



# INDUSTRY INSIGHTS

Construction Skills Network  
Forecasts 2016–2020

---

Wales 2016–2020





CITB is tasked by Government to ensure the UK's construction 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. These materials, together with all of the intellectual property rights contained within them, belong to the Construction Industry Training Board (CITB). Copyright 2005 ("CITB") and should not be copied, reproduced nor passed to a third party without CITB's prior written agreement. These materials are created using data and information provided to CITB and/or EXPERIAN Limited ("Experian") by third parties of which EXPERIAN or CITB are not able to control or verify the accuracy. Accordingly neither EXPERIAN nor CITB give any warranty about the accuracy or fitness for any particular purpose of these materials. Furthermore, these materials do not constitute advice and should not be used as the sole basis for any business decision and as such neither EXPERIAN nor CITB shall be liable for any decisions taken on the basis of the same. You acknowledge that materials which use empirical data and/or statistical data and/or data modelling and/or forecasting techniques to provide indicative and/or predictive data cannot be taken as a guarantee of any particular result or outcome.

# CONTENTS

1 SUMMARY AND KEY FINDINGS.....	4
2 THE OUTLOOK FOR CONSTRUCTION IN WALES.....	6
3 CONSTRUCTION EMPLOYMENT FORECASTS FOR WALES.....	14
4 COMPARISONS ACROSS THE UK.....	18

## TABLES AND CHARTS

1 ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2016-2020.....	5
2 REGIONAL COMPARISON 2016-2020.....	5
3 CONSTRUCTION OUTPUT 1998-2014.....	7
4 CONSTRUCTION INDUSTRY STRUCTURE 2014.....	7
5 ECONOMIC STRUCTURE.....	7
6 ECONOMIC INDICATORS.....	9
7 NEW CONSTRUCTION ORDERS GROWTH 1998-2014.....	9
8 NEW WORK CONSTRUCTION ORDERS.....	9
9 CONSTRUCTION OUTPUT 2016-2017.....	11
10 ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2016-2017.....	11
11 CONSTRUCTION OUTPUT 2016-2020.....	13
12 ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2016-2020.....	13
13 TOTAL EMPLOYMENT BY OCCUPATION.....	15
14 ANNUAL RECRUITMENT REQUIREMENT BY OCCUPATION.....	17
15 ANNUAL AVERAGE OUTPUT GROWTH BY REGION.....	19
16 ANNUAL RECRUITMENT REQUIREMENT BY REGION.....	19

## CSN EXPLAINED

1 CSN METHODOLOGY.....	21
2 GLOSSARY OF TERMS.....	23
3 NOTES AND FOOTPRINTS.....	24
4 DEFINITIONS: TYPES AND EXAMPLES OF CONSTRUCTION WORK.....	26
5 OCCUPATIONAL GROUPS.....	28
6 CSN WEBSITE AND CONTACT DETAILS.....	31



## SECTION 1

# SUMMARY – WALES

# 7.1%

Wales is projected to see annual average output growth of 7.1% over the 2016 to 2020 period, up from the 5.8% projected last year for 2015 to 2019 as more of the Wylfa project is now included. This is almost triple the UK rate of 2.5%. Wylfa means that expansion is very centred in the new work sector, with an average annual increase in output of 9.5% compared with 2.2% for repair and maintenance. This output growth rate is expected to drive strong employment growth averaging 2.9% a year, again well above the UK average of 1.1%. Wales' annual average recruitment requirement (ARR) is projected at 5,440, which represents 4.7% of base 2016 employment.

### Key Findings

Since its low in 2012, construction output in Wales grew by over 10% in real terms to 2014 and is expected to have expanded further last year. Growth in 2015 is likely to have been driven by a very strong performance in the infrastructure sector and lesser but still robust expansion in private housing and public non-housing work.

Wales is projected to see annual average output growth of 7.1% over the five years to 2020, stronger than any of the English regions and other devolved nations, and while nuclear new build at Wylfa is a major contributor to this expansion, it is by no means the only driver.

Besides new nuclear build there are other fairly substantial projects ongoing or in the pipeline in the energy arena, such as the Wheelabrator energy recovery facility at Deeside and an £800m biomass plant proposed for Anglesey, on which work is likely to commence in 2018. Also to be taken into account is the Swansea Tidal Lagoon project, on which work should start in 2017.

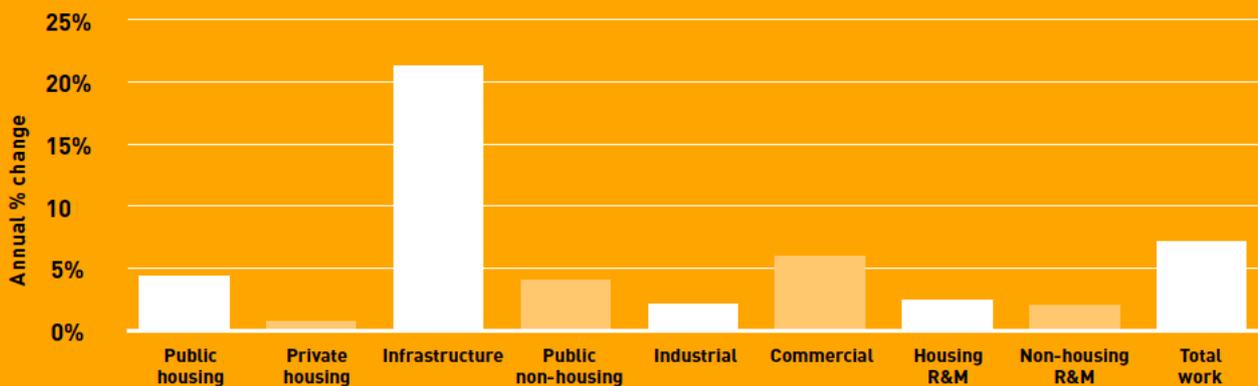
Elsewhere in the infrastructure sector the biggest project in the pipeline is the upgrade of the M4 around Newport, on which work is likely to start in 2018.

There are a number of sizeable regeneration schemes in the pipeline upon which private house building will play a significant part. However these are long-term projects and therefore their contribution to annual growth could be quite small. The same is true to a lesser extent for the private commercial sector, although the construction timescale of schemes in this sector is likely to be more condensed, producing a stronger growth profile.

Employment growth is projected to average 2.9% a year between 2016 and 2020, well above the UK average and the workforce is expected to reach 129,900 by 2020, 5% up on its 2008 peak. Demand is expected to be strongest for construction professionals – civil engineers, architects, surveyors and other construction professional – with all of them likely to see annual average employment growth of around 4% a year or higher.

Wales' ARR is projected at 5,440 a year on average, still the third largest on an absolute level and the highest as a ratio of base 2016 employment. Its ratio, at 4.7% is well above the UK average of 1.7%. Wales traditionally suffers from high net outflows of its construction workforce to other areas of the UK, in particular to the South West and North West of England.

## ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2016-2020 – WALES



Source: CSN, Experian. Ref: CSN Explained, Section 3, Note 2

## REGIONAL COMPARISON 2016-2020

Region	Annual average % change in output	Change in total employment	Total ARR
North East	1.5%	3,260	3,160
Yorkshire and Humber	2.4%	8,360	3,230
East Midlands	1.0%	1,210	3,110
East of England	2.3%	13,950	3,910
Greater London	3.5%	42,670	3,650
South East	0.9%	2,110	1,730
South West	4.4%	25,850	6,480
Wales	7.1%	17,490	5,440
West Midlands	1.7%	10,200	3,030
Northern Ireland	3.0%	4,660	1,760
North West	2.6%	22,430	6,650
Scotland	0.5%	-7,360	4,270
<b>UK</b>	<b>2.5%</b>	<b>144,830</b>	<b>46,420</b>

Source: CSN, Experian. Ref: CSN Explained, Section 3, Note 2

Wales is projected to see annual average output growth of 7.1% over the five years to 2020, stronger than any of the English regions and other devolved nations.



## SECTION 2

# THE OUTLOOK FOR CONSTRUCTION IN WALES

### 2.1 Construction output in the Wales – overview

Construction output in Wales posted its second consecutive year of growth in 2014, rising by 2% to an estimated £4.5bn in 2012 prices. Expansion continued to be strong in the infrastructure and public non-housing sectors as it had been in 2013, but the real driver of growth was a sudden spike upwards in housing repair and maintenance work, which rose by nearly a third.

### 2.2 Industry structure

The diagram, Construction Industry structure 2014 – UK vs. Wales, 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.

The split between new work and repair and maintenance (R&M) in Wales is similar to the UK with the former taking a 62% share in both. However, housing R&M is proportionally more important in Wales than the UK (23% vs 19%) and non-housing R&M proportionally less important (15% vs 19%). Of the new work sectors, the public non-housing one is significantly more important in Wales than the UK (15% vs 8%), but the private housing and commercial sectors are less important.

### 2.3 Economic overview

The expected performance of a regional or national economy over the forecast period (2016–2020) provides an indication of the construction sectors in which demand is likely to be strongest.

### 2.4 Economic structure

Overall economic growth in Wales is benefiting from encouraging rates of expansion in transport and storage, consumer services such as hotels, food and recreation and in professional and other services, whose share of Gross Value Added (GVA) has risen from 18% in 2000 to 21.7% last year. The information and communication sector, though still relatively small, accounting for only 3% of GVA, is also making an increasing contribution given a rebound after several years of little growth.

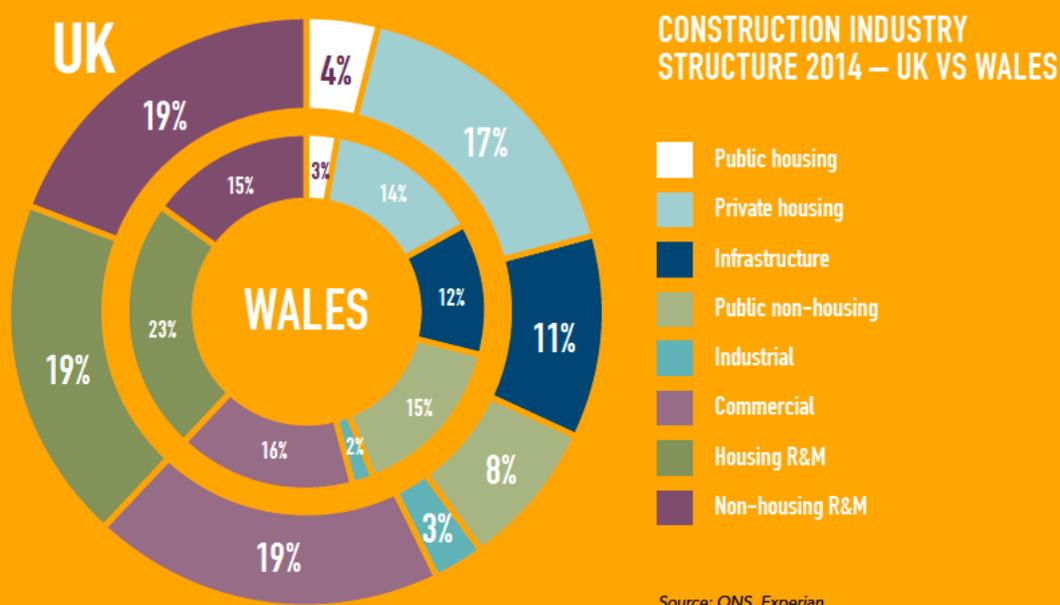
However, a key factor accounting for the gap between economic growth in Wales and in the UK as a whole is the large contribution made by public services. This non-dynamic sector accounted for 26% of GVA in 2014, only slightly down from 27% in 2000. With the sector subject to ongoing fiscal constraint, there is little chance of its improving on the 0.6% per annum average growth seen in 2008–13. Rather the reverse as austerity tightens in the next few years.



## CONSTRUCTION OUTPUT 1998–2014 – WALES



Source: ONS. Ref: CSN Explained, Section 3, Note: 1



Source: ONS, Experian

## ECONOMIC STRUCTURE – WALES (£ BILLION, 2012 PRICES)

Selected sectors	Actual	Forecast					
	2014	2015	2016	2017	2018	2019	2020
Public services	13.5	0.3	-0.1	-0.4	0.3	1.1	2.0
Professional and other private services	11.2	3.4	3.2	3.0	2.9	2.5	2.3
Manufacturing	8.2	0.6	1.1	2.2	2.3	1.3	1.1
Wholesale and retail	5.2	4.0	2.3	2.0	2.1	2.1	2.1
Finance and insurance	2.5	0.1	2.7	2.8	2.3	2.1	2.0
<b>Total Gross Value Added (GVA)</b>	<b>51.7</b>	<b>2.0</b>	<b>1.8</b>	<b>1.9</b>	<b>2.0</b>	<b>1.9</b>	<b>2.0</b>

Note: Top 5 sectors, excluding construction. Source: Experian. Ref: CSN Explained, Section 3, Note 3



## 2.5 Forward looking economic indicators

GVA in Wales in 2014 totalled £51.7bn in 2012 prices and growth is estimated at 2% last year, a percentage point lower than the UK rate, largely driven by strong expansion in the information and communication (5.2%), wholesale and retail (4%), accommodation, food services and recreation (3.7%) and professional and other private services (3.4%) sectors.

Welsh economic growth is expected to continue to lag the UK rate, by around half a per cent a year on average in the five years to 2020 (1.9% vs 2.4%). This is primarily due to the devolved nation's greater reliance on public services mentioned above, a sector that will struggle to post growth much higher than half a per cent a year over the medium term. Growth in Wales is likely to be further constrained by the manufacturing sector, again more important in Wales than the UK as a whole (15.9% vs 9.7% shares in 2014). Manufacturing output is projected to expand at an annual average rate of 1.6% to 2020, but this is much lower than the expected rates for the information and communication (3.1%) and professional and other private services (2.8%) sectors.

Real household disposable income growth is likely to fall from its strong rate in 2015 (3%) and this will impact consumer spending which, although likely to expand faster than in the 2009 to 2014 period (1.5%), at an annual average rate of 1.9% from 2016 to 2020, will still lag the UK average (2.2%).

## 2.6 New construction orders – overview

New construction orders in Wales totalled £2.1bn in current prices in 2014, a level that they have been at for the past three years. Their level for public housing work has been on a falling profile for four years and the outturn of £58m (current prices) in 2014 was the lowest for a decade. In contrast new orders for the private sector have remained relatively stable since 2012. The strongest growth in 2014 was in the public non-housing sector where the value of new orders nearly doubled.

## 2.7 New construction orders – current situation

In the first half of this year they reached £1.7bn, boosted in the first quarter by a very strong level for the infrastructure sector, believed to be the contract being let for the Wheelabrator energy recovery scheme on Deeside.

On an annualised basis, new orders were 17% higher in the second quarter of last year compared to the end of 2014, but all the growth has been in the infrastructure and industrial sectors, with the others experiencing declines.



## ECONOMIC INDICATORS – WALES

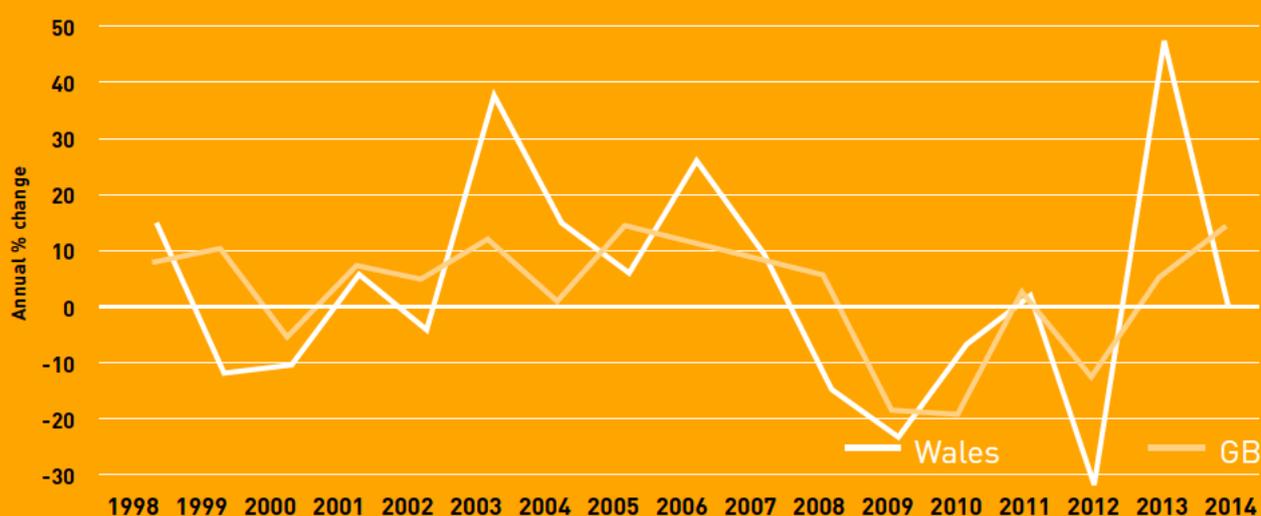
(£ BILLION, CURRENT PRICES – UNLESS OTHERWISE STATED)

Selected sectors	Actual	Forecast					
	2014	2015	2016	2017	2018	2019	2020
Household disposable income	50.0	3.0	1.1	1.6	1.8	1.2	1.7
Household spending	48.1	2.4	2.0	2.1	1.9	1.8	1.8
Working age population (000s and as % of all)	1,872	60.9%	61.1%	61.0%	60.9%	60.9%	61.3%
House prices (£)	191,000	3.6	2.9	3.0	2.2	2.3	3.0
LFS unemployment (millions)	0.13	-0.5	-6.9	-4.6	-3.9	-2.7	-2.4

Source: ONS, DCLG, Experian

## NEW CONSTRUCTION ORDERS GROWTH 1998-2014

– WALES VS. GB



Source: ONS. Ref: CSN Explained, Section 3, Note 4

## NEW WORK CONSTRUCTION ORDERS – WALES

(£ MILLION, CURRENT PRICES)

	Actual	Annual % change				
	2014	2010	2011	2012	2013	2014
Public housing	58	31.4	-44.4	-2.0	-15.3	-30.1
Private housing	460	126.5	-40.3	42.5	-4.4	4.8
Infrastructure	271	-29.1	-37.7	159.5	-2.6	-43.5
Public non-housing	837	-14.6	-21.7	31.7	-11.0	88.5
Industrial	116	-68.6	-1.4	12.3	-11.0	58.9
Commercial	360	12.1	-32.0	28.7	21.6	-35.9
<b>Total new work</b>	<b>2,102</b>	<b>1.4</b>	<b>-32.5</b>	<b>47.2</b>	<b>-0.6</b>	<b>1.0</b>

Source: ONS. Ref: CSN Explained, Section 3, Note 4



## 2.8 Construction output – short-term forecasts (2016–2017)

Regional Office for National Statistics (ONS) output statistics are published in current prices and are therefore inclusive of any inflationary effect. At the time of writing, regional ONS construction output statistics were only available for the first two quarters of 2015.

After seven quarters of expanding activity, construction output levels in Wales seem to have largely stabilised since the second quarter of 2014, in line with the profile of new orders. Output totalled £2.4bn (current prices) in the first half of last year, 4% down on the previous half-year but around the same level as that seen in the same period of 2014. On an annualised basis output was up in the public housing (7%), infrastructure (52%), public non-housing (5%) and industrial (13%) sectors, but down in the remainder, leaving total output in the second quarter of 2015 at much the same level it was at the end of 2014. Despite the muted performance so far in 2015, growth is expected to have accelerated in the second half providing a positive outturn for the year as a whole.

Short-term growth in Wales is projected to average 4.8% a year in 2016 and 2017, demonstrating that expansion in the devolved nation's construction industry is not purely reliant on the start of nuclear new build at Wylfa.

2015 and 2016 are likely to be poor ones for the public housing sector as output continues to subside from the very high level seen in 2011. Despite this, the Social Housing Grant programme has delivered a total of 6,890 additional affordable homes between April 2011 and March 2014 and is on track to make its 10,000 target by March 2016 according to the Welsh Government.

In contrast the private housing sector is expected to do better this year and next but then for growth to largely flatten out in the medium term. There is undoubtedly a number of large residential schemes in the pipeline, particularly in south east Wales.



However, many of them have long build-out periods and thus their impact on construction activity year-on-year is relatively modest given the much larger size of the private market than the public one. The relatively weak market in Wales is reflected in recent house price data. The ONS's mixed-adjusted house price series shows a quarter-on-quarter decline of 2.1% in their level in Wales in the second quarter of this year, with the annualised rate of growth falling to just 1.2%. The Halifax reports a similar profile, with a quarter-on-quarter fall of 1.1% and an annual increase of 2.9%, while the Nationwide index is showing +1% and -0.8% respectively on the same measures. These are some of the weakest recent house price growth figures across the regions and devolved nations.

The prospects for infrastructure construction are good in the short term with output in the sector likely to reach a new historic high in 2016, driven in no small part by the £800m Wheelabrator energy recovery facility at Deeside. Planning consent was granted in June for the Swansea Bay Tidal Lagoon project and the latest information on a possible start of construction works on the project is early 2017. There are also some small to medium sized works in the pipeline on the M4, including the £40m refurbishment of the Brynglas tunnels, due to have started towards the end of 2015 and £20m of improvements to junction 28, scheduled to start this year.

The industrial construction sector is another one expected to see good growth in the early part of the forecast period but a slowdown thereafter. In contrast to much of the rest of the UK, factory building is likely to be the main engine of expansion rather than warehouses. One of the biggest industrial and commercial regeneration projects in Wales is the ongoing redevelopment of the former Oakdale Colliery, near Caerphilly. The 400 acre site is being regenerated by Caerphilly Borough Council in partnership with the Welsh Government and has accessed a considerable amount of European Union funding. The next development on the site is expected to be a £17m manufacturing and storage unit for IG Doors, work on which is scheduled to start in June 2016.

The performance of the commercial construction sector was very poor in 2014 and activity looks like it continued to decline in 2015. However, in the light of what is in the pipeline the sector is likely to return to growth in 2016 and continue to expand in the medium term. Detailed plans for the £500m redevelopment of Swansea city centre have been drawn up following the granting of outline planning permission in 2015. A mixed-use development is being proposed for the St David's site that could include retail, leisure and office space, while the beach side civic centre site will include tourist facilities and public spaces. The council is hoping to have appointed developer(s) by the end of last year.

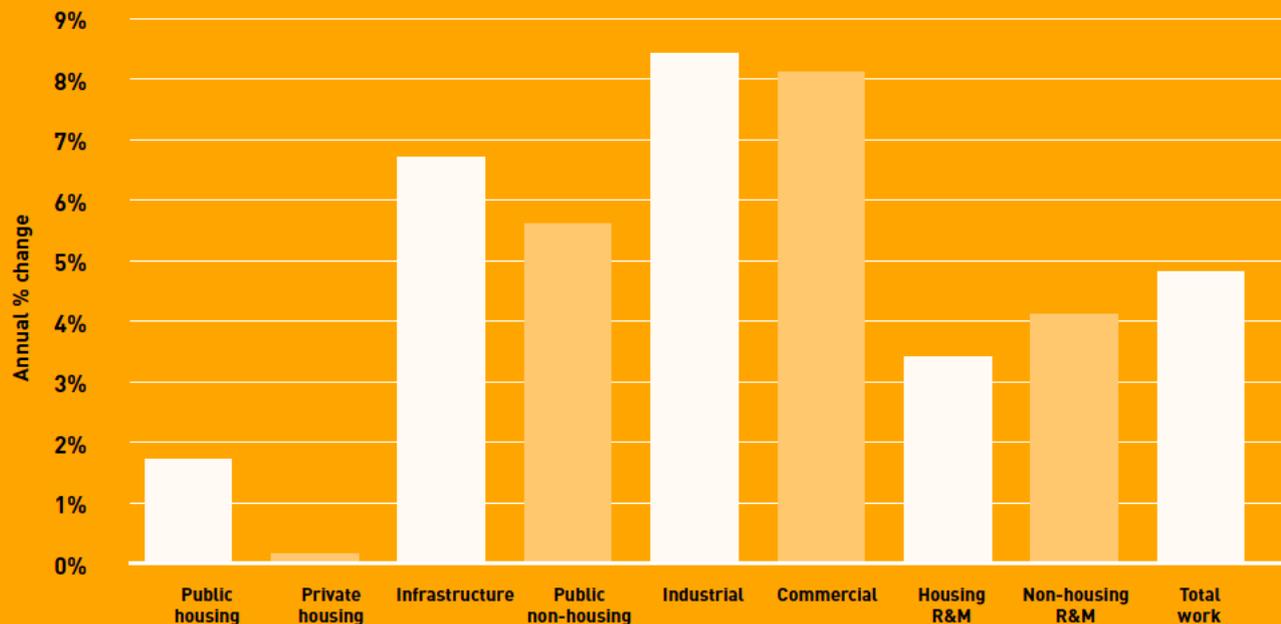
The percentage of social housing meeting the Welsh Housing Quality Standard rose by another 5% in the year to March 2015, to 72%, but this suggests that there may need to be a little bit of acceleration in the programme to meet the 2020 target.

## CONSTRUCTION OUTPUT – WALES (£ MILLION, 2012 PRICES)

	Actual	Forecast annual % change			Annual average
	2014	2015	2016	2017	2016-2017
Public housing	124	-4%	-5%	9%	1.7%
Private housing	636	7%	5%	-4%	0.7%
Infrastructure	557	52%	18%	-3%	6.7%
Public non-housing	665	11%	1%	10%	5.6%
Industrial	108	0%	10%	7%	8.4%
Commercial	750	-13%	10%	6%	8.1%
<b>Total new work</b>	<b>2,839</b>	<b>11%</b>	<b>9%</b>	<b>2%</b>	<b>5.3%</b>
Housing R&M	1,032	0%	4%	3%	3.4%
Non-housing R&M	674	-1%	5%	3%	4.1%
<b>Total R&amp;M</b>	<b>1,706</b>	<b>0%</b>	<b>4%</b>	<b>3%</b>	<b>3.6%</b>
<b>Total work</b>	<b>4,545</b>	<b>7%</b>	<b>7%</b>	<b>2%</b>	<b>4.8%</b>

Source: Experian. Ref: CSN Explained, Section 3, Notes 1 and 2

## ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2016-2017 – WALES



Source: Experian. Ref: CSN Explained, Section 3, Note 2

Wales' ARR of 5,440 represents 4.7% of base 2016 employment, the highest ratio of any of the English regions or other devolved nations and well above the UK rate of 1.7%.



## 2.9 Construction output – long-term forecasts (2016–2020)

The five year output forecasts for 2016 to 2020 are a very robust 7.1% a year on average, driven to no small extent by infrastructure growth in excess of 21% a year as work commences on the Wylfa project from 2019. However, all sectors are expected to see some level of expansion, and even if Wylfa were excluded an annual average rise of 3.7% is forecast, in part due to the success of the Welsh Government in attracting funding from other sources through innovative mechanisms.

There are some significant housing programmes in the pipeline that should generate growth in public housing output in the medium term. Cardiff Council has plans to deliver 1,000 new homes across the city over the next decade, and Flintshire County Council is intending to deliver a £500m regeneration programme for the next five to seven years, which will include a large housing element. However, it may be that the main engine of growth proves to be the housing association sector. For example, the Clwyd Alyn Housing Association is one of the most prominent social housing providers in north Wales, managing over 5,500 properties. It currently has 23 projects in development across Anglesey, Conwy, Denbighshire, Flintshire, Powys and Wrexham, consisting of 154 units for rent and 26 for rent or purchase.

The long build-out periods for private housing schemes in the pipeline has already been mentioned in the previous section. One of the biggest regeneration projects with a large residential element currently on site in Wales is the £420m Dumballs Road scheme in Cardiff. Demolition work began in 2014 and the project is due to deliver over 2,000 new homes by 2020/21. Taylor Wimpey is taking forward a 1,200 home development at South Sebastopol, Torfaen. Phase 1 of the scheme, for 101 units, is due to start imminently.

The five-year forecast for the infrastructure sector is dominated by the start of work on nuclear new build at Wylfa in 2019. However, it isn't the only large project due to start in the second half of the forecast period. Work on the new M4 corridor around Newport is expected to start in 2018, while in the rail sub-sector there is over £2bn of electrification and renewals work to be delivered in Wales in Network Rail's Control Period 5 (CP5), covering 2015 to 2019, none of which has been 'paused'.

The emphasis in the public non-housing sector is expected to shift from the education sub-sector to the health sector over the medium term. Besides the £245m Critical Care Centre, proposals for a further £200m of investment at the Velindre Hospital are being developed. The hospital, based in Cardiff, delivers specialist cancer care services to south east Wales. It is hoped that the funding for the work will be delivered through the non-profit distribution model, which was originally developed by the Scottish Government as an alternative to the private finance initiative. Some £82m of redevelopment work on Morriston Hospital in Swansea is due to complete about now, but the business case is being put together for further work, including the relocation of maternity services currently based at the Singleton Hospital, a new cardiac centre, and an adult acute mental health unit. Construction work on these elements has an estimated value of £154m. The Wrexham 'super prison' will continue to deliver an output stream for at least the next year.

The very short gestation period for industrial construction schemes means that project information rarely goes out more than a couple of years and more reliance thereafter has to be placed on assessing the demand drivers for the sector. Manufacturing output growth of 1.6% a year on average is unlikely to drive strong demand for factory premises. The prospects for demand for distribution and logistics facilities are better with a projected rise in transport and storage output of 2% a year on average, although even this is not particularly strong.

Of the sectors that drive demand for commercial premises, annual average growth is predicted to be strongest in information and communication (3.1%), followed by professional and other private services (2.8%). Expansion in the finance and insurance, wholesale and retail and accommodation, food services and recreation sectors is expected to be more modest at between 2% and 2.5% a year on average, suggesting that demand is likely to be stronger for office premises than for retail or leisure ones.

## 2.10 Beyond 2020

Nuclear new build at Wylfa will continue to generate an output stream well beyond the current forecast period – according to the Nuclear Industry Association the project will complete in 2025 – and there are a number of other projects in the pipeline for Anglesey that could make the island a hub for construction activity for many years to come.

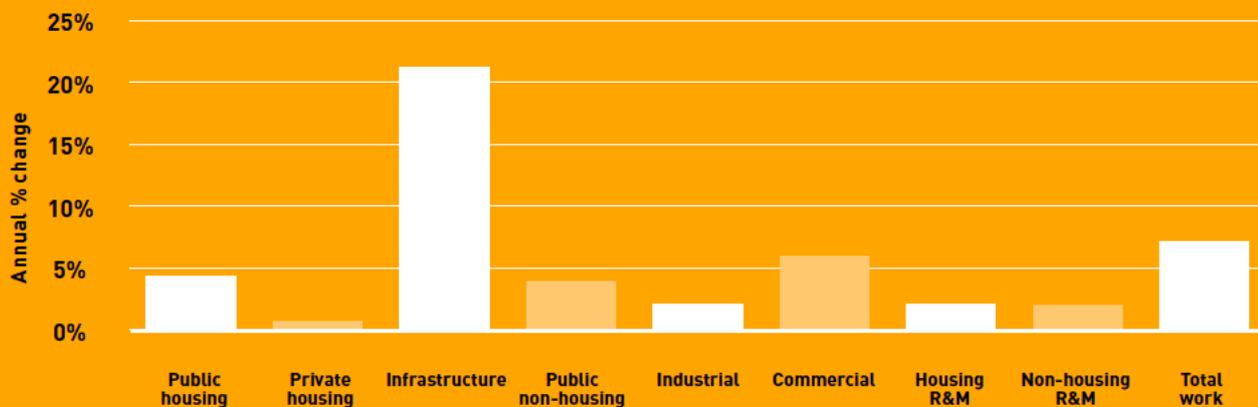
Many are waiting to gauge the success or otherwise of the Swansea Tidal Lagoon project and if proved viable it could lead to a spate of such projects around the Welsh coast.

## CONSTRUCTION OUTPUT – WALES (£ MILLION, 2012 PRICES)

	Estimate	Forecast annual % change					Annual average
	2015	2016	2017	2018	2019	2020	2016-2020
Public housing	118	-5%	9%	11%	4%	4%	4.3%
Private housing	682	5%	-4%	-4%	2%	4%	0.6%
Infrastructure	847	18%	-3%	8%	77%	20%	21.2%
Public non-housing	740	1%	10%	4%	-1%	5%	3.9%
Industrial	108	10%	7%	1%	-3%	-4%	2.0%
Commercial	656	10%	6%	6%	6%	1%	5.9%
<b>Total new work</b>	<b>3,151</b>	<b>9%</b>	<b>2%</b>	<b>4%</b>	<b>24%</b>	<b>10%</b>	<b>9.5%</b>
Housing R&M	1,032	4%	3%	-1%	3%	3%	2.3%
Non-housing R&M	669	5%	3%	0%	1%	1%	1.9%
<b>Total R&amp;M</b>	<b>1,701</b>	<b>4%</b>	<b>3%</b>	<b>-1%</b>	<b>2%</b>	<b>2%</b>	<b>2.2%</b>
<b>Total work</b>	<b>4,852</b>	<b>7%</b>	<b>2%</b>	<b>2%</b>	<b>16%</b>	<b>8%</b>	<b>7.1%</b>

Source: Experian. Ref: CSN Explained, Section 3, Notes 1 and 2

## ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2016-2020 – WALES



Source: Experian. Ref: CSN Explained, Section 3, Note 2



## SECTION 3

# CONSTRUCTION EMPLOYMENT FORECASTS FOR WALES

### 3.1 Total construction employment forecasts by occupation

The table opposite presents actual construction employment (SICs 41-43, 71.1, and 74.9) in Wales for 2014, the estimated total employment across 28 occupational categories in 2015 and forecasts for the industry for 2016 to 2020. A full breakdown of occupational groups is provided in Section 5 of CSN Explained.

Annual average employment growth in Wales is expected to be a very robust 2.9% over the five years to 2020, substantially higher than the 1.1% for the UK. Unlike in the rest of the UK employment growth in Wales is projected to accelerate again at the end of the forecast period as work on the Wylfa project builds up a head of steam. While nuclear build is not particularly labour intensive in comparison to housing or R&M work for example, at the peak of activity on Wylfa not far off 5,000 construction workers are expected to be employed on the project.

In numbers terms, employment is projected to rise from around 112,400 in 2015 to 129,900 in 2020, an increase of nearly 17,500, only beaten by London, the South West and North West, a very impressive performance for a devolved nation with the third smallest construction industry in the UK. Construction employment in Wales is likely to match its 2008 peak in 2018 and exceed it by 5% in 2020.

Out of the 28 occupational categories, 27 are forecast to see growth, with demand particularly strong for construction professionals – civil engineers, architects and surveyors – and some managers. A number of the trades are also likely to experience employment demand growth in excess of 3% a year over the forecast period.





## TOTAL EMPLOYMENT BY OCCUPATION – WALES

	Actual 2014	Estimate 2015	Forecast	
			2016	2020
Senior, executive, and business process managers	4,070	4,020	4,110	4,330
Construction project managers	1,260	1,350	1,410	1,600
Other construction process managers	7,690	7,710	8,120	9,450
Non-construction professional, technical, IT and other office-based staff	10,460	11,150	11,530	12,440
Construction trades supervisors	2,330	2,260	2,250	2,340
Wood trades and interior fit-out	14,030	14,100	14,650	16,000
Bricklayers	6,910	6,820	7,120	7,920
Building envelope specialists	3,910	4,230	4,410	4,850
Painters and decorators	5,040	5,460	5,710	6,480
Plasterers	4,220	4,530	4,760	5,310
Roofers	1,430	1,410	1,460	1,580
Floorers	130	140	140	160
Glaziers	580	570	590	610
Specialist building operatives nec*	3,800	4,110	4,220	4,570
Scaffolders	810	810	840	900
Plant operatives	1,810	1,760	1,780	1,980
Plant mechanics/fitters	1,410	1,420	1,490	1,700
Steel erectors/structural fabrication	1,250	1,220	1,250	1,320
Labourers nec*	5,410	5,750	6,010	6,690
Electrical trades and installation	7,000	6,860	7,110	7,850
Plumbing and HVAC Trades	10,260	10,070	10,480	11,810
Logistics	740	750	750	770
Civil engineering operatives nec*	1,320	1,350	1,420	1,630
Non-construction operatives	1,190	1,290	1,290	1,230
Civil engineers	2,220	2,240	2,350	2,720
Other construction professionals and technical staff	4,990	5,370	5,660	6,600
Architects	1,130	1,210	1,280	1,480
Surveyors	4,130	4,440	4,750	5,580
<b>Total (SIC 41-43)</b>	<b>97,060</b>	<b>99,140</b>	<b>102,900</b>	<b>113,520</b>
<b>Total (SIC 41-43, 71.1, 74.9)</b>	<b>109,530</b>	<b>112,400</b>	<b>116,940</b>	<b>129,900</b>

Source: ONS, CSN, Experian. Ref: CSN Explained, Section 3, Notes 5 and 6  
\*Not elsewhere classified



### 3.2 Annual recruitment requirements (ARR) by occupation

The ARR is a gross requirement that takes into account workforce flows into and out of construction, due to factors such as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training, due to the inconsistency and coverage of supply data. Therefore, 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.

Wales' ARR of 5,440 represents 4.7% of base 2016 employment, the highest ratio of any of the English regions or other devolved nations and well above the UK rate of 1.7%. The devolved nation's tendency to lose a significant part of its construction workforce across its border into the South West and North West of England, means that its ARR continues to remain high. ARR ratios in excess of 5% are projected for a number of trades occupations and the occasional managerial and professional one.

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 significant retraining.

Non-construction operatives is a diverse occupational group including all of the activities under the SICs 41-43, 71.1, and 74.9 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

	2016-2020
Senior, executive, and business process managers	160
Construction project managers	-
Other construction process managers	-
Non-construction professional, technical, IT and other office-based staff	1,020
Construction trades supervisors	160
Wood trades and interior fit-out	920
Bricklayers	660
Building envelope specialists	170
Painters and decorators	450
Plasterers	160
Roofers	120
Floorers	-
Glaziers	<50
Specialist building operatives nec*	-
Scaffolders	<50
Plant operatives	70
Plant mechanics/fitters	150
Steel erectors/structural fabrication	<50
Labourers nec*	600
Electrical trades and installation	270
Plumbing and HVAC Trades	<50
Logistics	<50
Civil engineering operatives nec*	<50
Civil engineers	-
Other construction professionals and technical staff	200
Architects	130
Surveyors	100
<b>Total (SIC 41-43)</b>	<b>5,010</b>
<b>Total (SIC 41-43, 71.1, 74.9)</b>	<b>5,440</b>

Source: CSN, Experian. Ref: CSN Explained, Section 3, Notes 5 and 6  
\*Not elsewhere classified



## SECTION 4

# COMPARISONS ACROSS THE UK

# 2.5%

The overall UK forecast of an annual average rise in output of 2.5% over the 2016 to 2020 period is a little higher than the 2.1% seen in the last growth period for construction between 1995 and 2007. However, it disguises some quite different regional/devolved nation performances, from expected expansion of over 7% in Wales to just 0.5% in Scotland.

Wales and the South West are top of the growth rankings and have remained so for some time, but their strong performance is heavily predicated on nuclear new build projects at Hinkley Point and Wylfa. Greater London is also projected to have a strong infrastructure sector, with the work starting on the Northern Line extension and Thames Tideway and High Speed 2 in the pipeline. These projects should more than offset completion of the Crossrail and Thameslink schemes.

While growth in London and the East of England is expected to be robust, the forecast for the South East is relatively poor with a dearth of major projects in the pipeline, the £2bn Paramount Park scheme excepted. Therefore, the forecasts are less South East England centric than they sometimes can be.

Northern Ireland is likely to be one of the faster growing regions in the five years to 2020, although construction output will be coming back from a very low base and there are concerns that current political uncertainties could delay the start of public projects.

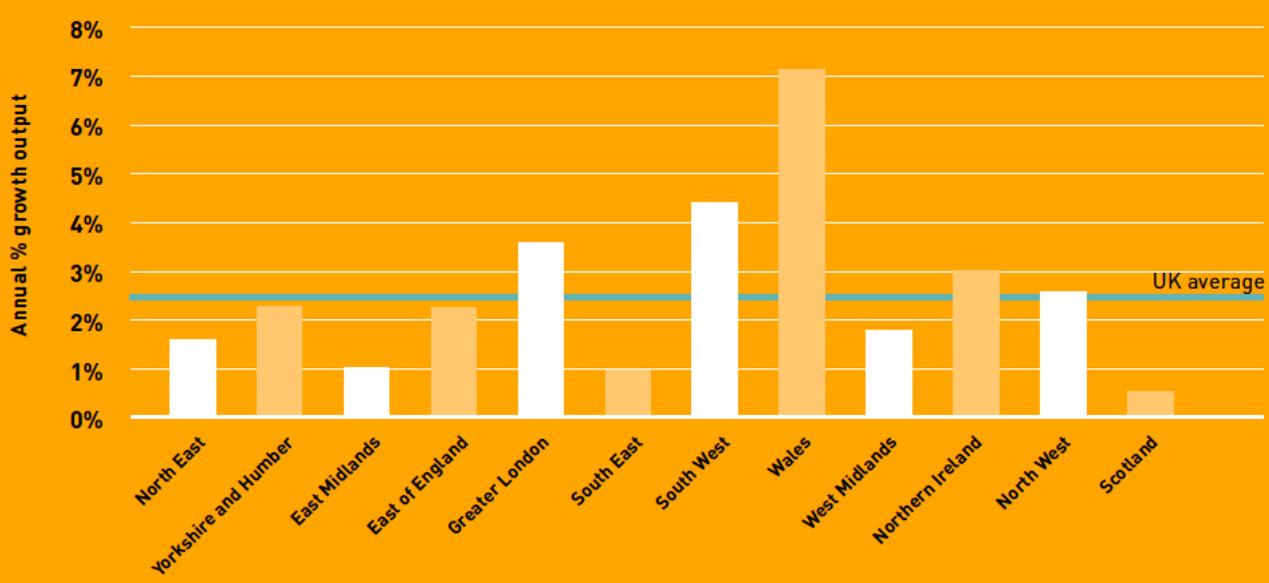
Scotland is seeing an exceptionally high level of investment in infrastructure at present, with output in 2014 around twice its previous 10 year average and due to increase even further in 2015. Thereafter projects, such as the current spate of motorway upgrades, begin to complete and activity in the sector is likely to fall sharply, bringing the overall Scottish construction growth rate down to only about half a per cent a year on average.

Employment growth across the regions and devolved nations tends to mirror that of output, but at a lower level to take account of expected productivity gains and with some minor adjustments depending on whether output growth is in high or low labour intensive sectors. Annual employment growth across the UK as a whole is projected to average 1.1% over the 2016 to 2020 period, with a high of 2.9% in Wales and a low of a 0.7% a year decline in Scotland. Despite the fact that nuclear new build is not particularly labour intensive, Wylfa is a very big project in a small market, therefore it will add nearly 2% to construction employment in Wales in 2020. The impact is smaller in the South West, which has a bigger construction market, but even there it will help to drive good employment growth of over 2% a year on average. In Scotland the converse is true and a sharp fall in infrastructure output, despite its relatively low labour input, is likely to lead to a drop in construction employment north of the border post 2016.

The pattern of ARR can look significantly different from the profile of output and employment, as some regions and devolved nations have historically strong net inflows and some suffer from large net outflows. The most extreme examples of this trend tend to be Greater London and Wales. London has a relatively low ARR despite strong projected employment growth (2% a year) as it acts as a natural magnet for construction workers throughout the UK and beyond, therefore its ARR ratio to base 2016 employment is low at 0.9%. At the other end of the scale Wales tends to suffer strong net outflows, in particular to the North West and South West of England and this, combined with a buoyant output and employment growth forecast, means its ARR ratio to base 2016 employment is a high 4.7%.

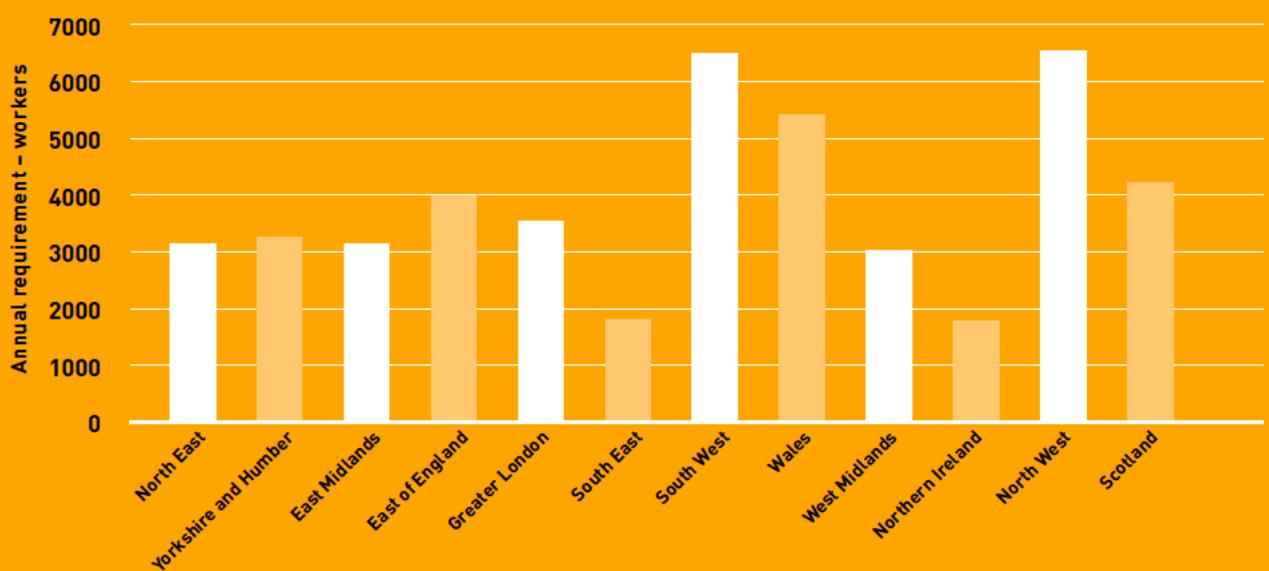


### ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH BY REGION 2016-2020 WALES



Source: Experian. Ref: CSN Explained, Section 3, Note 2

### ANNUAL RECRUITMENT REQUIREMENT (ARR) BY REGION 2016-2020



Source: CSN, Experian

Annual average employment growth in Wales is expected to be a very robust 2.9% over the five years to 2020, substantially higher than the 1.1% for the UK.



# CSN EXPLAINED

This appendix provides further details and clarification of some of the points covered in the report.

**Section 1** gives an overview of the underpinning methods that are used by the CSN, working in partnership with Experian, to produce the suite of reports at a UK, national and regional level.

**Section 2** provides a glossary to clarify some of the terms that are used in the reports.

**Section 3** has some further notes relating to the data sources used for the various charts and tables. This section also outlines what is meant by the term 'footprint', when talking about the areas of responsibility that lie with a Sector Skills Council (SSC) or Sector Bodies.

**Section 4** explains the sector definitions used within the report and provides examples of what is covered in each.

**Section 5** gives a detailed breakdown of the 28 occupational groups into the individual standard occupational classification (SOC) codes that are aggregated to provide the employment and recruitment requirement.

**Section 6** concludes this appendix by giving details about the range of LMI reports, the advantages of being a CSN member and details of who to contact if readers are interested in joining.





## SECTION 1

# CSN METHODOLOGY

## Background

**The Construction Skills Network** has been evolving since its conception in 2005, acting as a vehicle for ConstructionSkills to collect and produce information on the future employment and training needs of the industry.

ConstructionSkills is the Sector Skills Council for Construction and produces robust labour market intelligence that provides 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 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 twice a year and consist of key regional stakeholders invited from industry, Government, education and other SSCs and Sector Bodies, all of whom contribute their 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 and Sector Bodies. This Group convenes twice a year and sets the national scene, effectively forming a backdrop for the Observatories.

At the heart of the CSN are several models that generate forecasts of employment requirements within the industry for a range of occupational groups. The models are designed and managed by Experian under the independent guidance and validation of the Technical Reference Group, which is comprised of statisticians and modelling experts.

The models have evolved over time and will continue to do so, to ensure that they account for new research as it is published as well as new and improved modelling techniques.

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 models, which are then adjusted with the assistance of the Observatories and National Group. Each English region, Wales, Scotland and Northern Ireland has a separate model (although all models are interrelated 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 training, although robust data on training provision is being developed by CITB in partnership with public funding agencies, further education, higher education and employer 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.

Estimates of demand are based upon the results of discussion groups comprising industry experts, a view of construction output and integrated models relating to wider national and regional economic performance. The models are dynamic and reflect the general UK economic climate at any point in time. To generate the labour demand, the models use a set of specific statistics for each major type of work to 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 year's 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:

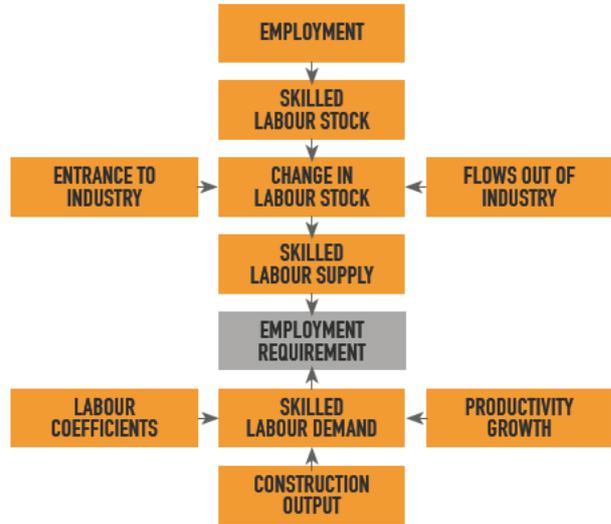
- Transfers to other industries
- International/domestic out migration
- Permanent retirements (including permanent sickness)
- Outflow to temporary sickness and home duties.

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

Flows into the labour market include:

- Transfers from other industries
- International/domestic immigration
- Inflow from temporary sickness 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.





## SECTION 2

# GLOSSARY OF TERMS

**Building envelope specialists** – any trade involved with the external cladding of a building other than bricklaying, e.g. curtain walling.

**Demand** – this is calculated using construction output data from the Office for National Statistics (ONS) and the Department of Finance and Personnel Northern Ireland (DFP), along with vacancy data from the National Employer Skills Survey, produced by the Department for Education and Skills. These data sets are translated into labour requirements by trade using a series of coefficients to produce figures for labour demand that relate to forecast output levels.

**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.

**Coefficients** – to generate the labour demand, the model makes use of a set of specific statistics for each major type of work, to determine employment by trade or profession, based upon the previous year's supply. In essence, this is the number of workers of each occupation or trade needed to produce £1m of output across each sub-sector.

**LFS** (Labour Force Survey) – a UK household sample survey that collects information on employment, unemployment, flows between sectors and training. Information is collected from around 53,000 households each quarter (the sample totals more than 100,000 people).

**LMI** (labour market intelligence) – data that is quantitative (numerical) or qualitative (insights and perceptions) on workers, employers, wages, conditions of work, etc.

**Macroeconomics** – the study of an economy at 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) – organisation producing official statistics on the economy, population and society at both a national 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 United Kingdom Standard Industrial Classification of Economic Activities produced by the ONS.

**SOC codes** (Standard Occupational Classification codes) – from the United Kingdom Standard Occupational Classification produced by the ONS.

**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.



## SECTION 3

# NOTES AND FOOTPRINTS

### Notes

- 1 Except for Northern Ireland, output data for the English regions, Scotland and Wales is 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 prices to a 2005 constant price basis, so that 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 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 43, 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 43.2.
- 7 A reporting minimum of 50 is used for the annual recruitment requirement (ARR). As a result some region and devolved nation ARR forecasts do not sum to the total UK requirement.
- 8 The Employment and ARR tables show separate totals for SIC41–43 and SIC41–43, 71.1 and 74.9. The total for SIC41–43 covers the first 24 occupational groups on the relevant tables and excludes civil engineers, other construction professionals and technical staff, architects and surveyors. The total for SIC41–43, 71.1 and 74.9 includes all occupations.

### Footprints for Built Environment Sector Bodies

ConstructionSkills is responsible for SIC 41 Construction of buildings, SIC 42 Civil engineering, SIC 43 Specialised construction activities and SIC 71.1 Architectural and engineering activities and related technical consultancy.

The table summarises the SIC codes (2007) covered by ConstructionSkills:

ConstructionSkills	
SIC Code	Description
41.1	Development of building projects
41.2	Construction of residential and non-residential buildings
42.1	Construction of roads and railways
42.2	Construction of utility projects
42.9	Construction of other civil engineering projects
43.1	Demolition and site preparation
43.3	Building completion and finishing
43.9	Other specialised construction activities nec
71.1*	Architectural and engineering activities and related technical consultancy

\*The Building Futures Group has a peripheral interest in SIC 71.1.



## The sector footprints for the other Sector Bodies covering the Built Environment:

### SummitSkills

**Footprint** – plumbing, heating, ventilation, air conditioning, refrigeration and electrotechnical.

**Coverage** – Building services engineering.

ConstructionSkills shares an interest with SummitSkills in SIC 43.21 Electrical installation and SIC 43.22 Plumbing, heat and air-conditioning installation. ConstructionSkills recognises the responsibility of SummitSkills across SIC 43.21 and SIC 43.22; thus data relating to the building services engineering sector is included here primarily for completeness.

### The Building Futures Group

**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.

The Building Futures Group has a peripheral interest in SIC 71.1 Architectural and engineering activities and related technical consultancy.

### 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.





## SECTION 4

# DEFINITIONS: TYPES AND EXAMPLES OF CONSTRUCTION WORK

### **Public sector housing – local authorities and housing associations, new towns and government departments**

Housing schemes, care homes for the elderly and the provision within housing sites of roads and services for gas, water, electricity, sewage and drainage.

### **Private sector housing**

All privately owned buildings for residential use, such as houses, flats and maisonettes, bungalows, cottages and the provision of services to new developments.

### **Infrastructure – public and private**

#### **Water**

Reservoirs, purification plants, dams, water works, pumping stations, water mains, hydraulic works etc.

#### **Sewerage**

Sewage disposal works, laying of sewers and surface drains.

#### **Electricity**

Building and civil engineering work for electrical undertakings, such as power stations, dams and other works on hydroelectric schemes, onshore wind farms and decommissioning of nuclear power stations.

#### **Gas, communications, air transport**

Gas works, gas mains and gas storage; post offices, sorting offices, telephone exchanges, switching centres etc.; air terminals, runways, hangars, reception halls, radar installations.

#### **Railways**

Permanent way, tunnels, bridges, cuttings, stations, engine sheds etc., signalling and other control systems and electrification of both surface and underground railways.

#### **Harbours**

All works and buildings directly connected with harbours, wharves, docks, piers, jetties, canals and waterways, sea walls, embankments and water defences.

#### **Roads**

Roads, pavements, bridges, footpaths, lighting, tunnels, flyovers, fencing etc.

### **Public non-residential construction<sup>1</sup>**

#### **Factories and warehouses**

Publicly owned factories, warehouses, skill centres.

#### **Oil, steel, coal**

Now restricted to remedial works for public sector residual bodies.

#### **Schools, colleges, universities**

State schools and colleges (including technical colleges and institutes of agriculture); universities including halls of residence, research establishments etc.

#### **Health**

Hospitals including medical schools, clinics, welfare centres, adult training centres.

#### **Offices**

Local and central Government offices, including town halls, offices for all public bodies except the armed services, police headquarters.

#### **Entertainment**

Theatres, restaurants, public swimming baths, caravan sites at holiday resorts, works and buildings at sports grounds, stadiums, racecourses etc. owned by local authorities or other public bodies.

#### **Garages**

Buildings for storage, repair and maintenance of road vehicles, transport workshops, bus depots, road goods transport depots and car parks.

#### **Shops**

Municipal shopping developments for which the contract has been let by a Local Authority.

#### **Agriculture**

Buildings and work on publicly financed horticultural establishments; fen drainage and agricultural drainage, veterinary clinics.

#### **Miscellaneous**

All work not clearly covered by any other headings, such as fire stations, police stations, prisons, reformatories, remand homes, civil defence work, UK Atomic Energy Authority work, council depots, museums, libraries.



## Private industrial work

Factories, warehouses, wholesale depots, all other works and buildings for the purpose of industrial production or processing, oil refineries, pipelines and terminals, concrete fixed leg oil production platforms (not rigs); private steel work; all new coal mine construction such as sinking shafts, tunnelling, etc.

## Private commercial work<sup>1</sup>

### Schools and universities

Schools and colleges in the private sector, financed wholly from private funds.

### Health

Private hospitals, nursing homes, clinics.

### Offices

Office buildings, banks.

### Entertainment

Privately owned theatres, concert halls, cinemas, hotels, public houses, restaurants, cafés, holiday camps, swimming pools, works and buildings at sports grounds, stadiums and other places of sport or recreation, youth hostels.

### Garages

Repair garages, petrol filling stations, bus depots, goods transport depots and any other works or buildings for the storage, repair or maintenance of road vehicles, car parks.

### Shops

All buildings for retail distribution such as shops, department stores, retail markets, showrooms, etc.

### Agriculture

All buildings and work on farms, horticultural establishments.

### Miscellaneous

All work not clearly covered by any other heading, e.g. exhibitions, caravan sites, churches, church halls.

## New work

### New housing

Construction of new houses, flats, bungalows only.

### All other types of work

All new construction work and all work that can be referred to as improvement, renovation or refurbishment and which adds to the value of the property.<sup>2</sup>

## Repair and maintenance

### Housing

Any conversion of, or extension to any existing dwelling and all other work such as improvement, renovation, refurbishment, planned maintenance and any other type of expenditure on repairs or maintenance.

### All other sectors:

Repair and maintenance work of all types, including planned and contractual maintenance.<sup>3</sup>

- 1 Where contracts for the construction or improvement of non-residential buildings used for public service provision, such as hospitals, are awarded by private sector holders of contracts awarded under the Private Finance Initiative, the work is classified as 'private commercial'.
- 2 Contractors reporting work may not always be aware of the distinction between improvement or renovation work and repair and maintenance work in the non-residential sectors.
- 3 Except where stated, mixed development schemes are classified to whichever sector provides the largest share of finance.



## SECTION 5

# OCCUPATIONAL GROUPS

### Occupational group

Description, SOC (2010) reference.

#### Senior, executive, and business process managers

Chief executives and senior officials	1115
Financial managers and directors	1131
Marketing and sales directors	1132
Purchasing managers and directors	1133
Human resource managers and directors	1135
Property, housing and estate managers	1251
Information technology and telecommunications directors	1136
Research and development managers	2150
Managers and directors in storage and warehousing	1162
Managers and proprietors in other services nec*	1259
Functional managers and directors nec*	1139
IT specialist managers	2133
IT project and programme managers	2134
Financial accounts managers	3538
Sales accounts and business development managers	3545

#### Construction project managers

Construction project managers and related professionals	2436
---	------

#### Other construction process managers

Production managers and directors in manufacturing	1121
Production managers and directors in construction	1122
Managers and directors in transport and distribution	1161
Waste disposal and environmental services managers	1255
Health and safety officers	3567
Conservation and environmental associate professionals	3550

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

IT operations technicians	3131
IT user support technicians	3132
Finance and investment analysts and 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 standards and regulations	3565
Programmers and software development professionals	2136
Information technology and telecommunications professionals nec*	2139
Estate agents and auctioneers	3544
Solicitors	2413
Legal professionals nec*	2419
Chartered and certified accountants	2421
Business and financial project management professionals	2424
Management consultants and business analysts	2423
Receptionists	4216
Typists and related keyboard occupations	4217
Business sales executives	3542
Bookkeepers, payroll managers and wages clerks	4122
Records clerks and assistants	4131
Stock control clerks and assistants	4133
Telephonists	7213
Communication operators	7214
Personal assistants and other secretaries	4215
Sales and retail assistants	7111
Telephone salespersons	7113
Buyers and procurement officers	3541
Human resources and industrial relations officers	3562
Credit controllers	4121
Company secretaries	4214
Sales related occupations nec*	7129
Call and contact centre occupations	7211



Customer service occupations nec*	7219
Elementary administration occupations nec*	9219
Chemical scientists	2111
Biological scientists and biochemists	2112
Physical scientists	2113
Laboratory technicians	3111
Graphic designers	3421
Environmental health professionals	2463
IT business analysts, architects and systems designers	2135
Conservation professionals	2141
Environment professionals	2142
Actuaries, economists and statisticians	2425
Business and related research professionals	2426
Finance officers	4124
Financial administrative occupations nec*	4129
Human resources administrative occupations	4138
Sales administrators	4151
Other administrative occupations nec*	4159
Office supervisors	4162
Sales supervisors	7130
Customer service managers and supervisors	7220
Office managers	4161
<b>Construction trades supervisors</b>	
Skilled metal, electrical and electronic trades supervisors	5250
Construction and building trades supervisors	5330
<b>Wood trades and interior fit-out</b>	
Carpenters and joiners	5315
Paper and wood machine operatives	8121
Furniture makers and other craft woodworkers	5442
Construction and building trades nec* (25%)	5319
<b>Bricklayers</b>	
Bricklayers and masons	5312
<b>Building envelope specialists</b>	
Construction and building trades nec* (50%)	5319
<b>Painters and decorators</b>	
Painters and decorators	5323
Construction and building trades nec* (5%)	5319
<b>Plasterers</b>	
Plasterers	5321
<b>Roofers</b>	
Roofers, roof tilers and slaters	5313
<b>Floorers</b>	
Floorers and wall tilers	5322

<b>Glaziers</b>	
Glaziers, window fabricators and fitters	5316
Construction and building trades nec* (5%)	5319
<b>Specialist building operatives not elsewhere classified (nec*)</b>	
Construction operatives nec* (100%)	8149
Construction and building trades nec* (5%)	5319
Industrial cleaning process occupations	9132
Other skilled trades nec*	5449
<b>Scaffolders</b>	
Scaffolders, staggers and riggers	8141
<b>Plant operatives</b>	
Crane drivers	8221
Plant and machine operatives nec*	8129
Fork-lift truck drivers	8222
Mobile machine drivers and operatives nec*	8229
<b>Plant mechanics/fitters</b>	
Metalworking production and maintenance fitters	5223
Precision instrument makers and repairers	5224
Vehicle technicians, mechanics and electricians	5231
Elementary process plant occupations nec*	9139
Tool makers, tool fitters and markers-out	5222
Vehicle body builders and repairers	5232
<b>Steel erectors/structural fabrication</b>	
Steel erectors	5311
Welding trades	5215
Metal plate workers and riveters	5214
Construction and building trades nec* (5%)	5319
Smiths and forge workers	5211
Metal machining setters and setter-operators	5221
<b>Labourers nec*</b>	
Elementary construction occupations (100%)	9120
<b>Electrical trades and installation</b>	
Electricians and electrical fitters	5241
Electrical and electronic trades nec*	5249
Telecommunications engineers	5242
<b>Plumbing and heating, ventilation, and air conditioning trades</b>	
Plumbers and heating and ventilating engineers	5314
Pipe fitters	5216
Construction and building trades nec* (5%)	5319
Air-conditioning and refrigeration engineers	5225

\*Not elsewhere classified



### Logistics

Large goods vehicle drivers	8211
Van drivers	8212
Elementary storage occupations	9260
Buyers and purchasing officers (50%)	3541
Transport and distribution clerks and assistants	4134

### Civil engineering operatives not elsewhere classified (nec\*)

Road construction operatives	8142
Rail construction and maintenance operatives	8143
Quarry workers and related operatives	8123

### Non-construction operatives

Metal making and treating process operatives	8117
Process operatives nec*	8119
Metalworking machine operatives	8125
Water and sewerage plant operatives	8126
Assemblers (vehicles and metal goods)	8132
Routine inspectors and testers	8133
Assemblers and routine operatives nec*	8139
Elementary security occupations nec*	9249
Cleaners and domestics*	9233
Street cleaners	9232
Gardeners and landscape gardeners	5113
Caretakers	6232
Security guards and related occupations	9241
Protective service associate professionals nec*	3319

### Civil engineers

Civil engineers	2121
-----------------	------

### Other construction professionals and technical staff

Mechanical engineers	2122
Electrical engineers	2123
Design and development engineers	2126
Production and process engineers	2127
Quality control and planning engineers	2461
Engineering professionals nec*	2129
Electrical and electronics technicians	3112
Engineering technicians	3113
Building and civil engineering technicians	3114
Science, engineering and production technicians nec*	3119
Architectural and town planning technicians*	3121
Draughtspersons	3122
Quality assurance technicians	3115
Town planning officers	2432
Electronics engineers	2124
Chartered architectural technologists	2435
Estimators, valuers and assessors	3531
Planning, process and production technicians	3116

### Architects

Architects	2431
------------	------

### Surveyors

Quantity surveyors	2433
Chartered surveyors	2434

\*Not elsewhere classified





## SECTION 6

# CSN WEBSITE AND CONTACT DETAILS

### The CSN website [citb.co.uk/csn](http://citb.co.uk/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 12 LMI reports (one for Northern Ireland, Scotland, Wales and each of the nine English regions) can be downloaded from the site, while other CITB research reports are also freely available on the CITB website. 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 that 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 to enter the workforce.

The website also contains 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 CITB research
- Details for those interested in becoming members of the network.

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 that play a vital role in feeding back observations, knowledge and insight into 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
- 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, enquiries relating to the work of the CSN, or to register your interest in becoming a member of the CSN, please contact us at: [csn@citb.co.uk](mailto:csn@citb.co.uk)

**For more information about the  
Construction Skills Network, contact:  
Adam Evans  
Research Analyst  
Policy and Research  
0300 456 7226  
[research.team@citb.co.uk](mailto:research.team@citb.co.uk)**

---

**[citb.co.uk](http://citb.co.uk)**



In association with



CITB is registered as a charity in England and Wales (Reg No 264289) and in Scotland (Reg No SC044875).  
CITB is a partner in ConstructionSkills, the Sector Skills Council for the UK construction industry.