



CITB RESEARCH

INDUSTRY INSIGHTS

SOUTH EAST

Construction
Skills Network
Labour Market
Intelligence
2018-2022



About CITB

CITB is the Industrial Training Board (ITB) for the construction industry in Great Britain (Scotland, England and Wales). CITB uses its research and labour market intelligence to understand the sector's skills needs, and works with industry and government to make sure construction has the right skills, now and for the future.

CITB is modernising its funding approach to invest in areas that will deliver the best returns for industry, and enable the sector to attract and train talented people to build a better Britain.

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.

CITB is tasked by Government to ensure the UK's construction industry has the skilled workforce it requires. Working with Government, training providers and employers, it is responsible for ensuring that the industry has enough qualified new entrants and that the existing workforce is fully skilled and qualified, as well as for improving the performance of the industry and the companies within it. These materials, together with all of the intellectual property rights contained within them, belong to the Construction Industry Training Board (CITB). Copyright 2018 ("CITB") and should not be copied, reproduced nor passed to a third party without CITB's prior written agreement. These materials are created using data and information provided to CITB and/or EXPERIAN Limited ("Experian") by third parties of which EXPERIAN or CITB are not able to control or verify the accuracy. Accordingly neither EXPERIAN nor CITB give any warranty about the accuracy or fitness for any particular purpose of these materials. Furthermore, these materials do not constitute advice and should not be used as the sole basis for any business decision and as such neither EXPERIAN nor CITB shall be liable for any decisions taken on the basis of the same. You acknowledge that materials which use empirical data and/or statistical data and/or data modelling and/or forecasting techniques to provide indicative and/or predictive data cannot be taken as a guarantee of any particular result or outcome.

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SUMMARY – SOUTH EAST

The region's total construction output is forecast to rise by an annual average of 1.1% over the next five years, just below the UK average of 1.3%. The South East's construction employment is anticipated to increase by an average yearly rate of 0.8%, above the UK rate of 0.5%. The region's annual recruitment requirement (ARR), at 2,250 represents 0.6% of base 2018 employment, half that of the UK ratio which is 1.2%.

KEY FINDINGS

Growth is expected to focus on the public housing sector in the long term, by

3.5%

Employment is forecast to grow by

0.8%

a year on average

The South East has an ARR of

2,250

The region's total construction output is projected to see average yearly increases of 1.1% over the next five years, just below the UK average of 1.3%.

The public housing sector is expected to see the greatest annual average expansion of 3.5% between 2018 and 2022. In the Autumn 2017 Budget an additional £15.3bn of new 'financial support' for housing was pledged in the form of capital funding, loans and guarantees, which will support both the public and private sectors. This comes on top of the £2bn set aside in October to provide 25,000 new council homes from 2020.

Average yearly growth of 2.8% has been predicted for the private housing market, the region's largest new work sector. Given the continued demand/supply mismatch and strong population growth, private housing activity in the South East is likely to continue growing. There are a variety of long-term local housing projects and 'garden villages' at early planning stages, and plans for the 6,000 home Welborne Garden Village will be brought before Fareham borough council in early 2018 with construction due to start in 2019 if the project is approved.

Commercial output is forecast to average 2.5% growth annually over the next five years, with increases in 2018 and 2019 followed by contraction in 2020 and 2021. Construction work is ongoing at the £460m Victoria Square development in Woking, which is due for completion in 2020. Work is also expected to start on Reading FC's

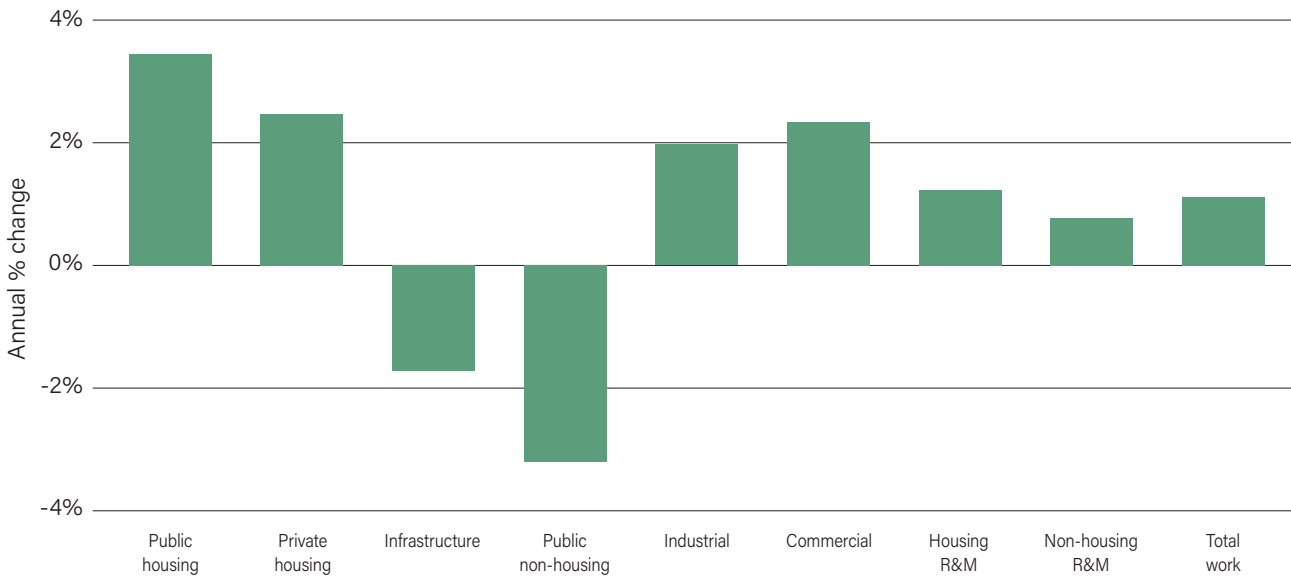
£500m Royal Elm Park scheme in early 2018, with final completion in 2023.

Infrastructure is expected to contract at an annual average of 1.5% over the five-year forecast period, but with a volatile output profile throughout. Reasonably strong growth in 2020 and 2021 is expected off the back of a number of major road projects, mitigating the overall decline. More than £240m is to be spent on improving existing facilities at Gatwick airport in 2018, as part of a wider £2.5bn framework lasting the duration of the forecast period.

In 2016 the South East accounted for around 15% of UK construction employment. Over the next five years construction employment in the region is projected to rise by 0.8% per year on average, the fifth strongest growth rate of all the regions and devolved nations and above the UK's rate of 0.5%. As is the case across the UK as a whole, the strongest growth will tend to be in the managerial/administrative and professional occupations rather than the trades/manual ones.

At 2,250 extra recruits required per year over the forecast period, the region's ARR is 0.6% of base 2018 employment, below the UK rate of 1.2%. There are two occupational categories that have an ARR between 2.5% and 5.0% of base 2018 employment, namely logistics and civil engineering operatives nec.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 - SOUTH EAST



Source: CSN, Experian.
Ref: CSN Explained.

REGIONAL COMPARISON 2018-2022

	Annual average % change in output	Change in total employment	Total ARR
North East	-0.8%	-7,830	840
Yorkshire and Humber	0.8%	2,100	2,010
East Midlands	0.5%	-2,220	1,720
East of England	1.3%	2,530	4,540
Greater London	1.5%	4,020	2,010
South East	1.1%	16,550	2,250
South West	2.0%	11,520	4,480
Wales	4.6%	12,110	2,450
West Midlands	1.8%	9,660	3,390
Northern Ireland	0.5%	-1,240	310
North West	2.0%	26,720	5,470
Scotland	0.1%	-8,280	2,130
UK	1.3%	65,640	31,600

Source: CSN, Experian.
Ref: CSN Explained.

■ The South East is projected to see annual average construction output growth of 1.1% over the five years to 2022, just below the UK average of 1.3%. ■

THE OUTLOOK FOR CONSTRUCTION IN THE SOUTH EAST

CONSTRUCTION OUTPUT IN SOUTH EAST - OVERVIEW

In 2016 construction output rose for the third consecutive year, by 2% to £20.38bn (2015 prices). The new work sector increased by 6% to £11.58bn while the repair and maintenance (R&M) sector contracted by 1% to £8.80bn.

The public non-housing sector experienced the greatest growth of 19% to £1.73bn. The private housing sector also exhibited double-digit expansion of 13% to £3.79bn and remained the largest new work sector. Commercial construction, the next biggest sector, rose by 6% to £2.98bn. In contrast, industrial construction fell by 28% to £446m, while public housing dropped by 8% to £386m and infrastructure declined by 3% to £2.25bn.

INDUSTRY STRUCTURE

The diagram, Construction Industry structure 2016 - 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.

In 2016 the region's new work sector accounted for 57% of total construction output, much lower than the national share of 64%.

The structure of the South East's construction industry is similar to the UK, with two major differences. The region's housing R&M sector remains much more important than in the UK (26% vs. 19%). In contrast, the share for the South East's commercial market was smaller (15% regionally vs. 19% nationally). The shares for the private housing, public housing,

infrastructure and industrial sectors were similar to the national average whilst the South East's non-housing R&M sector as a share of its total was identical to the UK as a whole.

ECONOMIC OVERVIEW

The expected performance of a regional or national economy over the forecast period (2018-2022) provides an indication of the construction sectors in which demand is likely to be strongest.

In 2016 gross value added (GVA) in the South East rose for the seventh consecutive year, by 2.1% to £248.3bn in 2013 prices. This growth rate was stronger than the UK rate of 1.8%.

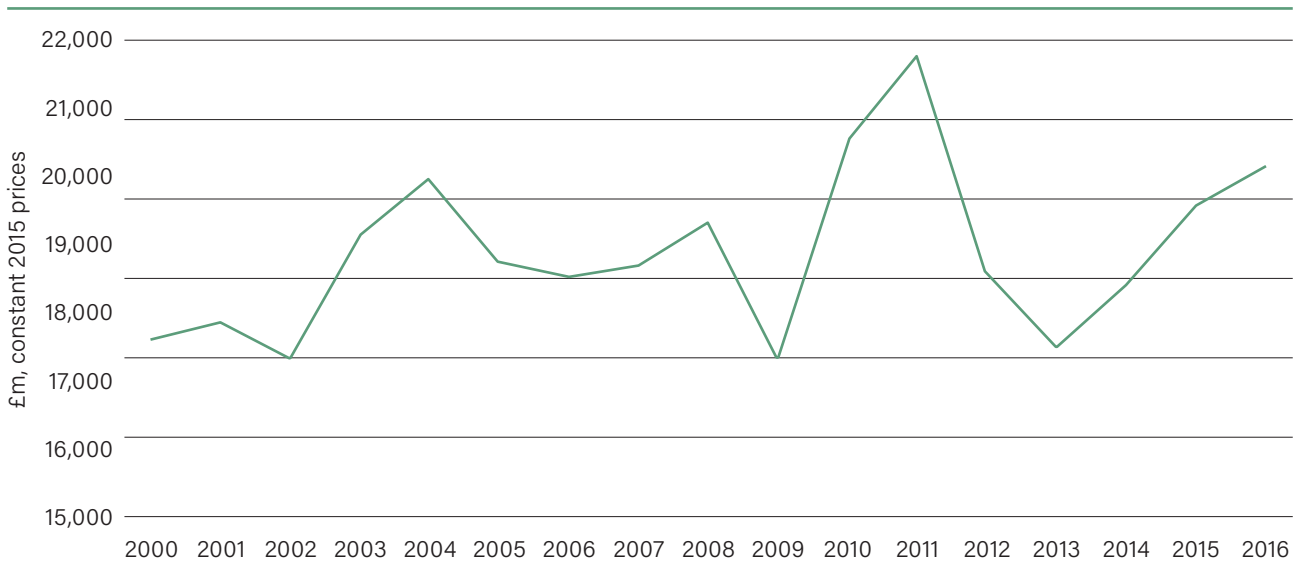
ECONOMIC STRUCTURE

In terms of the region's industrial structure, professional and other private services accounted for the biggest share of GVA at 30.2% in 2016, while public services came in second at 15.6%. The wholesale and retail (13.2%) and information and communication (9.9%) sectors were ranked third and fourth respectively, while at 7.7%, manufacturing was the fifth largest market.

The region has a higher than average exposure to the professional and other private services, information and communication and wholesale and retail sectors while others such as public services, finance and insurance and manufacturing are under-represented compared to the UK as a whole. Therefore, the region's economy is generally structured towards the faster growing sectors.

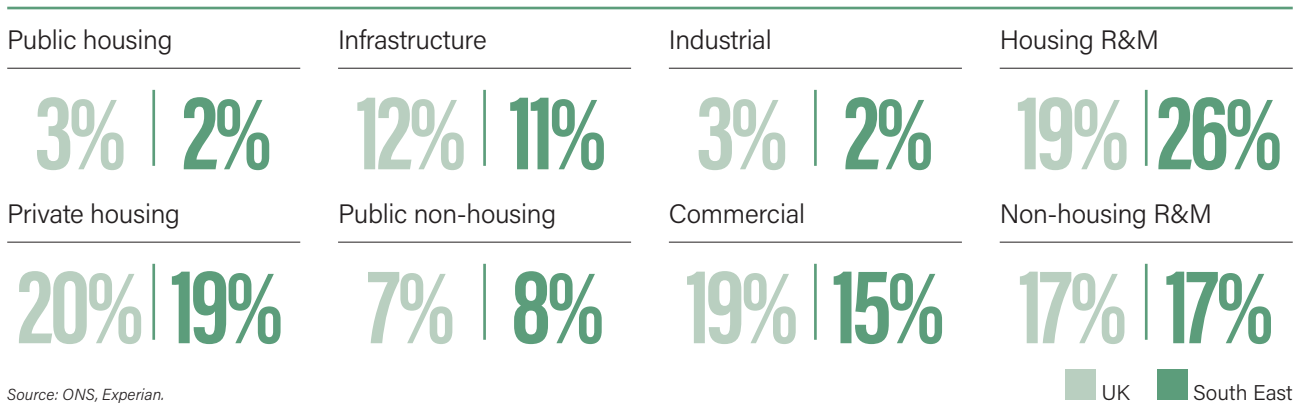


CONSTRUCTION OUTPUT 2000-2016 - SOUTH EAST



Source: ONS.
Ref: CSN Explained.

CONSTRUCTION INDUSTRY STRUCTURE 2016 - UK VS SOUTH EAST



Source: ONS, Experian.

ECONOMIC STRUCTURE - SOUTH EAST (£ BILLION, 2013 PRICES)

	Actual	Forecast (Annual % change, real terms)					
	2016	2017	2018	2019	2020	2021	2022
Professional & Other Private Services	75.0	2.1	1.8	2.2	2.2	2.5	3.0
Public Services	38.8	1.1	1.2	1.8	2.1	2.2	2.6
Wholesale & Retail	32.7	2.1	1.7	2.2	2.5	2.9	3.3
Information & Communication	24.7	2.8	2.8	2.5	2.4	2.7	3.6
Manufacturing	19.1	1.1	1.3	1.7	1.3	1.4	1.6
Total Gross Value Added (GVA)	248.3	1.8	1.7	2.1	2.2	2.5	2.9

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

FORWARD LOOKING ECONOMIC INDICATORS

Between 2018 and 2022 the region's GVA is projected to grow at an annual average rate of 2.3%, higher than the national rate of 2%.

Of the top five sectors, the information and communication one is expected to see the biggest annual average increases of 2.8%, while the largest sector, professional and other private services, is projected to experience average yearly growth of 2.3%.

Real household disposable income is expected to rise by an annual average of 1.8% over the forecast period, higher than the UK rate of 1.5%.

In 2016 the region's working age population was close to 5.55 million, around 13% of the UK total. Over the forecast period, the South East's working age population as a share of the total population is expected to remain at approximately 61%.

The region's unemployment rate stood at 3.5% in 2016, lower than the UK rate of 4.9%. In the South East, the number of individuals unemployed is likely to grow over the short term partly due to Brexit uncertainties.

NEW CONSTRUCTION ORDERS – OVERVIEW

In 2016 new orders rose for the fourth consecutive year, by 2.6% to £8.06bn (current prices), around 86% of their 2008 peak. Public non-housing orders saw the biggest jump of 32% to £1.43bn. Public housing orders grew by 22% to £169m whilst commercial orders increased by 21% to £1.98bn. In contrast, the industrial sector saw new orders decline by 22% to £457m while the infrastructure and private housing sectors saw respective declines of 12% to £1.94bn and 6% to £2.08bn.

NEW CONSTRUCTION ORDERS – CURRENT SITUATION

In the nine months to September 2017, total new orders were largely flat at £5.95bn year-on-year, in current prices. Industrial orders saw the greatest rise of 90% to £590m, while private housing ones also experienced double-digit growth of 43% to £2.13bn. Commercial sector orders were flat at £1.5bn, while the other new work sectors all posted sizeable declines. Public housing orders fell by 71% to £34m, public non-housing orders were down 38% to £793m and infrastructure down 37% to £906m.

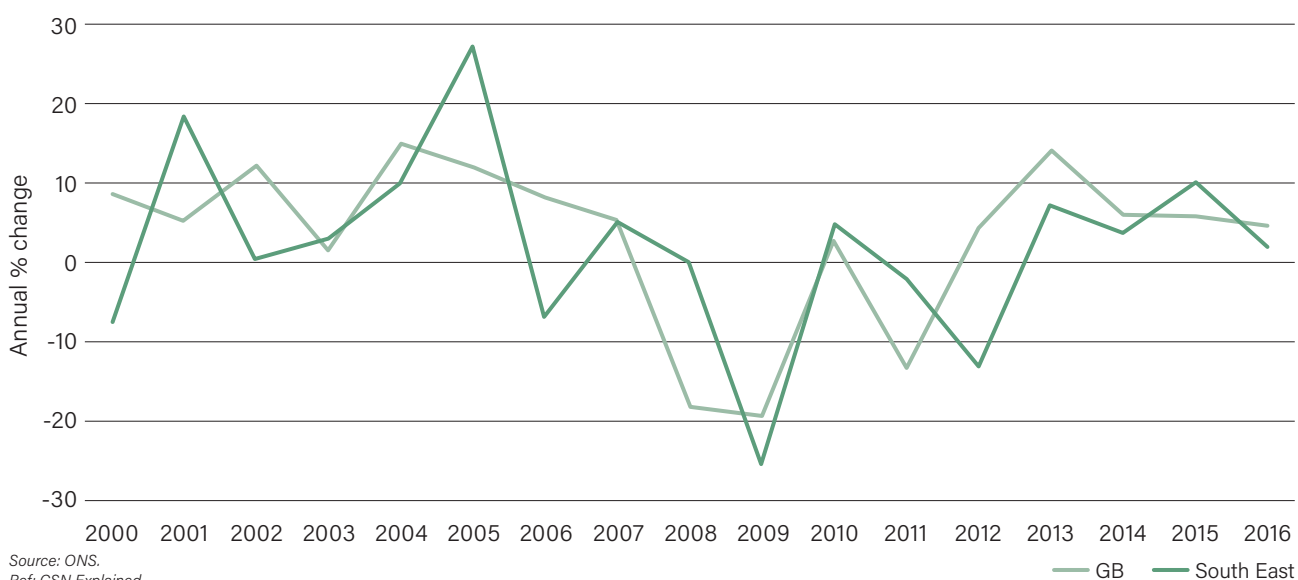


ECONOMIC INDICATORS - SOUTH EAST (£ BILLION, CURRENT PRICES - UNLESS OTHERWISE STATED)

	Actual	Forecast (Annual % change, real terms)					
	2016	2017	2018	2019	2020	2021	2022
Real household disposable income (2013 prices)	195.9	-0.1	1.5	1.4	1.8	1.9	2.3
Household spending (2013 prices)	190.9	2.0	1.1	1.7	2.5	2.5	2.5
Working age population (000s and as % of all)	5,548	61.4%	61.3%	61.3%	61.7%	61.6%	61.4%
House prices (£)	303,750	5.0	3.1	3.0	3.2	3.3	4.4
LFS unemployment (millions)	0.17	-10.4	3.2	9.6	6.1	0.5	-5.3

Source: ONS, DCLG, Experian.

NEW CONSTRUCTION ORDERS GROWTH 2000-2016 - SOUTH EAST VS. GB



NEW WORK CONSTRUCTION ORDERS - SOUTH EAST (£ MILLION, CURRENT PRICES)

	Actual	Annual % change				
	2016	2012	2013	2014	2015	2016
Public housing	169	-1.4	8.9	-55.6	-20.7	22.5
Private housing	2,077	-16.1	9.7	6.7	3.3	-5.8
Infrastructure	1,943	16.4	-2.1	-16.2	112.2	-11.8
Public non-housing	1,433	-26.9	2.9	26.5	-18.2	32.3
Industrial	457	17.5	19.7	19.7	22.9	-22.5
Commercial	1,984	-22.4	11.1	14.5	-18.3	20.7
Total new work	8,063	-13.1	7.1	4.8	9.8	2.6

Source: ONS.
Ref: CSN Explained.

CONSTRUCTION OUTPUT - SHORT-TERM FORECASTS (2018-2019)

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 2017.

In the first nine months of 2017 total construction output increased by 7.0% to £16.38bn (current prices) compared with the same period of 2016. All the new work sectors expanded, with commercial output experiencing the greatest rise of 16% to £2.69bn, followed by the much smaller industrial sector, which grew by 8% to £383m. Private housing remained the largest sector, with output rising by 7% to £3.09bn, while infrastructure increased by 6% to £1.80bn and public non-housing output remained stable at £1.32bn.

In 2017 total construction output in the region is estimated to have expanded by 5% in real terms to £21.41bn in 2015 prices. Over the next two years, output is forecast to rise by an annual average of 0.7%, with a 1.1% increase in the new work sector and stagnation in the repair and maintenance sector.

Over the next two years the commercial market is projected to be the best performing sector with average yearly increases of 8.7%. Construction work is ongoing at the £460m Victoria Square development in Woking, with work commencing in late 2017. The project is due for completion in 2020 and will contain more than 125,000 square feet of retail space, 429 flats, a multi-storey car park, a medical centre and two public plazas. Work is also expected to start on Reading FC's £500m Royal Elm Park scheme in early 2018, with completion in 2023.

Growth in the region's professional and other private services sector is a good indicator of demand of office premises whilst expansion of the wholesale and retail sector is indicative of demand for retail facilities. The annual average increase for both sectors is now lower than it was a year ago mainly due to the impact of the EU referendum result but both remain positive at approximately the 2% mark.

The relatively small public housing sector is projected to experience average yearly increases of 5.1%. Milton Keynes Council has announced that it will be investing close to £54 million in its council housing stock in 2017/18. The investment will see 76 new council houses built and around another 40 homes purchased.

Private housing is the largest sector in the South East and is expected to see annual average growth of 3.6% over the short term. As a number of long-term housing projects across the region progress, some initial work seems likely to start in the near term. An outline plan for 2,750 new homes on a 250-hectare site in North Horsham, West Sussex, was given the go-ahead in 2017 after planners concluded that the proposals would be in accordance with the local council's adopted development plan. Work is currently due to start in summer 2018.

The prospects for the public non-housing sector are forecast to remain negative throughout the near term, with a contraction in output averaging 8%. There is little in the pipeline at present and what there is is small, such as Horsham District Council's new £12m sports and leisure centre at Broadbridge Heath. Construction is currently underway with works expected to be completed by summer 2018.

The infrastructure sector is predicted to contract at an average yearly rate of close to 9% over the near term. Despite posting moderate growth for 2017 off the back of a number of major road and energy projects, output is forecast to decline strongly through 2018 and 2019 due to the evident lack of sizeable projects and recent slowdown in new orders. The overall decline has been exacerbated by the completion of the £1.3bn Rampion offshore wind farm in late 2017. The rate of decline is expected to gradually moderate through 2019, in line with the trends of the key underlying sectors in the National Infrastructure Pipeline. In terms of specific projects, works on the M23 between junctions 8 to 10 and the M20 junctions 3 to 5 are due to start in early 2018, with respective costs of £158.4m and £92.17m.

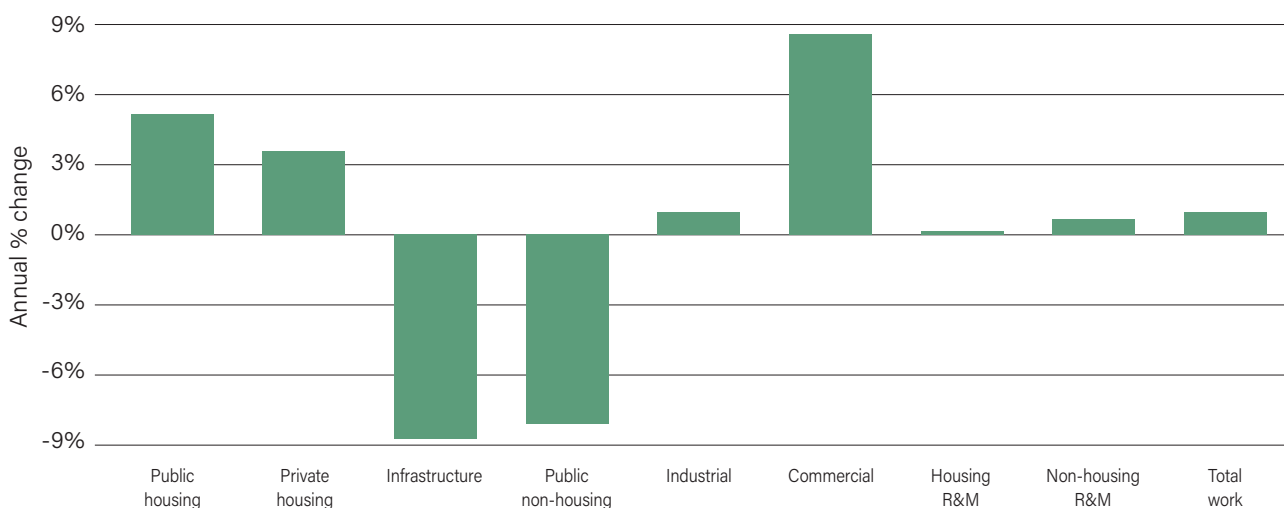
Previous research has indicated that disposable incomes and consumer spending tend to be the two variables that impact most on housing R&M expenditure. Thus, in a period when the former is under pressure and growth in the latter is decelerating a slowing of growth at best, and a contraction at worst, in the housing R&M sector would be expected. However, across the UK as a whole, and in some regions, this relationship seems to have broken down in 2017, and this includes the South East where output in the sector is estimated to have grown by 4% in real terms. It may be that a quieter housing market, in which housing transactions have stalled at around 1.2 million for the past four years, is leading to home owners spending more on significant improvements to their properties rather than trading up. However, output in the sector is expected to stagnate over the next two years as a delayed reaction to the weaker consumer environment.

CONSTRUCTION OUTPUT - SOUTH EAST (£ MILLION, 2015 PRICES)

	Actual	Forecast (Annual % change)			Annual average
	2016	2017	2018	2019	2018-2019
Public housing	386	8%	6%	4%	5.1%
Private housing	3,785	5%	6%	2%	3.6%
Infrastructure	2,248	7%	-12%	-6%	-8.9%
Public non-housing	1,734	-1%	-12%	-4%	-8.0%
Industrial	446	4%	1%	0%	0.8%
Commercial	2,983	12%	12%	5%	8.7%
New work	11,581	6%	2%	1%	1.1%
Housing R&M	5,314	4%	0%	0%	-0.1%
Non-housing R&M	3,484	3%	0%	1%	0.5%
Total R&M	8,798	3%	0%	0%	0.1%
Total work	20,379	5%	1%	1%	0.7%

Source: Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2019 - SOUTH EAST



Source: Experian.
Ref: CSN Explained.

Construction employment growth in the South East is projected to average 0.8% a year between 2018 and 2022, above the UK rate of 0.5%.

CONSTRUCTION OUTPUT - LONG-TERM FORECASTS (2018-2022)

Output in the region's construction industry is expected to rise by an annual average of 1.1% in the five years to 2022, below the UK rate of 1.3%. Regional R&M output is forecast to grow at an annual average of 1.1%, equal to the UK rate. New work output is also forecast to grow at 1.1% annually over the same period, below the UK rate of 1.5%.

The best performing sector over the next five years is projected to be public housing, with annual average growth of 3.5%. In the Autumn 2017 Budget an additional £15.3bn of new 'financial support' for housing was pledged in the form of capital funding, loans and guarantees, which will support both the public and private sectors. This comes on top of the £2bn set aside in October to provide 25,000 new council homes from 2020. As the smallest sector in the region, however, public housing's contribution to overall construction output growth is likely to be fairly limited.

Average yearly growth of 2.8% has been predicted for the private housing market, which is expected to remain positive in each year of the forecast period. It remains the case that, short of a recession, given the demand/supply mismatch and strong population growth, private housing activity in the south east corner of England will continue to grow. There are a variety of long-term local housing projects and 'garden villages' at early planning stages, while plans for Welborne Garden Village near Fareham will be brought before the borough council planning committee in early 2018. The scheme comprises up to 6,000 homes, three schools, health care and community facilities, and public open spaces, with construction due to start in 2019 if the project is approved.

Commercial construction output growth is projected to average 2.5% annually over the 2018 to 2022 period, but most of the growth is expected to be in the early part of the forecast period. The prospects for the £3.2bn London Resort theme park have become more uncertain after the withdrawal of Paramount Pictures from the project, although the London Resorts Holding Company is still intending to submit a planning application this year, delayed from 2017. If it does go ahead, work is unlikely to commence until towards the end of the current forecast period.

The industrial sector is expected to expand by 1.9% annually on average. The industrial market is projected to cool in the short to mid-term, due to the lack of projects coming into the pipeline. However, the region's prospects should improve in the second half of the forecast period with growth returning to the sector. Manufacturing output is predicted to grow by an annual average of 1.5% over the five years to 2022, which is unlikely to be strong enough to drive any general increase in demand for new factory facilities. However, the transport and storage sector is expected to see expansion of 2.6% a year over the forecast period, which should mean that demand for distribution and logistics facilities will be stronger.

Infrastructure output is expected to fall at an annual average of 1.5% over the five-year forecast period. Reasonably strong growth in 2020 and 2021 is expected off the back of a number of major road projects, mitigating the declines in other years. In particular, current works to convert the M4 into a smart motorway between junctions 3 and 12 remain on track for completion in early 2022, with an expected cost of £586.4m to £862.4m. As another positive influence on output growth, more than £240m is to be spent on improving existing facilities at Gatwick airport in 2018, as part of a wider £2.5bn framework lasting the duration of the forecast period.

Public non-housing output is also projected to decline over the 2018 to 2022 period, at an average annual rate of 3.1%. Whilst there are projects that are likely to take place over the next five years, they are small in value. Plans to demolish and rebuild Heatherwood Hospital have been given the go-ahead and will see the current hospital knocked down and replaced with 250 new dwellings, while a new hospital will be built on green belt land behind the current site. Proposed works will cost £90m, to be completed by 2020.

BEYOND 2022

Many of the housing and 'garden city' projects across the South East currently in the planning stage are likely to support construction output growth well beyond 2022. As one of the most prominent examples, Ashford Borough Council submitted its 'Local Plan 2030' to the Secretary of State for Communities and Local Government for independent examination towards the end of 2017. The plan sets out the land that needs to be provided in the borough to accommodate new homes and jobs up to 2030. Following the government's recent Strategic Housing Market Assessment, the council was told to allocate 1,250 more homes in the plan, taking the latest total to around 13,200. Similarly, the final version of South Oxfordshire District Council's (SODC) local plans outline 22,500 homes to be built across the district by 2033, although the council has apparently confirmed that there is unlikely to be substantial house-building until 2023 or 2024 at the earliest.

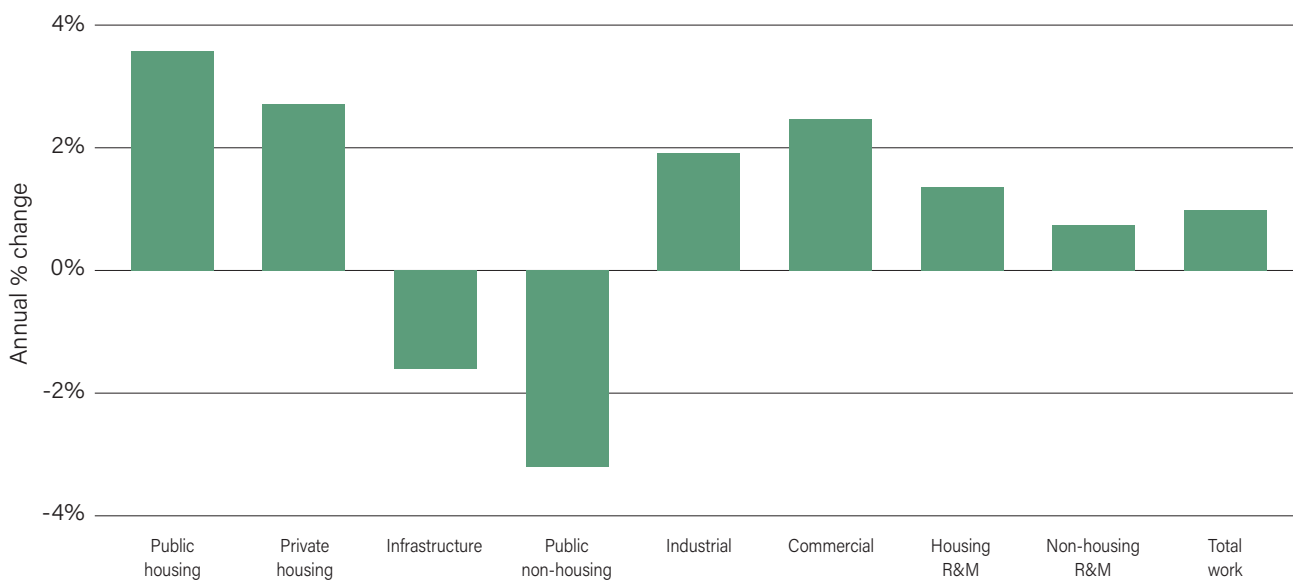
According to the Highways Agency there are a number of projects that are due to start in 2020/2021 which are likely to deliver output streams beyond 2022 such as improvements to the M27 and A3024 (£130m), A2 Bean and Ebbsfleet junction, A27 Arundel bypass (£100m-£250m), M25 junction 10 to junction 16 (£335.5m-£478.9m), M25 junction 10 to A3 (£100m-£250m), M3 junction 9 (£50m-£100m) and A27 Worthing and Lancing (£50m-£100m).

CONSTRUCTION OUTPUT - SOUTH EAST (£ MILLION, 2015 PRICES)

	Estimate	Forecast (Annual % change)					Annual average
	2017	2018	2019	2020	2021	2022	2018-22
Public housing	416	6%	4%	-4%	6%	6%	3.5%
Private housing	3,960	6%	2%	1%	4%	2%	2.8%
Infrastructure	2,412	-12%	-6%	4%	16%	-7%	-1.5%
Public non-housing	1,713	-12%	-4%	-1%	2%	0%	-3.1%
Industrial	463	1%	0%	4%	5%	0%	1.9%
Commercial	3,344	12%	5%	-4%	-4%	4%	2.5%
New work	12,308	2%	1%	-1%	3%	1%	1.1%
Housing R&M	5,515	0%	0%	2%	2%	3%	1.3%
Non-housing R&M	3,583	0%	1%	2%	1%	0%	0.8%
R&M	9,098	0%	0%	2%	2%	1%	1.1%
Total work	21,407	1%	1%	0%	3%	1%	1.1%

Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 - SOUTH EAST



Source: CSN, Experian.
Ref: CSN Explained.

CONSTRUCTION EMPLOYMENT FORECASTS FOR THE SOUTH EAST

TOTAL CONSTRUCTION EMPLOYMENT FORECASTS BY OCCUPATION

The table presents actual construction employment (SICs 41-43, 71.1, and 74.9) in South East for 2016, the estimated total employment across 28 occupational categories in 2017 and forecasts for the industry for 2018 to 2022. A full breakdown of occupational groups is provided in the CSN Explained section.

Employment in the South East is projected to rise by an annual average of 0.8% over the next five years, the fifth highest rate out of all regions and devolved nations and above the UK rate of 0.5%. Employment in the region is expected to increase by around 16,530 to 413,150 over the five years to 2022, a new high. The South East and West Midlands are the only two UK regions where employment in 2022 is projected to exceed their previous peak in 2008.

Annual average expansion is predicted for 18 out of the 28 occupational categories, with plant operatives projected to see the strongest annual average growth of 4.4%. By the end of the forecast period employment in this occupation is likely to be at a new peak of 6,040. Other construction specific occupational categories that are predicted to reach record employment levels by 2022 are steel erectors/structural fabricators, labourers, logistics and other construction professionals and technical staff.

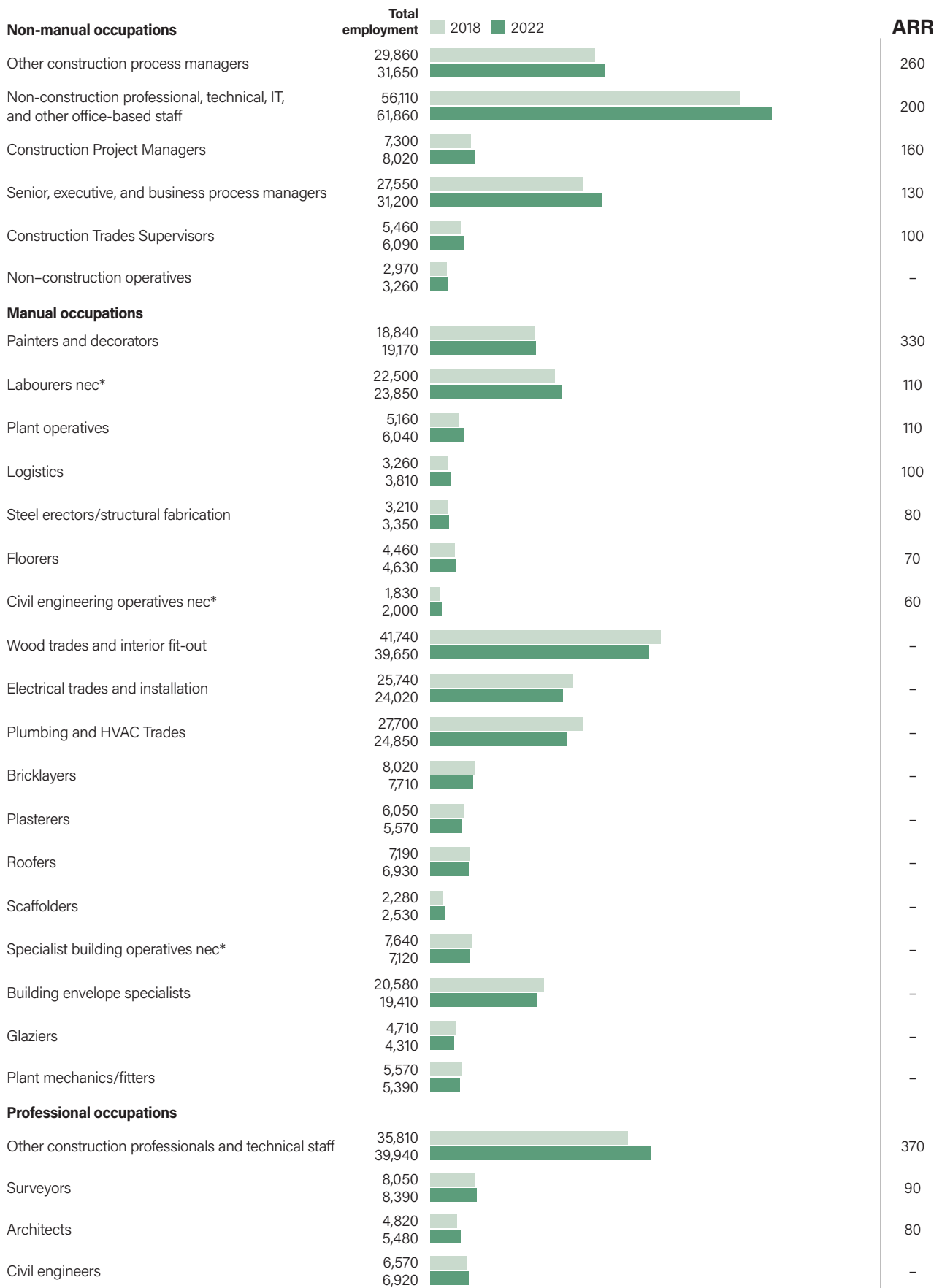
In 2022, wood trades and interior fit out, are anticipated to be the largest trade occupation, accounting for around 11% of the total workforce (excluding non-construction specific occupational categories).

As is the case across the UK as a whole, growth will tend to be stronger in the managerial/administrative and professional occupations and weaker in the trades/manual ones in the South East.



TOTAL EMPLOYMENT BY OCCUPATION - SOUTH EAST

Annual recruitment requirement (ARR) by occupation



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

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 annual average recruitment requirement (ARR) for the South East is estimated at 2,250 over the 2018 to 2022 period, which represents 0.6% of base 2018 employment, below the UK rate of 1.2%. In common with London, although to a lesser extent, the South East benefits from its attractiveness to the workforce from neighbouring regions, thus tends to have a low ARR. However, this still represents 11,250 new entrants that the industry will need over the next five years, over and above normal flows.

Two occupations are flagged up with ARRs in excess of 2.5% of base 2018 employment, civil engineering operatives nec (3.3%) and logistics personnel (3.1%). However, we can only say that this might be an indication of future skills shortages as inflows from training in the model are set to zero. There is ongoing research trying to scope out the number of new

entrants to the industry from training and it is hoped in the future to be able to turn this 'switch' on. In terms of absolute numbers, the highest ARRs are for other construction professionals and technical staff (370), painters and decorators (330), and other construction process managers (260).

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 EAST

	2018-2022
Non-manual occupations	
Non-construction professional, technical, IT, and other office-based staff	200
Other construction process managers	260
Senior, executive, and business process managers	130
Construction trades supervisors	100
Construction project managers	160
Manual occupations	
Wood trades and interior fit-out	-
Labourers nec*	110
Electrical trades and installation	-
Painters and decorators	330
Plumbing and HVAC Trades	-
Bricklayers	-
Plant operatives	110
Logistics	100
Plasterers	-
Roofers	-
Scaffolders	-
Specialist building operatives nec*	-
Building envelope specialists	-
Steel erectors/structural fabrication	80
Glaziers	-
Plant mechanics/fitters	-
Floorers	70
Civil engineering operatives nec*	60
Professional occupations	
Other construction professionals and technical staff	370
Civil engineers	-
Surveyors	90
Architects	80
Total (SIC 41-43)	1,710
Total (SIC 41-43, 71.1, 74.9)	2,250

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

COMPARISONS ACROSS THE UK

It remains the case that the strongest economic growth will be in the south-east corner of England – Greater London, the South East and the East of England – which are the only three regions projected to see higher GVA growth than the UK rate of 2% a year on average to 2022.

The picture is more mixed across the regions and devolved nations in construction terms, although generally overall economic performance tends to drive stronger construction growth in the south-east corner of England, except where major infrastructure schemes have an impact.

Construction output growth is projected to be strongest in Wales, averaging 4.6% a year over the 2018 to 2022 period. The Welsh construction market is the third smallest in the UK, at an estimated £5.7bn (2015 prices) in 2017, thus the start of work on the Wylfa nuclear power station will have a major impact on output levels in the devolved nation. However, growth is not entirely reliant on this project, with others, such as the M4 upgrade around Newport and the commitment to build 20,000 new affordable homes by 2020/21 making significant contributions.

Construction output in Scotland is likely to remain largely static over the 2018 to 2022 period as further falls in infrastructure output from its very high peak in 2015 is counteracted by good growth in the housing sectors, with Scotland's target for affordable homes set at 50,000. The new Queensferry Crossing is now complete, as are the major motorway upgrades, with the Aberdeen Western Peripheral Route due to finish by spring 2018. There are other sizeable infrastructure projects ongoing, such as the dualling of the A9 between Perth and Inverness, but work on these will be spread over a long time period, thus their impact on growth is diluted.

Northern Ireland has experienced something of a boom in commercial construction activity over the past few years, driven in large part by a substantial expansion of hotel provision in Belfast. However, this may be slackening, while the current political impasse in the devolved nation is likely to impact negatively the timing of new infrastructure and other public projects, leading to relatively modest total output growth of 0.5% a year.

It is the case across the English regions that growth in the construction sector will tend to reflect expansion in the wider economy, unless the region benefits from the siting of major infrastructure projects. Both the South West and North West, which lead the English region growth rankings with 2% a year on average, will benefit from new nuclear build, at Hinkley Point in the case of the former and Moorside in the case of the latter. Enabling works at Hinkley Point have been ongoing for some time while some work at Moorside is projected to begin in 2022. London, and the East Midlands and West Midlands will also see good growth in infrastructure activity as work on

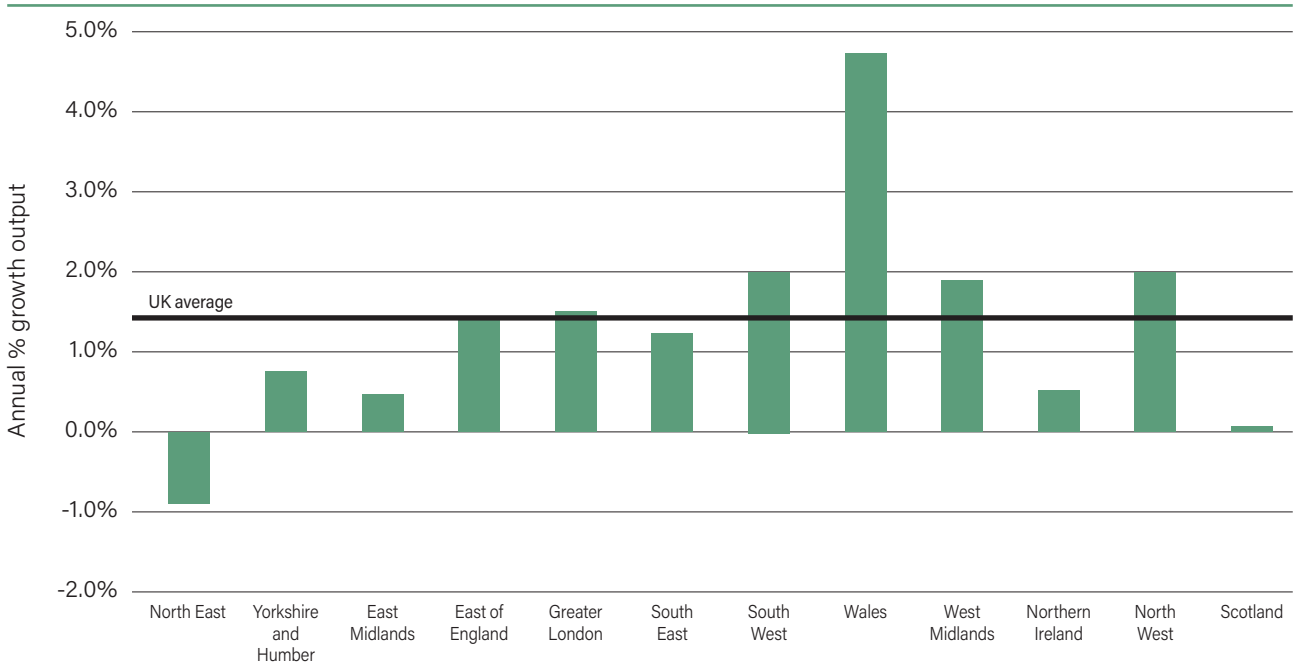
High Speed 2 builds up over the forecast period. The strong infrastructure growth in the West Midlands should enable it to experience annual average expansion in total construction output of 1.8%, just behind the South West and North West.

London only manages average yearly growth of 1.5%, as while it benefits from strong infrastructure growth and above average expansion in the housing sectors, commercial construction in the capital is the most vulnerable to a more cautious attitude from investors and developers due to Brexit uncertainty.

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 2.1% in Wales to a low of -1.6% in the North East, against a UK rate of 0.5%.

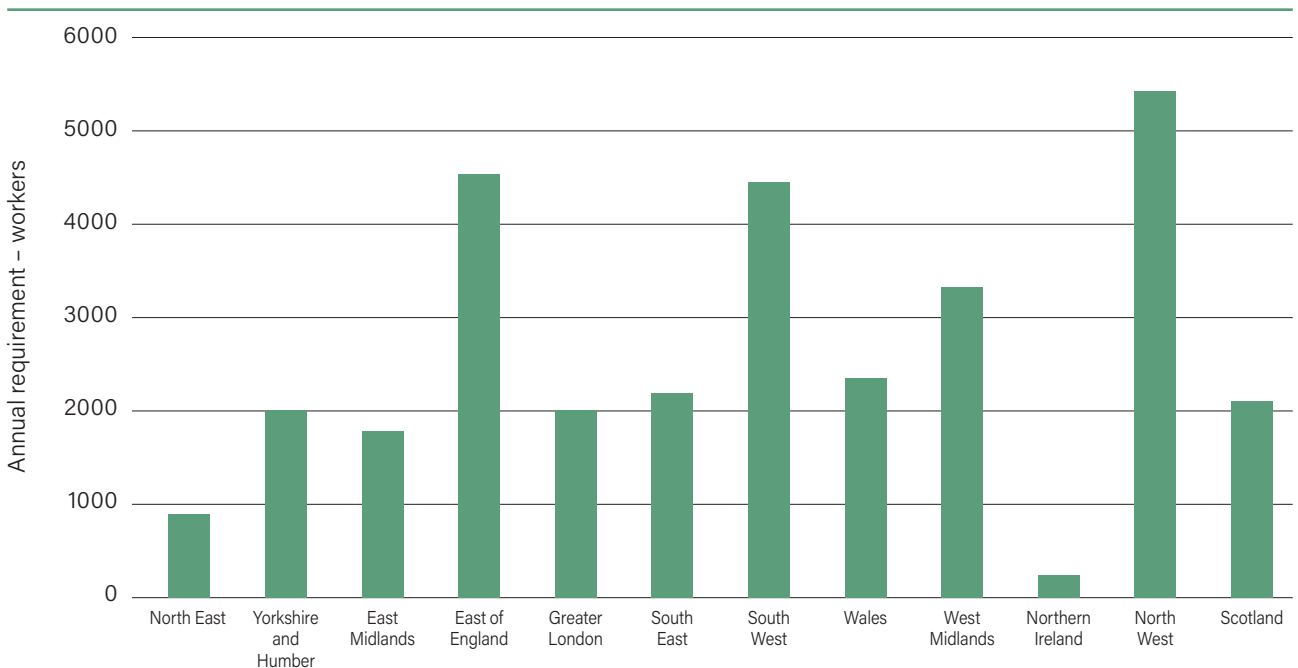
As the annual recruitment requirement (ARR) takes into account known supply-side factors, such as intra-regional labour movements and movements between other industries and construction, the pattern can look significantly different to the profile of output and employment, as some regions and devolved nations have historically strong net inflows and some suffer from large net outflows. For the 2018 to 2022 period, the largest absolute ARR are for the North West (5,470), the East of England (4,540) and the South West (4,480). However, relative to base employment, Wales has the largest ARR (2.2%), followed by the South West and North West (1.9%). London is the biggest region for construction employment, but has a relatively low ARR at 2,010, just 0.5% of base 2018 employment, as the capital tends to act as a magnet for the workforce from other regions and internationally anyway.

ANNUAL AVERAGE OUTPUT GROWTH BY REGION 2018-2022



Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL RECRUITMENT REQUIREMENT (ARR) BY REGION 2018-2022



Source: CSN, Experian.

▲▲ The annual average recruitment requirement (ARR) for the South East is estimated at 2,250 a year on average, representing 0.6% of base 2018 employment, half that of the UK ratio (1.2%). ■■

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 of 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 that lie with a Sector Skills Council (SSC) or Sector Bodies.

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

OCCUPATION 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 representatives from industry, Government, education and other SSCs and Sector Bodies. This Group convenes twice a year and sets the national scene, effectively forming a backdrop for the Observatories.

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

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

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

THE MODEL APPROACH

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

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

The annual recruitment requirement (ARR) is a gross requirement that takes into account workforce flows into and out of construction, due to such factors as movements between industries, migration, sickness and retirement. However, these flows do not include movements into the industry from training, although robust data on training provision is being developed by CITB in partnership with public funding agencies, further education, higher education and employer representatives. Thus, the ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

Estimates of demand are based upon the results of discussion groups comprising industry experts, a view of construction output and integrated models relating to wider national and regional economic performance. The models are dynamic and reflect the general UK economic climate at any point in time. To generate the labour demand, the models use a set of specific statistics for each major type of work to determine the employment, by trade, needed to produce the predicted levels of construction output. The labour supply for each type of trade or profession is based upon the previous year's supply (the total stock of employment) combined with flows into and out of the labour market.

The key leakages (outflows) that need to be considered are:

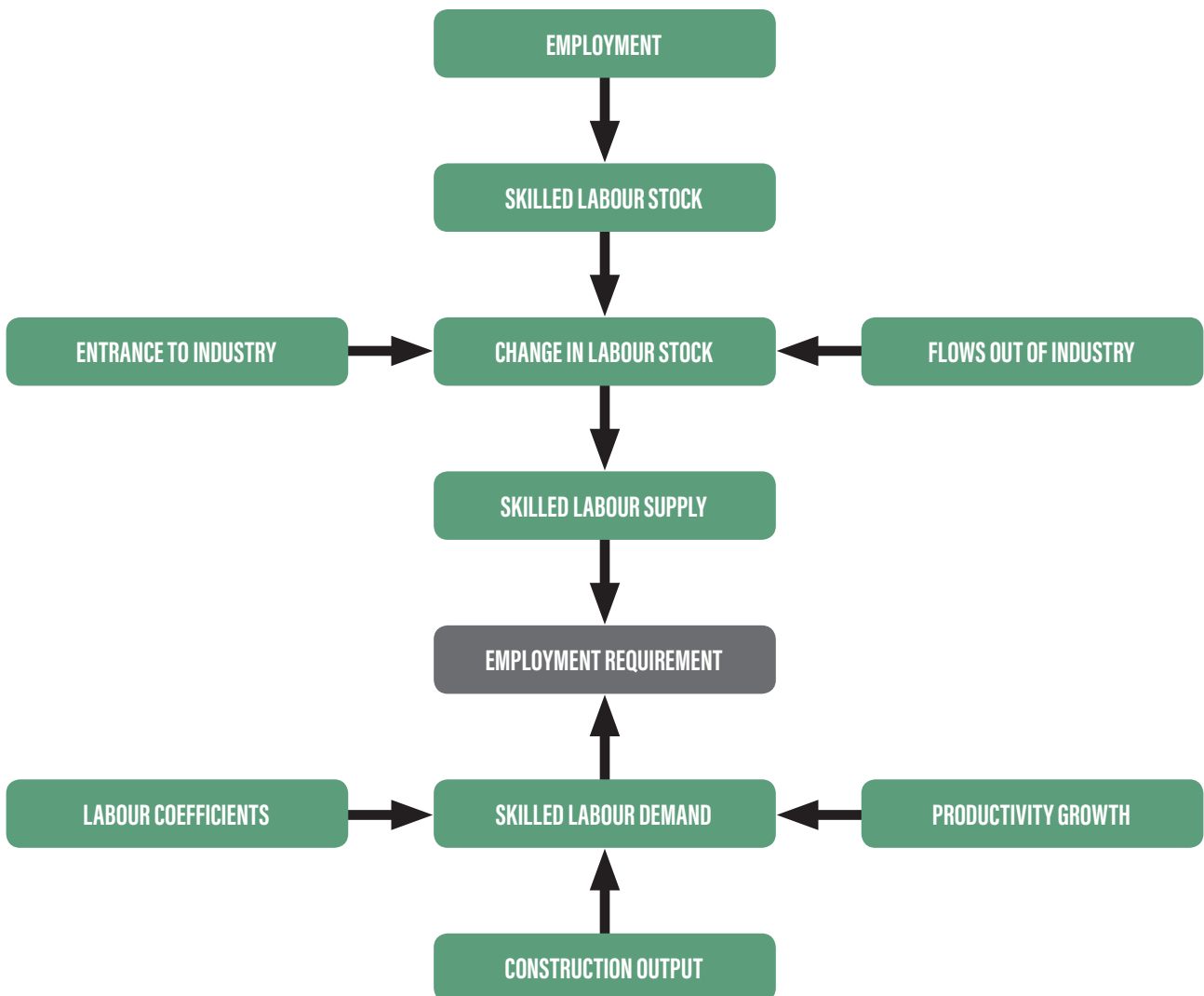
- Transfers to other industries
- International/domestic out migration
- Permanent retirements (Including permanent sickness)
- Outflow to temporary sickness and home duties.

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

Flows into the labour market include:

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

The most significant inflow is likely to be from other industries. A summary of the model is shown in the flowchart.



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. $GDP = GVA \text{ plus taxes on products minus subsidies on products.}$

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. 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 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 THE 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 four 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	Management consultants and business analysts	2423
Financial managers and directors	1131	Receptionists	4216
Marketing and sales directors	1132	Typists and related keyboard occupations	4217
Purchasing managers and directors	1133	Business sales executives	3542
Human resource managers and directors	1135	Bookkeepers, payroll managers and wages clerks	4122
Property, housing and estate managers	1251	Records clerks and assistants	4131
Information technology and telecommunications directors	1136	Stock control clerks and assistants	4133
Research and development managers	2150	Telephonists	7213
Managers and directors in storage and warehousing	1162	Communication operators	7214
Managers and proprietors in other services nec*	1259	Personal assistants and other secretaries	4215
Functional managers and directors nec*	1139	Sales and retail assistants	7111
IT specialist managers	2133	Telephone salespersons	7113
IT project and programme managers	2134	Buyers and procurement officers	3541
Financial accounts managers	3538	Human resources and industrial relations officers	3562
Sales accounts and business development managers	3545	Credit controllers	4121
Construction project managers		Company secretaries	4214
Construction project managers and related professionals	2436	Sales related occupations nec*	7129
Other construction process managers		Call and contact centre occupations	7211
Production managers and directors in manufacturing	1121	Customer service occupations nec*	7219
Production managers and directors in construction	1122	Elementary administration occupations nec*	9219
Managers and directors in transport and distribution	1161	Chemical scientists	2111
Waste disposal and environmental services managers	1255	Biological scientists and biochemists	2112
Health and safety officers	3567	Physical scientists	2113
Conservation and environmental associate professionals	3550	Laboratory technicians	3111
Non-construction professional, technical, IT, and other office-based staff (excl. managers)		Graphic designers	3421
IT operations technicians	3131	Environmental health professionals	2463
IT user support technicians	3132	IT business analysts, architects and systems designers	2135
Finance and investment analysts and advisers	3534	Conservation professionals	2141
Taxation experts	3535	Environment professionals	2142
Financial and accounting technicians	3537	Actuaries, economists and statisticians	2425
Vocational and industrial trainers and instructors	3563	Business and related research professionals	2426
Business and related associate professionals nec*	3539	Finance officers	4124
Legal associate professionals	3520	Financial administrative occupations nec*	4129
Inspectors of standards and regulations	3565	Human resources administrative occupations	4138
Programmers and software development professionals	2136	Sales administrators	4151
Information technology and telecommunications professionals nec*	2139	Other administrative occupations nec*	4159
Estate agents and auctioneers	3544	Office supervisors	4162
Solicitors	2413	Sales supervisors	7130
Legal professionals nec*	2419	Customer service managers and supervisors	7220
Chartered and certified accountants	2421	Office managers	4161
Business and financial project management professionals	2424	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		Air-conditioning and refrigeration engineers	5225
Bricklayers and masons	5312	Logistics	
Building envelope specialists		Large goods vehicle drivers	8211
Construction and building trades nec* (50%)	5319	Van drivers	8212
Painters and decorators		Elementary storage occupations	9260
Painters and decorators	5323	Buyers and purchasing officers (50%)	3541
Construction and building trades nec* (5%)	5319	Transport and distribution clerks and assistants	4134
Plasterers		Civil engineering operatives not elsewhere classified (nec*)	
Plasterers	5321	Road construction operatives	8142
Roofers		Rail construction and maintenance operatives	8143
Roofers, roof tilers and slaters	5313	Quarry workers and related operatives	8123
Floorers		Non-construction operatives	
Floorers and wall tilers	5322	Metal making and treating process operatives	8117
Glaziers		Process operatives nec*	8119
Glaziers, window fabricators and fitters	5316	Metalworking machine operatives	8125
Construction and building trades nec* (5%)	5319	Water and sewerage plant operatives	8126
Specialist building operatives not elsewhere classified (nec*)		Assemblers (vehicles and metal goods)	8132
Construction operatives nec* (100%)	8149	Routine inspectors and testers	8133
Construction and building trades nec* (5%)	5319	Assemblers and routine operatives nec*	8139
Industrial cleaning process occupations	9132	Elementary security occupations nec*	9249
Other skilled trades nec*	5449	Cleaners and domestics*	9233
Scaffolders		Street cleaners	9232
Scaffolders, staggers and riggers	8141	Gardeners and landscape gardeners	5113
Plant operatives		Caretakers	6232
Crane drivers	8221	Security guards and related occupations	9241
Plant and machine operatives nec*	8129	Protective service associate professionals nec*	3319
Fork-lift truck drivers	8222	Civil engineers	
Mobile machine drivers and operatives nec*	8229	Civil engineers	2121
Plant mechanics/fitters		Other construction professionals and technical staff	
Metalworking production and maintenance fitters	5223	Mechanical engineers	2122
Precision instrument makers and repairers	5224	Electrical engineers	2123
Vehicle technicians, mechanics and electricians	5231	Design and development engineers	2126
Elementary process plant occupations nec*	9139	Production and process engineers	2127
Tool makers, tool fitters and markers-out	5222	Quality control and planning engineers	2461
Vehicle body builders and repairers	5232	Engineering professionals nec*	2129
Steel erectors/structural fabrication		Electrical and electronics technicians	3112
Steel erectors	5311	Engineering technicians	3113
Welding trades	5215	Building and civil engineering technicians	3114
Metal plate workers and riveters	5214	Science, engineering and production technicians nec*	3119
Construction and building trades nec* (5%)	5319	Architectural and town planning technicians*	3121
Smiths and forge workers	5211	Draughtspersons	3122
Metal machining setters and setter-operators	5221	Quality assurance technicians	3115
Labourers nec*		Town planning officers	2432
Elementary construction occupations (100%)	9120	Electronics engineers	2124
Electrical trades and installation		Chartered architectural technologists	2435
Electricians and electrical fitters	5241	Estimators, valuers and assessors	3531
Electrical and electronic trades nec*	5249	Planning, process and production technicians	3116
Telecommunications engineers	5242	Architects	
Plumbing and heating, ventilation, and air conditioning trades		Architects	2431
Plumbers and heating and ventilating engineers	5314	Surveyors	
Pipe fitters	5216	Quantity surveyors	2433
Construction and building trades nec* (5%)	5319	Chartered surveyors	2434
		*Not elsewhere classified	

CITB RESEARCH

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