



Sector Skills Assessment for the Construction Sector 2010

ConstructionSkills England Report

ConstructionSkills Research



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Registered Office: Head Office, Bircham Newton, King's Lynn, Norfolk, PE31 6RH

Registered Charity no: 264289

Web: www.cskills.org

Tel: 0344 994 4400

Email: research@cskills.org

Write: Head Office, Bircham Newton, King's Lynn, Norfolk, PE31 6RH

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1. Introduction

1.1 Background

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

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

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

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

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

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

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

This report brings together various research and analysis undertaken by ConstructionSkills during the past 12 months to provide an up-to-date assessment of skills within the construction sector in England. It is one of a set of four focussing on each nation of the UK.

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

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

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

1.2 Sector Definition

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

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

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

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

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

Aside from SIC codes the industry is as much defined by the type of work undertaken by those operating within it. Indeed, the related terminology and descriptions are widely used and recognised by both the industry and agencies collecting data on industry activity, including the Office for National Statistics.

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

1.3 Research Methodology

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

Bespoke Analysis

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

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

Desk-based Review

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

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

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

Primary Research

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

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

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

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

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

1.4 Structure of the Report

The Skills Assessment for England is divided into six main chapters:

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

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

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

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

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

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

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

2.1 What Drives Skills Demand?

2.1.1 Contribution of the Sector

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

Construction is a pre-requisite to all other economic activity and forms a significant part of the English economy in terms of employment and wealth generation. In England in 2009 it generated an output of £82.6billion (at constant 2005 prices). This is delivered by over 2 million¹ people working in the industry – just over 8% of the workforce.

The construction sector in England, including professional services, creates over £70billion² of value added (around 85% of the UK total 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 Gross Value Added as a percentage of England Total: 2008

Government Office Region	Approximate GVA
North East	5%
North West	13%
Yorkshire and The Humber	9%
East Midlands	7%
West Midlands	10%
North of England	44%
East of England	10%
London	19%
South East	19%
South West	8%
South of England	56%

Source: Office for National Statistics, Annual Business Inquiry (29/07/10)

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 2009 the employment trend has been positive apart from a slight dip in 2002 and now as a result of the recent recession. Indeed, until the recession the industry experienced its longest period of sustained growth since the post war construction boom.

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.

¹ Office for National Statistics, Labour Force Survey, Spring 2009

² Office for National Statistics, Annual Business Inquiry, Provisional Results 2008

Table 2 - Number of VAT and/or PAYE Based Enterprises in Construction and All in Construction Employment – Forecast 2011 (England)

	Enterprises		Employment	
	Number	Percent	Number	Percent
North East	7,760	3%	110,370	5%
North West	26,965	11%	262,920	12%
Yorkshire and The Humber	21,260	9%	222,220	11%
East Midlands	20,275	8%	158,210	8%
West Midlands	22,925	10%	212,820	10%
<i>North of England</i>	99,185	41%	966,540	46%
East	33,985	14%	258,570	12%
London	33,050	14%	333,750	16%
South East	46,705	19%	352,320	17%
South West	27,960	12%	195,360	9%
<i>South of England</i>	141,700	59%	1,140,000	54%
ENGLAND	240,885	100%	2,106,540	100%

Source: Office for National Statistics, UK Business - Activity, Size and Location 2010; 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.

Over one-third (38%) of the construction workforce in England is self-employed³. 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 shows proportions of self-employment above 40% in London, the East, and South East, as well as the West Midlands.

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

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

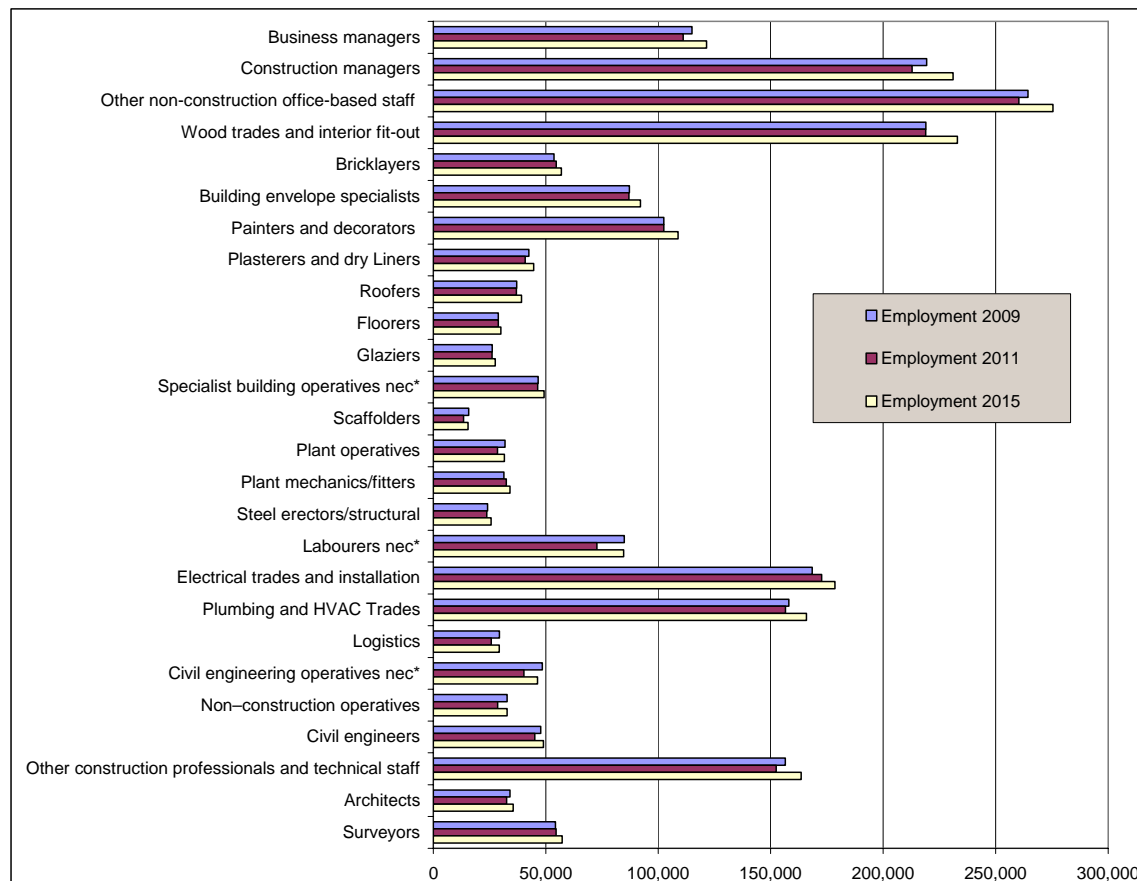
Uncertainty around future levels of work also means that employers are apprehensive about investment in the workforce and there is a fear that they would pay for training only to see their trainees leave for rival firms, or set themselves up as sole traders. Long-term planning of construction investment, 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.

³ Office for National Statistics, Labour Force Survey, Spring 2009

2.1.3 Employment Characteristics

In terms of occupational structure, manual workers dominate, representing 60% of the total workforce. The remaining 40% are non-manual workers, including managers, and all those working in the professional services sector⁴. Patterns of full-time working remain dominant in the industry. Part-time employment is negligible⁵.

Chart 1 - Construction Employment by Occupation, England: 2009 - 2015



Source: Construction Skills Network Model 2010; Experian

As employment within the sector is skewed towards the South of England, while the majority of training takes place in the North, it is found that that regions such the North East, where the industry is relatively small has a comparatively high demand for new entrants due to the significant level of net outflow of the workforce from the region.

2.1.4 Recruitment and Retention

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

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

The construction industry is notoriously cyclical and very sensitive to changes in the macro-economy. This is reflected in workforce flows. The construction industry has at times of recession lost significant numbers of workers, many of whom do not return. The

⁴ ConstructionSkills and Experian, Construction Skills Network, 2009

⁵ Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

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

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

Furthermore, demographic changes related to more young people staying on in full-time education after the age of 16, and the imminent raising of the compulsory education leaving age in England to 18 means it is unlikely that the age profile of the early 1990s will again be achieved and the industry will have to facilitate entry for older age and minority groups. In England, in 1985 34%⁶ of women and 30% of men were in post-compulsory education, this compares to 2007 when 67% of women and 59% of men aged 16-18 are in compulsory education.

2.2 Current Performance - What is Driving Change?

2.2.1 The Economy

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

Preliminary figures⁷ for the UK released by the Office for National Statistics (ONS) indicate that in the wider economy there have now been four quarters of successive growth since Q3 2009. Overall, in the wider economy Gross Domestic Product increased by 2.8% in 2010 Q3 compared with 2009 Q3. According to this data the construction industry has been central to the wider economic recovery. The preliminary figures indicate that construction output rose by 4.0% during 2010 Q3, following an impressive 9.5% rise in 2010 Q2 and slight decline of -0.8% in 2010 Q1. Overall, construction output increased 11.0% over the period Q3 2009 to Q3 2010.

However, the latest construction trade surveys⁸ and evidence from ConstructionSkills own surveys including its recent October 2010 Employer Panel⁹ indicate that the construction industry is still suffering a torrid time. According to the latest figures from the ConstructionSkills Network¹⁰, the construction sector experienced its worst contraction for 30 years with a fall in output of some 11% between 2008 and 2009. The latest medium to long-term forecast is for growth of around 1.4% per year in England between 2011 and 2015. Repair and Maintenance will grow slightly faster than New Work (1.6% growth compared to 1.2%).

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

⁶ Office National Statistics, Social Trends 39, 2009

⁷ Office for National Statistics, Gross Domestic Product Preliminary Estimate, Statistical Bulletin Q3 2010

⁸ Construction Trade Surveys include surveys undertaken by Experian, Civil Engineering Contractors Association (CECA), Federation of Master Builders (FMB), Construction Products Association (CPA) and National Specialist Contractors Council (NSCC)

⁹ ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010, Telephone survey with 1,511 employers

¹⁰ ConstructionSkills and Experian, Construction Skills Network, 2010

Throughout 2010 there has been great uncertainty in the industry as to how Government cuts will affect future workflows and in particular major work programmes. The CSR¹¹ published in October 2010, indicates cuts that will affect the construction sector, although significant, are not as severe as some had expected. In light of the review of key capital spending projects, the Spending Review made an adjustment to the capital envelope to ensure projects of high long term economic value remain funded.

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

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

Inevitably, job prospects have been affected by the economic hardship the country in general, and the construction industry in particular, has experienced. Whilst construction workforce levels in England have generally been buoyant over the past 15 years with strong demand for trades people, professional and technical occupations and management roles the performance of the sector has been severely impacted by the recession, which has been reflected in severe job losses.

According to recently conducted ConstructionSkills Employer¹² Panel research 35% of construction firms in England have laid off staff as a result for the recession (39% in the North and 31% in the South. Redundancies have affected all occupational groups from the unskilled to managers and professionals. Amongst construction firms labourers / general operatives are the occupation most likely to have been made redundant (37% of companies that had laid staff off because of the recession), followed by carpenters and joiners (21%), bricklayers (18%), administrative and secretarial staff (10%) and electricians (8%). Amongst professional services employers laying off staff, engineers were the most likely to be laid off (24%), followed by architects (15%), designers (10%) and technicians (10%).

More positive news from the Construction Skills Network¹³ suggests that the steep falls in construction employment in England seen between 2008 and 2009 have slowed. By 2011 the workforce is expected to be some 2.5% smaller than it was in 2009 (2.11 million compared to 2.16 million). Growth of around 1.8% per annum is forecast for the English workforce between 2011 and 2015.

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.

¹¹ HM Treasury, Spending Review, October 2010

¹² ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 10), October 2010

¹³ ConstructionSkills and Experian, Construction Skills Network, 2010

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

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

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 recessionary trend, although growth has been limited.

Table 3 - Construction Output (Constant 2005 Prices) by Main Sub-sector, England: 2009-2010

Sub-Sector	2009		2010		% Change 2009 - 2010
	Value	%	Value	%	
Public housing	£2,768	3%	£3,056	4%	10%
Private Housing	£8,849	11%	£9,102	11%	3%
Infrastructure	£6,105	7%	£7,207	9%	18%
Public non-housing	£11,737	14%	£12,599	15%	7%
Industrial	£2,233	3%	£2,160	3%	-3%
Commercial	£14,672	18%	£13,106	16%	-11%
All new work	£46,364	56%	£47,230	57%	2%
Housing R&M	£18,345	22%	£17,818	21%	-3%
Non-housing R&M	£18,195	22%	£17,909	22%	-2%
All R&M	£36,540	44%	£35,727	43%	-2%
Total work	£82,904	100%	£82,957	100%	0%

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

Note: 2010 is an estimate

In 2010 the infrastructure and public non-housing sectors have both grown with funds committed before the recession, driven by the Building Schools for the Future programme and work on the Olympic Park. Housing has also grown as house builders attempt to maintain activity levels. The commercial sector was hit very hard in 2009 and continues to decline in 2010, and the industrial sector, also hit very hard in 2009 has suffered a small decline in 2010.

However, the balance between public and private work will change. As economic conditions improve, stabilisation and then recovery are expected for the industrial and commercial sectors, although the timing of the upturn will vary across markets. In contrast, the public sectors are facing expenditure cuts as a result of the CSR.

2.2.3 Comparing the prospects for the sectors

Moving forward the Construction Skills Network offers forecasts for the next five for each of the sectors.

Infrastructure

In 2010 infrastructure is the sector predicted for the strongest growth, with 18% growth in output forecast. There is little doubt that the main driver of the sector over the next few years will be big transport projects such as Thameslink, M25 widening, and the Manchester Metrolink extension. There are also various overground and underground station redevelopments already on site and early work has begun on the biggest of them all, Crossrail. Over 2,500¹⁴ people are now employed on the Crossrail project, with up to 14,000 forecast to be employed at the height of construction between 2013 and 2015.

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

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

Public and private housing

In theory a much higher level of funding in the 2008-2011 Affordable Housing Programme (AHP) should have delivered increasing output in the public housing sector. However, social housing providers have been hit by stricter lending conditions, both through their ability to access funds directly from private lenders, and through income generation from sales of units under low cost home ownership schemes (LCHO).

Funding allocations under the current Affordable Housing Programme (AHP) gathered pace in 2009 and in 2010 there has been overall growth of 5% for the sector in England, with similar growth forecast for 2011. Post-2011 the picture will change again due to cuts in the next AHP and thus if social housing providers are going to increase the supply of new units they will need to access higher levels of private finance.

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

Public non-housing

Two major programmes of work are driving this sector in the short term, the Olympic Park and Building Schools for the Future. However, the former is due to start winding down from around mid-2011 and the latter has been subject to major expenditure cuts by the Coalition Government. However, new, large scale funding projects already discussed in 2.2.1 should see current growth levels of 7% maintained.

Industrial

Industrial construction all but collapsed in 2009 with falls of 3% forecast for 2010. It has been hit by the double issues of falling global and domestic demand for manufactured products and the natural end to what had been an exceptionally strong boom in the supply of distribution and logistics facilities. Industrial construction output fell to a lower level in 2009 than that seen in the depths of the 1980s recession, which hit

¹⁴ Crossrail, <http://www.crossrail.co.uk/company/communications-centre/press-releases/crossrail-outlines-progress-on-delivering-value-for-money>, 2010

manufacturing very hard. It is likely that with a recovery in global demand already underway, the trend for the sector should turn upwards from 2011. However the strength of growth will be predicated to some extent on whether projects such as the London Gateway port go ahead, as this scheme is expected to generate long term demand for around £1bn of distribution and logistics facilities in its hinterland.

Commercial

The commercial construction sector is projected to be the worst performing in 2010 with a forecast 11% decline in output. After holding up well in 2008 due to the amount of work in progress, output fell by sharply in 2009 as projects completed and few new ones have come on site. With demand for office, retail and leisure facilities likely to remain muted for some time to come, and significant levels of availability, it will be a while before these sectors see the start of the next development cycle. Of the big football stadia projects that were in the pipeline most have been abandoned or are still mired in financial problems. Only that for Tottenham Hotspur FC seems likely to go ahead at present.

Repair and maintenance (R&M)

Housing R&M activity is expected to decline in 2010 with falls in both the public and private sectors. Public Housing is affected by the winding down of the Decent Homes for All programme, while on the private side, disposable incomes are coming under pressure, particularly with the likelihood of further tax increases over and above the increase of VAT to 20% from the start of 2011 and National Insurance increases from April 2011. This and continuing employment uncertainties are likely to make home owners wary of big-ticket purchases until there is evidence of a sustained improvement in economic conditions.

Public non-housing R&M is likely to be under the same financial pressures as public housing R&M and thus is likely to decline slightly in 2010. Some of this will be off-set on the private non-housing side by increases in expenditure for routine and cyclical maintenance, especially if the corporate sector sees a sustained return to rising asset values and increasing profitability.

Regional Comparison

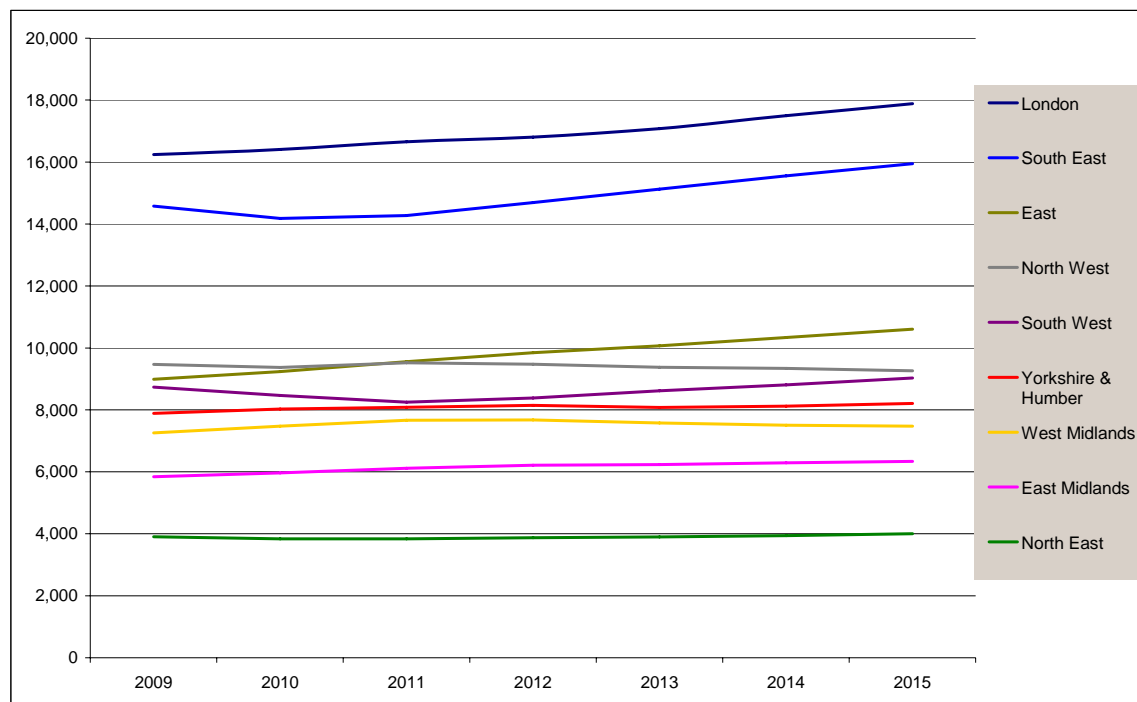
Construction output in the English regions varies quite widely and is very much linked to the performance of the wider macro-economy.

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 creation/relocation of key Government departments and services.

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

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

Chart 2 - Construction Output in £m (2005 prices), Regions: 2009-2015



Source: Construction Skills Network Model 2010; Experian

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.

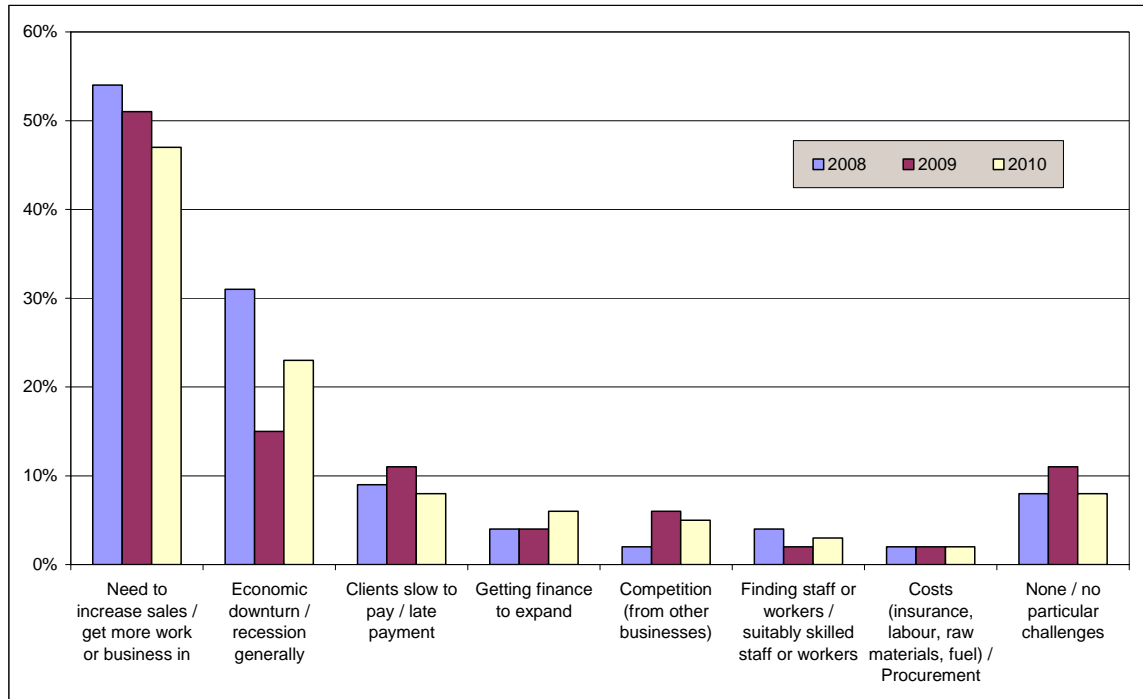
Construction in London with its heavy reliance on the offices market has been badly affected by the travails in the financial services sector, although infrastructure projects, which are very London and South East England centric, have sustained output which was previously driven by private investment.

2.2.4 Key Challenges Facing Construction Firms

Recent research undertaken for ConstructionSkills¹⁵ shows that nearly half of all construction firms in England believe that increasing their workload will be a major challenge over the next 12 months. Although this figure has fallen slightly over the past two years, it still shows that the hangover from the recession is still affecting many employers, especially given that nearly one-quarter of all firms report that dealing with the economic downturn generally will be a major challenge for them.

¹⁵ Employer Panel Survey, IFF Research 2009

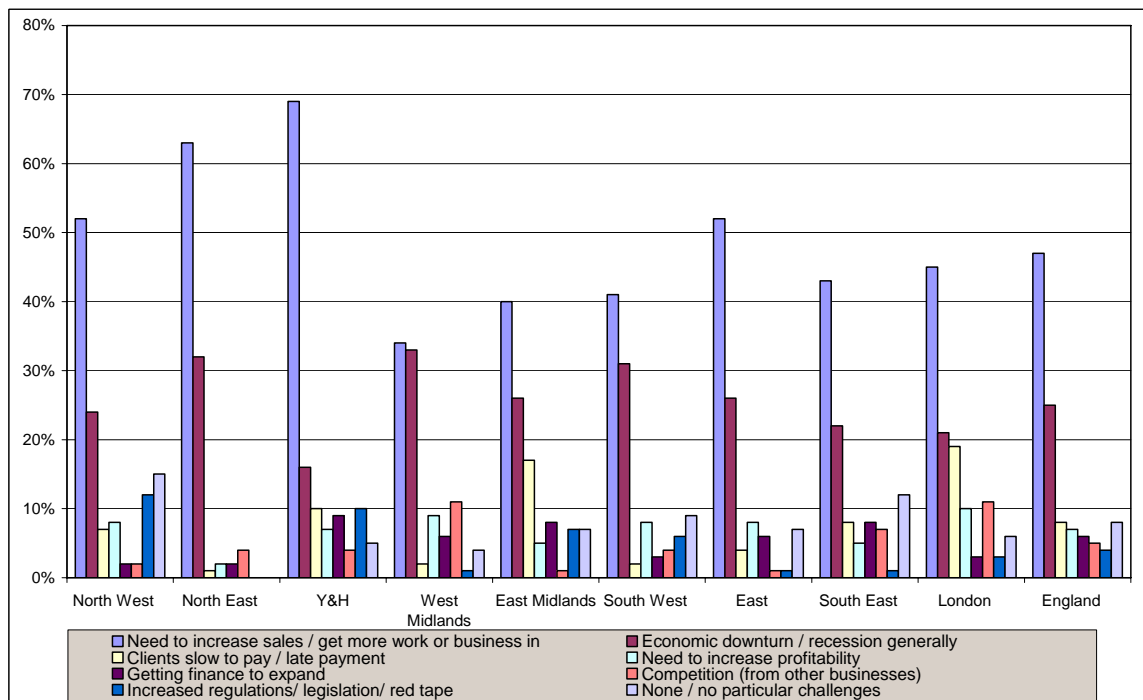
Chart 3 - Key Challenges Facing Construction Firms, England 2008 - 2010



Source: ConstructionSkills, IFF Research

Whilst there is considerable regional difference in the key challenges faced by firms, the differences between the North of England and the South are much less pronounced than recent years. The biggest challenges are still, as would be expected, increasing sales and overcoming the economic downturn, felt particularly strongly in the North East and North West, but which are the major factors in every region.

Chart 4 - Key Challenges Facing Construction Firms by Region 2010



Source: ConstructionSkills, IFF Research

2.2.5 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 bring with them.

Of the almost 100,000 migrant workers who have joined the English construction industry in either manual or professional occupations in the last decade¹⁶ the vast majority have settled 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 A8¹⁷ 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 as labourers during the period April 2008 to March 2009¹⁸. 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.

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 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

¹⁶ ONS Labour Force Survey

¹⁷ The Accession 8 States are; Poland, Lithuania, Slovakia, Latvia, Czech Republic, Hungary, Estonia and Slovenia.

¹⁸ 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

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. Obviously their numbers will decline when the proposed cap on skilled migrants is introduced.

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 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: 2008/09 and 2007/08

	2008/09				2007/08			
	Total	UK Dom	Non UK Dom	% Non-UK Dom	Total	UK Dom	Non UK Dom	% Non-UK Dom
Civil engineering	4,073	3,022	1,051	26%	3,553	2,634	918	26%
Architecture	4,270	3,416	853	20%	4,011	3,240	772	19%
Building	4,367	3,962	404	9%	4,217	3,580	637	15%
Landscape design	300	257	43	14%	272	240	32	12%
Planning (urban, rural & regional)	1,324	1,207	116	9%	1,313	1,214	99	8%
Others in architecture, building & planning	201	192	9	4%	298	280	18	6%
Total	14,534	12,057	2,477	17%	13,663	11,187	2,476	18%

Source: Higher Education Statistics Authority (HESA) 2010

Data from the Higher Education Statistics Authority (HESA) shows that a high proportion of course enrolments are from Non-UK Domiciled students. Proportions are highest for Civil Engineering and Architecture courses at 26% and 20% of students respectively, with an overall proportion of 17%.

2.2.6 Technology

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

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

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. Section 5 provides a fuller discussion of the skills implications arising from technological advancement.

2.2.7 Demographics

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

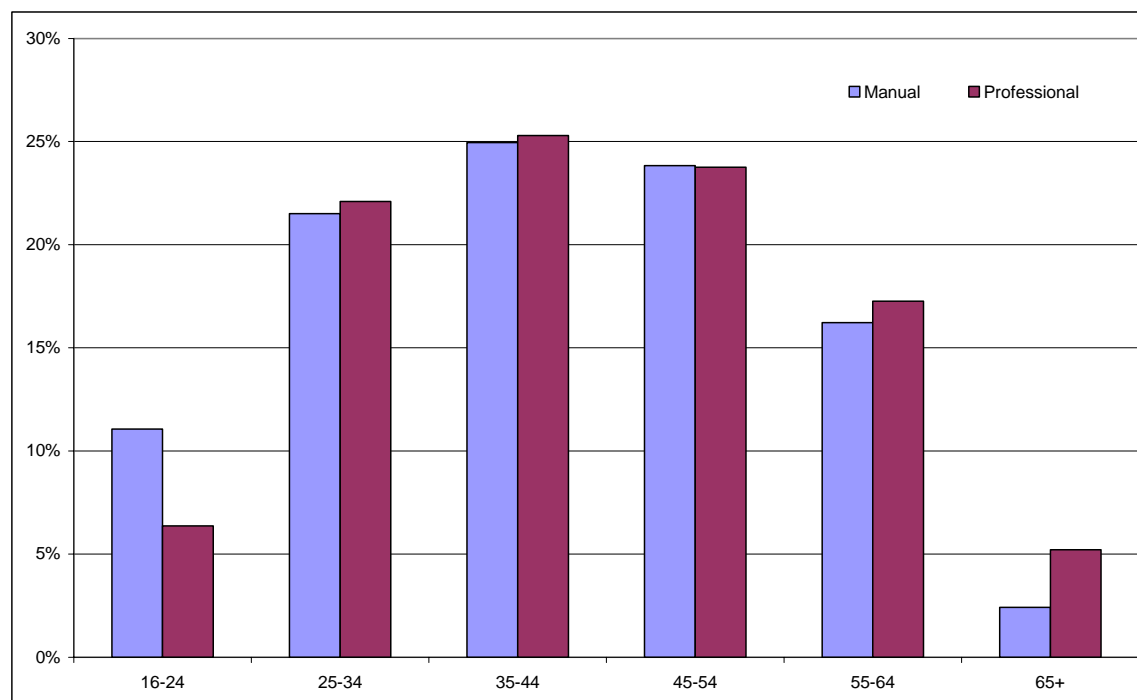
Forecast population growth in England of about 0.7% per annum over the next decade¹⁹, mainly through net inward migration, together with increasing rates of household formation is driving the demand for homes and public services, yet these are only achievable if there is sufficient capacity in terms of labour and skills to provide them.

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-thirds²⁰ of the annual increase in households.

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 groups²¹.

Chart 5 - Age Profile of Construction Industry, England: 2010



Source: Office for National Statistics, Labour Force Survey 2010

Furthermore, demographic changes related to more young people staying on in full-time education after the age of 16, and the 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.

¹⁹ Office for National Statistics, Population Projections, 2007

²⁰ Department of Communities and Local Government, Household Projections to 2031, March 2009

²¹ Office for National Statistics, Labour Force Survey, Spring 2009

The under-representation of women and ethnic minorities remains a priority issue for the industry. Labour force statistics show that when compared with the workforce as a whole, the sector remains amongst the most gender imbalanced in the economy.

Currently women account for approximately 13% of the total employment in the sector in England. Over a quarter (27%) of the non-manual or off-site roles are filled by women, but less than 2% of those employed in manual trades are female. The highest levels of women in the manual trades are in the South East, East, and South West. At 2.0% the South East has the highest levels of women in manual positions, much lower than the national average for all sectors of 38%.

Whilst, the proportion of Black and Minority Ethnic (BME) workers in construction employment has gradually risen over the past decade to represent about 5% of the construction workforce in England, this still compares poorly with the wider working population (10%). Looking at the split between manual and non-manual occupations, BME workers currently account for 4% of all manual construction 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 BME workers in the construction sector 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 (18%) and the West Midlands (6%) are below the all industry average for all sectors in these regions (37% and 12% respectively).

2.2.8 Legislation

Legislation remains a key driver for change within the construction sector. There are long standing trends of policy towards improving the quality of work (working time directive, parental rights, minimum wage, health and safety) and reducing damage to the environment (planning legislation, aggregate tax etc) that are changing the way the industry works.

As with any sector, change resulting from legislation is generally likely to be gradual as firms respond and get to grips with the implications of new legislation. In the construction sector particularly, due to the high proportion of small firms, high levels of self-employment and wide use of sub-contracting changes are likely to take time to filter through. For example, it is more than 3 years since the introduction of the Construction (Design and Management) Regulations 2007 (CDM2007), introduced in April 2007. However, according to a recent impact survey²² carried out by CDM2007.org over half (54%) of the 227 CDM 2007 duty-holder participants in the survey are not confident that their management colleagues across all levels inside their organisations understood their CDM 2007 responsibilities. Furthermore, similar proportions (47%) doubt whether those colleagues are competent to carry out their CDM2007 duties.

Alongside specific legislation there is a plethora of policy initiatives relating to climate change, sustainability and zero carbon. There is more discussion of these in section 5.

2.2.9 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.

²² <http://www.cdm2007.org/courses/Survey/CDM2007%202009%20Impact%20Survey.pdf>, 2009

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

Consumers now demand choice in all facets of life and the industry has had to respond accordingly. This applies to both individuals and Government alike. Clients and markets influence skills by their demands for better delivery, performance and value for money. Their intolerance of late delivery, over spending and defects is driving change. At Government level and amongst commercial clients this is leading to different forms of contract, and contractors needing to generate more accurate plans and adopt more predictable construction techniques; each of which requires new and higher level skills.

2.2.10 Sustainability

Sustainable construction meaning²³ “the creation of buildings and infrastructure to shape communities in a way that sustains the environment, generates wealth over the long-term and enhances the quality of life for people”, is a unique issue for industry as it brings together under one banner the whole spectrum of social, economic and political drivers.

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

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

²³ CITB-ConstructionSkills, Build to Last: Reviewing Sustainable Construction, 2004
ConstructionSkills Sector Skills Assessment 2010

Summary Box

- Preliminary data released from the ONS provides signs of economic recovery in the construction sector. According to the data there was 4.0% growth in construction output in Q3 2010 which followed growth of 9.5% in Q2 2010.
- This data does not tally with ConstructionSkills' October 2010 Employer Panel research and various state of trade surveys which indicate the industry is still suffering a torrid time. Following questioning from economists the ONS are checking their methodology.
- The CSR published in October 2010, indicates cuts that will affect the construction sector, although significant, are not as severe as some expected. Transport schemes and BSF fared better than expected with £30 billion of funding over the review period for transport schemes and £15.8 billion of capital funding for BSF and Academies programme. Social housing funding was cut back severely and there are further concerns over how private sector housing growth will be stimulated.
- Recruitment difficulties have all but disappeared in the short-term, with only a minority of contractors reporting difficulties in obtaining site labour.
- The loss of workers during the recession may lead to skills gaps and shortages that will hinder the recovery, impacting the industry's ability to deal with opportunities in the upturn.
- There is a need for increased diversity within the workforce to exploit skills from a wider pool of talent.
- The CSR has prioritised funding for energy and climate change, the Department of Energy and Climate Change will see an increase in its overall budget to £3.7 billion in 2014-15, up from £2.9 billion in 2010-11. This increased funding will provide opportunity for construction firms.
- Need to meet new legislative requirements, particularly in respect of low carbon and carbon targets will impact on skills at professional, management and trade level.
- Technological change is a key driver as the sector looks to achieve ambitious programmes with a smaller workforce.

3. What have been the recent trends in the supply of skills?

3.1 What has been the level and type of skills entering the labour market?

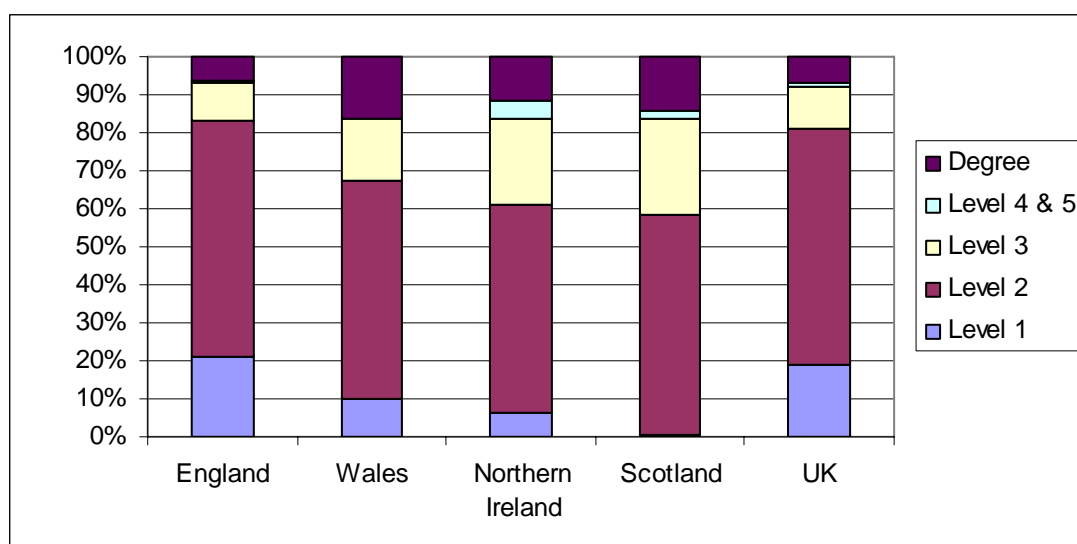
The following section sets out the recent trends in the level and type of skills by focusing on two key areas of supply relevant to the construction industry - education and training and skill levels (using qualifications as a proxy).

3.1.1 The contribution of training and education

To provide a robust view on the number of people available to enter the construction industry through accredited²⁴ training and education, ConstructionSkills has been undertaking a longitudinal project²⁵ to obtain training supply data across the UK from both further and higher education.

The latest available data providing shows 129,000 construction qualification achievements in 2008/2009 across England. Chart 6 below, shows the share of training by level of qualification across each nation and the overall UK total.

Chart 6 – Achievers of qualifications within construction industry by level of qualification and nation, UK: 2008-2009



Source: ConstructionSkills Training Supply Project

There are considerable volumes of attainment at Level 2 in England (62%), which is consistent with the findings across all nations. When compared to the other three nations in the UK, England has a higher than average share of Level 1 and Level 2 qualifications but a much lower proportion of qualifications at Level 3 and above.

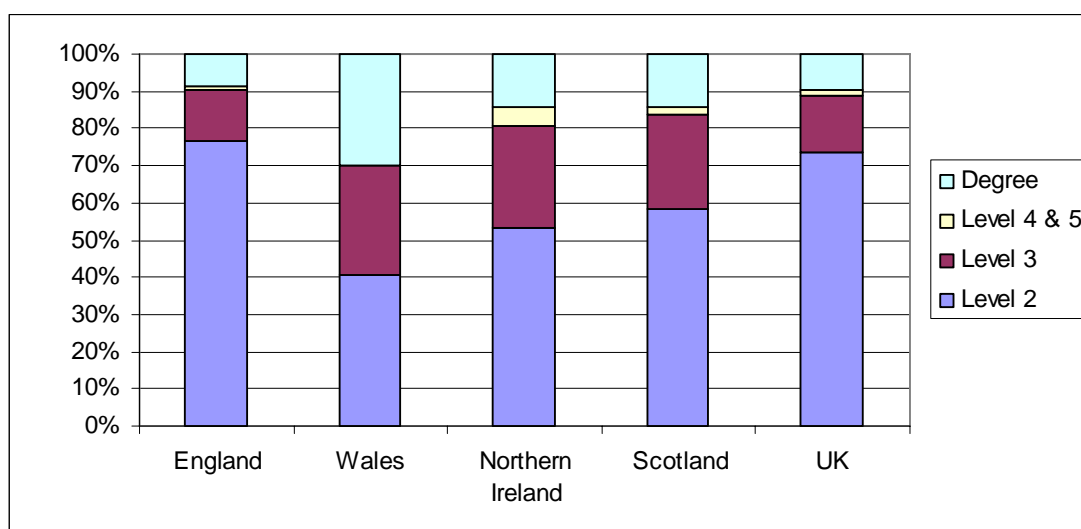
²⁴ The term 'accredited' in this context refers to officially recognised UK based qualifications

²⁵ ConstructionSkills Training Supply Project aims to provide a full picture of UK publicly funded training provision across the ConstructionSkills footprint by obtaining robust and reliable datasets from the appropriate organisations.

This analysis of training data contains all qualification achievements collected by public funding agencies, and as such Levels 1 to 3 will contain both Scottish/National Vocational Qualifications (S/NVQs) and Vocationally Related Qualifications (VRQs). The main difference between these two types of qualifications is that VRQs are essentially delivered through full time further education and therefore they are not perceived by the industry in quite the same way as NVQs which are based around practical application of skills in a work based environment. With this in mind the construction industry tends to use a Vocational Qualification (VQ) Level 2 as the competency benchmark. Therefore the training data needs to be further deflated to show those deemed competent as available to enter the construction industry.

Further analysis of this data excluding all Level 1 qualifications (both NVQ and VRQ) and VRQ Level 2 qualifications shows an available workforce of 91,000 in England. The share of training by qualification level and nation is highlighted in Chart 7.

Chart 7 – Achievers of qualifications deemed competent to enter the construction industry by level of qualification and nation, UK: 2008/2009



Source: ConstructionSkills Training Supply Project

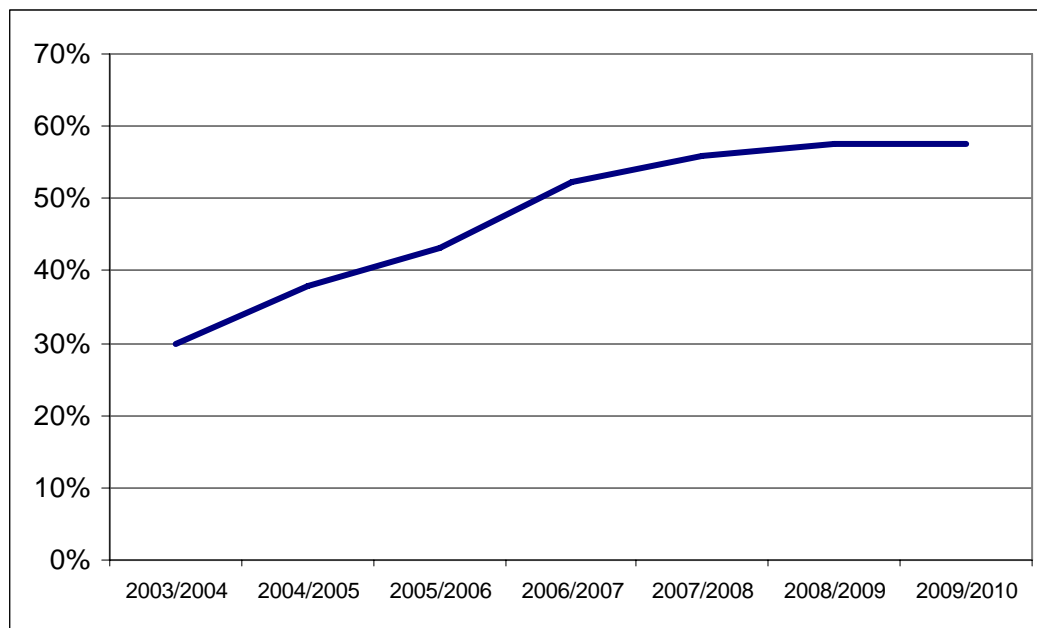
Therefore 71% of all achievers are considered competent to enter the workforce. This equates to a reduction of 38,000 achievers, of which the majority (70%) were on a Level 1 VRQ. Given the preponderance towards Level 1 and Level 2 qualifications in England, it is unsurprising that England achievements deemed below the level of competency account for 95% of all those removed from the training data.

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

Analysis of ConstructionSkills Trainee Numbers Survey²⁶ data highlights the increase in VRQ qualifications in England over a six year period (2003/04 to 2009/10). From just under a third (30%) of craft training in 2003/2004 the share of VRQ's increased to over half in 2006/2007, since then it has plateaued, with the latest Trainee Numbers Survey (2009/10) showing that 57% of first-year craft trainees were studying for a VRQ in England, which are predominately Diploma/Construction Awards.

²⁶ The Trainee Numbers Survey is an annual survey across Great Britain which measures the number of starters onto construction qualifications each academic year.

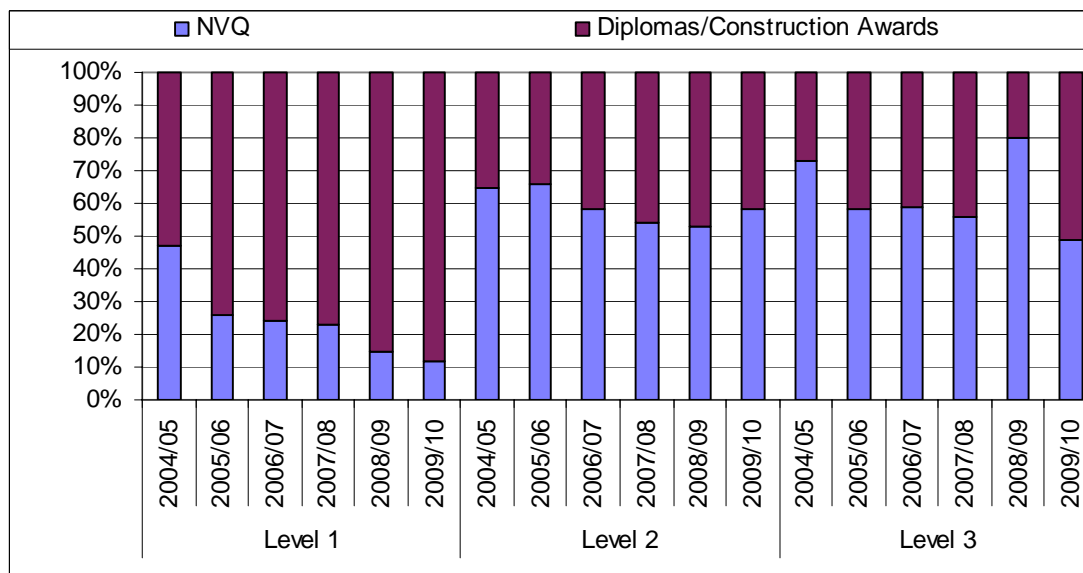
Chart 8 – Starters on a VRQ in construction: 2003/04 to 2009/10 (Craft training in England)



Source: ConstructionSkills Trainee Numbers Survey

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

Chart 9 – Proportion of first-year trainees split by work-based training 2004/2005 to 2009/2010 (Craft training in England)



Source: ConstructionSkills Trainee Numbers Survey

Apprenticeships

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

Further analysis of ConstructionSkills' Trainee Numbers Survey²⁷ shows that over the four year period from 2006/2007 to 2009/2010, starters on an construction apprenticeship have decreased from 58% to just 40% of all training at both level 2 and level 3 in England. In other words, currently starters on an Apprenticeship account for less than half of all starters on level 2 and level 3 qualifications within England.

These findings are perhaps unsurprising given the recent recession and the current fragile recovery as substantiated by findings from ConstructionSkills 2009 survey on Skills and Training²⁸. When employers in England that offered Apprenticeships were asked if the recession had had a negative impact on the number of Apprenticeships being taken on, 40% admitted that the number of Apprentices recruited by their establishment had fallen as a result.

Additionally when employers who did not offer Apprenticeships were asked why this was the case, the main reasons given, mentioned by 16%, was that they did not have enough work to be able to take on Apprentices. This is much more important than in 2008 when only 6% of those who did not offer Apprentices mentioned it as a reason. Similarly financial constraints (9% vs. 4% in 2008), recession / uncertainty (7%, not mentioned in 2008), and not taking on new staff (7% vs. 2% in 2008) were all more likely to be reasons for not taking on Apprentices in 2009.

Further investigation via ConstructionSkills' Employer Panel²⁹ found that over a quarter of companies in England (28%) had cut back on the planned recruitment of apprentices because of the recession. There were considerable regional variations ranging from 16% in the East to 51% in the West Midlands. Given the scale of cut backs in the recruitment of apprentices, it is perhaps not surprising that two thirds of employers in England felt that there is an over-supply of people wanting to become apprentices (65%, the same proportion as reported across the UK as a whole). Two-fifths of the companies identifying an oversupply of apprentices feel this affects particular occupations, most commonly plumbers, electricians, bricklayers and carpenters / joiners.

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

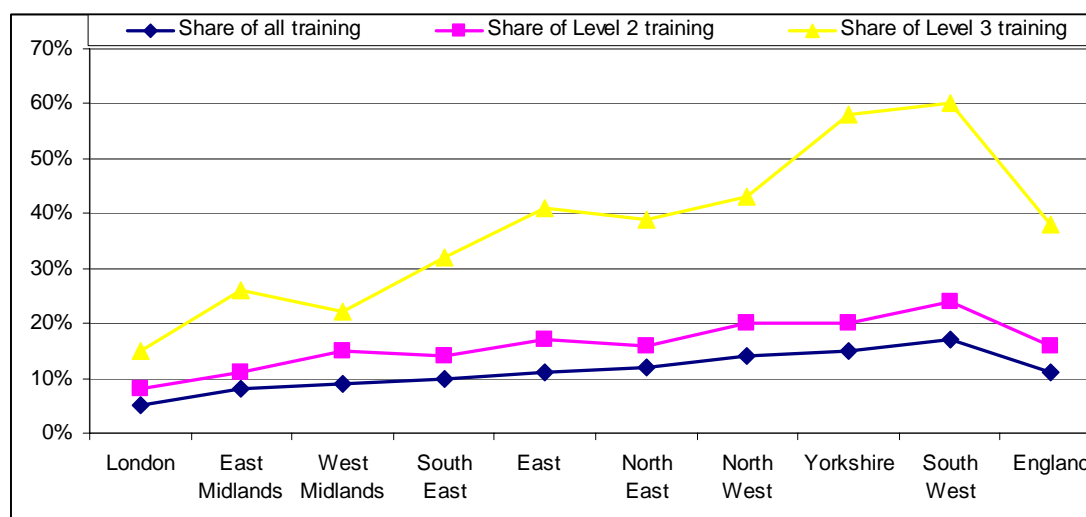
As a share of all achievements across England, Apprenticeships accounted for 11%, ranging from 5% in London to 17% in the South West. Although they are predominately being undertaken at a Level 2, on average three-quarters compared to a quarter at a Level 3, they make up a larger proportion of Level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

²⁷ The Trainee Numbers Survey is an annual survey across Great Britain which measures the number of starters onto construction qualifications each academic year.

²⁸ ConstructionSkills Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms) of which 788 were in England.

²⁹ ConstructionSkills Employer Attitudes and Motivations to Learning and Training (Wave 10), 2010, Employer Panel Consultation with 1185 employers and sole traders across construction industry in England

Chart 10: Apprenticeship achievements in England; 2008/2009



Source: ConstructionSkills Training Supply Project

Training by Occupation

The following takes a look at the make-up of training supply by focusing on the occupational breakdown. ConstructionSkills' Trainee Numbers Survey³⁰ provides an indicative picture of training at further education and data has been sourced from the Higher Education Statistics Agency (HESA) to provide figures at higher education.

The Trainee Numbers Survey longevity allows data on new entrants onto construction training to be tracked year on year. The following table lists the top six occupations in descending order, in terms of their share of overall training in 2009/2010, over a five year period.

Table 5: Starters on construction training within further education in England; 2005/6 to 2009/10

	2009/10	2008/09	2007/08	2006/07	2005/06
Wood trades and interior fit-out	31%	30%	32%	36%	32%
Bricklayers	22%	22%	22%	25%	23%
Plant operatives	11%	12%	12%	7%	10%
Construction technical staff	8%	11%	9%	10%	11%
Painters and decorators	7%	8%	8%	9%	8%
Plasterers and dry liners	6%	6%	6%	6%	4%

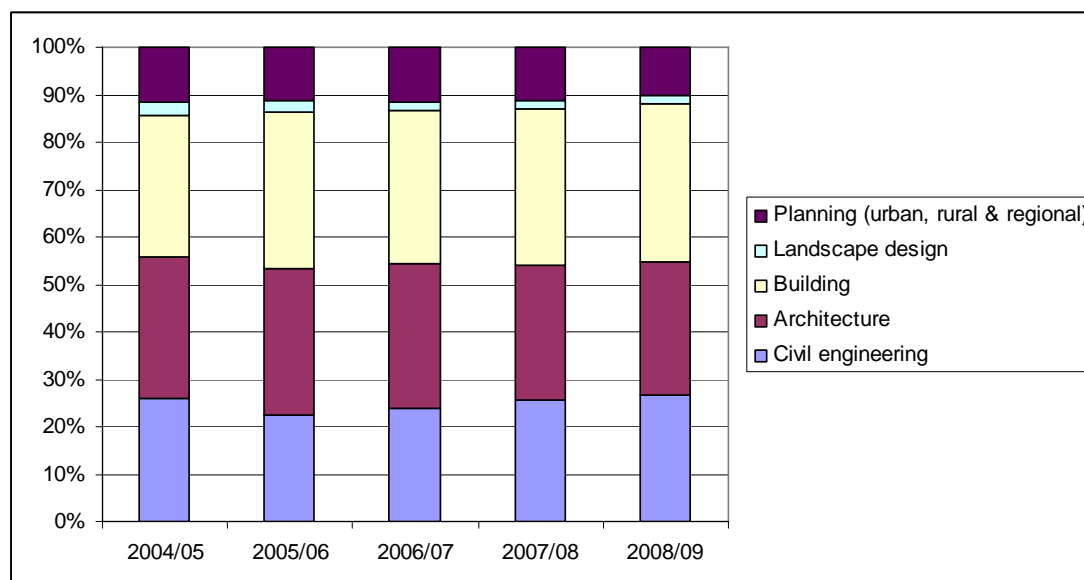
Source: ConstructionSkills Trainee Numbers Survey

Between 2005/2006 and 2009/2010 wood trades and bricklayers have ranked as the first and second largest occupational groups respectively, each year. The composition of the remaining top six places has consistently comprised plant operatives, construction technical staff, painters & decorators and plasterers. Thereby highlighting the dominance of the main building craft trades in construction training.

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

³⁰ The Trainee Numbers Survey is an annual survey across Great Britain which measures the number of starters onto construction qualifications each academic year.

Chart 11: Student enrolments on built environment first degree courses by subject 2004/2005 to 2008/2009 (England)



Source: Higher Education Statistics Agency

3.1.2 Skill Levels in the Construction Industry

The following table shows the highest qualification level achieved by the construction industry workforce in each geographical area across the UK and compares the English construction industry workforce to the workforce across all industries in England.

Table 6 – UK Construction Industry Workforce Qualifications v All Industries in England: 2010

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

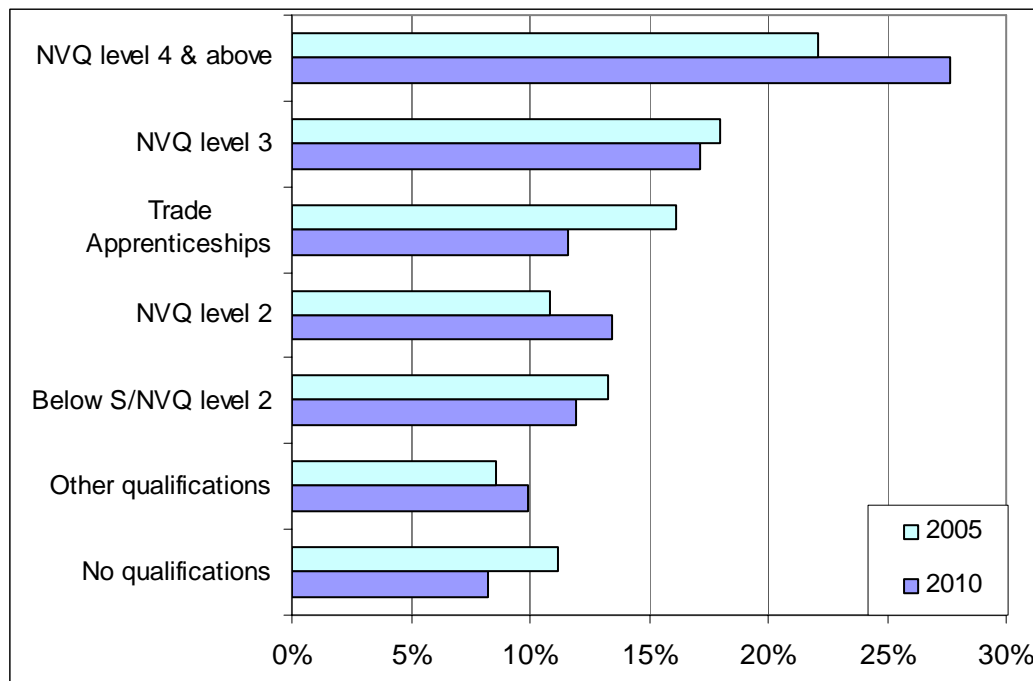
Source: Office for National Statistics, Labour Force Survey

From the table it is evident that the qualifications in the English construction workforce are generally comparable to those across the UK as a whole.

Compared to all industries the English construction workforce has a significantly higher proportion trained as an Apprentice, but a smaller share trained to Level 2. However, it is standard practice to equate an Apprentice to a Level 2 qualification, therefore when added together the construction industry has a slightly higher proportion qualified to a level 2 (25% v 20%).

The changes in the skills level of the construction workforce over the past five years is presented in the following chart.

Chart 12 - Qualifications of the Construction Workforce, England: 2005 v 2010



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*³¹. Leitch recommends that by 2020 - 40% of the workforce should be operating at level 4 and above; 90% should be qualified to at least level 2; shifting the balance of intermediate skills towards level 3.

The main improvements in the skill levels of the construction industry can be seen at both ends of the scale. Over the past five years there has been progress in the attainment of higher level qualifications (Level 4 and above) and subsequently a decrease of those with no qualifications - certainly progress towards a fully qualified workforce. While there appears to be a decline in trade apprenticeships this is off-set by the increase in NVQ Level 2 qualifications; as mentioned earlier. Overall the decrease in lower level qualifications can be attributed to the retirement of less well qualified people in conjunction with improvements in the qualifications held by new entrants.

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

³¹ Leitch Review of Skills, Prosperity for all in the global economy – world class skills. December 2006
ConstructionSkills Sector Skills Assessment 2010

Table 7 - Construction Industry Workforce Qualifications by Non-Manual Occupations, England: 2010

	Civil engineers	Architects	Chartered surveyors	Quantity surveyors	All non-manual
S/NVQ Level 4 & above	76%	88%	82%	66%	54%
S/NVQ Level 3	7%	3%	8%	14%	14%
Trade Apprenticeships	2%	1%	2%	2%	5%
S/NVQ Level 2	5%	0%	3%	9%	11%
Below S/NVQ Level 2	5%	0%	4%	5%	9%
Other qualifications	5%	6%	2%	4%	5%
No qualifications	1%	2%	0%	1%	3%

Source: Office for National Statistics, Labour Force Survey

Table 8 - Construction Industry Workforce Qualifications by Manual Occupations, England: 2010

	Bricklayers	Roofers	Wood trades	Painters & decorators	All manual
S/NVQ Level 4 & above	3%	2%	5%	6%	6%
S/NVQ Level 3	32%	6%	34%	18%	20%
Trade Apprenticeships	27%	20%	24%	20%	17%
S/NVQ Level 2	12%	19%	13%	16%	16%
Below S/NVQ Level 2	10%	14%	8%	10%	15%
Other qualifications	10%	14%	10%	13%	14%
No qualifications	5%	24%	5%	17%	12%

Source: Office for National Statistics, Labour Force Survey

As would be expected the vast majority of non-manual occupations are educated to Level 4 and above. Further analysis shows that on average 42% of these qualifications are first degrees, although in the occupations shown above this is significantly higher with first degrees accounting for over half of the Level 4 and above qualifications.

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

Summary Box

- In 2008/2009 there were 129,000 construction qualification achievements across England of which 71% were considered competent to enter the workforce
- Construction training has witnessed a sharp increase of VRQs, especially at Level 1.
- Conversely, and unsurprising within the current economic climate Apprenticeships starts have been decreasing
- The most popular courses at further and higher education are Wood Trades and Building/Architecture first degrees
- Compared to all industries the construction workforce has a significantly higher proportion trained as an Apprentice.
- Over the past five years there has been progress in the attainment of higher level qualifications and subsequently a decrease of those with no qualifications

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

3.2.1 Workforce Training and Development

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

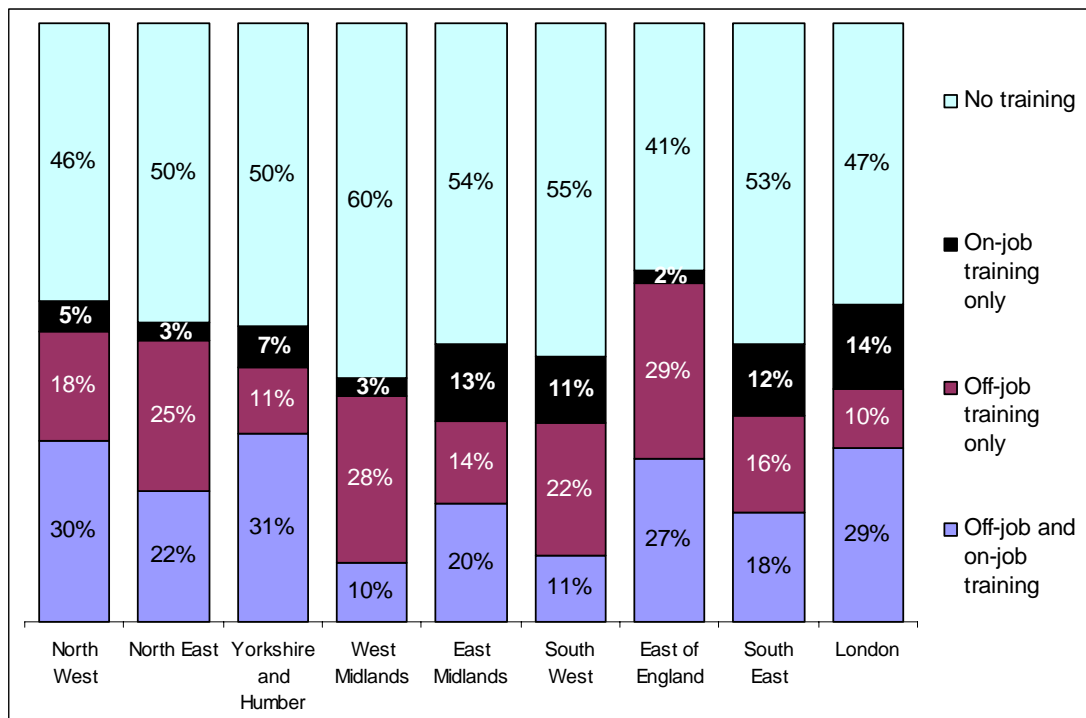
Central to the enhancement of skills within employers' workforces is the provision of training and development for staff. This section examines the extent and nature of training and development activity across the construction industry in England during the 12 months to July 2009 as reported in ConstructionSkills' Skills and Training survey³² which was commissioned to provide a representative survey of the UK construction industry, ensuring full coverage of the workforce by including the self-employed. Currently no national survey is available which provides data on the skills and training issues affecting the whole construction industry. Whilst we are aware of the recent publication of the National Employer Skills Survey (NESS 2009) we do not intend to use it in this section, due to the factors described above, however the Skills and Training survey uses the same method and research agency as the NESS and the fieldwork was undertaken at the same time (July 2009).

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

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

³² ConstructionSkills Skills and Training in the Construction Industry, 2009. A telephone survey of 1,046 employers and 156 sole traders/self-employed operating in the UK construction sector (covering the construction contracting sector as well as professional services firms) of which 788 were in England.

Chart 13 – Proportions of establishments offering training provision (on and/or off-the-job) by region



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

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>
Administrative Staff	22,839	17.4%	25,223	19.2%
Bricklayers	13,807	46.8%	13,469	45.6%
Carpenters / joiners	26,586	48.9%	25,934	47.7%
Floorers	3,241	25.6%	4,462	35.3%
Labourers and general operatives	50,137	47.7%	49,605	47.2%
Managers / Directors	34,837	22.0%	46,559	29.4%
Painters / decorators	21,889	47.6%	20,485	44.6%
Plant and machine operatives	31,111	41.2%	39,058	51.8%
Plasterers	5,138	35.8%	3,701	25.8%
Roofers	9,203	59.2%	12,407	79.8%
Scaffolders	23,074	59.8%	23,421	60.7%
No one main role or who multi task	27,348	35.0%	30,068	38.5%
Supervisors / Foremen	21,744	40.2%	23,615	43.7%
Technical Staff	21,385	41.7%	23,668	46.2%
Electricians	4,854	50.1%	3,984	41.1%
Plumbers	3,909	32.7%	3,433	28.7%
Welders/fabricators	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	
	<i>No. of staff trained</i>	<i>Proportion of directly employed</i>	<i>No. of staff trained</i>	<i>Proportion of directly employed</i>
Administrative staff	5,893	25.3%	6,339	27.3%
Architects	12,295	47.9%	8,178	31.8%
Architectural Technologists	6,948	57.9%	5,495	45.8%
Building Service Engineers	5,006	27.8%	6,764	37.6%
Building Surveyors	1,550	40.8%	2,014	53.0%
Civil Engineers	14,608	66.3%	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	32.2%
Plant / Machine operatives	681	6.3%	2,002	18.5%
Project Managers	2,179	18.7%	2,728	23.4%
Quantity Surveyors	6,147	50.5%	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. 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

Recent (October 2010) consultation with employers in England via ConstructionSkills Employer Panel³³ found that the majority of employers (65%) had not made any changes to the training they provided due to the economic downturn. Only a quarter (25%) admitted they had reduced training and interestingly a minority (11%) had actually increased the amount of training they provided.

For those who had reduced training, just under half (46%) had trained fewer staff and given each trainee less training, with job specific training being the most likely to be cut back on.

Employers increasing training were doing so to increase skills amongst their workforce (43%) and in order to gain a competitive advantage (26%).

For all employers who had changed the way they deliver training, just over half (55%) had starting carrying out more in-house training.

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

³³ ConstructionSkills Employer Attitudes and Motivations to Learning and Training (Wave 10), 2010, Employer Panel Consultation with 1185 employers and sole traders across construction industry in England

Summary Box

- 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 (59%) and lowest in the West Midlands (40%).
- 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.
- Recent consultation with employers in England suggest that the recent recession has not severely impacted on employers' commitment to training their workforce, but changes have been made to how this training is delivered.

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 employers³⁴. 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 2008³⁵, 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.

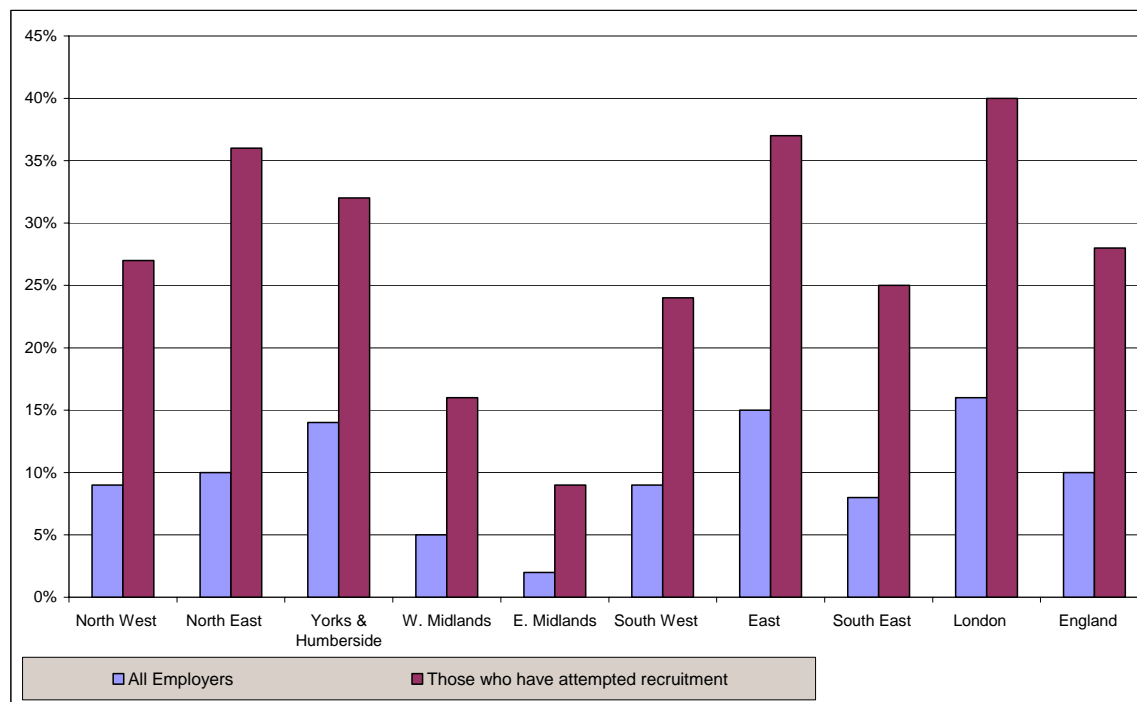
4.1.1 Hard-to-Fill Vacancies

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, 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.

³⁴ ConstructionSkills. Skills and Training in the Construction Industry, 2009

³⁵ ConstructionSkills. Skills and Training in the Construction Industry, 2008

Chart 14 – 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.

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%).

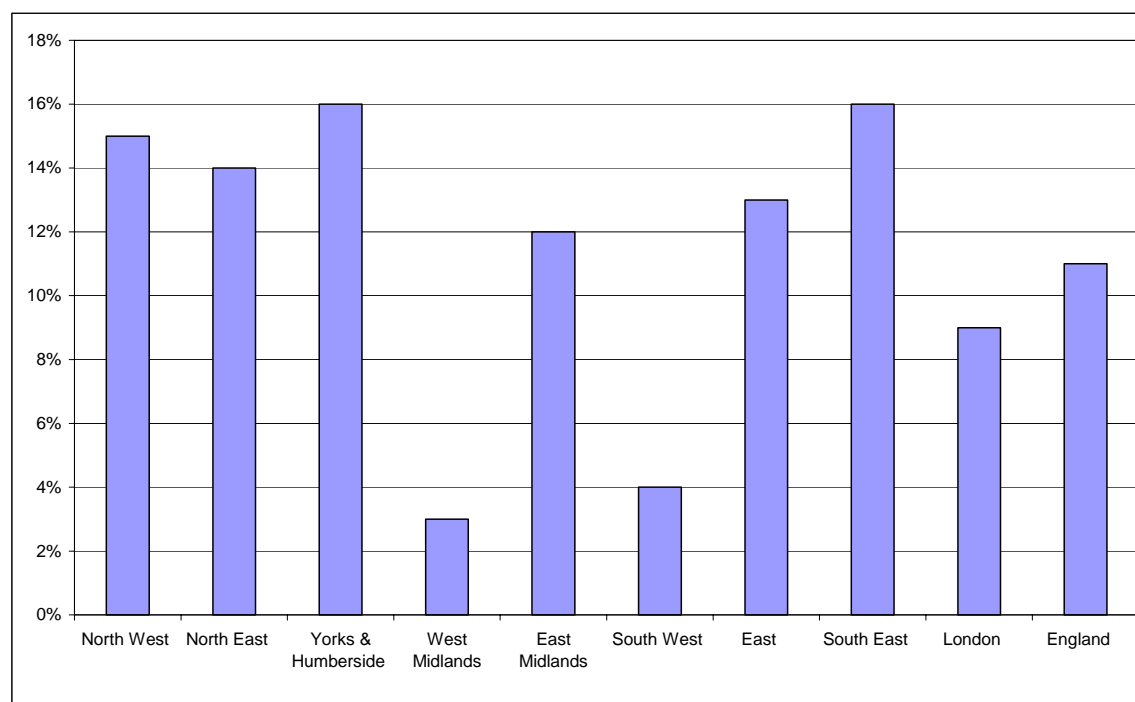
There is considerable regional difference between the attempts made by employers to overcome recruitment difficulties. Nearly all employers in the South West, and around 90% in the East and West Midlands will make some attempt to address any problems in recruiting skilled staff – primarily by increasing 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 Chart 15.

Chart 15: 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
Lack of experience or their being recently recruited	59%	84%	95%	34%	82%	73%
Lack of opportunity to train and develop staff	56%	45%	28%	17%	28%	39%
Inability of workforce to keep up with change in the industry	7%	39%	28%	65%	19%	22%
Staff lack motivation	21%	3%	41%	6%	17%	22%
Recruitment difficulties	1%	2%	25%	49%	-%	10%
	South West	East	South East	London	South of England	England
Lack of experience or their being recently recruited	98%	49%	26%	59%	47%	58%
Lack of opportunity to train and develop staff	55%	66%	38%	38%	47%	43%
Inability of workforce to keep up with change in the industry	59%	56%	56%	39%	54%	39%
Staff lack motivation	9%	58%	39%	10%	34%	29%
Recruitment difficulties	55%	37%	19%	6%	26%	19%

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%).

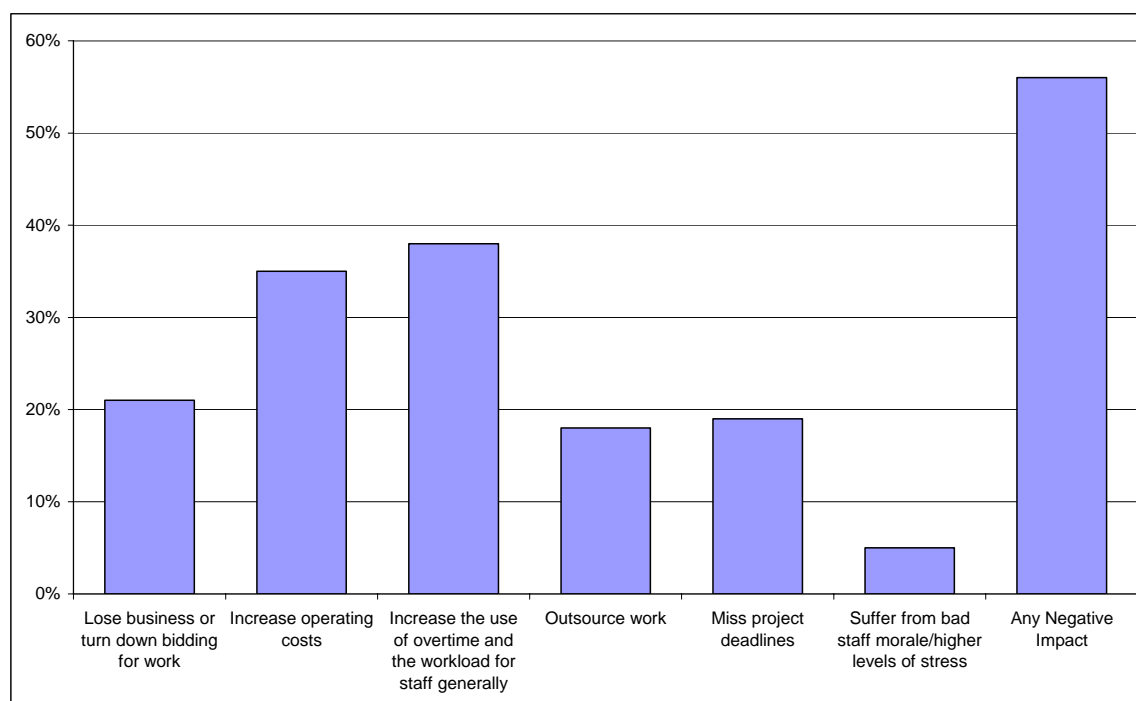
By contrast employers in the South are generally more likely to cite the inability of their workforce to keep up with change, and recruitment difficulties as significant causes.

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 16 - 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 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 since 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: 2010 (2009)

	North East	North West	Yorks & Humber	East Mids	West Mids	East	London	South East	South West	England
Construction Industry	11.2% (10.7%)	8.6% (8.8%)	11.8% (11.1%)	6.7% (8.2%)	7.8% (8.6%)	6.4% (7.1%)	7.4% (8.7%)	6.8% (6.4%)	8.0% (7.6%)	8.0% (8.3%)
All Industry	7.6% (8.6%)	6.8% (7.8%)	7.6% (7.6%)	6.0% (6.6%)	7.3% (8.6%)	5.3% (5.7%)	7.0% (8.0%)	5.0% (5.2%)	5.1% (5.3%)	6.3% (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 (8.0% v 6.3%). Since 2009 the north of England has fared better than the south, with the unemployment rate falling in all but one area (Yorkshire and The Humber). The South East and South West by contrast have both seen increases in construction unemployment against a background of falling unemployment in those regions across all industries.

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

Summary Box

- 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 8.0%.

5. The demand for new skills and changing patterns of employment

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

5.1 PESTLE Analysis

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

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

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

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

In order to better understand which of these are the most important drivers for skills change, and what impact they may have upon construction companies, ConstructionSkills commissioned the research agency Pye Tait to gain the views of employers and industry experts on the developments they expect to see. Their report 'Understanding Future Change in Construction' established an evidence base for the changing nature of construction³⁶.

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

5.2 Key Drivers and Industry Trends

5.2.1 The economy, recession, and commercial drivers

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

The recession brought with it massive job losses to the construction industry, and despite officially ending in the fourth quarter of 2009 the onset of economic recovery did not mark a recovery in employment. Indeed, despite two quarters of surprisingly strong growth³⁷ construction unemployment is not expected to peak until 2011.³⁸ A priority for the industry in the medium term, therefore, will be to recover the large swathe of basic construction skills, from craft to professional and managerial, that have been lost.

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

Consistent recovery is not forecast until 2011 and even then, it is likely to be a slow and steady return to moderate levels of growth as confidence gradually returns to the market. The England forecast is for 1.4% annual growth in output over the five years³⁹. Despite this slow growth, the need for new entrants will be relatively high as there are a large number of workers who are set to leave the industry through retirement.

So what are the implications of the continued economic uncertainty for skills in the industry? In 2007 the research agency IFF undertook a survey of construction

³⁶ A multi-faceted approach was adopted, to gather data through a range of separate routes: a literature review; four focus groups with representatives from nearly 70 stakeholder organisations; and 29 in-depth qualitative telephone interviews with key stakeholders in the construction sector across England, Wales and Scotland, to explore the emerging issues in more depth.

³⁷ Office for National Statistics Statistical Bulletin 3rd Quarter 2010 (26 October 2010)

³⁸ ConstructionSkills Network Blueprint 2011 – 2015

³⁹ ConstructionSkills Network Blueprint 2011 – 2015

Professional Services⁴⁰, examining how they were coping with the recession. The specific findings for professionals are outlined below, however, one particular conclusion pertinent for the whole industry was that the skills required for surviving difficult economic conditions are different to those needed when the economy is performing well.

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

The same principle operates at the level of the individual employee. There is increasing evidence⁴¹ that firms are training operatives to be proficient in a number of trades so that fewer workers are required to complete a given project. While this is a short term response to the present economic circumstances, it is expected that the increased cost effectiveness and productivity will ensure that it becomes a more permanent feature within the main manual trades (bricklaying, carpentry & joinery, and plastering) in the construction workforce.

As the construction industry begins to emerge from recession it will face a different set of strategic challenges which it will need to consider if it is to compete effectively in a global arena. Given the difficulties in planning mentioned by many employers in the Pye Tait survey, then greater management skills will be required as firms attempt to be as flexible as possible, operate profitably in a competitive environment, and make the best use of the skills of their current workforce. Against this backdrop firms will also need to consider, and plan for, how they will train the next generation of construction workers. There is a real risk that lessons will not have been learnt following the recession of the 1990's, and in the medium term, as the industry begins to recover, there will be a shortage of skilled staff. If this is not addressed by increasing training and apprenticeships (and it can take up to three years to train an apprentice, longer still until they are able to work unsupervised and fully proficiently on site), then it is likely that we will see a return of the skills shortages that marked the early years of the 21st Century.

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

While there is also evidence of significant 'underemployment' among construction professionals – the IFF Research survey indicated that 27% of firms had resorted to shorter working hours – there is a risk that a return to growth in the industry will see a shortage of management and professional skills in the workforce, a situation likely to be compounded by fewer highly skilled overseas workers being allowed into the country as a result of the proposed caps placed on Tiers 1 and 2 of the Government's Points Based Migration System.

⁴⁰ IFF Research: 'The Impact of the Recession on Construction Professionals - A view from the front line' Thirty in-depth interviews with professional practices were undertaken in August and September 2009 followed by larger telephone survey of 301 firms undertaken in October 2009. All sizes of UK firms with at least 5 employees, from all sub-sectors were included in the survey with a margin of error of +/- 6%.

⁴¹ Employer feedback from Construction Skills Network Observatories. The observatories are structured meetings including a range of employers, stakeholders, and experts from the construction industry discussing topics around skills supply and demand in the construction industry.

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

5.2.2 Policy and legislation

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

Wide-ranging legislative targets driven by the 'green' agenda and policy-makers are already impacting on parts of the sector, notably domestic and commercial construction as outlined in Table 14 below.

Table 14 – Main government strategies for addressing energy efficiency

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

In terms of cutting emissions, new rules came into effect on 1st April 2010 that will legally require large non-energy intensive organisations 'to closely monitor and report their emissions from energy use in preparation for carbon trading'.⁴²

From 2011, some will need to purchase 'allowances' for every tonne of CO₂ emitted. The construction industry is likely to feel the impact of this by being required by clients to incorporate energy efficiency into construction project design and development, especially where these large organisations require increasingly energy efficient buildings.

An indication of how companies may approach the skills demands created by the legislation outlined above may be seen in the activities and initiatives already being

⁴² Construction News (April 1st, 2010), New carbon reduction commitment rules come into force today
ConstructionSkills Sector Skills Assessment 2010

undertaken by some of the largest firms to support the sustainability and low carbon agendas. These include:

- Knowledge Transfer Partnership (KTP) between Laing O'Rourke and the Institute of Innovation – to develop new solutions for the construction industry, such as Construction Waste Management⁴³
- The Wates Group's Target Zero programme aims to eliminate non-hazardous waste going to landfill from its construction projects by 2010
- Skanska's publication of a book on green building solutions ('Green Thinking'). As well as implementing this expertise on major construction projects worldwide, they are also participating in Green Building Councils across Europe⁴⁴

Public sector non-domestic buildings are targeted to be zero carbon from 2018, and remaining non-domestic buildings from 2019⁴⁵. Increased levels of energy efficiency will be embedded through Building Regulations and the Code for Sustainable Homes⁴⁶ although the latter does not apply to Scotland. In order to achieve this by 2020 "low carbon skills will have to be fully embedded into the mainstream UK economy."⁴⁷ The scale of the challenge this presents to construction is demonstrated by the fact that few companies in the non-domestic sector are currently able to deliver zero-carbon properties.

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

In the longer term there may well be increasing legislative changes if some of the challenging climate targets are to be met. The Committee on Climate Change again states that "Although ambitious targets for deployment of solid wall insulation were set in DECC's Household Energy Management Strategy (e.g. 2.3 million insulations annually), there is currently no policy in place to deliver this ambition, and a new policy approach . . . is required." This retrofitting of existing building stock poses the greatest challenge to the industry. In addition to the new regulations mentioned by the Committee it will also require research and development for new technologies, investment, and willingness on the part of construction industry to embrace the changes. However there are opportunities – it has been forecast that providing retrofit installation and advice services to the domestic sector could create up to 65,000 jobs in the UK over the next 40 years.⁴⁸

Meeting the Government's targets will also require an increase in infrastructure projects, specifically new nuclear power stations and tidal/wind energy infrastructure – requiring the industry to apply existing skills and knowledge to new types of building (e.g. new

⁴³ http://www.in2.swansea.ac.uk/laing_o_rourke.html

⁴⁴ <http://www.skanska.com/en/About-Skanska/Our-green-initiative/We-talk-and-walk-Green/>

⁴⁵ BIS (2008), *Strategy for Sustainable Construction*

⁴⁶ Ibid.

⁴⁷ Aldersgate Group (2009), *Mind The Gap: Skills for the Transition to a Low Carbon Economy*

⁴⁸ Department for Business, Innovation and Skills & Department of Energy and Climate Change (2010), *Meeting the Low Carbon Skills Challenge: A Consultation on Equipping People with the Skills to take Advantage of Opportunities in the Low Carbon and Resource Efficient Economy*

nuclear generation plants potentially to start coming online by 2017).⁴⁹ Over the next 25 years, there is potential that 10,000 – 15,000 new jobs will be required across the UK to support a new nuclear build programme (through the construction, operation and maintenance of plants)⁵⁰

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

A recent Press Release from Atkins Global makes the point that engineers, architects and surveyors will have to learn how to account for carbon using principles normally associated with accountants and economists such as discount rates which are generally used with reference to financial cost.⁵¹

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

5.2.3 Research and Development

Although there are many new and innovative trends in the construction process, the main so called Modern Method of Construction, and the one that is likely to have the biggest impact is off-site manufacture of components that are later installed on site. Although innovation has not been a key aspect of the construction industry in previous years, it is suggested that this could be improved by 'greater internationalism, greater competition, and greater integration in the supply chain'.⁵² Also, as one of its benefits is increased energy efficiency, it is likely that its use will become more widespread as Environmental and Sustainability Legislation becomes more stringent (see 5.2.2).

According to the Callcutt Review⁵³, some 70% of homes built in the UK could include some modern methods of construction by 2016 much of it driven by tightly controlled processes to improve construction efficiency, improve productivity, and minimise waste, particularly on new build sites. By comparison in 2005 the proportion of homes using such methods stood at 24%, the majority of which were timber frame or light metal frame. In the short to medium-term, MMC's impact on new-build is likely to be greater on larger, new work, building projects where repetition of components will justify the investment in off-site methods.

Currently 12% of all construction activity is manufactured offsite and this requires ongoing skills links with the manufacturing sector. The implications for site-based skills arising from off-site MMC could be significant over the period to 2020, but there are limits to its application. Construction is a vast range of industries and many small firms will not currently require or utilise innovative methods, as the traditional parts of the industry will co-exist alongside the emerging 'green' industrial markets.

MMC is not widely considered to have a very significant effect on the repair and maintenance market, which accounts for over 40% of total UK construction output, and

⁴⁹ BIS (2009), *Towards a Low Carbon Economy – economic analysis and evidence for a low carbon industrial strategy*

⁵⁰ BIS (2009), *Towards a Low Carbon Economy – economic analysis and evidence for a low carbon industrial strategy*

⁵¹ Atkins Global: Atkins calls for new industrial revolution to secure low carbon future:

http://www.atkinsglobal.com/media_centre/press_releases/Atkins_calls_for_new_industrial_revolution_secure_low_carbon_future.aspx

⁵² *2020 Vision: The Future of UK Construction: Executive Summary*

⁵³ Department for Local Communities and Government, *The Callcutt Review of housebuilding delivery*, 2007

in employment terms, around 60-70% of the workforce. Civil engineering projects are also not likely to be greatly affected as they already use a significant proportion of pre-cast components, whether manufactured on-site or off-site, in contrast, new housing offers significant opportunities.

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

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

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

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

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

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

factory conditions. Overall an understanding of manufacturing methods will need to be combined with an understanding of construction methods.

5.2.4 Procurement processes

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

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

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

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

5.2.5 Information and support

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

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

Summary Box

- There are 5 key drivers for skills change across the construction industry as a whole in England; these can be broadly classified as (i) the economy, recession and commercial drivers; (ii) policy and legislation; (iii) research and development; (iv) procurement processes; and (v) information and support.
- A priority for the industry in the medium term, will be to recover the large swathe of basic construction skills, from craft to professional and managerial, that have been lost as a result of the recession.
- Despite slow economic growth, the need for new entrants will be relatively high as there are a large number of workers who are set to leave the industry in the next 10 years through retirement.
- The skills required for surviving difficult economic conditions are different to those needed when the economy is performing well. Specifically there is a benefit for both businesses and employees to be multi-skilled so that they can operate across several sectors and occupations.
- Greater management skills will be required as firms attempt to be as flexible as possible, operate profitably in a competitive environment, and make the best use of the skills of their current workforce.
- There is a real risk that lessons will not have been learnt following the recession of the 1990's, and in the medium term, as the industry begins to recover, there will be a shortage of skilled staff.
- Low carbon skills will have to be fully embedded into the mainstream economy. At present few companies in the non-domestic sector are currently able to deliver zero-carbon properties.
- Specific skills shortages here exist around insulation and use of heat pumps.
- Over the next 25 years, there is potential that 10,000 – 15,000 new jobs will be required across the UK to support a new nuclear build programme (through the construction, operation and maintenance of plants)
- Providing retrofit installation and advice services to the domestic sector could create up to 65,000 jobs in the UK over the next 40 years.
- The impact of many of these legislative changes will be felt at the design and planning stage by the likes of architects and planners. Plans and designs for developments would need to take into account relevant changes in building regulations as well as incorporating adaptations to build methods for improved energy efficiency, requiring skills in interpreting legislation, knowledge of modern materials and methods for their use.
- Engineers, architects and surveyors will have to learn how to account for carbon using principles normally associated with accountants and economists such as discount rates which are generally used with reference to financial cost

- Where it is used Modern Methods of Construction will lead to fewer traditional building skills on site in favour of a better understanding of the composition and purpose of components and assemblies and how they can be moved and lifted. In turn this will require a different focus for Health and Safety training.
- As a result of MMC site workers will need a greater understanding of general building issues such as tolerances, air/water-tightness, and the interaction between components.
- In general there will be a need for site supervisors and site labour that has an understanding of modern terminology, the ability to read, understand and follow instructions on new materials and components.
- For professional services, in addition to the an understanding of how new components will operate over the life time of a building, MMC will require increased need for CAD trained building technicians to work on off-site design and application in factory conditions.
- In the short to medium terms the unwillingness of banks to lend money to SMEs is expected to act as a brake on the adoption of Modern Methods of Construction.
- In order to demonstrate compliance with regulations at both pre-qualification and building stages there will be a greater need for recording and documentation of processes and materials. This in turn will require additional written, communication, and presentational skills.
- Inter-agency working will be of increasing importance requiring a wide range of communication and influencing skills, and a detailed working knowledge of other sectors.

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

6.1 Introduction

For the purposes of this section, 'short term' relates to 2011 – 2012, 'medium term' relates to the years 2013 – 2015, and 'long term' relates to 2016 up to 2020.

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. They will be heavily influenced by trends in the UK economy in a wider sense, and as such, any view on the future demand for employment and skills needs to consider the general economic and political backdrop.

6.2 Long-term forecast for the UK Construction Industry

The UK Sector Skills Assessment for the Construction Sector 2010, outlines the core scenario⁵⁴ to 2020, in summary this assumes the following:

- UK economy will continue to emerge from recession and there will be a gradual recovery to long term levels of GDP growth of around 2.0% p.a. through to 2020.
- UK construction output will start to recover from the end of 2011, although it will be at a lower level than GDP growth. Long term forecast for construction output is around 1.6% p.a. through to 2020.
- Construction output by 2020 will be around £118 billion (constant 2005 prices), an increase of around £20 billion on estimates of output for 2010.
- Although repair and maintenance work showed strong growth in 2010 Q2 construction output statistics, in the long term the overall ratio of new work to repair and maintenance (R&M) will fluctuate around the current level of 60:40 new work to R&M. As such new work will continue to be the main driver of construction output through to 2020.
- Overall levels of productivity growth will remain low, around 1.0% p.a., however productivity growth will feature more for new build rather than repair and maintenance work.
- Housing demand in the private sectors recovers, with current forecasts showing private housing output returning to 2007/2008 level towards 2019 - 2020.
- Commercial and industrial new work, both very badly affected in 2009, will recover through to 2020. However, output levels in 2020 will still be lower than those seen in 2008; therefore there is no real growth.
- Even with government cutbacks, infrastructure sector work is forecast to grow in the short to medium term and the long term prospects for energy infrastructure remain positive with the government commitment to reducing greenhouse gas emissions.

The core scenario recognises that although the construction industry is facing challenging times over the short term, when taking a long-term view through to 2020, output will recover, which is consistent with trends seen during previous recessions in the 1980's and 1990's. The strength of this recovery will be determined by work in the private housing sector due to long term mismatches between housing supply and household formation; however the continued strength of the infrastructure sector, returning investor confidence in the commercial sector and levels of R&M work will all help to shape the overall recovery.

⁵⁴ Experian 2010

6.2.1 Main risks to the economic core scenario

- **Public sector cuts are deeper than expected:** the full impact of the funding cuts announced as part of the Comprehensive Spending Review⁵⁵ will take time to become clear. Therefore there is a risk that any recovery in the short to medium term may be lost as workloads and confidence levels suffer. Although public sector cuts would impact directly on the publicly financed sectors, there would be effects across all sectors from housing through to R&M with reducing consumer confidence.
- **Private sector investment fails to return:** the main underlying premise behind most forecasts for future growth is that as the public sector is cut, the private sector grows. In previous recessions this has been the case, however economic conditions at the moment are best described as being fragile and the key risk to our forecast lies around uncertainty about the strength of growth that will be seen in the short to medium terms.

Having outlined the core scenario for the UK construction industry over the long-term, the following section discusses the employment forecasts over the short to medium term (2011-2015) for England's construction industry

6.3 Short to Medium term forecast for construction employment in England⁵⁶

Total construction employment in England is forecast to reach around 2.25 million by 2015, a 7% increase on the 2011 level. In 2015, 1.95 million are predicted to be working in SIC 45, whilst 300,000 are expected to be working in SIC 74.2.

All occupational groups are expected to increase slightly over the forecast period. The Repair and Maintenance sector will be responsible for most of the growth in employment.

Expected gains in productivity and anecdotal evidence of considerable amount of short-time working in the industry, means that already existing excess capacity will need to be taken up before employers look to take on new staff as the recovery starts to strengthen. The annual recruitment requirement (ARR) is a gross requirement that takes into account workforce flows into and out of construction due to such factors as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training. Thus, the ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

The ARR for the 26 occupational groups within England's construction industry between 2011 and 2015 is illustrated in the table below. The ARR of over 38,000 is indicative of the average requirements per year for the industry, as based on the output forecasts for the region.

⁵⁵ Comprehensive Spending Review, 20th October 2010

⁵⁶ This data is based on provisional forecasts from the Construction Skills Network, 2011-2015 which may change slightly prior to final publication of the 2011-2015 LMI Reports.

Table 15 - Annual recruitment requirement by occupation - England 2011-2015

	Annual recruitment requirement
Senior, executive, and business process managers	1,540
Construction managers	3,200
Non-construction profs, technical, IT, and other office-based staff	1,530
Wood trades and interior fit-out	5,180
Bricklayers	1,930
Building envelope specialists	1,860
Painters and decorators	3,030
Plasterers and dry Liners	990
Roofers	590
Floorers	1,530
Glaziers	1,210
Specialist building operatives nec*	1,210
Scaffolders	320
Plant operatives	930
Plant mechanics/fitters	410
Steel erectors/structural	660
Labourers nec*	3,540
Electrical trades and installation	1,940
Plumbing and HVAC Trades	1,080
Logistics	1,490
Civil engineering operatives nec*	680
Non-construction operatives	0
Civil engineers	1,380
Other construction professionals and technical staff	1,000
Architects	690
Surveyors	710
Total (SIC 45 and 74.2)	38,630

* not elsewhere classified

Source: CSN, Experian Construction Skills Network 2010

The largest ARRs are expected to be for wood trades and interior fit out and labourers nec*. It should come as no surprise that the size of the ARR is often a function of the size of the particular occupational category, hence the significant requirement for wood trades and interior fit out.

All of the ARRs presented in this section are employment requirements and not necessarily training requirements. This is because some new entrants to the construction industry, such as skilled migrants or those from other industries where similar skills are already used will be able to work in the industry without the need for retraining.

6.4 Political/Legislative drivers for employment and skills

There are several political/legislative drivers that will impact upon employment and the skills required across the construction industry such as sustainability and health and safety. However the key drivers in the future are policy and legislation around the low carbon agenda. This move towards a low carbon economy is already beginning to have an impact upon the construction industry and with 2020 being a key target date, the impact upon construction will only increase.

Examples of policy/legislation relating to low carbon which will have a direct and lasting impact upon the construction industry, and ultimately skills and employment are;

- Building regulations - begun to feature energy efficiency as a requirement for new housing and planned future changes will introduce increasing standards.
- Feed in Tariffs (FIT)- introduced in April this year to stimulate demand for microgeneration⁵⁷ schemes such as photovoltaic power.
- The Renewable Heat Incentive (RHI) - introduced in 2011 to stimulate demand for distributed heating systems, similar to Feed in Tariffs.
- Green Deal - to come into effect around 2012 to help homeowners install energy efficiency measures.

Although the focus for low carbon measures is currently centred on housing, due to the scale of potential improvements, it will inevitably impact on all sectors of the construction industry in the future, as the following highlights:

- New housing (private and public sectors) – building regulations, smart meters
- Housing R&M (private and public sectors) – Green Deal, FIT, RHI, smart meters
- Infrastructure – building low carbon power generation e.g. wind power, nuclear, carbon capture and storage, and building a smart grid
- Public non-housing – building regulations and government taking lead on energy efficiency targets
- Commercial – building regulations, energy efficiency
- Industrial – building regulations, energy efficiency

Low carbon construction is a clear driver for skills demand as having a workforce that is equipped with the right skills will be a key factor in meeting the targets set out in legislation.

In new housing it is not the current skills that are the main issue, it is the attention to detail that is required when working with new technology and being familiar with the subtle adaptations that are required. For example ensuring airtightness or minimising cold bridging are two techniques that are used to improve energy efficiency and for both

⁵⁷ Micro-generation is the production of heat and power by individuals or communities – typically by renewable energy – enabling them to meet their own requirements at, or approaching, zero-carbon cost.

of these it is attention to detail rather than the underlying skills that would influence the eventual energy performance of the building.

Even before work begins on site there will be an increased demand for low carbon design related skills to ensure that new buildings are designed for maximum energy efficiency, rather than installing technology. It is fabric first and sometimes straightforward design and planning measures such as the type of material used or aspect of structure that can yield cost effective low carbon solutions when compared to microgeneration schemes.

There are however some sectors and occupations where low carbon skills will have a significant effect in terms of a skills gap, a skills shortage or possibly both:

- Construction Managers and Supervisors (all sectors – skills gap); understanding relevant legislation and the implications that this has for the build process.
- Architects (all sectors – skills gap); low carbon design skills and material specification.
- Installation of solid wall insulation (Housing R&M – skills shortage); will be important measure for improving the energy efficiency of existing housing and potential market means a risk of not having sufficient workers.
- Installation of microgeneration measures (Housing R&M and new build – skills gap and shortage); legislation will stimulate demand for microgeneration technology which has to be installed by accredited workers. Although the underlying skills base already exists there is a potential shortage of workers with the top up skills to install these measures.
- Building low carbon power generation (Infrastructure – skills shortage and gap); although this work will require both civil engineering and engineering construction skills, the potential scale of measures being introduced in the future could lead to a shortage of experienced workers. Also some aspects of construction such as nuclear power have not been undertaken in the UK for 20 years therefore skills gaps may exist for key occupations.

The increasing importance of low carbon construction will involve workers being able to adapt existing skills, enhance or learn completely new skills. This will become an essential element of skills demand for all areas of the construction industry through to 2020 and beyond.

There is also likely to be an increase in demand for multi-skilling to support the installation of low carbon technologies. Installing a solar photovoltaic roof system at the moment involves a combination of roofing and electrical skills while installing a solar hot water system would require roofing, plumbing and electrical skills. At the moment, given the relative immaturity of the market it is very difficult to predict what level of multi skilling would be needed, although having a flexible and adaptable workforce is likely to be something employers would value.

Low carbon construction will also drive skills demand for the uptake of more modern methods of construction, such as pre-fabrication. Building off site then using on-site assembly should give a quicker and more efficient process that results in time, cost and quality improvements. Examples of the knock on effect on skills would be;

- Increasing assembly of components on site would require more mechanical handling for skilled trades
- Designers and construction managers would have to understand how the various elements of the new building structures inter-relate.
- Increase in demand for onsite logistics
- Planning skills for construction management to ensure that builds progress smoothly.

Overall, the move towards low carbon construction will be the most significant driver of skills demand over the next ten years. The range of work carried out across the

construction industry inevitably means that low carbon will mean different things to different sectors. This in turn will lead to different skills being needed to take advantage of the range of opportunities that will be presented and that will need to be informed by quite specific future labour market intelligence.

Summary Box

- The core scenario recognises that although the UK construction industry is facing challenging times over the short term, when taking a long-term view through to 2020, output will recover, which is consistent with trends seen during previous recessions in the 1980's and 1990's. The strength of this recovery will be determined by work in the private housing sector due to long term mismatches between housing supply and household formation; however the continued strength of the infrastructure sector, returning investor confidence in the commercial sector and levels of R&M work will all help to shape the overall recovery.
- The two main risks to the core scenario are
 - Public sector cuts are deeper than expected
 - Private sector investment fails to return
- Total construction employment in England is forecast to reach around 2.25 million by 2015. The Repair and Maintenance sector will be responsible for most of the growth in employment.
- The Annual Recruitment Requirement (ARR) for the 26 occupational groups within England's construction industry between 2011 and 2015 is predicated to be 38,630.
- The key driver for future skills and employment is the low carbon agenda.
- The increasing importance of low carbon construction will involve workers being able to adapt existing skills, enhance or learn completely new skills. This will become an essential element of skills demand for all areas of the construction industry through to 2020 and beyond.

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

7.1 Introduction

The suddenness, and relative unexpectedness, of the recent recession, point to the limitations inherent in any forecast. The repercussions of the recession are still being felt across the industry and as the path the recovery is taking becomes clear, more accurate analysis of the future supply of skills and employment is possible.

There are some conclusions that can be tentatively drawn from existing authoritative reports. This section will draw from the Working Futures⁵⁸, as well as 2020 Vision – The Future of UK Construction, produced for ConstructionSkills by Experian and SAMI Consulting. Other reports quoted are from the Higher Education Policy Institute, official figures from the Office of National Statistics and Government Actuary Department, as well as ConstructionSkills own figures on training which are the most up to date available.

When attempting to understand the future of a fluid and rapidly changing environment such as the whole area of skills supply and employment there is sometimes no better substitute than looking at previous, similar, events and drawing from what has happened in the past. This section will do this as well, particularly in terms of what happened to the skills market following the last two major recessions in the UK from 1980-82 and 1990-92.

In the short-term it is possible to say, with some degree of safety, that trends in skills supply probably won't deviate a great deal from its current course. There is little that can be done to change events, whether they be numbers in training or migrants wanting to enter the country, that have already been set in motion. The main focus of this section, therefore, will be attempting to inspect how skills supply may deviate from this over the medium-term (up to 2015) and the long term (up to 2020).

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

7.1.1 The Economy

Section 6 sets out the core economic scenario for the industry. Demand for skills is one of the key drivers for their supply and it would be safe to say supply, especially in terms of formal training, will remain subdued until well into the medium-term.

Over the medium to long term things are projected to be more optimistic. The Working Futures report⁵⁹ predicts output growth, albeit at somewhat modest rates of around 2% per annum through to 2017, which is consistent with the view taken in the core scenario. So, from 2015 onwards it would seem likely that the supply of skills and employment will begin to increase in response to the expected rising demand, though this rise will take some time to have effect due to the lag between rising wages and people choosing to take up training and being available for work.

7.1.2 The Industry

As chart 5 on page 23 shows, 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 recent recession and downturn in recruitment unless economic circumstances force

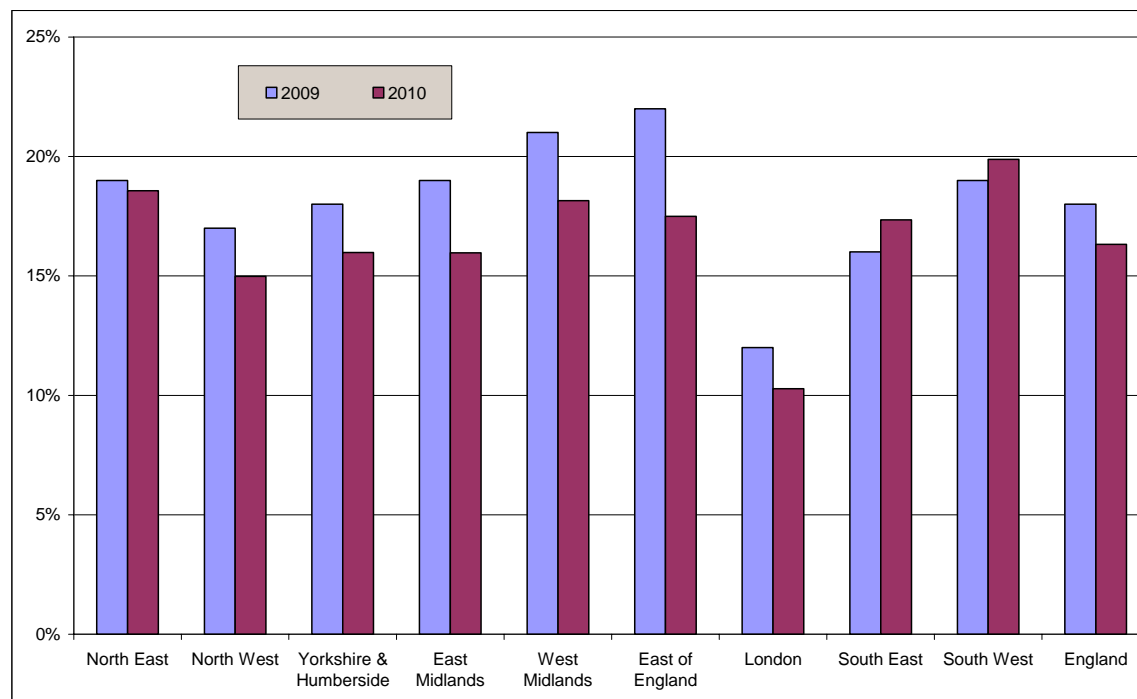
⁵⁸ Working Futures 2007-2017 report produced for the UK Commission for Employment and Skills by the Warwick Institute for Employment Research and Cambridge Econometrics, Warwick University, 2008

⁵⁹ Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

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

The position of London traditionally having a younger population and workforce is true also of the construction industry there, with only 10% of the construction workforce in the capital 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 North East, West Midlands, and South West where between 18% and 20% of the construction workforce is aged over 55 as shown in the graph below.

Chart 17 - Proportion of Workers in English Construction Industry (excluding professional practices) age 55+ by Region: 2009 & 2010



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.

7.1.3 Political Initiatives

The political climate has shifted considerably over the last year, and in recent months there has been a focus on the cutting of expenditure, aiming to reduce the budget deficit and high levels of public debt. At this stage, it is hard to quantify the effect that some of the most recent cuts in the Comprehensive Spending Review (CSR) will mean for the supply of skills. Social housing funding will be significantly cut and infrastructure funding on the whole maintained, though some projects have been delayed.

However there have been a number of more specific decisions and initiatives. There has been commitment to continuing to invest in Apprenticeships with an additional £250 million a year by 2014/15 providing an additional 75,000 adult apprenticeships⁶⁰. Given the importance and relevance of Apprenticeships to the construction industry, this is a welcome boost for those occupations that primarily rely on them. The CSR revealed that 'Train to Gain', which currently provides a significant proportion of training in England,

⁶⁰ HM Treasury, Spending Review, October 2010

albeit to existing workers, will be abolished and may be replaced by a SME focused training programme.

The changes in demand noted earlier will be reflected in the supply of future construction workers. They will require skills that focus more toward assembling manufactured components, utilise computerised processes at each stage of the construction process and have a greater understanding of trades other than their own, in particular how different aspects and components of a finished building will interact.

7.2 Sources of the supply of skills and employment to the construction industry

Having looked in section 5 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 for good – 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 2009/10 there were over 28,000 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

	Percentage of FE Training	Percentage of Employment
North East	8%	5%
North West	20%	12%
Y&H	11%	11%
West Midlands	11%	10%
East Midlands	19%	8%
North of England	69%	46%
East	6%	12%
South West	8%	9%
South East	11%	17%
London	6%	16%
South of England	31%	54%

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 (over two-thirds) 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 start growing again in 2011, although it is still not expected to have recovered to its pre-recession peak by 2015 – the furthest that is forecast by the CSN model.

To link employment and training precisely is difficult, and indeed would probably vary depending on which point in the economic cycle a measurement is taken. Having said this, a very high level view can be gained from looking at the past two recessions, and what happened to training in their aftermath.

Before the current recession the two previous recessions in the UK were in 1980-82 and 1990-92. 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 25,000 VQ starts sometime around 2015, before returning to its pre-recession levels of around 40,000 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%⁶¹ it would be reasonable to assume that some 17,000 construction trainees per annum would successfully qualify by 2015, rising to 28,000 by 2020.

Having achieved a qualification, a very high proportion of people choose to stay in construction. The Construction Apprentices Survey⁶² 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 16,000 per annum in 2015 rising to 26,500 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 report⁶³ 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

⁶¹ 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

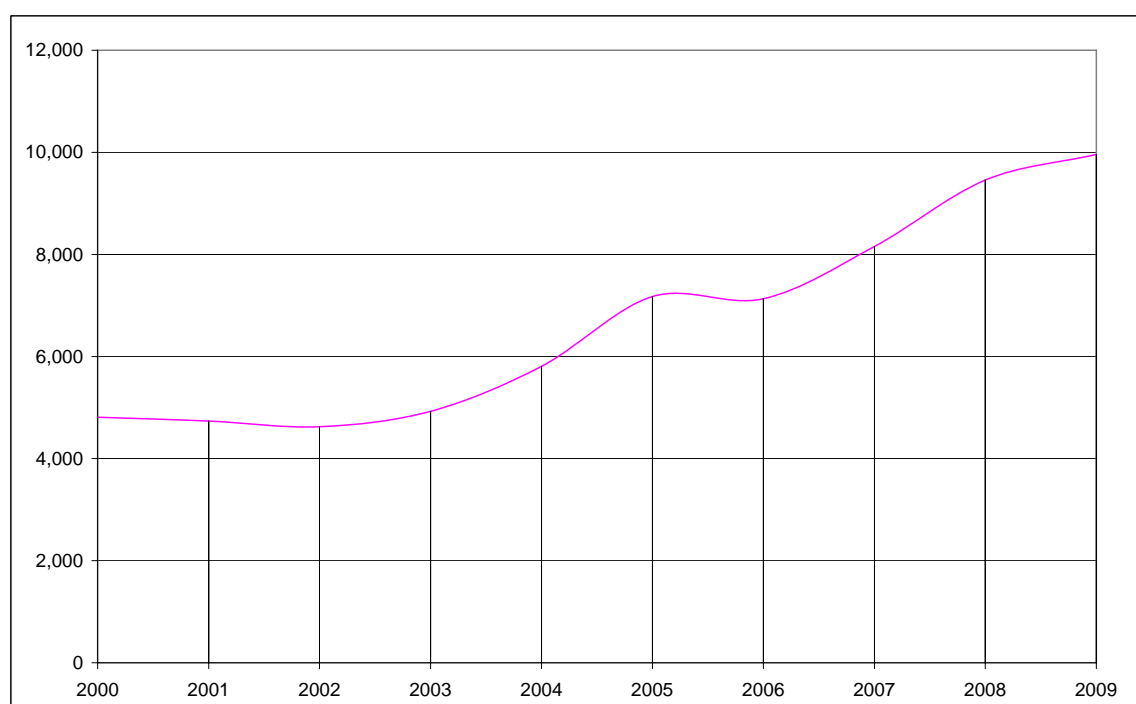
⁶² ConstructionSkills, Construction Apprentices Survey, 2003

⁶³ Higher Education Policy Institute Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008

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 2009 seeing a 5% increase in UK domiciled first degree applicants compared to 2008 (9,959 compared to 9,458).

Chart 18 - UK Domiciled applicants to Built Environment degree courses in England 2000 – 2009

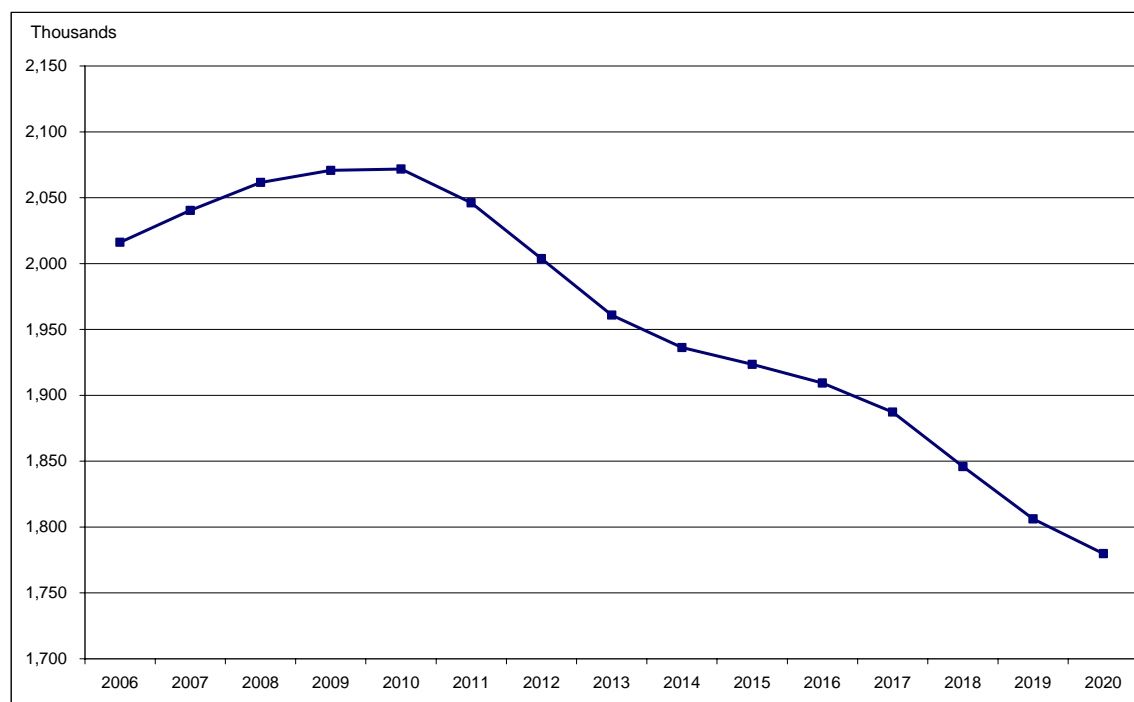


Source: UCAS

The graph below (Chart 19) 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 Government's Higher Education Strategy outlined in its Higher Ambitions report⁶⁴. In passing it is worth mentioning that HEPI do not anticipate that 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]”.

⁶⁴ Department for Business, Innovation & Skills (BIS), Higher Ambitions: The Future of Universities in the Knowledge Economy, November 2009

Chart 19 - 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.

HEPI calculate that, in the absence of other demographic changes - differential births by different social groups will lead to a 5% increase in the proportion of the under 21 age group participating in higher education by 2020-21.

Whilst it is clear that not all these people will stay in full-time education, there are real reasons to believe that many will, especially now they are required to continue in post-16 education or training by law. HEPI believe that “This reform, in view of the large numbers at present leaving education at 16, could have the largest impact on HE participation since the introduction of GCSEs in 1988”.

Demography provides the basis for HEPI’s assessment of future demand for HE places. 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.

Two major factors that had not come into play at the time of HEPI’s report were the recession and more recently the review of Higher Education undertaken by Lord Browne.

In considering the first, at present there is more likely to 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.

Additionally, the recently released Browne Report will influence decisions on the provision of Higher Education in England in coming years. The recommendations

relating to the supply of skills included students being charged differing amounts in an effort to increase investment and student choice, and also that those doing part time degrees should be financed (for the student) proportionately. The report believes that student numbers will increase and indeed makes proposals for a 10% increase in available student places.

Although it is possible that there will be moderate growth in UK-domiciled Higher Education starts between 2010 and 2020 it is unlikely that the dramatic rises that preceded this period will be repeated. Assuming consistent moderate growth of around 1% between 2009 and 2020, this would equate to growth of over 1,500 starts on Built Environment courses over the timeframe, or around 13,500 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 Survey⁶⁵ 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 nearly 3,500 UK domiciled graduates from English institutions will be available and willing to join the construction industry each year.

7.2.3 Migration

As commented upon in the Working Futures report⁶⁶, 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. 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

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

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.

⁶⁵ Higher Education Statistics Agency, Destinations of Leaver from Higher Education Survey, 2006

⁶⁶ Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

It is extremely difficult to foresee the future flows of migrant workers, as there are simply so many influencing factors. According to Labour Force Survey⁶⁷ 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 21st 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.

In addition, approximately half of these migrant workers have been self-employed as opposed to 37% of UK workers⁶⁸. 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:

⁶⁷ Office for National Statistics, Labour Force Survey, Spring 2009

⁶⁸ Office for National Statistics, Labour Force Survey, Spring 2009

- 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 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 26,500.

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 3,500.

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 over 34,000 skilled people a year⁶⁹.

7.3 Variations to the core scenario

The possible variations to this scenario have already been mentioned. One of the key determinants for the future direction of skills supply is the strength of the recovery following the 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 undertake Higher Education courses.

The two obvious variations to this scenario occur with stronger or weaker growth to that forecast. This is key as one of the main drivers for skills supply, especially through

⁶⁹ 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).

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 growth of the industry returning – which in the medium-term will depend upon the strength of economic recovery and further details of Government cuts.

Although at present it appears that many recent migrants are prepared to stay in the country, if the economy falls behind other European countries – particularly those in the east – then it would be reasonable to assume a net outflow to other countries, a significant part of this outflow is likely to be former immigrants returning to their country of origin in the light of more favourable economic conditions there than when they left, further weakening the industry's skills base.

Of all the areas discussed in this report Higher Education is probably the least prone to direct short-term fluctuations in the industry and economy. Although this section anticipates a long period of slight growth in the number of UK domiciled, first year, first degree students, this could easily be reversed (a long and slow decline) depending on demographic changes and policy decisions.

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

Summary Box

- The supply of skilled employees to the construction industry is expected to remain subdued over the next five years due to suppressed demand from employers following the recession.
- It is estimated that training will reach a low point in the region of 25,000 VQ starts around 2015, before returning to its pre-recession levels of around 40,000 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 26,500 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 over 34,000 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.

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

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

Widespread redundancies has resulted in increased outflows to other industries, and as more of these workers retrain for those other industries it will become increasingly difficult to restore skills when growth returns. History shows that some of the most experienced workers leaving the industry will not 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 the environment.

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.
- 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 70% 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.

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

The specialist skills demanded to meet the high specifications and low energy requirements of future buildings and infrastructure require new levels of expertise in terms of product knowledge, for both professional services and craft trades, and working to more exacting tolerances in terms of timing and quality of construction.

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

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

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

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

As the use and benefits of off-site manufacture has become more widespread, developers are showing a growing interest in combining technologies to get the best possible solution. This has precipitated an emerging trend of mixing technologies, known as composite or hybrid construction. This fits with the need to make industry employees more multi-skilled, since working as part of an integrated team requires an understanding of areas outside traditional demarcations. The trades will need multiple skills centred on a core of reading drawings, understanding the principles of

construction, health and safety and basic organisation and supervision. To this core of building skills they will add site preparation, erection skills, fitting (as opposed to fabricating) and how to better integrate with other trades. However, in addition to good practical skills and the ability to work accurately, carefully and methodically, there is a need for increasingly better levels of literacy and numeracy on site. The proliferation of information technology in construction products and processes suggests that communication skills will be essential.

Construction and site managers will need to make more use of information technology to schedule work, and will require the necessary interpersonal and business skills to enable collaborative working amongst multi-disciplinary teams.

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

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

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

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

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

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

In order to establish innovation and integration, the underlying skills and qualification structure needs to be examined - from entry through to high level - to ensure that the

skills are backed by qualifications and, where necessary, accreditation and/or certification.

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

8.2 Priorities

Reflecting on the evidence-base, key drivers and skills issues, and direction from the ConstructionSkills Strategic Partnership Panel, the following skills priorities and enabling activities have been agreed in consultation with industry and stakeholders. Industry Priorities represent longer term aspirations to increase the sector's productivity and competitiveness, and meet low carbon targets over the coming years. Enablers reflect the more immediate skills issues for the SSC, partner organisations and stakeholders to address.

Industry Priorities

- The Productivity Challenge – supporting employer and industry competitiveness through upskilling and improved levels of health, safety, competence and efficiency.
- The Low Carbon Challenge – providing clarity and support on skills needs in response to increasing demands on industry and potential new markets opening up.

Enablers

- The Leadership Challenge – providing leadership for the sector on key skills issues and quality standards, and addressing employers' leadership skills needs.
- The Recruitment Challenge – keeping the pipeline of talented new entrants flowing.
- The Employer Engagement Challenge – keeping in close contact with employers so that we understand their skills needs and shape solutions accordingly.
- The Education and Training Challenge – working with schools, colleges, universities and other providers to ensure we strengthen the skills infrastructure and deliver 'right skills, right place, right time'

9. Appendix

9.1 Glossary of Acronyms

ABI	Annual Business Inquiry
AHP	Affordable Housing Programme
ALP	Average Labour Productivity
ASHE	Annual Survey of Hours and Earnings
BHPS	British Household Panel Survey
BIS	Department for Business, Innovation and Skills
BME	Black and Minority Ethnic
BRC	British Retail Consortium
BSF	Building Schools for the Future
CCS	Carbon Capture and Storage
CDM	Construction Design and Management
CEBE	Constructing Excellence in the Built Environment
CECA	Civil Engineering Contractors Association
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Saving Programme
CIC	Construction Industry Council
CIL	Community Infrastructure Levy
CPA	Construction Products Association
CSCS	ConstructionSkills Competence Scheme
CSN	Construction Skills Network
CSR	Comprehensive Spending Review
DCLG	Department for Communities and Local Government
EEA	European Economic Area
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Certificates
ERG	Efficiency and Reform Group
FE	Further Education
FIT	Feed in Tariff
FMB	Federation of Master Builders
GVA	Gross Value Added
HCA	Homes and Communities Agency
HE	Higher Education
HEPI	Higher Education Policy Institute
HESA	Higher Education Statistics Agency
HESS	Heat and Energy Saving Strategy
HIP	Home Information Pack
HMRC	Her Majesty's Revenue and Customs
HNC	Higher National Certificate
HND	Higher National Diploma
HSE	Health and Safety Executive
HVAC	Heating, Ventilating, and Air Conditioning
ICT	Information and Communications Technology
IDBR	Inter Departmental Business Register
IGT	Innovation and Growth Team
JVC	Joint Venture Company
KPI	Key Performance Indicator
KTP	Knowledge Transfer Partnership
LCHO	Low Cost Home Ownership
LFS	Labour Force Survey
LOSC	Labour Only Sub Contractors
MAC	Migration Advisory Committee
MMC	Modern Method of Construction
NEC	Not Elsewhere Classified
NESS	National Employer Skills Survey for England

NHPAU	National Housing and Planning Advice Unit
NHTG	National Heritage Training Group
NI	National Indicator
NIESR	National Institute of Economic and Social Research
NIC	National Insurance contributions
NOS	National Occupational Standards
NSCC	National Specialist Contractors Council
NVQ	National Vocational Qualification
OFT	Office of Fair Trading
OGC	Office of Government Commerce
ONS	Office for National Statistics
PAYE	Pay As You Earn
PFI	Private Finance Initiative
PQQ	Pre-Qualification Questionnaire
R&M	Repair and Maintenance
RHI	Renewable Heat Incentive
SIC	Standard Industrial Classification
SME	Small and Medium-sized Enterprise
SOC	Standard Occupational Classification
SSC	Sector Skills Council
UKCES	UK Commission for Employment and Skills
UKCG	UK Contractors Group
VAT	Value Added Tax
VRQ	Vocationally Related Qualification

9.2 Glossary of Terms

Term	Description
Average Labour Productivity (ALP)	Describes the economic output per labour hour.
Craft training	Refers to skill acquired through experience in a trade, usually through work-based learning such as an Apprenticeship. Similarly a craft operative refers in a more general sense to an occupation requiring skill in any of certain kinds of work done with the hands, as distinguished from unskilled work or from a profession or business.
Manual worker	Defined as those working within SOC 2000 Major Groups 5, 8 and 9
Microgeneration	The small-scale generation of heat and power by individuals, small businesses and communities to meet their own needs, as alternatives to traditional centralized grid-connected power.
Non-manual worker	Defined as those working within SOC 2000 Major Groups 1, 2, 3, 4 and 7
Output	<p>Contractor's output is defined as the amount chargeable to customers for building and civil engineering work done in the relevant period excluding VAT. Contractors are asked to include the value of work done on their own initiative on buildings such as dwellings or offices for eventual sale or lease, and of work done by their own operatives on the construction and maintenance of their own premises. The value of goods made by the contractors themselves and used in the work is also included.</p> <p>Output does not include payments made to architects or consultants from other firms - this would also cover engineers and surveyors. It would include wages paid to such people if they were directly employed by the contractor.</p>
Private sector	With reference to construction activity private work is for a private owner or organisation or for a private developer, and includes work carried out by firms on their own initiative. It includes work where the private sector carries the majority of the risk/gain. In principle, all Private Finance Initiative (PFI) contracts are private.
Professional Services	Refers to activities that fall within SIC (2007) 71.1 Architectural and engineering activities and related technical consultancy and SIC (2007) 74.9 Other professional, scientific and technical activities n.e.c.
Public sector	With reference to construction activity public work is for any public authority such as government departments, public utilities, nationalised industries, universities, the Post Office, new town corporations, housing associations and so on.
Specialist Contractors	Refers to activities that fall within SIC (2007) 43.1 Demolition and site preparation and SIC (2007) 43.9 Other specialised construction activities n.e.c.
Total Factor Productivity (TFP)	Describes the portion of output not explained by the amount of inputs used in production.

9.3 ConstructionSkills Footprint, SIC 2003

Definition of the ConstructionSkills sector, SIC 2003

SIC 45	Construction
SIC 45.1	Site Preparation
SIC 45.11	Demolition and wrecking of buildings; earth moving
SIC 45.12	Test drilling and boring
SIC 45.2	Building of complete construction or parts; civil engineering
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
SIC 45.3	Building Installation
SIC 45.32	Insulation work activities
SIC 45.34	Other building installation
SIC 45.4	Building Completion
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
SIC 45.5	Renting of construction or demolition equipment with operator
SIC 74	Other Business Activities
SIC 74.2	Architectural and engineering activities and related technical consultancy
SIC 74.20/1	Architectural activities
SIC 74.20/2	Urban planning and landscape architectural activities
SIC 74.20/3	Quantity surveying activities
SIC 74.20/4	Engineering consultative and design activities
SIC 74.20/5	Engineering design activities for industrial process and production
SIC 74.20/6	Engineering related scientific and technical consulting activities
SIC 74.20/9	Other engineering activities

Source: Office for National Statistics, UK Standard Industrial Classification of Economic Activities 2003

9.4 ConstructionSkills Footprint, SIC 2007

Definition of the ConstructionSkills sector, 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.

SIC 71	Architectural and Engineering Activities; Technical Testing and Analysis
71.1	Architectural and engineering activities and related technical consultancy
71.11	Architectural activities
71.11/1	Architectural activities
71.11/2	Urban planning and landscape architectural activities
71.12	Engineering activities and related technical consultancy
71.12/2	Engineering related scientific and technical consulting activities
71.12/9 and	Other engineering activities (not including engineering design for industrial process production or engineering related scientific and technical consulting activities)
SIC 74	Other Professional, Scientific and Technical Activities
74.9	Other professional, scientific and technical activities n.e.c.
74.90/2	Quantity surveying activities

Source: Office for National Statistics, UK Standard Industrial Classification of Economic Activities 2007

9.5 Type of Work: Detailed Descriptions⁷⁰

Orders and output have been classified in accordance with revised descriptions given below from 1st quarter 1980. Prior to 1st quarter 1980 there were differences in definition.

Prior to 1st quarter 1985, telephone exchanges and cabling work for British Telecom were classified as communications work for the public sector. From 1st quarter 1985 this work has been classified to the private sector. From 1st quarter 1987 construction work for British Gas has been classified to the private sector. From 1st quarter 1990, construction work for water companies in England and Wales has been classified to the private sector. From 1st quarter 1991, construction work for electricity companies in England and Wales has been classified to the private sector. From 2nd quarter 1996 construction work for rail companies has been classified to the private sector.

Type of Work	Examples of Kind of Work Covered⁷¹
(a) Public Sector Housing	Local authority housing schemes, hostels (except youth hostels), married quarters for the services and police; old peoples' homes; orphanages and children's remand homes; and the provision within housing sites of roads and services for gases, water, electricity, sewage and drainage.
(b) Private Sector Housing	All privately owned buildings for residential use, such as houses, flats and maisonettes, bungalows, cottages, vicarages, and provision of services to new developments.
(c) Infrastructure	
Water	Reservoirs, purification plants, dams (except for hydro-electric schemes), aqueducts, wells, conduits, water works, pumping stations, water mains, hydraulic works.
Sewerage	Sewerage disposal works, laying of sewers and surface drains.
Electricity	All buildings and civil engineering work for electrical undertakings such as power stations, dams and other works on hydro-electric schemes, sub-stations, laying of cables and the erection of overhead lines.
Gas	Gas works, gas mains and gas storage.
Communications	Post offices, sorting offices, telephone exchanges, switching centres, cables.
Air Transport	Air terminals, runways, hangars, reception halls, radar installations, perimeter fencing, etc, which are for use in connection with airfields.
Railways	Permanent way, tunnels, bridges, cuttings, stations, engine sheds, etc, and electrification of both surface and underground railways.

⁷⁰ Office for National Statistics, Construction Statistics Annual 2010

⁷¹ Mixed development schemes are included in the category which describes the major part of the scheme.

Harbours (Waterways)	All works and buildings directly connected with harbours, wharves, docks, piers, jetties (including oil jetties), canals and waterways, dredging, sea walls, embankments, and water defences.
Roads	Roads, pavements, bridges, footpaths, lighting, tunnels, flyovers, fencing.

(d) Non-Housing Excluding Infrastructure⁷²

Factories	Factories, shipyards, breweries, chemical works, coke ovens and furnaces (other than at steelworks), skill centres, laundries, refineries (other than oil), workshops, Royal Mint (in public sector).
Warehouses	Warehouses, wholesale depots.
Oil	Oil installations including refineries, distribution pipelines and terminals, production platforms (but not modules or rigs).
Steel	Furnaces, coke ovens and other buildings directly concerned with the production of steel (excludes offices and constructional steelwork).
Coal	All new coal mine construction such as sinking shafts, tunnelling, works and buildings at the pithead which are for use in connection with the pit. Open cast coal extraction is excluded.
Schools and Colleges	Schools or colleges (including technical colleges and institutes of agriculture) except medical schools and junior special schools which are classified under 'Health'. Schools and colleges in the private sector are considered to be those financed wholly from private funds such as some religious colleges including their halls of residence.
Universities	Universities including halls of residence, research establishments.
Health	Hospitals including medical schools, clinics, surgeries (unless part of a house); medical research stations (except when part of a factory, school or university), welfare centres, centres for the handicapped and for rehabilitation; adult training centres and junior special schools.
Offices	Office buildings, banks, embassies. Police HQ's, local and central government offices (including town halls) are classified to the public sector.
Entertainment	Theatres, concert halls, cinemas, film studios, bowling alleys, clubs, hotels, public houses,

⁷² Private work is classified between industrial and commercial as follows:

Industrial – factories, Warehouses, Oil, Steel, Coal
Commercial – Schools and Colleges, Universities, Health, Offices, Entertainment, Garages, Shops, Agriculture, Miscellaneous.

restaurants, cafes, holiday camps, yacht marinas, dance halls, swimming pools, works and buildings at sports grounds, stadiums and other places of sport or recreation and for commercial television, betting shops, youth hostels and centres; service areas on motorways are also classified in this category as the garage is usually only a small part of the complex which includes cafes and restaurants.

Garages	Buildings for storage, repair and maintenance of road vehicles; transport workshops, bus depots, road goods transport depots and car parks.
Shops	All buildings for retail distribution such as shops, department stores, retail markets and showrooms.
Agriculture	All buildings and work on farms, market gardens and horticultural establishments such as barns, animal houses, fencing, stores, greenhouses, boiler houses, agricultural and fen drainage and veterinary clinics, but not houses (see category (c)), or buildings solely or mainly for retail sales which are included under 'shops'.
Miscellaneous	All work not clearly covered by any other heading, such as: fire stations; barracks for the forces (except married quarters, classified under 'Housing'), naval dockyards; RAF airfields, police stations, prisons, reformatories, remand homes, borstals, civil defence work, UK Atomic Energy Authority work, council depots, public conveniences, museums, conference centres, crematoria, libraries, caravan sites, except those at holiday resorts, exhibitions; wholesale markets, Royal Ordnance factories.

Repair and Maintenance

This concerns work, which is either repairing something which is broken, or maintaining it to an existing standard. For housing output, this includes repairs, maintenance, improvements, house/ flat conversions, extensions, alterations and redecoration on existing housing. For non housing this includes repairs, maintenance and redecoration on existing buildings, which are not housing, such as schools, offices, roads, shops.

9.6 ConstructionSkills Footprint, SOC 2000

Details of ConstructionSkills' SOC footprint are shown below, giving the occupations for which ConstructionSkills has exclusive or primary responsibility. ConstructionSkills takes a lead in the development and maintenance of the related NOS. These represent occupations that are typically associated with the construction sector.

Table 19 - Definition of the ConstructionSkills sector, Exclusive and Primary SOC Codes

SOC	SOC Description
1122	Managers in construction
2113	Physicists, geologists & meteorologists
2121	Civil engineers
2431	Architects
2432	Town planners
2433	Quantity surveyors
3114	Building & civil engineering technicians
3121	Architectural technologists & town plan technicians
3122	Draughtspersons
3123	Building inspectors
3421	Graphic Designers
5216	Pipe fitters
5311	Steel erectors
5312	Bricklayers, masons
5313	Roofers roof tilers and slaters
5315	Carpenters and joiners
5319	Construction trades n.e.c.
5321	Plasterers
5322	Floorers and wall tilers
5323	Painters and decorators
8141	Scaffolders, staggers riggers
8142	Road construction operatives
8149	Construction operatives n.e.c.
8221	Crane drivers
8229	Mobile machine drivers & operatives
9121	Labourers building & woodworking trades
9129	Labourers other const trades n.e.c.

Source: Office for National Statistics, UK Standard Occupational Classification of Economic Activities 2000

The table below details occupations which ConstructionSkills shares with other SSCs. In this respect these are occupations that provide support functions for firms operating within the construction sector or are occupations for which others have the primary responsibility.

The full list of SOC detailed here gives an indication of how difficult it would be to use SOC codes to identify the size of the sectors given that many occupations detailed feature in almost every sector.

Table 20 - Definition of the ConstructionSkills sector, Shared SOC Codes

SOC	SOC Description
1112	Directors & chief executives of major organisations
1121	Production works & maintenance managers
1132	Marketing and sales managers
1142	Customer care managers
1152	Office managers
1231	Property housing and land managers
1239	Managers and property In other services n.e.c.
2128	Planning and quality control engineers
2129	Engineering professionals n.e.c.
2434	Chartered surveyors (not quantity survey)
3111	Laboratory technicians
3531	Estimators, valuers and assessors
3541	Buyers and purchasing officers
3542	Sales representatives
3551	Conservation & environ protection officers
3567	Occupational hygienists & health safety officers
4150	General office assistants or clerks
5316	Glaziers, window fabric and fitters
7129	Sales related occupations n.e.c.
8121	Paper and wood machine operatives
8129	Plant and machine operatives n.e.c.
9219	Elementary office occupations n.e.c.

Source: Office for National Statistics, UK Standard Occupational Classification of Economic Activities 2000

9.7 Methodology Paper

This section provides an overview of the primary research sources utilised in the production of the Sector Skills Assessment. These sources are projects commissioned as part of ConstructionSkills' annual Research Programme.

Name Construction Industry Council and ConstructionSkills, Impact of the Recession on Construction Professionals – A view from the front line.	Date 2009
Aim/Objectives To provide an understanding of how the current recession was impacting on the UK professional services sector, including: <ul style="list-style-type: none"> ➤ How employers have responded to current changes in the economy; and ➤ to what extent employers are planning for future growth. 	
Methodology The research was split into two discrete packages. Experian was commissioned to analyse the trends in official data relating to the construction sector and in particular to construction professionals, and combine this with the outputs of the Construction Skills Network employment model to produce a view of the effects of the recession to date and the prospects for construction professionals as the economy starts to move into recovery mode. In addition, Experian was asked to collate responses supplied by professional institutions as to how they were assisting their members in 'recession mitigation'. Finally a brief examination of the longer-term influences on the nature of construction professionals' work was undertaken, drawing on previously published material. In tandem with the Experian research, a survey of construction professionals was commissioned to obtain responses from professional practices as to the effects of the recession on their business and how the downturn was impacting on employment, recruitment and training. This primary research involved two elements: <ul style="list-style-type: none"> ➤ An initial qualitative phase, involving 30 teledepths with firms within the professional services sector. ➤ A quantitative survey of 301 professional services firms employing 5 or more staff across the UK. 	

Name ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training	Date Wave 10: October 2010
Aim/Objectives The Employer Panel seeks to complement and enhance ConstructionSkills' existing research by providing an open and regular programme of employer consultation, allowing a reality check for anecdotal reports and enabling employer reactions to be gained on 'hot topics' of the moment. A particular aim was to enable a more comprehensive understanding of actual behavioural issues influencing the decision(s) to train, the route(s) taken and the method(s) used.	
Methodology Each wave of research comprises 30 Qualitative and 1,500 quantitative interviews (both phases conducted by telephone) with employers and the self-employed operating within the traditional building sector (SIC 45) and the Professional Services sector (SIC 74.20).	

Name ConstructionSkills and Experian, Construction Skills Network, 2011-2015	Date 2010
<p>Aim/Objectives</p> <p>The aim of the Construction Skills Network (CSN) is to assist the industry and its stakeholders with planning to meet future employment and skills requirements, by providing sector intelligence based upon robust data and analysing capacity, productivity and skills.</p> <p>The CSN is co-ordinated by ConstructionSkills in conjunction with Experian, who provide information and analytical services. The CSN has over 700 members (including representatives from Government, Federations and Employers) who attend observatory meetings and contribute their skills and knowledge.</p> <p>At the heart of the CSN are a number of forecasting models which generate forecasts of employment requirements within the industry for a range of occupational groups. The models are designed and managed by Experian under the independent guidance and validation of the Technical Reference Group, comprised of statisticians and modelling experts.</p>	
<p>Methodology</p> <p>The model approach relies on a combination of primary research and views from the CSN to facilitate it. National data is used as the basis for the assumptions that augment the models, which are then adjusted with the assistance of the Observatories and National Group. Each English region, Wales, Scotland and Northern Ireland has a separate model (although all models are inter-related due to labour movements) and, in addition, there is one national model that acts as a constraint to the individual models and enables best use to be made of the most robust data (which is available at the national level). The models work by forecasting demand and supply of skilled workers separately. The difference between demand and supply forms the employment requirement.</p> <p>For more information see CSN explained document at http://www.cskills.org/uploads/csn2010-2014explained_tcm17-18118.pdf</p>	

Name ConstructionSkills, Construction Apprentices Survey,	Date 2007
<p>Aim/Objectives</p> <p>The aim of the survey was to determine critical data on learners, which will serve two main purposes as follows:</p> <ul style="list-style-type: none"> ➤ To equip ConstructionSkills (previously CITB) with the information it requires for management, development and planning purposes in anticipation of meeting its requirements as Sector Skills Council for Government, the construction industry and education bodies. ➤ To furnish ConstructionSkills' (previously CITB's) Area Offices with information to contribute to the self-assessment reports and action plans required to meet the monitoring and inspection requirements of the ALL in England. 	
<p>Methodology</p> <p>A postal questionnaire survey of 5,224 new CITB construction trainees in England, Wales and Scotland was undertaken.</p> <p>The questionnaire contained questions relating to:</p> <ul style="list-style-type: none"> ➤ learners' background including their qualifications, ➤ the course and training programme they were following; ➤ learners' career choice and the main influences on this; ➤ learners' experience of the Construction Skills Learning Exercise, CITB and employer interviews; ➤ assessment of learners' needs; ➤ learners' views on their training programme and induction; ➤ advice and support that the learners were given regarding their future. <p>A total of 2,317 completed questionnaires were returned by the end of February, representing a response rate of 44 per cent.</p>	

Name ConstructionSkills Skills and Training in the Construction Industry, 2009.	Date 2009
Aim/Objectives The primary aim of this project is to provide robust and reliable information from both employers and the self-employed within the UK construction industry on skill deficiencies and workforce development.	
Methodology The study was UK-wide and covered the full ConstructionSkills footprint (professional services SIC74.2) and the construction contracting sector (SIC45, excluding plumbing and electrical firms (SIC 45.31 and 45.33, which fall within the footprint of SummitSkills, the Sector Skills Council for the Building Services Engineering) A total of 1,202 interviews were conducted via a quantitative telephone survey across the UK:	

Name ConstructionSkills Training and the Built Environment	Date 2010
Aim/Objectives This project undertaken annually aims to measure the number of people entering construction training across Great Britain. These include those coming through ConstructionSkills' own managing agency and those entering other formal certificated training at craft and technical level. The survey also aims to discover the total capacity for skilled manual trades training that is currently available	
Methodology Postal questionnaire sent to all training providers across Great Britain who provide formal certificated training at craft and technical level.	

Name ConstructionSkills, Understanding Future Change in Construction	Date 2010
Aim/Objectives The aim of this research is to establish an evidence base for ConstructionSkills on future skills across the construction sector. This takes the form of a high level overview of where the construction industry is expected to be in the short term (1-3 years), medium-term (3-5 years) and long term (5-10 years), and the resulting generic skills and training needs. The evidence base is to be enlightened by current construction industry views, utilised to underpin future research requirements and inform strategic thinking.	
Methodology Multi-faceted approach was adopted, to gather data through a range of separate routes: Phase 1 - Literature review Phase 2 – Focus Groups across Great Britain - attended by representatives from nearly 70 stakeholder organisations including those within, as well as impacting upon, the construction sector Phase 3 - In-depth qualitative telephone interviews - 10 in England, 10 in Scotland and 9 in Wales with key stakeholders in the construction sector	

Name ConstructionSkills, Cut the Carbon. Research Study: preparing for a low carbon future	Date 2010
Aim/Objectives The research study aimed to capture the knowledge and views of a range of construction clients that regularly procure services from SME contractors. In the context of the carbon reduction agenda, its ultimate goal was to understand what clients want, now and in the future, and how able the construction SME is to deliver.	
Methodology The report expresses the views of 39 public sector organisations, 38 main contractors, 28 corporate end-users and 1,507 homeowners captured via a mix of online questionnaires and telephone interviews.	

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ConstructionSkills

Head Office
Bircham Newton
King's Lynn
Norfolk
PE31 6RH

Web: www.cskills.org
Tel: 0344 994 4400
Contact: Martin Turner

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