



# **Sector Skills Assessment for the Construction Sector 2009**

## **ConstructionSkills UK Report**

**ConstructionSkills Research**



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## 1. Introduction

ConstructionSkills is the Sector Skills Council for construction. As a partnership between CITB-ConstructionSkills, the Construction Industry Council and CITB-Northern Ireland, it covers the construction sector from planning and design through to construction and maintenance, and represents occupations from crafts through to building professionals.

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 that will be published in 2010.

### 1.1 Current and Future Skills Priorities

Construction is an important UK sector and ConstructionSkills has a leading role to play in unlocking the talent of individuals and improving the performance of construction firms and professional consultancies.

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.

Looking forward ConstructionSkills has identified four key themes that must be addressed if industry is to successfully operate in the current environment and exploit new and emerging opportunities:

<b>Attracting and Retaining Talent</b>
<ul style="list-style-type: none"><li>➤ Promoting careers in construction.</li><li>➤ Supporting vocational and sector specific qualifications in schools, colleges and universities.</li><li>➤ Encouraging recruitment from a more diverse pool of talent.</li><li>➤ Assisting retention by providing employers and employees with appropriate support.</li></ul>
<b>Developing Talent</b>
<ul style="list-style-type: none"><li>➤ Promoting lifelong learning as an aid to achieving qualifications, career progression and continuous professional development.</li><li>➤ Improving health and safety knowledge and behaviours.</li><li>➤ Support evolving professional and specialist skills needs associated with sustainability, low carbon building and innovative construction.</li></ul>

### **Improving Business Performance**

- Increasing employer investment in training and development to improve productivity.
- Increasing the uptake of skills brokerage, business support services and skills funding packages.
- Improving supervisory, management and leadership skills.
- Promoting integration and collaborative working in the industry.
- Encouraging clients to invest in the construction skills base through best practice procurement.

### **Strengthening the Skills Infrastructure across Nations**

- Developing project based training across the nations in support of major construction projects.
- Implementing the Construction Qualifications Strategy to ensure qualifications meet the needs of employers and learners.
- Providing authoritative national and regional labour market intelligence.
- Responding to the specific needs of the construction industry in the nations and regions.
- Influencing skills and training policies and funding to ensure that they are fit for purpose for the construction industry.
- Collaborating with employers and their representative bodies, professional institutions, trade unions, delivery partners and other Sector Skills Councils to develop an integrated approach.

## 2. What are the factors driving the demand for skills?

### 2.1 What Drives Skills Demand?

#### 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.

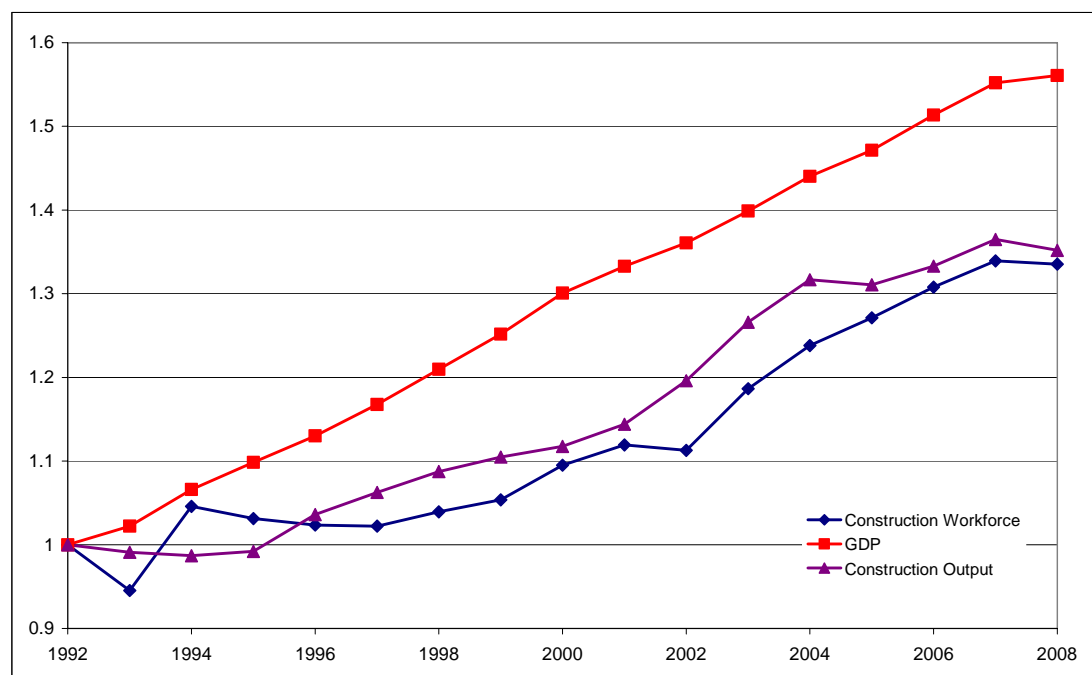
Construction is a pre-requisite to all other economic activity and forms a significant part of the UK economy in terms of employment and wealth generation.

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

Employing 2.35<sup>1</sup> million people the combined employment of construction workers and professionals account for over 8% of the UK workforce, and with an output in 2009 of £97billion (at constant 2005 prices) the sector contributes approximately 8.5% of the UK's GDP.

The construction sector, including professional services creates around £84billion<sup>2</sup> of value added and is estimated to generate over £10billion in export earnings. All of which is actually produced from a fairly fragmented sector.

**Chart 1 - Comparison of GDP, Construction Output and Workforce: UK 1992-2008**



Source: Office for National Statistics, Labour Force Survey; Construction Skills Network

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 2.1 million people). From 1999 to 2008 the employment trend has been positive apart from a slight dip in 2002 and now as a result of the recession. Indeed, until the recession the industry experienced its longest period of sustained growth since the post war construction boom. This growth was in response to a generally more stable macro-economic climate, although low growth forecasts in the wider economy from

<sup>1</sup> Office for National Statistics, Labour Force Survey, Spring 2009

<sup>2</sup> Office for National Statistics, Annual Business Inquiry, Provisional Results 2008

around 2005 onwards indicated, even prior to recession that the market for construction was slowing.

The construction industry is generally considered a barometer of wider economic health. As a consequence, the signs still present a pessimistic picture in the medium-term.

Unfortunately the industry is notorious for being first into and last out of recession.

### 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 large tail of small firms. Across the construction sector as a whole there are approximately 311,180<sup>3</sup> enterprises.<sup>4</sup> However, the vast majority of companies in the sector are small, with over 92% 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.

**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>	288,805	92.8	518,440	32.1
<b>10-49</b>	19,415	6.2	375,930	23.3
<b>50-249</b>	2,555	0.8	244,480	15.2
<b>250+</b>	405	0.1	474,210	29.4
<b>Total</b>	<b>311,180</b>	<b>100.0</b>	<b>1,613,060</b>	<b>100.0</b>

Source: Office for National Statistics, UK Business - Activity, Size and Location 2009; Small Business Service Analytical Unit 2009; Office for National Statistics, Labour Force Survey 2009; 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, 804,000 people working within the sector are self-employed<sup>5</sup>. Whilst the numbers of self-employed within the sector with 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 (37%) 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 (20%) 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 (34%), Wales (37%) and Northern Ireland (41%). The exception being Scotland where only one in five (21%) 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 into the craft workforce in Scotland 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<sup>1</sup>. 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. Whilst, self-employment is considerably lower in Scotland it remains high in the main craft trades, where it is 44% of the workforce.

<sup>3</sup> Office for National Statistics, UK Business - Activity, Size and Location 2009

<sup>4</sup> Based on VAT trader and PAYE employer information.

<sup>5</sup> Office for National Statistics, Labour Force Survey, Spring 2009



Self-employment is particularly high in the main craft trades where it averages over 60% of the workforce, 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 78%, East of England 72% and South East 65% - 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. Nearly a quarter (23%) of self-employed workers are aged 55+ compared to only 16% being 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 to address their skill gaps and shortages 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<sup>6</sup>, particularly in the main construction trades, where the financial rewards are perceived as being greater. ConstructionSkills' research 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<sup>7</sup>. 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.

### **2.1.3 Employment Characteristics**

In terms of occupational structure, manual workers dominate, representing 55% of the total workforce. The remaining 45% are non-manual workers, including managers, and all those working in the professional services sector<sup>8</sup>. Patterns of full-time working remain dominant in the industry. Part-time employment is negligible<sup>9</sup>.

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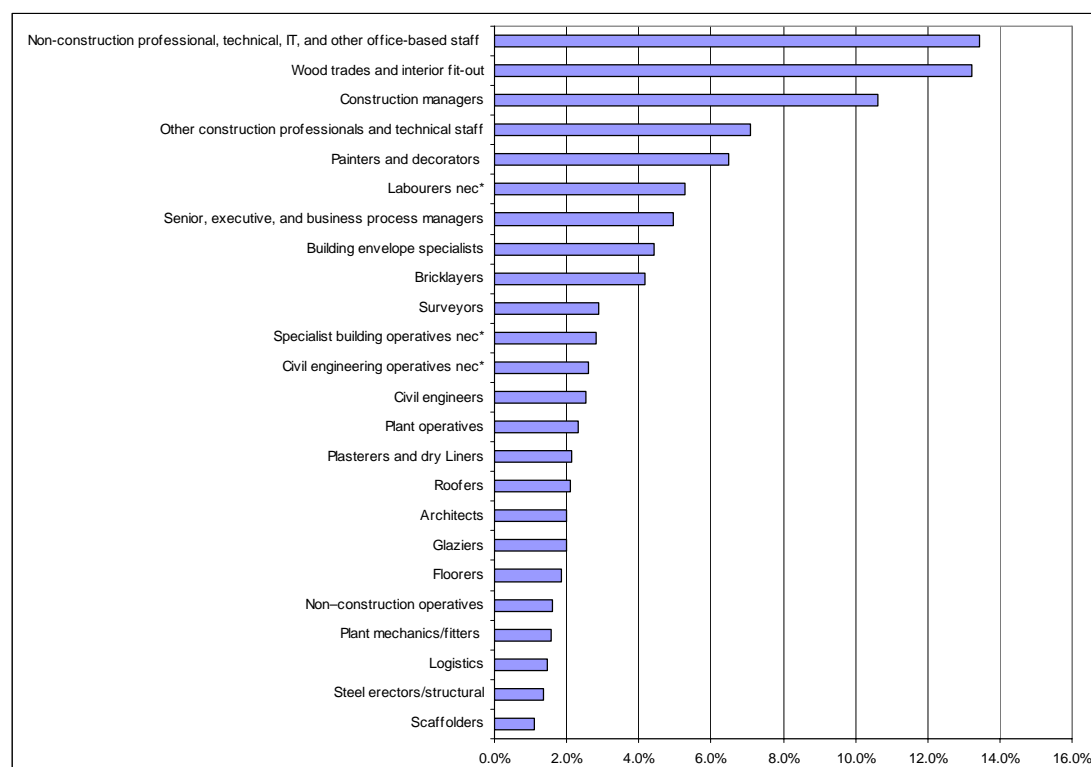
<sup>6</sup> ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

<sup>7</sup> ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

<sup>8</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

<sup>9</sup> Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

**Chart 2 - Construction Employment by Occupation, United Kingdom: 2009**



Source: Construction Skills Network Model; Experian

Employment within the sector is skewed towards the South East, well over a third (37%) 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 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>10</sup>.

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

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

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

<sup>10</sup> ConstructionSkills and Central Office of Information, 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**

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

The sector has traditionally suffered from an unfortunate image in terms of low pay, poor working environment and little job security, particularly in respect of craft and operative roles. Such perceptions have made it difficult for employers to attract talent. In terms of relative pay, wages for manual and non-manual occupations are above the national average.

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

Indeed, there is now a very real risk that the outflow of skilled workers through redundancy and the natural flow to other sectors will adversely impact on the recovery when it eventually comes.

Furthermore, demographic changes related to more young people staying on in full-time education after the age of 16, and the imminent raising 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. From 2010 onwards, it is estimated that the number of young people reaching working age will begin to fall by 60,000 every year.

## 2.2 Current Performance - What is Driving Change?

### 2.2.1 The Economy

This is the prime driver for change across the sector. Demand for large numbers of good quality housing, hospitals, schools, commercial premises, roads and infrastructure has characterised the last five years and is generally set to grow, albeit at a considerably slower rate, over the next five.

Certainly, the world is a very different place than it was 12 months ago. While the global economy had been expected to show some slow down, no-one anticipated the level of exposure that the financial markets had to the bad debt created by the collapse of the sub-prime mortgage market in the US. Not only have industrialised economies seen turmoil in their financial markets throughout 2008 and into 2009, but those economies previously considered 'decoupled' from the West, such as China and India, have proved just as vulnerable to the spreading contagion, with falling share prices on their stock exchanges and shrinking export markets.

The UK economy has proved one of the most exposed to the debt crisis and according to the Organisation for Economic Co-operation and Development (OECD) is likely to suffer one of the worst contractions among the major European economies. By the end of 2009, it is likely that the UK economy will have experienced six quarters of falling output, a contraction that the construction industry will certainly not be immune from.

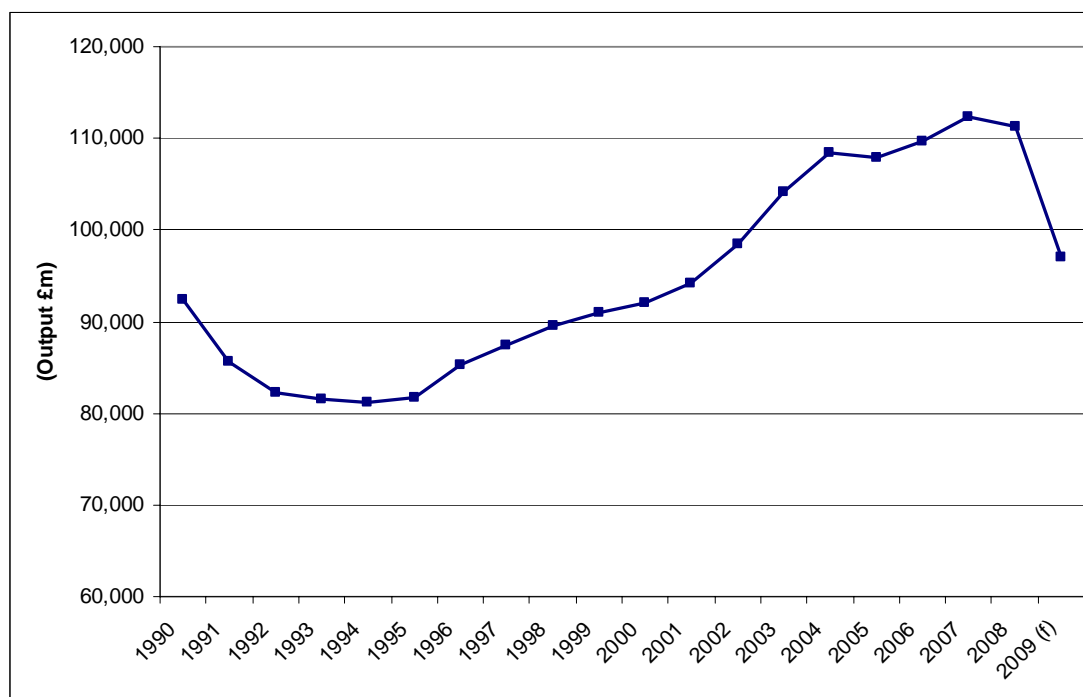
The impact of the recession on the construction sector has been nothing short of dramatic in terms of its impact on jobs and workloads. Indeed, 2009 has been a particularly difficult year with a sharp decline in construction output.

The sector is experiencing its worst contraction for 30 years with a fall in output of some 13% between 2008 and 2009<sup>11</sup>. Whilst a downturn was expected on the back of the credit crisis the speed and depth of the contraction was without precedent. In this respect it has caught out a lot of businesses, particularly in terms of planning in the face of reduced workloads, late payments and increased competition.

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<sup>11</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

**Chart 3 - Construction Output in £m (2005 prices), United Kingdom: 1990-2009**



Source: Office for National Statistics, Labour Force Survey; ConstructionSkills Network; Experian

Whilst recent events in the UK economy – the credit crunch and subsequent recession – have changed the short-term picture for construction, there is little doubt that the long-term trend is for rising levels of construction activity, which will continue to present career opportunities.

Overall, the effect of the recession has resulted in reduced construction output in the short-term although the medium to long-term forecast is for growth of around 1.7% per year between 2010 and 2014, compared to the 0.7% predicted for the 2009–2013 period<sup>12</sup>.

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 trades people, 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 Construction Skills Network shows that construction employment started to fall in 2008, albeit by a marginal 1%, however provisional predictions suggest a much larger decline of 11% across 2009 and 2010, with the bulk of the fall in 2009.

It is estimated that job losses between 2008 and 2010 are expected to reach around 450,000 amongst contractors and professionals, and the number of construction companies facing insolvency is now running at more than twice the rate that they were at the start of the credit crunch.

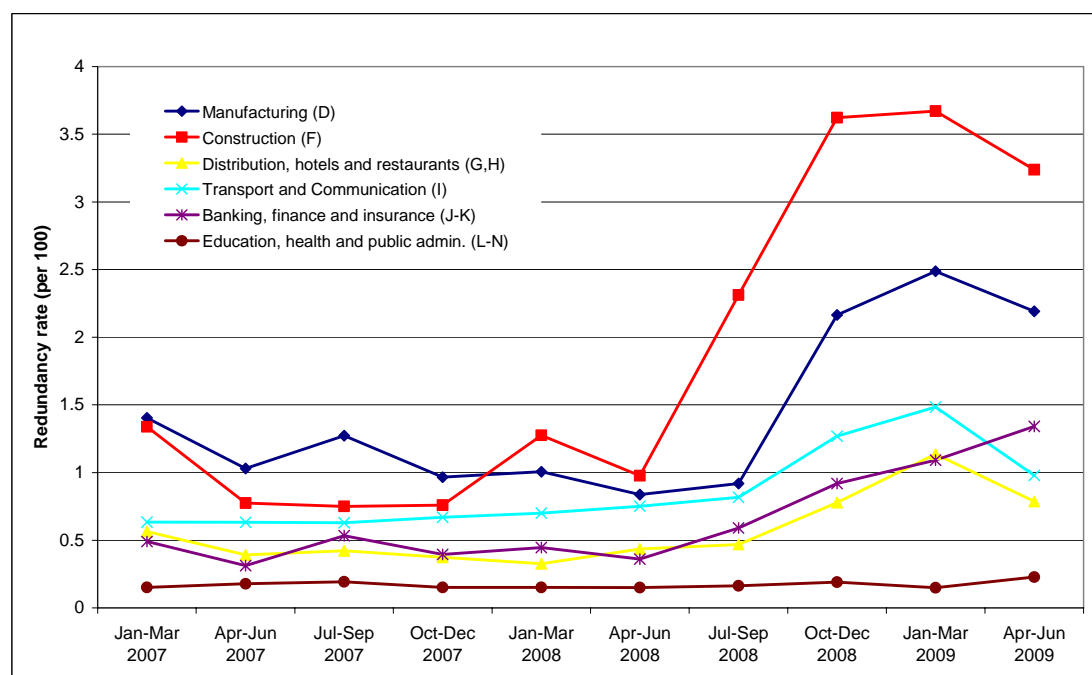
Data from the Office for National Statistics<sup>13</sup> clearly shows the impact of the recession on the construction workforce. Whilst the construction sector has not suffered as much in numerical terms as manufacturing or financial services, it has experienced the highest redundancy rate of any UK industrial sector. The rate first increased in Q4 2007,

<sup>12</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

<sup>13</sup> Office for National Statistics, Labour Force Survey, Spring 2009

dropping slightly in Q2 2008 before rising rapidly during Q3 2008 to a peak in Q1 2009. The rate has now declined in line with most other UK industrial sectors.

**Chart 4 - Redundancy rate by Industry, United Kingdom: 2007-2009**



Source: Office for National Statistics, Labour Force Survey

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>14</sup>.

Among employers that have laid staff off as a result of the recession, the cutbacks equate to a reduction of 12% in their workforce compared with 6 months earlier<sup>15</sup>. Redundancies have affected all occupational groups from the unskilled to managers and professionals. Labourers / general operatives are the occupation most likely to have been made redundant (27% of companies that had laid staff off because of the recession), followed by carpenters and joiners (23%), administrative and secretarial staff (14%) and bricklayers (12%). 6% of those laying off staff have reduced their managerial headcount.

Encouragingly though ConstructionSkills' research indicates that the majority of firms are confident that they will ultimately survive the current recession: a third are very confident of survival (32%) and a further half are fairly confident (49%)<sup>16</sup>.

Certainly with evidence of recovery in the global economy attention is moving from the depth of the recession towards its exit path. However, the sector will emerge from the recession 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. A possible change of Government is also a real possibility in 2010 and this will

<sup>14</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

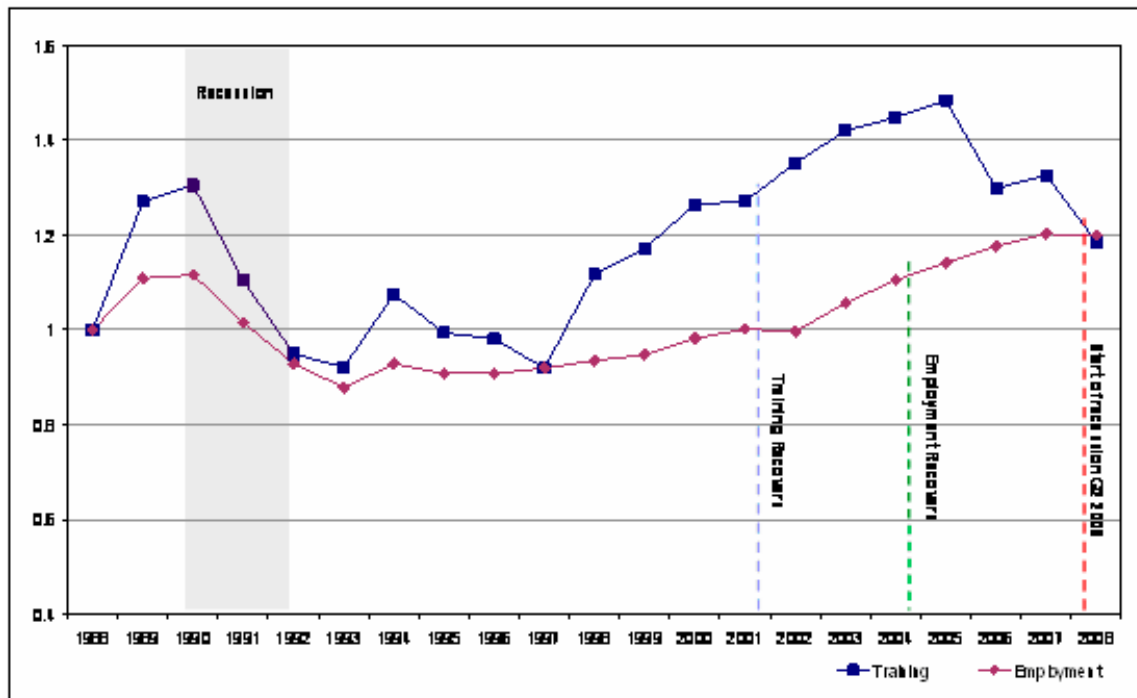
<sup>15</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009

<sup>16</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009

drive policy change; already there is an emphasis on greater devolved power in the regions and nations with more decision making at local level.

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 - Relative change in Levels of Construction Employment and Training, Great Britain: 1988-2008**



Source: Office for National Statistics, Labour Force Survey; ConstructionSkills

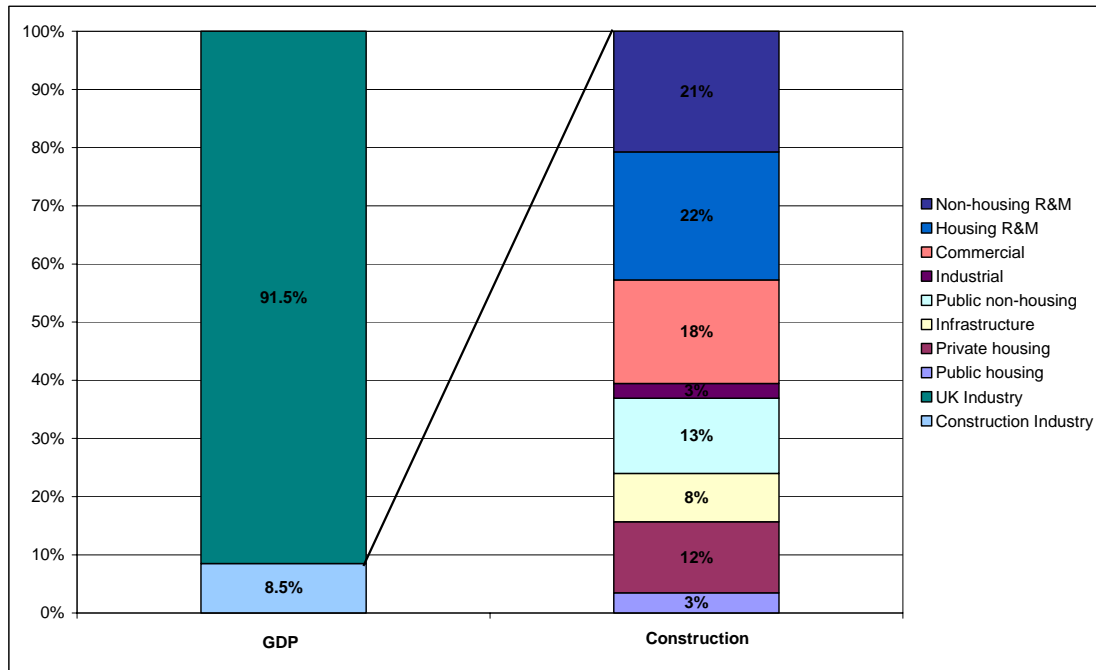
Looking back at industry data one can see that the employment and training took some 10 years or more to recover from the slump of the early-1990s. Whilst economic recovery is forecast over the next five years it is highly likely that employment levels will lag and similar patterns will re-occur.

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

**Chart 6 - GDP and Construction Output, United Kingdom: 2009**



Source: Office for National Statistics; Construction Skills Network; Experian  
 Note: 2009 is an estimate

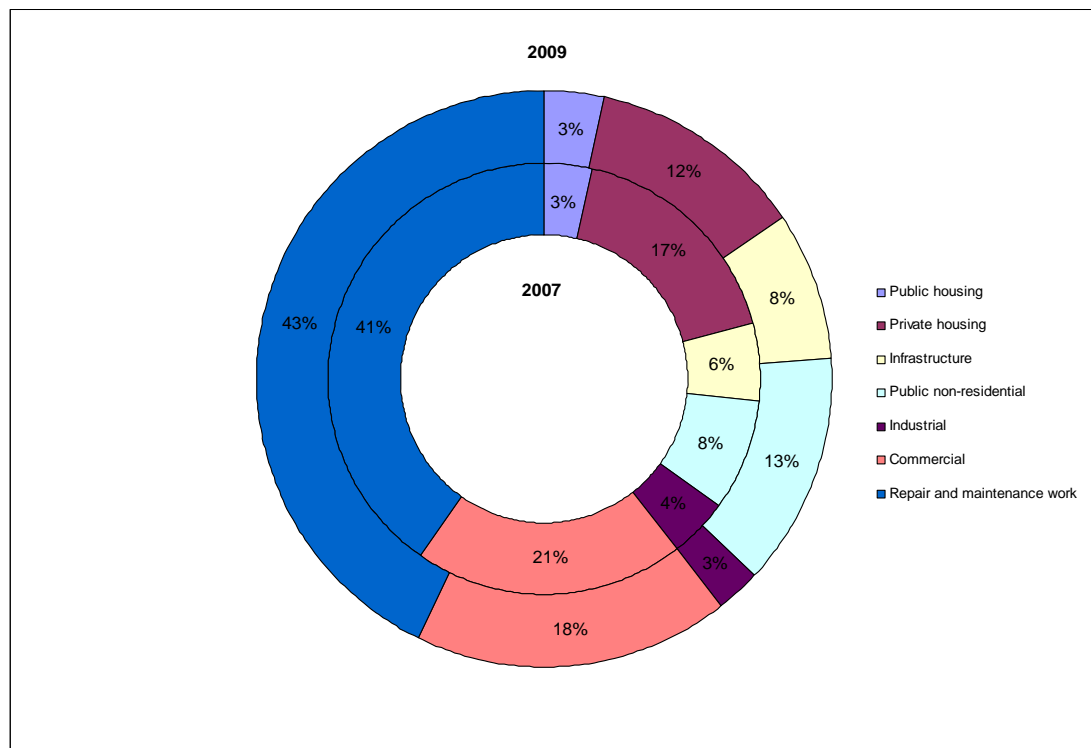
Whilst, the recession has severely impacted on the sector the picture is mixed in terms of output and new orders, and it would be wrong to believe that activity has declined across the whole industry. Some sections of the industry have bucked the recession trend, although growth has been limited.

Infrastructure and public non-residential has benefited to some degree from the Government’s fiscal stimulus package. However, the long lead times on projects mean that large parts of the contracting community are still yet to feel the full effects, and some sectors such as housing will experience very little direct benefit.

Nevertheless, construction activity in 2009 was essentially sustained by investment in public non-residential construction and infrastructure. A comparison of pre-recession output data and estimates for 2009 illustrates the switch away from commercial activity and private housing to publicly-funded sectors.



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



Source: Office for National Statistics; Construction Skills Network; Experian  
 Note: 2009 is an estimate

Housing has undoubtedly suffered most as a result of the downturn. New housing work has effectively collapsed. Until the credit crunch private sector housing, along with the commercial sector, was one of the main engines of construction growth, fuelled by the housing price bubble and strong levels of consumer spending. The house-building sector was the first to feel the full force of the downturn and subsequent activity has been negligible. Output in private housing has fallen by 40% since 2007 and new orders in the year to September 2009 fell by 44% compared with those in the previous 12 months. It is difficult to see what will stimulate growth in the private housing sector other than banks returning to more normal lending patterns. Recent falls in interest rates are unlikely to boost housing demand in the short-term, as it is no longer the size of the monthly bill that is the problem in obtaining mortgage finance but the size of the deposit required.

Public housing and housing association orders have increased slightly following a decline over the last 12 month, but comparisons in this sector are affected by large variations due to its relatively small size.

Repair and maintenance (R&M) has offered some shelter for contractors faced with a lack of demand in new build, but has not been immune to falling levels of demand, particularly housing R&M, which has been badly affected as consumers cut back on non-essential work on their properties as disposable incomes come under pressure and employment uncertainties increase. Non-residential R&M output has fared a little better than housing R&M with work in the public non-housing sector in the 12 months to the second quarter of 2009 unchanged compared with the previous 12 months.

The sustained position of non-residential R&M is primarily the result of Government investment. However with public finances under pressure there remains the very real possibility that routine and cyclical maintenance on public buildings will be further reduced and the long-term trend is for decreasing levels of activity.

From a job creation perspective this is disappointing as R&M is twice as labour intensive as the majority of new work.

Whilst contracting and building firms work to service all of the types of demand mentioned above, professional services firms exhibit a different balance, largely because of their lower level of involvement in the Repair and Maintenance (R&M) market. The most recent and available research shows that new work accounts for 60% of professionals fee income and refurbishment accounts for 28%. Only 12% of professional fee income is generated in the R&M sector.

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.

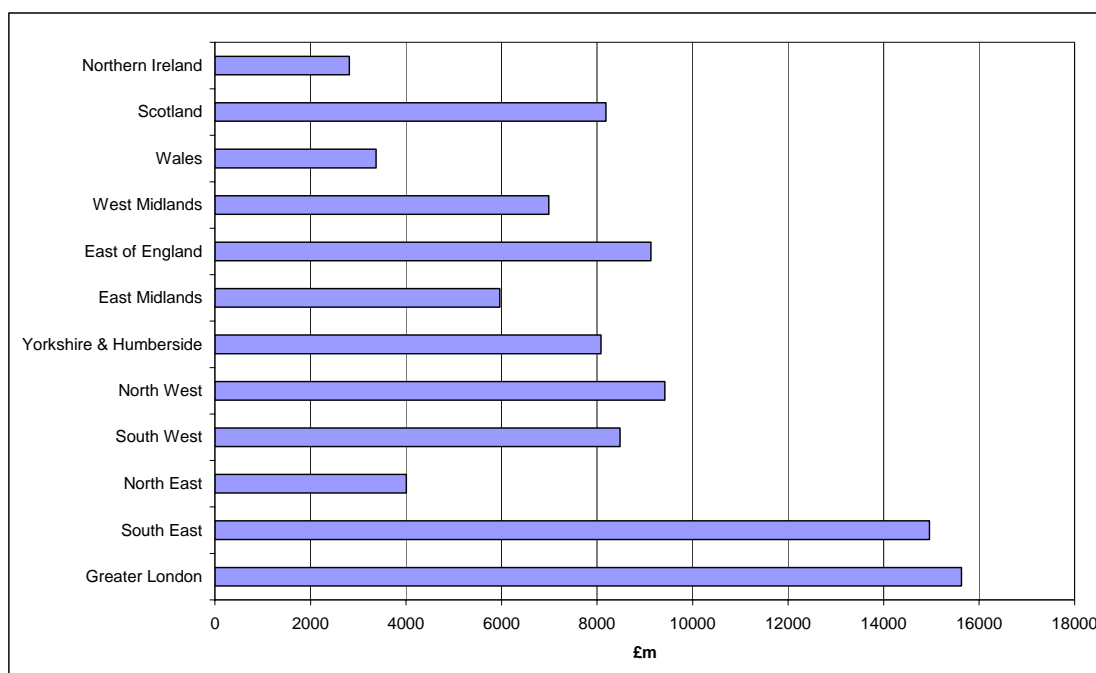
Pre-recession growth was expected to shift southwards over the five years to 2010, and the strongest demand for new entrants to the industry was forecast to be in those regions with the biggest construction markets – Greater London and the South East. However, the recession has resulted in very mixed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

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 PFI hospital building programme.

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

**Chart 8 - Construction Output by Country and Region in £m (2005 constant prices), United Kingdom: 2009**



Source: Construction Skills Network; Experian  
 Note: 2009 is an estimate

Northern Ireland has benefited from significant levels of public investment. The Northern Ireland construction industry is more reliant on the public sector to drive it than the rest of the UK –publicly driven work accounts for around 45% of total construction in the province, compared with 35% for the rest of the UK.

Thus the delivery of work under the Investment Strategy Northern Ireland (ISNI) programme is crucial to the health of the industry. While funding to April 2011 is committed the worry is that not all the indicated spend to 2018 will be delivered.

Infrastructure projects, which are very South East England centric, have sustained output which was previously driven by private investment.

All regions have suffered from the housing market downturn.

### 2.2.3 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% 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 1% to 2% of firms<sup>17</sup>.

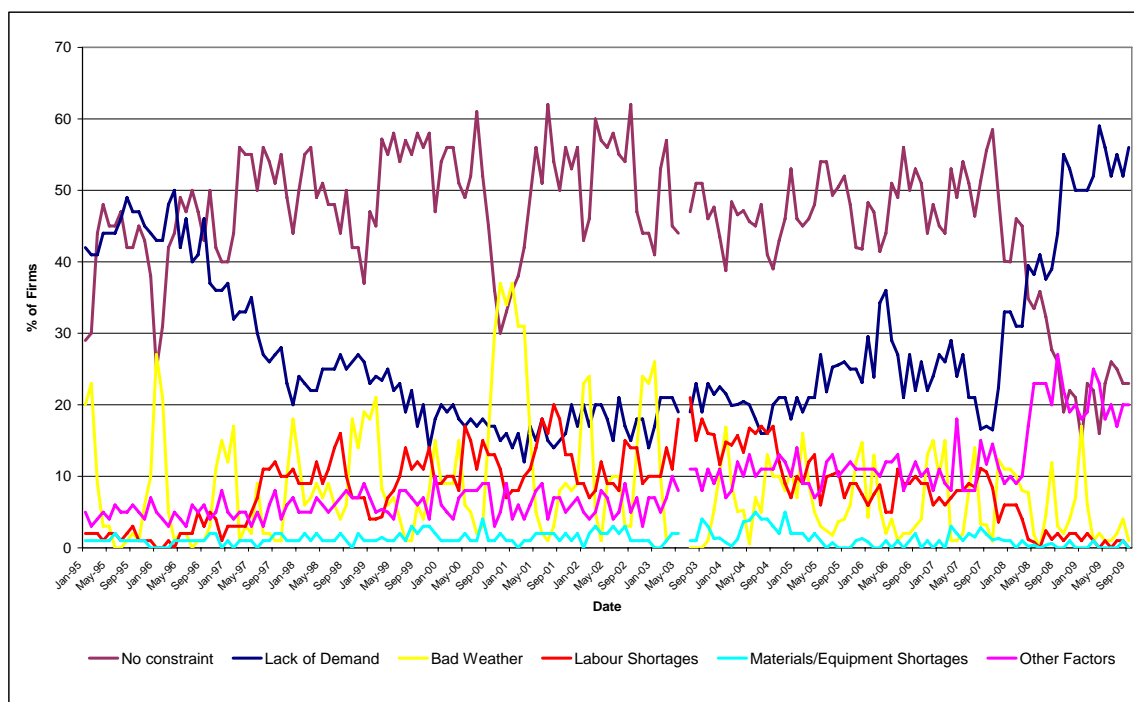
Similarly, results from the Construction Confederation State of Trade survey for the third quarter to November 2009 indicate a considerable easing in recruitment difficulties with only 6% of building contractors reporting any difficulties in obtaining on-site labour, across any trades<sup>18</sup>. This is in complete contrast to two years ago when nearly four in

<sup>17</sup> Construction Forecasting and Research, Experian, November 2009

<sup>18</sup> Construction Products Association, Construction Trade Survey, November 2009

five (78%) building contractors reported that were difficulties in obtaining key trades, an unprecedented reversal by any standards.

### Constraints on activity, United Kingdom: January 1995 to September 2009



Source: Construction Forecasting and Research; Experian

As would be expected, bad weather has an adverse effect on activity during the winter months, most recently in January 2009 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.

### 2.2.4 Globalisation

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 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<sup>19</sup>. Almost half of employers had also made redundancies because of the recession. These have affected a wide range of occupational groups, most often administrative positions (35% of employers that had made redundancies had laid such staff off), but it was also quite common for employers to have laid off technicians (15%), architects (14%), project managers (9%) and mechanical, civil and other engineers (8%, 6% and 18% respectively).

<sup>19</sup> ConstructionSkills and Construction Industry Council, Impact of the Recession on Construction Professionals, 2009 Unpublished

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 globalising world, 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.

Despite the recession the impact of migration on the UK economy continues to attract intense debate and attention. This is no more apparent than in discussions of the scale of migration into the construction industry, and the impact that these migratory flows may be having on the performance of the sector, in addition to the wellbeing of the workers within it.

Whilst it is extremely difficult to get a full picture of the extent of these migratory flows we can draw some tentative conclusions about the numbers of migrant workers in construction, their countries of origin, and the kinds of skills they are bringing with them.

In terms of scale, the evidence suggests that the numbers of those we count as migrants (foreign nationals who have arrived in the last ten years) working in construction increased, from around 20,000 at the end of 2001 to around 120,000 at the start of 2009.

Much of the recent migration was fuelled by the entry of the 'Accession 8 States', or the A8<sup>20</sup> into the EU, and the opening of UK labour markets to citizens of those countries. Whilst there had been a slowly rising trend of migrant workers as a percentage of the total UK labour force from the start of this century, the trend picked-up dramatically on the entry of the A8 countries into the European market.

Migrant workers are involved in every aspect of the construction industry, filling the skills and labour gaps at both ends of the skills spectrum. However, data from the Workers Registration Scheme (WRS) suggests that half of A8 workers in construction registered as labourers during the period April 2008 to March 2009<sup>21</sup>. This follows a trend across preceding Accession Monitoring and may suggest that migrant workers often undertake less attractive jobs on construction sites that UK workers may be increasingly unwilling to do.

Importantly, migrant workers can also be found at the other points in the skills spectrum. The same official data shows that sizeable proportions of A8 workers are carpenters/joiners (13%), welders (11%), bricklayers (3%), steel fixers (3%) architect/architectural technicians (3%) and civil engineers (2%). This excludes the self-employed, who are not required to register under the Scheme, but make up just under half of all migrant construction workers entering the UK. Statistics (for all workers currently in the UK) suggest that the self-employed are much more likely to hold a trade qualification than employed workers are. This may imply that self-employed A8 migrant

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<sup>20</sup> The Accession 8 States are; Poland, Lithuania, Slovakia, Latvia, Czech Republic, Hungary, Estonia and Slovenia.

<sup>21</sup> Home Office, Department for Work and Pensions, HM Revenue & Customs and Department for Communities and Local Government (2009) Accession Monitoring Report: May 2004-March 2009

workers may be concentrated in the trades to a greater degree than those registering as employed.

ConstructionSkills' research suggested that in 2007 just under a tenth (8%) of the site-based construction workforce were foreign nationals<sup>22</sup>. However, the proportion of foreign nationals within each region differed greatly.

Just over a quarter of workers in London were foreign nationals, while 8% of workers in the South East and 7% in the East of England came from abroad. Foreign nationals did not make up more than 3% of the workforce of any of the other regions.

The rise in the employment of migrant workers did not seem to have happened at the direct expense of UK workers. In fact there was a 20% rise in the number of UK workers employed in the sector over the same period.

However, surveys amongst employers indicate that there has been a slowdown in the inflow of economic migrants and an increased outflow, although not necessarily people returning to their countries of origin. Some might choose not to migrate, but merely choose to move to another sector. Under normal circumstances we might have seen much higher numbers returning to their home countries, at least for a time, or diverted to faster-growing emerging economies, but given that the economic slowdown is part of a global crises there are few places that haven't been affected. And as a result nobody knows what to expect from a co-ordinated global downturn at a time of historically high migration.

It is difficult to predict the future flows of migrant workers in and out of the UK. There are many influencing factors. However, it is anticipated that increasing globalisation of goods and services and the further integration of emerging economies will increase the supply of low skilled workers and overseas production activities will increase the competitive pressures on UK firms and the indigenous workforce.

In the short to medium-term it is likely that the flows of migrants from A8 countries will continue, albeit at a reduced rate, as they will remain considerably poorer than the other countries in Europe for some time to come. Moreover, the introduction of the Government's Points Based System (PBS) means that workers from outside the European Economic Area (EEA) will only be granted entry to live and work in the UK if individual occupations or job titles are sufficiently skilled to be included on the shortage occupation lists; if there is a shortage of labour within each skilled occupation or job; and if it is sensible for immigrant labour from outside the EEA to be used to fill these shortages.

For workers within the EEA it is likely that the UK will remain a draw, as opposed to other European destinations, despite the recession because of the attractiveness of the UK, including the perception that the UK is an easier place to 'get ahead' and be successful if you work hard.

However, in terms of the supplies of future workers, as long as the UK has a migration system that is flexible enough to allow for the free movement of workers as they are required by the industry, it is likely that a proportion of construction workers will tend to follow the work as it moves around the globe.

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

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<sup>22</sup> ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

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.

**Table 3 - First Degree Built Environment Student Enrolments, United Kingdom Domiciled and Non-United Kingdom Domiciled: 2007/08 and 2006/07**

Subject	2007/08				2006/07			
	Total	UK Dom	Non-UK Dom	%Non-UK Dom	Total	UK Dom	Non-UK Dom	%Non-UK Dom
<b>Civil Engineering</b>	4930	3547	1383	28%	4399	3098	1301	30%
<b>Architecture</b>	4922	3957	965	20%	5033	4027	1006	20%
<b>Building</b>	5350	4588	762	14%	4716	4202	514	11%
<b>Landscape Design</b>	299	257	42	14%	287	242	45	16%
<b>Planning (urban, rural &amp; regional)</b>	1680	1558	122	7%	1608	1504	104	6%
<b>Total</b>	<b>17181</b>	<b>13,907</b>	<b>3,274</b>	<b>19%</b>	<b>16043</b>	<b>13,073</b>	<b>2970</b>	<b>19%</b>

Source: Higher Education Statistics Authority (HESA) 2009

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 20% of students respectively, with an overall proportion of 19%. From 2006/07 to 2007/08 there has been a 10% increase in the total number of Non-UK Domiciled student enrolments. This increase is mostly due to an increase in Building course enrolments of 50% (762 from 514) – this could be due to increased demand for architectural technicians or related professions.

It should be noted that many of these Non-UK Domiciled workers wish to undertake training in the UK due to the high-quality of training on offer and that 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 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.

### 2.2.5 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 current 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 recession has shaken a lot of weak firms out of the sector and some companies will use 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.

Approaching a third (31%) of companies questioned on ConstructionSkills' Employer Panel had laid staff off because of the recession and a similar proportion (33%) had also expanded into different parts of the market or changed the focus of their work in response to the recession<sup>23</sup>. 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

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<sup>23</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009



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 the non-manuals 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.

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.

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.

### **2.2.6 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% per annum over the next decade<sup>24</sup>, mainly through net inward migration, together with increasing rates of household formation is driving the demand for homes and public services.

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<sup>24</sup> Office for National Statistics, Population Projections, 2007

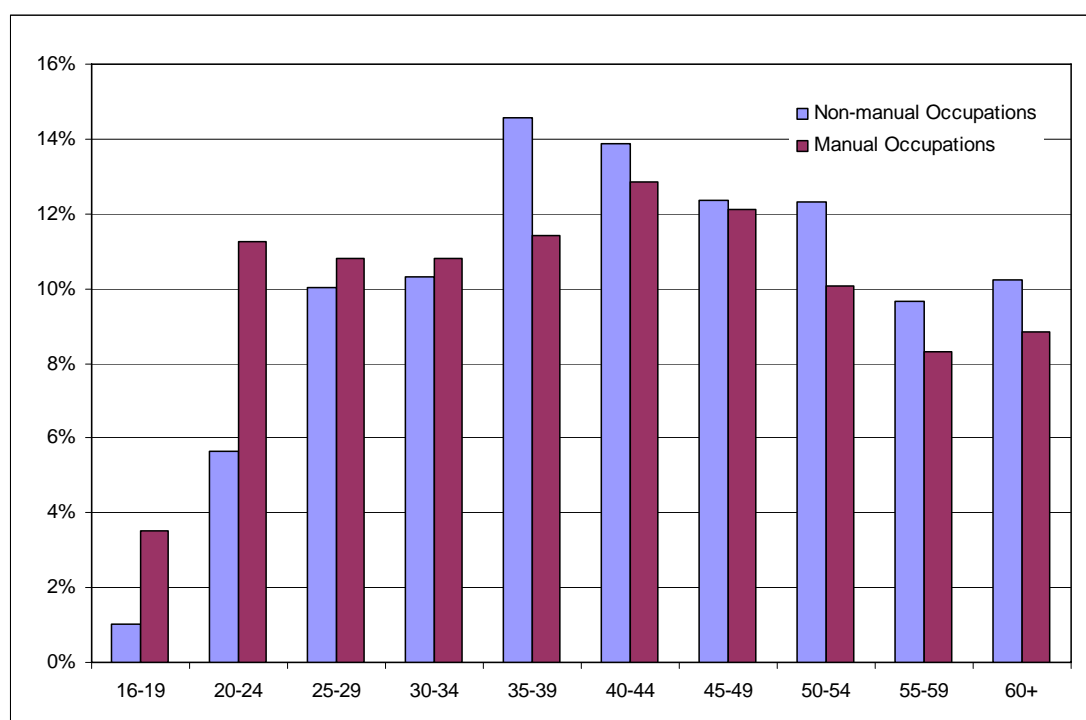
Population growth combined with changing cultural and socio-economic conditions, including strong aspirations of home ownership, higher rates of divorce and a marked increase in single-parent families means that one person households are projected to equate to two-thirds<sup>25</sup> of the annual increase in households.

It is estimated that 230,000 homes are needed each year in the UK, yet less than 100,000 completions are forecast for 2009. This clearly indicates the scale of the increase in production which must be sustained if future demands are to be met. This further demonstrates the vital role construction plays in fulfilling the expectations of both the 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>26</sup>.

**Chart 9 - Age Profile of Construction Industry, United Kingdom: 2009**



Source: Office for National Statistics, Labour Force Survey 2009

Despite growth in the construction workforce of up to 20% since the early-1990s figures show that this expansion has been uneven. The number of older workers (aged 55 years and over) in the construction industry has nearly doubled in that time, while those aged 24 and under has fallen by upwards of 20% over the same period.

<sup>25</sup> Department of Communities and Local Government, Household Projections to 2031, March 2009

<sup>26</sup> Office for National Statistics, Labour Force Survey, Spring 2009

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, a quarter of the sector's workforce (25%) is within this age group, while about a tenth (8%) is now over 60 years old compared to half that in 1990. While the increasing age profile is most pronounced in the manual workforce, professional trades such as architecture, mechanical and civil engineering could also lose 20% 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 50% between 2000 and 2008. However, numbers have since fallen back by over 10%. A principle reason for growth in this group has undoubtedly been 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 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<sup>27</sup>.

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 the total employment in the sector. Over a quarter (27%) work in non-manual or off-site roles, but less than 2% are employed in manual trades. In practice, the number of women in manual trades has risen by 72% over a 10 year period since 1999.

The highest levels of women in the manual trades are in the North West, Yorkshire and Humber and the South East. However, at 3.4% the South East has the highest levels of women in manual positions, although this figure falls short of the national average for all sectors which is closer to 37%.

Whilst, the proportion of BMEs in construction employment has gradually risen over the past decade to represent about 5% of the construction workforce, this still compares poorly with the wider working population (10%). Looking at the split between manual and non-manual occupations, BMEs currently account for 4% of all manuals, and 6% of all non-manuals. 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 (15% and 12% respectively).

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 (20%) and the West Midlands (8%) 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.

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

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<sup>27</sup> ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

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.

### **2.2.7 Legislation**

Legislation remains a key driver for change across industry sectors as a whole and within the construction sector specifically. 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.

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 (note for example that building regulations are likely to be introduced in Wales shortly). 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).

Government policy around improving the quality of work (working time directive, parental rights, minimum wage, health and safety) and reducing damage to the environment (planning legislation, climate change, carbon reduction commitments, aggregate tax etc) is changing the way the industry works. 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.

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 2 years since the introduction of the Construction (Design and Management) Regulations 2007 (CDM2007), introduced in April 2007. However, according to a recent impact survey carried out by CDM2007.org over half (54%) of the 228 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. According to the Health and Safety Executive (HSE) construction has the largest number of fatal injuries compared to other main industry groups. In 2008/09, 29.4% of all fatal injuries were in the construction industry.

Overall there has been a downward trend in the rate of fatal injuries to all workers in construction over the period 1999/2000 - 2008/09. However, this is set against a backdrop of much reduced workloads and lower levels of employment, and injuries and deaths remain disproportionately high amongst small firms and the self-employed.

There were 53 fatalities in 2008—2009 in the construction industry, of which 33 were employees and 20 were self-employed, compared to 53 and 19 in 2006/07. Meaning that whilst the rate of fatal injury to employees has reduced the rate for the self-employed has actually increased.

It is hoped that changes to legislation and the introduction of competency based certification schemes, such as the Construction Skills Certification Scheme (CSCS), becoming 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.

Other specific legislation affecting the sector in 2009 include the Local Democracy Economic Development and Construction Bill – which may require amendment of standard form contracts; the Remedies Directive and Public Sector Procurement – which deals with remedies for breach of public sector procurement rules and opens new routes for legal challenges to public sector awards; the Health and Safety (Offences) Act 2008 – increasing the fines that can be imposed for breaches of duty; the Equality Bill – which amalgamates and simplifies the different strands of existing anti-discrimination law in the UK; and the Employment Act 2008 – giving employers more flexibility on workplace disputes.

Alongside these acts and bills there is a plethora of legislation and policy initiatives relating to climate change, sustainability and zero carbon. The impact of the regulations / legislation although mainly centred on housing will affect all new buildings built from now to 2019. 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% between 1990 and 2050.
- **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.
- **Display Energy Certificates**: Since October 2008, energy certificates must be displayed in all public buildings larger than 1,000 square metres and those provided for social housing.
- **Carbon Reduction Commitment**: a cap and trade scheme, similar to the EU Emissions Trading Scheme (EU ETS) that will provide an incentive to reduce emissions. The scheme will start in April 2010.
- **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. Recently, the construction industry

has been subject to fines following an Office of Fair Trading (OFT) investigation into bid-rigging. An OFT press release confirms that 103 firms were fined £129.2 million for breaching competition laws. It may be estimated that these firms will need to generate £4billion of work to cover the costs of these fines. In addition to the cost of the fines, this investigation is likely to negatively affect public perception of the industry as a whole, as well as damage the reputation of the firms involved.

Together with the issues discussed, there are other proposed legislation plans which may influence the future industry structure. HM Revenue and Customs (HMRC) has commenced a consultation process on proposed legislation to address the perception of 'false self-employment' in the construction industry. Under proposed legislation, certain self-employed workers within the construction industry will be deemed to be in receipt of employment income and subject to automatic PAYE and NI contributions. At present this legislation is only at consultation stage. Due to the recession HMRC have stated they wish this change to take effect once the economic outlook improves, but this could take effect as early as an announcement in the pre-Budget report at the end of 2009 with a start date shortly after. It is not clear how many workers may be affected by the change but HMRC estimate it could affect 300,000 workers.

Another change in the pipeline includes focussed effort to improve safety for tower cranes. Following a number of high profile crane accidents between 2000 and 2008, resulting in eight fatalities, the HSE is preparing proposals for a statutory scheme to register tower cranes. At present the timeline is not definite but the HSE have said they are committed to establishing a scheme by April 2010, and has conducted consultations on the details of how it would operate.

These legislation changes are likely to influence demand for skills within the industry.

Research indicates that independent of the recession there are certain skills that are expected to become more important over the next 2-3 years. Among employers anticipating changing skill needs, environmental and sustainability skills are mentioned with increasing regularity. 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.

The role of the client, particularly in respect of public sector procurement, will also grow in importance. As the government addresses the large national debt, tough decisions will need to be made on public spending and the government will need to ensure it is achieving best value, but also creating sustainable employment and training opportunities.

### **2.2.8 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.

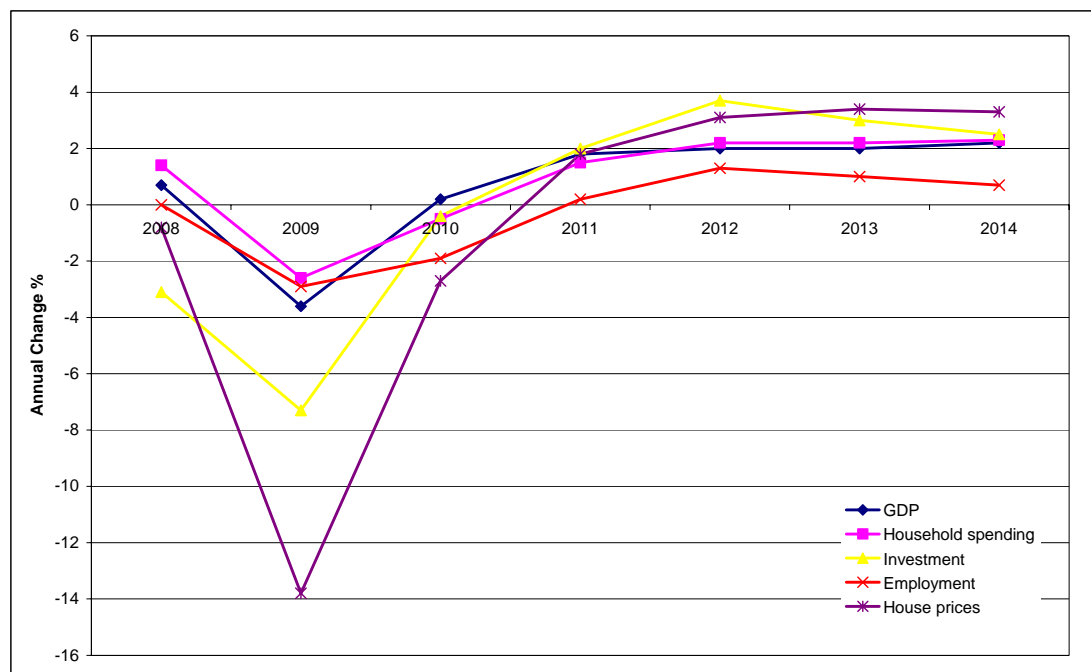
The construction industry has a broad client base, all of whom have different demands and expectations and to some degree this is reflected in the fragmented nature of the industry. In this respect the sector might be better described as a collection of separate industries. Certainly the face of the 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, employment and house prices. The data clearly shows the impact of the recession on the UK, with the peak decline across all areas in 2009 before more gradual forecast decline in 2010.

The forecast suggests it will be late 2010 before GDP, household spending, investment and house prices return to positive growth with employment returning to growth in 2011.

**Chart 10 - Macro-economic Forecast, United Kingdom: 2008-2014**



Source: Construction Skills Network; Experian

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.

Their demands should be seen in the context of massive public spending on construction much of which is on projects that are delivered late and over budget. The National Audit Office calculates that £1,460m<sup>28</sup> could be saved from the public spend by reforming the industry. Extrapolating this across the private sector suggests that reforms, if widely adopted, could save the nation several billions of pounds each year in wasted construction costs.

It is fully anticipated that public spending will have to be reigned-in at some point in the medium-term as the Government will have to repay the debt currently being incurred to fund the economic recovery plan. Any such fall in public spending must have a significant impact upon all areas of construction with government being the single largest client for construction.

Commercial developers are also likely to remain extremely cautious as demand for office, retail and leisure facilities continues to be subdued.

### **2.2.9 Productivity and Industry Performance**

Productivity improvement remains a central pillar 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.

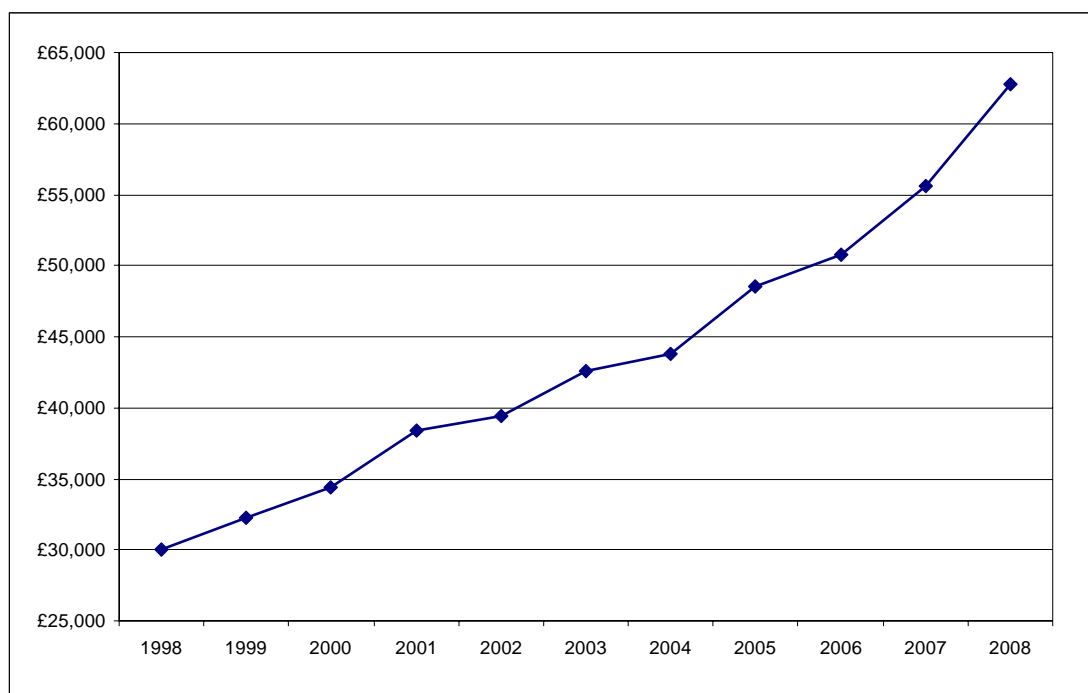
Over the period 1998 to 2008 the GVA per employee has been steadily increasing, and in 2008 was more than double its 1998 level. This however may have less to do with operational improvement and more to do with the incompleteness of the statistics in respect of industry coverage, increased demand and inflated land prices that have predominated over the period.

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<sup>28</sup> HM Treasury, Operational Efficiency Programme: collaborative procurement, May 2009



**Chart 11 - Gross Value Added Per Employee, United Kingdom: 1998-2008**



Source: Annual Business Inquiry; 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 Inter-Sector Comparisons

Inter-sector comparisons show the size of construction's contribution to the economy and also its heavy reliance on labour input compared with others. The following industries were selected as they are manufacturing as opposed to service; reasonably labour intensive and reasonably traditional.

**Table 4 - 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)
<b>Construction</b>	1,679	247,603	105,382	62.8
<b>Agriculture, forestry and fishing</b>	47	4,813	1,834	39.0
<b>Mining and quarrying</b>	63	64,649	41,382	656.9
<b>Manufacturing</b>	2,795	496,418	143,169	51.2
<b>Electricity and gas supply</b>	121	88,385	23,152	191.3
<b>Water supply</b>	141	29,127	14,906	105.7
<b>Transport and storage</b>	1,275	138,687	60,049	47.1

Source: Annual Business Inquiry, 2009

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.

To the extent that comparisons between industries on purely economic measures are valid, the above table suggests that construction is around the upper quartile in GVA per head for those industries selected, yet overall it is making almost twice the contribution to the economy as Mining and Quarrying and over 35 times that of Agriculture.

### 2.3.1 International Comparisons of Productivity

Analysis by National Institute of Economic and Social Research (NIESR)<sup>29</sup> undertaken for the Department for Business Enterprise and Regulatory Reform (BERR) 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).

**Table 5 - 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 (NIESR)

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%) of 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 behind 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

<sup>29</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

as a higher physical capital-intensity and higher TFP (which additionally captures the efficiency with which production inputs are utilised) in the US. Though 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.

The implication of these findings are that productivity may not be the right focus for the UK construction sector; as it is performing better than France and Germany lagging only against the US. 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.

ConstructionSkills’ research suggests that the main barriers to effectiveness are:

- the supply chain not acting as a supply chain and not integrating client requirements, design and construction
- an insufficiently large and insufficiently flexible workforce.

### **2.3.2 Key Performance Indicators**

Constructing Excellence in the Built Environment (CE) 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). 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.

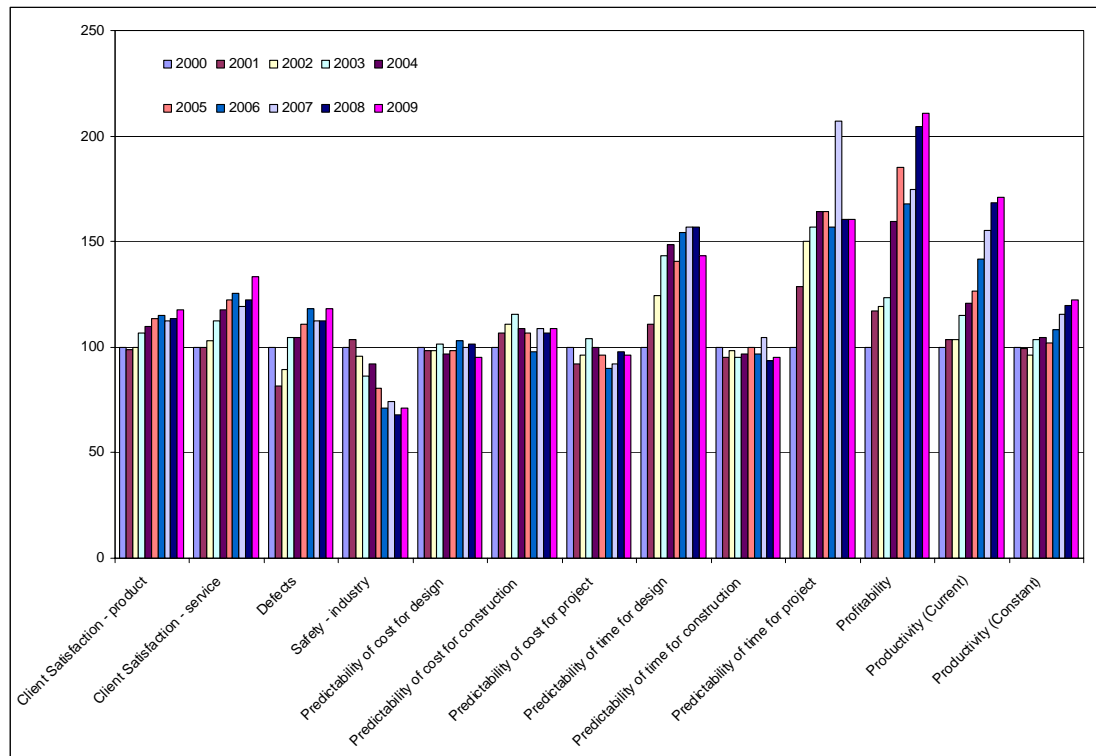
At an operational level competitiveness is measured against a range of factors, which show an industry that is improving.

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

- In the quality indicators (client satisfaction and defects) there is an upward trend in performance.
- In predictability indicators (the difference between planned and actual time and cost) there is long-term improvement, but the predictability of design cost, predictability of cost for project and predictability of design time have decreased in 2009.
- In efficiency indicators (profit and crude productivity) there is a significant upward trend in performance.

- In safety indicators there is a generally downward (improving) trend in the number of accident incident rates.

**Chart 12 - Index of Industry Performance, CE KPI Programme, Great Britain: 2000-2009**



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

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).

### 2.3.3 Sustainability

Sustainability meaning “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 the industry as it brings together under one banner the whole gamut of social, economic and political drivers.

The construction industry has a major impact on the environment, accounting for:

- 47% of all UK carbon emissions are as a result of the activities of the construction industry;
- 27% of all emissions arise from the existing 26 million homes;
- 7% of all emissions are from existing offices; and
- 13% of all emissions are as a result of the manufacturing of construction materials and the construction process.

The construction industry is also the single largest producer of waste in the UK.

The policy drive of government for sustainable development (enforced by legislation) is slowly taking hold in the minds of the consumer, requirements of clients and the practices of the vast majority of the larger industry players. Research conducted by ConstructionSkills' during Spring 2008 indicated that over two thirds of employers (68%) had heard of the term sustainability in regard to design and construction, and almost a third (32%) said they had been involved in a project involving sustainability during the preceding 6 months. These figures show increases from mid-2006, when for example 27% had been involved in a sustainable project in the previous 6 months.

Awareness and involvement increases systematically with size of firm, and among those with 250 or more staff two thirds had been involved in projects using sustainable techniques in the previous 6 months.

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. Annual spend has been projected to be between £3.5 - £6bn per annum - a sum which would provide significant opportunities to a wide range of companies and could create a number of new jobs.

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.

At a DIUS co-ordinated workshop in June 2008 at Windsor Castle on the 'Skills for Sustainability' it was noted that: 'The more businesses come to see skills and innovation and sustainability as one single cluster of issues, the easier it will be for them to embrace the sustainability agenda - not as an add-on but as a central part of their whole upskilling effort'.

### **Summary Box**

Despite the industry experiencing its worst contraction for 30 years the long-term trend is for rising levels of construction activity.

Recruitment difficulties have all but disappeared in the short-term, with only a minority of contractors reporting difficulties in obtaining site labour.

Loss of workers during the recession may lead to skills gaps and shortages that will hinder the recovery, impacting the industry's ability to deal with opportunities in the upturn.

The media portrayal of construction as a changeable sector, particularly in respect of the recession reduces industry attractiveness for both UK and non-UK workers, reducing the inflow of talent and increasing the outflow to other industries.

Need for increased diversity within the workforce to exploit skills from a wider pool of talent.

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?

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

The UK construction industry is relatively well catered for in terms of the supply of skilled new entrants via education and training. The latest available data<sup>30</sup> providing a full UK picture (2007/2008) shows approximately 68,000 enrolments onto construction courses at both further and higher education. Taking drop-out and non-completion into account this still provides the industry with a large supply of skilled workers.

Consistently across the past decade the majority of trainees at further education have been training towards a Level 2 qualification in wood trades, while at higher education the most popular course has been a first degree in building.

##### 3.1.2 Apprenticeships

Inherent within training supply figures are those trainees undertaking an apprenticeship. Data from ConstructionSkills Managing Agency shows that there were 7,637 starts on an apprenticeship during 2008. Further analysis<sup>31</sup> across the UK construction industry finds 2% of the workforce stating that they are currently undertaking an apprenticeship, and an additional 31% claiming to have completed an apprenticeship. Unsurprisingly, the manual trades are much more likely to be involved with apprenticeships compared to non-manual trades. For example, approximately three quarters (72%) of carpenters and joiners have completed an apprenticeship and 7% are currently undertaking an apprenticeship.

##### 3.1.3 Skill Levels in the Construction Industry

The following table shows the highest qualification level achieved by the construction industry workforce by geographical area compared to all UK industries.

**Table 6 - Construction Industry Workforce Qualifications v All Industries, UK: 2009**

	Construction Industry					All Industries
	England	Wales	Scotland	Northern Ireland	UK	
<b>S/NVQ level 4 &amp; above</b>	30%	24%	34%	17%	30%	34%
<b>S/NVQ level 3</b>	17%	22%	18%	15%	17%	16%
<b>Trade Apprenticeships</b>	11%	12%	16%	28%	12%	5%
<b>S/NVQ level 2</b>	12%	10%	11%	11%	12%	16%
<b>Below S/NVQ level 2</b>	12%	8%	7%	5%	11%	13%
<b>Other qualifications</b>	10%	11%	6%	6%	9%	9%
<b>No qualifications</b>	8%	12%	9%	18%	9%	8%
	100%	100%	100%	100%	100%	100%

Source: Office for National Statistics, Labour Force Survey

<sup>30</sup> ConstructionSkills, Training and the Built Environment; Department for Education and Learning NI; Higher Education Statistics Agency

<sup>31</sup> Labour Force Survey. Four quarter average to Spring 2009.

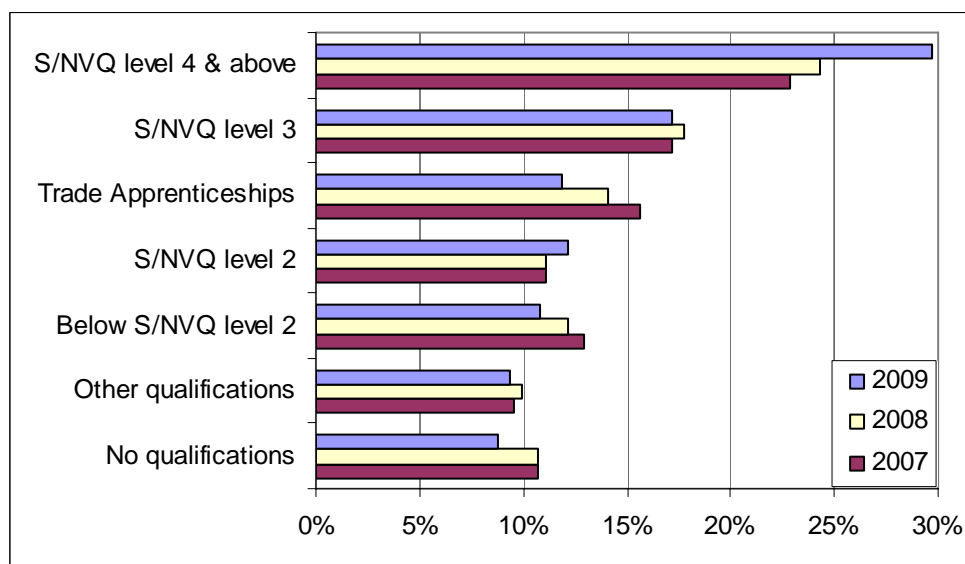
From the table it is evident that, within the UK construction industry:

- Apprenticeship training is substantially more popular in Northern Ireland than the rest of the UK.
- England, Scotland and Wales have the highest proportion of their workforces qualified to S/NVQ level 4 and above.
- 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 (24% v 21%).

There have been quite dramatic changes to the qualifications of the construction workforce over the last three years as the chart below demonstrates.

**Chart 13 - Qualifications of the Construction Workforce, UK: 2007-2009**



Source: Office for National Statistics, Labour Force Survey

The improvements in the overall skills profile of the industry are encouraging and are progress towards *The Leitch Ambition*<sup>32</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. Both proportionately and in absolute numbers, there has been a significant increase in higher level qualifications and subsequently a decrease of those with no qualifications - certainly progress towards a fully qualified workforce. 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>32</sup> Leitch Review of Skills, Prosperity for all in the global economy – world class skills. December 2006



**Table 7 - Construction Industry Workforce Qualifications by Non-Manual Occupations, UK: 2009**

	Civil engineers	Architects	Chartered surveyors	Quantity surveyors	All non-manual
<b>S/NVQ Level 4 &amp; above</b>	80%	89%	76%	66%	56%
<b>S/NVQ Level 3</b>	4%	6%	11%	14%	15%
<b>Trade Apprenticeships</b>	4%	1%	2%	0%	4%
<b>S/NVQ Level 2</b>	5%	2%	3%	10%	11%
<b>Below S/NVQ Level 2</b>	0%	0%	3%	5%	7%
<b>Other qualifications</b>	4%	2%	5%	4%	5%
<b>No qualifications</b>	2%	0%	0%	2%	2%

Source: Office for National Statistics, Labour Force Survey

**Table 8 - Construction Industry Workforce Qualifications by Manual Occupations, UK: 2009**

	Bricklayers	Roofers	Wood trades	Painters & decorators	All manual
<b>S/NVQ Level 4 &amp; above</b>	5%	6%	5%	6%	7%
<b>S/NVQ Level 3</b>	32%	13%	35%	19%	20%
<b>Trade Apprenticeships</b>	29%	16%	25%	24%	19%
<b>S/NVQ Level 2</b>	12%	12%	12%	10%	13%
<b>Below S/NVQ Level 2</b>	7%	16%	7%	11%	14%
<b>Other qualifications</b>	7%	17%	9%	9%	13%
<b>No qualifications</b>	8%	21%	7%	21%	14%

Source: Office for National Statistics, Labour Force Survey

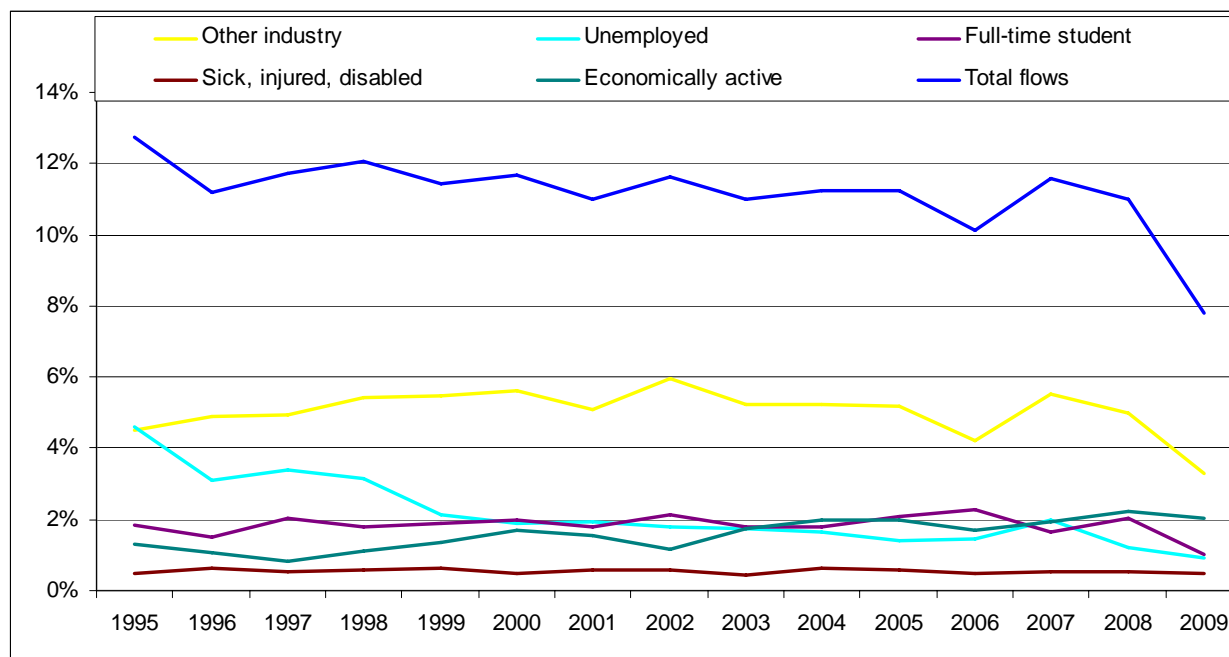
As would be expected the vast majority of non-manual occupations are educated to Level 4 and above. Further analysis shows that on average a third of these qualifications are first degrees, with the exception of Architects, where degrees account for just over a half of the Level 4 and above qualifications.

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

### 3.1.4 Flows into the Industry

Unsurprisingly flows into the industry have decreased dramatically. Total flows of workers (expressed as a proportion of the total workforce) have declined from an average of 13% in 1995 to 8% in 2009. Movement from other industries is still the biggest flow into the industry, albeit now at its lowest level over the 15 year period (3%).

**Chart 14 - Flows into the industry**



Source: Office for National Statistics, Labour Force Survey

Further analysis<sup>33</sup> finds 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.

### 3.1.5 Mobility

A survey of construction industry mobility<sup>34</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

<sup>33</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

<sup>34</sup> ConstructionSkills, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, Overall Report September 2007

### 3.1.6 Migration

Finally, the flow of workers from overseas needs to be considered in terms of the level and type of skills they are bringing to the UK construction industry.

Recent analysis<sup>35</sup> found the number of workers from overseas in the UK construction industry has risen dramatically in recent years mainly as a result of increased migration from Eastern Europe (Poland and Lithuania joined the EU in 2004, the accession treaty with Bulgaria and Romania was signed in 2005).

Three fifths of overseas workers entered the UK construction industry work in skilled trades of some kind; while 14% go into elementary occupations and 8% into professional occupations. There does appear to be national differences in the types of occupations entered, for example the overwhelming majority of workers from Poland and Lithuania are to be found in skilled trades (respectively 74% and 70%) compared with an average of 60% working in skilled trades for all countries of origin.

The average proportion of self employment among construction workers entering the UK is 49%. Whilst nearly three-quarters of workers from Romania and approximately two-thirds from Lithuania are self employed, workers from South Africa and India are much less likely to be self employed (23% and 31% respectively).

Overall 87% of recently arrived workers in the construction industry have some kind of qualification. For the majority this was a qualification other than a UK recognised NVQ equivalent or trade apprenticeship. However, 13% of recent arrivals have no recognised qualifications; this is higher than the UK construction industry average of 9%, as discussed above.

Eurostat data shows that the construction industries in Poland, Lithuania and Romania are characterised by low productivity per employee, low wages and low levels of participation in continuing vocational training. These are not uncommon characteristics among the new EU member states most likely to provide construction workers to the UK industry.

The UK construction industry is likely to remain attractive to workers from Eastern Europe for the foreseeable future though the pattern of migration is likely to change over time as recession dampens demand for construction workers in the UK and demand in Eastern Europe rises. Migration of construction workers to the UK from Poland and Lithuania has fallen back from 2007 levels while numbers from Romania and Yugoslavia are rising sharply, though from very low levels. It is likely that wage differentials between the UK and Eastern Europe are still high enough in many cases to compensate for the risk of unemployment on arrival in the UK.

It seems clear that a continuing priority for the UK construction industry must be to ensure that workers arriving from overseas to work in UK construction are equipped with the necessary training and skills to enable them to do so effectively and safely. In the case of construction industry workers from Eastern Europe this task is likely to be made more difficult because of the high proportion in self employment. Thought should also be given as to how to minimise the potential economic damage to new EU member states caused by the migration of large numbers of their construction workers to the UK.

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<sup>35</sup> Taylor Associates, Overseas workers in the UK construction industry, 2009

### **Summary Box**

The UK construction industry is relatively well catered for in terms of the supply of skilled new entrants via education and training.

Compared to all industries the construction workforce has a significantly higher proportion trained as an Apprentice.

There have been quite dramatic changes to the qualifications of the construction workforce over the last three years, both proportionately and in terms of absolute numbers there has been a significant increase in higher level qualifications compared to a decrease of workers with no qualifications.

Total flows have declined from 13% in 1995 to 8% in 2009. Movement from other industries is still the biggest flow into the industry, albeit now at its lowest level over the 15 year period (3%).

A priority for the UK construction industry must be to ensure that workers arriving from overseas are equipped with the necessary training and skills to enable them to work effectively and safely.

## 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.

This section examines the extent and nature of training and development activity. It 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'<sup>36</sup>), 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<sup>37</sup>.

Half of establishments across the UK construction industry had 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; 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.

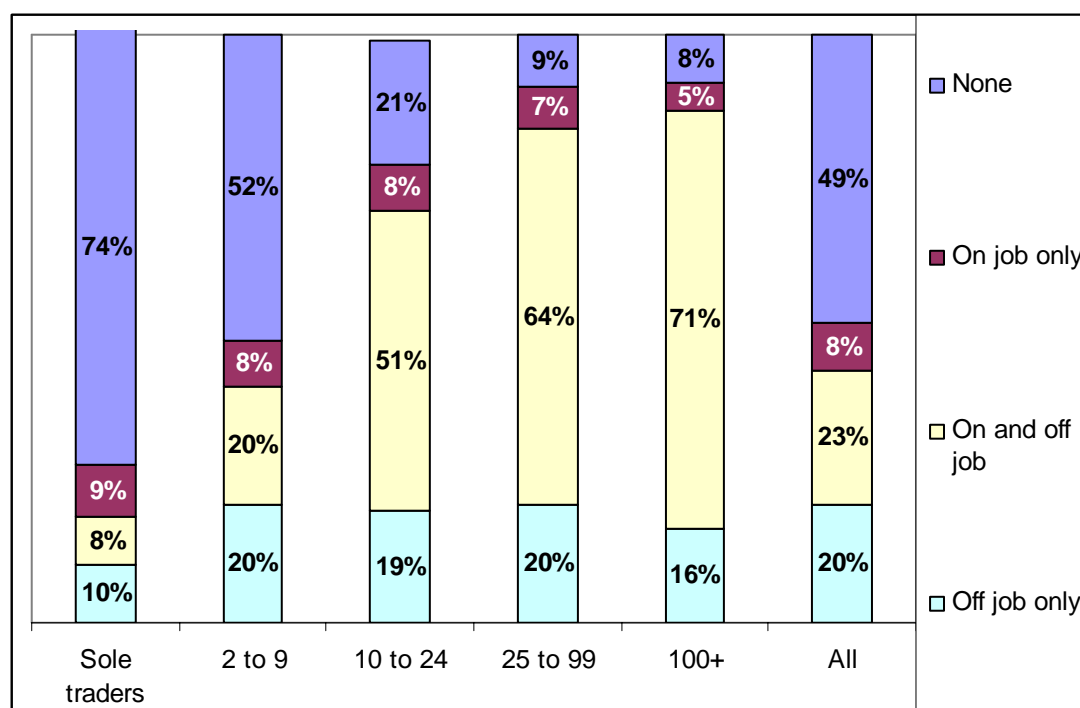
Chart 15 summarises results and shows the proportion of sole traders and employers delivering on and off-the-job training, or both.

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<sup>36</sup> ConstructionSkills, Skills and Training in the Construction Industry 2009

<sup>37</sup> ConstructionSkills, Skills and Training in the Construction Industry 2009

**Chart 15 - Proportion providing training (on and/or off-the-job) by establishment size**



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

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.

By region 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).

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. Professional services firms trained a higher percentage of the workforce (46%) than the sector as a whole.

Around three fifths of employers who train (61%) provided training for a number of staff equivalent to at least half their current workforce. Almost a quarter (23%) of employers that train appear to provide training to all their staff; the figure is much higher among professional services firms (32%) than in the construction contracting sector (19%).

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

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 the following table.

**Table 9 - Distribution of off-the-job and on-the-job training by main occupational groups (construction contracting sector)**

	<b>OFF-THE-JOB</b>		<b>ON-THE-JOB</b>	
	<b>Number receiving off-the-job training months</b>	<b>Number receiving off-the-job training as % of current directly employed staff</b>	<b>No. receiving on-the-job training</b>	<b>No. receiving on-the-job training as % of current directly employed staff</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.

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.

The following table looks at results among the professional services sector.

**Table 10 - Distribution of off-the-job and on-the-job training by main occupational groups (professional services)**

	<i>OFF-THE-JOB</i>		<i>ON-THE-JOB</i>	
	<b>Number receiving off-the-job training</b>	<b>Number receiving off-the-job training as % of current directly employed staff</b>	<b>No. receiving on-the-job training</b>	<b>No. receiving on-the-job training as % of current directly employed staff</b>
		%		%
<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 (9% among the construction contracting sector, 5% of the professional services workforce).
- Employers using NVQs / SVQs were most likely to have had staff train at level 2 (69%). This is shown in the following table overall and by size of employer. Results show that large employers are much more likely than average to have staff on level 3 (41%) or level 4 or above NVQs/SVQs (15%).

**Table 11 - Staff training to NVQs/SVQs by size of firm**

	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 add 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.

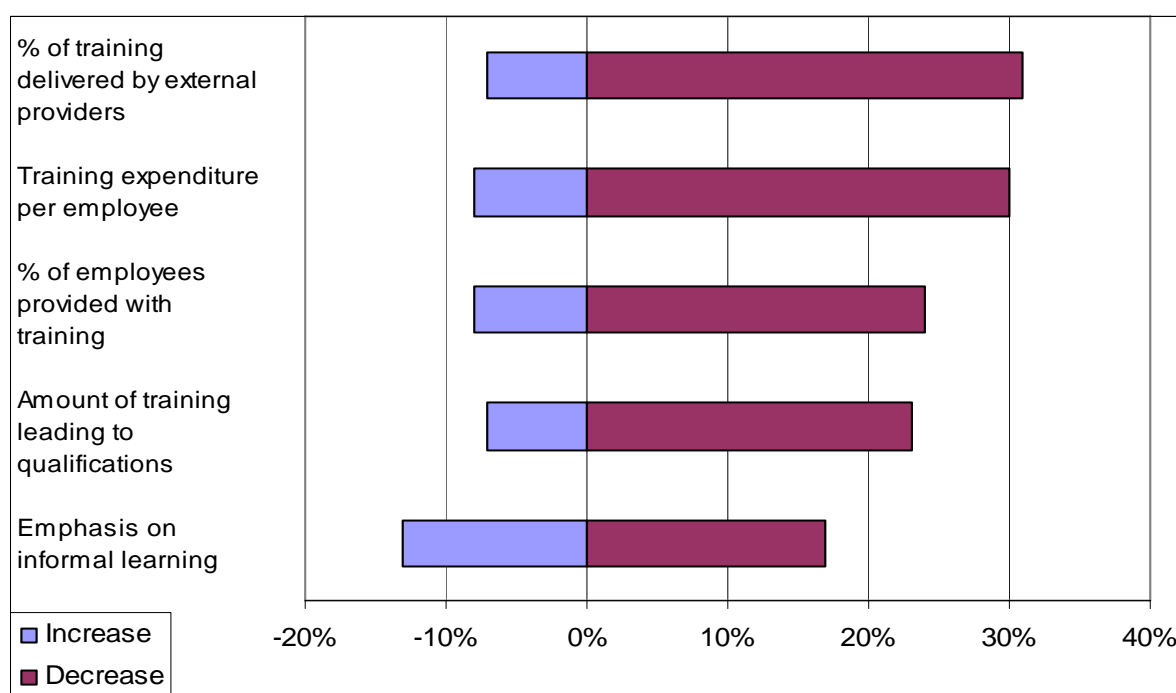
Supply-side issues were relatively rarely mentioned as barriers: among those that would have liked to deliver more training 3% mentioned a lack of appropriate training or qualifications in the subject areas they required, 3% a lack of provision (for example courses being full up), 2% the difficulty of 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

For the most part the recession had made no impact on training activity. However, it is evident for a minority of employers it has had a negative effect, as shown in the following chart.

Almost a third (31%) were delivering less training via external providers because of the recession, and a similar proportion were spending less per employee on training (30%). Fewer, though still around a quarter, were training fewer of their staff (24%) or were providing less training leading to qualifications (23%).

**Chart 16 - The impact of the recession on training**



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

Opinion was more even as to whether the recession had led to an increased emphasis on informal learning: 13% thought it had; but 17% felt they now put less emphasis on this, perhaps implying that because of the recession the company put less emphasis on all training, whether formal or informal.

Generally there was a relatively consistent impact of the recession on training by type of employer, though:

- The construction contracting sector were more likely to have reduced the amount of training leading to qualifications (27% compared with 15% among professional services firms).
- Employers in the following areas were more likely to say the recession had led to their training fewer staff (each 33% - 37%): London. North West, Northern Ireland and the West Midlands.
- Those with 25 or more direct employees were more likely to say training spend per employee had fallen (38%).

### 3.2.4 Reasons for not Providing Training

The most common reason for not training is a belief that all staff are fully proficient, a factor mentioned by three quarters of non-trainers. In comparison supply-side issues are mentioned by far fewer employers: 7% say a reason for not training is external courses being too expensive, while 3% cite courses not being available and 3% poor quality of local courses or providers.

Reasons for not training among the self-employed were very similar to employers, with by far the most common reason being they considered themselves fully proficient (68%). Other relatively common reasons were being too busy (7%) or the expense of external courses (6%).

#### **Summary Box**

Half of establishments across the UK construction industry had 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%).

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 most common reason for not training is a belief that all staff are fully proficient.

## 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 are 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.

### 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<sup>38</sup>. 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.

Results show very considerable changes compared with 2008<sup>39</sup>, with far fewer employers in 2009 reporting shortages of skilled staff over the previous 12 months.

These findings are consistent with trade survey<sup>40</sup> results from organisations across the construction industry, who all reported a considerable decrease in skill shortages to a record low. For instance, the recent Construction Products Association Trade Survey (Q3, 2009) reported only 6% of building contractors had difficulties in obtaining the main site trades, a complete contrast to two years earlier when it was 78%.

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%).

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.

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: in 2008 58% of the

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<sup>38</sup> ConstructionSkills. Skills and Training in the Construction Industry, 2009

<sup>39</sup> ConstructionSkills. Skills and Training in the Construction Industry, 2008

<sup>40</sup> Federation of Master Builders. State of Trade Survey, Q2, 2009; RICS Construction Market Survey, Q3, 2009; Construction Products Association. Construction Trade Survey, August 2009;

construction contracting sector in Great Britain had attempted this, in 2009 only 39% had done so.

#### 4.1.1 Hard-to-Fill Vacancies

Three in ten employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (29%), equivalent to 10% of all employers experiencing recruitment difficulties for skilled staff in the previous 12 months. These findings indicate a large fall in recruitment difficulties 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.

There were 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%).

The following chart shows the main occupations by sub-sector which were most likely to have hard-to-fill vacancies.

**Table 12 - Main Occupations where hard-to-fill vacancies encountered**

<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 Industry 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 most common cause of hard-to-fill vacancies was lack of skills (84%, much higher among the construction contracting sector than among professional services firms – 95% v. 69% respectively), experience or motivation, as well as not enough people entering the industry. The order of causes presented in the following table is almost identical to 2008.

**Table 13 - Causes of hard-to-fill vacancies for skilled staff**

Applicants lack the skills we require	84%
Not enough people being trained in the construction trades in recent years	81%
Applicants lack the motivation / attitude we look for	74%
Applicants lack the work experience we look for	68%
Low number of applicants generally	53%
Applicants lack the qualifications we look for	51%
Competition from other employers	39%
Bad location / unappealing work environment (spontaneous)	7%
They are demanding too much money (spontaneous)	4%

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

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.

#### **4.1.2 Steps Taken to Overcome Recruitment Difficulties**

Most employers experiencing recruitment difficulties had taken some steps to try and overcome them (66%), 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%).

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 due to the recession.

## 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.

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 are 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.
- The largest volume of skills gaps (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.
- 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.

### 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, 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.

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

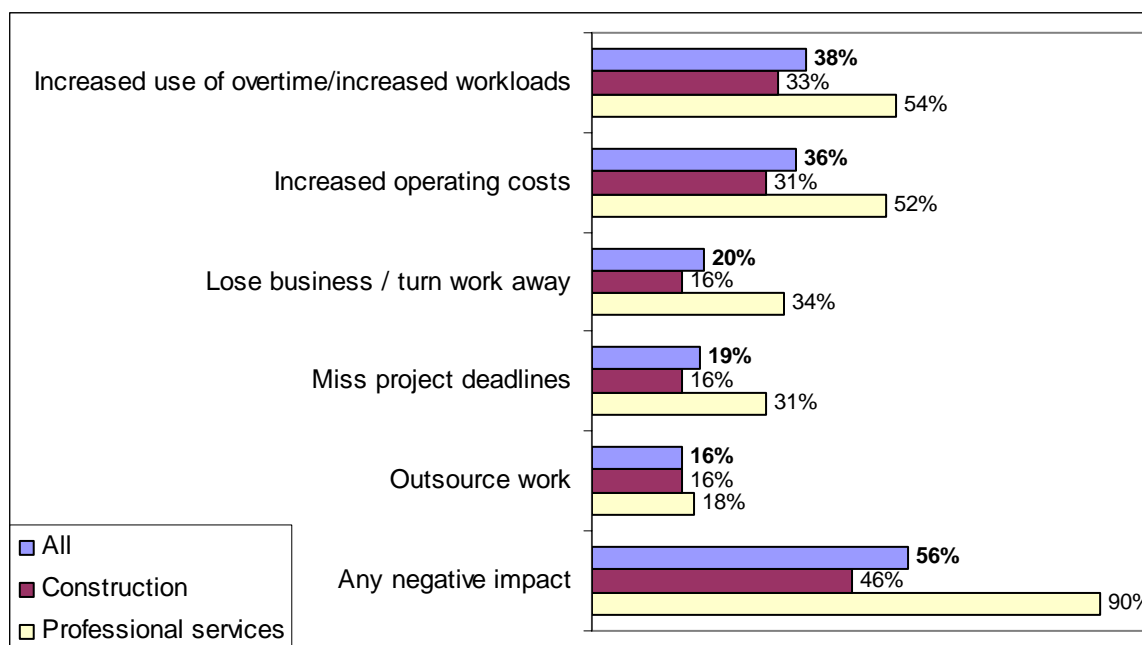
There was some variation in the causes of skills gaps between the professional services sector and the construction contracting sector. Results suggest that professional services firms experiencing skill gaps are particularly likely to believe they are caused by an inability of staff to keep up with 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.

### 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 17 - The impact of skills gaps**



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

As shown in the chart, 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.

### **4.2.3 Upskilling 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.

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.

In the professional services sector, the need to upskill 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 Forecast Research data<sup>41</sup> which reported the biggest constraint to be insufficient demand (also 56%) and no employers reported labour shortages to be a constraint on activity.

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>42</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%.

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<sup>41</sup> Construction Forecast Research, Construction Industry Focus September 2009

<sup>42</sup> ConstructionSkills, Skills and Training in the Construction Industry 2008

#### 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>43</sup>. In order to be placed on this list the occupation must pass three hurdles: it must be *skilled*; there 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 review of the recommended shortage occupation lists<sup>44</sup> and noted that although rising unemployment, falling employment and vacancies and a high redundancy rate indicate that the labour market is in turmoil, it should not be assumed that all labour shortages disappear. Although they do acknowledge that the removal of some construction-based occupations from the original list is in response to changing economic circumstances.

The updated recommended shortage occupation list contains the following occupations which are specific to the UK construction industry:-

- civil engineers
- mechanical engineers
- welding trades.

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

#### 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>45</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 (4.8% of outflows from construction were to other industries) or more likely they were currently unemployed.

The biggest outflow from the industry is to unemployment, now standing at 6.9%; it's highest level over the 15 year period. As unemployment is considerably higher in the construction contracting sector (7.4%) than for professionals (4.1%), it can be assumed that redundancies are affecting the whole construction industry.

The table below shows the current unemployment rate for the construction industry and compares these findings to the overall UK rate.

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<sup>43</sup> Migration Advisory Committee, *Skilled, Shortage, Sensible: The Recommended Occupation Lists for the UK and Scotland*, 2008

<sup>44</sup> Migration Advisory Committee, *Skilled, Shortage, Sensible: Review of the Recommended shortage occupation list for the UK and Scotland*, 2009

<sup>45</sup> CIC & ConstructionSkills. *Impact of the Recession on Construction Professionals*. November 2009

**Table 14 - The unemployment rate in the Construction Industry and All Industries, by nation (UK: 2009).**

	<b>Construction Industry</b>	<b>All Industries</b>
<b>England</b>	8.3%	6.9%
<b>Wales</b>	10.3%	7.2%
<b>Scotland</b>	9.1%	5.8%
<b>Northern Ireland</b>	11.8%	5.6%
<b>UK</b>	<b>8.6%</b>	<b>6.8%</b>

Source: Office for National Statistics, Labour Force Survey

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 (8.6% v 6.8%), but also higher within each country, notably so in some cases. In particular, the unemployment rate across the Northern Irish construction industry is twice 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%).

Three in ten employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (29%).

The most common cause of hard-to-fill vacancies was lack of skills.

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.

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.

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, now standing at 6.9%; it's highest level over the 15 year period.

The current unemployment rate across the UK construction industry is 8.6%.

## 5. What new and/or changing factors will influence skill/employment demand in the future?

### 5.1 PESTLE Analysis

<p><b>Political – UK and devolved nations</b></p> <ul style="list-style-type: none"> <li>➤ Change of government?</li> <li>➤ National Policy Statements, e.g. Energy.</li> <li>➤ Housing Policy.</li> <li>➤ Skills White Papers.</li> <li>➤ Targeted funding.</li> <li>➤ Education reform e.g. NVQ – QCF.</li> <li>➤ Immigration.</li> <li>➤ Migration (brain drain).</li> <li>➤ Devolved policies.</li> <li>➤ Employment initiatives (who to target, 16-24, apprentices, return to work?).</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>➤ Demographics – potential workforce.</li> <li>➤ Image of construction industry.</li> <li>➤ Housing shortage.</li> <li>➤ Skills of workforce, compared to UK and overseas.</li> <li>➤ Immigration/Migration.</li> <li>➤ Changes in working patterns.</li> </ul>	<p><b>Legal – Legislation</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>➤ Tax changes – CIS and self employed workers in construction.</li> <li>➤ European legislation.</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>➤ Insurance.</li> <li>➤ Credit.</li> <li>➤ Availability of private finance.</li> <li>➤ Government targets for fiscal stimulus.</li> <li>➤ High profile/high value projects.</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> <li>➤ Intelligent buildings.</li> <li>➤ Whole life Construction.</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>➤ BREEAM.</li> <li>➤ Climate change.</li> <li>➤ Waste.</li> </ul>

## 5.2 UK Macroeconomic Indicators

Table 15 - UK Macroeconomic Indicators

	Actual		Annual percentage change forecast		
	2007	2008	2009	2010	2011
<b>GDP (at constant 2003 market prices)</b>	2.6	0.7	-4.8	0.3	1.8
<b>Household Consumption</b>	5.1	3.9	-2.8	0.8	3.0
<b>Government Consumption</b>	3.3	6.2	3.4	2.3	-0.2
<b>Gross Fixed Investment</b>	7.8	-2.8	-13.1	-1.7	1.9
<b>Bank Base Rate (average for year)</b>	5.5	4.7	0.6	0.9	2.8
<b>CPI (annual)</b>	2.3	3.6	1.5	2.5	1.9

Source: Experian, November 2009

The UK economy has, so far, contracted by an incredible 5.8% during this recession. The 2.5% decline in the first quarter of 2009, when the UK economy lost as much ground as the entire 1990s recession, is expected to have been the severest in this cycle with the pace of contraction now set to ease markedly over the rest of this year.

There has been a notable improvement in some indicators which supports the baseline projection that the worst of the downturn is over. Furthermore, subject to how the stock cycle plays out, a modest rise in activity in one of the forthcoming quarters may be possible but unlikely to prove lasting as long as final demand is weak.

The outlook remains weak; the recession is far from over. Rising unemployment across all sectors and any further house price declines will weigh heavily on consumer spending. Investment is set to remain subdued in the face of ongoing lending constraints and export markets remain lacklustre.

Given this, real GDP is projected to continue to decline, albeit only modestly throughout 2009. Only a mild upturn is expected in 2010. In 2011, the economic revival is forecast to gather pace, but medium-term prospects are for annual average growth of around 2%, well below the long-term average.<sup>46</sup>

Early market indicators point towards a relative easing in economic conditions in the south and northern regions are also seeing undeniable signs of a revival in sentiment and activity. However, it is too early to call a recovery as fundamentals remain weak and the painful economic corrections necessary to set regions back on a sustainable and positive growth path are still underway. Thus the industry finds itself in a period of relative stabilisation after a severe contraction.

Results from the Construction Skills Network<sup>47</sup> demonstrate a 13% decline in construction output in 2009 and very moderate growth is not expected to return until 2011.

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 and remain 'fit for purpose' to deliver the needs of UK plc.

Jobs, skills and productivity continue to drive the agenda in terms of making the UK a world 'competitor'. However, as stated above the strategic challenge of how to achieve

<sup>46</sup> Construction Forecasts: Autumn update, 2009. Volume 15, issue 4

<sup>47</sup> The Construction Skills Network is a construction industry demand forecasting model produced by ConstructionSkills and Experian: see [www.cskills.org/csn](http://www.cskills.org/csn)

this following a deep recession may involve a different journey and external factors will no doubt strongly influence the drivers for change.

Ambition 2020<sup>48</sup> stated five clear priorities that needed to be adhered to in order to create world class skills and jobs, which include:

- A clear and integrated strategy for economic transformation and renewal (sustainable through recession and recovery).
- Support effective economic development in cities and local communities.
- Develop agile and responsive skills and employment provision.
- Transform individual aspiration and skills into a world class workforce.
- Build employer ambition and capacity to be world class.

These priorities remain firmly in place and the economic challenges faced by the UK will be instrumental in driving political change as the government of the day strive to seek solutions that will provide short-term respite leading to long term sustainable recovery.

Politically, the immediate challenge is the pressure on government to address the huge public debt, (thought to reach record levels and represent as much as 90% of GDP by 2013<sup>49</sup>) which will be the key focus for any new government in 2010. There are several 'options' at present, including:

- do little and run with a large deficit
- raise taxes
- instigate substantial cuts to public sector investment
- raise taxes and instigate cuts.

It is highly unlikely that any future government will take the risk of running with such a large level of debt and any further government stimulus is generally viewed as having 'run out'. A further attempt at quantitative easing (thought to reach £200bn by early 2010)<sup>50</sup> could run the risk of masking the 'real economy' in the short-term, storing up the prospect of adding to unemployment totals.

The construction industry will be a keen spectator in terms of anticipating where public sector cuts will fall and which sectors will be affected the most. Current government expenditure is virtually committed until April 2011. It is likely therefore that it will be 2012 before the full force of public capital expenditure cuts will be felt.

Large construction related programmes such as Building Schools for the Future, hospital builds, motorway expansion schemes and investment in Northern Ireland are all thought to be under threat.

Whilst the Olympic build is fully committed, Crossrail and Decent Home Improvement Programmes could also be scaled back or timescales lengthened, though it's recognised and widely acknowledged that expenditure cuts to some programmes will be more politically palatable than others.

However, it is also recognised that there will also be a need to continue to invest in future construction projects. Construction forms a significant 'enabler' to other industries and is fundamental to all aspects of daily life, from transport to medical care. The UK needs to have an efficient transport infrastructure, decent homes and a solution to its energy requirements that will meet legislative standards and the needs of its expanding population.

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<sup>48</sup> UK Commission for Employment and Skills-Ambition 2020

<sup>49</sup> Construction Skills Network 2009

<sup>50</sup> Bank of England figures: Nov 2009

This will subsequently have a considerable bearing on the demand for certain types of skills, particularly as certain sectors within construction have a very similar skills mix (housing, commercial and some repair and maintenance). Whilst others have very unique skills requirements (large infrastructure projects and particularly nuclear build) and firms will need to be flexible and continue to utilise the diverse approach that the majority of the industry has rapidly adopted during the recession in order to survive.

Economically, the recession has provoked a climate of fiscal constraint, led by tighter lending regulations and a more risk adverse approach to financing from the banking sector. Stakeholder evidence gathered during the 2009 Construction Skills Network observatories reports that construction firms and in particular small to medium enterprises (SME's) are experiencing increased difficulty in gaining access to credit and insurance conditions have tightened. This new financial climate has had the effect of forcing many firms out of business, despite the current governments desire to stimulate the market from a public investment perspective in order to maintain employment levels.

The greatest risk to economic recovery will be a series of increased financial measures which have the affect of choking off a recovery in the private sector. This strategy coupled with a reduction in public investment could generate a 'double dip' recession and negate any chance of slow recovery in the short to medium-term.

A series of factors will need to be in place to enable consumer confidence to return. This needs to be led by a stabilisation of the housing market, asset prices rising, debt consolidation, a reduction in debt to lending ratio's and a turn in the inventories cycle to stimulate manufacturing. However higher inflation, a future rise in interest rates, sterling weakness, VAT reversal and wage freezes will continue to promote a further rise in unemployment.

As the recession has deepened, unemployment in the construction sector is now significant, (as examined in section 6.2) and closely linked to current and future industry image as construction is often viewed as the bellwether in terms of suffering job losses during a downturn.

Unemployment tends to lag construction output by at least one year and there is evidence in the market to support the view that many larger firms have placed extremely low tender submissions on projects to 'win work' and sustain trading. This approach runs a substantial risk of backfiring in the future as margins will be squeezed and many firms may find that they enter liquidation as the industry commences its emergence from recession, thus creating further job losses.

This may have an adverse affect in terms of future recruitment possibilities. The industry has already lost a proportion of its skills base and there is no clear evidence to support the view that many will return to the industry in times of economic recovery, unless government led stimulation is provided.

The global nature of the recession has affected markets worldwide. Increasing globalisation of goods and services and the further integration of emerging economies will increase the supply of low skilled workers and overseas production activities will increase the competitive pressures on UK firms. The USA and Europe are emerging from recession slightly ahead of the UK and whilst anecdotal evidence suggests that the movement of migrant labour has abated we could start to see a shift in labour patterns again particularly in Europe.

In the longer term there is a need to reflect on the changing skills needs of the industry in terms of examining the drivers that will promote future skills.



The economic downturn, long term climate change and energy security are all interacting to create the development of a potential new economy which will have an element based on what is being labelled as 'green jobs'.

Governments across Europe are setting the overarching legislation and incentive to support this transformation. The UK Climate Change Act 2008 established legally binding carbon commitments and the construction sector will be critical to delivering these commitments and ensuring the appropriate skills and capacity will be a prerequisite.

Almost half of CO<sub>2</sub> emissions are connected to the built environment however tackling CO<sub>2</sub> in new housing alone may not provide the required improvement, a major programme of adaptation and refurbishment of existing buildings will also be required. This means increasing emphasis on the built environment based solutions, for example by renovating/retrofitting existing homes and non domestic buildings to be more energy efficient, which has the twin benefit of stimulating the economy and helping shape a low-carbon future. There would also be significant construction work involved in the building low carbon/renewable power to supply the UK's energy needs.

For construction to be in a position to respond effectively, the industry has to ensure it has the skills to deliver. Understanding and developing a more creative and innovative approach will be one of the means to achieving more with less. This could generate a further blurring of traditional companies and roles, via diversification in order that the construction industry take advantage of the business opportunities presented during recovery from the recession.

The ultimate impact of an innovative approach will depend upon the inter relationship and integration of people and skills, products and industry processes in order to maximise industry performance.

Currently 12% of all construction activity is offsite manufacturing and this requires ongoing skills links with the manufacturing sector. Offsite construction could increase significantly as the industry moves from recession to recovery as the main aim will be to increase productivity and effectively achieve more with less.

Offsite construction provides the opportunity to achieve this, particularly in the housing sector where demand for affordable housing remains high and designers and developers are constantly looking for new methods of building that will enhance cost reduction.

This approach changes the construction process and as such requires new and different skills to help achieve this. Each project requires differing skills depending on where they are located on the offsite spectrum in terms of ranging from traditional build with elements of off-site methods to full project prefabrication.

Generally 'future' skills are not entirely new skills, in many cases the skills are either an addition to, or amalgam of existing skills. 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. There is a risk that this market will shrink as legislation requires 'clients' to adopt 'greener' solutions.

As stated, a change in skills requirement will also vary across the industry supply chain and at management and professional and skilled trade levels. There are some fairly broad observations that can be made, for example future skills will require:

- an understanding of low/zero carbon technologies
- appreciation of 'air tightness' in buildings
- working to reduced tolerances

- greater manufacturer input into training
- Incremental change to the skills of many occupations
- transformation of some occupations due to product changes
- more 'installer' type activities
- broader range of skills and competencies
- Ongoing upskilling (continued craft and professional development)
- cross industry transfer of skills between linked sectors
- new and more flexible qualifications
- consideration of whether government /industry accreditation is required for advice and installation of new products.

Construction companies are very aware that their businesses are changing, or require long term change to remain competitive and meet forthcoming legislation. New entrants to the industry will need to be ready to anticipate and meet new and dynamic changes, as will the 75% of the current UK workforce who will still be employed in the industry in 2020.

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

This will also have the impact of maximising potential job creation opportunities and the investment in 'green' industrial policy. This applies to new build and repair and maintenance activities, across supply chains and could present any future government with an opportunity to invest in the future of construction in the UK, via innovation and change.

### Summary Box

- The UK economy has, so far, contracted by 5.8% during this recession. The pace of contraction is now set to ease markedly over the rest of 2009 and the outlook remains weak with unemployment rising across all sectors.
- Results from the Construction Skills Network<sup>51</sup> demonstrate a 13% decline in construction output in 2009. Very moderate growth is not expected to return until 2011.
- Politically, the immediate challenge is the pressure to address the huge public debt, (thought to reach record levels and represent as much as 90% of GDP by 2013<sup>52</sup>).
- Current government expenditure is virtually committed until April 2011. It is likely it will be 2012 before the full force of public capital expenditure cuts will be felt.
- The greatest risk to economic recovery will be a series of increased financial measures that will stifle a recovery in the private sector. This coupled with a reduction in public investment could generate a 'double dip' recession and negate any chance of slow recovery in the short to medium-term.
- Factors needed to enable consumer confidence to return include stabilisation of the housing market, asset prices rising, debt consolidation, a reduction in debt to lending ratio's and a turn in the inventories cycle to stimulate manufacturing.
- A future rise in interest rates, sterling weakness, VAT reversal and wage freezes will continue to promote a further rise in unemployment.
- Low tender submissions on projects to 'win work' and sustain trading may result in further job losses.
- In the longer term there is a need to reflect on the changing skills needs of the industry in terms of examining the drivers that will promote future skills.
- The economic downturn, long term climate change and energy security are all interacting to create the development of a potential new economy which will have an element based on what is being labelled as 'green jobs'.
- Almost half of UK CO<sub>2</sub> emissions are connected to the built environment, hence the emphasis on built environment based solutions.
- Tackling CO<sub>2</sub> in new buildings alone will not provide the required improvement, a major programme of adaptation and refurbishment of existing buildings will also be required.

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<sup>51</sup> The Construction Skills Network is a construction industry demand forecasting model produced by ConstructionSkills and Experian: see [www.cskills.org/csn](http://www.cskills.org/csn)

<sup>52</sup> Construction Skills Network 2009

- Currently 12% of all construction activity is manufactured offsite and this requires ongoing skills links with the manufacturing sector.
- Generally 'future' skills are not entirely new skills, in many cases the skills are either an addition to, or amalgam of existing skills.
- 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.
- Construction companies are very aware that they require long term change to remain competitive and meet forthcoming legislation.
- New entrants to the industry will need to be ready to anticipate and meet new and dynamic changes, as will the 75% of the current UK workforce who will still be employed in the industry in 2020.
- 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 or the existing workforce.
- This will also have the impact of maximising potential job creation opportunities and the investment in 'green' industrial policy.
- This applies to new build and repair and maintenance activities, across supply chains and could present any future government with an opportunity to invest in the future of construction in the UK, via innovation and change.

## 6. What is the likely demand for employment/skills in the future?

### 6.1 Introduction

Looking to the future it is likely that the factors outlined in the previous section will mean slightly different drivers for employment and skills within the construction industry, however both will be heavily influenced by trends in the UK economy, in particular GDP growth. As such, any view on the future demand for employment and skills needs to consider the general economic and political backdrop.

In 2008 ConstructionSkills commissioned SAMI Consulting to produce a report<sup>53</sup> which:

- identified key long-term issues and changes which UK construction may encounter
- assessed their potential impact for employment and skills.

It developed four distinct scenarios to test against a base case, with each scenario having different assumptions about a range of factors such as:

- % GDP growth
- % Construction growth
- % of New work Vs Repair & Maintenance
- productivity growth
- construction industry characteristics.

With skills, the scenario implications were influenced by assumptions made around the construction industry characteristics, with energy efficiency, zero carbon and modern methods of construction all noted as having significant potential impact. However, there are also wider drivers for skills that would cut across all of the scenarios, particularly government policies such as Ambition 2020 and Skills for Growth. These policies aim to raise the overall skills profile of the UK workforce, not only construction, and will therefore influence demand across all scenarios.

For employment, all scenarios indicated more than 3 million people working in the construction industry by 2020, as well as variations in the balance between different occupations. This variation in balance between different occupations was influenced by assumptions around industry characteristics and also the relative balance between different industry sectors. However, the report also noted that “a very serious and prolonged economic and financial downturn”<sup>54</sup> could substantially reduce levels of construction industry employment.

A severe economic and financial downturn is indeed what has happened over the last 18 months, having a pronounced effect on the construction industry. Indications are that during 2009, construction output in the UK will drop from its 2008 level of around £111bn (2005 constant price basis) to approximately £97bn (2005 constant price basis), a fall of 13%. This obviously has an impact upon employment, with current predictions showing a low point of 2.3 million people employed in the industry in 2011, nearly 400,000 less than 2007–2008 levels.

This rapid and severe change needs to be considered when looking at the 2020 Vision report, as the wider political, economic and social environment is significantly different to that when the report was commissioned and produced. As such the core scenario set out for the UK construction industry in the next section seeks to place the 2020 Vision report into the current context, drawing out key issues and where possible, variations that may arise. This revised core scenario is then used to discuss the likely demand for employment and skills through to 2020.

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<sup>53</sup> Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008

<sup>54</sup> Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008, Page 8.

## 6.2 Core Scenario

The analysis carried out in previous sections identified a number of key factors that will influence employment and skills demand. Some of these factors have a significant impact upon assumptions that drive the core scenario, especially economic data.

Our core scenario for the industry assumes that from 2010—2020:

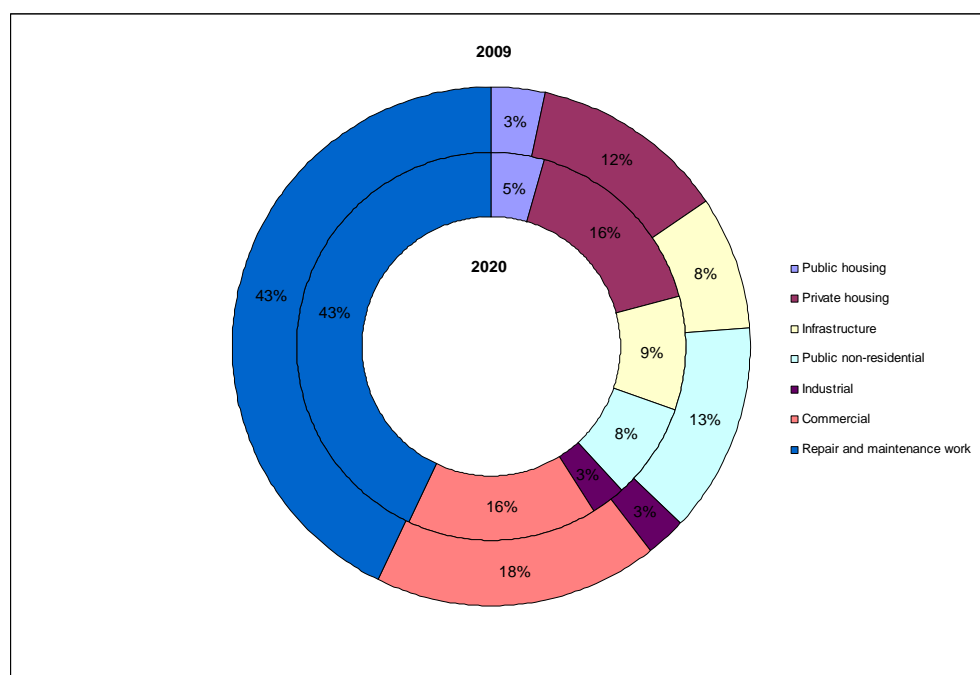
- UK economy will emerge from the technical recession in 2010 followed by a gradual recovery to long term levels of GDP growth of around 2.1% p.a. through to 2020.
- UK construction output will start to recover from around 2011, although it will be at a lower level than GDP growth. Construction output is forecast to be at around 1.8% p.a. through to 2020.
- Although repair and maintenance work is currently feeling the effect of the recession, in the longer term the overall ratio of new work to repair and maintenance will fluctuate around the current level. As such new work will continue to be the main driver of construction output through to 2020.
- Levels of productivity growth will remain low, around 1.0% p.a. with productivity growth being driven by new build rather than repair and maintenance work.
- Housing demand for both public and private sectors recovers, with current forecasts showing private housing output returning to 2007/2008 levels around 2018—2019.
- Work in the public non housing sector shows no real growth due to restrictions in available public finance (public sector net borrowing, forecast to be -£175bn for 2009—2010<sup>55</sup>).
- 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.
- 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 CO<sub>2</sub> targets. Direct publicly financed elements of infrastructure investment will not be immune to public sector net borrowing pressure, for example road and rail networks, although increasing amounts of PFI/PPP deals will alleviate some of this pressure.

When considering the relative balance of industry sectors this means that the industry structure in 2020 will be broadly similar to that in 2009, however it should be noted that 1% of output equates to over £1billion worth of construction work.

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<sup>55</sup> HM Treasury, Forecasts for the UK economy: A comparison of independent forecasts, October 2009

**Chart 18 - Construction Industry Sector 2009-2020**



Source: Construction Skills Network; Experian

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. Housing, both private and public sector, along with infrastructure work will be key sectors for the industry in terms of employment and skills through to 2020.

As the 2020 Vision report points out, forecasting is not an exact science and we are aware that there may be variations to this core scenario that would have implications for both employment and skills. What we consider to be the most significant variations are outlined below and when discussing demand issues for employment and skills, the effect of each of these variations will be outlined.

Significant possible variations to core scenario:

1. **Stronger Recovery:** the UK economy recovers quickly leading to stronger growth mainly from 2014—2020. Improved availability of private finance and a general recovery in consumer confidence leads to a stronger recovery in housing, commercial and non-housing new work sectors. Also public sector net borrowing is less of an issue and Government is able to continue with a spread of investment programmes.
2. **Double Dip Recession:** the opposite to a strong recovery where the fragile economy goes into a further recession. Reductions in public sector investment and private finance still being restricted would impact mainly upon the housing and infrastructure elements of the core scenario. There would be further job losses, the industry would take longer to come out of recession and growth rates would remain low on recovery.
3. **Low Carbon Transition:** significant progress is made to tackle the upgrade of existing housing stock, new schools (2016), new public buildings (2018) and all new non-domestic buildings become zero carbon (2019). Major infrastructure work progresses with significant developments for wind, tidal, biomass and nuclear power combined with upgrading of energy grid and transport systems.
4. **Modern Methods of Construction:** innovation and productivity drives increasing adoption of changes in working practice across all new build sectors, especially

housing. This would be characterised by higher levels of offsite construction work, for example pod construction, panelised systems and the like, along with the introduction of advanced composite building materials. Although predominately driven by new build work, the diffusion of innovation through to repair and maintenance work would follow as skills would be required for on-going maintenance of new structures.

Having outlined what we believe to be the core scenario for the construction industry through to 2020 and identified possible significant variations, the following sections discuss their implications upon the demand for employment and skills.

### 6.3 What is the likely demand for employment in the future?

When looking at the likely demand for employment, there are two main aspects to consider;

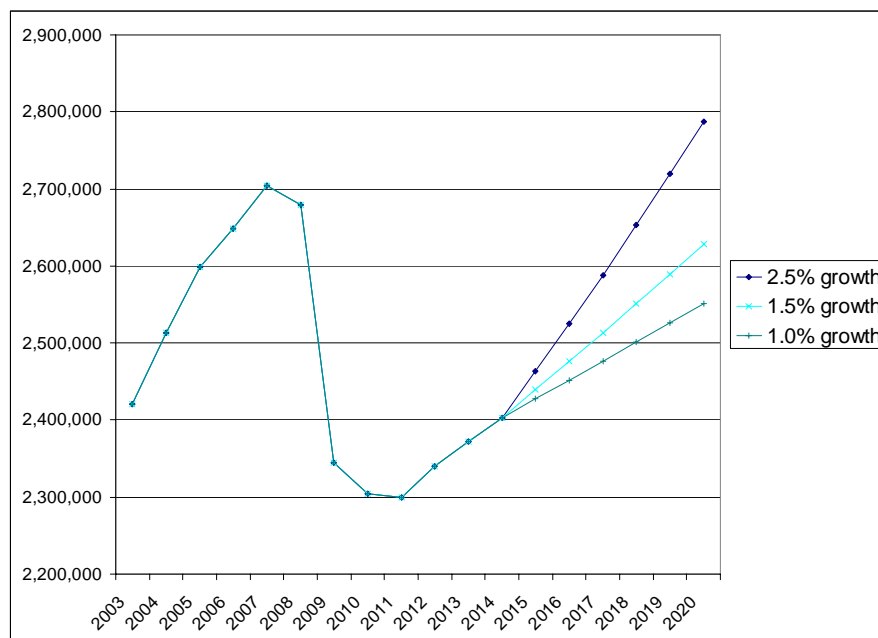
- overall industry employment
- employment balance across the different occupations, such as managers, professionals and skilled trades.

Each of these aspects will be discussed in relation to the core scenario and the main variations identified.

#### Core Scenario

The recession and recovery outlined in the core scenario gives three distinct phases to overall industry employment, especially as employment trends tend to lag trends in construction output. Chart 19 below shows how employment is forecast to alter through to 2020.

**Chart 19 - Construction Industry Employment in 2020**



Source: Construction Skills Network; Experian

We anticipate peak unemployment to occur around 2011 therefore in the short-term the industry will still be coping with the effects of the recession. Although employment is not forecast to fall at the levels seen in 2008 and 2009, construction industry employment at a UK level is likely to remain static between 2010 and 2011. There will be some differences across the nations and regions depending upon the amount and nature of construction work being undertaken, for example a significant number of infrastructure



projects are set to occur in Greater London, South East and the East of England while Scotland and Wales benefit from investment programmes driven by their devolved governments.

As well as differences across the nations and regions, there is likely to be a re-balancing of employment across the different sectors of the industry. Work in sectors such as public non-housing (schools and health care projects) and infrastructure (Crossrail, M25 widening) will provide short-term employment, while the prospects for housing, commercial and infrastructure come to terms with drops in work recorded in 2008 and 2009.

In the medium-term, from 2012—2014, as the pace of recovery in the general economy picks up, companies are able to access private finance and there is a sustained recovery in the private housing market as that sector addresses the latent demand for additional housing. However growth is expected to be at a lower level than pre-recession trends mainly due to a slow down in public financed investment as the government takes steps to reduce public sector net borrowing. This means that employment between 2012—2014 is forecast to rise by around 100,000, which represents an increase of approximately 4% over the forecasted employment in 2011.

As mentioned in the short-term, medium-term employment will vary across the nations and regions of the UK as well as being influenced by relative performance of the sectors. For example, the North West of England has significant programmes of public non-housing work such as BSF, and higher proportions of industrial and commercial work compared to the UK average, which leaves this region very exposed to reductions of work in these sectors.

When looking at the long term employment forecast for the core scenario we considered a number of long term growth rates ranging from as low as 1% to a high of 2.5% year on year, note from 1994—2007 long term construction growth was around 2.1% year on year. Our view is that construction output growth between 2015—2020 will be slightly over 1% year on year, which means employment not rising to 2007/2008 levels by 2020 unless there is strong, sustained growth between 2015—2020. It is worth noting that in past recessions employment has taken around 10 years to recover to pre-recession levels and this recession appears to follow a similar pattern.

During this period, employment will be driven by work in three sectors, housing, infrastructure, and repair and maintenance. It is likely that the increase in housing work noted in the medium-term will strengthen, although hopefully not to the extent that there is another housing boom/bust cycle. Affordability and access to mortgage lending will be two key factors here and at the moment it is difficult to judge how these will shape up in the legacy of the banking crisis.

With infrastructure the key driver here will be work around energy, with programmes of work planned for wind, tidal, biomass and nuclear power as the government looks to meet CO<sub>2</sub> reduction targets.

Repair and maintenance will also be driven by programmes of work to meet CO<sub>2</sub> reduction targets. Initiatives will focus on the upgrading of existing housing stock however there is also potential to upgrade non housing buildings to further reduce CO<sub>2</sub> emissions. Repair and maintenance work does make a significant contribution to overall industry employment as the sector is more labour intensive than new work, requiring roughly twice the labour for similar values of work.

As noted earlier, the general employment trends tell part of the picture and within the core scenario there will be movement in the balance of different occupations, which is related to skills as well. Under the core scenario it is unlikely that there will be a significant shift in occupational balance with skilled trades remaining the dominant

occupational group for the industry. However there is a trend for an increase in the amount of managerial, professional and technician occupations which is likely to continue through to 2020. While aspects of this trend will be due to factors such as increasing amounts of infrastructure work, occupational balance will also be influenced by skills demand which is covered in more detail in the next section.

While we believe the core scenario outlines what is likely to drive employment demand, we recognise that there are possible significant variations that could have implications for employment and occupational balance.

**1. Stronger recovery:** If the UK economy were to recover quickly the variations would have a significant effect in the medium to long term. The main concern would be employment demand outstripping supply and the workforce not having sufficient skilled people to carry out proposed work.

In terms of the balance across the occupations, strong recovery would lead to demand across all occupations therefore it is unlikely that there would be a significant variation from the occupational balance set out in the core scenario.

**2. Double dip recession:** This is the opposite to a strong recovery where the fragile economy goes into a further recession and here the effect would be felt throughout the short to long term view. If the economy were to go into a further recession, it would have a significant effect on the recovery of the housing market along with projections for infrastructure work. Reductions in output in both of these sectors, combined with the depressed levels of work in the other sectors would inevitably lead to more workers leaving the industry in the short-term, rather than the stabilising forecast in the core scenario. While further reductions in the workforce are unlikely to be at 2008/2009 levels, there would be a concern about the total number of skilled people who would have left the industry.

A further recession would mean a delay in any general recovery, with the growth returning at a lower rate than envisaged than the core scenario. This would mean by 2020, the construction workforce would be well below its 2007/2008 peak level of employment.

With the occupational balance, it is likely that the brunt of further cuts in employment would affect both skilled trades and professionals more than other occupations. Feedback from the CSN observatories indicated that during 2008 and 2009, employers tried to retain skilled staff and where possible look for opportunities to re-train. They cited the desire not to be facing the same situation that arose coming out of the previous recession in the 90's when there were not enough skilled workers, and were therefore trying to hold on where possible. A further or prolonged recession would mean employment cuts as employers look at future workloads and reconcile staffing levels accordingly.

**3. Low Carbon Transition:** This variation assumes that in addition to the level of low carbon transition work that the core scenario takes account of, significant progress is made in other areas such as upgrading of existing housing stock, new public buildings and all new non-domestic buildings becoming zero carbon by 2019.

This additional work would have a boost on overall employment, though not as much as the stronger recovery outlined in Scenario 1. The main effect would be on the occupational balance due to the demands of dealing with zero or low carbon technology during the construction process.

While some initiatives such as improving loft insulation in existing homes could be carried out without significant additional skills, other low carbon technologies do require skilled workers both for design and installation, therefore under the low carbon transition

scenario it is likely that there would be an increased number of skilled trades and professionals, which will be discussed in the following skills demand section.

#### **4. Modern Methods of Construction:**

The introduction of modern methods of construction does occur, however this scenario assumes a much faster adoption of innovative working practices as industry looks to improve productivity in a highly competitive environment.

A very important aspect here is the differentiation between offsite and onsite work, as modern methods of construction usually refers to elements of the build process being carried out offsite, typically in a manufacturing environment, with assembly onsite. While the skills required for elements that are worked offsite are essentially the same as those that would be required if the work was to occur onsite, a very important distinction is where the work occurs, as offsite manufacture may not fall within the definition of what is classed as construction.

In employment terms for the industry, this is quite a big distinction as increasing adoption of modern construction methods would mean a transfer of employment numbers from onsite to offsite work. While there would be a corresponding increase in employment relating to onsite assembly and improved productivity, it is likely that the net effect would be a reduction in overall employment levels.

For the occupational balance, working with modern methods would require some new skills onsite, more attention to design and improved project management. This would increase the balance of managerial, professional and technical employment, while having a reduction in the amount of skilled trades.

#### **6.4 What is the likely demand for skills in the future?**

While the previous section discussed overall employment, the discussion around occupational balance also began to touch upon the skills demand, as the two are closely related. This section looks at specific factors that are likely to influence demand for skills in the future. As with the previous section, we will look at the core scenario first and then look at how each of the four scenarios may give rise to possible variations.

##### **Core Scenario**

One of the main factors here is a clear demand for higher levels of skills, which comes from a range of sources:

- Ambition 2020 and Skills for Growth look at improving general skill levels, boosting economic prosperity international competitiveness.
- With the current recession, leadership and managerial skills are increasingly being viewed as important<sup>56</sup>.
- Increasing importance of science, technology, engineering and mathematics (STEM) skills as the UK invests for the future<sup>57</sup>. It should also be noted that the Migration Advisory Committee UK List 2009 has civil engineers as a shortage, although it will be reviewed at 6 monthly intervals.
- Increased emphasis on Technical Apprenticeships<sup>58</sup>.

All of these aspects will have a strong influence on demand for higher skill levels, particularly higher level civil engineering skills, which will be in demand throughout the core scenario. To put this into context, the table below compares the current UK skill profile with that of construction, as defined by ConstructionSkills sector skill council footprint, and the targets for both 2011 and 2020.

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<sup>56</sup> Emerging Stronger: CBI 2009

<sup>57</sup> New Industry, New Jobs; HM Government,2009).

<sup>58</sup> Skills for Growth, 2009

**Table 16 - % of workers in industry (aged 25-64) by highest qualification level**

	<b>UK (2008)</b>	<b>CSkills SSC (2008)</b>	<b>2011 Target</b>	<b>2020 Ambition</b>
<b>% qualified to at least L2</b>	71%	74%	79%	95%
<b>% qualified to at least L3</b>	51%	53%	56%	90%
<b>% qualified to at least L4</b>	31%	26%	34%	40%

Source UKCES Almanac 2009

These figures show that in terms of L2 and L3 qualifications, construction is above the national average, although lower when it comes to qualifications at L4 and above. Managers, professional and technical staff within construction are the main contributors to qualifications at L4 and above, while skilled trades are predominately qualified to L2 or L3.

There will be drivers for skills that relate to other initiatives taken by government, employers and other bodies to raise standards across the workforce. Health and Safety Law will continue to be a key driver with increasing client awareness of the risks and criminal liabilities that might be incurred as a result of accident. This means that the safety records of contractors may become a bigger factor in winning contracts while safety by design will be viewed as part of the normal design process. The risks associated with construction-sites and environmental decisions, such as those concerning brownfield developments, will be controlled through better safety policies and regulations.

These trends will increase the need to improve the attitude and understanding of everyone in construction in order to enhance safety awareness and thinking throughout the construction process – design, manufacturing, build, operations and maintenance. While steps are already being made within the industry towards general certification of staff (CSCS scheme etc), there is likely to be regulation for increased certification of construction workers to ensure that they have the right safety skills. Although it will be the larger new-build construction-sites, rather than the smaller renovation or repair and maintenance projects, that will have significantly higher emphasis on safety and hence greater demand for safety training.

Other factors within the core scenario that would further increase demand for higher skill levels are the increasing demand for homes to be built to meet demographic changes, low or zero carbon technology and energy related infrastructure work.

The Housing Green paper<sup>59</sup> of July 2007 talks of increasing total new housing supply in England from 175,000 completions in 2007 to 240,000 per annum by 2016. The demand for new housing, coupled with the political need to re-use brown-field sites, will lead to development of increasingly difficult sites and an increasing demand for site clearance and decontamination skills.

The future is almost certain to see continued pressure on builders, owner-occupiers and property clients to reduce the energy consumption of buildings. The government has signed up to a number of carbon emission targets in recent years, culminating in the Climate Change Act 2008<sup>60</sup> in which the government pledged to cut current greenhouse gas emissions in the UK by 80% by 2050. The other very significant current target is the requirement for all new housing built from 2016 onwards to be carbon neutral. In short, over the core scenario meeting zero carbon targets will impact upon the construction industry.

<sup>59</sup> Department for Communities and Local Government, Homes for the future: more affordable, more sustainable – housing green paper, 2007

<sup>60</sup> Department of Energy and Climate Change, Climate Change Act 2008

This has implications for building practices such as greater use of insulation and lower energy use in building services as well as energy and water recycling facilities. There would also be possible changes in infrastructure construction as energy demand is reduced and activities such as transport suffer modified demand.

As a significant amount of the technology is already available to achieve government targets, although there may be cost implications, continued current government attitudes will require industry to have sufficient people trained to reach the 2016 zero carbon targets. For housing this action is already urgent, and becoming more so given the current loss of skills the construction industry is currently experiencing, and will experience due to retirement of skilled workers.

The implications for future skills demands are significant as very small imperfections in construction can have very substantial implications in meeting the energy standards. Therefore there would need to be considerable changes in attitudes towards construction techniques accompanied by an understanding of the impact of actions and inactions by an individual on the final energy certificate. Increasing demand on house builders to reduce the environmental impact of homes, in particular carbon footprints, may force a move to Modern Methods of Construction, which is discussed in more detail later, to assist in the use of better materials and improve the quality of construction, particularly for air tightness and insulation. There will also be demands for new construction skills on-site driven by growth in the use of new equipment such as heat pumps, heat and water recycling and local micro-generation systems.

As with employment, the possible variations to the core scenario do have their own unique implications for skills. For the strong recovery and double dip scenarios the issues would really be coping with the changes in volumes, however the low carbon transition and modern methods of construction scenarios both raise particular challenges.

**1. Stronger recovery:** A strong sustained recovery would create an increased demand for not only overall employment, but for the accompanying skills as well. In this scenario the implications for demand would be the general numbers which would put a severe strain on occupations, especially those that rely on STEM skills, as this is already a recognised shortage.

**2. Double dip recession:** Coping during a recession requires certain skills, and these would be further tested across the industry were there to be a second recession or a prolonged stagnation. In the short-term companies would look to strengthen their business, leadership and management skills to help them cope with the recession.

The drop in demand for both skilled trades and professional occupations could jeopardise long term recovery, especially considering the time that it can take a person to become qualified. For a new entrant to become a skilled tradesperson qualified at L3 can take three or four years, while a professional can take as long as six or seven years to become accredited.

**3. Low Carbon Transition:** As outlined earlier, this variation assumes that in addition to the level of low carbon transition work that the core scenario takes account of, significant progress is made in other areas such as upgrading of existing housing stock, new public buildings and all new non-domestic buildings becoming zero carbon by 2019. There would also be significant progress with regard to energy infrastructure projects.

Improving new-build energy conservation alone would not meet national targets for reducing carbon emissions although large gains could be made by increasing the energy efficiency and promotion of micro-generation for existing buildings. Total residential completions in Great Britain totalled around 210,000 in 2007 against a residential stock of close to 26 million. This means the bulk of carbon emissions will come from existing

stock, and will continue to do so for many decades given the current and likely future rate of replacement. This variation assumes an increase in the retro-fitting of domestic insulation, installation of energy saving equipment and replacement of inefficient components such as windows and doors.

As well as helping to maintain the demand for traditional building skills, the installing of components and equipment into existing buildings may require a certain amount of training to understand installation needs. The main skills demand issues will focus around understanding the building in which the new products are being installed. However as the work of ConstructionSkills' Future Skills Unit is beginning to show, this does not always mean a significant change in the current skill levels.

Where there does appear to be an issue is not with the current skill levels, it is the attention to details 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 structure.

There would be an increased demand for low carbon design related skills to ensure that new buildings are designed for maximum energy efficiency, as well as an increase in multi-skilling to support the installation of some technology, such as photovoltaics which would require a combination of roofing, electrical and/or plumbing skills.

For energy infrastructure projects there would be a significant demand, particularly for engineering skills. Introducing power from renewable and low carbon technologies would be major infrastructure projects, not only to build the projects themselves, but to ensure that they could contribute to the national grid as well. As noted in Emerging Stronger<sup>61</sup> energy related engineering skills are already in short supply and that sector struggles to attract STEM graduates

**4. Modern Methods of Construction (MMC):** The previous section on employment noted the shift between offsite and onsite work and in terms of onsite work, increasing adoption of modern methods would clearly alter the demand for onsite skills.

Modern methods of construction is a generic description of methods of construction, many of which have been around for sometime, but are only slowly being used to a wider extent, where circumstances warrant or permit their use. MMC substantially uses off-site construction methods, bringing to site components that are relatively quick to install, although often involving specialist installation. The main advantages purported for MMC are reduced labour on-site; reduced skill demands on-site; and greater speed and lower cost of construction

The main MMC include the manufacture of completed units and components in controlled factory conditions before transportation to site; the production of flat panel units in a factory to be assembled on-site; in varying combinations with traditional building methods.

According to the Callcutt Review<sup>62</sup>, in 2005 some 58,000 homes were built-in the UK incorporating some MMC methods. (Of these 42,000 were timber frame and another 8,800 were light metal frame). The 58,000 represented some 24% of total new-build housing in the UK. The Callcutt Review suggests that this figure could rise to nearly 70% by 2016. 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.

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<sup>61</sup> Emerging Stronger, CBI 2009

<sup>62</sup> Department for Local Communities and Government, The Callcutt Review of housebuilding delivery, 2007

The main implications of MMC on skills demand in the future appear to be:

- Greater mechanisation and automation on-site. Much of this can be achieved by wider use of existing tools and techniques, such as lifting equipment. However it will have implications for a wider need for skills in craneage, lifting, handling large loads and logistics on-site etc.
- Off-site MMC will involve a very substantial shift of building skills from site to off-site. Depending on the level and extent of completion of finishes off-site, there might be a substantial reduction of 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. Ultimately there appears to be the potential for even greater levels of automation, especially if large-scale production can be achieved through utilisation of processes and equipment developed in industries such as motor manufacturing.
- Computer 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. An understanding of manufacturing methods will need to be combined with an understanding of construction methods.
- Fewer traditionally trade-oriented skills with more emphasis on multi-skilling. The new skills would appear to 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.
- MMC will require revised safety training for an environment with heavy lifting, greater heights, and more mechanised equipment.
- 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.

Off-site MMC could have a very significant impact on the requirement for site based skills on some sites over the period to 2020, but there are limits to its application. MMC is not widely considered likely 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, such as tunnel linings and pre-cast beams, although 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, density 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.

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 demanded 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.

These changes in demand would need to be reflected by changes in supply to ensure that workers have the right skills for future work, which is the detail covered in the next section.



### Summary Box

This section outlined what we see as the core scenario facing the construction industry, along with possible significant variations that may arise.

#### **Core Scenario for construction industry:**

Assumes that:

- UK economy emerges from recession in 2010 followed by a gradual recovery to long term levels of GDP growth of around 2.1% 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 for both public and private sectors recovers.
- Work in the public non housing sector shows no real growth due to restrictions in public finance.
- 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 CO<sub>2</sub> targets.

Four possible significant variations to this scenario were noted:

- 1 – Stronger Recovery: where the economy recovers at a quicker pace.
- 2 – Double Dip Recession: the recession deepens and there are further job losses.
- 3 – Low Carbon Transition: there is significant progress with upgrading existing housing stock, zero carbon targets apply to a wider range of new build work and there is significant progress with energy infrastructure work.
- 4 – Modern Methods of Construction: where there is a rapid adoption of innovative working practices as industry looks to improve productivity in a highly competitive environment.

#### **Employment:**

Core scenario has distinct phases for overall employment numbers:

- 2010—2011, industry still dealing with recession, further job losses then stabilisation. Work in public non-housing and infrastructure sectors important for employment.
- 2012—2014, low employment growth as industry comes out of recession. Housing and infrastructure sector work important.
- 2015—2020, employment increases to approach 2007 – 2008 peak levels. Housing, infrastructure and repair and maintenance work will be key sectors for employment.

With the variations to the core scenario the double dip recession would mean employment being well below 2007—2008 levels. Both the stronger recovery and low carbon transition would see employment rise above the core scenario, however increasing adoption of modern methods of construction could have implications for onsite employment.

#### **Skills:**

- There will be increasing demand for higher levels of skill across the industry, especially those at L4 and above.
- Skilled trades will remain the dominant grouping for qualifications within the industry.
- Skills relating to development of energy infrastructure and low carbon technology will be strong drivers of demand for both the infrastructure and housing sectors.
- This will cover skilled trades, architects, designers and construction managers.

With the variations to the core scenario, low carbon transition and modern methods of construction will influence demand for the upskilling of existing workers and acquiring new skills to respond to the particular challenges that they raise.

## 7. The future supply of skills and employment in the construction industry

### 7.1 Introduction

The suddenness, and relative unexpectedness, of the recent recession (which at the time of writing the UK has yet to officially exit), point to the limitations inherent in any forecast. After years of continuous growth it seemed relatively safe to be optimistic about the future of the UK economy, with the accuracy of any forecast apparently demonstrated by the fact that every main-stream commentator was saying the same. Those who took a more pessimistic view about the future were likened to a stopped clock – right some of the time, but more often than not just wrong.

Ironically, the fact of the recession makes forecasting labour market information a little easier as it provides a new baseline against which skills and employment can be measured – short of a double-dip recession, things can only improve from here. Although every recession is different in its own way, we have been here before so we have a benchmark against which we can forecast the general trends and patterns in terms of skills and employment that we would expect to see unfolding as the recovery strengthens. The difficulty is forecasting whether we will experience a relatively strong and healthy up turn, or whether the fall-out from the recession and the responses to it will drag down any recovery for years to come, in short whether one is optimistic or pessimistic about the future.

Recent research by the British Retail Consortium reports<sup>63</sup> that consumer confidence has risen to its highest level for 18 months; house prices are showing consistent growth; and many major countries around the world (although currently not yet the UK) are emerging from recession. It would be tempting, therefore, to forecast a long and steady improvement in all indicators as the economy returns to normal. On the other hand, rising unemployment and commodity prices – data from Construction Products Association<sup>64</sup> shows manufacturers experiencing falls in trade while the price of raw materials rises – and a national economy that teeters between deflation and inflation point to a future that is far from certain.

There are some conclusions that can be tentatively drawn from existing authoritative reports, and this section will draw from the Working Futures report produced for the UK Commission for Employment and Skills by the Warwick Institute for Employment Research and Cambridge Econometrics, 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 forecasting in a fluid and rapidly changing environment such as skills there is sometimes no better substitute than looking at previous, similar, events and making assumptions from what has happened in the past. This section will do this as well, particularly in terms of what happened to the skills market following the last two big recessions in the UK from 1980—82 and 1990—92.

In the short-term it is also 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 the medium-term (the next five years up to 2014) and the long term (the next decade up to 2020).

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<sup>63</sup> British Retail Consortium Press Release, Best Consumer Confidence for 18 months, 2 November 2009

<sup>64</sup> Construction Products Association Press Release, Construction Continues to Suffer as Recession is Prolonged, 2 November 2009

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

Sections 6 set 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 low, at least in comparison with the pre-recession years – averaging only around 1.7% growth between 2010 and 2014 and that public debt remains high hampering state spending.

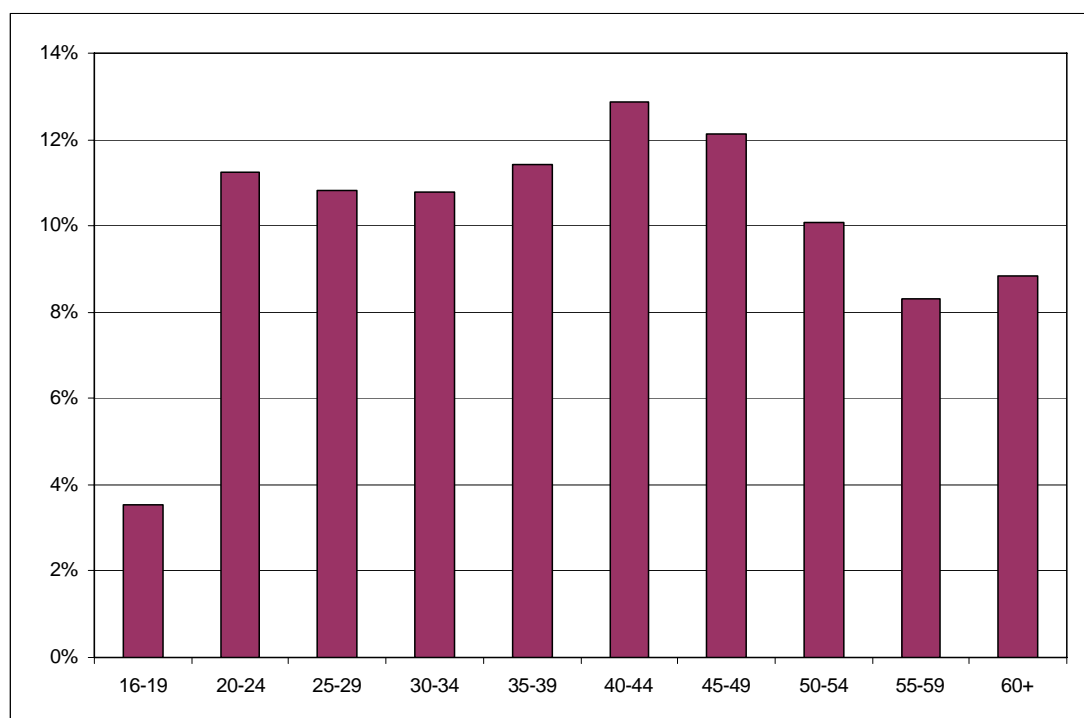
Regardless of when the recession officially ends demand is one of the key drivers for skills and employment supply and it would be safe to say supply, especially in terms of formal training, will remain subdued until well into the medium-term.

Over the medium to long term things are projected to be more optimistic. The Working Futures report<sup>65</sup> predicts output growth, albeit at somewhat more modest rates of around 2% per annum through to 2017, which is consistent with the view taken in the core scenario. So, from 2014 onwards it would seem likely that the supply of skills and employment will begin to increase in response to the rising demand that is expected at that time.

### 7.1.2 The Industry

Over the course of the present forecast approximately 16% of the manual construction workforce will reach retirement age (see Chart 20), resulting in a loss of accumulated skills and experience - particularly those involved in the heavier trades and labour.

**Chart 20 - Proportion of Manual Workers in UK Construction Industry by Age Range – 2009**



Source: Office for National Statistics, Labour Force Survey

In normal years this would be more than matched by new recruitment, however, given the current recession and downturn in recruitment unless economic circumstances force

<sup>65</sup> Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

later retirement, certain skills will become less available. If reliance is to be put on an ageing workforce, compensatory changes in workload on-site will be necessary.

Chart 20 also demonstrates the lasting impact of 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 Construction Skills Network<sup>66</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 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. It should also be noted that the construction industry is male dominated in employment terms. Females account for barely 1 in 10 of all manual jobs, and despite attempts by the industry to encourage more female entrants, this is expected to remain the case for the foreseeable future.

### **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>67</sup>.

### **7.1.4 Political Initiatives**

Although a General Election will have to be held in the first half of 2010, both main political parties in the UK acknowledge the link between a strong skills base and a vibrant economy, and are committed to raising skill levels within the workforce. The recent Skills for Growth White Paper<sup>68</sup> sets out a target for three-quarters of people to participate in higher education or complete an advanced apprenticeship or equivalent technician level course by the age of 30.

For the Conservatives, their Policy Green Paper No. 7 'Building Skills, Transforming Lives'<sup>69</sup> sets out their vision to expand the number of apprenticeships and training providers in the further education sector in order to increase the numbers of people with a vocational qualification.

So whichever party is in power for the lifetime of this forecast, raising opportunities for training and learning will be a priority at a time when unemployment levels are likely to peak in the region of 3 million people.

The changes in demand noted earlier will be reflected in the supply of future construction workers. They will require skills that focus more toward assembling manufactured components, utilise computers 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>66</sup> ConstructionSkills and Experian, Construction Skills Network,2009

<sup>67</sup> Analysis of Government Actuary's Department population data 2007, Projections Database accessed November 2009

<sup>68</sup> Department for Business Innovation and Skills, Skills for Growth – the National Skills Strategy, 2009

<sup>69</sup> Conservatives, Building Skills, Transforming Lives A Training and Apprenticeships Revolution, Opportunity Agenda Policy Green Paper No 7. 2008

## 7.2 Projected Potential Volumes of People with Skills to Join the 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. Employers are aware that in the last recession this led to long term skill gaps during the recovery and there is a strong desire to avoid this, however, it is still not clear how many workers will return to the industry and how many will lose their skills or their ties to the world of work.

### 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.

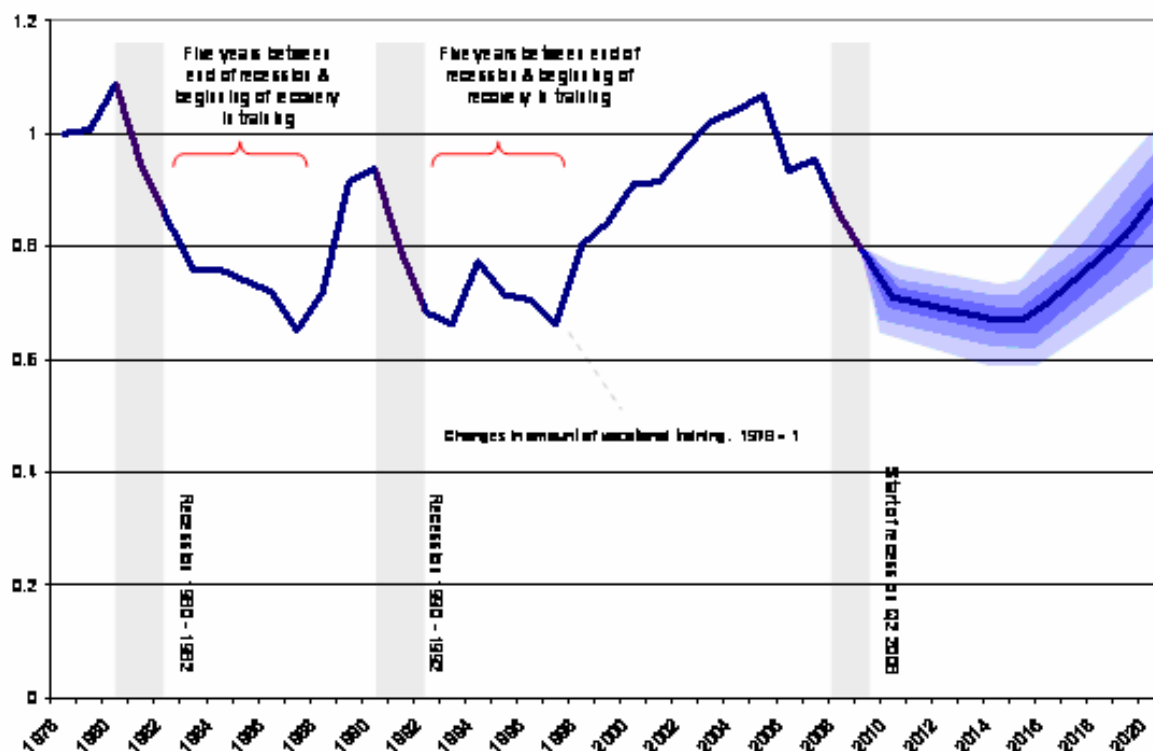
According to the Construction Skills Network, construction employment is forecast to be around 400,000 down from its 2007 peak by 2011. Although it is forecast to start growing again in 2011, it is still not expected to have recovered to its pre-recession peak by 2014 – the furthest that is forecast by the CSN model.

The precise link between employment and training is difficult to calculate, 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 21, 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 a large margin of error in the forecast below. Bearing this caveat in mind, and based on the core scenario outlined above, it can be estimated that training will reach a low point in the region of 35,000 VQ starts around 2015, before returning to its pre-recession levels of around 42,000 VQ starts by 2020.

Chart 21 - Relative change in levels of construction training 1978 – 2020: GB



Source: ConstructionSkills Trainee Numbers Survey

Chart 21 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 is expected 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, however, using the current Work-based Learning success rate of 70%<sup>70</sup> it would be reasonable to assume that some 25,000 construction trainees per annum would successfully qualify by 2015, rising to 30,000 by 2020.

Having achieved a qualification, a very high proportion of people choose to stay in construction. The Construction Apprentices Survey<sup>71</sup> suggests that some 95% of successful completers stay in the construction industry, mostly in the trade in which they studied. So, using these figures, we can estimate that the supply of skilled workers to the construction industry through the Further Education route would be approximately 24,000 per annum in 2015 rising to 28,500 per annum by 2020.

<sup>70</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>71</sup> ConstructionSkills, Construction Apprentices Survey, 2003

## 7.2.2 Higher Education

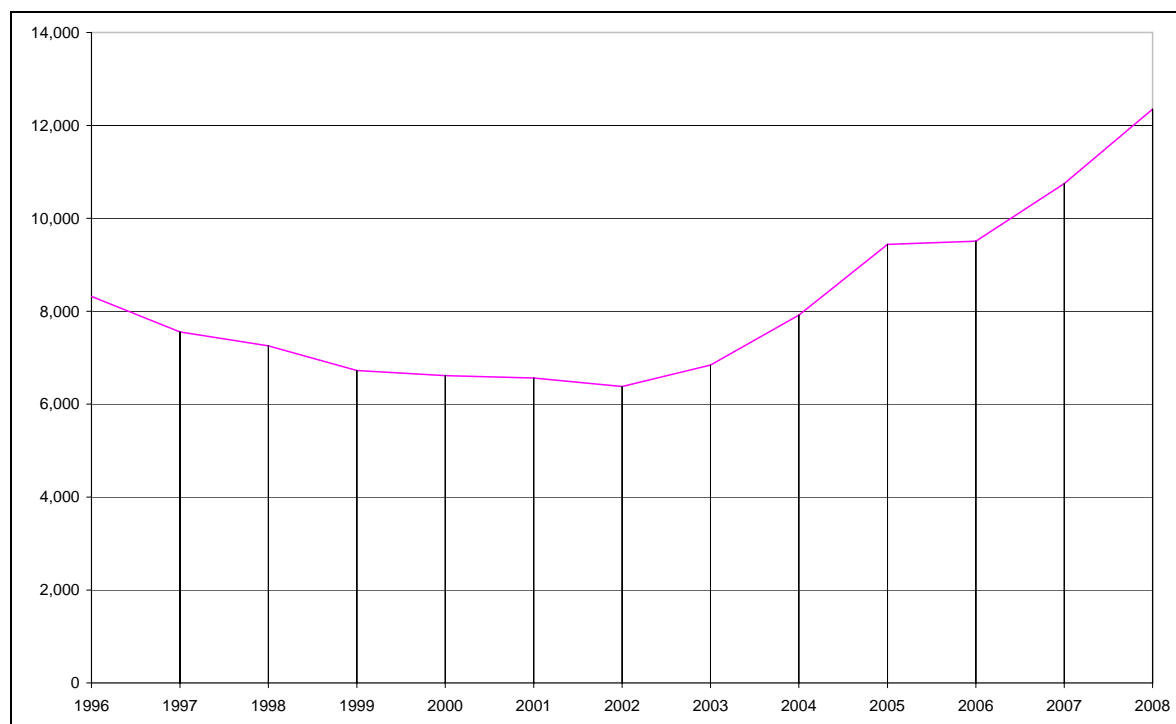
While there is no research looking specifically at the future uptake of Built Environment degree courses, The Higher Education Policy Institute have produced a report<sup>72</sup> which looks at the likely demand for degree courses in England across all subjects. Using their methodology and assumptions as a framework, the likely demand for courses in the Built Environment in the UK can be estimated. While the HEPI report focuses on England, their conclusions and findings are equally applicable to the UK, and the numbers quoted in this report are for the UK, using the same or similar sources to HEPI.

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 2008 seeing a 15% increase in UK domiciled first degree applicants compared to 2007 (12,350 compared to 10,750).

**Chart 22 - UK Domiciled applicants to Built Environment degree courses 1996 – 2008**



Source: UCAS

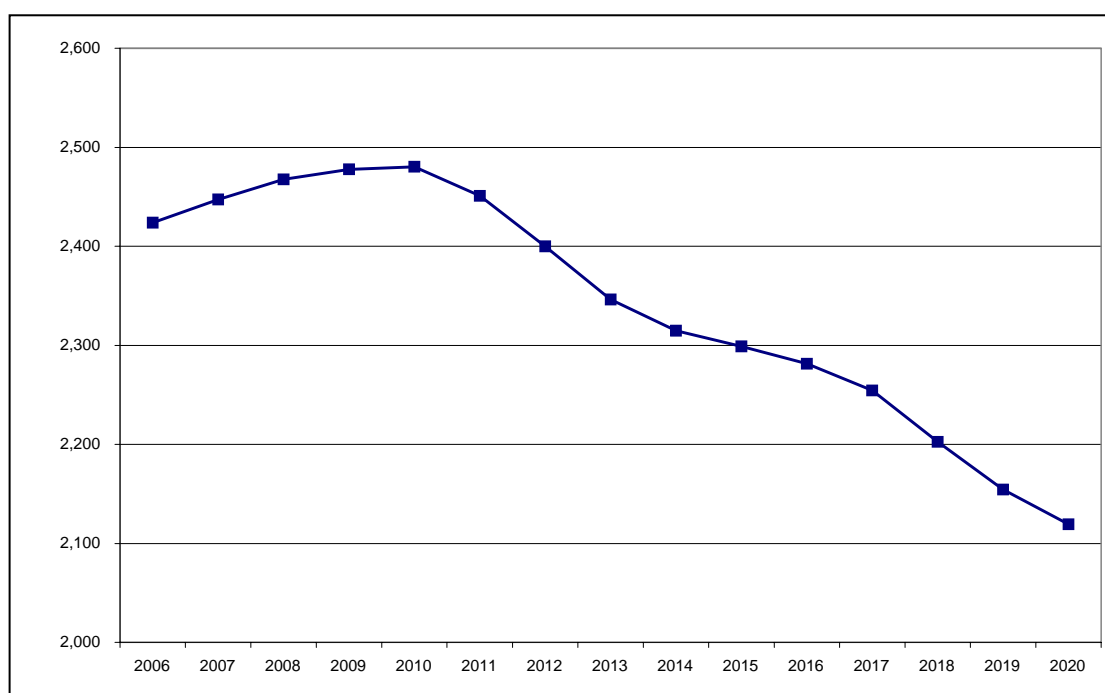
For the future HEPI offer two projections, the first based on changes attributable to population-related factors alone – this is the base projection that will be realised if there are no changes in participation patterns – and a high variant, based on males catching

<sup>72</sup> Higher Education Policy Institute Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008

up half the difference between the current performance relative to females in full time participation, and also half of those with 7 or more GCSEs who currently fail to achieve a Level 3 qualification doing so in future.

The graph below (Chart 23) 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 strong 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 current Governments Higher Education Strategy outlined in its Higher Ambitions report<sup>73</sup>. In passing it is worth mentioning that HEPI do not anticipate the official policies will have a dramatic affect on part-time student numbers as they have been matched by other policies, like the removal of funding for students studying for equivalent and lower qualifications (ELQs) and the imbalance of student support between full time and part time students, “which may make part time study less attractive”. They conclude that there are as yet “no indications so far that policy changes are significantly affecting demand [for part time places]”.

**Chart 23 - 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.

If the numbers in Higher Education are to increase over the lifetime of this forecast, there would need to be an increase in the proportion of young people taking A levels or Higher

<sup>73</sup> Department for Business, Innovation & Skills (BIS), Higher Ambitions: The Future of Universities in the Knowledge Economy, November 2009



exams. Although at present such an increase is not occurring – the proportion of 17-year olds achieving 2 A levels increased rapidly between 1994 and 2002 when the increase levelled out - there are considerable opportunities to increase the higher education population by encouraging the large numbers of pupils who do not obtain a Level 3 qualification despite having obtained better than average GCSEs to continue in education. As HEPI point out in England alone if these had stayed on in education and taken A levels, then that would have increased the number of students by nearly 20%, or nearly 150,000.

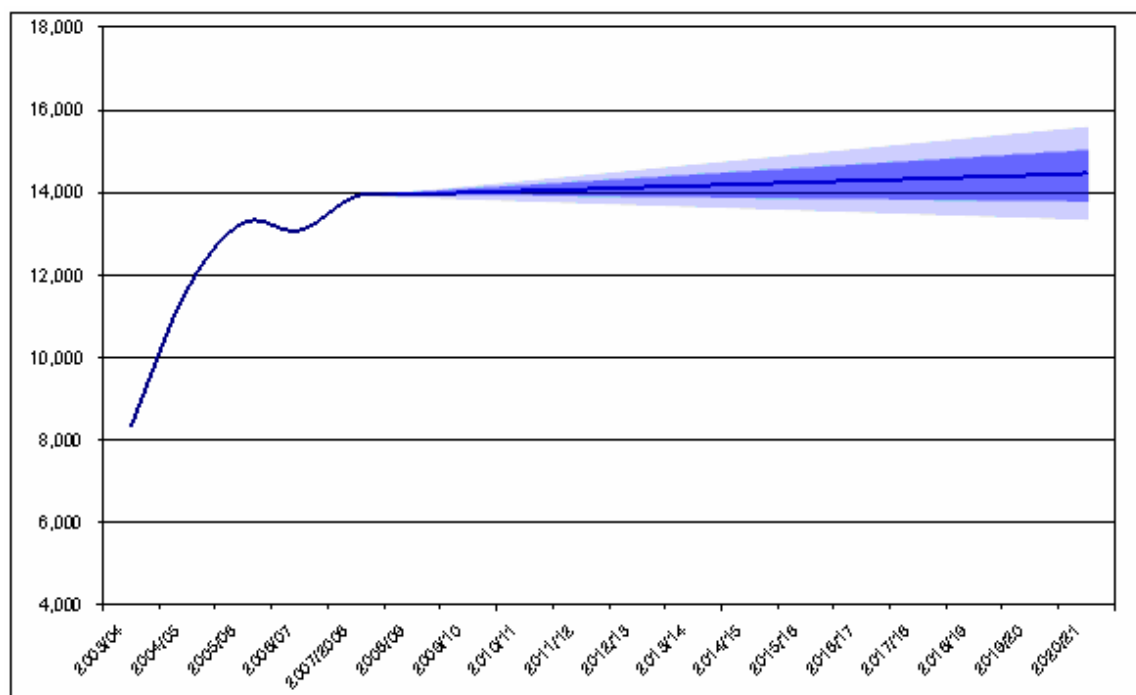
Whilst it is clear that not all these people will stay in full-time education, there are real reasons to believe that many will, especially now they are required to continue in post-16 education or training by law. HEPI believe that “This reform, in view of the large numbers at present leaving education 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.

HEPI’s base projections (based on demographic factors alone) give a decrease in student numbers between 2007/08 and 2020/21 of 2.5%. Under their high variant scenario (where participation rates increase to their projected maximum) the proportion of all students increases between 2007/08 and 2020/21 by 9%.

One factor that had not come into play at the time of HEPI’s report was the fact of the recession. Given that current youth unemployment is approaching 20% there will be strong pressures for young people in the short-term 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.

**Chart 24 - Potential change in UK domiciled first year, first degree higher education students (UK)**



Source: These figures are based on HEPI's forecast change in English higher education starts of between -2.5% and +9% between 2007 and 2020 and applied to UK starts on Built Environment degree courses from HESA.

Although there is likely to 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. Assuming consistent moderate growth of around 1% a year between 2007 and 2020, this would equate to an additional 2,000 higher education starts, or nearly 16,000 UK domiciled individuals across the UK.

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>74</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.

Based on these figures we can estimate that by 2020 around 4,000 graduates will be available and willing to join the construction industry each year.

### 7.2.3 Migration

As commented upon in the Working Futures report<sup>75</sup>, productivity in the construction industry, having improved over many years, has recently stagnated due to the use of large numbers of relatively low skilled migrant workers in some parts of the sector.

Figures from the Labour Force Survey indicate that in the ten years to 2008 over 81,000 migrant workers entered the UK construction industry, with over half of these coming from just five countries: Poland, Lithuania, South Africa, Romania, and India.

It is likely that this inflow will decrease in the future due in part to the recession and to the more stringent points-based immigration policy (at present the only construction related jobs on the highly skilled worker system are civil engineers, and pipe welders) for workers from outside the EU.

It is extremely difficult to foresee the future flows of migrant workers, as there are simply so many influencing factors. According to Labour Force Survey<sup>76</sup> data, inflows of migrant workers into construction reached a peak in 2006 of over 11,000 workers before declining to just under 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 Labour Force Survey from which skills can be estimated. The first of these (which should be treated with caution owing to the low numbers involved) is the type of jobs that migrants have taken up on arriving in the UK, reproduced in the table below.

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<sup>74</sup> Higher Education Statistics Agency, Destinations of Leaver from Higher Education Survey, 2006

<sup>75</sup> Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

<sup>76</sup> Office for National Statistics, Labour Force Survey, Spring 2009

**Table 17 - Construction workers entering UK within past ten years by occupation**

Countries of origin	All occupations	Managers & Senior Officials	Professional occupations	Associate Professional & Technical	Administrative & Secretarial	Skilled Trades Occupations	Plant & Machine Operatives	Elementary Occupations	Other
<b>All top 5</b>	44,007	1,627	1,930	1,237	1,147	28,442	2,936	6,643	45
<b>Rest</b>	40,556	2,351	4,965	1,655	1,972	22,271	2,116	4,780	446
<b>All</b>	84,562	3,978	6,895	2,892	3,119	50,713	5,051	11,423	491

Source: Office for National Statistics, Labour Force Survey

Note: Other includes non-construction occupations such as Personal Service, Sales & Customer Service Occupations

Excluding the administrative and secretarial occupations and non-construction ‘Other’ occupations, around 5% of migrants to the construction industry took up managerial and other senior positions within the industry; a further 13% joined professional and associate professional/technical occupations; and 69% worked in skilled trades and plant and machine operatives. This suggests that only 14% of migrants worked in elementary occupations, meaning that many construction migrants have some level of relevant skills, sufficient perhaps to be able to work unsupervised. There is no indication, however, whether these skills are sufficient to operate successfully and safely.

It is also 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>77</sup>. While being self-employed is no guarantee of skills, it points to a general level of competence to work un-supervised.

A slightly different picture emerges when the highest qualifications of migrant workers are compared to those of UK workers.

**Table 18 - Construction workers entering UK within past ten years by highest qualification level**

Countries of origin	VQ Level 4 +	VQ Level 3	Trade Apprenticeship	VQ Level 2	Below VQ Level 2	Other / no qualifications
<b>All top 5</b>	7%	2%	6%	3%	2%	80%
<b>Rest</b>	18%	3%	15%	5%	3%	57%
<b>UK (All)</b>	30%	17%	12%	12%	11%	18%
<b>UK (Manual)</b>	7%	20%	19%	13%	14%	27%

Source: Office for National Statistics, Labour Force Survey

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

<sup>77</sup> Office for National Statistics, Labour Force Survey, Spring 2009

countries of origin, and ten times more likely to have a level 3 qualification (roughly equating to site-supervisor level).

Taken together, these three sets of data suggest that migrant workers can be divided into roughly four separate groups:

- The first is a small group of highly skilled, highly qualified workers that tend to work in managerial or professional positions, or to some extent skilled occupations.
- A second group, roughly equal in size to the first, consists of unskilled and unqualified workers who work in elementary occupations in which skills and qualifications are less of a requirement.
- The third, and largest group, is made up of people who are sufficiently skilled to work unsupervised – many are self-employed – although there is no indication as to the safety and quality of their work.
- Finally there is a group, possibly as many as a quarter of migrants, who work in skilled occupations, but who lack the skills and qualifications required to work effectively and safely.

This would tend to support the observation in the Working Futures report already quoted that productivity within the UK construction industry has stagnated following the recruitment of large numbers of relatively low skilled migrant workers in some parts of the sector.

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.

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.

Having examined the three main sources of skills supply some very tentative estimates can be made about how many skilled workers may be available to join the industry each year by 2020.

From further education the number of people qualifying each year and that will wish to remain in the industry will be in the region of 28,500.

From higher education the number of people graduating each year and that will wish to make a career in the industry will be in the region of 4,000.

And finally the number of *skilled* migrants entering the UK each year by 2020 will be in the region of 4,500, making an annual total of 37,000 skilled people a year<sup>78</sup>.

### 7.3 Variations to the Core Scenario

The possible variations to this scenario have already been mentioned. As commented upon in the introduction to this section, one of the key determinants for the future

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<sup>78</sup> ConstructionSkills is currently undertaking a significant programme of research to fully understand the issues and coverage of supply-side data across the construction sector. Results of this review will be communicated through the ConstructionSkills Skills Provision Committee (SPC).

direction of skills supply is the strength of the recovery from the current recession. This section assumes a long recovery with modest annual growth. It assumes a downward trend in the level of inward migration, and a steady increase in those able and willing to attend Higher Education.

The two obvious variations to this scenario occur with stronger or weaker growth to that forecast (perhaps even a swift return into recession). 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 anticipates further education training returning to its pre-recession levels by 2020 this depends on confidence in the future of the industry returning – which in the medium-term will depend upon the next Government's approach to tackling the financial deficit currently hanging over the economy, whether by cutting back on spending to avoid tax rises, or raising taxes to support spending commitments.

These factors will impact upon migration. 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) if the predicted changes in social and educational achievement rates do not come about.

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 suppressed demand from employers following the recession.

As well as advances in technology and working practices, the main drivers for skills change within construction are expected to be tougher market forces, increased regulation, more demanding client attitudes and expanded health & safety legislation and regulations

It is estimated that training will reach a low point in the region of 35,000 VQ starts around 2015, before returning to its pre-recession levels of around 42,000 VQ starts by 2020.

Having achieved a qualification, some 95% of successful completers stay in the construction industry, mostly in the trade in which they studied. So, using these figures, it is estimated that the supply of skilled workers to the construction industry through the Further Education route would be approximately 28,500 per annum by 2020.

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.

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.

In conclusion it is expected that around 37,000 skilled people will be available to join the industry each year between 2015 and 2020.

## **8. Conclusions and Key Messages**

### **8.1 Conclusions**

The construction industry has not experienced as much pressure from external market forces since the early 1980s and the spotlight is very much focussed on how it can adapt to the changes without undermining potential for recovery and future growth. UK construction output experienced sustained growth for 14 years to 2008, and despite challenging circumstances in respect of skills shortages it consistently managed to deliver ambitious and high profile building projects at the heart of nation's future. However, changes first set in motion by a slowdown in the global economy and accelerated by recession now present a very serious threat to the short and medium-term stability of the industry.

It is in this climate of uncertainty that the industry is most at risk, not only in terms of its ability to deliver existing projects, but also in terms of safeguarding jobs and ensuring opportunities exist for the next generation of workers whether apprentices, graduates or migrant workers.

There is no doubt that the slow down in construction has lessened the industry's attractiveness for both UK and non-UK workers. A less buoyant construction market will impact on potential earnings and generally reduce the flow of entrants into the industry, from other industries and immigration, but also from education and training.

Widespread redundancies have resulted in increased outflows to other industries, and as more of these workers retrain for those other industries it will become increasingly difficult to restore skills when growth returns. History shows that some of the most experienced workers leaving the industry will not come back, which may cause major problems for the country to deliver future requirements in respect of much-needed affordable housing, schools, hospitals, transportation infrastructure and energy generation schemes; all of which must be completed with minimum impact the environment.

Construction activity is an essential prerequisite for growth and improvements in social and economic cohesion and as such, it occupies a position of vital strategic importance. It is also clear that there are strong inter-dependencies between the performance of the macro-economy and construction activity, and that a steady recovery from recession will be critical in terms of supporting and promoting the change agenda.

The twin forces of globalisation and sustainability have converged to present the construction industry with a considerable skills challenge.

The UK faces a number of crucial challenges in relation to the environment, energy security, carbon reduction, resource efficiency and waste reduction. The construction sector has a critical role to play in delivering these commitments, but also in providing sustainable employment and growth.

The construction sector of the future will, despite much forecasted change, share many features with the industry of today. Many site activities, including site preparation will still need to take place, materials (albeit in smaller volumes) will still be stored around sites and construction will require working at height. Staple materials such as wood, steel, glass and plastics will still be in use alongside new composites, and skilled labour will be required to assemble these materials (whether on-site or in a factory environment). However, the methods and technology employed during this construction process will be drastically different.

The specialist skills demanded to meet the high specifications and low energy requirements of future buildings and infrastructure require new levels of expertise in

terms of product knowledge, for both professional services and craft trades, and working to more exacting tolerances in terms of timing and quality of construction.

However, new ways of working will not all require totally new skills, but will often be an addition to existing workers skill-sets. Certainly to deliver a more effective, efficient and productive built environment sector, designing and constructing to minimise the use of natural resources, will mean a significant shift in the skills of large parts of the existing workforce.

New skills of production control, assembly and quality control will be required to handle a more mechanised approach to construction. Prefabricated components and assemblies, designed for ease of installation as well as improved performance and cost, will enable greater output potentially from a smaller workforce; at least in the long-term. Off-site methods has further implications for craft trades mainly because their size and scope encompass such diverse occupations and, additionally, their training and qualification are built around fervently demarcated craft traditions with a largely bespoke approach to construction.

If the construction sector, as proposed, adopts more sustainable working practices backed by new and emerging technologies then this will inevitably result in the erosion and revision of some traditional trade activities with the introduction of a more generalist or multi-skilled approach to the construction process.

In this respect, the recession and subsequent recovery offers a real opportunity to redefine a number of existing roles within the industry, as well as presenting additional opportunities in new areas.

As the use and benefits of off-site manufacture has become more widespread, developers are showing a growing interest in combining technologies to get the best possible solution. This has precipitated an emerging trend of mixing technologies, known as composite or hybrid construction. This fits with the need to make industry employees more multi-skilled, since working as part of an integrated team requires an understanding of areas outside traditional demarcations. The trades will need multiple skills centred on a core of reading drawings, understanding the principles of construction, health and safety and basic organisation and supervision. To this core of building skills they will add site preparation, erection skills, fitting (as opposed to fabricating) and how to better integrate with other trades. However, in addition to good practical skills and the ability to work accurately, carefully and methodically, there is a need for increasingly better levels of literacy and numeracy on site. The proliferation of information technology in construction products and processes suggests that communication skills will be essential.

Construction and site 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.

To achieve faster construction times, planning and risk analysis will supplement traditional project management skills. Traditional cost and accounting skills will need enhancing with value engineering. New estimating skills are needed that encompass risk management evaluation and whole life costs. Logistics and planning will become more crucial as time is compressed and individual operations become more critical.

Similarly, for managers, increasingly complex supply chains and site processes will require improved organisational, communication and IT skills. Dealing with the issues of collaborative partnership and multi-disciplinary approaches throughout the supply chain will require greater use of interpersonal and business skills associated with team building and management. IT will become even more pervasive and site managers will have to



further incorporate IT-based management tools into the day-to-day running of projects and sites.

There also remains a particular emphasis on health and safety. Despite good progress over the last decade the continued high level of fatalities and injuries in construction will remain a focus and provide a significant driver in changing working practices. In the words of the recently published Government of the Inquiry states, "One death is too many"<sup>[1]</sup>.

With these factors under consideration, the industry must not only broaden its horizon with regards current skills needs, but must also lengthen its perspective with regards future needs and possibilities. The reality is that the industry has consistently performed well in recent years, probably better than expected, outperforming its perceived limitations and doing so in spite of weaknesses in skills supply. However, it is extremely doubtful if this approach can sustain further significant growth.

The current project-based structure of the industry does not provide an easy business case for training and the extensive use of the self-employed and labour-only sub-contracting presents a significant barrier in any attempt to promote a training culture and qualify the workforce, so there is a need to develop new methods of provision and funding which reflect the reality of the sector.

The case for change is compelling not least because wider policy drivers demand improved performance. Driving this agenda forward will require a strength and commitment from a multitude of stakeholders and employers at every level. In order to maximise opportunities the construction industry will need to develop not only its technical capability but also its ability to interface with other sectors and work in tandem with multiple agencies. This will require a significant shift in the skills and competence of the existing industry as part of a major process of innovation.

In order to establish innovation and integration, the underlying skills and qualification structure needs to be examined - from entry through to high level - to ensure that the skills are backed by qualifications and, where necessary, accreditation and/or certification.

As markets develop, particularly in the adoption of new products and processes, companies - and especially small and micro businesses - will need to gain the leadership and entrepreneurial confidence and competence to discuss green issues with clients and suppliers. It is critical that businesses, across the construction and built environment supply chain, are supported, as appropriate, in relation to people development - this support may be in the form of advice, training and the time and financial resources required. ConstructionSkills together with the built environment Sector Skills Councils is well placed to support this.

## **8.2 Key Messages**

ConstructionSkills has identified four key themes that must be addressed if industry is to successfully operate in the current environment and exploit new and emerging opportunities:

- Preserving the skills base through the downturn and maintaining readiness for an upturn.
- Keeping the pipeline of talent flowing through targeted recruitment, supported by skills development and career progression.
- Investing in the future by improving management and leadership skills and supporting the evolving areas of sustainability and innovation so that the industry is able to direct resources more effectively and fully realise new opportunities.

- Encouraging clients to invest in skills, particularly through public sector procurement practices and engagement in new training models.

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## 10. Appendix

### 10.1 ConstructionSkills' footprint, 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: UK Standard Industrial Classification of Economic Activities, 2003, Office for National Statistics.

Note: Asset Skills (the SSC for Property and Facilities Management) has a peripheral interest in SIC 74.2 Architectural and engineering activities and related technical consultancy.

ConstructionSkills shares an interest in SIC 45.31 Installation of electrical wiring and fittings and SIC 45.33 Plumbing with SummitSkills (the SSC for the Mechanical and Electrotechnical Services).

## 10.2 ConstructionSkills' footprint, 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
71.12/1	Engineering design activities for industrial process and production
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)

**SIC 74            Other Professional, Scientific and Technical Activities**

**74.9                Other professional, scientific and technical activities n.e.c.**

74.90/1	Environmental consulting activities
74.90/2	Quantity surveying activities

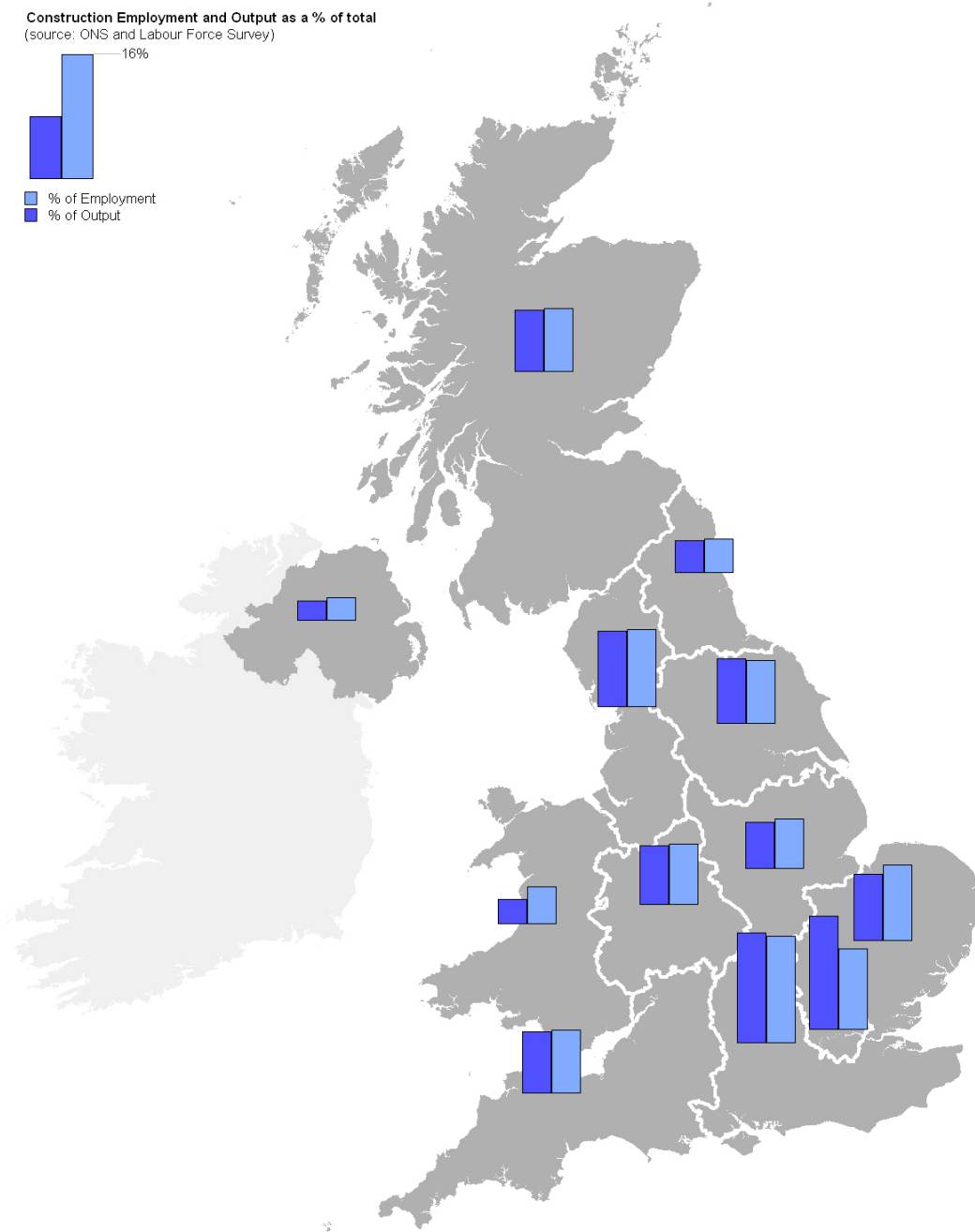
Source: UK Standard Industrial Classification of Economic Activities, 2007 (SIC 2007), Office for National Statistics.

Note: Asset Skills (the SSC for Property and Facilities Management) has a peripheral interest in SIC 71.1 Architectural and engineering activities and related technical consultancy.

ConstructionSkills shares an interest in SIC 43.2 Electrical, plumbing and other construction installation activities with SummitSkills (the SSC for the Mechanical and Electrotechnical Services).

## 10.3 Construction workforce demographics, United Kingdom: 2009

Construction Employment and Output as a % of total  
(source: ONS and Labour Force Survey)



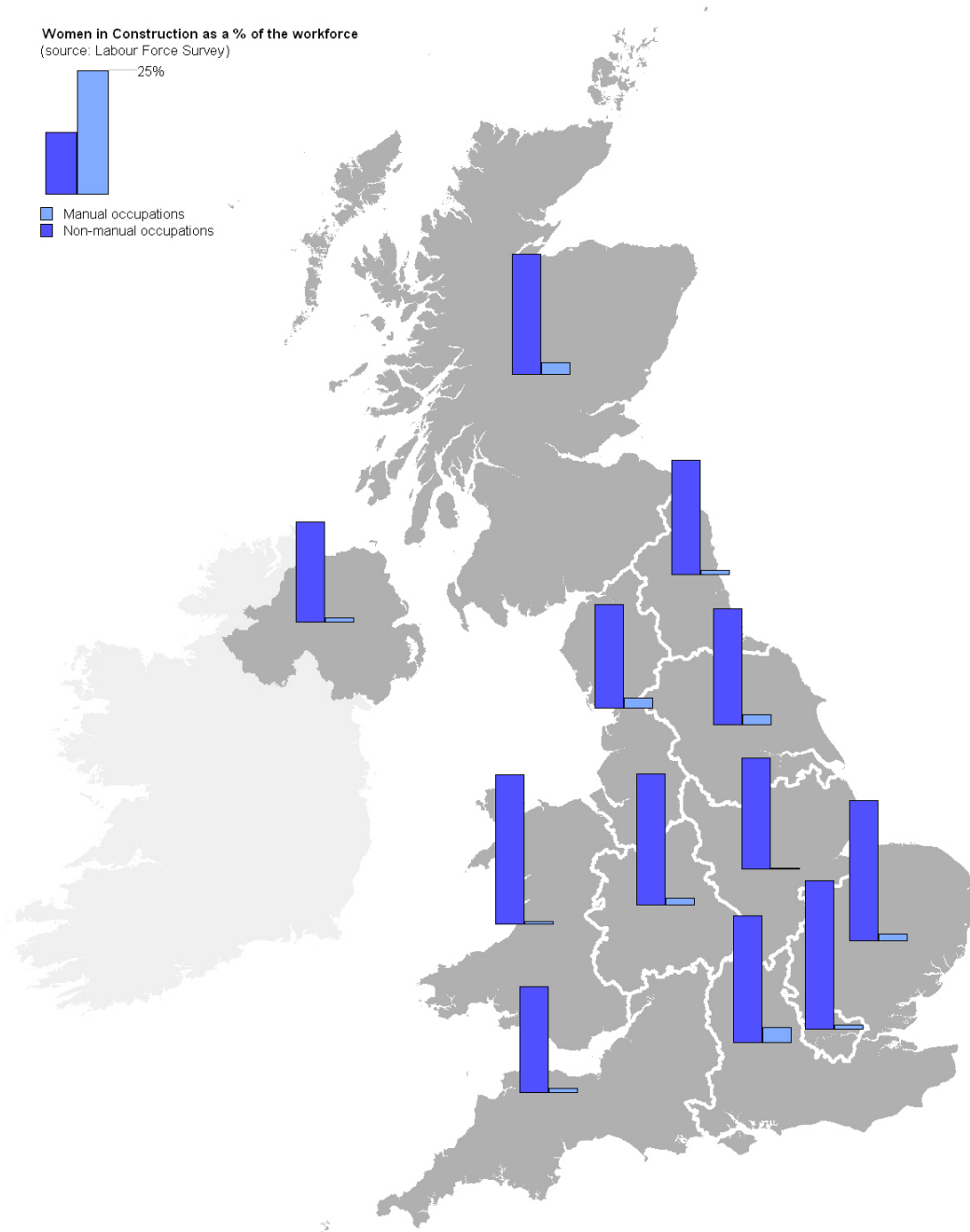
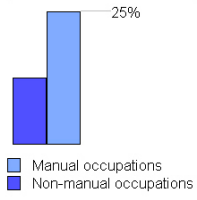
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**Women in Construction as a % of the workforce**  
 (source: Labour Force Survey)

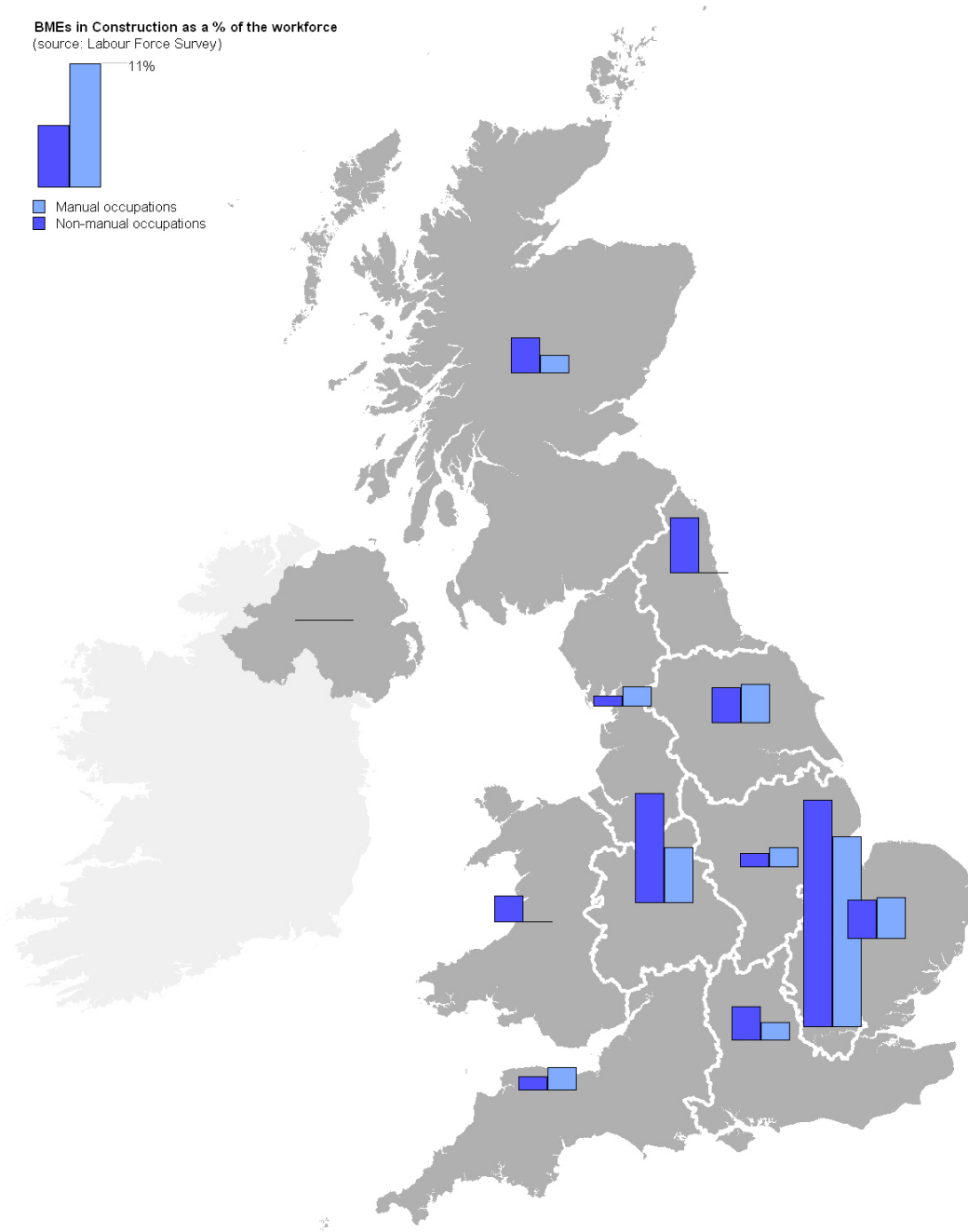
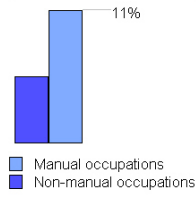


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**BMEs in Construction as a % of the workforce**  
 (source: Labour Force Survey)



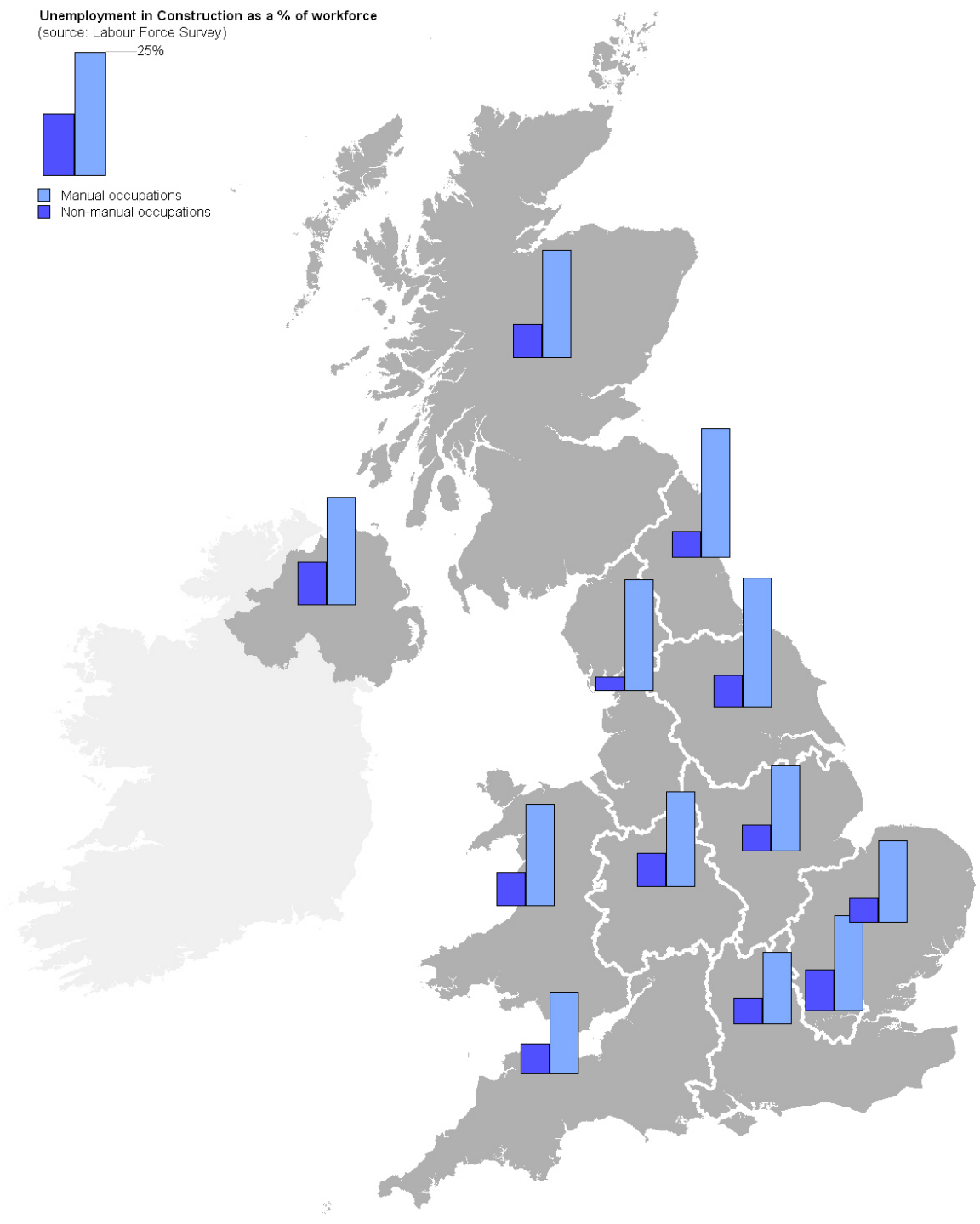
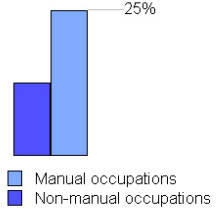
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**Unemployment in Construction as a % of workforce**

(source: Labour Force Survey)

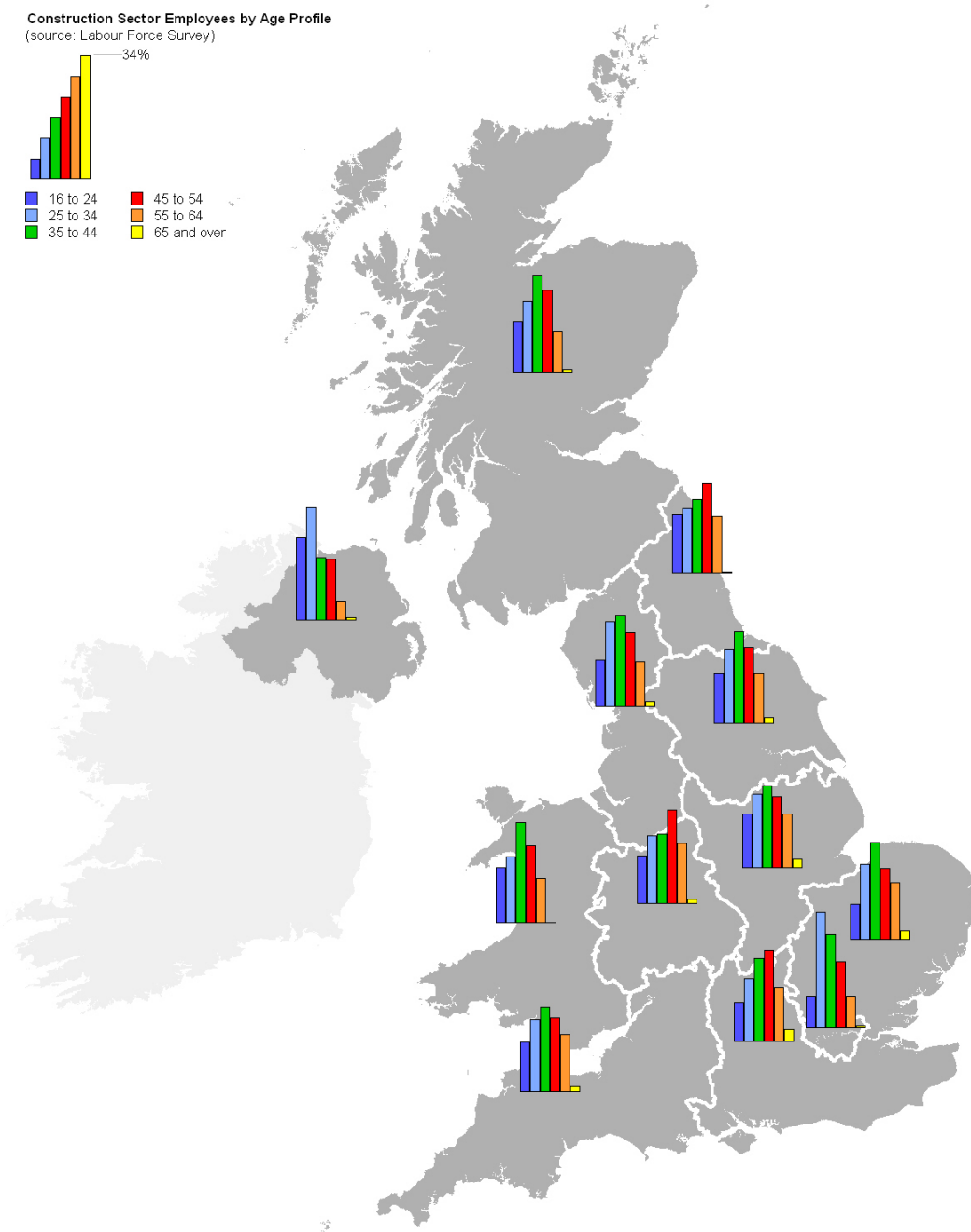
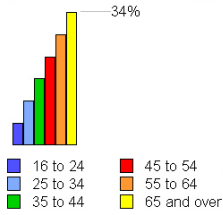


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**Construction Sector Employees by Age Profile**  
 (source: Labour Force Survey)



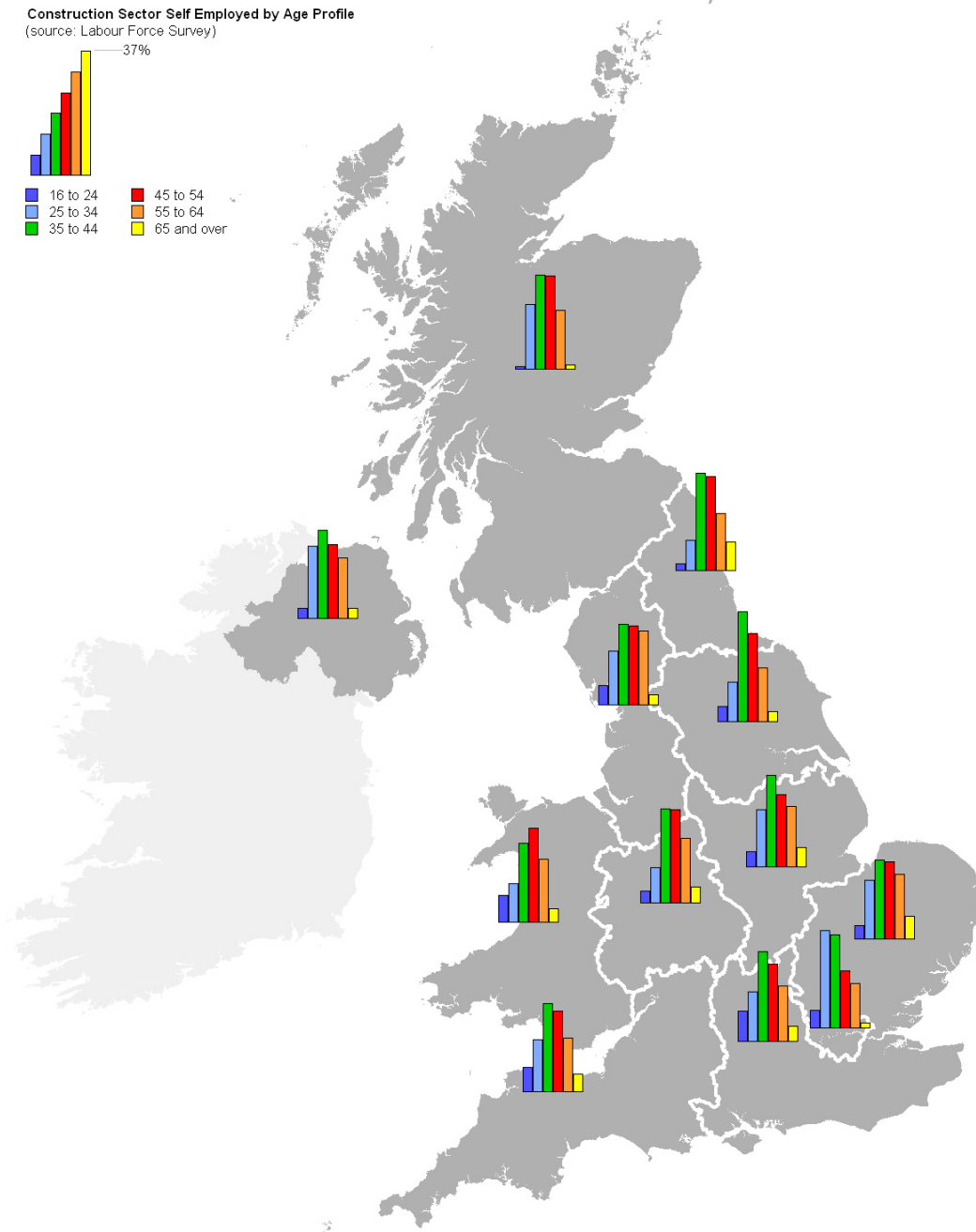
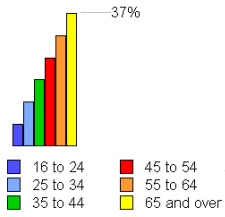
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**Construction Sector Self Employed by Age Profile**

(source: Labour Force Survey)



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