

INDUSTRY INSIGHTS

Construction Skills Network
South East 2015-2019



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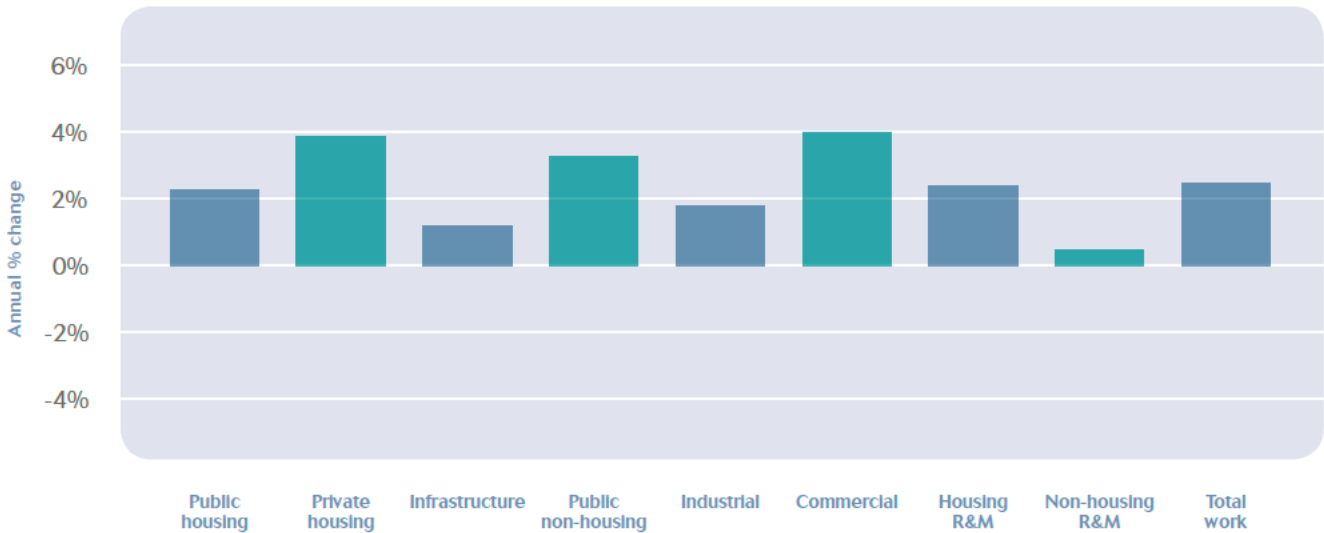
CSN explained

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1 Summary – South East

Construction output in the South East is projected to grow at an annual average rate of 2.5% over the five years to 2019, a lower rate of growth than the UK as a whole (2.9%). Expansion is expected to be stronger in the new work (3.2%) than the repair and maintenance (R&M) sector (1.5%). This rate of output growth should drive an increase in employment of around 1.6% a year on average. The region’s annual recruitment requirement (ARR), at 2,590, represents 0.7% of base 2015 employment, a lower ratio than the UK average (1.7%).

Annual average construction output growth 2015-2019 – South East



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



1.1 Key findings

Construction output in the South East fell for its second consecutive year in 2013. At £16.74bn it was at its lowest level since 1998. It is estimated to have returned to growth in 2014 and should continue to expand at an annual average rate of 2.5% over the forecast period.

The private housing and commercial sectors are predicted to see the strongest growth over the 2015 to 2019 period, at respective annual average rates of 3.9% and 4%. The former saw its activity fall in 2013, perhaps highlighting that 'Help to Buy' may have had a lesser impact on the housing market in the South East than elsewhere in the country. The pipeline of new work looks promising and a number of projects, including the £250m eco town in Borden, Hampshire, should drive growth through the forecast period. The latter sector should see a steady expansion in its activity on the back of strengthening new orders and a solid pipeline of retail-based projects. The £2bn Paramount theme park development on the Swanscombe Peninsula should boost activity over the medium term.

The public non-housing and public housing sectors are also set to expand at decent rates between 2015 and 2019. The former is forecast to see annual average growth of 3.3%, driven by good-sized projects such as the £298m redevelopment of Broadmoor Hospital in Berkshire. ProCure 21+ schemes should provide a steady stream of activity. Public housing should benefit

Construction output will rise on average by 2.5% each year in the South East.

By 2019, construction employment is forecast to reach 400,000 in the South East.

from £122m worth of funding under the Affordable Housing Programme (AHP) which has been awarded to developments in the South and South West between 2015 and 2018.

Industrial and infrastructure construction output is set to increase moderately, at respective annual average rates of 1.8% and 1.2%. Growth in the former should be buoyed by a good number of medium-sized warehouse projects in the pipeline. Infrastructure output ought to remain at a higher than average level through the forecast period, supported by projects like the £140m waste treatment plant near Milton Keynes which recently began on site.

Employment growth is set to see average growth of 1.6% a year over the forecast period, slightly higher than the equivalent UK rate of 1.5%. Logistics (4.4%) should see the strongest annual average growth, followed by plant operatives (3.9%), steel erectors/structural fabricators (3.5%) and scaffolders (3.2%). The vast majority (27 out of 28) of occupational aggregates are forecast to show growth over the five years to 2019.

The region's annual recruitment requirement (ARR) of 2,590 represents 0.7% of base 2015 employment, which is well below the UK average of 1.7%. Painters and decorators have the highest absolute requirement at 660.

Regional comparison 2015-2019

	Annual average % change in output	Growth in total employment	Total ARR
North East	2.3%	7,660	3,510
Yorkshire and Humber	2.3%	14,940	3,220
East Midlands	2.2%	9,340	3,120
East of England	2.5%	13,690	4,260
Greater London	4.2%	50,440	2,050
South East	2.5%	30,130	2,590
South West	3.6%	22,130	6,320
Wales	5.8%	13,890	5,320
West Midlands	2.1%	12,110	2,320
Northern Ireland	2.2%	3,220	1,490
North West	2.5%	17,130	4,790
Scotland	1.1%	1,320	5,700
UK	2.9%	196,000	44,690

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

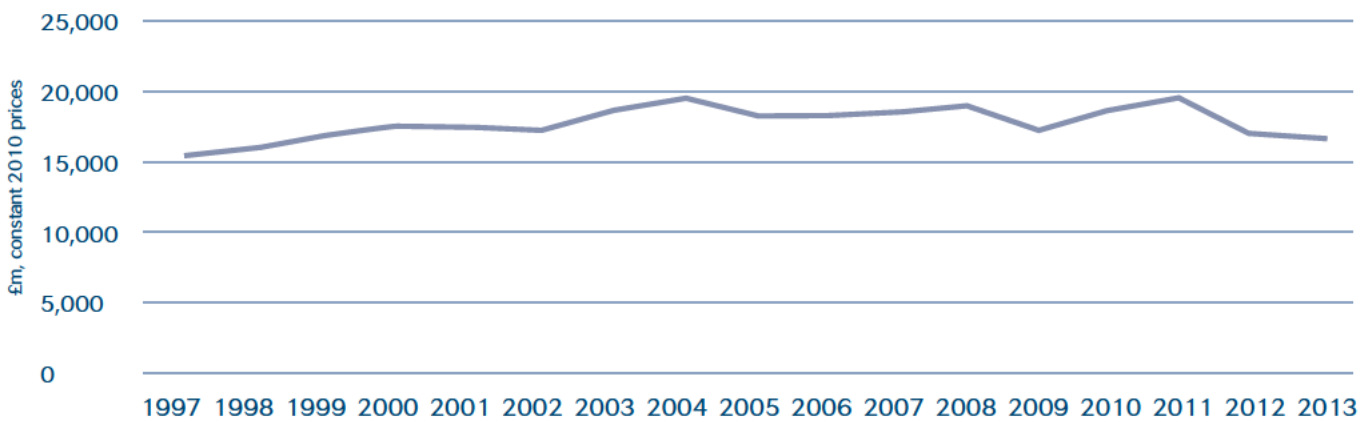
2 The outlook for construction in the South East

2.1 Construction output in the South East – overview

Output in the South East continued falling in 2013, with a 2% year-on-year decline to £16.74bn in 2010 prices. Public housing was the only sector to manage any growth in output that year, with a 5% annual increase to £626m.

The public non-housing and industrial sectors both contracted at a double-digit rate. The former fell 11% to £1.28bn and the latter was down 17% to £392m. The remaining new work sectors, private housing, infrastructure and commercial construction all experienced less severe declines. However, repair and maintenance activity rose robustly, by 8%, with most of the growth in non-housing.

Construction output 1997-2013 – South East



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

2.2 Industry structure

The diagram, Construction Industry structure 2013 – UK vs. South East, illustrates the sector breakdown of construction in South East, 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 East’s construction industry follows that of the UK quite closely, especially in terms of new work shares. However, new work as a proportion of overall output is notably lower in the region than it is across the UK with respective shares of 58% and 62%.

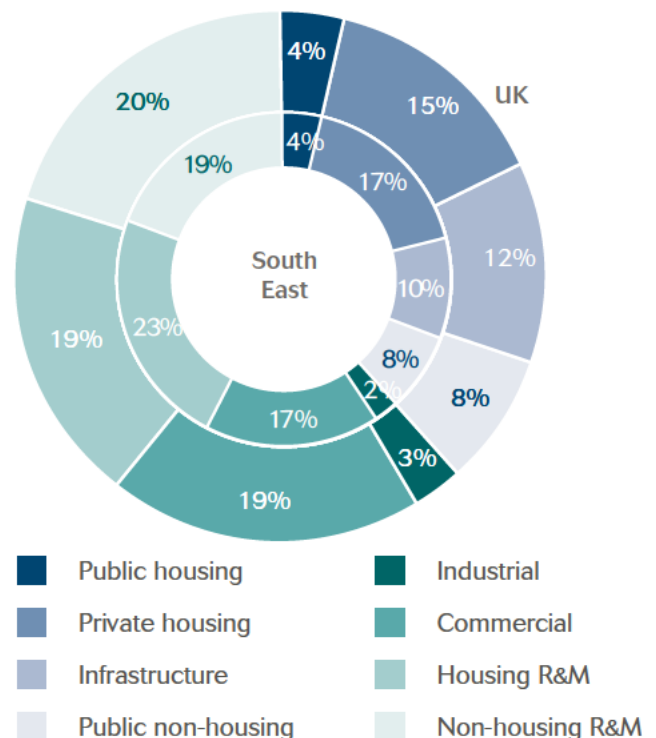
The largest difference was in the housing R&M sector, which is significantly more important at the regional level than it is UK-wide (23% vs 19%).

2.3 Economic overview

The expected performance of a regional or national economy over the forecast period (2015 – 2019) provides an indication of the construction sectors in which demand is likely to be strongest.

The South East’s gross value added (GVA) totalled 198.2bn in 2013 in 2010 prices, after ticking upwards for its fourth successive year. It was also up 1% on its previous peak level in 2006.

Construction industry structure 2013 – UK vs South East



Source: ONS, Experian

2.4 Economic structure

The region's industrial structure is centred on professional and other private services, with the sector accounting for 28% of GVA in 2013, higher than the UK average of 24%. The sector has also increased its share of the South East's GVA by 3% over the decade to 2013. The second largest sector remains public

services, with a 17% share of GVA, lower than the UK average of 19%. The sector's share of the region's GVA has remained stable over the decade to 2013. In contrast, the manufacturing sector saw its share fall from 11% to 8%, representing the largest sector contraction.

Economic structure – South East (£ billion, 2010 prices)

Selected sectors	Actual	Forecast					
		Annual % change, real terms					
	2013	2014	2015	2016	2017	2018	2019
Public services	34.1	1.0	0.2	0.0	-0.2	0.4	1.3
Professional and other private services	54.8	5.8	4.1	3.7	3.7	3.5	3.2
Manufacturing	16.3	1.4	2.0	1.8	2.3	1.8	1.4
Wholesale and retail	26.6	5.1	3.6	3.0	3.0	3.0	2.9
Information and communication	19.3	2.6	4.3	4.1	4.1	3.6	3.1
Total Gross Value Added (GVA)	198.2	3.5	3.1	2.8	2.8	2.7	2.7

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

2.5 Forward looking economic indicators

The region's economy is estimated to have expanded by 3.5% in 2014. It should continue to grow at an annual average rate of 2.8% over the forecast period, stronger than the 2.4% projected for the UK as a whole.

Professional and other private services, the largest sector by some margin, is forecast the strongest growth, at an annual average rate of 3.6%. The wholesale and retail and information and communication sectors are also set for robust expansion, at respective annual average rates of 3.1% and 3.8%.

In contrast, the second largest sector, public services, is forecast to flatten out with anticipated annual average growth of 0.3%.

The South East's stronger than average GVA growth is largely due to the fact that its economy is skewed

towards faster-growing sectors like professional and other private services and away from slower growing ones such as public services and manufacturing.

Real household disposable income (RHDI) was estimated to have risen by 1.9% in 2014, after a minor contraction in the previous year. It should continue to rise, at an annual average rate of 2.4%, through the forecast period.

According to the ONS mix-adjusted house price series, the South East's house prices grew for their fourth successive year in 2013 to reach £300,000, representing a year-on-year increase of 3.7%. In the process they reached their highest level on record. In the third quarter of 2014 they rose 4.8% quarter-on-quarter and 12% on an annualised basis.

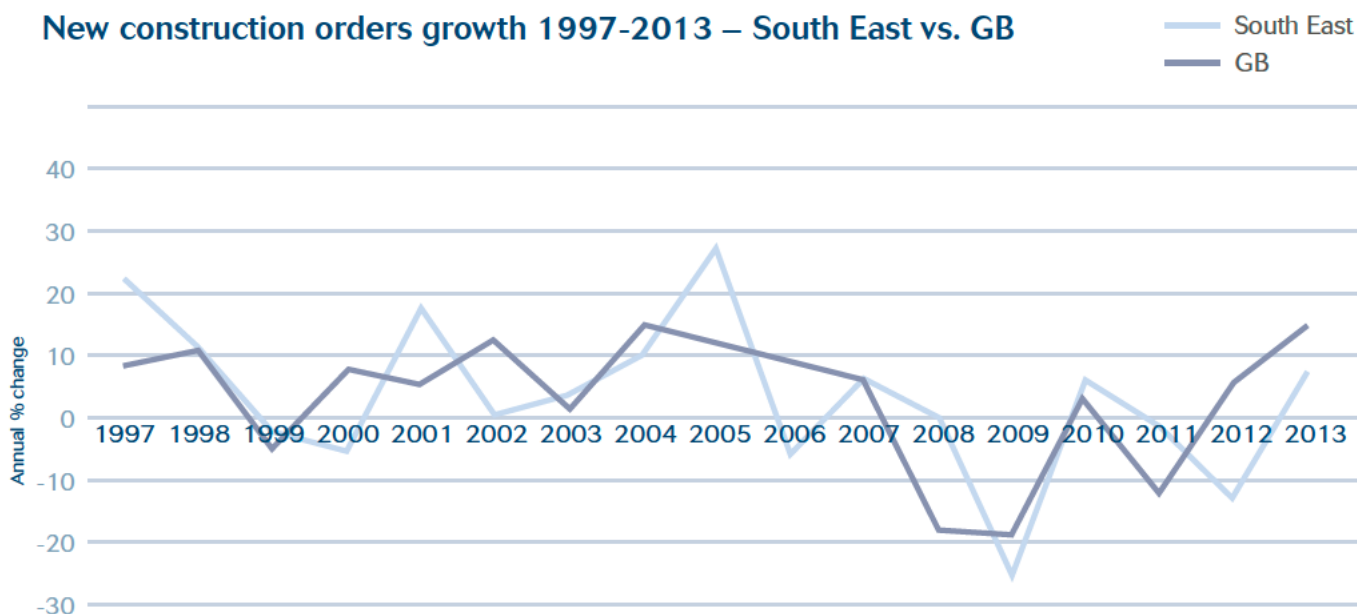
The unemployment rate on the LFS measure fell in 2013. It's set to carry on decreasing in each year to 2019, when it should approach the 4% mark.

Economic indicators – South East (£ billion, 2010 prices – unless otherwise stated)

	Actual	Forecast					
		Annual % change, real terms					
	2013	2014	2015	2016	2017	2018	2019
Real household disposable income	157.9	1.9	2.3	1.7	2.6	2.9	2.7
Household spending	155.3	3.9	3.3	2.7	2.6	2.6	2.6
Working age population (000s and as % of all)	5,328.3	60.87%	61.16%	61.30%	61.20%	61.06%	61.09%
House prices (£)	300,000	9.43	8.95	5.85	4.29	4.39	4.36
LFS unemployment (millions)	0.27	-18.91	-2.99	-1.01	-1.71	-1.92	-0.33

Source: ONS, DCLG, Experian

New construction orders growth 1997-2013 – South East vs. GB



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

2.6 New construction orders – overview

Construction orders totalled £6.83bn in current prices in 2013. After two successive annual falls they returned to growth with a 7% year-on-year increase.

Industrial construction orders saw the sharpest year-on-year growth, with a 20% increase to £401m. Both the private housing and commercial sectors also made double-digit gains to reach £2bn and £1.76bn respectively. The public housing and public non-housing sectors saw more moderate increases.

Infrastructure orders were the only ones to fall on an annual basis. At £1.24bn they were 2% below the previous year, but they remained well above their average level for the decade leading up to 2013.

2.7 New construction orders – current situation

Orders totalled £3.21bn in the first half of 2014. They fell 13% six-months on six-months, but remained 2% above their level for the same period of 2013.

The commercial sector was the only one to make gains on both measures, as orders increased by 7% and 22% to reach £1bn. Both the public non-housing and

industrial sectors saw strong double-digit growth on an annual basis to reach £550m and £196m respectively.

The public housing and infrastructure ones saw their orders fall sharply on a half-yearly and annual basis. The former was down to £121m, and latter to £326m. At £1.02bn, private housing orders were up 9% half-year on half-year, yet they were 5% below their level a year earlier.

2.8 Construction output – short-term forecasts (2015-2016)

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 two quarters of 2014.

In the first half of 2014 output totalled £9bn, down 5% on half-yearly basis but 7% above its level for the same period of 2013.

The only new work sectors to post growth on an annual basis were the infrastructure and commercial ones. The former rose 1% to £903m, while the latter was up 13% to £1.66bn. Each of the remaining new work sectors saw their activity fall on a half-yearly and annual basis.

New work construction orders – South East (£ million, current prices)

	Actual	Annual % change				
		2013	2009	2010	2011	2012
Public housing	392	-7.6	28.4	-21.7	-1.4	8.9
Private housing	2,000	-18.4	45.1	22.5	-16.1	9.7
Infrastructure	1,238	146.6	31.6	-37.3	16.4	-2.1
Public non-housing	1,047	-10.9	-2.7	-7.5	-26.9	2.9
Industrial	401	-41.6	-51.6	58.3	17.5	19.7
Commercial	1,757	-52.1	-18.7	14.0	-22.4	11.1
Total new work	6,835	-25.2	6.1	-1.4	-13.1	7.1

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

Construction output – South East (£ million, 2011 prices)

	Actual 2013	Forecast annual % change			Annual average 2015-2016
		2014	2015	2016	
Public housing	626	20%	3%	-4%	-0.6%
Private housing	2,883	6%	3%	5%	4.0%
Infrastructure	1,635	-2%	7%	1%	3.9%
Public non-housing	1,277	1%	5%	5%	5.2%
Industrial	392	10%	1%	1%	1.0%
Commercial	2,855	1%	4%	4%	4.0%
New work	9,667	3%	4%	3%	3.6%
Housing R&M	3,859	4%	3%	1%	2.3%
Non-housing R&M	3,218	4%	0%	0%	0.2%
Total R&M	7,077	4%	2%	1%	1.4%
Total work	16,744	3%	3%	2%	2.7%

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

Construction output in the South East is projected to expand at an annual average rate of 2.7% in the short-term.

Public non-housing output is forecast to make the strongest gains, with annual average growth of 5.2%. This robust expansion should be supported by the start of redevelopment work at the Royal Sussex and Broadmoor hospitals, with a combined value exceeding £500m.

Activity in both the private housing and commercial sectors is expected to rise at an annual average pace of 4% in the short-term. Growth in the former should be buoyed by the start of work on a £250m eco-town in Hampshire and a strengthening of housing starts in the region. The latter has seen a recent upturn in orders, driven by projects such as the £145m office block in Chobham Lane, Chertsey, which is expected to start in 2015 and finish a year later.

Infrastructure and industrial output should also rise, although growth in the former is likely to be much stronger with respective annual average forecasts of 3.9% and 1%. Infrastructure output is expected to remain at a high level, owing to a good short-term pipeline including projects such as the £175m pier 6 extension at Gatwick airport. Industrial activity on the other hand should edge upwards as work gets underway on a number of smaller developments, such as the £32m distribution centre in Andover, Hampshire.

Public housing is the only sector forecast to see a slight decline in output in the short-term at an annual average rate of 0.6%. However, this is coming off particularly strong growth in 2014 when activity reached its highest level on record.

Annual average construction output growth 2015-2016 – South East



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

2.9 Construction output – long-term forecasts (2015-2019)

Output in the South East is expected to increase at an annual average rate of 2.5% in the long-term. While robust, it does lag the equivalent UK average rate (2.9%).

The commercial and private housing sectors are set for the strongest growth, at predicted annual average rates of 4% and 3.9% respectively. Activity in the commercial sector is expected to tick upwards in each year of the forecast period, driven by a solid pipeline of good-sized projects, including a £70m commercial hub in Southampton which should begin in 2015. However, by far the biggest commercial project in the pipeline is the proposed theme park development on the Swanscombe Peninsula for Paramount Pictures. The £2bn project has a purported start date of 2015 but, to date, no formal permission has been granted.

The private housing sector in the South East does not seem to have been given the same impetus from the 'Help to Buy' scheme, thus the sector hasn't seen the strong growth experience across the UK as a whole over the past couple of years. However, the sector did return to growth in 2014 and the positive trend is expected to continue throughout the forecast period. Adjustments to Stamp Duty, which are beneficial to most prospective purchasers, combined with the new Starter Homes Initiative, should counteract tighter lending criteria and rises in interest rates. By 2019, activity in the sector should have reached a new peak. The public non-housing and public housing sectors are also set to expand at reasonably robust rates, with respective annual average growth predictions of 3.3% and 2.3%. The former has seen strong rises in new orders which should buoy growth in the earlier half of the forecast period. It should continue to be supported by investment from the ProCure 21+ scheme.

The pipeline for new education work is also positive, with investment approaching £500m in the medium-term from both Brighton and Sussex Universities.

Public housing should also tick upwards at a decent rate in the forecast period, aided by a significant amount of investment under the Affordable Housing

The sector forecast for the strongest growth in the South East is commercial, with annual average growth of 4% per year.

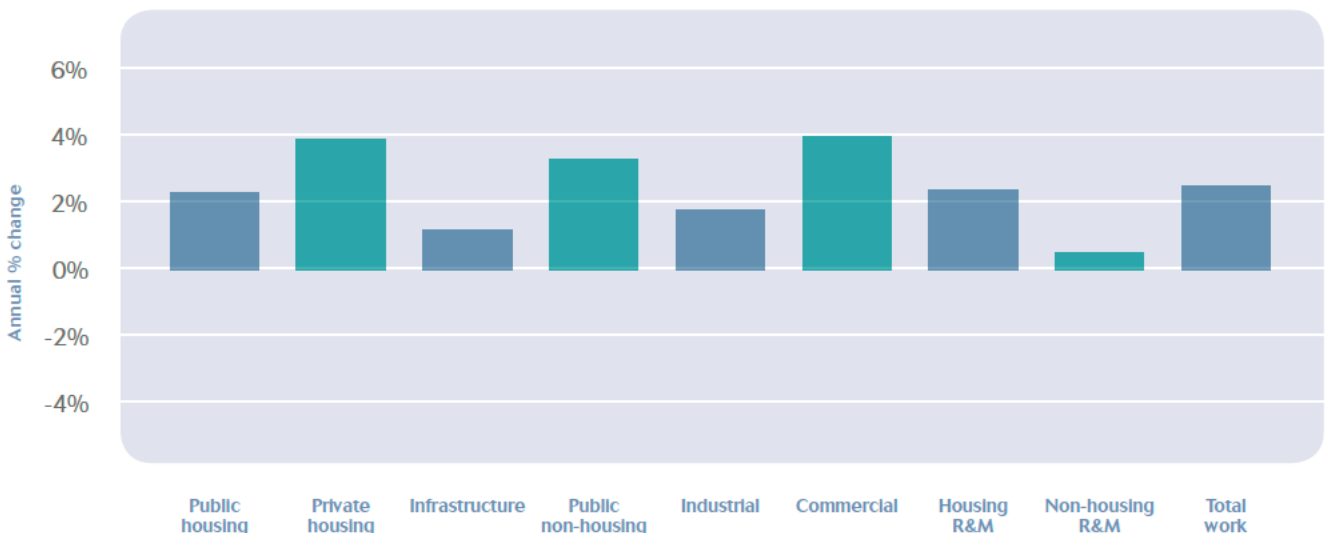
Programme (AHP). An improvement in public finances in the latter half of the forecast period ought to help output in the sector reach a new high by 2019.

The infrastructure and industrial sectors are both in line for the slowest growth, at respective annual average rates of 1.2% and 1.8%. Activity in the former should stay at a higher than average level through the forecast period. The longer-term pipeline is solid with a good number of rail, water and highway projects scheduled to commence beyond 2016. Growth in the latter is likely to be predicated on economic improvement in the Eurozone over the medium term and a consequent improvement in prospects for UK exports. Despite this, expansion in the industrial construction is more likely to be driven by distribution and logistics work than factories.

2.10 Beyond 2019

As is the case with many other regions and devolved nations, the majority of known work taking place beyond 2019 will primarily be in the infrastructure sector. There are a number of offshore wind, rail and highway schemes that should commence in the forecast period and carry on well beyond it. For example, there was a raft of new improvement projects for the M2, M25, M4 and M3 announced in the Autumn Statement, many of which may not start until towards the end of the current forecast period or beyond.

Annual average construction output growth 2015-2019 – South East



Construction output – South East (£ million, 2011 prices)

	Estimate 2014	Forecast annual % change					Annual average 2015-2019
		2015	2016	2017	2018	2019	
Public housing	748	3%	-4%	4%	7%	2%	2.3%
Private housing	3,042	3%	5%	4%	6%	2%	3.9%
Infrastructure	1,595	7%	1%	0%	-4%	3%	1.2%
Public non-housing	1,291	5%	5%	2%	4%	0%	3.3%
Industrial	430	1%	1%	0%	3%	4%	1.8%
Commercial	2,873	4%	4%	3%	7%	2%	4.0%
New work	9,980	4%	3%	3%	4%	2%	3.2%
Housing R&M	3,999	3%	1%	3%	3%	1%	2.4%
Non-housing R&M	3,330	0%	0%	2%	0%	0%	0.5%
R&M	7,330	2%	1%	3%	1%	1%	1.5%
Total work	17,310	3%	2%	3%	3%	2%	2.5%

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



3 Construction employment forecasts for the South East

3.1 Total construction employment forecasts by occupation

The table presents actual construction employment (SICs 41-43, 71.1, and 74.9) in the South East for 2013, the estimated total employment across 28 occupational categories in 2014 and forecasts for the industry for 2015 to 2019. A full breakdown of occupational groups is provided in Section 5 of CSN Explained.

Construction employment in the South East is forecast to reach nearly 400,000 in 2019 after annual average growth of 1.6% over the forecast period. This is slightly faster than the UK rate of 1.5% over the same

time frame. On these forecasts, employment will be only 3% below its 2008 peak in 2019.

Of the 28 occupational aggregates 27 are set to grow over the forecast period, which is a significantly higher proportion than the majority of other regions and devolved nations. Employment growth on an annual average basis is forecast to be strongest for the logistics (4.4%), plant operatives (3.9%), steel erectors/structural fabricators (3.5%) and the scaffolders (3.2%) occupations.

In general, trades in the region are expected to see stronger employment growth than the professional and managerial/supervisory occupations.

Total employment by occupation – South East

	Actual 2013	Estimate 2014	Forecast 2015	Forecast 2019
Senior, executive, and business process managers	28,940	29,740	30,570	32,730
Construction project managers	7,890	7,980	8,070	8,290
Other construction process managers	25,750	26,210	26,660	27,650
Non-construction professional, technical, IT and other office-based staff	54,380	56,100	57,840	62,350
Construction trades supervisors	5,700	5,860	6,020	6,490
Wood trades and interior fit-out	32,690	33,380	34,080	35,670
Bricklayers	6,700	6,920	7,130	7,670
Building envelope specialists	14,740	15,210	15,660	16,790
Painters and decorators	18,040	18,470	18,960	19,800
Plasterers	4,930	5,010	5,050	5,080
Roofers	7,840	7,960	8,100	8,380
Floorers	4,480	4,640	4,790	5,090
Glaziers	3,940	3,930	3,920	3,780
Specialist building operatives nec*	7,310	7,410	7,530	7,700
Scaffolders	2,120	2,300	2,440	2,690
Plant operatives	5,810	6,180	6,510	7,470
Plant mechanics/fitters	4,420	4,580	4,770	5,210
Steel erectors/structural fabrication	2,640	2,790	2,930	3,320
Labourers nec*	19,880	20,230	20,600	21,360
Electrical trades and installation	24,710	25,400	26,080	27,240
Plumbing and HVAC Trades	21,090	21,120	21,250	21,360
Logistics	3,130	3,320	3,500	4,110
Civil engineering operatives nec*	1,760	1,780	1,810	1,830
Non-construction operatives	2,350	2,480	2,590	3,030
Civil engineers	5,670	5,720	5,760	5,760
Other construction professionals and technical staff	31,640	32,620	33,530	35,640
Architects	5,370	5,620	5,850	6,410
Surveyors	6,450	6,500	6,570	6,700
Total (SIC 41-43)	311,240	319,000	326,860	345,090
Total (SIC 41-43, 71.1, 74.9)	360,370	369,460	378,570	399,600

Source: ONS, CSN, Experian
ref. CSN Explained, Section 3, Notes 5, 6 and 8

3.2 Annual recruitment requirements (ARR) by occupation

The ARR is a gross requirement that takes into account workforce flows into and out of construction, due to factors such as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training, due to the inconsistency and coverage of supply data. 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 South East has an ARR projection of 2,590 over the forecast period, representing 0.7% of base 2015 employment, falling well below the UK average of 1.7%. Painters and decorators have the highest absolute requirement at 660, followed by building envelope specialists (630). In terms of ratios on base 2015 employment, the requirement for plant mechanics/fitters is highest at 6.5%, followed by steel erectors/structural fabricators (6.1%) and building envelope specialists (4%).

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

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

Finally, for certain occupations there will be no appreciable requirement over the forecast period, partly due to the recession creating a 'pool' of excess labour.

Annual recruitment requirement by occupation – South East

	2015 - 2019
Senior, executive, and business process managers	-
Construction project managers	-
Other construction process managers	-
Non-construction professional, technical, IT and other office-based staff	-
Construction trades supervisors	-
Wood trades and interior fit-out	-
Bricklayers	-
Building envelope specialists	630
Painters and decorators	660
Plasterers	-
Roofers	140
Floorers	130
Glaziers	100
Specialist building operatives nec*	-
Scaffolders	-
Plant operatives	-
Plant mechanics/fitters	310
Steel erectors/structural fabrication	180
Labourers nec*	-
Electrical trades and installation	-
Plumbing and HVAC Trades	-
Logistics	130
Civil engineering operatives nec*	-
Non-construction operatives	-
Civil engineers	-
Other construction professionals and technical staff	-
Architects	310
Surveyors	-
Total (SIC 41-43)	2,280
Total (SIC 41-43, 71.1, 74.9)	2,590

4 Comparisons across the UK

Despite ongoing delays to the nuclear new build programme, Wales is still projected to have the strongest output growth, despite the main construction works on Wylfa unlikely to start before the beginning of 2019. Nuclear new build still remains in the forecast period for the South West, where main construction works on Hinkley Point C should begin in 2015, helping to boost the region's annual average output growth rate to 3.6%.

Greater London slips in between Wales and the South West, with a projected annual average output expansion of 4.2%. The area benefits from good growth in the commercial construction sector and very strong demand for public and private housing, despite recent indications that house prices in the capital are stabilising. Together, these three sectors accounted for 44% of London's construction output in 2013, well above the UK average (38%), thus proportionally providing a stronger driver for overall growth in the capital compared with elsewhere.

While most UK regions and nations are expected to experience quite strong growth in private housing output to 2016, followed by a slowdown to more sustainable levels, the prospects for public housing are much more uncertain as the current Affordable Homes Programme (AHP) winds down to April 2015. The overall pot of funding available from central Government for 2015–2018 is much the same on an annualised basis as it was in 2011–2015 and there are concerns that many housing associations may find it problematic to increase their borrowing from private sources in the future.

Outside of the South West, infrastructure growth is likely to be strongest in the North East and Wales, the former being driven by £400m of roads work in the Highways Agency's Area 14, which covers the region and the latter benefiting from Great Western Line electrification, road upgrades, energy works such as Swansea's tidal lagoon and, of course, nuclear new build at Wylfa in Anglesey.

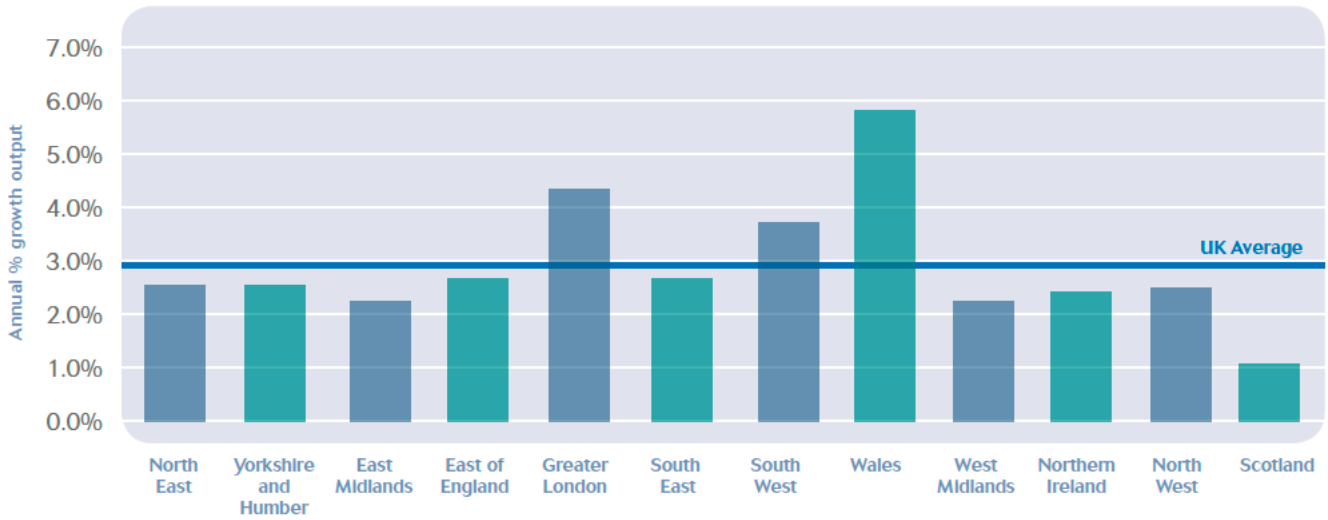
The strongest growth in commercial construction is expected to be in Yorkshire and the Humber (with an annual average growth of 6.3%), the North West (6.3%), Wales (5.9%) and Greater London (5.7%). South Yorkshire, in particular, seems to be benefiting from the reactivation of retail-led projects that were mothballed during the recession, while Wales is seeing an upsurge in conference and exhibition venue construction.

Annual average employment growth rates across the regions and nations tend to cluster within plus or minus half a percent of the 1.5% UK average. The exceptions are Greater London and Wales (2.4%) and Scotland (0.1%). For Greater London, workforce demand is mainly driven by growth in the sectors mentioned above, but even the infrastructure sector, which is already at a historic high in output terms, is expected to expand further over the next five years. Employment demand in Wales inevitably benefits from the start of main works on Wylfa, despite infrastructure being less labour intensive than many other sectors. Wylfa is a very large project in a relatively small market. Scotland's relatively poor projected output growth rate (1.1% a year on average) is only just enough to drive marginal employment growth given anticipated productivity gains.

Despite London's strong employment demand, its annual recruitment requirement (ARR) only equates to around 0.5% of projected 2015 employment. This is because the region acts as a magnet for the construction workforce within the UK and beyond. In contrast, Wales' strong employment demand is supplemented by traditional employment outflows to other regions, especially to the North West and South West; it therefore has a much higher ARR ratio than elsewhere, of 4.8%. Most other regions and nations have an ARR ratio of within a percentage point of the UK average (1.7%).

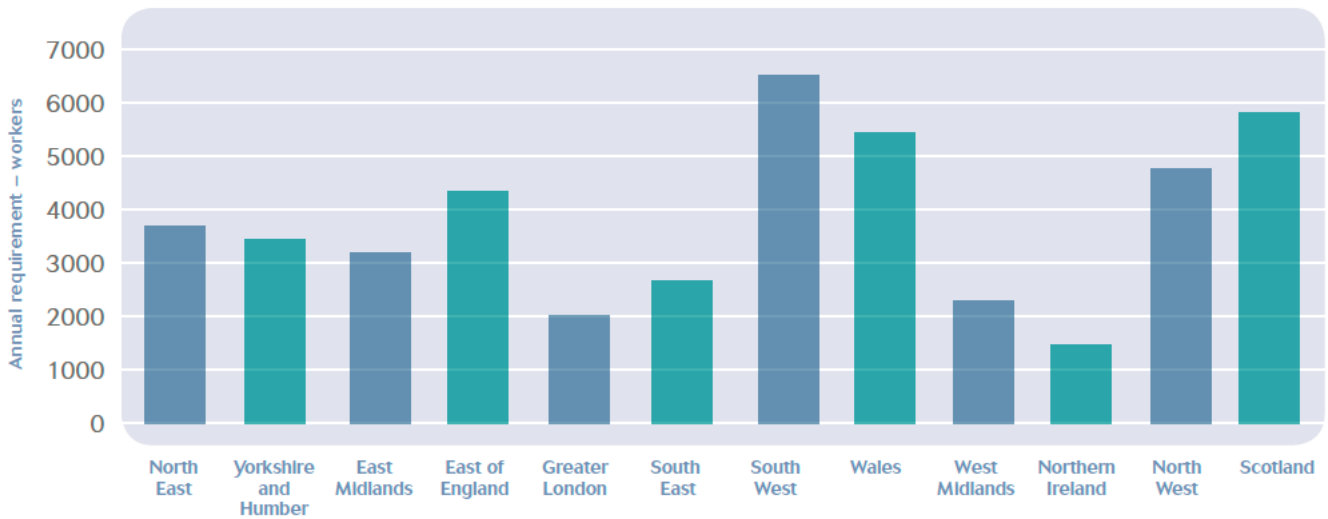


Annual average output growth by region 2015-2019



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

Annual recruitment requirement (ARR) by region 2015-2019



Source: CSN, Experian



CSN Explained

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

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

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

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

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

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

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



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, other SSCs and Sector Bodies, all of whom contribute their local industry knowledge and views on training, skills, recruitment, qualifications and policy. The National Group also includes representatives from industry, Government, education, other SSCs and Sector Bodies. This Group convenes twice a year and sets the national scene, effectively forming a backdrop for the Observatories.

At the heart of the CSN are several models 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:

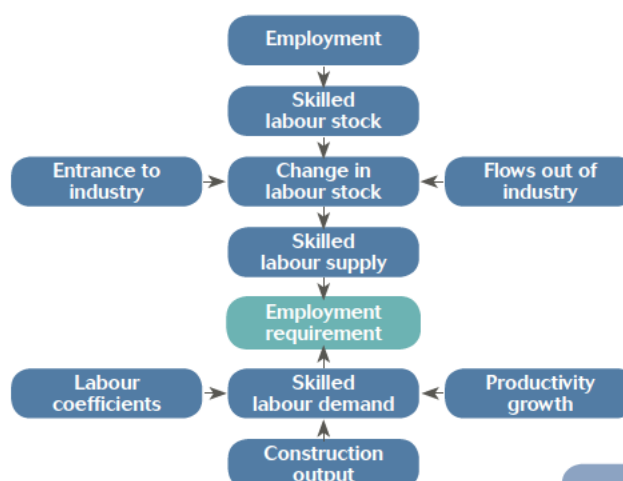
- Transfers to other industries
- International/domestic out migration
- Permanent retirements (including permanent sickness)
- Outflow to temporary sickness and home duties.

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 below.



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.



3. Notes and Footprints

Notes

- 1 Except for Northern Ireland, output data for the English regions, Scotland and Wales is supplied by the Office for National Statistics (ONS) on a current price basis. Thus, national deflators produced by the ONS have been used to deflate prices to a 2005 constant price basis, so that the effects of inflation have been stripped out.
- 2 The annual average growth rate of output is a compound average growth rate, i.e. the rate at which output would grow each year if it increased steadily over the forecast period.
- 3 Only selected components of gross value added (GVA) are shown in this table and so do not sum to the total.
- 4 For new construction orders, comparison is made with Great Britain rather than the UK, owing to the fact that there are no orders data series for Northern Ireland.
- 5 Employment numbers are rounded to the nearest 10.
- 6 The tables include data relating to plumbers and electricians. As part of SIC 43, plumbers and electricians working in contracting are an integral part of the construction process. However, it is recognised by ConstructionSkills that SummitSkills has responsibility for these occupations across a range of SIC codes, including SIC 43.2.
- 7 A reporting minimum of 50 is used for the annual recruitment requirement (ARR). As a result some region and devolved nation ARR forecasts do not sum to the total UK requirement.
- 8 The Employment and ARR tables show separate totals for SIC41-43 and SIC41-43, 71.1 and 74.9. The total for SIC41-43 covers the first 24 occupational groups on the relevant tables and excludes civil engineers, other construction professionals and technical staff, architects and surveyors. The total for SIC41-43, 71.1 and 74.9 includes all occupations.

Footprints for Built Environment Sector Bodies

ConstructionSkills is responsible for SIC 41
Construction of buildings, SIC 42 Civil engineering,

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

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 Sector Bodies covering the Built Environment:

SummitSkills

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

Coverage – Building services engineering.

ConstructionSkills shares an interest with SummitSkills in SIC 43.21 Electrical installation and SIC 43.22 Plumbing, heat and air-conditioning installation. ConstructionSkills recognises the responsibility of Summit Skills 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.

The Building Futures Group

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

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

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

Energy and Utility Skills

Footprint – electricity, gas (including gas installers), water and waste management.

Coverage – electricity generation and distribution, gas transmission, distribution and appliance installation and maintenance, water collection, purification and distribution, waste water collection and processing, waste management.

*The Building Futures Group 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 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.

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
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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
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
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
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Painters and decorators

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

Plasterers

Plasterers	5321
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Roofers

Roofers, roof tilers and slaters	5313
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Floorers

Floorers and wall tilers	5322
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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
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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
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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
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

*Not elsewhere classified

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



6. CSN Website and contact details

The CSN website

citb.co.uk/csn

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

The main UK report, along with the 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
- Inflows and outflows across the regions and devolved nations.

CSN members therefore have:

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

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

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

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

Contact details

For further information about the CSN website, enquiries relating to the work of the CSN, or to register your interest in becoming a member of the CSN, please contact us at: csn@citb.co.uk

**For more information about the
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Research Analyst
Research and Development
07730 802395
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citb.co.uk



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