



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

## **ConstructionSkills England Report**

**ConstructionSkills Research**



## Contents

<b>1. Introduction</b> .....	<b>5</b>
1.1 Current and Future Skills Priorities .....	5
<b>2. What are the factors driving the demand for skills?</b> .....	<b>6</b>
<b>2.1 What Drives Skills Demand?</b> .....	<b>6</b>
2.1.1 Contribution of the Sector .....	6
2.1.2 Structure of the Sector .....	6
2.1.3 Employment Characteristics .....	8
2.1.4 Recruitment and Retention .....	8
<b>2.2 Current Performance - What is Driving Change?</b> .....	<b>9</b>
2.2.1 The Economy .....	9
2.2.2 Current Activity .....	12
2.2.3 Key Challenges Facing Construction Firms .....	14
2.2.4 Migration.....	15
2.2.5 Technology.....	18
2.2.6 Demographics .....	19
2.2.7 Legislation .....	21
2.2.8 Consumer Demand .....	22
<b>3. What Have Been the Recent Trends in the Supply of Skills?</b> .....	<b>24</b>
<b>3.1 What Has Been the Level and Type of Skills in the Labour Market?</b> .....	<b>24</b>
3.1.1 The Contribution of Training and Education .....	24
3.1.2 Skill Levels in the Construction Industry .....	24
3.1.3 Migration.....	25
<b>3.2 What Has Been the Level and Type of Skill Development within the Workforce?</b> .....	<b>27</b>
3.2.1 Workforce Training and Development.....	27
3.2.2 Barriers to Providing More Training .....	30
3.2.3 The Impact of the Recession on Training Activity.....	30
<b>4. Current Mismatches between Demand and Supply for Skills</b> .....	<b>32</b>
<b>4.1 Skill Shortages</b> .....	<b>32</b>
4.1.1 Hard-to-Fill Vacancies.....	32
4.1.2 Steps Taken to Overcome Recruitment Difficulties .....	35
<b>4.2 Skill Gaps</b> .....	<b>35</b>
4.2.1 The Causes of Skill Gaps.....	36
4.2.2 The Impact of Skill Gaps .....	37
<b>4.3 The Migration Advisory Committee: Skill Shortage Occupations</b> .....	<b>37</b>
<b>4.4 Unemployment</b> .....	<b>38</b>
<b>5. What new and/or changing factors will influence skill/employment demand in the future?</b> .....	<b>40</b>

5.1 PESTLE Analysis .....	40
5.2 Macroeconomic Indicators .....	41
<b>6. What is the likely demand for employment/skills in the future? .....</b>	<b>45</b>
6.1 Introduction.....	45
6.2 Core Scenario .....	45
6.3 What is the likely demand for employment in the future? .....	47
6.4 What is the likely demand for skills in the future? .....	50
<b>7. The future supply of skills and employment in the construction industry .....</b>	<b>55</b>
<b>7.1 Introduction.....</b>	<b>55</b>
7.1.1 The Economy .....	55
7.1.2 The Industry .....	55
7.1.3 Political Initiatives.....	56
<b>7.2 Projected Potential Volumes of People with Skills to Join the Industry .....</b>	<b>57</b>
7.2.1 Craft Training.....	57
7.2.2 Higher Education.....	59
7.2.3 Migration.....	63
<b>7.3 Variations to the Core Scenario.....</b>	<b>65</b>
<b>8. Conclusions and Key Messages.....</b>	<b>67</b>
8.1 Conclusions.....	67
<b>9. Bibliography.....</b>	<b>70</b>
<b>10. Appendix .....</b>	<b>72</b>
10.1 ConstructionSkills' footprint, SIC 2003.....	72
10.2 ConstructionSkills' footprint, SIC 2007 .....	73
10.3 Map of Construction Output, Enterprises and Employment across England.....	75
10.4 Map of Construction training in Higher and Further education across England .....	76

## Index of Tables

Table 1 – Total Construction Turnover and Gross Value Added as a percentage of England Total: 2007	6
Table 2 - Number of VAT and/or PAYE Based Enterprises in Construction in 2009 and All in Construction Employment - Four quarter average, Summer 2008 to Spring 2009 Inclusive (England)	7
Table 3 – Construction Output (£ million in 2005 Prices) by Main Sub-sector, England: 2008 & 2009	12
Table 4 - First Degree Built Environment Student Enrolments, England	17
UK Domiciled and Non-United Kingdom Domiciled: 2007/08 and 2006/07	17
Table 5 - UK Domiciled and Non-United Kingdom Domiciled First Degree Built Environment Student Enrolments, England: 2007/08	18
Table 6 - Construction Industry Workforce Qualifications v All Industries, England: 2009	24
Table 7 – English Construction Industry Workforce Qualifications by region: 2009	24
Table 8: Overseas Construction workers (manual and professional) entering England within past ten years by region of residence	26
Table 9 - Distribution of off-the-job and on-the-job training by main occupational groups (construction contracting sector)	28
Table 10 - Distribution of off-the-job and on-the-job training by main occupational groups (professional services)	29
Table 11 - Causes of hard-to-fill vacancies for skilled staff (multiple responses allowed)	34
Table 12: Main Causes of Skills Gaps by Region	36
Table 13 - The unemployment rate in the Construction Industry and All Industries, (England & UK: 2009).	38
Table 14 – Gross Value Added by Region (£billion 2005 prices)	41
Table 15 - Construction Industry Sector 2009-2014: England	46
Table 16: Proportions of Training and employment by region 2008/09	58
Table 17: Region of Residence for Craft Construction Workers Entering England within past 10 Years	63
Table 18 - Construction workers entering UK within past ten years by highest qualification level	64

## Index of Charts

Chart 1 - Construction Employment by Occupation, England: 2010 (forecast)	8
Chart 2 - Construction Output in £m (2005 prices), Regions: 1990-2014	9
Chart 3a – Unemployment rates in Manual construction trades 2008-2009	10
Chart 3b – Unemployment rates in Non-manual construction trades 2008-2009	11
Chart 4 - Construction Output by English Region in £m (2005 constant prices), England: 2007 & 2009 (estimate)	13
Chart 5 - Key Challenges Facing Construction Firms, England 2008 & 2009	14
Chart 6 - Key Challenges Facing Construction Firms by Region 2009	15
Chart 7 - Age Profile of Construction Industry, England: 2009	20
Chart 8 - Qualifications of the Construction Workforce, England: 2007 & 2009	25
Chart 9 – Proportions of establishments offering training provision (on and/or off-the-job) by region	27
Chart 10 - The impact of the recession on training	30
Chart 11 – Incidence of hard-to-fill vacancies by region	33
Chart 12: Employers reporting any incidence if skills gaps by region	36
Chart 13 - The impact of skills gaps amongst firms that have reported them - England	37
Chart 14 - Proportion of Workers in English Construction Industry (excluding professional practices) age 55+ by Region – 2009	56
Chart 15 - UK Domiciled applicants to Built Environment degree courses in England 2000 – 2008	60
Chart 16 - Number of 18-20 year olds in England from 2006 to 2020	61
Chart 17 - Potential change in UK domiciled first year, first degree higher education students (England – Built Environment Courses)	62

## **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 is one of a set of four focussing on each nation of the UK. It describes the current and future skills priorities for the construction sector in England, demonstrating the contribution that construction makes to the national and regional economies and highlighting priorities and potential barriers to growth. Like the other national reports, 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.

### **1.1 Current and Future Skills Priorities**

The short-term challenge facing the construction sector in England, as in the rest of the UK, is to respond to the recession and the ongoing pressure on businesses 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:

- 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

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

### 2.1 What Drives Skills Demand?

#### 2.1.1 Contribution of the Sector

Construction is a pre-requisite to all other economic activity and forms a significant part of the English economy in terms of employment and wealth generation. In 2009 it generated an output of £82.6billion (at constant 2005 prices). This is delivered by just over 2 million<sup>1</sup> people working in the industry in England – just over 8% of the workforce.

The construction sector in the UK, including professional services creates around £84billion<sup>2</sup> of value added of which around 85% is generated in England (a proportion unchanged in the last decade). The size of the industry by each English region is outlined in Table 1 below.

**Table 1 – Total Construction Turnover and Gross Value Added as a percentage of England Total: 2007**

Government Office Region	Total Construction Turnover	Approximate GVA
North East	4%	4%
North West	12%	13%
Yorkshire and The Humber	9%	9%
East Midlands	8%	9%
West Midlands	11%	11%
North	<b>45%</b>	<b>46%</b>
East of England	12%	12%
London	16%	15%
South East	18%	19%
South West	8%	7%
South	<b>55%</b>	<b>54%</b>

Source: Office for National Statistics

As a significant contributor to the economy the construction industry in England is, and has been over the last ten years, a leading employer. 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. The construction industry is generally considered a barometer of wider economic health, one which currently presents 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

Within the English construction sector there is a moderate 'Southward-pull' on workers. As will be discussed later in this report the majority of vocational training takes place in the North of the country, whilst as the table below shows the majority of firms and employment are in the South.

<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

**Table 2 - Number of VAT and/or PAYE Based Enterprises in Construction in 2009 and All in Construction Employment - Four quarter average, Summer 2008 to Spring 2009 Inclusive (England)**

	Enterprises		Employment	
	Number	Percent	Number	Percent
<b>North East</b>	9,255	3.5%	115,446	5.8%
<b>North West</b>	31,555	11.9%	242,801	12.1%
<b>Yorkshire and The Humber</b>	21,585	8.2%	195,076	9.7%
<b>East Midlands</b>	21,210	8.0%	148,444	7.4%
<b>West Midlands</b>	24,915	9.4%	193,567	9.7%
<b><i>North of England</i></b>	<b>108,520</b>	<b>41.1%</b>	<b>895,333</b>	<b>44.7%</b>
<b>East</b>	35,215	13.3%	239,912	12.0%
<b>London</b>	39,945	15.1%	295,372	14.7%
<b>South East</b>	51,240	19.4%	359,691	18.0%
<b>South West</b>	29,380	11.1%	213,488	10.7%
<b><i>South of England</i></b>	<b>155,780</b>	<b>58.9%</b>	<b>1,108,462</b>	<b>55.3%</b>
<b>ENGLAND</b>	<b>264,300</b>	<b>100.0%</b>	<b>2,003,795</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.

The vast majority of companies in the sector are small, with over 97% employing fewer than 25 people. Only 1% of sector businesses employ more than 60 people, although these firms carry out a disproportionate share of the work by value.

Just over one-third (685,000) of the construction workforce in England is self-employed<sup>3</sup>. Self-employment is particularly high in the main craft trades where it averages around 60% of the workforce, and is also highly concentrated in some regions. Regional analysis of the main trades shows a particularly high 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.

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).

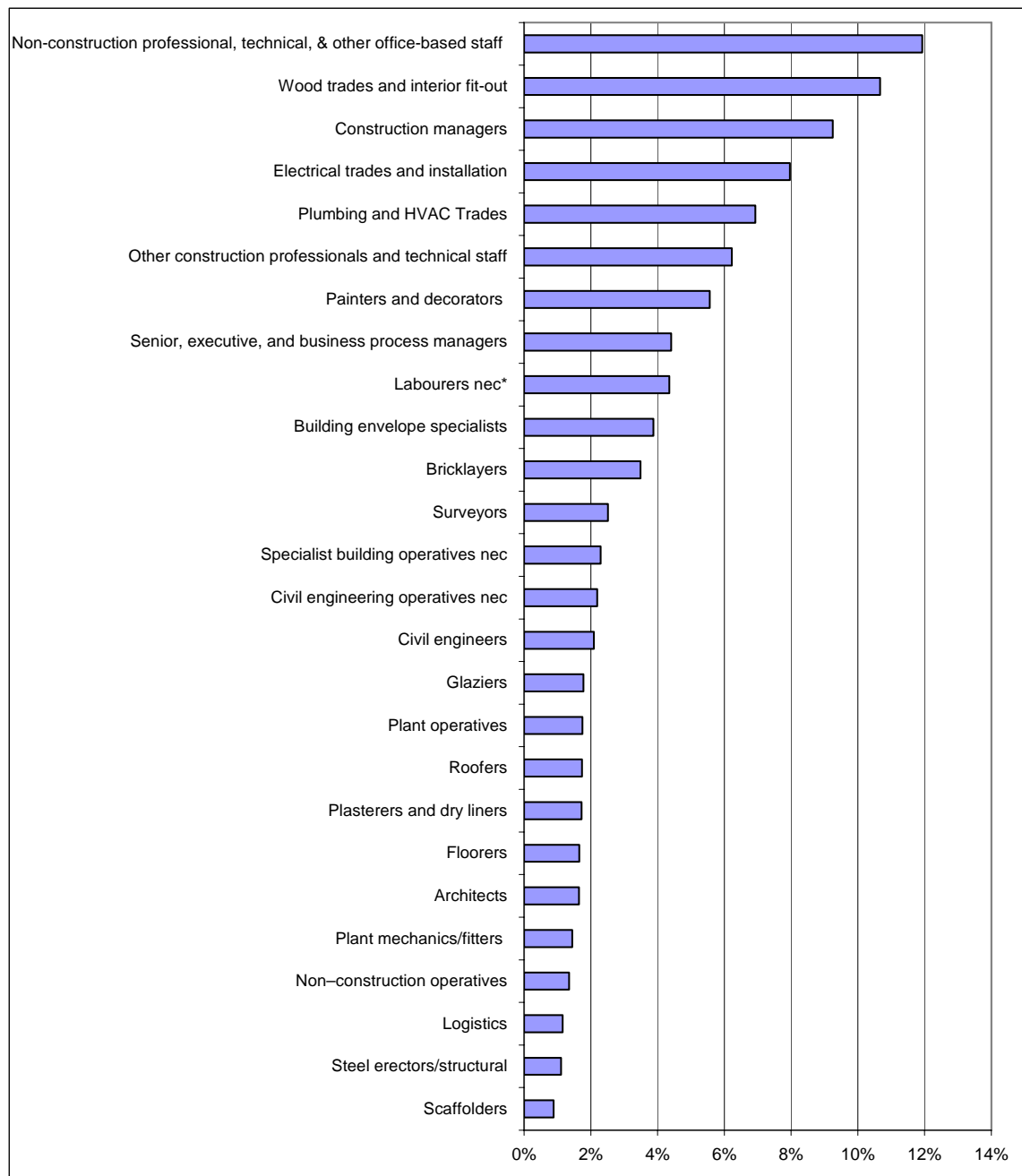
The flexibility of such a large pool of self-employed labour together with fixed term or fixed output contracts offers significant financial advantages to prime contractors in respect of labour costs. The disadvantage however, is the lack of investment in skills and qualifications by those who are self-employed 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 shortfall in the 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.

<sup>3</sup> Office for National Statistics, Labour Force Survey, Spring 2009  
ConstructionSkills

## 2.1.3 Employment Characteristics

**Chart 1 - Construction Employment by Occupation, England: 2010 (forecast)**



Source: Construction Skills Network Model; Experian

In terms of occupational structure, manual workers in England marginally outnumber non-manual workers (including managers, and all those working in the professional services sector), representing 52% of the total workforce compared to 48%<sup>4</sup>. Patterns of full-time working remain dominant in the industry.

## 2.1.4 Recruitment and Retention

The traditional image of the construction industry has been one of relatively 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.

<sup>4</sup> ONS Labour Force Survey: Four quarter average, Spring 2009 and Winter 2009



The construction industry is notoriously cyclical and very sensitive to changes in the macro-economy. It has at times of recession lost significant numbers of workers, many of whom do not return. Indeed, there is now a very real risk that the outflow of skilled workers through redundancy and the natural flow to other sectors will adversely impact on the recovery when it eventually comes.

## 2.2 Current Performance - What is Driving Change?

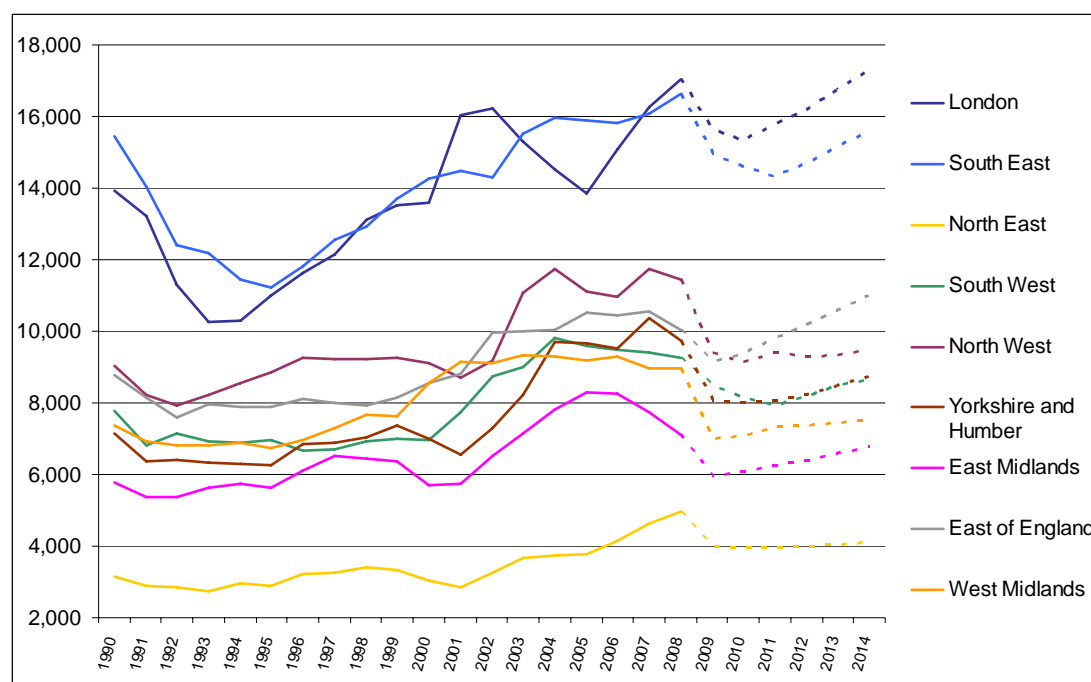
### 2.2.1 The Economy

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.

The UK economy has proved one of the most exposed to the debt crisis that triggered the recent recession in many countries around the world, 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.

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>5</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.

**Chart 2 - Construction Output in £m (2005 prices), Regions: 1990-2014**



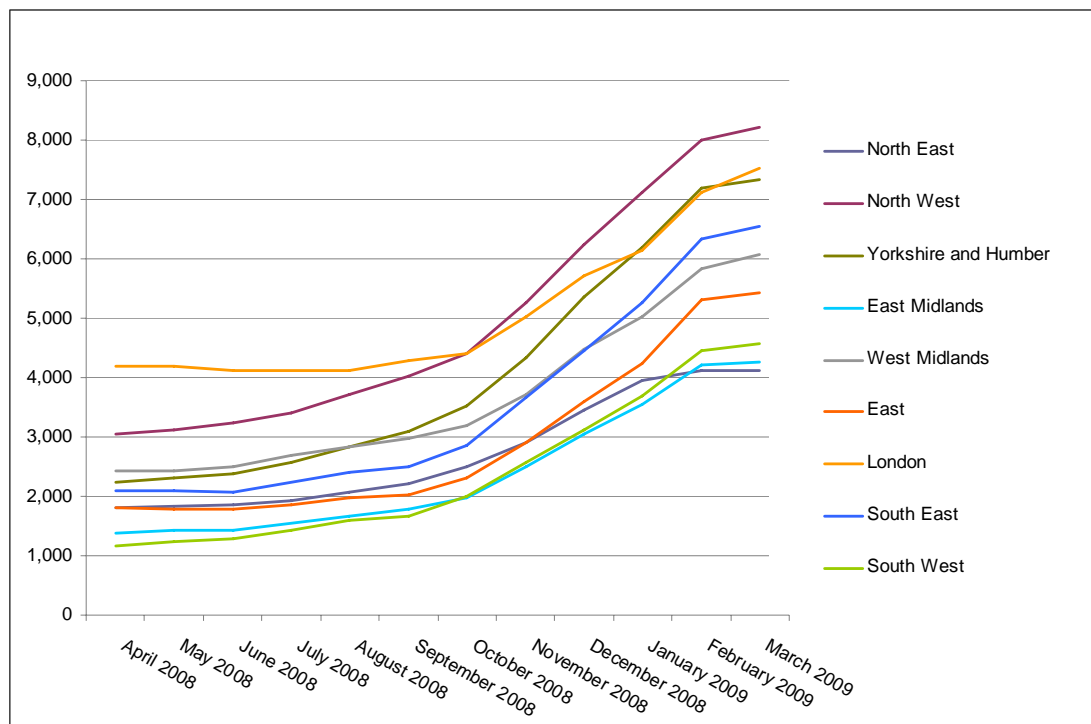
Source: Estimated from ONS data by Experian

<sup>5</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

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 1.5% per year between 2010 and 2014<sup>6</sup>. The reduction in demand has led to higher level of unemployment across the sector, with job losses between 2008 and 2010 expected to reach around 345,000 amongst contractors and professionals. Meanwhile, 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>7</sup> clearly shows the impact of the recession on the construction workforce. Whilst the construction sector in England has not suffered as much in numerical terms as some sectors, at 7% net outflow it has experienced high levels of unemployment in 2009.

**Chart 3a – Unemployment rates in Manual construction trades 2008-2009**



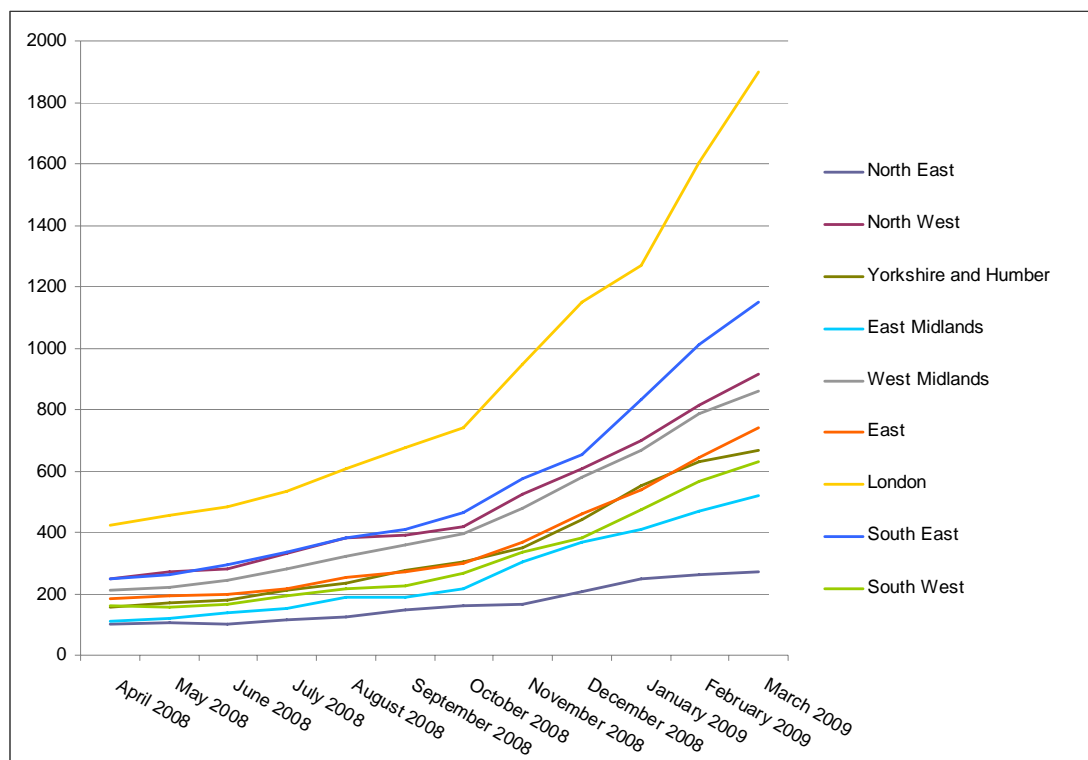
Source: Office for National Statistics, Labour Force Survey

The numbers of unemployed construction sector workers can be seen to rise significantly during the later half of 2008 and into 2009. The most significant levels of unemployment in the Northern regions can be seen among the manual trades. Whereas the most significant levels of unemployment among the non-manual professions can be seen in London and the South, primarily because the majority of professional practices are based in the South East.

<sup>6</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

<sup>7</sup> Office for National Statistics, Labour Force Survey, Spring 2009

**Chart 3b – Unemployment rates in Non-manual construction trades 2008-2009**



Source: Office for National Statistics, Labour Force Survey

ConstructionSkills research indicates 14% of employers have laid staff off as a result of the recession, with an average reduction of 9% in their workforce compared with 6 months earlier<sup>8</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 (28% of companies that had laid staff off because of the recession), followed by carpenters and joiners (21%), administrative and secretarial staff (14%) and bricklayers (12%). Seven percent of those laying off staff have reduced their managerial headcount.

There is some evidence at a national level that the rate of unemployment is generally slowing and in some instances declining. Employment in the sector in England more generally is not expected to begin to grow again until 2011, reaching 1.7m by 2014, but this is still well below the 2.2m pre-recession peak reached in 2007<sup>9</sup>. 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 (34%) and a further half are fairly confident (48%)<sup>10</sup>.

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. After the last recession 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.

Certainly with evidence of recovery in the global economy attention is moving from the depth of the recession towards its exit path. The sector will emerge from the recession

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

<sup>9</sup> ConstructionSkills and Experian, Construction Skills Network, 2009

<sup>10</sup> ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009

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 by the banks. A possible change of Government is also a real possibility in 2010 and this will drive policy change; already there is an emphasis on greater devolved power in the regions and nations with much more decision making occurring at local level.

### 2.2.2 Current Activity

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.

**Table 3 – Construction Output (£ million in 2005 Prices) by Main Sub-sector, England: 2008 & 2009**

Sub- sector	2008		2009		% change 2008-2009
<b>Public housing</b>	£2,946	3%	£2,565	3%	-12.9%
<b>Private housing</b>	£12,693	13%	£9,442	11%	-25.6%
<b>Infrastructure</b>	£5,555	6%	£5,982	7%	7.7%
<b>Public non-housing</b>	£9,153	10%	£10,649	13%	16.3%
<b>Industrial</b>	£3,379	4%	£2,106	3%	-37.7%
<b>Commercial</b>	£19,996	21%	£15,244	18%	-23.8%
<b>Total New work</b>	<b>£53,723</b>	<b>56%</b>	<b>£45,986</b>	<b>56%</b>	<b>-14.4%</b>
<b>Housing Repair &amp; Maintenance</b>	£20,651	22%	£18,774	23%	-9.1%
<b>Non-housing Repair &amp; Maintenance</b>	£20,810	22%	£17,948	22%	-13.8%
<b>Total R&amp;M</b>	<b>£41,462</b>	<b>44%</b>	<b>£36,722</b>	<b>44%</b>	<b>-11.4%</b>
<b>Total work</b>	<b>£95,184</b>	<b>100%</b>	<b>£82,707</b>	<b>100%</b>	<b>-13.1%</b>

Source: Office for National Statistics; Construction Skills Network; Experian

Note: 2009 is an estimate

Since the onset of the recession new commercial work has suffered the largest real terms fall in output due to the fall in consumer spending. Housing has also suffered badly, with the house-building sector being the first to feel the full force of the downturn. Output in private housing has fallen by a quarter in one year, and 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.

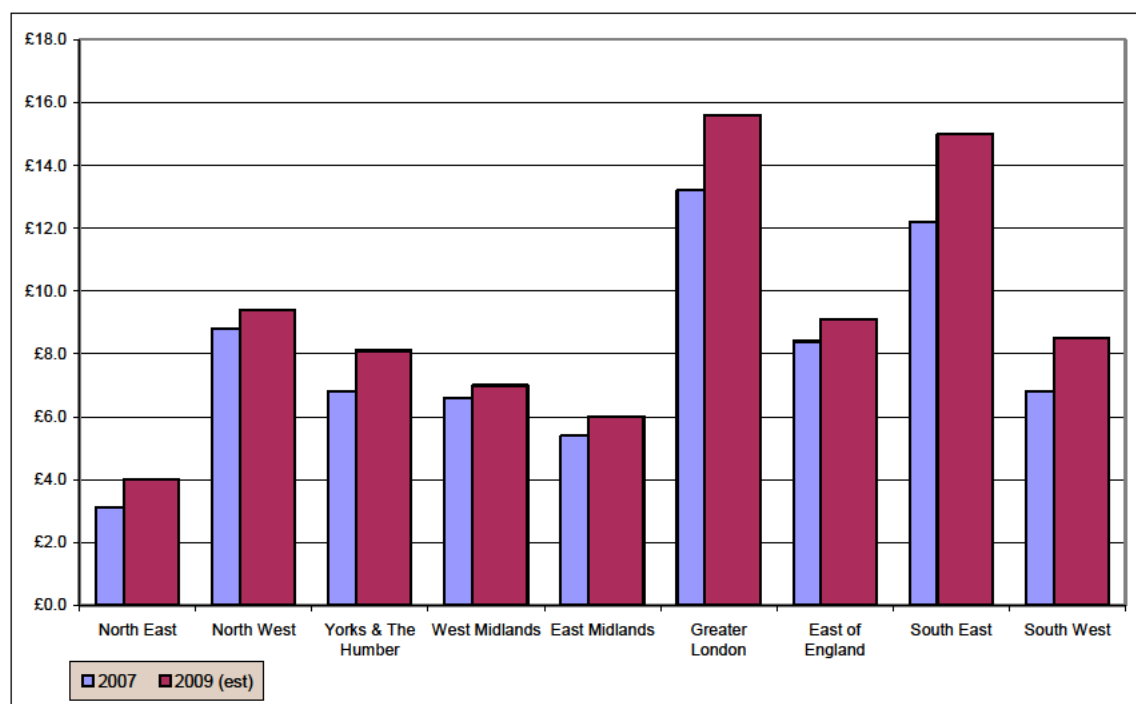
Public housing and housing association orders have increased slightly following a decline over the last 12 month, but comparisons in this sector are affected by large variations due to its relatively small size.

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. The decline in non-residential R&M is primarily the result of falling public investment as budgets are cut and routine and cyclical maintenance on public buildings is reduced leading to 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.

Construction output in the English regions 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, and Yorkshire and the Humber – driven by urban regeneration projects, housing, inward investment and the creation or 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 each of the regions.

**Chart 4 - Construction Output by English Region in £m (2005 constant prices), England: 2007 & 2009 (estimate)**



Source: Construction Skills Network; Experian

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.

Although all regions have suffered from the housing market downturn, infrastructure projects, which are very South East England centric, have sustained output which was previously driven by private investment.

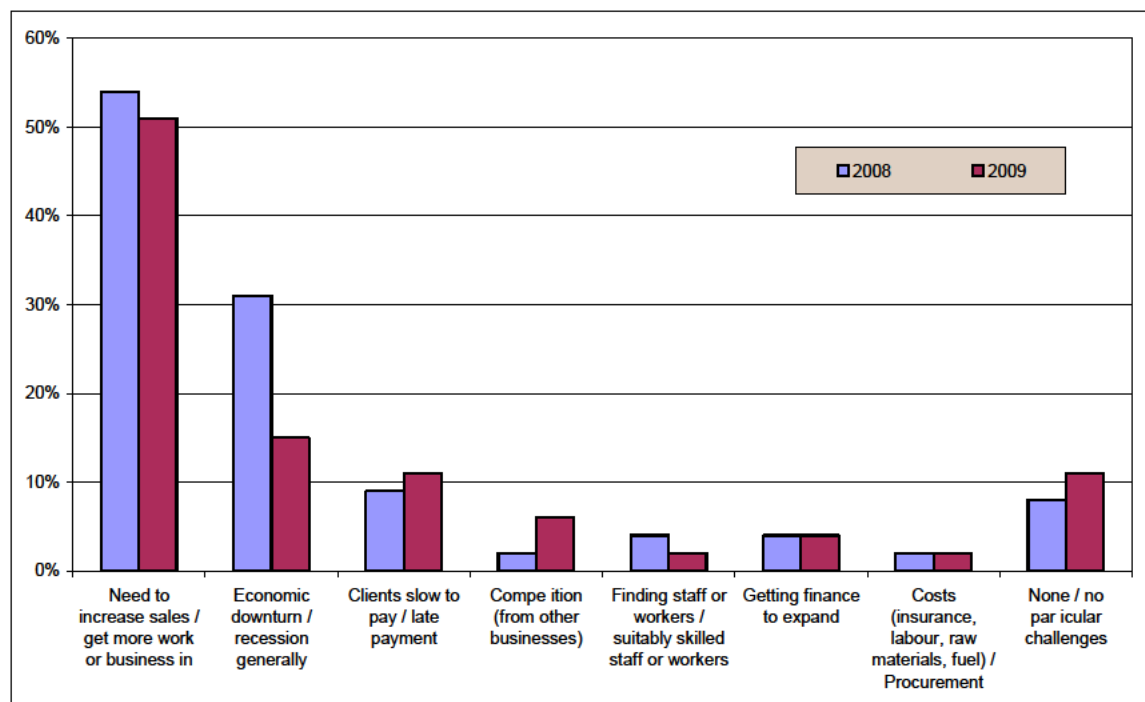
### 2.2.3 Key Challenges Facing Construction Firms

Recent research undertaken for ConstructionSkills<sup>11</sup> shows that over half of all construction firms believe that increasing their workload will be a major challenge over the next 12 months. This proportion has decreased slightly since 2008, and is matched by a slight increase in the proportion reporting that they face no challenges, suggesting that the industry is slowly moving towards a recovery.

The hangover from the recession is still clearly evident, however, as fewer firms are reporting shortages of suitably skilled staff (due to the high level of unemployed workers following the downturn) and more firms reporting client's late payment as a challenge.

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>12</sup>. This is in complete contrast to two years ago when nearly four in five (78%) building contractors reported that were difficulties in obtaining key trades, an unprecedented reversal by any standards.

**Chart 5 - Key Challenges Facing Construction Firms, England 2008 & 2009**



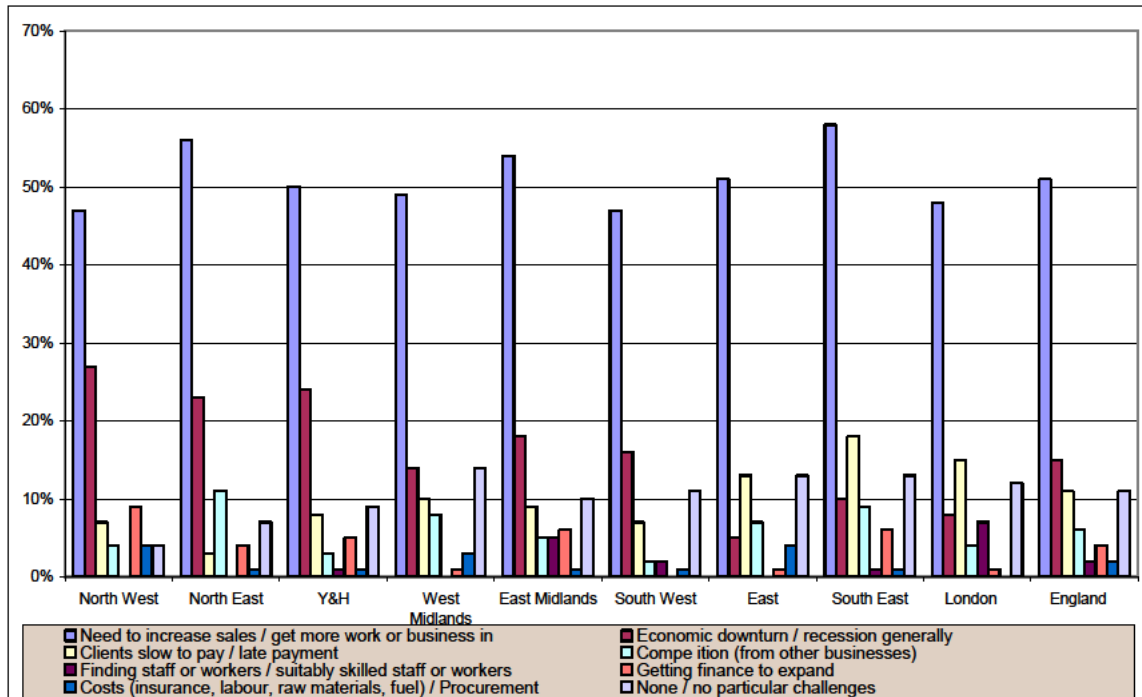
Source: ConstructionSkills, IFF Research

There are clear regional differences in the challenges faced by construction firms. Almost twice as many firms in the North than in the South still report facing general challenges related to the economic downturn. In contrast many more firms in the South than the North report clients late payment as a challenge, again confirming the apparent trend of the South fairing better (or at least recovering sooner) than the North following the onset of the recession.

<sup>11</sup> Employer Panel Survey, IFF Research 2009

<sup>12</sup> Construction Products Association, Construction Trade Survey, November 2009

**Chart 6 - Key Challenges Facing Construction Firms by Region 2009**



Source: ConstructionSkills, IFF Research

### 2.2.4 Migration

Construction is, and always has been, a migratory industry. There is an expectation that people will go where the work is, which applies to both foreign nationals entering the UK labour market and UK citizens finding work abroad.

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. 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.

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.

There have been almost 100,000 migrant workers who have joined the English construction industry in either manual or professional occupations in the last ten years – the vast majority of these settling in London or to a lesser extent the South East.

Much of the recent migration was fuelled by the entry of the ‘Accession 8 States’, or the A8<sup>13</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 English and wider UK labour force from the start of this century, the trend picked-up dramatically on the entry of these 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

<sup>13</sup> The Accession 8 States are; Poland, Lithuania, Slovakia, Latvia, Czech Republic, Hungary, Estonia and Slovenia.

as labourers during the period April 2008 to March 2009<sup>14</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. 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. This may imply that self-employed A8 migrant 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>15</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.

Recent surveys amongst employers indicate that there has been a significant 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 recessionary circumstances higher numbers of migrants may have returned 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 crisis there are few places that haven't been affected, hence there seems to have been far less mobility.

It is difficult to predict the future flows of migrant workers in and out of England, 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 English 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 England 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.

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 abroad.

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 English higher education and training sector has become a global leader in the supply of skills. The recession, although leading to

---

<sup>14</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

<sup>15</sup> ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007



immediate job losses, has meant people returning to or extending their education and in turn has fuelled increased numbers of course applicants.

**Table 4 - First Degree Built Environment Student Enrolments, England  
UK Domiciled and Non-United Kingdom Domiciled: 2007/08 and 2006/07**

	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>	3,553	2,634	918	26%	3,038	2,226	812	27%
<b>Architecture</b>	4,011	3,240	772	19%	3,931	3,168	762	19%
<b>Building</b>	4,217	3,580	637	15%	3,617	3,206	412	11%
<b>Landscape design</b>	272	240	32	12%	256	217	39	15%
<b>Planning (urban, rural &amp; regional)</b>	1,313	1,214	99	8%	1,300	1,215	86	7%
<b>Others in architecture, building &amp; planning</b>	298	280	18	6%	164	154	11	6%
<b>Total</b>	<b>13,663</b>	<b>11,187</b>	<b>2,476</b>	<b>18%</b>	<b>12,307</b>	<b>10,185</b>	<b>2,122</b>	<b>17%</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 26% and 19% of students respectively, with an overall proportion of 18%. From 2006/07 to 2007/08 there has been a 17% increase in the total number of Non-UK Domiciled student enrolments. This increase is mostly due to an increase in Building course enrolments of 55% (637 from 412) – 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 England due to the high-quality of training on offer and that many courses are closely tied to associated professional bodies, such as the Institution of Civil Engineering (ICE). All of these associated factors mean the English higher education sector is well placed to benefit from increased globalisation.

**Table 5 - UK Domiciled and Non-United Kingdom Domiciled First Degree Built Environment Student Enrolments, England: 2007/08**

	2007/08			
	Total	UK Domiciled	UK Non Domiciled	% Non-UK Domiciled
North East	916	828	88	10%
North West	2,157	1,585	572	27%
Yorkshire & The Humber	1,961	1,617	344	18%
East Midlands	1,508	1,326	181	12%
West Midlands	1,100	905	195	18%
<b>North</b>	<b>7,642</b>	<b>6,262</b>	<b>1,380</b>	<b>18%</b>
East	363	333	31	8%
London	2,684	2,061	622	23%
South East	1,533	1,249	285	19%
South West	1,441	1,283	158	11%
<b>South</b>	<b>6,021</b>	<b>4,925</b>	<b>1,096</b>	<b>18%</b>
<b>England</b>	<b>13,663</b>	<b>11,187</b>	<b>2,476</b>	<b>18%</b>

Source: Higher Education Statistics Authority (HESA) 2009

Just under four-fifths of undergraduates on Built Environment degree courses in England are from the UK. The main regions for non-UK domiciled built environment undergraduates are the North West and London which each account for around one-quarter of all non-UK domiciled undergraduates.

More generally, the north of England trains more people to degree level with around 56% of all undergraduates (and the same percentage of UK domiciled undergraduates) on Built Environment Degree Courses are attending institutions there.

### 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, particularly in respect of the 'green' agenda means that the construction industry must now seriously consider technology in order to meet its customers' and regulatory expectations.

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. It will also impact on qualification content and delivery, particularly in terms of increased unitisation of qualifications and more involvement of manufacturers and suppliers.

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 increased 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.

For construction this will inevitably result in the erosion and revision of some traditional trade boundaries and the introduction of a more generalist or multi-skilled approach to the construction process. Whilst current off-site technology certainly draws upon traditional craft skills, a factory-based approach, as employed in the manufacturing sector, will probably result in operatives performing tasks that would traditionally be associated with other trades. It will also require new skills of quality control in production and working to increased tolerances on-site, particularly as the approach becomes more mechanised.

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.

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. 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.

### **2.2.6 Demographics**

Population characteristics (such as size, growth, density, distribution, age, gender and ethnicity) drive both the supply and demand for skills.

Forecast population growth in England of about 0.7% per annum over the next decade<sup>16</sup>, mainly through net inward migration, together with increasing rates of household formation is driving the demand for homes and public services, yet these are only achievable if there is sufficient capacity in terms of labour and skills

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>17</sup> of the annual increase in households.

It is estimated (Housing Statistical Release 11 March 2009 Department for Communities and Local Government) that the number of households in England is expected to grow by over 250,000 a year for the next two decades. When this is set against the National Housing Federations prediction that just 70,000 new homes are to be built in the 2009/10 financial year it 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

---

<sup>16</sup> Office for National Statistics, Population Projections, 2007

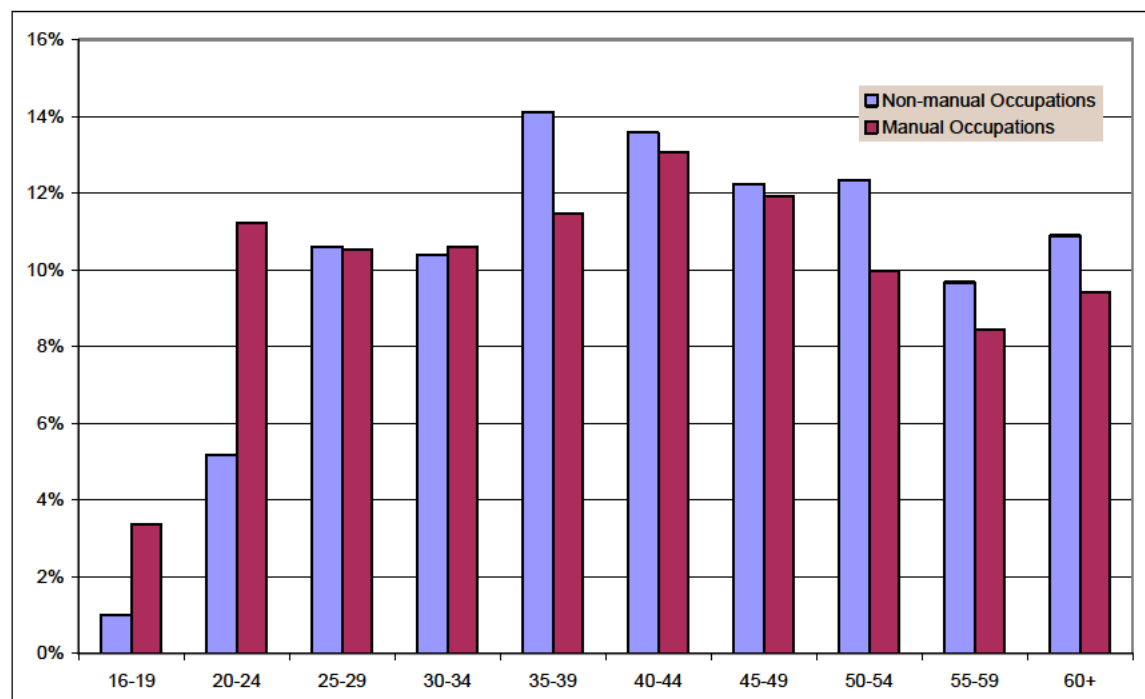
<sup>17</sup> Department of Communities and Local Government, Household Projections to 2031, March 2009  
ConstructionSkills

role construction plays in fulfilling the expectations of both the Government and society as a whole.

England, like other industrialised countries, has an ageing population. Consequently the age profile of the construction industry for both professionals and contractors alike is mature, ageing and has undergone significant change over the past 10 years. The ageing workforce, both for manuals and non-manuals, can also partly be attributed to redundancies during the early-1990s and then subsequent difficulties in attracting workers back into the sector.

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>18</sup>.

**Chart 7 - Age Profile of Construction Industry, England: 2009**



Source: Office for National Statistics, Labour Force Survey 2009

Figures show that the recession has had a measurable impact upon the younger (16-24) workforce in the construction industry in England. While the number of older workers (those aged 55+) has increased slightly from just under 320,000 in 2006 to just under 384,000 now, the number of younger workers has fallen from 212,000 to 211,000 over the same time frame.

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.

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 workforce as a whole, the sector remains amongst the most gender imbalanced in the economy.

<sup>18</sup> Office for National Statistics, Labour Force Survey, Spring 2009

Currently women account for approximately 14% 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. The highest levels of women in the manual trades are in the North West, Yorkshire and Humber and the South East. 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 of 37%.

Whilst, the proportion of BMEs in construction employment has gradually risen over the past decade to represent about 5.5% of the construction workforce in England, this still compares poorly with the wider working population (10.5%). Looking at the split between manual and non-manual occupations, BMEs currently account for 5% of all manual workers in England, and 6% of all non-manuals, significantly lower than in the wider workforce where BME workers account for 10.5% for both the manual and non-manual workforce.

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).

### 2.2.7 Legislation

Legislation remains a key driver for change across industry sectors as a whole and within the construction sector specifically. The Government is doubly important as both a legislator and as a major client accounting as it does for 30-40% of construction output.

The construction industry has a major impact on the environment, and is the single largest producer of waste in the UK, so one of the key areas where legislation will impact upon skills requirements in the industry relates to the environment, climate change, sustainability and zero carbon.

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. 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'.

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. 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.

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'.

### **2.2.8 Consumer Demand**

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. 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.

### **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.

There is an imminent 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 in the Labour Market?

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

The English construction industry – at least in the main trades - is relatively well catered for in terms of the supply of skilled new entrants via education and training. The latest available data<sup>19</sup> shows over 37,000 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.

##### 3.1.2 Skill Levels in the Construction Industry

The following table shows the highest qualification level achieved by workers in the English construction industry compared to the rest of the UK and all UK industries.

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

	<b>Construction Industry - England</b>	<b>Construction Industry – Rest of UK</b>	<b>All Industries - England</b>
<b>NVQ level 4 +</b>	30%	29%	34%
<b>NVQ level 3</b>	17%	19%	16%
<b>Apprenticeships</b>	11%	17%	5%
<b>NVQ level 2</b>	12%	11%	16%
<b>Below NVQ level 2</b>	12%	7%	13%
<b>Other qualifications</b>	10%	7%	9%
<b>No qualifications</b>	8%	10%	8%

Source: Office for National Statistics, Labour Force Survey

From the table it is evident that, within the English construction industry apprentice training is not as common as it is in the other home nations. Although English construction workers are less likely than those of the other home nations to be unqualified, they are more likely to have lower (below Level 2) qualifications and non-NVQ qualifications.

Compared to all industries in England the English construction workforce has a significantly higher proportion trained as an Apprentice, but a smaller share trained to a Level 2. However, it is standard practice to equate an Apprentice to a Level 2 qualification, therefore when added together the English construction industry has a slighter higher proportion qualified to a level 2 (23% v 21%).

**Table 7 – English Construction Industry Workforce Qualifications by region: 2009**

	<b>North East</b>	<b>North West</b>	<b>Yorkshire and Humberside</b>	<b>East Midlands</b>	<b>West Midlands</b>	<b>North of England</b>
<b>All with NVQ level 2 &amp; above</b>	78%	73%	72%	73%	72%	<b>73%</b>
<b>Below NVQ L 2 &amp; Other Quals</b>	16%	18%	23%	21%	16%	<b>19%</b>
<b>No qualifications</b>	6%	9%	5%	6%	12%	<b>8%</b>
		<b>East of England</b>	<b>London</b>	<b>South East</b>	<b>South West</b>	<b>South of England</b>
<b>All with NVQ level 2 &amp; above</b>		67%	62%	71%	73%	<b>68%</b>
<b>Below NVQ L 2 &amp; Other Quals</b>		23%	26%	22%	20%	<b>23%</b>
<b>No qualifications</b>		10%	12%	7%	7%	<b>9%</b>

<sup>19</sup> ConstructionSkills, Training and the Built Environment; Department for Education and Learning NI; Higher Education Statistics Agency

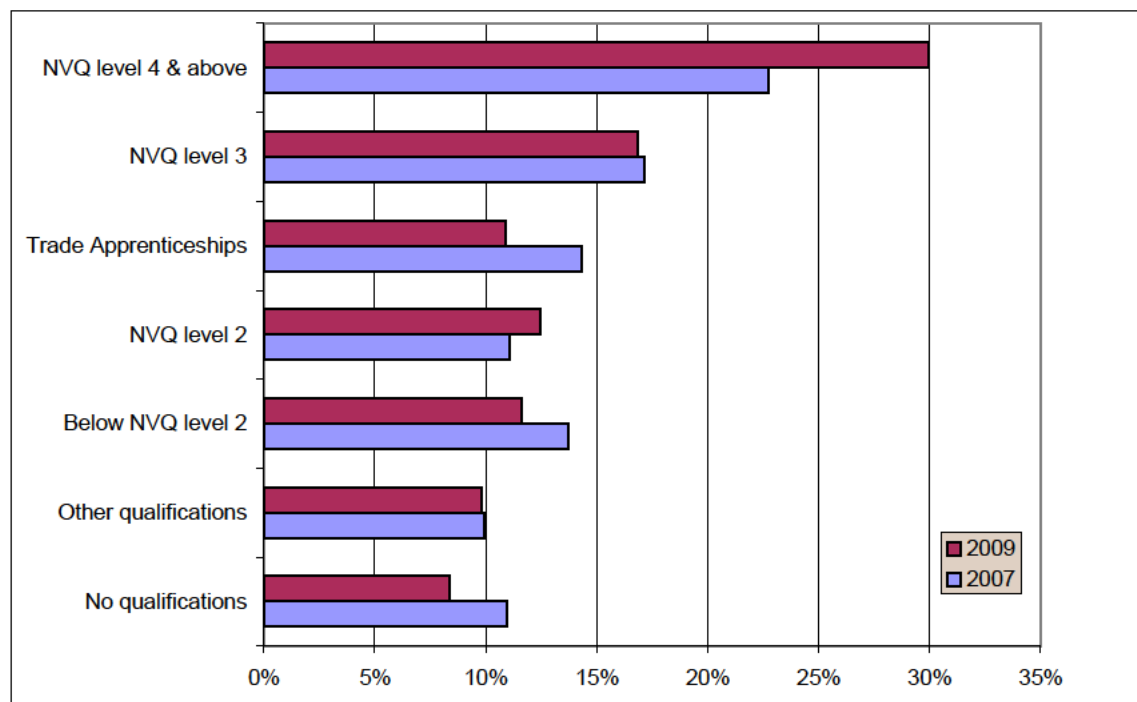


Source: Office for National Statistics , Labour Force Survey

Within England itself most regions have a construction workforce in which almost three-quarters of workers are qualified to NVQ Level 2 or higher. The two exceptions are the East of England and London where only around two-thirds of workers are similarly qualified. In both areas the proportion of workers with lower or other qualifications, or indeed no qualifications at all, are proportionally higher.

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

**Chart 8 - Qualifications of the Construction Workforce, England: 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>20</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. 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.

### 3.1.3 Migration

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

Recent analysis<sup>21</sup> found the number of non-UK workers in the construction industry has risen dramatically in recent years mainly as a result of increased migration from Eastern

<sup>20</sup> Leitch Review of Skills, Prosperity for all in the global economy – world class skills. December 2006

<sup>21</sup> Taylor Associates, Overseas workers in the UK construction industry, 2009

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 entering the 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.

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

**Table 8: Overseas Construction workers (manual and professional) entering England within past ten years by region of residence**

Countries of origin	North East	North West	Yorkshire and Humberside	East Midlands	West Midlands	North of England
<b>All top 5</b>	124	1,778	527	1,126	1,624	<b>5,179</b>
<b>Rest</b>	568	2,062	1,728	1,658	2,475	<b>8,489</b>
<b>All</b>	691	3,840	2,255	2,784	4,099	<b>13,669</b>
Countries of origin	Eastern	London	South East	South West	South of England	England
<b>All top 5</b>	2,468	34,885	3,326	1,040	<b>41,719</b>	<b>46,899</b>
<b>Rest</b>	3,356	32,241	5,234	1,636	<b>42,467</b>	<b>50,956</b>
<b>All</b>	5,824	67,126	8,560	2,676	<b>84,186</b>	<b>97,854</b>

Source: Labour Force Survey

Outside of London, the South East, and East there has been relatively little migration to the Construction Industry in the past ten years. Of the nearly 98,000 migrant workers that have joined in the industry 69% settled in London, with 9% in the South East, and 6% in the East. Less than 1% of migrant workers to the English Construction industry settled in the North East. 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 construction industry.

The 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 England and demand in Eastern Europe rises. Migration of construction workers 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 England and Eastern Europe are still high enough in many cases to compensate for the risk of unemployment on arrival in the country.

It seems clear that a continuing priority for the construction industry must be to ensure that workers arriving from overseas to work in England 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.

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

### 3.2.1 Workforce Training and Development

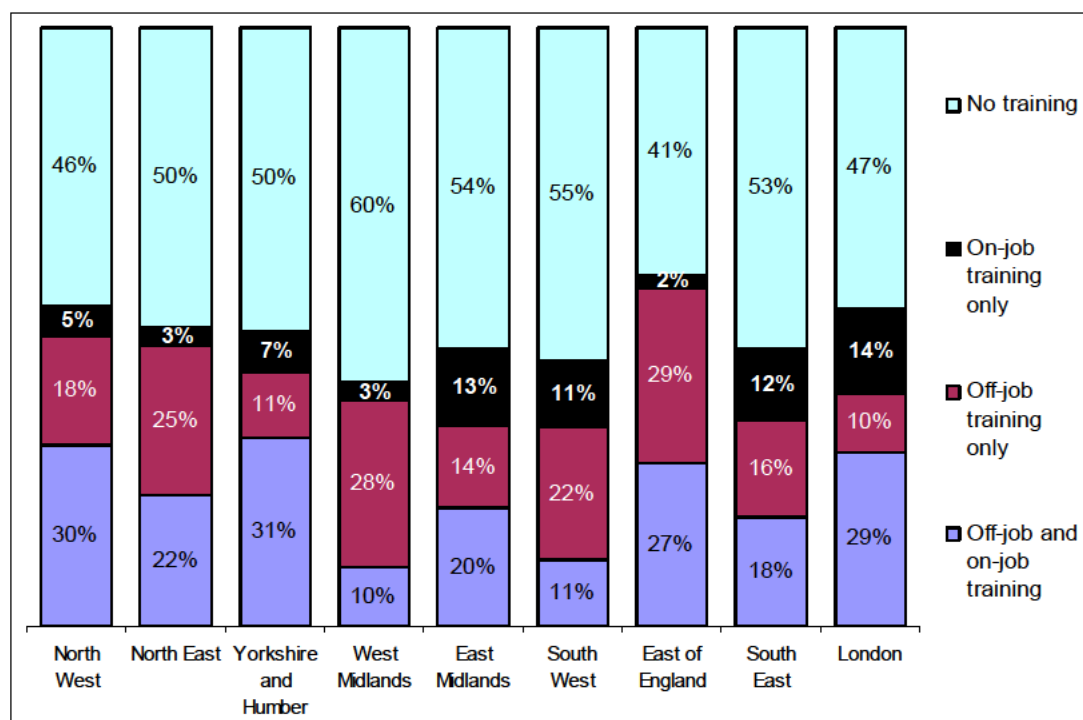
We have seen above how England's construction industry's stock of skills (as defined by qualifications) is changing, we now examine other available measures of skills development, notably training activity and participation in training.

This section examines the extent and nature of training and development activity, using the results from the ConstructionSkills, Skills and Training in the Construction Industry 2009 report. The methodology of this survey reflects the National Employer Skills Survey, whilst focussing specifically on issues of importance in Construction. 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>22</sup>), the degree of training leading to qualifications, and the types of training undertaken. It also looks at the impact of the recession on training activity.

Throughout this section figures on the numbers of staff trained cover both direct employees as well as self-employed and other staff working for the employer unless otherwise stated<sup>23</sup>.

Half of establishments across the English construction industry had funded or arranged training or development for staff during the 12 months to July 2009. The highest proportion of establishments providing training were seen in the East of England with 59% of establishments, the North West with 54% and London at 53%. The lowest levels were seen in the West Midlands where 40% of establishments were funding or arranging training. However in other regions it tended to fall in the 47% to 53% range.

**Chart 9 – Proportions of establishments offering training provision (on and/or off-the-job) by region**



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

<sup>22</sup> ConstructionSkills, Skills and Training in the Construction Industry 2009

<sup>23</sup> ConstructionSkills, Skills and Training in the Construction Industry 2009  
ConstructionSkills

Overall more than two-fifths of employers deliver some off-the-job training (41% - equivalent to just over four-fifths - 82% - of those that train). This is largely driven by the practices of smaller establishments with 2-9 employees which account for over 70% of staff trained.

Firms in the East Midlands, the South West and the South East were the least likely to have undertaken any off-the-job training (only a third had done so). The East of England had the highest levels of off the job training with over half (56%) of establishments carrying out off the job training.

Employers reported providing training for approximately 734,150 workers (both direct employees and self-employed / indirect labour). This is equivalent to 39% of the total current workforce.

The occupational groups that construction contracting sector employers had most commonly provided off-the-job training for were roofers and scaffolders, which were also the occupations most likely to receive on-the-job training. In both cases this largely reflects the health and safety implications of working at height. 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)**

Occupation	On-the-job		Off-the-job	
	<i>No. of staff trained</i>	<i>Proportion of directly employed</i>	<i>No. of staff trained</i>	<i>Proportion of directly employed</i>
<b>Administrative Staff</b>	22,839	17.4%	25,223	19.2%
<b>Bricklayers</b>	13,807	46.8%	13,469	45.6%
<b>Carpenters / joiners</b>	26,586	48.9%	25,934	47.7%
<b>Floorers</b>	3,241	25.6%	4,462	35.3%
<b>Labourers and general operatives</b>	50,137	47.7%	49,605	47.2%
<b>Managers / Directors</b>	34,837	22.0%	46,559	29.4%
<b>Painters / decorators</b>	21,889	47.6%	20,485	44.6%
<b>Plant and machine operatives</b>	31,111	41.2%	39,058	51.8%
<b>Plasterers</b>	5,138	35.8%	3,701	25.8%
<b>Roofers</b>	9,203	59.2%	12,407	79.8%
<b>Scaffolders</b>	23,074	59.8%	23,421	60.7%
<b>No one main role or who multi task</b>	27,348	35.0%	30,068	38.5%
<b>Supervisors / Foremen</b>	21,744	40.2%	23,615	43.7%
<b>Technical Staff</b>	21,385	41.7%	23,668	46.2%
<b>Electricians</b>	4,854	50.1%	3,984	41.1%
<b>Plumbers</b>	3,909	32.7%	3,433	28.7%
<b>Welders/fabricators</b>	4,284	40.1%	4,723	44.2%

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

Generally speaking the proportion of each occupational group trained on- and off-the-job is similar. The results suggest that for floorers, plant and machine operatives and roofers, though, the balance is towards off-the-job training. Plasters and electricians on the other hand the balance tends to be the other way round with more on-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)**

Occupation	On-the-job		Off-the-job	
	No. of staff trained	Proportion of directly employed	No. of staff trained	Proportion of directly employed
Administrative staff	5,893	25.3%	6,339	27.3%
Architects	12,295	<b>47.9%</b>	8,178	31.8%
Architectural Technologists	6,948	<b>57.9%</b>	5,495	45.8%
Building Service Engineers	5,006	27.8%	6,764	<b>37.6%</b>
Building Surveyors	1,550	40.8%	2,014	<b>53.0%</b>
Civil Engineers	14,608	<b>66.3%</b>	9,505	43.1%
Directors	2,046	39.8%	2,325	45.2%
HR, legal and business professionals	4,175	27.6%	4,055	26.9%
Labourers	7,128	62.2%	6,977	60.9%
Managers (various)	1,694	56.8%	604	20.2%
Mechanical Engineers	2,923	39.9%	3,072	41.9%
Other Engineers	3,451	18.1%	6,151	<b>32.2%</b>
Plant / Machine operatives	681	6.3%	2,002	<b>18.5%</b>
Project Managers	2,179	18.7%	2,728	23.4%
Quantity Surveyors	6,147	<b>50.5%</b>	4,601	37.8%
Surveyors/estimators	1,851	21.8%	2,129	25.0%
Technicians	6,325	34.9%	5,637	31.1%

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

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 (66%), architectural technologists (57%), managers (57%) 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. 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 a third of employers that train (32%) had provided training intended to lead to a nationally recognised qualification.

Results from the Skills and Training in the Construction Industry report indicate that employers have arranged training for approximately 238,435 staff that was intended to lead to a qualification. This is equivalent to 13% of the total current (direct and indirect) workforce. Almost quarter (23%) of those that train, have trained staff in an NVQ.

The number of staff involved in NVQ training in the last 12 months is equivalent to 9% of the total current workforce, and of those nearly three-quarters (73%) were most likely to have had staff train at level 2, with 20% training to level 3.

### 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. The two main barriers to offering more training were the cost (68%) and lack of staff time (45%)

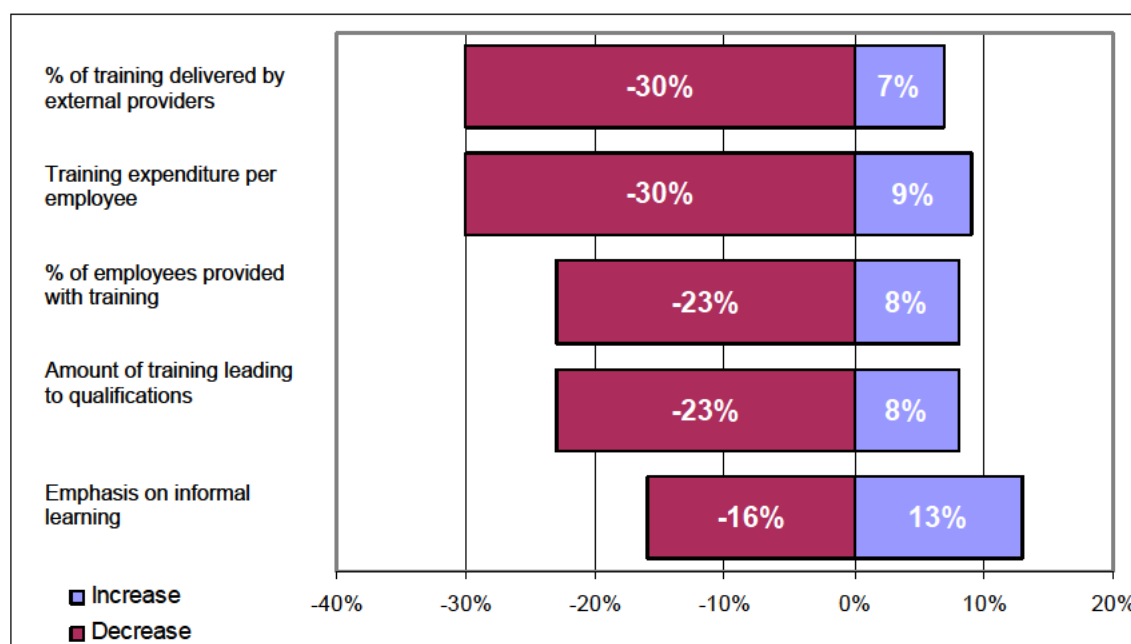
Supply-side issues were relatively rarely mentioned as barriers: among those that would have liked to deliver more training 4% mentioned a lack of appropriate training or qualifications in the subject areas they required, 2% a lack of provision (for example courses being full up), 2% the difficulty of finding providers who can deliver training when and where they want it.

### 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%). Around a quarter, were training fewer of their staff (23%) or were providing less training leading to qualifications (23%).

**Chart 10 - The impact of the recession on training**



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

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

- Employers in the North West (38%) and the West Midlands (33%) were more likely to have reduced the amount of training leading to qualifications.
- Employers in London (37%) the North West (33%) and the West Midlands (33%) were more likely to say the recession had led to them training fewer staff.
- Almost half of employers in London (49%) and two fifths of employers in the North West (39%) were more likely to say training spend per employee had fallen.

### **Summary Box**

The construction industry in England 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.

Half of establishments across the construction industry in England had funded or arranged training or development for staff during the 12 months to July 2009.

The proportion of establishments providing training is highest in the East of England, the North West and London.

Overall more than two-fifths of employers deliver some off-the-job training (41%).

Employers reported providing training for approximately 734,146 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 (32%) 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.

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

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

### 4.1 Skill Shortages

To understand the context of skill shortages in the construction industry, ConstructionSkills commissioned research into the recruitment activity of employers<sup>24</sup>. They were asked whether over the last 12 months they had had shortages of skilled workers;

- One in ten employers in England (10%) felt that there had been times when they lacked the number of skilled workers they required;
- Around half (53%) 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>25</sup>, with far fewer employers in 2009 reporting shortages of skilled staff over the previous 12 months, reflecting the fall in workloads over this time

Where a lack of skilled workers was cited, their implications appear to be quite severe. Half of respondents in England reported having to turn work down as a result (51%) and three-fifths had been forced to sub-contract (63%).

Just over a third of all employers in England (36%) had *attempted* to recruit skilled staff or apprentices in the last 12 months. This is higher in Yorkshire and Humberside (43%) than in other regions. By way of comparison only around a quarter of employers in the North East or East Midlands (25% and 27% respectively) had attempted to recruit skilled staff or apprentices in the 12 months prior to the research.

#### 4.1.1 Hard-to-Fill Vacancies

Almost Three in ten employers in England trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (28%), 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 due to unemployment.

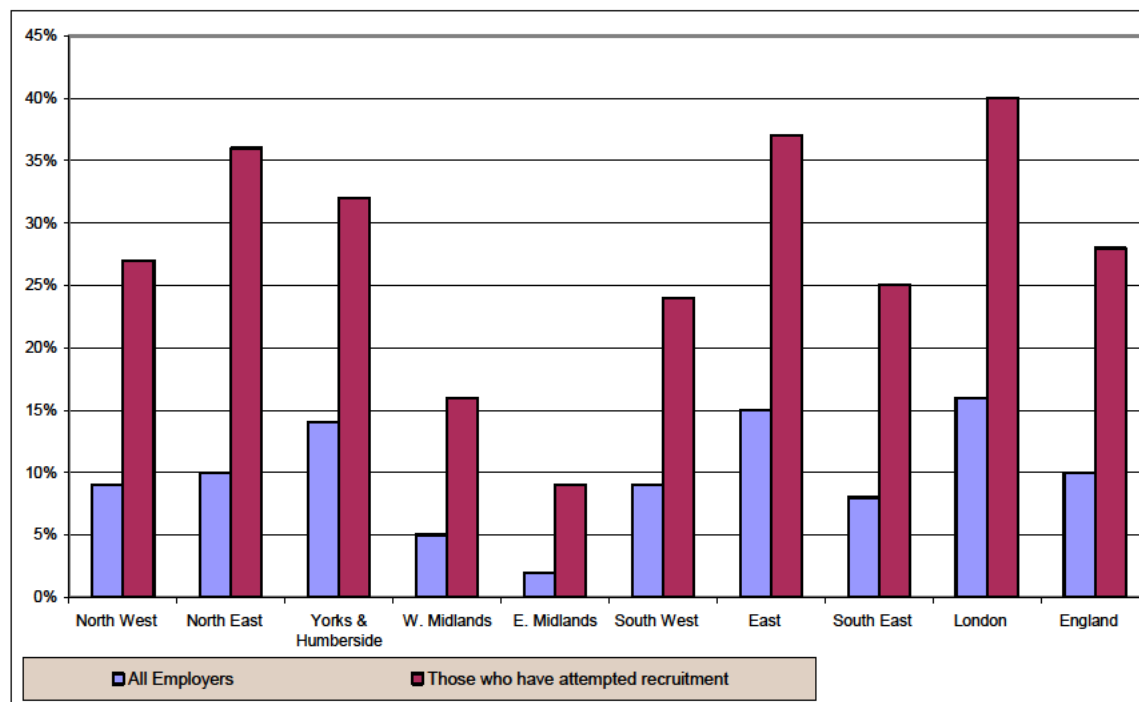
---

<sup>24</sup> ConstructionSkills. Skills and Training in the Construction Industry, 2009

<sup>25</sup> ConstructionSkills. Skills and Training in the Construction Industry, 2008



**Chart 11 – Incidence of hard-to-fill vacancies by region**



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

There is considerable regional variation in the proportion of hard-to-fill vacancies experienced by employers. Amongst employers who have tried to recruit and experienced vacancies that are hard to fill, four regions in particular are significantly worse than the English average of 28%. With 40% of employers who have tried to recruit experiencing hard to fill vacancies, London is by far the worst affected region, followed by the East (37%), the North East (36%), and Yorkshire and Humberside (32%).

The region with the lowest proportion of hard-to-fill vacancies is the East Midlands with just 9% of employers who have tried to recruit reporting them. The main reasons for this appear to be there are generally more applicants, and more highly qualified applicants, for posts in the East Midlands, this is particularly noteworthy given that, as Charts 3a and 3b on page 10 show, construction unemployment in the East Midlands is one of the lowest in the country.

Table 11 shows the main causes of hard to fill vacancies by region. Numbers in red indicate that regional figures are significantly worse than national average, while numbers in green indicate that regional figures are significantly better than national average.

**Table 11 - Causes of hard-to-fill vacancies for skilled staff (multiple responses allowed)**

	North West	North East	Yorkshire and Humber	West Midlands	East Midlands	North of England	South West	East of England	South East	London	South of England	England
Applicants lack the skills we require	78%	80%	100%	65%	100%	85%	100%	88%	94%	82%	89%	88%
Not enough young people being trained in the construction trades	57%	81%	68%	93%	100%	71%	98%	86%	93%	100%	94%	86%
Applicants lack the attitude or motivation we look for	50%	66%	68%	66%	100%	63%	97%	84%	63%	71%	77%	72%
Applicants have lacked the work experience we look for	61%	80%	78%	65%	100%	71%	72%	62%	94%	53%	68%	69%
Low number of applicants generally	46%	4%	67%	53%	15%	48%	29%	40%	62%	83%	57%	54%
Applicants lack the qualifications we look for	30%	57%	36%	47%	9%	36%	46%	64%	62%	68%	62%	54%
Competition from other employers	54%	36%	22%	52%	94%	43%	28%	17%	63%	35%	35%	38%

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

Note: Red text = region is significantly worse than national average. Green text = region is significantly better than national average.

Table 11 shows that there are specific regional concerns among recruiters in England. Although a lack of specific skills was mentioned by the majority of recruiters in all regions, this factor is of specific concern in Yorkshire & Humberside, the East Midlands, and the South West, where every recruiter mentioned this as a cause for hard-to-fill vacancies.

A lack of young people being trained is also a factor amongst recruiters in all regions, more so in London where everyone mentioned this, but also in the South of England more generally than in the North. Likewise a lack of qualifications amongst applicants is more of a factor in the South than the North

Where London is better served than other regions is that generally applicants are more likely to have the required work experience desired by recruiters than in other regions, although still over half of recruiters in the capital sited this as a limiting factor. By comparison every recruiter in the East Midlands mentioned this as a cause of hard-to-fill vacancies.

One reason that is less frequently sited as a cause of hard-to-fill vacancies is a lack of applicants generally. Although mentioned by just over half of recruiters nationally, this was hardly mentioned at all in the North East, whereas 80% of recruiters in London had experienced a general lack of applicants.

#### **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%), or increasing training for existing staff (16%) or their trainee programmes (9%).

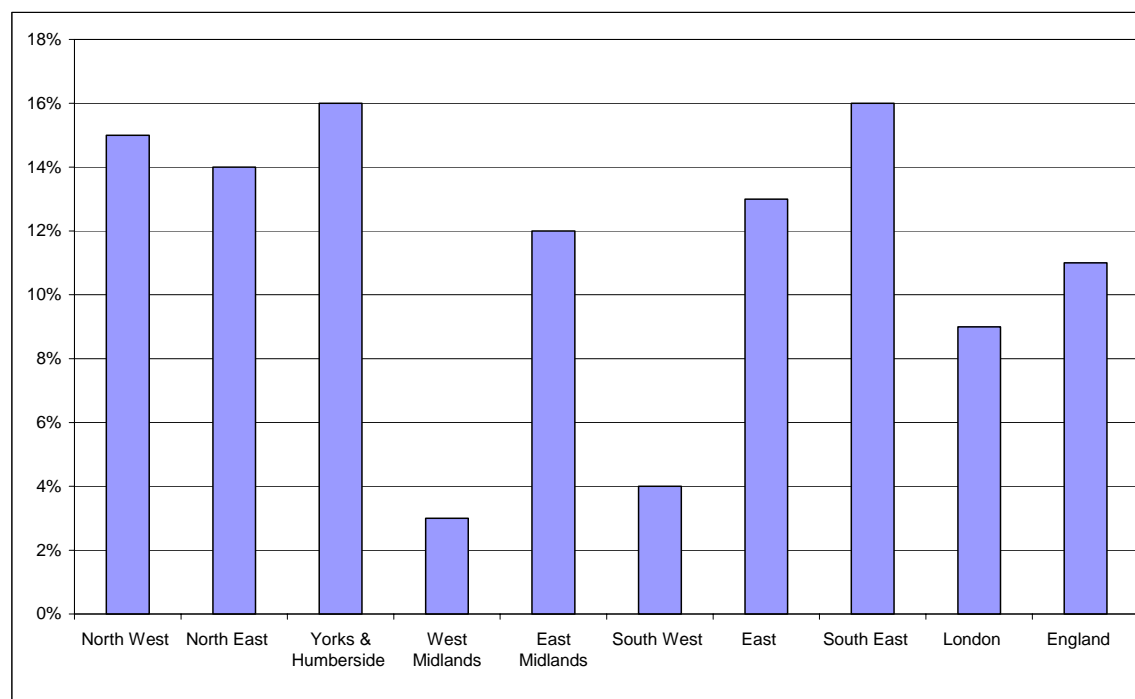
There is considerable regional difference between the attempts made by employers to overcome recruitment difficulties. Nearly all employers in the South West, and around 90% in the East and West Midlands will make some attempt to address any problems in recruiting skilled staff – primarily by increasing training to existing staff (West Midlands) trying new methods of recruitment (East Midlands) or a mixture of the two (South West). In contrast over half of employers in Yorkshire and Humberside and the East, and almost two-thirds in the South East did not attempt to overcome any difficulties in recruitment.

#### **4.2 Skill Gaps**

Overall around one in ten employers (11%) have staff lacking proficiency. 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.

Employers in the West Midlands, South West, and London are less likely than average to report incidence of skills gaps within their workforce. Skills gaps are most likely to be found in the North West, Yorkshire & Humberside, and the South East as shown in the Chart 12.

**Chart 12: Employers reporting any incidence if skills gaps by region**



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

#### 4.2.1 The Causes of Skill Gaps

The most common cause of skills gaps is that staff lack experience or have only recently been taken on, a contributory factor for 58% of employers in England with skills gaps.

**Table 12: Main Causes of Skills Gaps by Region**

	North West	North East	Yorkshire & Humberside	West Midlands	East Midlands	North of England
<b>Lack of experience or their being recently recruited</b>	59%	84%	95%	34%	82%	<b>73%</b>
<b>Lack of opportunity to train and develop staff</b>	56%	45%	28%	17%	28%	<b>39%</b>
<b>Inability of workforce to keep up with change in the industry</b>	7%	39%	28%	65%	19%	<b>22%</b>
<b>Staff lack motivation</b>	21%	3%	41%	6%	17%	<b>22%</b>
<b>Recruitment difficulties</b>	1%	2%	25%	49%	-%	<b>10%</b>
	South West	East	South East	London	South of England	England
<b>Lack of experience or their being recently recruited</b>	98%	49%	26%	59%	<b>47%</b>	<b>58%</b>
<b>Lack of opportunity to train and develop staff</b>	55%	66%	38%	38%	<b>47%</b>	<b>43%</b>
<b>Inability of workforce to keep up with change in the industry</b>	59%	56%	56%	39%	<b>54%</b>	<b>39%</b>
<b>Staff lack motivation</b>	9%	58%	39%	10%	<b>34%</b>	<b>29%</b>
<b>Recruitment difficulties</b>	55%	37%	19%	6%	<b>26%</b>	<b>19%</b>

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

Generally, although lack of experience is the primary cause of skills gaps in both the North and the South of England, employers in the North are more likely than those in the South to cite this as the primary cause of skills gaps within their workforce (73% vs. 58%).

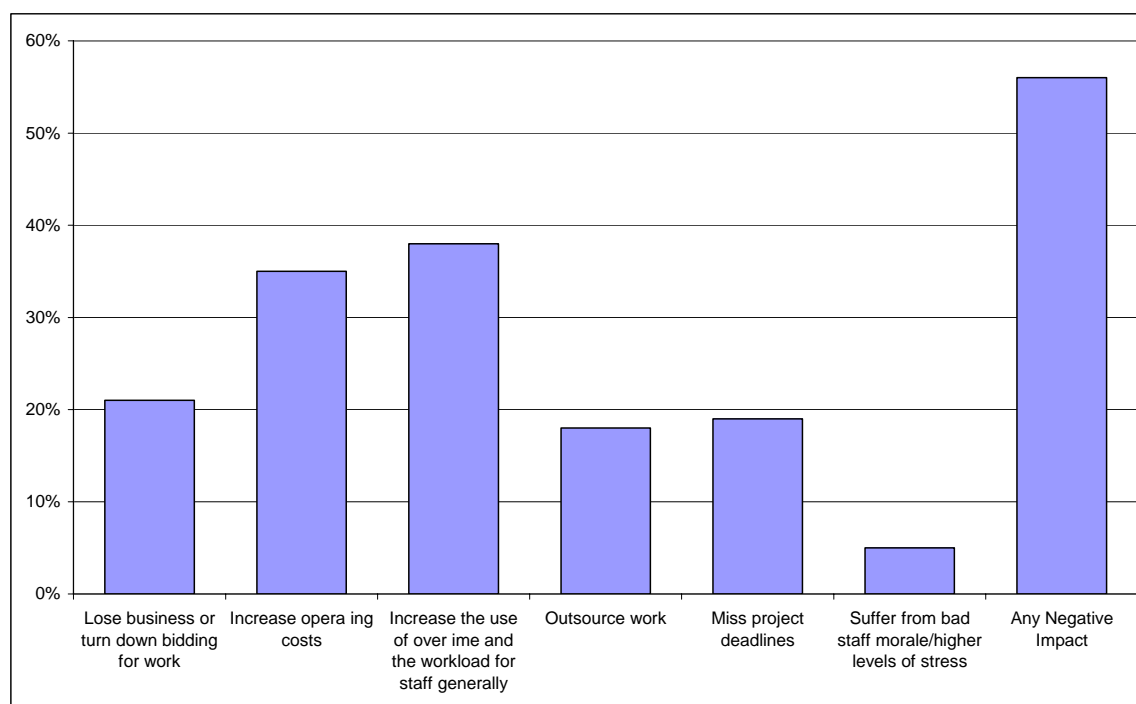
By contrast employers in the South are generally more likely to cite the inability of their workforce to keep up with change, and recruitment difficulties as significant causes.

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 being that they lack the opportunity or time to train.

#### 4.2.2 The Impact of Skill Gaps

Just over half of employers with skill gaps felt that it had negative consequences for their firm. This was most often increased workload and use of overtime (38%) and increased operating costs (35%).

**Chart 13 - The impact of skills gaps amongst firms that have reported them - England**



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

The vast majority of those with skill gaps (79%) have taken some action to overcome the difficulty, and it is encouraging to note that the main action taken, by 65% of respondents is increasing training activity and or spend. Other actions taken by between 5% and 10% of respondents were to increase supervision and appraisals, and increase the amount of money spent on recruitment.

#### 4.3 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>26</sup>. In order to be placed on this list the occupation must pass three hurdles: it must be *skilled*; there

<sup>26</sup> Migration Advisory Committee, Skilled, Shortage, Sensible: The Recommended Occupation Lists for the UK and Scotland, 2008

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

More recently the Migration Advisory Committee presented their review of the recommended shortage occupation lists<sup>27</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 cites civil engineers, mechanical engineers, and welders as being prone to skills shortages, although the inclusion of these occupations will be reviewed again in autumn 2010.

#### 4.4 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.

The table below shows the current unemployment rate for the English construction industry by Government Office Region, and compares it to the unemployment rate for all industries.

**Table 13 - The unemployment rate in the Construction Industry and All Industries, (England & UK: 2009).**

	North East	North West	Yorks & Humber	East Mids	West Mids	East	London	South East	South West	England
<b>Construction Industry</b>	10.7%	8.8%	11.1%	8.2%	8.6%	7.1%	8.7%	6.4%	7.6%	8.3%
<b>All Industry</b>	8.6%	7.8%	7.6%	6.6%	8.6%	5.7%	8.0%	5.2%	5.3%	6.9%

Source: Office for National Statistics, Labour Force Survey

As the data highlights the English construction industry has been significantly affected by the economic downturn, with the unemployment rate higher nationally than the figure for all industries (8.3% v 6.9%). Regionally, the South East has suffered least, with a Construction unemployment rate of 6.4%, while the construction industry in Yorkshire and Humberside has experienced the greatest level of redundancies with an unemployment rate of 11.1%.

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.

<sup>27</sup> Migration Advisory Committee, Skilled, Shortage, Sensible: Review of the Recommended shortage occupation list for the UK and Scotland, 2009

### **Summary Box**

The implications of a lack of skilled workers for employers appear to be quite severe. Half reported having to turn work down as a result (51%) and three-fifths had been forced to sub-contract (63%).

Almost three in ten employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (28%).

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 in England (11%) have staff lacking proficiency.

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 increased costs.

The current unemployment rate across the English construction industry is 8.3%.

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

### 5.1 PESTLE Analysis

<p><b>Political</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>➤ 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 English workforce, compared to 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 Macroeconomic Indicators

**Table 14 – Gross Value Added by Region (£billion 2005 prices)**

	Actual	Forecast - annual % change in real terms					
	2008	2009	2010	2011	2012	2013	2014
<b>North East</b>	£38.6	-2.6%	0.2%	0.4%	0.2%	0.2%	0.4%
<b>North West</b>	£112.6	-6.1%	0.6%	2.1%	1.8%	1.9%	2.2%
<b>Yorkshire &amp; Humber</b>	£82.0	-4.3%	1.1%	1.8%	1.5%	1.4%	1.7%
<b>West Midlands</b>	£89.2	-4.9%	0.2%	1.1%	1.0%	0.8%	1.1%
<b>East Midlands</b>	£74.8	-3.9%	0.2%	0.9%	1.0%	0.8%	1.2%
<b>East of England</b>	£103.4	-4.3%	1.0%	2.5%	2.1%	1.8%	2.0%
<b>South West</b>	£91.1	-4.8%	0.6%	1.3%	1.3%	1.3%	1.6%
<b>South East</b>	£170.0	-6.7%	1.7%	3.9%	3.8%	3.6%	4.1%
<b>Greater London</b>	£248.7	-7.7%	2.7%	6.1%	6.7%	5.8%	6.5%
<b>England</b>	<b>1,010.3</b>	<b>-4.5%</b>	<b>0.9%</b>	<b>2.1%</b>	<b>2.0%</b>	<b>1.7%</b>	<b>2.0%</b>

Source: Experian, November 2009

The English economy is forecast to have contracted by 4.5% in 2009 – much of this in the first quarter of that year.

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>28</sup>

To date, the North West, South East, and Greater London – the three largest regions in the English economy – have been hardest hit while the East Midlands has been least impacted (relatively) by the recession. Looking forward to the medium term, the South of England is expected to lead the country out of recession, with Greater London and the South East seeing the strongest rates of growth.

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. 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>29</sup>) which will be the key focus for any new government in 2010 – most likely through increasing taxes and cutting expenditure.

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 the Building Schools for the Future, hospital builds, and motorway expansion schemes 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

<sup>28</sup> Construction Forecasts: Autumn update, 2009. Volume 15, issue 4

<sup>29</sup> Construction Skills Network 2009

and is fundamental to all aspects of daily life, from transport to medical care. The UK in general and England in particular 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.

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.

As the recession has deepened, unemployment in the construction sector is now significant (see 4.5) 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 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.

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.

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.
- 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.

### Summary Box

- Gross Value Added has, so far, contracted by 4.5% in England during this recession.
- 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>30</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.
- Low tender submissions on projects to 'win work' and sustain trading may result in further job losses.
- 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.
- 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 of 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 via innovation and change.

---

<sup>30</sup> Construction Skills Network 2009

## 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 wider 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>31</sup> which identified key long-term issues and changes which construction may encounter, and 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 entire workforce, not only construction, and will therefore influence demand across all scenarios.

The rapid and severe change that resulted from the recession 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.

### 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:

- The economy will emerge from the technical recession in 2010 followed by a gradual recovery to long term levels of GDP growth.
- Construction output will start to recover from around 2011, although it will be at a lower level than GDP growth. In the UK 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.

---

<sup>31</sup> Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008  
ConstructionSkills

- Housing demand for both public and private sectors recovers, with current UK 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>32</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.

**Table 15 - Construction Industry Sector 2009-2014: England**

Sector	2009		2014		Average Annual Change 2010-2014
	£bn	%	£bn	%	
Public housing	£2,565	3%	£3,322	4%	5.3%
Private housing	£9,442	11%	£15,390	17%	10.3%
Infrastructure	£5,982	7%	£8,039	9%	6.1%
Public non-housing	£10,649	13%	£8,405	9%	-4.6%
Industrial	£2,106	3%	£2,621	3%	4.5%
Commercial	£15,244	18%	£14,952	17%	-0.4%
<b>New work</b>	<b>£45,986</b>	<b>56%</b>	<b>£53,049</b>	<b>59%</b>	<b>2.9%</b>
Housing R&M	£18,774	23%	£19,600	22%	0.9%
Non-housing R&M	£17,948	22%	£16,926	19%	-1.2%
<b>R&amp;M</b>	<b>£36,722</b>	<b>44%</b>	<b>£36,646</b>	<b>41%</b>	<b>0.0%</b>
<b>Total work</b>	<b>£82,707</b>	<b>100%</b>	<b>£89,453</b>	<b>100%</b>	<b>1.6%</b>

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.

<sup>32</sup> HM Treasury, Forecasts for the UK economy: A comparison of independent forecasts, October 2009

Significant possible variations to core scenario:

1. **Stronger Recovery:** the 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:

**1. Short term to 2012:** Peak unemployment is anticipated 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 an English level is likely to remain static between 2010 and 2011. There will be some differences between 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.

As well as differences across the 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 (road and rail) 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.

**2. Medium Term 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.

Medium-term employment will vary across the English regions 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, and higher proportions of industrial and commercial work compared to the rest of the country, which leaves this region very exposed to reductions of work in these sectors.

**3. Long term 2014 – 2020.** 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.

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. 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.

**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.

**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:**

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 and international competitiveness.
- With the current recession, leadership and managerial skills are increasingly being viewed as important<sup>33</sup>.
- Increasing importance of science, technology, engineering and mathematics (STEM) skills as the UK invests for the future<sup>34</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>35</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.

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.

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>36</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

---

<sup>33</sup> Emerging Stronger: CBI 2009

<sup>34</sup> New Industry, New Jobs; HM Government, 2009).

<sup>35</sup> Skills for Growth, 2009

<sup>36</sup> Department for Communities and Local Government, Homes for the future: more affordable, more sustainable – housing green paper, 2007

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>37</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.

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.

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.

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

---

<sup>37</sup> Department of Energy and Climate Change, Climate Change Act 2008  
ConstructionSkills

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.

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>38</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.

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>39</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.

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.
- 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.
- 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

---

<sup>38</sup> Emerging Stronger, CBI 2009

<sup>39</sup> Department for Local Communities and Government, The Callcutt Review of housebuilding delivery, 2007

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.

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.
- 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.
- 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.
- 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**

As discussed in earlier sections, aspects such as the economy, industry, demographics and politics will all have a bearing upon the supply of skills and employment for the construction industry

#### **7.1.1 The Economy**

Section 6 sets out the core scenario for the industry through to 2020 and in this vision of the future, the fall out from the recession continues well into the medium-term, acting as a continuing brake on construction activity and consequent demand for skills. It predicts that GDP growth is low, at least in comparison with the pre-recession years 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 Future report<sup>40</sup> predicts output growth 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**

As chart 9 on page 20 showed, over the course of the present forecast approximately 18% of the English construction workforce (excluding those in professional practices) will reach retirement age, resulting in a loss of accumulated skills and experience - particularly those involved in the heavier trades and labour.

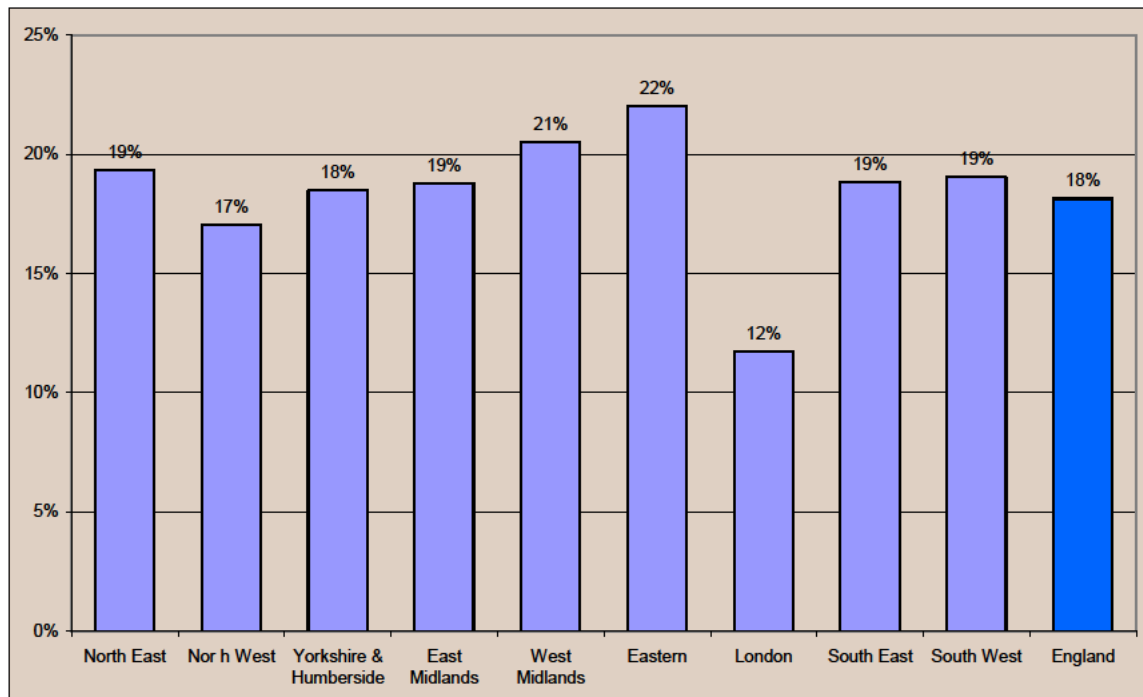
In normal years this would be more than matched by new recruitment, however, given the current recession and downturn in recruitment unless economic circumstances force later retirement, certain skills will become less available. If reliance is to be put on an ageing workforce, compensatory changes in workload on-site will be necessary.

The position of London traditionally having a younger population and workforce is true also of the construction industry there, with only 12% of the construction workforce there due to reach retirement age during the course of this forecast. This is one-third lower than England as a whole, and almost half the rate seen in the West Midlands and the East where 21% and 22% respectively of the construction workforce if aged over 55 as shown in the graph below.

---

<sup>40</sup> Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008  
ConstructionSkills

**Chart 14 - Proportion of Workers in English Construction Industry (excluding professional practices) age 55+ by Region – 2009**



Source: Office for National Statistics, Labour Force Survey

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 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>41</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>42</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.

Furthermore, regardless of what party forms the next Government it is likely that increased energy legislation and building regulation at a national and international level will mean that the building industry will be much more closely regulated. Processes will be managed to avoid the falling foul of fines levied for energy and environment violations, but also to maintain company 'image'.

<sup>41</sup> Department for Business Innovation and Skills, Skills for Growth – the National Skills Strategy, 2009

<sup>42</sup> Conservatives, Building Skills, Transforming Lives A Training and Apprenticeships Revolution, Opportunity Agenda Policy Green Paper No 7. 2008



Tighter economic conditions will also require process efficiency and the aim for zero accidents on sites and energy and fabric efficiency will combine to further increase the use of off-site construction. We are likely to see major construction products manufacturers forming strategic alliances with contractors, or an extension of contractors in manufacture as evidenced by firms such as Laing O'Rourke, this may mean redefining what 'construction' means, as offsite moves output out of construction and into manufacturing input.

The government's chief construction adviser Paul Morrell has recognised the need to take an integrated approach to delivering the low carbon built environment, but warns that there is a lack of skills in some areas. Integration is likely to require the emergence of multidisciplinary practitioners.

Construction innovation and sustainability is underpinned by the fact that the industry is made up of a series of 'sub- industries' whose common goal is to create and maintain the built environment. Given this complexity it is essential that associated 'solutions' to the 'skills' changes within these sub-sectors to meet their particular needs must be flexible and appropriate for their needs. For example new build housing will have different requirements from housing maintenance.

Two key themes emerge from changing construction products and processes; these are the growing requirement for 'integration' for example systems integrators and extension of 'multi-skilling', especially during the on-site process. A better understanding of the 'skills' and knowledge requirements of both are essential to inform training and qualification development.

Innovation and sustainability require the development of flexible qualifications; this is especially true for the existing workforce and to allow the transfer between construction, engineering and manufacturing skills. The implementation of the Qualifications and Credit Framework (QCF) in England in 2010 will provide the opportunity for this approach, which supports unitised learning and 'multiskilling'. It is essential that this process does not cause duplication and an overly complex system.

## **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. In 2008/09 there were over 26,500 people on long duration, certificated construction courses in England, although as the table below shows, they are far more likely to be located in the North than the South of England.

**Table 16: Proportions of Training and employment by region 2008/09**

	<b>Percentage of FE Training</b>	<b>Percentage of Employment</b>
<b>North East</b>	9%	6%
<b>North West</b>	22%	12%
<b>Y&amp;H</b>	11%	10%
<b>West Mids</b>	12%	10%
<b>East Mids</b>	18%	7%
<b>North of England</b>	<b>72%</b>	<b>45%</b>
<b>East</b>	6%	12%
<b>South West</b>	6%	11%
<b>South East</b>	8%	18%
<b>London</b>	8%	15%
<b>South of England</b>	<b>28%</b>	<b>55%</b>

Source: ConstructionSkills Trainee Numbers Survey, Labour Force Survey

Although there are slightly more people employed in the South of England than the North, the overwhelming amount of training (almost three-quarters) takes place in the North. This illustrates quite succinctly the southward drift of workers in the English construction industry, and also illustrates why, in the North East for example, although training appears to be adequate to meet demand, the migration of workers means that employers there still struggle to find skilled workers.

The largest source of investment in craft training comes from employers, and is closely correlated with levels of employment within the national industry and expectations for future work. According to the Construction Skills Network, construction employment in England is forecast to be around 285,000 down from its 2007 peak by 2010. 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. Construction training in Great Britain fell dramatically throughout both recessions and continued to fall for some time afterwards, falling by a total of 40% from its pre-recession high after the 1980's recession and by 30% after the 1990's recession.

Charting future trends based on historic scenarios is clearly not an exact science. There are clear differences between this recession and previous ones, however, based on the core scenario outlined above, it can be estimated that training in England will reach a low point in the region of 30,500 VQ starts around 2015, before returning to its pre-recession levels of around 37,000 VQ starts by 2020.

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 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>43</sup> it would be reasonable to assume that some 21,500 construction trainees per annum would successfully qualify by 2015, rising to 26,000 by 2020.

Having achieved a qualification, a very high proportion of people choose to stay in construction. The Construction Apprentices Survey<sup>44</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 in England through the Further Education route would be approximately 20,000 per annum in 2015 rising to 24,500 per annum by 2020.

### **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>45</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 England can be estimated.

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 UK domiciled applicants to Built Environment degree courses in England has shown a relatively consistent upward trend since 2000 (with only a slight drop in numbers in 2006), with 2008 seeing a 16% increase in UK domiciled first degree applicants compared to 2007 (9,458 compared to 8,156).

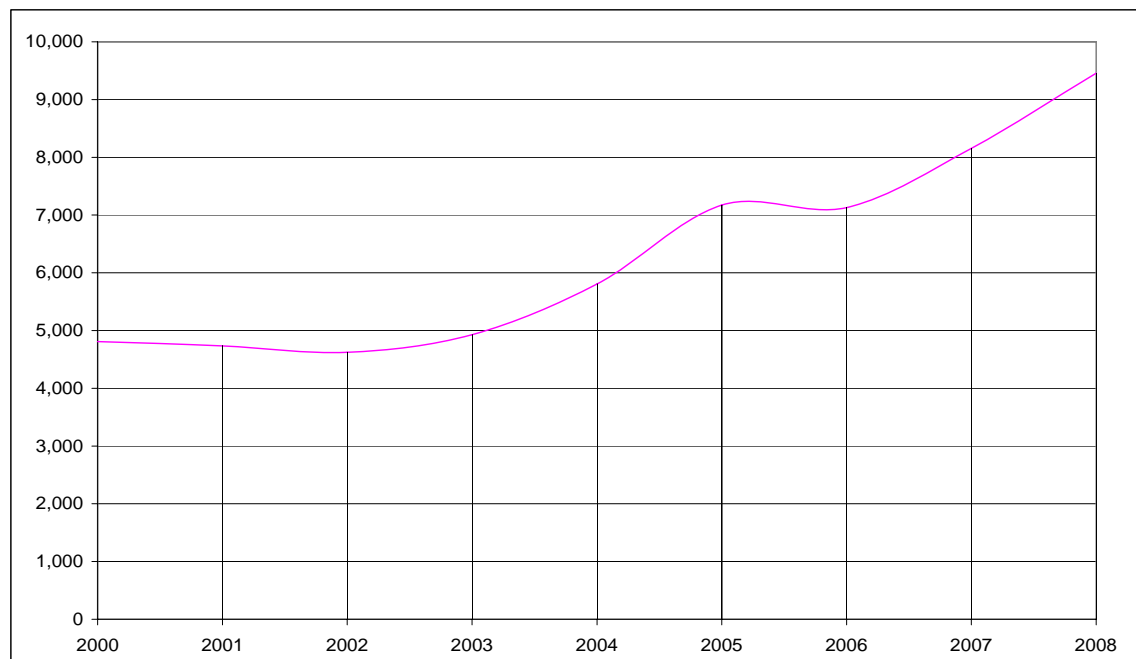
---

<sup>43</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>44</sup> ConstructionSkills, Construction Apprentices Survey, 2003

<sup>45</sup> Higher Education Policy Institute Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008

**Chart 15 - UK Domiciled applicants to Built Environment degree courses in England 2000 – 2008**



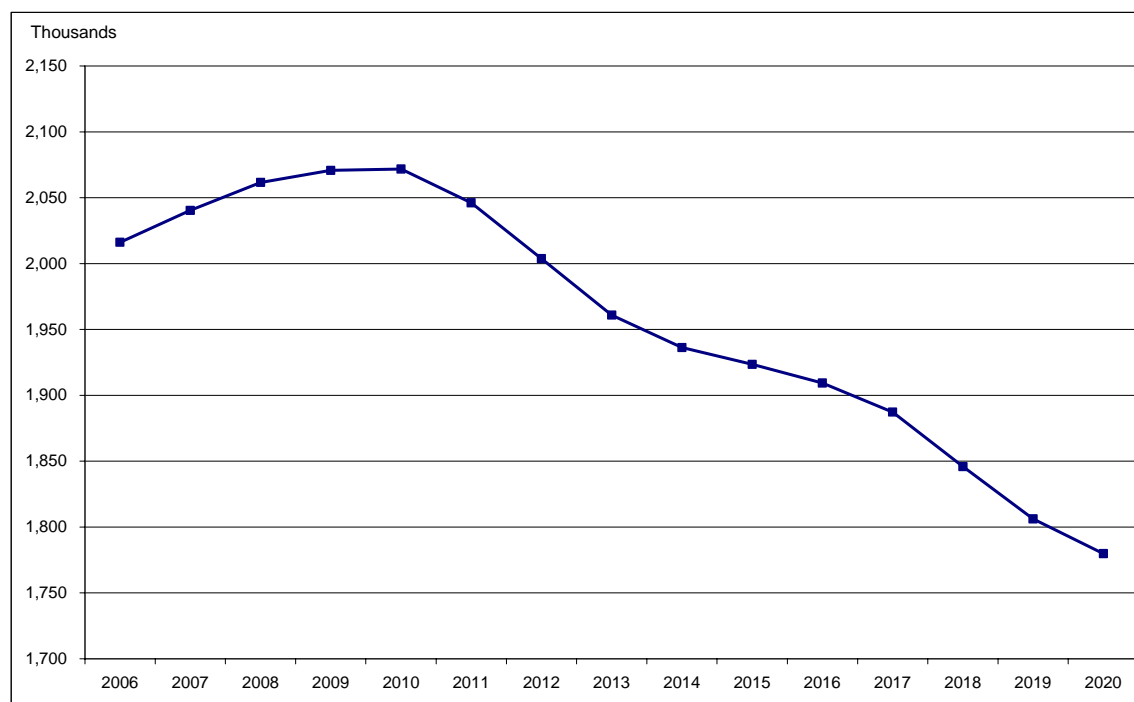
Source: UCAS

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 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 16) shows the way the 18-20 year old population has changed and how it will change in the next 10 years. After peaking in 2010, the 18-20 year-old population will decline significantly for the following decade – by more than 14% 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>46</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]”.

<sup>46</sup> Department for Business, Innovation & Skills (BIS), Higher Ambitions: The Future of Universities in the Knowledge Economy, November 2009

**Chart 16 - Number of 18-20 year olds in England 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 English 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. They 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 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 if these had stayed on in education and taken A levels, then that would have increased the number of students in England 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”.

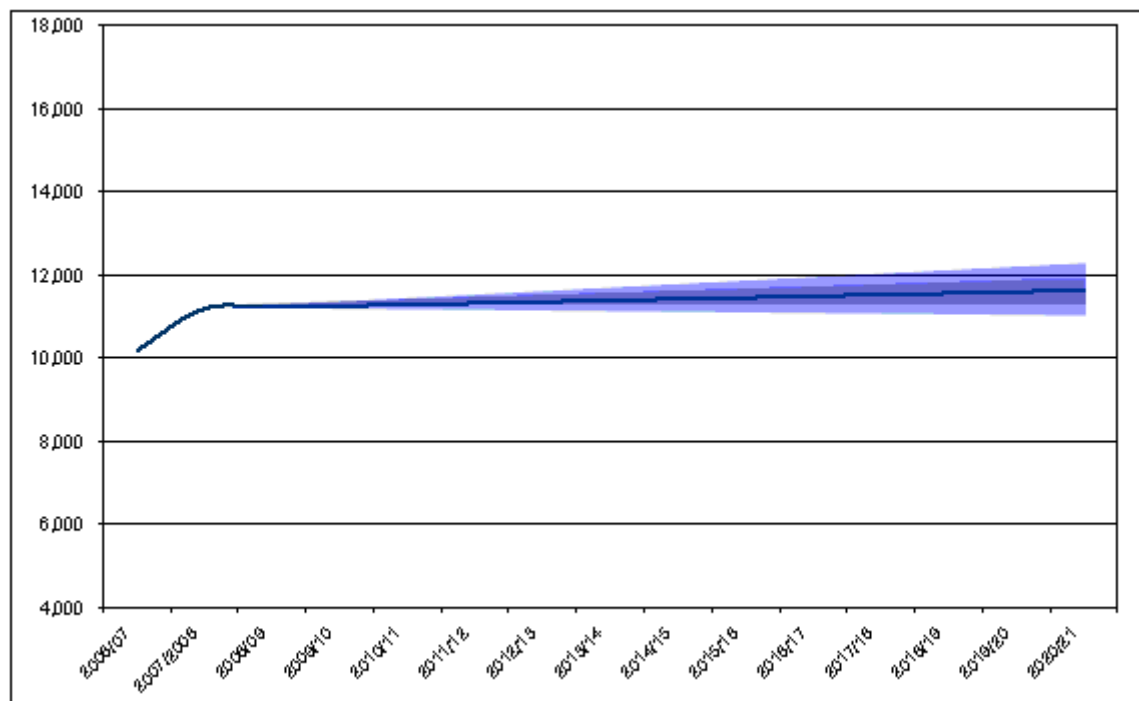
Demography provides the basis for HEPI’s assessment of future demand. In the absence of other factors they believe that demand, having peaked in 2010 will fall back to below 2007 levels by 2020-21. However, they see strong reasons for believing that participation rates will increase, which will mitigate 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 17 - Potential change in UK domiciled first year, first degree higher education students (England – Built Environment Courses)**



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 in England 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 in the mid-range of HEPI's forecast of around 5% between 2007 and 2020, this would equate to an additional 500 higher education starts on Built Environment Courses, or nearly 11,750 UK domiciled individuals across England.

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>47</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 3,000 UK domiciled graduates from English institutions will be available and willing to join the construction industry each year.

<sup>47</sup> Higher Education Statistics Agency, Destinations of Leaver from Higher Education Survey, 2006

### 7.2.3 Migration

As commented upon in the Working Futures report<sup>48</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 just under 98,000 migrant workers entered the English construction industry (see table 8 on page 26) Within this group of migrant workers, over half (53%) come from just five countries: Poland, Lithuania, South Africa, Romania, and India (the top 5 nations).

**Table 17: Region of Residence for Craft Construction Workers Entering England within past 10 Years**

<b>Countries of origin</b>	<b>North East</b>	<b>North West</b>	<b>Yorkshire and Humberside</b>	<b>East Midlands</b>	<b>West Midlands</b>	<b>North Total</b>
<b>All top 5</b>	0%	4%	1%	2%	3%	<b>10%</b>
<b>Rest</b>	1%	4%	4%	3%	5%	<b>17%</b>
<b>All</b>	0%	4%	2%	3%	4%	<b>13%</b>
<b>Countries of origin</b>	<b>Eastern</b>	<b>London</b>	<b>South East</b>	<b>South West</b>		<b>South Total</b>
<b>All top 5</b>	5%	76%	7%	2%		<b>90%</b>
<b>Rest</b>	7%	65%	7%	3%		<b>83%</b>
<b>All</b>	6%	71%	7%	3%		<b>87%</b>

Source: Labour Force Survey

The vast majority of migrant construction workers (71%) settle in London, with a further 13% settling in the South East and East of England – equal to the total number of migrant workers that settled in the North of England.

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>49</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, which would equate to an England total of around 6,500.

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?

Many migrant construction workers will have settled in skilled or semi-skilled occupations, with Labour Force survey figures suggesting 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.

<sup>48</sup> Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

<sup>49</sup> Office for National Statistics, Labour Force Survey, Spring 2009

In addition, approximately half of these migrant workers have been self-employed as opposed to 37% of UK workers<sup>50</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 4 +	VQ 3	Trade Apprenticeship	VQ 2	Below VQ 2	Other / no qualifications
All top 5	7%	2%	6%	3%	2%	80%
Rest	18%	3%	15%	5%	3%	57%
UK (All)	30%	17%	12%	12%	11%	18%
UK (Manual)	7%	20%	19%	13%	14%	27%

Source: Office for National Statistics, Labour Force Survey

Although these figures relate to the whole of the UK, as has already been discussed the majority of migrants settle in England. The industry accepted minimum qualification to operate successfully in the sector is a Level 2 Vocational Qualification. Over four-fifths of migrant from the top five countries of origin, and almost two-thirds of those from other countries, do not meet this minimum criterion. This compares with only 41% of UK national construction workers who have a qualification of lower than Level 2. Likewise UK national manual workers are three times more likely to have a trade apprenticeship than migrant workers from the top five countries of origin, and ten times more likely to have a level 3 qualification (roughly equating to site-supervisor level).

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

<sup>50</sup> Office for National Statistics, Labour Force Survey, Spring 2009



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 6,500 per annum this suggests an average of just over 4,300 additional skilled workers a year joining the industry in England 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 24,500.

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 3,000.

And finally the number of *skilled* migrants entering the English construction industry each year by 2020 will be in the region of 4,300, making an annual total of just under 32,000 skilled people a year<sup>51</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 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, 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.

---

<sup>51</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).

Whatever happens in the medium to long term, the safest assumption to make is that the state of qualifications and skills supply seen before the current recession will not be seen again for a very long time.

#### **Summary Box**

The supply of skilled employees to the construction industry is expected to remain subdued over the next five years due to suppressed demand from employers following the recession.

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 30,500 VQ starts around 2015, before returning to its pre-recession levels of around 37,000 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 24,500 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 6,500 per annum this suggests an average of just over 4,300 additional skilled workers a year joining the industry between 2010 and 2020.

In conclusion it is expected that just under 32,000 skilled people will be available to join the industry each year by 2020.

## 8. Conclusions and Key Messages

### 8.1 Conclusions

The construction industry in England 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. 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.

The impact of the recession has not been the same across all regions of England, nor is the recovery expected to be uniform across the country. This report has examined data from across all English regions, and although in many instances there are no clear and consistent regional variations in some instances the regional differences are striking:

- About a third of the English construction industry – whether measured in terms of output, enterprises, or employment is centred around London and the South East.
- Although at a macro economic level these regions have been proportionally the hardest hit by the recession, they are also expected to see the strongest recovery in the medium to long term.
- In terms of construction job losses the North has suffered disproportionately more than the South.
- Although employers in all regions report dealing with the recession as a major challenge for the year ahead, there are proportionally much more in the North than the South of England. Notably, employers in the North East, North West, and Yorkshire and Humberside are the most likely to report the recession as being a key challenge, while employers in London, the South East, and East are the least likely to report this as a challenge.
- In terms of long duration, certificated training the North is far in advance of the South. Despite employing less than half of the workforce the Northern regions undertake some three-quarters of FE training. This mis-match between employment and training means there is a southward drift of construction workers. In times of high employment this means that all regions experience difficulties in recruiting skilled workers – the North due to migration and the South due to low levels of training.
- Part of the shortfall in training has been made up by skilled workers from overseas - 77% of foreign workers in the construction industry have settled in London and the South East.

There is no doubt that the slow down in construction has lessened the industry's attractiveness for 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 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 to 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 on the environment.

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.

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.

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.

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.

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.

## 9. Bibliography

- British Retail Consortium Press Release, Best Consumer Confidence for 18 months, 2 November 2009
- CBI, New Jobs, Emerging Stronger, 2009
- Conservatives, Building Skills Transforming Lives – A Training and Apprenticeship Revolution, Opportunity Agenda Policy Green Paper No. 7, 2008
- Construction Forecast Research, Construction Industry Focus, September 2009
- Construction Products Association Press Release, Construction Continues to Suffer as Recession is Prolonged, 2 November 2009
- Construction Products Association, Construction Trade Survey, August 2009
- ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007
- ConstructionSkills and Experian, Construction Skills Network, 2009
- ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8) June 2009
- ConstructionSkills and Construction Industry Council, Impact of the Recession on Construction Professionals, 2009 (Unpublished)
- ConstructionSkills, Skills and Training in the Construction Industry, 2009
- ConstructionSkills, Skills and Training in the Construction Industry, 2008
- ConstructionSkills, Training and the Built Environment, 2009
- ConstructionSkills, Construction Apprentices Survey, 2003
- Department for Business Innovation and Skills, Skills for Growth – the National Skills Strategy, 2009
- Department for Business, Innovation & Skills (BIS), Higher Ambitions: The Future of Universities in the Knowledge Economy, November 2009
- Department for Communities and Local Government, Household Projections to 2031, March 2009
- Department for Communities and Local Government, The Callcutt Review of Housebuilding delivery, 2007
- Department for Communities and Local Government, Homes for the Future: more affordable, more sustainable – housing green paper, 2007
- Department of Energy and Climate Change, Climate Change Act 2008
- Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008.
- Federation of Master Builders, State of Trade Survey Q2, 2009
- Government Actuary's Department population data 2007, Projections Database, [www.gad.gov.uk/Demography%20Data/Population/index.aspx](http://www.gad.gov.uk/Demography%20Data/Population/index.aspx)
- Higher Education Statistics Agency (HESA), Destinations of Leaver from Higher Education Survey, 2006
- Higher Education Policy Institute, Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008
- HM Government, New Industry, New Jobs, 2009
- HM Treasury, Forecasts for the UK economy: A comparison of independent forecasts, October 2009
- HM Treasury, Operational Efficiency Programme: Collaborative Procurement, May 2009
- Learning and Skills Council, Work-based Learning Success Rates 2006/07, <http://www.lsc.gov.uk/providers/Data/statistics/success/WBL.htm>
- Leitch Review of Skills, Prosperity for all in the global economy – world class skills, December 2006
- Mason G, O'Leary B, O'Mahoney M, Robinson K, National Institute of Economic and Social Research published by Department for Business Enterprise and Regulatory

Reform, Cross Country Productivity Performance at Sector Level: the UK Compared with the US, France and Germany, February 2008

Migration Advisory Committee, Skilled, Shortage, Sensible: The Recommended Occupation lists for the UK and Scotland, 2008

Migration Advisory Committee, Skilled, Shortage, Sensible: The Recommended Occupation lists for the UK and Scotland, 2009

Office for National Statistics, Annual Business Inquiry, Provisional Results 2008.

Office for National Statistics, Labour Force Survey, Spring 2009

Office for National Statistics, Population Projections, 2007

Office for National Statistics, UK Business – Activity, Size and Location 2009

Institute of Employment Research Warwick University, Working Futures 2007-2017, 2008

RICS, Construction Market Survey, Q3 2009

Taylor Associates, Overseas Workers in the UK Construction Industry, 2009

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

UK Commission for Employment and Skills, Ambition 2020, May 2009

## 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

### **SIC 41 Construction of Buildings**

#### **41.1 Development of building projects**

41.10 Development of building projects

#### **41.2 Construction of residential and non-residential buildings**

41.20 Construction of residential and non-residential buildings

41.20/1 Construction of commercial buildings

41.20/2 Construction of domestic buildings

### **SIC 42 Civil Engineering**

#### **42.1 Construction of roads and railways**

42.11 Construction of roads and motorways

42.12 Construction of railways and underground railways

42.13 Construction of bridges and tunnels

#### **42.2 Construction of utility projects**

42.21 Construction of utility projects for fluids

42.22 Construction of utility projects for electricity and telecommunications

#### **42.9 Construction of other civil engineering projects**

42.91 Construction of water projects

42.99 Construction of other civil engineering projects n.e.c.

### **SIC 43 Specialised Construction Activities**

#### **43.1 Demolition and site preparation**

43.11 Demolition

43.12 Site preparation

43.13 Test drilling and boring

43.29 Other construction installation

#### **43.3 Building completion and finishing**

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

#### **43.9 Other specialised construction activities n.e.c.**

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.

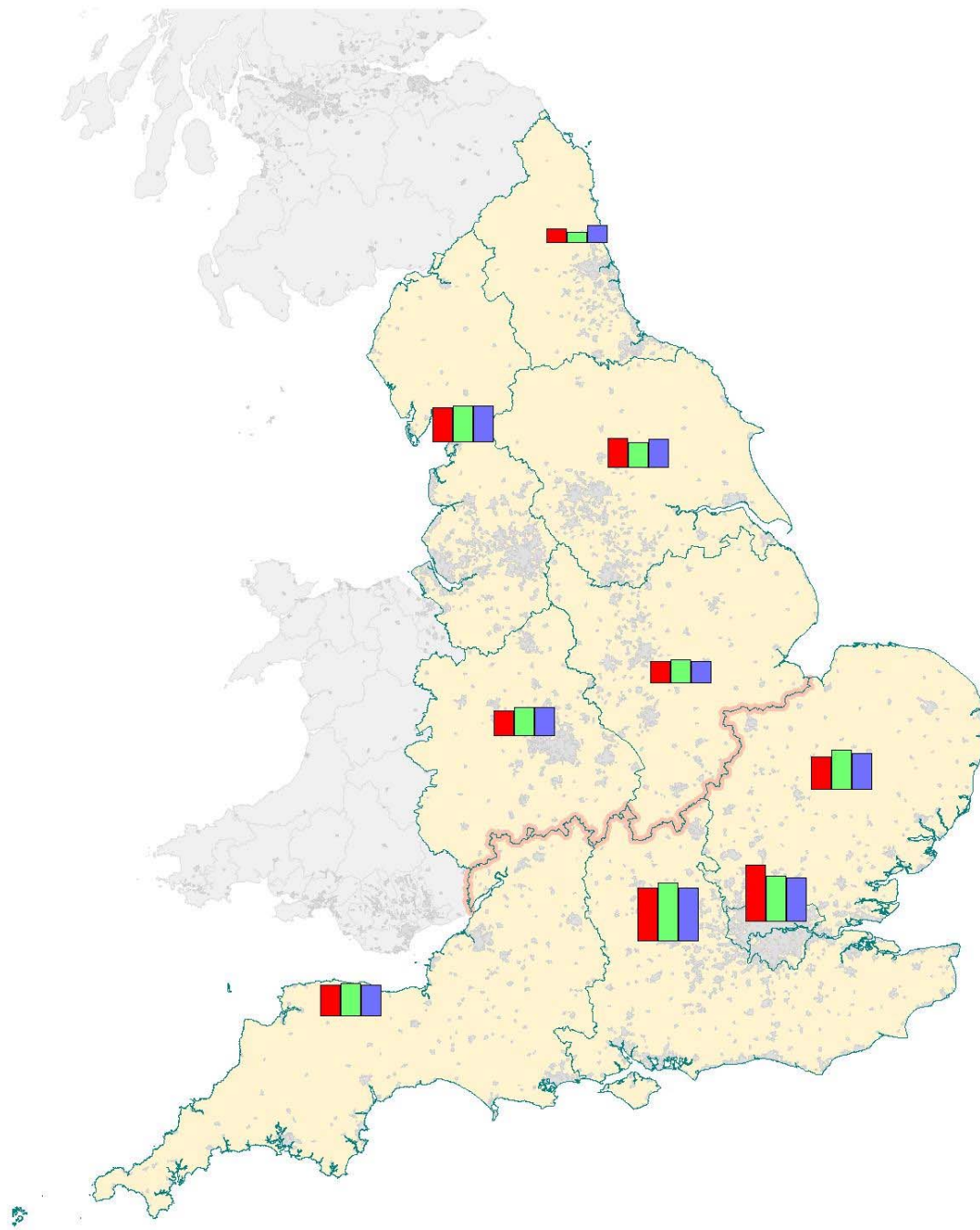
<b>SIC 71</b>	<b>Architectural and Engineering Activities; Technical Testing and Analysis</b>
<b>71.1</b>	<b>Architectural and engineering activities and related technical consultancy</b>
71.11	Architectural activities
71.11/1	Architectural activities
71.11/2	Urban planning and landscape architectural 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)
<b>SIC 74</b>	<b>Other Professional, Scientific and Technical Activities</b>
<b>74.9</b>	<b>Other professional, scientific and technical activities n.e.c.</b>
74.90/1	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 Map of Construction Output, Enterprises and Employment across England

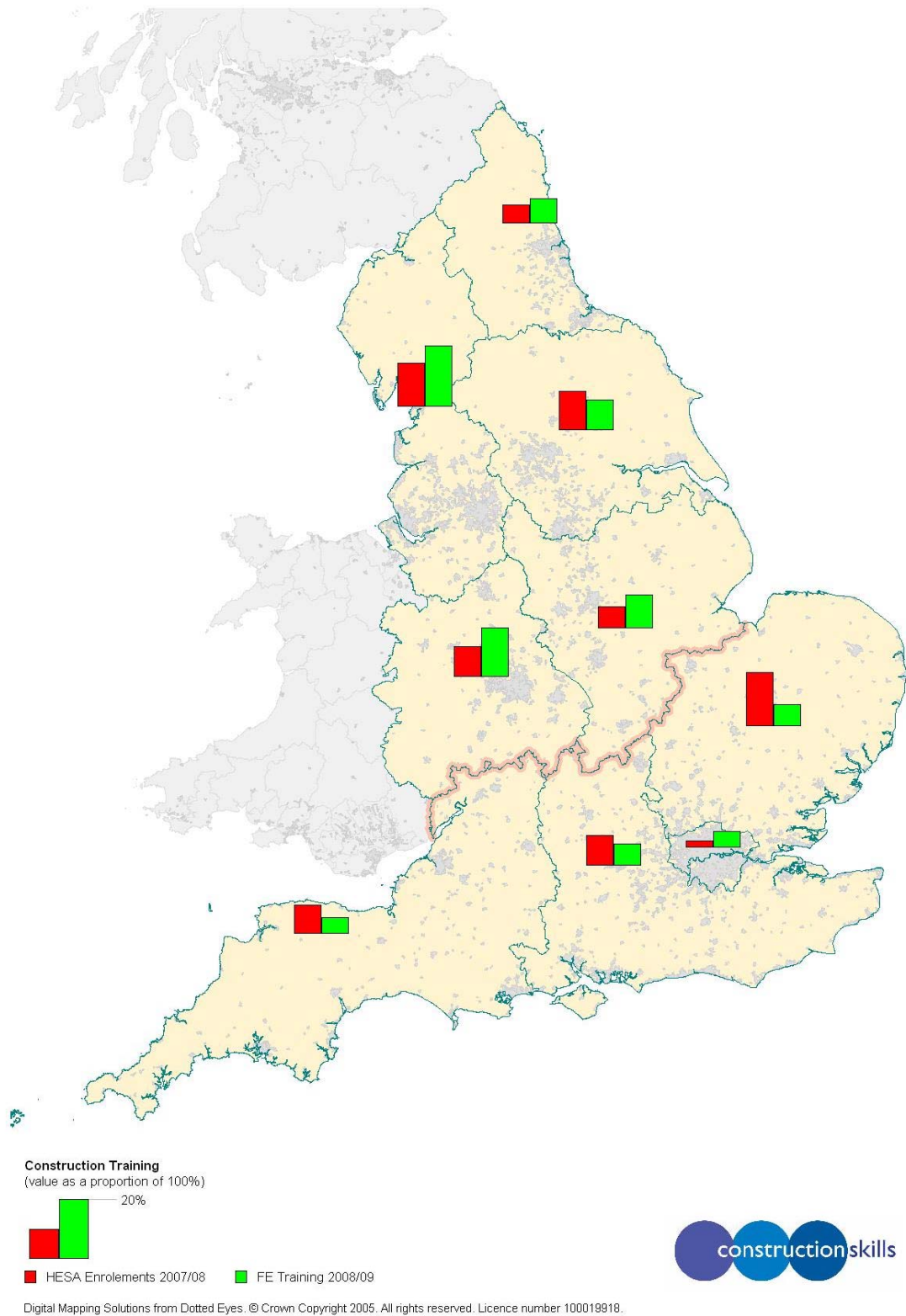


Regional differences across England  
(value as a proportion of 100%)



Digital Mapping Solutions from Dotted Eyes. © Crown Copyright 2005. All rights reserved. Licence number 100019918.

## 10.4 Map of Construction training in Higher and Further education across England



**ConstructionSkills**

Head Office  
Bircham Newton  
KING'S LYNN  
Norfolk  
PE31 6RH

Tel: 0344 994 4400  
[www.cskills.org](http://www.cskills.org)  
Contact: Martin Turner

© ConstructionSkills  
Produced by ConstructionSkills 2010

Extracts from this publication may be reproduced for non-commercial educational or training purposes, on condition that the source is acknowledged and the findings are not misrepresented.