



# **Sector Skills Assessment for the Construction Sector 2010**

## **ConstructionSkills UK Report**

**ConstructionSkills Insight**



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## **Executive Summary**

This is the second Sector Skills Assessment for the UK construction sector produced by ConstructionSkills. It is one of a suite of assessments for the sector which together cover the UK and each of its countries (England, Northern Ireland, Scotland and Wales). This report offers a narrative of the main current and future skills needs of the construction sector.

## **Industry Outlook**

Construction remains an important sector that makes a vital contribution to social and economic activity within the UK, underpinning growth and ambition. However, it has suffered as a result of the recession, particularly in respect of jobs and training. Whilst contractors have strived to retain skilled staff and preserve capacity for the upturn, typically through reduced working hours or underemployment, there is now significant excess capacity must be made up before future growth increases employment.

Unemployment has impacted all occupational groups, with continuing redundancies likely through 2011 and further jobs at risk as a result of public spending cuts. Evidence suggests that fewer employers are recruiting, construction vacancies have dropped sharply and work placements for apprentices and graduates are under threat.

Significant opportunities exist to improve competence and upskill the existing workforce, to increase productivity, reduce reliance on lower skilled or migrant workers, and support the uptake of new methods and specialist skills. Changes in skills needs are particularly relevant for management and professional occupations, with increasing demand for higher level skills.

## **Key Skills Issues**

### **Risk to Industry Skills Base**

Key skills lost through retirement and significant numbers leaving the industry due to the recession could undermine the long-term stability of the sector, reinforcing the need to keep promoting the sector to potential entrants.

### **Pressure on Youth Recruitment**

Underemployment and the pool of unemployed workers will impact youth recruitment in an upturn. Firms cutting back on recruitment has created an oversupply of aspiring new entrants.

### **Focus on Higher Qualifications**

Demand for higher level skills raises the qualifications bar and focuses attention on upskilling and the management training required to interface with other sectors and supply chains

## **Political Landscape**

Recovery across the sector is still vulnerable to macro-economic factors with a gloomy forecast associated with recent Government spending cuts. Fears remain that the impact of austerity measures on major projects risks plunging the construction industry back into recession.

Cuts continue to impact the education sector, with reduced Higher Education funding potentially meaning less university students thereby risking damage to the economy.

The coming year will see Government skills reviews across the nations, focusing on a range of areas related to vocational qualifications and training, and particularly reflecting the contribution from a qualified workforce to economic prosperity and the need to equip workers with skills for the future.

The focus on apprenticeships and related level of investment has increased in support of both youth and adult recruitment. SSCs have been cited as playing a crucial role and ConstructionSkills remains at the leading edge of development and delivery.

The need for apprenticeships and training to be embedded as part of public procurement guidelines continues to be highlighted.

### **Key Skills Issues**

#### **Reduced Skills Funding**

Reduced public funding for skills will impact the industry's investment in education and training, dampening a recovery in learner volumes.

#### **Focus on Apprenticeships**

Political attention focused on apprenticeships, increasing emphasis on recruitment and placements – highlight the need for balance with upskilling and qualifying the existing workforce.

#### **Government Skills Reviews**

Key reviews of skills policy and education structures on the back of Government plans, the localism agenda in England and elections in the home nations.

### **Future Skills**

Challenging targets have been set for carbon and waste reduction, impacting the outputs that are constructed, products and processes involved, and skills needed to respond.

Existing building stock represents considerable opportunities. The low carbon agenda has the potential to create a significant number of 'green jobs' post-recession, but will also require upskilling at all levels.

Specialist skills will be needed to meet the high specification and low energy requirements of future buildings and infrastructure. Offsite manufacturing has the potential to substantially increase as the industry moves from recession to recovery.

New ways of working will not always require new skills or create new jobs, but will often be in addition to or an amalgam of existing workers' skill sets. Increased multi-skilling is predicted.

### **Key Skills Issues**

#### **Changing Skill Sets**

Modern methods requiring upskilling, re-skilling and multiskilling within the existing workforce.

#### **Demand for Specialist Skills**

Increased demand for specialist, technical and professional skills to meet high specification and low carbon requirements

#### **Raising Awareness**

A lack of clarity, particularly for SMEs, on the impact of green legislation, the skills required, and the provision available.

In the short-term the challenge is to respond to the recession and there is ongoing pressure to survive, but long-term skills planning is essential.

ConstructionSkills has a leading role to play in unlocking the talent of individuals and improving the performance of construction firms and professional consultancies.

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# 1. Introduction

## 1.1 Background

ConstructionSkills is one of 23 Sector Skills Councils (SSCs) that have been licensed by the Government to tackle the skills and productivity needs of their sector throughout the UK.

ConstructionSkills is the SSC for construction. As a partnership between CITB-ConstructionSkills, CITB-ConstructionSkills Northern Ireland and the Construction Industry Council (CIC), it is UK-wide and represents the whole industry from professional consultancies to major contractors and the SMEs in their supply chains.

As a SSC, ConstructionSkills has a remit to be the means by which employers can influence the supply of education and training and business support across the UK in order to:

- Improve sector performance and productivity
- Address skills gaps and shortages
- Provide greater opportunities for training and development
- Influence learning supply, including apprenticeships, higher education and National Occupational Standards (NOS)

Within this remit the overriding aim for ConstructionSkills is to ensure the training and learning infrastructures across the UK reflect the needs of the industry in terms of quantity, quality and location of training, mode of learning and funding mechanisms.

In order to fulfil this remit ConstructionSkills requires authoritative sector intelligence as to current and future skills needs based on a good understanding of the business and economic environment within which the industry is operating.

To this end ConstructionSkills holds and maintains a comprehensive suite of market intelligence.

This report brings together various research and analysis undertaken by ConstructionSkills during the past 12 months to provide an up-to-date assessment of skills within the construction sector.

This report describes the current and future skills priorities for the construction sector, demonstrating the contribution that construction makes to the economy and highlighting priorities and potential barriers to growth. It is built on a well-respected research programme and work with the sector over a long period, drawing on research and analysis undertaken by ConstructionSkills since 2005 and a range of secondary sources, with particular emphasis on research and forecasting conducted over the past 12 months.

The combined analysis provides a rationale for adopting agreed priorities for action and a basis for bringing about change in the way the sector goes about developing its workforce.

This report covers the main findings for the UK. Greater detail covering the English regions, Scotland, Northern Ireland and Wales, can be found in the separate national reports. It is based upon research commissioned by ConstructionSkills and a comprehensive review of evidence that has been collated and analysed over the past year.

## 1.2 Sector Definition

ConstructionSkills is responsible for the skills interests of employers in the construction sector, which covers business activities related to the planning and design of buildings and structures through to their construction and maintenance. In this respect ConstructionSkills represents a wide variety of business types and occupations, from construction contracting firms to professional consultancies, and their workforces of craft trades through to building professionals.

The sector covers both private and public organisations, and a wide range of business from sole traders and micro-businesses, through to small and medium-sized enterprises, and up to large national and international conglomerates. However, the one common tie that binds them together being the creation and maintenance of buildings and structures.

The ConstructionSkills footprint is defined using Standard Industry Classification (SIC) codes, details of which can be found in Appendix 9.3 and 9.4. This assessment uses both SIC 2003 and SIC 2007 due to the fact that whilst many of the national statistics now use SIC 2007 not all historical data is available using these definitions.

ConstructionSkills is fairly well served in terms of SIC codes reflecting activity and sub-sectors, although there are limitations in respect of data analysis. Whilst SIC codes exist it is not always possible to access or analyse data in such granularity.

It should, therefore, be recognised that throughout this report the information collected and analysed from national surveys does not always reflect the ConstructionSkills footprint to the desired level of detail. Every effort has been made to provide alternative meaningful analysis and the constraints and limitations of such analysis are clearly noted.

Aside from SIC codes the industry is as much defined by the type of work undertaken by those operating within it, essentially these are viewed as market sub-sectors. Indeed, the related terminology and descriptions are widely used and recognised by both the industry and agencies collecting data on industry activity, including the Office for National Statistics (ONS). Data on new orders and output is collected, analysed and disseminated using these specific definitions related to the type of work, details of which can be found in Appendix 9.5. These definitions have common currency amongst employers within the sector as well as commentators, and are used widely throughout this assessment in addition to SIC and SOC.

In addition to classifying the sector by SIC and type of work some activities within construction are better defined using Standard Occupational Classifications (SOC). This is particularly true of activities within specialist contracting sector and professional services sector. However it should be noted that whilst SOC codes are useful in illustrating the breadth and depth of occupational activity they do sit across several SIC codes, making it difficult to use SOC codes to identify the size of the sectors. Details of ConstructionSkills' SOC footprint can be found in Appendix 9.6.

### **1.3 Research Methodology**

The Skills Assessment brings together bespoke analysis of existing data, such as that held by the Office for National Statistics (ONS), the results of research commissioned by ConstructionSkills, and a desk-based review of existing research. As such this report presents a comprehensive review of the available Labour Market Information (that is, descriptive data, such as statistics or survey results) and Labour Market Intelligence (which includes analysis, interpretation, conclusions and policy recommendations).

#### **Bespoke Analysis**

ConstructionSkills undertakes annual analysis of several official datasets such as the Labour Force Survey (LFS), Annual Business Inquiry (ABI), Annual Survey of Hours and Earnings (ASHE), British Household Panel Survey (BHPS), and Inter-Departmental Business Register (IDBR). The resultant data provides the foundation for understanding the size and composition of the sector as well as providing a basic insight into the characteristics of the sector in terms of business activities and working patterns.

A more usual requirement in relation to such externally sourced data will be to scrutinise it, checking whether it accords with industry views and to provide interpretation from ConstructionSkills' perspective of the sector.

#### **Desk-based Review**

In addition to the systematic analysis of official data ConstructionSkills has investigated numerous available sources of information regarding skills and employment issues, including nationally available data from the various national skills surveys, Government departments, acts and reports, and public policy forums. This has been further supplemented with extensive searches of market reports, news feeds and opinion pieces.

Whilst these searches provide much useful information, it tends to be background material or in some cases lacks the desired currency. For this reason ConstructionSkills regularly consults with industry commentators and recognised experts in the field of economic forecasting and futures thinking. Consequently, for the production of this report the desk-based review was widened to include interview consultations and personal communications with relevant individuals.

ConstructionSkills also consulted with a number of stakeholders and employers via the Construction Skills Network (CSN) Observatories, which were being undertaken during October and November in parallel with the production of this assessment. This consultation allowed ConstructionSkills to test scenarios, gauge current levels of activity within the sector, and reality check anecdotal information. The Observatories provide a number of benefits not least gathering employer reaction on current and future issues.

#### **Primary Research**

In recognising there is already a wealth of existing labour market and skills information ConstructionSkills' primary focus is, first, to pool, interrogate and synthesise the existing research and literature to learn as much as possible from the current knowledge base. Only then does ConstructionSkills undertake new primary research, in areas where gaps have been identified and current information is inadequate and/or needs up-dating. In this sense ConstructionSkills seeks to achieve an appropriate balance between fully exploiting existing evidence and undertaking new research.

ConstructionSkills undertakes a comprehensive annual programme of primary research designed to supplement and expand on the existing evidence-base and information that might be gleaned from secondary sources. The programme of research comprises projects based on identified needs with priority given to more strategic issues having a wide impact.

ConstructionSkills' primary research can be divided into four main categories of activity:

1. Employer skills surveys focussing on both current and future skills needs.
2. Forecasts of labour and skill requirements
3. Consultation with employers and other stakeholders on key issues and priorities, such as economic, demographic and technological change.
4. Evaluation and benchmarking of sector performance.

Details of the primary research sources utilised in the production of the Skills Assessment are presented in Appendix 9.7. This provides further details on the sources used in the compilation of this report together with specific methodological detail, including sample size and coverage.

## 1.4 Structure of the Report

The Skills Assessment is divided into six main chapters:

**Chapter 2** presents a comprehensive profile of the construction industry using official statistics allied with the findings from primary research commissioned by ConstructionSkills. The data describes the size and structure of the sector in terms of economic contribution, workforce size and business numbers, and the sector characteristics in terms of sub-sector activity. Building on this description of the sector the chapter details the factors driving the demand for skills, the performance of the sector, and the skills implications.

**Chapter 3** considers recent trends in the supply of skills, focusing on three key areas of supply relevant to the construction industry, namely education and training, skill levels, and flows into the industry.

**Chapter 4** details the demand and supply of skills, highlighting areas of potential mismatch. This chapter utilises evidence from ConstructionSkills' Skills and Training Survey 2009 and data from the various Employer Skills Surveys conducted within each of the home nations to present an assessment of skills needs and steps taken to address identified deficiencies.

**Chapter 5** assesses the demand for new skills and changing patterns of employment, examining the main drivers for skills change in the construction industry over the next ten years, and what implications these may have for the types of skills that firms will need to operate successfully in 2020.

**Chapter 6** explores the likely demand for employment/skills in the future, presenting a vision of the future for the construction sector by looking at the drivers that are likely to impact on the skills demand and providing an outline of the resultant demands in terms of employment and training requirements.

**Chapter 7** assesses the future supply of skills and employment in the construction industry. Drawing on demographic trend data, government policy, and industry developments this chapter presents the likely impact of skills demand on employment and outlines the principle sources of skills and employment to the construction sector.

**Chapter 8** draws together the key themes and challenges identified by the assessment, and concludes by presenting the skills strategies and solutions that will form ConstructionSkills' strategy moving forward.



## 2. What are the Factors Driving the Demand for Skills?

### 2.1 The Construction Sector and Workforce

#### 2.1.1 Contribution of the Sector

ConstructionSkills covers a wide range of activities in terms of the planning, design, construction and maintenance of the built environment.

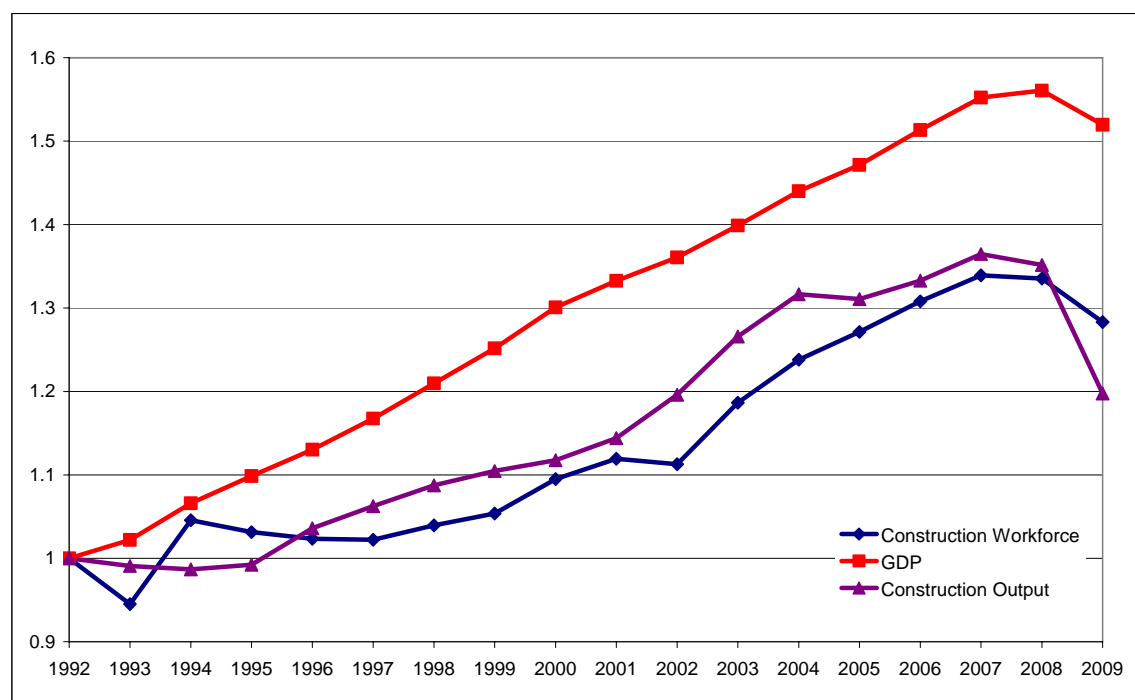
Construction is a pre-requisite to all other economic activity and forms a significant part of the UK economy in terms of employment and wealth generation.

As a sector construction is the UK's second largest employer and a significant exporter of goods and services.

Employing 2.17 million<sup>1</sup> people the combined employment of construction workers and professionals account for over 7.5% of the UK workforce, and with an output in 2009 of £98.6billion<sup>2</sup> (at constant 2005 prices) the sector contributes about 8% of the UK's Gross Domestic Product (GDP)<sup>3</sup>.

The construction sector, including professional services creates around £85billion<sup>4</sup> of value added and is estimated to generate over £5billion<sup>5</sup> in export earnings. All of which is actually produced from a fairly fragmented sector.

**Chart 1 - Comparison of GDP, Construction Output and Workforce: UK 1992-2009**



Source: Office for National Statistics, Labour Force Survey; ConstructionSkills and Experian, Construction Skills Network, 2010

As a significant contributor to the UK economy in terms of GDP the construction industry is, and has been over the last ten years, a leading employer (on average around 2.2 million people). From 1999 to 2007 the employment trend has been positive apart

<sup>1</sup> Office for National Statistics, Labour Force Survey, Four quarter average to Spring 2010

<sup>2</sup> Office for National Statistics; Construction Skills Network; Experian 2010

<sup>3</sup> Office for National Statistics, United Kingdom National Accounts: The Blue Book 2010 edition, September 2010; ConstructionSkills estimate.

<sup>4</sup> Office for National Statistics, Annual Business Survey, 2009 provisional results published November 2010

<sup>5</sup> Office for National Statistics, United Kingdom Balance of Payments: The Pink Book 2010 edition, September 2010

from a slight dip in 2002. Until the start of the recession the industry experienced its longest period of sustained growth since the post war construction boom. Since the peak in 2007 employment levels have decreased and our latest forecast<sup>6</sup> is for continued although slowing decline until 2012.

Whilst the fall in employment in the sector has been severe over the past two years, with the number of workers falling by 375,000 from 2008 to 2010, the decrease has not been as large as expected as contractors have made every effort to retain skilled staff wherever possible, in terms of preserving a degree of capacity in anticipation of the upturn. The severe skills shortages that followed the last recession have undoubtedly influenced the thinking of many contractors, although the issue going forward is how long contractors can continue to operate as they currently do under conditions of reduced demand and excess capacity.

### 2.1.2 Structure of the Sector

A feature of the sector is that there are a small number of large firms and a very long tail of small firms. Across the construction sector as a whole there are approximately 365,535<sup>7</sup> enterprises<sup>8</sup>. However, the vast majority of companies in the sector are small, with over 93% employing less than 10 employees. Less than 1% of sector businesses are large (employing more than 250 people), although these firms carry out a disproportionate share of the work by value, accounting for approximately a third of all sector turnover.

**Table 1 - Employment within ConstructionSkills' Footprint, United Kingdom: 2009**

Size of Enterprise (Number of Employees)	Enterprises		Employment	
	Number	Percent	Number	Percent
<b>0-9</b>	339,770	93.0	457,363	33.0
<b>10-49</b>	22,510	6.2	317,553	22.9
<b>50-249</b>	2,830	0.8	199,419	14.4
<b>250+</b>	425	0.1	409,676	29.6
<b>Total</b>	<b>365,535</b>	<b>100.0</b>	<b>1,384,011</b>	<b>100.0</b>

Source: Office for National Statistics, UK Business - Activity, Size and Location 2010; Small Business Service Analytical Unit 2010; Office for National Statistics, Labour Force Survey 2010; ConstructionSkills. Note: Analysis uses SIC 2007. Construction is defined by ConstructionSkills' footprint. This includes Architectural and engineering activities and other professional, scientific and technical activities. SIC 74.90/9 other professional, scientific and technical activities (not including environmental consultancy or quantity surveying) is included because analysis is unavailable below the 4 digit level. SIC 74.90/9 is not part of ConstructionSkills' footprint.

Furthermore, 790,000<sup>9</sup> (around 36%) of people working within the sector are self-employed. Whilst the numbers of self-employed within the sector has declined slightly over recent years, as the Inland Revenue has tightened up regulations related to self-employment status, they still represent well over a third (39%) of the available labour in the contracting sector. By comparison self-employment within the professional services sector is less widespread, accounting for about a fifth (23%) of the workforce and being very much focussed around the activities of architects and chartered surveyors.

On a national level self-employment in construction is high across England (38%), Wales (36%) and Northern Ireland (42%). The exception being Scotland where only one in five (22%) of the workforce are self-employed. The relatively low levels of self-employment in Scotland are possibly related to the employment and training structure, which promotes apprenticeships and the retention of trainees. Indeed, research by ConstructionSkills

<sup>6</sup> ConstructionSkills and Experian, Construction Skills Network, 2010

<sup>7</sup> Office for National Statistics, UK Business - Activity, Size and Location 2010, September 2010

<sup>8</sup> Based on VAT trader and PAYE employer information

<sup>9</sup> Office for National Statistics, Labour Force Survey, Four quarter average to June 2010

and the National Heritage Training Group (NHTG) into the craft workforce in Scotland<sup>10</sup> highlighted that of all the contractors surveyed, 78% said it was 'easy' or 'quite easy' to retain good trades/craftspeople as employees, with only 10% expressing problems in this regard. Half the firms were able to retain former apprentices for four years or more and, although only 10% reported losing them in under a year, half of them were losing apprentices within three years. Qualification attainment levels are also higher in Scotland; a possible reflection of the stability in terms of employment status.

Self-employment is particularly high in the main craft trades<sup>11</sup> where it averages over 67% and is also highly concentrated in some regions. Regional analysis of the main trades shows an even higher proportion are self-employed in the southern and eastern areas of the UK - London 74%, East of England 77% and South East 77% - consistent with the high proportion of their overall regional share of self-employment compared to other areas.

It is also evident that age is a factor in terms of self-employment. Approximately a quarter (23%) of self-employed workers are aged 55+ compared to only a sixth (16%) of those employed directly. This could be an indication that high levels of demand, particularly for highly skilled workers, and sufficiently enticing re-numeration is keeping individuals in the workplace, or that self-employed workers are unable to retire in the same way as employees.

Employment status very much reflects the nature of work within the sector. The vast majority of work is undertaken on a project-by-project basis. Consequently, contractors tend to employ a core workforce complemented by short-term contracts as and when they need them (also known as labour only sub-contracting).

The flexibility of such a large pool of self-employed labour together with fixed-term or fixed output contracts offers significant financial advantages to prime contractors in respect of labour costs. The disadvantage however, is the lack of investment in skills and qualifications by those who are self-employed and migrate from job-to-job with little security of income and few of the advantages of direct employment. It also means that competition between companies can often lead to a situation where all are all vying to employ the same ever-decreasing groups of trained people.

Uncertainty around future levels of work also means that employers are apprehensive about investment in the workforce and there is a fear that they would pay for training and then see their trainees go and work for rival firms, or set themselves up as sole traders. Long-term planning of construction investment, by clients including Government, is crucial in terms of providing a solid foundation for companies to maintain high levels of investment in the whole workforce. The introduction of framework agreements and public procurement requirements will be key to further developing a training culture.

There is a strong tendency for career progression to lead towards self-employment, particularly in the main construction trades, where the financial rewards are perceived as being greater. ConstructionSkills' research<sup>12</sup> shows that the incidence of self-employment rises from around one in five (19%) among people with one to two years experience to around one in three (32%) among people with five or more years experience. This has obvious implications on the future training of both the individuals moving to self-employment, and the ability for the industry to provide sufficient opportunities for those wishing to join the industry and train.

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<sup>10</sup> ConstructionSkills and NHTG, Traditional Building Craft Skills Research – Scotland, January 2007

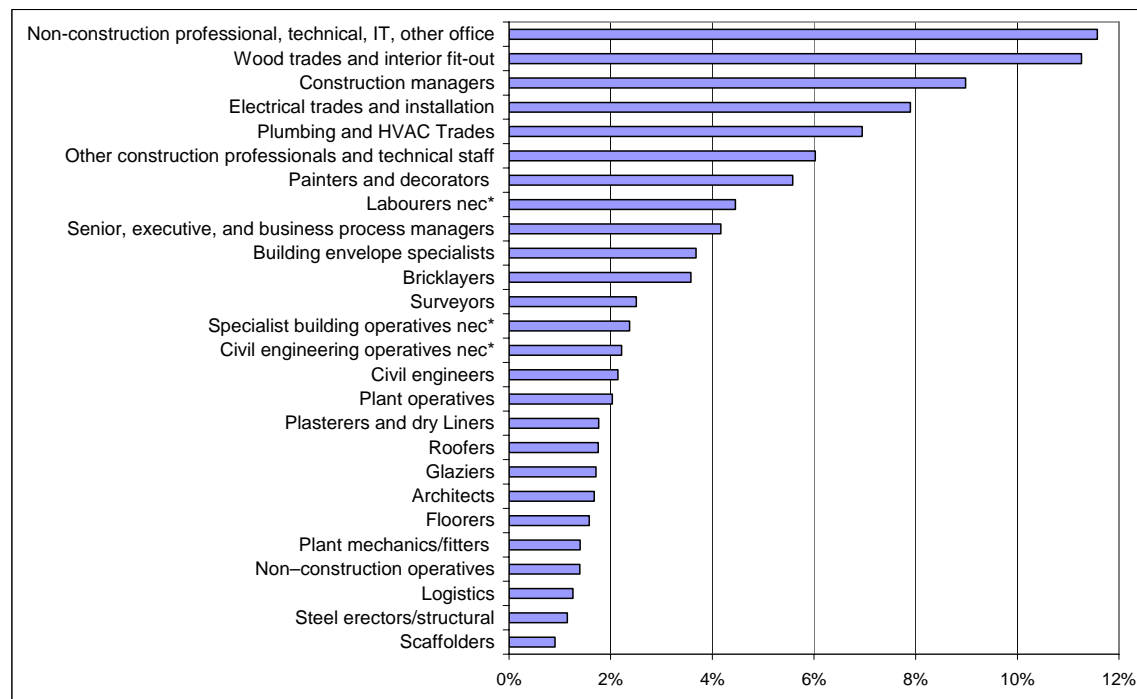
<sup>11</sup> Main craft trades comprise Wood Trades, Bricklayers, Painters and Decorators, and Plasterers.

<sup>12</sup> ConstructionSkills, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007. Survey undertaken face to face with 3,877 construction workers across 312 sites distributed across UK and Republic of Ireland.

### 2.1.3 Employment Characteristics

In terms of occupational structure, manual workers<sup>13</sup> dominate, representing 55% of the total workforce<sup>14</sup>. The remaining 45% are non-manual workers<sup>15</sup>, including managers, and all those working in the professional services sector. Patterns of full-time working remain dominant in the industry. Part-time employment is negligible. Chart 2 shows the proportion of employment by occupation in the UK construction sector.

**Chart 2 - Construction Employment by Occupation, United Kingdom: 2010**



Source: ConstructionSkills and Experian, Construction Skills Network, 2010

Employment within the sector is skewed towards the South East, well over a third (38%) of the workforce are based across Greater London, the South East and East of England. However, the North East has quite a high demand for new entrants due to the significant level of net outflow of the workforce in the region.

The construction sector is served by an itinerant workforce because of the project-by-project nature of the sector. This means that some construction projects – especially large-scale projects – will draw in significant numbers of workers, usually on a sub-contracted basis. These are likely to be from other parts of the country, or abroad. Indeed, research<sup>16</sup> indicates that the construction workforce is very mobile with just over half of workers (54%) having worked on sites outside the current nation/region and for one in five, half or less of their time has been spent working on sites in their current nation/region.

<sup>13</sup> Manual workers are defined as those working within SOC 2000 Major Groups 5, 8 and 9

<sup>14</sup> Office for National Statistics, Labour Force Survey, Four quarter average to Spring 2010

<sup>15</sup> Non-manual workers are defined as those working within SOC 2000 Major Groups 1, 2, 3, 4 and 7

<sup>16</sup> ConstructionSkills, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007. Survey undertaken face to face with 3,877 construction workers across 312 sites distributed across UK and Republic of Ireland.

**Table 2 - Proportion of construction career spent in current nation/region: 2007**

	All %	Work for a national employer %	Commute from temporary address %
All of it	43	33	19
Most of it	33	36	17
Around half	9	12	13
Small proportion	8	14	27
Only this job	3	4	13
Don't know	3	2	8

Source: ConstructionSkills Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

Those working for national employers are somewhat more likely to be mobile and to have worked in other regions/areas, which no doubt reflects the fact that they will often be sent where the work is.

Also, whilst three in five workers (64%) travel less than 25 miles to work, one in ten travel over fifty miles each way to work. It is likely that the recession will result in increased levels of mobility and workers travelling further for work.

#### 2.1.4 Recruitment and Retention

The construction industry is notoriously cyclical and very sensitive to changes in the macro-economy. This is reflected in workforce flows. The construction industry has at times of recession lost significant numbers of workers, many of whom do not return. Indeed, there is now a very real risk that the outflow of skilled workers as a result of the recession together with the natural flow to other sectors will adversely impact on the recovery as it gains momentum.

The ageing workforce both for manual and non-manual occupations that is perceptible in the statistics can partly be attributed to redundancies during the early-1990s and then subsequent difficulties in attracting workers back into the sector.

Furthermore, demographic changes related to more young people staying on in full-time education after the age of 16, and the imminent raising of the compulsory education leaving age in England to 18 means it is unlikely that the age profile of the early 1990s will again be achieved and the industry will have to facilitate entry for older age and minority groups. In England, in 1985 34%<sup>17</sup> of women and 30% of men were in post-compulsory education, this compares to 2007 when 67% of women and 59% of men aged 16-18 are in compulsory education.

Despite its reputation as a physically demanding industry, construction requires an increasingly diverse, highly skilled and flexible workforce. This applies to workers in both manual and non-manual roles.

The sector has traditionally suffered from an unfortunate, and in many respects unfair, image in terms of low pay, poor working environment and lack of job security, particularly in respect of craft and operative roles. Such perceptions have made it difficult for employers to attract talent. Whilst it is true that much site work is physically demanding and occurs in all weather conditions the sector offers a wide variety of both site-based and office-based roles, and in terms of relative pay, wages across the sector and for manual and non-manual occupations are generally equal to, or above the national average<sup>18</sup> as reflected in Table 3.

<sup>17</sup> Office National Statistics, Social Trends 39, 2009

<sup>18</sup> Office for National Statistics, Annual Survey of Hours and Earnings, 2009  
<http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=15313>

**Table 3 – Pay for All Employee Jobs, United Kingdom: 2009**

	<b>Construction</b>	<b>All Industries and Services</b>
<b>Mean hourly pay - Gross (£)</b>	14.37	14.40
<b>Mean weekly pay - Gross (£)</b>	572.00	481.00
<b>Mean annual pay - Gross (£)</b>	30,803	26,476
	<b>Managers in Construction</b>	<b>Managers in all Industries and Services</b>
<b>Mean hourly pay - Gross (£)</b>	21.91	22.15
<b>Mean weekly pay - Gross (£)</b>	861.80	818.90
<b>Mean annual pay - Gross (£)</b>	49,011	47,186
	<b>Skilled Trades in Construction</b>	<b>Skilled Trades in all Industries and Services</b>
<b>Mean hourly pay - Gross (£)</b>	11.58	11.55
<b>Mean weekly pay - Gross (£)</b>	470.00	458.60
<b>Mean annual pay - Gross (£)</b>	24,134	24,108

Source: Office for National Statistics, Annual Survey of Hours and Earnings, 2009

However, it should be noted that competition for work during the recession has driven down wage rates. Data from the ONS Annual Survey of Hours and Earnings shows that whilst annual earnings within construction have remained fairly steady average weekly pay decreased by 4.3% between 2008 and 2009. The occupational data indicates that managers' pay has remained fairly stable over the same time period, even increasing slightly, but that the average weekly pay for skilled trades has fallen by 1.2%.

A picture reflected in research compiled by Hudson Contract<sup>19</sup>, a contract and payroll provider to construction freelancers. This research found that some self-employed workers are being paid less than equivalent employees, and in some cases were working for as much as 50% less than in 2008.

The minimum weekly rate for a skilled employed worker is £401.70 before bonuses and overtime, according to the Construction Industry Joint Council Working Rule Agreement. This sets rates of pay for about 600,000 construction workers on major building and infrastructure sites.

<sup>19</sup> Construction News, Trades' wages fall below employees, 11 November 2010  
<http://www.cnplus.co.uk/news/trades-wages-fall-below-employees/8607911.article>

## 2.2 What Drives Skills Demand?

### 2.2.1 The Economy

The economy is the prime driver for change across the sector. Economic stability is an absolute necessity in providing a sound basis for investment in construction activity whether at a national level in the delivery of hospitals, schools, roads and infrastructure, or at a household level in terms of the strong consumer confidence required to drive investment in housing, commerce and leisure.

Preliminary figures<sup>20</sup> released by the ONS indicate that in the wider economy there have now been four quarters of successive growth since Q3 2009. Overall, in the wider economy Gross Domestic Product increased by 2.8% in 2010 Q3 compared with 2009 Q3. According to this data the construction industry has been central to the wider economic recovery. The preliminary figures indicate that construction output rose by 4.0% during 2010 Q3, following an impressive 9.5% rise in 2010 Q2 and slight decline of -0.8% in 2010 Q1. Overall, construction output increased 11.0% over the period Q3 2010 to Q3 2009.

It's thought that extreme bad weather in Q1 2010 meant that work was delayed and this will have contributed to the strong growth figure in Q2 2010. According to the official dataset in the wider economy, allowing for the recovery in Q2 2010 following the bad weather at the start of the year, the underlying growth in Q3 2010 is broadly similar to that in Q2 2010. There are however, questions over the dataset as the construction growth figures in Q2 2010 and Q3 2010 take output back up to close to the level it was at the last 2007 peak<sup>21</sup>. It may be that revisions are made to the preliminary figures bringing the growth figures down.

The latest construction trade surveys<sup>22</sup> and evidence from ConstructionSkills own surveys including its recent October 2010 Employer Panel<sup>23</sup> indicate the construction industry is still suffering a torrid time. The recent publication of the Comprehensive Spending Review (CSR)<sup>24</sup> provides some outline details of spending plans, however, despite this great uncertainty remains in the construction sector. It's unclear if the economic recovery will be sustained in the longer-term.

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<sup>20</sup> Office for National Statistics, Gross Domestic Product Preliminary Estimate, Statistical Bulletin Q3 2010

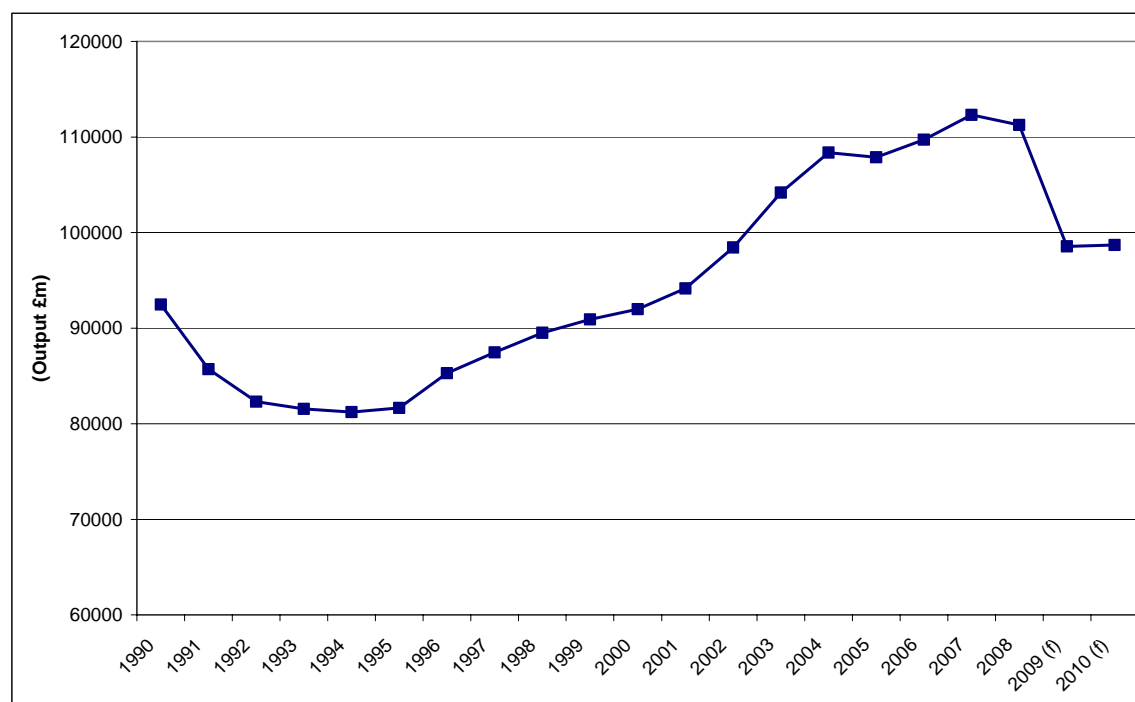
<sup>21</sup> ConstructionSkills and Experian, Construction Skills Network, 2010

<sup>22</sup> Construction Trade Surveys include surveys undertaken by Experian, Civil Engineering Contractors Association (CECA), Federation of Master Builders (FMB), Construction Products Association (CPA) and National Specialist Contractors Council (NSCC).

<sup>23</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews.

<sup>24</sup> HM Treasury, Spending Review, October 2010

**Chart 3 - Construction Output in £m (2005 prices), United Kingdom: 1990-2010**



Source: Office for National Statistics, Labour Force Survey; ConstructionSkills and Experian, Construction Skills Network, 2010

Note 2009 data is still forecast as Q4 data for Northern Ireland is not yet published

According to the latest figures from the ConstructionSkills Network<sup>25</sup>, the construction sector experienced its worst contraction for 30 years with a fall in output of 11.5% between 2008 and 2009. The latest medium to long-term forecast is for growth of around 1.5% per year between 2011 and 2015.

Data has shown that although there have been rising levels of projects starting on site since the autumn of 2009, fuelled mainly by an increase in public sector projects, on the whole the construction sector has endured mixed prospects during the first three quarters of 2010. Any activity has been hit by continually rising costs - indeed, rising material costs combined with falling tender prices have generally lead to much reduced profit margins.

There are signs in the wider economy that things are improving. Retail sales are growing and export sales are up, which is feeding through to retail construction and planning approvals. Industrial construction is also expected to benefit, although this represents a relatively small proportion of all construction output.

However, with the knowledge that construction activity lags behind these broader economic indicators, and that it generally emerges from recession much later than other sectors, the reality is that recovery is still vulnerable to the macro-economic factors and the wider gloom that may follow CSR cuts into 2011 and beyond.

Throughout 2010 there has been great uncertainty in the industry as to how Government cuts will affect future workflows and in particular major work programmes. Early indications were given in the June 2010 Emergency Budget<sup>26</sup> where the Government on top of plans announced in March 2010 Budget announced additional spending reductions of £32 billion a year by 2014-15 and additional net tax increases of £8 billion.

<sup>25</sup> ConstructionSkills and Experian, Construction Skills Network, 2010

<sup>26</sup> UK Government, Budget Report, June 2010



The CSR<sup>27</sup> published in October 2010, indicates cuts that will affect the construction sector, although significant, are not as severe as some had expected. In light of the review of key capital spending projects, the Spending Review made an adjustment to the capital envelope to ensure projects of high long-term economic value remain funded. As a result, public sector gross investment will be £2 billion higher in 2011-12 and 2012-13, and £2.3 billion higher in 2013-14 and 2014-15. This adjustment brings the total spending cuts to £81 billion by 2014-15, compared to the £83 billion set out in the June Budget.

Overall, although there have been cuts, in general transport schemes and education have fared well compared to social housing schemes. In total, transport schemes will receive some £30 billion of funding over the spending review period - £10 billion to be spent on high value road/transport schemes, £14 billion to Network rail which includes funding for Crossrail and £6 billion to London Underground for upgrades and maintenance. The Government is also proceeding with its plans to deliver a new high speed rail network from London to Birmingham, and then to both Manchester and Leeds, and will bring forward legislation during this Parliament that would allow the project to proceed.

Although the overall education budget has been cut by some 60% over the spending review period, the Government has allocated £15.8 billion of capital funding. This will be used to rebuild or refurbish over 600 schools from the Building Schools for the Future (BSF) and Academies programme.

The Department for Communities and Local Government (CLG) capital expenditure budget has fared worse - it will shrink from £6.8 billion in 2010-11 to £2.0 billion in 2014-15, a reduction of approximately 70% of the 2010-11 value. This funding will provide up to 150,000 new affordable homes over the spending review period. The Government also announced plans to reform the planning system and to introduce a New Homes Bonus to support economic growth and increase housing supply. There is some concern in the industry over how investment in private housing will be encouraged<sup>28</sup> until there is agreement over the planning reforms and the New Homes Bonus.

Combined with spending cuts there will in addition be tax rises<sup>29</sup> in 2011. VAT will rise to 20% in January 2011. The Government has also announced that the employee, employer and self-employed rates of National Insurance contributions (NICs) will increase by 0.5 per cent from April 2011. There are also plans to cut benefits and freeze public sector pay, all of which are likely to make consumers cautious about any spending plans.

There is in addition other work going on to improve efficiency and public sector procurement. In June 2010<sup>30</sup>, responsibility for The Office of Government Commerce (OGC) and the public sector procurement agency, Buying Solutions, moved to the Cabinet Office where they will form part of the Efficiency and Reform Group (ERG). This group, headed by the Paymaster General Francis Maude, will determine how all spending on "common goods and services" - including construction - should take place. The process will start with office equipment, travel and IT, but migration to the new system should be complete across all areas, including construction, by March 2011.

This will give a clear indication of the scale of work that the industry might benefit from under the new coalition Government, but these are some of the very largest projects and

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<sup>27</sup> HM Treasury, Spending Review, October 2010

<sup>28</sup> The Construction Index, Spending review: Alarm bells ringing in housing sector, October 2010  
<http://www.theconstructionindex.co.uk/news/the-construction-index-news/Spending-review-Alarm-bells-ringing-in-housing-sector>

<sup>29</sup> Directgov, Budget June 2010 - tax changes, October 2010  
[http://www.direct.gov.uk/en/NI1/Newsroom/Budget/Budget2010/DG\\_188500](http://www.direct.gov.uk/en/NI1/Newsroom/Budget/Budget2010/DG_188500)

<sup>30</sup> Cabinet Office, Whitehall shake-up in drive for efficiency, June 2010  
[http://www.cabinetoffice.gov.uk/newsroom/news\\_releases/2010/100615-shakeup.aspx](http://www.cabinetoffice.gov.uk/newsroom/news_releases/2010/100615-shakeup.aspx)

in that respect it should not detract from the pressure that the sector is under. The vast majority of contractors are micro enterprises and small companies that rely on much smaller scale projects, including those placed by small private investors and homeowners many of whom will be evaluating their plans following tax rises and the squeeze on the availability of credit.

Back in August 2010 Glenigan<sup>31</sup> noted that the British Retail Consortium (BRC) reported that talk of public spending cuts was unsettling customers and if consumer and retailer confidence started to suffer, and growth in retail sales faltered, it could hit firm's future investment plans. Glenigan suggested that this uncertainty could be the biggest threat to growth in commercial and retail construction over next eighteen months. Although overall Government spending plans have now been released there is still more detail especially regarding smaller scale activity and in particular spending by councils to be released.

Council budgets which were already under pressure before the CSR have been cut significantly further. These reductions have led to some councils outsourcing services as a means to cut costs. In September 2010 Suffolk County Council announced a plan<sup>32</sup> to outsource nearly all services, allowing it to cut its £1.1 billion budget by 30%. According to the details announced, the aim is to turn the authority from one which provides public services itself, to an enabling council which commissions other to carry out the services. It could eventually see the council's workforce slimmed down to just a few hundred people who would manage the contracts. Although there are of course quality concerns, the decision could be seen as a model for other councils to follow – Barnet and Brighton and Hove are also outsourcing some services.

These plans for outsourcing have implications for the construction sector, some major construction businesses have sought to diversify into other sectors to pick-up the significant contracts on offer either direct from councils or through sub-contracting. Although there is limited evidence as to the extent of diversification, there have been various reports in the press. For example, in May 2010<sup>33</sup> May Gurney were chosen as preferred bidder by Torbay Council for a range of outsourced council services, including maintenance and waste management. The contract, valued at up to £130m over an initial period of 10 years with possible extensions of a further 15 years, will be delivered through a new Joint Venture Company (JVC) between Torbay Council and May Gurney. Similarly, in June 2010<sup>34</sup> Mouchel announced that although there had been a slowdown in post-election work in the highways and school building sectors they expected work to pick-up later in the year as councils turn to private companies to run their services. Despite this the reduction in demand has led to widespread redundancies across the sector.

Whilst construction workforce levels across the UK have generally been buoyant over the past 15 years with strong demand for tradespeople, professional and technical occupations and management roles the performance of the sector has been severely impacted by the recession, which has been reflected in severe job losses.

Data from the ConstructionSkills Network<sup>35</sup> suggests that construction employment started to fall in 2008, albeit by a marginal 1%, with a much larger decline of 11% across 2009 and 2010, with the bulk of the fall in 2009. The latest forecast figures indicate

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<sup>31</sup> Glenigan, Weekly Glenigan Newsletter - 24<sup>th</sup> August 2010

[http://www.glenigan.com/media/weekly\\_newsletter/24th\\_august\\_2010.aspx](http://www.glenigan.com/media/weekly_newsletter/24th_august_2010.aspx)

<sup>32</sup> BBC, Suffolk County Council to outsource most services, 23<sup>rd</sup> September 2010

<http://www.bbc.co.uk/news/uk-11398678>,

<sup>33</sup> The Construction Index, May Gurney awarded £130m Torbay Council outsourcing, May 2010

<http://www.theconstructionindex.co.uk/news/the-construction-index-news/May-Gurney-awarded-130m-Torbay-Council-outsourcing-deal>

<sup>34</sup> The Construction Enquirer, Mouchel predicts surge in council outsourcing, 16<sup>th</sup> June 2010

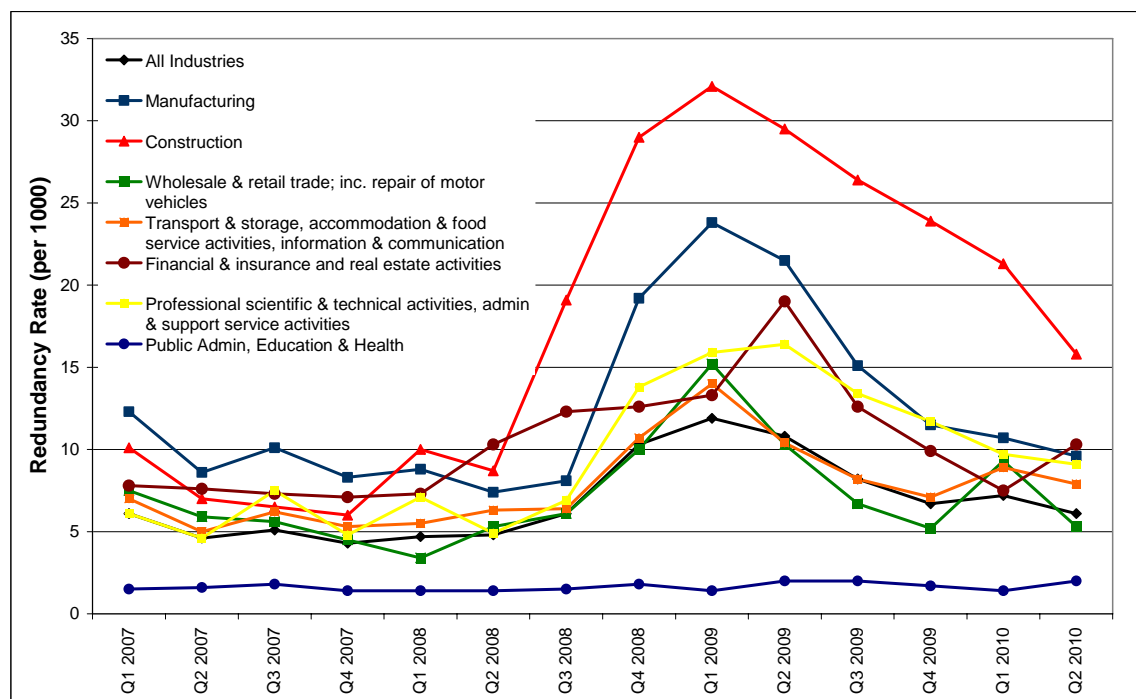
<http://www.constructionenquirer.com/2010/06/16/mouchel-predicts-surge-in-councils-outsourcing-work/>

<sup>35</sup> ConstructionSkills and Experian, Construction Skills Network, 2010

continued decline of 0.9% in 2010 and 2011, tailing off to 0.1% decline in 2012, before gradual recovery from 2013 of 0.7%. The annual average growth in employment over the period 2011-2015 is forecast at 0.3% per annum.

Data from the ONS<sup>36</sup> clearly shows the impact of the recession on the construction workforce. Whilst the construction sector has not suffered as much in numerical terms as manufacturing or financial services, it has experienced the highest redundancy rate of any UK industrial sector. The rate first increased in Q4 2007, dropping slightly in Q2 2008 before rising rapidly during Q3 2008 to a peak in Q1 2009. The rate has now declined but still remains higher than other similar industry sectors.

**Chart 4 - Redundancy rate by Industry, United Kingdom: 2007-2010**



Source: Office for National Statistics, Labour Force Survey 2010

The slowing rate of decline, evident in slowing rates of unemployment and increasing levels of enquiries, presents an encouraging perspective moving forward in the medium to long-term, although the road to recovery is expected to be a long and difficult one. It is unlikely that output and employment will return to pre-recession levels until after 2014.

Employment is expected to begin to grow again in 2011, reaching 2.4m by 2014, but this is still well below the 2.7m peak of 2007<sup>37</sup>.

According to recently conducted ConstructionSkills Employer Panel<sup>38</sup> research 36% (compared to 38% in November 2009) of construction firms have laid off staff as a result for the recession. Redundancies have affected all occupational groups from the unskilled to managers and professionals. Amongst construction firms labourers / general operatives are the occupation most likely to have been made redundant (35% of companies that had laid staff off because of the recession), followed by carpenters and joiners (20%), bricklayers (17%), administrative and secretarial staff (11%) and electricians (9%). Amongst the 28% of professional services employers laying off staff,

<sup>36</sup> Office for National Statistics, Labour Force Survey, 2010

<sup>37</sup> ConstructionSkills and Experian, Construction Skills Network, 2010

<sup>38</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews.

engineers were the most likely to be laid off (23%), followed by architects (16%), administrative staff (15%), designers (10%) and technicians (10%).

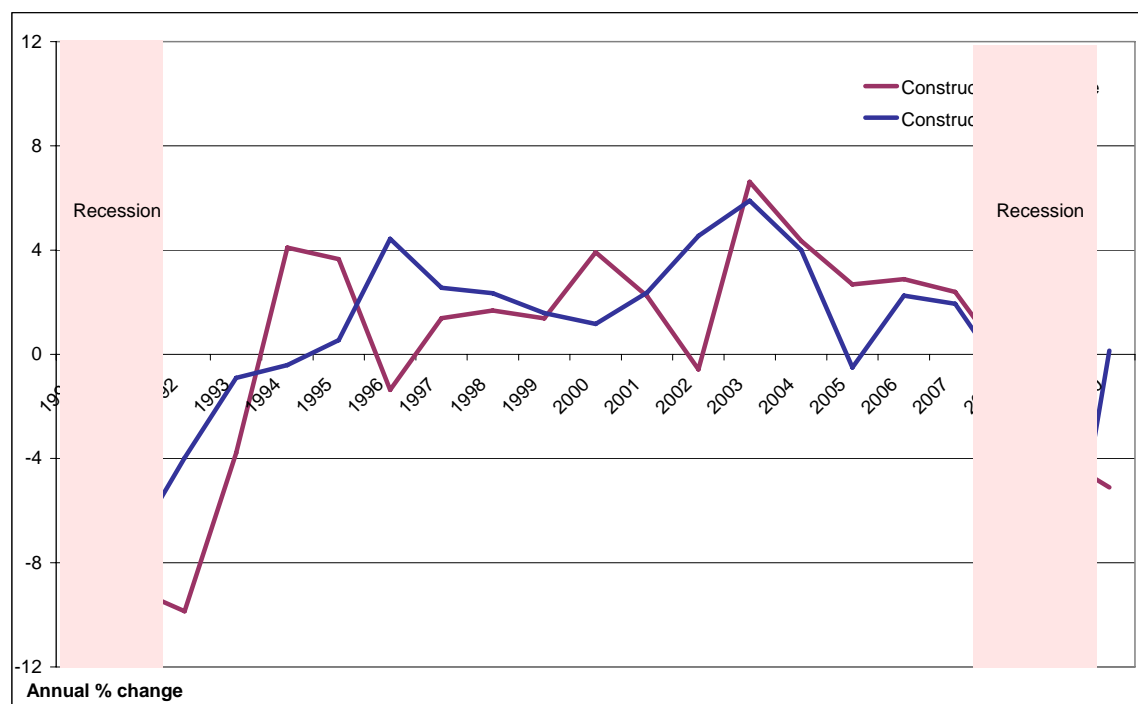
The research investigated whether it was Labour Only Sub Contractors (LOSC) that were laid off. The research found that just under half of construction sector employers currently employ LOSC (49% vs. 46% in November 2009). Overall, the number of LOSC employed is 22% lower than 12 months ago. However, it should be noted that 13% of firms reported that number of LOSC had employed had increased compared to 12 months ago. So, the evidence is mixed, it appears that although overall LOSC numbers are down some firms have actually increased their use of LOSC.

Encouragingly the survey indicates that most firms are confident of surviving the current recession, 41% were very confident and the same number 41% fairly confident of surviving the recession. However, 10% of firms (the same figures as June 2009) were either not at all (3%) or not very (7%) confident in surviving the recession.

Certainly with evidence of recovery in the global economy attention is moving towards the exit path of recession. However, the sector emerges into a much changed social and economic landscape of high levels of unemployment, particularly amongst 18-24 year olds and low-skilled workers, reduced household wealth, significant public spending cuts, and more prudent lending from the banks.

Consequently, the spotlight is very much focussed on how construction can adapt to the changes without undermining potential for future growth. Recovery from previous recessions has been hindered by skills gaps and shortages caused by job losses. Whilst contractors have endeavoured to retain capacity through the current recession, experience suggests that skills gaps and shortages will become evident as growth returns to the sector.

**Chart 5 - Construction Output and Employment, United Kingdom: 1990-2010**



Source: Office for National Statistics, Labour Force Survey; ConstructionSkills and Experian, Construction Skills Network, 2010

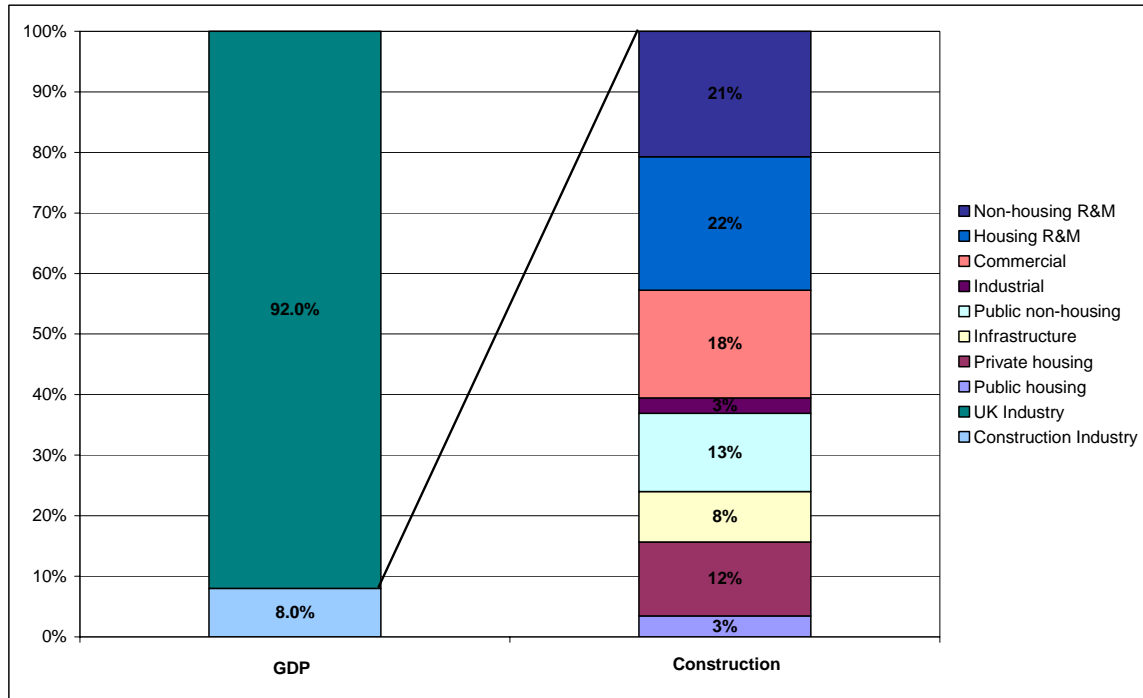
As Chart 5 clearly shows that construction employment lags behind output. Following the slump of the early-1990s it took several years for employment growth to catch-up with that of output. Whilst economic recovery is forecast over the next five years it is highly likely that employment levels will lag and similar patterns will re-occur.

The exodus of skilled workers from the industry through redundancy and retirement will also impact on the ability of the industry to transfer knowledge from experienced workers, potentially further hindering long-term growth.

### 2.2.2 Current Activity

Despite the recent recession the construction industry remains a major component of the UK economy:

**Chart 6 - GDP and Construction Output, United Kingdom: 2010**

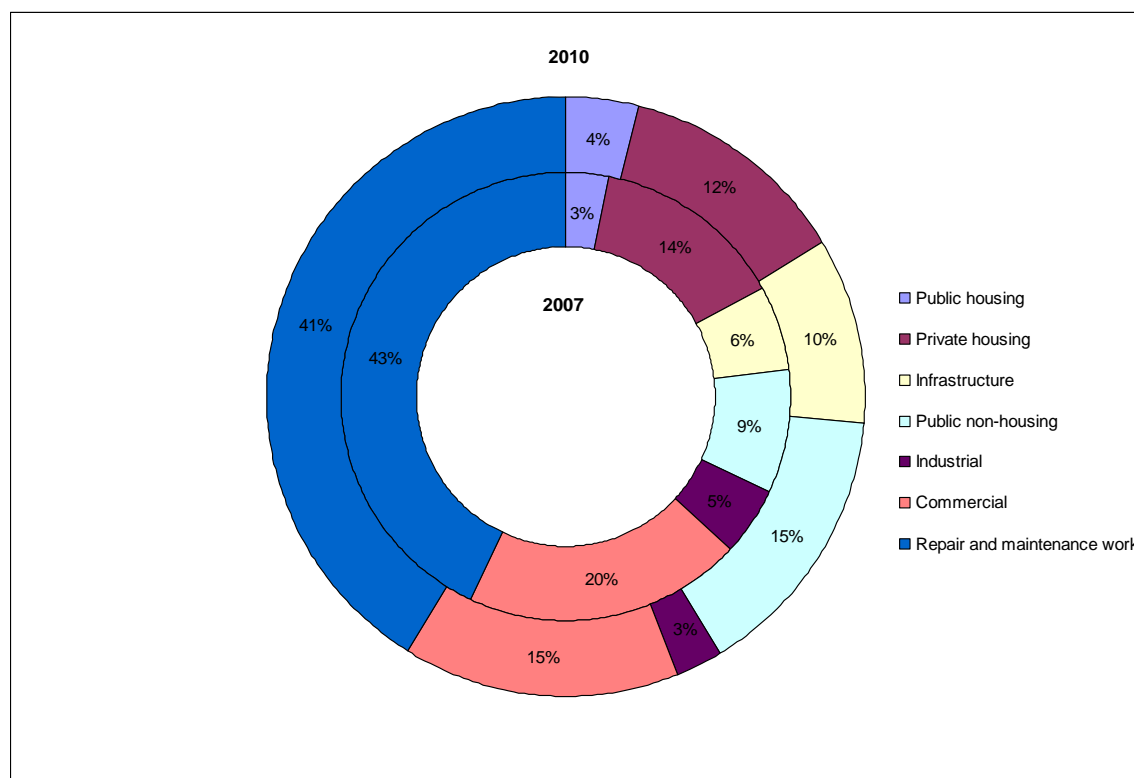


Source: Office for National Statistics; ConstructionSkills and Experian, Construction Skills Network, 2010  
 Note 2010 is forecast

Whilst the recession has severely impacted on the sector the picture is mixed in terms of output and new orders, and it would be wrong to believe that activity has declined across the whole industry. Some sections of the industry have bucked the recession trend, although growth has been limited.

Chart 7 compares the structure of the construction industry from pre-recession 2007 to 2010.

**Chart 7 - Construction Output (Constant 2005 Prices) by Main Sub-sector, United Kingdom: 2007-2009**



Source: Office for National Statistics; ConstructionSkills and Experian, Construction Skills Network, 2010  
 Note: 2010 is an estimate.

Overall, the commercial sector has decreased in size from 2007 to 2010, replaced by growth in public-non housing and infrastructure. In 2010 the infrastructure, public non-housing and public housing sectors have all grown. The commercial sector was hit very hard in 2009 and continues to decline in 2010. The industrial sector, also hit very hard in 2009 has suffered a small decline in 2010.

It has been the private sectors that have borne the brunt of the recession. The private housing sector suffered double digit decline in output in 2009, taking the level of activity down to below that seen in the depths of the 1990s recession in real terms. The industrial sector all but collapsed in 2009 and similarly commercial construction fell sharply in 2009 as work-in-progress was completed but little in the way of new projects came on site.

In contrast, the public sectors have largely done better. Although public housing has struggled with supply issues as the number of sites on which to provide social housing through section 106 agreements shrunk alarmingly, the public non-housing sector saw good growth driven by the Building Schools for the Future (BSF) programme and work on the Olympic Park.

Perhaps the most notably legacy of the recession is the impact on the balance between public and private work. As economic conditions improve, stabilisation and then recovery are expected for the private housing, industrial and commercial sectors, although the timing of the upturn will vary across markets. In contrast, the public sectors are facing expenditure cuts as a result of the CSR. Although, as discussed earlier the cuts are not quite as severe as were anticipated following the Emergency Budget. One programme of work that will be exempt from the issue is the Olympic build programme, with its no-fail deadline. However, activity on the Olympic Park will begin to wind down in 2011 and the completion of the project will leave a big hole in activity that will only be replaced in small part by projects relating to the 2014 Commonwealth Games in Glasgow.

### 2.2.3 Comparing the sectors

The construction sector encompasses many different industries and activities, which are collected around and service very distinct sectors, or sub-sectors, that are defined by the type of work undertaken in terms of the buildings and structures that are created. The following section provides an overview of the recent activity with these sectors and prospects to 2015. Details of the type of work which falls within these sectors can be found in Appendix 9.5

#### ➤ Infrastructure

In 2010 infrastructure is the sector predicted for the strongest growth, with 15% growth in output forecast and the annual average growth rate forecast at 4.0% between 2011 and 2015. There is little doubt that the main driver of the sector over the next few years will be big transport projects such as Thameslink, M25 widening, Manchester Metrolink extension, and the Forth Replacement Crossing, which is due to start in 2011 to be ready to take over from the current bridge in 2016. There are also various overground and underground station redevelopments already on site and early work has begun on the biggest of them all, Crossrail. Over 2,500<sup>39</sup> people are now employed on the Crossrail project, with up to 14,000 forecast to be employed at the height of construction between 2013 and 2015.

In the energy sector, starts are likely to be made on the first of the new generation of nuclear power stations around 2013 or 2014, with the first projects likely either at Hinckley Point or Sizewell. Total build costs for a nuclear power station are estimated at £4bn each, with about 50% of this being construction-related.

However, some projects have been delayed or fallen by the wayside. The Victoria Underground station upgrade has been delayed due to lack of funds, DP World is still considering the future of the London Gateway port project, and the Severn Barrage power project has been cancelled.

#### ➤ Public and Private Housing

In theory a much higher level of funding in the 2008-2011 Affordable Housing Programme (AHP) should have delivered increasing output in the public housing sector. However, social housing providers have been hit by stricter lending conditions, both through their ability to access funds directly from private lenders, and through income generation from sales of units under low cost home ownership schemes (LCHO). Delivery through section 106 agreements also became problematic as the number of private developments where social units could be sited dried up.

As a result output in the sector fell in 2008 and 2009. Funding allocations under the current AHP gathered pace in 2009 and in 2010 there has been overall growth of 7% for the sector, with similar growth forecast for 2011. Post-2011 the picture will change again due to cuts in the next AHP and thus if social housing providers are going to increase the supply of new units they will need to access higher levels of private finance.

After two very bad years, which have pushed private housing output to below the level seen in the early 1990s, there has been some slight recovery in house building activity. Rising levels of both mortgage approvals and loans in recent months, while not returning these indicators to what would be considered 'normal' levels, have at least pushed them well above their respective nadirs at the beginning of 2009. There is of course much speculation on house prices, with some suggesting falls in recent

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<sup>39</sup> Crossrail, Crossrail outlines progress on delivering value for money  
<http://www.crossrail.co.uk/company/communications-centre/press-releases/crossrail-outlines-progress-on-delivering-value-for-money>, accessed October 2010

months. Lending conditions still remain tight, although they have eased a little, with some return of higher level lending mortgages such as 90%.

Kickstart<sup>40</sup> funding, designed to give impetus to stalled mixed tenure projects should benefit both the public and private sectors in the short-term. Contracts have been signed on 140 schemes in round 1 equating to total funding of £421 million to unlock more than 11,000 new homes. A second round of bidding has taken place with shortlisted projects now undergoing a period of due diligence.

#### ➤ **Public Non-housing**

Two major programmes of work are driving this sector in the short-term, the Olympic Park and Building Schools for the Future. However, the former is due to start winding down from around mid-2011 and the latter has been subject to major expenditure cuts by the Coalition Government. This means that after years of good growth, output is forecast for only slight growth in 2010 of 7%, with decline of 6% forecast for 2011. Longer-term the forecast is for average annual decline in output from 2011 to 2015 of 10.3%.

#### ➤ **Industrial**

Industrial construction has all but collapsed in 2009 and 2010, hit by the double issues of falling global and domestic demand for manufactured products and the natural end to what had been an exceptionally strong boom in the supply of distribution and logistics facilities. Industrial construction output fell to a lower level in 2009 than that seen in the depths of the 1980s recession, which hit manufacturing very hard. It is likely that with a recovery in global demand already underway, the trend for the sector should turn upwards from 2011. However the strength of growth will be predicated to some extent on whether projects such as the London Gateway port go ahead, as this scheme is expected to generate long-term demand for around £1bn of distribution and logistics facilities in its hinterland.

#### ➤ **Commercial**

The commercial construction sector is projected to be the worst performing in 2010 with a forecast 10% decline in output. After holding up well in 2008 due to the amount of work in progress, output fell by 27% in 2009 as projects completed and few new ones have come on site. With demand for office, retail and leisure facilities likely to remain muted for some time to come, and significant levels of availability, it will be a while before these sectors see the start of the next development cycle. Of the big football stadia projects that were in the pipeline most have been abandoned or are still mired in financial problems. Only that for Tottenham Hotspur FC seems likely to go ahead at present, at the time of writing planning permission<sup>41</sup> has been given for revised development plans situated on the existing site and land adjacent to the site.

#### ➤ **Repair and Maintenance (R&M)**

Housing R&M activity is expected to increase only modestly between 2011 and 2015. In the early part of the forecast period activity is likely to decline in both the public and private sectors. The Decent Homes for All programme is winding down and while the Welsh and Scottish Housing Quality Standard Schemes are ongoing, they are not big enough to materially affect the UK figures in the light of a much more constrained environment for local authority finances. On the private side, disposable incomes are coming under pressure, particularly with VAT increasing to 20% from the start of 2011 and National Insurance increases from April 2011. This and continuing employment uncertainties are likely to make home owners wary of big-

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<sup>40</sup> Homes and Communities Agency (HCA), Kickstart housing delivery, [http://www.homesandcommunities.co.uk/kickstart\\_housing](http://www.homesandcommunities.co.uk/kickstart_housing)

<sup>41</sup> Tottenham Hotspur, Stadium Plans <http://www.tottenhamhotspur.com/futureplans/news/stadium-plans-011010.html>, accessed October 2010



ticket purchases until there is evidence of a sustained improvement in economic conditions.

Public non-housing R&M is likely to be under the same financial pressures as public housing R&M and thus is likely to decline slowly over the forecast period. On the private non-housing side, expenditure on routine and cyclical maintenance should increase once the corporate sector sees a sustained return to rising asset values and increasing profitability.

➤ **Regional Comparison**

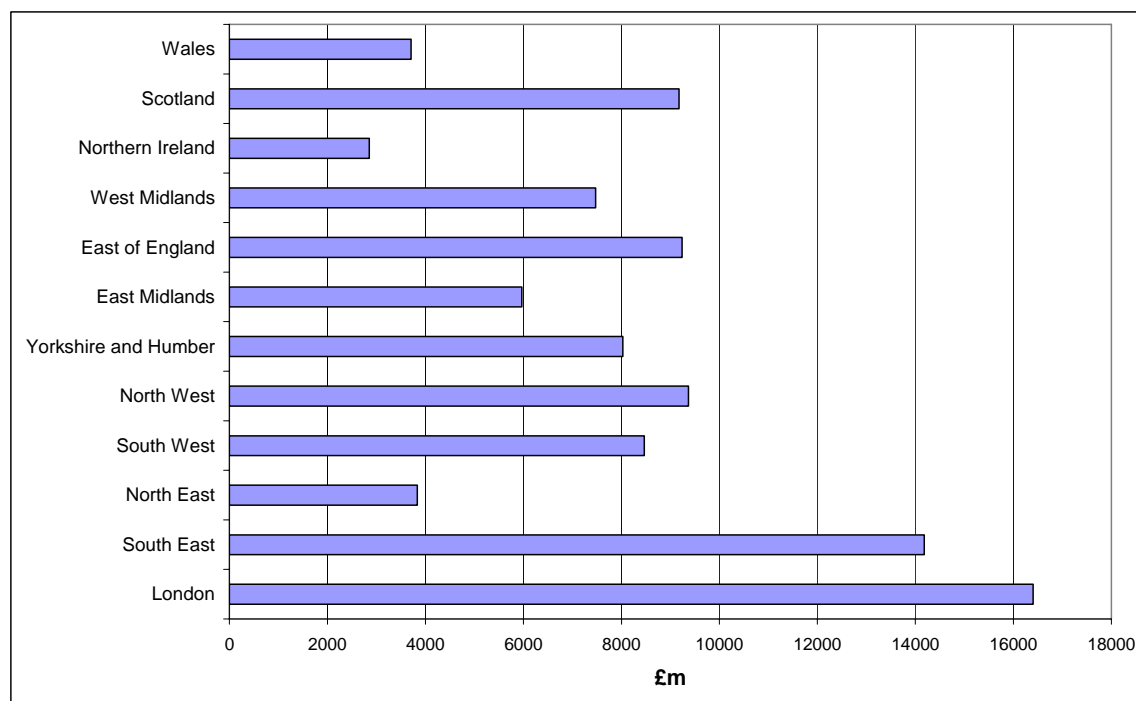
Construction output in the UK regions and nations varies quite widely and is very much linked to the performance of the wider macro-economy.

The early part of the Millennium was associated with significant output growth in the north of the country. During the period 2000–2005, regions in the North saw stronger growth than those in the South, particularly the East Midlands, Yorkshire and the Humber and Wales – driven by urban regeneration projects, housing, inward investment and creation/relocation of key Government departments and services.

Pre-recession growth was expected to shift southwards over the five years to 2010, and the strongest demand for new entrants to the industry was forecast to be in those regions with the biggest construction markets – Greater London and the South East. However, the recession has resulted in very mixed fortunes with much depending upon the level of public investment present in the nations and regions.

The recession has served to demonstrate how some regions are more vulnerable to falls in private construction investment and the dependency on public expenditure

**Chart 8 - Construction Output by Country and Region in £m (2005 constant prices), United Kingdom: 2010**



Source: ConstructionSkills and Experian, Construction Skills Network, 2010  
 Note: 2010 is an estimate

Waves 1 to 4 of the Building Schools for the Future (BSF) programme have benefited Greater London and the north disproportionately. Greater London and the West Midlands have also benefited from the Private Finance Initiative (PFI) hospital building programme.

Construction in London with its heavy reliance on the offices market has been badly affected by the travails in the financial services sector.

All regions have suffered from the housing market downturn.

### 2.2.4 Constraints on Activity

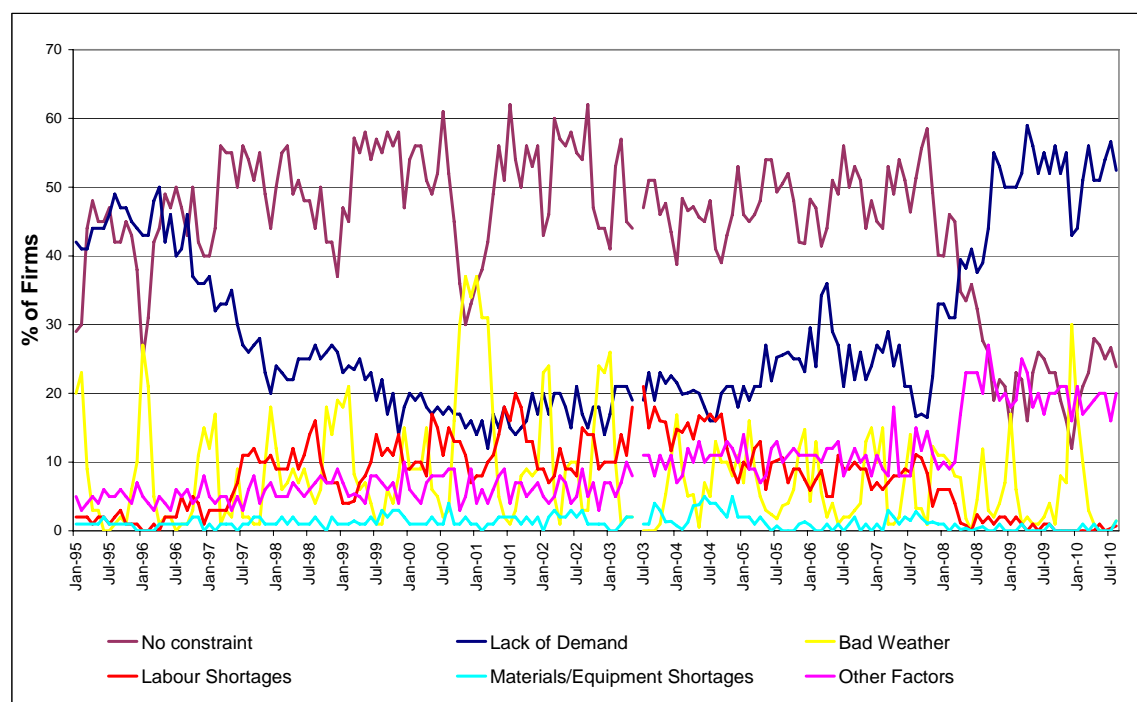
Whilst the volume of activity in the sector is highly cyclic there is also significant in-year variation with seasonal peaks and troughs corresponding to external constraints such as lack of demand, labour shortages, poor weather and materials shortages.

Indeed, the sector is still highly seasonal in terms of activity and employment.

Naturally with the recession the proportion of firms reporting lack of demand has increased significantly since October 2007, affecting on average 45%<sup>42</sup> of firms across the period. As demand has tailed off this has created excess capacity and all but removed labour constraints, which now affect only 0% to 1% of firms.

In contrast to this, results from the Federation of Master Builders State of Trade survey for the third quarter 2010<sup>43</sup> indicate that although employment continues to fall some skill shortages remain. There were difficulties reported recruiting supervisors (11% respondents), site managers (8%), electricians (7%) and plumbers & HVAC trades (7%).

**Chart 9 - Constraints on activity, United Kingdom: January 1995 to August 2010**



Source: Experian Construction Forecasting and Research, 2010

As might be expected, bad weather has an adverse effect on activity during the winter months, most recently in December 2009, January 2010 and most notably during the winter of 2000/01. However, bad weather during the summer months can also prove problematic as results for August 2008 show, reflecting the wettest on record across the UK.

### 2.2.5 Globalisation

<sup>42</sup> Experian Construction Forecasting and Research, Construction Industry Focus, August 2010

<sup>43</sup> Federation Master Builders, State of Trader Survey Q3 2010, 2010

The global nature of the recession has affected markets and trade worldwide, and construction has suffered in the vast majority of developed economies.

The worldwide decline in construction activity has most notably impacted on UK professional services, and has been particularly visible in the reduced demand across the Middle East and Asia. Construction supports high-value net-export services such as engineering consultancy and design, architectural activities, and property management, which have been hit particularly hard during the recession.

ConstructionSkills' research<sup>44</sup> amongst professional practices has indicated that the fee income of over half of the companies (54%) surveyed was lower in the previous 12 months compared with the 12 months before that compared with one in nine (11%) saying it had increased.

As well as exporting skills and expertise the UK construction industry has also benefited from migration. Construction is, and always has been, a migratory industry. There is an expectation that people will go where the work is. This applies to both foreign nationals entering the UK labour market and UK citizens finding work abroad. The experience is also closely linked to economic cycles. Indeed, the tradition of Irish workers finding employment in the UK during periods of high demand and the experience of UK workers migrating to Germany during the early 1980s when work was scarce at home is indicative of the fact that migration is linked to fairly wide economic influences and that international travel has been common for some time. However, in today's global market, itinerant construction workers come from all over Europe and beyond.

Until the recession increasing demand for building opened up job opportunities for economic migrants and the prospect of continuous work made the industry an attractive proposition, particularly for transient and unattached workers. Consequently the construction industry, like many other industries, has witnessed an increase in the use of migrant labour to fill temporary and emerging labour gaps, a process intensified by the expansion of the EU, but by no means limited to EU citizens. Migration is discussed further in section 7.2.3.

Whilst the construction sector has previously been relatively immune to off-shoring, with the exception of professional services, increasing levels of technological change might hasten a move away from traditional construction methods towards manufacturing, which could be undertaken outside the UK. The aggregation of firms through mergers and acquisitions, prompted in some cases as a means of surviving the recession, and often involving non-UK companies, might itself result in certain construction activities being moved away from the UK. The impact of such actions in terms of their environmental cost may conspire to safeguard certain construction activities, but then the focus is also on closing the productivity gap, through the development and delivery of innovative solutions that are capable of producing high-quality goods and services, and sustainable employment opportunities.

Globalisation has in addition led to increased international competition and in turn demand for higher skills. In construction this is particularly the case for professionals such as architects and civil engineers. The UK higher education and training sector has become a global leader in the supply of skills. The recession, although leading to immediate job losses, has meant people returning to or extending their education and in turn has fuelled increased numbers of course applicants.

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<sup>44</sup> ConstructionSkills and Construction Industry Council, Impact of the Recession on Construction Professionals, 2009 Unpublished, Telephone survey with Professional services firms; initial qualitative phase involving 30 firms followed by quantitative phase with 301 firms.

**Table 4 - First Degree Built Environment Student Enrolments, United Kingdom Domiciled and Non-United Kingdom Domiciled: 2008/09 and 2007/08**

Subject	2008/09				2007/08			
	Total	UK Dom	Non-UK Dom	%Non-UK Dom	Total	UK Dom	Non-UK Dom	%Non-UK Dom
<b>Civil Engineering</b>	5,640	4,080	1,560	28%	4,930	3,545	1,385	28%
<b>Architecture</b>	5,350	4,250	1,100	21%	4,920	3,955	965	20%
<b>Building</b>	5,620	5,085	535	10%	5,350	4,590	760	14%
<b>Landscape Design</b>	320	270	50	16%	295	255	40	14%
<b>Planning (urban, rural &amp; regional)</b>	1,690	1,550	140	8%	1,680	1,560	120	7%
<b>Total</b>	<b>18,620</b>	<b>15,235</b>	<b>3,385</b>	<b>18%</b>	<b>17,175</b>	<b>13,905</b>	<b>3,270</b>	<b>19%</b>

Source: Higher Education Statistics Authority (HESA), 2010

Data from the Higher Education Statistics Authority (HESA) shows that a high proportion of course enrolments are from Non-UK Domiciled students. Proportions are highest for Civil Engineering and Architecture courses at 28% and 21% of students respectively, with an overall proportion across Built Environment subject of 18%. From 2007/08 to 2008/09 there has been a 4% increase in the total number of Non-UK Domiciled student enrolments. This overall increase is spread across all subjects with the exception of Building which has declined in non-UK domiciled student numbers by 30% (535 from 760). It is unclear what might explain this decline but it could be switching to courses such as Architecture where Non-UK Domiciled student numbers increased by 14% over the same period.

It should be noted that many of these Non-UK Domiciled students wish to undertake training in the UK due both to the high-quality of tuition on offer and because many UK courses are closely tied to associated professional bodies, such as the Institute of Civil Engineering (ICE). International students may also be attracted by the prospect of post graduation UK jobs offering higher wages or the benefits of learning a foreign language. All of these associated factors mean the UK higher education sector is well placed to benefit from increased globalisation.

### **2.2.6 Technology**

New technologies and innovations are generally adopted if, and only if, there is a sympathetic set of business, legislative or cultural conditions. An inadvertent benefit of the recent recession is that it may provide the catalyst for innovation within the construction industry.

A sustained period of strong demand for construction has resulted in relatively low levels of innovation. However, significant exposure to the economic crisis, along with increased regulation and growing market pressure, means that the construction industry must now seriously consider technology in order to meet its customers' and regulatory expectations.

The recent recession has shaken a lot of weak firms out of the sector and some companies have used this as an opportunity to reorganise and innovate. Levels of competition have increased significantly, margins have been reduced and diversification is rife as contractors fight for work. This has resulted in firms looking to generate the maximum return on all potential projects, producing an opening for technological and process change. Furthermore, it is becoming evident that much of the change is being driven by emerging opportunities around the low carbon economy.

Over a third (36%) of companies questioned on ConstructionSkills' Employer Panel<sup>45</sup> had laid staff off because of the recession with nearly a quarter (24%) changing the focus of their work on different parts of the market in response to the recession. Firms that had expanded into different parts of the market or changed the focus of their work reported requiring new skills, particularly in IT and management.

In terms of recovery there will be a renewed emphasis on ensuring efficient working. Lower levels of employment will initially result in a need to achieve more with less and this presents an opportunity for product and process innovation. However, the long-term ambition to drive up productivity is expected to facilitate and be facilitated by increased technological change, which will in turn transform some occupations in respect of both the numbers required and the activities undertaken.

Over the past decade significant developments have occurred in the prefabrication of structures and components, the standardisation of production, the development and application of new (and out-of-sector materials) and the better integration of information technology in the business and construction process.

The shift towards off-site manufacturing is likely to mean that on-site construction increasingly becomes more of an assembly process, suggesting that the industry will see a move from construction to fitting. Prefabricated components and assemblies, designed for ease of installation as well as improved performance and cost, will enable greater output from a potentially smaller workforce and increase safety. Whilst this has a particular significance for both manual and non-manual occupations, the implications for manual occupations are probably more telling. This is because their size and scope encompass such diverse occupations and, secondly, their skills and training are built around clearly demarcated craft traditions with a largely bespoke approach to construction.

The future trend towards prefabrication will increasingly see trades move to a factory environment; a move that whilst creating clean and safe working conditions will be resisted by some. This signals a debate on where the workforce will come from to produce components – the construction sector or the manufacturing sector – and what skills they will need.

If it is the construction sector, as anticipated/proposed, this will inevitably result in the erosion and revision of some traditional trade boundaries and the introduction of a more generalist or multi-skilled approach to the construction process. Whilst current off-site technology certainly draws upon traditional craft skills, a factory-based approach, as employed in the manufacturing sector, will probably result in operatives performing tasks that would traditionally be associated with other trades. It will also require new skills of quality control in production and working to increased tolerances on-site, particularly as the approach becomes more mechanised. In this respect, technological change will offer the opportunity to redefine a number of existing roles within the industry, as well as offering opportunities in new areas.

Growth in prefabrication also has particular consequences for non-manual trades as the supply chain broadens and integration between design and production increases. Architects and designers will need to work more closely with suppliers and contractors to integrate new materials into the design. Construction managers will need to make more use of information technology to schedule work, and will require the necessary interpersonal and business skills to enable collaborative working amongst multi-disciplinary teams. It is also reasonable to assume that a greater need for enhanced logistical skills will almost certainly become apparent as more and more components are brought to site.

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<sup>45</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews.

The site assembly of prefabricated elements will generally require a more stringent approach to quality and a greater understanding of the construction process as a whole. Logistics and planning will become more crucial as time is compressed and individual operations become more critical. Transport and handling will require higher skills.

The use of materials and products from other industries may see a crossover of employees bringing a new range of skills and knowledge into construction. As systems become more complex, there may be a move towards ultra-specialisation in niche markets. Indeed, accompanying the more generalist approach to construction is another more specialist approach, which sees the consolidation of very specific skills into relatively small occupations. Both approaches represent the industry's need to increase productivity, but have very different implications for the workforce development.

As with all industries the growth of ecommerce has over the last decade transformed the way businesses operate. It's likely that ecommerce will remain an important driver over the next decade. Greater use of mobile technology for example smart phones will offer opportunities for improved integration of site information, such as material supply allowing improved management and efficiency.

Management and supervisory skills will become increasingly important. Improved business management, personnel and training will be required to support changes in industry structures and technology.

Many of these changes have, of course, already begun, and will continue in an evolutionary way to affect how tasks are performed on site and what skills are required of the workforce as a whole.

There are however structural barriers to innovation in the sector that will impede and slow change.

### **2.2.7 Demographics**

Population characteristics (such as size, growth, density, distribution, age, gender and ethnicity) drive supply and demand. Demographic changes shape the expectations of customers, as well as influencing the ability of industry to meet their demands. The needs of the population in terms of housing, healthcare, education, infrastructure, work and leisure drive construction outputs, yet these are only achievable if there is sufficient capacity in terms of labour and skills.

Increasing life expectancy, an ageing and more culturally diverse population, intensified urbanisation, increased mobility within the workforce and a growing rate of household formation present the construction industry with some major demographic challenges.

Forecast population growth in the UK of about 0.7%<sup>46</sup> per annum over the next decade, through natural increase and net inward migration, together with increasing rates of household formation is driving the demand for homes and public services.

Population growth combined with changing cultural and socio-economic conditions, including strong aspirations of home ownership, higher rates of divorce and a marked increase in single-parent families means that one person households are projected to equate to two-thirds<sup>47</sup> of the annual increase in households.

Before its demise the National Housing and Planning Advice Unit (NHPAU) had calculated England needed to build 240,000<sup>48</sup> houses per year to meet demand.

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<sup>46</sup> Office for National Statistics, Population Projections, 2008

<sup>47</sup> Department of Communities and Local Government, Household Projections to 2031, March 2009

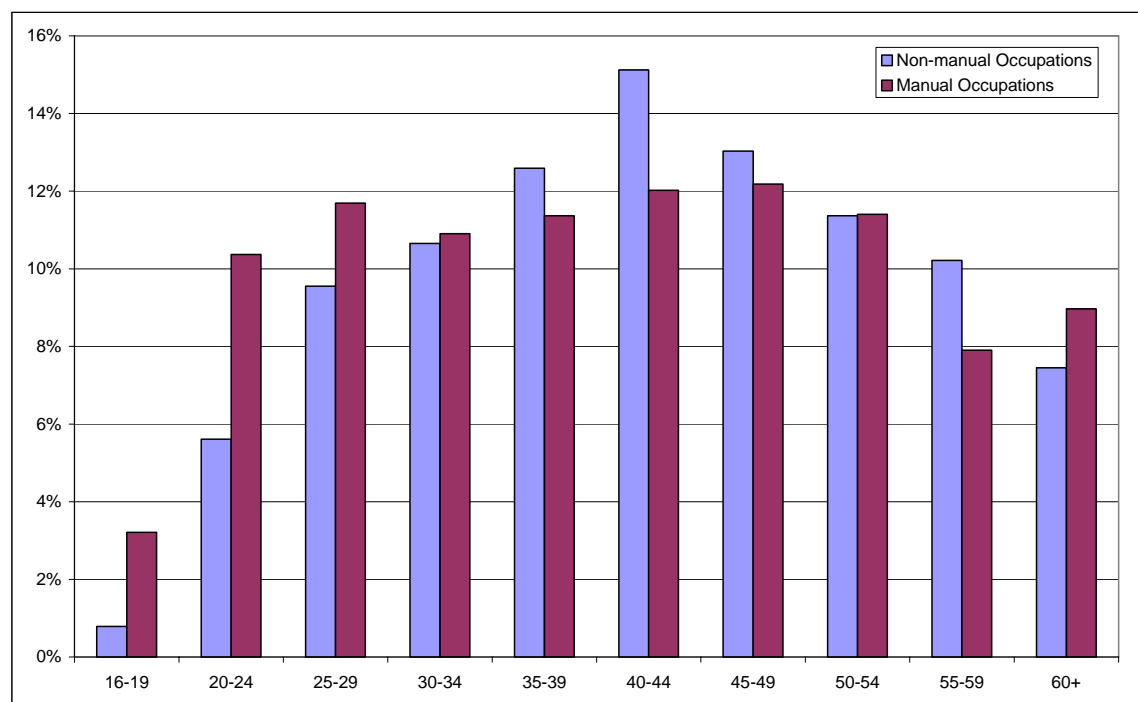
<sup>48</sup> Channel 4 News, Councils 'abandon' 100,000 new homes plans <http://www.channel4.com/news/councils-abandon-100-000-new-homes-plans>, accessed November 2010

However, due to recession just 123,000 were constructed in 2009. These figures clearly suggest a shortage although we cannot be certain on the impact of house prices due to wider uncertainty in the economy itself. Regardless of the figures construction has a vital role to play in delivering the expectations of the Coalition Government and society as a whole.

The UK, like other industrialised countries, has an ageing population. Advances in life expectancy mean that successive generations are living much longer. This not only affects what they might demand, but also what the construction industry can provide in terms of the built environment.

The age profile of the construction industry for both professionals and contractors alike matches that of many UK industries. It is mature, ageing and has undergone significant change over the past 10 years. For professionals, managerial and manual occupations, the workforce has generally been distinguished by a decline in the share of the younger groups in total employment and a rise in those aged 45 years and over. Despite positive efforts to encourage young persons to consider construction as a desirable career choice at every level, the industry has an age profile that is biased towards the 35-44 age groups<sup>49</sup>.

**Chart 10 - Age Profile of Construction Industry, United Kingdom: 2010**



Source: Office for National Statistics, Labour Force Survey, 2010

Due to the recession the current construction workforce is now approximately the same size as that of 1990. However, the number of older workers (aged 55 years and over) has increased by 150,000 over the same period (approximately 65%). Similarly, the number aged 24 and under has fallen by 200,000 over the same period (approximately 43%).

The trend has increased over the last twenty years. In 1990, over a third (36%) of workers in the construction industry were aged under 30. Today, approaching a quarter of the sector's workforce (24%) is within this age group, while almost one in ten (9%) is now over 60 years old compared to 4% in 1990. While the increasing age profile is most pronounced in the manual workforce, professional trades such as architecture,

<sup>49</sup> Office for National Statistics, Labour Force Survey, Four quarter average to Spring 2010

mechanical and civil engineering could also lose 19% of their manpower to retirement in the next ten years.

Until the recession there had been encouraging signs of growth in the numbers aged 16-24; up by 52% between 2000 and 2008. However, numbers have since fallen back by over 25% to just above the level in 2000. It is thought that the growth in this group may be explained by the increased investment in recruitment through targeted media campaigns and the provision of better advice and guidance through careers services. However, the increase in migrant workers into the construction industry since the entry of A8 countries into the EEA has also been a factor. ConstructionSkills' research<sup>50</sup> showed that migrant workers had a younger profile than the overall workforce as a whole. Less than a quarter (23%) were aged over 34 compared to half (51%) of the overall workforce.

The under-representation of women and ethnic minorities remains a priority issue for the industry.

Labour force statistics show that marginal improvements are being made in the recruitment from the female and black, minority and ethnic (BME) groups, although when compared with the UK workforce as a whole, the sector remains amongst the most gender imbalanced in the UK economy.

Currently women account for approximately 13% of total employment in the sector<sup>51</sup>. Approximately 27% of those employed in non-manual occupations are women and 2% of those employed in manual occupations are women. In 1999 women accounted for approximately 12% of total employment in the sector, indicating only marginal improvement in the overall proportion over the last 11 years. However, there has been a small shift in balance towards manual occupations, in 1999 28% of those employed in non-manual occupations were women and 6% of those employed in manual occupations were women.

The highest levels of women in the manual trades are in Scotland (3%), South East (2%) and East of England (2%). However, these figures fall short of the national average for all sectors which is closer to 38%.

Whilst, the proportion of BMEs in construction employment has gradually risen over the past decade to represent 4% of the construction workforce, this still compares poorly with the wider all industry working population (9%). Looking at the split between manual and non-manual occupations, BMEs currently account for 4% of manual occupations, and 5% of non-manual occupations. Again while the proportion of both manuals and non-manuals has increased over the last 10 years it is significantly lower than the wider workforce (both 9%).

The regions with the highest proportions of BMEs in the construction sector workforce coincide with the regions containing areas with higher levels of ethnic diversity. Even in areas which show a higher proportion of BME workers such as London (17%) and the West Midlands (6%) are below the all industry average for all sectors in these regions (31% and 12% respectively).

For both women and BMEs the representation amongst professional and office-based roles is clearly higher than that for manual workers and highlights the challenge in terms of increasing the participation of these groups in manual and site-based roles.

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<sup>50</sup> ConstructionSkills, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007. Survey undertaken face to face with 3,877 construction workers across 312 sites distributed across UK and Republic of Ireland.

<sup>51</sup> Office for National Statistics, Labour Force Survey, Four quarter average to Spring 2010



The ageing workforce also poses a problem with regards training capacity. A longstanding trend towards early retirement, together with reported difficulties in the recruitment of teaching staff, means that questions must be asked not only as to whether the current training capacity is able to cope with the expected intake of prospective trainees, but also who will train the trainers of the future.

### 2.2.8 Legislation

Legislation remains a key driver for change across both industry sectors as a whole and within the construction sector specifically. And in many cases it is the principle driver for change.

It is interesting that within the UK construction sector the Government is doubly important as both a legislator and as a major client. There is a balance to this relationship, since without a strong and effective construction industry the Government will not be able to fulfil its electoral obligations. UK Government has historically driven 30-40% of construction output<sup>52</sup>.

It is important to note that legislation operates at three levels – international, national and regional/local level. There are key differences in legislation between England, Scotland and Wales. The specific legislation discussed in this section generally relates to England (there will be separate discussion in each of the national reports to be published in 2010).

Following the May 2010 general election the Conservatives and Liberal Democrats formed a coalition Government. The coalition is the first time the Conservatives and Liberal Democrats have had a power sharing deal at Westminster and the first coalition since the Second World War. The coalition agreement<sup>53</sup> spelled out 11 key areas on which the coalition would focus - Deficit Reduction, Spending Review - NHS, Schools and a Fairer Society, Tax Measures, Banking Reform, Immigration, Political Reform, Pensions and Welfare, Education, Relations with the EU, Civil liberties and Environment.

More recently, as discussed in an earlier section the CSR was published. Whilst at the time of writing it is perhaps a little early to see what the implications for legislation in the construction sector are it is clear that the Government is prioritising energy and climate change. Plans to collect tax from large businesses in a Carbon Reduction Commitment scheme are likely to lead to new legislation in this area.

There are also the long standing trends of policy directed towards improving the quality of work (working time directive, parental rights, minimum wage, health and safety) and reducing damage to the environment (planning legislation, aggregate tax, etc.). This has undeniably changed the way in which the construction industry works, for the better. Although legislation changes are likely to have a positive impact on the workforce, as they generally promote improved employment conditions for the existing workforce and potential new starters, these changes are also likely to increase operational costs, resulting in some cases in avoidance tactics.

One important piece of legislation affecting the sector in 2010 includes the Building Regulations 2010<sup>54</sup> which came into effect on 1<sup>st</sup> October 2010. The regulations contain new energy performance requirements for work notified to building control bodies on or after this date. This includes revisions to Part F (ventilation), Part G (sanitation, hot water safety and water efficiency), Part J (combustion appliances and fuel storage systems) and Part L (conservation of fuel and power).

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<sup>52</sup> L.E.K. Consulting, Construction in the UK Economy, 2009 [www.cbi.org.uk/lekreport](http://www.cbi.org.uk/lekreport)

<sup>53</sup> Conservative Party, Coalition Agreement published, 12<sup>th</sup> May 2010  
[http://www.conservatives.com/News/News\\_stories/2010/05/Coalition\\_Agreement\\_published.aspx](http://www.conservatives.com/News/News_stories/2010/05/Coalition_Agreement_published.aspx)

<sup>54</sup> Planning Portal, Approved Documents, 2010  
<http://www.planningportal.gov.uk/buildingregulations/approveddocuments/downloads>

There have also been changes to planning legislation, the Community Infrastructure Levy<sup>55</sup> (CIL) came into effect in April 2010 - a voluntary mechanism that allows local authorities in England and Wales to levy a standard charge on most types of new development, to fund the infrastructure needed to support development in their area. These new regulations have an immediate impact on the ability of local planning authorities to seek benefits under Section 106 of the Town and Country Planning Act 1990; typically, these would include benefits for the local community, such as infrastructure improvements to the neighbourhood.

As with any sector, change resulting from legislation is generally likely to be gradual as firms respond and get to grips with the implications of new legislation. In the construction sector particularly, due to the high proportion of small firms, high levels of self-employment and wide use of sub-contracting changes are likely to take time to filter through. For example, it is more than 3 years since the introduction of the Construction (Design and Management) Regulations 2007 (CDM2007), introduced in April 2007. However, according to a recent impact survey<sup>56</sup> carried out by CDM2007.org over half (54%) of the 227 CDM 2007 duty-holder participants in the survey are not confident that their management colleagues across all levels inside their organisations understood their CDM 2007 responsibilities. Furthermore, similar proportions (47%) doubt whether those colleagues are competent to carry out their CDM2007 duties.

Despite all the existing legislation, health and safety remains a key concern for the construction sector. The industry is widely regarded as a dangerous sector in which to work, and although safety has improved significantly in recent years it is estimated that nearly 3,000 people having been killed whilst at work in the industry in the last 25 years. According to the latest provisional figures from the Health and Safety Executive<sup>57</sup> (HSE) construction worker fatalities have fallen in 2009/10 to 41 compared to 52 in 2008/09. This represents the lowest level on record, although it should be noted that it is in the context of much lower employment levels.

Changes in the size of the workforce will impact on the number of fatalities in any one year. Therefore, when making any comparisons either on a year-to-year basis or between one sector and another it is important to look at rates of fatal injury per 100,000 in the workforce. The rate of fatal injury to workers in the construction sector has decreased from 4.7 in 1999/00 (the Revitalising Health and Safety base year) to 2.0 (provisional) in 2009/10. This constitutes a decrease of 58%. These figures suggest that safety in the construction sector has improved considerably since 1999/00, however, there is still room for further improvement. It is crucial that steps are taken to improve health and safety training amongst managers and supervisors. There are an incredible number of pieces of health and safety legislation which must be adhered to and site managers, who play a key role in the operational aspects of construction, should be fully up to speed on these.

Other specific safety legislation includes new regulations<sup>58</sup> developed by the HSE for tower cranes, introduced in April 2010. These regulations followed a number of high profile crane accidents between 2000 and 2010, which resulted in eight fatalities. They include a register of conventional tower cranes which places a 'duty to notify' on the employer. Employers have to notify the HSE of relevant information, including the site address and the name and address of the crane owners. HSE have to be notified within 14 days of a thorough examination of the crane, which must be carried out following

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<sup>55</sup> Planning Portal, Community Infrastructure Levy, April 2010

<http://www.planningportal.gov.uk/planning/planningpolicyandlegislation/reform/planningact2008/cil>

<sup>56</sup> CDM2007.org, CDM2007 Impact – The state of implementation of CDM2007 by UK property, building and construction industries, 1<sup>st</sup> September 2009

<http://www.cdm2007.org/courses/Survey/CDM2007%202009%20Impact%20Survey.pdf>

<sup>57</sup> Health and Safety Executive, Statistics on fatal injuries in the workplace 2009/10, June 2010

<http://www.hse.gov.uk/statistics/fatalinjuries.htm>

<sup>58</sup> Health and Safety Executive, Notification of Conventional Tower Cranes Regulations 2010, January 2010

<http://www.hse.gov.uk/pubns/indg437.pdf>

installation or re-installation on a site before it can put into service. Cranes already erected when the regulations come into force will have to be registered within 28 days.

It is hoped that changes to legislation and the introduction of competency based certification schemes, such as the Construction Skills Certification Scheme (CSCS), which became mandatory in 2010 will improve safety within the industry. However, this largely applies to major contractors and their supply chains. The absence of a compulsory, enforceable and publicly-recognised registration scheme means that large parts of the industry operate with relatively little regulation, affording little protection to workers in terms of occupational health and safety.

Alongside specific legislation there is a plethora of policy initiatives relating to climate change, sustainability and zero carbon. There is more discussion of sustainability in particular around the CSR in Chapter 5. Key policy drivers for this area include:

- **Kyoto Protocol**; an agreement committing the UK to reduce its emissions of greenhouse gases by 12.5% between 1990 and 2012.
- **The Climate Change Act 2008**; which sets legally binding targets for reducing greenhouse gas emissions in the UK by 80% below 1990 levels by 2050. It also creates a framework for building the UK's ability to adapt to climate change.
- **The CRC Energy Efficiency Scheme 2010**; formerly known as the Carbon Reduction Commitment, is the UK's mandatory climate change and energy efficiency scheme. It is central to the UK's strategy for improving energy efficiency and reducing carbon dioxide (CO<sub>2</sub>) emissions, as set out in the Climate Change Act 2008. It has been designed to raise awareness in large organisations, especially at senior level, and encourage changes in behaviour and infrastructure.
- **Heat and Energy Saving Strategy (HESS) Consultation 2009**; sets out a road map of Government's plans to virtually eliminate carbon emissions from existing homes by 2050. An agreement committing the UK to reduce its emissions of greenhouse gases by 12.5% between 1990 and 2012. All houses to have cavity wall and loft insulation by 2015, all homes and other buildings to have received all available costs-effective measures by 2030.
- **UK Low Carbon Transition Plan 2009**; sets out Government's broad road map for tackling climate change. The plan recognises that three quarters of the energy we use in our homes is for heating rooms and water, most of which comes from gas-fired boilers. This accounts for 13% of the UK's greenhouse gas emissions and by 2050 emissions from homes needs to be almost zero by using energy more efficiently and using more low carbon energy. The Plan further commits to reducing annual emissions from residential buildings by 29% by 2020.
- **The Warm Homes, Greener Homes: A Strategy for Household Energy Management 2010**, responds to the HESS consultation and sets out detailed plans to 2020 to achieve this commitment, and to put us on the right trajectory to meet the 2050 milestone. As well as insulating all lofts and cavities where practicable by 2015, up to 7 million homes will receive an eco-upgrade, which will include major measures such as solid wall insulation or renewable heat, alongside smart meters and other smaller measures.
- **Local Performance Framework**; which sets targets for local authorities for reducing emissions. National Indicator (NI) 186 relates to the "per capita carbon dioxide emissions in the local authority area".

- **LGA Climate Change Commission** is an agent for change. In its publication *A Climate of Change* it advocates mitigating the causes of global warming by reducing the emissions and adapting to the unavoidable changes of climate change.
- **Energy White Paper 2007** defines a long-term strategic vision for energy policy combining environmental, security of supply, competitiveness and social goals. It sets out a path to cut carbon dioxide emissions by 60% by 2050, with real progress by 2020 and ensuring that every home is adequately and affordably heated.
- **Climate Change and Sustainable Energy Act 2006** Energy Measures Report, published on 18 September 2007, sets out the steps that local authorities can take to improve energy efficiency, increase the levels of micro-generation and low carbon technologies; reduce greenhouse gas emissions; and reduce the number of households living in fuel poverty.
- **Energy Performance of Buildings Directive (EPBD) phased implementation England and Wales from August 2007 to October 2008**, required Energy Performance Certificates for all buildings (domestic and non-domestic) when they are built, sold or rented; regular energy assessments of large public buildings and that Display Energy Certificates are displayed so that users and visitors are aware of the energy use of buildings; regular inspections of, and recommendations about improving, the energy performance of Air Conditioning installations; and regular inspection of boilers above a certain size or the provision of advisers to users.
- **Planning and building control**; in May 2007 the Government published the Planning White Paper, 'Planning for a Sustainable Future'. This makes it clear that local planning authorities have a crucial role to play in tackling climate change.
- **Powers to act**; The Local Government Act 2000 included the introduction of a 'power of wellbeing', covering economic, social and environmental wellbeing. Local authorities can use this legal power to deliver sustainable energy objectives and some have already done so. The power is intended to be a 'power of first resort'.

As well as introducing legislation to improve working conditions for the industry, legislation may be used punitively by Government. In 2009, the construction industry was subject to fines following an Office of Fair Trading (OFT) investigation into bid-rigging. An OFT press release<sup>59</sup> confirms that 103 firms were fined £129.2 million for breaching competition laws. It may be estimated that these firms will need to generate £4 billion of work to cover the costs of these fines. In addition to the cost of the fines, this investigation is likely to have negatively affected public perception of the industry as a whole, as well as inflicting damage to the reputation of the firms involved.

Along a similar vein, another important piece of legislation due to come into force on 1 April 2011 is the UK Bribery Act<sup>60</sup>. This reforms existing criminal law to provide a comprehensive scheme of bribery offences that will enable courts and prosecutors to respond more effectively to bribery at home or abroad. Under the new act, companies will be responsible for any acts of bribery committed by third parties, agents and subcontractors. The criminal offence element of the act could see individuals facing 10-

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<sup>59</sup> Office of Fair Trading, Construction firms fined for illegal bid-rigging, 22<sup>nd</sup> September 2009 <http://www.offt.gov.uk/news-and-updates/press/2009/114-09>

<sup>60</sup> Ministry of Justice, Bribery Act 2010, April 2010 <http://www.justice.gov.uk/publications/bribery-bill.htm>

year prison sentences and sizeable personal fines. Construction has been identified<sup>61</sup> as one of the most high risk areas under this legislation due to its long supply chain.

Together with the issues discussed, there are other legislation plans which may influence industry structure in the future. In 2009 HM Revenue and Customs (HMRC) undertook a consultation<sup>62</sup> into false self-employment in construction. The responses to the consultation were published in March 2010. Under the proposed legislation which formed the basis of the consultation, certain self-employed workers within the construction industry would be deemed to be in receipt of employment income and subject to automatic PAYE and National Insurance contributions. Although the majority of stakeholders agreed that false self-employment in construction was a problem, there was no consensus among stakeholders as to the tests that should be included within a legislative solution or that there should be a legislative solution of this nature. Due to the economic downturn the Government has now put this work on hold until the industry is in a stronger position. It is not clear how many workers may be affected by a change but HMRC estimate it could affect 300,000 workers.

Changes in legislation are likely to influence demand for skills within the industry. The need to meet new legislative requirements, particularly in respect of climate change and resource efficiency will necessarily lead to a need for greater understanding of low carbon and zero carbon technologies.

### **2.2.9 Consumer Demand**

Whilst not entirely unique, the construction industry is responsible for supplying goods and services to consumers at all levels, from individual members of the public to private companies and Government.

The construction industry has a broad client base, all of whom have different demands and expectations and to some degree this is reflected in the fragmented nature of the industry. In this respect the sector might be better described as a collection of separate industries. Certainly the face of the industry dealing with the domestic market building house extensions and undertaking home improvements is very different to that responsible for building a new school, hospital, or sports stadium.

Nevertheless, it is demand across this wide and varied client base that drives what, where and how the industry builds.

An Experian forecast produced for the ConstructionSkills Network shows the inter-relationship between GDP, household spending, investment, imports, exports, employment and house prices. The data clearly shows the impact of the recession on the UK, with a peak decline across all areas in 2009 before gradual growth from 2010 (note employment lags behind and is forecast for positive growth in 2013).

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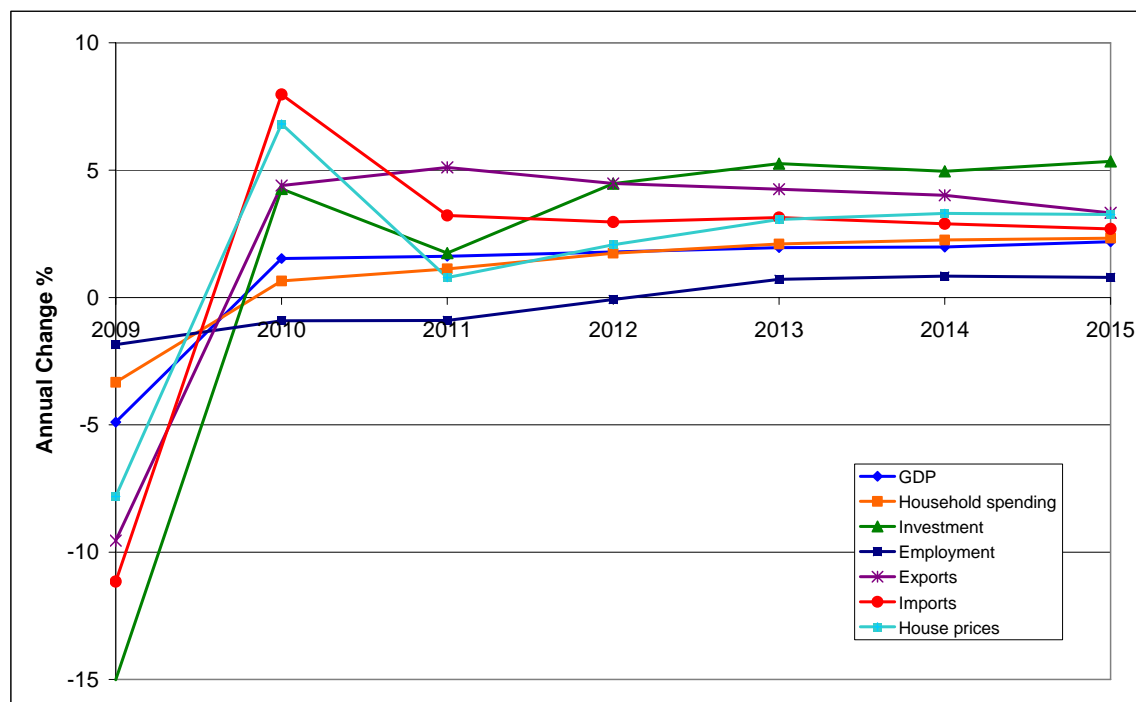
<sup>61</sup> Construction News, Gifts at risk under bribery law change, 28<sup>th</sup> October 2010

<http://www.cnplus.co.uk/news/gifts-at-risk-under-bribery-law-change/8607447.article>

<sup>62</sup> HM Treasury, False self-employment in construction: taxation of workers, March 2010

[http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/consult\\_false\\_selfemployment\\_construction.htm](http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/consult_false_selfemployment_construction.htm)

**Chart 11 - Macro-economic Forecast, United Kingdom: 2009-2015**



Source: ConstructionSkills and Experian, Construction Skills Network, 2010

Low unemployment, the ready availability of credit and high levels of personal borrowing can be seen as primary drivers of construction activity during the last economic cycle. The past decade has been dominated with the rise of the 'consumer' and the role of the public as the consumer has been central to construction growth in the private housing and commercial sectors.

Increasing demand for housing and significant investment in retail and leisure developments, resulting from increased levels of disposable income, is visible within industry output figures from the very beginning of recovery from the last recession, but became especially strong factors from the turn of the millennium.

For much of the 20<sup>th</sup> Century consumer expectations of construction, particularly in respect of housing have been relatively low and chiefly dictated by what the industry produced. The notion of consumer choice, beyond purely aesthetic considerations was largely unheard of for the vast majority of society. However, the past 25 years or so has seen growing interest in property development, primarily the result of increased financial and social mobility enabling high levels of home ownership, which has fuelled increased consumer expectations (in terms of both product performance and service levels). The media has had a large role in influencing consumer expectation, but manufacturers and retailers have also responded.

Consumers now demand choice in all facets of life and the industry has had to respond accordingly. This applies to both individuals and Government alike.

Clients and markets influence skills by their demands for better delivery, performance and value for money. Their intolerance of late delivery, over spending and defects is driving change. At Government level and amongst commercial clients this is leading to different forms of contract, and contractors needing to generate more accurate plans and adopt more predictable construction techniques; each of which requires new and higher level skills.

## 2.3 Current Performance - What is Driving Change?

### 2.3.1 Productivity and Industry Performance

Productivity improvement remains a central tenet in the overall ambition to up-skill the construction workforce, although efforts to improve performance have also focussed on changing the structure and *modus operandi* of the industry.

Gross Value Added<sup>63</sup> (GVA) represents the amount that individual businesses, industries or sectors contribute to the economy. Broadly, this is measured by the income generated by the business, industry or sector less their immediate consumption of goods and services used up to produce their output.

The ABI<sup>64</sup> is the ONS integrated survey of employment and financial information. This inquiry samples UK businesses, and other related establishments, according to their employment size and industry sector. This ABI dataset allows comparison of the contribution made by industry sector to the overall UK economy. The most recent dataset available at the time of writing is 2008.

**Table 5 - Sector Comparison of Gross Value Added, UK: 2008**

Industry	Total Employment - average during the year (000's)	Turnover (£m)	Approx GVA (£m)	GVA/head (£000's)
Construction	1,638	241,526	98,529	60.2
Agriculture, forestry and fishing	47	4,841	1,843	39.2
Mining and quarrying	63	63,545	36,279	575.9
Manufacturing	2,795	502,703	150,032	53.7
Electricity and gas supply	121	85,899	22,993	190.0
Water supply	141	29,184	15,281	108.4
Transport and storage	1,275	138,284	59,952	47.0
All Sectors	25,825	3,096,450	915,267	35.4

Source: Office for National Statistics, Annual Business Inquiry, 2010

Note: Analysis uses SIC 2007. Construction is defined by ConstructionSkills' footprint. This includes Architectural and engineering activities, but excludes SIC 74.90/1 Environmental consulting activities and SIC 74.90/2 Quantity surveying activities, which are not available for analysis at the 5 digit level.

Table 5 shows the construction sector accounts for a considerable proportion of UK turnover and GVA, amounting to 7.8% and 10.8% respectively. The GVA/head figure for construction of £60,200 is in line with the manufacturing sector £57,300. Construction remains a relatively labour intensive sector and this explains why the GVA/head figure is lower than other less labour intensive sectors such as mining and quarrying.

To the extent that such comparisons between industries on purely economic terms are valid, the available data suggests that construction is in the upper quartile in GVA/head terms for similar and related industries.

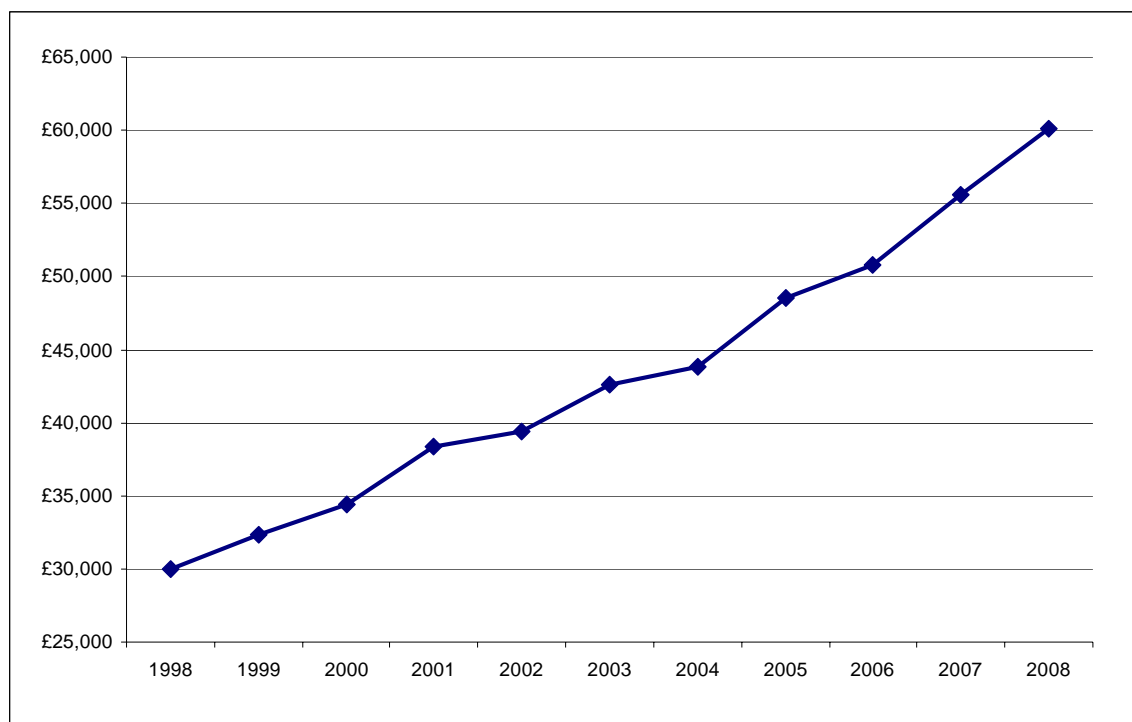
Using historic data from the ABI we can examine the trend in construction GVA/head. Over the period 1998 to 2008 there has been a continual upward trend in GVA/head, in 2008 the level is double that of 1998. This, however, may have less to do with operational improvement and more to do with the incompleteness of the statistics in

<sup>63</sup> GVA is the difference between total output and intermediate consumption for any given sector or industry. That is the difference between the value of goods and services produced and the cost of raw materials and other inputs that are used up in production. GVA = total output – intermediate consumption (cost of raw materials and other inputs used up in production). Office National Statistics, 2010

<sup>64</sup> Office for National Statistics, Annual Business Inquiry, 2010

respect of industry coverage, increased demand and inflated land prices that have predominated over the period.

**Chart 12 – Construction Gross Value Added Per Employee, United Kingdom: 1998-2008**



Source: Office for National Statistics, Annual Business Inquiry, 2010; ConstructionSkills

Note: Analysis uses SIC 2007. Construction is defined by ConstructionSkills' footprint. This includes Architectural and engineering activities, but excludes SIC 74.90/1 Environmental consulting activities and SIC 74.90/2 Quantity surveying activities, which are not available for analysis at the 5 digit level.

Indeed, there is general agreement that productivity in the sector lags behind other areas of the economy and compares poorly with other countries, particularly the United States.

### **2.3.2 International Comparisons of Productivity**

There is no one authoritative dataset that allows full international comparison of productivity measures for the construction sector. Eurostat, the statistical office of the European Union, collects a range of statistical measures but is limited to Europe only. To compare productivity of construction against USA we must rely on specific research studies in this area. We have used the most recent datasets and reports available at the time of writing to provide benchmark comparisons.

#### **European Comparison Productivity**

Table 6, which contains data from Eurostat, shows comparison of key metrics for construction across European nations for 2006 (being the most recent available dataset).



**Table 6 – European Construction sector comparison of Key Measures: 2006**

Nation	Number of construction industry Employees	Number of construction industry Enterprises	Average number of Employees per construction industry Enterprise	Proportion of Self-Employed in Total construction industry Employment	Construction industry Wages and Salaries per Employee 000's Euro	Construction industry Gross Value Added per Head Employed 000's Euro	Construction industry Investment per Head Employed 000's Euro
United Kingdom	1,220,265	229,220	5.3	36%	30.1	70.1	5.1
Austria	233,507	25,646	9.1	9%	27.5	48.4	3.1
Belgium	197,130	62,935	3.1	22%	18.8	42.2	12
Bulgaria	175,004	14,638	12	8%	1.8	5.7	4.1
Cyprus	30,847	6,203	5	26%	18.9	35	2.3
Czech Republic	262,413	145,836	1.8	36%	5.1	13.5	1.8
Denmark	181,581	33,732	5.4	18%	32.3	48.3	6
Estonia	49,320	4,803	10.3	0%	7.3	16.3	2.5
Finland	122,947	36,863	3.3	24%	27.2	51.5	5.6
France	1,471,855	410,782	3.6	20%	21.8	42.1	3.2
Germany	1,318,689	202,535	6.5	18%	22.3	37	2.2
Greece	193,067	109,031	1.8	30%	8.1	20.6	2.4
Hungary	197,937	69,290	2.9	21%	4.5	9.8	1.9
Ireland	71,420	1,291	55.3	24%	42.3	127.2	n/a
Italy	1,127,103	594,675	1.9	36%	11.8	34.3	5.5
Latvia	72,901	4,905	14.9	6%	4.2	13.4	3.8
Lithuania	110,918	17,585	6.3	10%	4.7	10.1	2.2
Luxembourg	34,705	2,175	16	4%	29.7	45.3	1.8
Malta	n/a	n/a	n/a	22%	n/a	n/a	n/a
Netherlands	375,762	81,690	4.6	19%	28	49.7	n/a
Norway	137,151	39,698	3.5	17%	38.5	63.3	5.8
Poland	496,042	169,665	2.9	20%	4.7	13.3	1.6
Portugal	466,873	122,070	3.8	22%	8.8	17.4	2.7
Romania	421,579	36,115	11.7	21%	2.9	6.5	4.8
Slovakia	71,688	4,900	14.6	32%	6	13.7	3.3
Slovenia	60,555	15,753	3.8	18%	10.8	19.8	5.1
Spain	2,384,513	427,269	5.6	19%	17.6	33.7	3.8
Sweden	224,721	68,856	3.3	21%	23.9	45.6	5.7
Average	433,722	108,821	8.1	20%	17.0	34.6	3.9

Source: Eurostat, 2010

Although it should be remembered that the dataset is from 2006, the figures nonetheless provide rich comparative information for the construction sector across Europe. It is interesting that in terms of the number of employees in the construction industry, the UK sits between Italy and Germany with approximately 1.2 million employees compared to 1.1 and 1.3 million respectively. The number of employees in construction UK figure is almost 3 times the average for European nations. This is perhaps expected due to the large number of small European nations. However, it is more surprising that the level is higher than Italy, one explanation is that on average construction may be more intensive in the UK than some other European nations.

The number of construction enterprises follows a similar pattern, with the UK at approximately 229,000, more than double the average for Europe. The figure for UK is higher than Germany which has a comparable number at 203,000. In terms of the average number of employees per enterprise, the UK has on average 5.3 employees per enterprise, slightly lower in comparison to the European average of 8.1 and slightly lower

than the German average of 6.5. This is likely to reflect the high level of self-employment in UK, along with high level of sub-contracting.

In terms of the proportion of self-employment the UK has the highest equal proportion at 36%, equal to Czech Republic and Italy. According to the dataset the average wage in UK is higher at 30,100 Euro compared to average wage for Europe of 17,000 Euro. It is interesting that wages for UK appear lower than Ireland, a possible explanation is due to relatively poor exchange rate for UK pound to Euro.

In terms of productivity measures, GVA/head employed for the UK construction sector is 70,100 Euro per head, double that of the European average of 34,600 Euro per head. This UK value is considerably higher than the figure for Germany of 37,000 Euro per head and France 42,000 Euro per head. It's difficult to give a precise explanation of why the UK figure is so high as it is likely to be explained by a combination of factors such as higher cost of labour, differences in type of work undertaken, the amount and quality of education and training received by construction workers and the quality of management in enterprises and construction projects.

Investment per head employed in the construction industry is associated with how labour intensive the industry is in different countries. Other things being equal, we would expect investment per head employed to be lower where labour is cheap and plentiful than where labour is expensive. If wages are low, increasing output by employing more people is likely to be more attractive than increasing output by investing in plant, machinery and more sophisticated production techniques, so per capita wages, investment and productivity are all likely to be low. Where wage levels are high we would expect the opposite to be the case. In the UK construction industry investment per head employed is higher than average at 5,100 Euro per head compared to European average of 3,900 Euro per head. The UK value is slightly higher than that of France with values of 3,200 Euro per head and much higher than Germany with 2,200 Euro per head. It's likely that the high UK value may be explained by the above average labour cost in UK. These figures suggest, as might be expected, that to improve output in the UK it is more cost effective to invest in plant machinery and more advanced production techniques.

This Eurostat data shows that overall the UK construction industry performs well in comparison to Europe. In terms of key measures such as GVA per head employed, the UK industry has the second highest figure at 70,100 Euro per head employed. Further, for investment per head employed the UK figure of 5,100 Euro per head is above the European average and that of France and Germany. We don't however know the effect of factors such as exchange rates and as such it is difficult to make a judgement using this dataset alone where exactly the UK lies on a productivity spectrum. To do this we need to use findings from specialist productivity research studies.

### **2.3.3 Other Productivity Research Studies**

As discussed Eurostat data does not allow direct comparison to other non-European nations such as USA. The USA is often regarded as an early adopter in terms of technology and mechanisation. In order to provide comparison we use some analysis published by National Institute of Economic and Social Research (NIESR)<sup>65</sup>. Although this study was published in 2008 and the most recent datasets analysed were 2004 datasets, we can draw useful insight from the report.

This analysis demonstrates that the UK construction sector, in productivity terms, is comparable with France and Germany, but as with these other countries it lags somewhat behind the performance of the United States (US).

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<sup>65</sup> Mason, G., O'Leary, B., O'Mahoney, M. and Robinson, K., National Institute of Economic and Social Research published by Department for Business Enterprise & Regulatory Reform, Cross-Country Productivity Performance at Sector Level: the UK Compared with the US, France and Germany, February 2008

**Table 7 - Relative levels of construction productivity, 1995, 1998, 2001 and 2004**

Levels (UK = 100)	Average Labour Productivity (1)			Total Factor Productivity		
	US	France	Germany	US	France	Germany
<b>Total Economy, 1995</b>	131	127	118	111	107	88
<b>Construction, 1995</b>	157	110	99	139	85	69
<b>Total Economy, 1998</b>	131	125	114	114	106	84
<b>Construction, 1998</b>	142	92	90	121	73	63
<b>Total Economy, 2001</b>	133	123	112	117	107	87
<b>Construction, 2001</b>	135	99	94	118	79	68
<b>Total Economy, 2004</b>	136	120	107	116	104	83
<b>Construction, 2004</b>	124	92	91	114	80	71

Source: National Institute of Economic and Social Research

Notes: (1) Output per hour worked

In 2004 for Average Labour Productivity (ALP) the US outperforms the UK construction sector by 24%, with the UK outperforming but closer (within 9%) to the performance of France and Germany. For Total Factor Productivity (TFP) the picture is similar in terms of the United States outperforming the UK Construction sector by 14% but France and Germany both lag somewhat behind the UK sector by 20% and 29% respectively.

Taking a broader view of the data from 1995 to 2004 it is interesting that the relative performance of each country for the total economy is similar (within 11%) from 1995 to 2004 across both ALP and TFP measures. Looking specifically at the construction sector from 1995 to 2004 the trend is for the gap in performance between US and UK for both ALP and TFP measures is to decrease (57% to 24% for ALP and 39% to 14% for TFP respectively). Other than a slight anomaly for France ALP measure in 1995, the relative performance of France and Germany against the UK again remains similar (within 8%) from 1995 to 2004.

Reasoning to explain the differences in measures is complex, to explain a relative lead in the US compared to the UK for ALP in construction Mason et al (2008) point to factors such as a higher physical capital-intensity and higher TFP (which additionally captures the efficiency with which production inputs are utilised) in the US. They go on to suggest that the gap is narrowed slightly by higher skills in the UK, in particular, higher levels of craft skills training.

Another study<sup>66</sup>, commissioned by Government explored engineering construction labour productivity in the UK for engineering construction projects authorised between 1998 and 2008 compared to similar projects constructed in Western Europe and US Gulf Coast (USGC). It's important to note that these projects require extensive engineering input and are usually heavy consumers of high skill crafts such as pipefitters and electricians.

The study found that the UK suffers an engineering construction labour productivity shortfall relative to both the USGC and Western Europe taken as a whole, although UK productivity is better than that found in some western European countries. The magnitude of the disadvantage is 11 percent versus the USGC and about 6 percent, versus Western Europe. It's interesting that when the study was completed using then current exchange rates, the UK suffered no cost disadvantage versus either of the two regions.

<sup>66</sup> Independent Project Analysis (IPA) published by Department for Business Innovation & Skills, Productivity in the UK Engineering Construction Industry, September 2009

The study identified 3 factors around project planning that are the biggest drivers of the UK's engineering construction labour productivity shortfall:

- UK project execution plans were not in accordance with best practice; specifically they were not detailed enough.
- The projects are intentionally overlapping engineering with construction far more than projects elsewhere. Engineering is then slipping substantially and resulting in insufficiently completed design to sustain field activities.
- UK project controls were not in accordance with best practice; specifically estimates are not routinely validated by owners, the basis for control was inadequate, and comprehensive physical progress measurement was not routinely undertaken.

The implication of these findings are that productivity may not be the right focus for the UK construction sector; as according to the majority of these datasets the UK appears to be performing better than France and Germany lagging only against the US. As the sometimes conflicting evidence shows, there are also considerable challenges over which data sources and particular measures provide the most appropriate measures of productivity. It may be that other indicators of operational performance around quality, predictability and cost may be more appropriate.

The consensus is that the greatest “drain” on productivity in construction relates to poor planning, which prevents the efficient use of the workforce and creates re-work due to preventable errors. There has been over the last decade a major drive to fix the problems by changing the way the industry operates. This has had, and will have, implications for the managers in larger companies who have to adapt their skills set to deal with greater risk, wider involvement in the whole construction cycle and a partnering culture.

### **2.3.4 Key Performance Indicators**

Constructing Excellence in the Built Environment (CEBE) in partnership with the Department for Business, Innovation and Skills (BIS) collect information on the operational performance of the sector against a number of key performance indicators (KPI) <sup>67</sup>. This data, collected via surveys of thousands of construction firms, their clients and employees together with the collation of official statistics and analysis of published accounts is the most comprehensive study of performance of the sector. It is based on real data about real projects collected specifically for the purpose of setting industry benchmarks and improving performance.

The work by CE on the KPI programme is the most practical and available data source to begin any investigation linking skills with productivity.

Whilst the KPIs do not include GVA per employee as a productivity measure and are only based on a sample of the industry, links between the KPIs and productivity can be implied. It is likely that good performance in each KPI would be easier with a highly productive workforce; or that an unproductive workforce could not improve its performance against all of the industry KPIs.

At an operational level competitiveness is measured against a range of factors, which show an industry that is improving.

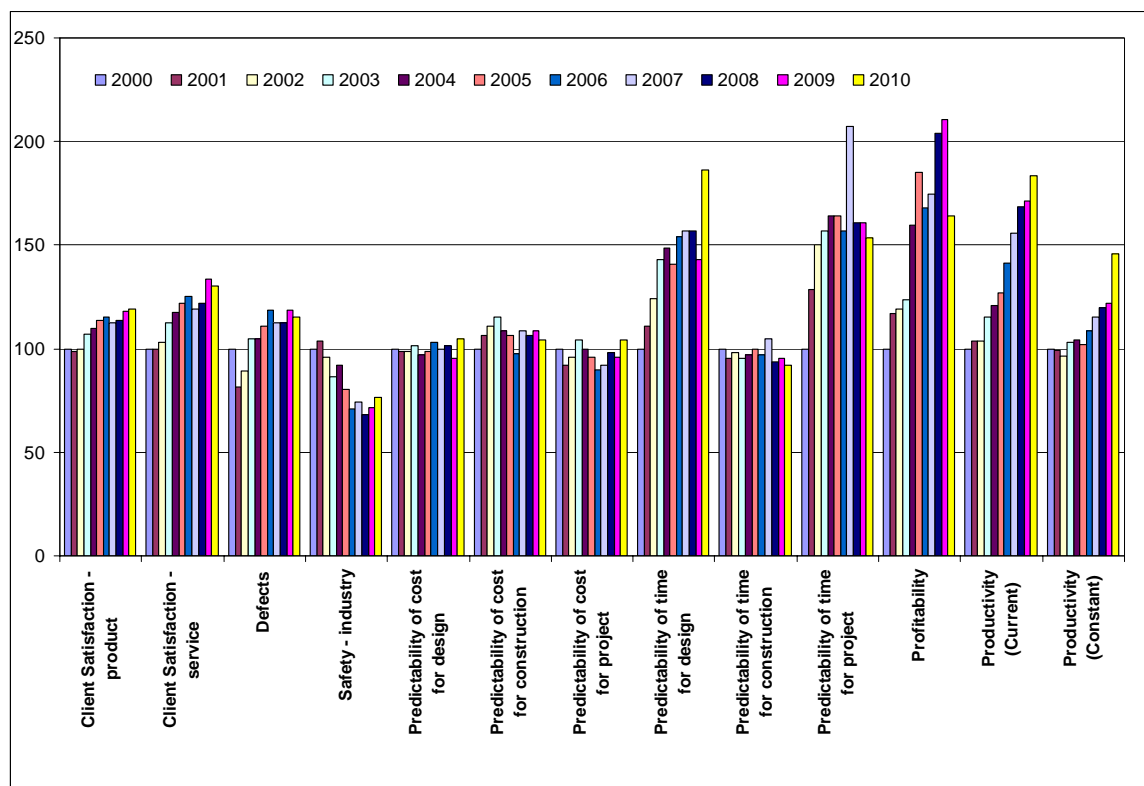
They show a general increase in performance across the industry, most notably that:

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<sup>67</sup>Constructing Excellence in the Built Environment, KPI Programme, 2010

- In the quality indicators (client satisfaction and defects) despite a slight dip in 2010 there is an overall upward trend in performance.
- In predictability indicators (the difference between planned and actual time and cost) there is long-term improvement, although the predictability of cost for construction, time for construction and time for project have decreased marginally in 2010.
- In efficiency indicators (profit and crude productivity) there is a significant upward trend in performance.
- In safety indicators there was a strong downward (improving) trend in the number of accident incident rates from 2000 to 2006, although the dataset shows this measure has stabilised from 2006 fluctuating from 68 to 76.

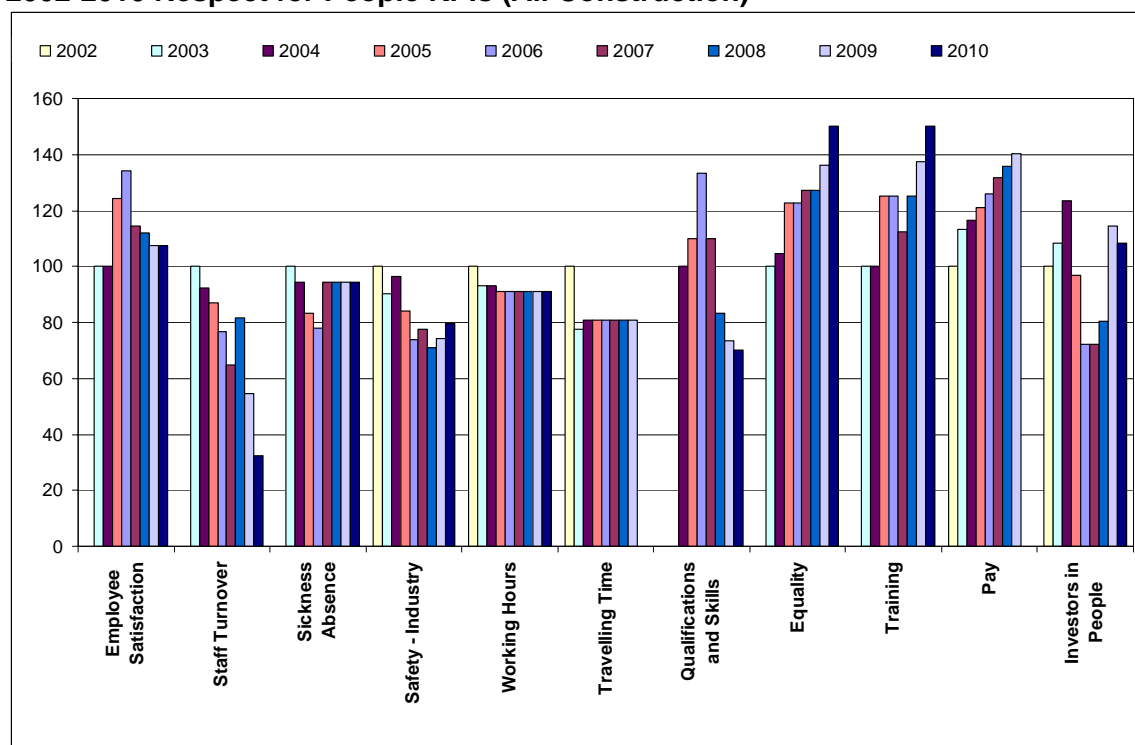
**Chart 13 - Index of Industry Performance, CEBE KPI Programme, Great Britain: 2000-2010 Economic KPIs (All Construction)**



Source: Constructing Excellence in the Built Environment; Department for Business, Innovation and Skills  
 Notes: Trend information with 2000=100

In addition to the economic KPIs CEBE collect data on the workforce known as the Respect for People KPIs. This dataset is presented in Chart 14.

**Chart 14 - Index of Industry Performance, CEBE KPI Programme, Great Britain: 2002-2010 Respect for People KPIs (All Construction)**



Source: Constructing Excellence in the Built Environment; Department for Business, Innovation and Skills  
Notes: Trend information with 2002=100

Overall the indicators suggest that conditions in the industry are improving, although some indicators including working hours have not moved significantly over the period, the most notable shifts are:

- In sickness / absence, working hours and travel time the measures have not moved significantly over the period.
- In employee satisfaction, staff turnover and industry safety there has been an overall downward (improvement) trend.
- In qualification and skills, equality, training, pay and investors in people the overall trend over the period is one of improvement.

However, while the industry shows improvement over time in most key performance indicators, in absolute terms it demonstrates significant under-performance compared with other sectors. Whilst performance has not become any worse, slowing improvement is inadequate in the context of industry ambition and the need to meet client expectations (including those of Government).

### 2.3.5 Sustainability

Sustainable construction meaning<sup>68</sup> “the creation of buildings and infrastructure to shape communities in a way that sustains the environment, generates wealth over the long-term and enhances the quality of life for people”, is a unique issue for industry as it brings together under one banner the whole spectrum of social, economic and political drivers.

The United Kingdom’s commitment to reduce carbon and other greenhouse gas emissions is now a matter of legal obligation. Paul Morrell was appointed Chief Construction Adviser in December 2009. One of his initial priorities is to lead the

<sup>68</sup> CITB-ConstructionSkills, Build to Last: Reviewing Sustainable Construction, 2004

Construction Innovation and Growth Team (IGT) which published in March 2010 its Emerging Findings<sup>69</sup> report. This is part of the challenge to bring the industry together to identify how best to deliver the 2022 carbon reduction commitments, to meet the broader challenges of the low carbon future, and to capture the many new opportunities it will bring.

In the report the IGT team makes a preliminary estimate of the carbon footprint (measured in CO<sub>2</sub> equivalence) that construction can influence. They suggest the total footprint figure represents 48% of the UK total CO<sub>2</sub>e emissions in 2007. Table 8 presents a breakdown of the estimate of the carbon footprint of UK construction in 2007:

**Table 8 - Breakdown of estimate of Carbon Footprint UK Construction, 2007**

Sub-Sector	Greenhouse Gas Emissions Mt CO <sub>2</sub> e	Proportion of total, Carbon Footprint
Design	<0.1	<1%
Manufacture	39.8	13%
Distribution	6.1	2%
Operations on-site	4.5	1%
In Use	255.9	84%
Carbon Footprint total	306.3	100%

Note: the figure for 'in-use' includes emissions from unregulated energy use in homes and process emissions in industry, in other words it represents emissions from people's activity in buildings.

The IGT report notes that the construction industry has engaged positively with the issue of sustainability since the word first came into common use and stands ready to play its part in responding to the more focussed challenge of carbon reduction. In the words of James Wates, Chairman of ConstructionSkills and UK Contractors Group (UKGC):

*“We live in uncertain times but there are two things we can take as a given – the continuing impact of climate change and the fact that we are running out of resources.*

*We all have a responsibility to do something about this. The construction industry is already designing and building low carbon buildings. This provides tremendous business opportunities and creates new skills. We are up for the challenge.”*

The policy drive of Government for sustainable development (enforced by legislation) is taking hold in the minds of the consumer, requirements of clients and the practices of the vast majority of the larger industry players.

According to recently conducted ConstructionSkills Employer Panel research<sup>70</sup> 68% of employers questioned described themselves as very (27%) or quite (41%) aware of the implications of the Low Carbon Agenda. The proportion of those very aware was higher (38%) among Professional services firms. Just under half of those questioned (47%) believe that low carbon issues are important to the success of the business. This number is, however, balanced by a similar proportion (48%) who thought is unimportant. As might be expected the figure thinking low carbon issues are important to the success of the business was higher among Professional services (56%) than construction firms (44%). Just under 1 in 10 (9%) of employers questioned had a formal strategy or plan for reducing carbon emissions – this figure was higher among medium firms (37%) and higher still among large firms (56%).

<sup>69</sup> HM Government Low Carbon Construction Innovation and Growth Team, Emerging Findings, March 2010

<sup>70</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews.

Overall 42% of employers questioned without prompting said they had taken steps to reduce the carbon footprint in the last 3 years, again higher among Professional services (51%) than construction firms (39%). When prompted with a list of steps that might have been taken, 84% of employers had taken some steps. Most notable were new ways of working to reduce landfill (58%), action to ensure compliance with low carbon legislation (43%), reduced energy use (41%), training staff in low carbon skills (39%), introduced or promoted low carbon products or services (34%), introduced low carbon products and technologies (29%) or changed supplier to lower carbon footprint (13%). Almost half (48%) of all employers felt their carbon emissions were lower now than 3 years ago.

To increase employment opportunities, while at the same time increasing productivity, there is a need for micro-businesses, which constitute the vast majority in the construction sector, to be able to take advantage of the growing market around Government's 'green' policy and investment.

Although the recent CSR<sup>71</sup> has resulted in overall cuts in spending, the Department of Energy and Climate Change (DECC) will see an increase in its overall budget to £3.7 billion in 2014-15, up from £2.9 billion in 2010-11.

Included in this settlement is up to £1 billion of investment to create one of the world's first commercial scale carbon capture and storage (CCS) demonstration plants. This funding is provided from general public spending and so does not require the introduction of a levy on electricity supplies for CCS. The Government will decide whether to introduce such a levy or to fund future demonstrations from general public spending once work has been completed in Spring 2011, on the reform of the climate change levy to provide support to the carbon price. The Government plans to publish this consultation in November.

Over £200 million will be invested in manufacturing facilities at port sites and technology innovation to support the development of offshore wind power and energy efficiency technology for buildings. There will be support for low carbon vehicles through an incentive scheme offering up to £5,000 towards the cost of a new ultra low emission vehicle from January 2011, and support for electric car charging infrastructure;

This spending will be matched by reforms to increase the efficiency and effectiveness of public interventions. The Renewable Heat Incentive, funded from Annual Managed Expenditure, will be introduced from 2011-12. This will ensure the UK meets its 2020 renewable energy targets while making efficiency savings of 20 per cent, or £105 million a year, by 2014-15 compared with the previous government's plans.

The efficiency of Feed-In Tariffs will be improved at the next formal review, rebalancing them in favour of more cost effective carbon abatement technologies. This will save £40 million in 2014-15. Support for lower value innovation and technology projects will also be reduced, saving £70 million a year on average over the Spending Review period.

Households will be able to improve the energy efficiency of their house with no upfront costs, repaying through the savings they make on their energy bills, through a Green Deal. Extra support to reduce energy bills and help improve heating and insulation will be provided by energy companies to combat fuel poverty. This will allow the Warm Front public spending programme to be phased out over time, saving £345 million by 2013-14.

The Carbon Reduction Commitment Energy Efficiency scheme will be simplified to reduce the burden on businesses, with the first allowance sales for 2011-12 emissions now taking place in 2012 rather than 2011. Revenues from allowance sales totalling £1 billion a year by 2014-15 will be used to support the public finances, including spending on the environment, rather than recycled to participants.

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<sup>71</sup> HM Treasury, Spending Review, October 2010



The CSR also gives details of the Coalition Government's commitment to establish a UK-wide Green Investment Bank. The Government will initially capitalise a new institution with £1 billion of funding together with additional proceeds from the sale of Government owned assets, subject to a final design which meets the tests of effectiveness, affordability and transparency. £250 million of the funding will be made available on the basis that the Scottish Executive agrees to the drawdown of funds from the Scottish Fossil Fuel Levy surplus. The institution will be able to reinvest the proceeds from its investments.

It's hoped that the new bank will catalyse further private sector investment, aiming to facilitate the entrance of new types of investor into green infrastructure so that the impact on the finance gap for low carbon investment is many times the scale of the public contribution. It will make its investment decisions independent from political control and will employ private sector skills and expertise. The Government aims to complete design and testing work by Spring 2011.

When fully embraced sustainable construction will not only impact on the way the industry builds and what it builds, but it could have a high impact on the skills of the industry. The skills factors depend upon the extent to which the industry acts. For some companies sustainability will demand new skills to design and build thus affecting professional and trade skills. For many the skills change will be around understanding and acting within legislation.

In order to maximise opportunities the construction industry will need to develop not only its technical capability but its ability to interface with other sectors, for example energy producers, and their supply chains. This could mean a significant shift in the skills and competence of the existing industry as part of a major process of innovation.

Application of the range of 'green' technologies will require the industry to advise on and install appropriate solutions across a range of markets. Failure of these product innovations, due to them being installed in inappropriate situations or a lack of expertise, could result in a downturn across the whole sector, as happened in the UK in the 1970s with timber frame housing.

New jobs created in environmental markets will not all require totally new skills, but will often be an addition to existing workers skill-sets. As this market develops it is likely that a significant number of the existing workforce will move into specialist environmental niches. This transfer would 'free up' jobs in the traditional sector and help to create wider opportunities for new entrants to the sector.

#### **Summary Box**

- Preliminary data released from the ONS provides signs of economic recovery in the construction sector. According to the data there was 4.0% growth in construction output in Q3 2010 which followed growth of 9.5% in Q2 2010 (the latter figure partly due to extreme bad weather causing delays to projects in Q1 2010).
- This data does not tally with ConstructionSkills' October 2010 Employer Panel research and various state of trade surveys which indicate the industry is still suffering a torrid time.
- The CSR published in October 2010, indicates cuts that will affect the construction sector, although significant, are not as severe as some expected. Transport schemes and BSF fared better than expected with £30 billion of

funding over the review period for transport schemes and £15.8 billion of capital funding for BSF and Academies programme. Social housing funding was cut back severely and there are further concerns over how private sector housing growth will be stimulated.

- In the light of budget funding cuts some councils are looking at outsourcing large portions of their work, this may lead to some construction firms diversifying to pick up the work.
- The latest forecast figures from the CSN suggest further employment falls in 2010, 2011 and 2012, although they are not forecast to be as severe as those experienced in 2009, before positive growth from 2013.
- Recruitment difficulties have all but disappeared in the short-term, with only a minority of contractors reporting difficulties in obtaining site labour.
- The loss of workers during the recession may lead to skills gaps and shortages that may hinder the recovery, impacting the industry's ability to deal with opportunities in the upturn.
- There is a need for increased diversity within the workforce to exploit skills from a wider pool of talent.
- CSR has prioritised funding for energy and climate change, the Department of Energy and Climate Change will see an increase in its overall budget to £3.7 billion in 2014-15, up from £2.9 billion in 2010-11. This increased funding will provide opportunity for construction firms.
- The need to meet new legislative requirements, particularly in respect of low carbon and carbon targets will impact on skills at professional, management and trade level.
- Technological change is a key driver as the sector looks to achieve ambitious programmes with a smaller workforce.

### 3. What Have Been the Recent Trends in the Supply of Skills?

#### 3.1 What Has Been the Level and Type of Skills Entering the Labour Market?

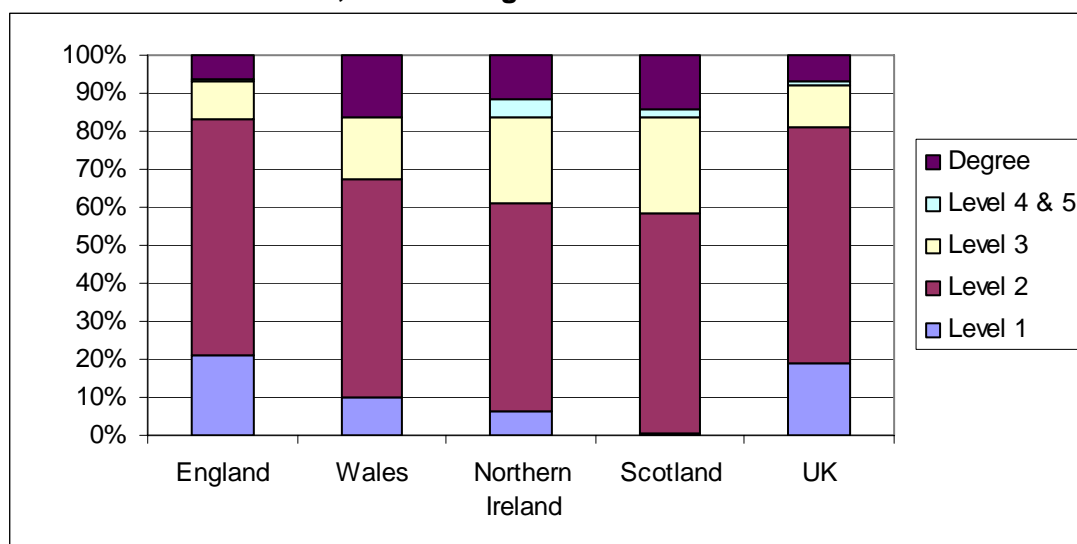
The following section sets out the recent trends in the level and type of skills by focusing on three key areas of supply relevant to the construction industry, namely education and training, skill levels (using qualifications as a proxy), and flows into the industry.

##### 3.1.1 The Contribution of Training and Education

To provide a robust view on the number of people available to enter the construction industry through accredited<sup>72</sup> training and education, ConstructionSkills has been undertaking a longitudinal project<sup>73</sup> to obtain training supply data across the UK from both further and higher education.

The latest available data providing the complete UK training picture shows 145,000 construction qualification achievements in 2008/09. Chart 15 shows the share of training by level of qualification across each nation and the overall UK total.

**Chart 15 – Achievers of Qualifications within Construction Industry by Level of Qualification and Nation, United Kingdom: 2008/09**



Source: ConstructionSkills Training Supply Project, 2010

Across the UK there are considerable volumes of attainment at Level 2 (62%). The remaining qualification levels each have a higher share of training in a separate nation, as highlighted below:-

- Level 1            England 21%            (UK average 19%)
- Level 3            Scotland 25%            (UK average 11%)
- Level 4 & 5       Northern Ireland 4%    (UK average 1%)
- First Degree       Wales 16%                (UK average 7%)

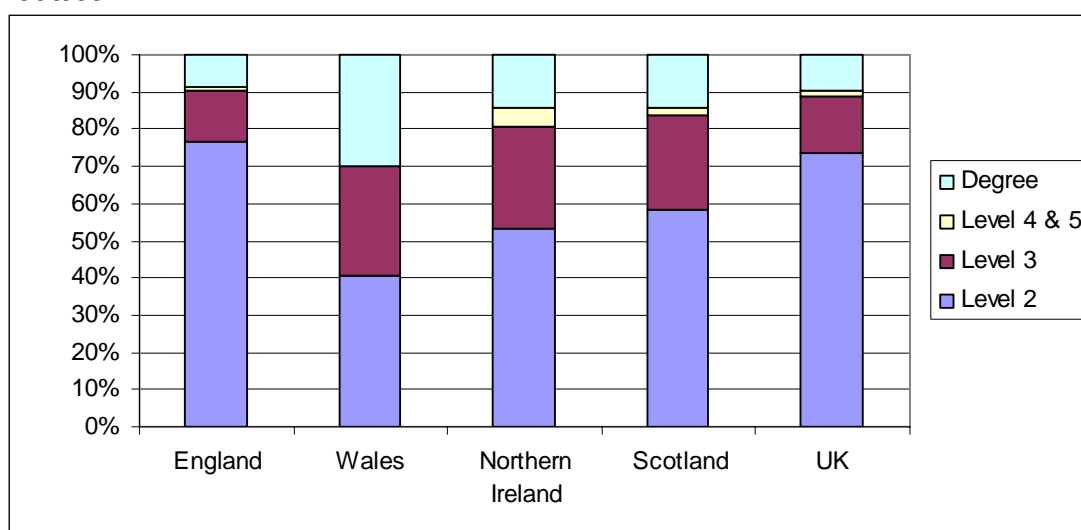
This analysis of training data contains all qualification achievements collected by public funding agencies, and as such Levels 1 to 3 will contain both Scottish/National Vocational Qualifications (S/NVQs) and Vocationally Related Qualifications (VRQs). The main difference between these two types of qualifications is that VRQs are

<sup>72</sup> The term 'accredited' in this context refers to officially recognised UK based qualifications

<sup>73</sup> ConstructionSkills Training Supply Project aims to provide a full picture of UK publicly funded training provision across the ConstructionSkills footprint by obtaining robust and reliable datasets from the appropriate organisations.

essentially delivered through full time further education and therefore they are not perceived by the industry in quite the same way as S/NVQs which are based around practical application of skills in a work based environment. With this in mind the construction industry tends to use a Vocational Qualification (VQ) Level 2 as the competency benchmark (although in Scotland it is considered a Level 3, but for purposes of this UK analysis, the benchmark is set at a Level 2). Therefore the training data needs to be further deflated to show those deemed competent as available to enter the construction industry. Further analysis of this data excluding all Level 1 qualifications and VRQ Level 2 qualifications shows there were 105,000 qualification achievements in 2008/09. Assuming qualifications are a good proxy for people this represents 105,000 individuals available to join the construction workforce at the desired level of competency. Chart 16 illustrates how this breaks down by qualification level and nation.

**Chart 16 – Achievers of Qualifications deemed Competent to enter the Construction Industry by Level of Qualification and Nation, United Kingdom: 2008/09**



Source: ConstructionSkills Training Supply Project, 2010

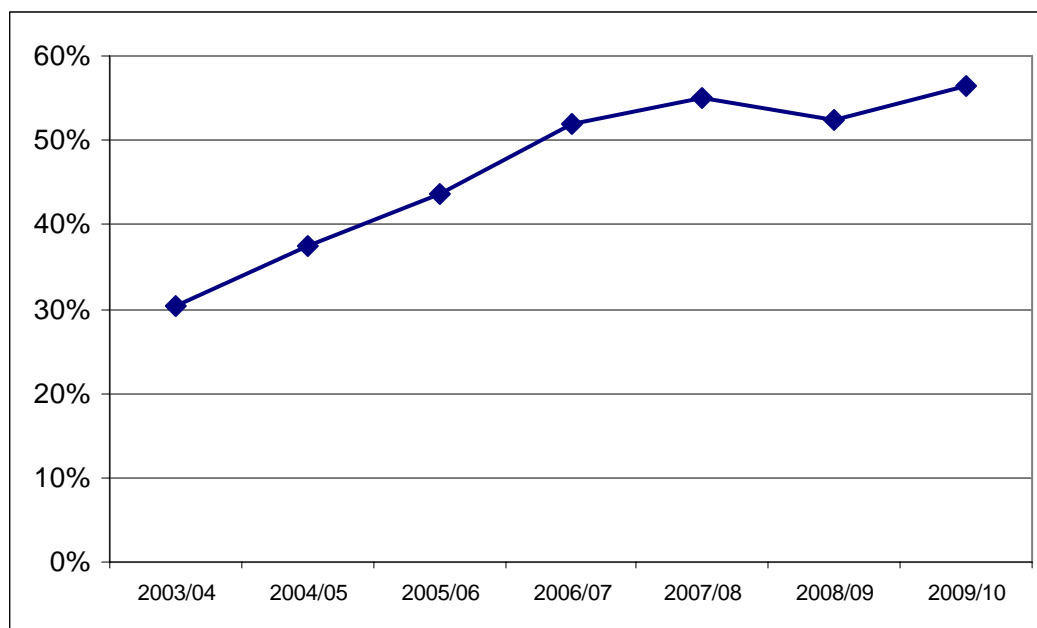
The available competent workforce is a reduction of 40,000 achievers, of which the majority (67%) were on a Level 1 VRQ.

One of the biggest concerns for the construction industry within the training and education arena is the increasing popularity of VRQ qualifications, particularly at Level 1. Although as stated earlier Level 1 qualifications are not deemed to provide the required level of competency, it would appear that funding is being directed towards the take up of these qualifications which may be at the detriment of higher level qualifications.

Analysis of ConstructionSkills Trainee Numbers Survey<sup>74</sup> data highlights the increase in VRQ qualifications within the construction industry over a six year period (2003/04 to 2009/10). Despite a slight dip in 2008/09 on the whole VRQs share of craft training at Levels 1 to 3 has increased year-on-year. Overall the latest Trainee Numbers Survey (2009/10) found that 56% of first-year craft trainees were studying for a VRQ, which are predominately Diploma/Construction Awards.

<sup>74</sup> The Trainee Numbers Survey is an annual survey across Great Britain which measures the number of starters onto construction qualifications each academic year.

**Chart 17 – Starters on a VRQ in Construction, Craft training in England and Wales: 2003/04 to 2009/10**

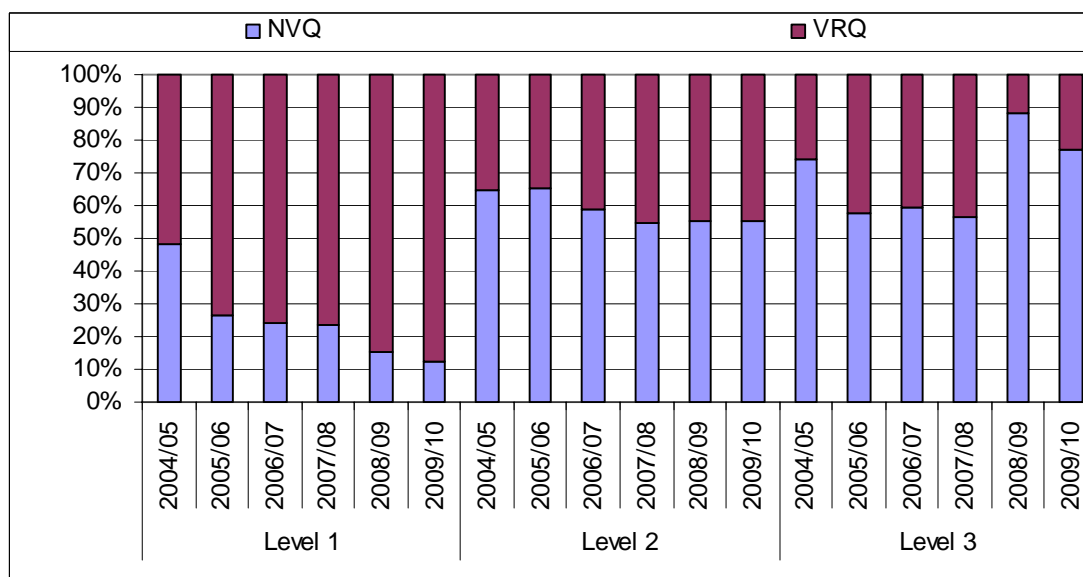


Source: ConstructionSkills Trainee Numbers Survey, 2005-2009

Note: Whilst the Trainee Numbers Survey collects data across Great Britain, the data in Chart 17 refers to England and Wales only as there were no Scottish VRQs in construction at the time of the surveys.

Further investigation showing the breakdown between NVQ and VRQ qualifications for construction craft trainees further highlights the large share at a Level 1. This has increased quite substantially since 2004/05 and now stands at 88% of all starters on a Level 1 qualification. While the share on a Level 2 has remained broadly static, conversely over the past few years the proportion of starters on a Level 3 has been very sporadic.

**Chart 18 – Proportion of First-year Trainees split by Work-based Training, Craft training in England and Wales: 2004/05 to 2009/10**



Source: ConstructionSkills Trainee Numbers Survey, 2005-2009

Note: Whilst the Trainee Numbers Survey collects data across Great Britain, the data in Chart 18 refers to England and Wales only as there were no Scottish VRQs in construction at the time of the surveys.

### 3.1.2 Apprenticeships

While on the one hand the share of VRQ training within further education has been increasing evidence suggests that in contrast Apprenticeships have been declining.

Further analysis of ConstructionSkills' Trainee Numbers Survey<sup>75</sup> shows that over the four year period from 2006/07 to 2009/10, starters on an construction apprenticeship have decreased from 62% of all training at both level 2 and level 3 to just 44%. In other words, currently starters on an Apprenticeship account for less than half of all starters on level 2 and level 3 qualifications within Great Britain.

These findings are perhaps unsurprising given the recent recession and the current fragile recovery as substantiated by findings from ConstructionSkills 2009 survey on Skills and Training<sup>76</sup> within the UK construction industry. When employers that offered Apprenticeships were asked if the recession had had a negative impact on the number of Apprenticeships being taken on more than a third (35%) admitted that the number of Apprentices recruited by their establishment had fallen as a result.

Additionally when employers who did not offer Apprenticeships were asked why this was the case, the main reasons given, mentioned by 16%, was that they did not have enough work to be able to take on Apprentices. This is much more important than in 2008 when only 5% of those who did not offer Apprentices mentioned it as a reason. Similarly financial constraints (10% vs. 4% in 2008), recession / uncertainty (6%, not mentioned in 2008), and not taking on new staff (6% vs. 3% in 2008) were all more likely to be reasons for not taking on Apprentices in 2009.

Clearly though apprenticeships are still a vital route of entry into the construction industry and there exists geographical variations as detailed below, with data from ConstructionSkills longitudinal survey on training supply providing a breakdown of Apprenticeship achievements within England and Scotland<sup>77</sup>.

As a share of all achievements across England, Apprenticeships accounted for 11%, ranging from 5% in London to 17% in the South West. Although they are predominately being undertaken at a Level 2, on average three-quarters compared to a quarter at a Level 3, they make up a larger proportion of Level 3 qualifications, as shown in Chart 19.

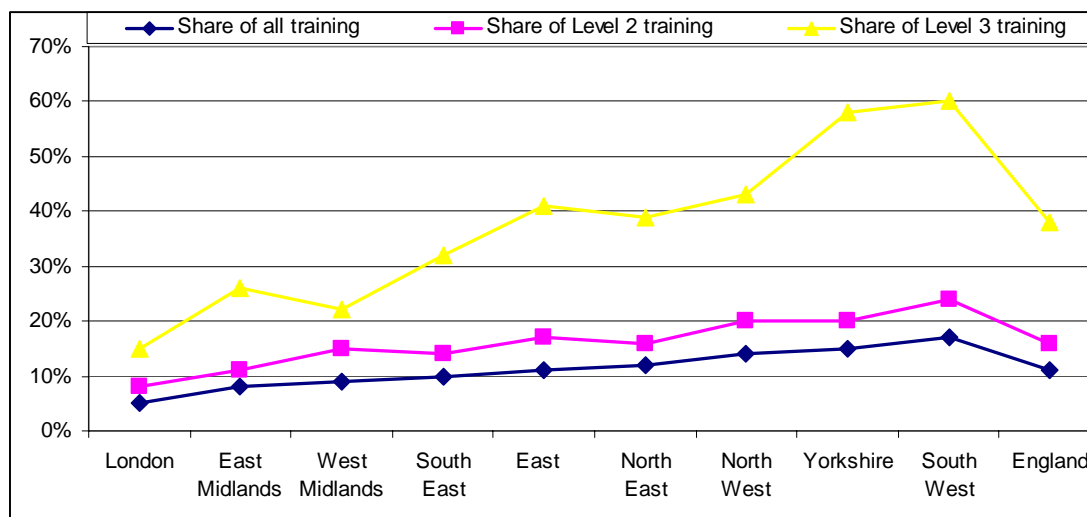
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<sup>75</sup> Ibid.

<sup>76</sup> ConstructionSkills, Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms).

<sup>77</sup> Unfortunately the project is currently not able to provide a breakdown of Apprentices within Northern Ireland and Wales.

**Chart 19 – Apprenticeship Achievements in England: 2008/09**



Source: ConstructionSkills Training Supply Project, 2010

The situation in Scotland is very different with Apprenticeship achievements accounting for just over two-fifths (22%) of all training. Additionally they are all being undertaken at a Level 3, and these account for 85% of all Level 3 achievements. As mentioned previously it should be noted that the benchmark of competency in Scotland is a Level 3.

### 3.1.3 Training by Occupation

The following takes a look at the make-up of training supply by focusing on the occupational breakdown. Unfortunately it is not yet possible to obtain this information from the longitudinal project on training supply, as mentioned at the beginning of this chapter. Therefore data has been taken from ConstructionSkills' Trainee Numbers Survey<sup>78</sup> to provide an indicative picture of training at further education and data has been sourced from the Higher Education Statistics Agency (HESA) to provide data at higher education.

The Trainee Numbers Survey longevity allows data on new entrants onto construction training to be tracked year on year. Table 9 lists the top ten occupations in descending order, in terms of their share of overall training in 2009/10, over a six year period.

<sup>78</sup> The Trainee Numbers Survey is an annual survey across Great Britain which measures the number of starters onto construction qualifications each academic year.

**Table 9 – Starters on Construction Training within Further Education, Great Britain: 2004/5 to 2009/10**

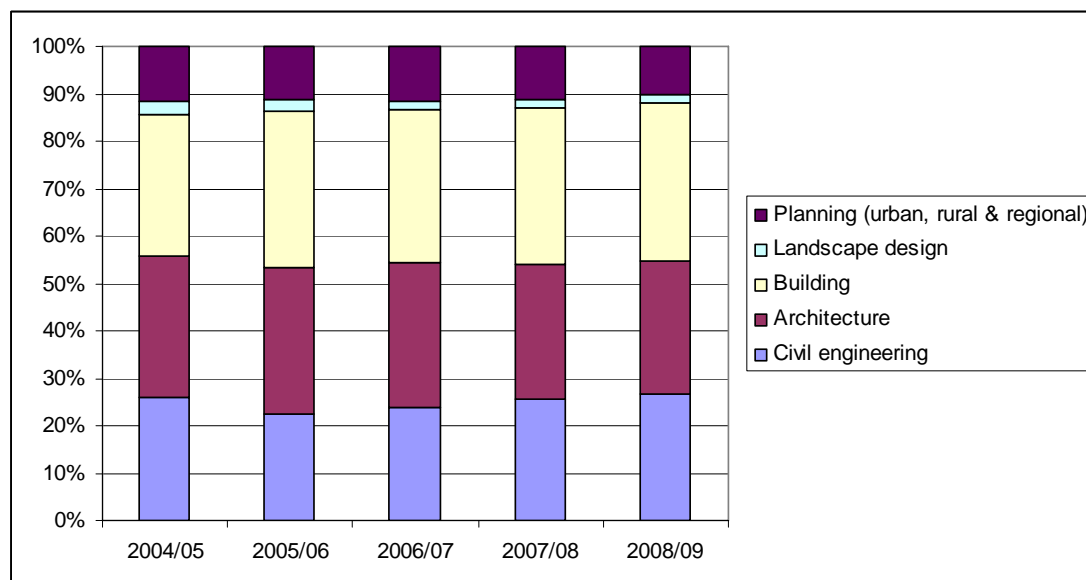
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Wood trades	30%	31%	35%	33%	30%	31%
Bricklayers & Building Envelope Specialists	18%	21%	23%	21%	21%	21%
Construction managers, professionals & technical staff	14%	12%	12%	9%	11%	12%
Plant operatives	11%	10%	7%	11%	12%	11%
Painters and decorators	7%	8%	8%	8%	8%	7%
Plasterers and dry liners	4%	4%	5%	6%	5%	6%
Civil engineering operatives	10%	7%	3%	5%	6%	5%
Specialist building operatives	1%	2%	1%	1%	1%	3%
Scaffolders	1%	2%	2%	3%	2%	1%
Plant mechanics/fitters	0%	0%	1%	1%	1%	1%

Source: ConstructionSkills Trainee Numbers Survey, 2005-2009

Between 2004/05 and 2009/10 wood trades and bricklayers have ranked as the first and second largest occupational groups respectively, each year. The composition of the remaining top five places has consistently comprised construction managers, professionals & technical staff, plant operatives and painters & decorators. Thereby highlighting the dominance of the main building craft trades in construction training.

Enrolments onto first degrees within the built environment over the five year period from 2004/2005 to 2008/2009 show that Building and Architecture courses have been the most popular, each accounting for a third of all student enrolments on average.

**Chart 20 – Student Enrolments on Built Environment First Degree Courses by Subject, United Kingdom: 2004/05 to 2008/09**



Source: Higher Education Statistics Agency (HESA), 2005-2009



### 3.1.4 Skill Levels in the Construction Industry

Table 10 shows the highest qualification level achieved by the construction industry workforce by geographical area compared to all UK industries.

**Table 10 – Construction Industry Workforce Qualifications v All Industries, United Kingdom: 2010**

	Construction Industry					All Industries
	England	Wales	Scotland	Northern Ireland	UK	
<b>S/NVQ level 4 &amp; above</b>	28%	29%	35%	17%	28%	36%
<b>S/NVQ level 3</b>	17%	19%	18%	17%	17%	16%
<b>Trade Apprenticeships</b>	12%	9%	18%	26%	13%	5%
<b>S/NVQ level 2</b>	13%	14%	9%	13%	13%	16%
<b>Below S/NVQ level 2</b>	12%	10%	6%	6%	11%	12%
<b>Other qualifications</b>	10%	9%	7%	4%	9%	8%
<b>No qualifications</b>	8%	11%	7%	17%	8%	7%
	100%	100%	100%	100%	100%	100%

Source: Office for National Statistics, Labour Force Survey, 2010

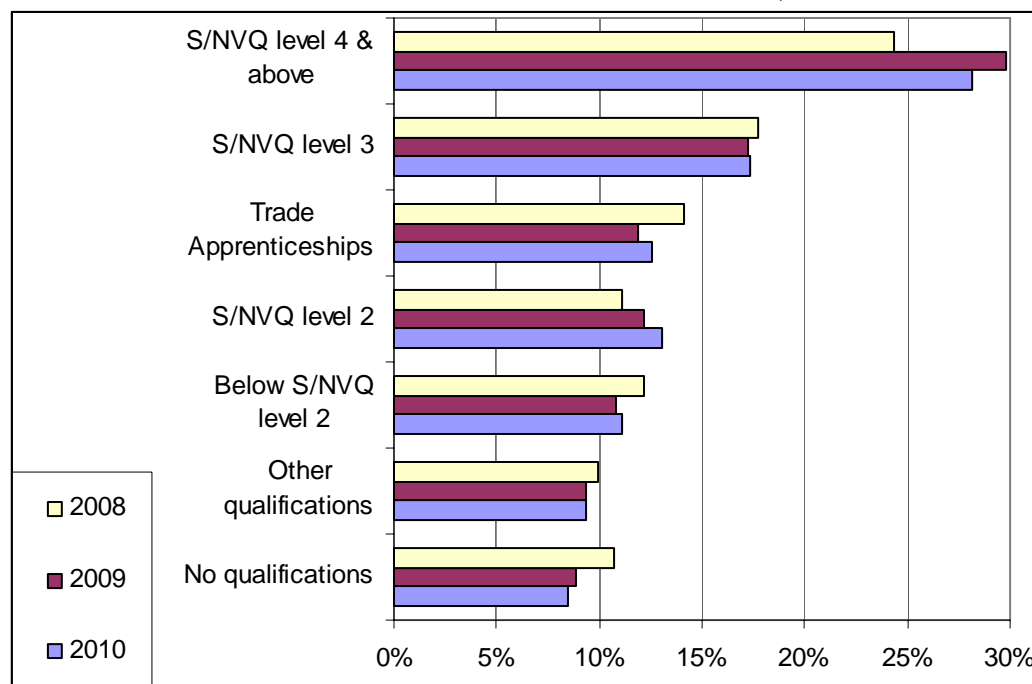
From Table 10 it is evident that, within the UK construction industry:

- Apprentice training is substantially more popular in Northern Ireland than the rest of the UK – accounting for a quarter of all qualifications.
- Scotland has the highest proportion of their workforce qualified to S/NVQ level 4 and above at just over a third.
- Northern Ireland has the largest proportion of workers with no qualifications.

Compared to all industries the construction workforce has a significantly higher proportion trained as an Apprentice, but a smaller share trained to Level 2. However, it is standard practice to equate an Apprentice to a Level 2 qualification, therefore when added together the construction industry has a slightly higher proportion qualified to a level 2 (26% v 20%).

The changes in the skills level of the construction workforce over the past three years is presented in Chart 21.

**Chart 21 – Qualifications of the Construction Workforce, UK: 2008-2010**



Source: Office for National Statistics, Labour Force Survey, 2008-2010

The improvements in the overall skills profile of the industry are encouraging and are progress towards The Leitch Ambition<sup>79</sup>. Leitch recommends that by 2020 - 40% of the workforce should be operating at level 4 and above; 90% should be qualified to at least level 2; shifting the balance of intermediate skills towards level 3.

The main improvements in the skill levels of the construction industry can be seen at both ends of the scale. Over the past three years there has been progress in the attainment of higher level qualifications and subsequently a decrease of those with no qualifications - certainly progress towards a fully qualified workforce. While there appears to be a decrease in trade apprenticeships this is off-set by the increase in S/NVQ Level 2 qualifications; as mentioned earlier. Overall there appears to be a decline in lower level qualifications, which could be attributed to the retirement of less well qualified people in conjunction with improvements in the qualifications held by new entrants.

Analysis across a range of construction occupations is shown in tables 7 and 8 – non-manual occupations and manual occupations respectively.

<sup>79</sup> Leitch Review of Skills, Prosperity for all in the global economy – world class skills, December 2006

**Table 11 – Construction Industry Workforce Qualifications by Non-Manual Occupations, UK: 2010**

	Civil engineers	Architects	Chartered surveyors	Quantity surveyors	All non-manual
<b>S/NVQ Level 4 &amp; above</b>	79%	89%	81%	67%	55%
<b>S/NVQ Level 3</b>	6%	4%	7%	14%	14%
<b>Trade Apprenticeships</b>	1%	1%	3%	1%	5%
<b>S/NVQ Level 2</b>	5%	0%	3%	8%	11%
<b>Below S/NVQ Level 2</b>	4%	0%	3%	5%	8%
<b>Other qualifications</b>	4%	5%	2%	3%	5%
<b>No qualifications</b>	1%	1%	0%	2%	3%

Source: Office for National Statistics, Labour Force Survey, 2010

**Table 12 – Construction Industry Workforce Qualifications by Manual Occupations, UK: 2010**

	Bricklayers	Roofers	Wood trades	Painters & decorators	All manual
<b>S/NVQ Level 4 &amp; above</b>	4%	3%	6%	5%	7%
<b>S/NVQ Level 3</b>	32%	10%	35%	17%	20%
<b>Trade Apprenticeships</b>	29%	19%	25%	25%	19%
<b>S/NVQ Level 2</b>	11%	17%	13%	15%	15%
<b>Below S/NVQ Level 2</b>	9%	14%	7%	9%	14%
<b>Other qualifications</b>	9%	14%	9%	12%	13%
<b>No qualifications</b>	6%	23%	5%	17%	13%

Source: Office for National Statistics, Labour Force Survey, 2010

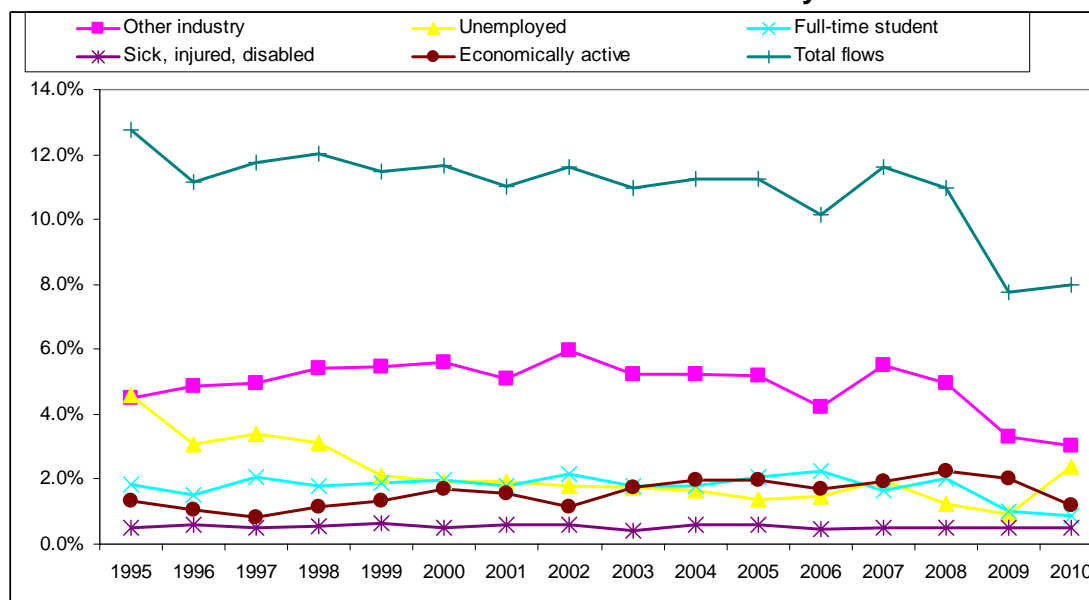
As would be expected the vast majority of non-manual occupations are educated to Level 4 and above. Further analysis shows that on average 43% of these qualifications are first degrees, with the exception of Civil Engineers, Chartered Surveyors and Quantity Surveys where degrees account for just over a half of the Level 4 and above qualifications.

The picture across the manual occupations is more varied. Overall the highest proportion is those educated to Level 3. However, the manual workforce is far more likely to not have any qualifications than those employed in non-manual occupations. In fact, amongst Roofers, alarmingly a fifth did not have any qualifications!

### 3.1.5 Flows into the Construction Industry

Unsurprisingly total flows of workers (expressed as a proportion of the total workforce) into the construction industry declined dramatically in 2009; from an average of 11.4% between 1995 and 2008 to 7.8% in 2009. The slight upturn in 2010, to 8.0%, appears to be entirely due to a large increase in flows from unemployment which have risen from 0.8% in 2009 to 2.4% this year. Movement from other industries is still the biggest flow into the industry, albeit now at its lowest level over the 16 year period (3%).

**Chart 22 – Workforce Flows into the Construction Industry**



Source: Office for National Statistics, Labour Force Survey, 2010

Previous analysis<sup>80</sup> found the biggest majority (28%) of entrants from other industries are qualified to 'other higher' level (covering higher level qualifications below degree level such as HNC and HND), although 15%, a considerable amount, of entrants do not have a qualification. In addition 68% of people entering construction from other industries last worked in construction less than two years ago. It is assumed that individuals who have worked outside the industry for less than two years can still be counted as part of the construction workforce and thus have the necessary skills. This finding reflects the mobility of the construction workforce in terms of their ability to move in and out of the industry as work dictates.

Furthermore, mobility within the industry, in particular, occupational mobility is important to consider in the context of trends in the supply of skills, as it potentially leaves additional gaps which new entrants are required to fill.

<sup>80</sup> Taylor Associates, Analysis of movements into and out of construction industry employment and employment in construction related occupations using the British Household Panel Survey Waves 1 to 14, 2006

### 3.1.6 Mobility

A survey of construction industry mobility<sup>81</sup> found that overall workers were most likely to have switched from the relatively unskilled position of labourer/general operative, indicating that many workers follow the pattern of starting out in the industry in unskilled positions before progressing to more skilled work.

There were wide variations in the proportion of workers who had changed construction roles by their current occupation. Occupations most likely to have had other roles were Managers, Bankspeople and Plant/Machine Operatives. On the other hand, those least likely to have had other roles were Plumbers, Carpenters / Joiners and Electricians

#### Summary Box

- In 2008/2009 there were 145,000 construction qualification achievements across the UK of which 72% were considered competent to enter the workforce
- Construction training has witnessed a sharp increase of VRQs, especially at Level 1.
- Conversely, and unsurprising within the current economic climate Apprenticeships starts have been decreasing
- The most popular courses at further and higher education are Wood Trades and Building/Architecture first degrees
- Compared to all industries the construction workforce has a significantly higher proportion trained as an Apprentice.
- Over the past three years there has been progress in the attainment of higher level qualifications and subsequently a decrease of those with no qualifications
- Total flows have declined from 12.7% in 1995 to 8.0% in 2009. Movement from other industries is still the biggest flow into the industry, albeit now at its lowest level over the 16 year period (3%).

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<sup>81</sup> ConstructionSkills, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007. Survey undertaken face to face with 3,877 construction workers across 312 sites distributed across UK and Republic of Ireland.

## 3.2 What Has Been the Level and Type of Skill Development within the Workforce?

### 3.2.1 Workforce Training and Development

We have seen above how the UK construction industry's stock of skills (as defined by qualifications) is changing, we now examine other available measures of skills development, notably training activity and participation in training.

Central to the enhancement of skills within employers' workforces is the provision of training and development for staff. This section examines the extent and nature of training and development activity across the UK construction industry during the 12 months to July 2009 as reported in ConstructionSkills' Skills and Training survey<sup>82</sup> which was commissioned to provide a representative survey of the UK construction industry, ensuring full coverage of the workforce by including the self-employed. Currently no national survey is available which provides data on the skills and training issues affecting the whole construction industry. Whilst we are aware of the recent publication of the National Employer Skills Survey (NESS 2009) we do not intend to use it in this section, due to the factors described above, however the Skills and Training survey uses the same method and research agency as the NESS and the fieldwork was undertaken at the same time (July 2009).

In order to investigate the extent and nature of training and development activity, the following discusses off-the-job training (described as that away from the individual's immediate work station) and on-the-job training (described as activity that would be recognised as training by staff rather than 'the sort of learning by experience which could take place all the time'), the degree of training leading to qualifications, and the types of training undertaken. We also look at the impact of the recession on training activity. Figures on the numbers of staff trained cover both direct employees as well as self-employed and other staff working for the employer.

Half of establishments across the UK construction industry had funded or arranged training or development for staff during the aforementioned timeframe. The proportion of establishments providing training:

- Increased with establishment size; from 48% among those employing 2-9 staff, up to 92% among those employing 100 or more direct employees. Among sole traders and the self-employed around a quarter (26%) have undertaken or provided training.
- Is higher among Professional Services firms than the construction contracting sector (55% v. 49%).
- Is higher in Northern Ireland (68%), Wales (64%) and the East (59%), and was lowest in the West Midlands (40%). Elsewhere it tended to fall in the 47% - 53% range.

Employers reported providing training for approximately 871,750 workers (both direct employees and self-employed / indirect labour). This is equivalent to 39% of the total current workforce.

By size of firm there is a high degree of consistency in the proportion of the workforce trained, but there was more variation in results by area. The proportion of the workforce trained was highest in Yorkshire and Humberside (54%), the North East (51%) and

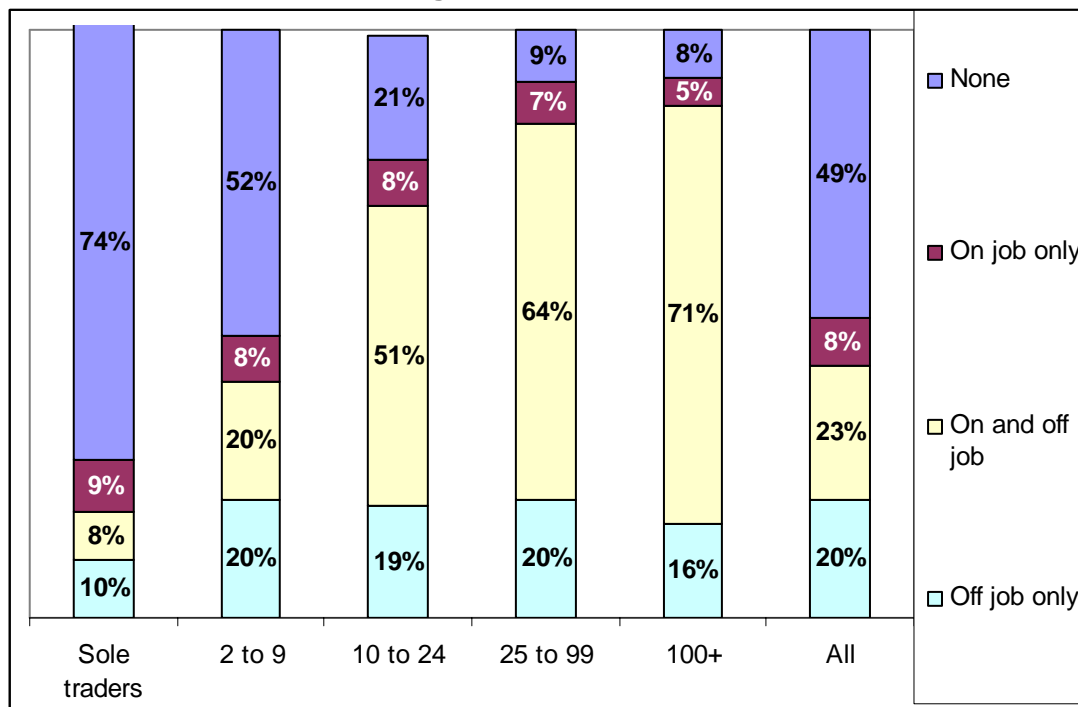
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<sup>82</sup> ConstructionSkills, Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms).

Wales (47%), and lowest in the East (31%), South East (31%) and Northern Ireland (34%).

Overall more than two-fifths of employers deliver some off-the-job training (43% - equivalent to just over four-fifths (84%) of those that train). This is largely driven by the practices of smaller establishments with 2-9 employees, and among large firms that train nearly all undertake some off-the-job training as shown in Chart 23.

**Chart 23 – Proportion of Employers providing Training (on and/or off-the-job) by Establishment Size, United Kingdom: 2009**



Source: ConstructionSkills, Skills and Training in the Construction Industry, 2009

Geographically firms in the East Midlands, the South West and the South East were the least likely to have undertaken any off-the-job training (only a third had done so).

The occupational groups that construction contracting sector employers had most commonly provided off-the-job training for were managers and labourers / general operatives, which tended to also be the occupations most likely to receive on-the-job training. However, in both cases this largely reflects that these occupations are more frequently employed, and the more interesting finding is the actual number and proportion of each occupation trained, as shown in Table 13.

In absolute terms, more labourers have received both off and on-the-job training than any other occupational group. However, a much higher than average proportion of roofer and welders received training.

Generally speaking the proportion of each occupational group trained on- and off-the-job is similar. The results suggest that for plant and machine operatives and for managers, though, the balance is towards off-the-job training.

**Table 13 – Distribution of Off-the-Job and On-the-Job Training by Main Occupational Groups (Construction Contracting Sector), United Kingdom: 2009**

	<i>Off-The-Job</i>		<i>On-The-Job</i>	
	<b>Number receiving off-the-job training months</b>	<b><i>Number receiving off-the-job training as % of current directly employed staff</i></b>	<b>No. receiving on-the-job training</b>	<b><i>No. receiving on-the-job training as % of current directly employed staff</i></b>
<b>Roofers</b>	16,514	79	11,600	55
<b>Welders/ fabricators</b>	8,625	62	8,425	61
<b>Scaffolders</b>	26,400	56	25,025	52
<b>Plant and machine operatives</b>	47,475	50	36,725	39
<b>Carpenters/ joiners</b>	34,250	47	33,300	46
<b>Labourers and general operatives</b>	61,525	46	60,300	45
<b>Bricklayers</b>	17,497	45	15,652	40
<b>Supervisors</b>	29,875	44	23,975	35
<b>Floorers</b>	6,475	44	5,375	36
<b>Technical staff</b>	27,000	44	23,950	39
<b>Painters/ decorators</b>	27,775	44	26,900	43
<b>Electricians</b>	4,725	40	5,650	48
<b>No one main role / multi task</b>	35,950	38	32,700	34
<b>Plumbers</b>	4,325	31	5,100	37
<b>Managers</b>	56,650	30	40,075	21
<b>Plasterers</b>	4,975	29	5,950	34
<b>Administrative staff</b>	28,800	19	25,075	16

Source: ConstructionSkills, Skills and Training in the Construction Industry, 2009

Note: Figures rounded to nearest 25.



Table 14 shows results among the professional services sector.

**Table 14 – Distribution of Off-the-Job and On-the-Job Training by Main Occupational Groups (Professional Services Sector), United Kingdom: 2009**

	Off-the-Job		On-The-Job	
	Number receiving off-the-job training	<i>Number receiving off-the-job training as % of current directly employed staff</i>	No. receiving on-the-job training	<i>No. receiving on-the-job training as % of current directly employed staff</i>
<b>Labourers</b>	7,700	58	8,200	62
<b>Building surveyors</b>	2,475	56	1,925	44
<b>Architectural technologists</b>	5,775	46	7,150	57
<b>Civil engineers</b>	11,575	45	16,000	62
<b>Directors</b>	2,425	45	2,175	40
<b>Mechanical engineers</b>	3,675	40	3,650	36
<b>Quantity surveyors</b>	4,700	38	6,275	50
<b>Building Service engineers</b>	6,850	37	5,150	28
<b>Architects</b>	9,275	33	13,100	47
<b>Other engineers</b>	8,100	31	6,075	24
<b>Technicians</b>	6,675	30	7,439	34
<b>HR, legal &amp; business professionals</b>	4,700	27	4,825	27
<b>Admin staff</b>	6,600	26	6,100	24
<b>Surveyors / estimators</b>	2,125	25	1,850	22
<b>Project managers</b>	3,075	23	2,435	18
<b>Managers</b>	725	20	1,875	52

Source: ConstructionSkills, Skills and Training in the Construction Industry, 2009

Note: Figures rounded to nearest 25.

In absolute terms civil engineers and architects were the two occupations where most staff had been trained off-the-job, though as a proportion of those employed off-the-job training was more common for labourers and building surveyors (over half of each occupational group had received off-the-job training).

For on-the-job training, a similar pattern emerges. The proportion of the occupation receiving this training is high for labourers (62%), civil engineers (62%), architectural technologists (57%), managers (52%) and quantity surveyors (50%).

Turning now to volumes of training, establishments had provided an average of 6 days off-the-job training and 6 days on-the-job training per employee. Professional services firms provide slightly more off-the-job training days per recipient than construction firms (8 compared with 5 days), though there was no difference for on-the-job training.

Whilst the extent of training is considerable it is important to measure the extent to which it will feed into increased qualification attainment. Just fewer than half the employers that train (44%) had provided training intended to lead to a nationally recognised qualification.

Results indicate:

- Larger employers are much more likely to train to qualifications suggesting they place greater relative importance on qualifications than smaller employers.
- The construction contracting sector is slightly more likely to train to qualifications than professional services firms.
- Employers have arranged training for approximately 270,000 staff that was intended to lead to a qualification. This is equivalent to 12% of the total current (direct and indirect) workforce.
- Among the construction contracting sector, a third of those that train have trained staff to NVQs/SVQs whereas HNDs/HNCs are much more likely to be used by professional services firms. Given that NVQs/SVQs tend to be studied at Level 2 while HNDs/HNCs are Level 4 qualifications, results indicate generally higher level qualification requirements in the professional services side of the sector.
- The number of staff involved in NVQ/SVQ training in the last 12 months is equivalent to 8% of the total current workforce.
- Employers using NVQs/SVQs were most likely to have had staff train at Level 2 (69%), as shown Table 15, which also highlights that large employers are much more likely than average to have staff on Level 3 or above.

**Table 15 – Staff Training to NVQs/SVQs by Size of Firm, United Kingdom: 2009**

	All	Size of firm		
		2 to 24	25 to 99	100+
<b>Level 1</b>	8%	8%	9%	4%
<b>Level 2</b>	69%	70%	67%	55%
<b>Level 3</b>	20%	19%	18%	41%
<b>Level 4 or above</b>	8%	8%	7%	15%
<b>Don't know / not sure</b>	9%	8%	11%	5%

Source: ConstructionSkills, Skills and Training in the Construction Industry, 2009

Note: Figures sum to more than 100% as respondents could give multiple answers

Employers using NVQ/SVQs at Level 1 were asked why they trained staff at this level, and what benefits it had brought. Responses tended to focus either on it helping to improve skills and improve proficiency, or specifically improving health and safety and making the workplace safer (sometimes in relation to this helping the firm comply with regulations).

### 3.2.2 Barriers to Providing More Training

Just over half of employers that trained would have preferred to provide more training than they actually undertook (52%). There were two main barriers to being able to deliver more training;

- A lack of funds for training, or training being considered expensive;
- Not being able to spare staff the time off for training.

Supply-side issues were relatively rarely mentioned as barriers: among those that would have liked to deliver more training; 3% mentioned a lack of appropriate training or qualifications in the subject areas they required, 3% a lack of provision (for example courses being full up), 2% the difficulty of finding providers who can deliver training when and where they want it and 1% mentioned a lack of good training providers locally.

### 3.2.3 The Impact of the Recession on Training Activity

Recent (October 2010) consultation with employers via ConstructionSkills Employer Panel<sup>83</sup> found that the majority of employers (63%) had not made any changes to the training they provided due to the economic downturn. Only a quarter (26%) admitted they had reduced training and interestingly a minority (10%) had actually increased the amount of training they provided.

For those who had reduced training, just under half (47%) had trained fewer staff and given each trainee less training, with job specific training being the most likely to be cut back on.

Employers increasing training were doing so to increase skills amongst their workforce (41%) and in order to gain a competitive advantage (25%).

For all employers who had changed the way they deliver training, just over half (54%) had starting carrying out more in-house training.

These findings suggest that the recent recession has not severely impacted on employers' commitment to training their workforce, but changes have been made to how this training is delivered.

#### Summary Box

- Half of establishments across the UK construction industry funded or arranged training or development for staff during the 12 months to July 2009.
- The proportion of establishments providing training:
  - Increased with establishment size;
  - Is higher among Professional Services firms than the construction contracting sector;
  - Is higher in Northern Ireland, Wales and the East.
- Overall more than two-fifths of employers deliver some off-the-job training (43%).

<sup>83</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews

- Employers reported providing training for approximately 871,750 workers - equivalent to 39% of the total current workforce.
- Establishments had provided an average of 6 days off-the-job training and 6 days on-the-job training per employee.
- Just under half the employers that train (44%) had provided training intended to lead to a nationally recognised qualification.
- The two main barriers to being able to deliver more training were a lack of funds for training, or training being considered expensive; and not being able to spare staff the time off for training.
- The recent recession has not severely impacted on employers' commitment to training their workforce, but changes have been made to how this training is delivered.

## 4. Current Mismatches between Demand and Supply for Skills

In an efficient labour market, the skills of the workforce will be sufficient to meet employer needs and the supply of skills is aligned with market demand. If either supply, demand or the matching processes are deficient, several types of mismatches occur. The first is **skill shortages**, which arise when employers find it difficult to fill their vacancies with appropriate skilled applicants. The second mismatch that occurs is **skill gaps**, where the existing workforce is seen to be lacking the skills necessary to meet business need. The third dimension is **unemployment**. The following section will discuss each of these mismatches and their occurrence within the UK construction industry.

Note that the majority of information contained in sections 4.1 and 4.2 comes from ConstructionSkills own 'Skills and Training in the Construction Sector' 2009 research;<sup>84</sup> which was designed to provide a single source of evidence, representative of the construction contracting sector across Great Britain (Standard Industrial Classification SIC 45) investigating skills and training issues because:

- There is no other survey that covers the whole construction industry;
- Other surveys are too generic;
- Other surveys do not cover the self-employed which make up a large proportion of the construction workforce.

Where other sources are used this is referenced in footnotes.

### 4.1 Skill Shortages

To understand the context of skill shortages in the UK construction industry, it is imperative to look at the recruitment activity of employers. In order to achieve this, employers were asked whether over the last 12 months they had had shortages of skilled workers:

- One in ten employers (10%) felt that there had been times when they lacked the number of skilled workers they required;
- Around half (52%) felt that they had been operating at around full capacity given the number of skilled staff they employed.
- A third had not had enough work for their workforce.

Table 16 compares the four nations, Scotland is on a par with England, Wales suffered more from a lack of skilled workers and Northern Ireland appears to have suffered considerably more than the other nations overall.

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<sup>84</sup> ConstructionSkills, Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms).

**Table 16 – Work Balance and Skilled Worker Availability, United Kingdom and Nations: 2009**

	UK	England	Northern Ireland	Scotland	Wales
For all or most of the last 12 months we did not have enough skilled workers for the amount of work we had on or which we could have had	2%	2%	3%	2%	4%
For some of that time we did not have enough skilled workers	8%	8%	3%	9%	12%
For most of the last 12 months we have been operating at or near full capacity	52%	53%	33%	54%	51%
For most of the last 12 months we have not had sufficient work for our workforce	35%	34%	61%	32%	33%
Don't know/ Not applicable	3%	3%	*%	2%	*%

ConstructionSkills, Skills and Training in the Construction Sector, 2009

Results for all four nations show very considerable changes compared with 2008<sup>85</sup>, with far fewer employers in 2009 reporting shortages of skilled staff over the previous 12 months.

The 2008 Scottish Skills Report by Futureskills Scotland (which consisted of 6,274 telephone interviews of employers across all sectors) reports that there are 123,200 construction employees and 3,200 vacancies. The number of skills shortage vacancies as a percentage of employees is 0.7%. This survey is due to be published again in January 2011 and will be used to inform the Scottish report.

Whilst there are no National Skills Surveys available for 2010 these findings in relation to skills shortages are consistent with current trade surveys<sup>86</sup> results from organisations across the construction industry, who all reported a considerable decrease in skill shortages to a record low. For instance, the latest Construction Products Association Trade Survey (Q2, 2010) reported that 13% of building contractors had difficulties in finding on-site labour, contrasting sharply with the 80% figure seen three years ago.

Where a lack of skilled workers was cited, their implications appear to be quite severe. In the UK half reported having to turn work down as a result (50%) and three-fifths had been forced to sub-contract (61%). In contrast to this the results for Wales were 9% and 34% respectively suggesting that the impact on firms in Wales was much less severe, however as the sample for Wales was very small further research is required to examine this.

Just over a third of all employers (36%) had *attempted* to recruit skilled staff in the last 12 months. This:

- Increases with size of employer;
- Is higher among the construction contracting sector (SIC 45) than professional services firms (SIC74.2) (38% v. 29% respectively);
- Is higher in Wales (45%) and Yorkshire and Humberside (43%). In comparison only around a quarter of employers in Northern Ireland, the North East and the East Midlands (25%-27%) had attempted to recruit skilled staff.

<sup>85</sup> Ibid.

<sup>86</sup> Federation of Master Builders, State of Trade Survey, Q2, 2010; RICS Construction Market Survey, Q3, 2010; Construction Products Association, Construction Trade Survey, August 2010

The number of firms who had attempted recruitment of skilled direct staff was higher for the professional services sector at 23% than the construction contracting sector (14%), thus suggesting they have a preference for recruiting skilled indirect staff.

The impact of the downturn is evident in the fall compared with 2008 in the proportion of employers attempting to recruit skilled staff in the last 12 months: 58% of the construction contracting sector in Great Britain had attempted this in 2008, in 2009 only 39% had done so. The available evidence suggests that 2010 is little different.

#### **4.1.1 Skills Shortages in the Professionals Sector**

According to research undertaken on the construction professionals<sup>87</sup> published earlier this year 46% of firms in the sector have cut back on planned recruitment of graduates or newly qualified staff. The research also showed that across the industry the number of graduates and newly qualified staff employed by firms in the sector comprises just over 4% of the total workforce – this is half the number employed 12 months earlier.

Further to this 67% of professional services firms felt that the supply of graduates currently exceeds demand, with Architects being the occupation most employers mentioned as being in excess supply. The over supply of graduates is considered to be as a result of:

- Lower uptake of graduates due to the recession;
- Structural changes in the economy;
- Government policy to increase the number of university places.

It is believed that many of these unemployed graduates will leave the industry never to return and universities may start to cut or reduce courses (as there is less and less demand for this training), in addition to this many professionals are postponing retirement due to reduced pension pots further reducing opportunities for graduates. It is anticipated that these two factors could therefore cause a medium-term skills shortage in the sector.

#### **4.1.2 Hard-to-Fill Vacancies**

The National Employer Skills Survey (NESS) covers England and the construction industry, however it should be noted that it does not include the self-employed and as these are a significant part of the industry it may mean the results differ to those obtained from the Skills and Training in the Construction Sector survey.

According to the 2009 NESS<sup>88</sup> only 6% of construction employers in England reported any vacancies and only 2% reported hard to fill vacancies and skills shortage vacancies.

In Scotland employers reported that 77% of construction vacancies were hard to fill in 2008<sup>89</sup>, (however this is across *all* vacancies not just skilled vacancies) and equates to 2% of construction employees.

Three in ten employers in the UK trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (29%), equivalent to 10% of all employers experiencing

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<sup>87</sup> Construction Industry Council and ConstructionSkills, The Impact of the Recession on Construction Professionals – A View from the Front Line, 2010. Thirty in-depth interviews with professional practices were undertaken in August and September 2009 followed by larger telephone survey of 301 firms undertaken in October 2009. All sizes of UK firms with at least 5 employees, from all sub-sectors were included in the survey.

<sup>88</sup> UKCES, National Employer Skills Survey 2009, August 2010. ConstructionSkills, Synopsis of the National Employer Skills Survey 2009 for ConstructionSkills SSC Footprint, October 2010. Analysis based on 5,059 interviews conducted with construction employers.

<sup>89</sup> Futureskills Scotland, Skills in Scotland 2008. Analysis based on 6,274 telephone interviews with employers across all sectors/industries.

recruitment difficulties for skilled staff in the previous 12 months. In Scotland 39% of firms had reported a hard to fill vacancy when attempting to recruit skilled staff, so this appears to be a bigger issue in Scotland than for the rest of the UK.

These findings indicate a large fall in recruitment difficulties across all nations compared with 2008, a possible reflection of the recession, due in part to the decrease in the numbers of skilled staff being sought and the increase in the supply of skilled workers in the labour market.

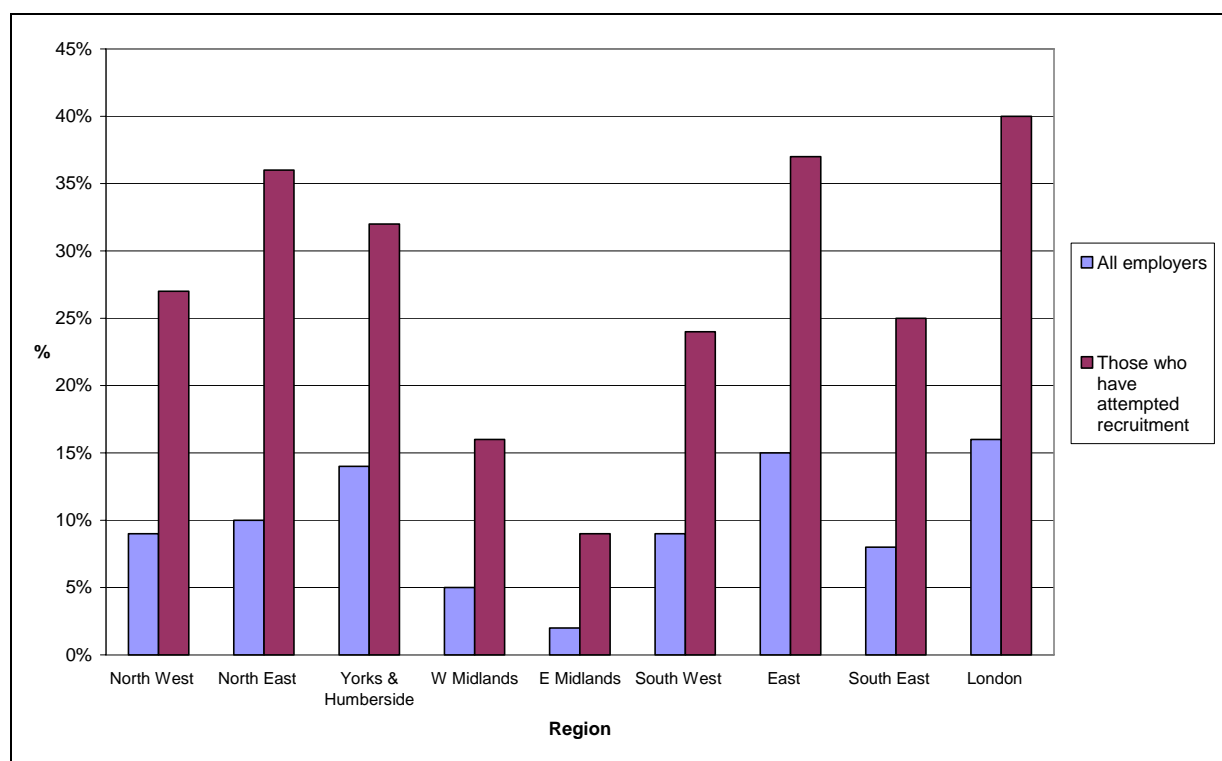
**Table 17 – Hard-to-Fill Vacancies for Skilled Positions in last 12 months, United Kingdom and Nations: 2009**

	UK	England	Northern Ireland	Scotland	Wales
Yes	29%	28%	20%	39%	31%
No	70%	71%	80%	61%	69%

ConstructionSkills, Skills and Training in the Construction Sector, 2009

Whilst the figures for the four nations are fairly close there are some more marked differences in the English regions as shown in the graph below.

**Chart 24 – Incidence of Hard-to-Fill Vacancies by English Region, England: 2009**



Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

The lowest levels of hard to fill vacancies are experienced in the Midlands (West Midlands 15% and East Midlands 9%), and the highest in London (40%) and the East (37%), making these the worst affected regions. The main reasons for this would seem to be that there are generally more applicants, and more highly qualified applicants for posts in the East Midlands, which is particularly noteworthy as construction unemployment in the region is one of the lowest in the country.

There were also very clear differences by broad sub-sector, with professional services firms that had attempted to recruit skilled staff far more likely to have encountered recruitment difficulties (56%) than the construction contracting sector (22%).



Table 18 shows the main occupations by sub-sector which were most likely to have hard-to-fill vacancies. Please note that due to the low base sizes it is not possible to analyse this further by nation or region.

**Table 18 – Main Occupations where Hard-to-Fill Vacancies Encountered, United Kingdom: 2009**

<b>Construction contracting</b>	<b>Professional services</b>
Carpenters / joiners (19%)	Civil engineers (13%)
Floorers (18%)	Mechanical engineers (11%)
General Operatives (17%)	Other engineers (12%)
Plant / machine operators (15%)	Architectural technologists (10%)
Painters / decorators (14%)	Electricians (10%)

Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

Note: Caution low base sizes

Respondents were asked if these hard-to-fill vacancies had occurred when recruiting *direct employees, self-employed* or *both*. In a number of occupations the vast majority of hard-to-fill vacancies had occurred among employers trying to recruit direct employees: In other occupations the preponderance was towards hard-to-fill vacancies occurring where employers had been attempting to recruit self-employed and indirect labour more than direct employees, most noticeably carpenters / joiners, plasterers and roofers, and architectural technologists. For plant and machine operatives and general labourers there was a broad balance between the proportion of employers that had been attempting to recruit direct employees or the self-employed.

The order of causes presented in Table 19 is almost identical to 2008.

**Table 19 – Causes of Hard-to-Fill Vacancies for Skilled Staff, United Kingdom and Nations: 2009**

	UK	England	Scotland	Wales	Northern Ireland
Applicants lack the skills we require	84%	88%	63%	69%	100%
Not enough people being trained in the construction trades in recent years	81%	86%	76%	36%	49%
Applicants lack the motivation / attitude we look for	74%	72%	79%	84%	100%
Applicants lack the work experience we look for	68%	69%	65%	37%	100%
Low number of applicants generally	53%	54%	51%	33%	49%
Applicants lack the qualifications we look for	51%	54%	46%	34%	3%
Competition from other employers	39%	38%	74%	2%	0%

Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

Note: the samples for the devolved nations are small and therefore should be considered as indicative only.

As shown above the top three causes of hard to fill vacancies for skilled staff across the four nations and the UK as a whole are;

- Applicants lacking the skills required;
- Not enough people being trained in the construction trades in recent years;
- Applicants lacking the motivation/attitude required.

Among broader generic skills mentioned were a lack of literacy / numeracy (8%), a lack of IT skills (7%) and a lack of social / people / communication skills (4%).

Some of the skills shortages were much more apparent in the professional services than the construction contracting sector: this particularly applies to IT skills and technical skills. There is also a marked difference between the sectors with 95% of construction firms stating that applicants lack the skills they require compared to only 69% of professional services firms. A lack of skills required is the biggest cause of hard to fill vacancies in the construction sector but in the professional services sector the issue is that not enough young people are being trained in the construction trades.

**Table 20 – Causes of Hard-to-Fill Vacancies (Sector Comparison), United Kingdom: 2009**

	UK	Construction	74.2 (Professional services)
<b>Applicants lack the skills we require</b>	84%	95%	69%
<b>Not enough young people being trained in the construction trades in recent years</b>	81%	87%	74%
<b>Applicants lack the attitude or motivation we look for</b>	74%	80%	67%
<b>Applicants have lacked the work experience we look for</b>	68%	67%	68%
<b>Low number of applicants generally</b>	53%	67%	52%
<b>Applicants lack the qualifications we look for</b>	51%	49%	52%
<b>Competition from other employers</b>	39%	39%	38%

Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

A lack of qualifications was mentioned by around half of employers experiencing hard-to-fill vacancies for skilled positions; hence this is an important contributory cause of recruitment difficulties, though in relative terms it is less critical than a lack of skills or a lack of work experience.

The two main skills difficult to obtain from applicants were:

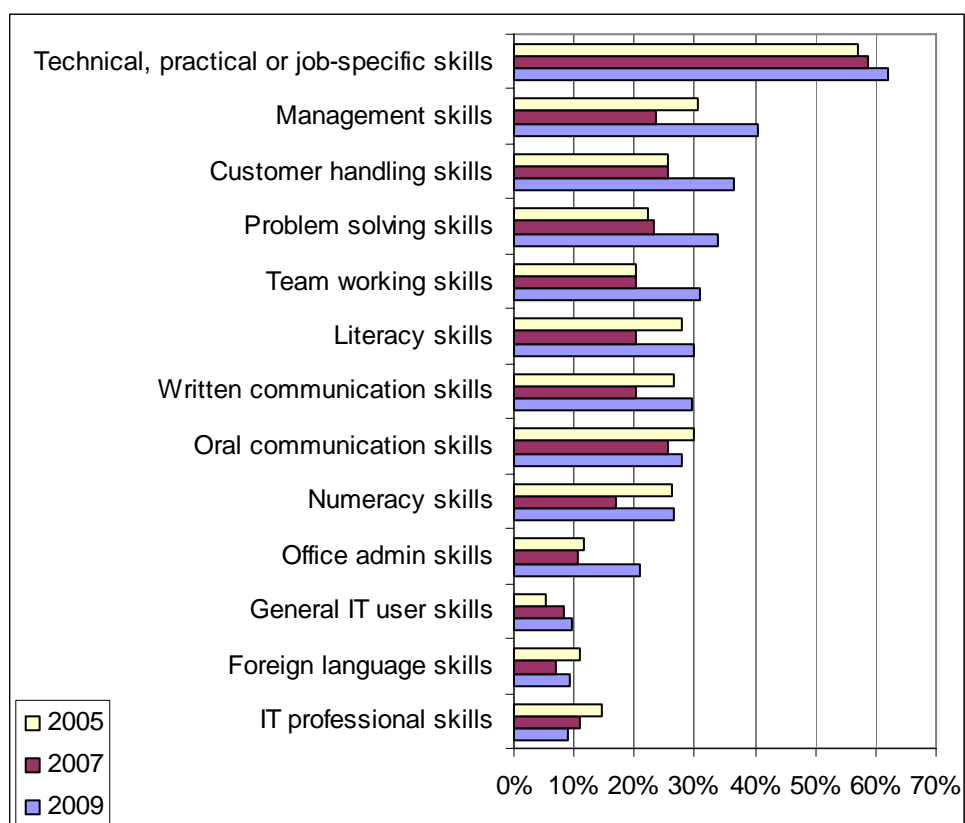
- Right attitude (enthusiasm, motivation, commitment, willingness) (33%);
- Relevant work experience (27%).

In many cases the skills lacking are very occupation specific, and in other cases the 'skill' is more about personal attitudes and commitment, or a lack of experience.

In England the NESS<sup>90</sup> survey provides data on the skills that are lacking;

<sup>90</sup> ConstructionSkills, Synopsis of the National Employer Skills Survey 2009 for ConstructionSkills SSC Footprint, October 2010. Analysis based on 5,059 interviews conducted with construction employers.

**Chart 25 – Skills Lacking for Skill Shortage Vacancies, England: 2009**



Source: UKCES, National Employer Skills Survey for England, 2009

The hierarchy of skills lacking in applicants remains broadly unchanged from 2007, with the exception of oral communication skills which was the third most frequently identified in 2007, but only the eighth most common in 2009.

However there have been increases in mentions of each skill, indicating a greater number of different skills lacking for each skill shortage vacancy than in 2007. It is not possible to tell from this research if this is a result of an increase in inappropriately skilled applicants applying for posts as unemployment rises, employers being more demanding of the skills they want, or other reasons.

We have seen that far fewer employers in 2009 had experienced recruitment difficulties for skilled positions than in 2008. However, where they are encountered the impacts remain severe: three quarters have had to increase the use of overtime and staff workload (74%), two thirds have lost business or not bid for work as a result of the lack of skilled staff (67%), and three-fifths say it has increased operating costs (61%). Only 4% of those with recruitment difficulties for skilled staff say it has had no impact on their business.

In England compared to the total for all sectors, ConstructionSkills employers were least likely to report negative impacts of hard to fill vacancies: 17% of employers report no impacts at all despite having high volumes and densities of skill shortage<sup>91</sup>.

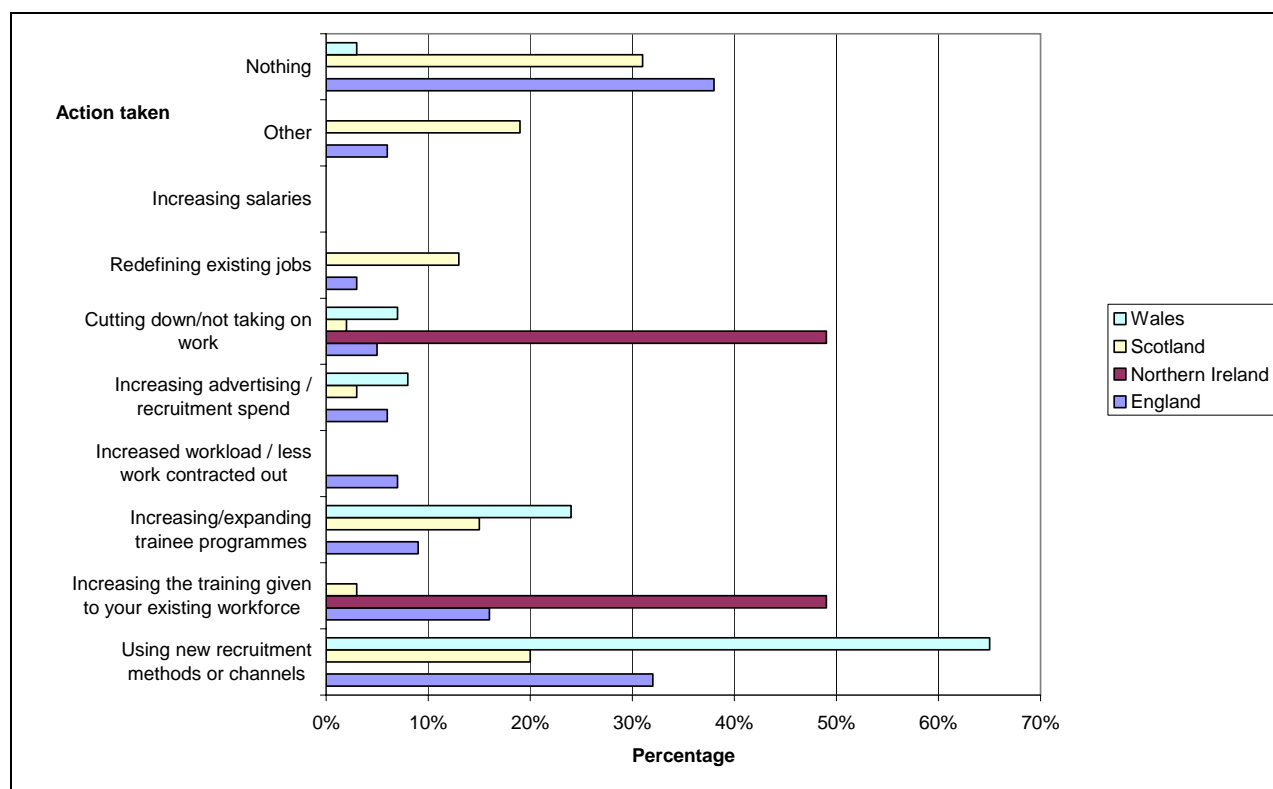
<sup>91</sup> ConstructionSkills, Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms).

### 4.1.3 Steps Taken to Overcome Recruitment Difficulties

Most employers in the UK experiencing recruitment difficulties had taken some steps to try and overcome them (66% and 97% in Wales), most often trying new recruitment methods or channels (32%, higher among professional services sector than the construction contracting sector – 43% v. 24% respectively) or increasing training for existing staff (14%) or their trainee programmes (10%).

In England the most common action taken by 69% of employers was to increase advertising and recruitment spend<sup>92</sup>.

**Chart 26 – Steps taken to Overcome Recruitment Difficulties, United Kingdom and Nations: 2009**



Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

Using new recruitment methods or channels appears to be the most popular action taken by 32% of firms across the four nations (32% of English firms, 20% in Scotland & 65% of Welsh firms).

Nearly all employers with 100 or more staff experiencing hard-to-fill vacancies had taken steps to overcome their recruitment difficulties (94%), and they were particularly likely to have tried new recruitment methods or channels (65%) or increasing their recruitment advertising spend (31%). Those with 25-99 staff tended to respond quite differently, placing much more emphasis on increasing training either to existing staff (35%) or by expanding their trainee programme (32%).

The proportion taking any action to meet recruitment difficulties for skilled staff is lower in 2009 than in 2008: in 2009 64% of the construction contracting sector in Great Britain had taken any action compared with 75% in 2008. The biggest fall has been in the proportion increasing recruitment advertising spend as a response (19% in 2008 but only 2% in 2009), suggesting limits on increased spending during the recession.

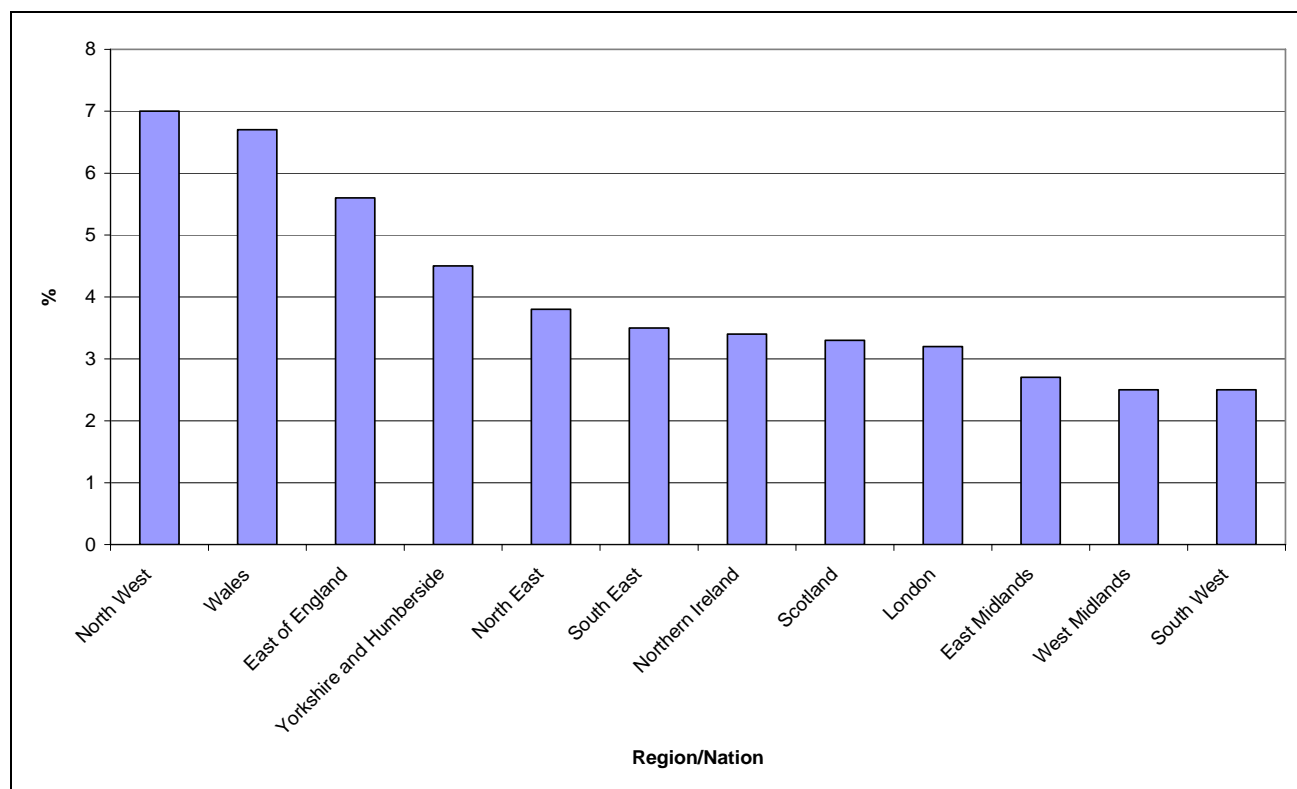
<sup>92</sup> UKCES, National Employer Skills Survey 2009, August 2010. ConstructionSkills, Synopsis of the National Employer Skills Survey 2009 for ConstructionSkills SSC Footprint, October 2010. Analysis based on 5,059 interviews conducted with construction employers.

## 4.2 Skill Gaps

Overall around one in ten employers (10%) have staff lacking proficiency, and more than one in six of the self-employed (17%) regard themselves as having a skills gap. Generally speaking, the larger the employer the more likely they are to have any skills gaps – this in part simply reflects the fact that they have more employees who could lack skills.

Results varied somewhat by country / region. Wales and the Northern regions of England reported the highest proportion of their workforce as having a skills gap.

**Chart 27 – The Proportion of Directly Employed Workforce lacking Skills, United Kingdom and Nations: 2009**



Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

Fewer employers reported any skill gaps in 2009 than in 2008. In 2008 17% of employers had skills gaps, in 2009 comparative figures among the construction contracting sector in Great Britain were 10%. As we see later, skills gaps are very often explained by recruitment activity whereby staff have been taken on who are not (yet) fully proficient; hence part of the reduction in the incidence of skills gaps is explained by reduced recruitment activity during 2009.

In summary:

- Employers describe some 58,800 direct employees as not fully proficient, equivalent to 4.0% of the directly employed workforce.
- The self-employed who regard themselves as having a skills gap is equivalent to some 144,000 self-employed lacking skills.
- As a proportion of the directly employed workforce it is higher among employers in the construction contracting sector (4.4%) than it is among professional services firms (2.6%).

- 87% of the staff lacking proficiency work in the construction contracting sector, 13% in professional services firms.
- By size of firm the proportion of staff not fully proficient is highest among direct employees working in firms with 10-24 staff (5.4%).
- Employers in the North West and Wales reported the highest proportion of their workforce as having a skills gap (7%). By contrast less than 3% of direct employees in the South West, West Midlands and the East Midlands were described as not being fully proficient.
- In England the occupation profile of staff lacking proficiency has remained relatively stable since 2007, although the skills gaps for managerial positions has increased from 15% to 20% while in skilled trades there has been a slight decrease from 29% to 25%.<sup>93</sup>
- The largest volume of skills gaps in the UK (c. 13,000) was reported for labourers and general operatives, and 6% of this occupational group was described as not being fully proficient, despite this often being seen as a relatively unskilled position.
- When describing the skills lacking among their staff, ConstructionSkills employers generally focused on technical, practical or job-specific skills: almost two thirds (62%) of employees described by their employers as lacking full proficiency were felt to lack these skills, a similar share as reported in 2007.<sup>94</sup>
- Predictably the range of skills lacking varied quite widely by occupation, but among the broader areas a *lack of relevant work experience* was mentioned by nearly a quarter (22%) of employers with skills gaps. Table 21 provides a flavour of the results; however base sizes are low so results are taken as indicative only.

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<sup>93</sup> Ibid.

<sup>94</sup> Ibid.

**Table 21 – Main Skills that Need Improving by Selected Occupations, United Kingdom: 2009**

Labourers and general operatives (30)	Job-specific skills, including relating to groundworking and operation of plant and machinery (34%), relevant experience (17%), basic education, qualifications and attitudes (each 10%)
Administrative staff (30)	IT skills (40%), social, people or communication skills (23%), admin, office skills (20%), relevant experience (17%), attitude (13%)
Technical staff (28)	Relevant experience (29%), qualifications (18%), social, people or communication skills (11%), IT skills (11%), managerial / supervisory skills (7%)
Carpenters / joiners (25)	Relevant work experience (36%), carpentry / joinery skills (20%), attitude to work (16%), basic education (12%), construction qualifications (12%), fitting skills (8%)
Supervisors / foremen (21)	Managerial / supervisory skills (62%), social, people or communication skills (33%), attitude to work (24%), IT skills (14%)
Managers / directors (20)	Managerial / supervisory skills (35%), social, people or communication skills (35%)

Source: ConstructionSkills, Skills & Training in the Construction Sector, 2009

#### 4.2.1 The Causes of Skill Gaps

The most common cause of skills gaps is that staff lack experience or have been recently taken on, (this is corroborated by the 2009 NESS survey) a contributory factor for around three-fifths of employers with skills gaps (61%). The proportion mentioning this factor is lower than found in 2008 (78%), indicative of lower recruitment activity during 2009.

One of the contributing factors could be the recruitment of young people straight from training, ConstructionSkills employers were more likely to recruit straight from Higher Education than those covered by the other Built Environment SSC's, around three in ten ConstructionSkills employers recruiting graduates regard them as very well prepared as compared with around one in seven recruiting 16-year-old and 17 –to 18-year old school/college leavers. The skills most commonly felt to be lacking across all 16-24 year olds (regardless of route of education) was a lack of working world/life experience or maturity followed by poor attitude/personality or lack of motivation. Both of these have been previously mentioned as causes of hard to fill vacancies.<sup>95</sup>

The relatively encouraging aspect of this cause is that these skill gaps could be expected to be relatively short-term, easing as these employees gain experience and get to understand that company's way of operating.

There was some variation in the causes of skills gaps between the professional services sector and the construction contracting sector. Results suggest that professional services firms experiencing skill gaps are particularly likely to believe they are caused by an inability of staff to keep up with changes in the industry (62% v. 30% among construction contracting sector employers).

Relatively few self-employed respondents felt they lacked skills, but predictably the reasons they give as to why they lack skills are somewhat different to employers, with by far the most common reason, mentioned by 64%, being that they lack the opportunity or time. Some admitted that they lacked experience (14%), but this is far less of a cause of skill gaps among the self-employed than among the directly employed workforce.

The 2009 NESS<sup>96</sup> survey found a higher incidence of skills lacking than in previous years, indicating that where gaps exist, ConstructionSkills employers report a greater

<sup>95</sup> Ibid.

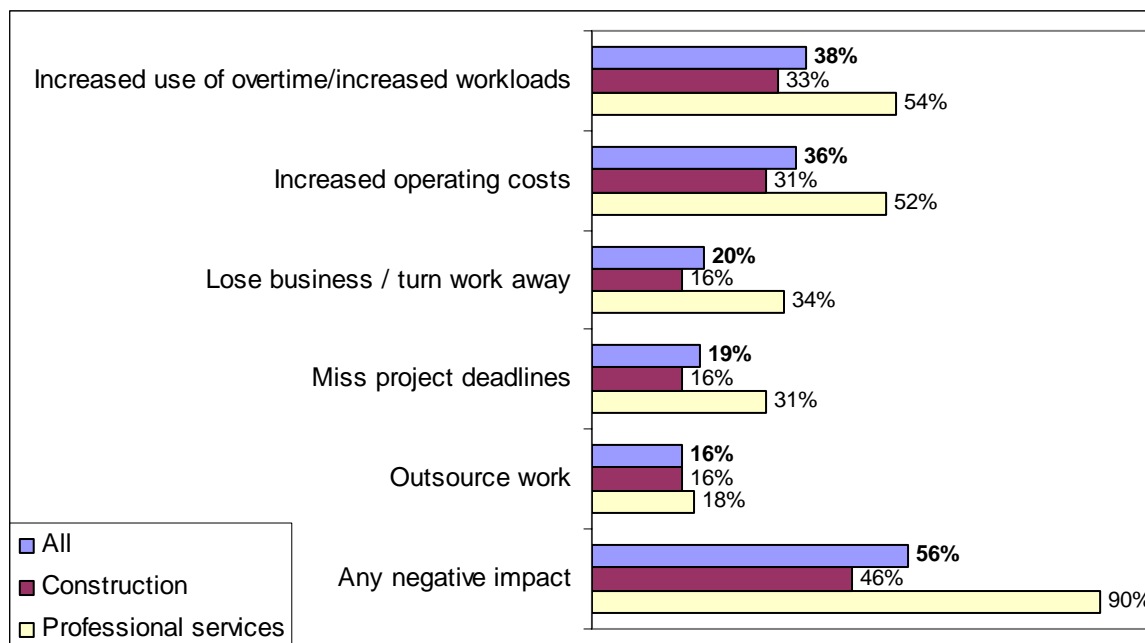
<sup>96</sup> Ibid.

range and number of skills lacking. This may be linked to the recession, with for example organisations needing different skills from their staff during a downturn perhaps as a result of the business needing to change direction or emphasis, or employers having to re-examine all aspects of how they operate and hence skills gaps become more evident as increasing focus is given to the issue.

#### 4.2.2 The Impact of Skill Gaps

Just over half of employers with skill gaps felt at least one of these negative consequences had arisen as a result of having staff lacking proficiency (56%). This was most often increased workload and use of overtime (38%) and increased operating costs (36%).

**Chart 28 – The Impact of Skills Gaps**



Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

As shown in Chart 28, where professional services firms have skill gaps, they are particularly affected: nine in ten suffered negative impacts from their skill gaps, with just over half having faced increased operating costs and a third having lost business.

The vast majority of those with skill gaps (79%) have taken some action to overcome the difficulty, most commonly increasing training activity and or spend (60%).

The proportion of employers with skills gaps taking steps to address skill shortages, and the actual steps being taken, were very similar to those found in 2008, suggesting fairly standard industry responses to these issues. Employers in England generally (73%) responded by increasing the amount of training provided or the amount they spend on training.<sup>97</sup>

#### 4.2.3 Up-skilling the Workforce

Seven in ten employers (71%) and two thirds of the self-employed (66%) felt there were factors likely to lead to changing skills or knowledge needs in the coming 12 months. This rises to nine in ten among companies with 25 or more staff, perhaps suggesting greater awareness in these firms of upcoming issues in the industry, maybe a result of managers being able to be slightly more removed from the coalface.

<sup>97</sup> Ibid.



Among both the self-employed and employers the factor most often considered to impact on future skill needs was new legislation or regulations.

Around three in ten employers (31%) thought the recession would impact on their skill needs – medium sized firms with 25-99 staff were particularly likely to consider the downturn would affect their skill / knowledge requirements (50%).

There was little difference by broad sub-sector, though professional services firms were more likely to anticipate new technology or equipment as affecting the skills they would need over the next 12 months.

The top ten occupations that employers felt would be most affected by the changes are shown in Table 22.

**Table 22 – Single Occupation Most Affected by the Need for Up-skilling**

Construction Contracting			Professional services		
	% employing each occupation	% saying this main occupation affected		% employing each occupation	% saying this main occupation affected
Managers	56	<b>22</b>	Architects	26	<b>17</b>
Staff who multitask	20	<b>13</b>	Architectural technologists	17	<b>12</b>
Admin	48	<b>7</b>	Civil eng.	11	<b>10</b>
General labourers	24	<b>6</b>	Mechanical eng.	7	<b>7</b>
Carpenters / joiners	17	<b>4</b>	Technicians	19	<b>6</b>
Plant machine ops.	10	<b>4</b>	Building services eng.	9	<b>6</b>
Painters / decorators	8	<b>4</b>	Other engineers	13	<b>5</b>
Bricklayers	13	<b>4</b>	Surveyors	7	<b>4</b>
Technical	9	<b>4</b>	Electricians	4	<b>3</b>
Supervisors	16	<b>4</b>	Building Sur.	6	<b>3</b>
<i>Base: all employers affected by need to up-skill (598 construction contracting sector, 218 professional services)</i>					

Source: ConstructionSkills, Skills and Training in the Construction Sector, 2009

This shows that while managers are the single most likely occupation to be affected by the need to up-skill in the coming 12 months, this in part results from the fact that a very large proportion of construction employers have a manager (56% - in the remainder most classify the owner / manager within the occupation of the company i.e. painter, plasterer etc).

In the professional services sector, the need to up-skill is particularly likely to affect architects and architectural technologists, while in the construction contracting sector it affects managers and those that cover a number of occupational roles (i.e. staff who multi-task).

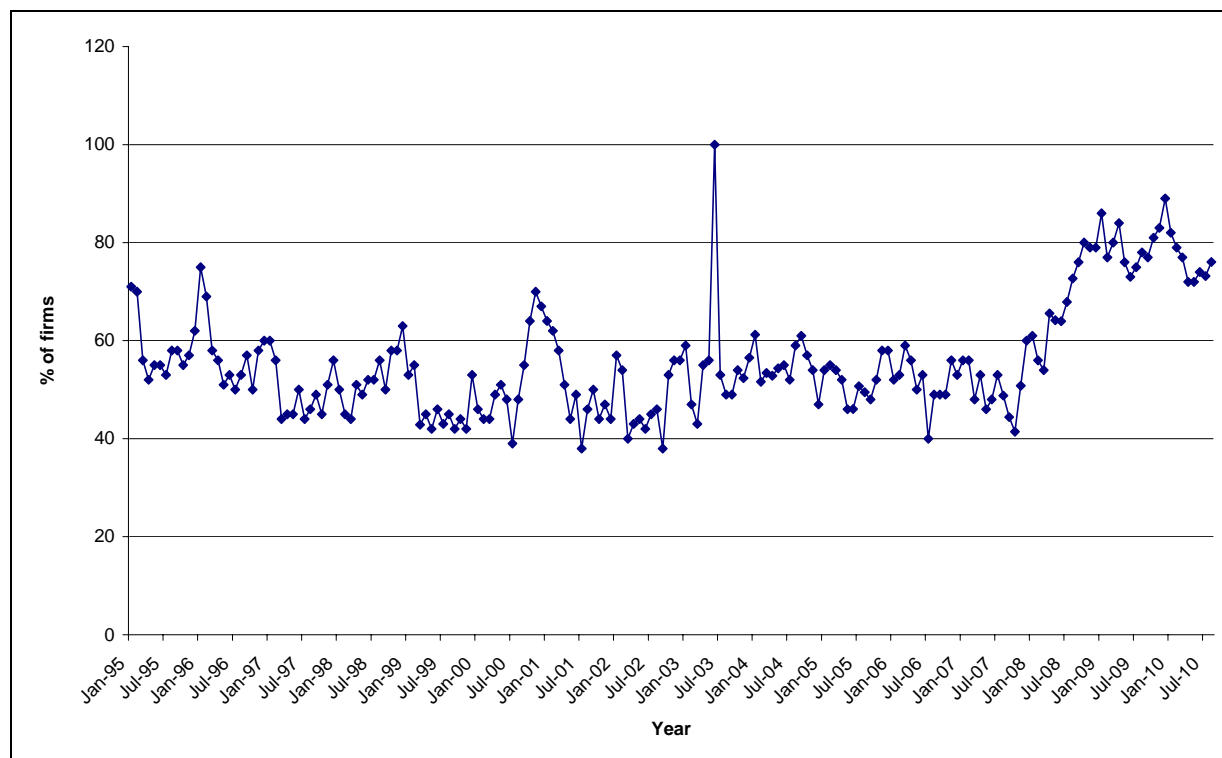
#### **4.3 Constraints on Activity**

When asked what factors limited their business now and were likely to impact in the future, predictably the recession and low or uncertain demand were top of mind – as many as 56% mentioned this as a current limiting factor for their business and 66% expected it to act as a constraint over the next 12 months.

Labour shortages and skills shortages were mentioned by very few employers as a limiting factor now or in the near future, confirming that demand-side not supply-side issues are currently seen as critical by employers.

These findings are directly comparable with Construction Forecasting and Research data<sup>98</sup> which shows that the number of employers reporting constraints has been increasing since January 2008, as shown below.

**Chart 29 – Constraints on Business Activity 2005–2010**



Source: Experian Construction Forecasting and Research, 2010

By far the biggest constraint reported was lack of demand (between 56-60% over the period from October 2008 to July 2010), virtually no firms reported labour shortages or materials shortages as constraints over this period.

In Northern Ireland 65% of employers reported lack of demand as a constraint (compared to 42% in England) and approaching one in five are constrained by a lack of finance (this is more than twice the UK average).<sup>99</sup>

Many more employers anticipate constraining factors on their business for the coming 12 months than feel there are current constraints. Results indicate increased pessimism compared with 2008<sup>100</sup>: in 2008 29% of construction contracting sector in Great Britain anticipated no constraints for the coming 12 months; among the same group in 2009 this had fallen to 14%.

#### 4.4 The Migration Advisory Committee: Skill Shortage Occupations

Asking employers themselves about skill shortages and gaps is a vital means of identifying skill deficiencies. However, measuring skill shortages, in particular, is not straightforward and there are other important indicators of 'shortage'. In 2008 the Migration Advisory Committee recommended a skill shortage occupation list<sup>101</sup>. In order to be placed on this list the occupation must pass three hurdles: it must be *skilled*; there

<sup>98</sup> Experian Construction Forecasting and Research, Construction Industry Focus, August 2010

<sup>99</sup> ConstructionSkills Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms).

<sup>100</sup> Ibid.

<sup>101</sup> Migration Advisory Committee, Skilled, Shortage, Sensible: The Recommended Occupation Lists for the UK and Scotland, 2008

must be a labour *shortage*; and it must be *sensible* to bring in non-EEA labour to fill the shortage.

More recently the Migration Advisory Committee presented their third partial review of the recommended shortage occupation lists<sup>102</sup>; which are used alongside Tier 2<sup>103</sup> of the points-based system for managing immigration. The review retained the following occupations specific to the UK construction industry (as detailed in the second review<sup>104</sup>):

- Civil engineers
- Mechanical engineers
- Welding trades

The inclusion of these occupations on the skill shortage list will be reviewed in Autumn 2010.

Following consultation with a wide range of stakeholders, including ConstructionSkills, the Migration Advisory Committee will publish its report to the government on the level for 2011/12 of the annual limits on economic migration to the UK under Tier 1 and Tier 2 of the points-based system on 18<sup>th</sup> November 2010.

As part of the response to this consultation process, ConstructionSkills were of the opinion that if migration levels from non-EU states are reduced by legislation, the industry will need to draw from other sources including the UK or from EU (especially Ireland). Problems will occur if the upturn is quicker than expected and there is an immediate requirement for skilled professionals and operatives. If they are not immediately available there will be pressure for employers to get them wherever they can and the construction work won't wait for them. As discussed earlier many employers have stopped or reduced recruitment it will therefore become even more important for employers to be supported in up-skilling existing employees and potential future employees.

#### **4.5 Unemployment**

As discussed earlier, the incidence of skill shortages has decreased significantly across the construction industry and is currently not considered a constraint on activity. For the most part, this is due to a reduction in recruitment activity, as a consequence of the recession. In conjunction with this impact, firms have also had to make redundancies.

Recent research<sup>105</sup> in the professional services sector found that just under half of firms had to make redundancies due to the recession in the past 12 months. Whilst it is not possible to know whether these professionals have been re-employed within the industry, it would seem unlikely as approximately half of firms also stated that they had to cut back on recruitment. Therefore it can be assumed that the professionals made redundant had either moved into another industry (3.5% of outflows from construction were to other industries<sup>106</sup>) or more likely they were currently unemployed.

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<sup>102</sup> Migration Advisory Committee, Skilled, Shortage, Sensible: Review of the Recommended shortage occupation list for the UK and Scotland, Spring 2010

<sup>103</sup> Tier 1: highly skilled individuals to contribute to growth and productivity. Tier 2: skilled workers with a job offer to fill gaps in the UK labour force.

<sup>104</sup> Migration Advisory Committee, Skilled, Shortage, Sensible: Review of the Recommended shortage occupation list for the UK and Scotland, 2009

<sup>105</sup> Construction Industry Council and ConstructionSkills, The Impact of the Recession on Construction Professionals – A View from the Front Line, 2010. Thirty in-depth interviews with professional practices were undertaken in August and September 2009 followed by larger telephone survey of 301 firms undertaken in October 2009. All sizes of UK firms with at least 5 employees, from all sub-sectors were included in the survey.

<sup>106</sup> Office for National Statistics, Labour Force Survey, Spring 2010

The biggest outflow from the industry is to unemployment, at 4.1%. Although this is considerably lower than 12 months ago (6.9%) it is still much higher than the outflow to unemployment recorded over the past decade and is now equivalent to 1995/96 levels when the industry began to recover from the previous recession. Indeed, the slowing rate of outflows from the sector has led many commentators to suggest that construction has turned a corner and is on the road to recovery, albeit the start of a long and slow journey. However, with unemployment rates running at 8.8% across the sector and at 12.1% for manual workers, both significantly higher than national rates, it would suggest that the sector is still suffering the effects of the recession.

Table 23 shows the current unemployment rate for the construction industry and compares these findings to the overall UK rate.

**Table 23 – The unemployment rate in the Construction Industry and All Industries, by nation, UK: 2010**

	<b>Construction Industry</b>	<b>All Industries</b>
<b>England</b>	8.0%	6.3%
<b>Wales</b>	14.5%	7.2%
<b>Scotland</b>	10.9%	6.4%
<b>Northern Ireland</b>	15.1%	5.4%
<b>UK</b>	<b>8.8%</b>	<b>6.3%</b>

Source: Office for National Statistics, Labour Force Survey, 2010

As the data highlights the construction industry has been significantly affected by the economic downturn, with the unemployment rate not only higher nationally, compared to the figure for all industries (8.8% v 6.3%), but also higher within each country, notably so in some cases. In particular, the unemployment rate across the construction industry in Northern Ireland is nearly three times as high as the rate for all industries within the country.

The impact of the recession across the construction industry has radically affected the mismatches between demand and supply. While on the one hand skills shortages (and to a lesser extent skill gaps) have decreased dramatically, this has been at the detriment of unemployment. Although skills shortages are currently at an all time low, lessons need to be learnt from the previous recession. One of the biggest risks to the recovery of the construction industry is a shortage of skills as people made redundant seek new careers outside the industry and new entrants unable to get a job, look elsewhere.

#### **Summary Box**

- Far fewer employers in 2009 reporting shortages of skilled staff over the previous 12 months compared with 2008.
- Where a lack of skilled workers was cited, their implications appear to be quite severe. Half reported having to turn work down as a result (50%) and three-fifths had been forced to sub-contract (61%).
- In England only 6% of construction employers reported any vacancies, 2% reported hard to fill vacancies and 2% reported skills shortage vacancies.
- Professional services firms attempting to recruit skilled staff were far more likely to have encountered recruitment difficulties (56%) than construction contracting firms (22%).
- The most common cause of hard-to-fill vacancies was lack of skills (84%) closely followed by not enough people being trained in construction trades in recent

years (81%).

- Most employers experiencing recruitment difficulties had taken some steps to try and overcome them, most often trying new recruitment methods or channels.
- One in ten employers have staff lacking proficiency, and more than one in six of the self-employed (17%) regard themselves as having a skills gap.
- The most common cause of skills gaps is that staff lack experience or have been recently taken on.
- 62% of employees reported as lacking in full proficiency were felt to lack technical, practical or job specific skills.
- Where professional services firms have skill gaps they are particularly affected. The most common impact of a skills gap was increased workload and use of overtime.
- Seven in ten employers and two thirds of the self-employed felt there were factors likely to lead to changing skills or knowledge needs in the coming 12 months.
- The number of employers reporting constraints has been increasing since January 2008.
- Labour shortages and skills shortages were mentioned by very few employers as a constraint on activity now or in the near future, the recession and low or uncertain demand were top of mind, confirming that demand-side not supply-side issues are currently seen as critical by employers.
- The biggest outflow from the industry is to unemployment at 4.1%.
- The current unemployment rate across the UK construction industry is 8.8%.

## 5. The Demand for New Skills and Changing Patterns of Employment

This section examines the evidence for what are expected to be the main drivers for skills change in the construction industry over the next ten years, and what implications these may have for the types of skills that firms will need to operate successfully in 2020.

### 5.1 PESTLE Analysis

A standard way of grouping the drivers for change is under the broad headings of Political, Economic, Social, Technological, Legislative, and Environmental (PESTLE). Some of these drivers are already known and in place, although their full impact on skills may yet still to be felt; while others may be foreseen by those with knowledge of the industry and who are, therefore, aware of trends and undercurrents that may lead to the requirement for new skills in the future.

The matrix below offers a PESTLE analysis summarising the drivers for skills change that are expected over the next ten years. Clearly a detailed examination of them all would warrant a lengthy report in its own right, but the key drivers, along with the evidence for each of them, will be examined here.

<p><b>Political (UK and Nations)</b></p> <ul style="list-style-type: none"> <li>➤ National Policy Statements, e.g. Energy.</li> <li>➤ Housing Policy.</li> <li>➤ Skills White Papers.</li> <li>➤ Targeted funding.</li> <li>➤ Immigration.</li> <li>➤ Devolved policies.</li> <li>➤ Energy security.</li> </ul>	<p><b>Social</b></p> <ul style="list-style-type: none"> <li>➤ Rising unemployment levels.</li> <li>➤ Demographics – ageing workforce.</li> <li>➤ Image of construction industry.</li> <li>➤ Housing shortage.</li> <li>➤ Immigration/Migration.</li> </ul>	<p><b>Legislative</b></p> <ul style="list-style-type: none"> <li>➤ Health &amp; Safety legislation.</li> <li>➤ Banking legislation – impact on lending, credit insurance, private finance.</li> <li>➤ Environmental legislation and targets</li> </ul>
<p><b>Economic</b></p> <ul style="list-style-type: none"> <li>➤ Public deficit – effect on public finance and ability of governments to invest in construction.</li> <li>➤ Availability of private finance.</li> <li>➤ Where will public investment go?</li> <li>➤ Energy prices.</li> <li>➤ Carbon trading.</li> <li>➤ Double Dip recession.</li> </ul>	<p><b>Technological</b></p> <ul style="list-style-type: none"> <li>➤ Modern methods of construction.</li> <li>➤ Energy infrastructure.</li> <li>➤ Low – Zero Carbon technology.</li> <li>➤ Offsite manufacture.</li> </ul>	<p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>➤ Zero carbon <ul style="list-style-type: none"> <li>○ Infrastructure</li> <li>○ New housing</li> <li>○ Retrofitting</li> </ul> </li> <li>➤ Green jobs.</li> <li>➤ Code for sustainable houses.</li> <li>➤ Climate change.</li> </ul>

As can be seen there is considerable overlap between several of the sections in the matrix, for example environmental initiatives will be driven both by rising energy prices (economic), technological breakthroughs (technology), and by Government initiatives (political and legal). Where such overlaps occur it could be said that the drivers, by reinforcing one another, will have the greatest impact.

In order to better understand which of these are the most important drivers for skills change, and what impact they may have upon construction companies, ConstructionSkills commissioned the research agency Pye Tait to gain the views of employers and industry experts on the developments they expect to see. Their report 'Understanding Future Change in Construction' established an evidence base for the changing nature of construction<sup>107</sup>.

The Understanding Future Change report identified 5 key drivers across the construction industry as a whole in Great Britain that will have a significant impact upon the nature of its work; these can be broadly classified as (i) the economy, recession and commercial drivers; (ii) policy and legislation; (iii) research and development; (iv) procurement processes; and (v) information and support. Examples of each of these will be found in the PESTLE analysis above.

## **5.2 Key Drivers and Industry Trends**

### **5.2.1 The Economy, Recession and Commercial Drivers**

By far the biggest impact upon construction will be felt from fluctuations in the wider economy, and the ongoing effects of the recent recession. Respondents from all sub-sectors and all nations indicated that planning for what can be achieved in the future in the current uncertain economic climate is particularly difficult.

The recession bought with it massive job losses to the construction industry, and despite officially ending in the fourth quarter of 2009 the onset of economic recovery did not mark a recovery in employment. Indeed, despite two quarters of surprisingly strong growth<sup>108</sup> construction unemployment is not expected to peak until 2011, when it will have reached 400,000 (a 15% increase since the start of the recession).<sup>109</sup> A priority for the industry in the medium-term, therefore, will be to recover the large swathe of basic construction skills, from craft to professional and managerial, that have been lost.

Since the 'Credit Crunch' banks have become more cautious in their lending to support construction and property development - especially concerning technologies that are not tried and tested, in the sense that they have not been widely adopted by the consumer. As will be discussed later in this section, so called Modern Methods of Construction (MMC) which utilise these new technologies are expected to drive long-term skills change in some sectors of the industry, in the short to medium terms however this commercial factor will act as a brake on their adoption, at least amongst small businesses.

Consistent recovery is not forecasted until 2011 and even then, it is likely to be a slow and steady return to moderate levels of growth as confidence gradually returns to the market. The UK average forecast is for 1.7% growth in output over the next decade<sup>110</sup>, much lower than the decade preceding the recession when it stood at 2.5%. Despite this slow growth, the need for new entrants will be relatively high as there are a large number of workers who are set to leave the industry in the next 10 years through retirement.

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<sup>107</sup> A multi-faceted approach was adopted, to gather data through a range of separate routes: a literature review; four focus groups with representatives from nearly 70 stakeholder organisations; and 29 in-depth qualitative telephone interviews with key stakeholders in the construction sector across England, Wales and Scotland, to explore the emerging issues in more depth.

<sup>108</sup> Office for National Statistics Statistical Bulletin 3<sup>rd</sup> Quarter 2010, 26<sup>th</sup> October 2010

<sup>109</sup> ConstructionSkills Network Blueprint 2010-2014

<sup>110</sup> Ibid.

So what are the implications of the continued economic uncertainty for skills in the industry? In 2007 the research agency IFF undertook a survey of construction Professional Services<sup>111</sup>, examining how they were coping with the recession. The specific findings for professionals are outlined below, however, one particular conclusion was pertinent for the whole industry and that was that the skills required for surviving difficult economic conditions are different to those needed when the economy is performing well.

Whereas in a strong economy there is some benefit to be gained from being a specialist in a particular field, commanding higher prices for the greater knowledge and skills that this implies, in more difficult economic times when different parts of the industry may experience markedly contrasting fortunes, there is merit in operating across a range of sub-sectors. The advantage this brings is that a downturn in one poorly performing area can be offset by relatively better performance in another, enabling a more steady work and cash flow.

The same principle operates at the level of the individual employee. There is increasing evidence<sup>112</sup> that firms are training operatives to be proficient in a number of trades so that fewer workers are required to complete a given project. While this is a short-term response to the present economic circumstances, it is expected that the increased cost effectiveness and productivity will ensure that it becomes a more permanent feature within the main manual trades (bricklaying, carpentry & joinery, and plastering) in the construction workforce.

As the construction industry begins to emerge from recession it will face a different set of strategic challenges which it will need to consider if it is to compete effectively in a global arena. Given the difficulties in planning mentioned by many employers in the Pye Tait survey, then greater management skills will be required as firms attempt to be as flexible as possible, operate profitably in a competitive environment, and make the best use of the skills of their current workforce. Against this backdrop firms will also need to consider, and plan for, how they will train the next generation of construction workers. There is a real risk that lessons will not have been learnt following the recession of the 1990's, and in the medium-term, as the industry begins to recover, there will be a shortage of skilled staff. If this is not addressed by increasing training and apprenticeships (and it can take up to three years to train an apprentice, longer still until they are able to work unsupervised and fully proficiently on site), then it is likely that we will see a return of the skills shortages that marked the early years of the 2000s.

The economic impact of the recession upon the Professional Services sector has been as significant, if not more so, than in the contracting sector, although it has attracted less media attention. According to the survey of professional practices by IFF Research already cited, 46% of professional practices had made redundancies since the onset of the recession, a figure backed up by claimant count data from the ONS, which saw a 400% rise for construction professionals between November 2007 and November 2009, with architects and quantity surveyors suffering the most proportionally.

While there is also evidence of significant 'underemployment' among construction professionals – the IFF Research survey indicated that 27% of firms had resorted to shorter working hours – there is a risk that a return to growth in the industry will see a shortage of management and professional skills in the workforce, a situation likely to be

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<sup>111</sup> Construction Industry Council and ConstructionSkills, *The Impact of the Recession on Construction Professionals – A View from the Front Line*, 2010. Thirty in-depth interviews with professional practices were undertaken in August and September 2009 followed by larger telephone survey of 301 firms undertaken in October 2009. All sizes of UK firms with at least 5 employees, from all sub-sectors were included in the survey.

<sup>112</sup> Employer feedback from Construction Skills Network Observatories. The observatories are structured meetings including a range of employers, stakeholders, and experts from the construction industry discussing topics around skills supply and demand in the construction industry.



compounded by fewer highly skilled overseas workers being allowed into the country as a result of the proposed caps placed on Tiers 1 and 2 of the Government's Points Based Migration System<sup>113</sup>.

In the longer-term, professional practices will have to work hard to overcome the damage that has been done to the image of job security in construction. Should this lead to fewer undergraduates applying for construction degree courses, then deep-seated and systemic skills shortages may develop leading to spikes in wage levels.

### 5.2.2 Policy and Legislation

The legislative drivers for change in skills and employment are primarily concerned with low and zero carbon targets, and associated regulations that are scheduled to impact upon the construction sector in the short, medium and longer-terms.

Wide-ranging legislative targets driven by the 'green' agenda and policy-makers are already impacting on parts of the sector, notably domestic and commercial construction as outlined in Table 24.

**Table 24 – Main Government Strategies for Addressing Energy Efficiency**

<b>Strategies</b>	<b>Details</b>
Building Regulations	Changes to part L (energy efficiency) come into effect in England in October 2010. Will be further reviewed in 2013 and 2016, in line with energy requirement of Code for Sustainable Homes.
Energy Performance Certificates (EPC)	Part of the Home Information Packs (HIPs) and although the requirement for HIPs has been removed, EPC is still required for properties to be sold or rented.
Housing Quality Standards	Aim by 2010 that 95% of social housing will be warm, weatherproof and with modern facilities.
Warm Front	Providing insulation and heating improvements
Carbon Emissions Reduction Target (CERT)	Extended to December 2012. Initiative means that 68% of the work must be met through professionally installed loft, cavity and solid wall insulation with the inclusion of DIY. Now 80% of the obligation will be met through improved insulation and 15% of homes helped will be in the lowest income households.
Community Energy Saving Programme (CESP)	Originally introduced under the Home Energy Management strategy to replace the obligation on energy suppliers when CERT ended.
Feed in Tariffs (FITs)	April 2010. Generate income for each kW of energy you use in property plus additional payment for each kW generated and sold back to the National Grid

In terms of cutting emissions, new rules came into effect on 1<sup>st</sup> April 2010 that will legally require large non-energy intensive organisations '*to closely monitor and report their emissions from energy use in preparation for carbon trading*'.<sup>114</sup>

From 2011, some will need to purchase 'allowances' for every tonne of CO<sub>2</sub> emitted. The construction industry is likely to feel the impact of this by being required by clients to incorporate energy efficiency into construction project design and development, especially where these large organisations require increasingly energy efficient buildings.

<sup>113</sup> Migration Advisory Committee, Limits on Tier 1 and Tier 2 for 2011/12 and Supporting Policies, November 2010

<http://www.ukba.homeoffice.gov.uk/sitecontent/documents/aboutus/workingwithus/mac/mac-limits-t1-t2/>

<sup>114</sup> Construction News, New carbon reduction commitment rules come into force today, April 1<sup>st</sup> 2010

An indication of how companies may approach the skills demands created by the legislation outlined above may be seen in the activities and initiatives already being undertaken by some of the largest firms to support the sustainability and low carbon agendas. These include:

- Knowledge Transfer Partnership (KTP) between Laing O'Rourke and the Institute of Innovation – to develop new solutions for the construction industry, such as Construction Waste Management<sup>115</sup>.
- The Wates Group's Target Zero programme aims to eliminate non-hazardous waste going to landfill from its construction projects by 2010.
- Skanska's publication of a book on green building solutions ('Green Thinking'). As well as implementing this expertise on major construction projects worldwide, they are also participating in Green Building Councils across Europe<sup>116</sup>.

Public sector non-domestic buildings are targeted to be zero carbon from 2018, and remaining non-domestic buildings from 2019<sup>117</sup>. Increased levels of energy efficiency will be embedded through Building Regulations and the Code for Sustainable Homes<sup>118</sup> although the latter does not apply to Scotland. In order to achieve this by 2020 "low carbon skills will have to be fully embedded into the mainstream UK economy."<sup>119</sup> The scale of the challenge this presents to construction is demonstrated by the fact that few companies in the non-domestic sector are currently able to deliver zero-carbon properties, indeed 51% of respondents to a recent survey stated that they had low or very low knowledge of low carbon legislation and directives<sup>120</sup>. As this awareness grows there will be considerable demand for even comparatively basic skills in low/zero carbon technologies and green products.

Just what these skills are is discussed by the Committee on Climate Change in their 2010 report 'Building a low-carbon economy – the UK's innovation challenge'<sup>121</sup> where they state that "A combination of improved energy efficiency through insulation and increased penetration of renewable heat, particularly but not solely from heat pumps, will be required to cut emissions from buildings in the next decades. Most insulation materials and renewable heat technologies are reasonably mature technologies, but have not been deployed at a large scale in a UK context. Whilst the UK does not have significant capabilities in either advanced insulation technologies (e.g. new thinner materials) or heat pumps individually, it does have a capability in work to integrate systems and technologies in the buildings sector."

In the longer-term there may well be increasing legislative changes if some of the challenging climate targets are to be met. The Committee on Climate Change again states that "Although ambitious targets for deployment of solid wall insulation were set in DECC's Household Energy Management Strategy (e.g. 2.3 million insulations annually), there is currently no policy in place to deliver this ambition, and a new policy approach . . . is required." This retrofitting of existing building stock poses the greatest challenge to the industry. In addition to the new regulations mentioned by the Committee it will also require research and development for new technologies, investment, and willingness on the part of construction industry to embrace the changes. However there are opportunities – it has been forecast that providing retrofit installation and advice services

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<sup>115</sup> [http://www.in2.swansea.ac.uk/laing\\_o\\_rourke.html](http://www.in2.swansea.ac.uk/laing_o_rourke.html)

<sup>116</sup> <http://www.skanska.com/en/About-Skanska/Our-green-initiative/We-talk-and-walk-Green/>

<sup>117</sup> Department for Business, Innovation and Skills, Strategy for Sustainable Construction, 2008

<sup>118</sup> Ibid.

<sup>119</sup> Aldersgate Group, Mind The Gap: Skills for the Transition to a Low Carbon Economy, 2009

<sup>120</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews

<sup>121</sup> Committee on Climate Change, Building a Low-carbon Economy – the UK's Innovation Challenge, 2010 [http://hmccc.s3.amazonaws.com/CCC\\_Low-Carbon\\_web\\_August%202010.pdf](http://hmccc.s3.amazonaws.com/CCC_Low-Carbon_web_August%202010.pdf)

to the domestic sector could create up to 65,000 jobs in the UK over the next 40 years.<sup>122</sup>

Meeting the Government's targets there will also require an increase in infrastructure projects, specifically new nuclear power stations and tidal/wind energy infrastructure – requiring the industry to apply existing skills and knowledge to new types of building (e.g. new nuclear generation plants potentially to start coming online by 2017).<sup>123</sup> Over the next 25 years, there is potential that 10,000 – 15,000 new jobs will be required across the UK to support a new nuclear build programme (through the construction, operation and maintenance of plants)<sup>124</sup>

For professional services the impact of many of these legislative changes will be felt at the design and planning stage by the likes of architects and planners. Plans and designs for developments would need to take into account relevant changes in building regulations as well as incorporating adaptations to build methods for improved energy efficiency, requiring skills in interpreting legislation, knowledge of modern materials and methods for their use (see 5.2.3 Research and Development).

A recent Press Release from Atkins Global makes the point that engineers, architects and surveyors will have to learn how to account for carbon using principles normally associated with accountants and economists such as discount rates which are generally used with reference to financial cost.<sup>125</sup>

If the scale of the change to meet new legislation is to be achieved, there will need to be an equally ambitious programme of training and awareness raising for the existing workforce.

### **5.2.3 Research and Development**

Although there are many new and innovative trends in the construction process, the main MMC and the one that is likely to have the biggest impact is off-site manufacture of components that are later installed on site. Although innovation has not been a key aspect of the construction industry in previous years, it is suggested that this could be improved by 'greater internationalism, greater competition, and greater integration in the supply chain'.<sup>126</sup> Also, as one of its benefits is increased energy efficiency, it is likely that its use will become more widespread as Environmental and Sustainability Legislation becomes more stringent (see 5.2.2).

According to the Callcut Review<sup>127</sup>, some 70% of homes built in the UK could include some modern methods of construction by 2016 much of it driven by tightly controlled processes to improve construction efficiency, improve productivity, and minimise waste, particularly on new build sites. By comparison in 2005 the proportion of homes using such methods stood at 24%, the majority of which were timber frame or light metal frame. In the short to medium-term, MMC's impact on new-build is likely to be greater on larger, new work, building projects where repetition of components will justify the investment in off-site methods.

Currently 12% of all construction activity is manufactured offsite and this requires ongoing skills links with the manufacturing sector. The implications for site-based skills

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<sup>122</sup> Department for Business, Innovation and Skills & Department of Energy and Climate Change, Meeting the Low Carbon Skills Challenge: A Consultation on Equipping People with the Skills to take Advantage of Opportunities in the Low Carbon and Resource Efficient Economy, 2010

<sup>123</sup> Department for Business, Innovation and Skills, Towards a Low Carbon Economy – economic analysis and evidence for a low carbon industrial strategy, 2009

<sup>124</sup> Ibid.

<sup>125</sup> Atkins Global: Atkins calls for new industrial revolution to secure low carbon future:

[http://www.atkinsglobal.com/media\\_centre/press\\_releases/Atkins\\_calls\\_for\\_new\\_industrial\\_revolution\\_secure\\_low\\_carbon\\_future.aspx](http://www.atkinsglobal.com/media_centre/press_releases/Atkins_calls_for_new_industrial_revolution_secure_low_carbon_future.aspx)

<sup>126</sup> Experian and SAMI Consulting, 2020 Vision: The Future of UK Construction: Executive Summary, 2009

<sup>127</sup> Department for Local Communities and Government, The Callcut Review of housebuilding delivery, 2007

arising from off-site MMC could be significant over the period to 2020, but there are limits to its application. Construction is a vast range of industries and many small firms will not currently require or utilise innovative methods, as the traditional parts of the industry will co-exist alongside the emerging 'green' industrial markets.

MMC is not widely considered to have a very significant effect on the repair and maintenance market, which accounts for over 40% of total UK construction output, and in employment terms, around 60-70% of the workforce. Civil engineering projects are also not likely to be greatly affected as they already use a significant proportion of pre-cast components, whether manufactured on-site or off-site, in contrast, new housing offers significant opportunities.

Technically, MMC for building homes is already achievable and already occurs on a more significant scale in some overseas markets; a combination of cost, skill, inertia, required levels of investment, and level of demand, and the attitude of home buyers and developers appear to be the main constraints on greater use in the UK at present.

Where it is used the main implications of MMC on skills demand in the future will be:

- Greater mechanisation and automation on-site. Although much of this can be achieved by wider use of existing tools and techniques, it will require skills, particularly in Health and Safety, focused towards heavy lifting, handling large loads and logistics on-site.
- Off-site MMC will involve a very substantial shift of building skills from site to off-site. This may mean a substantial reduction in bricklayers, plasterers, tilers, electricians, plumbers etc. on-site. Initially many of these trades will still be required in the off-site factories, but eventually, possibly rapidly, the level of skill needed will be reduced by the advantages of factory conditions and methods, in particular by having one skilled operator supervising a number of less skilled operators. New skills needed will be along the lines of a better understanding of the composition and purpose of components and assemblies and how they can be moved and lifted.
- With a wide range of substantially different components, site workers will need a greater understanding of general building issues such as tolerances, air/water-tightness, and the interaction between components.
- In general there will be a need for site supervisors and site labour that has an understanding of modern terminology, the ability to read, understand and follow instructions on new materials and components.

Another important impact arising from MMC is the possibility that components will not just be manufactured off-site, but manufactured offshore. Currently many of the more advanced housing packages are manufactured abroad. To keep value added within the UK, contractors and manufacturers will need to rapidly develop the right blend of skills for off-site manufacturing and ensure that there will be adequate demand to achieve the economies of scale required by such methods.

MMC would also cover the introduction of new construction materials, although this may have limited direct impact on the demand for skills, as most of the actual or potential new materials remain within the scope of existing methods of application or installation. However there are a number of materials and methods used overseas that are not widely used in the UK at present, such as spray application of plaster, which could be more widely adopted in the UK given the right conditions. These and other developments in materials may allow the implementation of labour and skill saving methods, leading to new training requirements and possibly a reduction in the number of trades people needed with existing skills.

For professional services, in addition to the an understanding of how new components will operate over the life time of a building, MMC will require integration of construction processes from design through construction to maintenance, which in turn implies a need for cross-disciplinary education for design teams. There will also be increased need for CAD trained building technicians to work on off-site design and application in factory conditions. Overall an understanding of manufacturing methods will need to be combined with an understanding of construction methods.

#### **5.2.4 Procurement Processes**

The changes in legislation discussed in 5.2.2 are likely to translate into Local Authority contractual requirements - meaning that procurement processes are expected to become another important driver for skills demand as companies will have no choice but to respond.

Pre-qualification questionnaires (PQQs) are placing increased importance on environmental and sustainability policies held by tendering organisations; as well as quality standards and experience and skills relating to specific materials and processes, including waste management. Changes to procurement processes are therefore expected to act as a conduit for businesses to drive through changes within their organisation in order to adapt and survive in a competitive market.

Over the medium to longer-term, procurement requirements are expected to become even more stringent for all parts of the sector – in part led by regulations introduced by the EU. This will have a particularly strong impact on SMEs, as the costs and time incurred to pass through PQQ stage, even for relatively small contracts, are continually increasing.

In order to demonstrate compliance with regulations at both pre-qualification and building stages there will be a greater need for recording and documentation of processes and materials. This in turn will require additional written, communication, and presentational skills and may even require an understanding of addressing legal requirements and contractual skills which may be costly and time consuming for SMEs who will have to achieve this in addition to their day to day operations.

#### **5.2.5 Information and Support**

Firms expect to see growth in the availability of information and knowledge for the sector as a whole, for example through knowledge sharing partnerships (see the example of Laing O'Rourke mentioned in 5.2.2). This is likely to develop over the next 3 to 5 years, as employers and universities recognise the need for increased collaboration to help them to address and respond to changes in the industry. SMEs in particular are keen to forge stronger networks that may result in commercial opportunities.

This will increase opportunities for skills to be transferred between linked sectors, for example construction and manufacture, already discussed in 5.2.3. Inter-agency working will be of increasing importance requiring a wide range of communication and influencing skills, and a detailed working knowledge of other sectors.

### **5.3 Additional Targets in Devolved Nations**

Targets set for the UK typically override all others set in Wales, Scotland, and Northern Ireland; however specific targets set for the devolved nations are also included here to highlight the different rates at which some of the skills discussed above will need to be acquired across all nations.

#### **5.3.1 Scotland**

Scotland's target is to achieve total zero carbon buildings by 2030 – with phased zero net carbon emissions for space heating, hot water, lighting and ventilation by 2016-17.<sup>128</sup>

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<sup>128</sup> Sullivan Report, A Low Carbon Building Standards Strategy For Scotland, 2007

Very low carbon standards will be introduced in 2013<sup>129</sup> - but there will be gradual increases in energy standards between 2010 and 2013, with the introduction of the Scottish Building Standards 2010 aiming for a 30% reduction in carbon emissions beyond current standards.<sup>130</sup>

As the Scottish economy directs investment towards meeting emission reduction targets, current jobs will need to be upgraded and new jobs and economic activities created in those sectors where there is an opportunity to develop and gain competitive advantage.<sup>131</sup>

The Renewable Heat Action Plan for Scotland sets out the Government target of 11% of heat to come from renewable sources by 2020. An initial focus on industrial, commercial and public sectors, will be followed by a strong emphasis on improving standards of existing housing stock (some 50% of Scotland's heat use in the domestic sector) - e.g. retrofitting micro-renewables<sup>132</sup> With 25% of Europe's wind potential and vast renewable reserves, Scotland can be an international leader in this sector. The Scottish Government has set out a blueprint to create at least 16,000 renewable energy jobs over the next decade.<sup>133</sup>

Current work towards achieving these targets creates a significant opportunity for occupations likely to be involved in the creation, installation and maintenance of products and services – e.g. designers, specifiers, building services engineers and planners.<sup>134</sup> Schemes for Approved Certifiers of Construction are to be encouraged, so that suitably qualified and experienced tradesmen can certify that installations comply with building regulations<sup>135</sup>

Between 2010-2014, there is a projected annual increase in output of 2.8% (well above UK average) – attributed to expenditure programme on public housing repair and maintenance works. The R&M sector is labour intensive, so employment also forecast to increase over this period, by around 9%.<sup>136</sup>

The Building (Scotland) Amendment Regulations 2010 came into force on October 1, 2010. This has resulted in changes to mandatory standards and associated guidance, and the publication of new documents. Building standards have been updated to give key drivers for improving building energy efficiency standards taking account of the Sullivan Report and Climate Change (Scotland) Act 2009

Conserve and Save: Energy Efficiency Action Plan sets out a wide-ranging programme of activity on behaviour change, household, business and public sector energy efficiency, infrastructure, skills, and finance. It is a key component to meet Scotland's climate change targets and securing the transition to a low carbon economy in Scotland.

The plan sets a framework for energy efficiency and microgeneration that furthers our climate change, economic and social agendas. It drives the cost-effective action required if Scotland is to meet its challenging statutory emissions reduction targets of at least 80% by 2050 and 42% by 2020, as set out in the Climate Change (Scotland) Act 2009

### 5.3.2 Wales

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<sup>129</sup> Ibid.

<sup>130</sup> Scottish Building Standards Agency: [www.sbsa.gov.uk](http://www.sbsa.gov.uk)

<sup>131</sup> Scottish Government, Conserve & Save: Consultation on the Energy Efficiency Action Plan for Scotland, 2009

<sup>132</sup> Scottish Government, Renewable Heat Action Plan for Scotland: a plan for the promotion of the use of heat from renewable sources, 2009

<sup>133</sup> Scottish Government, The Government Economic Strategy, 2007; and, Scottish Government, Economic Recovery Plan: Update, 2009

<sup>134</sup> Ibid.

<sup>135</sup> Sullivan Report, A Low Carbon Building Standards Strategy For Scotland, 2007

<sup>136</sup> ConstructionSkills, Construction Skills Network Blueprint 2010-2014

In Wales the low and zero carbon priorities are high on the agenda – the Welsh Assembly Government has set a target of 55% reduction in carbon emissions (over the 2006 Building Regulations) as the target for the first changes in devolved Building regulations.<sup>137</sup> This is to take effect from 2013.

The Welsh Strategic Energy Performance Investment Programme, Arbed, has an objective to stimulate and deliver investment into the energy performance of existing domestic housing, which will generate ‘green’ jobs in the built environment supply chain, reduce carbon emissions and reduce fuel poverty.

By 2011 the WAG goal is that all new buildings will be zero carbon; furthermore, a programme of support to improve domestic energy efficiency standards will be introduced (e.g. installation of new technologies and creation of community-level energy generation projects)<sup>138</sup>

WAG’s proposed legislation/building regulations for improving the efficiency of new housing stock, and the cost implications of these regulations for the construction industry, are of concern to the sector – particularly during a recession – requiring the up-skilling workers in sustainability and ‘green building’ techniques.<sup>139</sup>

There are a large number of solid wall homes in Wales, with rural properties often dependent on oil or LPG for fuel. The view of the Welsh Assembly Government is that tackling this backlog of hard-to-heat homes will create jobs, encourage skills, improve local areas, and directly reduce fuel poverty.<sup>140</sup>

According to WAG, building technologies is one of the largest emerging low carbon industries in Wales. WAG will focus on these industries where there could be quick development of the relevant skills base and strong supply chain<sup>141</sup>

A raft of initiatives and funding may well act to kick start the development of ‘Green Skills’ in the construction industry in Wales. In particular:

- **Energy Efficiency:** Revised Home Energy Efficiency Scheme (improving over 3000 homes per year) offering information and support to local communities;
- **Funding:** *Arbed* – Wales Strategic Energy Performance Investment Programme – stimulating investment of £350m into energy performance of domestic stock; including £30m investment from WAG to secure private sector funding for whole house assessments and improvements for over 10,000 homes; plus use of EU funding for energy efficiency;
- **Building Regulations:** increasing standards to zero carbon; changes in public sector procurement
- **Reform:** seek for energy tariffs to encourage reduction in energy consumption; roll-out of installation programme for smart meters.

### 5.3.3 Northern Ireland

Success through Skills 2 is the new Skills Strategy for NI and provides an overarching framework for the development of skills in NI by looking at the current skills base, examining the skills needed in the future to grow the NI economy and highlighting the

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<sup>137</sup> Building regulations powers transfer to Wales on 31<sup>st</sup> December 2011

<sup>138</sup> Ibid.

<sup>139</sup> ConstructionSkills response to Welsh Assembly Government Climate Change Strategy consultation

<sup>140</sup> Welsh Assembly Government, A Low Carbon Revolution: The Welsh Assembly Government Energy Policy Statement, 2010

<sup>141</sup> Welsh Assembly Government, Capturing the Potential: A Green Jobs Strategy for Wales, 2009

areas for action. Its vision is one of achieving a skilled Northern Ireland workforce by 2015.

One of its main targets is to address the under-representation of graduates in key sectors in the economy, including construction, which has resulted in under representation of managerial and professional occupations. This is likely to be a reflection of the limited 'upper-end' activities located in the country (reflected in the small number of NI PLCs and the 'small nature' structure of the economy). Many of NI's industrial and indeed professional services activities are not at the high end headquarter or design and strategy end of the spectrum and thus demand for managerial and professional occupations historically has been lower.

Everyone's Involved – Sustainable Development Strategy is the Executive's strategy to provide Northern Ireland with a government framework for the sustainability agenda. This should be viewed alongside the new Sustainable Development Strategy Implementation Plan which details the actions to be taken by Government and others in support of achieving the strategic objectives within the Sustainable Development Strategy. It underpins the Investment Strategy for Northern Ireland with excellence in construction programmes that integrate Sustainable Development principles. It aims to ensure that public sector housing and public properties are constructed or refurbished to maximise sustainability and flexibility of use.

A key target is to increase the skills and qualifications of the Northern Ireland workforce, (including the Essential Skills of numeracy, literacy and ICT), encourage higher value-added jobs and enhancements to productivity

#### **Summary Box**

- There are 5 key drivers for skills change across the construction industry as a whole in the UK; these can be broadly classified as (i) the economy, recession and commercial drivers; (ii) policy and legislation; (iii) research and development; (iv) procurement processes; and (v) information and support.
- A priority for the industry in the medium-term will be to recover the large swathe of basic construction skills, from craft to professional and managerial, that have been lost as a result of the recession.
- Despite slow economic growth, the need for new entrants will be relatively high as there are a large number of workers who are set to leave the industry in the next 10 years through retirement.
- The skills required for surviving difficult economic conditions are different to those needed when the economy is performing well. Specifically there is a benefit for both businesses and employees to be multi-skilled so that they can operate across several sectors and occupations.
- Greater management skills will be required as firms attempt to be as flexible as possible, operate profitably in a competitive environment, and make the best use of the skills of their current workforce.
- There is a real risk that lessons will not have been learnt following the recession of the 1990's, and in the medium-term, as the industry begins to recover, there will be a shortage of skilled staff.
- Low carbon skills will have to be fully embedded into the mainstream UK economy. At present few companies in the non-domestic sector are currently



able to deliver zero-carbon properties.

- Specific skills shortages here exist around insulation and use of heat pumps.
- Over the next 25 years, there is potential that 10,000 – 15,000 new jobs will be required across the UK to support a new nuclear build programme (through the construction, operation and maintenance of plants)
- Providing retrofit installation and advice services to the domestic sector could create up to 65,000 jobs in the UK over the next 40 years.
- The impact of many of these legislative changes will be felt at the design and planning stage by the likes of architects and planners. Plans and designs for developments would need to take into account relevant changes in building regulations as well as incorporating adaptations to build methods for improved energy efficiency, requiring skills in interpreting legislation, knowledge of modern materials and methods for their use.
- Engineers, architects and surveyors will have to learn how to account for carbon using principles normally associated with accountants and economists such as discount rates which are generally used with reference to financial cost.
- Where it is used Modern Methods of Construction will lead to fewer traditional building skills on site in favour of a better understanding of the composition and purpose of components and assemblies and how they can be moved and lifted. In turn this will require a different focus for Health and Safety training.
- As a result of MMC site workers will need a greater understanding of general building issues such as tolerances, air/water-tightness, and the interaction between components.
- In general there will be a need for site supervisors and site labour that has an understanding of modern terminology, the ability to read, understand and follow instructions on new materials and components.
- For professional services, in addition to the an understanding of how new components will operate over the life time of a building, MMC will require increased need for CAD trained building technicians to work on off-site design and application in factory conditions.
- In the short to medium terms the unwillingness of banks to lend money to SMEs is expected to act as a brake on the adoption of Modern Methods of Construction.
- In order to demonstrate compliance with regulations at both pre-qualification and building stages there will be a greater need for recording and documentation of processes and materials. This in turn will require additional written, communication, and presentational skills.
- Inter-agency working will be of increasing importance requiring a wide range of communication and influencing skills, and a detailed working knowledge of other sectors.

## 6. What is the Likely Demand for Employment and Skills in the Future?

- Short Term: 2011 - 2012
- Medium Term: 2013 - 2015
- Long Term: 2016 - 2020

### 6.1 Introduction

Last year's SSA noted that demand for employment and skills within the construction industry will be heavily influenced by trends in the UK economy, in particular GDP growth. The PESTLE analysis in Section 5 also identified and outlined economic factors as well as political/legislative factors as being key issues that will influence the future drivers for skills.

This means that any view on the future demand for employment and skills needs to consider the general economic and political/legislative backdrop along with the specific drivers that will impact upon the future demand for employment and skills in the construction industry.

To cover the economic aspects of likely demand, this section of the report starts off by looking at what the CSN currently sees as the core scenario for the industry and how this is forecast to impact upon demand for overall employment. Demand will be discussed across the different work sectors that make up the construction industry and also by the two main occupational areas, construction contractors and professional services. The main risks associated with the core scenario will also be identified and the possible effect that this could have on demand.

Following on from the economic aspects the political/legislative drivers identified in Section 5 will also be discussed as there are some major initiatives that will have a significant effect upon the demand for employment and especially skills.

Finally the section briefly outlines the demand for employment and skills that will come from the demographics of the workforce. Like the overall UK workforce, the construction industry faces the challenge of replacing those who will naturally leave the industry through retirement over the next ten years.

Before looking at the economic aspects it is worth noting that economic, political and legislative factors do not work in isolation, there is an intrinsic link between them. For example political decisions around greenhouse gas emissions reduction targets progress into regulations around climate change, which cascade down in to building regulations, and this in turn creates economic opportunities.

It is these economic opportunities that will drive future investment and construction is essentially an investment driven industry. Whether the investment comes from private, public or a mix of private/public finance, the main demand for employment and skills will be the opportunities where future investment will be targeted.

## 6.2 Long-term forecast for the UK Construction Industry

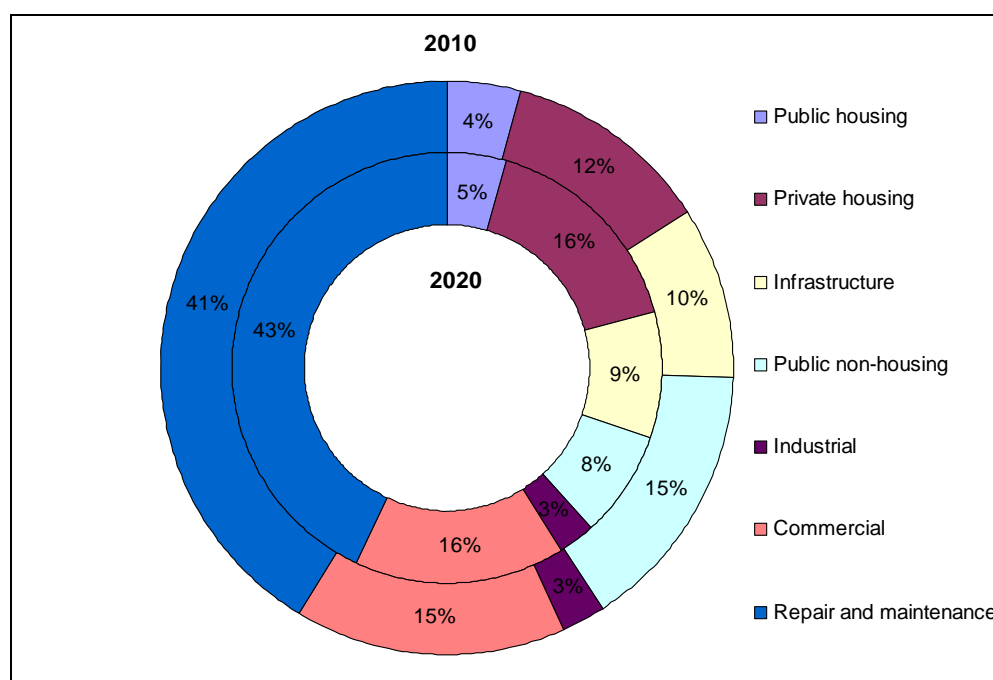
There have been some major changes, certainly in political terms, during 2010 and our core scenario has been adjusted to reflect this. Our core scenario assumes that from 2011-2020:

- UK economy will continue to emerge from recession and there will be a gradual recovery to long-term levels of GDP growth of around 2.0% p.a. through to 2020.
- UK construction output will start to recover from the end of 2011, although it will be at a lower level than GDP growth. Long-term forecast for construction output is around 1.6% p.a. through to 2020.
- Construction output by 2020 will be around £118 billion (constant 2005 prices), an increase of around £20 billion on estimates of output for 2010.
- Although repair and maintenance work showed strong growth in 2010 Q2 construction output statistics, in the long-term the overall ratio of new work to repair and maintenance (R&M) will fluctuate around the current level of 60:40 new work to R&M. As such new work will continue to be the main driver of construction output through to 2020.
- Overall levels of productivity growth will remain low, around 1.0% p.a., however productivity growth will feature more for new build rather than repair and maintenance work.
- Housing demand in the private sectors recovers, with current forecasts show private housing output returning to 2007/08 level towards 2019 - 2020.
- Work in the public non housing sector declines sharply from 2011. This is due to a combination of government cutbacks in capital spending taking effect, while work brought forward during the recession is completed.
- Commercial and industrial new work, both very badly affected in 2009, will recover through to 2020. However, output levels in 2020 will still be lower than those seen in 2008, therefore there is no real growth.

Even with government cutbacks, infrastructure sector work is forecast to grow in the short to medium-term and the long-term prospects for energy infrastructure remain positive with the government commitment to reducing greenhouse gas emissions.

Although the overall size of the industry will be greater in 2020, when considering the relative balance of industry sectors it will be broadly similar to that in 2010 apart from two sectors, private housing and public non-housing. It should be noted that 1% of output equates to over £1 billion worth of construction work.

**Chart 30 – Construction Output, United Kingdom: 2010 vs. 2020**



Source: ConstructionSkills and Experian, Construction Skills Network, 2010

For private housing 2009 and 2010 have been bad years with significant declines in work load, therefore the 12% share of output represents a low point. Even with the sectors share of output forecast to increase to around 16% by 2020, this is more towards the average figure seen over the last 15 – 20 years and is still noticeably lower than the housing boom seen in the late 1980's when private housing was over 20% of construction output.

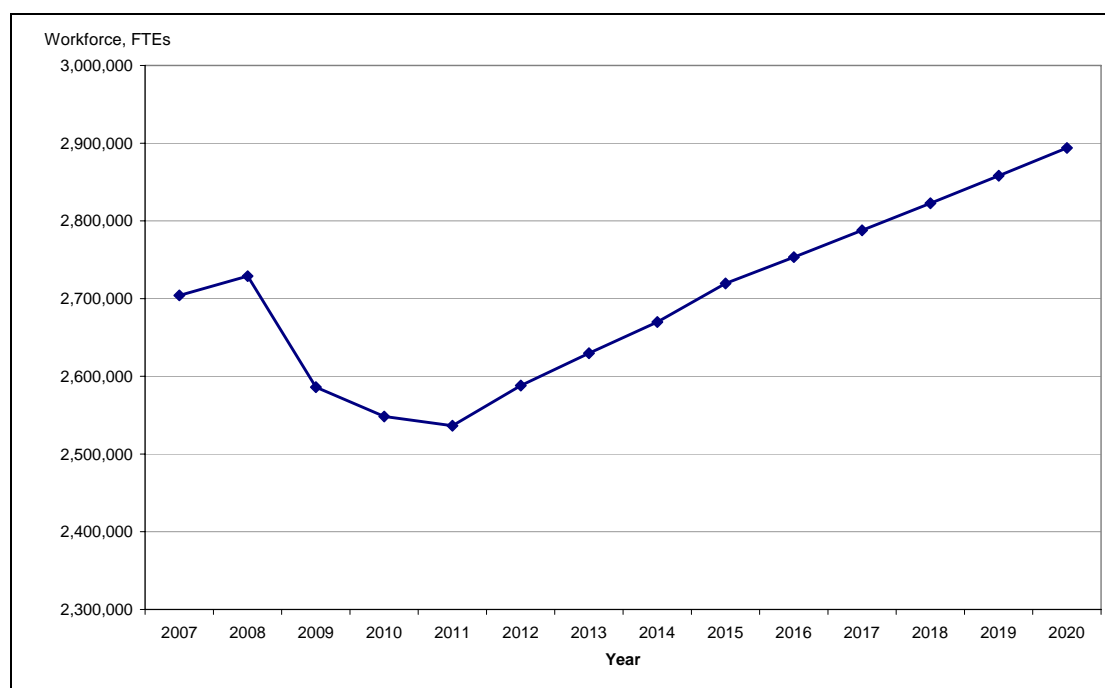
The reverse is the case with public non-housing's share of construction output where capital spending cuts across the public sector will have an effect, especially for programmes such as schools, hospitals, defence estates and the like. Although there is a forecasted drop of 15% down to 8%, it is worth noting that there has been significant public spending over the last few years such as the 2012 Olympics and Building Schools for the Future. Even with a forecast of 8% output for the sector in 2020, this is still higher than the average figure between 1985 – 2010, which was just over 6% of construction output.

The core scenario recognises that although the construction industry is facing challenging times over the short-term, when taking a longer view through to 2020, output will recover, which is consistent with trends seen during previous recessions in the 1980's and 1990's. The strength of this recovery will be determined by work in the private housing sector due to long-term mismatches between housing supply and household formation. However, the continued strength of the infrastructure sector, returning investor confidence in the commercial sector and levels of R&M work will all help to shape the overall recovery.

Overall industry employment is shown in Chart 31, and this means that:

- Short-term employment will remain static at just over 2.5 million.
- Medium-term, as the recovery takes shape employment increases and by 2015 there will be around 2.7 million people employed.
- Long-term, by 2020 employment will be over 2.8 million.

**Chart 31 – UK Construction Employment Forecast, United Kingdom: 2010-2020**



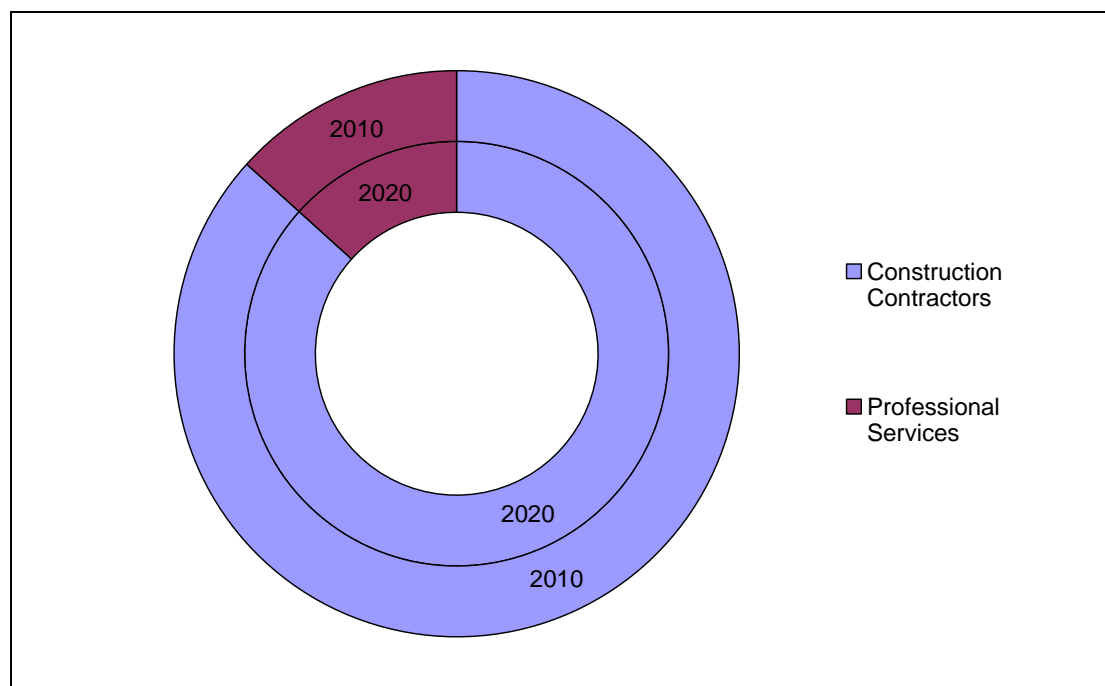
Source: ConstructionSkills and Experian, Construction Skills Network, 2010

Although the balance of the new work sectors shift noticeably between 2010 and 2020, the forecast does have surprisingly strong employment projections which is due to the relative workforce levels across the sectors. The small increase in R&M work, combined with overall output growth will help to boost overall employment, because R&M work is more labour intensive. When comparing the value of output across the sectors, R&M has more than double the labour profile compared to private housing or infrastructure work.

Public non-housing, on the other hand, has one of the lower employment profiles, nearly a third of the labour per output value when compared to R&M work. Therefore the large drop of work in this sector has less of an effect on employment than would be anticipated.

When it comes to how the two main categories of employment, i.e. Construction Contractors and Professional Services are affected by the forecast, there appears to be little difference. Professional Services account for just over 13% of construction employment and this remains static throughout the forecast period, as illustrated by Chart 32.

**Chart 32 – Construction Employment, Construction Contractors vs. Professional Services, United Kingdom: 2010-2020**



Source: ConstructionSkills and Experian, Construction Skills Network, 2010

While there are noticeable shifts in the sectors the stability of the broad categories of employment emphasises just how mobile or transferrable the broad occupational areas are across the different sectors. For example an architect or surveyor would be able to apply their skills across the full range of construction work.

### 6.3 Main risks to the economic core scenario

At the moment there are two main risks to the economic forecast and these are:

- **Public sector cuts are deeper than expected:** even with the announcement of the details in the CSR, it will take time for the full effects of cuts to become clear. The risk here is that any recovery in the short to medium-term may be lost as workloads and confidence levels suffer. Although public sector cuts would impact directly on the publicly financed sectors, there would be effects across all sectors from housing through to R&M with reducing consumer confidence.
- **Private sector investment fails to return:** the main underlying premise behind most forecasts for future growth is that as the public sector is cut, the private sector grows. In previous recessions this has been the case, however economic conditions at the moment are best described as being fragile and the key risk to our forecast lies around uncertainty about the strength of growth that will be seen in the short to medium terms. Recent details from the Bank of England's Trends in Lending report<sup>142</sup> showed that while net lending in August 2010 was positive and showed an upwards trend, finance and credit for small businesses remained difficult<sup>143</sup>. As the majority of construction businesses would be classed as small to medium sized, this highlights the fragile nature around private sector investment at the moment.

In the short-term, these two risks may combine to cause further stagnation in the recovery, or even a further a drop in output, a fact that was picked by feedback from our

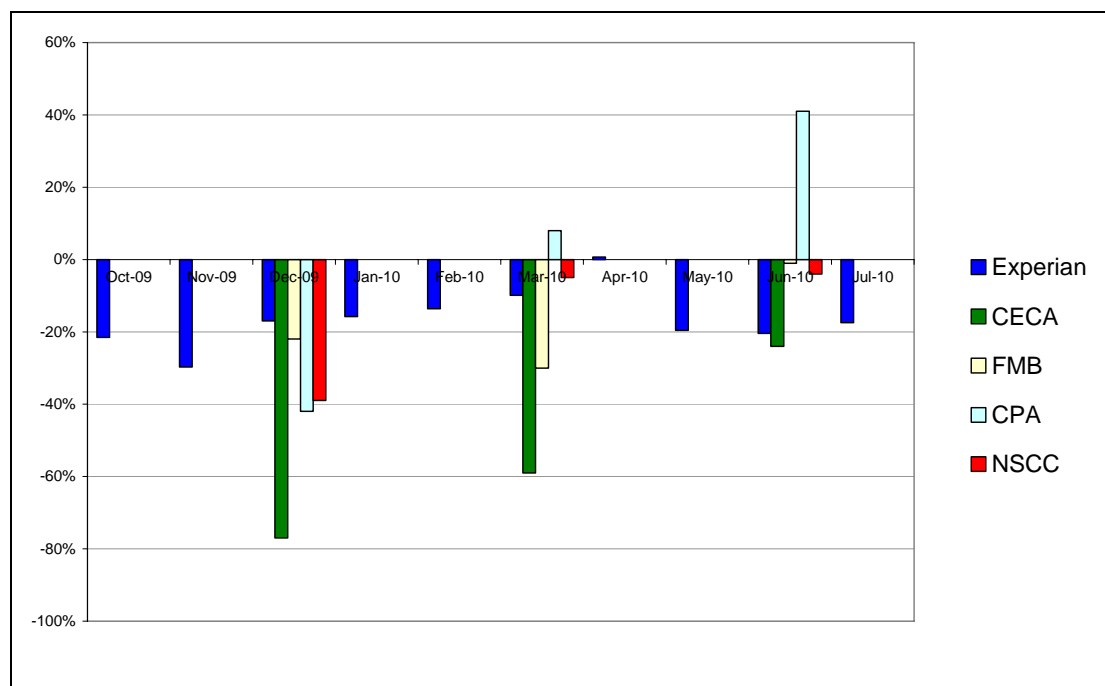
<sup>142</sup> Bank of England, Trends in Lending, October 2010

<sup>143</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews.

CSN Observatory meetings, Employer Panel<sup>144</sup> and by the research into Understanding Future Change in Construction<sup>145</sup>.

Even with the quarterly construction output figures released by the ONS<sup>146</sup> showing strong growth in construction output for Q2 and Q3 this year the view from industry indicates a real concern about current and future workloads. Chart 33 illustrates the views from a selection of state of trade surveys and all appear to conflict with the view that is coming from the ONS data.

**Chart 33 – Selected State of Trade and Workload Surveys: Oct 2009 – July 2010**



Source: Experian 2010

Note: Civil Engineering Contractors Association (CECA); Federation of Master Builders (FMB); Construction Products Association (CPA); National Specialist Contractors Council (NSCC)

Nearly all of the state of trade or workload balance surveys show a more pessimistic view of the industry position than that given by the ONS, which does not bode well for the strength of a future recovery.

Further stagnation or even a recession would have a significant effect upon employment in the short to medium-term and delay recovery. However our long-term view would remain the same, albeit with lower employment levels at 2015 and 2020.

Having outlined the economic drivers behind employment growth along with the key risks to the forecast, by way of providing some context the next section considers at the more immediate future in terms of the short to medium-term outlook in terms of employment and the demand for workers.

#### 6.4 Short to Medium-term Forecast for Employment in UK Construction<sup>147</sup>

The average annual output growth for output in UK construction is expected to be around 1.5% over the period 2011-15, which is significantly lower than previous

<sup>144</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010 (Unpublished). A telephone survey of 1,511 employers and sole traders across UK construction industry complemented by 30 depth interviews.

<sup>145</sup> ConstructionSkills, Understanding Future Change in Construction, August 2010

<sup>146</sup> Office for National Statistics, Statistical Bulletin, October 2010

<sup>147</sup> This data contained within this section is based on provisional forecasts from the Construction Skills Network, 2011-2015 which may change prior to final publication of CSN Blueprint for UK Construction Skills 2011-2015.

forecasts. This translates into an annual recruitment requirement (ARR) of 42,880 workers.

Total construction employment in the UK is forecast to reach around 2,633,600 by 2015, an 8% increase on the 2011 level. In 2015, 2,279,100 are predicted to be working in the contracting sector (SIC 45), whilst 354,500 are expected to be working in the professional services sector (SIC 74.2).

All occupational groups are expected to increase slightly over the forecast period.

The ARR is a gross requirement that takes into account workforce flows into and out of construction due to such factors as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training. Thus, the ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

The ARR for the 26 occupational groups within construction industry in the UK between 2011 and 2015 is illustrated in the table below. The ARR of 42,880 is indicative of the average requirements per year for the industry, as based on the output forecasts for the region.

**Table 25 - Annual Recruitment Requirement by Occupation, United Kingdom, 2011-2015**

<b>Occupation</b>	<b>2011-2015</b>
Senior, executive, and business process managers	1,410
Construction managers	2,520
Non-construction professional, technical, IT, other office-based staff	2,400
Wood trades and interior fit-out	6,080
Bricklayers	2,130
Building envelope specialists	1,620
Painters and decorators	3,450
Plasterers and dry liners	1,220
Roofers	570
Floorers	1,500
Glaziers	1,240
Specialist building operatives nec*	1,340
Scaffolders	620
Plant operatives	1,560
Plant mechanics/fitters	1,140
Steel erectors/structural	960
Labourers nec*	3,870
Electrical trades and installation	1,670
Plumbing and HVAC Trades	1,180
Logistics	1,900
Civil engineering operatives nec*	490
Non-construction operatives	-
Civil engineers	1,340
Other construction professionals and technical staff	1,080
Architects	620
Surveyors	970
<b>Total (SIC 45 and 74.2)</b>	<b>42,880</b>

Source: ConstructionSkills and Experian, Construction Skills Network, 2010



Note: \*not elsewhere classified. We are grateful to SummitSkills for allowing us to include data on plumbers and electricians (SIC45 codes 45.31 and 45.33).

The largest ARRs in the UK are expected to be for wood trades and interior fit-out and Labourers. However, it should come as no surprise that the size of the ARR is often a function of the size of the particular occupational category.

Please note that all of the ARRs presented in this section are employment requirements and not necessarily training requirements. This is because some new entrants to the construction industry, such as skilled migrants or those from other industries where similar skills are already used will be able to work in the industry without the need for retraining.

Ultimately however, these forecasts are heavily dependent on how public expenditure cuts are applied across the UK. Whereas the CSR gives some reasonable detail for the English regions in terms of the capital expenditure implications, how overall reductions in the level of finance available to the devolved nations are applied is in the hands of the devolved administrations.

Having now considered the economic drivers behind employment growth and the demand for workers the next section considers how the political and legislative drivers will influence the skills that will be needed in the medium to long-term.

### **6.5 Political and Legislative Drivers**

There are several political/legislative drivers that will impact upon the skills required across the construction industry over the short, medium and long-term, such as waste management, sustainability, health and safety, procurement policies and the like. Each of these will influence the demand for certain skills:

- Waste management – more skill when selecting, using and disposing of material throughout the build process.
- Sustainability – skills around material selection and use.
- Health and safety – recent news articles<sup>148</sup> illustrate that although improvements have been made over the last ten years, tragic deaths occur for what seem like basic failings. Here the driver will be application of skills.
- Procurement policies – with procurement policies set to be adopted more widely, construction businesses will need to learn skills in how to prepare and submit proposals in order to take advantage of work opportunities in the future.

While there are a number of legislative drivers, the key drivers that will influence skills demand in the future are policy and legislation around the low carbon agenda and the Government's commitment to reductions in greenhouse gas emissions. This move towards a low carbon economy is already beginning to have an impact upon the construction industry and with 2020 being one of the key dates in the future, the impact upon construction will only increase. Examples of policy/legislation are:

- Building regulations have begun to feature energy efficiency as a requirement for new housing and planned future changes will introduce increasing standards.
- Feed in Tariffs were introduced in April this year to stimulate demand for microgeneration schemes such as photovoltaic power.
- The Renewable Heat Incentive (RHI) will be introduced in 2011 to stimulate demand for distributed heating systems, similar to Feed in Tariffs.

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<sup>148</sup> Construction Enquirer, "Six site workers killed in one week", <http://www.constructionenquirer.com/2010/10/28/six-construction-workers-killed-in-one-week/> accessed October 2010

- Green Deal will come into effect around 2012 to help homeowners install energy efficiency measures.
- Green Investment Bank will be seeded with £1billion to help fund renewable power generation schemes.

These are examples of the political and legislative drivers that will have a direct and lasting impact upon the construction industry. ConstructionSkills recently launched its 'Cut the Carbon' campaign, which is a three year initiative to highlight the opportunities available to SMEs as clients are increasingly demanding low carbon solutions.

Research conducted to support the campaign<sup>149</sup> showed that there's a clear disparity between client demand and the current ability of SMEs to deliver. While the findings suggest a small proportion of innovative SMEs are harnessing the business opportunities of the low carbon agenda, feedback from clients suggests that, for the vast majority, there is a long way to go.

Given the proportion of SME firms working in the construction industry, clients cannot deliver the reductions in carbon emissions they need without the support of SMEs. Homeowners are also looking for reassurance, with the vast majority stating that they would require evidence of appropriate knowledge and skills prior to work being undertaken in their home.

This highlights the real business opportunity for SME contractors who invest in up-skilling on low carbon construction practices. Indeed, the vast majority of clients state that SMEs' ability to respond to low carbon requirements is either very important or essential. 95% say it would, to some degree, influence their procurement decision.

*"The ability of SME contractors to deliver to our low carbon requirements is definitely a factor in our procurement choices." – Main contractor client*  
 Source: ConstructionSkills (2010) Cut the Carbon.

Although the focus for low carbon measures at the moment is more on housing, due to the scale of potential improvements, it is something that will touch all sectors of the construction industry and by 2020 it will be the norm rather than something new:

- New housing (private and public sectors) – building regulations, smart meters
- Housing R&M (private and public sectors) – Green Deal, FIT, RHI, smart meters
- Infrastructure – building low carbon power generation e.g. wind power, nuclear, carbon capture and storage, and building a smart grid
- Public non-housing – building regulations and government taking lead on energy efficiency targets
- Commercial – building regulations, energy efficiency
- Industrial – building regulations, energy efficiency

Having a workforce that is equipped with the right skills will therefore be a key factor and low carbon construction is clear driver for skills demand. ConstructionSkills' Future Skills Unit, working in conjunction with the likes of The Department for Energy and Climate Change (DECC); Energy Efficiency Partnership for Homes (EEPH); Built Environment Skills Alliance (BESA) and others have been working towards identifying

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<sup>149</sup> ConstructionSkills, Cut the Carbon Research Study: Preparing for a Low Carbon Future, September 2010

the potential skills implication, and will continue to do so. Findings so far indicate that although workers will be required to adapt to new technology, this does not always mean a significant change in the current skill levels.

In new housing it is not the current skills that are the main issue, it is the attention to detail that is required when working with new technology and being familiar with the subtle adaptations that are required. For example ensuring airtightness or minimising cold bridging are two techniques that are used to improve energy efficiency and for both of these it is attention to detail rather than the underlying skills that would influence the eventual energy performance of the building.

Even before work begins on site there will be an increased demand for low carbon design related skills to ensure that new buildings are designed for maximum energy efficiency, rather than installing technology. It is fabric first and sometimes straightforward design and planning measures such as the type of material used or aspect of structure that can yield cost effective low carbon solutions when compared to microgeneration schemes.

There are however some sectors and occupations where low carbon skills will have a significant effect in terms of a skills gap, a skills shortage or possibly both:

- Construction Managers and Supervisors (all sectors – skills gap); understanding relevant legislation and the implications that this has for the build process.
- Architects (all sectors – skills gap); low carbon design skills and material specification.
- Installation of solid wall insulation (Housing R&M – skills shortage); will be important measure for improving the energy efficiency of existing housing and potential market means a risk of not having sufficient workers.
- Installation of microgeneration measures (Housing R&M and new build – skills gap and shortage); the FIT, RHI and Green Deal will stimulate demand for microgeneration technology which has to be installed by accredited workers. Although the underlying skills base already exists there is a potential shortage of workers with the top up skills to install these measures.
- Building low carbon power generation (Infrastructure – skills shortage and gap); although this work will require both civil engineering and engineering construction skills, the potential scale of measures being introduced in the future could lead to a shortage of experienced workers. Also some aspects of construction such as nuclear power have not been undertaken in the UK for 20 years therefore skills gaps may exist for key occupations.

As mentioned earlier though, by 2020 low carbon construction will be seen as the norm for the sector and being able to either adapt existing skills, enhance or learn completely new skills will be an essential element of skills demand for all areas of the construction industry through to 2020 and beyond.

There is also likely to be an increase in demand for multi-skilling to support the installation of low carbon technologies. Installing a solar photovoltaic roof system at the moment involves a combination of roofing and electrical skills while installing a solar hot water system would require roofing, plumbing and electrical skills. At the moment, given the relative immaturity of the market it is very difficult to predict what level of multi skilling would be needed, although having a flexible and adaptable workforce is likely to be something employers would value.

The move to low carbon construction and taking advantage of economic opportunities will also drive skills demand for the uptake of more MMC, such as pre-fabrication. Building off site then using on-site assembly should give a quicker and more efficient process that results in time, cost and quality improvements. Examples of the knock on effect on skills would be:

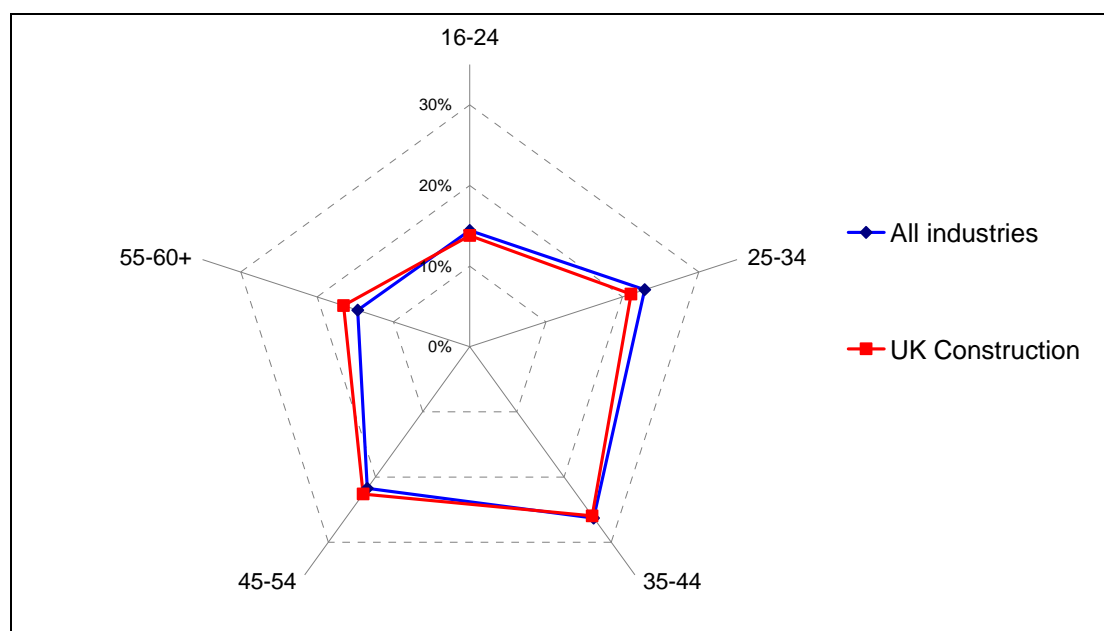
- Increasing assembly of components on site would require more mechanical handling for skilled trades.
- Designers and construction managers would have to understand how the various elements of the new building structures inter-relate.
- Increase in demand for onsite logistics.
- Planning skills for construction management to ensure that builds progress smoothly.

Overall, the move towards low carbon construction will be the most significant driver of skills demand over the next ten years. The range of work carried out across the construction industry from building an extension on a house through to building major infrastructure projects, such as Crossrail and Hinckley Point, inevitably means that low carbon will mean different things to different sectors. This in turn will lead to different skills being needed to take advantage of the range of opportunities that will be presented and that will need to be informed by quite specific future labour market intelligence.

### 6.6 Demographics Drivers

There is one other aspect that will drive skills demand over the next ten years and that is the demographic profile of the construction workforce. Chart 34 shows how the UK construction workforce compares in age profile to that of the overall UK all industry workforce.

**Chart 34 – Workforce Age Profile, Construction vs. All Industries, United Kingdom: 2008-2009**



Source: Office for National Statistics, Labour Force Survey 2008-2009

By grouping the age profile by 10 year bands Chart 34 shows that the construction industry age profile is quite close to that of the overall UK workforce. However for those aged 55 and over who will be eligible to retire over the next ten years, UK Construction is above the comparable all industry figure, nearly 17% of the workforce.

This means that over the next ten years at least 400,000 workers will be considering retirement on the basis of age, and that is without considering the physical aspects of the work. For some of occupations involved in the build process, especially construction contracting occupations, work on site can be very physically demanding and this leads to workers considering early retirement or switching occupations. This along with the ageing demographic means that there will be a strong replacement demand across the range of occupations just to maintain employment at its current levels.

Although there will be other drivers of skills and employment, economic conditions combined with political/legislative pressure and an ageing workforce will be the main factors that come into play. As noted before, economics and politics are intrinsically linked and create opportunities for each other, while the ability of the workforce to understand and adapt to these drivers will be a fundamental issue.

Following on from the long period of sustained growth seen in the 1990's and into 2000, the last two years have seen some significant changes across the construction industry. However economic conditions, combined with the growing emphasis on low carbon related work will have a profound effect in driving the skills and employment demand for the UK construction industry in the next few years and lay the foundations for future growth.

### Summary Box

In summary we see a core economic scenario facing the construction industry, along with significant drivers for employment and skills demand.

#### **Core Scenario for construction industry:**

- UK economy emerges from recession in 2011 followed by a gradual recovery to long-term levels of GDP growth of around 2.0% p.a. through to 2020.
- UK construction output will start to recover from around 2011 although at lower levels than GDP growth.
- New work will continue to be the main driver of output.
- Levels of productivity growth will remain low.
- Housing demand in the private sector recovers.
- Work in the public non-housing sector declines from 2011 due to government cutbacks and programmes coming to a natural close.
- Commercial and industrial new work, both very badly affected in 2009, recover through to 2020, however there is no real growth.
- Infrastructure sector work is forecast to grow in the short to medium-term and the long-term prospects for energy infrastructure look positive with the government commitment to greenhouse gas emissions targets.

#### **Economic Drivers:**

Core scenario has distinct phases for overall employment numbers:

- 2011 – 2012, industry still dealing with after effects of recession, employment stabilisation. Work in public non-housing still buoyant in 2011, although declines in 2012, and infrastructure sector important for employment.

- 2013 – 2015, employment growth as industry comes out of recession. Housing and infrastructure sector work important.
- 2015 – 2020, employment increases to above 2007 – 2008 peak levels. Housing, infrastructure and repair and maintenance work will be key sectors for employment.
- The main risks at the moment are the impact that public sector cuts will have and if the private sector will be able to cover the gaps. These are significant risks as there are different views about the nature of current work and real concerns about the possibility of a further period of recession for the industry.

**Political/Legislative Drivers:**

These are closely linked with economic drivers however the main issue over the next ten years will be the variety of low carbon policies and legislation.

- Building regulations have begun to feature energy efficiency as a requirement for new housing and planned future changes will introduce increasing standards.
- Feed in Tariffs were introduced in April this year to stimulate demand for microgeneration schemes such as photovoltaic power.
- The Renewable Heat Incentive will be introduced in 2011 to stimulate demand for distributed heating systems, similar to Feed in Tariffs.
- Green Deal will come into effect around 2012 to help homeowners install energy efficiency measures.
- By 2020 low carbon construction will be seen as the norm for the sector and being able to either adapt existing skills, enhance or learn completely new skills will be an essential element of skills demand for all areas of the construction industry through to 2020 and beyond.

**Demographic Drivers:**

- For workers aged 55 and over, who will be eligible to retire over the next ten years, UK Construction is above the comparable all industry figure.
- With nearly 17% of the workforce currently aged 55 or over, at least 400,000 workers will be considering retirement.

## 7. The Future Supply of Skills and Employment in the Construction Industry

### 7.1 Introduction

The suddenness, and relative unexpectedness, of the recent recession, point to the limitations inherent in any forecast. The repercussions of the recession are still being felt across the industry and as the path the recovery is taking becomes clear, more accurate analysis of the future supply of skills and employment is possible.

It is interesting to note that, in output terms, construction has been through a double dip recession, and while official statistics have appeared to show construction growing strongly in recent months<sup>150</sup>, certain sub-sectors have and will be undoubtedly affected by public expenditure cuts; in general there appears to be a measure of continuing uncertainty across the industry regarding the immediate future<sup>151</sup>.

In determining what affects the future supply of skills and employment, there are some conclusions that can be tentatively drawn from existing authoritative reports. This section will draw from the Working Futures report<sup>152</sup>, as well as 2020 Vision – The Future of UK Construction, produced for ConstructionSkills by Experian and SAMI Consulting. Other reports quoted are from the Higher Education Policy Institute, official figures from the Office of National Statistics and Government Actuary Department, as well as ConstructionSkills own figures on training which are the most up to date available.

When attempting to understand the future of a fluid and rapidly changing environment such as the whole area of skills supply and employment there is sometimes no better substitute than looking at previous, similar, events and drawing from what has happened in the past. This section will do this as well, particularly in terms of how the skills market recovered following the last two major recessions in the UK from 1980-82 and 1990-92.

In the short-term it is possible to say, with some degree of safety, that trends in skills supply probably won't deviate a great deal from its current course. There is little that can be done to change events, whether they be numbers in training or migrants wanting to enter the country, that have already been set in motion. The main focus of this section, therefore, will be attempting to inspect how skills supply may deviate from this over the medium-term (up to 2015) and the long-term (up to 2020).

As discussed in earlier sections, aspects such as the economy, industry, demographics and politics will all have a bearing upon the supply of skills and employment for the construction industry

#### 7.1.1 The Economy

Section 6 sets out the core scenario for the industry through to 2020 and in this vision of the future, the fall out from the recession continues well into the medium-term, acting as a continuing brake on construction activity and consequent demand for skills. It predicts that GDP growth is initially low, at least in comparison with the pre-recession years – and improves to average around 2.0% growth between 2010 and 2020 and that public spending is reduced to attempt to redress the high levels of debt and the budget deficit.

Demand is one of the key drivers for skills and employment supply and it would be safe to say supply, especially in terms of formal training, will remain subdued until well into the medium-term.

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<sup>150</sup> Office for National Statistics, Gross Domestic Product Preliminary Estimate, Statistical Bulletin Q3 2010

<sup>151</sup> Construction Trade Surveys: Includes surveys undertaken by Experian, Civil Engineering Contractors Association (CECA), Federation of Master Builders (FMB), Construction Products Association (CPA) and National Specialist Contractors Council (NSCC)

<sup>152</sup> Working Futures 2007-2017 report produced for the UK Commission for Employment and Skills by the Warwick Institute for Employment Research and Cambridge Econometrics, Warwick University, 2008

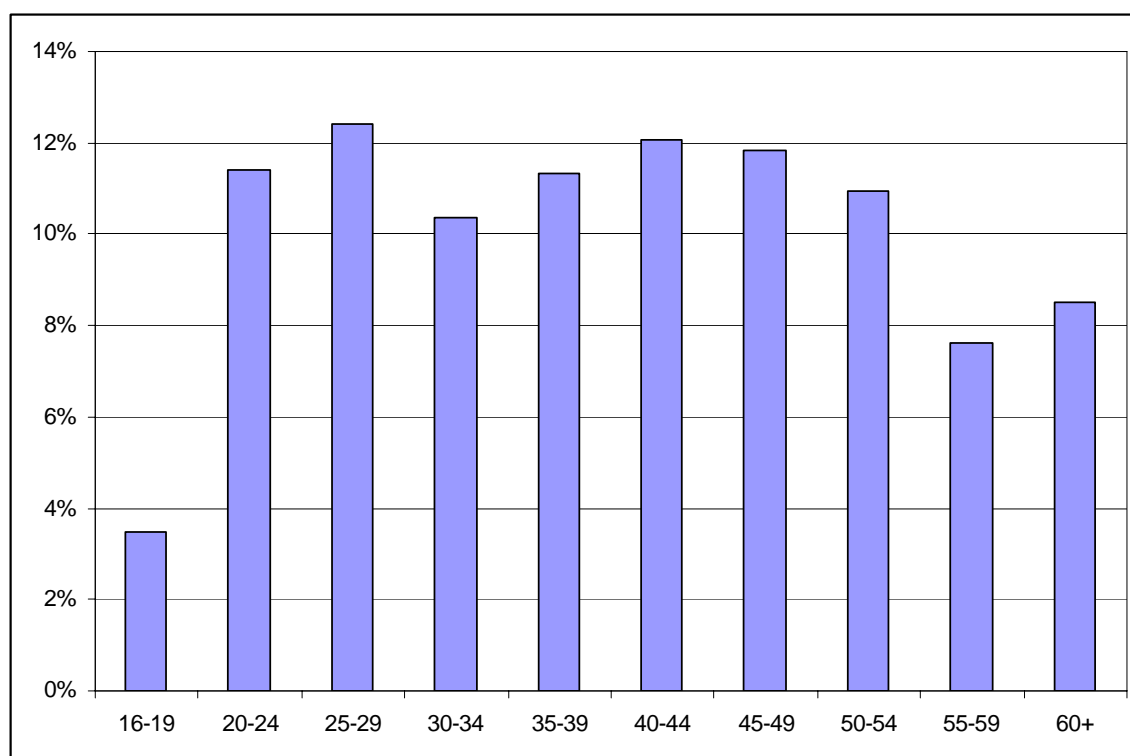


The Working Futures report<sup>153</sup> also predicts output growth of 2% per annum through to 2017 which, although calculated prior to the recession, is consistent with the view taken in the core scenario. From 2015 onwards it would seem likely that the supply of skills and employment will begin to increase in response to the expected rising demand, though this rise will take some time to have effect due to the lag between people choosing to take up training and being available for work.

### 7.1.2 The Industry

Over the course of the present forecast approximately 19% of the manual construction workforce will reach retirement age, as illustrated in Chart 35, resulting in a loss of accumulated skills and experience - particularly those involved in the heavier trades and labour.

**Chart 35 – Proportion of Manual Workers in the Construction Industry by Age Range, United Kingdom: 2010**



Source: Office for National Statistics, Labour Force Survey, 2010

In normal years this would be more than matched by new recruitment, however, given the recent recession and downturn in recruitment, unless economic circumstances force later retirement, certain skills will become increasingly scarce. If reliance is to be put on an ageing workforce, compensatory changes in workload on-site will be necessary.

Chart 35 also seems to show the lasting impact of the previous recession with the dip in the proportion of people in the 30-34 age group reflecting the fall in recruitment for manual occupations that occurred during the last recession. The latest forecast by the CSN<sup>154</sup> predicts that this pattern will be played out again in the current recession, with rapidly rising job losses risking rising skills deficits.

The loss of the ageing professional workforce (designers, engineers, technicians) is likely to be less of a problem than that of the labour workforce, as professionals are able, and frequently prefer, to continue working. Indeed the problem may be less a shortage

<sup>153</sup> Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

<sup>154</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

of staff than a need to retrain a group of older professionals who do not have the skills to meet the new needs of the sector.

### 7.1.3 Demographic Data

The UK population is expected to grow by over 4.25 million between 2008 and 2020 to reach a little over 66.5 million people. The increase in working age population (16-70) is much lower, however, at a little over 2 million; and when looking specifically at the male working age population (construction being a predominantly male-dominated industry) the increase is 1.1 million people between 2008 and 2020, or approximately 93,000 males per annum. Around three quarters of the UK workforce of 2020 have already left compulsory education<sup>155</sup>.

### 7.1.4 Political Initiatives

The political climate has shifted considerably over the last year, and in recent months there has been a focus on the cutting of expenditure, aiming to reduce the budget deficit and high levels of public debt. At this stage, it is hard to quantify the effect that some of the most recent cuts in the CSR will mean for the supply of skills. In general terms, it has been revealed that social housing funding will be significantly cut and infrastructure funding on the whole maintained, though some projects have been delayed<sup>156</sup>.

However there have been a number of more specific decisions and initiatives. There has been commitment to continuing to invest in Apprenticeships with an additional £250 million a year by 2014/15 providing an additional 75,000 adult apprenticeships. Given the importance and relevance of Apprenticeships to the construction industry, this is a welcome boost for those occupations that primarily rely on them. The CSR revealed that 'Train to Gain', which currently provides a significant proportion of training, albeit to existing workers, will be abolished and is likely to be replaced by a SME focused training programme.

In general, given the need for a healthy economy, raising opportunities for training and learning are still key priorities, and those in power across the nations will be keen to show they are committed to investing in the future of the construction workforce.

The changes in demand noted above and in earlier sections will result in needs for skills that focus more toward assembling manufactured components, utilise computerised processes at each stage of the construction process and have a greater understanding of trades other than their own, in particular how different aspects and components of a finished building will interact.

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<sup>155</sup> Analysis of Government Actuary's Department population data 2007, Projections Database accessed November 2009

<sup>156</sup> HM Treasury, Spending Review, October 2010

## 7.2 Sources of the Supply of Skills and Employment to the Construction Industry

Having looked in the preceding section at how skills are likely to change over the course of this forecast, the next question to answer is where the people with these skills are likely to come from. There are three key routes for skilled workers to enter construction:

- after training for a qualification – at both craft and professional levels
- by migrating from another country
- by bringing relevant skills from other industries.

For the purposes of this report the last of these will be ignored as it does not contribute to the UK stock of skills, and it will to some extent be off-set by those leaving construction to work in other industries. It is also assumed that those recently made redundant will probably be lost to the industry forever – or at least will need re-training in order to meet the skills demands already discussed.

### 7.2.1 Craft Training

The main supply of skills has traditionally been via work-based training, and there is no reason to think this will be any different in the future. The largest source of investment in craft training comes from employers, and is closely correlated with levels of employment within the industry and expectations for future work.

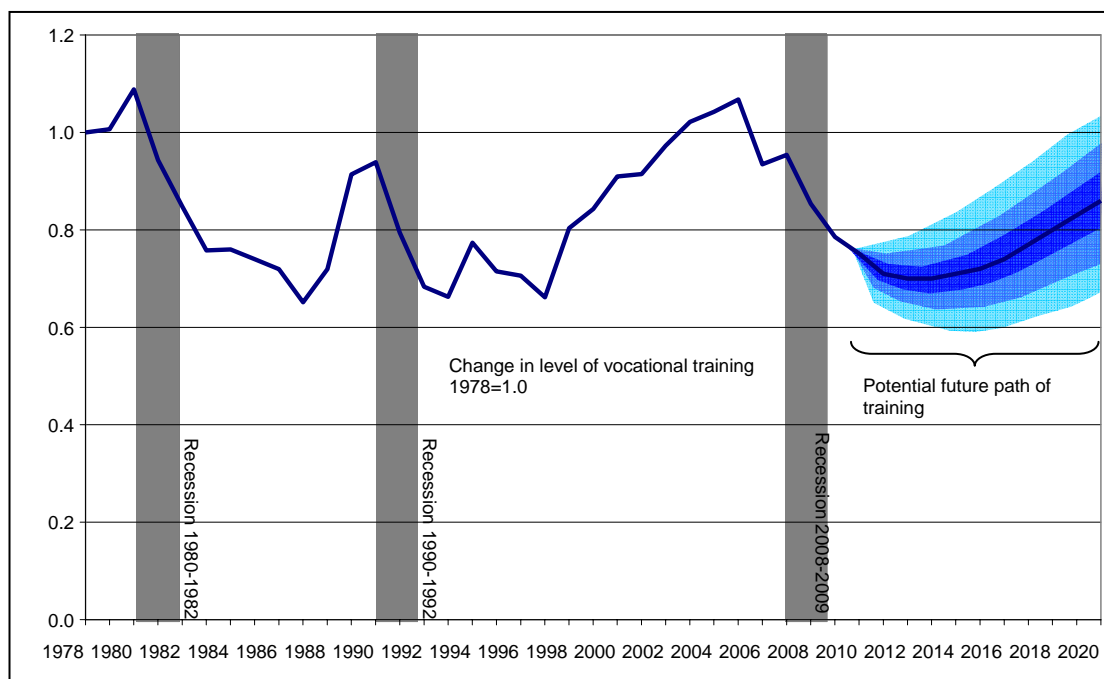
According to the CSN, construction employment is forecast to be around 400,000 down from its 2007 peak by 2011. Although it is forecast to start growing again in 2011, it is not expected to have recovered to its pre-recession peak until at least 2015 – the furthest that is forecast by the most recent run of the CSN model.

To link employment and training precisely is difficult, and indeed would probably vary depending on which point in the economic cycle a measurement is taken. Having said this, a very high level view can be gained from looking at the past two recessions, and what happened to training in their aftermath.

Before the current recession the two previous recessions in the UK were in 1980-82 and 1990-92. As can be seen in Chart 36, training fell dramatically throughout both recessions, and continued to fall for some time afterwards (although with a short-lived upsurge following the 1990 recession). After both recessions training did not reach its lowest point until some five years after the technical end of the recession, indicating that, like employment, this is a lagging indicator of economic activity.

Charting future trends based on historic scenarios is clearly not an exact science. There are clear differences between this recession and previous ones – the fact that levels of training began to fall before the onset of the economic downturn in Q2 2008; the depth and length of the recession; and the extreme fiscal responses applied in an attempt to mitigate the severity of the downturn all combine to give caution to replicating past trends. However the relative extent of training covered by the survey is helpful to put the recent downturn and recovery in the context of previous recessions.

**Chart 36 – Relative Change in Levels of Construction Training, Great Britain: 1978–2020**



Source: ConstructionSkills Trainee Numbers Survey

Chart 36 depicts the probability of various outcomes for vocational training based on possible changes in employment. The bands widen as the time horizon is extended, indicating the increasing uncertainty about outcomes. Although training has the potential to return to its pre-recession levels by 2020 there are varying degrees of probability that it may exceed or fall short of this based on how quickly and strongly the economy recovers from recession.

Of course the number of people entering training will not equate to the number of skilled workers available to work in construction. The other two factors to consider are likely completion rates, and the proportion of completers who stay in construction after qualifying.

Previous years have seen a marked increase in the success rates for both SVQs and NVQs. With the introduction of the new Qualifications & Credit Framework it is likely that success rates will improve further beyond the recent Work-based Learning success rate of 70%<sup>157</sup>.

Having achieved a qualification, a very high proportion of people choose to stay in construction. The Construction Apprentices Survey<sup>158</sup>, though conducted in a different industry climate, suggested that some 95% of successful completers stay in the construction industry, mostly in the trade in which they studied.

### 7.2.2 Higher Education

While there is no research looking specifically at the future uptake of Built Environment degree courses, The Higher Education Policy Institute (HEPI) have produced a report<sup>159</sup> which looks at the likely demand for degree courses in England across all subjects. While the HEPI report focuses on England, their conclusions and findings are equally applicable to the UK, and implications are drawn for the UK, using the same or similar sources to HEPI.

<sup>157</sup> Learning and Skills Council, Work-based Learning Success Rates 2006/07, <http://www.lsc.gov.uk/providers/Data/statistics/success/WBL.htm> accessed November 2009

<sup>158</sup> ConstructionSkills, Construction Apprentices Survey, 2007

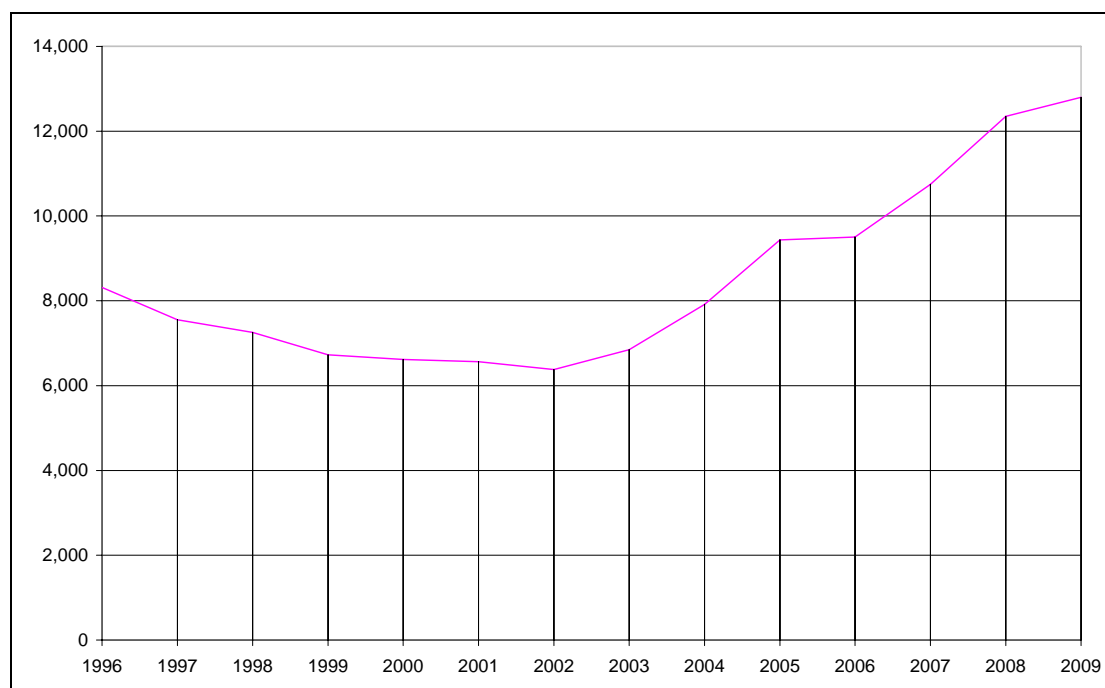
<sup>159</sup> Higher Education Policy Institute, Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008

The HEPI report considers three factors that influence demand for Higher Education – changes in the population from which students are drawn; the ability (in terms of qualifications) of those people to enter higher education; and the willingness (in terms of social background) of this population to participate in higher education. These interact in a complex way with potentially increasing achievement rates and social aspirations working to counteract falling numbers in the crucial 18-20 year old population over the next decade.

The trend in recent years has been one of increasing demand for higher education places, despite the introduction of variable fees, influenced largely by increases in the 17 to 30-year-old population (64% of full time higher education first degree entrants are under 21 and nearly 90% are under 30).

The number of applicants to Built Environment degree courses has increased every year since 2003, with 2009 seeing a slight increase in UK domiciled first degree applicants compared to 2008 (12,799 compared to 12,350), as shown in Chart 37.

**Chart 37 - UK Domiciled Applicants to Built Environment Degree Courses: 1996 – 2009**

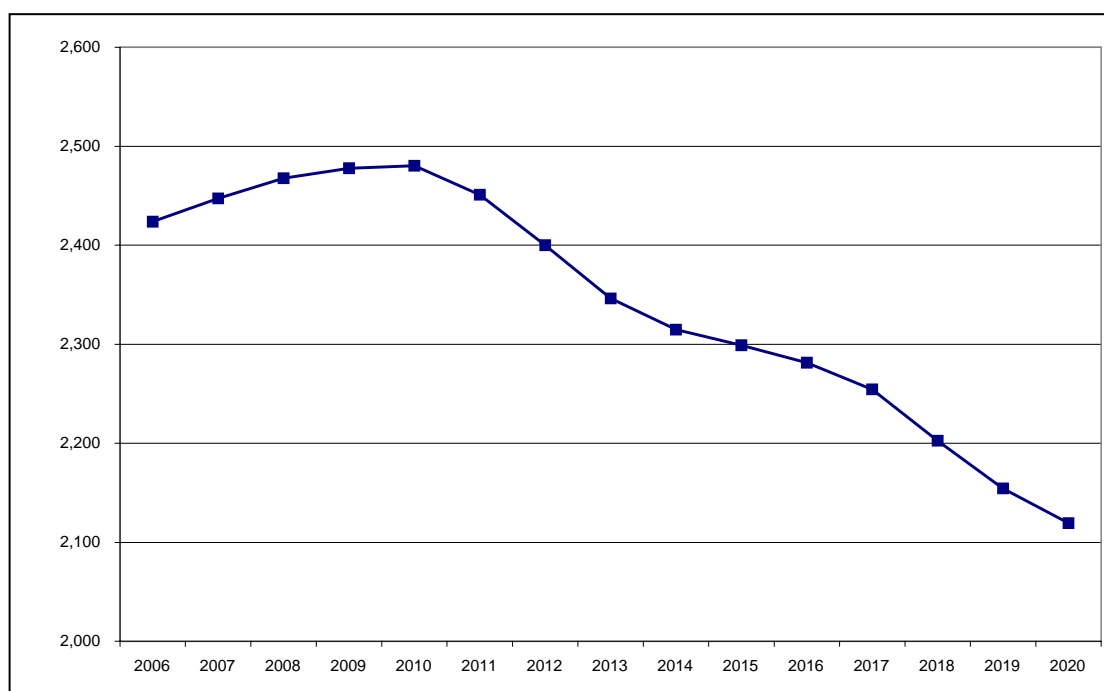


Source: UCAS

Chart 38 shows the way the 18-20 year old population has changed and how it will change in the next 10 years or so. After peaking in 2010, the 18-20 year-old population will decline significantly for the following decade – by more than 13% between 2010 and 2020. This will apply a downward pressure on the number of applicants to higher education which will only be partially offset by an increase in the number of part time under-graduates in response to the previous Governments Higher Education Strategy outlined in its Higher Ambitions report<sup>160</sup> and will be affected further by current planned changes in the system.

<sup>160</sup> Department for Business, Innovation & Skills (BIS), Higher Ambitions: The Future of Universities in the Knowledge Economy, November 2009

**Chart 38 – Number of 18-20 year olds in the UK Population from 2006 to 2020**



Source: Government Actuary's Department

While the above graph may seem to point to an impending downturn in the number of higher education students, HEPI point to changing social composition of the UK population – fewer people are being born in the lower socio-economic groups and more in the higher groups that traditionally embrace higher education – as a cause for optimism.

HEPI calculate that, in the absence of other demographic changes - differential births by different social groups will lead to a 5% increase in the proportion of the under 21 age group participating in higher education by 2020-21.

Whilst it is clear that not all these people will stay in full-time education, there are real reasons to believe that many will; especially now they are required to continue in post-16 education or training by law. HEPI believe that “This reform, in view of the large numbers at present leaving education at 16, could have the largest impact on HE participation since the introduction of GCSEs in 1988”.

Demography provides the basis for HEPI's assessment of future demand. In the absence of other factors they believe that demand, having peaked in 2010 will fall back to about 25,000 below 2007 levels by 2020-21. However, they see strong reasons for believing that participation rates will increase, which will mitigate some, and possibly all, of the declines expected due to demographic changes.

Two major factors that had not come into play at the time of HEPI's report were the recession and more recently the review of Higher Education undertaken by Lord Browne. In considering the first of these, at present there is more likely to be strong pressure for young people to remain in education. If this turns out to be the case then this short-term outcome would allow time for the other factors mentioned in HEPI's report – socio-economic changes and participation rates – to stabilise and possibly increase participation in higher education.

Additionally, the recently released Browne Report will influence decisions on the provision of Higher Education in the UK in coming years. The recommendations relating to the supply of skills included students being charged differing amounts in an effort to increase investment and student choice, and also that those doing part time degrees should be financed (for the student) proportionately. The report believes that student

numbers will increase and indeed makes proposals for a 10% increase in available student places<sup>161</sup>.

Although it is possible that there will be moderate growth in Higher Education starts between 2010 and 2020 it is unlikely that the dramatic rises that pre-ceded this period will be repeated.

As with further education not all these individuals will go on to work in construction after graduating. In fact data from HESA's Graduate Destination Survey<sup>162</sup> suggests that prior to the recession only 21% of UK domiciled, first year first degree students who were available for employment found a job in the construction industry within six months of graduating. Even if the assumption is made that those who were still unemployed after six months ultimately found a career in construction this still equates to a 25% rate for graduates entering construction.

### 7.2.3 Migration

It is extremely difficult to foresee the future flows of migrant workers, as there are simply so many influencing factors. According to LFS<sup>163</sup> data, inflows of migrant workers into construction reached a peak in 2006 of over 11,000 workers before declining to just fewer than 5,000 in spring 2009. Over the time frame of this report (up to 2020) it is likely that the flow of migrant workers will probably be somewhere between these two figures, probably closer to the 7,000 average figure seen throughout most of the first years of the 21<sup>st</sup> century.

This view is supported by the Working Futures report which concludes that the previous high rate of immigration is not expected to be sustainable over the medium-term. For the purposes of the present report the key question is – how many of these migrants will be skilled workers, and how many will be unskilled labourers?

There are various measures from the LFS from which skills can be estimated. It is worth noting that approximately half of migrant workers to the UK construction industry have been self-employed as opposed to 37% of UK workers<sup>164</sup>. While being self-employed is no guarantee of skills, it points to a general level of competence to work un-supervised.

The industry accepted minimum qualification to operate successfully in the sector is a Level 2 Vocational Qualification. Over four-fifths of migrant from the top five countries of origin, and almost two-thirds of those from other countries, do not meet this minimum criterion. This compares with only 41% of UK national construction workers who have a qualification of lower than Level 2. Likewise UK national manual workers are three times more likely to have a trade apprenticeship than migrant workers from the top five countries of origin, and ten times more likely to have a level 3 qualification (roughly equating to site-supervisor level).

In conclusion, therefore, it is possible to estimate that around two-thirds of migrant workers have the skills or qualifications to work to an acceptable level within the UK construction industry. The remaining third, consisting of those working in skilled occupations and those that will only ever work in elementary occupations, do not have the skills that the sector will need in the future if it is to meet the goal of being a world class industry.

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<sup>161</sup> Securing a Sustainable Future for Higher Education: An Independent Review of Higher Education Funding & Student Finance. Available at [www.independent.gov.uk/browne-report](http://www.independent.gov.uk/browne-report) accessed November 2010

<sup>162</sup> Higher Education Statistics Agency, Destinations of Leaver from Higher Education Survey, 2006

<sup>163</sup> Office for National Statistics, Labour Force Survey, Spring 2009

<sup>164</sup> Ibid.



### 7.3 Variations to the Core Scenario

The possible variations to this scenario have already been mentioned. One of the key determinants for the future direction of skills supply is the strength of the recovery from the recent recession. This section assumes a long recovery with modest annual growth. It assumes a downward trend in the level of inward migration, and a gradual increase in those able and willing to undertake Higher Education courses.

The two obvious variations to this scenario occur with stronger or weaker growth to that forecast. This is key as one of the main drivers for skills supply, especially through Further Education, is the demand for those skills. Although the core scenario considers it possible that further education training could return to its pre-recession levels by 2020 this depends on confidence in the future growth of the industry returning – which in the medium-term will depend upon the strength of economic recovery and further details of Government cuts.

Although at present it appears that many recent migrants are prepared to stay in the UK, if the economy falls behind other European countries – particularly those in the east – then it would be reasonable to assume a net outflow to other countries, a significant part of this outflow is likely to be former immigrants returning to their country of origin in the light of more favourable economic conditions there than when they left, further weakening the industry's skills base.

Of all the areas discussed in this report Higher Education is probably the least prone to direct short-term fluctuations in the industry and economy. Although this section anticipates a long period of slight growth in the number of UK domiciled, first year, first degree students, this could easily be reversed (a long and slow decline) depending on demographic changes and policy decisions.

Whatever happens in the medium to long-term, the safest assumption to make is that the state of qualifications and skills supply seen before the current recession will not be seen again for a very long time.

#### Summary Box

- The supply of skilled employees to the construction industry is expected to remain subdued over the next five years due to suppressed demand from employers following the recession.
- Having achieved a qualification, previously some 95% of successful completers have stayed in the construction industry, mostly in the trade in which they studied.
- Although numbers in higher education are likely to continue increasing up to 2020, the pace of change will be much slower owing to demographic changes in the core 18-20 year old higher education population, which is expected to decline by 13% between 2010 and 2020 and the potential effects of changes in funding.
- It is estimated that around two-thirds of migrant workers have the skills or qualifications to work to an acceptable level within the UK construction industry. Using the assumption of net migration in the region of 7,000 per annum this suggests an average of just over 4,500 additional skilled workers a year joining the industry between 2010 and 2020.

## 8. Conclusions and Key Messages

### 8.1 Conclusions

Construction has been one of the worst hit sectors in the recession. The sector was first amongst those touched by the credit crunch that occurred in 2007 and 2009 saw an unprecedented decline of some 11.5% in output, the largest annual fall since 1974. Whilst there are tentative signs of improvement, 2010 is only expected to show a halting of this downward trajectory rather than any real return to growth, a full recovery remains some way off.

The buoyant performance of the construction industry in the first half of 2010 proved difficult to sustain. Whilst a number of sectors continued to fare well – public housing, public non-residential and infrastructure – concerns over the housing market recovery, continuing tight credit conditions, and weakening consumer confidence combined to dampen prospects.

Recovery, albeit tentative, is expected from the end of 2011. Infrastructure output growth in the early part of the forecast period will be largely driven by transport projects, with focus shifting to energy later on. Building Schools for the Future and the Olympics will deliver one more year of growth for the public non-residential sector before spending cuts and completions kick in, although these projects have made a considerable contribution to sustaining public non-housing output. And demand is starting to return for new office, retail and leisure space, while retrofitting of energy efficiency measures and microgeneration could drive growth in repairs and maintenance to 2015.

Looking forward it is the broad client base, all of whom have different demands and expectations that present the industry with some major opportunities (and challenges). This is none more evident than responding to 'carbon reduction' and energy efficiency.

One important feature to emerge from this assessment and associated research during the previous 12 months is that greater acknowledgement and consideration needs to be given to the full range of construction clients and ability of the industry to meet their very different requirements. Very simply the sector needs to strategically recognise that construction clientele includes the individual home-owner right the way up to Government – their views and needs will differ quite widely, yet both are important to various parts of the industry. Much of the rhetoric in relation to the big issues facing the industry are based on the view that construction clients are solely larger stockholders and developers, and that in dealing with them and their supply chains the industry can be mobilised for change. Whilst this holds true to a point it is not the whole picture.

In reviewing this assessment it is clear that 'carbon reduction' and resource efficiency is the key theme running throughout; most notably in relation to legislation, but also in respect of future economic prosperity across the UK and the construction sector. This responds to the government's low carbon strategy<sup>165</sup> which clearly sets the longer-term timelines to a low carbon economy.

The construction industry has always comprised of a number of sub-sectors whose demarcation is now being reinforced with changing legislative drivers which vary slightly between each home country and sector. Clear and challenging targets have been set for the whole of the industry in terms of waste reduction and overall carbon reduction targets whilst specific sectors are being driven by sectoral legislation. The Code for Sustainable Homes has started to change outputs in the new build housing sector with further targets expected in both repair and maintenance and non domestic buildings. The impact of this legislation is to change and alter the buildings and structures that are constructed and the products and processes that are adopted to do this. As a result the

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<sup>165</sup> Department of Energy and Climate Change, The UK Low Carbon Transition Plan, 2009  
[http://www.decc.gov.uk/assets/decc/White%20Papers/UK%20Low%20Carbon%20Transition%20Plan%20W09/1\\_20090724153238\\_e\\_@@\\_lowcarbontransitionplan.pdf](http://www.decc.gov.uk/assets/decc/White%20Papers/UK%20Low%20Carbon%20Transition%20Plan%20W09/1_20090724153238_e_@@_lowcarbontransitionplan.pdf)

skills needed to respond to the legislation are also adapting but at a differential rate between the sectors.

One of the most significant challenges in terms of achieving carbon reduction targets is in addressing the performance of the existing building stock, which is responsible for 47% of all UK carbon emissions. The vast majority of this arises from the existing 26 million homes, particularly the 5.2 million pre-1919 properties. Hence in terms of 'big wins' the industry needs to engage not only with Government and corporate clients, but with individual home-owners. However, this means dealing with upwards of 18 million separate clients. Household expenditure on construction is currently estimated at £17bn, which in itself represents a sizeable market, although when taking into account the latent demand in terms of repairs and maintenance that are left undone and energy efficiency improvements that are required the potential market is immense in terms of value and activity levels.

Through legislation and the provision of grants and subsidies the Government has created a new market for construction in low carbon, particularly in respect of retro-fitting and refurbishment. The challenge now is to establish an effective and cost-efficient means for industry at all levels to access it. In terms of job creation repair, maintenance and retro-fit is twice as labour intensive as new build, yet the skills required to manage large programmes of work and the knowledge to apply new and emerging technologies largely sit with the a relatively small number of medium-sized and large contractors, whilst the principle route to market is through a large number of locally-based small and micro businesses. The high levels of self-employment in the sector also represent a significant challenge in this respect.

The emerging consensus suggests that for the vast majority of occupations it is likely that new knowledge rather than completely new skills will be required to address the low carbon challenge, although the potential volume of work suggests an increased supply of opportunities and demand for workers (at least in the short to medium-term). The skills required range from generic skills such as customer/client/tenant services, financial and project management, communication and influencing skills, to the technical knowledge required for the installation of environmental technologies. They also include carbon management, performance assessments and the skills related to historic and heritage properties.

To provide the skills needed there is an established network of FE, HE and private providers that deliver a range of education and training for the construction and built environment sectors. Current evidence points to a growing role for manufacturer based training in relation to knowledge transfer and upskilling. Training in Energy Assessment is often offered by accreditation schemes as well as FE colleges, whilst that for Energy Advice will be provided by a mixture of FE colleges and large employers such as energy supply companies.

At present there is no hard evidence to suggest that current supply is not able to meet demand. This position may change if, as our scenarios and research indicate, there is a more rapid increase in demand. In these circumstances training providers may not be able to respond and there is likely to be insufficient experienced and knowledgeable trainers, educators, and assessors.

In addition to low carbon retro-fit and refurbishment an increased demand for private sector housing (and to a lesser degree public housing) is a fundamental part to securing the sector recovery in terms of driving future growth as funding on large public infrastructure projects is scaled back. The new build housing sector also presents very clear opportunities to lower the sectors' carbon emissions, and it might also provide an opportunity to increase sector productivity.

At the moment it is estimated that only 12% of all construction activity is manufactured offsite, but this could increase significantly as the industry moves from recession to recovery and could also change where new clients and funders would seek greater levels of off-site activity. One of the main aims of offsite manufacture is to bring increased control into the build process. This allows better quality control, creates less waste and increases levels of worker safety, which ostensibly leads to increased productivity. At the very least it presents industry with an opportunity to achieve more with less, be it labour, materials or skills. This is particularly relevant if there is a shortage of potential entrants into the sector and may also alter the way certain traditional activities and processes are carried out with defined 'teams' in areas such as new build housing becoming a reality. Housing 'teams', as opposed to the traditional trades, have been considered in the past as a possible option for delivery and with an expected increase in offsite manufacture such a change could be considered as an option for the future within some companies.

Current thinking appears to be that, post-recession, the low carbon agenda will result in a significant growth in new 'green' jobs, although this needs to be balanced with the potential for a reduction in jobs as the drive for productivity and efficiency increases and the use of different processes and technologies increases. However, the construction sector of the future will, despite much forecasted change, share many features with the industry of today. The specialist skills demanded to meet the high specifications and low energy requirements of future buildings and infrastructure will require new levels of expertise in terms of product knowledge and will necessarily require both professional services and craft trades working to more exacting tolerances, but reflecting on the structure of the industry and the variety of markets that it serves one must accept that the breadth and depth of this change will not be uniform.

New ways of working will not all require totally new skills or create new jobs, but will often be an addition to existing workers skill-sets. In many cases the skills are either an addition to, or amalgam of existing skills and these skills in the same occupations may vary between how they are applied in the different sub-sectors. It is a fact that many small firms are not currently required to utilise innovative methods and the nature of the markets they serve surely preclude this in the future, at least whilst there is a significant levels of traditionally built stock that largely requires a bespoke site-based approach. Changes in skills requirements are likely to be of equal if not greater significance in management and professional occupations with a number of new functions being considered currently and with further new functions identified as we move further into a low carbon economy.

The implications for skills suggest that there will be increasing demand for higher levels of skills across the industry, especially those at Level 4 and above and skilled trades will remain the dominant grouping for qualifications within the industry, although increased levels of multi-skilling is predicted.

High-quality leadership and management are critical factors in successful businesses. Good leaders and managers are able to identify new market opportunities and recognise the importance of developing the skills and talent of their workforce. Many businesses and individuals already invest substantially in these skills. Universities and other education providers also recognise the critical importance of equipping their students with leadership and management skills as they prepare to enter the workforce and in supporting them through their careers.

Structural changes in the sector, such as the move to off-site production and the whole house retro-fitting and refurbishment, will necessitate an over-arching need to develop the ability to interface with other sectors and their supply chains. But again there must be some recognition and appreciation of how and to what extent this will touch firms in the sector. Off-site production and the opportunities afforded by a low carbon future should not be viewed as the panacea for the industry's ills and challenges, which are as much

to do with the structural and operational organisation of the sector, its workforce and the way it currently chooses to do business.

The diversity in the nature of construction clients and the difference in the construction firms servicing those markets probably gives us the clearest indication of a growing divergence that exists within the industry in respect of skills needs, but also portends a potentially deeper ideological split in terms of how these very different needs are supported. Understanding this is crucial to ConstructionSkills' sustainability as the principle body responding to and representing the sector, its firms, its workers and its learners.

## **8.2 Priorities**

Reflecting on the evidence-base, key drivers and skills issues, and direction from the ConstructionSkills Strategic Partnership Panel, the following skills priorities and enabling activities have been agreed in consultation with industry and stakeholders. Industry Priorities represent longer-term aspirations to increase the sector's productivity and competitiveness, and meet low carbon targets over the coming years. Enablers reflect the more immediate skills issues for the SSC, partner organisations and stakeholders to address.

### **Industry Priorities**

- The Productivity Challenge – supporting employer and industry competitiveness through upskilling and improved levels of health, safety, competence and efficiency.
- The Low Carbon Challenge – providing clarity and support on skills needs in response to increasing demands on industry and potential new markets opening up.

### **Enablers**

- The Leadership Challenge – providing leadership for the sector on key skills issues and quality standards, and addressing employers' leadership skills needs.
- The Recruitment Challenge – keeping the pipeline of talented new entrants flowing.
- The Employer Engagement Challenge – keeping in close contact with employers so that we understand their skills needs and shape solutions accordingly.
- The Education and Training Challenge – working with schools, colleges, universities and other providers to ensure we strengthen the skills infrastructure and deliver 'right skills, right place, right time'

## **8.3 Skills Strategy and Solutions**

### **SSC Core Remit**

As a high performing SSC ConstructionSkills' responsibility remains to:

- Raise employer engagement, demand and investment in skills
- Provide authoritative labour market intelligence for our sector, and
- Develop national occupational standards and ensure qualifications meet employer needs.

These core SSC activities contribute towards a number of the industry priorities and enablers identified. Building on these we work across our partner organisations to deliver a range of sector specific solutions, supported by the additional resources we seek to secure.

### **Sector Skills Agreement**

ConstructionSkills' UK-wide Sector Skills Agreement (SSA) is key to delivering our commitments as an SSC. Consultation with industry in agreeing the Industry Priorities and Enablers has been reflected in our updated SSA – this ensures that the activities we undertake, and those that we look to other stakeholders to deliver, address the most immediate skills priorities and training needs.

<p><b>The Productivity Challenge</b> – <i>supporting employer and industry competitiveness</i></p> <ul style="list-style-type: none"> <li>➤ Qualifying the workforce, upskilling existing workers to raise qualification levels and increase effectiveness</li> <li>➤ Improving health, safety and welfare awareness and behaviours, and levels of competence on site</li> <li>➤ Understanding and addressing employers' business skills needs, supporting short-term survival and longer-term prosperity</li> </ul>
<p><b>The Low Carbon Challenge</b> – <i>supporting industry's future skills needs</i></p> <ul style="list-style-type: none"> <li>➤ Building knowledge on industry's future skills needs and translating this into practical solutions</li> <li>➤ Working in partnership across the UK, Professional and Built Environment sectors on low carbon issues, to maximise influence over policy and funding for future skills</li> </ul>
<p><b>The Leadership Challenge</b> – <i>providing industry leadership on skills and leadership training for employers</i></p> <ul style="list-style-type: none"> <li>➤ Working with employers and their representative bodies, professional bodies, trade unions, delivery partners, clients, other SSCs and related bodies to develop an integrated approach</li> <li>➤ Leveraging our authoritative research data to influence Government policy on industry's behalf</li> <li>➤ Understanding and addressing employers' management &amp; leadership skills needs</li> </ul>
<p><b>The Recruitment Challenge</b> – <i>keeping the pipeline of talent flowing</i></p> <ul style="list-style-type: none"> <li>➤ Promoting and delivering apprenticeships and pathways, influencing the construction-related curriculum for 14-19 year olds, and supporting undergraduates in partnership with stakeholders</li> <li>➤ Providing information, advice and guidance on qualifications and careers to potential recruits and their influencers</li> <li>➤ Actively promoting diversity and equal opportunities</li> </ul>
<p><b>The Employer Engagement Challenge</b> – <i>recognising and responding to skills needs</i></p> <ul style="list-style-type: none"> <li>➤ Promoting the benefits of investing in training and development</li> <li>➤ Diagnosing skills needs and providing or signposting solutions</li> <li>➤ Extending our reach – particularly with SMEs, consultancies and trade bodies, and through working with employer groups</li> </ul>
<p><b>The Education and Training Challenge</b> – <i>working with providers to deliver 'right skills, right place, right time'</i></p> <ul style="list-style-type: none"> <li>➤ Demonstrating and utilising an authoritative understanding of skills provision to influence funding decisions</li> <li>➤ Working with providers across the learning lifecycle to ensure industry's current and future skills needs are met through the supply of sufficient, affordable and quality provision</li> <li>➤ Developing accreditation schemes to give confidence to our employers about education and training provision</li> </ul>

## 9. Appendix

### 9.1 Glossary of Acronyms

ABI	Annual Business Inquiry
AHP	Affordable Housing Programme
ALP	Average Labour Productivity
ARR	Annual Recruitment Requirement
ASHE	Annual Survey of Hours and Earnings
BESA	Built Environment Skills Alliance
BHPS	British Household Panel Survey
BIS	Department for Business, Innovation and Skills
BME	Black and Minority Ethnic
BRC	British Retail Consortium
BSF	Building Schools for the Future
CCS	Carbon Capture and Storage
CDM	Construction Design and Management
CEBE	Constructing Excellence in the Built Environment
CECA	Civil Engineering Contractors Association
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Saving Programme
CIC	Construction Industry Council
CIL	Community Infrastructure Levy
CPA	Construction Products Association
CSCS	ConstructionSkills Competence Scheme
CSN	Construction Skills Network
CSR	Comprehensive Spending Review
DCLG	Department for Communities and Local Government
DECC	Department of Energy and Climate Change
EEA	European Economic Area
EEPH	Energy Efficiency Partnership for Homes
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Certificates
ERG	Efficiency and Reform Group
EU	European Union
FE	Further Education
FIT	Feed in Tariff
FMB	Federation of Master Builders
GDP	Gross Domestic Product
GVA	Gross Value Added
HCA	Homes and Communities Agency
HE	Higher Education
HEPI	Higher Education Policy Institute
HESA	Higher Education Statistics Agency
HESS	Heat and Energy Saving Strategy
HIP	Home Information Pack
HMRC	Her Majesty's Revenue and Customs
HNC	Higher National Certificate
HND	Higher National Diploma
HSE	Health and Safety Executive
HVAC	Heating, Ventilating, and Air Conditioning
ICT	Information and Communications Technology
IDBR	Inter Departmental Business Register
IGT	Innovation and Growth Team
JVC	Joint Venture Company
KPI	Key Performance Indicator
KTP	Knowledge Transfer Partnership
LCHO	Low Cost Home Ownership

LFS	Labour Force Survey
LOSC	Labour Only Sub Contractors
MAC	Migration Advisory Committee
MMC	Modern Method of Construction
NEC	Not Elsewhere Classified
NESS	National Employer Skills Survey for England
NHPAU	National Housing and Planning Advice Unit
NHTG	National Heritage Training Group
NI	National Indicator
NIESR	National Institute of Economic and Social Research
NIC	National Insurance contributions
NOS	National Occupational Standards
NSCC	National Specialist Contractors Council
NVQ	National Vocational Qualification
OFT	Office of Fair Trading
OGC	Office of Government Commerce
ONS	Office for National Statistics
PAYE	Pay As You Earn
PFI	Private Finance Initiative
PQQ	Pre-Qualification Questionnaire
R&M	Repair and Maintenance
RHI	Renewable Heat Incentive
SIC	Standard Industrial Classification
SME	Small and Medium-sized Enterprise
SOC	Standard Occupational Classification
SSA	Sector Skills Agreement
SSC	Sector Skills Council
SVQ	Scottish Vocational Qualification
TFP	Total Factor Productivity
UKCES	UK Commission for Employment and Skills
UKCG	UK Contractors Group
USCG	United States Gulf Coast
VAT	Value Added Tax
VRQ	Vocationally Related Qualification
WAG	Welsh Assembly Government



## 9.2 Glossary of Terms

Term	Description
Average Labour Productivity (ALP)	Describes the economic output per labour hour.
Craft training	Refers to skill acquired through experience in a trade, usually through work-based learning such as an Apprenticeship. Similarly a craft operative refers in a more general sense to an occupation requiring skill in any of certain kinds of work done with the hands, as distinguished from unskilled work or from a profession or business.
Manual worker	Defined as those working within SOC 2000 Major Groups 5, 8 and 9
Microgeneration	The small-scale generation of heat and power by individuals, small businesses and communities to meet their own needs, as alternatives to traditional centralized grid-connected power.
Non-manual worker	Defined as those working within SOC 2000 Major Groups 1, 2, 3, 4 and 7
Output	<p>Contractor's output is defined as the amount chargeable to customers for building and civil engineering work done in the relevant period excluding VAT. Contractors are asked to include the value of work done on their own initiative on buildings such as dwellings or offices for eventual sale or lease, and of work done by their own operatives on the construction and maintenance of their own premises. The value of goods made by the contractors themselves and used in the work is also included.</p> <p>Output does not include payments made to architects or consultants from other firms - this would also cover engineers and surveyors. It would include wages paid to such people if they were directly employed by the contractor.</p>
Private sector	With reference to construction activity private work is for a private owner or organisation or for a private developer, and includes work carried out by firms on their own initiative. It includes work where the private sector carries the majority of the risk/gain. In principle, all Private Finance Initiative (PFI) contracts are private.
Professional Services	Refers to activities that fall within SIC (2007) 71.1 Architectural and engineering activities and related technical consultancy and SIC (2007) 74.9 Other professional, scientific and technical activities n.e.c.
Public sector	With reference to construction activity public work is for any public authority such as government departments, public utilities, nationalised industries, universities, the Post Office, new town corporations, housing associations and so on.
Specialist Contractors	Refers to activities that fall within SIC (2007) 43.1 Demolition and site preparation and SIC (2007) 43.9 Other specialised construction activities n.e.c.
Total Factor Productivity (TFP)	Describes the portion of output not explained by the amount of inputs used in production.

### 9.3 ConstructionSkills Footprint, SIC 2003

Table 26 – Definition of the ConstructionSkills sector, SIC 2003

<b>SIC 45</b>	<b>Construction</b>
<b>SIC 45.1</b>	<b>Site Preparation</b>
SIC 45.11	Demolition and wrecking of buildings; earth moving
SIC 45.12	Test drilling and boring
<b>SIC 45.2</b>	<b>Building of complete construction or parts; civil engineering</b>
SIC 45.21/1	Construction of commercial buildings
SIC 45.21/2	Construction of domestic buildings
SIC 45.21/3	Construction of civil engineering constructions
SIC45.22	Erection of roof covering and frames
SIC 45.23	Construction of motorways, roads, railways, airfields and sport facilities
SIC 45.24	Construction of water projects
SIC 45.25	Other construction work involving special trades
<b>SIC 45.3</b>	<b>Building Installation</b>
SIC 45.32	Insulation work activities
SIC 45.34	Other building installation
<b>SIC 45.4</b>	<b>Building Completion</b>
SIC 45.41	Plastering
SIC 45.42	Joinery installation
SIC 45.43	Floor and wall covering
SIC 45.44	Painting and glazing
SIC 45.45	Other building completion
<b>SIC 45.5</b>	<b>Renting of construction or demolition equipment with operator</b>
<b>SIC 74</b>	<b>Other Business Activities</b>
<b>SIC 74.2</b>	<b>Architectural and engineering activities and related technical consultancy</b>
SIC 74.20/1	Architectural activities
SIC 74.20/2	Urban planning and landscape architectural activities
SIC 74.20/3	Quantity surveying activities
SIC 74.20/4	Engineering consultative and design activities
SIC 74.20/5	Engineering design activities for industrial process and production
SIC 74.20/6	Engineering related scientific and technical consulting activities
SIC 74.20/9	Other engineering activities

Source: Office for National Statistics, UK Standard Industrial Classification of Economic Activities 2003

## 9.4 ConstructionSkills Footprint, SIC 2007

Table 27 – Definition of the ConstructionSkills sector, SIC 2007

<b>SIC 41</b>	<b>Construction of Buildings</b>
<b>41.1</b>	<b>Development of building projects</b>
41.10	Development of building projects
<b>41.2</b>	<b>Construction of residential and non-residential buildings</b>
41.20	Construction of residential and non-residential buildings
41.20/1	Construction of commercial buildings
41.20/2	Construction of domestic buildings
<b>SIC 42</b>	<b>Civil Engineering</b>
<b>42.1</b>	<b>Construction of roads and railways</b>
42.11	Construction of roads and motorways
42.12	Construction of railways and underground railways
42.13	Construction of bridges and tunnels
<b>42.2</b>	<b>Construction of utility projects</b>
42.21	Construction of utility projects for fluids
42.22	Construction of utility projects for electricity and telecommunications
<b>42.9</b>	<b>Construction of other civil engineering projects</b>
42.91	Construction of water projects
42.99	Construction of other civil engineering projects n.e.c.
<b>SIC 43</b>	<b>Specialised Construction Activities</b>
<b>43.1</b>	<b>Demolition and site preparation</b>
43.11	Demolition
43.12	Site preparation
43.13	Test drilling and boring
43.29	Other construction installation
<b>43.3</b>	<b>Building completion and finishing</b>
43.31	Plastering
43.32	Joinery installation
43.33	Floor and wall covering
43.34	Painting and glazing
43.34/1	Painting
43.34/2	Glazing
43.39	Other building completion and finishing
<b>43.9</b>	<b>Other specialised construction activities n.e.c.</b>
43.91	Roofing activities
43.99	Other specialised construction activities n.e.c.
43.99/1	Scaffold erection
43.99/9	Specialised construction activities (other than scaffold erection) n.e.c.
<b>SIC 71</b>	<b>Architectural and Engineering Activities; Technical Testing and Analysis</b>

<b>71.1</b>	<b>Architectural and engineering activities and related technical consultancy</b>
71.11	Architectural activities
71.11/1	Architectural activities
71.11/2	Urban planning and landscape architectural activities
71.12	Engineering activities and related technical consultancy
71.12/2	Engineering related scientific and technical consulting activities
71.12/9	Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)
<b>SIC 74</b>	<b>Other Professional, Scientific and Technical Activities</b>
<b>74.9</b>	<b>Other professional, scientific and technical activities n.e.c.</b>
74.90/2	Quantity surveying activities

Source: Office for National Statistics, UK Standard Industrial Classification of Economic Activities 2007

## 9.5 Type of Work: Detailed Descriptions<sup>166</sup>

Orders and output have been classified in accordance with revised descriptions given below from 1st quarter 1980. Prior to 1st quarter 1980 there were differences in definition.

Prior to 1st quarter 1985, telephone exchanges and cabling work for British Telecom were classified as communications work for the public sector. From 1st quarter 1985 this work has been classified to the private sector. From 1st quarter 1987 construction work for British Gas has been classified to the private sector. From 1st quarter 1990, construction work for water companies in England and Wales has been classified to the private sector. From 1st quarter 1991, construction work for electricity companies in England and Wales has been classified to the private sector. From 2nd quarter 1996 construction work for rail companies has been classified to the private sector.

### Type of Work

### Examples of Kind of Work Covered<sup>167</sup>

#### (a) Public Sector Housing

Local authority housing schemes, hostels (except youth hostels), married quarters for the services and police; old peoples' homes; orphanages and children's remand homes; and the provision within housing sites of roads and services for gases, water, electricity, sewage and drainage.

#### (b) Private Sector Housing

All privately owned buildings for residential use, such as houses, flats and maisonettes, bungalows, cottages, vicarages, and provision of services to new developments.

#### (c) Infrastructure

##### Water

Reservoirs, purification plants, dams (except for hydro-electric schemes), aqueducts, wells, conduits, water works, pumping stations, water mains, hydraulic works.

##### Sewerage

Sewerage disposal works, laying of sewers and surface drains.

##### Electricity

All buildings and civil engineering work for electrical undertakings such as power stations, dams and other works on hydro-electric schemes, substations, laying of cables and the erection of overhead lines.

##### Gas

Gas works, gas mains and gas storage.

##### Communications

Post offices, sorting offices, telephone exchanges, switching centres, cables.

##### Air Transport

Air terminals, runways, hangars, reception halls, radar installations, perimeter fencing, etc, which are for use in connection with airfields.

##### Railways

Permanent way, tunnels, bridges, cuttings, stations, engine sheds, etc, and electrification of both surface and underground railways.

<sup>166</sup> Office for National Statistics, Construction Statistics Annual 2010

<sup>167</sup> Mixed development schemes are included in the category which describes the major part of the scheme.

Harbours (Waterways)	All works and buildings directly connected with harbours, wharves, docks, piers, jetties (including oil jetties), canals and waterways, dredging, sea walls, embankments, and water defences.
Roads	Roads, pavements, bridges, footpaths, lighting, tunnels, flyovers, fencing.

**(d) Non-Housing Excluding Infrastructure<sup>168</sup>**

Factories	Factories, shipyards, breweries, chemical works, coke ovens and furnaces (other than at steelworks), skill centres, laundries, refineries (other than oil), workshops, Royal Mint (in public sector).
Warehouses	Warehouses, wholesale depots.
Oil	Oil installations including refineries, distribution pipelines and terminals, production platforms (but not modules or rigs).
Steel	Furnaces, coke ovens and other buildings directly concerned with the production of steel (excludes offices and constructional steelwork).
Coal	All new coal mine construction such as sinking shafts, tunnelling, works and buildings at the pithead which are for use in connection with the pit. Open cast coal extraction is excluded.
Schools and Colleges	Schools or colleges (including technical colleges and institutes of agriculture) except medical schools and junior special schools which are classified under 'Health'. Schools and colleges in the private sector are considered to be those financed wholly from private funds such as some religious colleges including their halls of residence.
Universities	Universities including halls of residence, research establishments.
Health	Hospitals including medical schools, clinics, surgeries (unless part of a house); medical research stations (except when part of a factory, school or university), welfare centres, centres for the handicapped and for rehabilitation; adult training centres and junior special schools.
Offices	Office buildings, banks, embassies. Police HQ's, local and central government offices (including town halls) are classified to the public sector.
Entertainment	Theatres, concert halls, cinemas, film studios, bowling alleys, clubs, hotels, public houses,

<sup>168</sup> Private work is classified between industrial and commercial as follows:

Industrial – factories, Warehouses, Oil, Steel, Coal  
Commercial – Schools and Colleges, Universities, Health, Offices, Entertainment, Garages, Shops, Agriculture, Miscellaneous.

restaurants, cafes, holiday camps, yacht marinas, dance halls, swimming pools, works and buildings at sports grounds, stadiums and other places of sport or recreation and for commercial television, betting shops, youth hostels and centres; service areas on motorways are also classified in this category as the garage is usually only a small part of the complex which includes cafes and restaurants.

Garages	Buildings for storage, repair and maintenance of road vehicles; transport workshops, bus depots, road goods transport depots and car parks.
Shops	All buildings for retail distribution such as shops, department stores, retail markets and showrooms.
Agriculture	All buildings and work on farms, market gardens and horticultural establishments such as barns, animal houses, fencing, stores, greenhouses, boiler houses, agricultural and fen drainage and veterinary clinics, but not houses (see category (c)), or buildings solely or mainly for retail sales which are included under 'shops'.
Miscellaneous	All work not clearly covered by any other heading, such as: fire stations; barracks for the forces (except married quarters, classified under 'Housing'), naval dockyards; RAF airfields, police stations, prisons, reformatories, remand homes, borstals, civil defence work, UK Atomic Energy Authority work, council depots, public conveniences, museums, conference centres, crematoria, libraries, caravan sites, except those at holiday resorts, exhibitions; wholesale markets, Royal Ordnance factories.

### **Repair and Maintenance**

This concerns work, which is either repairing something which is broken, or maintaining it to an existing standard. For housing output, this includes repairs, maintenance, improvements, house/ flat conversions, extensions, alterations and redecoration on existing housing. For non housing this includes repairs, maintenance and redecoration on existing buildings, which are not housing, such as schools, offices, roads, shops.

## 9.6 ConstructionSkills Footprint, SOC 2000

Details of ConstructionSkills' SOC footprint are shown below. Table 28 details the occupations for which ConstructionSkills has exclusive or primary responsibility. ConstructionSkills takes a lead in the development and maintenance of the related NOS. These represent occupations that are typically associated with the construction sector. Table 29 details occupations which ConstructionSkills shares with other SSCs. In this respect these are occupations that provide support functions for firms operating within the construction sector or are occupations for which others have the primary responsibility.

The full list of SOC detailed here gives an indication of how difficult it would be to use SOC codes to identify the size of the sectors given that many occupations detailed within Table 29 feature in almost every sector.

**Table 28 – Definition of the ConstructionSkills sector, Exclusive and Primary SOC Codes**

<b>SOC</b>	<b>SOC Description</b>
1122	Managers in construction
2113	Physicists, geologists & meteorologists
2121	Civil engineers
2431	Architects
2432	Town planners
2433	Quantity surveyors
3114	Building & civil engineering technicians
3121	Architectural technologists & town plan technicians
3122	Draughtspersons
3123	Building inspectors
3421	Graphic Designers
5216	Pipe fitters
5311	Steel erectors
5312	Bricklayers, masons
5313	Roofers roof tilers and slaters
5315	Carpenters and joiners
5319	Construction trades n.e.c.
5321	Plasterers
5322	Floorers and wall tilers
5323	Painters and decorators
8141	Scaffolders, staggers riggers
8142	Road construction operatives
8149	Construction operatives n.e.c.
8221	Crane drivers
8229	Mobile machine drivers & operatives
9121	Labourers building & woodworking trades
9129	Labourers other const trades n.e.c.

Source: Office for National Statistics, UK Standard Occupational Classification of Economic Activities 2000



**Table 29 – Definition of the ConstructionSkills sector, Shared SOC Codes**

<b>SOC</b>	<b>SOC Description</b>
1112	Directors & chief executives of major organisations
1121	Production works & maintenance managers
1132	Marketing and sales managers
1142	Customer care managers
1152	Office managers
1231	Property housing and land managers
1239	Managers and property In other services n.e.c.
2128	Planning and quality control engineers
2129	Engineering professionals n.e.c.
2434	Chartered surveyors (not quantity survey)
3111	Laboratory technicians
3531	Estimators, valuers and assessors
3541	Buyers and purchasing officers
3542	Sales representatives
3551	Conservation & environ protection officers
3567	Occupational hygienists & health safety officers
4150	General office assistants or clerks
5316	Glaziers, window fabric and fitters
7129	Sales related occupations n.e.c.
8121	Paper and wood machine operatives
8129	Plant and machine operatives n.e.c.
9219	Elementary office occupations n.e.c.

Source: Office for National Statistics, UK Standard Occupational Classification of Economic Activities 2000

## 9.7 Methodology Paper

This section provides an overview of the primary research sources utilised in the production of the Sector Skills Assessment. These sources are projects commissioned as part of ConstructionSkills' annual Research Programme.

<b>Name</b> Construction Industry Council and ConstructionSkills, Impact of the Recession on Construction Professionals – A view from the front line.	<b>Date</b> 2009
<b>Aim/Objectives</b> To provide an understanding of how the current recession was impacting on the UK professional services sector, including: <ul style="list-style-type: none"> <li>➤ How employers have responded to current changes in the economy; and</li> <li>➤ to what extent employers are planning for future growth.</li> </ul>	
<b>Methodology</b> The research was split into two discrete packages. Experian was commissioned to analyse the trends in official data relating to the construction sector and in particular to construction professionals, and combine this with the outputs of the Construction Skills Network employment model to produce a view of the effects of the recession to date and the prospects for construction professionals as the economy starts to move into recovery mode. In addition, Experian was asked to collate responses supplied by professional institutions as to how they were assisting their members in 'recession mitigation'. Finally a brief examination of the longer-term influences on the nature of construction professionals' work was undertaken, drawing on previously published material.  In tandem with the Experian research, a survey of construction professionals was commissioned to obtain responses from professional practices as to the effects of the recession on their business and how the downturn was impacting on employment, recruitment and training.  This primary research involved two elements: <ul style="list-style-type: none"> <li>➤ An initial qualitative phase, involving 30 teledepths with firms within the professional services sector.</li> <li>➤ A quantitative survey of 301 professional services firms employing 5 or more staff across the UK.</li> </ul>	

<b>Name</b> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training	<b>Date</b> Wave 10: October 2010
<b>Aim/Objectives</b> The Employer Panel seeks to complement and enhance ConstructionSkills' existing research by providing an open and regular programme of employer consultation, allowing a reality check for anecdotal reports and enabling employer reactions to be gained on 'hot topics' of the moment. A particular aim was to enable a more comprehensive understanding of actual behavioural issues influencing the decision(s) to train, the route(s) taken and the method(s) used.	
<b>Methodology</b> Each wave of research comprises 30 Qualitative and 1,500 quantitative interviews (both phases conducted by telephone) with employers and the self-employed operating within the traditional building sector (SIC 45) and the Professional Services sector (SIC 74.20).	

<b>Name</b> ConstructionSkills and Experian, Construction Skills Network, 2011-2015	<b>Date</b> 2010
<b>Aim/Objectives</b> The aim of the Construction Skills Network (CSN) is to assist the industry and its stakeholders with planning to meet future employment and skills requirements, by providing sector intelligence based upon robust data and analysing capacity, productivity and skills.  The CSN is co-ordinated by ConstructionSkills in conjunction with Experian, who provide information and analytical services. The CSN has over 700 members (including representatives from Government, Federations and Employers) who attend observatory meetings and contribute their skills and knowledge.  At the heart of the CSN are a number of forecasting models which generate forecasts of employment requirements within the industry for a range of occupational groups. The models are designed and managed by Experian under the independent guidance and validation of the Technical Reference Group, comprised of statisticians and modelling experts.	
<b>Methodology</b> The model approach relies on a combination of primary research and views from the CSN to facilitate it. National data is used as the basis for the assumptions that augment the models, which are then adjusted with the assistance of the Observatories and National Group. Each English region, Wales, Scotland and Northern Ireland has a separate model (although all models are inter-related due to labour movements) and, in addition, there is one national model that acts as a constraint to the individual models and enables best use to be made of the most robust data (which is available at the national level). The models work by forecasting demand and supply of skilled workers separately. The difference between demand and supply forms the employment requirement.  For more information see CSN explained document at <a href="http://www.cskills.org/uploads/csn2010-2014explained_tcm17-18118.pdf">http://www.cskills.org/uploads/csn2010-2014explained_tcm17-18118.pdf</a>	
<b>Name</b> ConstructionSkills and Foras Áiseanna Saothair (FÁS). Workforce Mobility and Skills in the UK Construction Sector	<b>Date</b> September 2007
<b>Aim/Objectives</b> The overall aim of the study was to provide reliable data on the nature of the construction workforce in regard to their competence/qualification levels and the extent of occupational and geographic mobility within the workforce. More specifically, the key objectives of the research were to examine: <ul style="list-style-type: none"> <li>➤ the qualification and skill levels of the construction workforce in the UK and ROI</li> <li>➤ the extent to which the workforce in each nation/region is constituted of workers originating or living in other parts of the UK/ROI (or further afield), and general mobility and travel to work issues</li> <li>➤ the nature of the mobile workforce/'imported' workforce in terms of their occupations and their competence/qualification levels</li> <li>➤ the scale and extent of occupational mobility within the construction workforce to see how workers in construction occupations change or keep their occupations over time, and related to this the extent to which managers have received training specifically to enhance their managerial skills</li> </ul> The focus for the survey was on site-based manual occupations, thus excluding associated clerical and sales occupations and professions such as architects, surveyors and engineers.	
<b>Methodology</b> Phase 1 – Exploratory desk-based research Phase 2 – Telephone survey in order to gain willingness from sites to take part in the research Phase 3 - Face to face interviews with 3,877 workers across 312 sites in the UK/ROI	

<b>Name</b> ConstructionSkills, Construction Apprentices Survey,	<b>Date</b> 2007
<b>Aim/Objectives</b> The aim of the survey was to determine critical data on learners, which will serve two main purposes as follows: <ul style="list-style-type: none"> <li>➤ To equip ConstructionSkills (previously CITB)with the information it requires for management, development and planning purposes in anticipation of meeting its requirements as Sector Skills Council for Government, the construction industry and education bodies.</li> <li>➤ To furnish ConstructionSkills' (previously CITB's) Area Offices with information to contribute to the self-assessment reports and action plans required to meet the monitoring and inspection requirements of the ALI in England and Local Enterprise Companies in Scotland.</li> </ul>	
<b>Methodology</b> A postal questionnaire survey of 5,224 new CITB construction trainees in England, Wales and Scotland was undertaken.  The questionnaire contained questions relating to: <ul style="list-style-type: none"> <li>➤ learners' background including their qualifications,</li> <li>➤ the course and training programme they were following;</li> <li>➤ learners' career choice and the main influences on this;</li> <li>➤ learners' experience of the Construction Skills Learning Exercise, CITB and employer interviews;</li> <li>➤ assessment of learners' needs;</li> <li>➤ learners' views on their training programme and induction;</li> <li>➤ advice and support that the learners were given regarding their future.</li> </ul> <p>A total of 2,317 completed questionnaires were returned by the end of February, representing a response rate of 44 per cent.</p>	

<b>Name</b> ConstructionSkills Skills and Training in the Construction Industry, 2009.	<b>Date</b> 2009
<b>Aim/Objectives</b> The primary aim of this project is to provide robust and reliable information from both employers and the self-employed within the UK construction industry on skill deficiencies and workforce development.	
<b>Methodology</b> The study was UK-wide and covered the full ConstructionSkills footprint (professional services SIC74.2) and the construction contracting sector (SIC45, excluding plumbing and electrical firms (SIC 45.31 and 45.33, which fall within the footprint of SummitSkills, the Sector Skills Council for the Building Services Engineering)  A total of 1,202 interviews were conducted via a quantitative telephone survey across the UK:	

<b>Name</b> ConstructionSkills Training and the Built Environment	<b>Date</b> 2010
<b>Aim/Objectives</b> This project undertaken annually aims to measure the number of people entering construction training across Great Britain. These include those coming through ConstructionSkills' own managing agency and those entering other formal certificated training at craft and technical level. The survey also aims to discover the total capacity for skilled manual trades training that is currently available	
<b>Methodology</b> Postal questionnaire sent to all training providers across Great Britain who provide formal certificated training at craft and technical level.	

<b>Name</b> ConstructionSkills and National Heritage Training Group, Traditional Building Craft Skills: A Skills Needs Analysis Of The Built Heritage Sector in Scotland	<b>Date</b> 2007
<b>Aim/Objectives</b> The purpose of the research was to: <ul style="list-style-type: none"> <li>➤ Analyse and quantify the size of the pre-1919 building stock in Scotland, as this produces the most demand for traditional building skills</li> <li>➤ Assess existing traditional building skills levels and future needs, including identifying particular shortages and gaps within the workforce Include a smaller-scale assessment of manufacturers and suppliers of traditional building materials (stone, lime, timber, ferrous metals, etc) and building professionals working in the traditional building sector</li> <li>➤ Identify training provision for traditional building skills</li> <li>➤ Make recommendations to address identified problems and devise a skills action plan</li> </ul>	
<b>Methodology</b>	
<b>Name</b> ConstructionSkills, Understanding Future Change in Construction	<b>Date</b> 2010
<b>Aim/Objectives</b> The aim of this research is to establish an evidence base for ConstructionSkills on future skills across the construction sector. This takes the form of a high level overview of where the construction industry is expected to be in the short-term (1-3 years), medium-term (3-5 years) and long-term (5-10 years), and the resulting generic skills and training needs. The evidence base is to be enlightened by current construction industry views, utilised to underpin future research requirements and inform strategic thinking.	
<b>Methodology</b> Multi-faceted approach was adopted, to gather data through a range of separate routes: Phase 1 - Literature review Phase 2 – Focus Groups across Great Britain - attended by representatives from nearly 70 stakeholder organisations including those within, as well as impacting upon, the construction sector Phase 3 - In-depth qualitative telephone interviews - 10 in England, 10 in Scotland and 9 in Wales with key stakeholders in the construction sector	
<b>Name</b> ConstructionSkills, Cut the Carbon. Research Study: preparing for a low carbon future	<b>Date</b> 2010
<b>Aim/Objectives</b> The research study aimed to capture the knowledge and views of a range of construction clients that regularly procure services from SME contractors. In the context of the carbon reduction agenda, its ultimate goal was to understand what clients want, now and in the future, and how able the construction SME is to deliver.	
<b>Methodology</b> The report expresses the views of 39 public sector organisations, 38 main contractors, 28 corporate end-users and 1,507 homeowners captured via a mix of online questionnaires and telephone interviews.	

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