



CITB RESEARCH

# INDUSTRY INSIGHTS

EAST OF ENGLAND



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 – EAST OF ENGLAND

The region's total construction output is forecast to rise by an annual average of 1.3% in the five years to 2022, in line with the UK average. Construction employment in the East of England is projected to increase by an average yearly rate of 0.2% over the same period, below the UK rate of 0.5%. At 1.8% of base 2018 employment, the region's annual recruitment requirement (ARR) exceeds the UK average of 1.2%.

## KEY FINDINGS

Output is expected to focus on both the private housing and industrial sectors in the long term, averaging

**2.3%**  
per year

Employment is forecast to grow by

**0.2%**  
a year on average

The East has an ARR of

**4,540**

Output in the region's construction industry is expected to rise by an annual average of 1.3% in the five years to 2022, in line with the UK average over the same period.

As the largest sector with the joint strongest growth forecast of 2.3% for the next five years (along with the much smaller industrial sector), private housing is expected to be the most significant contributor to overall regional expansion. It remains the case that, short of a recession, given the demand/supply mismatch and strong population growth, private housing activity in the East of England will continue to grow. Work is ongoing on the University of Cambridge's £1bn North West Cambridge development, due for completion by 2027. The programme is comprised of a number of construction elements, with a sizeable residential element.

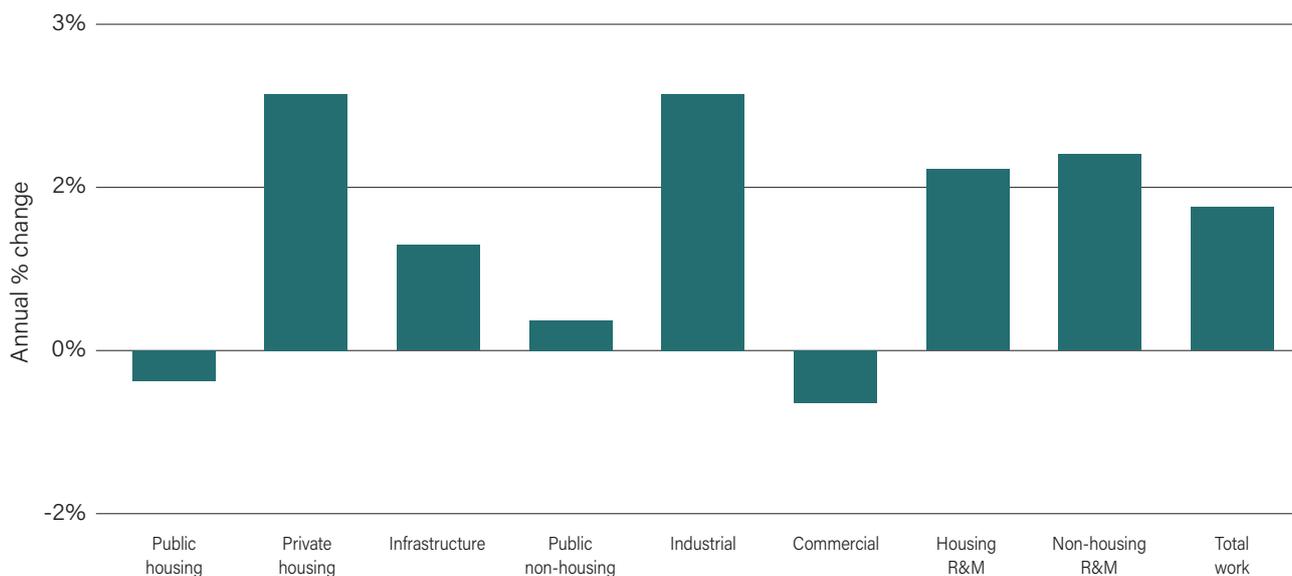
Following on from a particularly strong forecast for the 2018-2019 period, average annual output growth in the infrastructure industry is expected to moderate to 1% over the five-year period to 2022 as the biggest energy and transport projects supporting growth in the near term reach completion around 2020. £600m of investment is planned for Stansted airport. Construction is to be phased as demand builds, starting as early as 2018 with most works finishing by 2020/2021. The £1.5bn A14 Cambridge to Huntingdon improvement scheme is also scheduled to conclude by late 2020, having been ongoing since late 2016.

The biggest drag on construction output growth over the five-year forecast is expected to be the commercial sector, as the second largest by output in 2016 (in 2015 prices), with an annual average contraction of 0.5%. Given a lack of major projects in the pipeline and the vulnerability of the offices and retail sub-sectors to Brexit uncertainties, decline in the sector is expected to be strongest over the next two years, with gradual recovery expected towards the end of the five-year period to 2022.

In 2016 the East of England accounted for around 9% of UK construction employment. Over the next five years construction employment in the region is projected to rise by an annual average of 0.2%, placing it in the middle of the regional rankings in terms of growth rates, below the UK average 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 4,540 extra recruits required per year over the forecast period, the region's ARR is 1.8% of base 2018 employment, above the UK rate of 1.2%. There are two occupational categories that have an ARR in excess of 5% of base 2018 employment, logistics personnel (7.1%) and scaffolders (6.6%).

## ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 – EAST OF ENGLAND



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
<b>UK</b>	<b>1.3%</b>	<b>65,640</b>	<b>31,600</b>

Source: CSN, Experian.  
Ref: CSN Explained.

Private housing is the largest sector and with forecast growth of 2.3% is expected to be the most significant contributor to overall regional expansion.

# THE OUTLOOK FOR CONSTRUCTION IN THE EAST OF ENGLAND

## CONSTRUCTION OUTPUT IN EAST OF ENGLAND - OVERVIEW

In 2016 construction output rose for the second consecutive year, by 3% to £15.05bn (2015 prices). The new work sector increased by 8% to £8.25bn while the repair and maintenance (R&M) sector contracted by 2% to £6.8bn.

The industrial sector experienced the greatest growth of 54% to £513m. The private housing sector also exhibited a double-digit rise, of 33% to £2.52bn to become the largest new work sector. All other sectors experienced declines in 2016 with public non-housing exhibiting the greatest fall of 11% to £731m. Public housing similarly fell by 9% to £344m, followed by a 2% decline in the commercial sector to £2.24bn and a 1% drop in infrastructure output to £1.91bn.

## INDUSTRY STRUCTURE

The diagram, Construction Industry structure 2016 - UK vs. East of England, illustrates the sector breakdown of construction in East of England, 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 55% of total construction output, much lower than the national share of 64%.

The structure of the East of England's construction industry has some noticeable differences compared to the UK as a whole. Based on 2016 output levels, the most sizeable percentage point difference is in the housing R&M sector which accounted for 26% of output in the East of England compared with 19% in the UK. Conversely, the region posts smaller shares for private housing than the UK (17% vs. 20%), and commercial construction (15% vs. 19%).

## 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 East of England rose for the seventh consecutive year, by 1.8% to £145.44bn in 2013 prices, in line with the UK average growth rate.

Very strong growth was seen in the information and communications sector (7.5%), but it only accounts for 6% of total GVA in the region. A much bigger contribution to expansion came from the wholesale and retail sector, which saw a rise of 4.5%, and the large professional and other private services sector (2%).

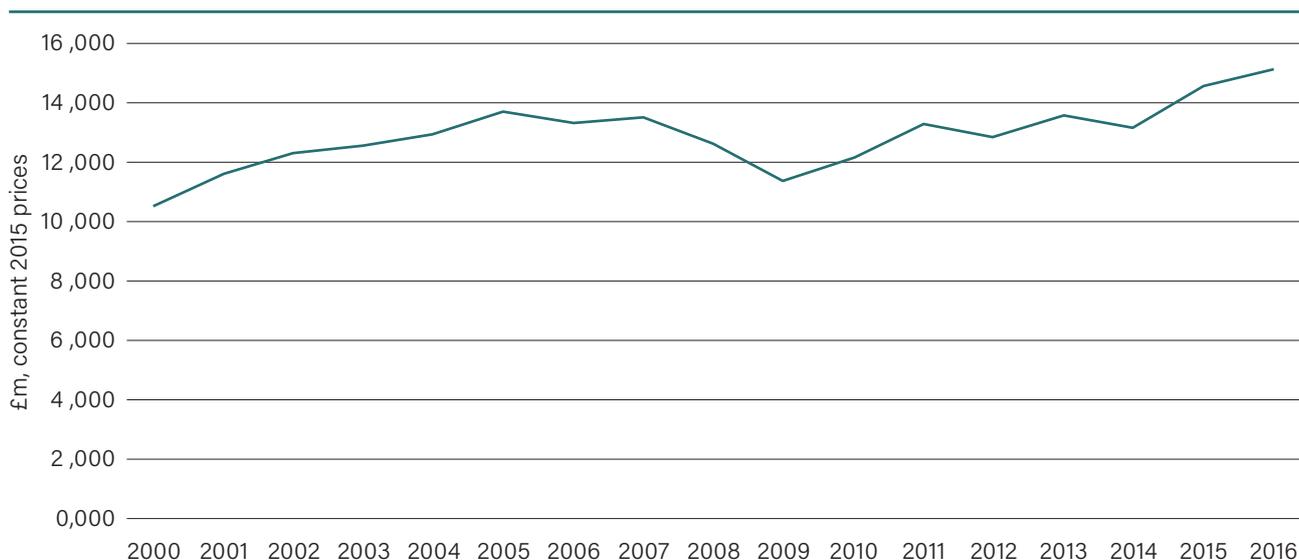
## ECONOMIC STRUCTURE

In terms of the region's economic structure, professional and other private services accounted for the biggest share of GVA at over 30% in 2016, while public services came in second at 16%. The wholesale and retail (13%) and manufacturing (11%) sectors were ranked third and fourth respectively, while at 6%, information and communication was the fifth largest market.

The East of England's economy largely mirrors the UK average with some small differences. While private services form the backbone of the region's economy, manufacturing also plays an important role. Within manufacturing, the food and drink sector is particularly important for the region, but it is financial services, insurance, biotechnology and information and communication that really drive the region's economy. Health and education have a strong presence in the East of England while the energy sector is also emerging as a strong player with significant investment in offshore wind farms.

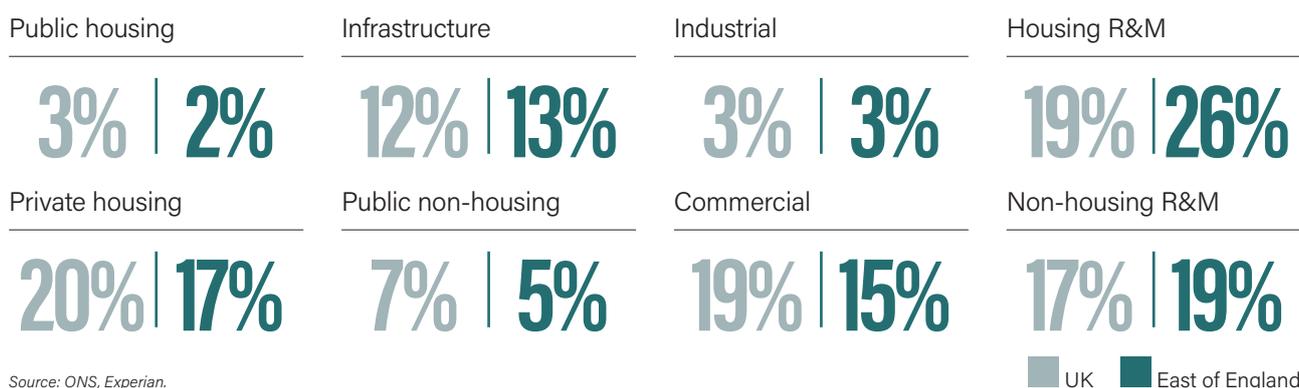


## CONSTRUCTION OUTPUT 2000-2016 - EAST OF ENGLAND



Source: ONS.  
Ref: CSN Explained.

## CONSTRUCTION INDUSTRY STRUCTURE 2016 - UK VS EAST OF ENGLAND



Source: ONS, Experian.

## ECONOMIC STRUCTURE - EAST OF ENGLAND (£ BILLION, 2013 PRICES)

	Actual	Forecast (Annual % change, real terms)					
	2016	2017	2018	2019	2020	2021	2022
Professional & Other Private Services	44.4	2.3	1.9	2.1	2.2	2.5	2.9
Public Services	23.2	1.3	1.3	1.7	2.0	2.2	2.5
Wholesale & Retail	18.8	2.3	1.6	1.8	2.1	2.6	3.1
Manufacturing	15.7	0.8	1.3	1.5	1.2	1.3	1.5
Information & Communication	8.4	3.2	2.9	2.5	2.5	2.7	3.5
<b>Total Gross Value Added (GVA)</b>	<b>145.4</b>	<b>1.9</b>	<b>1.7</b>	<b>1.9</b>	<b>2.0</b>	<b>2.3</b>	<b>2.7</b>

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

## FORWARD LOOKING ECONOMIC INDICATORS

GVA growth for the East of England is estimated at 1.9% for 2017, a better rate than for the UK as a whole (1.6%), and an increase on 2016's outturn.

Between 2018 and 2022 the region's GVA is projected to grow at an annual average rate of 2.1%, compared with the UK average of 2%. Its favourable economic structure, weighted towards the faster growing service sectors, and strong demographic factors, lead to a growth rate slightly higher than the UK one.

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 1.7% over the forecast period, slightly higher than the UK rate of 1.5%.

In 2016 the region's working age population was close to 3.7 million, approximately 9% of the UK total of 41.11 million. Over the forecast period, the region'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 4% in 2016, below the UK rate of 4.9%. It is estimated to have dropped slightly to 3.9% in 2017 but it is projected to rise again over the next three years to a peak of around 4.5% in 2021 before subsiding thereafter.

## NEW CONSTRUCTION ORDERS – OVERVIEW

In 2016 new orders rose for the second consecutive year, by 5% to £5.87bn (current prices), their highest level since 2007. Industrial orders saw the largest increase of 43% to £622m, followed by public housing orders, which increased by 28% to £154m. Private housing also experienced double digit growth of 16% to become the largest sector in the region in terms of orders, with a total of £1.69bn. Infrastructure and public non-housing orders experienced more modest gains of 4% to £1.43bn and 3% to £562m, respectively. The commercial sector was the only one to see a decline in new orders, falling 15% to £1.42bn.

## NEW CONSTRUCTION ORDERS – CURRENT SITUATION

In the nine months to September 2017, total new orders decreased by 8% to £4.01bn compared with the same period of 2016. In contrast to their strong growth in 2016, the public housing and industrial sectors saw sizeable declines in the latest period. Public housing experienced the greatest percentage decline, falling 54% to £58m, while industrial orders fell 42% to £247m. Infrastructure orders also experienced double digit contraction of 29% to £919m, while those for private housing dropped by a more modest 6% to £1.09bn overall. Public non-housing and commercial orders bucked the trend, however, increasing by 43% to £582m and 17% to £1.12bn respectively.

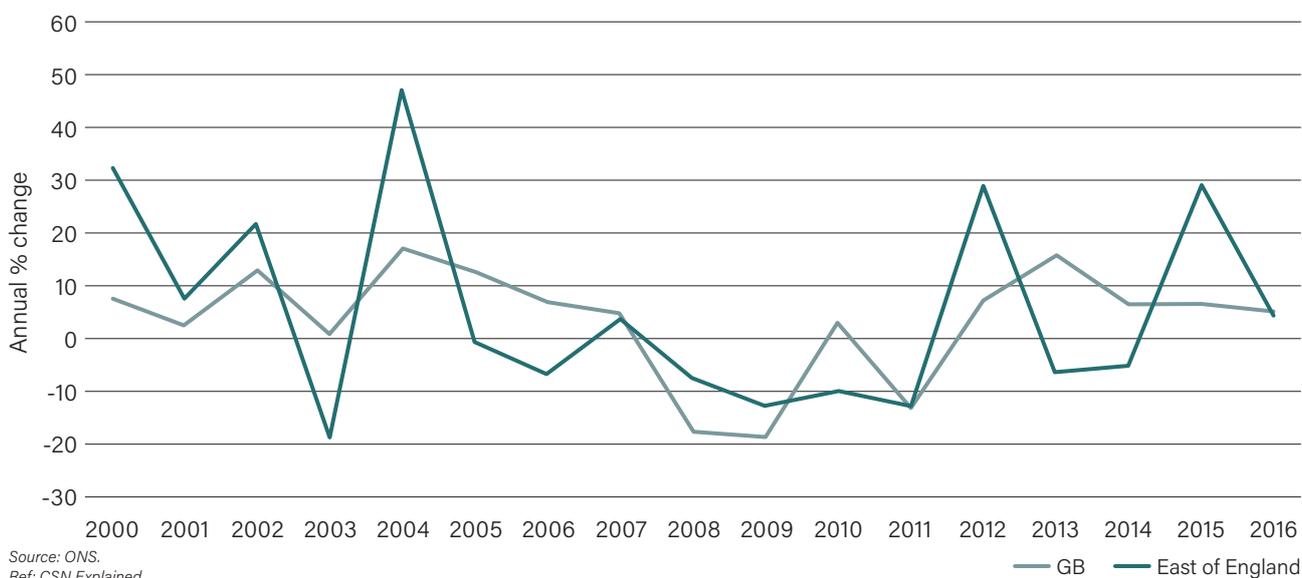


## ECONOMIC INDICATORS – EAST OF ENGLAND (£ BILLION, CURRENT PRICES – UNLESS OTHERWISE STATED)

	Actual	Forecast (Annual % change, real terms)					
	2016	2017	2018	2019	2020	2021	2022
Real household disposable income (2013 prices)	120.3	-0.2	1.4	1.3	1.7	1.8	2.2
Household spending (2013 prices)	121.2	2.0	1.0	1.7	2.3	2.4	2.3
Working age population (000s and as % of all)	3,699	61.0%	60.9%	61.0%	61.4%	61.3%	61.0%
House prices (£)	266,500	6.5	2.9	2.8	3.0	3.0	4.2
LFS unemployment (millions)	0.12	-1.7	3.1	8.7	6.0	1.4	-3.3

Source: ONS, DCLG, Experian.

## NEW CONSTRUCTION ORDERS GROWTH 2000-2016 – EAST OF ENGLAND VS. GB



## NEW WORK CONSTRUCTION ORDERS – EAST OF ENGLAND (£ MILLION, CURRENT PRICES)

	Actual	Annual % change				
	2016	2012	2013	2014	2015	2016
Public housing	154	-35.7	93.2	-34.5	-18.9	28.3
Private housing	1,687	21.2	-9.3	3.2	33.1	15.9
Infrastructure	1,434	76.6	-19.4	-0.5	35.6	4.4
Public non-housing	562	30.0	-4.6	-13.9	-28.8	3.1
Industrial	622	15.8	28.8	0.4	64.2	43.0
Commercial	1,416	15.8	-3.4	-3.5	60.6	-14.8
<b>Total new work</b>	<b>5,875</b>	<b>29.1</b>	<b>-5.6</b>	<b>-4.6</b>	<b>29.5</b>	<b>5.0</b>

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 ticked up by 1% to £11.53bn (current prices) compared with the same period of 2016. Both housing sectors increased by similar margins, with public housing experiencing a 21% rise to £300m and private housing increasing by 19% to £2.23bn. Commercial and public non-housing output also increased, albeit by more modest degrees of 8% to £1.9bn and 3% to £595m respectively. Infrastructure output saw the greatest decline of 13% to £1.3bn, while industrial output also fell by 9% to £346m.

In 2017 total construction output in the region is estimated to have expanded by 3% in real terms to £15.55bn (in 2015 prices). Over the next two years, output is forecast to rise by an annual average of 2.7%, underpinned by a 3.5% rise in the new work sector and a 1.6% increase in the repair and maintenance (R&M) one.

Private housing, as the region's largest sector by output in 2016, is forecast to grow by a similar margin with an average yearly increase of 7.1% over the near-term forecast, supported by a strong new orders profile over recent years and a number of ongoing, high-value housing projects.

The £1bn Beaulieu Park extension project in Essex is now in the second stage of development, with 184 new homes under construction and the first phase of 49 homes sold and occupied. A total of 3,600 homes are planned to be built over the next 15 to 20 years. The project to regenerate Purfleet in Essex is scheduled to start in 2018. The £1bn, 2,800-home project will also incorporate a film and TV studio, a new primary school and health centre.

The relatively small public non-housing sector is expected to exhibit moderate annual average output expansion of 3%. Public Health England has submitted plans to build a £400m laboratory complex at pharmaceutical giant GSK's vacant site at Harlow in Essex. The 1.3 million square feet project involves refurbishing several current buildings and constructing laboratories and a visitor centre on the Pinnacles Estate site. If approved, building work is expected to start in 2019 with phased occupation starting in 2021.

Over the next two years the infrastructure sector is projected to be the best performing sector with average yearly increases of 7.2%. Turbine construction at Innogy's 336MW Galloper offshore windfarm near the Suffolk coast reached its halfway point as of early October 2017, with the project on schedule to be fully commissioned by March 2018. On-shore cabling work to connect ScottishPower Renewables' £2.5bn East Anglia One windfarm off the coast of Suffolk to the grid commenced as of early October 2017. Construction work is also underway at Bramford substation and offshore work is due to start in 2018, with the windfarm fully operational during 2020.

The sizeable commercial sector is forecast to be the biggest drag on overall output over the two-year forecast period to 2019, with annual average contraction of 3.5% expected. One of the few apparent major near term projects is the so-called Blue Abyss, a £120m space and deep sea research facility in Bedfordshire. The project would be the world's first commercial deep sea to space research, training and test centre, with works scheduled to start imminently for completion by 2019.

Intu Developments is spending around £600m over the three years to 2019 upgrading its retail and leisure portfolio and this will include £178m on Charter Place in Watford. The scheme will consist of a new cinema, restaurant, department store and refurbishment of existing malls.

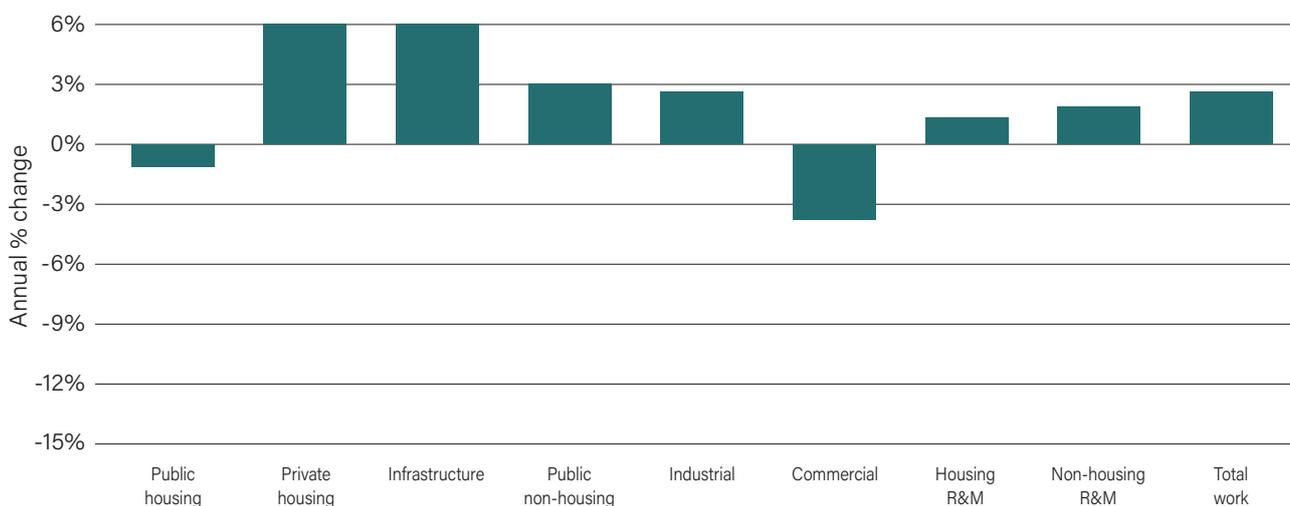
Previous research has indicated that disposable incomes and consumer spending tend to be the two variables that impact most on housing R&M expenditure. Thus, in a period when the former is under pressure and growth in the latter is decelerating a slowing of growth at best, and a contraction at worst, 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, although in the East of England it seems to have held true, relatively speaking, with a sharp deceleration of growth from 10% in 2016 to 2% in 2017. Nevertheless, this is still growth and 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.

## CONSTRUCTION OUTPUT - EAST OF ENGLAND (£ MILLION, 2015 PRICES)

	Actual	Forecast (Annual % change)			Annual average
	2016	2017	2018	2019	2018-2019
Public housing	344	12%	1%	-3%	-1.3%
Private housing	2,518	11%	7%	7%	7.1%
Infrastructure	1,905	10%	6%	9%	7.2%
Public non-housing	731	-1%	1%	5%	3.0%
Industrial	513	-7%	3%	2%	2.7%
Commercial	2,235	1%	-2%	-5%	-3.5%
<b>New work</b>	<b>8,246</b>	<b>6%</b>	<b>3%</b>	<b>4%</b>	<b>3.5%</b>
Housing R&M	3,930	2%	2%	1%	1.4%
Non-housing R&M	2,871	-2%	2%	2%	2.0%
<b>Total R&amp;M</b>	<b>6,801</b>	<b>0%</b>	<b>2%</b>	<b>1%</b>	<b>1.6%</b>
<b>Total work</b>	<b>15,047</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>2.7%</b>

Source: Experian.  
Ref: CSN Explained.

## ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2019 - EAST OF ENGLAND



Source: Experian.  
Ref: CSN Explained.

Construction output in the East of England is forecast to grow by an annual average of 2.7% over the next two years.

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

Output in the region's construction industry is expected to rise by an annual average of 1.3% in the five years to 2022, in line with the UK average over the same period. Regional R&M output is forecast to grow at an annual average of 1.7%, above the UK rate of 1.1%. New work output is forecast to grow at 1% annually over the same period, below the UK rate of 1.5%.

Output growth over the longer term is likely to be supported by a number of town centre regeneration programmes, where output is typically spread across construction sectors. One such example is the £1bn programme to regenerate Purfleet in Essex, already mentioned, for which an outline planning application was submitted in December 2017. If approved, work is expected to start in late 2018. Construction will take place in phases, with the first phase scheduled for completion by 2021 and the whole development by 2034. As is often the case however, a more detailed breakdown of the programme by construction sector and individual projects over time is unfortunately unavailable.

As the largest sector with the joint strongest growth forecast of 2.3% for the next five years (along with the much smaller industrial sector), private housing is expected to be the most significant contributor to overall regional expansion. It remains the case that, short of a recession, given the demand/supply mismatch and strong population growth, private housing activity in the East of England will continue to grow. Work is ongoing on the University of Cambridge's £1bn North West Cambridge development, due for completion by 2027. The programme is comprised of a number of construction elements, with a sizeable residential element of approximately 3,000 homes and 2,000 student bedrooms, in addition to research facilities and commercial space.

Following on from a particularly strong forecast for the 2018-2019 period, average annual output growth in the infrastructure industry is expected to moderate to 1% over the five-year period to 2022 as the biggest energy and transport projects supporting growth in the near term reach completion around 2020. £600m of investment is planned for Stansted airport, including a new arrivals hall alongside the current main terminal, for which planning consent has been obtained. If all goes as hoped the new arrivals hall will become operational in 2019/20 with a reconfiguration of the existing terminal for departures only following in 2020/21. Additional taxiways and aircraft stands are also planned, with construction being phased as demand builds but starting as early as 2018. The £1.5bn A14 Cambridge to Huntingdon improvement scheme is also scheduled to conclude by late 2020, having been ongoing since late 2016.

Much like the short-term outlook, the biggest drag over the five-year forecast period is expected to be the commercial sector, as the second largest by output in 2016 (in 2015 prices), with annual average contraction of 0.5%. Most of the weakness is in the earlier part of the forecast period, as the uncertainties around Brexit impact on investor and developer confidence, creating a hiatus in commercial projects being brought forward, which has already started to be reflected in the orders and output figures for the sector, at least at a UK level. However, growth rates in the sectors that drive demand for commercial space indicate that the prospects for growth in construction are likely to be much better in the latter part of the forecast period. All five sectors are projected to see rises in excess of 2% a year on average between 2018 and 2022, with the information and communication sector the most buoyant with 2.8%. However, growth is very much 'back-end loaded' with much stronger expansion from 2020 than in 2018 and 2019.

## BEYOND 2022

The long-term outlook for the East of England largely consists of new infrastructure projects, weighted towards the transport and energy sub-sectors.

A number of road schemes are due to begin by 2020-2022, among the most significant are the A1(M) Junction 6 to Junction 8 Smart Motorway (£109.7m-£156.1m), A12 Chelmsford to A120 widening scheme (£100m-£250m), as well as various improvements to the A47, costing approximately £330m. A47 works to improve the A11 Thickethorn junction and the Guyhirn junctions will start between 2020 and 2021. Work to dual the A47 between Wansford and Sutton will also start around that time. Dualling the A47 between Blofield and North Burlingham and from North Tuddenham to Easton, will start between 2021 and 2022.

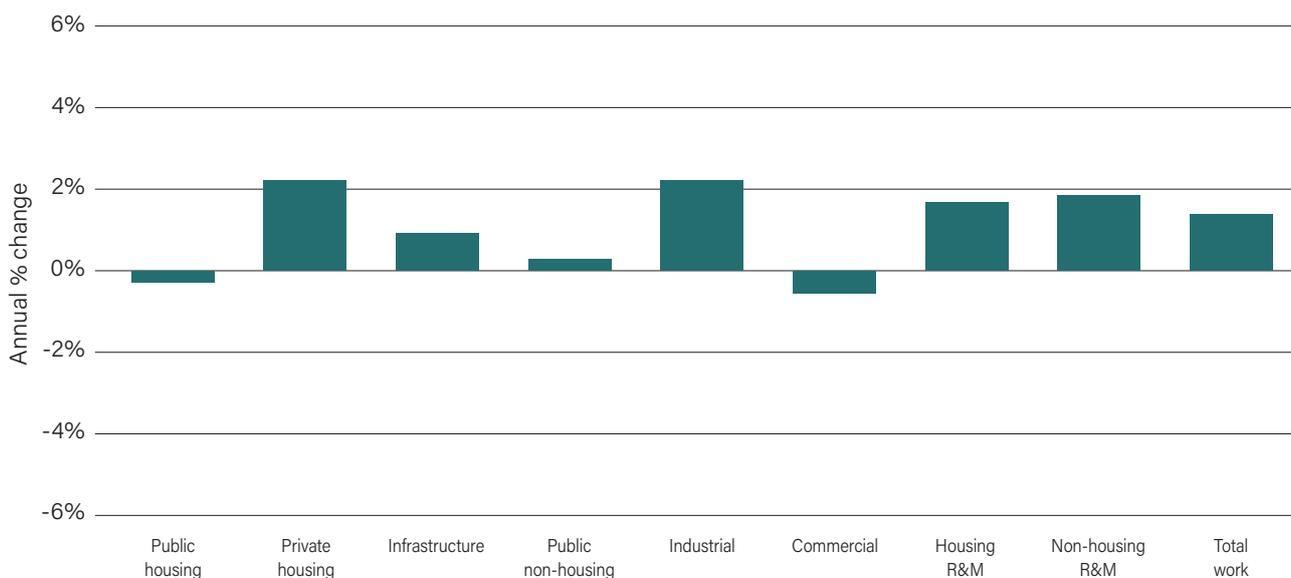
Sizewell C remains the largest energy project in the long-term pipeline, at an estimated cost of £18bn. EDF has set no firm timeline for the construction of Sizewell C but there has been talk of improvements to the A12 being completed in time for a 10-year construction phase to begin in 2021, with the out-going UK head of EDF apparently expecting the power station to be generating electricity by 2031.

## CONSTRUCTION OUTPUT - EAST OF ENGLAND (£ MILLION, 2015 PRICES)

	Estimate	Forecast (Annual % change)					Annual average
	2017	2018	2019	2020	2021	2022	2018-22
Public housing	387	1%	-3%	-5%	1%	6%	-0.3%
Private housing	2,792	7%	7%	0%	-2%	0%	2.3%
Infrastructure	2,098	6%	9%	-1%	-4%	-3%	1.0%
Public non-housing	722	1%	5%	-5%	1%	0%	0.3%
Industrial	476	3%	2%	3%	4%	0%	2.3%
Commercial	2,253	-2%	-5%	-1%	2%	4%	-0.5%
<b>New work</b>	<b>8,728</b>	<b>3%</b>	<b>4%</b>	<b>-1%</b>	<b>-1%</b>	<b>0%</b>	<b>1.0%</b>
Housing R&M	4,005	2%	1%	1%	2%	3%	1.6%
Non-housing R&M	2,818	2%	2%	3%	0%	2%	1.8%
<b>Total R&amp;M</b>	<b>6,823</b>	<b>2%</b>	<b>1%</b>	<b>2%</b>	<b>1%</b>	<b>2%</b>	<b>1.7%</b>
<b>Total work</b>	<b>15,551</b>	<b>3%</b>	<b>3%</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>	<b>1.3%</b>

Source: CSN, Experian.  
Ref: CSN Explained.

## ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 - EAST OF ENGLAND



Source: CSN, Experian.  
Ref: CSN Explained.

# CONSTRUCTION EMPLOYMENT FORECASTS FOR THE EAST OF ENGLAND

## TOTAL CONSTRUCTION EMPLOYMENT FORECASTS BY OCCUPATION

The table presents actual construction employment (SICs 41-43, 71.1, and 74.9) in East of England 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.

Construction employment in the East of England reached 235,780 in 2016, a 2% rise on the previous year. Employment is estimated to have surged by 7% to 252,720 in 2017, its highest level since 2008. The surge has probably come about as a result of three consecutive years of output growth.

However, employment growth is expected to moderate over the next five years, increasing by an annual average of 0.2%, placing it in the middle of the regional rankings in terms of growth rates, below the UK average of 0.5%. Employment in the region is expected to rise to 255,250 over the five years to 2022, 97% of its 2008 peak.

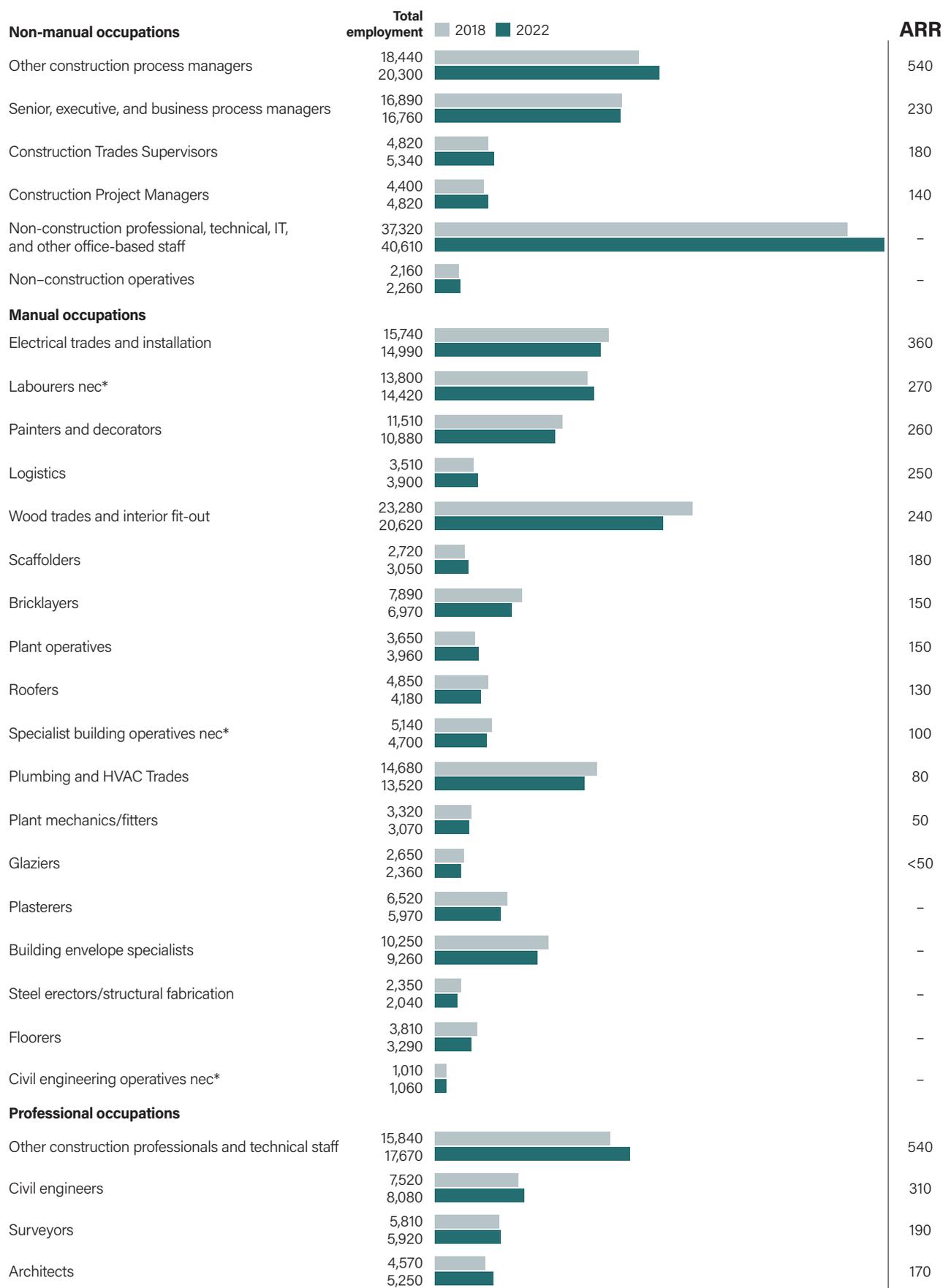
Annual average expansion is predicted for 13 out of the 28 occupational categories, with scaffolders and architects projected to see the joint strongest annual average growth at 3.5% each. By the end of the forecast period employment in the scaffolders occupation is expected to reach a new high of 3,046, with architects to rise to a new high of 5,247. Other construction specific occupational categories that are predicted to reach record employment levels by 2022 are construction project managers, other construction process managers, construction trades supervisors, plant operatives, labourers nec. and logistics.

As is the case across the UK as a whole, managerial/administrative and professional occupations are expected to fare better than trades/manual ones in terms of growth over the forecast period.



## TOTAL EMPLOYMENT BY OCCUPATION - EAST OF ENGLAND

### 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 East of England is estimated at 4,540 over the 2018 to 2022 period, which represents 1.8% of base 2018 employment, above the UK rate of 1.2%. This constitutes 22,700 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 5% of base 2018 employment, logistics personnel (7.1%) and scaffolders (6.6%). A further nine occupational categories have a medium requirement (between 2.6% and 5% of base 2018 employment), including civil engineers (4.1%), construction trades supervisors and architects (both 3.7%). 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 process managers (540), other construction professionals and technical staff (540) and electrical trades and installation (360).

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 - EAST OF ENGLAND

2018-2022

	2018-2022
<b>Non-manual occupations</b>	
Non-construction professional, technical, IT, and other office-based staff	-
Other construction process managers	540
Senior, executive, and business process managers	230
Construction trades supervisors	180
Construction project managers	140
<b>Manual occupations</b>	
Wood trades and interior fit-out	240
Labourers nec*	270
Electrical trades and installation	360
Painters and decorators	260
Plumbing and HVAC Trades	80
Bricklayers	150
Plant operatives	150
Logistics	250
Plasterers	-
Roofers	130
Scaffolders	180
Specialist building operatives nec*	100
Building envelope specialists	-
Steel erectors/structural fabrication	-
Glaziers	<50
Plant mechanics/fitters	50
Floorers	-
Civil engineering operatives nec*	-
<b>Professional occupations</b>	
Other construction professionals and technical staff	540
Civil engineers	310
Surveyors	190
Architects	170
<b>Total (SIC 41-43)</b>	<b>3,330</b>
<b>Total (SIC 41-43, 71.1, 74.9)</b>	<b>4,540</b>

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

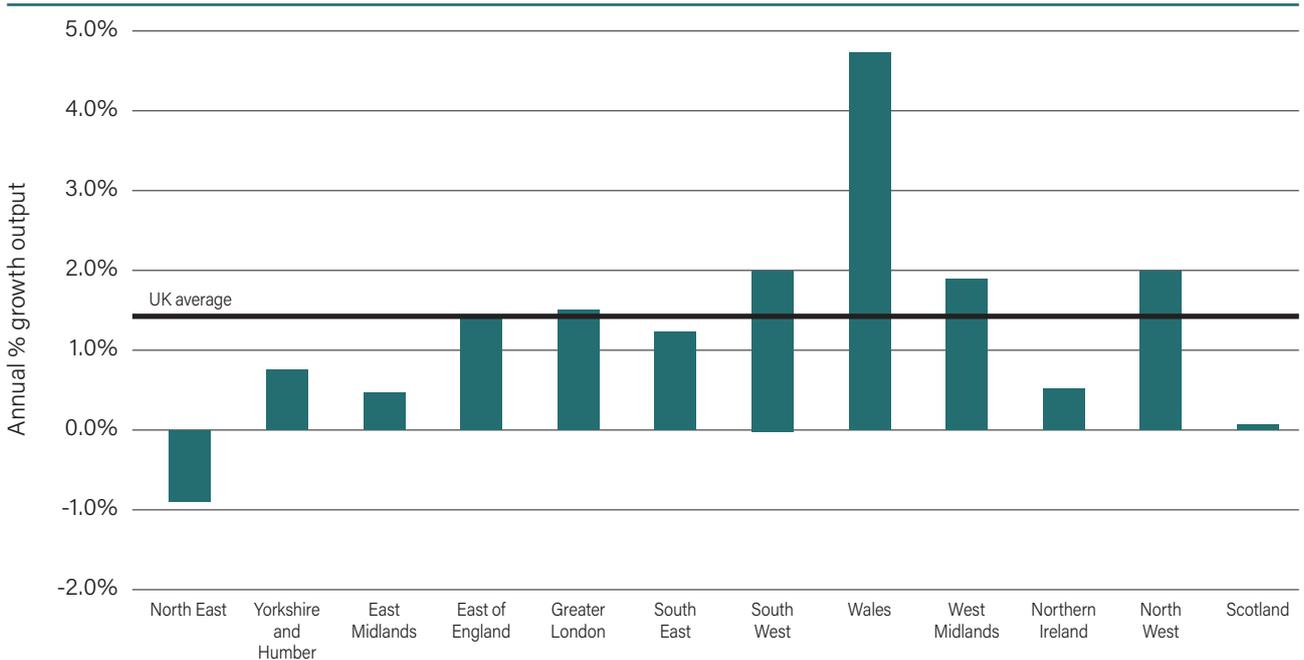
to experience annual average expansion in total construction output of 1.8%, just behind the South West and North West.

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%.

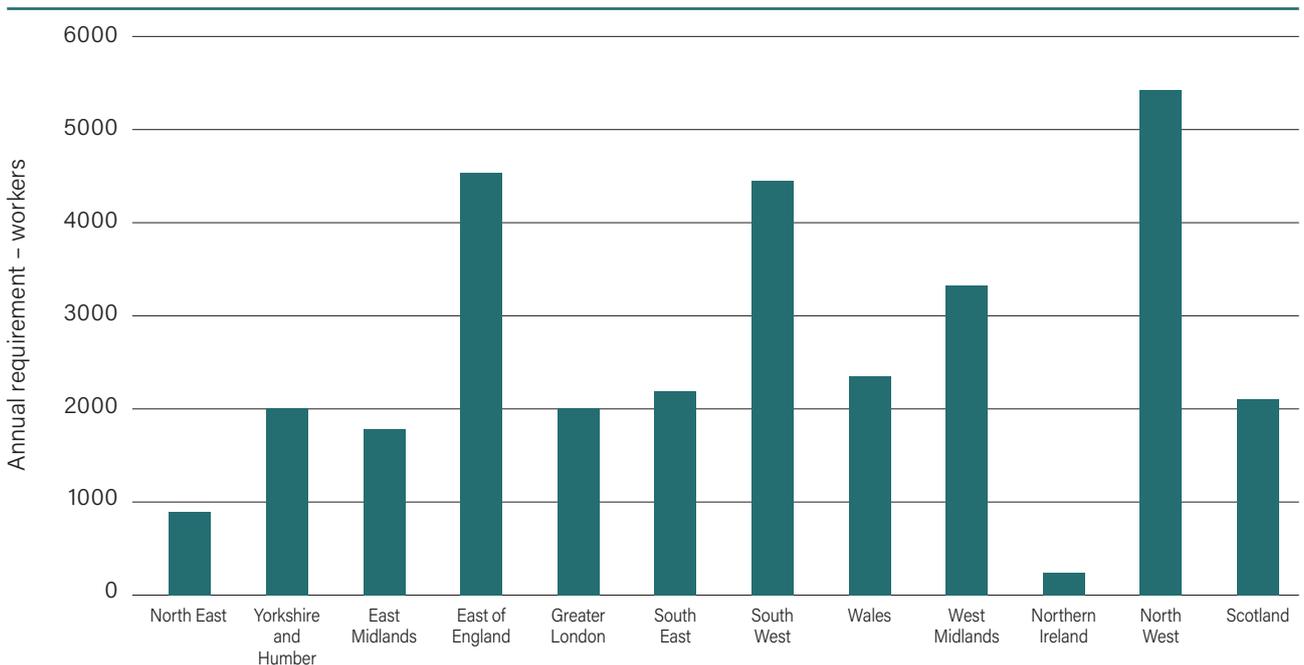
As the annual recruitment requirement (ARR) takes into account known supply-side factors, such as intra-regional labour movements and movements between other industries and construction, the pattern can look significantly different to the profile of output and employment, as some regions and devolved nations have historically strong net inflows and some suffer from large net outflows. For the 2018 to 2022 period, the largest absolute ARR's 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.

■ ■ In the East of England the highest ARR in numbers terms are for construction process managers, other construction professionals and technical staff and electrical trades and installation. ■ ■

# 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:

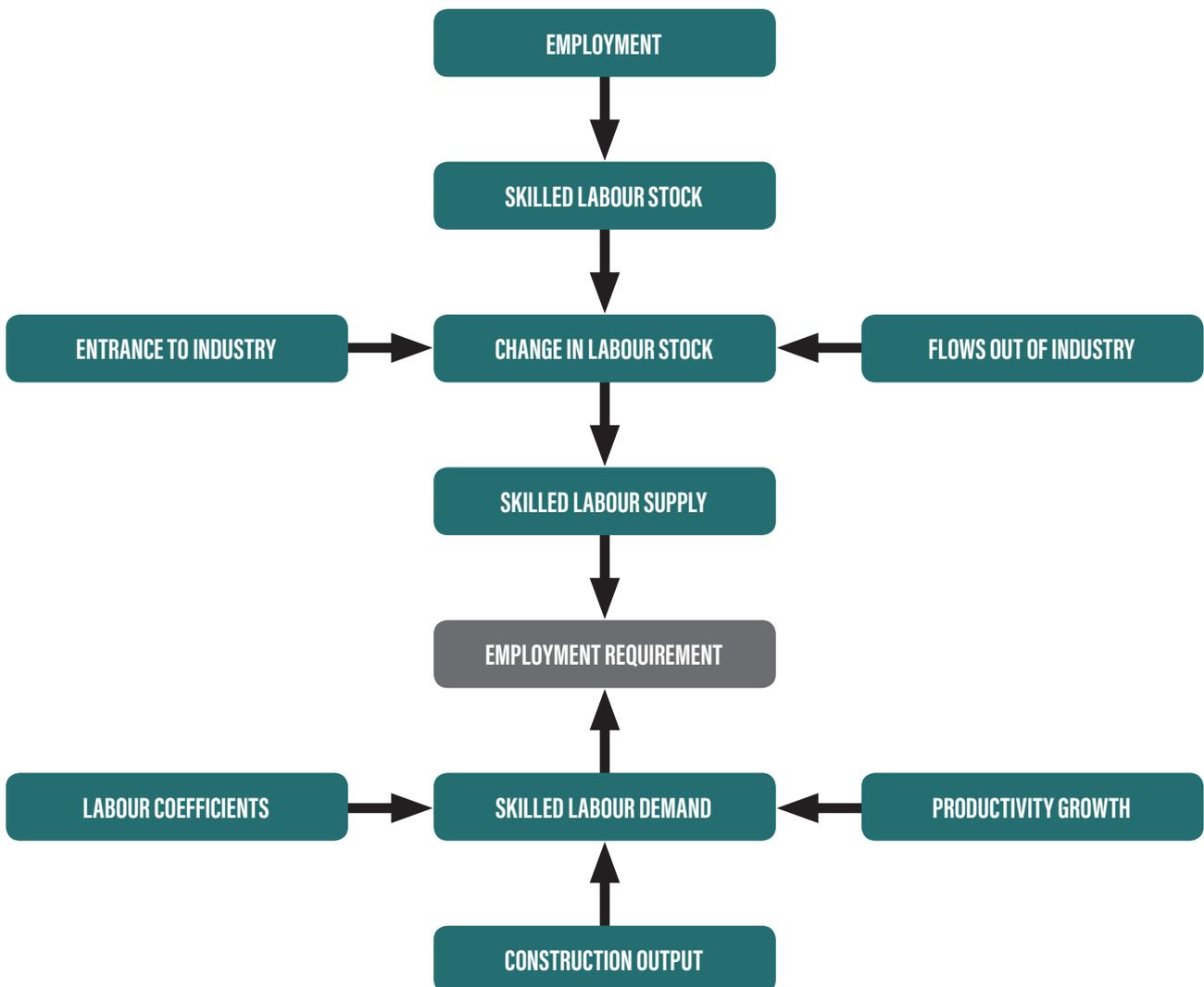
- Transfers to other industries
- International/domestic out migration
- Permanent retirements (Including permanent sickness)
- Outflow to temporary sickness and home duties.

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 construction<sup>1</sup>**

### **Factories and warehouses**

Publicly owned factories, warehouses, skill centres.

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

Now restricted to remedial works for public sector residual bodies.

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

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

### **Health**

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

### **Offices**

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

### **Entertainment**

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

### **Garages**

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

### **Shops**

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

### **Agriculture**

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

### **Miscellaneous**

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

## **Private industrial work**

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

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

### **Schools and universities**

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

### **Health**

Private hospitals, nursing homes, clinics.

### **Offices**

Office buildings, banks.

### **Entertainment**

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

**Garages**

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

**Shops**

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

**Agriculture**

All buildings and work on farms, horticultural establishments.

**Miscellaneous**

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

**New work****New housing**

Construction of new houses, flats, bungalows only.

**All other types of work**

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

**Repair and maintenance****Housing**

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

**All other sectors:**

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



<sup>1</sup> 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'.

<sup>2</sup> 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.

<sup>3</sup> Except where stated, mixed development schemes are classified to whichever sector provides the largest share of finance.

# OCCUPATIONAL GROUPS

<b>Occupational group</b>			
Description, SOC (2010) reference.			
<b>Senior, executive, and business process managers</b>			
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
<b>Construction project managers</b>		Company secretaries	4214
Construction project managers and related professionals	2436	Sales related occupations nec*	7129
<b>Other construction process managers</b>		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
<b>Non-construction professional, technical, IT, and other office-based staff (excl. managers)</b>		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	<b>Construction trades supervisors</b>	
		Skilled metal, electrical and electronic trades supervisors	5250
		Construction and building trades supervisors	5330
		<b>Wood trades and interior fit-out</b>	
		Carpenters and joiners	5315
		Paper and wood machine operatives	8121
		Furniture makers and other craft woodworkers	5442
		Construction and building trades nec* (25%)	5319

<b>Bricklayers</b>		Air-conditioning and refrigeration engineers	5225
Bricklayers and masons	5312	<b>Logistics</b>	
<b>Building envelope specialists</b>		Large goods vehicle drivers	8211
Construction and building trades nec* (50%)	5319	Van drivers	8212
<b>Painters and decorators</b>		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
<b>Plasterers</b>		<b>Civil engineering operatives not elsewhere classified (nec*)</b>	
Plasterers	5321	Road construction operatives	8142
<b>Roofers</b>		Rail construction and maintenance operatives	8143
Roofers, roof tilers and slaters	5313	Quarry workers and related operatives	8123
<b>Floorers</b>		<b>Non-construction operatives</b>	
Floorers and wall tilers	5322	Metal making and treating process operatives	8117
<b>Glaziers</b>		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
<b>Specialist building operatives not elsewhere classified (nec*)</b>		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
<b>Scaffolders</b>		Street cleaners	9232
Scaffolders, staggers and riggers	8141	Gardeners and landscape gardeners	5113
<b>Plant operatives</b>		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	<b>Civil engineers</b>	
Mobile machine drivers and operatives nec*	8229	Civil engineers	2121
<b>Plant mechanics/fitters</b>		<b>Other construction professionals and technical staff</b>	
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
<b>Steel erectors/structural fabrication</b>		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
<b>Labourers nec*</b>		Town planning officers	2432
Elementary construction occupations (100%)	9120	Electronics engineers	2124
<b>Electrical trades and installation</b>		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	<b>Architects</b>	
<b>Plumbing and heating, ventilation, and air conditioning trades</b>		Architects	2431
Plumbers and heating and ventilating engineers	5314	<b>Surveyors</b>	
Pipe fitters	5216	Quantity surveyors	2433
Construction and building trades nec* (5%)	5319	Chartered surveyors	2434
		*Not elsewhere classified	

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**CITB RESEARCH**

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