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In association with Experian

Construction Skills Network

Blueprint for Construction 2014-2018

Labour Market Intelligence

Contents

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

Chairman's message

The last 12 months have undoubtedly provided some much needed confidence, reassurance and optimism for the UK's construction industry.

This time last year, the CSN forecast did not make easy reading: following a 'perfect storm' of public sector cutbacks and a lack of private sector investment, we were predicting 10 more years of pain. 2013 continued to present tough trading conditions leading to a further decline in employment with another 40,000 jobs being shed.

Something needed to change in order to revive the sector. Thankfully, that has happened, and we've seen a number of important Government initiatives – most notably, Help to Buy – combined with a more bullish private sector to improve the outlook for construction.

Fuelled largely by the demand for 245,000 new homes across the country each year, the housing sector will play a huge part in a return to growth. Indeed, when factoring in associated repair and maintenance, housing will account for 37% of construction's annual output to 2018.

Infrastructure will also play a role. In the past 12 months we've seen a strike price agreed for the nuclear build at Hinkley Point and Hitachi, via its Horizon project, has committed to help finance the Wylfa nuclear development.

On average, we will see output grow by 2.2% annually over the next five years. And with that growth comes the need for more talented staff to fulfil the industry's order book – 36,400 of them on average each year, and 182,000 in total.

It's important to note, however, that this growth will not be spread evenly across the regions. Output increases will be strongest in the South West (+3.5%) including Hinkley Point, Wales (+3.4%) including Wylfa and East Anglia (+3%), while the North West (+1.3%), the East Midlands (+1.1%) and the West Midlands (+0.8%) will be slower to feel the effects of the return to growth. The West Midlands will also be the only region to see its workforce shrink further between 2014 and 2018.

So, despite the indications that the construction industry – and the economy as a whole – is turning the corner, CITB is urging a note of caution amid signs of a recovery. After all, even in 2018, construction employment levels will still be 196,000 down on their pre-recession peak.

That's why measures must be taken now to ensure growth is sustained in the long term. Clarity and certainty over future projects gives employers the confidence to train and plan.

We'd therefore welcome any fresh incentives to encourage further house building, and the assurance that major infrastructure projects in the pipeline will go ahead as planned. We look forward to working with Government, and industry, to make sure that happens over the next few years.

At the heart of any recovery for businesses is the need to understand the labour market and its drivers, to have a clear idea of where growth is coming from and what's fuelling it. That's exactly what the CSN forecast – now in its ninth year – provides. I do hope you find this year's report of interest and value.

Judy Lowe
Chairman, Construction Skills Network

The big picture

At the end of 2012, it still seemed that sustained recovery for the UK economy as a whole, and the construction industry in particular, was a long way off. However, since the second quarter of 2013, growth has accelerated strongly, indicating that the outturn for the year as a whole is likely to have been much better than most analysts anticipated at the start of 2013.

A major spur to the economy seems to have been the effect on consumer confidence engendered by the Help to Buy scheme, which has kick-started the housing market quite substantially.

However, there is concern that the recovery is being fuelled largely by consumer spending growth, despite a continuing decline in real household disposable incomes. Expansion in business investment, especially to the SME sector, is still muted. This indicates that consumers are driving spending by delving into savings and/or increasing their debt, which is not a sustainable trend for any period of time unless real disposable incomes start to increase again.

Nevertheless, robust growth in GDP is finally leading to the long-awaited recovery in the private construction sectors, especially in the private housing sector, and the industry should see a moderate expansion of around 2.2% a year on average over the five years to 2018. This is significantly better than the 2012 forecast of 1% a year on average over the five years to 2017.

This rate of output growth should lead to a rise in construction employment in 2014 for the first time since the financial crisis hit in 2008. Over the 2014 to 2018 period, employment is projected to grow by an annual average of 1.2%.

A growing economy

After a very poor year in 2012 the performance of the construction industry has strengthened significantly during the course of 2013, led primarily but not exclusively by the private sectors. There is little doubt that the Government's Help to Buy scheme has provided a major boost, not only to the private house building sector but also to the economy as a whole. After expansion of 0.3% in the first quarter of 2013, UK GDP grew by 0.7% in the second quarter and 0.8% in the third quarter. It is expected to have performed at least as well in the final quarter of the year.

The international outlook

This is despite a mixed performance across the global economy in the second half of 2013. Many emerging market economies lost momentum following financial market volatility in the wake of the US Federal Bank's announcement that quantitative easing (QE) could soon end, while the eurozone's performance remained weak, with growth in the third quarter of 2013 easing to just 0.1%. Despite the European Central Bank's recent interest rate cut to 0.25%, the prospects for 2014 for the eurozone is for modest growth of only 1%. However, the decline in output in periphery eurozone countries seems to be ending, which should subsequently improve GDP expansion. However, in the short term there is little prospect of a boost in UK exports to major trading partners in the European Union.

Data for the US remains encouraging and the underlying recovery is gaining momentum. Consumer spending is solid amid strongly rising employment, and business investment is picking up after a modest rise in 2012. Tight Government finances will curb growth, but US GDP growth is expected to reach 2.7% in 2014 and around 3% in the following two years.

In Asia, prospects are mixed but generally encouraging. China is on track to post growth at nearly 7.5% over the next few years, down from previous rates but consistent with Government objectives of promoting financial stability and moving the economy to a more balanced and sustainable growth path. In India, growth has slowed considerably this year and measures to combat high inflation will hamper expansion in 2014. In Japan, prospects are brighter, highlighting the success of Prime Minister Abe's economic strategy. GDP expansion of around 1.5% a year is expected to 2016, contributing to annual growth in the Asia Pacific region of nearly 5%.

Constraints to growth

This generally benign international scenario should help the UK manage GDP growth of about 2% per annum on average for the five years to 2018, although this remains below the long-term average of around 2.5%. Several drags on the UK economy remain, which are likely to constrain growth over the medium term:

- Export prospects constrained by poor eurozone performance in the short term
- Government fiscal tightening is now projected to continue to at least 2018
- Weaker contribution from consumers – heavy indebtedness, a greater tax burden, higher savings, higher pension contributions and more modest job creation will limit future expansion
- Continuing balance sheet adjustment in the banking sector, along with further turmoil such as the near-failure of the Co-operative Bank, allegations of exchange rate rigging and the Royal Bank of Scotland being in trouble again
- Growth in finance and insurance, and professional and other private services, will not be as vigorous as in the last growth cycle
- A loss in productivity over the past five years.

The picture between sectors

The positive aspect of this scenario is that growth is expected to be much more even across the sectors than during the last five-year growth period between 2002 and 2007, when it was centred to a great extent on the finance and insurance and professional and other private services sectors. Expansion is expected to be strongest between 2014 and 2018 in the information and communication sector, with an annual average growth of 3.1%. This has been an up-and-coming sector in the UK economy as the pace of technological change has accelerated, and is forecast to account for 7% of output in 2018, up from 4.7% in 2000.

Of the larger sectors, finance and insurance is expected to fare best over the 2014 to 2018 period with annual average growth of 2.6%, but this is well down on its performance over the period from2002 to 2007 (7.1%). The wholesale and retail sector is projected to see growth averaging 2.4% a year, while the largest sector in the economy, professional and other private services, has a predicted growth rate of 2.3% a year on average. In contrast, public services is unlikely to manage more than half a percent a year on average as the Government continues to try to reduce public debt levels. The manufacturing sector is forecast to see annual average growth of 1.2% between 2014 and 2018, not much better than its performance between 2002 and 2007 (1.1%). It will continue to lose share, dropping below 10% of UK output in 2017.

For the reasons mentioned, household consumption growth over the 2014 to 2018 period is expected to lag behind that of the 2002 to 2007 period (2.2% vs. 2.8% a year on average), as is workforce jobs growth (0.8% vs. 1.1%).

Drivers of growth

Despite the predicted below-trend economic growth, construction is expected to fare slightly better over the 2014 to 2018 period than it did between 2002 and 2007 (with an annual average growth rate of 2.2% vs. 2%). There are three main reasons for this:

1. Construction has been one of the worst-hit sectors over the 2008 to 2012 period, with an annual average decline of 3%, so it is recovering from a lower base than most other economic sectors

2. Government-supported schemes to boost the housing market should provide a boost to private house building, at least in the short term

3. The requirements to improve transport networks and replace ageing energy capacity will drive infrastructure activity to new historic highs over the forecast period.

Thus strongest annual average growth is projected for the private housing (4.6%) and infrastructure (3.6%) sectors between 2014 and 2018, although all sectors except public non-housing are expected to see some expansion over the forecast period. Even activity in the public non-housing is predicted to stabilise by 2016.

Employment trends over the forecast period

By the end of 2013, construction output is estimated to have fallen by around 15% from its 2007 peak, while employment is likely to be down by 13%. Thus the gap between the performance of output and employment in the sector has narrowed since 2012, indicating that the issue of excess capacity and its impact on future employment growth has eased somewhat, although there are significant differences across the regions and devolved nations. The closing of the output/employment gap should lead to employment in the industry starting to rise again from 2014 and to reach 2.588 million by 2018, although this will still be well down on the 2008 peak of 2.863 million. This represents an annual average employment growth rate of 1.2% over the 2014 to 2018 period.

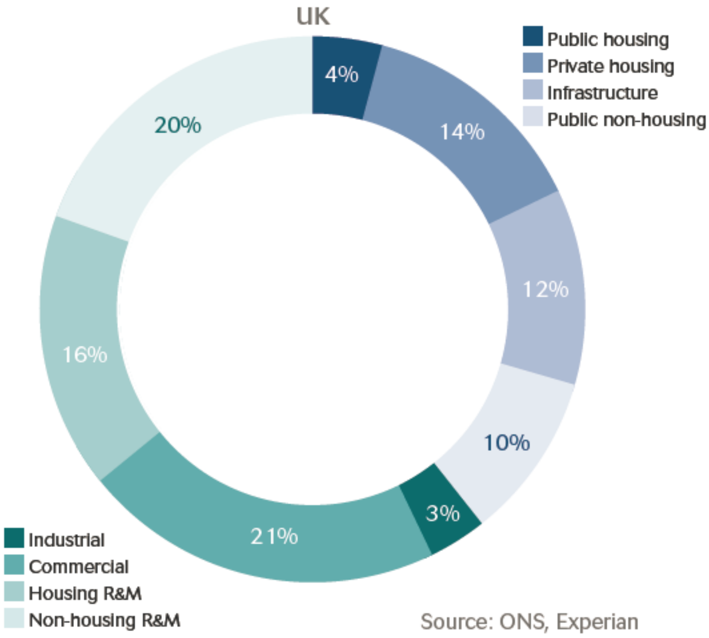
As has been mentioned in previous reports, the fragmented nature of the construction industry means that changes in its structure and working practices tend to occur over the long term; so it can take a long time for new practices to filter down the supply chain. As a result, movements in the shares of the 28 occupational groups for which forecasts are made are small over the five-year period. On the trade side, some growth in respective shares of total employment are expected for wood trades and interior fit-out and plant mechanic/fitters over the five years to 2018, while plasterers are likely to experience a relative decline. However, the changes over the period are small at around ±0.5%.

In terms of absolute growth, demand is expected to be strongest for plant mechanics/fitters (3.9% a year on average), civil engineering operatives nec (not elsewhere classified) (2.8%), and other construction process managers and surveyors (2.5%). Twenty-four out of the 28 occupational groups are expected to show some growth in employment over the forecast period, the exceptions being plasterers (-1.2%), steel erectors/structural fabrication (-1%), labourers nec (-0.7%), and non-construction operatives (-1.3%).

The projected annual recruitment requirement (ARR) for the 2014 to 2018 period is estimated to be 36,400, an increase on the 29,050 put forward last year for the 2013 to 2017 period, reflecting the better prognosis for both output and employment. The ARR brings together increases in demand for employment based on anticipated levels of workload, with the supply-side 'churn' in the industry, i.e. those moving in and out of the industry due to retirement, death, movements between industries, and so on – but it does not include flows in from training. The ARR represents the levels of recruitment required in addition to the normal 'churn' rates in a particular period.

In absolute terms, the largest ARRs for construction-specific occupational groups are for wood trades and interior fit out (4,260), painters and decorators (2,680) and electrical trades and installation (1,950). However, these large absolute ARRs tend to be a function of the size of the occupational group and, as a ratio of projected 2014 employment, the largest requirements are for plant mechanics/fitters (4.9%) and logistics personnel (4.7%).

Construction industry structure 2012 UK



Source: ONS, Experian

Total employment by occupation - UK

Annual recruitment requirement (ARR) by occupation - UK

Occupation	2014	2018	ARR
Senior, executive, and business process managers	162,350	172,860	2,310
Construction project managers	47,440	51,630	400
Other construction process managers	183,380	201,900	640
Non-construction professional, technical, IT and other office-based staff	328,890	338,400	6,570
Construction trades supervisors	48,000	51,620	570
Wood trades and interior fit-out	244,700	260,860	4,260
Bricklayers	60,470	61,080	1,740
Building envelope specialists	99,540	103,300	1,520
Painters and decorators	104,600	106,700	2,680
Plasterers	44,330	42,630	1,050
Roofers	44,430	46,200	1,110
Floorers	27,380	27,810	510
Glaziers	29,240	29,640	770
Specialist building operatives nec*	50,760	51,470	650
Scaffolders	23,150	25,420	570
Plant operatives	39,850	42,310	530
Plant mechanics/fitters	38,710	45,210	1,880
Steel erectors/structural fabrication	22,710	21,940	110
Labourers nec*	111,910	109,420	1,230
Electrical trades and installation	176,720	185,470	1,950
Plumbing and HVAC Trades	154,810	159,130	1,540
Logistics	20,170	20,450	940
Civil engineering operatives nec*	22,430	25,220	440
Non-construction operatives	28,460	27,040	-
Civil engineers	51,940	54,940	1,170
Other construction professionals and technical staff	188,640	205,580	630
Architects	44,120	46,370	290
Surveyors	66,910	73,770	340

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

Comparing the sectors

Public and private new housing

Both the public and private housing sectors have experienced rising output in recent quarters and, for private housing, outturn was the best during the third quarter of 2013 since the second quarter of 2008. In the public sector, while funding under the 2011 to 2015 Affordable Housing Programme (AHP) is much lower than in the 2008 to 2011 period, and led to a sharp contraction in output in 2012, social housing providers have become much more adept at accessing finance from other sources, with borrowing facilities totalling £69bn in the three months to September 2013.

There is little doubt that the Help to Buy scheme has provided a significant boost to the housing market, with a step-change in levels of output in the second quarter of last year after the April introduction of the equity part of the scheme. The mortgage guarantee element, which was introduced in October, three months ahead of schedule, has further enlivened the market, to the extent that, from February 2014, the Bank of England is directing the Funding for Lending scheme away from the mortgage market and towards small businesses. This is partly to assuage fears of a house price bubble but primarily it will address the lack of lending to SMEs.

Thus both the public and private housing sectors are likely to have seen some growth in output in 2013, although in the latter case activity will still be well down on its 2006 peak.

The prospects for growth in the public housing sector are moderate over the forecast period, at an annual average rate of 2.2%. However, the next AHP for England, from 2015 to 2018, will be further reduced from current levels, down by 27% to £3.3bn. How social housing providers deal with this reduction will heavily influence growth rates after 2015.

The outlook is stronger for private house building over the forecast period, with an annual average growth rate of 4.6% to 2018. The Help to Buy scheme in particular is providing a strong boost to the market, with over 5,000 new-build properties bought under the equity loan part of the scheme in its first six months, and 2,000 applications made in the first month of the mortgage guarantee element. Help to Buy should continue to boost the sector at least during 2014, although there is uncertainty about what might happen once the £12bn of mortgage guarantees under the scheme are taken up. Thus, stronger growth is projected for the earlier part of the forecast period.

Infrastructure

The infrastructure sector continues to see output sustained at a high level, albeit slightly off its historic high in 2011. Work on Crossrail is now approaching its peak, which is scheduled to be 2014–2015, with activity continuing on a variety of major projects in the sector, such as redevelopment of London Bridge railway station under the Thameslink programme, station redevelopments at Victoria, Bond Street and Tottenham Court Road, the Queensferry crossing in Scotland and a number of managed motorway schemes across England.

Output is projected to continue to grow at an annual average rate of 3.6% in the five years to 2018 and to exceed its previous 2011 peak in 2014. The sector will continue to be driven by improvements to the nation's transport infrastructure, the work to ensure that the UK has enough energy capacity to meet anticipated demand, and the move to renewable energy generation to meet carbon emission reduction commitments. In addition to the largest of the transport projects currently on site, several further projects are scheduled to start in the forecast period: the new Mersey Crossing, further upgrades to the motorway and trunk road network, such as the £314m widening of the A1 between Leeming Bar and Barton (a project that was originally cancelled when the coalition government came to power in 2010), and rail works such as the electrification of the Great Western Main Line.

On the energy side, main works are finally expected to start on the first of the new nuclear build projects at Hinkley Point in 2014, after EDF Energy and the Government finally agreed a 'strike price' for the electricity that will be generated from the power station. However, some uncertainty remains, as the European Commission has to ensure that the deal does not infringe European Union state aid rules. Further new nuclear build projects should also start at Wylfa in Wales and Sizewell C in the East of England before the end of the forecast period.

Public non-housing

Not surprisingly given current public expenditure constraints, public non-housing output has continued to decline. The Building Schools for the Future (BSF) 'legacy' project pipeline is now reduced to a few schemes in the Wolverhampton area, while because the Priority School Building Programme is largely privately financed, the output will appear in the commercial construction sector. However, while overall construction expenditure on schools and colleges continues to decline, for universities it has been expanding as higher education institutions are competing to attract students.

Given that the Government has signalled that austerity measures will continue to 2018 and that departments are expected to find a further 6.5% of expenditure cuts in 2014–2015, it is unlikely that output in the public non-housing construction sector will stabilise until 2016. However, winners and losers are likely across the sub-sectors in the next few years. While the prospects for constructing publicly funded schools and colleges remains muted, the universities sub-sector is likely to see some growth in the short term, with the Universities of Northampton, Surrey, Wolverhampton, Salford and Manchester all beginning expansion schemes during the forecast period. In Wales, over the past few months some £225m of additional funding has been provided for the 21st Century Schools programme to accelerate building projects. The programme is now due to be completed in 2018–2019 rather than in 2020–2021 and this acceleration should lead to more investment during the current forecast period.

The publicly funded health construction sub-sector will benefit from the reclassification of the redevelopment of the Royal Liverpool hospital, due to start in 2014, as the majority of the funding will now come from the public purse. However, general levels of capital expenditure under the ProCure 21+ programme are likely to decline over the forecast period.

Construction output 2014-2018 – UK (£ million, 2005 prices)

	Estimate	Forecast *Annual % change*					Annual average
	2013	2014	2015	2016	2017	2018	2014-18
Public housing	4,044	0%	2%	2%	2%	5%	2.2%
Private housing	14,476	7%	5%	4%	3%	4%	4.6%
Infrastructure	12,317	9%	4%	0%	3%	2%	3.6%
Public non-housing	8,665	-10%	-2%	1%	1%	3%	-1.5%
Industrial	3,382	8%	5%	1%	1%	0%	3.0%
Commercial	20,721	-5%	0%	4%	4%	5%	1.5%
New work	63,605	1%	2%	2%	3%	4%	2.4%
Housing R&M	16171	2%	4%	3%	3%	2%	2.8%
Non-housing R&M	19,792	0%	2%	2%	2%	0%	1.2%
R&M	35,963	1%	3%	2%	2%	1%	2.0%
Total work	99,569	1%	2%	2%	3%	3%	2.2%

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

Industrial

It looks as if activity on the new factory projects in the automotive sector has already peaked and may be heading downwards. Thus, growth is expected to be strongest in the warehouses sub-sector. New distribution and logistics facilities are planned for Peterborough, north-west Leicestershire, Aberdeen and the Medway, and there should be ongoing works on the development of the London Gateway logistics park, upon which some £1bn of schemes should be implemented over the next decade. Overall, the sector is projected to see annual average output growth of around 3% over the five years to 2018.

Commercial

While demand for office and retail premises has been returning since the beginning of 2013, it can take some time for this to translate to work on the ground; hence a relatively modest annual average growth rate of 1.5% is projected for the 2014 to 2018 period. However, there has been an upswing in the offices sub-sector with some analysts expecting activity in London to reach a 10-year peak in 2014 and the return of speculative development to some of the main regional markets after a long period of dormancy.

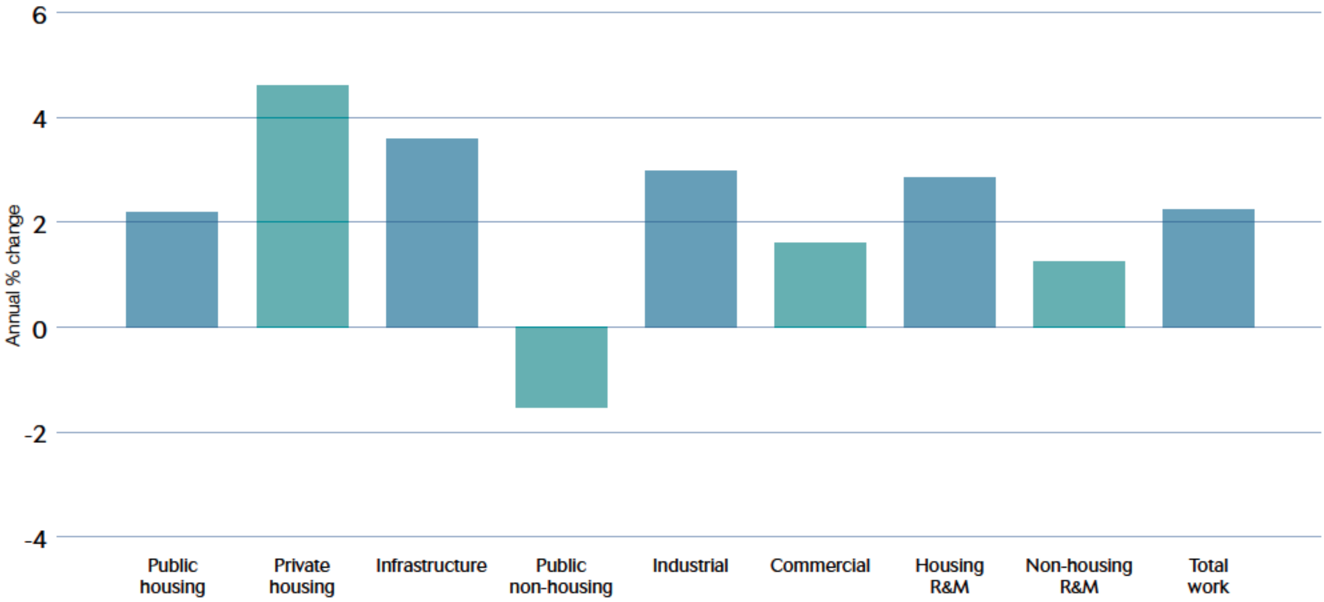
The office construction sub-sector is expected to be the strongest in the commercial sector over the forecast period, while the outlook for retail and leisure is more muted. Retail sales growth has tailed off somewhat and the rise of online retail continues to, further erode the need for a high street presence. Nevertheless, the pipeline of retail developments has expanded a little in recent months, with projects in Leeds, Croydon and Brent Cross due to start during the forecast period. The strength of growth in leisure construction could be heavily predicated on the go-ahead for work on the proposed £2bn Paramount Park in north Kent during the forecast period.

Repair and maintenance

Activity in the repair and maintenance sectors (R&M) overall has been largely flat in in 2013, with only infrastructure R&M and, surprisingly, the public non-housing R&M sectors showing any real growth. Public housing R&M continues to suffer from the severe financial constraints experienced by local authorities, while the private housing side remains impacted by pressure on real household disposable incomes.

The prospects for housing R&M work are good. Improvements to the Welsh public housing stock continue under the Welsh Housing Quality Standard Scheme, and the Arbed retrofitting programme and a number of English local authorities and registered social housing landlords are implementing energy efficiency retrofitting measures on their stock through the Energy Company Obligation (ECO) and Green Deal. However, financial constraints on local authority budgets mean that any growth is likely to be modest. Growth in private housing R&M is likely to be much stronger than in the public sector. The sector performed poorly in 2011 and 2012 as households retrenched on spending and increased their savings in a period of economic uncertainty. However, growth seems to have returned to the sector in 2013, despite real household disposable incomes remaining under pressure. As this pressure eases, growth should strengthen over the next couple of years. There are also indications that, although the take up of retrofitting measures under the Green Deal remains low, a proportion of those undertaking assessments under the programme are subsequently commissioning work outside of it.

Annual average construction output growth 2014-2018 – UK



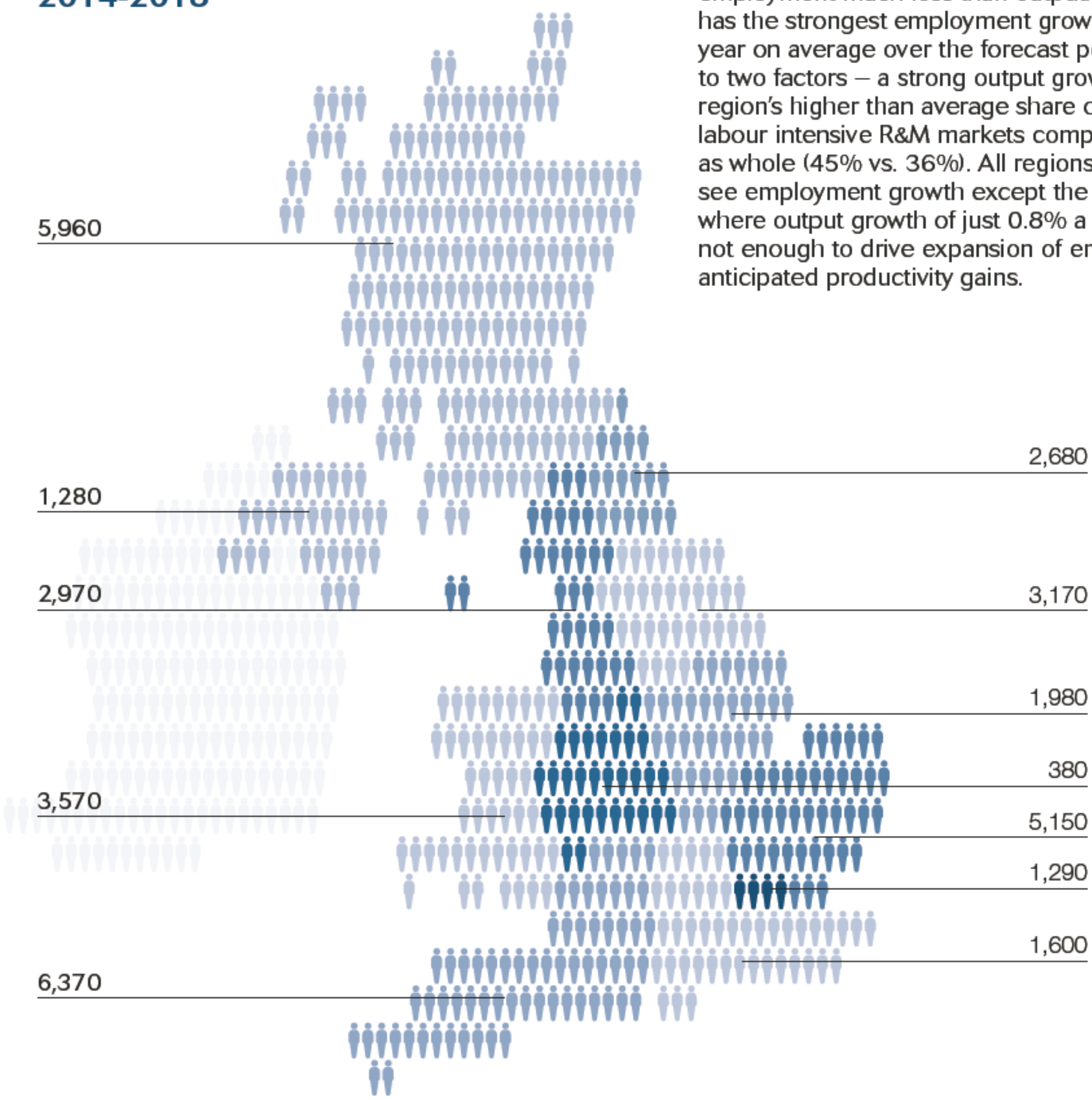
Source: CSN, Experian
ref. CSN Explained, Section 3, Note 2

Comparing the UK regions and nations

The strongest growth in construction output is expected in the South West and Wales, as both will benefit from new nuclear build projects during the forecast period. Even though main construction works at Wylfa are not due to start until mid-2017 at the earliest, this is a very large project in a relatively small market, making its impact on overall construction output similar to Hinkley Point in the South West, despite the latter starting three years earlier.

Once the South West and Wales are stripped away, the south east corner of England is again due to do rather better than the rest of the UK. The South East benefits disproportionally from growth in the private housing market which takes a larger share of output in the region than the UK average (18% vs. 14%). This combined with a higher than average growth rate (5.7% vs. 4.6%) helps boost overall expansion in the South East's construction market (with an annual average growth of 2.9% to 2018). The East of England has a slightly stronger average growth rate of 3% a year.

Number of new recruits required annually 2014-2018

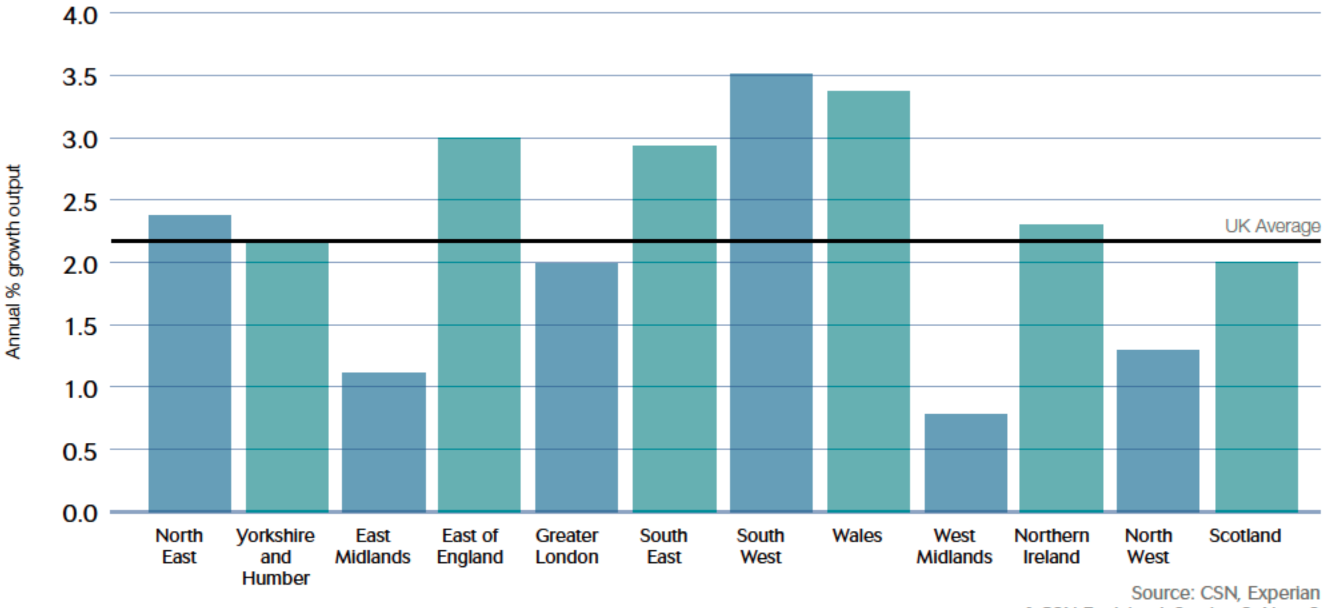


The main reasons for the region's higher than average increase in construction output are good growth in private housing, combined with higher than average infrastructure expansion when work starts on the site of the Sizewell C new nuclear project at the beginning of 2018. In addition, strong growth in industrial construction is linked to the development of distribution and logistics facilities around London Gateway Port.

Interestingly however, Greater London's projected annual average output growth rate of 2% is slightly below the UK average (2.2%). Greater London is the only region to have experienced expansion in construction output in real terms over the five years to 2012; therefore activity in some sectors may be close to peaking. For example, infrastructure activity is projected to decline by an annual average of 2.4% in the five years to 2018, as projects such as Crossrail and Thameslink wind down in the second half of the forecast period.

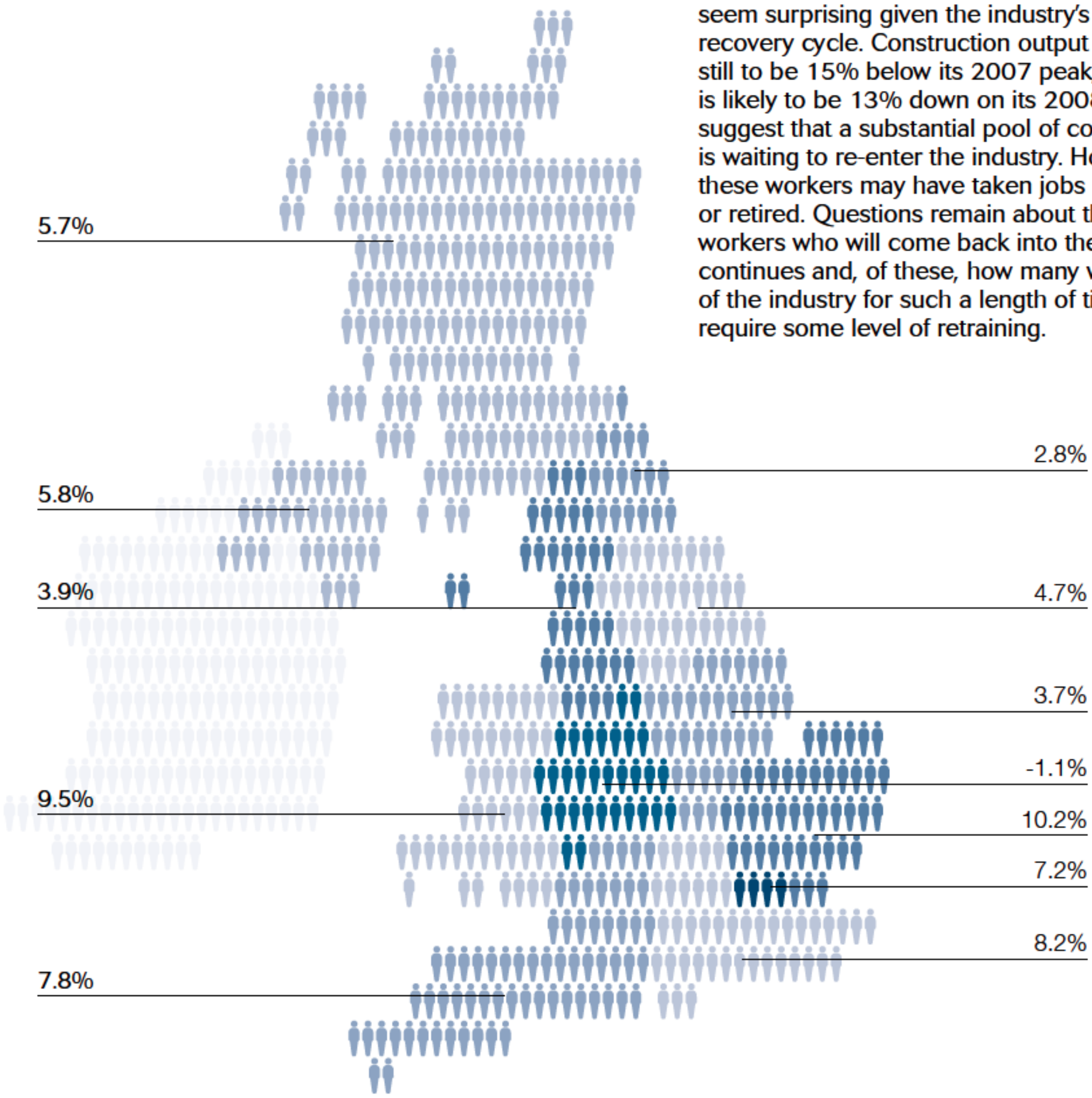
Despite the South West and Wales being the strongest areas in output terms, they do not top the employment rankings. Infrastructure work has a smaller labour requirement than other sectors and so impacts employment much less than output. The East of England has the strongest employment growth rate, of 2% a year on average over the forecast period. This is due to two factors – a strong output growth rate and the region's higher than average share of the much more labour intensive R&M markets compared with the UK as whole (45% vs. 36%). All regions are expected to see employment growth except the West Midlands, where output growth of just 0.8% a year on average is not enough to drive expansion of employment given anticipated productivity gains.

Annual average output growth by region 2014-2018



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

Total employment growth 2014-2018



Concerns about prospective skills shortages have been increasing in some quarters recently, which may initially seem surprising given the industry's position in the recovery cycle. Construction output in 2013 is likely still to be 15% below its 2007 peak, and employment is likely to be 13% down on its 2008 peak. This would suggest that a substantial pool of construction workers is waiting to re-enter the industry. However, many of these workers may have taken jobs in other sectors, or retired. Questions remain about the number of workers who will come back into the industry as growth continues and, of these, how many will have been out of the industry for such a length of time that they will require some level of retraining.

Scotland

Scotland is projected to see annual average output growth of 2% over the 2014 to 2018 period, slightly lower than the UK average of 2.2%. Average growth rates are expected to be the same for the new work and repair and maintenance (R&M) sectors. This translates into an annual average employment growth rate of 1.1% for Scotland, once again slightly below the UK average (1.2%). However, the devolved nation's annual average recruitment requirement (ARR), at 5,960, is the second highest in the UK and equates to 2.8% of base 2014 employment.

Key findings

After a year of strong expansion in 2010, Scottish construction output fell in the following two years, with a 5% decline in 2011 and a deeper 13% contraction in 2012. However, activity is expected to have picked up by 7% in 2013. Construction output at 2005 prices is estimated to be £8.3bn in 2012, the lowest annual figure since 1994; thus the recovery in 2013 is from a low base.

Output in the private housing sector is projected to expand at an annual average rate of 4.7% over the forecast period, the strongest growth across the industry in Scotland. The pipeline includes a number of sustainable housing developments, the largest of which is the £1.5bn Owenstown development in the Douglas Valley.

At the other end of the scale, public non-housing activity is expected to see an annual average decline in the five years to 2018 at a rate of 0.9%, the only new work sector projected to see a contraction over the period. Nevertheless, the sector is expected to return to growth in the second half of the forecast period, as the impact of public expenditure cuts eases. The Scottish Government's draft budget for 2014–2015 shows the capital departmental expenditure limit (DEL) for health to be around £250m for that period, well below the £400m estimated expenditure in the previous year. Further cuts of £163m are planned for the 2015–2016 period.

An improving economic scenario should lead to increased investment in commercial construction, which is forecast to see annual average output increases of 1.8%, although it can take a little time for this to transfer to activity on the ground. Work is set to commence in 2014 on a £1bn mixed-use development in West Lothian, but real growth will be led by the return of speculative development in the Edinburgh and Glasgow office markets.

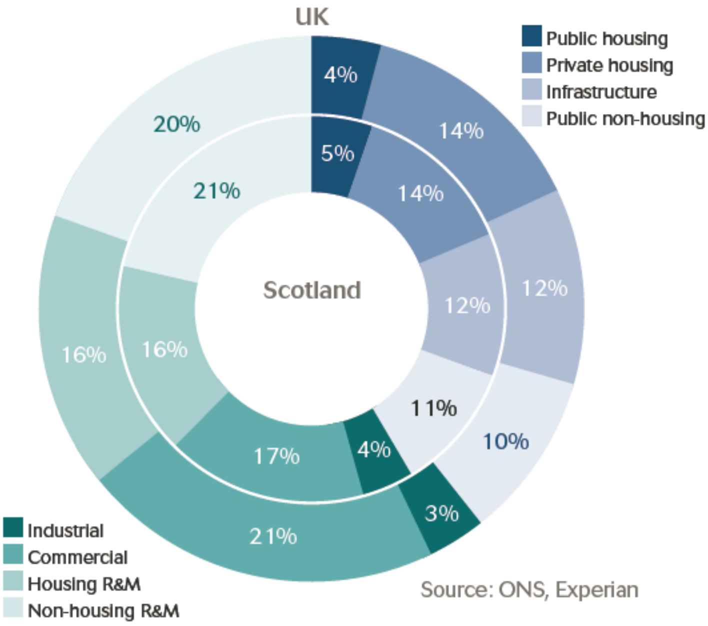
Scotland's annual average output growth of 2.0% over the 2014 to 2018 period is slightly lower than the UK average of 2.2%

Employment growth is projected to average 1.1% a year in the 2014– 2018 period, roughly in line with the UK average of 1.2%.

Scaffolders are expected to be the occupational category with the strongest growth rate in the five years to 2018, at 4.9% (annual average), followed by project managers (3.6%) and other construction process managers (3.4%). The majority of occupational categories (21 out of 28) should see an increase in employment over the forecast period.

Scotland's ARR is 5,960, which is equivalent to 2.8% of base 2014 employment, well above the UK average of 1.5%. In absolute terms, the trade sector with the largest requirement is painters and decorators, at 850. In terms of base 2014 employment, logistics personnel have the highest requirement, at a little over 9%.

Construction industry structure 2012
UK vs. Scotland



Source: ONS, Experian

Total employment by occupation - Scotland

Annual recruitment requirement (ARR) by occupation - Scotland

Occupation	2014	2018	ARR
Senior, executive, and business process managers	10,580	11,090	400
Construction project managers	3,480	3,980	110
Other construction process managers	14,900	16,880	-
Non-construction professional, technical, IT and other office-based staff	24,560	24,950	1,430
Construction trades supervisors	4,730	3,910	90
Wood trades and interior fit-out	21,290	23,250	710
Bricklayers	4,730	4,580	-
Building envelope specialists	4,930	5,100	60
Painters and decorators	9,510	9,610	850
Plasterers	2,430	2,220	-
Roofers	5,270	5,490	-
Floorers	2,810	2,850	-
Glaziers	2,560	2,550	-
Specialist building operatives nec*	3,170	2,970	-
Scaffolders	1,910	2,270	90
Plant operatives	3,880	4,360	170
Plant mechanics/fitters	3,800	4,330	310
Steel erectors/structural fabrication	1,690	1,610	<50
Labourers nec*	9,450	9,020	310
Electrical trades and installation	17,360	18,810	-
Plumbing and HVAC Trades	12,330	12,280	530
Logistics	1,760	1,880	160
Civil engineering operatives nec*	2,330	2,370	130
Non-construction operatives	3,480	3,210	-
Civil engineers	8,190	8,550	590
Other construction professionals and technical staff	24,040	25,740	-
Architects	4,060	3,750	-
Surveyors	7,510	8,240	-

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

North East

The North East is predicted to see an annual average increase of 2.4% in construction activity over the forecast period, performing better than the UK as a whole, where annual average growth of 2.2% is projected. Construction employment is likely to be around 97,750 in 2018, 3% higher than in 2013. The region accounts for 7.4% of the total UK annual recruitment requirement (ARR) and it represents 2.8% of total projected base 2014 employment in the North East, higher than the UK figure of 1.5%.

Key findings

The best performing sector is expected to be public housing, with annual average output growth of 6.7% over the next five years. However, the market will be coming back from low levels and, by the end of the forecast period, the outturn for the sector will still be around 40% smaller than its 2010 peak. It should also be noted that the sector is small and percentage growth figures can be volatile.

One large project planned for the sector has been announced by Newcastle City Council, which plans to spend around £130m building 1,200 new homes on council-owned land by 2017.

The infrastructure sector is likely to experience annual average increases of 5.3% between 2014 and 2018. MGT Power Ltd's new £400m biomass power plant is likely to be the main driver of growth in the sector under both short term and longer term forecasts. However, other medium-sized projects planned for the region are due to take place in the latter half of the forecast period so will also contribute towards the sector's growth levels.

Private housing output is projected to expand by 4.7% a year on average, driven by better economic conditions and funding schemes such as Help to Buy. However, estimated output in 2013 was only 65% of its 2007 peak, so it will be recovering from a relatively low base.

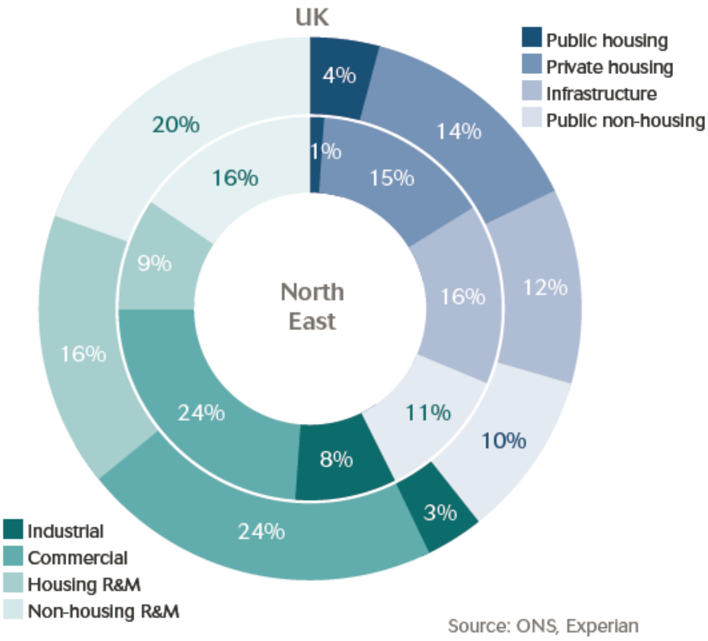
Over the 2014-2018 forecast period, public non-housing and commercial are the only sectors that are likely to register average annual declines, of 1.6% and 0.6% respectively. Financial constraints means that the former will subside to pre-Building Schools for the Future levels, while the latter may struggle to see growth before 2016, when better economic conditions should begin to filter through into investment decisions regarding the North East.

Construction activity is expected to increase by an average of 2.4% over the forecast period

Total construction output growth in the region (2.4% vs. 2.2%) is slightly higher than that of the UK as a whole, yet the annual average employment growth is significantly lower (0.6% vs. 1.2%). This is partly because the North East is one of the regions where output fell much more strongly than employment from its pre-recessionary peak (31% vs. 13%), suggesting that there is significant excess capacity in the market at present.

The region's ARR, at 2,680, represents 2.8% of the total projected base 2014 employment, higher than the UK average (1.5%). The largest absolute requirement is for construction trade supervisors but, as a share of 2014 base employment, wood trades and interior fit-out occupations will be the most sought after, at 7%.

Construction industry structure 2012 UK vs. North East



Source: ONS, Experian

Total employment by occupation - North East

Annual recruitment requirement (ARR) by occupation - North East

	2014	2018	ARR
Senior, executive, and business process managers	4,590	5,020	190
Construction project managers	1,600	1,630	50
Other construction process managers	6,330	6,470	-
Non-construction professional, technical, IT and other office-based staff	10,030	10,390	640
Construction trades supervisors	4,540	4,200	110
Wood trades and interior fit-out	7,410	7,870	520
Bricklayers	2,690	2,720	70
Building envelope specialists	1,840	1,950	<50
Painters and decorators	2,360	2,370	<50
Plasterers	2,400	2,190	-
Roofers	2,100	2,010	70
Floorers	2,530	2,290	50
Glaziers	690	770	<50
Specialist building operatives nec*	3,820	4,100	250
Scaffolders	1,080	1,180	50
Plant operatives	2,540	2,660	<50
Plant mechanics/fitters	2,530	3,080	100
Steel erectors/structural fabrication	1,170	1,120	60
Labourers nec*	5,520	5,200	60
Electrical trades and installation	7,340	7,160	<50
Plumbing and HVAC Trades	7,760	7,720	170
Logistics	390	380	-
Civil engineering operatives nec*	1,480	1,950	60
Non-construction operatives	360	310	<50
Civil engineers	1,670	1,850	50
Other construction professionals and technical staff	8,950	9,350	<50
Architects	330	350	-
Surveyors	1,360	1,460	-

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

North West

The North West is projected to see an annual average increase of 1.3% in construction activity over the forecast period, faring worse than the UK as a whole, where annual average growth of 2.2% is predicted. Construction employment is likely to be around 273,890 in 2018, 4% higher than in 2014. The region accounts for 8.2% of the total UK annual recruitment requirement (ARR) and it represents 1.1% of total projected base 2014 employment in the North West, which is lower than the UK figure of 1.5%.

Key findings

The best-performing sector is predicted to be infrastructure with annual average growth of 5.3% over the next five years. Over the short term, projects such as the new Mersey Gateway bridge and the Carrington power station should keep the sector buoyant. Work is projected to commence on the new Moorside nuclear power station by 2018, which is likely to lead to strong output growth in that year.

The private housing market is forecast to experience yearly increases of 2.9% between 2014 and 2018. However, the expansion of the sector is expected to be much stronger in the short term when compared with the latter end of the forecast period, due to the Government's Help to Buy scheme.

The region is still suffering from the after-effects of the cancelled Building Schools for the Future (BSF) programme and that, combined with ongoing financial constraints, is likely to lead to an annual average fall of 3.6% in public non-housing output over the next five years. However, the market is expected to turn around by 2017.

The commercial sector is likely to experience flat annual average growth over the five years to 2018. However, the improvements in the region's economy are likely to provide more of an incentive for new development work. As a result, the market will begin to see a turnaround in 2016. However, even with good growth in the second half of the forecast period, output in 2018 is still projected to be only 54% of its 2007 peak.

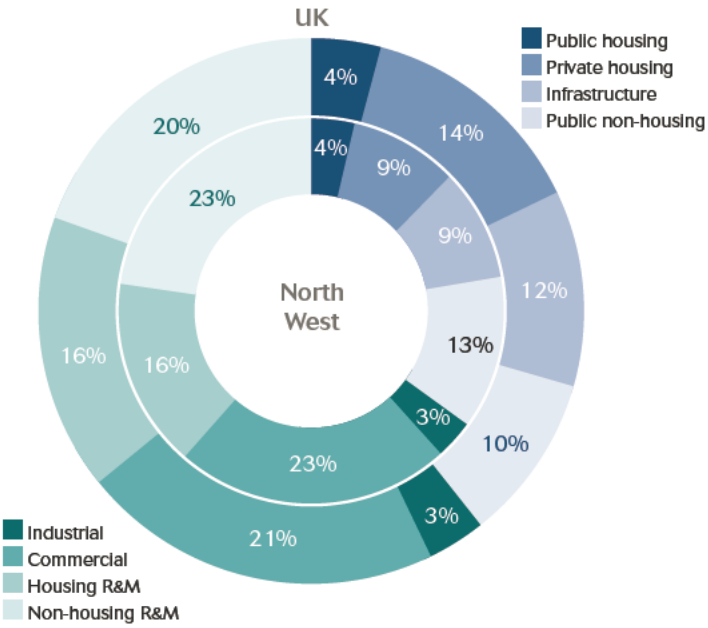
Of all regions and devolved nations, the North West is expected to see one of the slowest rates of average annual growth in total construction output during the 2014 and 2018 period.

Over the five years to 2018, construction output in the North West is forecast to increase by an average rate of 1.3% per year

Overall construction employment in the region is forecast to see annual average increases of 0.8% per annum over the next five years. The strongest increases in employment are projected for the plant trades, with annual average growth of 5.6% for plant mechanics/fitters and 3.6% for plant operatives.

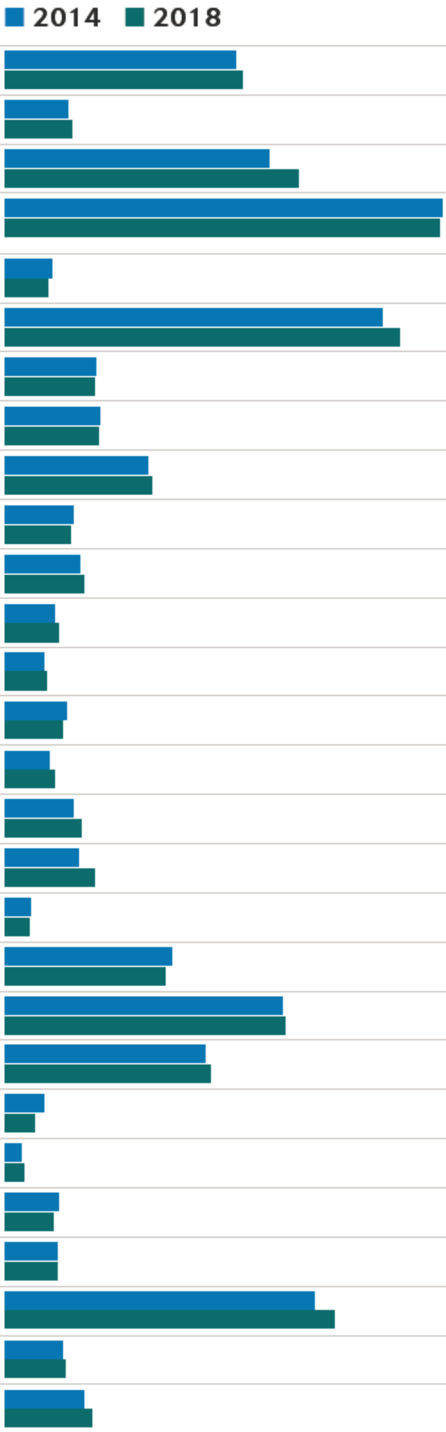
The region's ARR, at 2,970, represents 1.1% of total projected base 2014 employment, lower than the UK average (1.5%). The largest absolute requirement is for electrical trades and installation (510) but, as a share of 2014 base employment, the civil engineering operatives not elsewhere classified (nec) occupation will be the most sought after, at 10%. Plant mechanics/fitters (9%), logistics (8%), glaziers (5%) and bricklayers (5%) also have relatively high ARRs.

Construction industry structure 2012
UK vs. North West



Total employment by occupation - North West

Annual recruitment requirement (ARR) by occupation - North West



Occupation	2014	2018	ARR
Senior, executive, and business process managers	17,480	18,050	-
Construction project managers	4,730	4,960	-
Other construction process managers	20,140	22,310	-
Non-construction professional, technical, IT and other office-based staff	33,240	33,130	-
Construction trades supervisors	3,500	3,230	-
Wood trades and interior fit-out	28,780	29,930	180
Bricklayers	6,970	6,810	360
Building envelope specialists	7,220	7,140	-
Painters and decorators	10,850	11,120	460
Plasterers	5,120	4,870	270
Roofers	5,710	6,010	90
Floorers	3,730	3,950	80
Glaziers	2,930	3,120	150
Specialist building operatives nec*	4,670	4,380	-
Scaffolders	3,330	3,730	-
Plant operatives	5,110	5,860	70
Plant mechanics/fitters	5,490	6,840	470
Steel erectors/structural fabrication	1,940	1,800	-
Labourers nec*	12,680	12,180	-
Electrical trades and installation	21,170	21,390	510
Plumbing and HVAC Trades	15,270	15,590	-
Logistics	2,290	2,200	180
Civil engineering operatives nec*	1,280	1,450	130
Non-construction operatives	3,930	3,610	-
Civil engineers	3,910	3,910	-
Other construction professionals and technical staff	23,540	25,170	-
Architects	4,320	4,550	<50
Surveyors	6,080	6,600	-

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

Yorkshire and the Humber

Yorkshire and the Humber is forecast to experience a rise in construction activity between 2014 and 2018, with average annual output increases of 2.2%, performing in line with the UK average. Construction employment is predicted to be 190,010 in 2018, 5% higher than in 2014. The region's annual average recruitment requirement (ARR) for the 2014 to 2018 period is projected to be 3,170, 8.7% of the UK total. This represents 1.7% of total projected base 2014 employment in Yorkshire and the Humber, slightly higher than the UK average (1.5%).

Key findings

Public housing is predicted to be the best performing sector, with annual average increases of 4.2% over the next five years. Social housing providers are becoming successful in securing funding from other sources than the public purse, with a large proportion already stating that they have finance available for more than a year.

Annual average expansion of 4.1% is predicted for the private housing market between the 2014 and 2018 period. The sector will be boosted in the short term by the Government's Help to Buy scheme. One large project that is due to begin in the sector is a £1.5bn regeneration scheme between Bradford city centre and Shipley town centre, where homes as well as office and retail space are to be built.

The commercial sector is likely to see annual average growth of 3% over the next five years. Economic conditions improving throughout the forecast period should lead to both mothballed and new projects getting underway again. The much-delayed Westfield Broadway Centre in Bradford finally saw construction work commence at the end of 2013.

Public non-housing is the only sector likely to experience annual average falls, projected at 2.1%, over the next five years. The output for the market is likely to fall for six successive years to 2016 before a turnaround is projected in 2017. By the end of the five year period, the sector is likely to be at approximately 47% of its 2010 peak.

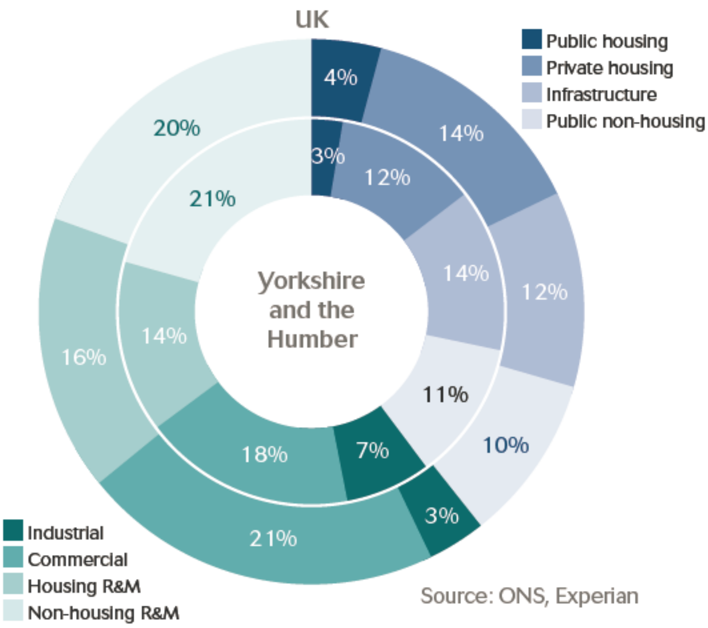
Overall construction employment in the region is forecast to see annual average increases of 0.9% over the next five years. The strongest increases in employment are projected for construction trade supervisors, with annual average growth of 4.4%. Plant mechanics/fitters are also predicted to register a robust annual average increase of 4.3%

Yorkshire and the Humber is forecast to experience a rise in construction activity between 2014 to 2018, with average annual output increases of 2.2%

The region's ARR, at 3,170, represents 1.7% of total projected base 2014 employment, higher than the UK average (1.5%). The largest absolute requirement is for wood trades and interior fit-out (1,200) but, as a share of 2014 base employment, the category with the largest requirement is logistics, at nearly 13%, followed by plant operatives (8%) and floorers (7%).

Data from CITB's 2012 Workforce Mobility and Skills survey and the Labour Force survey seems to suggest that, during that year, Yorkshire and the Humber was suffering significant net outflows of its construction workforce to other parts of the UK, which is the reverse of what has traditionally thought to be the case.

Construction industry structure 2012
UK vs. Yorkshire and the Humber



Source: ONS, Experian

Total employment by occupation - Yorkshire and the Humber

Annual recruitment requirement (ARR) by occupation - Yorkshire and the Humber

	2014	2018	ARR
Senior, executive, and business process managers	11,100	11,780	-
Construction project managers	2,860	3,210	<50
Other construction process managers	12,030	13,210	-
Non-construction professional, technical, IT and other office-based staff	23,410	23,160	250
Construction trades supervisors	3,660	4,330	80
Wood trades and interior fit-out	18,770	20,760	1,200
Bricklayers	5,380	5,700	300
Building envelope specialists	7,090	7,280	100
Painters and decorators	6,230	6,080	120
Plasterers	4,990	4,350	-
Roofers	4,750	4,770	250
Floorers	2,560	2,620	190
Glaziers	1,970	1,870	-
Specialist building operatives nec*	3,200	3,100	-
Scaffolders	2,240	2,090	-
Plant operatives	1,270	1,320	100
Plant mechanics/fitters	3,810	4,520	210
Steel erectors/structural fabrication	2,620	2,640	-
Labourers nec*	6,710	6,730	-
Electrical trades and installation	14,340	14,580	-
Plumbing and HVAC Trades	12,740	12,020	-
Logistics	1,030	1,030	130
Civil engineering operatives nec*	3,970	4,400	-
Non-construction operatives	5,020	5,480	-
Civil engineers	3,330	3,560	<50
Other construction professionals and technical staff	11,370	12,290	<50
Architects	520	460	<50
Surveyors	5,980	6,670	90

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

East Midlands

The East Midlands is expected to see growth in construction activity over the forecast period. However, at an average annual rate of 1.1% it performs worse than the UK as a whole, which is set to see growth of 2.2%. Repair and maintenance (R&M) output is expected to pick up by 1.2% per year on average, a slightly better growth rate than new work (1%) over the same period. The private housing sector is expected to be the strongest performer, with annual average growth of 4.3%. The region is set to see construction employment increase at an annual average rate of 0.7%, lower than the UK rate of 1.2%. The annual recruitment requirement (ARR) for the East Midlands is 1,980, among the lower figures across the regions and devolved nations.

Key findings

Growth is projected for all but two sectors in the East Midlands over the forecast period. Public non-housing and commercial construction are the exceptions, with forecasted contractions of 1.5% and 2.6% respectively.

Average annual growth of 4.3% is expected for the private housing sector, with output expected to rise in each year to 2018. Government incentives such as Help to Buy and the recently redirected Funding for Lending scheme have supported recent growth and Help to Buy should continue to do so, at least in the early part of the forecast period.

Activity in the infrastructure sector is projected to expand by an average of nearly 2% a year in the five years to 2018. Growth should be boosted by a number of key projects, such as the biomass-fuelled renewable power station in Lincolnshire (£300m), as well as ongoing development work on the Kettering bypass.

Solid growth is expected in the industrial sector over the forecast period, at an annual average rate of 3.4%. Work on a new rail distribution centre in Leicestershire, coupled with the development of a number of medium-sized industrial sites, should keep activity in the sector buoyant.

Commercial construction growth is set to see the largest contraction of any sector, at an annual average of 2.6%. The muted outlook for this sector is due to a lack of large scale projects currently on site and in the pipeline.

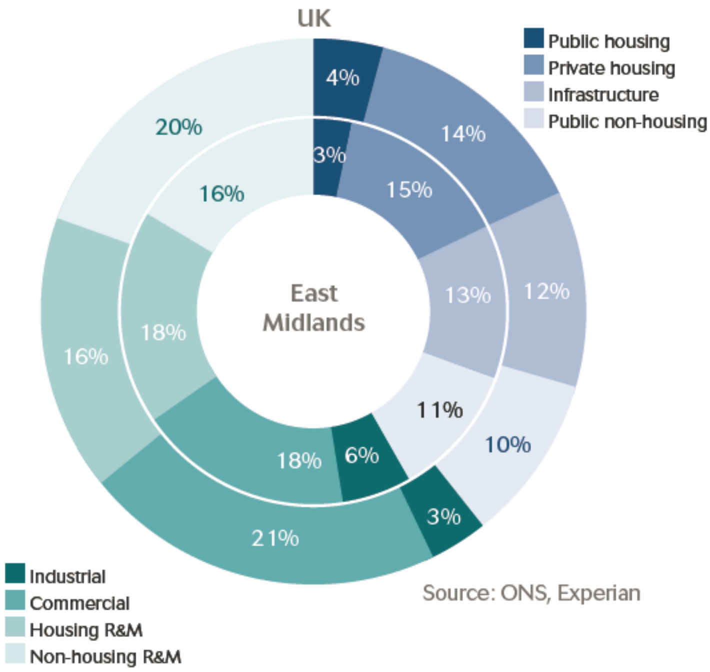
Construction employment in the East Midlands is projected to reach 165,000 in 2018, an annual average increase of 0.7% over the forecast period. Employment is expected to grow each year of the forecast period, but the overall growth rate is lower than the UK average (1.2%).

Employment growth is forecast to be strongest for plant mechanics/fitters (5.0% a year on average), plumbing and HVAC trades (3.6% a year) and construction project managers (3.4%). Just over half of occupational groups (15 out of 28) should see some growth in employment levels over the next five years.

The East Midlands' ARR is 1,980, equivalent to 1.2% of base 2014 employment and below the UK figure of 1.5%, although well above the West Midlands (0.2%).

The East Midlands is expected to see growth in construction activity over the forecast period at an average annual rate of 1.1%

Construction industry structure 2012
UK vs. East Midlands



Source: ONS, Experian

Total employment by occupation - East Midlands

Annual recruitment requirement (ARR) by occupation - East Midlands

Occupation	2014	2018	ARR
Senior, executive, and business process managers	10,630	10,710	70
Construction project managers	2,310	2,630	-
Other construction process managers	12,940	14,250	-
Non-construction professional, technical, IT and other office-based staff	22,120	22,280	1,060
Construction trades supervisors	1,590	1,680	<50
Wood trades and interior fit-out	15,080	16,520	-
Bricklayers	3,620	3,620	-
Building envelope specialists	8,240	8,060	-
Painters and decorators	6,240	6,230	60
Plasterers	4,480	4,270	100
Roofers	1,690	1,760	-
Floorers	1,670	1,720	-
Glaziers	2,750	2,620	<50
Specialist building operatives nec*	5,930	5,800	150
Scaffolders	400	310	-
Plant operatives	3,480	3,410	-
Plant mechanics/fitters	3,810	4,640	-
Steel erectors/structural fabrication	1,480	1,600	<50
Labourers nec*	5,800	5,410	170
Electrical trades and installation	13,330	13,140	-
Plumbing and HVAC Trades	9,480	10,710	230
Logistics	1,140	1,240	50
Civil engineering operatives nec*	2,130	2,400	-
Non-construction operatives	2,500	2,450	-
Civil engineers	3,480	3,550	-
Other construction professionals and technical staff	7,560	8,110	-
Architects	570	560	-
Surveyors	5,450	5,380	-

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

West Midlands

The West Midlands is expected to see an increase in construction output over the forecast period, albeit at an average annual rate of 0.8%, which is well below the UK rate of 2.2%. Repair and maintenance (R&M) activity is expected to pick up by 1.9% per year on average, well above new work, which is set to remain largely flat (0.1%) over the same period. The private housing sector is expected to be the strongest performer, with annual average growth of 3.1%. This is the only projected region or devolved nation to see a decline in construction employment over the forecast period, at an annual average rate of 0.2%, as output growth of 0.8% a year is not enough to boost employment levels. Given the weak prospects for employment, the annual average recruitment requirement (ARR) for the West Midlands, at 380, is by far the lowest figure out of all regions and devolved nations.

Key findings

Only two new work sectors are projected to experience significant growth over the five years to 2018 in the region – private housing and industrial construction, with average annual growth rates of 3.1% and 1.7% respectively.

Output in the private housing sector is expected to rise each year to 2018, although the first half of the forecast period will see the bulk of the upturn. The growth is partly the result of the sector benefitting from Government incentives such as Help to Buy.

Speculative building does seem to be returning to the industrial construction sector and the region has also been benefitting recently from some large factory projects in the automotive sector, such as the £350m engine works for Jaguar Land Rover in Wolverhampton. Work on the new £250m logistical and technology park in Coventry is planned to begin in early 2014 and it should help to support growth in first half of our forecast period.

Activity in the infrastructure sector is projected to flatten out (0.2%) on average in the five years to 2018. Some large long-term programmes of work currently on site, such as £1bn of local roads maintenance in Birmingham, are keeping activity levels stable, but there is little in the pipeline to drive growth over the forecast period.

Public non-housing construction is expected to see the sharpest decline, at an average annual rate of 3.1%. Funding cuts remain an issue in the region, as highlighted by double-digit declines in the first half of the forecast period.

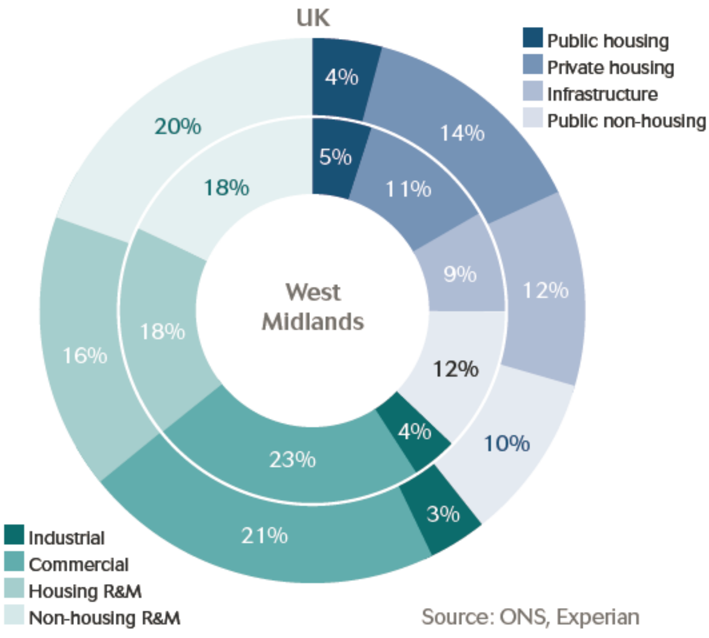
The West Midlands is expected to see an increase in construction output over the forecast period, at an average annual rate of 0.8%

Construction employment in the West Midlands is expected to total 186,480 in 2018, an annual average decline of 0.2% over the five years to 2018. This compares to forecast annual average growth across the UK as a whole of 1.2%.

However, not all occupational groups are predicted to see a fall. Employment growth is forecast to be strongest for other construction professionals and technical staff (2.9% a year on average), followed by construction project managers (1.8% a year) and scaffolders (1.5%). Nevertheless, the majority of occupational groups (21 out of 28) are expected to see a fall in employment over the next five years.

The West Midlands' ARR is 380, equivalent to 0.2% of base 2014 employment, well below the UK figure of 1.5%, and the lowest proportion of all regions and devolved nations.

Construction industry structure 2012 – UK vs. West Midlands



Source: ONS, Experian

Total employment by occupation - West Midlands

Annual recruitment requirement (ARR) by occupation - West Midlands

Occupation	2014	2018	ARR
Senior, executive, and business process managers	17,350	17,820	-
Construction project managers	2,250	2,400	-
Other construction process managers	17,540	17,330	-
Non-construction professional, technical, IT and other office-based staff	25,790	24,920	-
Construction trades supervisors	4,180	4,350	<50
Wood trades and interior fit-out	15,230	15,180	120
Bricklayers	4,190	3,990	-
Building envelope specialists	5,800	5,700	-
Painters and decorators	6,880	6,560	-
Plasterers	1,810	1,620	-
Roofers	2,940	2,780	-
Floorers	1,360	1,350	<50
Glaziers	3,010	2,950	-
Specialist building operatives nec*	2,900	3,010	<50
Scaffolders	2,570	2,720	-
Plant operatives	1,980	1,900	-
Plant mechanics/fitters	5,160	5,130	-
Steel erectors/structural fabrication	3,020	2,840	-
Labourers nec*	10,240	9,390	-
Electrical trades and installation	13,670	13,520	140
Plumbing and HVAC Trades	12,930	12,640	-
Logistics	2,660	2,600	-
Civil engineering operatives nec*	2,070	1,980	-
Non-construction operatives	2,670	2,720	-
Civil engineers	1,970	1,900	-
Other construction professionals and technical staff	11,540	12,870	-
Architects	1,200	1,180	<50
Surveyors	5,010	5,130	-

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

Wales

The Welsh construction industry is expected to see output rise at an average rate of 3.4% per year over the five years to 2018. However, this strong rate of growth is significantly dependent on the start of the main construction work on the Wylfa nuclear power station project towards the end of the forecast period. Excluding Wylfa, the annual average output growth rate would fall to 2.5%. Construction employment in Wales is expected to expand at 1.8% per year on average over the same period, a much lower growth rate than for output, partly due to the fact that the infrastructure projects are traditionally less labour intensive than those in other sectors. The annual recruitment requirement (ARR) is 3,570, equivalent to 3.5% of base 2014 employment in Wales.

Key findings

The overall economic climate has improved considerably in recent months. This has impacted positively on investment levels in the UK's private construction sector, and Wales is no exception. Wales' construction sector is being further boosted by the Welsh Government's priority of aiming to keep capital expenditure on all types of infrastructure – transport, energy, social – on a reasonably even keel, as well as the prospect of new nuclear build at Wylfa starting towards the end of the forecast period.

Therefore, overall construction output growth is forecast to be the second strongest of any region and devolved nation, at an annual average rate of 3.4%, only beaten by the South West's 3.5%. New work is expected to fare significantly better than repair and maintenance (R&M), with annual average growth rates of 4.1% and 1.8% respectively.

Infrastructure is projected to be by far the strongest sector, with an annual average output growth rate of 11% over the forecast period. Transport works, and in particular electrification of the valley lines and parts of the Great Western main line, will drive growth in the earlier part of the forecast period, with new nuclear build taking over in the latter part. Without Wylfa, infrastructure output growth would fall to around 5.4% a year on average.

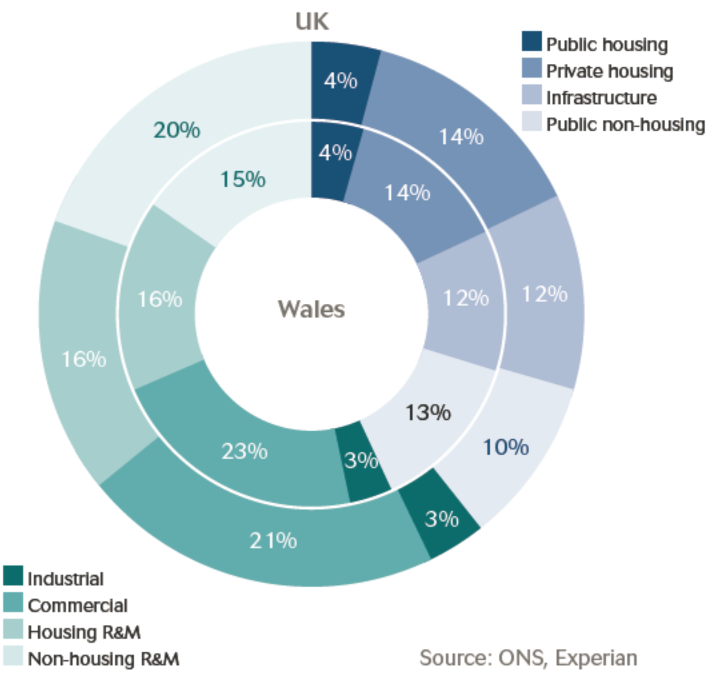
The private housing sector is expected to be the next strongest, with projected annual output growth of 5.3% in the five years to 2018. New orders and housing starts are already on an upward trend, boosted at least in part by schemes such as Help to Buy. Projects such as the Coed Darcy development will provide strong output streams for the sector for the whole of the forecast period and beyond.

The Welsh construction industry is expected to see output rise at an average rate of 3.4% per year over the five years to 2018

Employment growth, at an annual average rate of 1.8%, is considerably better than the whole-UK rate of 1.2%, but is low when put against Wales' output growth rate of 3.4% a year on average. Infrastructure projects are traditionally less labour intensive than those in other sectors, so have a much smaller impact on employment than output. The majority – 24 out of 28 – of the occupational groupings are expected to see growth in employment over the five years to 2018.

At 3,570, the ARR for Wales is equivalent to 3.5% of base 2014 employment, substantially above the UK figure of 1.5%. However, traditionally Wales has a large ARR as it tends to experience significant net outflows of its construction workforce to other regions and devolved nations, in particular to the North West and South West.

Construction industry structure 2012 – UK vs. Wales



Source: ONS, Experian

Total employment by occupation - Wales

Annual recruitment requirement (ARR) by occupation - Wales

Occupation	2014	2018	ARR
Senior, executive, and business process managers	3,030	3,400	150
Construction project managers	1,490	1,570	-
Other construction process managers	7,190	7,680	-
Non-construction professional, technical, IT and other office-based staff	11,500	11,770	600
Construction trades supervisors	1,970	1,880	60
Wood trades and interior fit-out	12,440	13,360	530
Bricklayers	5,550	5,920	330
Building envelope specialists	4,560	4,770	70
Painters and decorators	5,140	5,310	170
Plasterers	3,740	4,080	70
Roofers	1,240	1,460	120
Floorers	100	110	-
Glaziers	510	490	-
Specialist building operatives nec*	4,110	4,450	-
Scaffolders	720	980	70
Plant operatives	1,860	2,050	60
Plant mechanics/fitters	1,040	1,110	70
Steel erectors/structural fabrication	1,120	1,140	-
Labourers nec*	4,490	4,680	100
Electrical trades and installation	6,360	6,990	180
Plumbing and HVAC Trades	8,220	9,150	300
Logistics	700	720	<50
Civil engineering operatives nec*	1,350	1,470	-
Non-construction operatives	1,270	1,170	-
Civil engineers	1,850	2,090	110
Other construction professionals and technical staff	5,030	5,450	350
Architects	1,260	1,310	<50
Surveyors	4,050	5,100	170

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

East of England

The East of England is set to see an annual average increase in construction output over the forecast period of 3%, significantly above the average UK rate of 2.2%. Repair and maintenance (R&M) activity is expected to grow by 2.1% per year on average, well below new work, which is set for a 3.7% expansion over the same period. The industrial sector is forecast to be the strongest performer, with robust annual average growth of 8.8%. The region is projected to see an increase in construction employment over the forecast period at an annual average rate of 2%. Given the positive prospects for employment, the annual average recruitment requirement (ARR) for the East of England, at 5,150, is the third highest figure among all regions and devolved nations.

Key findings

Strong growth in industrial construction output comes on the back of a number of medium-sized warehouse developments, the largest being a £200m distribution centre in Thurrock. Long-term development of distribution and logistics facilities around the London Gateway port should also provide a strong output stream for the sector over the forecast period. However, the sector accounts for only 3% of total construction output in the East of England, so the impact of growth on overall activity levels in this sector is minimal.

Output in the infrastructure sector is projected to expand at an annual average rate of 5.5% over the forecast period. The region's infrastructure pipeline includes a number of offshore wind developments, all above the £1bn mark, ongoing improvements to the A11, and two large power station projects, one at King's Lynn and one at Thurrock.

Public non-housing activity is expected to see a 2.3% annual average decline in the five years to 2018, this is the only new work sector predicted to see a decline overall. Nevertheless, the sector is expected to return to growth in the latter half of the forecast period, as the impact of public expenditure cuts eases. The East of England was not a major beneficiary of the Building Schools for the Future programme, so education construction output hasn't experienced the strong contraction that some other regions have seen following the programme's cancellation.

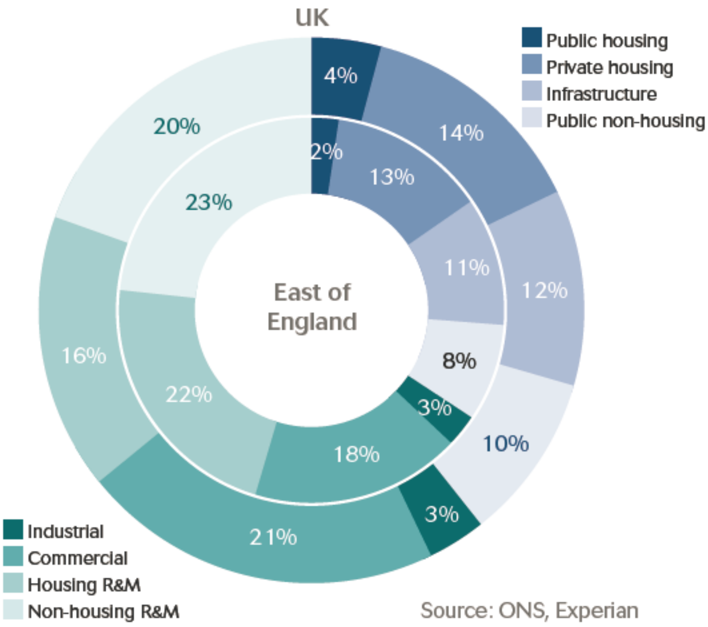
Employment growth is projected to average 2% a year in the 2014-2018 period, above the UK average of 1.2%, and in line with expectations, given the 3% average annual output forecasts.

Construction output in the East of England is forecast to rise at an average rate of 3% per year until 2018

Scaffolders are expected to be the occupational category with the strongest growth rate in the five years to 2018, at 4.9% (annual average), followed by other construction process managers (4.8%) and plant mechanics/fitters (4.7%). The vast majority of occupational categories (26 out of 28) should see an increase in employment over the forecast period.

The East of England's ARR is 5,150, which is equivalent to 2.1% of base 2014 employment, and above the UK average of 1.5%. In absolute terms, the trade sector with the largest requirement is wood trades and interior fit-out, at 690. In terms of base 2014 employment, plant mechanics/fitters and logistics personnel have the largest requirement, at nearly 10% each.

Construction industry structure 2012
UK vs. East of England



Source: ONS, Experian

Total employment by occupation - East of England

Annual recruitment requirement (ARR) by occupation - East of England

	2014	2018	ARR
Senior, executive, and business process managers	14,430	16,280	510
Construction project managers	4,430	5,030	100
Other construction process managers	18,070	21,600	270
Non-construction professional, technical, IT and other office-based staff	33,700	35,360	-
Construction trades supervisors	5,420	6,190	-
Wood trades and interior fit-out	24,250	26,460	690
Bricklayers	7,070	7,390	270
Building envelope specialists	10,180	11,160	280
Painters and decorators	9,440	9,800	240
Plasterers	4,910	4,850	-
Roofers	3,880	4,250	230
Floorers	3,600	3,640	<50
Glaziers	2,860	3,020	120
Specialist building operatives nec*	3,370	3,510	110
Scaffolders	2,770	3,320	210
Plant operatives	3,330	3,500	-
Plant mechanics/fitters	2,680	3,230	260
Steel erectors/structural fabrication	1,590	1,600	<50
Labourers nec*	12,080	12,160	290
Electrical trades and installation	18,390	18,960	580
Plumbing and HVAC Trades	15,450	15,790	270
Logistics	3,150	3,310	310
Civil engineering operatives nec*	1,150	1,300	<50
Non-construction operatives	1,200	1,000	-
Civil engineers	7,760	8,770	360
Other construction professionals and technical staff	17,160	19,270	-
Architects	5,080	5,450	-
Surveyors	4,850	5,390	-

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

Greater London

The region is projected to see growth in total construction activity over the forecast period, with an average annual increase of 2%, which was a slightly smaller rise than the UK as a whole, where annual average growth of 2.2% is expected. Construction employment is forecast to reach 406,840 in 2018, rising at an average annual rate of 1.4% during the 2014 and 2018 period. The annual recruitment requirement (ARR) for Greater London is 1,290, which is equivalent to just 0.3% of base 2014 employment and much lower than the corresponding UK figure of 1.5%.

Key findings

For the capital, the industrial sector is expected to perform best, with an annual average growth of 4.3% predicted over the next five years. Nevertheless, the market is still going to be only 51% of its 2001 peak by the end of the forecast period and it accounts for around 1% of total construction output in London.

An annual average rise of 4.1% over the five years to 2018 is estimated for the private housing sector. The Greater London housing market has held up better than any other region or devolved nation since the 2008–2009 crisis; therefore some other parts of the country are likely to see higher annual average growth rates over the forecast period as their private housing markets recover from a low base. By contrast, private housing output is already at a historic high in the capital and is expected to grow further over the forecast period.

Activity in the commercial sector will pick up towards the end of the forecast period, with annual average increases of 3.3% over the longer term. A number of large schemes are in the pipeline, such as the Westfield Group's £1bn expansion project, which is due to start in the latter half of 2014. The five-year development will be adjacent to the existing shopping centre in Shepherd's Bush and will contain new shops, including a flagship department store.

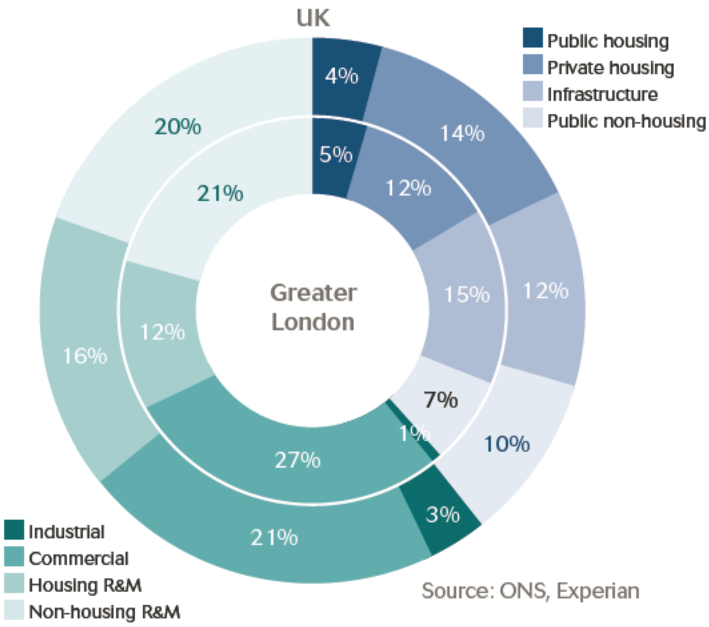
Greater London is the only region or devolved nation forecast to experience a decline in infrastructure output over the five years to 2018, at an annual average rate of 2.4%. Activity on the Crossrail project is due to peak in 2014–2015 and the scheme should be completed in 2018. Work on projects such as Thameslink and the Victoria Station upgrade should also be coming to an end over the second half of the forecast period. Thames Tideway is expected to start on site in 2016–2017, but the overall impact of movement in the project mix is expected to be negative.

Construction activity in the capital will increase by an average 2% per year over the forecast period

Construction employment in the region is forecast to see an annual average increase of 1.4% per annum over the next five years. The strongest increases in employment are projected for civil engineering operatives not elsewhere classified (nec), with annual average growth of 6%. A robust yearly rise of 4.8% is also predicted for construction trades supervisors.

The region's ARR, at 1,290, represents just 0.3% of total projected base 2014 employment, significantly lower than the UK average (1.5%). The largest absolute requirement is for wood trades and interior fit-out (230) but as a share of 2014 base employment, plasterers will be the most sought after, at 7%.

Construction industry structure 2012
UK vs. Greater London



Source: ONS, Experian

Total employment by occupation - Greater London

Annual recruitment requirement (ARR) by occupation - Greater London

	2014	2018	ARR
Senior, executive, and business process managers	28,330	30,440	200
Construction project managers	12,930	13,480	-
Other construction process managers	31,680	34,970	-
Non-construction professional, technical, IT and other office-based staff	56,450	59,060	-
Construction trades supervisors	8,240	9,830	-
Wood trades and interior fit-out	35,360	37,700	230
Bricklayers	5,380	5,130	-
Building envelope specialists	22,710	22,460	210
Painters and decorators	17,380	17,670	110
Plasterers	3,110	2,880	210
Roofers	2,730	2,610	<50
Floorers	2,370	2,610	70
Glaziers	4,520	4,640	190
Specialist building operatives nec*	8,960	9,340	<50
Scaffolders	1,590	1,520	-
Plant operatives	5,110	5,370	<50
Plant mechanics/fitters	2,800	3,290	-
Steel erectors/structural fabrication	2,880	2,580	-
Labourers nec*	14,710	15,060	-
Electrical trades and installation	20,740	22,330	-
Plumbing and HVAC Trades	16,930	18,840	-
Logistics	2,830	2,990	-
Civil engineering operatives nec*	1,950	2,470	-
Non-construction operatives	4,540	3,670	-
Civil engineers	8,760	8,860	-
Other construction professionals and technical staff	31,860	34,540	-
Architects	17,160	18,530	-
Surveyors	12,100	13,970	-

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

South East

Construction output in the South East is forecast to rise at an average annual rate of 2.9% over the five years to 2018, higher than the UK average of 2.2%. The new work sectors are expected to exhibit stronger annual average growth than the repair and maintenance (R&M) sectors, at 3.4% and 2% respectively. The private housing sector is expected to be the strongest performer, with annual average growth of 5.7%. The region is set to see construction employment increase at an annual average rate of 1.6%, higher than the UK rate of 1.2%. The annual recruitment requirement (ARR) for the South East is 1,600, one of the lowest across the regions and devolved nations.

Key findings

Growth is projected for all construction sectors in the South East over the forecast period as a whole, except for the public non-housing sector, which is still subject to funding constraints. However, even here, the decline is minimal over the five years to 2018 (-0.1%), with all of the fall occurring in the first year of the forecast period.

Average annual growth of 5.7% is forecast for the private housing sector, with output expected to rise each year of the 2014-2018 period. The South East's demographic factors tend to be positive, with higher than average population growth, and this, combined with schemes such as Help to Buy, is benefitting the sector.

The infrastructure sector is projected to grow by nearly 4% a year on average in the five years to 2018. The sector will be boosted by schemes such as the £750m green power park being developed on the Isle of Thanet in Kent, and electrification of the Great Western rail line, some of which runs through the region.

Commercial construction growth is predicted to average 2.5% a year over the forecast period, with a number of town centre regeneration schemes in the pipeline, and the possibility of a £2bn investment in a new theme park in north Kent.

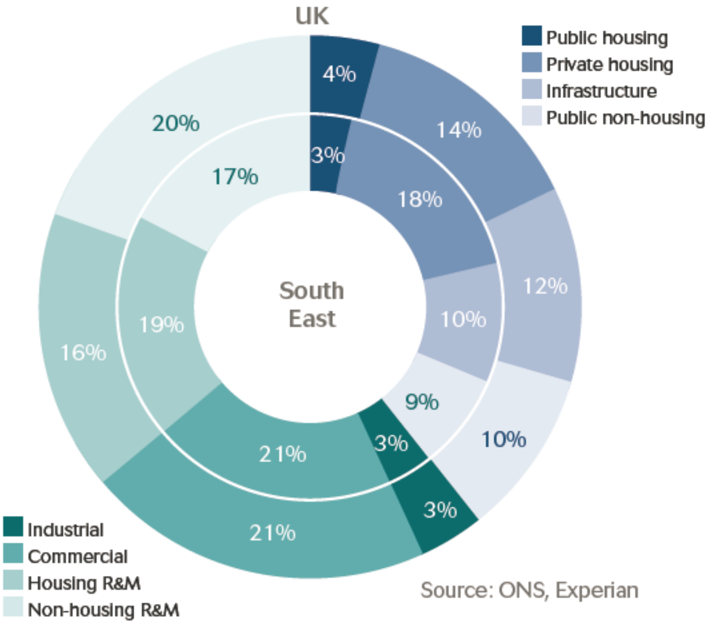
Construction employment in the South East is expected to reach 379,500 in 2018, an annual average increase of 1.6% over the five years to 2018. Employment is expected to grow in each year of the forecast period. This rate of growth is higher than the UK average of 1.2%, but a little below the most buoyant region in employment terms, which is expected to be the East of England at 2%.

Construction is forecast to expand at an average rate of 2.9% in the South East higher than the UK average of 2.2%

Employment growth is forecast to be strongest for scaffolders (7.6% a year on average), construction trades supervisors (5.7% a year) and plant mechanics/fitters (5.3%). The majority of occupational aggregates (22 out of 28) should see some growth in employment levels over the next five years.

The South East's ARR is 1,600, which is equivalent to just 0.5% of base 2014 employment, the second lowest rate after Greater London and well below the UK average of 1.5%. This is in part due to the fact that both regions act as magnets for construction workers from both the rest of the country and overseas. Some 10% of the South East's construction workforce originated from overseas in 2012, according to the CITB's latest Workforce Mobility and Skills survey.

Construction industry structure 2012
UK vs. South East



Source: ONS, Experian

Total employment by occupation - South East

Annual recruitment requirement (ARR) by occupation - South East

Occupation	2014	2018	ARR
Senior, executive, and business process managers	28,900	31,020	–
Construction project managers	7,310	8,090	–
Other construction process managers	26,680	29,580	–
Non-construction professional, technical, IT and other office-based staff	53,070	56,440	–
Construction trades supervisors	5,860	7,260	–
Wood trades and interior fit-out	30,800	32,400	–
Bricklayers	5,660	5,800	–
Building envelope specialists	15,230	17,320	570
Painters and decorators	16,340	16,830	260
Plasterers	4,920	4,850	–
Roofers	8,170	8,340	60
Floorers	5,320	5,280	–
Glaziers	3,900	4,010	110
Specialist building operatives nec*	6,000	6,240	–
Scaffolders	2,460	3,220	<50
Plant operatives	5,850	6,260	–
Plant mechanics/fitters	4,590	5,680	330
Steel erectors/structural fabrication	2,600	2,630	–
Labourers nec*	19,940	19,550	–
Electrical trades and installation	25,020	27,290	–
Plumbing and HVAC Trades	20,110	20,090	–
Logistics	3,020	2,860	–
Civil engineering operatives nec*	1,810	2,000	<50
Non-construction operatives	1,830	1,590	–
Civil engineers	6,250	6,820	–
Other construction professionals and technical staff	30,940	34,420	–
Architects	5,450	5,990	160
Surveyors	6,640	7,630	80

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

South West

Construction output in the South West is forecast to rise at an average rate of 3.5% per year between 2014 and 2018. The new work sector is expected to fare significantly better than repair and maintenance (R&M), with annual average growth of 4.4% in the former compared with 1.7% in the latter. Infrastructure remains the best performing sector as work on the new Hinkley Point C nuclear power station finally starts in 2014. Average annual employment growth is a more modest 1.5%, partly due to the fact that infrastructure projects are traditionally less labour intensive than those in other sectors and partly due to productivity gains expected across the industry over the next five years.

Key findings

Strong growth in construction output in the South West will be driven by an annual average expansion of 21% in the infrastructure sector as work on Hinkley Point gathers pace. Growth in infrastructure activity should peak in 2017 and continue into 2018. However, the recent cancellation of the Atlantic Array wind farm off the North Devon coast is a disappointment to the sector.

Private housing should be the strongest sector after infrastructure, with annual average output growth of 5.1%. House prices, new orders, starts and output are all rising. These are boosted, at least in part, by the Help to Buy scheme, particularly its mortgage guarantee component, which includes £12bn of Government guarantees to lenders. However, uncertainty surrounds the impact on the sector when these guarantees end.

As pressure on public finances continues, public non-housing activity is expected to further decline in 2014 and 2015, but at a much more moderate rate than in the recent past. However, there are some bright spots, particularly in the universities sub-sector, where a number of schemes are being taken forward in Bristol, Bournemouth and Exeter. The region should also benefit from expenditure by the Defence Infrastructure Organisation as it plans accommodation for troops returning from Germany over the next five years.

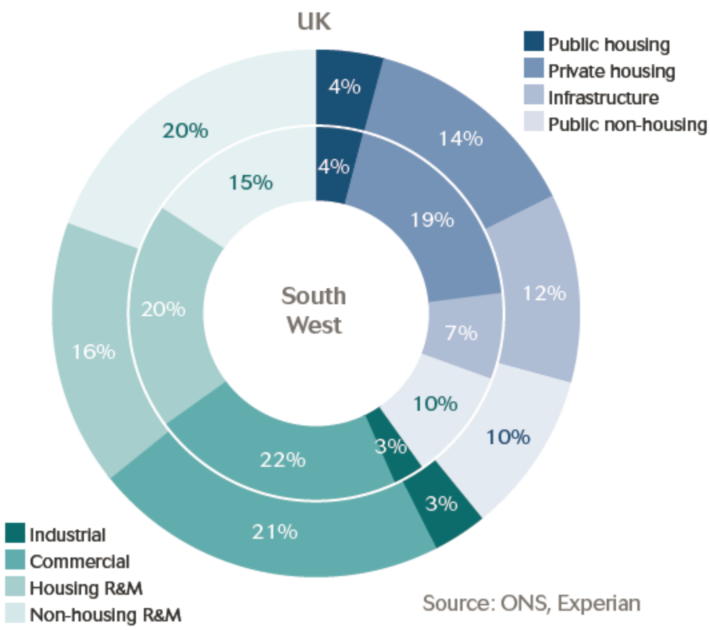
Employment growth is projected to average 1.5% a year in the 2014 to 2018 period, above the UK average of 1.2% but below what would normally be expected, given output growth of 3.5%. However, a significant proportion of this output growth will be driven by infrastructure work which, as with infrastructure in general, has a lesser labour requirement than other sectors.

Construction is forecast to expand at an average rate of 3.5% in the South West, higher than the UK average of 2.2%

The majority of occupational categories should see growth in employment over the forecast period. Civil engineering operatives not elsewhere classified (nec) is expected to be the occupational category with the strongest growth rate in the five years to 2018, at an annual average of 4.5%; no real surprise given that they will be in demand at Hinkley Point.

The South West's ARR is 6,370, which is equivalent to 3% of base 2014 employment, double the UK average of 1.5%. In absolute terms, the trade sector with the largest requirement is electrical trades and installation at 530. However, in terms of base 2014 employment, logistics personnel are expected to be most in demand.

Construction industry structure 2012
UK vs. South West



Source: ONS, Experian

Total employment by occupation - South West

Annual recruitment requirement (ARR) by occupation - South West

Occupation	2014	2018	ARR
Senior, executive, and business process managers	12,160	13,520	790
Construction project managers	2,920	3,270	-
Other construction process managers	10,890	12,290	280
Non-construction professional, technical, IT and other office-based staff	28,210	29,720	2,580
Construction trades supervisors	3,470	3,760	130
Wood trades and interior fit-out	28,350	29,750	-
Bricklayers	7,190	7,240	240
Building envelope specialists	10,770	11,350	180
Painters and decorators	11,050	11,690	240
Plasterers	4,310	4,150	240
Roofers	4,800	5,400	200
Floorers	1,080	1,120	60
Glaziers	3,020	3,060	150
Specialist building operatives nec*	3,860	3,910	60
Scaffolders	3,850	3,830	140
Plant operatives	4,280	4,440	-
Plant mechanics/fitters	2,270	2,500	60
Steel erectors/structural fabrication	2,400	2,220	-
Labourers nec*	6,590	6,570	300
Electrical trades and installation	14,000	16,370	530
Plumbing and HVAC Trades	20,130	21,080	-
Logistics	740	770	70
Civil engineering operatives nec*	2,360	2,840	-
Non-construction operatives	1,480	1,600	<50
Civil engineers	2,310	2,290	-
Other construction professionals and technical staff	13,460	14,970	90
Architects	2,570	2,580	-
Surveyors	7,040	7,310	-

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

Northern Ireland

Construction output in Northern Ireland is estimated to grow at an annual average rate of 2.3% over the five years to 2018, roughly in line with the UK as a whole (2.2%). New work is expected to fare better than the repair and maintenance (R&M) sector over the forecast period (2.5% vs. 1.8%). However, Northern Ireland has suffered one of the severest falls in output in recent years, estimated at around 40% in real terms over the 2008 to 2013 period, so activity will be rising from a low base. Employment is predicted to grow at an annual average rate of 1.1%, once again similar to the UK rate (1.2%). The annual average recruitment requirement (ARR) for the 2014 to 2018 period is estimated at 1,280, representing 2.2% of base 2014 employment.

Key findings

Construction output in Northern is estimated to have declined by 4% in 2013, a disappointing performance that has put recovery in the sector back by a year. However, growth is expected to return in 2014 and the industry is projected to expand at an annual average rate of 2.3% over the five years to 2018.

The best performing sectors are forecast to be the private housing and industrial ones, with 3.9% annual average growth in the former and 4% in the latter. Private housing activity in Northern Ireland has dropped down to around the UK average in terms of its share of total construction output, and this, combined with stabilising house prices and improving confidence, should lead to expansion in the sector over the medium term.

The industrial construction sector has shrunk from around £100m in 2002 at 2005 prices, to just £36m in 2012. The 4% annual average growth rate only equates to a £12m rise in the sector's size by 2018.

Infrastructure output is predicted to rise by 2.7% a year on average over the forecast period, driven in particular by roads projects, such as upgrades to the A2, A5, and A6. The indication from the 2011–2021 Northern Ireland Investment Strategy is that expenditure on the roads system could increase in the second half of the forecast period.

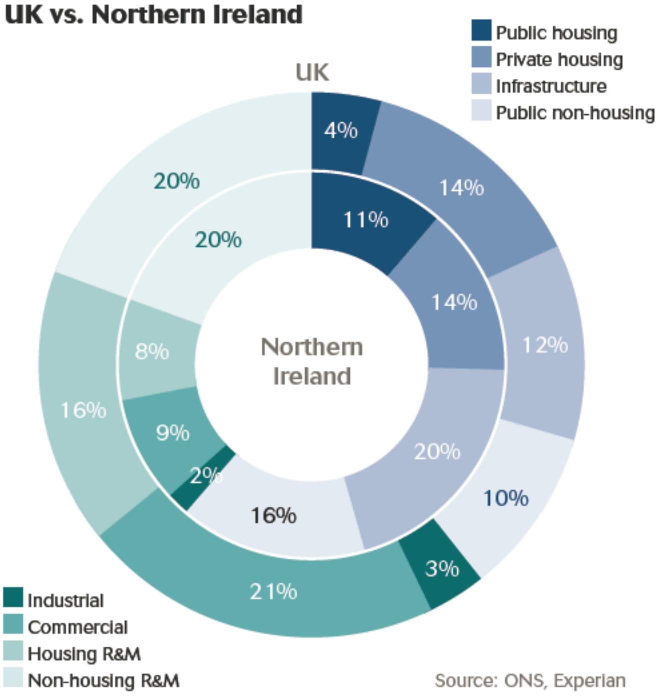
The prognosis for construction employment in Northern Ireland has turned positive for the first time in a while, with an annual average growth rate of 1.1% forecast, which is close to the UK average of 1.2%. Employment should start expanding in 2014 and continue to do so over the whole of the forecast period.

Construction output in Northern Ireland is projected to grow at an annual average rate of 2.3% over the five years to 2018

20 out of the 28 occupational groups should see growth, with annual average growth strongest for project managers (5.4%), trade supervisors (4.6%), and plant mechanics/fitters (4.2%).

The ARR for the 2014–2018 period is estimated at 1,280, considerably higher than the 660 estimated last year for the 2013–2017 period. This represents 2.2% of the projected 2014 workforce in Northern Ireland, a higher ratio than for the UK as a whole (1.5%). Part of the reason for this relatively higher ARR is believed to be because the devolved nation has suffered significant net outflows of its construction workforce to other areas of the UK in recent years. In 2012, this net outflow is estimated at 19,000.

Construction industry structure 2012 – UK vs. Northern Ireland



Source: ONS, Experian

Total employment by occupation - Northern Ireland

Annual recruitment requirement (ARR) by occupation - Northern Ireland

Occupation	2014	2018	ARR
Senior, executive, and business process managers	3,770	3,730	-
Construction project managers	1,130	1,380	110
Other construction process managers	4,980	5,340	90
Non-construction professional, technical, IT and other office-based staff	6,810	7,240	<50
Construction trades supervisors	850	990	<50
Wood trades and interior fit-out	6,950	7,670	80
Bricklayers	2,040	2,170	170
Building envelope specialists	980	1,000	<50
Painters and decorators	3,180	3,420	140
Plasterers	2,120	2,300	160
Roofers	1,150	1,310	70
Floorers	260	270	<50
Glaziers	510	540	<50
Specialist building operatives nec*	780	670	-
Scaffolders	230	230	-
Plant operatives	1,180	1,160	90
Plant mechanics/fitters	730	860	70
Steel erectors/structural fabrication	180	150	-
Labourers nec*	3,690	3,470	-
Electrical trades and installation	4,990	4,920	-
Plumbing and HVAC Trades	3,460	3,210	<50
Logistics	450	460	-
Civil engineering operatives nec*	540	600	<50
Non-construction operatives	190	220	-
Civil engineers	2,470	2,790	<50
Other construction professionals and technical staff	3,180	3,400	110
Architects	1,600	1,660	-
Surveyors	830	890	-

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

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.

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.

1 CSN methodology

Background

The **Construction Skills Network** has been evolving since its conception in 2005, acting as vehicle for ConstructionSkills to collect and produce information on the future employment and training needs of the industry. CITB, CIC and CITB-ConstructionSkills Northern Ireland are working as ConstructionSkills, the Sector Skills Council for Construction, to produce robust labour market intelligence which 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, 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. 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 which 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 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.

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:

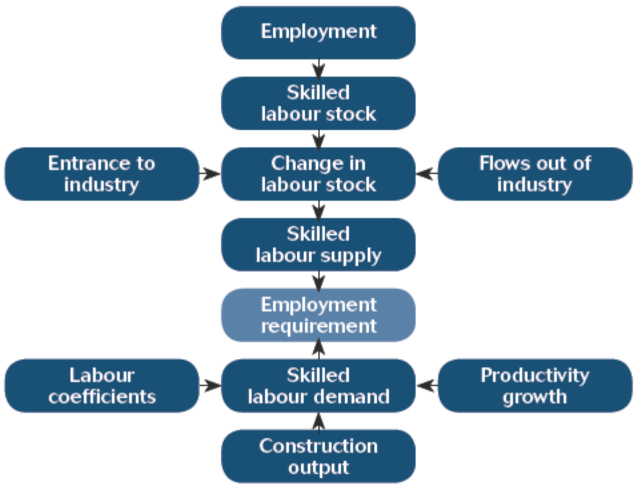
- Transfers to other industries
- International/domestic OUT migration
- Permanent retirements (including permanent sickness)
- Outflow to temporary sickness and home duties.

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.



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 which 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.

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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 SIC 41-43 and SIC 41-43, 71.1 and 74.9. The total for SIC 41-43 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 SIC 41-43, 71.1 and 74.9 includes all occupations.

Footprints for Built Environment SSCs

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 below summarises the SIC codes (2007) 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.

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 Standard Industrial Classifications (SIC) 43.21 and 43.22; thus data relating to the building services engineering sector is included here primarily for completeness.

AssetSkills

Footprint – property services, housing, facilities, management, cleaning.

Coverage – property, housing and land managers, chartered surveyors, estimators, valuers, home inspectors, estate agents and auctioneers (property and chattels), caretakers, mobile and machine operatives, window cleaners, road sweepers, cleaners, domestics, facilities managers.

AssetSkills 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.

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

AssetSkills has a peripheral interest in SIC 71.1

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[1]

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[1]

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.[2]

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.[3]

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.

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
Book-keepers, 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

*Not elsewhere classified

Sales supervisors	7130
Customer service managers and supervisors	7220
Office managers	4161

Construction trades supervisors

Skilled metal, electrical and electronic trades supervisors	5250
Construction and building trades supervisors	5330

Wood trades and interior fit-out

Carpenters and joiners	5315
Paper and wood machine operatives	8121
Furniture makers and other craft woodworkers	5442
Construction and building trades nec* (25%)	5319

Bricklayers

Bricklayers and masons	5312

Building envelope specialists

Construction and building trades nec* (50%)	5319

Painters and decorators

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

Plasterers

Plasterers	5321

Roofers

Roofers, roof tilers and slaters	5313

Floorers

Floorers and wall tilers	5322

Glaziers

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

Specialist building operatives nec*

Construction operatives nec* (100%)	8149
Construction and building trades nec* (5%)	5319
Industrial cleaning process occupations	9132
Other skilled trades nec*	5449

Scaffolders

Scaffolders, stagers and riggers	8141

Plant operatives

Crane drivers	8221
Plant and machine operatives nec*	8129
Fork-lift truck drivers	8222
Mobile machine drivers and operatives nec*	8229

Plant mechanics/fitters

Metal working 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

Steel erectors/structural fabrication

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

Labourers nec*

Elementary construction occupations (100%)	9120

Electrical trades and installation

Electricians and electrical fitters	5241
Electrical and electronic trades nec*	5249
Telecommunications engineers	5242

Plumbing and heating, ventilation and air conditioning trades

Plumbers and heating and ventilating engineers	5314
Pipe fitters	5216
Construction and building trades nec* (5%)	5319
Air-conditioning and refrigeration engineers	5225

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 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
Metal working 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

*Not elsewhere classified

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

6 CSN website and contact details

The CSN website

citb.co.uk/research/construction-skills-network

The CSN website functions as a public gateway for people wishing to access the range of labour market intelligence (LMI) reports and research material regularly produced by the CSN.

The main UK report, along with the twelve LMI reports (one for Northern Ireland, Scotland, Wales and each of the nine English regions) can be downloaded from the site, while 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 which are likely to be the strongest drivers of output growth in each region and devolved nation
- Track the macro economy
- Understand how economic events impact on regional and devolved nations' economic performance
- Highlight trends across the industry such as national and regional shifts in demand
- Plan ahead and address the skills needs of a traditionally mobile workforce
- Understand the levels of qualified and competent new entrants required 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 issues
- 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 contact with the CITB research team CSN members can:

- Access observatory-related material such as meeting dates, agendas, presentations and notes
- Access additional research material
- Comment/feedback on the CSN process.

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**

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