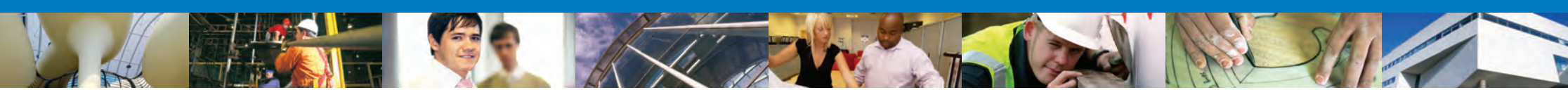
Construction Skills Network Wales

LABOUR MARKET INTELLIGENCE 2008 - 2012



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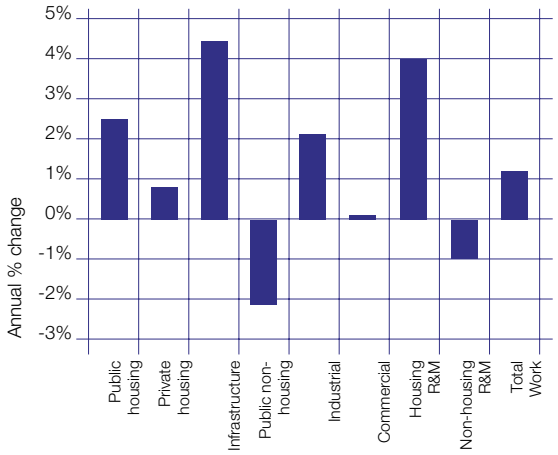


Source: CSN, Experian
Footnote: 2 (See Appendix III)

1.1 Welsh economy

- Public services accounted for 30% of economic activity in Wales in 2006, a significantly higher proportion than found across the UK.
- The Welsh economy is forecast to grow at an average rate of 2.5% per annum between 2008 and 2012, broadly in line with UK trends. Growth is expected to be fastest in financial and business services.

1.2 Construction output in Wales

- Worth £3.2bn in 2006, in 2000 prices, construction in Wales accounts for around 4% of the UK total.
- Output is forecast to grow at an annual average rate of 1.2% between 2008 and 2012.
- Over the forecast period output will be boosted by the £1bn mixed-use project on the site of a former steelworks at Llanwern, and works to improve Wales' stock of social housing.

Regional comparisons 2008 - 2012

	Annual average % change in output	Growth in total employment	Total ARR
North East	1.1	9,480	3,070
Yorkshire & Humber	1.6	10,670	6,620
East Midlands	1.2	9,520	4,530
East of England	2.3	31,240	11,010
Greater London	2.9	27,240	14,930
South East	1.7	21,580	13,140
South West	0.5	9,830	5,980
Wales	1.2	13,500	4,750
West Midlands	0.6	8,970	6,190
Northern Ireland	3.5	11,160	2,980
North West	1.4	11,890	8,870
Scotland	1.2	17,050	6,320
UK	**1.7**	**182,130**	**88,390**

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

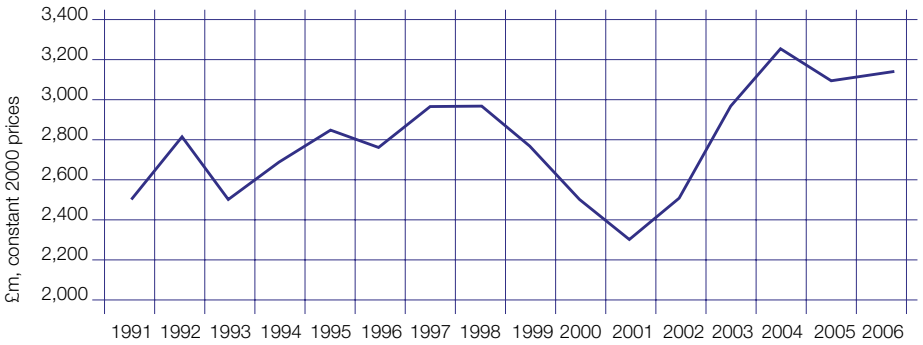
1.3 Construction employment in Wales

- Total construction employment of 92,700 in 2006 in Wales is forecast to rise to 100,370 in 2008 and 113,870 in 2012.
- To meet this demand, after taking into account those entering and leaving the industry, 4,750 new workers will be required to join the industry each year.
- Wood trades and interior fit-out, construction professionals and technical staff and office-based staff (excluding managers) are expected to have the largest annual requirements.

2 The outlook for construction in Wales

Following the UK as a whole, the Welsh construction industry grew robustly between 2002 and 2004, by a significant 38%

Construction output 1991-2006 - Wales



Source: DBERR
Footnote: 1 (See Appendix III)

2.1 Construction output in Wales – overview
Since then the industry has faltered but the contraction has been modest relative to gains made earlier in this decade. In real terms, total work output declined by 4% in 2005 but a further decline was avoided in 2006 and output stood firm at £3.2bn, in 2000 prices.

New work output grew at a faster rate than repair and maintenance (R&M) between 2000 and 2006. New work output climbed by 29% over the period and was worth £2bn, in 2000 prices, in 2006. R&M output rose by 18% to £1.2bn, in 2000 prices, over the same period.

The public non-housing, housing and commercial sectors all made a large contribution the buoyancy of new work in recent years. Output in the public non-housing sector more than doubled between 2000 and 2006, although it remained smaller than both the private housing and commercial sectors. Buoyant housing market conditions helped drive a 43% increase in private housing output over the period, while commercial output rose by 26%.

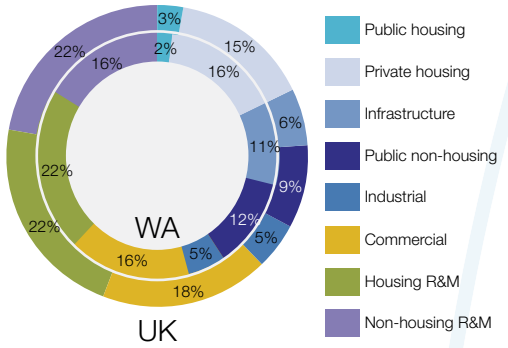
Infrastructure is the only sector to record a fall in output between 2000 and 2006. Output contracted by 9% from 2000 to £356m, in 2000 prices, in 2006.

2.2 Industry structure
The structure of the Welsh construction industry broadly mirrors the national industry structure. Most noticeable is the relatively small share R&M takes of the total. Housing R&M's share is exactly in line with the UK as a whole but non-housing R&M share is comparatively small, just 16% of total output against 22% nationally.

Strong growth in public non-housing output in recent years has helped increase the sector's share of the total to a relatively large 12%. The start of work on road schemes in 2006 boosted the infrastructure sector's share to 11%, much larger than its 6% share nationally.

Differences between Wales and the UK as a whole in the other sectors are marginal. The Welsh private housing sector is slightly bigger and its commercial sector a little smaller.

Construction industry structure 2006 - UK vs. Wales



Source: DBERR, Experian

Economic structure - Wales (£billion, 2003 prices)

Selected sectors	Actual 2006	Forecast Annual % change, real terms 2007	2008	2009	2010	2011	2012
Public services	12	1.3	0.9	1.6	1.8	2.4	2.7
Financial & business services	7	8.9	5.0	5.1	5.0	4.7	4.5
Transport & communications	3	2.0	1.6	2.7	3.7	4.2	4.3
Manufacturing	7	1.9	3.7	1.6	1.3	1.2	1.2
Distribution, hotels & catering	6	3.6	2.9	2.7	3.0	3.2	3.1
Total Gross Value Added (GVA)	**41**	**2.9**	**2.4**	**2.4**	**2.4**	**2.5**	**2.6**

Source: Experian
Footnote: 3 (See Appendix III)

Economic indicators - Wales
(£billion, 2003 prices - unless otherwise stated)

Selected sectors	Actual 2006	Forecast Annual % change, real terms 2007	2008	2009	2010	2011	2012
Real household disposable income	34	2.7	2.6	0.9	2.0	2.4	2.4
Household spending	31	3.0	2.0	2.0	3.0	3.3	3.0
Debt:income ration	1.0	1.1	1.1	1.1	1.2	1.2	1.2
House prices (£'000, current prices)	155	7.9	4.4	0.9	1.1	2.5	3.3
LFS unemployment (millions)	0.07	8.9	23.5	1.7	-3.2	-4.2	-3.3

Source: ONS, DCLG, Experian

2.3 Economic overview

The expected performance of a regional or national economy over the forecast period (2008–2012) provides an indication of the construction sectors in which demand is likely to be strongest.

2.4 Economic structure

In 2006, the Welsh economy was worth £41bn, in 2003 prices, 3.8% higher than in 2005 and equivalent to 3.8% of the UK total.

Public services was the largest component of gross value added (GVA) in Wales, accounting for more than 30% of the total (see table above). This was well above the national average. Financial and business services and manufacturing accounted for a further 18% and 17% respectively.

Financial and business services is expected to be the fastest growing sector in Wales between 2008 and 2012, thereby increasing its share of the economy. The reverse is anticipated for public services, where, in line with the UK average, growth is expected to fall short of that for GVA.

2.5 Forward looking economic indicators

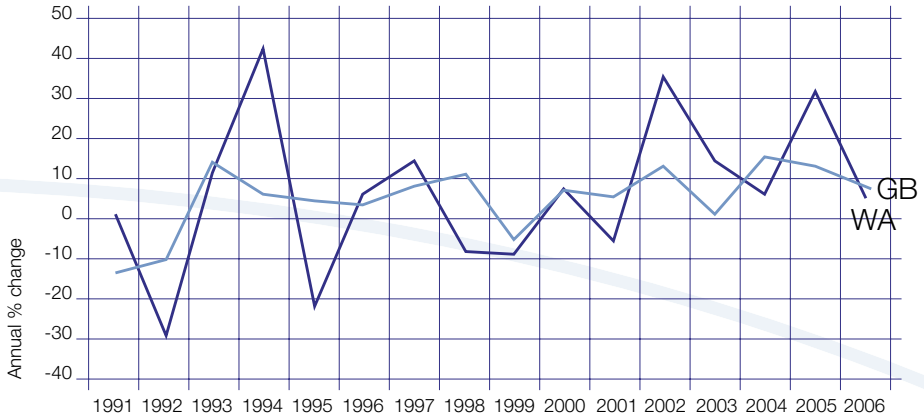
The Welsh economy is forecast to grow broadly in line with the UK average between 2008 and 2012, with GVA expanding at an annual rate of 2.5%. Growth in Wales is supported by relatively robust expansion in household spending.

The debt to income ratio in Wales is expected to rise modestly between 2008 and 2012, partly because growth in household spending is expected to exceed that of disposable incomes. That said, levels of debt in Wales are expected to remain well below the UK average.

The Department for Communities and Local Government (DCLG) reported that average house prices in Wales reached £155,000 in 2006, 6% higher than in 2005. House prices in Wales remain low by UK standards.

House price inflation is expected to slow sharply in Wales in 2008 and 2009, following the trend expected for the UK as a whole. Prices are expected to gather pace after this lull, but the rate of increase is unlikely to match either that recorded in Wales in recent years or that expected for the UK as a whole.

New construction orders growth 1991-2006 - Wales vs. GB



Source: DBERR
Footnote: 4 (See Appendix III)

New orders statistics are based on the Department for Business Enterprise and Regulatory Reform's (DBERR) monthly survey of construction contractors. The time taken for new orders to feed into output differs from sector to sector and from project to project. As a general rule, industrial orders tend to be converted into output relatively quickly and infrastructure orders relatively slowly, due to project scale and complexity.

2.6 New construction orders – overview

New work orders have been rising for the past five years. They climbed a further 6% in 2006 to £2.3bn, in current prices, and this followed a 30% increase in 2005 (see chart and table above).

2006 was a particularly strong year for the commercial and public non-housing sectors. The sizeable St David's 2 retail project in Cardiff boosted commercial orders in 2006, helping raise them by 67% on 2005's level. Publicly funded work to improve health and education facilities drove a 58% increase in public non-housing orders during 2006.

The effect that large individual contracts can have on orders statistics is apparent from the volatility shown in the chart below. Resulting output streams tend to be much smoother.

2.7 New construction orders – current situation

The long run of orders growth is likely to come to an end in 2007. To the end of September new work orders were down by 10% on the corresponding part of 2006.

Commercial and public non-housing orders both slipped into decline in the first three quarters of 2007, not really surprising considering their buoyancy in 2006. Falls, however, were relatively moderate, commercial orders declined by 20% and public non-housing ones by 8%.

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

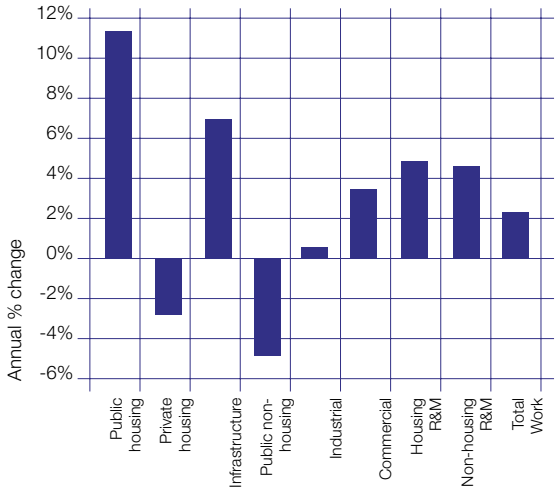
	Actual	Annual % change				
Selected sectors	**2006**	**2002**	**2003**	**2004**	**2005**	**2006**
Public housing	51	37.5	45.5	-39.6	75.9	0.0
Private housing	603	15.0	38.1	10.1	16.3	-3.1
Infrastructure	330	55.5	-40.4	27.6	206.2	-44.4
Public non-housing	464	91.6	19.4	-19.4	-10.4	57.8
Industrial	105	0.0	20.7	49.5	6.1	-33.1
Commercial	761	22.7	21.4	13.7	5.6	66.9
Selected sectors	**2314**	**36.2**	**14.3**	**5.9**	**30.4**	**6.5**

Source: DBERR
Footnote: 4 (See Appendix III)

Infrastructure orders fell sharply in the first three quarters, by 34% to £139m in current prices.

The housing and industrial sectors were the exceptions to the decline in 2007. Private housing orders totalled £481m, in current prices, in the first three quarters, 5% higher than in the first three quarters of 2006. Public housing orders also increased in 2007, rising by 29% to £66m, in current prices, in the first three quarters. Industrial orders rose by 14% to £91m, in current prices.

Annual average construction output growth 2008-2009 - Wales



Source: Experian
Footnote: 2 (See Appendix III)

Construction output - Wales
(£million, 2000 prices)

	Actual	Forecast annual % change			Annual average %
	2006	2007	2008	2009	2008-2009
Public housing	64	3.0	16.0	6.0	11.4
Private housing	512	2.0	-4.0	-2.0	-2.7
Infrastructure	356	-1.0	5.0	9.0	6.7
Public non-housing	365	20.0	-5.0	-5.0	-4.7
Industrial	173	-20.0	-3.0	4.0	0.6
Commercial	490	28.0	5.0	2.0	3.4
New work	**1,959**	**10.0**	**1.0**	**1.0**	**1.0**
Housing R&M	686	1.0	5.0	5.0	4.9
Non-housing R&M	514	6.0	10.0	-1.0	4.7
Total R&M	**1,200**	**3.0**	**7.0**	**2.0**	**4.8**
Total work	**3,159**	**7.0**	**3.0**	**2.0**	**2.4**

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

2.8 Construction output – short-term forecasts (2007–2009)

Nominal construction output was worth £3.7bn in the first nine months of 2007, 12% higher than in the corresponding part of 2006. New work continued to outperform repair and maintenance (R&M). New work output climbed by a robust 17% to £3.4bn, in current prices, and R&M output by just 4% to £1.3bn. Regional DBERR output statistics are published in current prices.

Construction output in Wales is forecast to grow steadily in the short term, at an annual average rate of 2.4% (see chart and table above). In contrast with the recent past, post-2007, the outlook is stronger for R&M activity than for new work.

On the back of strong orders growth in 2006, output in both the commercial and public non-housing sectors got off to a flying start in 2007. Commercial output increased by 39% in the first three quarters of the year as work progressed on Cardiff's sizeable retail scheme. Start of work on the £1bn mixed-use project on the site of a former steelworks at Llanwern, should provide a further boost in the near future.

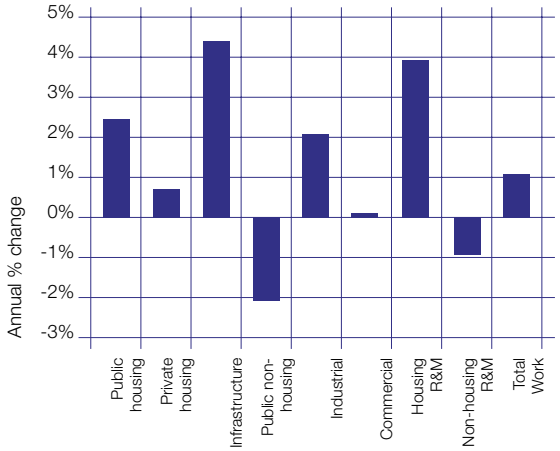
Work in the education sub-sector fuelled a significant 47% increase in public non-residential output to the end of September and the outturn for 2007 is likely to be strong. Beyond 2007, however, there is little on the horizon to drive further growth in the short term.

Turbulence in the financial markets is expected to have an impact on new private house building in Wales from 2008. Tighter lending conditions and uncertainty about house prices is likely to constrain market activity in the short term. An annual average decline of 2.7% is forecast in 2008 and 2009. For public housing, however, the short-term outlook is very strong. A 16% increase is forecast for 2008, with a further 6% expansion expected in 2009.

Growth in infrastructure output is expected to resume in 2008 as work accelerates on roads and on expanding gas and electricity facilities.

The short-term outlook for R&M is strong as work accelerates on improving Wales' social housing stock in order to meet the Welsh Housing Quality Standard.

Annual average construction output growth 2008-2012 - Wales



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

Construction output - Wales
(£million, 2000 prices)

	Estimate	Forecast annual % change					Annual average %
	2007	2008	2009	2010	2011	2012	2008-2012
Public housing	66	16.0	6.0	4.0	3.0	-3.0	2.4
Private housing	523	-4.0	-2.0	-3.0	2.0	6.0	0.7
Infrastructure	352	5.0	9.0	3.0	1.0	6.0	4.4
Public non-housing	437	-5.0	-5.0	2.0	-4.0	-2.0	-2.1
Industrial	138	-3.0	4.0	4.0	0.0	1.0	2.2
Commercial	629	5.0	2.0	1.0	1.0	-4.0	0.1
New work	**2,146**	**1.0**	**1.0**	**1.0**	**0.0**	**1.0**	**0.8**
Housing R&M	695	5.0	5.0	6.0	3.0	2.0	3.9
Non-housing R&M	546	10.0	-1.0	-2.0	-3.0	2.0	-0.9
Total R&M	**1,240**	**7.0**	**2.0**	**3.0**	**1.0**	**2.0**	**1.8**
Total work	**3,386**	**3.0**	**2.0**	**2.0**	**0.0**	**1.0**	**1.2**

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

2.9 Construction output – long-term forecasts (2008–2012)

Over the longer term, output is forecast to rise at an annual average rate of 1.2% and the repair and maintenance (R&M) sector is expected to continue to be the main engine of growth. Particularly strong expansion in housing R&M underpins an annual average growth rate of 1.8% in the R&M sector overall between 2008 and 2012. New work output is forecast to rise at a more subdued annual average rate of 0.8% (see figures above).

Out of the new work sectors, infrastructure is set to be the star performer. Work on the RWE NPower gas-fired power station at West Pennar, Pembroke, will contribute to annual average growth of 4.4%, as will an additional gas-fired plant at Newport, which recently got the green light from planning officials.

Over the medium term the outlook for private house building is greatly improved. The sector is expected to return to growth in 2011 with growth strengthening in the following year. As with elsewhere in the UK demand for housing is likely to increase and where the planning system permits developers will respond, after the current troubles are over, that is.

Over the medium term the outlook for private house building is greatly improved. The sector is expected to return to growth in 2011

Over the medium term, a 4% decline in output in 2012 means the outlook for the commercial sector is subdued in terms of the annual average rate of growth. A consortium has been selected for the MoD's Private Finance Initiate (PFI) deal for a new military defence training campus at St Athan in the Vale of Glamorgan. This deal is valued, in total, at £14bn, although only the first stage has been approved as there are funding issues regarding the second stage.

The public non-housing sector is unlikely to regain momentum during this forecast period. Output is forecast to decline at an annual average rate of 2.1%. A couple of hospitals in the pipeline fail to fully compensate for a slowdown in work in the education sub-sector.

For industrial the outlook is stronger. Improvements to the roads and rail networks bode well for subsequent industrial development. An annual average growth rate of 2.2% is forecast between 2008 and 2012.

3 Construction employment forecasts for Wales

By 2012, total employment in construction in Wales is expected to reach 113,870, 21,170 more than in 2006

3.1 Total construction employment forecasts by occupation

The table, right, presents actual construction employment (SIC 45 and 74.2) in Wales for 2006 and the forecast total employment in 25 occupations, and in the industry as a whole, between 2008 and 2012.

By 2012, total employment in construction in Wales is expected to reach 113,870, 21,170 more than in 2006 and 13,500 above that expected in 2008. 104,290 people working in construction in 2012 in Wales will be classified as working in SIC 45, with a further 9,580 in SIC 74.2.

Approaching a third of all employment in the Welsh construction industry in 2012 is expected to be in just three occupations – wood trades and interior fit-out (13,080), non-construction operatives (12,680) and construction professionals and technical staff (9,580).

All construction occupations are forecast to record an increase in employment in Wales between 2008 and 2012. The largest absolute changes in employment are expected for non-construction operatives (1,960), wood trades and interior fit-out (1,540) and construction professionals and technical staff (1,030).

Occupational groupings have been improved following the 2006–2010 model run to incorporate new research and to reflect feedback from Observatory members and other stakeholders. A full breakdown of occupations is provided in Appendix IV.

Total employment by occupation - Wales

	Actual	Forecast	
	2006	2008	2012
Senior & executive managers	150	170	190
Business process managers	2,890	3,060	3,410
Construction managers	5,580	5,980	6,610
Office-based staff (excl. managers)	4,910	5,290	5,700
Other professionals/technical staff & IT	1,460	1,500	1,610
Wood trades & interior fit-out	10,860	11,540	13,080
Bricklayers	3,730	4,190	5,130
Building envelope specialists	3,440	3,860	4,730
Painters & decorators	5,240	5,750	6,690
Plasterers & dry liners	2,050	2,210	2,450
Roofers	1,170	1,300	1,450
Floorers	1,840	1,970	2,220
Glaziers	2,310	2,380	2,630
Specialist building operatives nec*	3,280	3,580	4,060
Scaffolders	800	910	1,120
Plant operatives	1,870	1,990	2,220
Plant mechanics/fitters	470	510	610
Steel erectors/structural	1,760	1,920	2,130
Labourers nec*	6,690	7,340	8,110
Electrical trades & installation	3,530	3,840	4,110
Plumbing & HVAC trades	5,590	6,290	7,040
Logistics	1,390	1,600	1,810
Civil engineering operatives nec*	3,490	3,920	4,500
Non-construction operatives	10,210	10,720	12,680
Construction professionals & technical staff	7,990	8,550	9,580
Total (SIC 45)	**84,710**	**91,820**	**104,290**
Total (SIC 45 & 74.2)	**92,700**	**100,370**	**113,870**

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

*Nec – not elsewhere classified

3.2 Annual recruitment requirements by occupation

The table, right, outlines the annual recruitment requirement (ARR) for 24 occupations within the Welsh construction industry between 2008 and 2012. The ARR suggests that an additional 4,750 new recruits will need to be attracted into the Welsh construction industry each year in order to deliver forecast construction output, after taking into account those entering and leaving the industry.

Three occupation groups are expected to account for more than a third of the ARR in Wales. These are wood trades and interior fit-out (800), construction professionals and technical staff (500) and office-based staff (excluding managers) (360).

Please note that 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 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.

*Nec – not elsewhere classified

Annual recruitment requirement by occupation - Wales

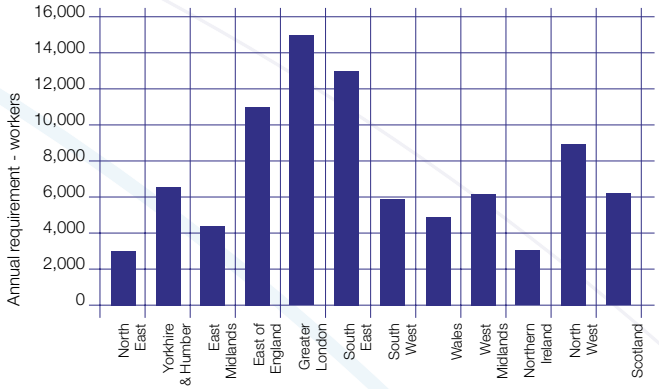
	2008-2012
Senior & executive managers	<50
Business process managers	160
Construction managers	130
Office-based staff (excl. managers)	360
Other professionals/technical staff & IT	240
Wood trades & interior fit-out	800
Bricklayers	150
Building envelope specialists	140
Painters & decorators	190
Plasterers & dry liners	70
Roofers	50
Floorers	130
Glaziers	50
Specialist building operatives nec*	140
Scaffolders	90
Plant operatives	230
Plant mechanics/fitters	120
Steel erectors/structural	130
Labourers nec*	250
Electrical trades & installation	240
Plumbing & HVAC trades	250
Logistics	150
Civil engineering operatives nec*	170
Construction professionals & technical staff	500
Total (SIC 45)	**4,250**
Total (SIC 45 & 74.2)	**4,750**

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

4 Regional comparisons

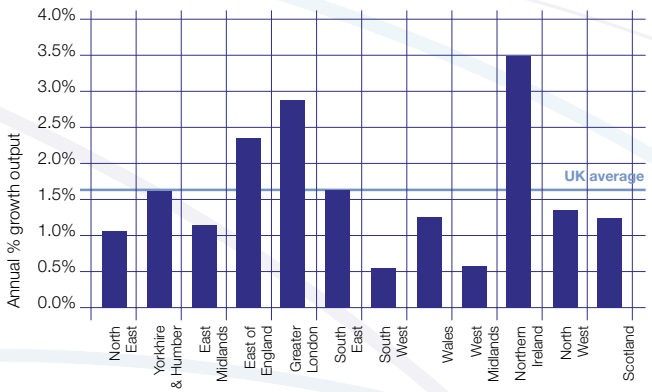
Between 2008 and 2012 construction output is forecast to rise in all UK countries and regions.

Annual recruitment requirement (ARR) by region - 2008-2012



Source: CSN, Experian

Annual average output growth by region - 2008-2012



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

Inward investment into Northern Ireland following the Multi-Party Agreement will increase construction activity in the province significantly. So much so, its industry is expected to be the strongest in the UK over the forecast period. To 2012 its industry's output is expected to rise by 20%.

Such robust growth is impressive but the province currently only produces a relatively low level of construction output. Given its large size, forecast annual average output growth of 2.9% in Greater London is also very significant. In addition to the 2012 Olympics, the first phase of Thameslink and London Underground's station refurbishment programme are among the larger schemes that will be delivered before this forecast period elapses.

Private house building has been one of the main drivers of construction output growth across the UK as a whole in the past five years. Going forward, housing market conditions are forecast to weaken and growth in new construction in this sector to slow. Over the forecast period (2008–2012), the infrastructure sector is expected to take the lead in driving the industry forward.

Focusing on employment, the south has the greatest need for skilled construction workers between 2008 and 2012. Nearly 15,000 workers are estimated to be required in Greater London alone each year, and this is after allowing for natural flows into and out of the region. Recruitment requirements in the South East and the East of England are also high.

Northern Ireland's recruitment requirement is low compared to the other regions. Nevertheless it is estimated that around 2,980 workers will need to be recruited each year if demand is to be met.

5 Scenario analysis

An application of the CSN model is scenario testing. 'What if' scenarios can be built and fed into the model to test different events or conditions and to assess the impact on labour requirements.

5.1 About scenarios

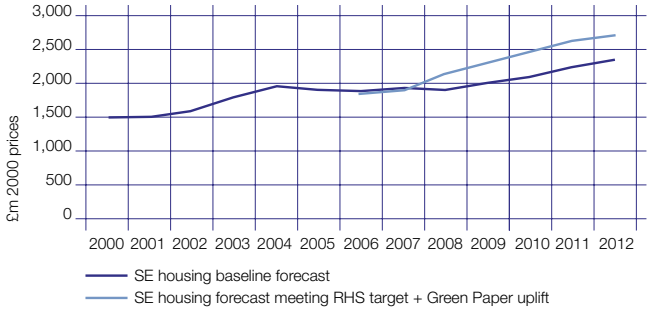
Providing they are large enough, scenarios can be developed for specific projects or programmes of work that may or may not go ahead. Also, they can be used to investigate the effect of different economic eventualities on the industry. Scenarios tested so far include:

- Crossrail starting in 2010 in Greater London (which currently isn't factored into our central forecast)
- a significant increase in repair and maintenance expenditure in Yorkshire and Humber and the South West following the floods in 2007
- a step-change in the rate of house building in the South East as Planning Policy Statement 3 relaxes the planning system sufficiently to enable the region's housing plan to be achieved.

5.2 An example – housing in the South East

The CSN baseline forecast assumes that house building will continue to undershoot the target set in the South East's Regional Housing Strategy (RHS). If the industry were to reach the RHS target and the uplift implied by the latest Green Paper, then the following is likely to happen:

South East housing



- the average annual growth rate for housing output in the South East could increase by 1% over the baseline forecast
- meeting the RHS house building targets in 2008 is likely to increase employment levels in the South East by 2,100, rising to nearly 4,000 by 2012.

Suggestions for future scenarios are welcomed. Please see Appendix V for contact information.

	Employment		Annual recruitment requirement
	2008	2012	2008-2012
Senior & executive managers	0	0	0
Business process managers	60	110	10
Construction managers	130	240	20
Office-based staff (excl. managers)	130	240	20
Other professionals/technical staff & IT	130	230	20
Wood trades & interior fit-out	330	590	40
Bricklayers	80	150	10
Building envelope specialists	80	150	10
Painters & decorators	130	230	20
Plasterers & dry liners	40	70	0
Roofers	50	80	10
Floorers	40	80	10
Glaziers	20	40	0
Specialist building operatives nec*	40	70	0
Scaffolders	20	40	0
Plant operatives	50	90	10
Plant mechanics/fitters	30	50	0
Steel erectors/structural	20	40	0
Labourers nec*	150	270	20
Electrical trades & installation	200	360	30
Plumbing & HVAC trades	160	280	20
Logistics	20	40	0
Civil engineering operatives nec*	40	70	0
Non-construction operatives	50	90	
Total (SIC 45)	**2,000**	**3,610**	**250**
Construction professionals & technical staff	120	220	20
Total (SIC 45 and 74.2)	**2,120**	**3,830**	**270**

Source: CSN, Experian

*Nec – not elsewhere classified

Appendix I – Methodology

At the heart of the CSN is a forecasting model which generates forecasts of employment requirements within the industry for a range of trades.

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.

Observatory groups currently meet bi-annually and consist of key regional stakeholders invited from industry, Government, education and other

SSCs who can contribute local knowledge of the industry and views on training, skills, recruitment, qualifications and policy.

The National Group also includes representatives from industry, Government, education and other SSCs. This Group (which convened twice in 2007) 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 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** is a gross requirement that takes into account the dynamic factors influencing all of the flows into and out of construction employment, such as movement to and from other industries, migration, sickness, and retirement. Young trainees are not included in the flows. Therefore, 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.

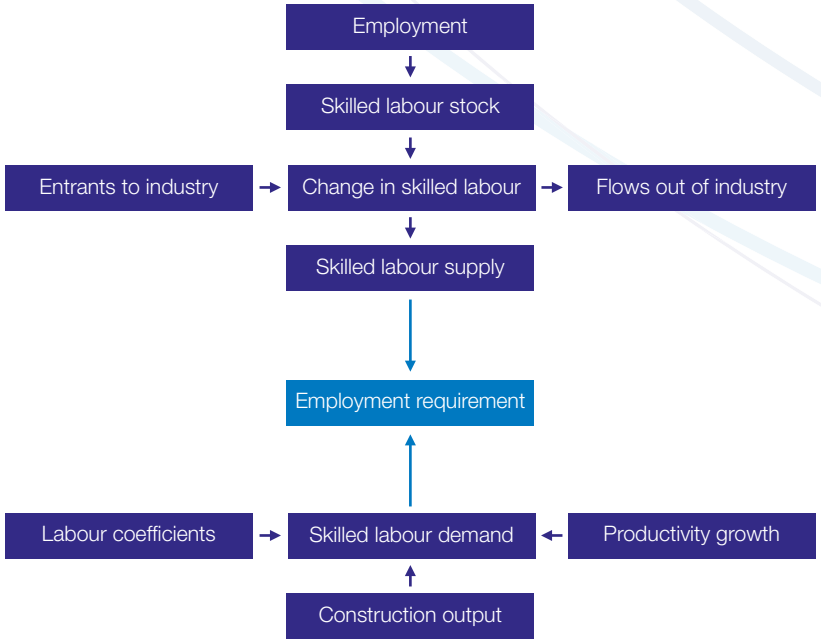
The model was designed and is managed by Experian under the independent guidance of the Technical Reference Group.

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.



Source: Experian

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.

New entrants (e.g. young trainees attached to formal training programmes) are not included in the flows of the labour market but are derived from the forecasted annual recruitment requirement for employment. The most significant inflow is likely to be from other industries. A summary of the model is shown in the flow chart.

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 Department for Business Enterprise and Regulatory Reform (DBERR) 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.

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 Department for Business Enterprise and Regulatory Reform (DBERR) on a current price basis. Thus national deflators produced by the DBERR 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.

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.

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, Domestics, 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.

	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

* AssetSkills has a peripheral interest in SIC 74.2

Appendix IV – Occupational groups

Bricklayers and building envelope specialists
Bricklayers, masons 5312
Construction trades nec* (50%) 5319
Labourers in building and woodworking trades (5%) 9121

Roofers
Roofers, roof tilers and slaters 5313

Plumbing and heating, ventilation, and air conditioning trades
Plumbing and HVAC trades 5314
Pipe fitters 5216
Labourers in building and woodworking trades (6%) 9121
Construction trades nec* (5%) 5319

Electrical trades and installation
Electricians, electrical fitters 5241
Electrical/electronic engineers nec* 5249
Telecommunications engineers 5242
Lines repairers and cable jointers 5243

Civil engineering operatives not elsewhere classified (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

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

Scaffolders
Scaffolders, stagers, riggers 8141

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

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

Labourers (nec*)
Labourers in building and woodworking trades (80%) 9121

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

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

Specialist building operatives not elsewhere classified (nec*)
Construction operatives nec* (80%) 8149
Construction trades nec* (5%) 5319
Industrial cleaning process occupations 9132

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

*Nec – not elsewhere classified

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

Construction professionals and technical staff

Civil engineers 2121
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
Architects 2431
Town planners 2432
Quantity surveyors 2433
Chartered surveyors (not Quantity surveyors) 2434
Electronics engineers 2124
Building inspectors 3123

Painters and decorators

Painters and decorators 5323
Construction trades nec* (5%) 5319

Plasterers and dry Liners

Plasterers 5321

Glaziers

Glaziers, window fabricators and fitters 5316
Construction trades nec* (5%) 5319

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

Other professionals/technical staff and IT

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

*Nec – not elsewhere classified

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

Senior and executive managers

Directors and chief executives of major organisations 1112
Senior officials in local government 1113
Business process managers
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

Business process managers

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

Office-based staff (excl. managers)

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

Floorers

Floorers and wall tilers 5322

*Nec – not elsewhere classified

Appendix V – CSN website and contact details

The CSN website functions as a gateway into the construction industry.

The CSN website
Co-ordinated by ConstructionSkills, the CSN benefits from the technical expertise of Davis Langdon Management Consulting and Experian. It collates the knowledge and experience of Government; Sector Skills Councils; construction companies; education and training providers; regional agencies; and customers across the UK. In short, it provides a single, clear understanding of the industry's current skills position.

This unique collaboration means the CSN offers, as near as possible, a consensus view of the current and future skills and training needs of the industry.

The Network gives us an authoritative basis on which to plan for recruitment strategies, education and training requirements and funding delivery. The Network forecasts are based on a series of assumptions and trends, to provide a picture of how the industry could look in five years time.

The Network gives construction clients insight into what type of buildings are likely to be constructed, when and where, as well as how to invest training budgets. For contractors and consultants the data can inform the type of building they should design and how best to avoid regional or occupational skills shortages and high labour costs.

Employees and prospective new recruits can use these insights to discover where in the country they are likely to find consistent work, or what trade or profession offers the best career prospects.

The new CSN website is found here at
www.cskills.org/csn

The Members' area offers access to a wealth of documentation produced by the CSN Observatories. The CSN Members, wider group members and industry stakeholders can use this area to stay up to date with what is happening within the CSN Workshop cycle.

CITB-ConstructionSkills and partners produce a number of reports which have been based on evidence from various datasets. The Data Store, from the Research section, has been set up to give the CSN Members access to this resource so that they may carry out their own research utilising this primary data.

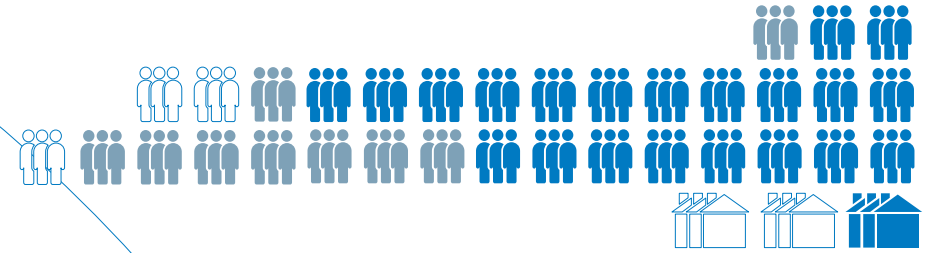
The diary of upcoming events in Observatory Essentials allows Members to stay in touch with CSN developments. This area also includes all feedback documentation from the current round of workshops, giving members all the relevant information they need in one place.

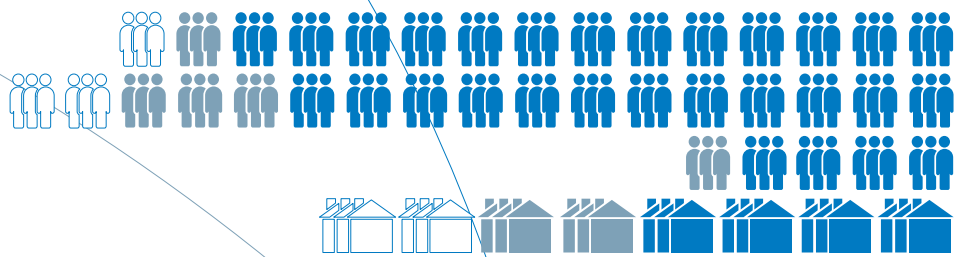
Contact details

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

For further information about the CSN website, or to register your interest in joining the CSN, please contact Sally Riley, Researcher, at sally.riley@cskills.org

All the tables in this regional document, and the other regional and national documents, can be found on the website www.cskills.org/csn





For more information about
the Construction Skills Network,
contact:
Sandra Lilley
CSN Manager
01485 577933
sandra.lilley@cskills.org

Wales office:
Units 4 & 5
Bridgend Business Centre
David Street
Bridgend Industrial Estate
Bridgend
CF31 3SH

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