



Sector Skills Assessment for the Construction Sector 2010

ConstructionSkills Wales Report

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1. Introduction

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

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

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

This report, following the framework set out in the UK Sector Skills Assessment for the Construction Sector report published in December 2009, covers the main findings for Wales. In addition to the UK report there are separate national reports for the English regions, Scotland and Northern Ireland.

1.1 Current and Future Skills Priorities

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

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

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

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

Improving Business Performance

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

Strengthening the Skills Infrastructure across Nations

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

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

2.1 What Drives Skills Demand?

2.1.1 Contribution of the Sector

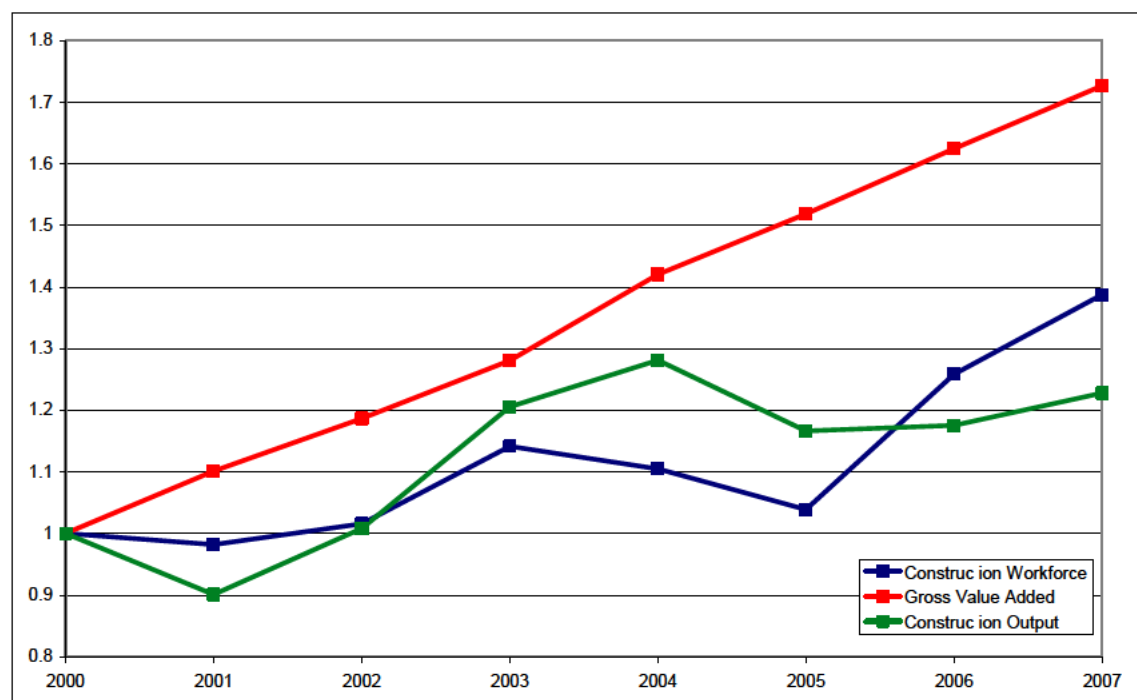
ConstructionSkills covers a wide range of activities in terms of the planning, design, construction and maintenance of the built environment.

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

At the UK level, the construction sector is the second largest employer and a significant exporter of goods and services. In the UK 2.35¹ million people are employed as both construction workers and professionals, accounting for over 8% of the UK workforce. With an output in 2009 of £97billion² (at constant 2005 prices) the sector contributes approximately 8.5% of the UK's GDP.

In Wales, 110,700³ people are employed as both construction workers and professionals, accounting for 4.7% of the UK construction workforce. With an output in 2009 of £3.4 billion⁴ (at constant 2005 prices) the sector contributes 3.5% of the UK construction output.

Chart 1 - Comparison of Construction Output, Gross Value Added and Workforce: Wales 2000-2007



Source: Office for National Statistics, Labour Force Survey; Construction Skills Network
Note Gross Value Added is only available to 2007

In Wales, the construction industry is, and has been for the last ten years, a leading employer (on average around 106,500 people). Overall from 2000 to 2007 the net employment trend for construction is positive, with slight dips in 2001, 2004, 2005 and now due to the current recession.

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

² ConstructionSkills Network and Experian, 2010

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

⁴ ConstructionSkills Network and Experian, 2010

Indeed, until the recession the industry experienced its longest period of sustained growth since the post war construction boom. This growth was in response to a generally more stable macro-economic climate, although low growth forecasts in the wider economy from around 2005 onwards indicated, even prior to recession that the market for construction was slowing.

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

Unfortunately, the industry is historically recognised for being first into and last out of recession.

2.1.2 Structure of the Sector

A feature of the sector is that there are a small number of large firms and a very large tail of small firms. In Wales there are approximately 12,105⁵ enterprises (4% of total UK enterprises). However, the vast majority of companies in the sector are small⁶, with over 92% employing less than 10 employees. Less than 1% of sector businesses are large (employing more than 250 people), although these firms carry out a disproportionate share of the work by value.

Table 1 - Employment within ConstructionSkills' Footprint, Wales: 2009

Size of Enterprise (Number of Employees)	Enterprises		Employment	
	Number	Percent	Number	Percent
0-9	11,219	92.7%	29,877	42.6%
10-49	773	6.4%	19,485	27.8%
50-249	101	0.8%	20,784	29.6%
250+	12	0.1%	*	*
Total	12,105	100.0%	70,146	100.0%

Source: Office for National Statistics, UK Business - Activity, Size and Location 2009; Small Business Service Analytical Unit 2009; Office for National Statistics, Labour Force Survey 2009; ConstructionSkills. Note: Analysis uses SIC 2007. Construction is defined by ConstructionSkills' footprint. This includes Architectural and engineering activities and other professional, scientific and technical activities. SIC 74.90/9 other professional, scientific and technical activities (not including environmental consultancy or quantity surveying) is included because analysis is unavailable below the 4 digit level. SIC 74.90/9 is not part of ConstructionSkills' footprint. Note * symbol indicates figures that are deemed to be disclosive and therefore not included in the original dataset.

Furthermore, in Wales 40,500 people working within the sector are self-employed⁷. Whilst the numbers of self-employed within the sector has declined slightly over recent years, as the Inland Revenue has tightened up regulations related to self-employment status, they still represent well over a third (37% v 37% UK) of the available labour in the contracting sector. By comparison self-employment within the professional services sector is less widespread, accounting for about a fifth (20% v 20% UK) of the workforce and being very much focussed around the activities of architects and chartered surveyors.

The proportion of self-employment at national level in Wales (37%) is very comparable to England (34%) and Northern Ireland (41%). The exception being Scotland where only one in five (21%) of the workforce are self-employed. The United Kingdom report suggests the difference in Scotland may be related to the employment and training structure of Scotland, which promotes apprenticeships and the retention of trainees.

⁵ Office for National Statistics, UK Business - Activity, Size and Location 2009

⁶ Based on VAT trader and PAYE employer information

⁷ Office for National Statistics, Labour Force Survey, Spring 2009

Self-employment in Wales is particularly high in the main craft trades where it averages 65% of the workforce (comparable to UK 59%, England 60%, Scotland 44% and Northern Ireland 61%).

It is also evident that age is a factor in terms of self-employment. Nearly a quarter (24% v 23% UK) of self-employed workers in Wales are aged 55+ compared to only 13% v 16% UK being employed directly. This could be an indication that high levels of demand, particularly for highly skilled workers, and sufficiently enticing re-numeration is keeping individuals in the workplace, or that self-employed workers are unable to retire in the same way as employees.

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

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

Uncertainty around future levels of work also means that employers are apprehensive about investment in the workforce and there is a fear that they would pay for training and then see their trainees go and work for rival firms, or set themselves up as sole traders. Long-term planning of construction investment, by clients including government, is crucial in terms of providing a solid foundation for companies to maintain high levels of investment in the whole workforce. The introduction and use of framework agreements and public sector procurement requirements such as those being developed by Value Wales Procurement⁸ will be key to further developing a training culture, creating a positive environment for clients and SMEs in the supply chain.

There is a strong tendency for career progression to lead towards self-employment, particularly in the main construction trades, where the financial rewards are perceived as being greater. In Wales, ConstructionSkills' research⁹ shows that the incidence of self-employment rises from around one in four (25% v 20% UK) among people with 6 months to one years experience to around one in three (32% v 32% UK) among people with five or more years experience. This has obvious implications on the future training of both the individuals moving to self-employment, and the ability for the industry to provide sufficient opportunities for those wishing to join the industry and train.

2.1.3 Employment Characteristics

In Wales, in terms of occupational structure, manual workers dominate, representing 67% v 53% UK of the total workforce. The remaining 33% v 47% UK are non-manual workers, including managers, and all those working in the professional services sector¹⁰. Patterns of full-time working remain dominant in the industry. Part-time employment is negligible¹¹.

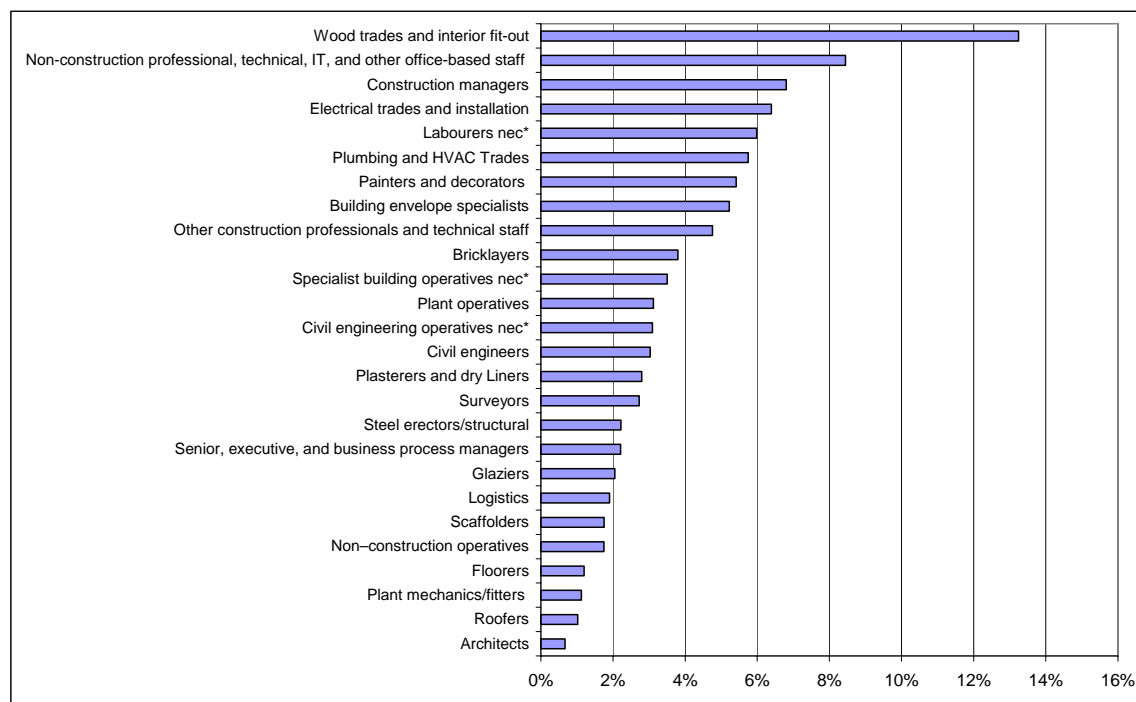
⁸ Buy4Wales, <https://www.buy4wales.co.uk/UsefulResources/valuewalesp.html> , Accessed January 2010

⁹ ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

¹⁰ ConstructionSkills and Experian, Construction Skills Network, 2009

¹¹ Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

Chart 2 - Construction Employment by Occupation, Wales: 2008



Source: Construction Skills Network Model; Experian

Chart 2 shows employment by occupation in Wales. Overall, the picture of employment by occupation is similar to that of the UK. There are only very slight differences in the order of occupations, for example in Wales the occupation with greatest employment is wood trades and interior fit-out, whilst this is the second greatest in terms of employment in UK. Potentially, this may be a product of the current public sector investment in delivering the Wales Housing Quality Standard¹².

The construction sector is served by an itinerant workforce because of the project-by-project nature of the sector. This means that some construction projects – especially large-scale projects – will draw in significant numbers of workers, usually on a sub-contracted basis. Often these workers are likely to be from other parts of the country, or abroad.

Research¹³ suggests Construction workers in Wales are some of the most likely to be working in the region where they came from with more than four-fifths (87%) of them originally from the principality. Incoming workers were most likely to come from the neighbouring South West region (6% of the Wales workforce originated in the South West), the same region where Welsh workers working outside of Wales were most likely to work (6% of the South West workforce originated in Wales). Relatively few of those originally from Wales went outside of the region to work with just 16% doing so (compared with 31% of those from the West Midlands, the region that exported the highest proportion of native workers).

¹² Welsh Assembly Government Website, <http://wales.gov.uk/topics/housingandcommunity/housing/social/whqs/?lang=en>, Accessed January 2010

¹³ ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

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

	Wales 2007 %	Overall Workforce (UK/ROI) 2007%
All of it	39	43
Most of it	37	33
Around half	12	9
Small proportion	9	8
Only this job	1	3
Don't know	2	3

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

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

The mean number of miles travelled to work (distance from home to work) was 29, longer than the UK and Republic of Ireland (ROI) average of 24 miles. Approaching 3 in 5 (55% vs. 64% across the UK/ROI) of workers travel less than 25 miles. Workers in Wales were the least likely to travel less than five miles to work (10% vs. 24% across the UK/ROI). However, the proportion that travelled over 50 miles was similar to that for the overall workforce (9% in Wales vs. 10% across the UK/ROI). It is likely that the recession will result in increased levels of mobility and workers travelling further for work.

2.1.4 Recruitment and Retention

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

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

The construction industry is notoriously cyclical and very sensitive to changes in the macro-economy. This is reflected in workforce flows. The construction industry has at times of recession lost significant numbers of workers, many of whom do not return. The ageing workforce in Wales and UK, both for manual and non-manual occupations 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 (note the Education and Skills Bill would extend similar powers to Wales, although it will not be compulsory for the Welsh Assembly to adopt this) 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 Wales, political initiatives (detailed in section 7.5) such as promoting the Welsh Baccalaureate may encourage greater numbers to remain in study beyond current requirements.

2.2 Current Performance - What is Driving Change?

2.2.1 The Economy

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

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

The UK and therefore Welsh economy has proved one of the most exposed to the debt crisis and according to the Organisation for Economic Co-operation and Development (OECD) is likely to suffer one of the worst contractions among the major European economies. The latest Office of National Statistics data, reported recently in the press confirms that the UK has officially left recession¹⁴ (economy grew by 0.1% between October and December 2009). Figures by UK nation at the time of writing have not yet been published, the most recent data for Wales¹⁵, shows that construction output in Q3 2009 appears to have fallen by 2.0% from Q2. Although the UK may have officially left recession, the growth figure is too low to suggest firm recovery yet.

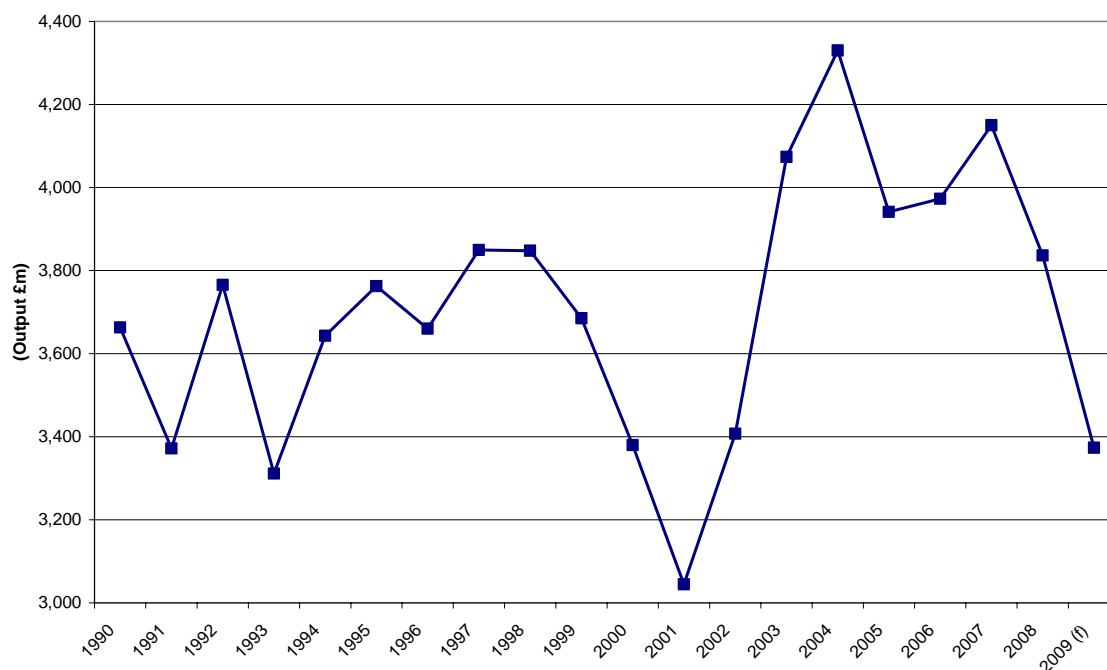
The impact of the recession on the construction sector has been nothing short of dramatic in terms of its impact on jobs and workloads. Following¹⁶ two consecutive years of growth, total construction output in Wales declined by 8% to £3.8bn (in 2005 prices) in 2008, the lowest level since 2002. Whilst a downturn was expected on the back of the credit crisis the speed and depth of the contraction was without precedent. In this respect it has caught out a lot of businesses, particularly in terms of planning in the face of reduced workloads, late payments and increased competition.

¹⁴ The Times Online, <http://business.timesonline.co.uk/tol/business/economics/article7002715.ece>, Accessed January 2010

¹⁵ Office for National Statistics, Accessed January 2010

¹⁶ ConstructionSkills and Experian, Construction Skills Network, 2009

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



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

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

Overall, in Wales the effect of the recession has resulted in reduced construction output in the short-term, although the medium to long-term forecast¹⁷ is for growth of around 2.5% per year between 2010 and 2014, higher than the UK rate of 1.7% and the fourth highest of the 12 regions and nations.

The reduction in demand has led to widespread redundancies across the sector.

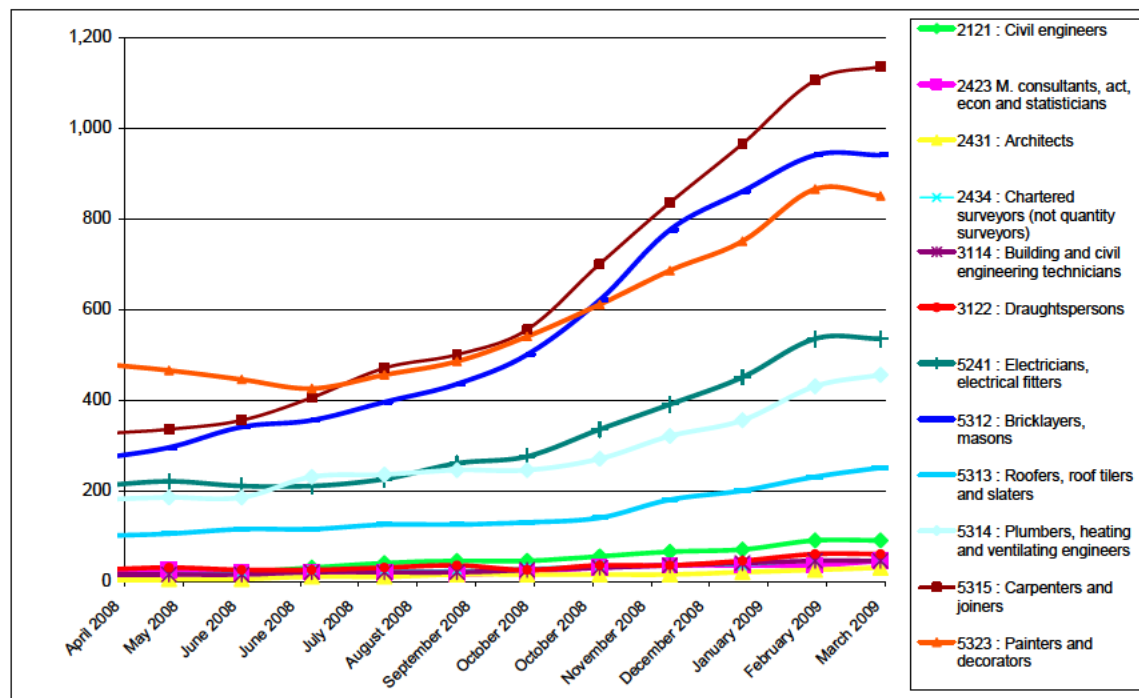
In 2014, total construction employment in Wales is projected to reach 127,680 down marginally on the 2008 outturn but up 8.9% on the 2010 figure. The largest trade occupations in the principality in 2008 were wood trades and interior fit-out (16,950) and construction managers (8,710), with the former accounting for around 13% of total employment and the latter 8%. The greatest growth between 2010 and 2014 is expected to be for the plant mechanics/fitters (50%) and civil engineering operatives nec* (33%) occupations, with the latter predicated to benefit from the strength of the infrastructure sector.

The annual recruitment requirement for 2010-2014 for Wales is projected to stand at around 5,030, with wood trades and interior fit-out (1,070) likely to be most in demand.

¹⁷ ConstructionSkills and Experian, Construction Skills Network, 2009

Data from the Office for National Statistics¹⁸ on unemployment claimant counts by occupation in Wales, shown in Chart 4, illustrates the impact of the recession on the sector.

Chart 4 – Claimant Count by Occupation, Wales: April 2008 - March 2009



Source: Office for National Statistics, Labour Force Survey

The impact of the recession on the number of unemployment claimants in Wales can clearly be seen, with numbers rapidly increasing from April 2008 onwards. In terms of actual numbers of claimants the traditional trades of carpentry and joinery, bricklaying and painting and decorating have been hardest hit (March 2009 1135, 940, and 850 claimants respectively). These occupations employ more of the workforce, so would be expected to be worst hit in number terms. The picture of claimant occupations in Wales is similar to that in the UK.

In Wales, among employers that have laid staff off as a result of the recession, the cutbacks equate to a reduction of 15% v 12% UK in their workforce compared with 6 months earlier¹⁹. Redundancies have affected all occupational groups from the unskilled to managers and professionals.

In Wales labourers / general operatives is the occupation most likely to have been made redundant (46% v 27% UK of companies that had laid staff off), followed by administrative and secretarial staff (37% v 14%), bricklayers (30% v 12% UK), plant and machine operatives (16% v 4% UK), carpenters and joiners (12% v 23%), managers (8% v 6% UK), plasterers (6% v 3% UK) and plumbers (6% v 4% UK). Of those laying off staff 4% v 6% UK have reduced their managerial headcount.

Encouragingly though, ConstructionSkills' research²⁰ in Wales indicates that the majority of firms are confident that they will ultimately survive the current recession: a third are very confident of survival (38% v 37% UK) and further just under half are fairly confident (46% v 50% UK).

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

¹⁸ Office for National Statistics, from Nomis, 2009

¹⁹ ConstructionSkills, Employer Panel: (Wave 8), June 2009

²⁰ ConstructionSkills, Employer Panel: (Wave 9), October 2009

recession into a much changed social and economic landscape of high levels of unemployment, particularly amongst 18-24 year olds and low-skilled workers, reduced household wealth, significant public spending cuts, and more prudent lending from the banks. A possible change of UK government is also a real possibility in 2010 and this is may influence policy in Welsh Assembly Government.

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

Looking back at UK level in the construction industry it can be seen that 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 both at UK level and in Wales.

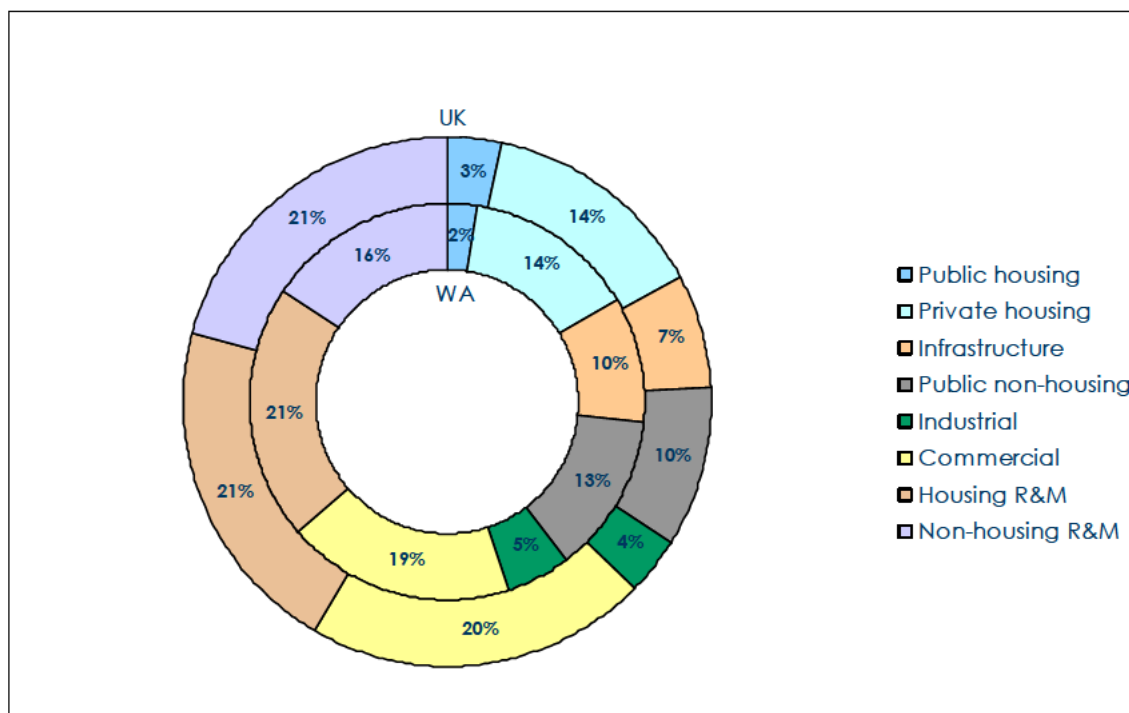
The exodus of skilled workers from the industry through redundancy and retirement will also impact on the ability of the industry to transfer knowledge from experienced workers, potentially further hindering long-term growth.

2.2.2 Current Activity

Chart 5 illustrates the sector breakdown of construction in Wales compared to that in the UK. Effectively the percentages for each sector illustrate the proportion of total output each sector accounts for.

The biggest difference between the structure of the Welsh construction industry and that of the UK is the size of the Repair and Maintenance (R&M) market. Wales' R&M sector as a whole accounts for 37% of total output, a noticeably smaller share than the UK's 42%. However, amongst the new work sectors, both the infrastructure and the public non-housing sectors were proportionally 3% larger in the principality when compared to the UK.

Chart 5 - Construction Industry Structure by Main Sub-sector (Constant 2005 Prices), United Kingdom v Wales: 2008



Source: ConstructionSkills Network; Experian

In 2008, the Welsh economy was estimated to be worth around £42.3bn (in 2005 prices), up 2% when compared to the previous year and equivalent to 3.6% of the national total.

The largest component of the principality's economy was the public services sector, accounting for around 28% of total Gross Value Added (GVA) (higher than the UK figure of below 22%). Financial and business services is the second largest sector in Wales, but with a share of just over 18% it is proportionally less important to the Welsh economy than the UK's as a whole (over 27%). The distribution, hotels and catering sector was the next biggest and accounted for 15.2% of GVA, broadly in line with the national figure.

The greatest growth in recent years has been in the financial and business services sector. Its share as a proportion of total GVA increased from 14% at the beginning of the decade to 18.2% in 2008, while in contrast; the public services sector's share fell from 29.5% to 28%.

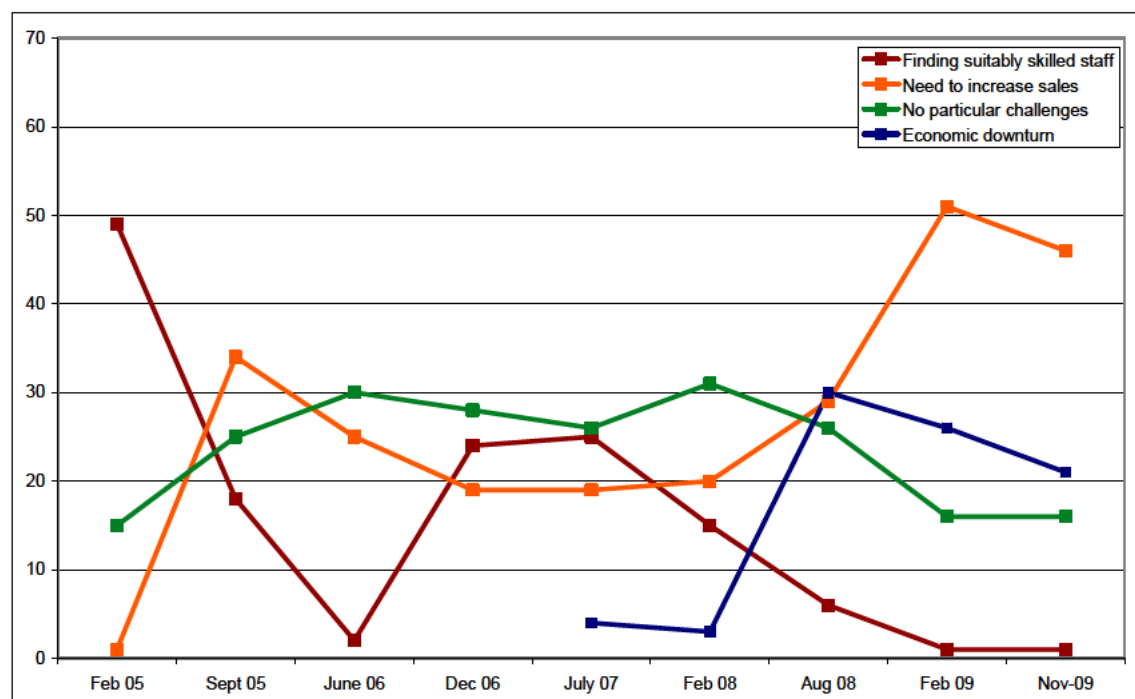
Sections 5 and 6 look in more detail at the structure of and forecasts for the construction industry in Wales.

2.2.3 Constraints on Activity

ConstructionSkills' Employer Panel²¹ asks Employers without prompting what their key business challenges are. This question in the survey, running since 2005, provides a useful barometer of activity constraints Employers are facing. Data from Wales is provided in the chart below.

²¹ ConstructionSkills, Employer Panel: Key Business Challenges (Wave 9), October 2009

Chart 6 – Key Business Challenges, Wales: 2005 - 2009



Source: Construction Employer Panel

The picture of challenges in Wales is very similar to the overall UK picture and trend in England. As the chart shows, the economic downturn first appears as a key business challenge in July 2007, declining in February 2008 but then rapidly rising in August 2008 to being mentioned by 30% of respondents. It is interesting that this was mentioned as a key business challenge by fewer respondents in the most recent November 2009 survey, perhaps indicating that the worst of the recession is over.

The importance of finding suitably qualified staff has declined from the key business challenge mentioned in February 2005 to being mentioned by only 1% of employers in November 2009. This data provides evidence, together with unemployment data that finding skilled labour is not the greatest present difficulty in Wales.

It is interesting that responding to sustainability / green issues was not mentioned as a key business challenge in Wales, with only 1% of mentions at UK level. Section 2.2.8 provides details of the sustainability agenda in Wales, including the introduction of challenging zero carbon targets ahead of England and devolution of building regulations to Wales. It's likely that this sustainability agenda will require change for Employers but the survey indicates that at present this is not top of mind as a key challenge for Employers. It's important to qualify this though, as when Employers were asked specifically about sustainability awareness levels were good – see section 2.2.8 for more details.

In Wales, the most mentioned challenge is the need to increase sales, mentioned by 46% of respondents in the last November 2009 wave. This data indicates that the construction sector, as with other sectors has become even more competitive. There has been much press coverage regarding firms in the construction sector reducing profit margins to win work. Mixed evidence of economic recovery might suggest that the need to increase sales is likely to remain a key priority for the next few years at least.

There is further evidence²² at UK level that supports the findings of the Employer Panel. At UK level, as might be expected with the recession the proportion of firms reporting lack of demand has increased significantly since October 2007, affecting on average

²² Construction Forecasting and Research, Experian, November 2009
ConstructionSkills Sector Skills Assessment

45% of firms across the period. As demand has tailed off this has created excess capacity and all but removed labour constraints, which now affect only 1% to 2% of firms.

Similarly, at UK level, results from the Construction Confederation State of Trade survey²³ for the third quarter to November 2009 indicate a considerable easing in recruitment difficulties with only 6% of building contractors reporting any difficulties in obtaining on-site labour, across any trades. This is in complete contrast to two years ago when nearly four in five (78%) building contractors reported that were difficulties in obtaining key trades, an unprecedented reversal by any standards.

Other constraints on the industry in both Wales and the UK include bad weather, for example the recent January 2010 adverse winter weather, January 2009 winter weather, 2000/01 winter weather and August 2008 wet summer.

2.2.4 Globalisation and Migration

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 and Welsh 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.

In response to the recession, the Welsh Assembly Government launched ProAct²⁴, a financial support scheme designed to help viable businesses cope with the downturn. The scheme provides funding for training of employees who are on short time working, and helps companies retain skilled staff who might otherwise be made redundant. Although the scheme is flexible, it is initially available for 12 months until March 2010 to businesses that have introduced short time working and face the threat of making redundancies, broadly it offers up to £2,000 per individual towards training costs. The scheme has been well received, as reported in a newspaper article ProAct²⁵ is a £48 million programme and according to figures published in the July 2009 article, 227 companies have applied for the scheme of which 76 have been approved, with £11.6 million committed. It may be that without this positive, proactive approach, the impact of the recession in Wales may have been much worse.

ConstructionSkills' carried out research²⁶ amongst professional practices in the UK and Wales. It should be noted that the survey sample for Wales was small, including 13 professional practices, the data is therefore most reliable at UK level and Welsh data should be viewed as indicative only. The research indicated that the fee income of over two thirds of the companies (69% v 54% UK) surveyed was lower in the previous 12 months compared with the 12 months before that, compared with 0 firms in Wales and one in nine (11%) UK saying it had increased over the same periods.

According to the survey, in Wales just over half of employers (62% v 46% UK) had also made redundancies because of the recession. These redundancies affected a wide range of occupational groups. Using UK data (in Wales 8 employers had made redundancies) of those companies making redundancies, most often they were administrative positions (35% of employers that had made redundancies had laid such

²³ Construction Products Association, Construction Trade Survey, November 2009

²⁴ Welsh Assembly Government, ProAct, 2009

²⁵ Daily Post, <http://www.dailypost.co.uk/business-news/business-news/2009/07/22/north-west-wales-counties-miss-out-on-proact-funds-55578-24209890/>, published July 2009

²⁶ ConstructionSkills and Construction Industry Council, Impact of the Recession on Construction Professionals, 2009 Unpublished

staff off), but it was also quite common for employers to have laid off technicians (15%), architects (14%), project managers (9%) and mechanical, civil and other engineers (8%, 6% and 18% respectively). Of the 13 employers in Wales, 8 (62%) had made redundancies because of the recession. Of these 8 employers making redundancies, 3 had made Administrative staff redundant, 3 technicians, 1 architect, 1 mechanical engineers, 1 civil engineers and 4 other engineers. Although the sample is small, the pattern of redundancies in Wales appears similar to the UK.

As well as exporting skills and expertise the UK and Welsh 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/Welsh labour market and UK/Welsh citizens finding work abroad. The experience is also closely linked to economic cycles. Indeed, the tradition of Irish workers finding employment in the UK during periods of high demand and the experience of UK workers migrating to Germany during the early 1980s when work was scarce at home is indicative of the fact that migration is linked to fairly wide economic influences and that international travel has been common for some time. However, in today's globalising world, itinerant construction workers come from all over Europe and beyond.

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

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

Unfortunately, there is very limited data availability for migration statistics and what is available is generally limited to the UK level only. In section 7 of the report, estimates of the scale of immigration to the construction industry are made.

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

In terms of scale, the evidence suggests that the numbers of those we count as migrants (foreign nationals who have arrived in the last ten years) working in the UK²⁷ (data for Wales is not available) in construction increased, from around 20,000 at the end of 2001 to around 120,000 at the start of 2009.

ConstructionSkills' research²⁸ suggested that in 2007 in Wales just under one in twenty (5%) of the site-based construction workforce were foreign nationals. This figure is comparable to the overall United Kingdom figure of 8%, Scotland 4% and Northern Ireland 3%.

Surveys amongst employers indicate that there has been a slowdown in the inflow of economic migrants and an increased outflow, although not necessarily people returning to their countries of origin. Some might choose not to migrate, but merely choose to

²⁷ Labour Force Survey, Four quarter average to Spring 2009

²⁸ ConstructionSkills and Central Office of Information, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

move to another sector. Under normal circumstances we might have seen much higher numbers returning to their home countries, at least for a time, or diverted to faster-growing emerging economies, but given that the economic slowdown is part of a global crises there are few places that haven't been affected. And as a result nobody knows what to expect from a co-ordinated global downturn at a time of historically high migration.

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 Welsh/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 at UK level, with a slight overall increase in applicants in Wales.

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

Subject	2007/08				2006/07			
	Total	UK Dom	Non-UK Dom	%Non-UK Dom	Total	UK Dom	Non-UK Dom	%Non-UK Dom
Civil Engineering	303	239	64	21%	312	240	72	23%
Architecture	178	154	24	13%	192	166	26	14%
Building	124	113	11	9%	121	104	17	14%
Planning (urban, rural & regional)	107	104	3	3%	77	76	1	1%
Total	712	610	102	14%	702	586	116	17%

Source: Higher Education Statistics Authority (HESA) 2009

Data from the Higher Education Statistics Authority (HESA) shows that a high proportion of course enrolments in Wales in 2007/08 are from Non-UK Domiciled students. Proportions are highest for Civil Engineering and Architecture courses at 21% v 28% UK and 13% v 20% UK of students respectively, with an overall proportion of 14% v 19% UK.

From 2006/07 to 2007/08 in Wales there has been a slight decrease (12%) in the total number of Non-UK Domiciled student enrolments. This decrease is due mostly to decreases in civil engineering and planning course enrolments (72 to 64 and 17 to 11 respectively). It is interesting to note that over the same period at the UK level there was a 10% increase in Non-UK Domiciled built environment course enrolments. This decrease combined with the overall lower proportion of Non-UK Domiciled student enrolments compared to the UK, is interesting and could present universities in Wales with an opportunity to increase provision to overseas applicants. More data and research into these differences is needed though before firm conclusions can be drawn.

The main UK Sector Skills Assessment report suggested a number of reasons to explain why Non-UK Domiciled workers might wish to undertake training in the UK – due to the high-quality of training on offer; close association of UK courses to associated professional bodies such as the Institute of Civil Engineering (ICE); prospect of UK jobs offering higher wages; or the benefits of learning a foreign language. These factors will all assist the global appeal of both the UK and Welsh higher education sectors. It is important to capitalise on these factors to ensure future standards of built environment higher education are both maintained and enhanced.

2.2.5 Technology

New technologies and innovations are generally adopted if, and only if, there is a sympathetic set of business, legislative or cultural conditions. For the past two decades, the need to improve business productivity has been the major driver for industry change and innovation. However, the drive towards sustainable construction and reducing carbon emissions is exerting more influence than ever on industry, and legislation underpinning this drive will have to be met through a step change in many areas of construction activity. In Wales, sustainability has become central to Welsh Assembly Government policy with challenging targets around zero carbon and waste introduced alongside new funding streams.

Section 2.2.8 provides more detail around sustainability and implications for the construction industry. In order to achieve the targets set out it will be important for the construction industry both within Wales and at UK level to develop and embrace new technology and innovate. New funding streams in Wales, will help speed the adoption of new technology, creating exciting opportunities for the construction industry.

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

The recession has shaken a lot of firms out of the sector and some companies will use this as an opportunity to reorganise and innovate. Levels of competition have increased significantly, margins have been reduced and diversification is rife as competition for work intensifies. This has resulted in firms looking to generate the maximum return on all potential projects, producing an opening for technological and process change.

In Wales²⁹ just over 1 in 10 companies (11% v 24% UK) questioned in ConstructionSkills' Employer Panel had made permanent staff redundant because of the recession and a similar proportion (13% v 25% UK) had expanded into different parts of the market or changed the focus of their work in response to the recession. These figures may be lower in Wales due to intervention by Welsh Assembly Government, with schemes such as ProAct (detailed in the previous section). Firms that had expanded into different parts of the market or changed the focus of their work reported requiring new skills, particularly in IT and management.

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

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

The shift towards off-site manufacturing is likely to mean that on-site construction increasingly becomes more of an assembly process, suggesting that the industry will see a move from construction to fitting. Prefabricated components and assemblies, designed for ease of installation as well as improved performance and cost, will enable

²⁹ ConstructionSkills, Employer Panel: Wave 9, October 2009

greater output from a potentially smaller workforce and increase safety. Whilst this has a particular significance for both manual and non-manual occupations, the implications for manual occupations are probably more telling. This is because their size and scope encompass such diverse occupations and, secondly, their skills and training are built around clearly demarcated craft traditions with a largely bespoke approach to construction.

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

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

There are, however, structural barriers to innovation including industry demographics that may impede and slow change.

2.2.6 Demographics

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

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

The Welsh population is projected to increase by 139,000³⁰ by 2018. This increase is equivalent to an annual average rate of growth of 0.5% per annum (slightly lower than the UK rate of 0.7%). If past trends continue, the Welsh population will continue to grow, reaching greater than 3.3 million by 2033. This is due to both natural increase (more births than deaths) and because it is assumed there will be more immigrants than emigrants (a net inward flow of migrants). These factors together with increasing rates of household formation will drive demand for homes and public services.

Population growth combined with changing cultural and socio-economic conditions, including strong aspirations of home ownership, higher rates of divorce and a marked increase in single-parent families means that one person households are projected to equate to approximately two thirds³¹ of the annual increase in households. According to Welsh Assembly Government data³² there will be an average increase in Welsh households of 14,000 per annum over the next decade.

Wales, like the rest of the UK and 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 profile³³ of the construction industry in Wales for both professionals and contractors alike matches that of many other UK industries. It is mature, ageing and has undergone significant change over the past 10 years. For professionals, managerial and

³⁰ Office for National Statistics, Population Projections, 2008

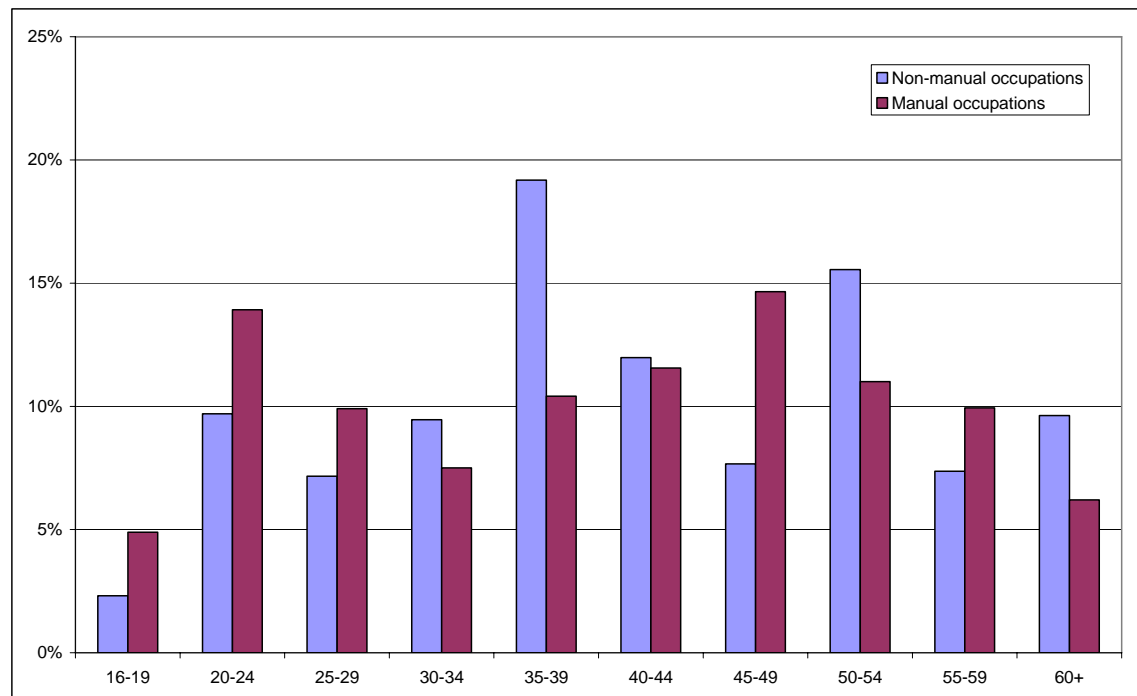
³¹ Welsh Assembly Government, Household Projections for Wales to 2031, June 2009

³² Welsh Assembly Government, Household Projections for Wales to 2031, June 2009

³³ Office for National Statistics, Labour Force Survey, Spring 2009

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 35-54 age groups.

Chart 7 - Age Profile of Construction Industry, Wales 2009



Source: Office for National Statistics, Labour Force Survey 2009

Despite growth in the Welsh construction workforce of 11% v 16% UK since 2003, the data shows that this expansion has been uneven. The number of older workers (aged 55 years and over) in the Welsh construction industry has increased by more than 42% v 27% UK over the same period, while those aged 24 and under have remained almost static (4% v 14% UK increase) over the same period.

While the increasing age profile is most pronounced in the manual workforce, professional trades such as architecture, mechanical and civil engineering could also lose 22% v 18% UK of their manpower to retirement in the next ten years.

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

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

Currently in Wales, women account for approximately 11%³⁴ of total employment in the sector. This figure is slightly lower, with the exception of Northern Ireland, than the proportion of women in total employment in the sector across the UK (13%), England (14%), Scotland (15%) and Northern Ireland (6%).

In Wales, over a third (32%) of women in construction work in non-manual or off-site roles, with less than 1% employed in manual trades. The proportion of women in non-manual work is the highest across all UK nations, UK (27%), England (27%), Scotland

³⁴ Office for National Statistics, Labour Force Survey, Spring 2009

(26%) and Northern Ireland (21%). The proportion of women in manual trades (1%) is slightly lower (except Northern Ireland) than other UK nations, UK (2%), England (2%), Scotland (3%) and Northern Ireland (1%). There is no clear explanation as to why these figures are slightly different to other UK nations, more research is needed.

Whilst, the proportion of BMEs in construction employment in Wales has gradually risen over the past decade to represent about 1% v 5% UK of the construction workforce, this still compares poorly with the wider working population 3% v 9% UK. Looking at the split between manual and non-manual occupations, BMEs currently account for under 1% v 4% UK (note numbers in Wales are too small here to be statistically reliable) of all manuals, and 3% v 6% of all non-manuals. Again while the proportion of both manuals and non-manuals has increased over the last 10 years it is significantly lower than the wider workforce (2% v 9% UK and 3% v 9% UK respectively).

The overall proportion of BMEs in construction employment in Wales (1%) is slightly lower (except Northern Ireland) than other UK nations, UK (5%), England (6%), Scotland (3%) and Northern Ireland (<1%). As might be expected the UK areas with the highest proportions of BMEs in the construction sector workforce coincide with the regions containing areas with higher levels of ethnic diversity. Even in areas which show a higher proportion of BME workers such as London (20%) and the West Midlands (8%) are below the all industry average for all sectors in these regions (31% and 12% respectively).

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

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

2.2.7 Legislation

Legislation remains a key driver for change across industry sectors as a whole and within the construction sector specifically. It is interesting that within the UK construction sector the government is doubly important as both a legislator and as a major client. There is a balance to this relationship, since without a strong and effective construction industry the government will not be able to fulfil its electoral obligations. UK government has historically driven 30-40% of construction output.

It is important to note that legislation operates at three levels – international, national and regional/local level. The UK report focussed on legislation relating to England and although this may influence what happens in Wales, this report focuses on specific legislation relating to Wales. In order to understand how legislation is passed in Wales it is useful to briefly review devolution history³⁵.

The establishment of the Welsh Office in 1964 effectively created the basis for the territorial governance of Wales. The Royal Commission on the Constitution (the Kilbrandon Commission) was set up in 1969 by Harold Wilson's Labour Government to investigate the possibility of devolution for Scotland and Wales. Its recommendations formed the basis of the 1974 White Paper Democracy and Devolution: proposals for Scotland and Wales, which proposed the creation of a Welsh Assembly. However, voters rejected the proposals by a majority of four to one in a referendum held in 1979.

³⁵ Adapted from Wikipedia, Accessed 2010

After the 1997 general election, the new Labour Government argued that an Assembly would be more democratically accountable than the Welsh Office. A second referendum was held on 18 September 1997 in which voters approved the creation of the National Assembly for Wales by a majority of just 6,712 votes. The following year the Government of Wales Act was passed by Parliament, allowing for the creation of the first National Assembly for Wales.

A revision to this act, The Government of Wales Act 2006 received Royal Assent on 25 July 2006. It confers on the Assembly legislative powers similar to other devolved legislatures through the ability to pass Assembly Measures, although legislative competence orders are still subject to the veto of the Secretary of State for Wales, House of Commons or House of Lords.

The Welsh Assembly Government³⁶ website notes that the Government of Wales Act 2006 enabled the Welsh Assembly Government to bring forward its own programme of legislation, which is made up of:

- Assembly Measures
- Legislative Competence Orders

The website notes Assembly Measures can broadly do anything an Act of Parliament can in relation to Wales, subject to the limitation defined by Government of Wales Act 2006. Legislative Competence Orders (LCO) give the 60 elected members of the National Assembly for Wales the power to consider and pass Assembly Measures in certain subject areas. This means that passing an LCO does not alter the law but if passed they give the National Assembly the power to consider altering the law using Assembly Measures.

In addition the following legislative vehicles allow policies to be taken forward:

- Subordinate Legislation
- Transfer of Functions Orders
- UK Parliamentary Bills.

Legislation put forward by the Welsh Assembly Government is subject to scrutiny and approval by the National Assembly for Wales. Currently the National Assembly does not have full law making powers. However, the All Wales Convention is preparing the ground for a possible referendum on full law making powers for Wales.

In June 2007³⁷ the First Legislative Competence Order (LCO) relating to Education and Training (Additional Learning Needs) was published. In April 2008 the 'One Wales Delivery Plan' was launched, identifying 228 specific delivery commitments from the One Wales document.

Key Assembly Measures³⁸ include:

- **Learning and Skills (Wales) Measure 2009**; The key purpose of this Measure is to create a right for learners aged 14-19 in Wales to elect to follow a course of study from a local area curriculum, known already in 14-19 Learning Networks as an 'Options Menu'.
- **Learner Travel (Wales) Measure 2008**; The Measure will make law for the travel of school pupils and young people in education or training aged 16-19 in Wales. The Measure will increase entitlement to free transport to school for primary school children if they live two miles or further away; require local

³⁶ Welsh Assembly Government Website, Accessed 2010

³⁷ Welsh Assembly Government Website, Accessed 2010

³⁸ National Assembly for Wales Website, Accessed 2010

authorities and the Welsh Ministers, when exercising their functions under the Measure, to promote access to Welsh medium education; and give local authorities the power to change school session times if that can improve transport arrangements or environmental sustainability.

- **Local Government (Wales) Measure 2009**; The Measure's overall intention is to offer authorities greater flexibility to respond to citizen and community needs with a national context; create a statutory regime which better integrates long-term strategic planning and shorter term service improvement; and, amend the law better to reflect the distinctive nature and role of local government in Wales.

Key Legislative Competence Orders³⁹ relating to Construction and the Built Environment include:

- **The National Assembly for Wales (Legislative Competence) (Education and Training) Order 2008**; enable changes to be made by way of Assembly Measure, in relation to any aspect of the organisation and delivery of Special Education Needs in Wales.
- **Proposed National Assembly for Wales (Legislative Competence) (Housing and Local Government) Order 2010**; The proposed LCO would extend the field of legislative competence in relation to housing and local government. The competence within the LCO would cover the regulation of social landlords, disposals by social landlords, social housing tenancies, homelessness, housing allocations, housing-related support, the provision of Gypsy and Traveller sites, empty homes and Council Tax for second homes.
- **National Assembly for Wales (Legislative Competence) (Environment) Order 2010**; New powers in this Field will enable the Welsh Assembly Government to bring forward proposals for Measures with the aim of creating sustainable communities. Three specific areas in which these powers will be used are: improving local environmental quality, increasing recycling and improving waste management; and strengthening pollution controls.

In addition to the legislation mentioned here there are specific legislation and policy initiatives in Wales relating to climate change, sustainability and zero carbon. These are detailed in the sustainability (next) section of the report.

2.2.8 Sustainability

The Government of Wales Act 2006, mentioned in the previous section, places the promotion of sustainable development at the heart of the Welsh Assembly Government's work. When the current coalition government was formed in 2007 (Section 7.5 provides more details), the two parties published One Wales, a progressive agenda for the government of Wales⁴⁰ – setting out strategies and aspirations for a comprehensive programme of government over the full four year term.

Building on the One Wales agenda, following consultation, the Welsh Assembly Government published One Wales : One Planet, The Sustainable Development Scheme of the Welsh Assembly Government⁴¹, setting out a vision for a Sustainable Wales. This scheme comprises an overarching strategy for Wales under which lies other strategies

³⁹ National Assembly for Wales Website, Accessed 2010

⁴⁰ Welsh Assembly Government, One Wales, A progressive agenda for the government of Wales, 2007

⁴¹ Welsh Assembly Government , One Wales : One Planet, The Sustainable Development Scheme of the Welsh Assembly Government, May 2009

including the Climate Change Strategy⁴², Green Jobs Strategy⁴³ and Zero Waste Strategy⁴⁴.

Within One Wales : One Planet⁴⁵, the Welsh Assembly Government proposes that: 'Within the lifetime of a generation we want to see Wales using only its fair share of the earth's resources, and where our ecological footprint is reduced to the global average availability of resources – 1.88 global hectares per person. To achieve this goal over a generation, we will need to reduce by two thirds the total resources we currently use to sustain our lifestyles'. This is summarised by the principle One Wales : One planet as we are currently using three planets worth of resources, instead of the one available to us.

The strategy⁴⁶ to meet this aspiration has 4 themes covering issues that underpin the approach to reducing the ecological footprint, and 4 themes based on the policy areas that contribute most to Wales' ecological footprint:

Table 4 –Sustainability Themes and Overall Aims, Wales

Theme	Overall Aim
Climate Change	80% reduction of 1990 CO ₂ levels by 2050. Reduce greenhouse gas emissions by 3% a year by 2011 in those areas where we have devolved competence, and ensure we are resilient to the impacts of climate change.
Waste	Wales to be zero waste by 2050. 70% recycling rate across all sectors by 2025. 90% of non-hazardous construction waste recycled by 2020.
Planning	Provide for homes, infrastructure, investment and jobs in a way that helps reduce our ecological footprint. New Build: Housing – zero carbon housing by 2011. Schools – zero carbon schools by 2017. Public sector buildings – zero carbon by 2018.
Wales Spatial Plan	To stabilise Wales Spatial Areas' ecological footprint by 2020, then reduce it across the range of its activities.

Source: Welsh Assembly Government, One Wales : One Planet, The Sustainable Development Scheme of the Welsh Assembly Government, May 2009. Note Overall Aims have been expanded in the table using the full document text.

Table 5 – Sustainability Footprint Themes and Overall Aims, Wales

Footprint themes (% of Wales' ecological footprint)	Overall Aim
Housing (25%)	Stabilise housing's ecological footprint by 2020, then reduce.
Food (20%)	Stabilise the ecological footprint associated with food and drink by 2020, then reduce.
Transport (18%)	Stabilise transport's ecological footprint by 2020, then reduce.

⁴² Welsh Assembly Government, Climate Change Strategy, forthcoming 2010

⁴³ Welsh Assembly Government, Green Jobs Strategy, Capturing the Potential, 2009

⁴⁴ Welsh Assembly Government, Zero Waste Strategy, Towards Zero Waste, 2009

⁴⁵ Welsh Assembly Government, One Wales : One Planet, The Sustainable Development Scheme of the Welsh Assembly Government, May 2009

⁴⁶ Welsh Assembly Government, One Wales : One Planet, The Sustainable Development Scheme of the Welsh Assembly Government, May 2009

Consumer items (15%)	Stabilise the ecological footprint associated with consumer items by 2020, then reduce.
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Source: Welsh Assembly Government , The Sustainable Development Scheme of the Welsh Assembly Government, One Wales : One Planet, May 2009.

In addition to the tables above, the scheme⁴⁷ gives further details around specific strategies and targets for Wales around climate change, Waste, Planning and Housing.

2.2.8.1 Climate Change

In order to help achieve the aspiration that new buildings constructed in Wales move rapidly towards zero carbon, the Welsh Assembly Government has pursued the devolvement of powers to make Building Regulations to Wales. The Welsh Assembly Government website⁴⁸ confirms that in July 2009, an Order which transfers powers to make Building Regulations for buildings in Wales to the Welsh Ministers from 31 December 2011 was approved. This devolvement of power will be instrumental in allowing changes to Building Regulations in Wales, which in turn will permit delivery of zero carbon new build across sectors but particularly in the residential sector.

Increased energy legislation and building regulation at a national and international level will mean that the building industry will be much more closely regulated. Processes will be managed to avoid the falling foul of fines levied for energy and environment violations, but also to maintain company 'image'.

A Low/Zero Carbon Hub has been established to take forward the work of reducing carbon emissions from the built environment and to provide a built environment focal point for Wales' progressive climate change agenda involving both the public and private sectors. The Hub liaises with the UK Zero Carbon Hub, the Green Building Council and other organisations to ensure compatibility exists and best practise is shared across the construction industry. A Skills strand of the hub has been established and is being led by the Welsh Built Environment Forum⁴⁹.

In addition, the Welsh Assembly Government will continue to promote the BREEAM environmental assessment framework to the public sector in Wales. All investments for new building in education funded by the Welsh Assembly Government are required to meet BREEAM excellence standards.

2.2.8.2 Waste

The draft strategy 'Towards Zero Waste'⁵⁰ published by Welsh Assembly Government sets out a long term framework for waste management and resource efficiency from 2009 until 2050. This strategy proposes a two-staged approach:

- A long-term aim of zero waste by 2050.
- A medium-term aim of achieving a high recycling society by 2025.

In order to achieve this Wales is aiming for a recycling rate of at least 70% across all sectors by 2025. As well as recycling, prevention of waste is the preferred option followed by minimisation, re-use, recycling, energy recovery and finally disposal.

In addition to the targets mentioned in the tables above, the Welsh Assembly Government is consulting on legislation to introduce a mandatory requirement for the production of construction site waste management plans.

⁴⁷ Welsh Assembly Government, One Wales : One Planet, The Sustainable Development Scheme of the Welsh Assembly Government, May 2009. Note the information in the sections titled Climate Change, Waste, Planning and Housing is sourced from this document unless otherwise specified.

⁴⁸ Welsh Assembly Government Website, November 2009 Press Release, Accessed January 2010

⁴⁹ Welsh Built Environment Forum, website under construction: information sourced from internal ConstructionSkills documentation, January 2010

⁵⁰ Towards Zero Waste, One Wales : One Planet, Welsh Assembly Government, April 2009

2.2.8.3 Planning

In order to facilitate the introduction of new technology, the Welsh Assembly Government has freed up planning controls over domestic and commercial micro generation projects. In February 2009, new micro generation planning rules⁵¹ came into effect. These new rules allow homeowners to install a range of domestic micro generation systems without needing to apply for planning permission. Under the revised planning laws, owners of houses and flats are able to install solar voltaic and solar thermal panels without contacting their local authority first. Ground and water source heat pumps are also excluded from the planning requirement, as are flues for biomass or combined heat and power equipment

2.2.8.4 Housing

The aim is that the construction of new homes moves to zero carbon as soon as possible. The Welsh Assembly Government has specified that all funded housing should meet a minimum of level 3 of the Code of Sustainable Homes, with a view to moving to higher code levels as soon as possible.

The Welsh Housing Quality Standard (WHQS) set in 2002 includes an energy efficiency target equivalent to an Energy Performance Certificate rating of D. Guidance will be developed on opportunities to improve environmental standards as part of investment to meet the Welsh Housing Quality Standard.

In addition, the Welsh Assembly Government will support two Registered Social Landlord pilot projects which will be used as a best practice example and to inform future standards. Further to this support, the will fund a programme of 22 schemes with up to 400 homes to be built to code level 4 and 5, within the Registered Social Landlord Development programme.

2.2.8.4 Implications for the construction industry

The sustainability themes and changes outline above, implemented by the Welsh Assembly Government will have implications for the construction industry. There will be a need for new technology, skills and materials in order to comply with legislation. As well as introducing legislation, the Welsh Assembly Government is funding a number of programmes and there is evidence that sustainability is becoming more recognised by Employers both across the UK and within Wales specifically.

It's important to remember that the built environment accounts for a significant proportion of the total UK carbon emissions:

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

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

In Wales, the sustainable development drive (enforced by legislation) and coupled with funding has increased awareness of both the need and potential benefits of sustainability in construction. Research conducted by ConstructionSkills' during Spring 2008⁵² indicated in Wales that over two thirds of employers (64% v 68% UK) had heard of the term sustainability in regard to design and construction, and almost a third (27% v

⁵¹ LowCarbonEconomy.com, http://www.lowcarboneyconomy.com/community_content/low_carbon_news/7090/new_microgeneration_planning_rules_launched_in_wales, Accessed January 2010.

⁵² ConstructionSkills, Employer Panel (Wave 6), April 2006

32% UK) said they had been involved in a project involving sustainability during the preceding 6 months. In Wales and the UK these figures show increases from mid-2006⁵³, when for example in Wales 13% v 27% UK had been involved in a sustainable project in the previous 6 months.

New funding streams from government are helping to drive change in the sector, creating new employment opportunities, while at the same time increasing productivity. Annual spend in this area at UK level has been projected to be between £3.5 - £6bn per annum - a sum which would provide significant opportunities to a wide range of companies and create new jobs. In Wales, Welsh Assembly Government has published a Green Jobs Strategy⁵⁴ to encourage the transition to a more sustainable economy.

Within this context, Welsh Assembly Government has created a programme of development. A recent press release⁵⁵ announced details that the first phase of arbed (meaning 'to save' in Welsh) - the Assembly Government's Strategic Energy Performance Investment programme is to be rolled out across Strategic Regeneration Areas in Wales. Over £30 million has been allocated to the programme through the Welsh Assembly Government's Strategic Capital Investment Fund (SCIF), which will be supplemented by funding from the UK Department of Energy and Climate.

Initially rolled out in October 2009, in the Heads of the Valleys – Wales' first low carbon Zone – arbed attracted considerable interest with applications to fund energy performance measures in 5,600 homes. In the first 18-month phase of arbed, it is anticipated that around 20 communities in Wales' Strategic Regeneration Areas will benefit through the programme. Arbed will also provide employment opportunities by stipulating that organisations funded under arbed make targeted recruitment and training a core requirement of contracts.

In addition to arbed, there are other funding streams. Another recent press release from the Welsh Assembly Government⁵⁶, detailed an announcement made by Environmental Minister Jane Davidson of over £8 million to be made available to help community organisations in Wales invest in new technology to generate clean, renewable energy. The Community Scale Renewable Energy Generation project will provide finance of £100k to £300k per project to support the development of community based renewable energy schemes such as wind, biomass and hydro power. The funding will enable around 22 new and existing social enterprises to install innovative technology to generate electricity which they can then use or sell to the National Grid, or even to their communities, providing an on-going source of income. The jobs created will support the social enterprises established through the scheme.

In addition, around 135 small grants of up to £3,000 will be available to help communities to undertake feasibility studies into potential renewable energy schemes followed by 35 grants of up to £20,000 to help them develop their projects.

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

Construction innovation and sustainability is underpinned by the fact that the industry is made up of a series of 'sub- industries' whose common goal is to create and maintain the built environment. Given this complexity it is essential that associated 'solutions' to the 'skills' changes within these sub-sectors to meet their particular needs must be

⁵³ ConstructionSkills, Employer Panel (Wave 3), June 2006

⁵⁴ Welsh Assembly Government, Green Jobs Strategy, Capturing the Potential, 2009

⁵⁵ Welsh Assembly Government Website, November 2009 Press Release, Accessed January 2010

⁵⁶ Welsh Assembly Government Website, Accessed January 2010

flexible and appropriate for their needs. For example new build housing will have different requirements from housing maintenance.

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

Innovation and sustainability require the development of flexible qualifications, this is especially true for the existing workforce and to allow the transfer between construction, engineering and manufacturing skills. The implementation of the Qualifications and Credit Framework⁵⁷ in 2010 in Wales, the new framework forms part of the existing Credit and Qualifications Framework for Wales (CQFW), will provide the opportunity for this approach, which supports unitised learning and 'multiskilling'. It is essential that this process does not cause duplication and an overly complex system.

⁵⁷ Welsh Assembly Government Website, Accessed January 2010

Summary Box

In Wales, 110,700 people are employed as both construction workers and professionals, accounting for 4.7% of the UK construction workforce. With an output in 2009 of £3.4 billion (at constant 2005 prices) the sector contributes 3.5% of the UK construction output.

Overall, in Wales the effect of the recession has resulted in reduced construction output in the short-term, although the medium to long-term forecast is for growth of around 2.5% per year between 2010 and 2014, higher than the UK rate of 1.7% and the fourth highest of the 12 regions and nations.

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

In Wales, the most mentioned key business challenge facing employers is the need to increase sales. The importance of finding suitable qualified staff has declined from being the key business challenge mentioned in February 2005 to almost 0 mentions in November 2009.

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

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

There is a need for increased diversity both within the Welsh and UK construction workforce to exploit skills from a wider pool of talent.

Technological change is a key driver as the sector looks to achieve ambitious programmes with a smaller workforce.

Wales has introduced specific legislation designed to improve learning and skills.

Wales has set challenging environmental and sustainability targets around climate change, waste and planning that will significantly influence construction activity in Wales and act as a driver for product and process innovation. New funding streams will help the construction industry embrace sustainability technology and skills, creating new employment opportunities within the industry.

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 construction industry in Wales is relatively well catered for in terms of the supply of skilled new entrants via education and training. The latest available data⁵⁸ providing a full picture in Wales (2007/2008) shows 3,728 enrolments onto construction courses at both further and higher education. Taking drop-out and non-completion into account this still provides the industry with a large supply of skilled workers.

3.1.2 Apprenticeships

Inherent within training supply figures are those trainees undertaking an apprenticeship. Data from Welsh Assembly Government⁵⁹ shows that there were 1,505 starts on an apprenticeship during 2007/2008. Labour Force Survey data⁶⁰ can provide numbers for those currently undergoing or having completed apprenticeships. Unfortunately this data is not available for Wales but we can draw a parallel from UK data. Analysis across the UK construction industry finds 2% of the workforce stating that they are currently undertaking an apprenticeship, and an additional 26% claiming to have completed an apprenticeship. Unsurprisingly, the manual trades are much more likely to be involved with apprenticeships compared to non-manual trades. For example, 59% of carpenters and joiners have completed an apprenticeship and 5% are currently undertaking an apprenticeship.

3.1.3 Skill Levels in the Construction Industry

The following table shows the highest qualification level achieved by the construction industry workforce for each nation compared to that for all industries.

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

Nations: 2009

	Construction Industry					All Industries	
	Wales	UK	England	Scotland	Northern Ireland	Wales	UK
S/NVQ level 4 & above	24%	30%	30%	34%	17%	32%	34%
S/NVQ level 3	22%	17%	17%	18%	15%	17%	16%
Trade Apprenticeships	12%	12%	11%	16%	28%	5%	5%
S/NVQ level 2	10%	12%	12%	11%	11%	18%	16%
Below S/NVQ level 2	8%	11%	12%	7%	5%	11%	13%
Other qualifications	11%	9%	10%	6%	6%	7%	9%
No qualifications	12%	9%	8%	9%	18%	10%	8%
	100%	100%	100%	100%	100%	100%	100%

Source: Office for National Statistics, Labour Force Survey

⁵⁸ ConstructionSkills, Training and the Built Environment 2009; Higher Education Statistics Agency

⁵⁹ Welsh Assembly Government, Apprenticeship starts in Construction 2007/2008

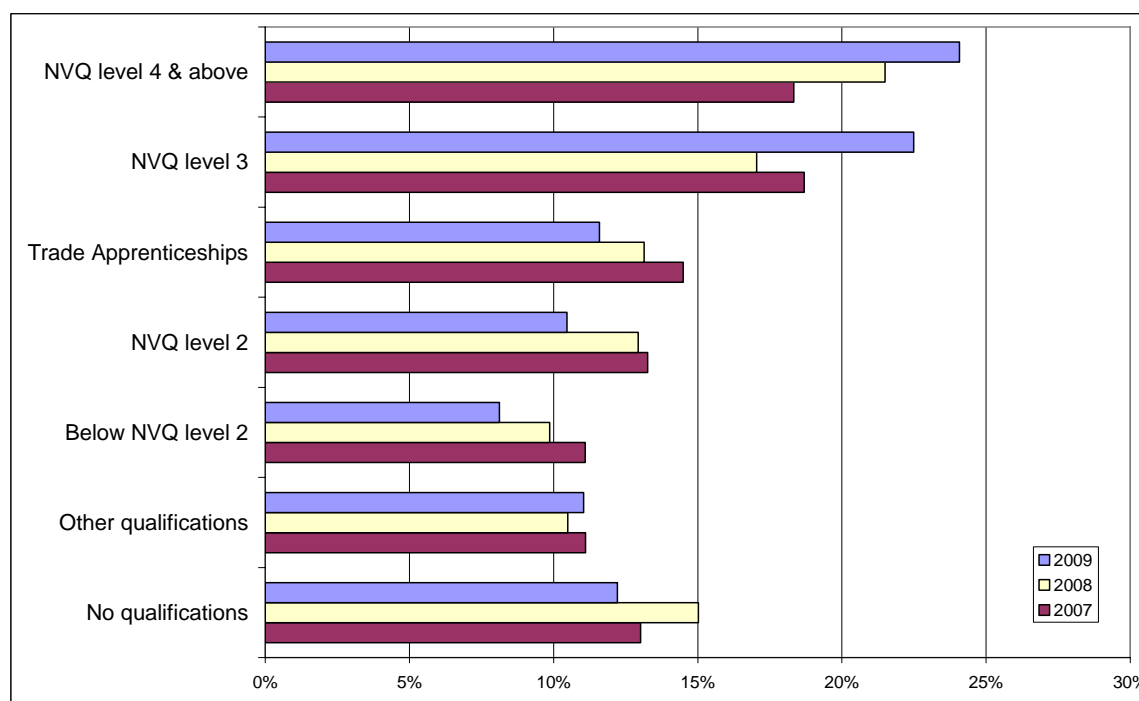
⁶⁰ Labour Force Survey, Four quarter average to Spring 2009

The table shows that the construction industry workforce in Wales, in terms of qualification level achieved, is broadly in line with the wider UK and England profile. Although a slightly lower proportion of the construction workforce are qualified to NVQ level 4 and above, a greater proportion have NVQ level 3 than the other nations. Fitting with this data picture a slightly higher proportion of the Welsh construction workforce have no qualifications, although it should be noted that a greater proportion of the workforce has other qualifications.

Compared to all industries, a significantly higher proportion of the construction workforce trained as an Apprentice, but a smaller share trained to NVQ level 2. It is standard practice to equate an Apprenticeship to a Level 2 qualification, when these groups are added the Welsh construction industry has a very slightly lower proportion qualified to level 2 equivalent than all industries (22% v 23% respectively).

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

Chart 8 - Qualifications of the Construction Workforce, Wales: 2007-2009



Source: Office for National Statistics, Labour Force Survey

The improvements in the overall skills profile of the industry are encouraging and are progress towards *The Leitch Ambition*⁶¹. 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.

Improvements in the skill levels of the construction industry can be seen at both ends of the scale in Wales. Both proportionately and in absolute numbers, there has been a significant increase in higher level qualifications and subsequently a decrease of those with no qualifications (note 2008 appears to be a slight anomaly for the proportion with no qualifications but comparing 2009 to 2006 figures there is a clear downward trend for this bracket) - certainly progress towards a fully qualified workforce. Overall, there appears to be a decline in lower level qualifications, which could be attributed to the retirement of less well qualified people in conjunction with improvements in the qualifications held by new entrants.

⁶¹ Leitch Review of Skills, Prosperity for all in the global economy – world class skills, December 2006

Analysis across a range of construction occupations in Wales is shown in tables 7 and 8, non-manual occupations and manual occupations respectively, note highlighted cells indicate the highest proportion for each occupation.

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

	Civil engineers	Architects	Chartered surveyors	Quantity surveyors	All non-manual
NVQ Level 4 & above	86%	100%	47%	48%	54%
NVQ Level 3	14%	*		15%	9%
Trade Apprenticeships	*	*	53%	*	4%
NVQ Level 2	*	*	*	37%	18%
Below S/NVQ Level 2	*	*	*	*	9%
Other qualifications	*	*	*	*	3%
No qualifications	*	*	*	*	3%

Source: Office for National Statistics, Labour Force Survey

Note * indicates data not available due to the low sample size used in the Labour Force Survey

As might be expected the vast majority of those working in non-manual occupations in Wales are educated to NVQ Level 4 and above. It is interesting in Wales that a large proportion of chartered surveyors undertook trade apprenticeships. This could be due to the relatively small sample size of this group in Wales and it would need further research investigation to provide explanation.

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

	Bricklayers	Roofers	Wood trades	Painters & decorators	All manual
NVQ Level 4 & above	7%	27%	*	12%	9%
NVQ Level 3	39%	*	57%	8%	29%
Trade Apprenticeships	29%	*	21%	15%	15%
NVQ Level 2	7%	*	*	7%	7%
Below S/NVQ Level 2	*	*	4%	17%	8%
Other qualifications	4%	73%	9%	11%	15%
No qualifications	13%	*	9%	30%	17%

Source: Office for National Statistics, Labour Force Survey

Note * indicates data not available due to the low sample size used in the Labour Force Survey

The picture across manual occupations in Wales is more varied, depending upon which trade is looked at. Overall, the greatest proportion of all manual occupations in Wales are educated to NVQ Level 3. This is the pattern found for manual occupations at UK level. Similarly, the greatest proportions of bricklayers and wood trades are educated to Level 3. Roofers tend to have other qualifications perhaps endorsed by federations, whilst the majority of Painters and Decorators have no qualifications. The proportions of trade apprenticeships across occupations are high, strongest for Bricklayers and Wood trades (note sample size is too small for Roofers).

Overall, the Welsh construction qualification patterns for both non-manual and manual occupations are fairly consistent in comparison to overall UK level. The slight differences in proportions for example in chartered surveyors might be reasonably explained by the

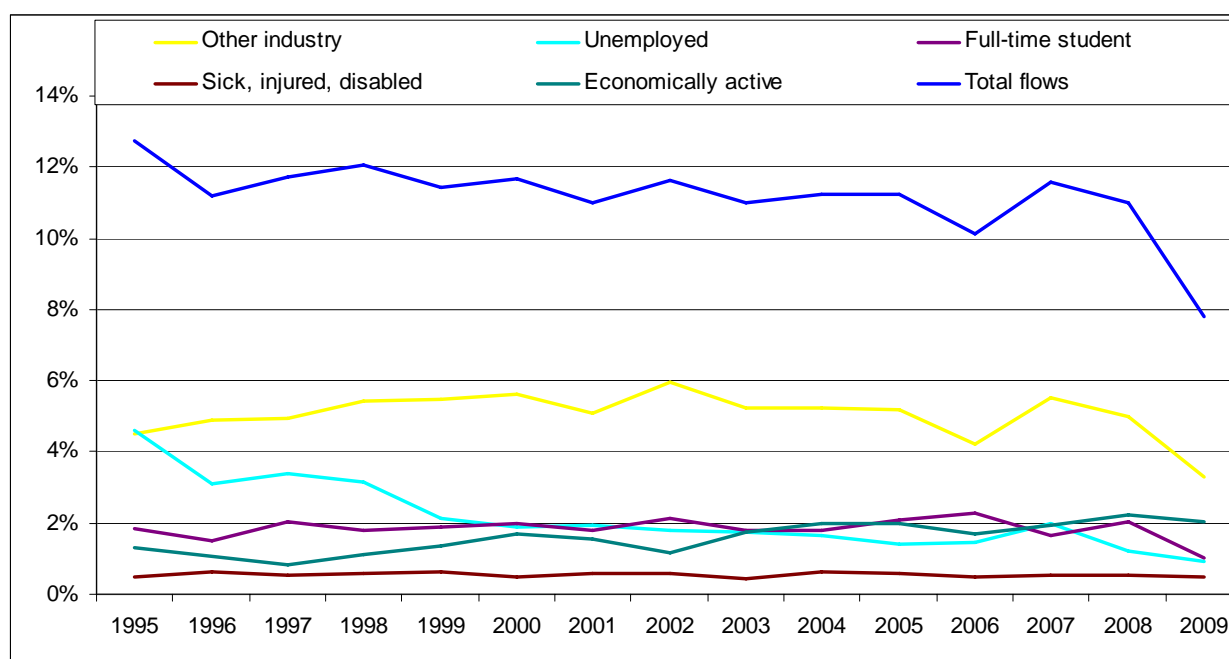
low sample used by the Labour Force Survey, with more specific research needed to investigate data further.

3.1.4 Flows into the Industry

Perhaps due to the size of the industry and range of jobs available, there have traditionally been flows of workers moving from other related industries into construction and similarly moving from construction to other sectors. Unsurprisingly, the recession has meant flows into the industry have decreased dramatically. For this area, data is limited to UK level only, although what we see at the UK level is likely to be indicative to the situation in Wales. Often, in the past we have found that flows into the industry tend to balance those leaving the industry so the net gain or loss of workers in the industry is minimal.

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

Chart 9 - Flows into the industry



Source: Office for National Statistics, Labour Force Survey

Further analysis⁶² at UK level finds the biggest majority (28%) of entrants from other industries are qualified to 'other higher' level (covering higher level qualifications below degree level such as HNC and HND), although 15%, a considerable proportion, of entrants do not have a qualification. In addition 68% of people entering construction from other industries last worked in construction less than two years ago. It is assumed that individuals who have worked outside the industry for less than two years can still be counted as part of the construction workforce and thus have the necessary skills. This finding reflects the mobility of the construction workforce in terms of their ability to move in and out of the industry as work dictates.

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

⁶² Taylor Associates, Analysis of movements into and out of construction industry employment and employment in construction related occupations using the British Household Panel Survey Waves 1 to 14, 2006

3.1.5 Mobility

A survey of construction industry mobility⁶³ found that overall workers were most likely to have switched from the relatively unskilled position of labourer/general operative, indicating that many workers follow the pattern of starting out in the industry in unskilled positions before progressing to more skilled work.

Construction workers in Wales are very slightly less likely to have always had the same trade as the overall workforce (57% had always had the same trade vs. 60% of the overall UK workforce). In Wales Labourer/Operative, Carpenter/Joiner, Plant/Machine operatives and Brick Layers are the most likely to have worked in a different trade during their time in the construction industry (14%, 9%, 7%, 5% respectively).

3.1.6 Migration

Finally, the flow of workers from overseas needs to be considered in terms of the level and type of skills they are bringing to the construction industry. Unfortunately, there is very limited data availability for migration statistics and what is available is at the UK level only. In section 7, estimates of the scale of immigration to the construction industry in Wales are made. Here, we can use UK data to provide indicative insights for Wales.

Recent analysis⁶⁴ found the number of workers from overseas in the UK construction industry has risen dramatically in recent years mainly as a result of increased migration from Eastern Europe (Poland and Lithuania joined the EU in 2004, the accession treaty with Bulgaria and Romania was signed in 2005).

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

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

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

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

The UK construction industry is likely to remain attractive to workers from Eastern Europe for the foreseeable future though the pattern of migration is likely to change over time as recession dampens demand for construction workers in the UK and demand in Eastern Europe rises. Migration of construction workers to the UK from Poland and Lithuania has fallen back from 2007 levels while numbers from Romania and Yugoslavia

⁶³ ConstructionSkills, Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, Overall Report September 2007

⁶⁴ Taylor Associates, Overseas workers in the UK construction industry, 2009

are rising sharply, though from very low levels. It is likely that wage differentials between the UK and Eastern Europe are still high enough in many cases to compensate for the risk of unemployment on arrival in the UK.

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

Summary Box

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

Overall, the construction industry workforce in Wales, in terms of qualification level achieved, is broadly in line with the UK and England profile.

If Apprenticeships and Level 2 qualifications are combined, the Welsh construction industry has a very slightly lower proportion qualified to level 2 equivalent than all industries in Wales (22% v 23% respectively).

There have been quite dramatic changes to the qualifications of the construction workforce in Wales over the last three years. Both proportionately and in absolute numbers in Wales, there has been a significant increase in higher level qualifications and subsequently a decrease of those with no qualifications - progress towards a fully qualified workforce.

Overall, there appears to be a decline in lower level qualifications, which could be attributed to the retirement of less well qualified people in conjunction with improvements in the qualifications held by new entrants.

Data in Wales for both flows of the construction workforce from and to other industries and migration is limited. Using UK data, it can be seen that total flows into the industry at UK level have declined from 13% in 1995 to 8% in 2009. Movement from other industries is still the biggest flow into the industry, albeit now at its lowest level over the 15 year period (3%).

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

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

3.2.1 Workforce Training and Development

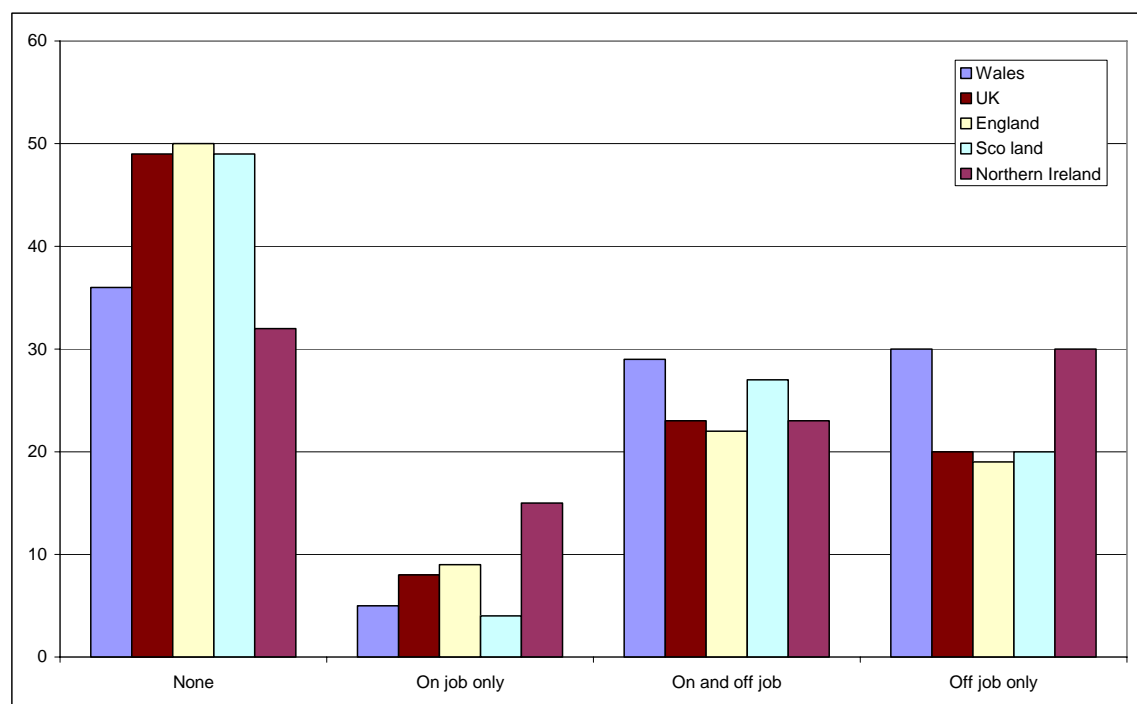
We have seen in previous sections how the construction industry's stock of skills (as defined by qualifications) is changing, we now examine for Wales other available measures of skills development, notably training activity and participation in training.

This section examines in Wales the extent and nature of training and development activity. It discusses off-the-job training⁶⁵ (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.

In Wales⁶⁶ 64% of establishments across the construction industry had funded or arranged training or development for staff during the 12 months to July 2009. This figure is higher than other UK nations (except Northern Ireland) with corresponding proportions of UK 51%, England 50%, Scotland 51% and Northern Ireland 68%.

Chart 10 summarises results by UK Nation and shows the proportion of establishments delivering on and off-the-job training, or both.

Chart 10 - Proportion providing training (on and/or off-the-job) by UK Nation



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

The chart shows that construction establishments in Wales have some of the highest proportions of training of the UK nations. Of the UK nations, Welsh construction establishments are the second least likely to offer no training whatsoever (Northern Ireland is the least likely to offer no training). In Wales training is most likely to have some component of off-the-job training. In fact, using more detailed analysis in Wales,

⁶⁵ ConstructionSkills, Skills and Training in the Construction Industry, 2009

⁶⁶ ConstructionSkills, Skills and Training in the Construction Industry, 2009

almost three in five of employers deliver some off-the-job training (59% - equivalent to just over nine in ten (92%) of those that train). This component is likely to be driven by the practices of smaller establishments. These figures are higher than the wider UK where 43% of employers deliver some off-the-job training (equivalent to 84% of those that train).

Employers in Wales reported providing training for approximately 44,700 workers (both direct employees and self-employed / indirect labour). This is equivalent to 38% v 39% UK⁶⁷ of the total current workforce. Data by sector is only available at UK level, where professional services firms trained a higher percentage of the workforce (46%) than the sector as a whole.

The survey measured numbers and proportions of staff receiving training both off-the-job and on-the-job training in the previous 12 months for construction trades and professionals. The sample for Wales was small compared to the UK, so results must be interpreted as indicative only. However, the overall picture of training by occupation appears broadly similar in Wales to the UK.

⁶⁷ Labour Force Survey, Four quarter average to Spring 2009

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

	OFF-THE-JOB		ON-THE-JOB	
	Number receiving off-the-job training	Number receiving off-the-job training as % of current directly employed staff	No. receiving on-the-job training	No. receiving on-the-job training as % of current directly employed staff
Painters/ decorators	2135	88	2250	93
Supervisors	2380	80	55	7
Roofers	820	74	115	11
Plant and machine operatives	3765	62	1440	24
Bricklayers	1150	53	340	16
Plasterers	415	52	350	44
Labourers and general operatives	3880	48	3130	38
Plumbers	200	47	160	37
Technical staff	1525	45	1380	41
Floorers	385	45	965	40
Scaffolders	1330	39	1940	57
No one main role / multi task	2170	37	1265	22
Carpenters/ joiners	1105	37	685	23
Managers	3470	34	2370	23
Administrative staff	815	13	425	7
Electricians	80	9	95	11
Welders/ fabricators	*	*	145	50

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

Note: Figures rounded to nearest 5. * indicates figure not available as sample too small.

The overall sample for Wales is small compared to UK so these figures should be seen as indicative only

In Wales, in absolute terms, more labourers have received both off and on-the-job training than any other occupational group. This was the case at UK level and perhaps is due to the large proportion of workforce in this group. Generally speaking in Wales and the UK, the proportions of each occupational group trained on- and off-the-job are quite similar with the exception in Wales of Supervisors, Roofers, Plant and machine operatives and Bricklayers where the balance is towards off-the-job training. It is interesting that Scaffolders appear to receive more on-the-job training than off-the-job, perhaps due to the specific skills needed for that trade. More research is needed in this area to increase the sample used for Wales to fully understand the distribution of 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) Wales

	OFF-THE-JOB		ON-THE-JOB	
	Number receiving off-the-job training	Number receiving off-the-job training as % of current directly employed staff	No. receiving on-the-job training	No. receiving on-the-job training as % of current directly employed staff
	Wales data indicative only	UK figures	Wales data indicative only	UK figures
		%		%
Labourers	*	58	*	62
Building surveyors	365	56	430	44
Architectural technologists	170	46	40	57
Civil engineers	1230	45	580	62
Directors	105	45	125	40
Mechanical engineers	115	40	90	36
Quantity surveyors	15	38	*	50
Building Service engineers	*	37	*	28
Architects	255	33	210	47
Other engineers	1205	31	1185	24
Technicians	310	30	385	34
HR, legal & business professionals	85	27	*	27
Admin staff	250	26	180	24
Surveyors / estimators	15	25	*	22
Project managers	175	23	165	18
Managers	50	20	80	52

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

Note: Figures rounded to nearest 5. * indicates figure not available as sample too small.

The sample for Wales is very small compared to UK. Indicative numbers have been added where available but proportions using Welsh data were too unreliable and UK proportions have been used as indicated.

In Wales, in absolute terms Civil Engineers and Other Engineers were the two occupations where most staff appear to have received either on-the-job or off-the-job training. This may be due to higher numbers employed in those professions and the small sample size used in Wales. The wider UK data shows a broadly even split between on-the-job and off-the-job training for professionals with the exception of Managers, Civil Engineers and Quantity Surveyors who appear to have received a greater proportion of on-the-job training in the last 12 months.

Turning now to volumes of training, in Wales establishments that provided training provided an average of 7 days off-the-job training and 7 days on-the-job training per employee (these figures are slightly above the UK average of 6 days for each training

type). At the UK level (figures are not available split for professionals in Wales) professional services firms provide slightly more off-the-job training days per recipient than construction firms (8 compared with 5 days), though there was no difference for on-the-job training.

Whilst the extent of training is considerable it is important to measure the extent to which it will feed into increased qualification attainment. In Wales just under two in five employers that train (39%) had provided training intended to lead to a nationally recognised qualification. This figure is slightly lower than that of the wider UK where 44% of employers that train had provided training intended to lead to a nationally recognised qualification.

Results indicate:

- In Wales, employers have arranged training for approximately 10,000 staff (270,000 UK) that was intended to lead to a qualification. This is equivalent to 9% v 12% UK of the total current (direct and indirect) workforce.
- In Wales the number of staff involved in NVQ/SVQ training in the last 12 months is equivalent to 4% v 8% UK of the total current workforce.

Using UK data only (not available for Wales):

- Larger employers are much more likely to train to qualifications suggesting they place greater relative importance on qualifications than smaller employers.
- The construction contracting sector is slightly more likely to train to qualifications than professional services firms.
- Among the construction contracting sector, a third of those that train have trained staff to NVQs/SVQs whereas HNDs/HNCs are much more likely to be used by professional services firms. Given that NVQs/SVQs tend to be studied at level 2 while HNDs/HNCs are level 4 qualifications, results indicate generally higher level qualification requirements in the professional services side of the sector.

Table 11 – Level of NVQ staff are trained to Wales v UK

	Wales (note low sample)	UK
Level 1	2%	8%
Level 2	24%	69%
Level 3	37%	20%
Level 4 or above	47%	8%
Don't know / not sure	3%	9%

Source: ConstructionSkills, Skills and Training in the Construction Industry 2009
 Note: Figures add to more than 100% as respondents could give multiple answers.
 Sample for Wales is very small so results are indicative only

The survey measured the level of NVQ staff were being trained towards. Results for Wales are indicative only due to the low sample used, although it is interesting that just under half of those surveyed were training to NVQ Level 4 or above. The more reliable data at UK level only show as might be expected that the majority (69%) of those currently being trained are to Level 2. As discussed in the previous chapter if the UK is

to meet the targets Leitch⁶⁸ 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) then this finding is of concern.

Employers training staff to NVQs at level 1 were asked why they trained staff at this level, and what benefits they thought it brought. Data is only reliable at UK level, where responses tended to focus either on it helping to improve skills and improve proficiency (55%), or specifically it improving health and safety and making the workplace safer (36%), sometimes in relation to this helping the firm comply with regulations (27%).

3.2.2 Barriers to Providing More Training

In Wales just over half of employers that trained would have preferred to provide more training than they actually undertook (61%). This proportion is slightly greater than the wider UK proportion of 52%. There were two main barriers to being able to deliver more training;

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

In Wales a lack of funds was by far the greatest barrier to training, mentioned by 95% v 70% UK of those establishments that would have provided more training if they could. Not being able to spare staff the time off for training was mentioned by 38% v 44% UK of those establishments that would have provided more training if they could.

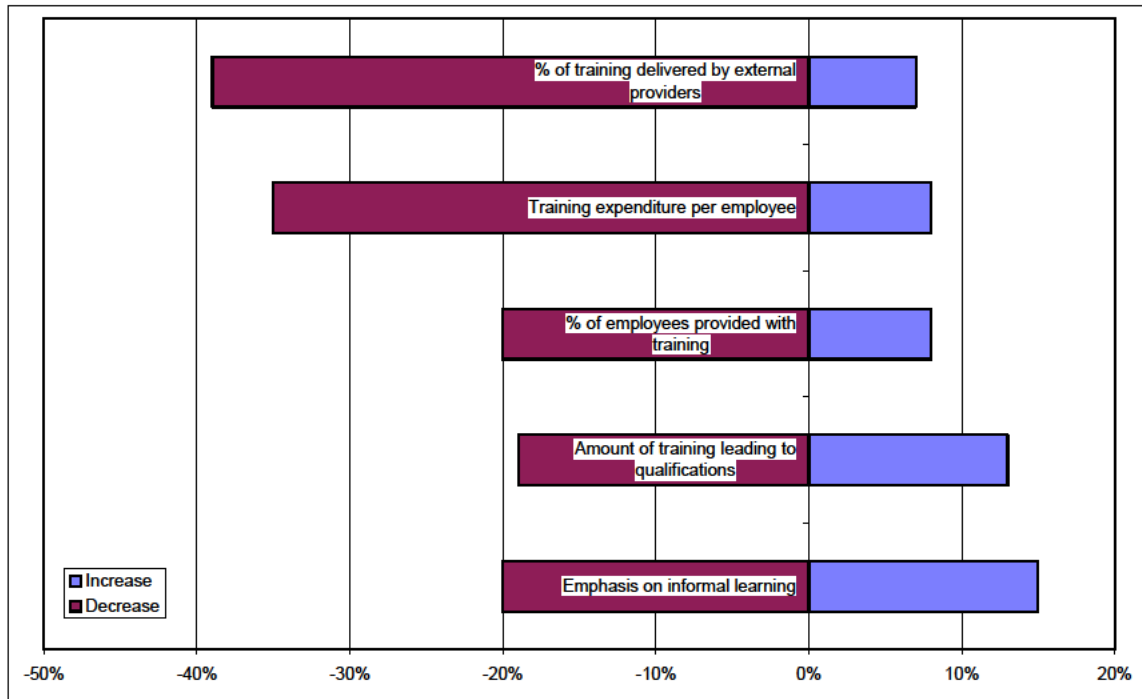
Again at the UK level only due to the small sample size, supply-side issues were relatively rarely mentioned as barriers: among those that would have liked to deliver more training 3% mentioned a lack of appropriate training or qualifications in the subject areas they required, 3% a lack of provision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

3.2.3 The Impact of the Recession on Training Activity

The recession has had an impact on training activity. For many employers, as might be expected it has had a negative effect, as shown in the following chart.

⁶⁸ Leitch Review of Skills, Prosperity for all in the global economy – world class skills, December 2006

Chart 11 - The impact of the recession on training



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

In Wales almost two in five (39% v 31% UK) were delivering less training via external providers because of the recession, and a similar proportion were spending less per employee on training (35% v 30% UK). Fewer, though still around one in five, were training fewer of their staff (20% v 24% UK) or were providing less training leading to qualifications (19% v 23%). Overall, these figures compare closely to those of the wider UK.

Opinion was more even as to whether the recession had led to an increased emphasis on informal learning: in Wales 15% v 13% UK thought it had; but 20% v 17% UK felt they now put less emphasis on this, perhaps implying that because of the recession the company put less emphasis on all training, whether formal or informal.

Generally there was a relatively consistent impact of the recession on training by type of employer, though at the UK level only (data is not available for Wales):

- The construction contracting sector were more likely to have reduced the amount of training leading to qualifications (27% compared with 15% among professional services firms).
- Those with 25 or more direct employees were more likely to say training spend per employee had fallen (38%).

3.2.4 Reasons for not Providing Training

In Wales, the most common reason for not training is a belief that all staff are fully proficient, a factor mentioned by just over three quarters of non-trainers (77% v 75% UK). In comparison supply-side issues are mentioned by far fewer employers: 10% v 6% UK say a reason for not training is external courses being too expensive and 12% v 3% UK cite courses not being available locally. The difference in proportion citing courses not being available locally could be due to training being concentrated in cities within Wales and local geographical/transport factors.

Again at UK level only, reasons for not training among the self-employed were very similar to employers, with by far the most common reason being they considered

themselves fully proficient (68%). Other relatively common reasons were being too busy (7%) or the expense of external courses (6%).

Summary Box

In Wales 64% v 51% UK of establishments across the construction industry had funded or arranged training or development for staff during the 12 months to July 2009.

In Wales training is most likely to include some component of off-the-job training. In Wales, almost three in five of employers deliver some off-the-job training (59% v 43% UK) - equivalent to just over nine in ten (92% v 84% UK) of those that train.

Although the data for Wales is limited in places at UK level we find the proportion of establishments providing training:

- Increased with establishment size.
- Is higher among Professional Services firms than the construction contracting sector.

Employers in Wales reported providing training for approximately 44,700 workers (both direct employees and self-employed / indirect labour). This is equivalent to 38% v 39% UK of the total current workforce.

In Wales establishments that provided training provided an average of 7 v 6 UK days off-the-job training and 7 v 6 UK days on-the-job training per employee.

In Wales just under two in five employers that train (39% v 44% UK) had provided training intended to lead to a nationally recognised qualification.

In Wales and UK a lack of funds was by far the greatest barrier to training, mentioned by 95% v 70% UK of those establishments that would have provided more training if they could. Not being able to spare staff the time off for training was mentioned by 38% v 44% UK of those establishments that would have provided more training if they could.

In Wales almost two in five (39% v 31% UK) were delivering less training via external providers because of the recession, and a similar proportion were spending less per employee on training (35% v 30% UK). Fewer, though still around one in five, were training fewer of their staff (20% v 24% UK) or were providing less training leading to qualifications (19% v 23%).

In Wales, the most common reason for not training is a belief that all staff are fully proficient, a factor mentioned by just over three quarters of non-trainers (77% v 75% UK).

4. Current Mismatches between Demand and Supply for Skills

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

4.1 Skill Shortages

To understand the context of skill shortages in the construction industry, it is imperative to look at the recruitment activity of employers⁶⁹. In order to achieve this, employers in Wales were asked whether over the last 12 months they had had shortages of skilled workers;

- Just over one in ten employers (12% v 8% UK) felt that there had been times when they lacked the number of skilled workers they required;
- Around half (51% v 52% UK) felt that they had been operating at around full capacity given the number of skilled staff they employed
- Just over a third (35% v 33% UK) had not had enough work for their workforce

Results show very considerable changes compared with 2008⁷⁰, with far fewer employers in 2009 reporting shortages of skilled staff over the previous 12 months. In 2008, in Wales 19% v 33% GB felt there had been times when they lacked the number of skilled workers they required; compared to 2009 in Wales 12% v 8% GB.

These findings are consistent with trade survey⁷¹ results from organisations across the construction industry, who all reported a considerable decrease in skill shortages to a record low. For instance, the recent Construction Products Association Trade Survey (Q3, 2009) reported only 6% of building contractors had difficulties in obtaining the main site trades, a complete contrast to two years earlier when it was 78%.

Where a lack of skilled workers was cited, the implications appear to be quite severe. Although the sample for Wales was very small, in Wales just under 1 in 10 reported having to turn work down as a result (9% v 67% UK) and just over one third had been forced to sub-contract (34% v 52% UK). More specific research including a larger sample in Wales is needed to understand these potential differences.

Just under half of all employers in Wales (45% v 36% UK) had *attempted* to recruit skilled staff in the last 12 months.

At the UK level (data not available for Wales) this:

- Increases with size of employer
- Is higher among the construction contracting sector (SIC 45) than professional services firms (SIC74.2) (38% v. 29% respectively)

⁶⁹ ConstructionSkills, Skills and Training in the Construction Industry, 2009

⁷⁰ ConstructionSkills, Skills and Training in the Construction Industry, 2008

⁷¹ Federation of Master Builders, State of Trade Survey, Q2, 2009; RICS Construction Market Survey, Q3, 2009; Construction Products Association, Construction Trade Survey, August 2009

The impact of the downturn is evident in the fall compared with 2008⁷², in the proportion of employers attempting to recruit skilled staff in the last 12 months. In 2008 in Wales 47% v 58% GB of the construction contracting sector had attempted this, in 2009 in Wales only 45% v 39% GB had done so. It is interesting that the fall is much less in Wales than GB, more research would be needed to fully understand this but it does suggest less impact of the recession on recruitment of skilled labour in Wales compared to GB.

4.1.1 Hard-to-Fill Vacancies

In Wales just over three in ten employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (31% v 29% UK), equivalent to 14% v 10% UK of all employers experiencing recruitment difficulties for skilled staff in the previous 12 months. These findings indicate a large fall in recruitment difficulties compared with 2008, a possible reflection of the recession, due in part to the decrease in the numbers of skilled staff being sought and the increase in the supply of skilled workers in the labour market.

Although data is not available for Wales by broad sub-sector, UK data indicates clear differences, with professional services firms that had attempted to recruit skilled staff far more likely to have encountered recruitment difficulties (56%) than the construction contracting sector (22%).

The following chart shows the main occupations by sub-sector which were most likely to have hard-to-fill vacancies. In Wales base sizes are too low to provide useful data, so the data is only available at UK level.

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

Construction contracting	Professional services
Carpenters / joiners (15%)	Civil engineers (13%)
Floorers (18%)	Mechanical engineers (11%)
General Operatives (14%)	Other engineers (9%)
Plant / machine operators (9%)	Architectural technologists (3%)
Painters / decorators (8%)	Electricians (10%)

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

Note: Caution low base sizes

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

The survey asked respondents about causes of hard-to-fill vacancies. The sample for Wales was again small, so the more reliable data is at UK level only. As there were some valid responses for Wales, data has been added to the table against UK data but should be seen as indicative only. At the UK level, the most common cause of hard-to-fill vacancies was lack of skills (84%, much higher among the construction contracting sector than among professional services firms – 95% v. 69% respectively), experience or motivation, as well as not enough people entering the industry. The order of causes presented in the following table is almost identical to 2008.

⁷² ConstructionSkills. Skills and Training in the Construction Industry, 2008

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

Cause	Wales	UK
Applicants lack the skills we require	69%	84%
Not enough people being trained in the construction trades in recent years	36%	81%
Applicants lack the motivation / attitude we look for	84%	74%
Applicants lack the work experience we look for	37%	68%
Low number of applicants generally	33%	53%
Applicants lack the qualifications we look for	34%	51%
Competition from other employers	2%	39%
Bad location / unappealing work environment (spontaneous)	7%	7%
They are demanding too much money (spontaneous)	14%	4%

Source: ConstructionSkills, Skills and Training in the Construction Industry 2009
Note the sample for Wales was small and therefore Welsh data is indicative only

In Wales, it should be noted that the most mentioned cause of hard-to-fill vacancies was applicants lacking the motivation / attitude that is looked for, although with the sample available this figure appears broadly similar to the UK level. It is interesting though that in Wales much fewer respondents mentioned that there are not enough people being trained in the construction trades in recent years compared to the UK (36% v 81% UK). Similarly, applicants lack the qualifications we look for was lower in Wales compared to the UK (34% v 51% UK). This perhaps indicates qualifications and supply issues are less of a concern in Wales than other parts of the UK, clearly more research would be needed to confirm this.

A further question was asked regarding the main skills lacking in applicants. In Wales most respondents mentioned right attitude (enthusiasm, motivation, commitment, willingness) at 27% v 33% at UK level. In Wales, the next most mentioned was Construction qualifications (including CSCS cards) at 24% v 14% at UK level. Relevant work experience appears less of an issue in Wales at 10% v 27% at UK level.

In Wales some of the skills mentioned were technical, for example 25% mentioned electrical skills v 4% at UK level. Broader basic education – literacy / numeracy received fewer mentions in Wales 1% v 8% at UK level. Further, lack of social / people / communication skills were not mentioned in Wales but received 4% of mentions at UK level.

In Wales, we have seen that fewer employers in 2009 have experienced recruitment difficulties for skilled positions than in 2008. Although the impacts remain severe, figures indicate lower proportions of difficulty in Wales compared to the wider UK. Just over half (52% v 61% UK) have had increased operating costs, with approximately a third increasing the use of overtime and the workload of staff generally (35% v 74% UK) and similarly a third (34%v 52% UK) outsourcing work. In Wales only 9% v 67% UK have lost business or not bid for work as a result of the lack of skilled staff. It is interesting that in Wales 25% v 4% UK 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

In Wales nearly all employers experiencing recruitment difficulties had taken some steps to try and overcome them (97% v 66% UK), most often trying new recruitment methods or channels (65% v 32% UK), increasing trainee programmes (24% v 10% UK) or increasing advertising / recruitment spend (8% v 6% UK). It is interesting that in Wales

no respondents mentioned that they were increasing training for existing staff v 14% at UK level, this could be due to the low sample available or that respondents consider existing staff are already adequately trained.

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

In Wales, note though base sizes are small so the more reliable data is at UK level, the proportion taking any action to meet recruitment difficulties for skilled staff was slightly higher in 2008 than 2009: in Wales in 2008 98% v 75% GB of the construction contracting sector had taken any action compared with in 2009 97% v 64% GB. In Wales, the biggest fall has been in the proportion increasing recruitment advertising spend as a response (28% v 19% GB in 2008 but only 8% v 2% GB in 2009), suggesting limits on increased spending due to the recession.

4.2 Skill Gaps

In Wales, overall just over one in ten employers (14% v 10% UK) have staff lacking proficiency. Data by employment type and size is only available at UK level, where 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 skills gaps in 2009 than in 2008. In Wales in 2008 17% v 17% GB employers reported skills gaps, in 2009 14% v 11% GB employers reported skills gaps. As we see later, skills gaps are very often explained by recruitment activity whereby staff are taken on who are not (yet) fully proficient; hence part of the reduction in the incidence of skills gaps is explained by reduced recruitment activity during 2009.

In summary;

- In Wales, employers describe some 4,600 v 58,800 UK direct employees as not fully proficient, equivalent to 6.6% v 4.0% UK of the directly employed workforce.
- In Wales 92% v 87% UK of the staff lacking proficiency work in the construction contracting sector, 8% v 13% UK in professional services firms.
- In Wales nearly all employers experiencing recruitment difficulties had taken some steps to try and overcome them (97% v 66% UK), most often trying new recruitment methods or channels (65% v 32% UK), increasing trainee programmes (24% v 10% UK) or increasing advertising / recruitment spend (8% v 6% UK).

4.2.1 The Causes of Skill Gaps

In Wales, the most common cause of skills gaps is that staff lack experience or have been recently taken on, a contributory factor for almost four in five of employers with skills gaps (86% v 61% UK).

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

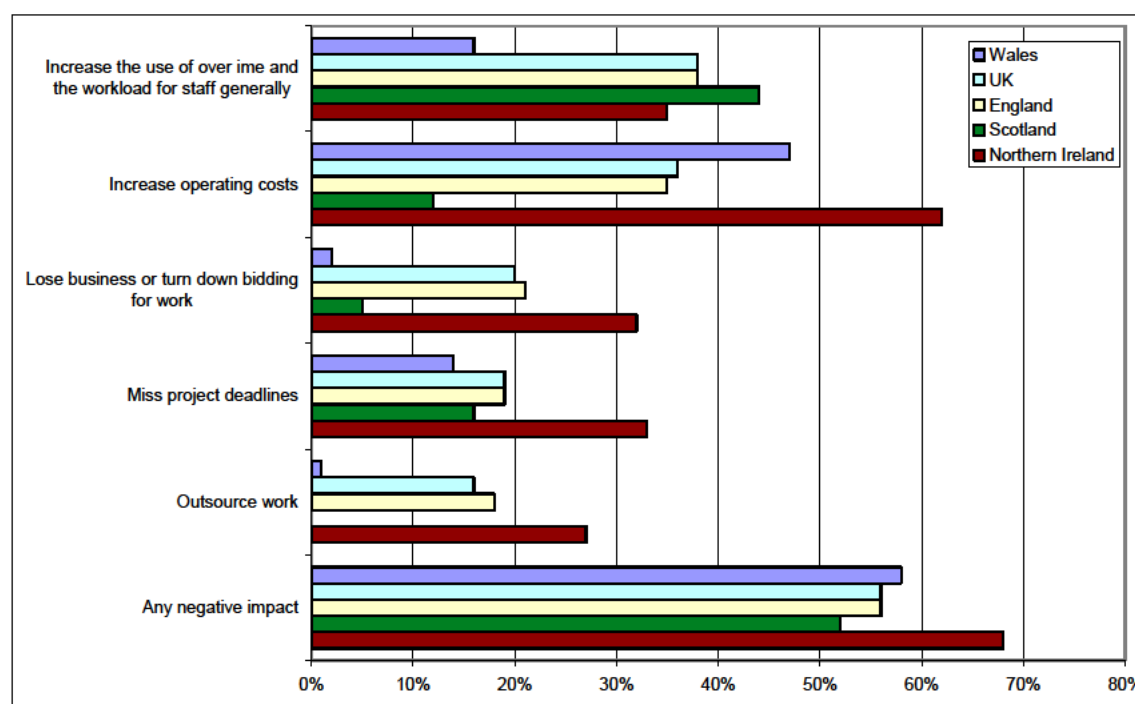
At the UK level, there was some variation in the causes of skills gaps between the professional services sector and the construction contracting sector. Results suggest that professional services firms experiencing skill gaps are particularly likely to believe they are caused by an inability of staff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

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

4.2.2 The Impact of Skill Gaps

In Wales, 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 (58% v 56% UK). In Wales, this was most often increased operating costs (47% v 36% UK) and increased workload and use of overtime (16% v 36% UK).

Chart 12 - The impact of skills gaps



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

In Wales, the majority of those with skill gaps (68% v 79% UK) have taken some action to overcome the difficulty, most commonly more supervision of staff (32% v 11% UK) and increasing training activity and or spend (27% v 60% UK).

The proportion of employers with skills gaps taking steps to address skill shortages, and the actual steps being taken, were very similar to those found in 2008, suggesting fairly standard industry responses to these issues.

4.2.3 Upskilling the Workforce

In Wales, seven in ten employers (72% v 71% UK) felt there were factors likely to lead to changing skills or knowledge needs in the coming 12 months. At UK level only, two thirds of the self-employed (66%) felt this. By company size this rose to nine in ten (90%) 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.

In Wales and in the UK the area most mentioned where employees would need to acquire new skills in the next 12 months was legislation/regulatory requirements (62% v 52%). Just under half thought new skills would be needed to utilise new equipment/technologies (49% v 42% UK) and develop new products/services (49% v 40% UK). In Wales, new skills needed to deal with the downturn in the economy were mentioned by fewer respondents than the UK (20% v 31% UK).

In both Wales and the UK, perhaps unsurprisingly, the single occupation most affected by the need for new skills in the construction contracting sector was Managers / Directors (21% v 22% UK). Other than this occupations mentioned were technical staff (13% v 4% UK) and those that cover a number of occupation roles i.e. staff who multi-task (12% v 13% UK). In the professional services sector, the occupations thought to be most affected by the need for new skills were technicians (19% v 6% UK) and Architects (12% v 17% UK). Various other occupations were mentioned by no more than 7% of respondents.

4.3 Constraints on Activity

In Wales, when asked what factors limited their business now and were likely to impact in the future, predictably the recession and low or uncertain demand were top of mind – as many as 52% v 56% UK mentioned this as a current limiting factor for their business and 62% v 66% UK expected it to act as a constraint over the next 12 months.

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

These findings are directly comparable with Construction Forecast Research data⁷³ which reported the biggest constraint to be insufficient demand (also 56%) and no employers reported labour shortages to be a constraint on activity.

In Wales, many more employers anticipate constraining factors on their business for the coming 12 months than feel there are current constraints. Results indicate increased pessimism compared with 2008⁷⁴: in 2008 17% v 29% GB anticipated no constraints for the coming 12 months; among the same group in 2009 this had fallen to 3% v 14% GB.

4.4 The Migration Advisory Committee: Skill Shortage Occupations

Asking employers themselves about skill shortages and gaps is a vital means of identifying skill deficiencies. However, measuring skill shortages, in particular, is not straightforward and there are other important indicators of 'shortage'. In 2008 the Migration Advisory Committee recommended a skill shortage occupation list⁷⁵.

This list applies to the whole of the UK. Although there is supplementary list for Scotland the work plan did not allow the production of a supplementary one for Wales. In fact the Migration Advisory Committee were not convinced that separate shortage occupation lists for each region and country of the UK were desirable or practicable. They suggest that it would probably not be sensible for immigration policy to provide special dispensation to fill vacancies if there is not a national (UK) shortage.

In order to be placed on this list the occupation must pass three hurdles: it must be *skilled*; there must be a labour *shortage*; and it must be *sensible* to bring in non-EEA labour to fill the shortage

⁷³ Construction Forecast Research, Construction Industry Focus September 2009

⁷⁴ ConstructionSkills, Skills and Training in the Construction Industry 2008

⁷⁵ Migration Advisory Committee, Skilled, Shortage, Sensible: The Recommended Occupation Lists for the UK and Scotland, 2008

More recently the Migration Advisory Committee presented their review of the recommended shortage occupation lists⁷⁶ and noted that although rising unemployment, falling employment and vacancies and a high redundancy rate indicate that the labour market is in turmoil, it should not be assumed that all labour shortages disappear. Although they do acknowledge that the removal of some construction-based occupations from the original list is in response to changing economic circumstances.

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

- Civil engineers
- Mechanical engineers
- Welding trades

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

4.5 Unemployment

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

In Wales, recent research⁷⁷ in the professional services sector found that just over half of firms (62% v 46% UK) had to make redundancies due to the recession in the past 12 months. Whilst it is not possible to know whether these professionals have been re-employed within the industry, it would seem unlikely as approximately half of firms also stated that they had to cut back on recruitment (54% v 46% UK). Therefore it can be assumed that the professionals made redundant had either moved into another industry (data available at UK level only, 4.8% of outflows from construction were to other industries) or more likely they were currently unemployed.

At UK level the biggest outflow (now standing at 6.9%) from the industry is to unemployment; its highest level over the 15 year period. In both Wales and the UK, as unemployment is considerably higher in the construction contracting sector (11.1% v 9.8% UK) than for professionals (5.6% v 4.0% UK), it can be assumed that redundancies are affecting the whole construction industry.

The table below shows by nation the current unemployment rate for the construction industry compared to that for all industries.

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

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

Source: Office for National Statistics, Labour Force Survey

⁷⁶ Migration Advisory Committee, Skilled, Shortage, Sensible: Review of the Recommended shortage occupation list for the UK and Scotland, 2009

⁷⁷ CIC & ConstructionSkills, Impact of the Recession on Construction Professionals, November 2009

As the data highlights, the construction industry has been significantly affected by the economic downturn, with the unemployment rate higher for every UK nation than the corresponding rate across all industries. At greater than 10% unemployment, Wales has the second highest construction industry unemployment rate of the UK nations, it should be noted though, that it also has the highest unemployment rate across all industries of the UK nations.

The impact of the recession across the construction industry has radically affected the mismatch between demand and supply of labour. Whilst 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 previous recessions. One of the biggest risks to the recovery of the construction industry is a shortage of skills, as people made redundant seek new careers outside the industry and new entrants unable to get a job look elsewhere.

Summary Box

Far fewer employers in 2009 reporting shortages of skilled staff over the previous 12 months compared with 2008.

In Wales just over one in ten employers (12% v 8% UK) felt that there had been times when they lacked the number of skilled workers they required.

In Wales around half (51% v 52% UK) felt that they had been operating at around full capacity given the number of skilled staff they employed.

In Wales just over a third (35% v 33% UK) had not had enough work for their workforce.

The recent Construction Products Association Trade Survey (Q3, 2009) reported only 6% of building contractors had difficulties in obtaining the main site trades, a complete contrast to two years earlier when it was 78%.

Although the sample was very small in Wales, where a lack of skilled workers was cited, the implications appear to be quite severe. Just under 1 in 10 reported having to turn work down as a result (9% v 67% UK) and just over one third had been forced to sub-contract (34% v 52% UK). More specific research including a larger sample in Wales is needed to understand these potential differences.

In Wales, just over three in ten employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill (31% v 29% UK), equivalent to 14% v 10% UK of all employers experiencing recruitment difficulties for skilled staff in the previous 12 months.

In Wales, it should be noted that the most mentioned cause of hard-to-fill vacancies was applicants lacking the motivation / attitude that is looked for (84% v 74% UK), although with the sample available this figure appears broadly similar to the UK level.

In Wales, overall just over one in ten employers (15% v 10% UK) have staff lacking proficiency. At UK level only more than one in six of the self-employed (17%) regard themselves as having a skills gap.

In Wales, the most common cause of a skills gap is that staff lack experience or have been recently taken on, a contributory factor for almost four in five of employers with skills gaps (86% v 61% UK).

In Wales, seven in ten employers (72% v 71% UK) felt there were factors likely to lead to changing skills or knowledge needs in the coming 12 months.

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

In Wales the current unemployment rate across the construction industry is 10.3% v 8.6% UK, across all industries in Wales it is 7.2% v 6.8% UK.

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

5.1 PESTLE Analysis, Wales and UK

<p>Political – UK and Wales</p> <ul style="list-style-type: none"> ➤ Change of UK government? ➤ Welsh policy e.g. One Wales ➤ Welsh Assembly election in 2011 ➤ England - housing policy, skills white papers ➤ Reduced / targeted funding. ➤ Education reform e.g. NVQ – QCF. ➤ Immigration/Migration ➤ Employment initiatives (who to target, 16-24, apprentices, return to work). ➤ Energy security. 	<p>Social</p> <ul style="list-style-type: none"> ➤ Rising unemployment levels. ➤ Demographics – ageing workforce. ➤ Demographics – potential workforce. ➤ Image of construction industry. ➤ Housing shortage. ➤ Skills of workforce, compared to UK and overseas. ➤ Immigration/Migration. ➤ Changes in working patterns. 	<p>Legal – Legislation</p> <ul style="list-style-type: none"> ➤ Health & Safety legislation. ➤ Banking legislation – impact on lending, credit insurance, private finance. ➤ Tax changes – CIS /self employed. ➤ European legislation. ➤ Welsh Assembly Measures, learning and skills, learner travel, local government. ➤ Welsh Assembly Legislative Competency Orders education, housing, environment. ➤ Sustainability (see environmental below).
<p>Economic</p> <ul style="list-style-type: none"> ➤ Public deficit – effect on public finance and ability of governments to invest in construction. ➤ Insurance. ➤ Credit. ➤ Availability of private finance. ➤ Government targets for fiscal stimulus. ➤ High profile/high value projects. ➤ 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. ➤ Intelligent buildings. ➤ Whole life Construction. 	<p>Environmental</p> <p>Climate Change</p> <ul style="list-style-type: none"> ➤ 80% reduction of 1990 CO₂ levels by 2050. ➤ Reduce greenhouse gas emissions by 3% a year by 2011 <p>Waste</p> <ul style="list-style-type: none"> ➤ Wales to be zero waste by 2050. ➤ 70% recycling rate across all sectors by 2025. <p>Planning/Zero carbon</p> <p>New Builds:</p> <ul style="list-style-type: none"> ➤ Housing – zero carbon housing by 2011. ➤ Schools – zero carbon schools by 2017. ➤ Public sector buildings – zero carbon by 2018. ➤ Green jobs. ➤ Code for sustainable houses. ➤ BREEAM. ➤ Environmental management systems

5.2 Macroeconomic Indicators

As stated in section 2 of the report, in 2008 the Welsh economy was estimated to be worth around £42.3bn⁷⁸ (in 2005 prices), up 2% when compared to the previous year and equivalent to 3.6% of the UK total. Looking in more detail, the construction sector in Wales, with an output in 2009 of £3.4 billion⁷⁹ (at constant 2005 prices) contributes 3.5% of the UK construction output. In order to understand what is likely to happen and to make predictions for the Welsh economy and its construction sector, it's essential to take a step back and examine what is happening at the UK level. The table below contains the latest UK macroeconomic indicators from Experian.

Table 15 - UK Macroeconomic Indicators

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

Source: Experian, November 2009

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

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

Although the UK has officially left recession⁸⁰ (economy grew by 0.1% between October and December 2009), the outlook still remains weak. Rising unemployment across all sectors and any further house price declines will weigh heavily on consumer spending. Investment is set to remain subdued in the face of ongoing lending constraints and export markets remain lacklustre.

Given this, a mild upturn in GDP⁸¹ is expected in 2010. In 2011, the economic revival is forecast to gather pace, but medium-term prospects are for annual average growth of around 2%, well below the long-term average.

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

⁷⁸ ConstructionSkills Network and Experian, 2010

⁷⁹ ConstructionSkills Network and Experian, 2010

⁸⁰ The Times Online, <http://business.timesonline.co.uk/tol/business/economics/article7002715.ece>,

Accessed January 2010

⁸¹ Construction Forecasts: Autumn update, 2009. Volume 15, issue 4

5.3 Economic Structure Wales

Taking an overview of the economy of Wales, the position of Wales has generally been in line with the economic conditions experienced by the rest of the UK. The country is unique in its geographical spread in that its economy operates in two distinct segments. The North of the province benefits from the transport and infrastructure links that it shares with the North West region of the UK and cross boarder employment is an accepted feature. However, South Wales benefits from the activity generated from Cardiff, Newport and Swansea which remain the central point of economic and political vibrancy for the country and provide ideal transport links to the South West and London. Table 16 shows the current economic structure of Wales, together with estimated growth forecasts.

Table 16 – Economic Structure Wales

Economic structure- Wales (£ billion, 2005 prices)							
Selected Sectors	Actual 2008	Forecast					
		Annual % change, real terms					
		2009	2010	2011	2012	2013	2014
Public services	12	-0.2	0.0	0.5	0.5	0.6	0.8
Financial and business services	8	-8.0	-2.1	-0.9	1.4	3.1	3.4
Transport and communication	2	-9.9	-4.0	1.4	2.9	2.7	2.6
Manufacturing	8	-11.8	-7.3	-0.5	1.9	2.2	2.4
Distribution, hotels and catering	6	-9.7	-0.5	2.3	3.2	3.3	3.1
Total GVA	42	-6.6	-1.8	0.1	1.2	1.4	1.9

Source: Experian/ConstructionSkills Network, November 2009

In 2008, the Welsh economy was estimated to be worth around £42.3bn⁸² (in 2005 prices), up 2% when compared to the previous year and equivalent to 3.6% of the national total.

The largest component of the principality's economy was the public services sector, accounting for around 28% of total GVA (higher than the UK figure of below 22%). Financial and business services is the second largest sector in Wales, but with a share of just over 18% it is proportionally less important to the Welsh economy than the UK's as a whole (over 27%). The distribution, hotels and catering sector was the next biggest and accounted for 15.2% of GVA, broadly in line with the national figure.

The greatest growth in recent years has been in the financial and business services sector. Its share as a proportion of total GVA increased from 14% at the beginning of the decade to 18.2% in 2008, while in contrast; the public services sector's share fell from 29.5% to 28%.

5.4 Forward looking Economic Indicators

The economy in Wales is expected to grow at an annual average rate of 0.5%⁸³ between 2010 and 2014, considerably slower than the UK as a whole (1.6%). Although the financial and business services sector is predicted to bounce back healthily in the latter two years of the forecast period, its annual average rate of growth is likely to remain lacklustre at 0.9% overall. In contrast, the largest growth rate, on an average annual basis, in Wales is likely to be for distribution, hotels and catering (2.3%).

Although real household disposable income in Wales is predicted to increase at a slower pace than the national average over the forecast period, household spending should

⁸² ConstructionSkills Network and Experian, 2010

⁸³ ConstructionSkills Network and Experian, 2010

increase at a faster rate. Despite this, the debt-to-income ratio for the principality is expected to fall between 2010 and 2014.

According to Communities and Local Government (CLG), house prices in Wales fell by 2.9% in 2008 to £160,482 following 12 consecutive year-on-year increases. In 2009, house prices are estimated to have fallen by 9.3% in Wales, and our expectation is that this downward trend will continue into 2010, albeit at a much lesser pace. In 2011, house prices should start to pick up again with an increase of 1.1% and continue rising at a quickening rate to the end of the forecast period

Results from the ConstructionSkills Network⁸⁴ demonstrate an overall UK contraction of 13% in construction output in 2009, followed by a further slight contraction of 1% in 2010 with very moderate growth not expected to return until 2011. By comparison Wales fairs marginally better, experiencing a contraction in output in 2009 of 12% followed by a small return to growth of 2% in 2010.

As the construction industry both in Wales and the UK begins to emerge from recession it will face a different set of strategic challenges. Jobs, skills and productivity will continue to drive the construction agenda; however a series of linked external factors will strongly influence the drivers for change.

Politically, the Welsh Assembly Government will need to examine the impact of a UK general election in 2010 as this and subsequent decisions that will be made in respect of public funding and the associated public debt will impact across Wales.

It is highly unlikely that any future UK government will take the risk of running with such a large level of debt and any further government stimulus is generally viewed as having 'run out'. A further attempt at quantitative easing could run the risk of masking the 'real economy' in the short-term, storing up the prospect of adding to unemployment totals.

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

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

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

Economically, the recession has provoked a climate of fiscal constraint, led by tighter lending regulations and a more risk adverse approach to financing from the banking sector.

Stakeholder evidence gathered during the 2009 Construction Skills Network observatories in Wales stated that construction firms and in particular small to medium enterprises (SMEs) are experiencing increased difficulty in gaining access to credit and

⁸⁴ ConstructionSkills Network and Experian, 2010

insurance conditions have tightened. This has particular relevance in Wales due to the high numbers of SMEs trading within the province. This new financial climate has had the effect of forcing many firms out of business, despite the UK government and Welsh Assembly's desire to stimulate the market from a public investment perspective in order to maintain employment levels.

Regarding recovery, the greatest risk is a series of increased financial constraints which have the affect of choking off a recovery in the private sector. This, coupled with a reduction in public investment could generate a 'double dip' recession across the UK and Wales, negating any chance of slow recovery in the short to medium-term.

Table 17 – Economic Indicators Wales

Economic indicators- Wales (£ billion, 2005 prices, unless stated)							
Indicators	Actual 2008	Forecast					
		Annual % change, real terms					
		2009	2010	2011	2012	2013	2014
Real household disposable income	35	2.7	-1.9	0.5	1.0	1.5	1.8
Household spending	33	-4.0	-3.1	1.6	3.8	3.4	2.7
Debt to income ratio	1.1	1.3	-1.3	-4.1	-2.9	-1.5	-0.9
House prices (£'000, current prices)	160	-9.3	-0.9	1.1	2.0	2.4	2.8
LFT unemployment (millions)	0.09	84.3	32.1	0.8	-8.9	-12.3	-8.9

Source: Experian/ConstructionSkills Network, November 2009

Economic indicators for Wales generally suggest that the country will begin to emerge and pull out of recession towards the end of 2010. Activity in the housing market from a new build and existing stock perspective will be driven by legislative drivers in Wales. Zero carbon targets that need to be achieved in 2011 (5 year earlier than UK targets) will drive sustainability in the creation of new homes, followed by schools and public buildings in 2017/18. Retrofitting of existing homes will also need to be achieved if this target is to be met, Wales needs to achieve a 3% reduction in its CO₂ emissions from 2011 and 80% reduction of 1990 CO₂ levels by 2050.

These are ambitious targets given that Wales has a smaller Repair & Maintenance sector at 37% compared to the UK as a whole at 42%. However, the sustainability targets associated with existing housing stock gives the country a real opportunity to mobilise its SMEs who specialise in the Repair & Maintenance sectors to carry out this work. Additionally Repair & Maintenance is known to be twice as 'labour intensive' as new build and would therefore serve to stimulate the market in Wales further regarding job creation activity.

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

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

5.5 Changing Skills Needs

In the longer term there is a need to reflect on the changing skills needs of the industry in terms of examining the drivers that will promote future skills. The recession, long term climate change and energy security are all interacting to create the development of a potential new economy which will have an element based on what is being labelled as 'green jobs'.

In Wales the Enterprise & Learning Committee⁸⁵, on behalf of the Welsh Assembly is examining the evidence in relation to generating jobs in 'the green economy'. This will have a dual benefit of addressing climate change through the sustainability agenda and enable Wales to take advantage of any government funding linked to this agenda and associated job creation as suggested above.

Again, the focus for construction in Wales will be around job creation or re-skilling of SMEs and for this to herald future success there is a need to understand and educate this large part of the supply chain in terms of skills and knowledge that will be needed to perform 'low carbon/zero carbon' construction activities.

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

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

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

Generally 'future' skills are not entirely new skills, in many cases the skills are either an addition to, or amalgam of existing skills. A change in skills requirement will also vary across the industry supply chain and at management and professional and skilled trade levels.

Some fairly broad observations can be made, for example future skills will require:

- An understanding of low/zero carbon technologies.
- Appreciation of 'air tightness' in buildings.
- Working to reduced tolerances.
- Greater manufacturer input into training.
- Incremental change to the skills of many occupations.
- Transformation of some occupations due to product changes.
- More 'installer' type activities.
- Broader range of skills and competencies.
- Ongoing up-skilling (continued craft and professional development).
- Cross industry transfer of skills between linked sectors.
- New and more flexible qualifications.
- Consideration of whether government /industry accreditation is required for advice and installation of new products.

⁸⁵ http://www.assemblywales.org/bulletin_admin_-_team_-_december_2009_-_e.pdf, Accessed January 2010

Construction companies are very aware that their businesses are changing, or require long term change to remain competitive and meet forthcoming legislation. New entrants to the industry will need to be ready to anticipate and meet the new and dynamic changes, as will the 75% of the current UK workforce who will still be employed in the industry in 2020. If the scale of the change to meet current and possible future legislation is to be achieved, there will need to be an equally ambitious programme of training and raising awareness for the existing workforce.

The Welsh Assembly Government is pivotal to recognising, instigating and supporting change. Implementing ambitious targets linked to its energy and sustainability agenda, will be a major driving force in beginning to formulate how change can be achieved across the construction industry in Wales. Initiatives such as Welsh Built Environment Forum⁸⁶ in both the north and south of the country are one way of bringing stakeholders together in a collaborative manner to seek resolution to issues. This has been particularly relevant during the recession, as government and employers increasingly work together for the benefit of the industry and Wales.

⁸⁶ Welsh Built Environment Forum, website under construction: information sourced from internal ConstructionSkills documentation, January 2010

Summary Box

- The UK economy has, so far, contracted by 5.7% during this recession. The pace of contraction is now set to ease markedly and the outlook remains weak with unemployment rising across all sectors.
- The largest component of the Welsh Economy is the public sector accounting for 28% of total GVA.
- Results from the ConstructionSkills Network demonstrate an overall UK contraction of 13% in construction output in 2009, followed by a further slight contraction of 1% in 2010 with very moderate growth not expected to return until 2011.
- By comparison Wales fairs marginally better, experiencing a 12% contraction in 2009, followed by a 2% uplift in 2010, considerably better than the 1% contraction forecast in 2010 across the UK.
- Current government expenditure is virtually committed until April 2011. It is likely it will be 2012 before the full force of public capital expenditure cuts will be felt.
- The greatest risk to economic recovery will be a series of increased financial measures that will stifle a recovery in the private sector. This coupled with a reduction in public investment could generate a 'double dip' recession and negate any chance of slow recovery in the short to medium-term.
- Factors needed to enable consumer confidence to return include stabilisation of the housing market, asset prices rising, debt consolidation, a reduction in debt to lending ratio's and a turn in the inventories cycle to stimulate manufacturing.
- A future rise in interest rates, sterling weakness, VAT reversal and wage freezes will continue to promote a further rise in unemployment.
- In the longer term there is a need to reflect on the changing skills needs of the industry in terms of examining the drivers that will promote future skills.
- The economic downturn, long term climate change and energy security are all interacting to create the development of a potential new economy which will have an element based on what is being labelled as 'green jobs'.
- Wales has challenging zero carbon targets (being driven by the Welsh Assembly) for new build homes (2011), schools (2017) and public sector buildings (2018). In order to achieve these targets emphasis on training will be needed to re-skill existing and train new staff in future skills technologies and methods.

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

6.1 Introduction

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

The UK report outlined various growth scenarios for the construction sector at UK level, as specific scenarios have not been developed for Wales this section takes the UK scenarios, relating then to Wales where possible.

In 2008 ConstructionSkills commissioned SAMI Consulting to produce a report⁸⁷ which:

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

The report involved considerable consultation with construction stakeholders, including members of the Welsh ConstructionSkills Network observatory. Views were taken into consideration with regard to developing four distinct scenarios to test against a base case, with each scenario having different assumptions about a range of factors such as GDP growth, construction growth, output of New work Vs Repair & Maintenance, productivity growth, and certain construction industry characteristics.

With skills, the scenario implications were influenced by assumptions made around the construction industry characteristics, with energy efficiency, zero carbon and modern methods of construction all noted as having significant potential impact. However, it was acknowledged that government policies (in Wales and across the UK) would aim to raise the overall skills profile of the workforce, and will therefore influence demand across all scenarios.

For employment, all scenarios indicated more than 3 million people at UK level working in the construction industry by 2020, as well as variations in the balance between different occupations. This variation in balance between different occupations was influenced by assumptions around industry characteristics and also the relative balance between different industry sectors. However, the report⁸⁸ also noted that 'a very serious and prolonged economic and financial downturn' could substantially reduce levels of construction industry employment.

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

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

⁸⁷ Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008

⁸⁸ Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008, Page 8

that may arise. This revised core scenario is then used to discuss the likely demand for employment and skills through to 2020.

6.2 Core Scenario

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

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

- UK economy will emerge from the technical recession in 2010 followed by a gradual recovery to long term levels of GDP growth of around 2.1% per annum through to 2020. For Wales the position is likely to be relatively similar in that GVA⁸⁹ will slowly recover with growth of 0.1% in 2011 rising to 1.9% in 2014, progression through to 2020 is likely to follow this pattern.
- UK construction output will start to recover from around 2011, although it will be at a lower level than GDP growth. UK construction output is forecast to be at around 1.8% per annum through to 2020. In Wales construction output is forecast to increase at an annual average rate of 2.5% between 2010 and 2014.
- At UK level, although repair and maintenance (R&M) work is currently feeling the effect of the recession, in the longer term the overall ratio of new work to repair and maintenance will fluctuate around the current level. As such new work will continue to be the main driver of construction output through to 2020. In Wales the new work market is expected to perform better than the R&M market, with an annual average growth rate from 2010-2014 of 3% for the former and 1.8% for the latter. The weaker outturn for the R&M market is predicted to be down to the poorly performing non-housing R&M sector. In contrast, housing R&M market should be relatively buoyant as it benefits from the increased activity through the Housing Quality Standards scheme.
- At UK level, housing demand for both public and private sectors recovers, with current forecasts showing private housing output returning to 2007/2008 levels around 2018 - 2019. In Wales with average annual growth rates of nearly 8% the private housing and infrastructure sectors, respectively, are likely to be the star performers over the medium term. The former is expected to benefit from underlying demand in the housing market, which has been exacerbated by the long-term mismatch of supply and demand of units.
- At UK level work in the public non housing sector shows no real growth due to restrictions in available public finance (public sector net borrowing, forecast to be -£175bn for 2009-2010⁹⁰). This applies equally to Wales, where the public-non housing sector is one of the only ones projected to have a negative growth rate over the long term. On an annual average basis from 2010-2014, the public non-housing sector is expected to decline by 1.7%. The government will be under severe pressure to cut capital spending once the economy moves out of recession, and post-2011 this is likely to feed through into the Welsh public education and health sub-sectors especially.
- In UK 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. In Wales, the forecast is for slight growth in new work in industrial sector (average of 3.9% per annum 2010-2014), although there will be recovery in the commercial sector by 2012 the overall annual average forecast is for decline (-1.1% per annum 2010-2014).

⁸⁹ GDP is only available at UK level; GVA figures sourced from Experian, Nov 2009

⁹⁰ HM Treasury, Forecasts for the UK economy: A comparison of independent forecasts, October 2009

- In UK infrastructure sector work is forecast to grow in the short to medium-term and the long term prospects for energy infrastructure look positive with the government commitment to CO₂ targets. In Wales the forecast is for strong growth in infrastructure (average of 7.8% per annum 2010-2014). Increases in Wales are likely to be in the earlier part of the forecast period as a number of large road projects (such as the £350m dual three-lane motorway link between Magor and Castleton and the £140m development of the A465 Trunk Road) get underway. The £800m 200MW combined cycle gas turbine generating station in Pembroke should also contribute to the stream of output over the forecast period. Although, it should be noted that government at UK level and in Wales will be under increasing pressure to cut costs and this may be reflected in lower actual growth levels.

The core scenario recognises that although the UK and Welsh construction industries are facing challenging times over the short-term, when taking a longer view through to 2020, output will recover, which is consistent with trends seen during previous recessions in the 1980's and 1990's. For Wales, housing particularly private but also public sector, together with infrastructure and industrial sector will be key growth areas for the industry in terms of employment and skills through to 2020.

As the 2020 Vision report points out though, forecasting is not an exact science and we are aware that there may be variations to this core scenario which would have implications for both employment and skills. The UK report outlined 4 significant variations to this core scenario.

Significant possible variations to the core scenario:

1. **Stronger Recovery:** the UK and subsequently the Welsh economy recovers quickly leading to stronger growth mainly from 2014-2020. Improved availability of private finance and a general recovery in consumer confidence leads to a stronger recovery in housing, commercial and non-housing new work sectors. Also public sector net borrowing is less of an issue and government is able to continue with a spread of investment programmes.
2. **Double Dip Recession:** the opposite to a strong recovery where the fragile economy goes into a further recession. Reductions in public sector investment and private finance still being restricted would impact mainly upon the housing and infrastructure elements of the core scenario. There would be further job losses, the industry would take longer to come out of recession and growth rates would remain low on recovery.
3. **Low Carbon Transition:** significant progress is made to tackle the upgrade of existing housing stock, new schools, new public buildings and all new non-domestic buildings become zero carbon. Major infrastructure work progresses with significant developments for wind, tidal, biomass and nuclear power combined with upgrading of energy grid and transport systems. The Welsh Assembly Government has already set tough, early targets for low carbon and waste in Wales. These targets mean that this scenario is more likely to be applicable in Wales than the rest of the UK.
4. **Modern Methods of Construction:** innovation and productivity drives increasing adoption of changes in working practice across all new build sectors, especially housing. This would be characterised by higher levels of offsite construction work, for example pod construction, panelised systems and the like, along with the introduction of advanced composite building materials. Although predominately driven by new build work the diffusion of innovation through to

repair and maintenance work would follow as skills would be required for on-going maintenance of new structures.

Details of how each variation to the core scenario impacts the UK can be found in the main UK Sector Skills Assessment for the Construction Sector Report, published in December 2009.

Having outlined our view of the core scenario for the construction industry it's important to examine the impact for employment and skills. The ConstructionSkills Network forecasts are made using the core scenario, as such we now look at the long-term forecasts (2010-2014) for both output and employment in Wales.

6.3 Long-term forecast for output in Wales (2010-2014)

Total construction output is forecast to increase at an annual average rate of 2.5% between 2010 and 2014. The new work market is expected to perform better than the R&M market, with an annual average growth rate of 3% for the former and 1.8% for the latter. The weaker outturn for the R&M market is predicated to be down to the poorly performing non-housing R&M sector. In contrast, housing R&M market should be relatively buoyant as it benefits from the increased activity through the Housing Quality Standards scheme.

With average annual growth rates of nearly 8% the private housing and infrastructure sectors, respectively, are likely to be the star performers over the medium term. The former is expected to benefit from underlying demand in the housing market, which has been exacerbated by the long-term mismatch of supply and demand of units. Meanwhile, the infrastructure sector is also forecast to do well on the basis of a number of projects in the early part of the forecast period coming on stream such as the £140m development of the A465 Trunk Road between its junction with the A467 and the A4048.

The growth rate for the industrial sector is expected to be 3.9% on an annual average basis between 2010 and 2014. The small increase in 2010 is expected to be followed by moderate year-on-year rises to the end of the forecast period as the global economy recovers and domestic and export demand increases. Meanwhile, the public housing sector is expected to have a slightly smaller growth rate of 3% over the same period, mainly due to falls in activity in the final two years of the forecast period. However in the shorter term, output in the sector should grow robustly as increased funding from the Welsh Assembly drives forward construction projects.

The public non-housing and commercial sectors are the only ones projected to have a negative growth rate over the long term. On an annual average basis, the former is expected to decline by 1.7% and the latter by 1.1%. The government will be under severe pressure to cut capital spending once the economy moves out of recession, and post-2011 this is likely to feed through into the Welsh public education and health sub-sectors especially.

In the commercial sector, the declines in the initial two years of the forecast period lead to a negative annual average growth rate between 2010 and 2014, despite projected growth from 2012 onwards. Difficulty in obtaining credit is likely to be the main obstacle for developers, although as the economy begins to recover, the expectation is that many retail, office and leisure schemes should get back on track. Amongst the projects due to come online is a £100m office development in Wrexham, which is due to start in late 2010 and run through into the middle of 2013.

6.4 Long-term forecast for employment in Wales (2010-2014)

Total construction employment in 2014 is forecast to reach 127,680, marginally below the 2008 outturn but up 8.9% on the 2010 projected total. In 2014, 113,920 are predicted to be working in SIC 45, whilst 13,760 are expected to be working in SIC 74.2.

The largest occupation in the principality in 2008 was wood trades and interior fit-out, accounting for around 13% of the total workforce, slightly higher than the national average. Totalling 8,710 and 8,180, the next biggest trade occupations were construction managers and electrical trades and installation, respectively.

In absolute terms, the greatest growth in construction employment is expected to be for labourers nec* (1,800) and civil engineering operatives nec* (1,120) between 2010 and 2014. However in percentage terms, plant mechanics/fitters (50%) and civil engineering operatives nec* (33%) are predicted to be the most in demand.

Not all occupations will necessarily experience growth between 2010 and 2014 as the mix of work in Wales changes. In particular there may be less demand for steel erectors in the medium term.

The annual recruitment requirement 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, although robust data on training provision is being developed by ConstructionSkills in partnership with the Learning and Skills Council (LSC) and Higher Education representatives. Thus, the annual recruitment requirement 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 annual recruitment requirement (ARR) for 26 occupations within Wales' construction industry between 2010 and 2014 is illustrated in the table below. The ARR of 5,030 is indicative of the average requirements per year for the industry, as based on the output forecasts for the nation.

Table 18 – Wales Annual Recruitment Requirement by Occupation

Annual recruitment requirement by occupation for Wales	
Occupational Group	2010 to 2014
Senior, executive, and business process managers	-
Construction managers	280
Non-construction professional, technical, IT, and other office-based staff	960
Wood trades and interior fit-out	1,070
Bricklayers	340
Building envelope specialists	110
Painters and decorators	370
Plasterers and dry Liners	-
Roofers	<50
Floorers	<50
Glaziers	250
Specialist building operatives nec*	90
Scaffolders	<50
Plant operatives	<50
Plant mechanics/fitters	100
Steel erectors/structural	-
Labourers nec*	660
Electrical trades and installation	-
Plumbing and HVAC Trades	80
Logistics	270
Civil engineering operatives nec*	<50
Non-construction operatives	-
Civil engineers	220
Other construction professionals and technical staff	60
Architects	60
Surveyors	<50
Total SIC 45	4,580
Total (SIC 45 & 74.2)	5,030

Source: Experian/ConstructionSkills Network, January 2010

The wood trades and interior fit-out (1,070) occupation is expected to have the largest ARR, although as a percentage of 2010 employment, the logistics (13.2%) occupation is predicted to be most in demand. At 9.7% each, plant mechanics/fitters and labourers nec* are also projected to have high ARRs as a proportion of their 2010 employment.

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

Non-construction operatives is a diverse occupational group including all of the activities under the SIC 45 and SIC 74.2 umbrella that cannot be classified elsewhere, such as cleaners, elementary security occupations and routine inspectors and testers. The skills required in these occupations are highly transferable to other industries and forecasting such movement is hazardous given the lack of robust supportive data. Therefore the ARR for non-construction operatives is not published. Finally, for certain occupations

there will be no appreciable requirement over the forecast period, partly due to the recession creating a 'pool' of excess labour.

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

6.5 Other Key Drivers for Employment and Skills

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

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

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

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

Summary Box

This section looked at the core scenario and possible significant variations facing the construction industry, developed in the UK report and related them to Wales where possible.

Core Scenario for construction industry:

Assumes that:

- UK economy emerges from recession in 2010 followed by a gradual recovery to long term levels of GDP growth of around 2.1% p.a. through to 2020. In Wales, GVA will slowly recover with growth of 0.1% in 2011 rising to 1.9% in 2014, with progression through to 2020 likely to follow this pattern.
- UK construction output will start to recover from around 2011 although at lower levels than GDP growth. In Wales construction output is forecast to increase at an annual average rate of 2.5% between 2010 and 2014.
- In UK new work will continue to be the main driver of output. This is also the case for Wales.
- UK levels of productivity growth will remain low – similar in Wales.
- UK housing demand for both public and private sectors recovers – similar in Wales.
- Work in the public non housing sector shows no real growth due to restrictions in public finance. In Wales this sector is forecast for decline from 2010-2014.
- Commercial and industrial new work, both very badly affected in 2009, recover through to 2020, however there is no real growth. In Wales, the picture is similar with slight growth forecast over the long-term.
- Infrastructure sector work is forecast to grow in the short to medium-term and the long term prospects for energy infrastructure look positive with the government commitment to CO₂ targets. In Wales, the picture is similar with strong growth forecast for infrastructure.

Four possible significant variations to this scenario were noted:

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

Employment:

Core scenario has distinct phases for overall employment numbers:

- 2010 – 2011, industry still dealing with recession, further job losses then stabilisation. Work in public non-housing and infrastructure sectors important for employment. In Wales infrastructure growth will be particularly important.
- 2012 – 2014, low employment growth as industry comes out of recession. Housing and infrastructure sector work important. In Wales, as well as these sectors the housing R&M sector is also forecast for strong growth.
- 2015 – 2020, employment increases to approach 2007 – 2008 peak levels. Housing, infrastructure and repair and maintenance work will be key sectors for employment. A similar picture is forecast for Wales.

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

Skills:

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

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

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

7.1 Introduction

The main UK report used data from authoritative reports as well as historic evidence to examine and make predictions of the likely impact of the recession on the construction industry at UK level. This section utilises similar data sources for Wales, where available to make a similar assessment of the likely impact of the recession on the construction industry in Wales. It focuses in particular on making estimates for the future supply of skills and employment in Wales. Before examining Wales in detail, it is important to look first at what has happened at UK level and in particular there are many limitations in making forecasts which should be taken into consideration.

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

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

Recent research by the British Retail Consortium reports⁹¹ that consumer confidence has risen to its highest level for 18 months; house prices are showing consistent growth; and many major countries around the world are emerging from recession. It would be tempting, therefore, to forecast a long and steady improvement in all indicators as the economy returns to normal. On the other hand, rising unemployment and commodity prices - data from Construction Products Association⁹² shows manufacturers experiencing falls in trade while the price of raw materials rises - and a national economy that teeters between deflation and inflation point to a future that is far from certain.

There is much speculation in the press regarding economic recovery. One company, Begbies Traynor⁹³, a leading business rescue, recovery and restructuring specialist have set up a red flag alert report to monitor early warning signs of company distress. They monitor the number of companies experiencing difficulties in two categories – significant (those with either a court action and/or average, poor, very poor insolvent or out date accounts) and critical (those with CCJs totalling £5,000 or more and/or wind-up petition related actions) problems. Data is available by region but note South Wales is combined with South West and North Wales with North West. At critical level from Q4 2008 to Q4 2009 the number of companies has fallen by 18% in North Wales and North West and fallen by 9% in South Wales and South West (across UK fallen 12%). Similarly, at significant problem level the number of companies has fallen by 15% in North Wales and North West and fallen by 11% South Wales and South West (across UK fallen 14%). This data points towards some level of economic recovery in Wales and the wider UK.

⁹¹ British Retail Consortium Press Release, Best Consumer Confidence for 18 months, 2 November 2009

⁹² Construction Products Association Press Release, Construction Continues to Suffer as Recession is Prolonged, 2 November 2009

⁹³ Begbies Traynor Press Release, Over 140,000 Companies Show Real Signs of Financial Distress in Q4 2009, 18 January 2010

There are some conclusions that can be tentatively drawn from existing authoritative reports, and this section, using data for Wales where possible, will draw from the Working Futures report produced for the UK Commission for Employment and Skills by the Warwick Institute for Employment Research and Cambridge Econometrics. Other reports quoted are from the Higher Education Policy Institute, official figures from the Office of National Statistics, data from UK Border Agency as well as ConstructionSkills own figures on training which are the most up to date available.

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

In the short-term it is also possible to say, with some degree of safety, that trends in skills supply probably won't deviate a great deal from their current course. There is little that can be done to change events, whether they be numbers in training or migrants wanting to enter the country, that have already been set in motion. The main focus of this section, therefore, will be the medium-term (the next five years up to 2014) and the long term (the next decade up to 2020).

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 both in Wales and the UK.

7.2 The Economy

Section 6 set out a core scenario for the industry through to 2020 and in this vision of the future, the fall out from the recession continues well into the medium-term, acting as a continuing brake on construction activity and consequent demand for skills. At UK level it predicts that GDP growth is low, at least in comparison with the pre-recession years – averaging only around 1.7% growth between 2010 and 2014 and that public debt remains high hampering state spending. According to ConstructionSkills Network⁹⁴ figures the economy in Wales is expected to grow at an annual average rate of 0.5% between 2010 and 2014, considerably slower than the UK as a whole (1.6%).

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

Over the medium to long term things are projected to be more optimistic. The Working Futures report⁹⁵ predicts Construction output growth in Wales at 1.7% per annum through to 2017, in line with UK and above Northern Ireland forecast rates over the same period (UK 1.9% per annum, England 1.9%, Scotland 1.8% and Northern Ireland 0.2%).

It would therefore seem likely that from around 2014 onwards the supply of skills and employment will begin to increase in response to the rising demand that is expected.

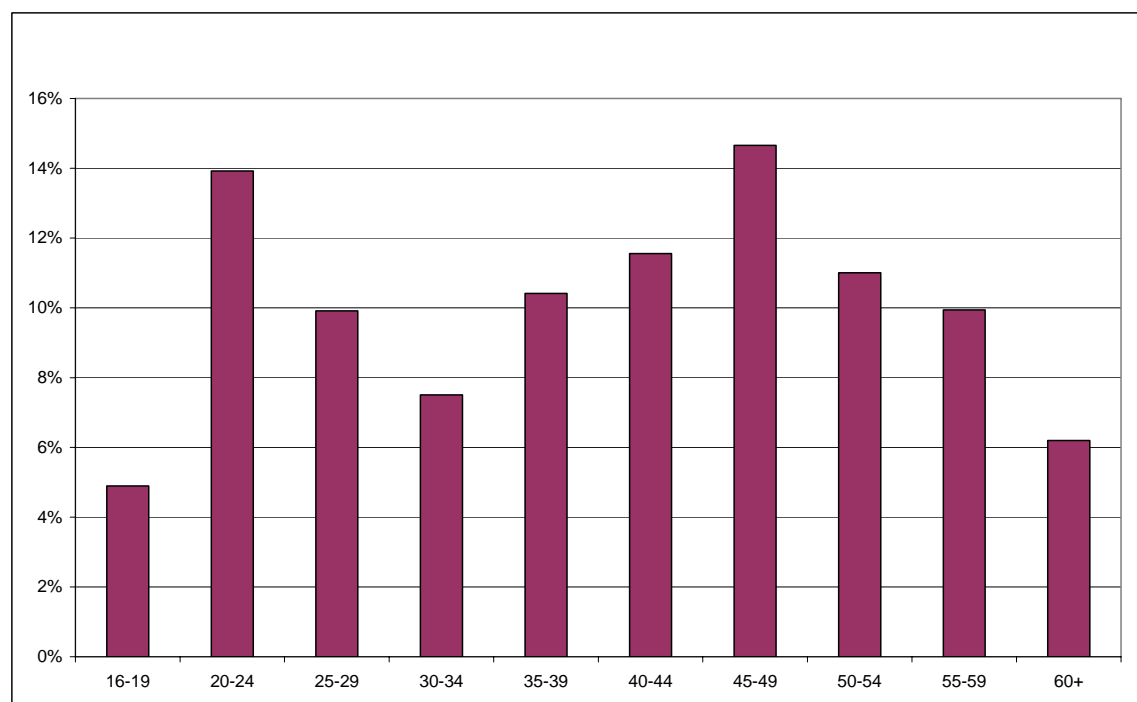
7.3 The Industry

In Wales over the course of the present forecast approximately 16% of the manual construction workforce will reach retirement age (see Chart 13), resulting in a loss of accumulated skills and experience - particularly those involved in the heavier trades and labour.

⁹⁴ ConstructionSkills and Experian, Construction Skills Network, 2010

⁹⁵ Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

Chart 13 - Proportion of Manual Workers in Welsh Construction Industry by Age Range – 2009



Source: Office for National Statistics, Labour Force Survey

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

Chart 13 also demonstrates the lasting impact of the previous recession with the dip in the proportion of people in the 30-34 age group reflecting the fall in recruitment for manual occupations that occurred during the last recession. The latest forecast by the Construction Skills Network⁹⁶ predicts that this pattern will be played out again in the current recession, with rapidly rising job losses leading to rising skills deficits.

The loss of the ageing professional workforce (designers, engineers, technicians) is likely to be less of a problem than that of the labour workforce, as professionals are able, and frequently prefer, to continue working. Indeed the problem may be less a shortage of staff than a need to retrain a group of older professionals who do not have the skills to meet the new needs of the sector. It should also be noted that the construction industry is male dominated in employment terms. In Wales, females account for less than 1 in 10 of all manual jobs (0.7% v 1.7% UK), and despite attempts by the industry to encourage more female entrants, this is expected to remain the case for the foreseeable future.

7.4 Demographic data

The population⁹⁷ of Wales is expected to grow by 172,000 between 2008 and 2020 to reach almost 3.2 million people. The increase in working age population (16-70) is much lower, however, at 41,000; and when looking specifically at the male working age population (construction being a predominantly male-dominated industry) the increase is 26,000 people between 2008 and 2020, or approximately 2,200 males per annum.

7.5 Political Initiatives

The current Welsh Assembly Government was formed several weeks after the 2007 elections, following a brief period of minority administration, when Plaid Cymru joined

⁹⁶ ConstructionSkills and Experian, Construction Skills Network, 2009

⁹⁷ Office for National Statistics 2008-based National Population Projections, released October 2009

Labour in a coalition government, which since December 2009 has been under the leadership of Carwyn Jones. When the coalition government was formed in 2007, the two parties published One Wales⁹⁸, a progressive agenda for the government of Wales.

One Wales set out strategies and aspirations for a comprehensive programme of government, for the full four year term, covering the whole spectrum of policy and action. They proposed a programme designed to build a strong and confident nation, create a healthy future, and create prosperity and jobs in living communities including measures to support the Welsh language. To date much has been achieved and the next planned assembly election is to be held in 2011. Policy around education and skills is broad and rapidly changing both in Wales and the UK generally, there are always new initiatives on the horizon.

A recent article⁹⁹ commented on plans in Wales for the Welsh Assembly Government to overhaul its £450 million annual budget for education. The strategy announced by Jane Hutt, Minister for Budget and Business, includes plans to spend more on maximising participation in higher education by creating more part-time and credit-based courses. In addition more courses will be taught in Welsh, and student funding will be addressed by a new national bursary framework, to be unveiled in Spring 2010.

A further press release by the Welsh Assembly Government¹⁰⁰, announced by Education Minister Leighton Andrews a major independent review of how education funding in Wales is allocated so schools, colleges and universities. Recommendations for making savings and opportunities to move resources to front line services will be made by the end of March. A wider review of administering education across Wales will then follow.

The Education Minister also recently¹⁰¹ announced that the number of centres offering the Welsh Baccalaureate is set to rise from 167 to 217 in September 2010, welcoming an estimated 7,000 additional learners. In the press release the Minister said 'Aside from giving Welsh learners the edge, those who study the Welsh Baccalaureate say they have increased confidence and improved 'life skills' as a result'.

Although Wales has a devolved government in Wales and a range of policy levers are devolved to Cardiff Bay through the Government of Wales Act 2006 and subsequent Legislative Competence Orders, the Welsh education system and Welsh policies will continue to be influenced by legislation which is set at a UK level. As has been widely speculated in the press, the UK general election will most likely be called for May 6 2010. Both main political parties acknowledge the link between a strong skills base and a vibrant economy, and are committed to raising skill levels within the workforce.

So, whoever is in power either in UK or Wales for the lifetime of this forecast, raising opportunities for training and learning will be a priority at a time when unemployment levels are likely to peak. The changes in demand noted earlier will be reflected in the supply of future construction workers. They will require skills that focus more toward assembling manufactured components, utilise computers at each stage of the construction process and have a greater understanding of trades other than their own, in particular how different aspects and components of a finished building will interact.

7.6 Projected Potential Volumes of People with Skills to Join the Industry

Having looked at the preceding sections and 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:

⁹⁸ Welsh Assembly Government, One Wales, 2007

⁹⁹ <http://www.timeshighereducation.co.uk/story.asp?storycode=409401>, Accessed January 2010

¹⁰⁰ Welsh Assembly Government Website, Accessed January 2010

¹⁰¹ Welsh Assembly Government Website, Accessed January 2010

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

For the purposes of this report the last of these will be ignored as it does not contribute to the UK stock of skills, and it will to some extent be off-set by those leaving construction to work in other industries. It is also assumed that those recently made redundant will probably be lost to the industry forever – or at least will need re-training in order to meet the skills demands already discussed. Employers are aware that in the last recession this led to long term skill gaps during the recovery and there is a strong desire to avoid this, however, it is still not clear how many workers will return to the industry and how many will lose their skills or their ties to the world of work.

7.7 Craft Training

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

According to the ConstructionSkills Network¹⁰² total construction employment in Wales in 2014 is forecast to reach 127,680, marginally below the 2008 outturn but up 8.9% on the 2010 projected total. In 2014, 113,920 are predicted to be working in SIC 45, whilst 13,760 are expected to be working in SIC 74.2.

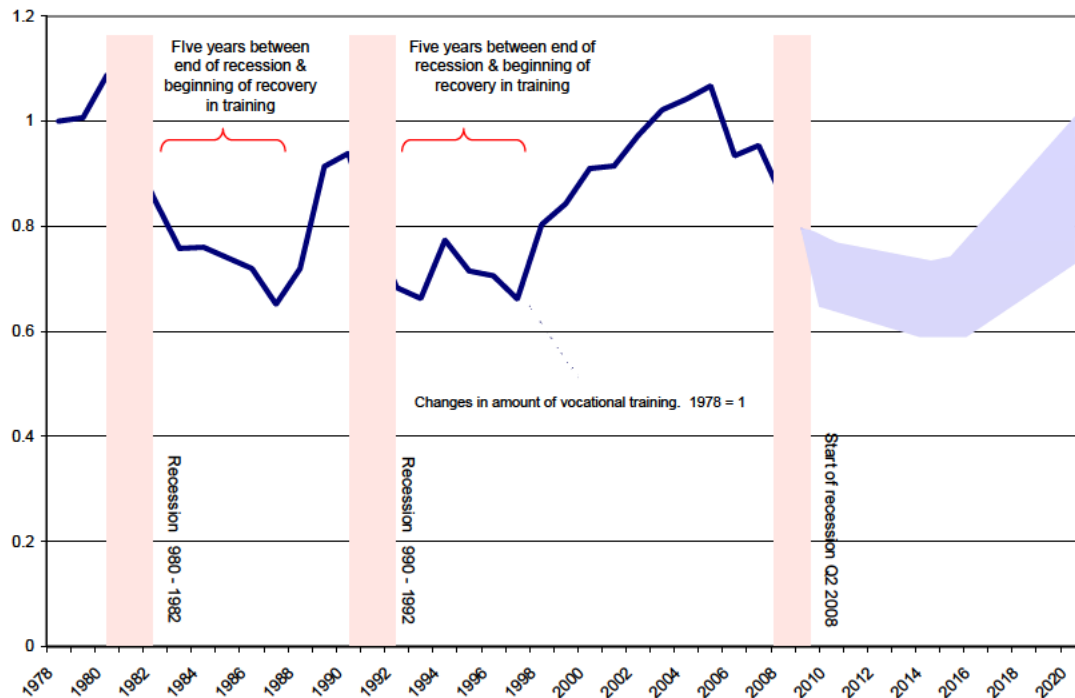
The precise link between employment and training is difficult to calculate, and indeed would probably vary depending on which point in the economic cycle a measurement is taken. Having said this, a very high level view can be gained from looking at the past two recessions, and what happened to training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

Unfortunately historic training data (previous to 1997) is not available for the devolved nations although we can draw a parallel using GB data. Before the current recession the two previous recessions in the UK were in 1980-82 and 1990-92. As can be seen in chart 14, training fell dramatically throughout both recessions, and continued to fall for some time afterwards (although with a short-lived upsurge following the 1990 recession). After both recessions training did not reach its lowest point until some five years after the technical end of the recession, indicating that, like employment, this is a lagging indicator of economic activity.

Charting future trends based on historic scenarios is clearly not an exact science. There are clear differences between this recession and previous ones – the fact that levels of training began to fall before the onset of the economic downturn in Q2 2008; the depth and length of the recession; and the extreme fiscal responses applied in an attempt to mitigate the severity of the downturn all combine to give a large margin of error in the forecast below. Bearing this caveat in mind, and based on the core scenario outlined above, it can be estimated in Wales that training will reach a low point in the region of 2,900 VQ starts around 2015, before returning to its pre-recession levels of around 3,500 VQ starts by 2020.

¹⁰² ConstructionSkills and Experian, Construction Skills Network, 2009

Chart 14 - Relative change in levels of construction training 1978 – 2020: GB



Source: ConstructionSkills Trainee Numbers Survey

Chart 14 depicts the probability of various outcomes for vocational training based on possible changes in employment. The bands widen as the time horizon is extended, indicating the increasing uncertainty about outcomes. Although training is expected to return to its pre-recession levels by 2020 there are varying degrees of probability that it may exceed or fall short of this based on how quickly and strongly the economy recovers from recession.

Of course the number of people entering training will not equate to the number of skilled workers available to work in construction. The other two factors to consider are likely completion rates, and the proportion of completers who stay in construction after qualifying.

Previous years have seen a marked increase in the success rates for NVQs. With the introduction of the new Credit and Qualifications Framework for Wales (CQFW) it is likely that success rates will improve further. Using the current Work-Based Learning success rate for Construction, Planning and the Built Environment in Wales of 72%¹⁰³ it would be reasonable to assume that some 2,100 construction trainees per annum would successfully qualify by 2015, rising to 2,500 by 2020.

Having achieved a qualification, a very high proportion of people choose to stay in construction. The Construction Apprentices Survey¹⁰⁴ suggests that some 95% of successful completers stay in the construction industry, mostly in the trade in which they studied. So, using these figures, we can estimate that the supply of skilled workers to the construction industry through the Further Education route would be approximately 2,000 per annum in 2015 rising to 2,400 per annum by 2020.

7.8 Higher Education

While there is no research looking specifically at the future uptake of Built Environment degree courses in Wales, The Higher Education Policy Institute (HEPI) have produced a

¹⁰³ Welsh Assembly Government, Work-based Learning Success Rates 2007/08, published 2009 <http://www.lsc.gov.uk/providers/Data/statistics/success/WBL.htm>, Accessed November 2009

¹⁰⁴ ConstructionSkills, Construction Apprentices Survey, 2007

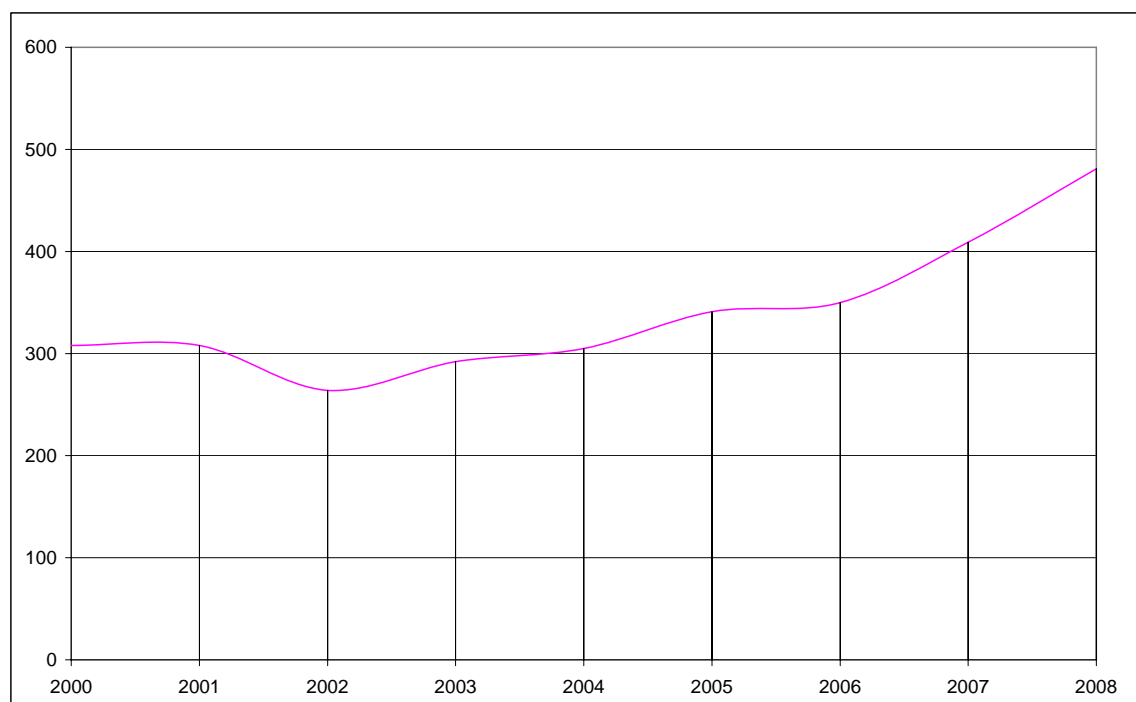
report¹⁰⁵ which looks at the likely demand for degree courses in England across all subjects. Using their methodology and assumptions as a framework, the likely demand for courses in the Built Environment in Wales can be estimated. While the HEPI report focuses on England, their conclusions and findings are equally applicable to the UK and devolved nations, and the numbers quoted in this report are for Wales, using the same or similar sources to HEPI.

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

The trend in recent years has been one of increasing demand for higher education places, despite the introduction of variable fees, influenced largely by increases in the 17 to 30-year-old population (in Wales¹⁰⁶ 64% of full time higher education first degree entrants are under 21 and 87% are under 30).

In Wales the number of applicants to Built Environment degree courses has increased every year since 2002, with 2008 seeing an 18% increase in UK domiciled first degree applicants compared to 2007 (481 compared to 409).

Chart 15 – Wales, UK Domiciled applicants to Built Environment degree courses 1996 – 2008



Source: UCAS

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

¹⁰⁵ Higher Education Policy Institute Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008

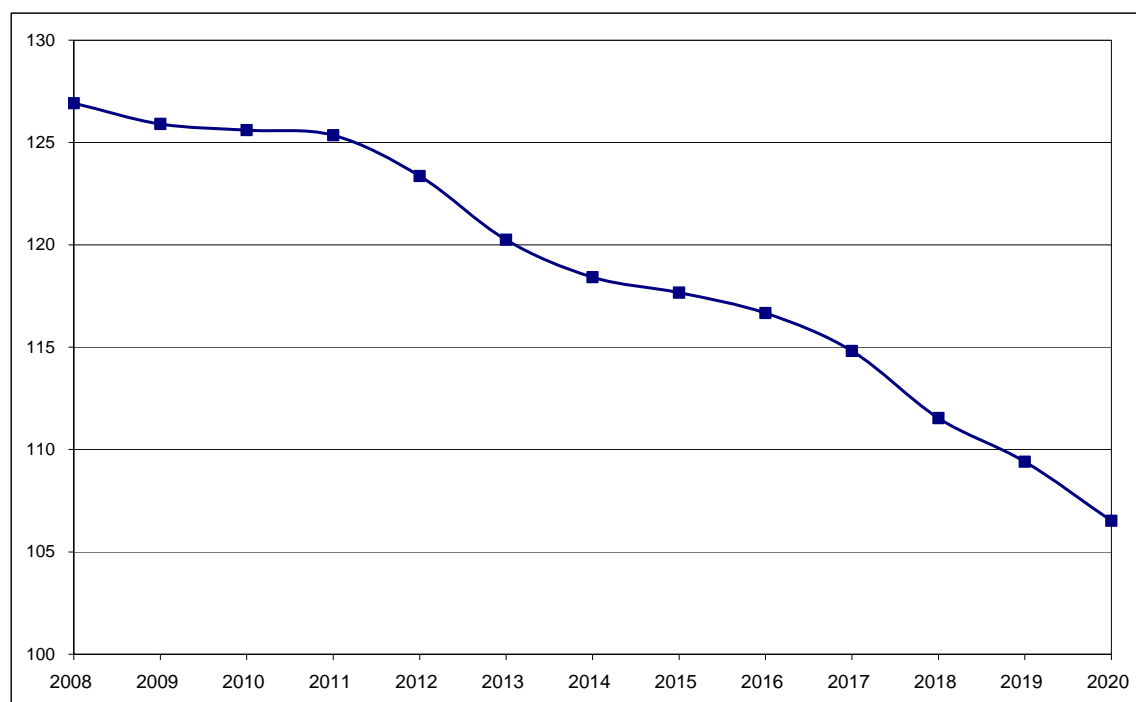
¹⁰⁶ Higher Education Statistics Authority 2007/08 enrolments, published 2009

participation, and also half of those with 7 or more GCSEs who currently fail to achieve a Level 3 qualification doing so in future.

The graph below (Chart 16) shows the way the 18-20 year old population in Wales is forecast to change in the next 10 years. The forecast is for a downward trend over the next decade, with the 18-20 year-old population declining by more than 15% 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 Welsh Assembly Government Higher Education Strategy¹⁰⁷.

In passing it is worth mentioning that HEPI do not anticipate that official policies will have a dramatic effect on part-time student numbers as they have been matched by other policies, like the removal of funding for students studying for equivalent and lower qualifications (ELQs) and the imbalance of student support between full-time and part-time students, 'which may make part time study less attractive'. They conclude that there are as yet 'no indications so far that policy changes are significantly affecting demand [for part-time places]'.

Chart 16 – Number (000s) of 18-20 year olds in the population of Wales from 2006 to 2020



Source: Office for National Statistics 2008-based National Population Projections, released October 2009

While the above graph may seem to point to an impending downturn in the number of higher education students, HEPI point to a changing social composition of the 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.

¹⁰⁷ Welsh Assembly Government, For Our Future, The 21st Century Higher Education Strategy and Plan for Wales, November 2009

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

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 likely to be required to continue in post-16 education or training by law from 2013 academic year. HEPI believe that 'This reform, in view of the large numbers at present leaving education at 16, could have the largest impact on HE participation since the introduction of GCSEs in 1988'.

Demography provides the basis for HEPI's assessment of future demand. In the absence of other factors they believe that demand, having peaked in 2010 will fall back below 2007 levels by 2020-21. However, they see strong reasons for believing that participation rates will increase, which will mitigate some, and possibly all, of the declines expected due to demographic changes.

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

In Wales¹⁰⁸ in 2007/08 there were 712 UK Domiciled first-year enrolments for Built Environment degree courses. Applying HEPI's scenario based projections from above (-2.5% / +9% from 2007/08 to 2020/21) provides an estimate of course enrolments for 2020/21 of 694 to 776 students respectively.

One factor that had not come into play at the time of HEPI's report was the impact of the recession. Given that current youth unemployment in Wales¹⁰⁹ is greater than 16% there will be strong pressures for young people in the short-term to remain in education. If this turns out to be the case then this short-term outcome would allow time for the other factors mentioned in HEPI's report – socio-economic changes and participation rates – to stabilise and possibly increase participation in higher education.

Although there is likely to be moderate growth in Higher Education enrolments between 2010 and 2020 it is unlikely that the dramatic rises that pre-ceded this period will be repeated. Assuming consistent moderate growth of around 1% a year between 2007 and 2020, this would equate to an additional 98 (so approximately 100 with rounding) UK domiciled enrolments in Wales over the period.

As with further education not all these individuals will go on to work in construction after graduating. In fact UK data from HESA's Graduate Destination Survey¹¹⁰ 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.

¹⁰⁸ Higher Education Statistics Authority 2007/08 enrolments, published 2009

¹⁰⁹ Joseph Rowntree Foundation, New Policy Institute, Monitoring Poverty and Social Exclusion in Wales, June 2009

¹¹⁰ Higher Education Statistics Agency, Destinations of Leaver from Higher Education Survey, 2006

Based on these figures we can estimate that by 2020 around 202 graduates in Wales will be available and willing to join the construction industry each year.

7.9 Migration

Data provision for migration is extremely limited and the data that is available is generally only at UK level. The most useful source for looking at migration data in the construction sector is the Labour Force Survey, unfortunately we only have this available at UK level. This area was discussed in detail in the UK report, in this section we re-examine the UK figures and use additional data from the UK Border Agency to estimate likely migration levels in Construction for Wales.

As commented upon in the Working Futures report¹¹¹, productivity in the construction industry, having improved over many years, has recently stagnated due to the use of large numbers of relatively low skilled migrant workers in some parts of the sector.

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

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

It is extremely difficult to foresee the future flows of migrant workers, as there are simply so many influencing factors. According to Labour Force Survey¹¹² data, inflows of migrant workers into UK 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.

This view is supported by the Working Futures report which concludes that the previous high rate of immigration is not expected to be sustainable over the medium-term. For the purposes of the present report the key question is – how many of these migrants will be skilled workers, and how many will be unskilled labourers?

There are various measures from the Labour Force Survey from which skills can be estimated. The first of these (which should be treated with caution owing to the low numbers involved) is the type of jobs that migrants have taken up on arriving in the UK, reproduced in the table below.

¹¹¹ Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

¹¹² Office for National Statistics, Labour Force Survey, Spring 2009

Table 19 - Construction workers entering UK within past ten years by occupation

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

Source: Office for National Statistics, Labour Force Survey

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

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

It is also worth noting that approximately half of migrant workers to the UK construction industry have been self-employed as opposed to 37% of UK workers (figure for Wales is also 37%)¹¹³. While being self-employed is no guarantee of skills, it points to a general level of competence to work unsupervised.

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

Table 20 - Construction workers entering UK within past ten years by highest qualification level

Countries of origin	VQ Level 4 +	VQ Level 3	Trade Apprenticeship	VQ Level 2	Below VQ Level 2	Other / no qualifications
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

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

¹¹³ Office for National Statistics, Labour Force Survey, Spring 2009

qualification of lower than Level 2. Likewise UK national manual workers are three times more likely to have a trade apprenticeship than migrant workers from the top five countries of origin, and ten times more likely to have a level 3 qualification (roughly equating to site-supervisor level).

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

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

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

In conclusion, therefore, it is possible to estimate that around two-thirds of migrant workers have the skills or qualifications to work to an acceptable level within the UK construction industry. The remaining third, consisting of those working in skilled occupations and those that will only ever work in elementary occupations, do not have the skills that the sector will need in the future if it is to meet the goal of being a world class industry.

Using the assumption of net migration in the region of 7,000 per annum this suggests an average of just over 4,500 additional skilled workers a year joining the industry between 2010 and 2020.

A report from the UK Border Agency¹¹⁴ provides data from the Worker Registration Scheme (WRS). First a cautionary note from the publication about data coverage, nationals of the A8 countries who wish to take up employment in the UK for a period of at least a month are generally required to register with the WRS. The statistics in the publication are only of those who have registered with the Home Office to work as employees in the UK. Workers who are self-employed do not need to register and are therefore not included in these figures; there may also be other workers from the accession countries who for one reason or another do not register and are thus also not included in these figures. Each application to the WRS represents one job, not one applicant.

A fair assumption might be that the proportion of applications or jobs in each region reflects the wider distribution of migrant workers within the UK. According to the report in Q1 2009 there were 475 registered workers in Wales, corresponding to 2.2% of the UK total for that period. Note this regional figure is only available across all industry groups and as discussed does not include self-employed.

¹¹⁴ UK Border Agency, Accession Monitoring Report May 2004-March 2009, 2009
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Applying this 2.2% proportion to the total UK skilled migrant worker total of 4,500 workers per year joining the industry between 2010 and 2020 gives 100 workers per year of this type in Wales.

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 2,400.

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 200.

And finally the number of *skilled* migrants entering the UK each year by 2020 will be in the region of 100, making an annual total of 2,700 skilled people a year¹¹⁵.

7.10 Variations to the Core Scenario

The possible variations to this scenario have already been mentioned. As commented upon in the introduction to this section, one of the key determinants for the future direction of skills supply is the strength of the recovery from the current recession. This section assumes a long recovery with modest annual growth. It assumes a downward trend in the level of inward migration, and a steady increase in those able and willing to attend Higher Education.

The two obvious variations to this scenario occur with stronger or weaker growth to that forecast (perhaps even a swift return into recession). This is key as one of the main drivers for skills supply, especially through Further Education, is the demand for those skills. Although the core scenario anticipates further education training returning to its pre-recession levels by 2020 this depends on confidence in the future of the industry returning. This is likely to be determined largely by Government policy regarding tackling financial deficit, tax and spending.

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

Of all the areas discussed in this report Higher Education is probably the least prone to direct short-term fluctuations in the industry and economy. Although this section anticipates a long period of slight growth in the number of UK domiciled, first year, first degree students, this could easily be reversed (a long and slow decline) if the predicted changes in social and educational achievement rates do not come about.

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

¹¹⁵ 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).

Summary Box

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

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

It is estimated in Wales that training will reach a low point in the region of 2,900 VQ starts around 2015, before returning to its pre-recession levels of around 3,500 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 can be estimated that the supply of skilled workers to the construction industry through the Further Education route would be approximately 2,000 per annum in 2015 rising to 2,400 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 can be estimated that by 2020 around 200 graduates in Wales will be available and willing to join the construction industry each year.

It is estimated that around two-thirds of migrant workers have the skills or qualifications to work to an acceptable level within the construction industry. Applying the WRS proportion in Wales to UK skilled migrant worker total suggests an average of 100 additional skilled workers a year joining the industry in Wales between 2010 and 2020.

In conclusion, it is expected that around 2,700 skilled people will be available to join the construction industry in Wales each year between 2015 and 2020.

8. Conclusions and Key Messages

8.1 Conclusions

This report, following the framework set out in the main UK report, has used available data sources to highlight the priorities for the Welsh construction industry, setting them in the context of the UK industry. Many of the priorities for Wales are similar to those found at UK level but there are also important major and minor differences, particularly around political initiatives and sustainability. In places, the analysis presented has found gaps in both data availability and reliability for Wales, calling for further in-depth analysis where appropriate. The report has identified many opportunities for the Welsh construction industry, although it is not possible within the confines of this research to find a complete solution to the many issues that surround the industry. Hopefully, it has however drawn out the key themes that cut across construction providing a platform for further future research.

Although Wales itself is relatively small in terms of area when compared to the UK, its construction industry still contributes strongly to both the UK and Welsh economies. The construction industry in Wales employs some 110,700 people as both construction workers and professionals, accounting for 4.7% of the UK construction workforce. With an output in 2009 of £3.4 billion (at constant 2005 prices) the sector contributes 3.5% of the UK construction output.

Up until the recent recession the construction industry in Wales had experienced its longest period of sustained growth since the post-war construction boom. Following two consecutive years of growth, total construction output in Wales declined by 8% to £3.8bn (in 2005 prices) in 2008, the lowest level since 2002. Whilst a downturn was expected on the back of the credit crisis the speed and depth of the contraction was without precedent. In this respect it has caught out a lot of businesses, particularly in terms of planning in the face of reduced workloads, late payments and increased competition.

There is mixed evidence, uncertainty and speculation regarding the depth and length of the current recession. The latest Office of National Statistics data, reported recently in the press confirms that the UK has officially left recession (economy grew by 0.1% between October and December 2009). Data for Wales over the same period is not yet available. What is certain is that in this climate of uncertainty 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 have been widespread redundancies within the industry in Wales, resulting in outflows both to other industries and unemployment. Unemployment in the Welsh construction industry now stands at 10.3%, greater than other UK nations except Northern Ireland. History shows that some of the most experienced workers leaving the industry will not come back, which may cause major problems for Wales to deliver future requirements in respect of affordable housing, schools, hospitals, transportation infrastructure and energy generation schemes; all of which must be completed with minimum impact to the environment.

Nonetheless, despite the current recession forecasts for the short and long-term in Wales are for positive growth, albeit at a slight slower rate than the other UK nations with the exception of Northern Ireland. The latest ConstructionSkills Network forecast for Wales suggests the economy in Wales is expected to grow at an annual average rate of 0.5% between 2010 and 2014, considerably slower than the UK as a whole (1.6%). Over the medium to long term things are projected to be more optimistic. The Working Futures report predicts Construction output growth in Wales at 1.7% per annum through to 2017, in line with the UK and above Northern Ireland forecast rates over the same period (UK 1.9% per annum, England 1.9%, Scotland 1.8% and Northern Ireland 0.2%).

The formation of the National Assembly for Wales, followed by the Government of Wales Act 2006 has enabled the Welsh Assembly Government to bring forward its own programme of legislation. The current coalition government through the One Wales agenda have introduced specific legislation around learning and skills, generally improving access to and provision of learning.

In addition, the Welsh Assembly Government has introduced challenging targets and legislation around sustainability, climate change and waste. These are driven at a high level through the One Wales : One Planet Sustainable Development Scheme and its underpinning strategy documents on climate change, green jobs and zero waste. The aim is for Wales to be zero waste by 2050. In addition, there are challenging climate change aspirations with targets to reduce greenhouse gas emissions by 3% a year by 2011 in those areas where government has devolved competence; with an overall 80% reduction of 1990 CO₂ levels by 2050. Alongside these, there are plans for buildings in Wales to become zero carbon with new build housing to be zero carbon by 2011, new build schools by 2017 and public sector buildings by 2018.

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, for both professional services and craft trades, and working to more exacting tolerances in terms of timing and quality of construction. Often, new ways of working will not require totally new skills, but will often be in addition to existing workers skill-sets.

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

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

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

Analysis in this report shows that the construction industry in Wales may be currently hampered by many of the problems that exist at UK level. In Wales and the UK the construction industry has a rapidly ageing workforce with many set to retire in the next 10 years, gender imbalance, BME representation is low, high self-employment levels mean investment in skills and training is low and then there are issues with how to integrate migrant labour. These problems should not be viewed as insurmountable though and with carefully targeted recruitment campaigns and investment by government and organisations such as ConstructionSkills these issues may be addressed.

Further analysis, looked at current skills levels and training supply within the Welsh construction industry. The broad conclusion here was that skill levels in Wales are broadly similar to the UK. There also appears to be strong levels of training provision both at further and higher education levels. Analysis of higher education statistics revealed that UK applicants to Welsh universities had not been strongly affected by the

recession but there appeared an opportunity for Welsh universities in comparison to the UK to attract a greater proportion of overseas students.

As the skills and technologies at the heart of construction change, modern methods of construction such as multi-skilling and improving skill levels amongst the existing workforce will become more important if Wales is to capitalise on the opportunities available.

As well as improving Information Technology skills for both construction workers and managers alike, in order 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.

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 Rita Donaghy inquiry into the underlying causes of construction fatal accidents, 'One death is too many'.

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

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

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

8.2 Key Messages

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

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

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

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10. Appendix

10.1 ConstructionSkills' footprint, SIC 2003

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

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

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

10.2 ConstructionSkills' footprint, SIC 2007

SIC 41 Construction of Buildings

41.1 Development of building projects

41.10 Development of building projects

41.2 Construction of residential and non-residential buildings

41.20 Construction of residential and non-residential buildings

41.20/1 Construction of commercial buildings

41.20/2 Construction of domestic buildings

SIC 42 Civil Engineering

42.1 Construction of roads and railways

42.11 Construction of roads and motorways

42.12 Construction of railways and underground railways

42.13 Construction of bridges and tunnels

42.2 Construction of utility projects

42.21 Construction of utility projects for fluids

42.22 Construction of utility projects for electricity and telecommunications

42.9 Construction of other civil engineering projects

42.91 Construction of water projects

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

SIC 43 Specialised Construction Activities

43.1 Demolition and site preparation

43.11 Demolition

43.12 Site preparation

43.13 Test drilling and boring

43.29 Other construction installation

43.3 Building completion and finishing

43.31 Plastering

43.32 Joinery installation

43.33 Floor and wall covering

43.34 Painting and glazing

43.34/1 Painting

43.34/2 Glazing

43.39 Other building completion and finishing

43.9 Other specialised construction activities n.e.c.

43.91 Roofing activities

43.99 Other specialised construction activities n.e.c.

43.99/1 Scaffold erection

43.99/9 Specialised construction activities (other than scaffold erection) n.e.c.

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
71.12/1	Engineering design activities for industrial process and production
71.12/2	Engineering related scientific and technical consulting activities
71.12/9	Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)

SIC 74 Other Professional, Scientific and Technical Activities

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

74.90/1 Environmental consulting activities

74.90/2 Quantity surveying activities

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

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

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

ConstructionSkills

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

Tel: 0344 994 4400
www.cskills.org
Contact: Adam Evans

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