na Gaoithe offshore wind farms with investment of more than £4bn, and the £800m Coire Glas Hydro scheme. But there is more to Scotland than raw energy. The £650m Heartlands development, with a golf course close to its heart, will provide homes, shops and business as well as traditional leisure facilities at the former Polkemmet Colliery. Edinburgh too is set to get an injection of vitality from the £850m reconstruction of St James Centre, while in Glasgow the £850m New South Glasgow Hospital should be finished by early 2015.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

16



- Housing
- Private industrial
- Other RMI
- Infrastructure
- Private commercial
- Public new work
- Housing RMI

(Source: ONS)

RMI - Renovation Maintenance Improvement

## SCOTLAND CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

17



- Output
- Orders (for new work only)

(Source: ONS)

## Construction firms' performance in Scotland (£m)

18

	Turnover	Purchases	Employ. costs
2008	6,372	2,809	1,588
2009	6,251	3,740	1,653
2010	5,728	3,515	1,363
2011	5,907	3,776	1,554

## Employment by sector

19

	2013	2007	Change
Agriculture, energy & water	132,300	123,900	8,400
Manufacturing	201,300	261,200	-59,900
Construction	162,300	230,900	-68,600
Distribution, hotels & restaurants	476,600	461,200	15,400
Transport & communications	186,900	197,700	-10,800
Banking, finance and insurance	400,000	332,000	68,000
Public admin. education & health	769,100	787,300	-18,200
Other services	135,000	123,400	11,600

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# NORTH EAST

Regional construction activity in 2013 was down more than a quarter on 2007 levels in cash terms. That's a bigger slump than in any other English region. Were it not for a swell in infrastructure work the pain would have been far worse.

With falls elsewhere, infrastructure's share of regional construction jumped from 5% to 13%. This growth in infrastructure work seems set to continue. New orders over the four quarters to spring 2014 were four times up on 2007 levels, helping to boost orders overall.

The employment data show, in number and share, that construction bore the worst of the labour losses, with employment falling by more than 24,000.

Looking forward, sharply rising orders is one reason the CSN currently forecasts average annual regional construction growth over the next four years of 2.4%, above the 2.2% UK average. With economic prospects improving this may be edged up next time.

CSN is expecting housing and industrial work to expand in the coming four years to support growth from infrastructure. But with the economy growing at an average annual rate of 1.6%, slower than the 2% UK average, commercial building work will be fairly slow, while public non-domestic building declines.

CSN expects growth to lead to a demand for about 2,680 new recruits to construction annually between 2014 and 2018.

## Building Stock

Homes	1,187,000
Shops	25,000
Offices	13,000
Industrial	19,000
Other building	6,000

## Key Projects

Construction's role in regenerating neighbourhoods where former centres of employment have disappeared is vital in the North East, as a selection of top projects pulled from the database of Barbour ABI illustrates. Among the projects is the ambitious £800m regeneration of the former Vaux Brewery in Sunderland. The £200m Downing Plaza redevelopment of the former Scottish & Newcastle Brewery is nearing completion. Its first phase now houses the University of Newcastle's New Business School. The Homes & Communities Agency is persisting with its plans to redevelop Middlehaven Docks in Middlesbrough with homes, shops and leisure buildings. Meanwhile, developers have eyed a former opencast mine near Widdrington to transform into the planned £50m Blue Sky Forest holiday complex. Large construction projects in the region are, however, not just about regeneration. Stockton Council has agreed plans for the £100m 350-home retirement village Mount Leven development at Yarm. And two massive biomass energy projects at Middlesbrough and Billingham, together worth more than £600m, should help drive the growth in infrastructure

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

20



- Housing
  - Private industrial
  - Other RMI
  - Infrastructure
  - Private commercial
  - Public new work
  - Housing RMI
- (Source: ONS)

## NORTH EAST CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

21



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in North East (£m)

22

	Turnover	Purchases	Employ. costs
2008	6,372	2,809	1,588
2009	6,251	3,740	1,653
2010	5,728	3,515	1,363
2011	5,907	3,776	1,554

## Employment by sector

23

	2013	2007	Change
Agriculture, energy & water	36,100	33,300	2,800
Manufacturing	132,800	155,400	-22,600
Construction	81,300	105,500	-24,200
Distribution, hotels & restaurants	221,500	213,900	7,600
Transport & communications	83,700	91,300	-7,600
Banking, finance and insurance	143,500	122,200	21,300
Public admin. education & health	385,400	376,700	8,700
Other services	56,600	59,900	-3,300

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# NORTH WEST

By the end of 2013, activity in both housing and commercial building was 40% lower in cash terms than in 2007. That's a £3bn fall in annual spend. A rise in infrastructure and public building did ease some pain, but overall construction is far slimmer than in its peak years. The effect can be seen in the 32,000 loss of employment.

Commercial sector work (offices, shops etc.) in 2007 accounted for 30% of the region's construction work. Today it is about 20%, a reflection of the economic struggle.

Despite more buoyancy evident in the output and orders figures, the latest forecast from CSN suggests that the share of overall work taken by commercial building will not grow and may in fact shrink over the coming few years.

It currently forecasts average annual regional construction growth over the next four years of 1.3%, below the 2.2% UK average. Encouragingly, the economy is doing better than expected when the forecast was made.

CSN expects infrastructure to be the biggest driver of growth, helped by the Mersey Gateway project. But with the economy expected to grow at an average annual rate of 1.8%, slower than the 2% UK average, it is understandable that CSN has low expectations for commercial building work.

The industry in the region will be recruiting. CSN expects a need for almost 3,000 new recruits annually between 2014 and 2018.

## Building Stock

Homes	3,168,000
Shops	79,000
Offices	43,000
Industrial	61,000
Other building	19,000

## Key Projects

The North West has tasted the transformative effects of construction – reverberations from building the Manchester Ship Canal echo today. But as a regional counterweight to London, construction is vital to its continued prosperity. Selected projects pulled from the database of Barbour ABI highlight how construction is enhancing the regional economy. Plans for four more phases of Media City, worth £460m, in Salford will seek to cement the region as an international media hub. Work to enhance the physical communications over the Mersey has started. The £600m Mersey Gateway project will by 2017 see a new six-lane toll bridge between the towns of Runcorn and Widnes. In Liverpool, plans for a £5.5bn Liverpool Waters Development are taking shape, further revitalising a vibrant city once deemed unsalvageable. And in Rochdale, a £500m regeneration of the town centre is on the move. Meanwhile, as home to Sellafield, the region will see a large slice of the £7bn planned nuclear decommissioning work over the next 10 to 15 years.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

24



- Housing
  - Private commercial
  - Private industrial
  - Public new work
  - Other RMI
  - Housing RMI
  - Infrastructure
- (Source: ONS)

## NORTH WEST CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

25



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in North West (£m)

26

	Turnover	Purchases	Employ. costs
2008	21,482	13,193	4,531
2009	19,118	11,170	3,951
2010	18,467	11,411	3,844
2011	18,741	11,451	3,756

## Employment by sector

27

	2013	2007	Change
Agriculture, energy & water	74,500	73,700	800
Manufacturing	347,100	446,800	-99,700
Construction	228,100	260,200	-32,100
Distribution, hotels & restaurants	625,800	607,400	18,400
Transport & communications	248,800	290,100	-41,300
Banking, finance and insurance	496,400	409,300	87,100
Public admin. education & health	940,300	913,400	26,900
Other services	154,900	148,900	6,000

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# YORKSHIRE AND THE HUMBER

After the North East, construction in Yorkshire and the Humber has suffered the most among the English regions, with output in cash terms estimated to be almost a quarter lower in 2013 than in 2007.

When inflation is taken into account, this is a painful drop and is reflected in employment data. In number and share, construction bore the worst of the labour losses in the region, with employment dropping by more than 50,000.

The commercial and industrial building sectors were hammered and stand at about half the peak level in cash terms, while new housing work is down almost 40%. But as with other northern regions, some pain was spared as infrastructure spending rose. As a share of regional construction it went from 6% to 15% in Yorkshire and the Humber.

Infrastructure is seen as driver of future growth in construction in the region, but more support is expected from new housing and commercial work, where orders have risen well of late.

CSN currently forecasts average regional construction growth over the next four years of 2.2%, equal to the UK average. This comes despite an expectation that the regional economy will grow at an average annual rate of 1.7%, slower than the 2% UK average.

CSN expects growth to lead to a demand for about 3,170 new recruits to construction annually between 2014 and 2018.

## Building Stock

Homes	2,342,000
Shops	56,000
Offices	31,000
Industrial	48,000
Other building	14,000

## Key Projects

Yorkshire and the Humber has long been an energy powerhouse and the pick of the projects selected from the database of Barbour ABI pay testimony to that. Power projects dominate, with the multi-billion Hornsea Offshore Wind Farm at the top. But vibrancy is as important as pure energy and the £350m Trinity East retail and commercial development is pumping life into the heart of Leeds. Nearby Bradford is looking to secure the £350m development to create its ambitious vision of a canal-side community. In Huddersfield, its regeneration scheme is the £200m Waterfront Quarter where Kirklees College recently opened a new campus. The economy needs more than energy and revitalisation, it needs communication. Plans continue to be pushed for the £400m Doncaster Inland Port, a major intermodal rail-road connection that could be started this year. And the economy needs innovation, in this regard the massive White Rose carbon capture project at Drax in Yorkshire progresses after the award of the government FEED contract.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

28



- Housing
  - Private industrial
  - Other RMI
  - Infrastructure
  - Private commercial
  - Public new work
  - Housing RMI
- (Source: ONS)

## YORKSHIRE & HUMBER CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

29



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in Yorkshire and The Humber (£m)

30

	Turnover	Purchases	Employ. costs
2008	15,869	9,856	3,349
2009	13,584	8,739	2,948
2010	12,363	7,537	2,622
2011	13,150	7,850	2,753

## Employment by sector

31

Employment by sector	2013	2007	Change
Agriculture, energy & water	59,200	63,500	-4,300
Manufacturing	303,800	349,900	-46,100
Construction	172,800	222,900	-50,100
Distribution, hotels & restaurants	489,700	486,000	3,700
Transport & communications	196,600	208,300	-11,700
Banking, finance and insurance	334,200	293,700	40,500
Public admin. education & health	774,600	677,100	97,500
Other services	125,600	122,500	3,100

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# EAST MIDLANDS

The East Midlands has, for many years, been a major deliverer of homes. In 2007 more than 27% of regional construction was building new homes - the highest share in any region.

The crash hit the East Midlands hard. £1bn less was spent building new homes in 2013 than in 2007. This contributed greatly to the 20% overall drop in construction activity in the region. The fall of 36,600 in construction employment is a testimony to the pain.

But housing still accounts for 21% of construction output and the revival of private housing leads CSN to believe it will be the biggest driver, along with industrial building, for the industry over the next four years.

Overall, the CSN forecast suggests that the East Midlands will be one of the weaker regions for construction, growing averagely by 1.1% annually against 2.2% for UK construction overall. This is on the basis of annual average overall economic growth of 1.8% against the UK's 2%.

The growth we see in the orders is mainly driven by private housing and industrial, with the economy and house building picking up more than many expected this may suggest fairly strong upsides to the forecast.

Even on the basis of this fairly muted forecast, CSN expects a demand for almost 2,000 new recruits to construction annually between 2014 and 2018.

## Building Stock

Homes	1,994,000
Shops	41,000
Offices	22,000
Industrial	42,000
Other building	12,000

## Key Projects

The East Midlands is more accepting of new homes than most regions. So it is not surprising that top projects from Barbour ABI's database should include the Eco Village at Ashton, the Towcester South Sustainable Urban Extension, the Swanpool redevelopment and the Thurmaston Urban Extension. These will bring huge investment, 16,000 or more much-needed new homes, schools, other valuable infrastructure and thousands of jobs. And there are plenty of other schemes in the region to create new communities. The region has also supported the nation in power generation. Today that means providing green energy, such as the planned £3bn Race Bank and the £1.8bn Triton Knoll offshore wind farms. But conventional power plants also feature high among the region's major projects. The Willington and the West Burton combined cycle gas turbine power stations each represent £1bn of investment. Countrywide, new homes and power generation represent the toughest choices over balancing the demands between consumption and the environment, and national and local interest. The East Midlands clearly supports the nation's needs.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

32



- Housing
  - Private commercial
  - Private industrial
  - Public new work
  - Other RMI
  - Housing RMI
  - Infrastructure
- (Source: ONS)

## EAST MIDLANDS CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

33



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in East Midlands (£m)

34

	Turnover	Purchases	Employ. costs
2008	13,958	8,720	2,469
2009	11,492	6,560	2,191
2010	10,406	6,359	1,998
2011	11,272	7,013	2,216

## Employment by sector

35

	2013	2007	Change
Agriculture, energy & water	71,300	62,600	8,700
Manufacturing	305,900	357,300	-51,400
Construction	151,700	188,300	-36,600
Distribution, hotels & restaurants	402,500	430,700	-28,200
Transport & communications	178,300	181,600	-3,300
Banking, finance and insurance	278,700	247,900	30,800
Public admin. education & health	620,500	557,200	63,300
Other services	104,800	107,400	-2,600

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# WEST MIDLANDS

Construction in the West Midlands suffered less than in its regional neighbours to the north, east and west. In cash terms, output is about 8% lower than in 2007. But the fall in workload did create a drop of 22% in employment between 2007 and 2013; proportionately a worse hit than suffered by manufacturing.

The fall would have been worse but for helpful public spending on new buildings and a boost to infrastructure work. Surging house refurbishment also helped, increasing this subsector from 15% to 19%.

Unlike most other regions there is little sign of a swell in orders. This and other indicators will have shaped the CSN view that the region will see the weakest construction annual growth at just 0.8% on average until 2014. This compares with the 2.2% UK average.

CSN sees the sector's best hope for construction growth in housing, new build and refurbishment. The commercial sector, which has taken a hammering, is expected to continue to shrink. Encouragingly, industrial building work is expected to grow gently.

The CSN forecast is set against expected regional economic growth annually averaging 1.8%, slower than the national expectation of 2%.

CSN expects growth to lead to a demand for about 380 new recruits to construction annually between 2014 and 2018. That is by far the lowest of all regions.

## Building Stock

Homes	2,398,000
Shops	53,000
Offices	30,000
Industrial	53,000
Other building	13,000

## Key Projects

The powerhouse of Britain's post-War manufacturing prowess, the West Midlands was less ravaged than the heavy-industry-reliant Northern regions over the years. But it has more recently had to adapt fast in the face of global competition and still does. Construction is central to the process of adaptation, helping to strengthen the heritage while facilitating new opportunities. It is fitting that top projects in the Barbour ABI database include the £355m new Jaguar Land Rover factory near Wolverhampton and the £130m National Automotive Innovation Centre at the University of Warwick. But in the construction projects we see strong signs of necessary regeneration and rebirth. A massive regeneration project at Selly Oak includes a world-class Life Sciences research centre. Coventry has plans for a £300m City Centre South redevelopment. In Stoke the £250m "City Sentral" redevelopment is underway and there are plans for a £170m central business quarter. Burton has plans for a new community near Branston Lock.

### CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

36



- Housing
  - Private industrial
  - Other RMI
  - Infrastructure
  - Private commercial
  - Public new work
  - Housing RMI
- (Source: ONS)

### WEST MIDLANDS CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

37



- Output
  - Orders (for new work only)
- (Source: ONS)

### Construction firms' performance in West Midlands (£m)

38

	Turnover	Purchases	Employ. costs
2008	17,148	10,401	3,357
2009	14,965	9,298	2,872
2010	14,041	8,493	2,801
2011	14,115	9,197	2,695

### Employment by sector

39

	2013	2007	Change
Agriculture, energy & water	67,400	60,400	7,000
Manufacturing	331,400	408,000	-76,600
Construction	165,300	210,800	-45,500
Distribution, hotels & restaurants	469,500	451,500	18,000
Transport & communications	208,600	217,200	-8,600
Banking, finance and insurance	338,200	308,500	29,700
Public admin. education & health	747,900	681,100	66,800
Other services	117,800	119,900	-2,100

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# EAST OF ENGLAND

After London, the East of England has enjoyed the best fortune as regards construction. In cash terms output is estimated to be almost 9% higher in 2013 than in 2007. Taking account of inflation that suggests the industry is more or less where it was at peak.

And while the region did see its construction employment fall 13,500 over the period, the sector fared less badly than manufacturing, which saw a 15% fall against a 5% fall in employment in construction.

It is not surprising then that the relatively small private industrial sector was the hardest hit. Output fell by more than half. Commercial work fell also, dropping from a 21% share of all work to just 16%.

Looking forward, the orders figures are promising, if not spectacular, with private industrial and infrastructure most buoyant.

These sectors, along with housing, are seen by CSN as the main drivers of regional construction growth over the next four years. Average annual growth should be about 3% comparing favourable with the 2.2% UK average. This will be supported by fairly strong overall economic growth of 2.1%, above the 2% UK average.

The expectation of strong employment growth has CSN forecasting a need for 5,150 new recruits to feed the regional construction industry annually between 2014 and 2018.

## Building Stock

Homes	2,566,000
Shops	49,000
Offices	33,000
Industrial	49,000
Other building	17,000

## Key Projects

A major driver of construction is population growth and the East England has grown faster since 1991 than any region other than London. This pattern is set to continue with housing and supporting infrastructure featuring heavily in the major projects in Barbour ABI's database. The A14 Corridor road improvements, Huntingdon to Cambridge Toll road is due to start in 2016, there are widening plans for the M25 between junctions 16 and 23, and a hard-shoulder running scheme for the M1 in the region. Energy projects feature high in the list, including long-term plans for many phases of the £20bn East Anglia offshore wind farm and plans are afoot for a new nuclear plant at Sizewell. An expanding population needs homes. Major schemes dot the region with the region's many disused airfields often seen as ideal sites. Huntingdonshire District Council is touting RAF Wyton as a site for 3,750 homes, while South Cambridgeshire District Council has backed plans for a 1,500-home new town at Waterbeach and Bourn airfield. Meanwhile, old 'new towns' such as Basildon and Stevenage are seeing regeneration with hundreds of millions of pounds investment in homes, shops, businesses, other infrastructure and, ultimately, jobs.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

40



- Housing
  - Private industrial
  - Other RMI
  - Infrastructure
  - Private commercial
  - Public new work
  - Housing RMI
- (Source: ONS)

## EAST ENGLAND CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

41



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in East of England (£m)

42

	Turnover	Purchases	Employ. costs
2008	19,007	11,900	3,727
2009	19,370	11,758	3,573
2010	19,916	11,963	3,930
2011	22,264	14,343	3,859

## Employment by sector

43

	2013	2007	Change
Agriculture, energy & water	81,100	72,600	8,500
Manufacturing	279,500	330,700	-51,200
Construction	236,500	250,000	-13,500
Distribution, hotels & restaurants	519,300	508,400	10,900
Transport & communications	275,100	277,800	-2,700
Banking, finance and insurance	521,500	445,600	75,900
Public admin. education & health	841,400	712,500	128,900
Other services	156,800	157,800	-1,000

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# WALES

By the end of 2013, construction output in cash terms in Wales was down 14% on its 2007 level, with the biggest losses resulting from falling private commercial and housing activity. The biggest hit proportionately was taken in private industrial work, but this is a relatively small sector.

The cost to jobs has been heavy, a loss of 31,000, or about 25% of the sectors' employment over the period. But a boost to housing refurbishment and new infrastructure work did take some sting out of the recession for Welsh construction. These significantly expanded their share of overall workload, with infrastructure growing from 10% to 14%.

This share is set to grow further if the latest CSN forecast proves accurate. It foresees average annual growth in double figures for infrastructure between now and 2018. This will be the big driver, with private housing also lifting growth. The recent rise in orders is largely down to infrastructure work, with private industrial and commercial work increasing more of late.

CSN currently expects average annual construction growth in Wales over the next four years of 3.4%, well above the 2.2% UK average. This comes despite an expectation that the regional economy will grow at an average annual rate of 1.6%, slower than the 2% UK average.

CSN expects growth to lead to a demand for about 3,570 new recruits to construction annually between 2014 and 2018.

## Building Stock

Homes	1,389,000
Shops	32,000
Offices	15,000
Industrial	26,000
Other building	10,000

## Key Projects

Stemming the economic decline caused by the retreat of traditional industry has been central to Wales' recent policies. Despite low levels of construction spending, the nation typically invests in projects that tap into its natural resources, improve links to areas of activity, and that renew and help to consolidate both jobs and communities. These are very evident in the top projects in Barbour ABI's database. High on the list is a scheme to improve the M4 corridor around Newport to reduce congestion. Meanwhile there are many power schemes at various stages, from the Swansea Bay tidal lagoon, the Wylfa nuclear power station, the Pen Y Cymoedd wind farm to Lateral Power's £600m Anglesey biomass power plant. At a more human level there are the plans for a 1,700 new-home development at Bodelwyddan, plans for a £200m new town centre for Talbot Green, the £273m construction Gwent Care Centre in Cwmbran and tentative plans for a new £200m hospital with cancer care in Cardiff. Trading on its natural beauty, plans have been passed for a £120m holiday village in Holyhead.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

44



- Housing
  - Private commercial
  - Private industrial
  - Public new work
  - Other RMI
  - Housing RMI
  - Infrastructure
- (Source: ONS)

## WALES CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

45



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in Wales (£m)

46

	Turnover	Purchases	Employ. costs
2008	7,302	4,319	1,524
2009	5,522	3,317	1,313
2010	5,793	3,528	1,299
2011	6,055	3,509	1,370

## Employment by sector

47

	2013	2007	Change
Agriculture, energy & water	56,100	48,000	8,100
Manufacturing	146,800	168,900	-22,100
Construction	94,500	126,200	-31,700
Distribution, hotels & restaurants	257,700	254,600	3,100
Transport & communications	84,600	89,300	-4,700
Banking, finance and insurance	154,400	130,200	24,200
Public admin. education & health	467,400	441,800	25,600
Other services	78,300	66,500	11,800

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# LONDON

London is often referred to as another country; in terms of construction, this cliché actually fits. In all other regions, output has shrunk or stagnated in real terms. But London's construction output was 20% bigger in 2013 than in 2007 in cash terms and, unlike in all other regions, its workforce is the size it was in 2007.

What is also intriguing is how this growth has occurred when the giant commercial sector has declined by more than £2bn over the period, now accounting for 24% of output compared with almost 40% in 2007.

Infrastructure work should ease over the next four years according to the latest CSN forecast, but the gap will be more than filled by an expanding commercial sector and continued growth in housing. A sharp rise in orders for commercial and housing work should underpin growth.

CSN currently expects average annual construction growth for the capital over the next four years of 2.0%. This is slightly below the 2.2% UK average, despite CSN expecting the capital's economy to grow at an average annual rate of 2.6%, the fastest in the UK. However, London has already enjoyed fast growth since early 2010 and this is growth from a high base.

CSN expects growth to lead to a demand for about 1,290 new recruits to construction annually between 2014 and 2018.

## Building Stock

Homes	3,404,000
Shops	98,000
Offices	85,000
Industrial	44,000
Other building	14,000

## Key Projects

London is currently at the epicentre of British construction. It accounts for 20% of all work and the market expanded despite the global financial crisis. Three things drive this market: the need to house more people; the need to provide more and better places for employment; and making life desirable so people can get around, be healthy and enjoy themselves. The phase of eye-catching skyscraper projects is waning. Transport and housing are most upfront and central today. The £15bn Crossrail project is well underway. Plans move to start the High Speed rail line to Birmingham and plans rumble on over expansion of Heathrow Airport. Outside of that, there are major housing projects, such as those planned for the redevelopment of Battersea Power Station, amid a host of others centred on Greenwich Peninsula and land in the former docklands. Additionally, work on necessary but less glamorous work also features, with the £4bn Thames Tideway Tunnel project just one example.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

48



- Housing
  - Private commercial
  - Private industrial
  - Public new work
  - Other RMI
  - Housing RMI
  - Infrastructure
- (Source: ONS)

## LONDON CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

49



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in London (£m)

50

	Turnover	Purchases	Employ. costs
2008	35,969	21,757	5,898
2009	30,249	18,621	5,121
2010	31,348	19,779	5,251
2011	31,121	19,715	5,454

## Employment by sector

51

	2013	2007	Change
Agriculture, energy & water	39,700	45,100	-5,400
Manufacturing	140,900	232,500	-91,600
Construction	277,200	278,200	-1,000
Distribution, hotels & restaurants	628,000	581,000	47,000
Transport & communications	472,600	463,000	9,600
Banking, finance and insurance	986,700	878,700	108,000
Public admin. education & health	1,072,200	931,900	140,300
Other services	276,700	235,500	41,200

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# SOUTH EAST

The effects of the recession on construction have been far milder in the South East than most other regions. In cash terms the regional output is about the same as it was in 2007. Take inflation into account and that means it has shrunk, but relatively not by much.

There are sectors that felt hurt. The commercial sector is much smaller, with annual spending down £1bn between 2007 and 2013. But a strong performance for infrastructure and housing refurbishment has provided compensation.

The recession has resulted in the loss of about 8% of the region's construction employment, but this is a lighter loss than elsewhere.

Looking ahead, new housing is expected to lead the charge, according to the latest forecast from CSN, with infrastructure also performing strongly and all but public building work contributing to grow.

The net effect in CSN's view is average annual regional construction growth over the next four years of 2.9%, well above the 2.2% UK average.

This comes against an expectation that the regional economy will grow at an average annual rate of 2.4%, comfortably higher than the 2% UK average.

CSN expects growth to lead to a demand for about 1,600 new recruits to construction annually between 2014 and 2018.

## Building Stock

Homes	3,741,000
Shops	75,000
Offices	55,000
Industrial	61,000
Other building	23,000

## Key Projects

Regionally, the South East is the largest market for construction after London. Its compact and well-established population provides particular and varied challenges. This is reflected in the variety of the top projects in Barbour ABI's database. From the speculative £9bn Gatwick Airport expansion to the very real Great Western Railway mainline electrification. From the ongoing £600m Kilnwood Vale new community to planning strife over two schemes intended to deliver more than 6,000 homes at Aylesbury. From plans for a £500m redevelopment of MoD Bicester to the £750m regeneration of Bracknell town centre. Meanwhile, there is a green light for the £420m new Royal Sussex County Hospital in Brighton and plans are taking shape for a £2bn theme park in Swanscombe Peninsula on the Thames. The need to provide homes, schools, hospitals, roads, rail, airports, offices, shops and places of leisure is intense in the region. But the pressures not to do so are equally intense. The balance can be swung by the ingenuity and skill of the construction industry delivering what people need as sympathetically and sustainably as possible.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

52



- Housing
  - Private industrial
  - Other RMI
  - Infrastructure
  - Private commercial
  - Public new work
  - Housing RMI
- (Source: ONS)

## SOUTH EAST CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

53



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in South East (£m)

54

	Turnover	Purchases	Employ. costs
2008	32,787	20,090	5,444
2009	29,531	18,232	5,025
2010	29,315	18,582	4,937
2011	29,003	18,150	5,055

## Employment by sector

55

	2013	2007	Change
Agriculture, energy & water	104,000	84,300	19,700
Manufacturing	356,800	425,500	-68,700
Construction	327,700	358,400	-30,700
Distribution, hotels & restaurants	738,200	770,600	-32,400
Transport & communications	441,300	473,900	-32,600
Banking, finance and insurance	787,700	669,700	118,000
Public admin. education & health	1,262,400	1,117,800	144,600
Other services	243,700	239,700	4,000

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# SOUTH WEST

Construction in the South West as a whole has fared better than in most regions, but the value of work done in cash terms in 2013 was still 6% lower than in 2007. The pain of collapsing private and commercial work was eased by a big rise in public building works and, to a lesser degree, increasing infrastructure work and housing refurbishment.

Housing refurbishment now accounts for about a quarter of all construction in the South West. This partly reflects the migration of older and wealthier people into the region who, in turn, spend heavily refurbishing their new homes.

Despite this shift to refurbishment, the loss of jobs was heavy; employment fell by 33,700 between 2007 and 2013, representing a 15% drop.

With Hinkley Point factored into its thinking, CSN expects infrastructure to drive the strongest regional growth. Infrastructure is expected to expand at an average 10% a year, pushing overall regional construction growth over the next four years to an average 3.5% a year, well above the 2.2% UK average. This comes despite an expectation that the regional economy will grow at an average annual rate of 1.8%, slower than the 2% national average.

Housing work, both new and refurbishment, will also provide solid support for growth.

CSN expects this level of growth to lead to a demand for about 6,370 new recruits to construction annually between 2014 and 2018. That is the largest of any region.

## Building Stock

Homes	2,436,000
Shops	53,000
Offices	29,000
Industrial	49,000
Other building	17,000

## Key Projects

The South West loses its youth to London and the bright lights of other big cities. In return, it receives older people looking for a higher quality of life. Construction is a critical component in catering for the reality, while also challenging this cliché. It delivers facilities to retain employment, while providing a desirable place to live. This can be seen in the region's top projects taken from Barbour ABI's database. The enormous £14bn Hinkley Point C Nuclear Power Station project clearly dominates. But dig deeper. There are £350m of works associated with the Great Western Railway electrification that will speed links to the region. Plans were approved for a £280m innovation park and 250 Passivhaus homes near Barnstaple. In Taunton, the Firepool redevelopment on an old livestock market progresses, with phase 2 worth £270m. Gloucester has its £250m Kings Square development. Swindon looks to its £220m Granville Street redevelopment. And northeast of Bristol there is the £250m Brimsham Park urban extension.

## CONSTRUCTION OUTPUT BY SECTOR 2007 (INNER) TO 2013 (OUTER)

56



- Housing
  - Private industrial
  - Other RMI
  - Infrastructure
  - Private commercial
  - Public new work
  - Housing RMI
- (Source: ONS)

## SOUTH WEST CONSTRUCTION OUTPUT AND ORDERS FOR NEW WORK (FOUR-QUARTER MOVING TOTAL £M CURRENT PRICES)

57



- Output
  - Orders (for new work only)
- (Source: ONS)

## Construction firms' performance in South West (£m)

58

	Turnover	Purchases	Employ. costs
2008	15,040	9,295	2,657
2009	13,280	8,221	2,380
2010	13,646	8,046	2,704
2011	13,330	8,337	2,466

## Employment by sector

59

	2013	2007	Change
Agriculture, energy & water	88,000	64,700	23,300
Manufacturing	253,300	286,100	-32,800
Construction	194,900	228,600	-33,700
Distribution, hotels & restaurants	523,300	517,500	5,800
Transport & communications	190,200	199,900	-9,700
Banking, finance and insurance	387,400	361,100	26,300
Public admin. education & health	756,800	722,000	34,800
Other services	147,700	143,100	4,600

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## WHERE TO FROM HERE FOR THE CONSTRUCTION INDUSTRY?

The recovery is taking hold. This is good news for construction, although it will bring the recurring growing pains associated with rebuilding the capacity after yet another deep and destructive recession.

These pains, like the pains of the recession, were not evenly spread either by region or by sector of the industry. The regional breakdowns show how different the experiences are in the north compared with the south of the Britain.

The industry must recruit a new generation of people into its ranks. Not only has it lost hundreds of thousands of its younger people, those that remained have aged and the retirement rate can be expected to rise.

Furthermore, the recovery will not be back to where things were before the global economic crisis. Much has changed since then.

The Internet has become ever more part of how we work, shop and entertain ourselves. This is already having a profound impact on the type of buildings and infrastructure required. The population has continued to expand rapidly through the downturn. This too will put different demands on the construction industry to those asked of it a decade ago. And the case to decarbonise the built environment has grown, not weakened.

All this means building different buildings and building them differently. It means adapting existing buildings rapidly to reshape the stock to better match new purposes and meet new standards.

These tough challenges come at a time when the industry is embracing a revolution in how it handles information and how buildings are designed, built and maintained with the introduction of BIM, soft landings and digital construction.

There are huge challenges just coping with the here and now. But there is a once-in-many-generations opportunity that has opened up. The global construction market is expanding rapidly. The demand for the skills British construction firms can deliver is growing almost exponentially.

This is an opportunity to place the country at the centre of the global construction industry. The prize is not simply the potential for expanding overseas earnings and improving our trade balance. Placing Britain as a global hub for construction design and consultancy would bring high-grade jobs for our youngsters. It would

bring fresh ideas to the industry from facing different challenges globally. It would provide the bedrock on which to build a world-beating construction product design industry.

If the challenge for policy makers is to rebalance the economy, then construction is the answer.

## RECOMMENDATIONS

### Regional investment:

As the data illustrates, the gap between London and the rest of the UK is widening and this needs to be addressed. Despite being a major attractor of funding for private and commercial building, London also grabs a far larger slice of investment in public sector non-domestic buildings and infrastructure per capita than do other regions of England. Its share is about 22%, while it accounts for just over 16% of the population.

The CIOB believes that regional investment is needed to:

- ✓ Improve infrastructure to increase inter-trading between urban areas outside London and to increase business efficiency.
- ✓ Regenerate regional cities to make them more attractive to inward investment, so they retain and increase their economic dynamism and talent, as well as enhance the wellbeing of their communities.
- ✓ Boost construction employment and encourage new blood into the industry in areas harder hit by the recession.

### Tie public investment to training and job creation:

The construction industry is exceptionally flexible and will find labour and resources as it requires them. It is essential that this process is both efficient and in the best interests of the nation and local communities, especially where public funds are being invested. The loss of skills is already driving, and will continue to drive, firms to look abroad for labour. This will increase the attractiveness of the UK to migrants, but of course a central pillar of Government policy is to reduce immigration. By investing in skills developed within the UK, the nation will work to both reduce unemployment at home and reduce the need to rely as heavily on talent from abroad.

The CIOB considers that any public investment made should be geared to the long-term aim of developing skilled young people who will be retained by the industry. This means not just training, but proper apprenticeship schemes and mentoring, developed

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and/or accredited by professional bodies, which retain newly-trained construction personnel. Monitoring of any arrangements must be well structured and funded. Examples exist on projects around the country, but scaling this up remains the challenge.

#### Construction innovation and excellence hubs:

In key regions, the Government should seek to promote 'clusters' of construction-related businesses, each to act as a hub for excellence. Local Enterprise Partnerships (LEPs) could be the fundamental vehicle to achieve this.

These hubs would be strategically located near universities with a strong tradition in construction and engineering. They would operate in a similar way to existing science parks, helping to cluster a range of construction-related businesses, including architects, engineers, contractors, builders, building materials firms, surveyors and other specialists. Close physical proximity through this would mean that training and support could be delivered more efficiently and effectively.

The aim would be to stimulate innovation, create greater opportunities for networking and sharing of ideas, provide a beacon for budding construction managers, engineers and builders, support new construction-related businesses, and open up greater scope for collaboration. This would make regional firms far more effective in their local market and far more attractive in the wider UK and overseas economies. They would also attract regional offices of major national and international firms.

Incentives would need to be provided, perhaps in the form of lower rents, lower rates or enhanced services. The quid pro quo would be a willingness to provide stronger connections with universities, be that student placements, specialist lectures, or site visits.

#### Green investment:

The Government must look beyond the short-term costs of decarbonising the UK built environment and at the longer-term outcomes. These do not just include the reduction in greenhouse gases and more efficient use of energy and other limited resources. The benefits of encouraging a greener UK construction industry will place the UK and its construction businesses on a higher ranking internationally when competing for the ever-growing market for environmentally sustainable construction solutions. Green does not automatically mean more expensive.

#### Standards and regulation:

The Government is right to seek to reduce the regulatory burden on business. But this should not come through dilution of standards; rather the opposite. The development of standards needs to take a longer-term

view, and they should be future proofed so that they are not in such constant flux. This will do more to reduce the regulatory burden on businesses and their supply chains as it will reduce uncertainty and the demands of adapting and readapting to rapidly changing standards. Stable long-term policies that provide clear pathways for businesses encourage a secure pipeline of training, innovation and investment.

#### Ethics:

The UK is seen internationally as a bastion of fairness and transparency. But this reputation can easily be undermined.

CIOB research<sup>50</sup> has shown that construction in the UK is susceptible to corruption, particularly as recent squeezed tender margins and reduced workloads have pressurised some businesses into corrupt practices as a means to survive. The Government must maintain vigilance and be seen as a driver for improving transparency and ethical standards in construction. This means investment in developing policies to enhance ethical standards, in policing the standards set and in prosecuting those who transgress.

#### Leadership and better behavioural understanding:

Much emphasis in construction thinking and policy making focuses on the processes. Very little work is undertaken into the behavioural aspects of construction. The transformation of the UK car industry in the 1980s owes as much, if not more, of its success to improved understanding of and changes to behaviours ('soft side') as it does to changes to processes ('hard side') within the workplace. By comparison with the car industry, construction is more stressed, less certain, more complex and has more interfaces between firms and people.

Huge improvement may be possible through an improved understanding of soft skills. This was recognised in the Supply Chain Analysis into the Construction Industry<sup>51</sup> research which was conducted in support of the Construction 2025 Industrial Strategy.

The Government should seek to support and/or prompt more research in conjunction with the industry into behavioural issues within construction. This would not only help to inform the introduction of better practises, but also help immediately to better inform management decisions and site leadership.

## APPENDIX 1 – CONSTRUCTION OUTPUT IN 2013 BY TYPE £ MILLION AT CURRENT PRICES<sup>52</sup>

<b>All construction work</b>	<b>121,208</b>	Agriculture, Miscellaneous	2,695
<b>All new work</b>	<b>74,751</b>	<b>All repair and maintenance</b>	<b>46,458</b>
<b>All new housing</b>	<b>22,563</b>	Public housing repair maintenance and improvement	7,500
Public housing	4,302	Private housing repair maintenance and improvement	15,965
Private housing	18,261	<b>All housing repair maintenance and improvement</b>	<b>23,468</b>
<b>All new infrastructure</b>	<b>14,944</b>	Infrastructure repair and maintenance	8,052
Water	1,561	Public non-housing Infrastructure repair and maintenance	5,274
Sewerage	540	Private non-housing Infrastructure repair and maintenance	9,659
Electricity	3,657		
Roads	2,559		
Railways	4,600		
Harbours	588		
Other	1,439		
<b>Public non-housing new work</b>	<b>10,237</b>		
Factories	56		
Warehouses	44		
Oil, Steel, Coal	38		
Schools & Colleges	4,246		
Universities	1,134		
Health	1,989		
Offices	794		
Entertainment	764		
Garages, Shops	128		
Agriculture, Miscellaneous	1,044		
<b>Private industrial new work</b>	<b>3,508</b>		
Factories	2,083		
Warehouses	1,150		
Oil, Steel, Coal	276		
<b>Private commercial new work</b>	<b>23,499</b>		
Schools, Universities	2,906		
Health	1,190		
Offices	6,945		
Entertainment	4,852		
Garages	424		
Shops	4,488		

## APPENDIX 2 – CITB CONSTRUCTION SKILLS NETWORK INDUSTRY EMPLOYMENT PROJECTIONS<sup>53</sup>

Occupation	2014	2018	ARR*
Senior, executive, and business process managers	162,350	172,860	2,310
Construction project managers	47,440	51,630	400
Other construction process managers	183,380	201,900	640
Non-construction prof., tech., IT & other office-based staff	328,890	338,400	6,570
Construction trades supervisors	48,000	51,620	570
Wood trades and interior fit-out	244,700	260,860	4,260
Bricklayers	60,470	61,080	1,740
Building envelope specialists	99,540	103,300	1,520
Painters and decorators	104,600	106,700	2,680
Plasterers	44,330	42,630	1,050
Roofers	44,430	46,200	1,110
Floorers	27,380	27,810	510
Glaziers	29,240	29,640	770
Specialist building operatives nec**	50,760	51,470	650
Scaffolders	23,150	25,420	570
Plant operatives	39,850	42,310	530
Plant mechanics/fitters	38,710	45,210	1,880
Steel erectors/structural fabrication	22,710	21,940	110
Labourers nec**	111,910	109,420	1,230
Electrical trades and installation	176,720	185,470	1,950
Plumbing and HVAC Trades	154,810	159,130	1,540
Logistics	20,170	20,450	940
Civil engineering operatives nec**	22,430	25,220	440
Non-construction operatives	28,460	27,040	-
Civil engineers	51,940	54,940	1,170
Other construction professionals and technical staff	188,640	205,580	630
Architects	44,120	46,370	290
Surveyors	66,910	73,770	340

\*ARR: Annual recruitment requirement which takes into account flows into and out of construction

\*\*nec: not elsewhere classified

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## NOTES AND REFERENCES

- 1 Gross fixed capital formation excluding intangible assets (intellectual property, goodwill etc.) at current prices. No account or adjustments have been made for external trade. ONS Gross Fixed Capital Formation – by sector and asset, 22 May 2014
- 2 Net Capital Stock at current prices. ONS tables for capital stock were available up to 2009. The figures represent CIOB estimated projections from ONS Capital stock, capital consumption and non-financial balance sheets, 2010, 2 August 2010
- 3 ONS, The Blue Book 2013, 31 July 2013
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# YOUR NOTES





The Chartered Institute of Building,  
1 Arlington Square,  
Downshire Way,  
Bracknell,  
RG12 1WA, UK  
Tel: +44 (0) 1344 630700

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