Sector Skills Assessment for the Construction Sector 2010

ConstructionSkills UK Summary Report

ConstructionSkills Insight

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Executive Summary

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

Industry Outlook

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

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

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

Key Skills Issues

Risk to Industry Skills Base

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

Pressure on Youth Recruitment

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

Focus on Higher Qualifications

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

Political Landscape

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

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

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

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

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

Key Skills Issues

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

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

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

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

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

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

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

Key Skills Issues

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

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

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

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

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

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1. Introduction

1.1 Sector Definition

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

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

The ConstructionSkills footprint is defined using Standard Industry Classification (SIC) codes, details of which can be found in Appendix 9.2 and 9.3. 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.

Aside from SIC codes the industry is as much defined by the type of work undertaken by those operating within it, essentially these are viewed as market sub-sectors. Indeed, the related terminology and descriptions are widely used and recognised by both the industry and agencies collecting data on industry activity, including the Office for National Statistics (ONS). Data on new orders and output is collected, analysed and disseminated using definitions related to the type of work, these being:

- Public housing
- Private housing
- Infrastructure
- Public non-housing
- Industrial
- Commercial
- Repair and maintenance

These definitions have common currency amongst employers within the sector as well as commentators, and are used throughout this assessment in addition to SIC and SOC.

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

2.1 The Construction Sector and Workforce

2.1.1 Contribution of the Sector

Construction is a pre-requisite to all other economic activity and forms a significant part of the UK economy in terms of employment and wealth generation. As a sector it is the UK's second largest employer and a significant exporter of goods and services.

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

[1] Office for National Statistics, Labour Force Survey, Four quarter average to Spring 2010
[2] Office for National Statistics; Construction Skills Network; Experian 2010
[3] Office for National Statistics, United Kingdom National Accounts: The Blue Book 2010 edition, September 2010; ConstructionSkills estimate.

The construction sector, including professional services creates around £85billion[4] of value added and is estimated to generate over £5billion[5] in export earning.

As a significant contributor to the UK economy in terms of GDP the construction industry is, and has been over the last ten years, a leading employer (on average around 2.2 million people). Until the start of the recession the industry experienced its longest period of sustained growth since the post war construction boom. Since the peak in 2007 employment levels have decreased and our latest forecast[6] is for continued although slowing decline until 2012.

Whilst the fall in employment in the sector has been severe over the past two years, with the number of workers falling by 375,000 from 2008 to 2010, the decrease has not been as large as expected as contractors have made every effort to retain skilled staff wherever possible, in terms of preserving a degree of capacity in anticipation of the upturn.

2.1.2 Structure of the Sector

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

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

On a national level self-employment in construction is high across England (38%), Wales (36%) and Northern Ireland (42%). The exception being Scotland where only one in five (22%) of the workforce are self-employed.

Self-employment is particularly high in the main craft trades[10] where it averages over 67% and is also highly concentrated in some regions. Regional analysis of the main trades shows an even higher proportion are self-employed in the southern and eastern areas of the UK - London 74%, East of England 77% and South East 77% - consistent with the high proportion of their overall regional share of self-employment compared to other areas.

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).

[4] Office for National Statistics, Annual Business Survey, 2009 provisional results published November 1010
[5] Office for National Statistics, United Kingdom Balance of Payments: The Pink Book 2010 edition, September 2010
[6] ConstructionSkills and Experian, Construction Skills Network, 2010
[7] Office for National Statistics, UK Business - Activity, Size and Location 2010, September 2010
[8] Based on VAT trader and PAYE employer information
[9] Office for National Statistics, Labour Force Survey, Four quarter average to June 2010
[10] Main craft trades comprise Wood Trades, Bricklayers, Painters and Decorators, and Plasterers.

2.2 What Drives Skills Demand?

2.2.1 The Economy

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

Preliminary figures[11] released by the ONS indicate that construction output rose by 4.0% during 2010 Q3, following an impressive 9.5% rise in 2010 Q2 and slight decline of -0.8% in 2010 Q1. Overall, construction output increased 11.0% over the period Q3 2010 to Q3 2009.

According to the latest figures from the ConstructionSkills Network[12], the construction sector experienced its worst contraction for 30 years with a fall in output of 11.5% between 2008 and 2009. The latest medium-term forecast is for growth of around 1.5% per year between 2011 and 2015.

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

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

2.2.2 Globalisation

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

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

As well as exporting skills and expertise the UK construction industry has also benefited from migration. Construction is, and always has been, a migratory industry. There is an expectation that people will go where the work is. This applies to both foreign nationals entering the UK labour market and UK citizens finding work abroad, and in today's global market, itinerant construction workers come from all over Europe and beyond.

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

2.2.3 Technology

The recession has shaken a lot of weaker firms out of the sector and some companies have used this as an opportunity to reorganise and innovate. Levels of competition have

[11] Office for National Statistics, Gross Domestic Product Preliminary Estimate, Statistical Bulletin Q3 2010
[12] ConstructionSkills and Experian, Construction Skills Network, 2010

increased significantly, margins have been reduced and diversification is rife as contractors fight for work. This has resulted in firms looking to generate the maximum return on all potential projects, producing an opening for technological and process change. Furthermore, it is becoming evident that much of the change is being driven by emerging opportunities around the low carbon economy.

In terms of recovery there will be a renewed emphasis on ensuring efficient working. Lower levels of employment will initially result in a need to achieve more with less and this presents an opportunity for product and process innovation.

A shift towards off-site manufacturing is likely to mean that on-site construction increasingly becomes more of an assembly process, suggesting that the industry will see a move from construction to fitting. Prefabricated components and assemblies, designed for ease of installation as well as improved performance and cost, will enable greater output from a potentially smaller workforce and increase safety. Whilst this has a particular significance for both manual and non-manual occupations, the implications for manual occupations are probably more telling. The future trend towards prefabrication will increasingly see trades move to a factory environment; a move that whilst creating clean and safe working conditions will be resisted by some.

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

2.2.4 Demographics

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

The age profile of the construction industry for both professionals and contractors alike matches that of many UK industries. It is mature, ageing and has undergone significant change over the past 10 years. For professionals, managerial and manual occupations, the workforce has generally been distinguished by a decline in the share of the younger groups in total employment and a rise in those aged 45 years and over. Despite positive efforts to encourage young persons to consider construction as a desirable career choice at every level, the industry has an age profile that is biased towards the 35-44 age groups[13].

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

The under-representation of women and ethnic minorities remains a priority issue for the industry. Labour force statistics show that marginal improvements are being made in the recruitment from the female and black, minority and ethnic (BME) groups, although when compared with the UK workforce as a whole, the sector remains amongst the most gender imbalanced in the UK economy.

2.2.5 Legislation

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

[13] Office for National Statistics, Labour Force Survey, Four quarter average to Spring 2010

Within the UK construction sector the Government is doubly important as both a legislator and as a major client. There is a balance to this relationship, since without a strong and effective construction industry the Government will not be able to fulfil its electoral obligations. UK Government has historically driven 30-40% of construction output[14].

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

Changes in legislation will continue to influence demand for skills within the industry. The need to meet new legislative requirements, particularly in respect of climate change and resource efficiency will almost certainly lead to a need for far-reaching changes.

2.3 Current Performance - What is Driving Change?

2.3.1 Productivity and Industry Performance

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

The construction sector accounts for a considerable proportion of UK turnover and GVA, amounting to 7.8% and 10.8% respectively. The GVA/head figure for construction of £60,200 is in line with the manufacturing sector £57,300.

Using historic data from the Annual Business Inquiry (ABI) we can examine the trend in construction GVA/head. Over the period 1998 to 2008 there has been a continual upward trend in GVA/head, in 2008 the level is double that of 1998.

2.3.2 Sustainability

Sustainable construction meaning[15] “the creation of buildings and infrastructure to shape communities in a way that sustains the environment, generates wealth over the long-term and enhances the quality of life for people”, is a unique issue for industry as it brings together under one banner the whole spectrum of social, economic and political drivers.

The United Kingdom’s commitment to reduce carbon and other greenhouse gas emissions is now a matter of legal obligation. The Construction Innovation and Growth Team (IGT) led by Chief Construction Adviser, Paul Morrell published its Emerging Findings[16] in March 2010. The IGT report notes that the construction industry has engaged positively with the issue of sustainability since the word first came into common use and stands ready to play its part in responding to the more focussed challenge of carbon reduction.

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.

[14] L.E.K. Consulting, Construction in the UK Economy, 2009 www.cbi.org.uk/lekreport
[15] CITB-ConstructionSkills, Build to Last: Reviewing Sustainable Construction, 2004
[16] HM Government Low Carbon Construction Innovation and Growth Team, Emerging Findings, March 2010

According to recently conducted ConstructionSkills Employer Panel research[17] 68% of employers questioned described themselves as very (27%) or quite (41%) aware of the implications of the Low Carbon Agenda. The proportion of those very aware was higher (38%) among Professional services firms. Just under half of those questioned (47%) believe that low carbon issues are important to the success of the business. This number is, however, balanced by a similar proportion (48%) who thought is unimportant.

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

However, 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.

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

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

3.1.1 The Contribution of Training and Education

The latest available data providing the complete UK training picture shows 145,000 construction qualification achievements in 2008/09.

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

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

This analysis of training data contains all qualification achievements collected by public funding agencies, and as such Levels 1 to 3 will contain both Scottish/National Vocational Qualifications (S/NVQs) and Vocationally Related Qualifications (VRQs). The main difference between these two types of qualifications is that VRQs are essentially delivered through full time further education and therefore they are not perceived by the industry in quite the same way as S/NVQs which are based around practical application of skills in a work based environment. With this in mind the construction industry tends to use a Vocational Qualification (VQ) Level 2 as the competency benchmark (although in Scotland it is considered a Level 3, but for purposes of this UK analysis, the benchmark is set at a Level 2). Therefore the training data needs to be further deflated to show those deemed competent as available to enter the construction industry. Further analysis of this data excluding all Level 1 qualifications and VRQ Level 2 qualifications shows there were 105,000 qualification achievements in 2008/09. Assuming qualifications are a good proxy for people this represents 105,000 individuals available to join the construction workforce at the desired level of competency.

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.

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

Although Level 1 qualifications are not deemed to provide the required level of competency, it would appear that funding is being directed towards the take up of these qualifications which may be at the detriment of higher level qualifications.

3.1.2 Apprenticeships

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

Further analysis of ConstructionSkills' Trainee Numbers Survey[18] shows that over the four year period from 2006/07 to 2009/10, starters on an construction apprenticeship have decreased from 62% of all training at both level 2 and level 3 to just 44%. In other words, currently starters on an Apprenticeship account for less than half of all starters on level 2 and level 3 qualifications within Great Britain.

Clearly though apprenticeships are still a vital route of entry into the construction industry and there are geographical variations.

Improvements in the overall skills profile of the industry are encouraging and are progress towards The Leitch Ambition[19]. Leitch recommends that by 2020 - 40% of the workforce should be operating at level 4 and above; 90% should be qualified to at least level 2; shifting the balance of intermediate skills towards level 3.

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

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

3.2.1 Workforce Training and Development

Central to the enhancement of skills within employers' workforces is the provision of training and development for staff.

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

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

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

[18] The Trainee Numbers Survey is an annual survey across Great Britain which measures the number of starters onto construction qualifications each academic year.
[19] Leitch Review of Skills, Prosperity for all in the global economy – world class skills, December 2006

By size of firm there is a high degree of consistency in the proportion of the workforce trained, but there was more variation in results by area. The proportion of the workforce trained was highest in Yorkshire and Humberside (54%), the North East (51%) and Wales (47%), and lowest in the East (31%), South East (31%) and Northern Ireland (34%).

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

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

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

4. Current Mismatches between Demand and Supply for Skills

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

4.1 Skill Shortages

ConstructionSkills research found far fewer employers in 2009 reporting skill shortages over the previous 12 months, compared to 2008. These findings are consistent with trade survey results from organisations across the construction industry, who all reported a considerable decrease in recruitment difficulties to a record low.

Additionally fewer employers reported any skill gaps in 2009 than in 2008. As skills gaps are very often explained by recruitment activity whereby staff are taken on who are not (yet) fully proficient; part of the reduction in the incidence of skills gaps is explained by reduced recruitment activity during 2009.

Whilst there are no National Skills Surveys available for 2010 these findings in relation to skills shortages are consistent with current trade surveys[20]. Results from organisations across the construction industry, who all reported a considerable decrease in skill shortages to a record low. For instance, the latest Construction Products Association Trade Survey (Q2, 2010) reported that 13% of building contractors had difficulties in finding on-site labour, contrasting sharply with the 80% figure seen three years ago.

The impact of the recession is evident in the fall compared with 2008 in the proportion of employers attempting to recruit skilled staff in the last 12 months: 58% of the

[20] Federation of Master Builders, State of Trade Survey, Q2, 2010; RICS Construction Market Survey, Q3, 2010; Construction Products Association, Construction Trade Survey, August 2010

construction contracting sector in Great Britain had attempted this in 2008, in 2009 only 39% had done so. The available evidence suggests that 2010 is little different.

4.1.1 Hard-to-Fill Vacancies

According to the 2009 NESS[21] only 6% of construction employers in England reported any vacancies and only 2% reported hard to fill vacancies and skills shortage vacancies.

Three in ten employers in the UK trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (29%), equivalent to 10% of all employers experiencing recruitment difficulties for skilled staff in the previous 12 months. In Scotland 39% of firms had reported a hard to fill vacancy when attempting to recruit skilled staff, so this appears to be a bigger issue in Scotland than for the rest of the UK.

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

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

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

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

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

4.1.2 Steps Taken to Overcome Recruitment Difficulties

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

4.2 Skill Gaps

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

Fewer employers reported any skill gaps in 2009 than in 2008. In 2008 17% of employers had skills gaps, in 2009 comparative figures among the construction contracting sector in Great Britain were 10%.

[21] UKCES, National Employer Skills Survey 2009, August 2010. ConstructionSkills, Synopsis of the National Employer Skills Survey 2009 for ConstructionSkills SSC Footprint, October 2010. Analysis based on 5,059 interviews conducted with construction employers.

4.2.1 The Causes of Skill Gaps

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

One of the contributing factors could be the recruitment of young people straight from training, ConstructionSkills employers were more likely to recruit straight from Higher Education than those covered by the other Built Environment SSC's, around three in ten ConstructionSkills employers recruiting graduates regard them as very well prepared as compared with around one in seven recruiting 16-year-old and 17 –to 18-year old school/college leavers. The skills most commonly felt to be lacking across all 16-24 year olds (regardless of route of education) was a lack of working world/life experience or maturity followed by poor attitude/personality or lack of motivation. Both of these have been previously mentioned as causes of hard to fill vacancies.[22]

4.2.2 The Impact of Skill Gaps

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

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

The proportion of employers with skills gaps taking steps to address skill shortages, and the actual steps being taken, were very similar to those found in 2008, suggesting fairly standard industry responses to these issues. Employers in England generally (73%) responded by increasing the amount of training provided or the amount they spend on training.[23]

4.2.3 Up-skilling the Workforce

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

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

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

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

5.1 Key Drivers and Industry Trends

5.1.1 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.

[22] Ibid.
[23] Ibid.

The recession bought with it massive job losses to the construction industry, and despite officially ending in the fourth quarter of 2009 the onset of economic recovery did not mark a recovery in employment. Indeed, despite two quarters of surprisingly strong growth[24] construction unemployment is not expected to peak until 2011, when it will have reached 400,000 (a 15% increase since the start of the recession).[25] 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.

Consistent recovery is not forecasted until 2011 and even then, it is likely to be a slow and steady return to moderate levels of growth as confidence gradually returns to the market. However, despite this slow growth, the need for new entrants will be relatively high as there are a large number of workers who are set to leave the industry in the next 10 years through retirement.

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

5.1.2 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.

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.[26]

Meeting the Government's targets there will also require an increase in infrastructure projects, specifically new nuclear power stations and tidal/wind energy infrastructure – requiring the industry to apply existing skills and knowledge to new types of building (e.g. new nuclear generation plants potentially to start coming online by 2017).[27] 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)[28]

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.

[24] Office for National Statistics Statistical Bulletin 3rd Quarter 2010, 26th October 2010
[25] ConstructionSkills Network Blueprint 2010-2014
[26] Department for Business, Innovation and Skills & Department of Energy and Climate Change, Meeting the Low Carbon Skills Challenge: A Consultation on Equipping People with the Skills to take Advantage of Opportunities in the Low Carbon and Resource Efficient Economy, 2010
[27] Department for Business, Innovation and Skills, Towards a Low Carbon Economy – economic analysis and evidence for a low carbon industrial strategy, 2009
[28] Ibid.

5.1.3 Research and Development

Although there are many new and innovative trends in the construction process, the main so called Modern Method of Construction (MMC) and the one that is likely to have the biggest impact is off-site manufacture of components that are later installed on site. Although innovation has not been a key aspect of the construction industry in previous years, it is suggested that this could be improved by 'greater internationalism, greater competition, and greater integration in the supply chain'.[29] Also, as one of its benefits is increased energy efficiency, it is likely that its use will be come more widespread as Environmental and Sustainability Legislation becomes more stringent.

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 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.

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.

6. What is the Likely Demand for Employment and Skills in the Future?

6.1 Long-term forecast for the UK Construction Industry

There have been some major changes, certainly in political terms, during 2010 and our core scenario has been adjusted to reflect this. Our core scenario assumes that from 2011-2020:

- UK economy will continue to emerge from recession and there will be a gradual recovery to long-term levels of GDP growth of around 2.0% p.a. through to 2020.
- UK construction output will start to recover from the end of 2011, although it will be at a lower level than GDP growth. Long-term forecast for construction output is around 1.6% p.a. through to 2020.
- Construction output by 2020 will be around £118 billion (constant 2005 prices), an increase of around £20 billion on estimates of output for 2010.
- Although repair and maintenance work showed strong growth in 2010 Q2 construction output statistics, in the long-term the overall ratio of new work to repair and maintenance (R&M) will fluctuate around the current level of 60:40 new work to R&M. As such new work will continue to be the main driver of construction output through to 2020.

[29] Experian and SAMI Consulting, 2020 Vision: The Future of UK Construction: Executive Summary, 2009

- Overall levels of productivity growth will remain low, around 1.0% p.a., however productivity growth will feature more for new build rather than repair and maintenance work.
- Housing demand in the private sectors recovers, with current forecasts show private housing output returning to 2007/08 level towards 2019 - 2020.
- Work in the public non housing sector declines sharply from 2011. This is due to a combination of government cutbacks in capital spending taking effect, while work brought forward during the recession is completed.
- Commercial and industrial new work, both very badly affected in 2009, will recover through to 2020. However, output levels in 2020 will still be lower than those seen in 2008, therefore there is no real growth.

Even with government cutbacks, infrastructure sector work is forecast to grow in the short to medium-term and the long-term prospects for energy infrastructure remain positive with the government commitment to reducing greenhouse gas emissions.

6.2 Short to Medium-term Forecast for Employment in UK Construction [30]

The average annual output growth for output in UK construction is expected to be around 1.5% over the period 2011-15, which is significantly lower than previous forecasts. This translates into an annual recruitment requirement (ARR) of 42,880 workers.

Total construction employment in the UK is forecast to reach around 2,633,600 by 2015, an 8% increase on the 2011 level. In 2015, 2,279,100 are predicted to be working in the contracting sector (SIC 45), whilst 354,500 are expected to be working in the professional services sector (SIC 74.2).

All occupational groups are expected to increase slightly over the forecast period. The largest ARRs in the UK are expected to be for wood trades and interior fit-out and Labourers. However, it should come as no surprise that the size of the ARR is often a function of the size of the particular occupational category.

6.3 Political and Legislative Drivers

There are several political/legislative drivers that will impact upon the skills required across the construction industry over the short, medium and long-term, such as waste management, sustainability, health and safety, procurement policies and the like. Each of these will influence the demand for certain skills:

- Waste management – more skill when selecting, using and disposing of material throughout the build process.
- Sustainability – skills around material selection and use.
- Health and safety – recent news articles[31] illustrate that although improvements have been made over the last ten years, tragic deaths occur for what seem like basic failings. Here the driver will be application of skills.
- Procurement policies – with procurement policies set to be adopted more widely, construction businesses will need to learn skills in how to prepare and submit proposals in order to take advantage of work opportunities in the future.

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:

[30] This data contained within this section is based on provisional forecasts from the Construction Skills Network, 2011-2015 which may change prior to final publication of CSN Blueprint for UK Construction Skills 2011-2015.

[31] Construction Enquirer, "Six site workers killed in one week", http://www.constructionenquirer.com/2010/10/28/six-construction-workers-killed-in-one-week/ accessed October 2010

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

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.

Overall, the move towards low carbon construction will be the most significant driver of skills demand over the next ten years.

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.

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, but skills supply may deviate from this over the medium-term (up to 2015) and the long-term (up to 2020).

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

However, from 2015 onwards it would seem likely that the supply of skills and employment will begin to increase in response to the expected rising demand, though this rise will take some time to have effect due to the lag between people choosing to take up training and being available for work.

7.1.2 The Industry

Over the course of the present forecast approximately 19% of the manual construction workforce will reach retirement age, 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 later retirement, certain skills will become increasingly scarce. If reliance is to be put on an ageing workforce, compensatory changes in workload on-site will be necessary.

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 CSR will mean for the supply of skills. In general terms, it has been revealed that social housing funding will be significantly cut and infrastructure funding on the whole maintained, though some projects have been delayed[32].

However there have been a number of more specific decisions and initiatives. There has been commitment to continuing to invest in Apprenticeships with an additional £250 million a year by 2014/15 providing an additional 75,000 adult apprenticeships. Given the importance and relevance of Apprenticeships to the construction industry, this is a welcome boost for those occupations that primarily rely on them.

In general, given the need for a healthy economy, raising opportunities for training and learning are still key priorities, and those in power across the nations will be keen to show they are committed to investing in the future of the construction workforce.

The changes in demand will result in needs for skills that focus more toward assembling manufactured components, utilise computerised processes at each stage of the construction process and have a greater understanding of trades other than their own, in particular how different aspects and components of a finished building will interact.

7.2 Sources of the Supply of Skills and Employment to the Construction Industry

There are three key routes for skilled workers to enter construction:

- After training for a qualification – at both craft and professional levels
- By bringing relevant skills from other industries
- By migrating from another country

7.2.1 Craft Training

The main supply of skills has traditionally been via work-based training, and there is no reason to think this will be any different in the future. The largest source of investment in craft training comes from employers, and is closely correlated with levels of employment within the industry and expectations for future work.

Before the current recession the two previous recessions in the UK were in 1980-82 and 1990-92. In both instances training fell dramatically, and continued to fall for some time afterwards (although with a short-lived upsurge following the 1990 recession). After both recessions training did not reach its lowest point until some five years after the technical end of the recession, indicating that, like employment, this is a lagging indicator of economic activity.

[32] HM Treasury, Spending Review, October 2010

Although training has the potential to return to its pre-recession levels by 2020 there are varying degrees of probability that it may exceed or fall short of this based on how quickly and strongly the economy recovers from recession.

7.2.2 Higher Education

There are three factors that influence demand for Higher Education – changes in the population from which students are drawn; the ability (in terms of qualifications) of those people to enter higher education; and the willingness (in terms of social background) of this population to participate in higher education. These interact in a complex way with potentially increasing achievement rates and social aspirations working to counteract falling numbers in the crucial 18-20 year old population over the next decade.

The trend in recent years has been one of increasing demand for higher education places, despite the introduction of variable fees, influenced largely by increases in the 17 to 30-year-old population (64% of full time higher education first degree entrants are under 21 and nearly 90% are under 30).

The number of applicants to Built Environment degree courses has increased every year since 2003, with 2009 seeing a slight increase in UK domiciled first degree applicants compared to 2008 (12,799 compared to 12,350).

The Higher Education Policy Institute (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.

However, two major factors that had not come into play at the time of HEPI's report were the recession and more recently the review of Higher Education undertaken by Lord Browne. In considering the first of these, at present there is more likely to be strong pressure for young people to remain in education.

Additionally, the recently released Browne Report will influence decisions on the provision of Higher Education in the UK in coming years. The recommendations relating to the supply of skills included students being charged differing amounts in an effort to increase investment and student choice, and also that those doing part time degrees should be financed (for the student) proportionately. The report believes that student numbers will increase and indeed makes proposals for a 10% increase in available student places[33].

Although it is possible that there will be moderate growth in Higher Education starts between 2010 and 2020 it is unlikely that the dramatic rises that pre-ceded this period will be repeated.

7.2.3 Migration

It is extremely difficult to foresee the future flows of migrant workers, as there are simply so many influencing factors. According to Labour Force Survey[34] data, inflows of migrant workers into construction reached a peak in 2006 of over 11,000 workers before declining to just fewer than 5,000 in spring 2009. Over the time frame of this report (up to 2020) it is likely that the flow of migrant workers will probably be somewhere between these two figures, probably closer to the 7,000 average figure seen throughout most of the first years of the 2000s.

[33] Securing a Sustainable Future for Higher Education: An Independent Review of Higher Education Funding & Student Finance. Available at www.independent.gov.uk/browne-report accessed November 2010
[34] Office for National Statistics, Labour Force Survey, Spring 2009

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.

8. Conclusions and Key Messages

8.1 Conclusions

Construction has been one of the worst hit sectors in the recession. The sector was first amongst those touched by the credit crunch that occurred in 2007and 2009 saw an unprecedented decline of some 11.5% in output, the largest annual fall since 1974. Whilst there are tentative signs of improvement, 2010 is only expected to show a halting of this downward trajectory rather than any real return to growth, a full recovery remains some way off.

The buoyant performance of the construction industry in the first half of 2010 proved difficult to sustain. Whilst a number of sectors continued to fare well – public housing, public non-residential and infrastructure – concerns over the housing market recovery, continuing tight credit conditions, and weakening consumer confidence combined to dampen prospects.

Recovery, albeit tentative, is expected from the end of 2011. Infrastructure output growth in the early part of the forecast period will be largely driven by transport projects, with focus shifting to energy later on. Building Schools for the Future (BSF) and the Olympics will deliver one more year of growth for the public non-residential sector before spending cuts and completions kick in, although these projects have made a considerable contribution to sustaining public non-housing output. And demand is starting to return for new office, retail and leisure space, while retrofitting of energy efficiency measures and microgeneration could drive growth in repairs and maintenance to 2015.

Looking forward it is the broad client base, all of whom have different demands and expectations that present the industry with some major opportunities (and challenges). This is none more evident than responding to 'carbon reduction' and energy efficiency.

One important feature to emerge from this assessment and associated research during the previous 12 months is that greater acknowledgement and consideration needs to be given to the full range of construction clients and ability of the industry to meet their very different requirements. Very simply the sector needs to strategically recognise that construction clientele includes the individual home-owner right the way up to Government – their views and needs will differ quite widely, yet both are important to various parts of the industry. Much of the rhetoric in relation to the big issues facing the industry are based on the view that construction clients are solely larger stockholders and developers, and that in dealing with them and their supply chains the industry can be mobilised for change. Whilst this holds true to a point it is not the whole picture.

In reviewing this assessment it is clear that 'carbon reduction' and resource efficiency is the key theme running throughout; most notably in relation to legislation, but also in respect of future economic prosperity across the UK and the construction sector. This responds to the government's low carbon strategy[35] which clearly sets the longer-term timelines to a low carbon economy.

The construction industry has always comprised of a number of sub-sectors whose demarcation is now being reinforced with changing legislative drivers which vary slightly between each home country and sector. Clear and challenging targets have been set for

[35] Department of Energy and Climate Change , The UK Low Carbon Transition Plan, 2009 http://www.decc.gov.uk/assets/decc/White%20Papers/UK%20Low%20Carbon%20Transition%20Plan%20WP09/1_20090724153238_e_@@_lowcarbontransitionplan.pdf

the whole of the industry in terms of waste reduction and overall carbon reduction targets whilst specific sectors are being driven by sectoral legislation. The Code for Sustainable Homes has started to change outputs in the new build housing sector with further targets expected in both repair and maintenance and non domestic buildings. The impact of this legislation is to change and alter the buildings and structures that are constructed and the products and processes that are adopted to do this. As a result the skills needed to respond to the legislation are also adapting but at a differential rate between the sectors.

One of the most significant challenges in terms of achieving carbon reduction targets is in addressing the performance of the existing building stock, which is responsible for 47% of all UK carbon emissions. The vast majority of this arises from the existing 26 million homes, particularly the 5.2 million pre-1919 properties. Hence in terms of 'big wins' the industry needs to engage not only with Government and corporate clients, but with individual home-owners. However, this means dealing with upwards of 18 million separate clients. Household expenditure on construction is currently estimated at £17bn, which in itself represents a sizeable market, although when taking into account the latent demand in terms of repairs and maintenance that are left undone and energy efficiency improvements that are required the potential market is immense in terms of value and activity levels.

Through legislation and the provision of grants and subsidies the Government has created a new market for construction in low carbon, particularly in respect of retro-fitting and refurbishment. The challenge now is to establish an effective and cost-efficient means for industry at all levels to access it. In terms of job creation repair, maintenance and retro-fit is twice as labour intensive as new build, yet the skills required to manage large programmes of work and the knowledge to apply new and emerging technologies largely sit with the a relatively small number of medium-sized and large contractors, whilst the principle route to market is through a large number of locally-based small and micro businesses. The high levels of self-employment in the sector also represent a significant challenge in this respect.

The emerging consensus suggests that for the vast majority of occupations it is likely that new knowledge rather than completely new skills will be required to address the low carbon challenge, although the potential volume of work suggests an increased supply of opportunities and demand for workers (at least in the short to medium-term). The skills required range from generic skills such as customer/client/tenant services, financial and project management, communication and influencing skills, to the technical knowledge required for the installation of environmental technologies. They also include carbon management, performance assessments and the skills related to historic and heritage properties.

To provide the skills needed there is an established network of FE, HE and private providers that deliver a range of education and training for the construction and built environment sectors. Current evidence points to a growing role for manufacturer based training in relation to knowledge transfer and upskilling. Training in Energy Assessment is often offered by accreditation schemes as well as FE colleges, whilst that for Energy Advice will be provided by a mixture of FE colleges and large employers such as energy supply companies.

At present there is no hard evidence to suggest that current supply is not able to meet demand. This position may change if, as our scenarios and research indicate, there is a more rapid increase in demand. In these circumstances training providers may not be able to respond and there is likely to be insufficient experienced and knowledgeable trainers, educators, and assessors.

In addition to low carbon retro-fit and refurbishment an increased demand for private sector housing (and to a lesser degree public housing) is a fundamental part to securing

the sector recovery in terms of driving future growth as funding on large public infrastructure projects is scaled back. The new build housing sector also presents very clear opportunities to lower the sectors' carbon emissions, and it might also provide an opportunity to increase sector productivity.

At the moment it is estimated that only 12% of all construction activity is manufactured offsite, but this could increase significantly as the industry moves from recession to recovery and could also change where new clients and funders would seek greater levels of off-site activity. One of the main aims of offsite manufacture is to bring increased control into the build process. This allows better quality control, creates less waste and increases levels of worker safety, which ostensibly leads to increased productivity. At the very least it presents industry with an opportunity to achieve more with less, be it labour, materials or skills. This is particularly relevant if there is a shortage of potential entrants into the sector and may also alter the way certain traditional activities and processes are carried out with defined 'teams' in areas such as new build housing becoming a reality. Housing 'teams', as opposed to the traditional; trades, have been considered in the past as a possible option for delivery and with an expected increase in offsite manufacture such a change could be considered as an option for the future within some companies.

Current thinking appears to be that, post-recession, the low carbon agenda will result in a significant growth in new 'green' jobs, although this needs to be balanced with the potential for a reduction in jobs as the drive for productivity and efficiency increases and the use of different processes and technologies increases. However, the construction sector of the future will, despite much forecasted change, share many features with the industry of today. The specialist skills demanded to meet the high specifications and low energy requirements of future buildings and infrastructure will require new levels of expertise in terms of product knowledge and will necessarily require both professional services and craft trades working to more exacting tolerances, but reflecting on the structure of the industry and the variety of markets that it serves one must accept that the breadth and depth of this change will not be uniform.

New ways of working will not all require totally new skills or create new jobs, but will often be an addition to existing workers skill-sets. In many cases the skills are either an addition to, or amalgam of existing skills and these skills in the same occupations may vary between how they are applied in the different sub-sectors. It is a fact that many small firms are not currently required to utilise innovative methods and the nature of the markets they serve surely preclude this in the future, at least whilst there is a significant levels of traditionally built stock that largely requires a bespoke site-based approach. Changes in skills requirements are likely to be of equal if not greater significance in management and professional occupations with a number of new functions being considered currently and with further new functions identified as we move further into a low carbon economy.

The implications for skills suggest that there will be increasing demand for higher levels of skills across the industry, especially those at Level 4 and above and skilled trades will remain the dominant grouping for qualifications within the industry, although increased levels of multi-skilling is predicted.

High-quality leadership and management are critical factors in successful businesses. Good leaders and managers are able to identify new market opportunities and recognise the importance of developing the skills and talent of their workforce. Many businesses and individuals already invest substantially in these skills. Universities and other education providers also recognise the critical importance of equipping their students with leadership and management skills as they prepare to enter the workforce and in supporting them through their careers.

Structural changes in the sector, such as the move to off-site production and the whole house retro-fitting and refurbishment, will necessitate an over-arching need to develop the ability to interface with other sectors and their supply chains. But again there must be some recognition and appreciation of how and to what extent this will touch firms in the sector. Off-site production and the opportunities afforded by a low carbon future should not be viewed as the panacea for the industry's ills and challenges, which are as much to do with the structural and operational organisation of the sector, its workforce and the way it currently chooses to do business.

The diversity in the nature of construction clients and the difference in the construction firms servicing those markets probably gives us the clearest indication of a growing divergence that exits within the industry in respect of skills needs, but also portends a potentially deeper ideological split in terms of how these very different needs are supported. Understanding this is crucial to ConstructionSkills' sustainability as the principle body responding to and representing the sector, its firms, its workers and its learners.

8.2 Priorities

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

Industry Priorities

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

Enablers

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

8.3 Skills Strategy and Solutions

SSC Core Remit

As a high performing Sector Skills Council (SSC) ConstructionSkills' responsibility remains to:

- Raise employer engagement, demand and investment in skills
- Provide authoritative labour market intelligence for our sector, and
- Develop national occupational standards and ensure qualifications meet employer needs.

These core SSC activities contribute towards a number of the industry priorities and enablers identified. Building on these we work across our partner organisations to deliver a range of sector specific solutions, supported by the additional resources we seek to secure.

Sector Skills Agreement
ConstructionSkills' UK-wide Sector Skills Agreement (SSA) is key to delivering our commitments as an SSC. Consultation with industry in agreeing the Industry Priorities and Enablers has been reflected in our updated SSA – this ensures that the activities we undertake, and those that we look to other stakeholders to deliver, address the most immediate skills priorities and training needs.

The Productivity Challenge – *supporting employer and industry competitiveness*
➢ Qualifying the workforce, upskilling existing workers to raise qualification levels and increase effectiveness ➢ Improving health, safety and welfare awareness and behaviours, and levels of competence on site ➢ Understanding and addressing employers' business skills needs, supporting short-term survival and longer-term prosperity
The Low Carbon Challenge – *supporting industry's future skills needs*
➢ Building knowledge on industry's future skills needs and translating this into practical solutions ➢ Working in partnership across the UK, Professional and Built Environment sectors on low carbon issues, to maximise influence over policy and funding for future skills
The Leadership Challenge – *providing industry leadership on skills and leadership training for employers*
➢ Working with employers and their representative bodies, professional bodies, trade unions, delivery partners, clients, other SSCs and related bodies to develop an integrated approach ➢ Leveraging our authoritative research data to influence Government policy on industry's behalf ➢ Understanding and addressing employers' management & leadership skills needs
The Recruitment Challenge – *keeping the pipeline of talent flowing*
➢ Promoting and delivering apprenticeships and pathways, influencing the construction-related curriculum for 14-19 year olds, and supporting undergraduates in partnership with stakeholders ➢ Providing information, advice and guidance on qualifications and careers to potential recruits and their influencers ➢ Actively promoting diversity and equal opportunities
The Employer Engagement Challenge – *recognising and responding to skills needs*
➢ Promoting the benefits of investing in training and development ➢ Diagnosing skills needs and providing or signposting solutions ➢ Extending our reach – particularly with SMEs, consultancies and trade bodies, and through working with employer groups
The Education and Training Challenge – *working with providers to deliver 'right skills, right place, right time'*
➢ Demonstrating and utilising an authoritative understanding of skills provision to influence funding decisions ➢ Working with providers across the learning lifecycle to ensure industry's current and future skills needs are met through the supply of sufficient, affordable and quality provision ➢ Developing accreditation schemes to give confidence to our employers about education and training provision

9. Appendix

9.1 Glossary of Acronyms

ABI	Annual Business Inquiry
ARR	Annual Recruitment Requirement
BESA	Built Environment Skills Alliance
BIS	Department for Business, Innovation and Skills
BME	Black and Minority Ethnic
BSF	Building Schools for the Future
CIC	Construction Industry Council
CPA	Construction Products Association
CSN	Construction Skills Network
CSR	Comprehensive Spending Review
DECC	Department of Energy and Climate Change
EEA	European Economic Area
EEPH	Energy Efficiency Partnership for Homes
EU	European Union
FE	Further Education
GDP	Gross Domestic Product
GVA	Gross Value Added
HE	Higher Education
HEPI	Higher Education Policy Institute
IGT	Innovation and Growth Team
LFS	Labour Force Survey
MMC	Modern Method of Construction
NESS	National Employer Skills Survey for England
NVQ	National Vocational Qualification
ONS	Office for National Statistics
R&M	Repair and Maintenance
SIC	Standard Industrial Classification
SME	Small and Medium-sized Enterprise
SSA	Sector Skills Agreement
SSC	Sector Skills Council
SVQ	Scottish Vocational Qualification

9.2 ConstructionSkills Footprint, SIC 2003

Table 26 – 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

9.3 ConstructionSkills Footprint, SIC 2007

Table 27 – 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	Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)
SIC 74	**Other Professional, Scientific and Technical Activities**
74.9	**Other professional, scientific and technical activities n.e.c.**
74.90/2	Quantity surveying activities

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

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