

Construction Skills Network Wales

LABOUR MARKET INTELLIGENCE 2009–2013



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ConstructionSkills is the Sector Skills Council for construction, tasked by Government to ensure the UK's largest industry has the skilled workforce it requires. Working with Government, training providers and employers, it is responsible for ensuring that the industry has enough qualified new entrants and that the existing workforce is fully skilled and qualified, as well as for improving the performance of the industry and the companies within it.

1 Headlines

1.1 Welsh economy

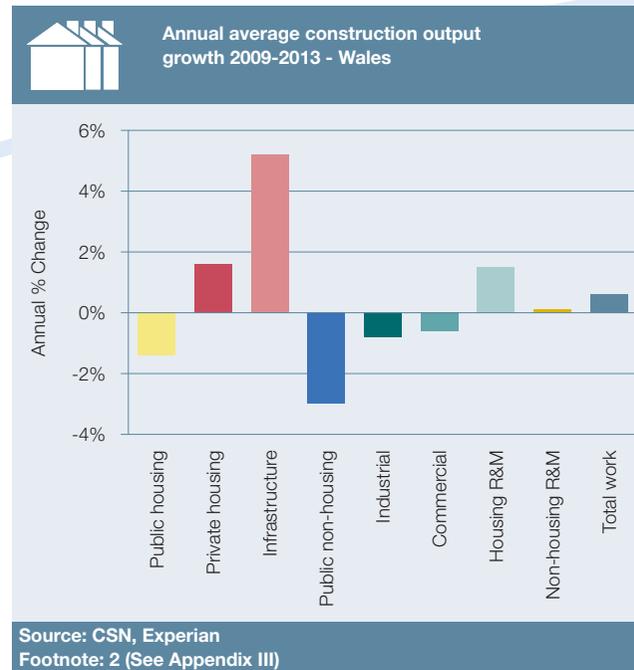
- The economy in Wales was worth £41bn in 2007 in 2003 prices, equivalent to 3.7% of the UK total.
- Public services generated 27.9% of the economic activity for the principality, a much greater proportion than in the UK in 2007.
- The Welsh economy is forecast to grow at an annual average rate of 1.2% between 2009 and 2013, slightly below that of the UK. The greatest rate of growth over the period is expected to be for the financial and business services and the transport and communication sectors.

1.2 Construction output in Wales

- Worth £3.1bn in 2007 (2000 prices), construction output accounted for 3.7% of the UK total.
- Output in Wales is forecast to grow at an annual average rate of 0.6% between 2009 and 2013, broadly in line with that of the UK.
- Over the forecast period infrastructure is expected to be the strongest sector, driven forward by planned investment on a number of road schemes and electricity generation projects, such as a wood-chip fuelled power station at Port Talbot.

1.3 Construction employment in Wales

- Total construction employment of 113,510 in 2007 for Wales is forecast to fall to 107,920 by 2009, and then rise by 4.6% to 112,860 in 2013.
- In order to meet this demand, and after taking into account those entering the industry other than from training and those leaving, 2,330 new workers will be required to join the industry each year.
- Wood trades and interior fit-out and labourers nec* are expected to have the largest annual recruitment requirements (ARR).



Regional comparison 2009-2013

	Annual average % change in output	Growth in total employment	Total ARR
North East	0.5%	5,620	2,010
Yorkshire and Humber	0.0%	2,860	1,390
East Midlands	0.8%	6,220	1,980
East of England	0.9%	10,570	2,890
Greater London	0.8%	12,110	6,030
South East	0.5%	13,288	5,690
South West	-0.2%	-20	1,450
Wales	0.6%	4,940	2,330
East Midlands	0.2%	3,930	3,620
Northern Ireland	1.6%	3,030	900
North West	0.2%	6,040	4,780
Scotland	0.6%	5,480	3,960
UK	0.5%	74,070	37,030

Source: CSN, Experian
Footnote: 2 (See Appendix III)

The economy in Wales was worth
£41bn in 2007

at 2003 prices, equivalent to 3.7% of the UK total

2 The outlook for construction in Wales

2.1 Construction output in Wales – overview

After a period of decline between 1998 and 2001, the industry bounced back with total growth of nearly 37% between 2002 and 2004. Thereafter the profile of output in the principality has largely been flat, with the estimated outturn for 2007 £3.1bn in 2000 prices.

Between 2001 and 2007, new work output grew at a faster rate than repair and maintenance (R&M). New work expanded by 28% over this period to reach approximately £2bn, in 2000 prices, whereas R&M saw growth of close to 16% to £1.2bn.

Public non-housing output saw substantial growth of 146% in total between 2001 and 2007, larger than any other sector in Wales. Commercial and private housing also saw significant increases in activity, of 48% and 37%, respectively. These three sectors contributed almost all of the total growth seen for new work output over this period.

Infrastructure recorded the greatest fall in output since 2001, declining by 29% to £275m to 2007. Public housing and industrial also saw falls, with the sectors contracting by 13% and 2%, respectively, over the period.

Worth

£3.1bn in 2007

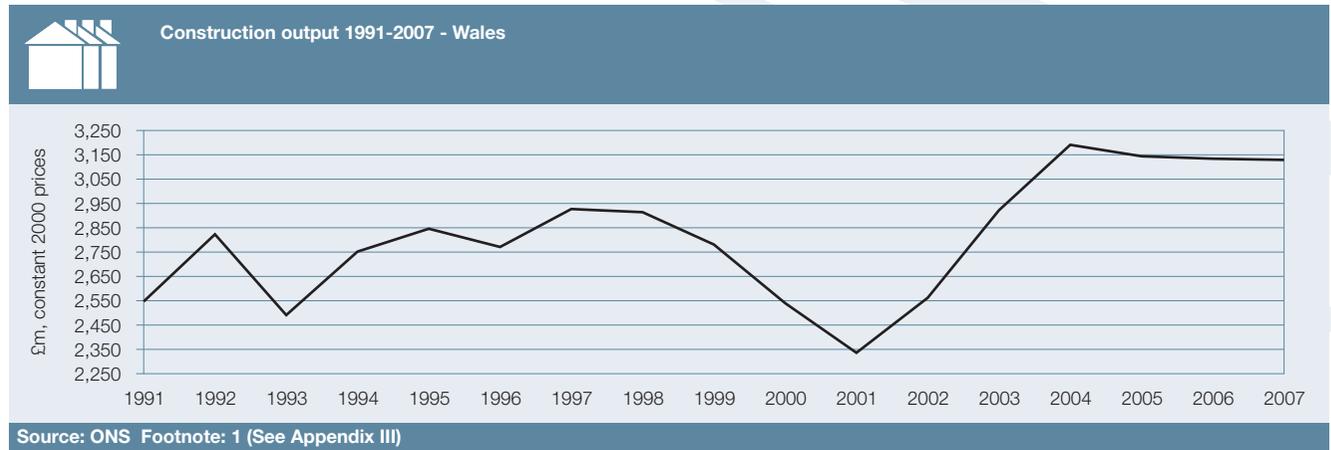
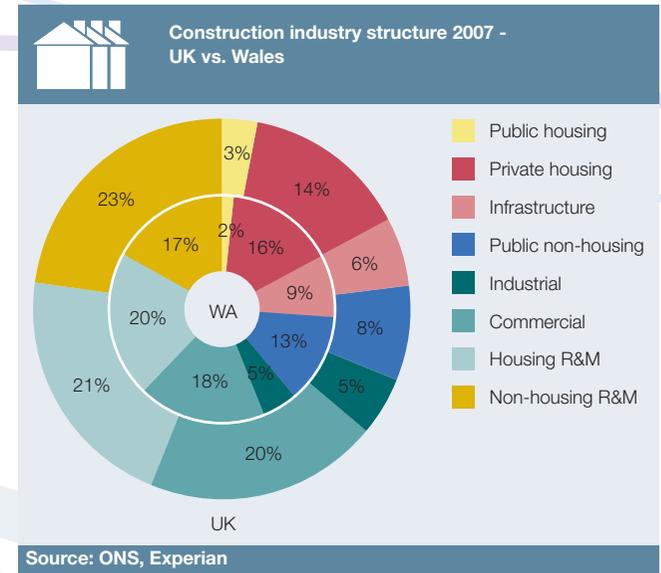
(2000 prices), construction output accounted for 3.7% of the UK total

2.2 Industry structure

The diagram illustrates the sector breakdown of construction in Wales compared to that in the UK. Effectively, the percentages for each sector illustrate what proportion of total output each sector accounts for.

There are some significant differences in the structure of the construction industry in Wales compared with the UK. In particular the R&M sector is smaller in the principality, accounting for only 37% of output in 2007, compared with 44% in the UK as a whole. Among the new work sectors, infrastructure in Wales was proportionally 3% larger than in the UK as a whole while the public non-housing one was 5% bigger.

The biggest change since 2006 was a 3% rise in the share taken by the commercial sector in Wales.



2.3 Economic overview

The expected performance of a regional or national economy over the forecast period (2009–2013) provides an indication of the construction sectors in which demand is likely to be strongest.

2.4 Economic structure

In 2007 the Welsh economy was worth around £41.4bn, in 2003 prices, 3.2% higher than in 2006 and equivalent to 3.7% of the UK total.

Public services was the largest component of the Welsh economy, accounting for 27.9% of the total. This was noticeably higher than the UK average in 2007. This was at the expense of the financial and business services sector, which as the second largest sector in Wales, was significantly smaller than the UK average. Distribution, hotels and catering accounted for a further 15.4% of GVA.

Financial and business services has seen the greatest growth in its share of GVA since 2000, increasing from 14.2% to 21.5% in 2007. In contrast, although it remains the biggest sector in the principality, public services has seen its share shrink by 2.3% over the same period.



National Botanic Garden of Wales

Economic structure - Wales (£ billion, 2003 prices)							
Selected sectors	Actual	Forecast					
	2007	Annual % change, real terms					
	2007	2008	2009	2010	2011	2012	2013
Public services	12	2.0	-0.4	0.7	1.4	1.4	1.3
Financial and business services	9	3.0	-0.3	2.8	5.0	5.4	5.3
Transport and communications	2	1.2	2.6	4.2	3.9	3.5	3.2
Manufacturing	7	4.8	-2.6	-0.1	0.8	0.2	0.1
Distribution, hotels and catering	6	-0.5	-0.5	0.7	2.1	2.1	1.9
Total Gross Value Added (GVA)	41	2.1	-0.9	1.0	2.0	1.9	1.9

Source: Experian
Footnote: 3 (See Appendix III)

Economic indicators - Wales (£ billion, 2003 prices - unless otherwise stated)							
	Actual	Forecast					
	2007	Annual % change, real terms					
	2007	2008	2009	2010	2011	2012	2013
Real household disposable income	34	1.0	0.6	0.9	1.8	2.3	2.2
Household spending	32	1.2	-0.9	0.6	3.4	3.3	2.6
Debt:income ratio	1.1	2.5	-2.6	-6.2	-6.6	-4.4	-2.2
House prices (£'000, current prices)	165	-1.3	-11.6	-7.7	-0.1	1.6	1.7
LFS unemployment (millions)	0.08	15.8	35.6	4.0	-9.1	-8.8	-5.9

Source: ONS, DCLG, Experian

2.5 Forward looking economic indicators

The economy in Wales is expected to grow at an annual average rate of 1.2% between 2009 and 2013, slightly lower than the UK's 1.4%. Despite its current problems the financial and business services sector is expected to bounce back in the latter part of the forecast period and remain the faster growing part of the Welsh economy between 2009 and 2013, although it will be closely followed by transport and communications.

Household disposable income in Wales is expected to increase at a faster rate than the rest of the UK over the forecast period. However household spending is predicted to grow at a slower pace than the UK's. Partly as a result of this, the debt to income ratio is projected to decline at twice the rate of the rest of the UK from 2009 to 2013.

The Department for Communities and Local Government (DCLG) reported that house prices in Wales increased in 2007 from the previous year by 6.8% to reach £165,000. These prices are low compared to the UK's average house price of £214,000. House prices in Wales are estimated to have fallen slightly in 2008 and the rate of decline will steepen considerably in 2009. In total house prices in Wales are projected to fall by 21% between 2008 and 2011 using the DCLG measure as a basis, a slightly worse outturn than predicted for the UK as a whole.

2.6 New construction orders – overview

New work orders in Wales saw a decline of 15% in 2007 from the previous year to £2bn, in current prices. This is after five years of growth to 2006 during which new orders rose significantly.

Commercial construction, the largest sector in Wales, saw a decline of 24% in new orders in 2007, albeit from a very high level in 2006. Infrastructure also saw a significant fall-off of 40% for the same period. The infrastructure sector is prone to volatility in its level of new orders as the size of individual contracts can be large, thus one new order can make a significant change to the figures. Private housing and public non-housing orders were also down from the previous year in 2007.

However the two smallest sectors in Wales, industrial and public housing, saw substantial rises in the value of new orders.

2.7 New construction orders – current situation

In the first three quarters of 2008 new work orders totalled £1.2bn (current prices), a fall of 22% from the same period of the previous year.

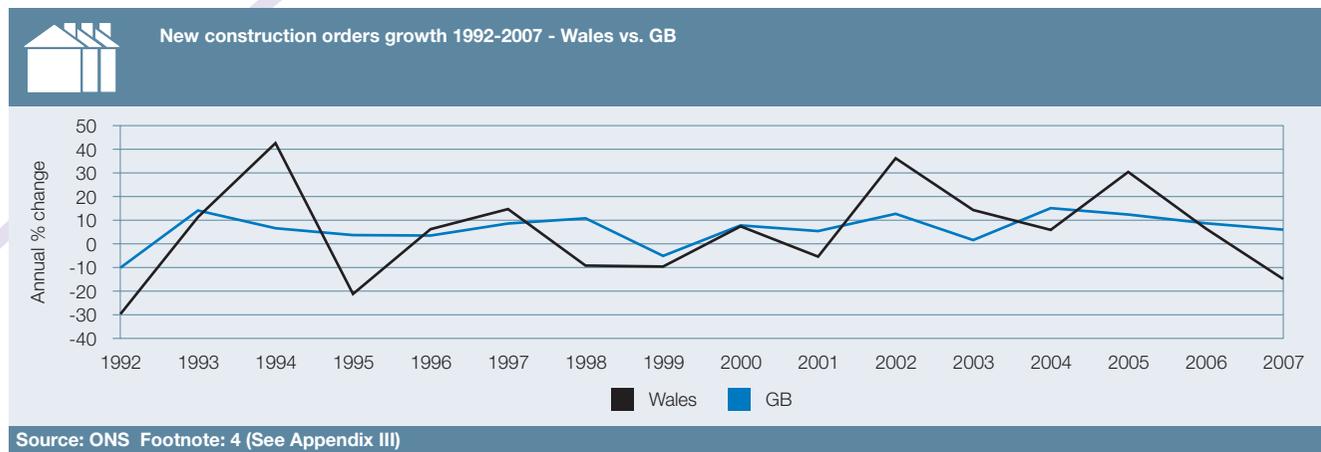
The private housing and commercial sectors saw significant declines in the first nine months of 2008 when compared to the corresponding period of 2007, falling by 61% and 33%, respectively. This is an obvious sign of the economic downturn biting as demand evaporates for new housing and office and retail facilities. Although the industrial and public housing sectors also saw drops over the same period, they were relatively smaller. Public non-housing orders totalled £260m to end-September, down a moderate 7% from the previous year.

Infrastructure was the only exception to the declines seen in the rest of the sectors. It saw a sharp increase, nearly doubling year-on-year to September 2008 to total £277m, in current prices.

New work construction orders - Wales
(£ million, current prices)

	Actual	Annual % change				
	2007	2003	2004	2005	2006	2007
Public housing	82	45.5	-39.6	75.9	0.0	61.5
Private housing	551	38.1	10.1	16.3	-3.1	-8.7
Infrastructure	198	-40.4	27.6	206.2	-44.4	-40.0
Public non-housing	388	19.4	-19.4	-10.4	57.8	-16.5
Industrial	174	20.7	49.5	6.1	-33.1	66.1
Commercial	576	21.4	13.7	5.6	66.9	-24.4
Total new work	1,969	14.2	6.0	30.5	6.4	-14.9

Source: ONS
Footnote: 4 (See Appendix III)



2.8 Construction output – short-term forecasts (2009–2010)

Regional Office for National Statistics (ONS) output statistics are published in current prices and are thus inclusive of any inflationary effect. At the time of writing, ONS construction output statistics are only available for the first three quarters of 2008.

Construction output in Wales totalled £3.6bn to end-September in 2008, down 3.7% from the same period of the previous year. The R&M sector outperformed new work, with the former experiencing a 3.2% increase over the period to £1.3bn, whilst the latter saw a decline of 7.4% in output to £2.3bn.

On an average annual basis between 2009 and 2010, new work output is forecast to decline by 2.9%, but R&M should rise by 0.6%. Total output is forecast to fall by 3% in 2009, before stabilising in 2010.

In the first nine months of 2008, output in the public housing sector grew by a robust 18%. The increase in public housing may have been supported by the Welsh Assembly's announcement of increased funding for social housing, up by almost 11% in 2008/2009 to £103.4m. However the sector is expected to see annual average falls of 4.8% between 2009 and 2010 as the decline in private developments affects the ability of social housing providers to site new projects.

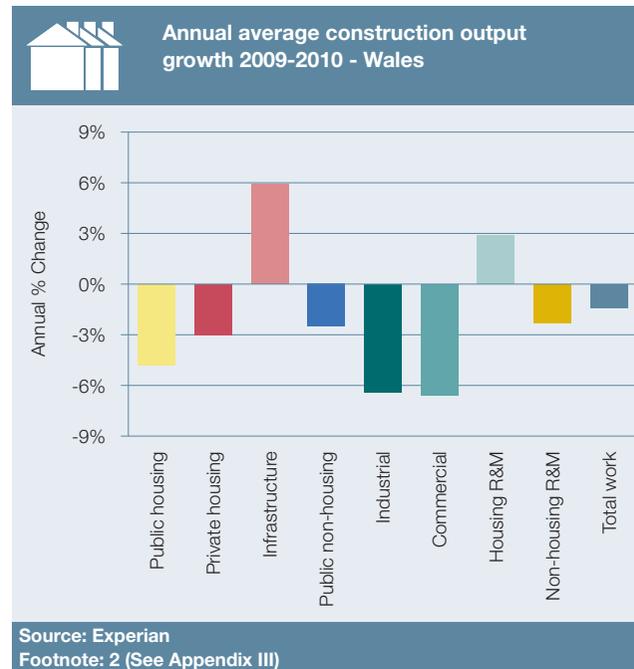
Infrastructure was buoyant, increasing by 11% in the first three quarters of 2008 from the corresponding period of the previous year on the back of a start on several roads schemes, including the £90m Church Village bypass project, and energy developments such as the LNG terminal at Milford Haven.

As is the case for the rest of the UK, the private housing sector is taking the brunt of the economic downturn at present and it is particularly affected by the tighter market for credit. Output in the first three quarters of 2008 was heavily down by 26% compared with the same period of 2007 and a further heavy fall is expected in 2009. However, by 2010 some recovery is forecast for private house building, albeit this is more likely to start in the second half of the year rather than the first.

Public non-housing output declined by 11% in the first three quarters of 2008 when compared to the same period of the previous year and it is forecast to fall by an average of 2.5% a year in 2009 and 2010.

The Welsh Assembly has indicated that the capital programme for health and education will fall in real terms between 2008 and 2011.

Commercial output totalled £641m in the first nine months of 2008, falling by 5% from the same period of 2007. Along with private housing and industrial construction, this is the sector most directly affected by the economic downturn. However, while a significant portion of the decline in private housing output will have taken place in 2008, the longer lead times on large commercial projects means that output is likely to fall in the sector to 2010.



Construction output - Wales (£ million, 2000 prices)

	Actual	Forecast annual % change			Annual average
	2007	2008	2009	2010	2009-2010
Public housing	54	7%	-1%	-9%	-4.8%
Private housing	491	-34%	-13%	8%	-3.0%
Infrastructure	275	3%	6%	6%	5.9%
Public non-housing	400	-7%	-4%	-1%	-2.5%
Industrial	158	21%	-7%	-5%	-6.4%
Commercial	574	-7%	-9%	-4%	-6.6%
New work	1,952	-10%	-6%	0%	-2.9%
Housing R&M	654	2%	3%	3%	2.9%
Non-housing R&M	523	3%	-2%	-2%	-2.3%
Total R&M	1,178	3%	1%	1%	0.6%
Total work	3,129	-5%	-3%	0%	-1.4%

Source: Experian
Footnote: 1 and 2 (See Appendix III)

2.9 Construction output – long-term forecasts (2009–2013)

Total construction output is forecast to grow at an annual average rate of 0.6% in the longer term. The R&M sector is expected to do better than new work, with average annual growth rates of 0.9% and 0.3% respectively. An especially buoyant housing R&M sector is predicted to underpin the stronger growth in total R&M, on the back of increasing activity under the Housing Quality Standards scheme.

The breakdown of the new work sector shows infrastructure to be the star performer over the longer term, as it is in a number of regions and nations. The sector is projected to grow at an annual rate of 5.2% over the period as planned road projects get underway such as the £84m Port Talbot Peripheral Distributor Road, the £320m PFI scheme to expand the M4 and a new bridge across the Menai Strait. Other schemes include the £400m wood-chip fuelled electricity station at Port Talbot. The biggest project in prospect for the sector is the Severn Barrage scheme, for which feasibility studies are currently being undertaken. If this £15bn project gets the go-ahead it may start before the end of the forecast period, although output from the scheme would be shared across Wales and the South West of England.

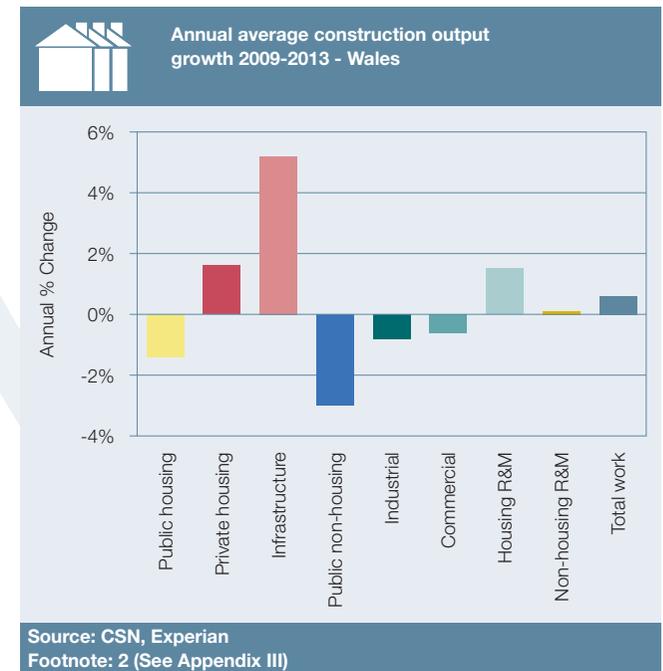
The long term mismatch of supply and demand in the housing sector means that after the falls of 2008 and 2009 private housing output should bounce back. How strong the recovery is likely to be is currently open to question and the forecasts have erred on the cautious side, taking output only back up to its 2002 level in the sector by 2013.

Over the medium-term the public housing sector is expected to see an annual average decline of 1.4%, mainly due to falls in activity in the earlier part of the period. However between 2010 and 2011, the sector is predicted to look healthier with average annual growth of 3.0% for the two years. This is due to the Welsh Assembly reiteration of its goal of building an additional 6,500 affordable homes by 2010/11. Thereafter, public housing output is forecast to see a decline of 3% in 2013.

Unlike many English regions, there seems little prospect for growth in the public non-housing sector over the 2009–2013 period. If public health and education work is not expected to grow over the short term then it is even more unlikely to expand in the medium term when the UK government will be looking to cut capital expenditure across the country as a whole to contain a much increased public debt.

Industrial construction is forecast to see an annual average rate of contraction of 0.8%. However the fall over the period is mostly due to the declines in the short-term, whereas the medium term prospects are better as the global economy recovers and both domestic and export demand increases.

After an annual average rate of decline of 6.6% between 2009 and 2010 for the commercial sector, it is expected to experience a period of robust total growth of 7.8% over the three years to 2013 as office, retail and leisure projects postponed during the economic downturn get back on track. However on an annual average basis over the whole of the 2009–2013 forecast period, the sector is expected to see a contraction of 0.6%.





Construction output - Wales
(£ million, 2000 prices)

	Estimate		Forecast annual % change				Annual average
	2008	2009	2010	2011	2012	2013	2009-2013
Public housing	58	-1%	-9%	3%	3%	-3%	-1.4%
Private housing	324	-13%	8%	6%	5%	4%	1.6%
Infrastructure	282	6%	6%	5%	5%	4%	5.2%
Public non-housing	372	-4%	-1%	-5%	-5%	0%	-3.0%
Industrial	191	-7%	-5%	2%	4%	4%	-0.8%
Commercial	535	-9%	-4%	2%	4%	4%	-0.6%
New work	1,763	-6%	0%	2%	3%	3%	0.3%
Housing R&M	671	3%	3%	2%	2%	-3%	1.5%
Non-housing R&M	1,210	-2%	-2%	0%	3%	2%	0.1%
R&M	1,881	1%	1%	1%	3%	-1%	0.9%
Total work	2,973	-3%	0%	2%	3%	2%	0.6%

Source: CSN, Experian
Footnote: 2 (See Appendix III)



3 Construction employment forecasts for Wales

3.1 Total construction employment forecasts by occupation

The table, Total employment by occupation – Wales, presents actual construction employment (SIC 45 and 74.2) in Wales for 2007, and the forecast total employment for each of the 26 occupations between 2009 and 2013. A full breakdown of occupations is provided in Appendix IV.

By 2013 total construction employment is forecast to reach 112,860, slightly fewer than in 2007, but a 4.6% increase on the 2009 projected total. In 2013 102,090 workers are expected to be working in SIC 45, whilst 10,770 are projected to be working in SIC 74.2.

More than a third of workers within the construction industry in 2007 in Wales were covered by four occupations – construction managers, non-construction professionals, technical, IT, and other office based-staff, wood trades and interior fit-outs, and labourers nec*.

The largest absolute growth in construction employment in the principality between 2009 and 2013 is forecast to be in labourers nec* (760) followed by construction managers (690).

Total construction employment of 113,510 in 2007 for Wales is forecast to fall to 107,920 by 2009 and then rise by 4.6% to 112,860 in 2013

However, surveyors are expected to see the largest percentage increase in employment between 2009 and 2013 (11.9%), with labourers nec* (10.9%) second and construction managers (9.5%) third.

Construction professionals have been disaggregated in the 2008 run for the Construction Skills Network into four occupational categories – civil engineers, other construction professionals and technical staff, architects, and surveyors. The result of this disaggregation shows that 23% of construction professionals in Wales are classified as civil engineers, 6% as architects and 25% as surveyors in 2007.



Total employment by occupation - Wales			
	Actual	Forecast	
	2007	2009	2013
Senior, executive, and business process managers	3,630	3,450	3,730
Construction managers	7,680	7,250	7,940
Non-construction professional, technical, IT, and other office-based staff	10,370	9,840	10,500
Wood trades and interior fit-out	14,440	14,060	14,540
Bricklayers	3,360	2,860	2,890
Building envelope specialists	4,960	4,660	4,960
Painters and decorators	6,080	5,770	5,870
Plasterers and dry liners	3,490	3,320	3,550
Roofers	1,020	900	880
Floorers	1,340	1,220	1,260
Glaziers	2,630	2,610	2,680
Specialist building operatives nec*	4,310	4,110	4,260
Scaffolders	1,600	1,490	1,540
Plant operatives	3,180	3,180	3,160
Plant mechanics/fitters	1,020	950	1,010
Steel erectors/structural	2,410	2,330	2,460
Labourers nec*	7,340	6,950	7,710
Electrical trades and installation	5,510	5,310	5,350
Plumbing and HVAC Trades	6,660	6,300	6,580
Logistics	1,740	1,650	1,730
Civil engineering operatives nec*	3,940	4,080	4,100
Non-construction operatives	5,710	5,150	5,390
Civil engineers	2,590	2,420	2,330
Other construction professionals and technical staff	5,060	4,960	5,060
Architects	650	580	560
Surveyors	2,790	2,520	2,820
Total (SIC 45)	102,420	97,440	102,090
Total (SIC 45 and 74.2)	113,510	107,920	112,860

Source: ONS, CSN, Experian
Footnote: 5 and 6 (See Appendix III)

3.2 Annual recruitment requirements by occupation

The annual recruitment requirement (ARR) is a gross requirement that takes into account workforce flows into and out of construction, due to such factors as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training, although robust data on training provision is being developed by ConstructionSkills in partnership with the Further Education, Higher Education and Government representatives. Thus, the ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.



The ARR for 26 occupations within Wales' construction industry between 2009 and 2013 is illustrated in the table. The ARR of 2,330 is indicative of the average requirements per year for the industry, as based on the output forecasts for the nation.

Wood trades and interior fit-out (390) and labourers nec* (220) are expected to have the largest ARR. However as a percentage of 2009 employment, plasterers and dry liners are expected to be the most in demand, with their ARR representing 5.1% of employment in that year. Floorers and glaziers are also expected to have high ARR as a proportion of 2009 employment of 4.9% and 4.6%, respectively.

Please note that all of the ARR 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 nec* 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.

 Annual recruitment requirement by occupation - Wales	
	2009-2013
Senior, executive, and business process managers	<50
Construction managers	170
Non-construction professional, technical, IT, and other office-based staff	160
Wood trades and interior fit-out	390
Bricklayers	<50
Building envelope specialists	<50
Painters and decorators	140
Plasterers and dry liners	170
Roofers	<50
Floorers	60
Glaziers	120
Specialist building operatives nec*	110
Scaffolders	<50
Plant operatives	120
Plant mechanics/fitters	<50
Steel erectors/structural	50
Labourers nec*	220
Electrical trades and installation	50
Plumbing and HVAC Trades	130
Logistics	<50
Civil engineering operatives nec*	<50
Non-construction operatives	
Civil engineers	<50
Other construction professionals and technical staff	130
Architects	<50
Surveyors	<50
Total (SIC 45)	2,120
Total (SIC 45 and 74.2)	2,330
Source: CSN, Experian	
Footnote: 5 and 6 (See Appendix III)	

* nec - not elsewhere classified

4 Comparisons across the UK

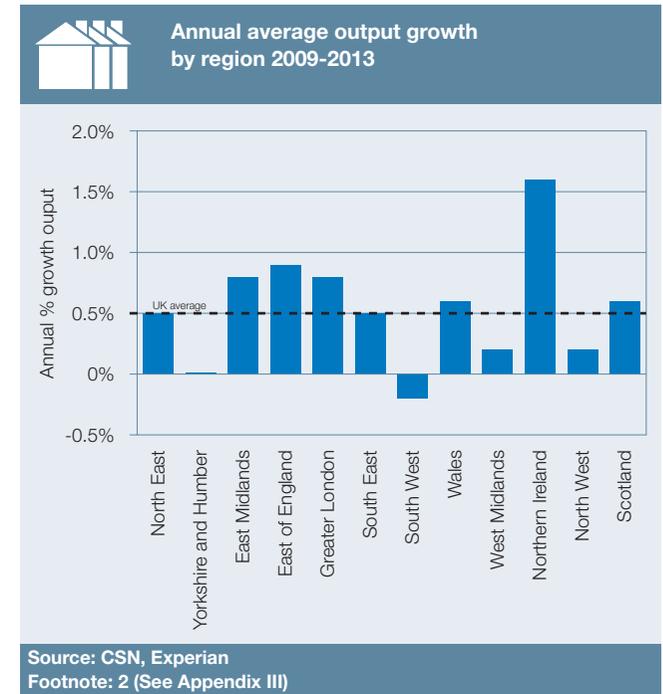
Between 2009 and 2013 most regions and nations are forecast to experience a rise in construction output, the exceptions being the South West, and Yorkshire and Humber the former of which is predicted to see a slight decline and the latter no change.

The South West does not benefit from growth in the infrastructure and public non-housing sectors in the way that many other regions and nations do, as there are no major civil engineering projects planned for the region within the forecast period and few local authorities feature in the early phases of the Building Schools for the Future programme (BSF). In Yorkshire and Humber, the low average annual growth rate is a function of a very poor 2009 predicated on the largest fall in new orders of any region or nation in 2008.

Northern Ireland continues to show the highest forecast growth in output, driven by the investment strategy planned for the next 10 years by the Northern Ireland Executive, although worries about how quickly this can be delivered have led to a lower growth rate than that put forward in previous years. The East Midlands, East of England and Greater London are also predicted to do better than the UK average, the capital in particular benefits from major infrastructure projects, the BSF programme, and Olympics build.

The ARR for 2009–2013 for Greater London is estimated to be the highest of the regions with just over 6,000 new entrants needed each year. This high ARR can in part be attributed to the region accounting for a large proportion of construction output for the UK as a whole. Next comes the South East with an ARR of around 5,700, not surprising given that the size of the construction market in the region is similar to Greater London's, and the North West with an ARR of close to 4,800.

The lowest ARR is for Northern Ireland at 900, despite the fact that the province has the highest output growth rate in the UK. This is because it is a small market, accounting for around 2.7% of UK output and 3.1% of UK employment. The North East has quite a high ARR, at a little over 2,000, compared to its market size. This is because it has a reasonable growth rate in output terms and it suffers from significant outflows of construction workers to other regions.



Wales benefits from average annual growth in output, slightly above the national average at 0.6%, due to infrastructure investment



Appendix I – Methodology

Background

The **Construction Skills Network (CSN)**, launched in 2005, represents a radical change in the way that ConstructionSkills collect and produce information on the future employment and training needs of the industry. CITB-ConstructionSkills, CIC and CITB Northern Ireland are working as ConstructionSkills, the Sector Skills Council for Construction to produce robust Labour Market Intelligence to provide a foundation on which to plan for future skills needs and to target investment.

The CSN functions at both a national and regional level. It comprises of a National Group, 12 Observatory groups, a forecasting model for each of the regions and countries, and a Technical Reference Group. An Observatory group currently operates in each of the nine English regions and also in Wales, Scotland and Northern Ireland.



Sail Bridge, Swansea

Observatory groups currently meet bi-annually and consist of key regional stakeholders invited from industry, Government, education and other SSCs, all of whom contribute local industry knowledge and views on training, skills, recruitment, qualifications and policy.

The National Group also includes representatives from industry, Government, education and other SSCs. This Group convenes twice a year and sets the national scene, effectively forming a backdrop for the Observatories.

At the heart of the CSN is a forecasting model which generates forecasts of employment requirements within the industry for a range of trades. The model was designed and is managed by Experian under the independent guidance and validation of the Technical Reference Group, comprised of statisticians and modelling experts.

It is envisaged that the model will evolve over time as new research is published and modelling techniques improve. Future changes to the model will only be made after consultation with the Technical Reference Group.



The model approach

The model approach relies on a combination of primary research and views from the CSN to facilitate it. National data is used as the basis for the assumptions that augment the model, which is then adjusted with the assistance of the Observatories and National Group. Each English region, Wales, Scotland and Northern Ireland has a separate model (although all models are inter-related due to labour movements) and, in addition, there is one national model that acts as a constraint to the individual models and enables best use to be made of the most robust data (which is available at the national level). The models work by forecasting demand and supply of skilled workers separately. The difference between demand and supply forms the employment requirement.

The forecast **total employment** levels are derived from expectations about construction output and productivity. Essentially this is based upon the question 'How many people will be needed to produce forecast output, given the assumptions made about productivity?'.

The **annual recruitment requirement (ARR)** is a gross requirement that takes into account workforce flows into and out of construction, due to such factors as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from new entrant training, although robust data on training provision is being developed by ConstructionSkills in partnership with Further Education, Higher Education and Government representatives. Thus, the ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

Demand is based upon the results of discussion groups comprising industry experts, a view of construction output and a set of integrated models relating to wider national and regional economic performance. The model is dynamic and reflects the general UK economic climate at any point in time. To generate the labour demand, the model makes use of a set of specific statistics for each major type of work (labour coefficients) that determine the employment, by trade, needed to produce the predicted levels of construction output. The labour supply for each type of trade or profession is based upon the previous years' supply (the total stock of employment) combined with flows into and out of the labour market.

The key leakages (outflows) that need to be considered are:

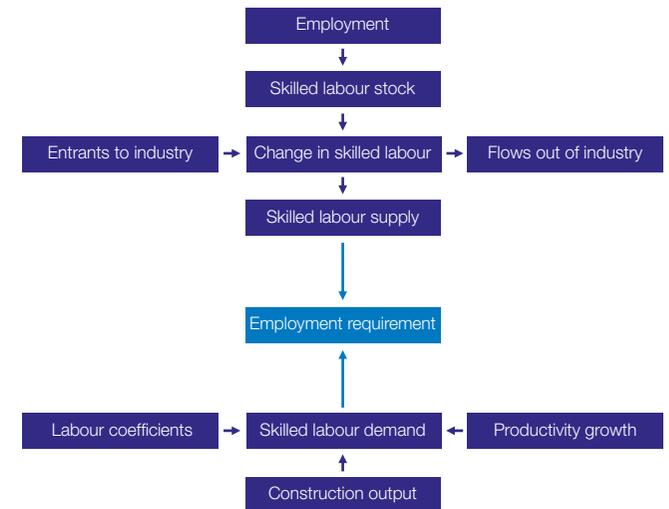
- transfers to other industries
- international/domestic OUT migration
- permanent retirements (including permanently sick)
- outflow to temporarily sick and home duties.

The main reason for outflow is likely to be transfer to other industries.

Flows into the labour market include:

- transfers in from other industries
- international/domestic IN migration
- inflow from temporarily sick and home duties.

The most significant inflow is likely to be from other industries. A summary of the model is shown in the flow chart.



Source: Experian

Appendix II – Glossary of terms

- **Building envelope specialists** – any trade involved with the external cladding of the building other than bricklaying, e.g. curtain walling.
- **Demand** – construction **output**, vacancies, and a set of **labour coefficients** to translate demand for workers to labour requirements by trade. Demand is calculated using Office for National Statistics (ONS) and the Department of Finance and Personnel Northern Ireland (DFP) output data. Vacancy data are usually taken from the National Employers Skills Survey from the Department for Education and Skills.
- **GDP** – Gross Domestic Product – total market value of all final goods and services produced. A measure of national income. $GDP = GVA$ plus taxes on products minus subsidies on products.
- **GVA** – Gross Value Added – total output minus the value of inputs used in the production process. GVA measures the contribution of the economy as a difference between gross output and intermediate outputs.
- **Labour coefficients** – the labour inputs required for various types of construction activity. The number of workers of each occupation/trade to produce £1m of output in each sub-sector.
- **LFS** – Labour Force Survey – a UK household sample survey which collects information on employment, unemployment, flows between sectors and training, from around 53,000 households each quarter (>100,000 people).
- **LMI** – Labour Market Intelligence – data that are quantitative (numerical) or qualitative (insights and perceptions) on workers, employers, wages, conditions of work, etc.
- **Macroeconomics** – the study of an economy on a national level, including total employment, investment, imports, exports, production and consumption.
- **Nec** – not elsewhere classified, used as a reference in LFS data.
- **ONS** – Office for National Statistics – official statistics on economy, population and society at national UK and local level.
- **Output** – total value of all goods and services produced in an economy.
- **Productivity** – output per employee.
- **SIC codes** – Standard Industrial Classification codes – from the UK Standard Industrial Classification of Economic Activities produced by the **ONS**.
- ConstructionSkills is responsible for SIC 45 Construction and part of SIC 74.2 Architectural and Engineering activities and related technical consultancy.
- ConstructionSkills shares an interest with SummitSkills in SIC 45.31 Installation of wiring and fittings and SIC 45.33 Plumbing. AssetSkills has a peripheral interest in SIC 74.2.
- **SOC codes** – Standard Occupational Classification codes.
- **Supply** – the total stock of employment in a period of time plus the flows into and out of the labour market. Supply is usually calculated from **LFS** data.



Appendix III – Footnotes and footprints

Footnotes

- 1 Except for Northern Ireland, output data for the English regions, Wales and Scotland are supplied by the Office for National Statistics (ONS) on a current price basis. Thus national deflators produced by the ONS have been used to deflate to a 2000 constant price basis, i.e. the effects of inflation have been stripped out.
- 2 The annual average growth rate of output is a compound average growth rate, i.e. the rate at which output would grow each year if it increased steadily year-on-year over the forecast period.
- 3 Only selected components of gross value added (GVA) are shown in this table and so do not sum to the total.
- 4 For new construction orders comparison is made with Great Britain rather than the UK, owing to the fact that there are no orders data series for Northern Ireland.
- 5 Employment numbers are rounded to the nearest 10.
- 6 The tables include data relating to plumbers and electricians. As part of SIC 45, plumbers and electricians working in contracting are an integral part of the construction process. However, it is recognised by ConstructionSkills that SummitSkills has responsibility for these occupations across a range of SIC codes, including SIC 45.31 and 45.33.

Footprints for Built Environment SSCs

The table summarises the SIC codes covered by ConstructionSkills:

	SIC Code	Description
ConstructionSkills	45.1	Site preparation
	45.2	Building of complete construction or parts; civil engineering
	45.3	Building installations (except 45.31 and 45.33 which are covered by SummitSkills)
	45.4	Building completion
	45.5	Renting of construction or demolition equipment with operator
	74.2†	Architectural and engineering activities and related technical consultancy

The sector footprints for the other SSCs covering the Built Environment:

SummitSkills

Footprint – Plumbing, Heating, Ventilation, Air Conditioning, Refrigeration and Electrotechnical.

Coverage – Building Services Engineering.

ConstructionSkills recognises the responsibility of Summit Skills across Standard Industrial Classifications (SIC) 45.31 and 45.33, thus data relating to the building services engineering sector is included here primarily for completeness.

AssetSkills

Footprint – Property Services, Housing, Facilities Management, Cleaning

Coverage – Property, Housing and Land Managers, Chartered Surveyors, Estimators, Valuers, Home Inspectors, Estate Agents and Auctioneers (property and chattels), Caretakers, Mobile and Machine Operatives, Window Cleaners, Road Sweepers, Cleaners, Domestic, Facilities Managers.

Energy and Utility Skills

Footprint – Electricity, Gas (including gas installers), Water and Waste Management

Coverage – Electricity generation and distribution; Gas transmission, distribution and appliance installation and maintenance; Water collection, purification and distribution; Waste water collection and processing; Waste Management.

† AssetSkills has a peripheral interest in SIC 74.2

Appendix IV – Occupational groups

Occupational group

Description, SOC reference.

Senior, executive and business process managers

Directors and chief executives of major organisations, 1112
 Senior officials in local government, 1113
 Financial managers and chartered secretaries, 1131
 Marketing and sales managers, 1132
 Purchasing managers, 1133
 Advertising and public relations managers, 1134
 Personnel, training and Industrial relations managers, 1135
 Office managers, 1152
 Civil service executive officers, 4111
 Property, housing and land managers, 1231
 Information and communication technology managers, 1136
 Research and development managers, 1137
 Customer care managers, 1142
 Storage and warehouse managers, 1162
 Security managers, 1174
 Natural environment and conservation managers, 1212
 Managers and proprietors in other services nec*, 1239

Construction managers

Production, works and maintenance managers, 1121
 Managers in construction, 1122
 Quality assurance managers, 1141
 Transport and distribution managers, 1161
 Recycling and refuse disposal managers, 1235
 Managers in mining and energy, 1123
 Occupational hygienists and safety officers (H&S), 3567
 Conservation and environmental protection officers, 3551

Non-construction professional, technical, IT, and other office-based staff (excl. managers)

IT operations technicians, 3131
 IT user support technicians, 3132
 Estimators, valuers and assessors, 3531
 Finance and investment analysts/advisers, 3534
 Taxation experts, 3535
 Financial and accounting technicians, 3537
 Vocational and Industrial trainers and instructors, 3563
 Business and related associate professionals nec*, 3539
 Legal associate professionals, 3520
 Inspectors of factories, utilities and trading standards, 3565
 Software professionals, 2132
 IT strategy and planning professionals, 2131
 Estate agents, auctioneers, 3544
 Solicitors and lawyers, judges and coroners, 2411
 Legal professionals nec*, 2419
 Chartered and certified accountants, 2421
 Management accountants, 2422

Management consultants, actuaries, economists and statisticians, 2423
 Receptionists, 4216
 Typists, 4217
 Sales representatives, 3542
 Civil Service administrative officers and assistants, 4112
 Local government clerical officers and assistants, 4113
 Accounts and wages clerks, book-keepers, other financial clerks, 4122
 Filing and other records assistants/clerks, 4131
 Stock control clerks, 4133
 Database assistants/clerks, 4136
 Telephonists, 4141
 Communication operators, 4142
 General office assistants/clerks, 4150
 Personal assistants and other secretaries, 4215
 Sales and retail assistants, 7111
 Telephone salespersons, 7113
 Buyers and purchasing officers (50%), 3541
 Marketing associate professionals, 3543
 Personnel and Industrial relations officers, 3562
 Credit controllers, 4121
 Market research interviewers, 4137
 Company secretaries (excluding qualified chartered secretaries), 4214
 Sales related occupations nec*, 7129
 Call centre agents/operators, 7211
 Customer care occupations, 7212
 Elementary office occupations nec*, 9219

Wood trades and interior fit-out

Carpenters and joiners, 5315

Pattern makers, 5493

Paper and wood machine operatives, 8121

Furniture makers, other craft woodworkers, 5492

Labourers in building and woodworking trades (9%), 9121

Construction trades nec* (25%), 5319

Bricklayers

Bricklayers, masons, 5312

Building envelope specialists

Construction trades nec* (50%), 5319

Labourers in building and woodworking trades (5%), 9121

Painters and decorators

Painters and decorators, 5323

Construction trades nec* (5%), 5319

Plasterers and dry liners

Plasterers, 5321

Roofers

Roofers, roof tilers and slaters, 5313

Floorers

Floorers and wall tilers, 5322

Glaziers

Glaziers, window fabricators and fitters, 5316

Construction trades nec* (5%), 5319



* nec - not elsewhere classified

Specialist building operatives nec*

Construction operatives nec* (80%), 8149
Construction trades nec* (5%), 5319
Industrial cleaning process occupations, 9132

Scaffolders

Scaffolders, staggers, riggers, 8141

Plant operatives

Crane drivers, 8221
Plant and machine operatives nec*, 8129
Transport operatives nec*, 8219
Fork-lift truck drivers, 8222
Mobile machine drivers and operatives nec*, 8229
Agricultural machinery drivers, 8223

Plant mechanics/fitters

Metal working production and maintenance fitters, 5223
Precision instrument makers and repairers, 5224
Motor mechanics, auto engineers, 5231
Labourers in process and plant operations nec*, 9139
Tool makers, tool fitters and markers-out, 5222
Vehicle body builders and repairers, 5232
Auto electricians, 5233
Vehicle spray painters, 5234
Goldsmiths, silversmiths, precious stone workers, 5495
Tyre, exhaust and windscreen fitters, 8135

Steel erectors/structural

Steel erectors, 5311
Welding trades, 5215
Sheet metal workers, 5213
Metal plate workers, shipwrights and riveters, 5214
Construction trades nec* (5%), 5319
Smiths and forge workers, 5211
Moulders, core makers, die casters, 5212
Metal machining setters and setter-operators, 5221

Labourers nec*

Labourers in building and woodworking trades (80%), 9121

Electrical trades and installation

Electricians, electrical fitters, 5241
Electrical/electronic engineers nec*, 5249
Telecommunications engineers, 5242
Lines repairers and cable jointers, 5243
TV, video and audio engineers, 5244
Computer engineers, installation and maintenance, 5245



Welsh Assembly, Cardiff

Plumbing and heating, ventilation, and air conditioning trades

Plumbers and HVAC trades, 5314

Pipe fitters, 5216

Labourers in building and woodworking trades (6%), 9121

Construction trades nec* (5%), 5319

Logistics

Heavy goods vehicle drivers, 8211

Van drivers, 8212

Packers, bottlers, canners, fillers, 9134

Other goods handling and storage occupations nec*, 9149

Buyers and purchasing officers (50%), 3541

Transport and distribution clerks, 4134

Security guards and related occupations, 9241

Civil engineering operatives nec*

Road construction operatives, 8142

Rail construction and maintenance operatives, 8143

Quarry workers and related operatives, 8123

Construction operatives nec* (20%), 8149

Labourers in other construction trades nec*, 9129

Non-construction operatives

Metal making and treating process operatives, 8117

Process operatives nec*, 8119

Metal working machine operatives, 8125

Water and sewerage plant operatives, 8126

Assemblers (vehicle and metal goods), 8132

Routine inspectors and testers, 8133

Assemblers and routine operatives nec*, 8139

Stevedores, dockers and slingers, 9141

Hand craft occupations nec*, 5499

Elementary security occupations nec*, 9249

Cleaners, domestics, 9233

Road sweepers, 9232

Gardeners and groundsmen, 5113

Caretakers, 6232

Civil engineers

Civil engineers, 2121

Other construction professionals and technical staff

Mechanical engineers, 2122

Electrical engineers, 2123

Chemical engineers, 2125

Design and development engineers, 2126

Production and process engineers, 2127

Planning and quality control engineers, 2128

Engineering professional nec*, 2129

Electrical/electronic technicians, 3112

Engineering technicians, 3113

Building and civil engineering technicians, 3114

Science and engineering technicians nec*, 3119

Architectural technologists and town planning technicians, 3121

Draughtspersons, 3122

Quality assurance technicians, 3115

Town planners, 2432

Electronics engineers, 2124

Building inspectors, 3123

Scientific researchers, 2321

Architects

Architects, 2431

Surveyors

Quantity surveyors, 2433

Chartered surveyors (not Quantity surveyors), 2434

Appendix V – CSN website and contact details

The CSN website – <http://www.cskills.org/csn>

The CSN website functions as a **public gateway** for people wishing to access the range of **Labour Market Intelligence (LMI)** reports and **research material** regularly produced by the CSN.

The main UK report, along with the twelve LMI reports (one for Northern Ireland, Scotland, Wales and each of the nine English regions) can be downloaded from the site, while research reports such as the '2020Vision' and 'Closer look at Greater London' are also freely available.



Having access to this range of labour market intelligence and trend insight allows industry, government, regional agencies and key stakeholders to:

- pinpoint the associated, specific, skills that will be needed year by year
- identify the sectors which are likely to be the strongest drivers of output growth in each region and devolved nation
- track the macro economy
- understand how economic events impact on regional and devolved nations economic performance
- highlight trends across the industry such as national and regional shifts in demand
- plan ahead and address the skills needs of a traditionally mobile workforce
- understand the levels of qualified and competent new entrants required into the workforce.

The website also contains further information about:

- how the CSN functions
- the CSN Model approach
- how the Model can be used to explore scenarios
- CSN team contact information
- access to related ConstructionSkills research
- details for those interested in becoming members of the network.

The CSN website can be found at:

<http://www.cskills.org/csn>

CSN Members Area

While the public area of the CSN Website is the gateway to the completed LMI and research reports, being a member of the CSN offers further benefits.

As a CSN member you will be linked to one of the Observatory groups, which play a vital role in being able to feed back observations, knowledge and insight on what is really happening on the ground in every UK region and nation. This feedback is used to fine tune the assumptions and data that goes into the forecasting programme such as:

- details of specific projects
- demand within various types of work or sectors
- labour supply
- inflows and outflows across the regions and devolved nations.

CSN Members therefore have:

- early access to forecasts
- the opportunity to influence and inform the data
- the ability to request scenarios that could address “What would happen if...” types of questions using the model.

Through the Members area of the CSN website, members can:

- access observatory related material such as meeting dates, agendas, presentations and notes
- access sub-regional LMI reports
- download additional research material
- comment/feedback to the CSN Team.

As the Observatory groups highlight the real issues faced by the industry in the UK, we can more efficiently and effectively plan our response to skills needs. If you would like to contribute your industry observations, knowledge and insight to this process and become a member of the CSN, we would be delighted to hear from you.

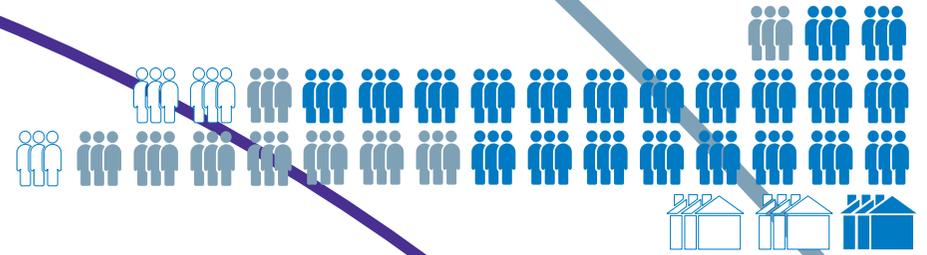
Contact details

For further information about the CSN website, or to register your interest in joining the CSN as a member, please contact us at: **csn@cskills.org**

For enquiries relating to the work of the CSN, please contact Sandra Lilley, CSN Manager, at: **sandra.lilley@cskills.org**



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