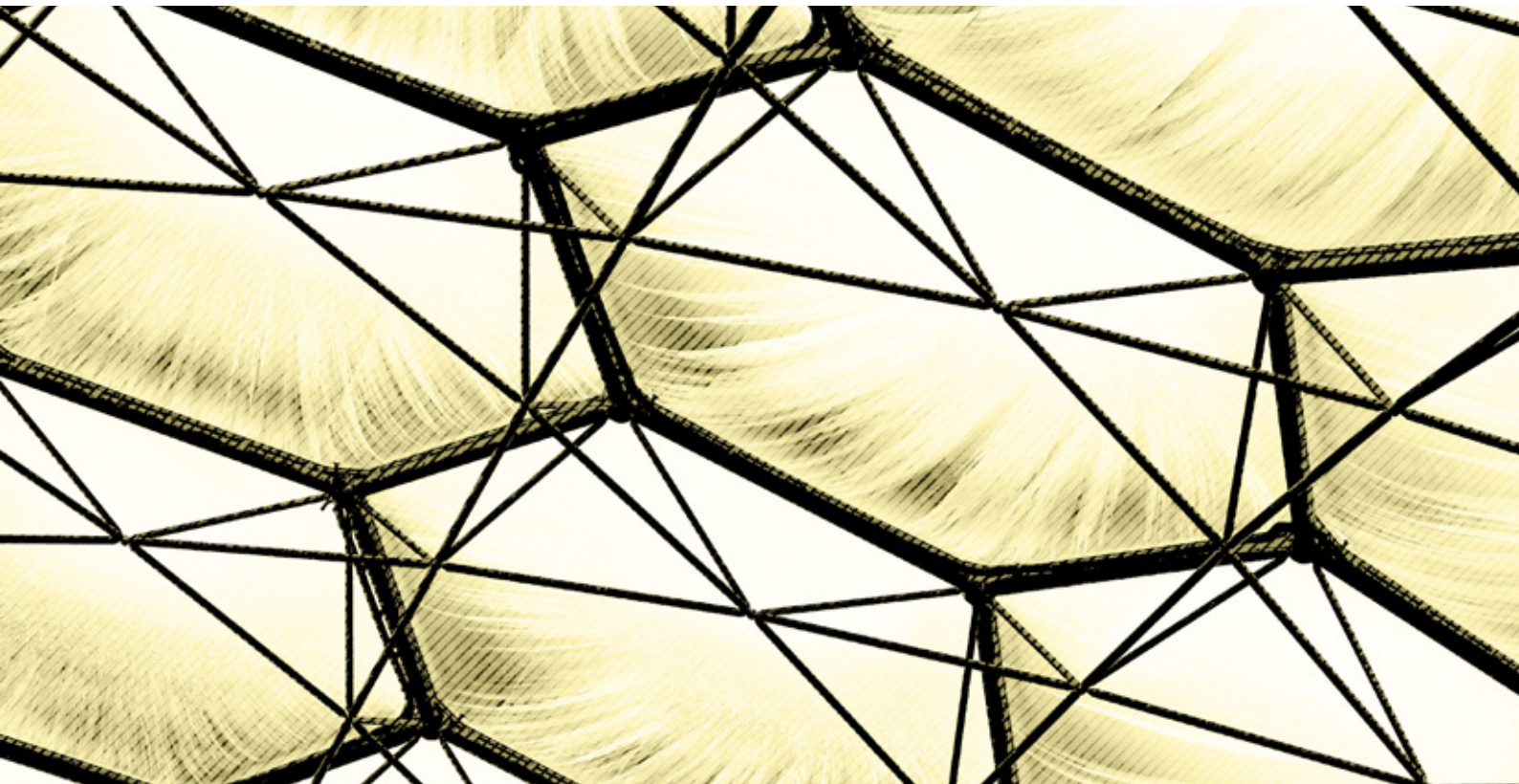




INDUSTRY INSIGHTS

Construction Skills Network
Forecasts 2017–2021



SOUTH WEST

About CITB

CITB is the Industrial Training Board (ITB) for the construction industry in Great Britain (England, Scotland and Wales). CITB ensures employers can access the high quality training their workforce needs and supports industry to attract new recruits into successful careers in construction.

Using its evidence base on skills requirements, CITB works with employers to develop standards and qualifications for the skills industry needs now, and in the future. CITB is improving its employer funding to invest in the most needed skills and by making it easier for companies of all sizes to claim grants and support.

About Experian

Experian's Construction Futures team is a leading construction forecasting team in the UK, specialising in the economic analysis of the construction and related industries in the UK and its regions. As such, we have an in-depth understanding of the structure of the construction industry and its drivers of change. The Construction Futures team has collaborated on the Construction Skills Network employment model with the CITB since 2005, manages a monthly survey of contractors' activity as part of the European Commission's harmonised series of business surveys, and a quarterly State-of-Trade survey on behalf of the Federation of Master Builders.

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SUMMARY – THE SOUTH WEST

Construction output in the South West is projected to grow at an annual average rate of 3.1% in the five years to 2021, the second fastest rate after Wales. Both the region and the devolved nation will benefit from new nuclear build over the 2017 to 2021 period. On this output prognosis annual average employment growth is predicted to be 0.7%, slightly higher than the UK rate of 0.6%. The South West annual recruitment requirement (ARR), at 4,180, is the second highest in absolute terms, and represents 1.8% of base projected 2017 employment, higher than the UK ratio of 1.4%.

KEY FINDINGS

The South West did not see the big contraction in construction output that some other regions and devolved nations did during the 'great recession' and its aftermath. However, that has meant that recent growth has been sluggish and in fact output in real terms is estimated to have declined by 2% in 2015. The sector is likely to have returned to modest growth last year, of around 1%, with housing and repair and maintenance being the main drivers of expansion.

Growth is projected to accelerate to over 3% a year on average in the five years to 2021, by which year output should reach around £11.6bn (2013 prices), close to its previous peak in 2004. The primary driver of this expansion will be the infrastructure sector, with annual average growth of 17%, as the result of the resumption of enabling works and the start of main construction on the Hinkley Point C new nuclear power station, which finally received the go-ahead from government in the second half of last year. If the infrastructure sector were to be excluded, then annual average growth across the remaining sectors would be a much more modest 0.9%.

The other main area of output growth is likely to be housing, both public and private, which is proportionally more important in the South West than the UK as a whole. Once work related

to the Army Basing Plan completes there are few projects of any size in the public non-housing pipeline, and both the industrial and commercial sectors will be impacted adversely by falls in business investment this year and next. The housing repair and maintenance sector is likely to be affected by economic uncertainty and more constrained disposable income growth, at least in the short term, as consumers delay expenditure on 'big ticket' items a little.

Employment growth is predicted to average 0.7% a year over the 2017 to 2021 period, a little higher than the UK rate of 0.6%. Infrastructure activity tends to be less labour intensive than that in other sectors and thus has less of an impact on employment numbers compared with output ones. Construction employment in the South West will reach just under 235,000 on these forecasts, a 4% increase on the outturn for 2015, but still 5% below its 2008 peak. The main trades are generally expected to see the strongest growth, in contrast to the UK as a whole, where the managerial/supervisory and professional occupations are forecast to fare best.

The South West's ARR, at 4,180, represents 1.8% of base projected 2017 employment, a higher ratio than the UK's (1.4%). The South West tends to see significant net outflows

of its workforce to the South East and also suffers from a slightly older population, leading to one of the highest ARR's in absolute and relative terms. One occupational category shows up red on the traffic light system, indicating an ARR ratio of over 5% relative to base employment, and that is plasterers, with a further seven with a medium requirement of between 2.6% and 5% of base employment.

Growth is expected to focus on the Infrastructure sector in the short term, by

34.9%

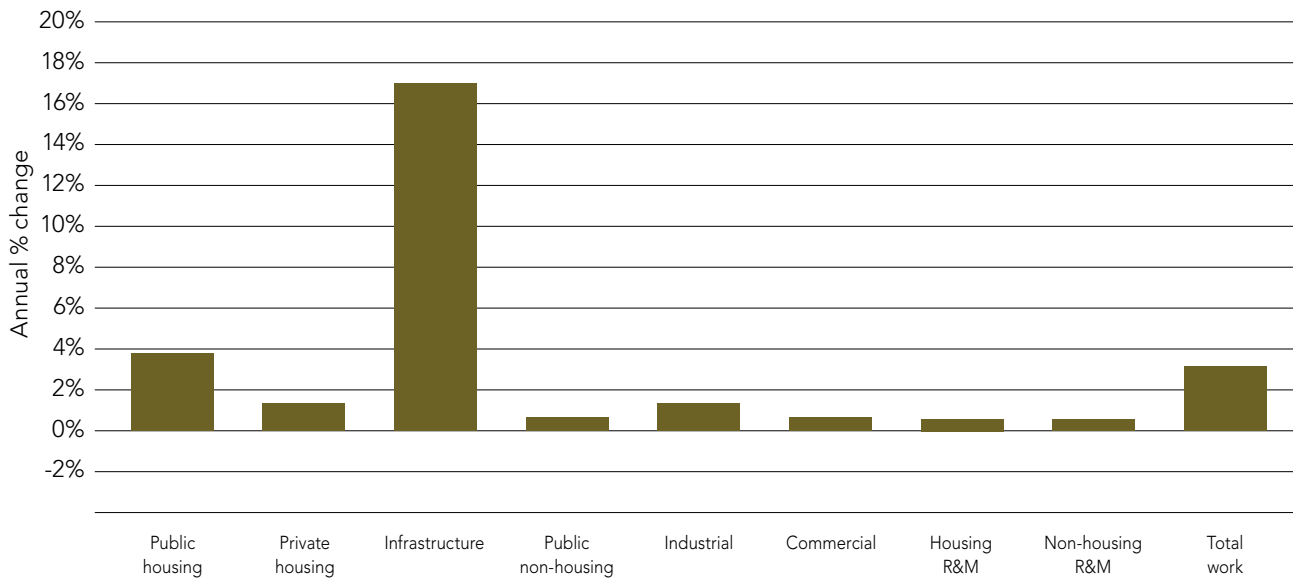
Employment is forecast to grow by

0.7%

The South West has an ARR of

4,180

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2021 – SOUTH WEST



Source: CSN, Experian.
Ref: CSN Explained.

REGIONAL COMPARISON 2017-2021

	Annual average % change in output	Change in total employment	Total ARR
North East	-0.1%	-2,840	1,270
Yorkshire and Humber	0.5%	-1,300	1,860
East Midlands	0.0%	-2,340	1,770
East of England	1.0%	3,230	3,970
Greater London	2.4%	27,110	3,870
South East	2.2%	25,550	3,940
South West	3.1%	8,240	4,180
Wales	6.2%	16,120	3,890
West Midlands	1.3%	4,280	2,800
Northern Ireland	1.6%	1,430	710
North West	2.5%	14,520	5,140
Scotland	-0.4%	-8,420	2,340
UK	1.7%	85,580	35,740

Source: CSN, Experian.
Ref: CSN Explained.

Construction output in the South West will grow on average by 3.1% per year higher than the UK rate of 1.7%.

THE OUTLOOK FOR CONSTRUCTION IN THE SOUTH WEST

CONSTRUCTION OUTPUT IN THE SOUTH WEST – OVERVIEW

After two years of moderate growth, construction output in the South West is estimated to have declined by 2% in real terms in 2015, to £9.8bn in 2013 prices. This was still 16% below its 2004 peak. Performance across the sectors was very mixed, with good growth in both the public housing (23%) and infrastructure (41%) sectors, but double-digit falls across the remaining new work sectors except for private housing, and a more modest contraction in repair and maintenance (R&M) output.

INDUSTRY STRUCTURE

The Construction Industry structure 2015 – UK vs the South West graphic, illustrates the sector breakdown of construction in the South West, compared to that in the UK. Effectively, the percentages for each sector illustrate what proportion of total output each sector accounts for.

The structure of the South West's construction industry is usually slightly more slanted towards R&M work than the UK's and this was the case in 2015 with the sector accounting for 40% of total output in the former compared with 35% in the latter.

In particular, proportionally more housing R&M work took place in the region compared with the UK (23% vs 18%) and the same differential held for private housing. Thus housing – public and private, new work and R&M – is more important in the South West, taking 48% of total output, than it is across the UK as a whole (40%). Consequently most of the non-housing sectors are slightly smaller in the region than in the UK, the biggest differential being for commercial construction, accounting for 18% of total output in the UK but only 14% in the South West.

ECONOMIC OVERVIEW

The expected performance of a regional or national economy over the forecast period (2017–2021) provides an indication of the construction sectors in which demand is likely to be strongest.

Gross value added (GVA) in the South West reached an estimated £119.3bn (2012 prices) in 2015, a 2.1% increase on the previous year and the third consecutive year of growth in excess of 2%. Particularly good performances were seen in the information and communication (6.4%), professional and other private sectors (4.8%) and wholesale and retail (4.4%) sectors.

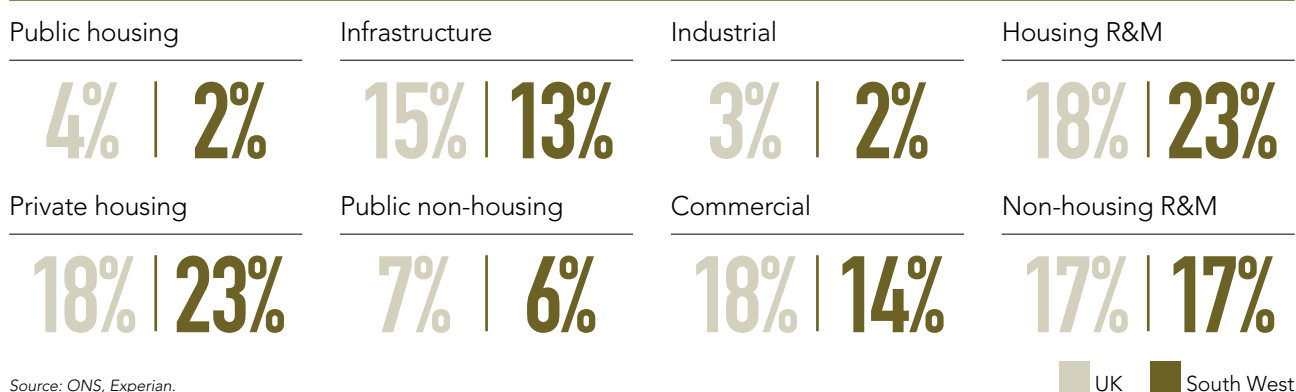
ECONOMIC STRUCTURE

The South West's economy remains a diverse one with a healthy balance of high-tech manufacturing, a well-developed tourist sector, professional and consumer services alongside a relatively large public sector. Bristol, the region's principal city, has a large presence of aerospace manufacturing which is benefiting from significant government investment, and a vibrant professional service sector. Due to its location as an entry point into the rest of the South West and Wales, the city also has a sizeable logistics and transport industry.

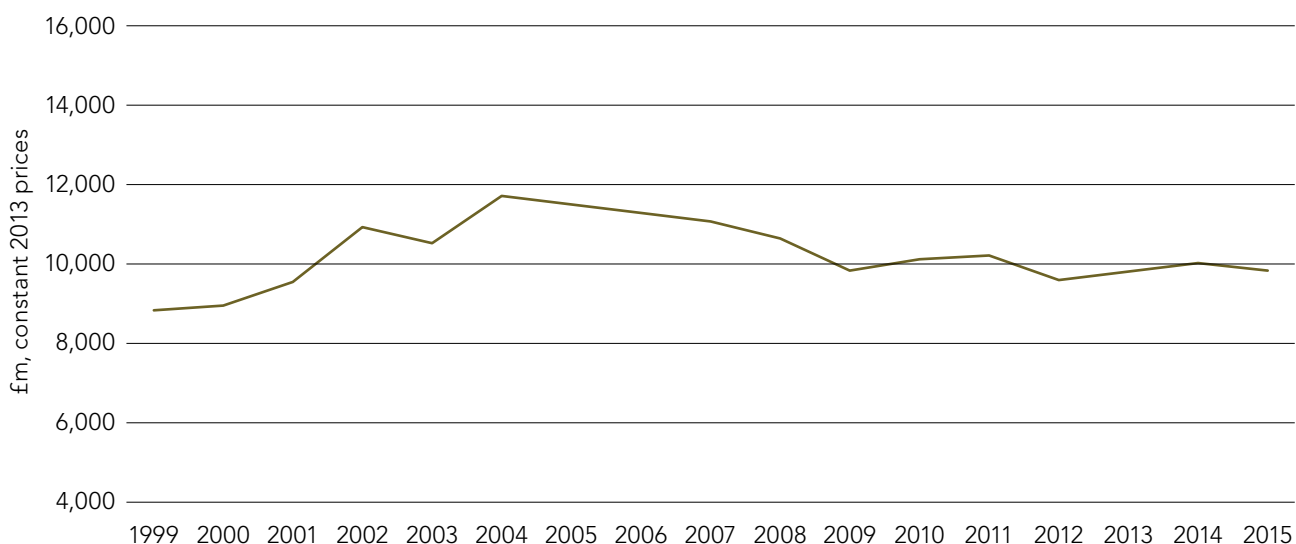
The South West's diversified economy enabled it to weather the 2008/09 recession and its aftermath better than most other UK regions. Its sector make-up is similar to the UK as a whole, with professional and other private services taking a 29% share of GVA in the region, slightly higher than in the UK (28%). Public services is a little larger (20% vs 18%) as is manufacturing (11% vs 10%) and the fast growing information and communication sector is a bit smaller (4% vs 7%), which means that overall GVA growth tends to lag the UK rate a little, but usually by not much.



CONSTRUCTION INDUSTRY STRUCTURE 2015 – UK VS SOUTH WEST



CONSTRUCTION OUTPUT 1999-2015 – SOUTH WEST



ECONOMIC STRUCTURE – SOUTH WEST (£ BILLION, 2012 PRICES)

	Actual	Forecast (Annual % change, real terms)					
	2015	2016	2017	2018	2019	2020	2021
Professional & Other Private Services	34.9	2.6	1.3	1.5	2.0	2.3	2.5
Public Services	24.2	0.9	0.3	0.8	1.5	2.3	2.4
Wholesale & Retail	13.5	4.6	1.3	1.7	2.1	2.3	2.4
Manufacturing	12.7	0.3	0.3	1.7	1.3	1.4	1.4
Finance & Insurance	6.7	0.8	0.3	0.6	1.3	1.9	2.4
Total Gross Value Added (GVA)	119.3	2.0	0.9	1.4	1.8	2.1	2.2

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

FORWARD LOOKING ECONOMIC INDICATORS

GVA growth in the South West is projected to average 1.7% a year over the 2017 to 2021 period, slightly lower than the UK rate of 1.8%. The marginally different growth rates will primarily be driven by the small differences in sector size with a slight bias towards more slowly growing sectors, such as public services and manufacturing, in the South West compared with the UK as a whole.

Across the sectors within the region, the information and communication one is expected to fare best over the next five years, with an annual average growth rate of 2.1%, followed by wholesale and retail and accommodation, food services and recreation, both with 2%. The largest sector in the South West, professional and other private services, is forecast to experience annual average expansion of 1.9%, but public services is only likely to manage 1.5% and manufacturing just 1.2%.

Household spending growth is projected to average 1.8% a year in the 2017 to 2021 period, slightly higher than the UK rate (1.7%) but down on that seen in the five years to 2015 (2.2%). Growth in real disposable income is expected to be hit in the short term by rising inflation and largely static average earnings growth, almost inevitably impacting expansion in household spending.

The unemployment rate in the region has fallen in recent years, down just over 4% in 2015. However, it is projected to edge up again, to around 4.8% in 2018.

Overall, economic forecasts for the UK as a whole are less buoyant than they were a year ago, victim of the increasing global uncertainty in recent months due to a number of factors, not just the EU referendum result, but the outcome of the U.S. election and continuing political instability, particularly in the Middle East.

NEW CONSTRUCTION ORDERS – OVERVIEW

New orders for construction work fell in both 2014 and 2015, by 12% in the former and 5% in the latter. Their value in 2015 was £3.9bn (current prices), less than two-thirds of their 2006 peak. Nevertheless, four out of the six major new work sectors experienced increases in new orders in 2015, the largest being in the public housing sector where they rose by 90%. However, these increases were more than counteracted by falls of 46% in the public non-housing sector and 8% in the large private housing one.

NEW CONSTRUCTION ORDERS – CURRENT SITUATION

2016 looks like it will have been a much better year for new orders in the region. They reached £3.64bn in the first three quarters of last year, 21% up on the same period of 2015. On an annualised basis they were 16% higher in the third quarter of 2016 than they were at the end of 2015.

Driving this growth has been very strong uplifts in new orders in the public non-housing and industrial sectors, both seeing their value more than double three-quarters on three-quarters. The private housing sector also posted decent growth, of 16% three-quarters on three-quarters, but the remaining ones saw declines, the biggest of which was 29% in the public housing sector.

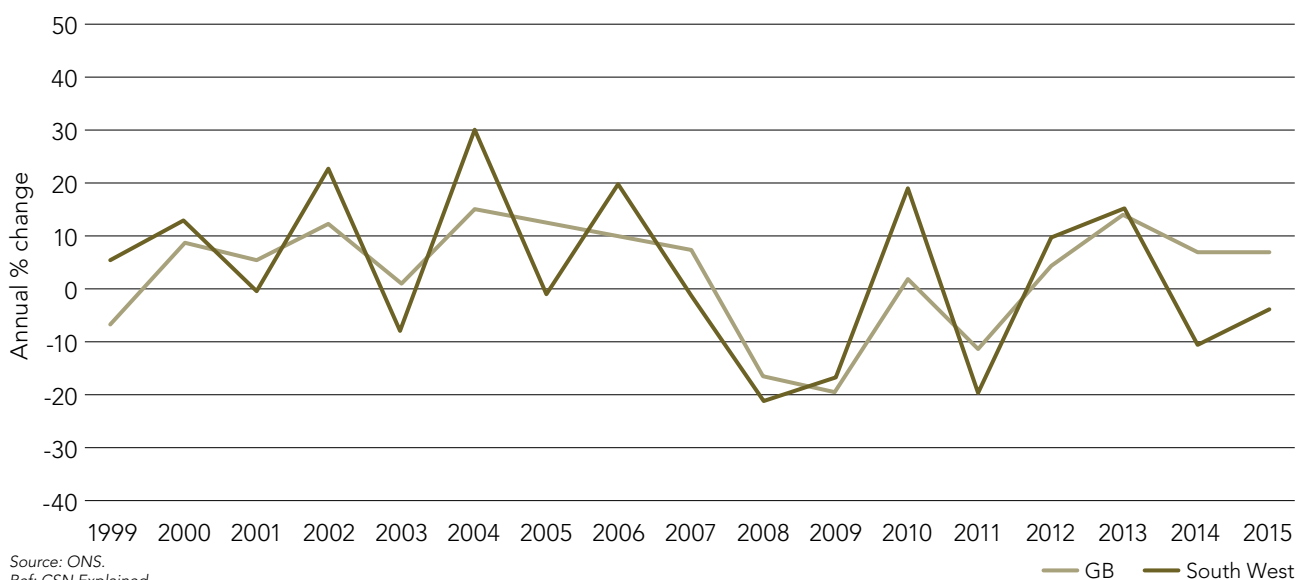


ECONOMIC INDICATORS – SOUTH WEST (£ BILLION, CURRENT PRICES – UNLESS OTHERWISE STATED)

	Actual	Forecast (Annual % change, real terms)					
	2015	2016	2017	2018	2019	2020	2021
Real household disposable income (2012 prices)	99.1	2.6	0.2	1.8	1.7	2.2	2.3
Household spending (2012 prices)	107.5	3.0	1.8	1.0	1.6	2.3	2.3
Working age population (000s and as % of all)	3,285	60.3%	60.2%	60.1%	60.1%	60.5%	60.4%
House prices (£)	218,917	5.6	1.5	1.4	2.2	2.7	2.8
LFS unemployment (millions)	0.1	-0.1	12.9	3.0	3.1	0.8	-0.5

Source: ONS, DCLG, Experian.

NEW CONSTRUCTION ORDERS GROWTH 1999-2015 – SOUTH WEST VS GB



NEW WORK CONSTRUCTION ORDERS – SOUTH WEST (£ MILLION, CURRENT PRICES)

	Actual	Annual % change				
	2015	2011	2012	2013	2014	2015
Public housing	144	-11.5	-15.5	-43.1	-33.9	89.5
Private housing	1,444	6.6	9.5	19.7	-3.7	-8.1
Infrastructure	758	-13.5	37.4	67.8	-17.7	13.1
Public non-housing	373	-57.4	50.0	-10.8	-12.2	-45.8
Industrial	219	-43.5	22.9	80.2	-40.1	14.7
Commercial	964	-0.6	-18.0	7.9	-7.0	6.5
Total new work	3,902	-19.7	9.2	15.7	-11.5	-4.9

Source: ONS.
Ref: CSN Explained.

CONSTRUCTION OUTPUT – SHORT-TERM FORECASTS (2017–2018)

Regional Office for National Statistics (ONS) output statistics are published in current prices and are thus inclusive of any inflationary effect. At the time of writing, regional ONS construction output statistics were only available for the first three quarters of 2016.

Construction output in the South West in the first three quarters of 2016 totalled £8.17bn (current prices), 4% higher than in the corresponding period of the previous year. Very strong growth was seen in the public housing sector – 75% three-quarters on three-quarters – as the big rise in orders in 2015 translated into output last year. The private housing and industrial sectors also experienced double-digit increases, of 12% and 29% respectively, while growth was more moderate in the commercial (6%) and R&M (5%) sectors. Output in the infrastructure and public non-housing sector was on a downward trajectory last year. For 2016 as a whole, growth is estimated at 1% in real terms for the construction industry in the South West.

Expansion in the short term is projected to average a robust 5.5% in the South West, primarily due to very strong rises in infrastructure output, but also reasonable growth in a number of other sectors.

The new nuclear build at the Hinkley Point site finally came to an end in the second half of last year, with EDF making its final investment decision in July and the government giving the go-ahead in September. However, with no announcement as yet of a revised schedule for the start of main works at the site, which is usually defined as first concrete pour. The latest edition (autumn 2016) of the government's National Infrastructure and Construction Pipeline shows capital expenditure on the project rising from £320m in 2016/17 to £1.44bn in 2017/18 and £2.08bn in 2018/19 and it is upon this that the 35% annual average growth in infrastructure output over the next two years has been based.

Elsewhere in the infrastructure sector the MetroWest project is a package of proposed rail improvements to enhance commuter transport in the Bristol area. The project is divided into two phases, the first of which is scheduled to start in 2017 and be operational by 2019 and includes re-opening the line between Bristol and Portishead for passenger services and a new station at Portishead.

The very strong growth in new orders in the public housing sector in 2015 is expected to support some output growth in the sector this year before a less buoyant 2018, giving an annual average growth rate across the two years of 2.3%. One of the most active housing associations in the Bristol, Avon and Somerset area is Knightstone Housing Association, which is currently taking forward 132 units for rent and 71 units for shared ownership across a number of sites. It is also involved in the construction of 66 retirement units of mixed tenure in Taunton.

The private housing sector is expected to fare a little better than the public one, with annual average expansion of nearly 4% over the next two years, despite the stalling of work on the £250m Carlyon Bay project in Cornwall by the developers, Commercial Estates Group, citing the EU referendum result as the reason. Work was due to start this autumn. A detailed planning application was submitted to Taunton Deane Borough Council in September for 176 new homes on land at Jurston Farm in Wellington. The site has outline planning permission for a total of 650 dwellings.

In the public non-housing sector work has been starting under the Army Basing Plan, which covers the relocation of units currently based in Germany to the UK by 2019. Significant works at Larkhill barracks on Salisbury Plain, among many other venues, will take place under the scheme. The South West's public non-housing sector is heavily skewed towards defence work at present, with the latter's share of current and planned public non-housing projects in the Glenigan database 42% and 53% respectively. This compares with shares of less than 6% for both across the UK as a whole. It is defence-related works that are expected to drive growth of around 3.6% a year on average over the short term.

The prospects for the industrial and commercial construction sectors in the short term are relatively poor, with a marginal decline in the former and only modest growth in the latter. Both of these sectors are vulnerable to declines in business investment, which are expected for the UK as a whole in 2017 and 2018 due to the increasing economic uncertainties. While manufacturers may benefit from weaker sterling in export terms, this will be more than counteracted by weaker domestic demand growth. Commercial construction output in the region is currently at quite low levels and thus some growth is expected, albeit modest, in the short term.

Plans were approved last May to demolish the current Salterns Harbourside Hotel in Poole and replace it with a new one, apartments and restaurants, offices and marina service facilities. The site will also be raised by 3.6 metres and a new quay wall built as part of the sea defences for the area.

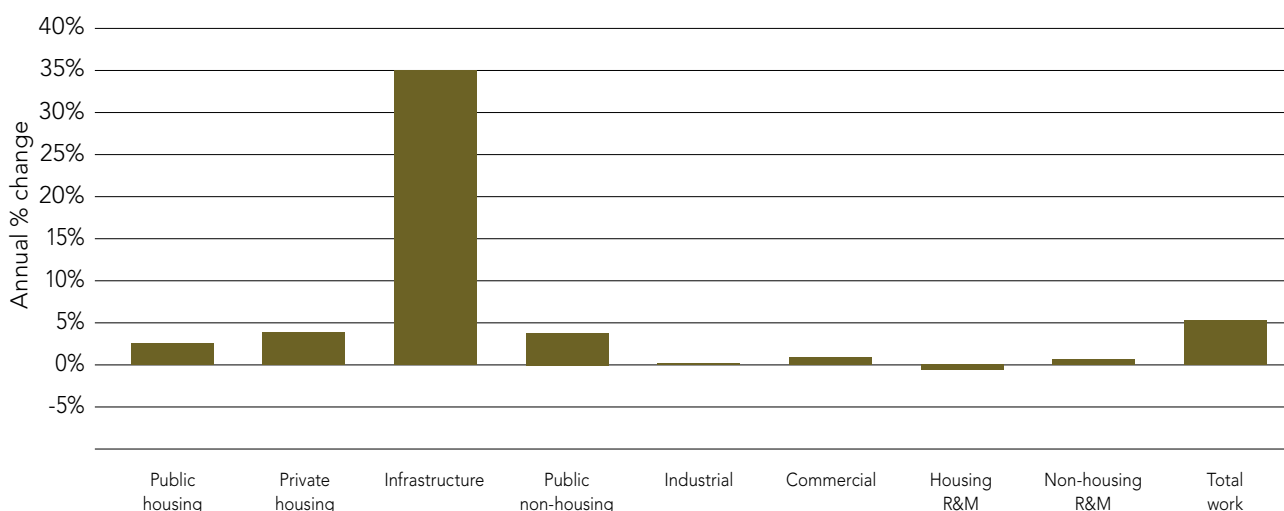
Also likely to suffer in the short term from increased economic uncertainty and a squeeze on disposable incomes is the housing R&M sector. The more uncertain home owners feel about their personal finances the more likely they are to hold back expenditure on 'big ticket' items such as extensions and conversions.

CONSTRUCTION OUTPUT – SOUTH WEST (£ MILLION, 2013 PRICES)

	Actual	Forecast annual % change			Annual average
	2015	2016	2017	2018	2017-2018
Public housing	200	21%	5%	-1%	2.3%
Private housing	2,231	8%	5%	3%	3.8%
Infrastructure	1,296	-19%	36%	34%	34.9%
Public non-housing	611	-3%	4%	4%	3.6%
Industrial	217	8%	-3%	2%	-0.2%
Commercial	1,372	-1%	-1%	2%	0.9%
New work	5,928	-1%	9%	9%	9.1%
Housing R&M	2,197	1%	0%	-2%	-0.7%
Non-housing R&M	1,670	7%	1%	0%	0.6%
Total R&M	3,867	4%	1%	-1%	-0.1%
Total work	9,795	1%	6%	5%	5.5%

Source: Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2018 – SOUTH WEST



Source: Experian.
Ref: CSN Explained.

By 2021 Construction employment will reach almost 235,000, an increase of 4% of 2015 employment in the South West.

CONSTRUCTION OUTPUT – LONG-TERM FORECASTS (2017–2021)

Construction output growth is projected to average just over 3% a year in the 2017 to 2021 period in the South West. This is the second highest growth rate after Wales. The devolved nation and region's top rankings are due in no small part to the fact they will both be benefitting from nuclear new build over the forecast period.

Annual infrastructure growth is expected to average 17% a year to 2021, with the bulk of the increase in the early part of the forecast period as work on Hinkley Point builds up. According to the National Infrastructure and Construction Pipeline, once capital expenditure hits £2.08bn in 2018/19 it should stay at that level for the next two years, with a further £8bn to be spent in 2021/22 and beyond. It should be noted that the figures in the pipeline are total project capital expenditure and that the construction element will be lower.

Without Hinkley Point the prospects for the infrastructure sector would be dull overall, with few projects of any size in the pipeline. In the roads sub-sector there is the A30 Carland Cross to Chiverton upgrade, which is estimated to cost between £100m and £250m according to Highways England, but it is not scheduled to start until 2020. Expenditure on water and sewerage works under the AMP6 programme is expected to peak in 2016/17 and decline thereafter.

For reasons that are not immediately apparent, the public housing sector in the South West tends to buck the national trend and grow when the UK's contracts and vice versa. We expect this to continue to be the case and for it to show decent growth over the five years to 2021 of around 3.7% a year on average. Given that the issues facing housing associations in the South West are the same as those across the rest of England – an uncondusive political atmosphere and worsening balance sheets due to Right to Buy and enforced rent reductions, it is difficult to understand the differing output profiles.

Under the Army Basing Plan, work should complete in 2019 and there is much less in the pipeline thereafter. Construction should start on a £337m storage facility at Ashchurch for the Defence Infrastructure Organisation in 2020 and further works are planned on the Christchurch hospital site, including the demolition and relocation of the existing MacMillan palliative care unit. Growth in public non-housing output is expected to be modest at less than 1% a year on average over the 2017 to 2021 period.

The medium-term prospects for those sectors that drive demand for industrial premises are relatively muted, with annual average growth of 1.2% projected for the manufacturing sector and 1.9% for transport and storage, although these are still better than for many other parts of the UK. They are unlikely to drive any significant general requirement for new factory and warehouse space, although there will always be a need for bespoke facilities.

Development on New Eastern Villages, Swindon's largest strategic growth area, has run into problems with the recent refusal of planning permission for the first tranche of dwellings on the site. The long-term development scheme is expected to contain around 40 hectares of light industrial and logistics space but it is unclear when work on this is now likely to start.

In the commercial sector most of the sectors that drive demand for new space are forecast to see annual average growth of around 2% for the five years to 2021. The Bristol offices market has been on the upward curve of its current development cycle for the past couple of years and this should continue for some time yet. After deferring a decision in February, the proposed £300m expansion of the Mall at Cribbs Causeway finally got the go ahead in November. However, there remain concerns that it could have a significant negative effect on city centre businesses in Bristol.

BEYOND 2021

The construction landscape of the South West will be dominated by new nuclear build during most of the 2020s and beyond. Hinkley Point is still scheduled to complete construction in 2024 and become operational in the following year. Horizon has recently reported that work on the Oldbury project is unlikely to start before the late 2020s at the earliest to incorporate lessons learnt from the construction of Wylfa Newydd.

Nearly £1bn of electricity distribution and transmission work is scheduled to take place over the 2021 to 2024 period according to Western Power Distribution and the National Grid.

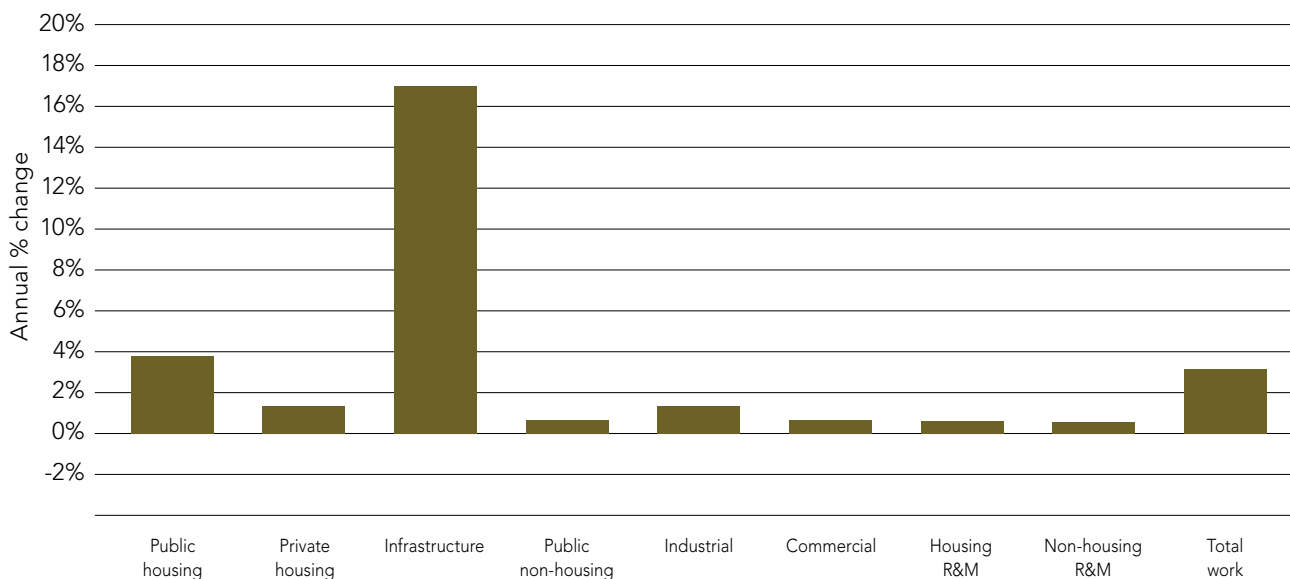


CONSTRUCTION OUTPUT – SOUTH WEST (£ MILLION, 2013 PRICES)

	Estimate	Forecast annual % change					Annual average
	2016	2017	2018	2019	2020	2021	2017-2021
Public housing	243	5%	-1%	3%	4%	7%	3.7%
Private housing	2,416	5%	3%	1%	2%	-4%	1.2%
Infrastructure	1,050	36%	34%	2%	11%	6%	17.0%
Public non-housing	593	4%	4%	-1%	-5%	2%	0.7%
Industrial	235	-3%	2%	3%	2%	2%	1.2%
Commercial	1,356	-1%	2%	1%	1%	-1%	0.7%
New work	5,893	9%	9%	1%	4%	1%	4.7%
Housing R&M	2,229	0%	-2%	2%	2%	0%	0.5%
Non-housing R&M	1,788	1%	0%	1%	1%	0%	0.7%
R&M	4,017	1%	-1%	2%	1%	0%	0.6%
Total work	9,910	6%	5%	1%	3%	0%	3.1%

Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2021 – SOUTH WEST



Source: CSN, Experian.
Ref: CSN Explained.

CONSTRUCTION EMPLOYMENT FORECASTS FOR THE SOUTH WEST

TOTAL CONSTRUCTION EMPLOYMENT FORECASTS BY OCCUPATION

The table presents actual construction employment (SICs 41-43, 71.1 and 74.9) in the South West for 2015, the estimated total employment across 28 occupational categories in 2016 and forecasts for the industry for 2017 to 2021. A full breakdown of occupational groups is provided in Section 5 of CSN Explained.

Construction employment in the South West is projected to grow at an annual average rate of 0.7% over the 2017 to 2021 period, slightly higher than the UK rate of 0.6%. This initially seems surprising when considering that output growth in the South West is expected to be considerably higher than across the UK as a whole (3.1% vs 1.7%). However, the bulk of the output growth in the South West is due to new nuclear build in the infrastructure sector. If infrastructure were excluded then expansion in the region would fall to

0.9% a year on average. Infrastructure work is much less labour intensive than some other sectors so expansion in the sector has a smaller impact on employment than, for example, new housing work.

By 2021 employment in the region is forecast to reach a little under 235,000, 4% up on 2015's level, the last year for which actual data is currently available, but still 5% below the 2008 peak.

22 of the 28 occupational categories are expected to see growth over the forecast period, with demand for wood trades and interior fit-out (2.6% a year on average), plumbing and HVAC trades (2.4%), specialist building operatives (2.2%) and bricklayers (1.8%) the strongest.

While across the UK as a whole the managerial/supervisory and professional occupations are projected to fare best, in the South West the main trades seem to be leading the way in terms of growth.



TOTAL EMPLOYMENT BY OCCUPATION – SOUTH WEST

	Actual	Estimate	Forecast	
	2015	2016	2017	2021
Senior, executive, and business process managers	14,940	14,930	14,390	13,560
Construction project managers	2,490	2,620	2,670	2,810
Other construction process managers	11,330	11,650	11,770	12,190
Non-construction professional, technical, IT, and other office-based staff	29,400	30,690	31,260	32,130
Construction trades supervisors	3,320	3,260	3,320	3,470
Wood trades and interior fit-out	27,870	27,610	28,810	31,340
Bricklayers	7,690	7,680	7,900	8,400
Building envelope specialists	12,380	12,170	12,280	12,520
Painters and decorators	10,910	11,120	11,280	11,740
Plasterers	5,300	4,980	5,080	5,130
Roofers	4,730	4,490	4,610	4,730
Floorers	1,290	1,290	1,300	1,310
Glaziers	2,790	2,760	2,850	3,010
Specialist building operatives nec*	4,030	4,000	4,160	4,450
Scaffolders	3,880	3,700	3,650	3,280
Plant operatives	3,800	3,870	3,920	4,100
Plant mechanics/fitters	2,280	2,170	2,190	2,060
Steel erectors/structural fabrication	2,400	2,430	2,470	2,560
Labourers nec*	8,320	8,610	8,120	6,830
Electrical trades and installation	16,600	15,960	16,090	16,040
Plumbing and HVAC Trades	18,400	18,470	19,310	20,800
Logistics	920	940	940	970
Civil engineering operatives nec*	2,350	2,350	2,420	2,510
Non-construction operatives	1,790	1,850	1,750	1,590
Civil engineers	2,600	2,660	2,680	2,730
Other construction professionals and technical staff	14,960	15,120	14,960	14,750
Architects	2,680	2,800	2,840	2,990
Surveyors	6,040	6,510	6,610	6,930
Total (SIC 41-43)	199,210	199,600	202,540	207,530
Total (SIC 41-43, 71.1, 74.9)	225,490	226,690	229,630	234,930

Source: ONS, CSN, Experian.
Ref: CSN Explained. *Not elsewhere classified.

ANNUAL RECRUITMENT REQUIREMENT (ARR) BY OCCUPATION

The ARR is a gross requirement that takes into account workforce flows into and out of construction, due to factors such as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training, due to the inconsistency and coverage of supply data. Thus, the annual recruitment requirement provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

The annual recruitment requirement (ARR) for the South West is projected at 4,180 over the 2017 to 2021 period, representing 1.8% of base 2017 employment, higher than the UK ratio (1.4%). The South West tends to see quite a high net outflow of its construction workforce to the South East and it also has a slightly poorer demographic profile in terms of age, hence the above average ARR.

At an absolute level the largest requirements are for non-construction professionals (1,080), senior managers (380), and wood trades (370). However absolute requirement levels tend to be a function of the size of the occupational category as much as anything else. On a relative level – as a share of base 2017 employment – the biggest requirements are for plasterers (5.3%), roofers (5%), and glaziers (4.6%). Also flagged up as amber in the traffic light system, indicating the possibility of labour shortages in the medium term, are senior managers, non-construction professionals, bricklayers, logistics personnel, and surveyors.

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

Non-construction operatives is a diverse occupational group including all of the activities under the SICs 41-43, 71.1, and 74.9 umbrella that cannot be classified elsewhere, such as cleaners, elementary security occupations nec. and routine inspectors and testers. The skills required in these occupations are highly transferable to other industries and forecasting such movement is hazardous given the lack of robust supportive data. Therefore the ARR for non-construction operatives is not published.



ANNUAL RECRUITMENT REQUIREMENT BY OCCUPATION – SOUTH WEST

	2017-2021
Senior, executive, and business process managers	380
Construction project managers	60
Other construction process managers	190
Non-construction professional, technical, IT, and other office-based staff	1,080
Construction trades supervisors	50
Wood trades and interior fit-out	370
Bricklayers	250
Building envelope specialists	70
Painters and decorators	240
Plasterers	270
Roofers	230
Floorers	<50
Glaziers	130
Specialist building operatives nec*	<50
Scaffolders	<50
Plant operatives	–
Plant mechanics/fitters	<50
Steel erectors/structural fabrication	<50
Labourers nec*	–
Electrical trades and installation	240
Plumbing and HVAC Trades	210
Logistics	<50
Civil engineering operatives nec*	–
Civil engineers	<50
Other construction professionals and technical staff	<50
Architects	–
Surveyors	250
Total (SIC 41-43)	3,910
Total (SIC 41-43, 71.1, 74.9)	4,180

Source: CSN, Experian.
 Ref: CSN Explained. *Not elsewhere classified.

COMPARISONS ACROSS THE UK

As is usually the case, the 1.7% annual average output growth rate for the UK as a whole masks considerable differences in the projected rates for individual English regions and the devolved nations, from expansion of over 6% a year on average in Wales to a decline of 0.4% in Scotland on the same measure.

Wales and the South West remain on top of the growth rankings due to the prospective start of new nuclear build at Wylfa Newydd and Hinkley Point respectively in their areas. However, Wales in particular is not necessarily a 'one-hit wonder' with other sizeable projects such as the M4 upgrade around Newport due to start in the forecast period.

The Greater London construction market is more vulnerable than most to a fall in business investment because of the large size of its commercial sector. However, a weak performance here is expected to be more than compensated for by strong growth in infrastructure, driven in part by the start of work on HS2, and private housing, fuelled by strong increases in the capital's population.

The other two regions expected to see annual average output growth in excess of 2% are the North West (2.5%) and the South East (2.2%). Growth in the former will be driven by energy and transport projects, the largest of which is the prospective new nuclear build facility at Moorside. In the latter, new renewable energy facilities should drive growth in the infrastructure sector and the commercial construction sector will benefit from the theme park in north Kent.

For the remainder of the English regions growth is predicted to range between an annual average rate of 1.3% in the West Midlands, which should see some HS2-related work by the end of the forecast period, to a marginal decline of 0.1% in the North East, which will suffer from a dearth of major projects and weak housing demand.

Scotland is projected to be the worst performing of all the regions and devolved nations, with an annual average decline of 0.4%. The primary reason for this is a sharp fall in infrastructure output from its current very high level as a number of large projects, such as the Queensferry Crossing, the M8/M73/M74 motorway upgrade, and the Aberdeen Western Peripheral Route, are completed over the next two years.

Employment growth across the regions and devolved nations tends to mirror that of output, but at a lower level to take account of expected productivity gains and with some minor adjustments depending on whether output growth is in high or low labour-intensive sectors. Annual average employment growth is projected to range from a

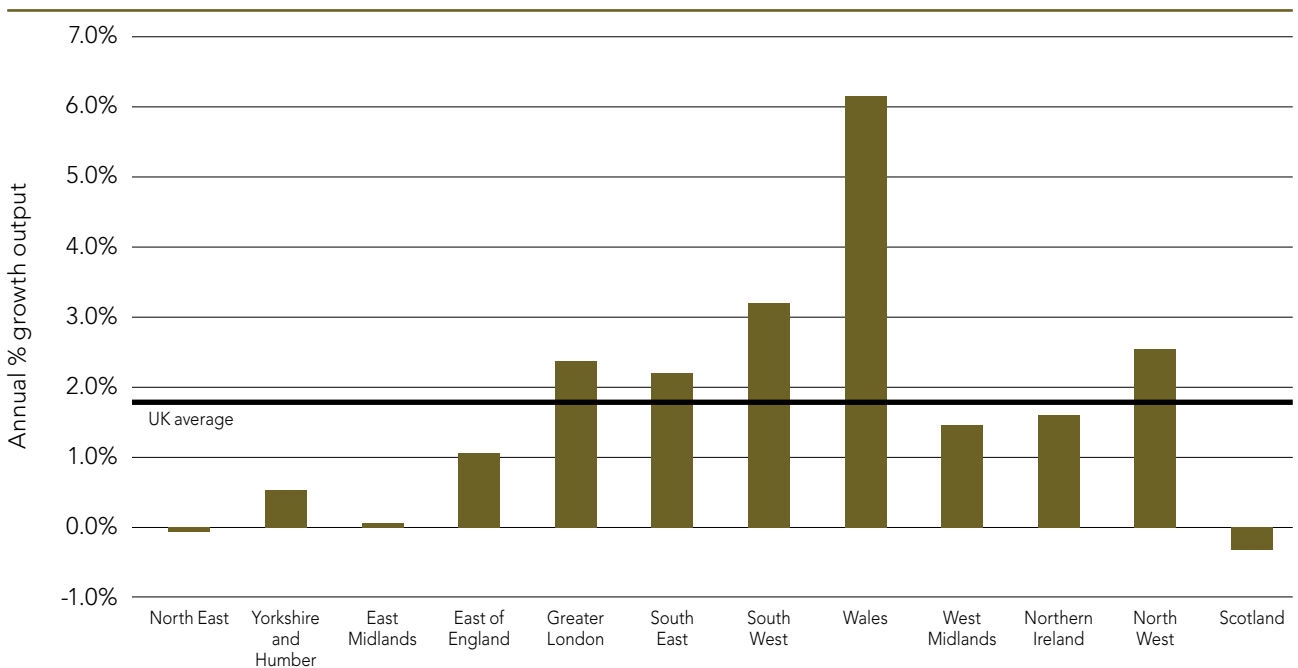
high of 2.7% in Wales to a low of -0.8% in Scotland, against a UK rate of 0.6%.

The impact of new nuclear build on employment in the regions and devolved nations that will host such projects is much less than on output due to its capital rather than labour-intensive nature. However, it still boosts employment growth in Wales quite considerably as it is a very big project in a small market. The impact is smaller in the South West, which has a bigger construction market, and thus contributes less to overall employment growth, which is expected to be around 0.7% a year on average over the five years to 2021.

Output growth in Scotland, the North East, East Midlands, and Yorkshire and Humber will not be strong enough to drive growth in employment; thus, these are all expected to experience some fall in construction employment between 2017 and 2021.

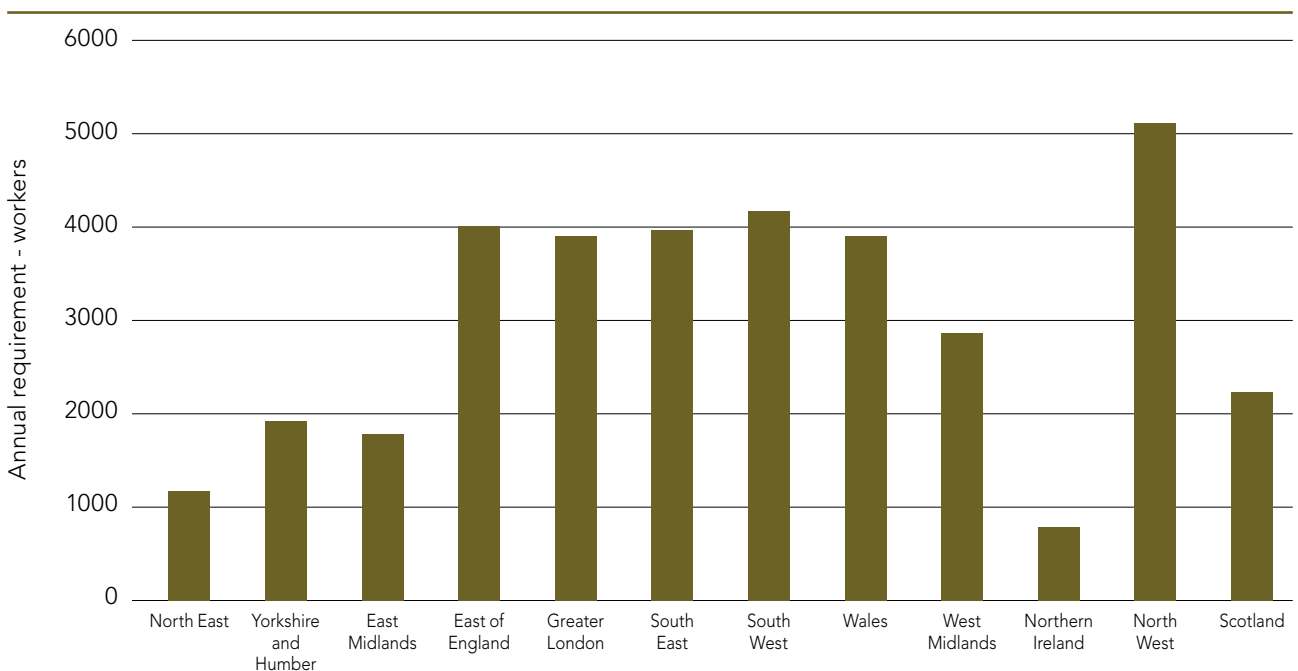
The pattern of annual recruitment requirements can look significantly different to the profile of output and employment, as some regions and devolved nations have historically strong net inflows and some suffer from large net outflows. Thus, Greater London's ARR represents just 0.9% of base 2017 employment, the lowest ratio along with Yorkshire and Humber, despite being high up the rankings in terms of output and employment growth. This is because the capital naturally acts as a magnet for the construction workforce from other parts of the country and from abroad; thus, its additional requirement is relatively small. At the other end of the scale Wales traditionally suffers strong net outflows, in particular to the North West and South West of England and often has the highest ARR ratio as a result of this. The 2017 to 2021 period is no exception, with buoyant output and employment growth and the strong net outflows leading to an ARR ratio of 3.4% of base 2017 employment. The remaining regions and devolved nations have an ARR ratio of between 1% and 1.9% of base 2017 employment.

ANNUAL AVERAGE OUTPUT GROWTH BY REGION 2017-2021





Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL RECRUITMENT REQUIREMENT (ARR) BY REGION 2017-2021



Source: CSN, Experian.


Hinkley Point will help increase Infrastructure by 17% on average per year to 2021, the best performing sector in the South West.


CSN EXPLAINED

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

CSN METHODOLOGY 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.

GLOSSARY provides clarification on some of the terms that are used in the reports.

NOTES has some further information 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.

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

OCCUPATIONAL GROUPS 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.

CSN METHODOLOGY

BACKGROUND

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

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 sector bodies, all of whom contribute their local industry knowledge and views on training, skills, recruitment, qualifications and policy. The National Group also includes the same range of representatives and meets twice per year to set the national scheme, forming a backdrop for the Observatories.

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

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

Future changes to the model will only be made after consultation with the Technical Reference Group.

THE MODEL APPROACH

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

The models work by forecasting demand and supply of skilled workers separately. The difference between demand and supply forms the employment requirement. The forecast total employment levels are derived from expectations about construction output and productivity. Essentially, this is based upon the question 'How many people will be needed to produce forecast output, given the assumptions made about productivity?'

The annual recruitment requirement (ARR) is a gross requirement that takes into account workforce flows into and out of construction, due to such factors as movements between industries, migration, sickness and retirement. However, these flows do not include movements into the industry from training, although robust data on training provision is being developed by CITB in partnership with public funding agencies, further education, higher

education and employer representatives. The ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

Estimates of demand are based on 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:

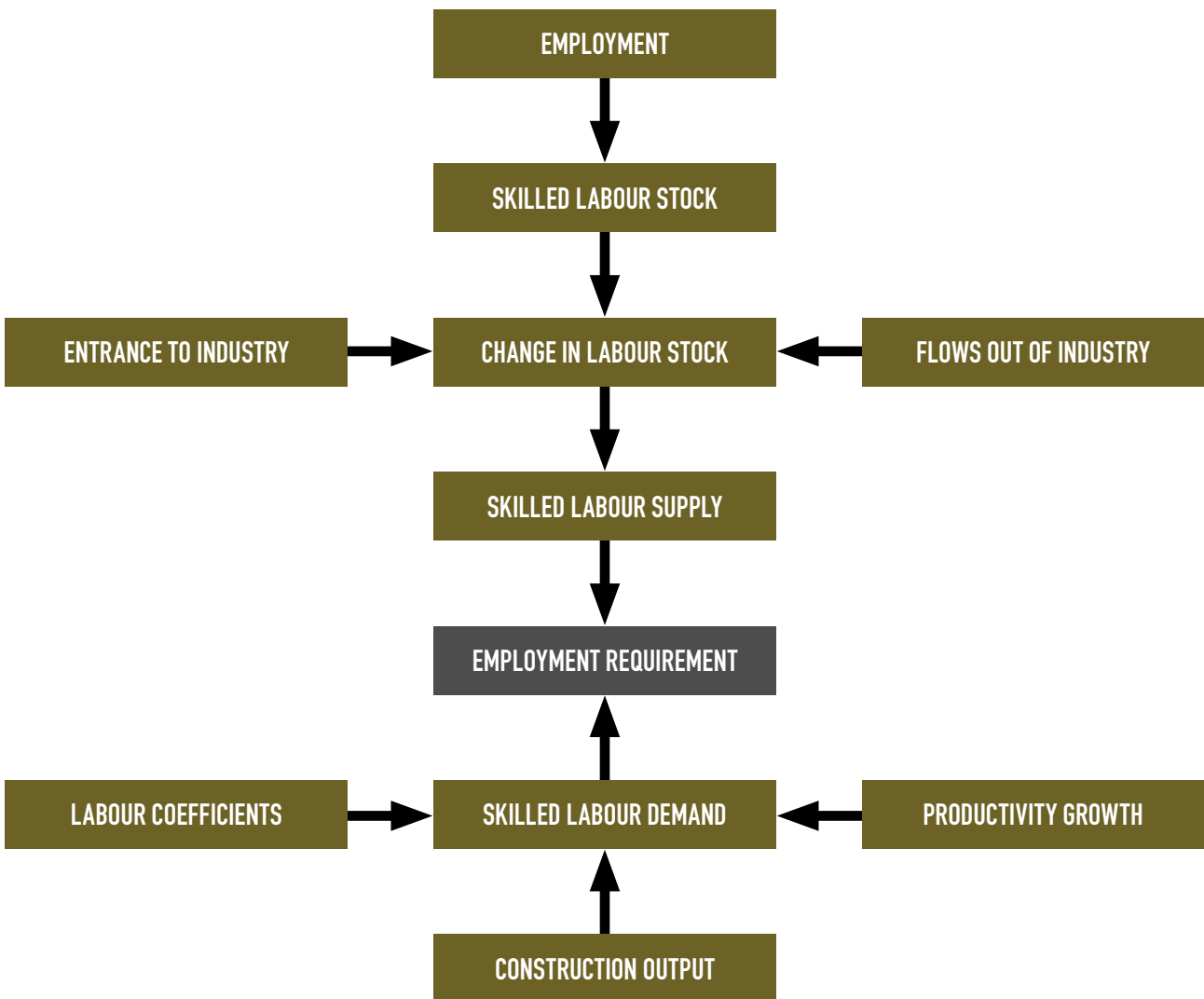
- Transfers to other industries
- International/domestic out migration
- Permanent retirements (including permanent sickness)
- Outflow to temporary sickness and home duties.

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.



GLOSSARY OF TERMS

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

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

GDP (gross domestic product) – total market value of all final goods and services produced. A measure of national income. $GDP = GVA$ plus taxes on products minus subsidies on products.

GVA (gross value added) – total output minus the value of inputs used in the production process. GVA measures the contribution of the economy as a difference between gross output and intermediate outputs.

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

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

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

Macroeconomics – the study of an economy at a national level, including total employment, investment, imports, exports, production and consumption.

Nec – not elsewhere classified, used as a reference in LFS data.

ONS (Office for National Statistics) – organisation producing official statistics on the economy, population and society at both a national and local level.

Output – total value of all goods and services produced in an economy.

Productivity – output per employee. SIC codes (Standard Industrial Classification codes) – from the United Kingdom Standard Industrial Classification of Economic Activities produced by the ONS.

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

Supply – the total stock of employment in a period of time, plus the flows into and out of the labour market. Supply is usually calculated from LFS data.



NOTES

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.
- 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 SECTOR

CITB and CITB Northern Ireland are responsible for SIC 41 Construction of buildings, SIC 42 Civil engineering, SIC 43 Specialised construction activities and SIC 71.1 Architectural and engineering activities and related technical consultancy.

The table summarises the SIC codes (2007) covered by CITB and CITB Northern Ireland:

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

The CSN's current baseline forecast assumes that a deal between the UK and EU will be agreed within a 4 year time horizon, with some form of trade access to the single market. As it is unlikely that the trade terms will be as favourable as the current situation, the forecast includes a small downgrade to the UK's long term export and investment projections, compared to the pre-Brexit vote baseline. No adjustments have been made to underlying population projections in the base case as it is too early to assess any potential slowdown in EU migration.

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 construction¹

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 work¹

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.

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
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Other construction process managers

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

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

IT operations technicians	3131
IT user support technicians	3132
Finance and investment analysts and advisers	3534
Taxation experts	3535
Financial and accounting technicians	3537
Vocational and industrial trainers and instructors	3563
Business and related associate professionals nec*	3539
Legal associate professionals	3520
Inspectors of standards and regulations	3565
Programmers and software development professionals	2136
Information technology and telecommunications professionals nec*	2139
Estate agents and auctioneers	3544
Solicitors	2413
Legal professionals nec*	2419
Chartered and certified accountants	2421
Business and financial project management professionals	2424

Management consultants and business analysts	2423
Receptionists	4216
Typists and related keyboard occupations	4217
Business sales executives	3542
Bookkeepers, payroll managers and wages clerks	4122
Records clerks and assistants	4131
Stock control clerks and assistants	4133
Telephonists	7213
Communication operators	7214
Personal assistants and other secretaries	4215
Sales and retail assistants	7111
Telephone salespersons	7113
Buyers and procurement officers	3541
Human resources and industrial relations officers	3562
Credit controllers	4121
Company secretaries	4214
Sales related occupations nec*	7129
Call and contact centre occupations	7211
Customer service occupations nec*	7219
Elementary administration occupations nec*	9219
Chemical scientists	2111
Biological scientists and biochemists	2112
Physical scientists	2113
Laboratory technicians	3111
Graphic designers	3421
Environmental health professionals	2463
IT business analysts, architects and systems designers	2135
Conservation professionals	2141
Environment professionals	2142
Actuaries, economists and statisticians	2425
Business and related research professionals	2426
Finance officers	4124
Financial administrative occupations nec*	4129
Human resources administrative occupations	4138
Sales administrators	4151
Other administrative occupations nec*	4159
Office supervisors	4162
Sales supervisors	7130
Customer service managers and supervisors	7220
Office managers	4161

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
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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 not elsewhere classified (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, staggers 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			
Metalworking production and maintenance fitters	5223		
Precision instrument makers and repairers	5224		
Vehicle technicians, mechanics and electricians	5231		
Elementary process plant occupations nec*	9139		
Tool makers, tool fitters and markers-out	5222		
Vehicle body builders and repairers	5232		
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 not elsewhere classified (nec*)			
Road construction operatives		8142	
Rail construction and maintenance operatives		8143	
Quarry workers and related operatives		8123	
Non-construction operatives			
Metal making and treating process operatives		8117	
Process operatives nec*		8119	
Metalworking machine operatives		8125	
Water and sewerage plant operatives		8126	
Assemblers (vehicles and metal goods)		8132	
Routine inspectors and testers		8133	
Assemblers and routine operatives nec*		8139	
Elementary security occupations nec*		9249	
Cleaners and domestics*		9233	
Street cleaners		9232	
Gardeners and landscape gardeners		5113	
Caretakers		6232	
Security guards and related occupations		9241	
Protective service associate professionals nec*		3319	
Civil engineers			
Civil engineers		2121	
Other construction professionals and technical staff			
Mechanical engineers		2122	
Electrical engineers		2123	
Design and development engineers		2126	
Production and process engineers		2127	
Quality control and planning engineers		2461	
Engineering professionals nec*		2129	
Electrical and electronics technicians		3112	
Engineering technicians		3113	
Building and civil engineering technicians		3114	
Science, engineering and production technicians nec*		3119	
Architectural and town planning technicians*		3121	
Draughtspersons		3122	
Quality assurance technicians		3115	
Town planning officers		2432	
Electronics engineers		2124	
Chartered architectural technologists		2435	
Estimators, valuers and assessors		3531	
Planning, process and production technicians		3116	
Architects			
Architects		2431	
Surveyors			
Quantity surveyors		2433	
Chartered surveyors		2434	

*Not elsewhere classified

**For more information about the
Construction Skills Network, contact:**

Karen Hazelden

Research Analyst

07730 802395

karen.hazleden@citb.co.uk

citb.co.uk/csn



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