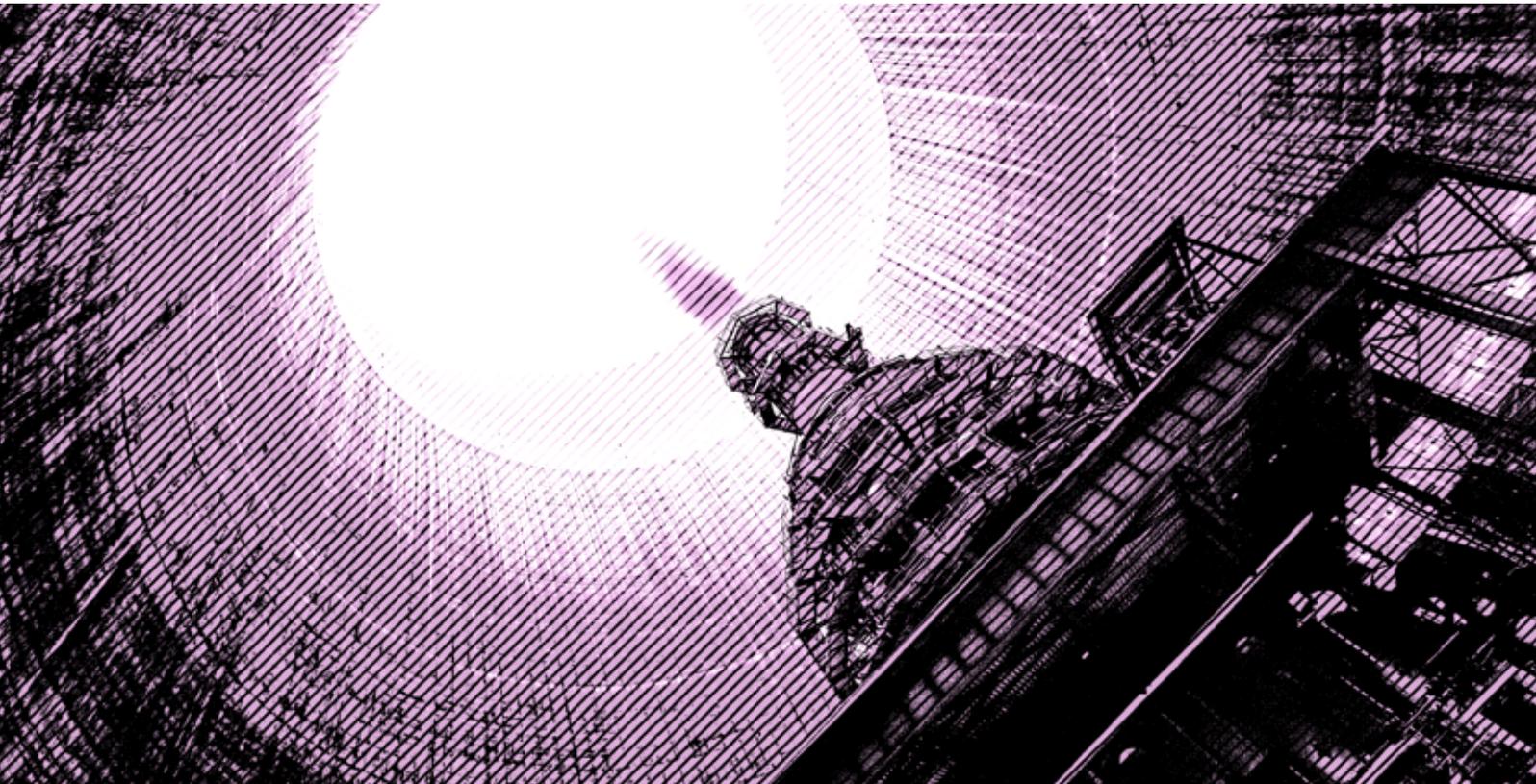


INDUSTRY INSIGHTS

Construction Skills Network
Forecasts 2017–2021



EAST MIDLANDS

About CITB

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

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

About Experian

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

These materials, together with all of the intellectual property rights contained within them, belong to the Construction Industry Training Board (CITB). Copyright 2005 ("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.

CONTENTS

SUMMARY AND KEY FINDINGS	4
THE OUTLOOK FOR CONSTRUCTION IN THE EAST MIDLANDS	6
CONSTRUCTION EMPLOYMENT FORECASTS FOR THE EAST MIDLANDS	14
COMPARISONS ACROSS THE UK	18
TABLES AND CHARTS	
ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2021 – EAST MIDLANDS	5
REGIONAL COMPARISON 2017-2021	5
CONSTRUCTION INDUSTRY STRUCTURE 2015 – UK VS EAST MIDLANDS	7
CONSTRUCTION OUTPUT 1999-2015 – EAST MIDLANDS	7
ECONOMIC STRUCTURE – EAST MIDLANDS (£ BILLION, 2012 PRICES)	7
ECONOMIC INDICATORS – EAST MIDLANDS (£ BILLION, CURRENT PRICES – UNLESS OTHERWISE STATED).....	9
NEW CONSTRUCTION ORDERS GROWTH 1999-2015 – EAST MIDLANDS VS GB.....	9
NEW WORK CONSTRUCTION ORDERS – EAST MIDLANDS (£ MILLION, CURRENT PRICES)	9
CONSTRUCTION OUTPUT – EAST MIDLANDS (£ MILLION, 2013 PRICES).....	11
ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2018 – EAST MIDLANDS	11
CONSTRUCTION OUTPUT – EAST MIDLANDS (£ MILLION, 2013 PRICES).....	13
ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2021 – EAST MIDLANDS	13
TOTAL EMPLOYMENT BY OCCUPATION – EAST MIDLANDS	15
ANNUAL RECRUITMENT REQUIREMENT BY OCCUPATION – EAST MIDLANDS.....	17
ANNUAL AVERAGE OUTPUT GROWTH BY REGION 2017-2021	19
ANNUAL RECRUITMENT REQUIREMENT (ARR) BY REGION 2017-2021	19
CSN EXPLAINED	
CSN EXPLAINED	20
CSN METHODOLOGY	20
GLOSSARY OF TERMS	22
NOTES.....	23
DEFINITIONS: TYPES AND EXAMPLES OF CONSTRUCTION WORK.....	24
OCCUPATIONAL GROUPS.....	26

SUMMARY – EAST MIDLANDS

In the East Midlands, construction output is expected to stagnate between 2017 and 2021, with no growth forecast. This compares to last year's projection of 1% for the 2016 to 2020 period, and lags well behind expected growth of 1.7% at the national level. Given this relative weakness in output growth, employment is expected to decline by 0.3% a year in the five years to 2021, compared with growth of 0.6% at the UK level. The East Midlands' annual average recruitment requirement (ARR) is estimated at 1,770. This represents 1% of base 2017 employment.

Growth is expected to focus on both the Public and Non-housing R&M sectors in the short term, by

2.1%

Employment is forecast to decline by

0.3%

a year on average

The East Midlands has an ARR of

1,770

KEY FINDINGS

Construction output in the East Midlands increased by 7.7% in 2015 to £7.7bn in 2013 prices. This built on growth of 8.4% in 2014, though output remained well down on the pre-recession peak of £10bn in 2005. The infrastructure and industrial sectors drove the increase, with output in the former reaching easily its highest level on record, at £1.3bn. In the first three quarters of 2016 output totalled £7bn in current prices. This represents a 16% increase on the same period of 2015.

Annual output growth in the East Midlands is expected to average 0% in the five years to 2021, compared to 1.7% at the national level. Infrastructure and non-housing R&M are the only sectors expected to register any meaningful growth, with the former forecast to grow at an annual average rate of 0.8%. The government's £1.8bn Midlands road building project should continue to support output gains in the sector.

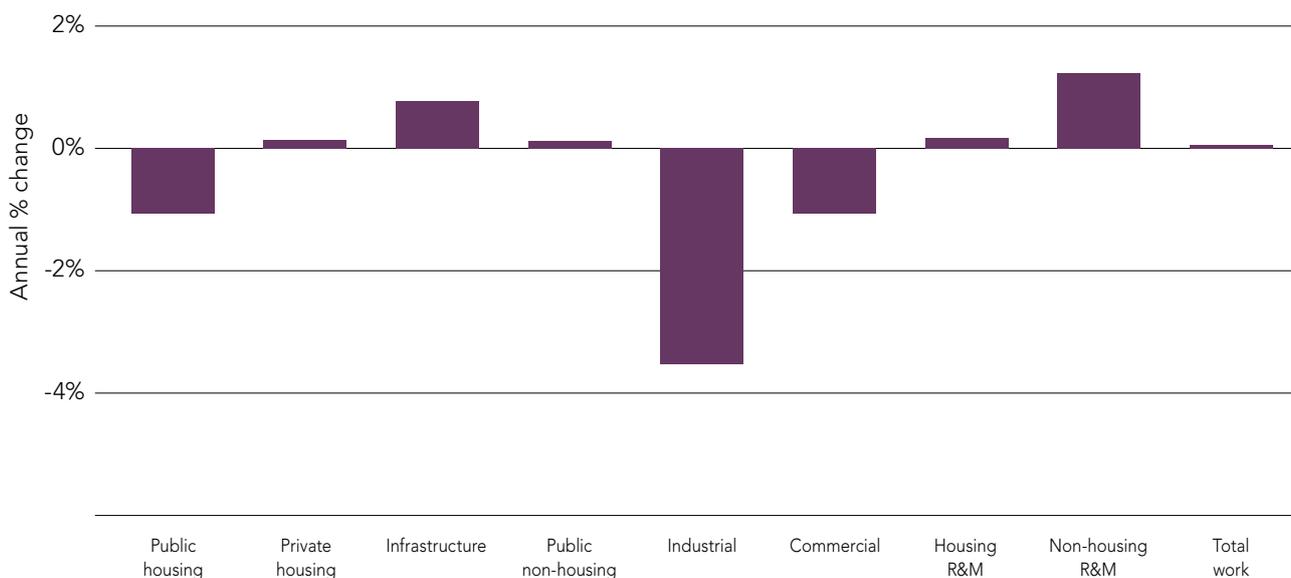
The private housing and public non-housing sectors are predicted to grow at just fractionally above zero percent a year. Given a dearth of confirmed projects in the pipeline it is difficult to see how any meaningful growth could materialise in either sector.

Annual declines in output are expected in the commercial, industrial and public housing sectors. Following the European Union referendum, weaker than otherwise anticipated global investment is likely to hit the former sectors. The government imposed reductions on housing rents will adversely impact on the latter.

Employment is projected to decline by an average of 0.3% a year between 2017 and 2021, compared to the UK average of 0.6% growth. In numbers' terms this sees employment fall from an estimate of just over 170,000 in 2016 to around 168,000 in 2021. Of the 28 occupational aggregates less than half (11) are set to grow between 2016 and 2021.

The ARR for the East Midlands is projected to be 1,770 for the 2017 to 2021 period. This represents 1% of base 2017 employment, a lower ratio than the UK average of 1.4%. Five occupational categories were flagged as having medium requirements, with all the remaining occupational categories (22) being flagged with low requirements. In absolute terms, most categories had ARR's below 100, with more than half having no appreciable requirement.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2021 – EAST MIDLANDS



Source: CSN, Experian.
Ref: CSN Explained.

REGIONAL COMPARISON 2017-2021

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

Source: CSN, Experian.
Ref: CSN Explained.

Annual output growth in the East Midlands is expected to average 0% in the five years to 2021, compared to 1.7% at the national level.

THE OUTLOOK FOR CONSTRUCTION IN THE EAST MIDLANDS

CONSTRUCTION OUTPUT IN THE EAST MIDLANDS – OVERVIEW

Total construction output in the East Midlands increased by 7.7% annually in 2015 to £7.7bn in 2013 prices. This builds on an 8% increase in 2014, although output remains well below the pre-recession peak of £10bn.

The expansion in 2015 was driven by the infrastructure, industrial and public non-housing sectors which grew by 75%, 48% and 12% respectively. The former rose to its highest level on record, at £1.3bn. Repair and maintenance output stagnated.

INDUSTRY STRUCTURE

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

The strong growth in the infrastructure sector in 2015 has seen this component of construction increase its industry share in the region, which is now greater than at the UK level. The industrial sector also makes up a larger share, as has been the case historically. Conversely, although the sector has grown relatively strongly since the recession, the commercial sector makes up a far lower share of output than it does nationally.

ECONOMIC OVERVIEW

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

ECONOMIC STRUCTURE

In 2015, gross value added (GVA) in the East Midlands grew by 2.1% year-on-year, to £94bn in 2012 prices. This follows growth of 2.8% in 2013 and 2.7% in 2014.

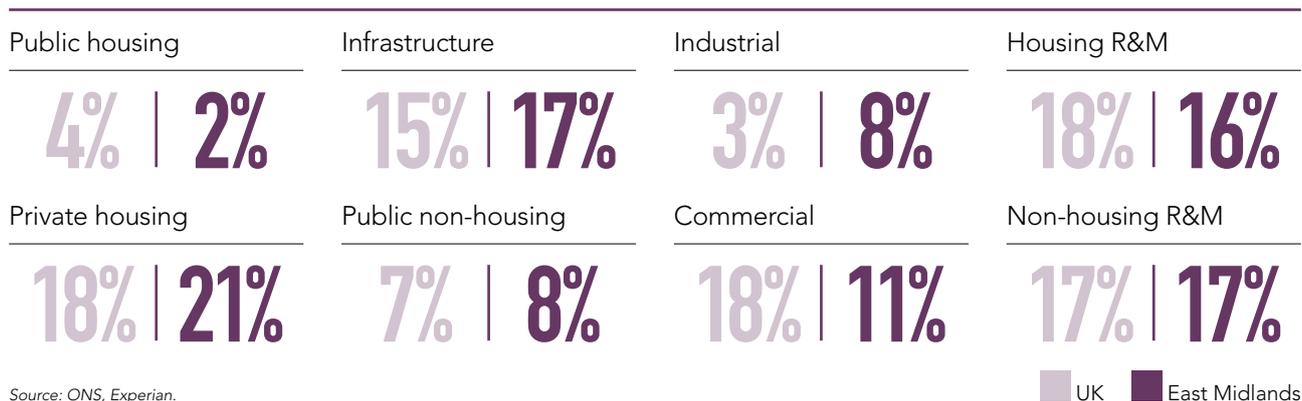
The largest contributors to output in the East Midlands economy in 2015 were the professional and other private services, public services, manufacturing, and wholesale and retail sectors.

Between 2007 and 2015 output in the wholesale and retail sector as a share of total output has grown by almost one and a half percent, to 14.8%, while manufacturing has seen its share fall by just over one percent, to 15.4%. In terms of output, both sectors are substantially overrepresented in the region, compared to the national level.

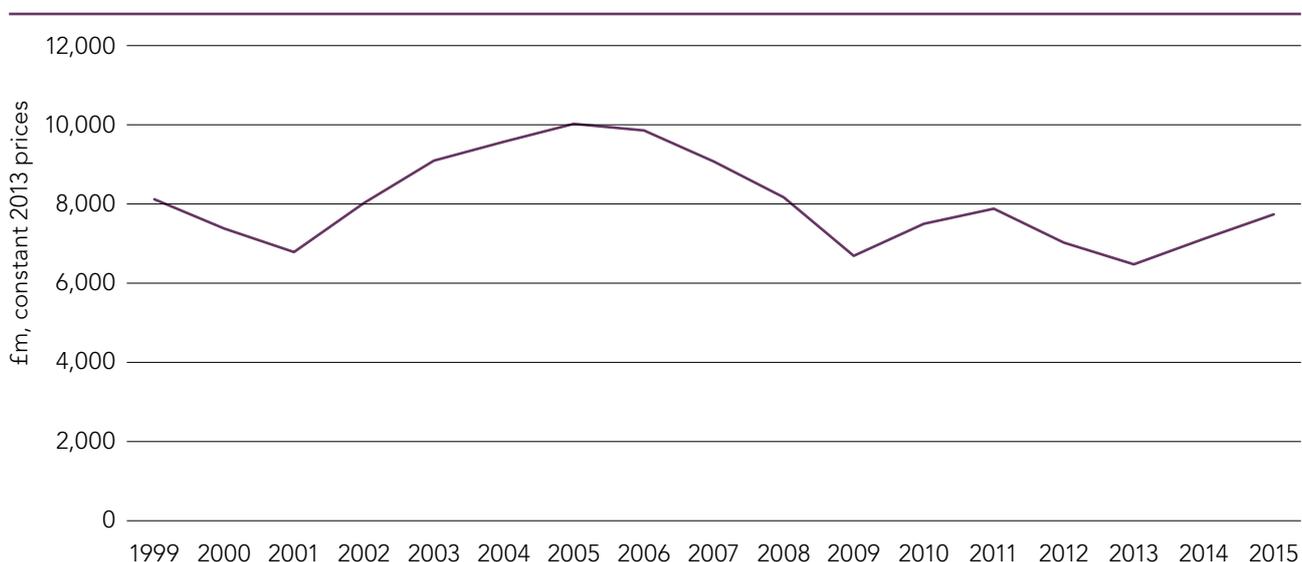
The public services sector makes up a slightly larger share of output than nationally, at 19.3%. Conversely, the professional and other private services sector makes up a smaller share. The former sector has increased its share of total output by one percent since 2007. The latter has seen its share increase by nearly three percent.



CONSTRUCTION INDUSTRY STRUCTURE 2015 – UK VS EAST MIDLANDS



CONSTRUCTION OUTPUT 1999–2015 – EAST MIDLANDS



ECONOMIC STRUCTURE – EAST MIDLANDS (£ BILLION, 2012 PRICES)

	Actual	Forecast (Annual % change, real terms)					
	2015	2016	2017	2018	2019	2020	2021
Professional & Other Private Services	23.5	2.5	1.7	1.7	2.0	2.3	2.4
Public Services	18.1	0.8	0.6	0.8	1.5	2.3	2.3
Manufacturing	14.5	0.3	0.6	1.7	1.4	1.3	1.3
Wholesale & Retail	13.9	4.5	1.1	1.6	2.1	2.2	2.3
Transport & Storage	4.3	-0.1	1.5	2.8	2.4	2.4	2.5
Total Gross Value Added (GVA)	94.0	1.8	1.1	1.5	1.8	2.0	2.1

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

FORWARD LOOKING ECONOMIC INDICATORS

Annual GVA growth in the East Midlands is estimated to have moderated to 1.8% in 2016, from 2.1% in 2015.

GVA is predicted to expand at an annual average rate of 1.7% between 2017 and 2021, broadly in line with the UK average (1.8%). The GVA outlook generally is weaker than was anticipated a year ago due to global uncertainties, not just as a result of the European Union referendum result in the UK, but also linked to the recent U.S. elections and continuing instability in the Middle East.

In the large wholesale and retail, and professional and other private services sectors growth was strong in 2016, estimated at 4.5% and 2.5% respectively. The gain was strongest in the information and communication sector (6%), and the accommodation, food services and recreation sector also registered healthy growth (estimated at 1.8%).

These sectors are predicted to continue to be among the best performers in terms of output growth in the 2017–2021 period. Wholesale and retail is expected to grow at an annual average rate of 1.8%, and average annual gains of at least 2% are forecast for the remaining sectors.

Conversely, manufacturing is estimated to have grown by just 0.3% in 2016, and public services by a modest 0.8%. In the 2017–2021 period these sectors are expected to grow by 1.3% and 1.5% respectively, underperforming compared to the regional average.

Buoyed by exceptionally low inflation and decent earnings growth, real household disposable incomes grew by 3.8% in 2015, and are estimated to have increased by 2.7 in 2016. In 2017, as inflation picks up, growth is forecast to moderate markedly to 0.2%, and annual average growth for the 2017–2021 period is predicted to be 1.5%.

The unemployment rate on the LFS measure in the East Midlands fell sharply from 8% in 2012 to 4.6% in 2015, mirroring the national average fairly closely. In 2016, a further fall to 4.3% is estimated. The unemployment rate is expected to creep up for a couple of years and average 4.7% in the 2017–2021 period.

NEW CONSTRUCTION ORDERS – OVERVIEW

Total construction orders in the East Midlands increased by 34% in 2015, to £4.4bn in current prices. This is the largest percentage gain on record, and the best outturn since 2007.

The increase was driven by annual growth of 120% in new orders in the infrastructure sector, to a record high of £1.4bn. This is the largest increase since 1995, and builds on a gain of 24% in 2014.

In the industrial sector new orders grew by a strong 35% in 2015, to an eight-year high of £661m. This marked the third year of very strong growth in the sector. Similarly, new orders in the commercial sector grew by 30% in 2015 to £681m. However, this follows a decade characterised by declines, and in 2015 new orders remained well below their pre-recession peak of £2.1bn.

In the public non-housing sector new orders grew by a more modest 18% in 2015 to £631m. In the five years prior to this there was only one year of growth, and in 2015 new orders remained well down on their 2011 level.

The public and private housing sectors were the worst performers in 2015 with new orders contracting by 27% and 2% respectively. In the former new orders fell to £61m, the lowest they have been since 2002. In the latter there was also a contraction in 2015, but new orders remain comfortably above their post-recession average.

NEW CONSTRUCTION ORDERS – CURRENT SITUATION

In the first three quarters of 2016 new orders totalled £2.96bn, a 17% contraction compared with the first three quarters of 2015. On a four-quarter moving total basis there was a decrease of 13% in the third quarter of the year.

The contraction was driven by a decline in new orders in the infrastructure and public non-housing sectors. Comparing the first three quarters of 2016 with the same period in 2015 there were falls of 62% and 60% respectively. On a four-quarter moving total basis there were drops in new orders in the third quarter of the year. In the infrastructure sector the drop was a precipitous 52%.

In all the remaining new work sectors construction orders grew. Public housing new orders were up 97%, while commercial new orders rose by 66%. In the private housing and industrial sectors the increases were slightly more than 10%. Public and private housing new orders were up on a four-quarter moving total basis in the third quarter of the year, while there was a small decline in the commercial sector.

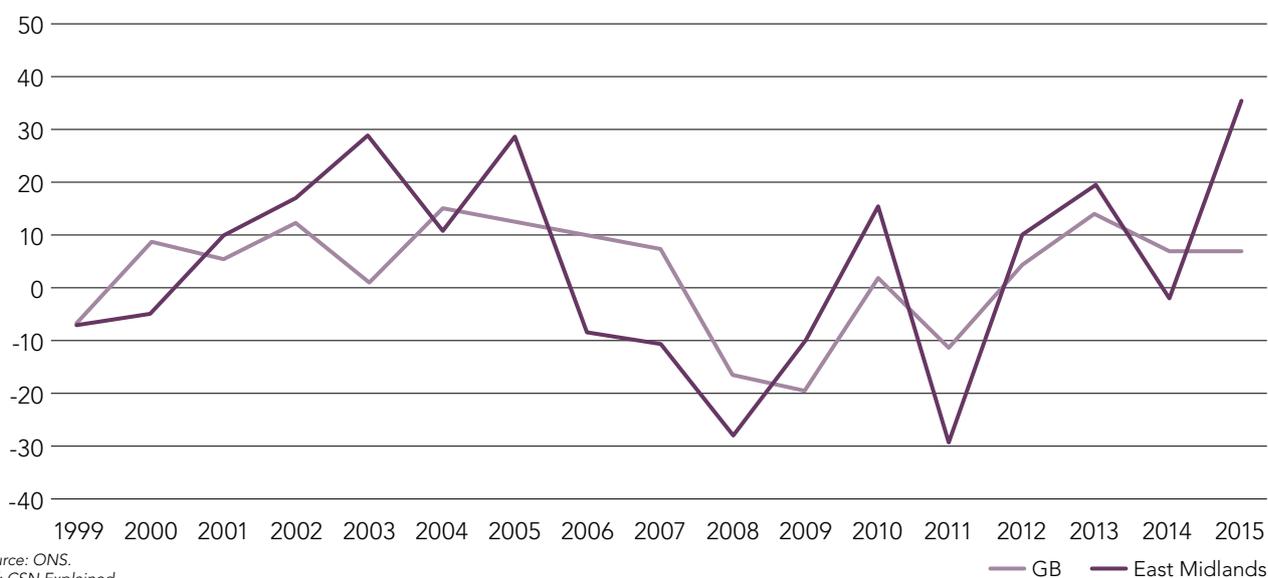


ECONOMIC INDICATORS – EAST MIDLANDS (£ BILLION, CURRENT PRICES – UNLESS OTHERWISE STATED)

	Actual	Forecast (Annual % change, real terms)					
	2015	2016	2017	2018	2019	2020	2021
Real household disposable income (2012 prices)	75.7	2.7	0.2	1.6	1.6	2.0	2.3
Household spending (2012 prices)	81.2	2.5	1.5	0.7	1.5	2.1	2.2
Working age population (000s and as % of all)	2,891	62.1%	62.0%	61.8%	61.8%	62.2%	62.1%
House prices (£)	159,583	5.2	1.1	0.9	1.8	2.4	2.6
LFS unemployment (millions)	0.1	-5.6	7.9	1.9	0.7	0.1	-1.3

Source: ONS, DCLG, Experian.

NEW CONSTRUCTION ORDERS GROWTH 1999-2015 – EAST MIDLANDS VS GB



NEW WORK CONSTRUCTION ORDERS – EAST MIDLANDS (£ MILLION, CURRENT PRICES)

	Actual	Annual % change				
	2015	2011	2012	2013	2014	2015
Public housing	61	-9.2	5.1	-3.2	-30.8	-26.5
Private housing	1,028	-26.5	19.6	95.6	-20.7	-2.2
Infrastructure	1,359	-64.3	116.5	-34.3	24.0	119.5
Public non-housing	631	-12.8	-30.6	20.7	-2.7	18.4
Industrial	661	40.0	-28.9	80.4	29.7	35.2
Commercial	681	-22.2	1.7	-15.1	-4.0	30.2
Total new work	4,421	-28.5	9.7	19.1	-3.4	34.0

Source: ONS.
Ref: CSN Explained.

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

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

In 2015, total construction output rose by 8% to a four year high of £7.7bn in 2013 prices. In the first three quarters of 2016 output totalled £7bn in current prices. This represents a 16% increase on the same period of 2015.

The infrastructure and industrial sectors drove the increase in 2015, growing by 75% and 48% respectively. Output in the infrastructure sector reached easily its highest level on record, at £1.3bn. In addition, there was an increase of 14% in infrastructure construction output in current prices comparing the first three quarters of 2016 with the same period of 2015.

Output in the public housing sector also grew in 2015, by three percent, to £186m in 2013 prices. Conversely, there were annual contractions in the private housing and commercial sectors of around 10%. In the first three quarters of 2016 the gains in public housing output in current prices unwound, with an 11% decline compared to the same period a year ago, while the public non-housing and commercial sectors saw large gains, of 27% and 55% respectively.

Total construction output is expected to grow by just 0.3% in the 2017–2018 period. Gains in the infrastructure, private housing and public non-housing sectors are expected to be offset by contractions in the public housing, industrial and commercial sectors.

In the region's large infrastructure sector output is forecast to grow at an average annual rate of 2%. Growth will be supported by the government's £1.8bn programme to improve the capacity and condition of roads in the Midlands regions. Projects outlined in the scheme include improvements to a number of junctions on the A46 and the A38 junctions in Derby, as well as a smart motorway upgrade between junctions 23a and 25 of the M1.

The private housing and public non-housing sectors are both forecast to grow by around 2% annually between 2017 and 2018. The former will benefit from the £1bn Stanton Cross development which will see 3,200 homes built in Wellingborough. The construction of the University of Northampton's new Waterside Campus, due to open in 2018 will add around £300m to output in the latter.

The region's small public housing sector is predicted to be the worst performing sector in the 2017–2018 period with an annual average decline of 5.9% forecast. According to the latest data from the Homes and Communities Agency (HCA), the number of affordable and social homes for rent started in the region between the 1st of April 2015 and the 31st of March 2016 was 1,746. This represents a 30% decline on the figure of 2,478 for the same period a year earlier, and a downward trend is likely to continue.

The government announced that from April 2016 housing associations were to cut social housing rents by one percent each year for the next four years. Combined with cuts in government funding it is difficult to see how public housing sector construction output could grow in the short term. East Midlands Housing Association, one of the most active housing associations in the region, began work on the construction of 62 one and two bedroom retirement units in Loughborough earlier last year, but at just £13.5m the scheme will offer only limited support to output.

The industrial sector is also expected to underperform the regional average in terms of output growth in the short term with annual average contractions of 4.6% forecast for the 2017–2018 period. The sector is likely to suffer from a reduction in investment and less speculative development due to uncertainty surrounding the European Union referendum result. Plans for the expansion of the Magna Park distribution park, approved last year, will offer limited support of around £250m to output in the sector. Six million square feet is to be added to the site to support parcel company DHL's operational capacity.

The commercial sector is expected to do similarly badly, with an annual average contraction of 3% forecast for the 2017–2018 period. It too is expected to suffer from a reduction in investment and speculative development due to uncertainty surrounding the European Union referendum result. Plans to convert Nottingham's Guildhall into a four star hotel and 410,000 square feet of mixed use development could contribute £100m to output if they go ahead this year. Plans are also pending approval for construction of a £200m office development housing 3,300 employees on the Pride Park complex in Derby. If it gets the go-ahead, construction is likely to begin this year.

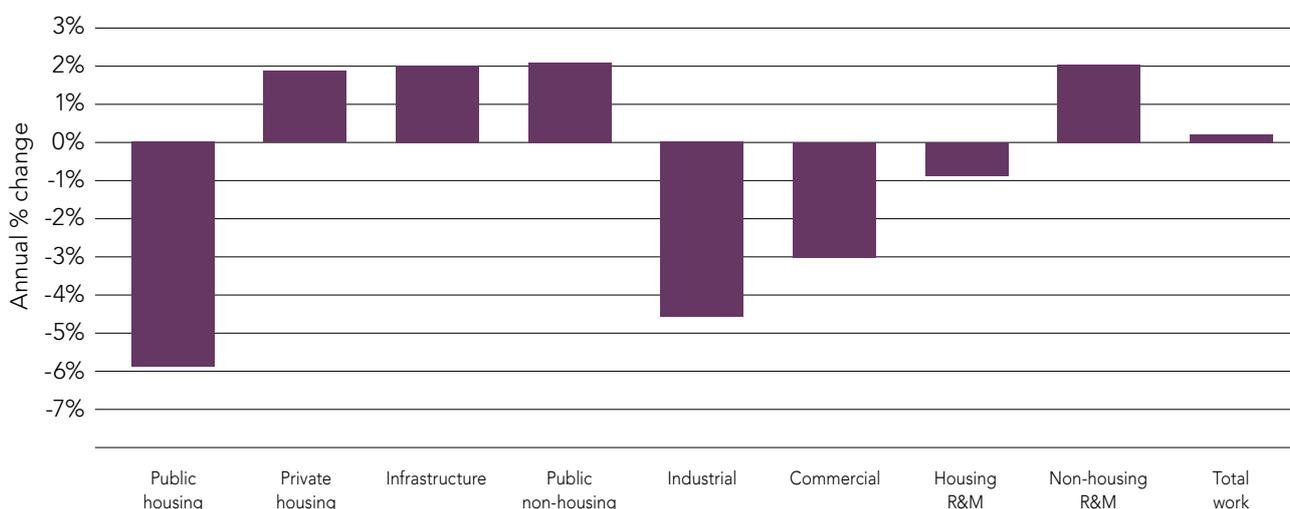


CONSTRUCTION OUTPUT – EAST MIDLANDS (£ MILLION, 2013 PRICES)

	Actual	Forecast annual % change			Annual average
	2015	2016	2017	2018	2017-2018
Public housing	186	-12%	-8%	-4%	-5.9%
Private housing	1,607	7%	2%	2%	1.8%
Infrastructure	1,268	5%	-1%	6%	2.0%
Public non-housing	596	11%	3%	2%	2.1%
Industrial	602	-8%	-8%	-2%	-4.6%
Commercial	849	24%	-2%	-4%	-3.0%
New work	5,108	7%	-1%	1%	0.1%
Housing R&M	1,258	-7%	-1%	-1%	-0.7%
Non-housing R&M	1,333	4%	3%	1%	2.1%
Total R&M	2,591	-1%	1%	0%	0.8%
Total work	7,699	5%	0%	1%	0.3%

Source: Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2018 – EAST MIDLANDS



Source: Experian.
Ref: CSN Explained.

Employment is projected to decline by an average of 0.3% a year between 2017 and 2021 in the East Midlands, compared to the UK average of 0.6% growth.

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

In the 2017–2021 period the annual average growth rate for total construction output in the East Midlands is forecast to be zero.

Infrastructure is the only new work sector expected to register any meaningful growth, forecast to expand at an annual average rate of 0.8%. The government's £1.8bn Midlands road building project will continue to support output gains in the region. Other potential projects include a strategic rail freight interchange in South Derbyshire. If it goes ahead, the scheme could add around £250m to infrastructure output. In addition, construction of a rail centre in Northamptonshire could add over £2bn to infrastructure output. The first stage of the 2.5 million square foot project could commence this year and would see the creation of a logistics and distribution facility connecting the West Coast main line with the Northampton loop line and the A43.

Private housing and public non-housing are the only other sectors in the region expected to grow in the 2017–2021 period, but at an annual average rate of just 0.1%. Given a dearth of confirmed projects in the pipeline in the former, it is difficult to see how stronger growth could be achieved. A potential project still in the planning stage is a 4,000 home housing development in Daventry. There is also a lack of any large projects in the pipeline in the public non-housing sector, once work on the University of Northampton's new Waterside Campus is completed next year. Government spending on non-housing projects is also likely to be far from supportive given tight government budgets, although there could be some loosening of the purse strings over the next few years to support the economy.

In the commercial sector, output is forecast to fall at an annual average rate of around 0.9% in the 2017–2021 period. Global investment in the sector is expected to be weaker than anticipated before the European referendum. The uncertainty surrounding the result means that in the aforementioned period, annual average growth in the accommodation, food services and recreation, finance and insurance, professional and other private services, and wholesale and retail sectors is likely to be around one percent lower than it otherwise would have been. A boost to the sector could come from D2N2 local enterprise partnership – a private sector-led partnership in the region. They are working on creating a package of over £400m to support dozens of commercial projects across Nottinghamshire and Derbyshire to be delivered between now and 2021.

A similar fall in output on the annual average measure is expected in the public housing sector in the 2017–2021 period. The government-imposed one percent reduction in housing rents a year will continue out to 2020, and funding support will remain severely limited. Given a lack of confirmed work in the pipeline, further declines in output seem inevitable.

The industrial sector is predicted to be the worst performer in terms of construction output growth in the long term, with an annual average contraction of 3.5% forecast for the 2017–2021 period. Output in the region's large manufacturing sector is forecast to grow at an annual average rate of just 1.3% in the period. Combined with a dearth of work in the pipeline, and challenging economic conditions, construction output is likely to be severely restricted.

BEYOND 2021

The energy sector could see a substantial amount of work continuing or starting post-2021. Among the largest projects in the sub-sector is the £2bn offshore wind farm development at the Triton Knoll site in Mablethorpe, Lincolnshire. The plans detail the construction of 160 6MW turbines. The site would have enough capacity to power up to 800,000 homes. Work is expected to commence in 2017 and finish five years later. Work is scheduled to start in 2020 on the expansion of Intergen's existing gas-fired power station on West Marsh Road in Spalding. The £400m project ought to be finished by 2023.

Beyond this, High Speed 2 the planned high-speed railway linking London, Birmingham, the East Midlands, Leeds, Sheffield and Manchester could make a significant contribution to infrastructure construction output in the region. Under phase two of the project planned for 2032 – 2033, a new station – the East Midlands hub – at Toton Sidings has been proposed, to serve Nottingham, Derby and Leicester.

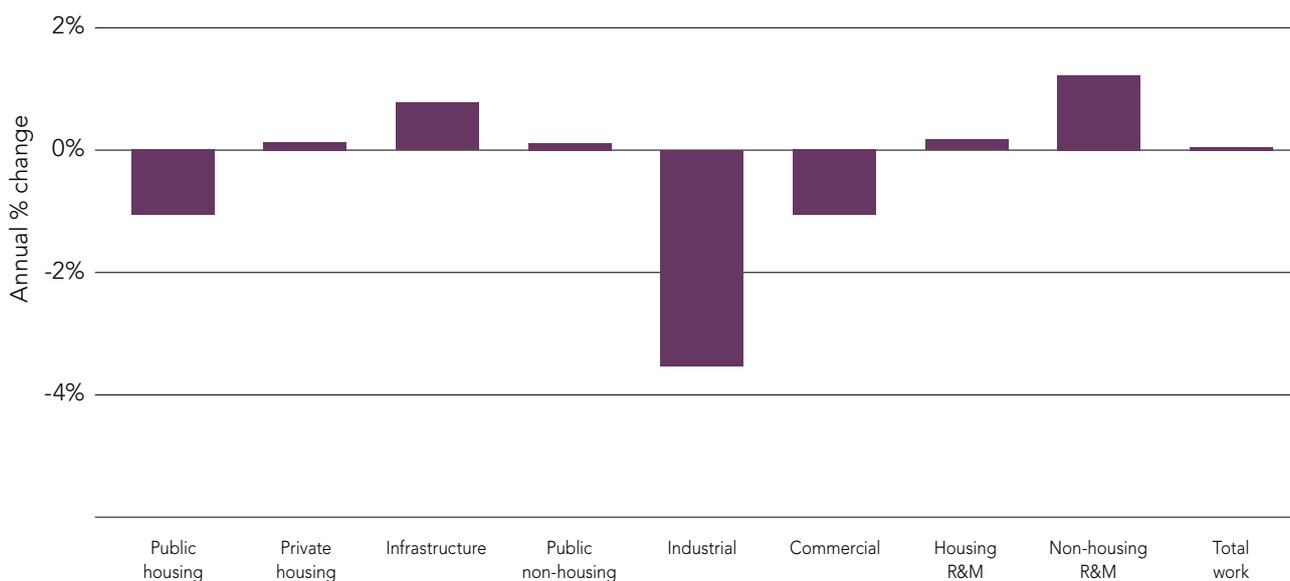


CONSTRUCTION OUTPUT – EAST MIDLANDS (£ MILLION, 2013 PRICES)

	Estimate	Forecast annual % change					Annual average
	2016	2017	2018	2019	2020	2021	2017-2021
Public housing	164	-8%	-4%	4%	-1%	4%	-1.0%
Private housing	1,724	2%	2%	-6%	1%	2%	0.1%
Infrastructure	1,329	-1%	6%	1%	1%	-2%	0.8%
Public non-housing	664	3%	2%	-1%	-5%	2%	0.1%
Industrial	555	-8%	-2%	-2%	-3%	-3%	-3.5%
Commercial	1,055	-2%	-4%	1%	1%	-1%	-0.9%
New work	5,490	-1%	1%	-2%	0%	0%	-0.3%
Housing R&M	1,172	-1%	-1%	0%	0%	2%	0.1%
Non-housing R&M	1,387	3%	1%	1%	1%	0%	1.2%
R&M	2,559	1%	0%	1%	0%	1%	0.7%
Total work	8,049	0%	1%	-1%	0%	0%	0.0%

Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2017-2021 – EAST MIDLANDS



Source: CSN, Experian.
Ref: CSN Explained.

CONSTRUCTION EMPLOYMENT FORECASTS FOR THE EAST MIDLANDS

TOTAL CONSTRUCTION EMPLOYMENT FORECASTS BY OCCUPATION

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

Total construction employment in the East Midlands is expected to fall at an annual average rate of 0.3% in the five years to 2021. This compares to an increase of 0.6% at the national level. In numbers' terms this sees employment fall from an estimate of just over 170,000 in 2016 to around 168,000 in 2021.

Of the 28 occupational aggregates less than half (11) are set to grow between 2016 and 2021. Civil engineers (3%), plant mechanics (2.6%) and construction project managers (2.5%) are forecast to achieve the largest gains. In contrast, non-construction operatives (-3.7%), plant operatives (-3.5%) and logistics (-2.9%) are set for the sharpest falls.



TOTAL EMPLOYMENT BY OCCUPATION – EAST MIDLANDS

	Actual	Estimate	Forecast	
	2015	2016	2017	2021
Senior, executive, and business process managers	13,110	12,910	12,860	12,360
Construction project managers	1,960	2,010	2,100	2,270
Other construction process managers	14,540	14,400	14,640	14,960
Non-construction professional, technical, IT, and other office-based staff	22,090	23,130	23,370	23,130
Construction trades supervisors	1,600	1,760	1,750	1,750
Wood trades and interior fit-out	17,500	17,120	17,090	15,410
Bricklayers	3,770	3,860	3,930	3,770
Building envelope specialists	7,560	7,640	7,860	7,640
Painters and decorators	6,050	6,060	6,180	5,900
Plasterers	4,650	4,670	4,700	4,440
Roofers	2,070	2,000	2,030	1,890
Floorers	1,630	1,580	1,600	1,500
Glaziers	2,530	2,510	2,640	2,710
Specialist building operatives nec*	5,390	5,320	5,700	5,820
Scaffolders	520	580	560	550
Plant operatives	3,350	3,370	3,270	2,820
Plant mechanics/fitters	3,080	3,070	3,290	3,490
Steel erectors/structural fabrication	1,570	1,520	1,580	1,560
Labourers nec*	7,870	7,850	7,760	7,330
Electrical trades and installation	13,630	12,940	13,230	12,560
Plumbing and HVAC Trades	9,600	9,900	10,040	9,610
Logistics	1,370	1,370	1,320	1,180
Civil engineering operatives nec*	1,780	1,860	1,940	1,990
Non-construction operatives	2,580	2,610	2,520	2,160
Civil engineers	3,420	3,610	3,760	4,190
Other construction professionals and technical staff	10,190	10,740	10,760	11,000
Architects	700	740	720	660
Surveyors	4,810	5,130	5,160	5,310
Total (SIC 41-43)	149,800	150,040	151,960	146,800
Total (SIC 41-43, 71.1, 74.9)	168,920	170,260	172,360	167,960

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

ANNUAL RECRUITMENT REQUIREMENT (ARR) BY OCCUPATION

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

The ARR for the East Midlands is projected to be 1,770 for the 2017 to 2021 period. This represents 1% of base 2017 employment, a lower ratio than the UK's at 1.4%. Five occupational categories were flagged as having medium requirements (ARRs between 2.6% and 5% of base 2017 employment). These were specialist building operatives (3.5%), steel erectors/structural fabrication (3.2%), civil engineers (3.2%) construction trades supervisors (2.9%) and painters and decorators (2.8%). All the remaining occupational categories (22) were flagged as having low requirements. In absolute terms only the non-construction

professional, technical, IT and other office-based staff, wood trades and interior fit-out, and specialist building operatives categories had ARR of 200 or more. Most categories had ARR below 100, with more than half having an ARR of no appreciable requirement.

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

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



ANNUAL RECRUITMENT REQUIREMENT BY OCCUPATION – EAST MIDLANDS

	2017-2021
Senior, executive, and business process managers	–
Construction project managers	<50
Other construction process managers	180
Non-construction professional, technical, IT, and other office-based staff	320
Construction trades supervisors	50
Wood trades and interior fit-out	200
Bricklayers	<50
Building envelope specialists	<50
Painters and decorators	170
Plasterers	70
Roofers	–
Floorers	–
Glaziers	60
Specialist building operatives nec*	200
Scaffolders	<50
Plant operatives	–
Plant mechanics/fitters	<50
Steel erectors/structural fabrication	50
Labourers nec*	–
Electrical trades and installation	160
Plumbing and HVAC Trades	80
Logistics	–
Civil engineering operatives nec*	<50
Civil engineers	120
Other construction professionals and technical staff	–
Architects	–
Surveyors	–
Total (SIC 41-43)	1,650
Total (SIC 41-43, 71.1, 74.9)	1,770

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

COMPARISONS ACROSS THE UK

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

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

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

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

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

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

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

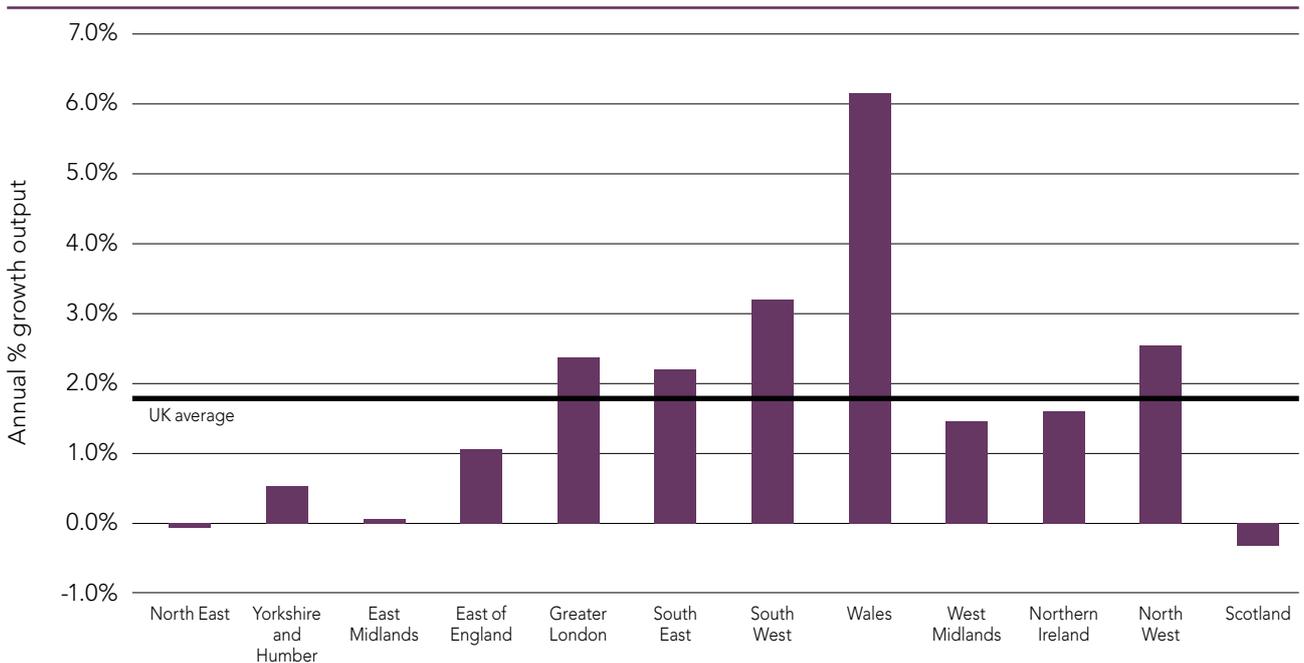
high of 2.7% in Wales to a low of -0.8% in Scotland, against a UK rate of 0.6%.

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

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

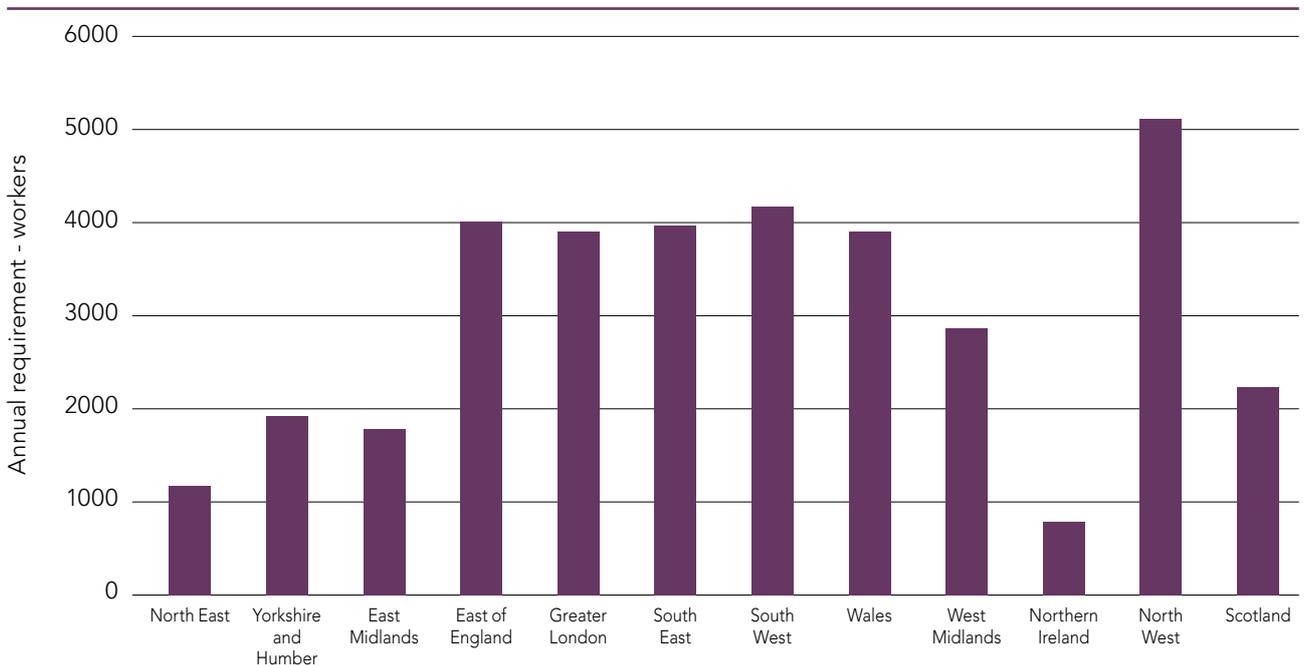
The pattern of annual recruitment requirements can look significantly different to the profile of output and employment, as some regions and devolved nations have historically strong net inflows and some suffer from large net outflows. Thus, Greater London's ARR represents just 0.9% of base 2017 employment,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

ANNUAL AVERAGE OUTPUT GROWTH BY REGION 2017-2021



Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL RECRUITMENT REQUIREMENT (ARR) BY REGION 2017-2021



Source: CSN, Experian.

▀▀ The annual average recruitment requirement (ARR) for the East Midlands is projected to be 1,770 for the 2017 to 2021 period. ▀▀

CSN EXPLAINED

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

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

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

NOTES has some further information relating to the data sources used for the various charts and tables. This section also outlines what is meant by the term 'footprint', when talking about the areas of responsibility.

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

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

CSN METHODOLOGY

BACKGROUND

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

The CSN functions at both a national and regional level. It comprises a National Group, 12 Observatory groups, a forecasting model for each of the regions and countries, and a Technical Reference Group. An Observatory group currently operates in each of the nine English regions and also in Wales, Scotland and Northern Ireland.

Observatory groups currently meet twice a year and consist of key regional stakeholders invited from industry, Government, education and sector bodies, all of whom contribute their local industry knowledge and views on training, skills, recruitment, qualifications and policy. The National Group also includes the same range of representatives and meets twice per year to set the national scheme, forming a backdrop for the Observatories.

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

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

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

THE MODEL APPROACH

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

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

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

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

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

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

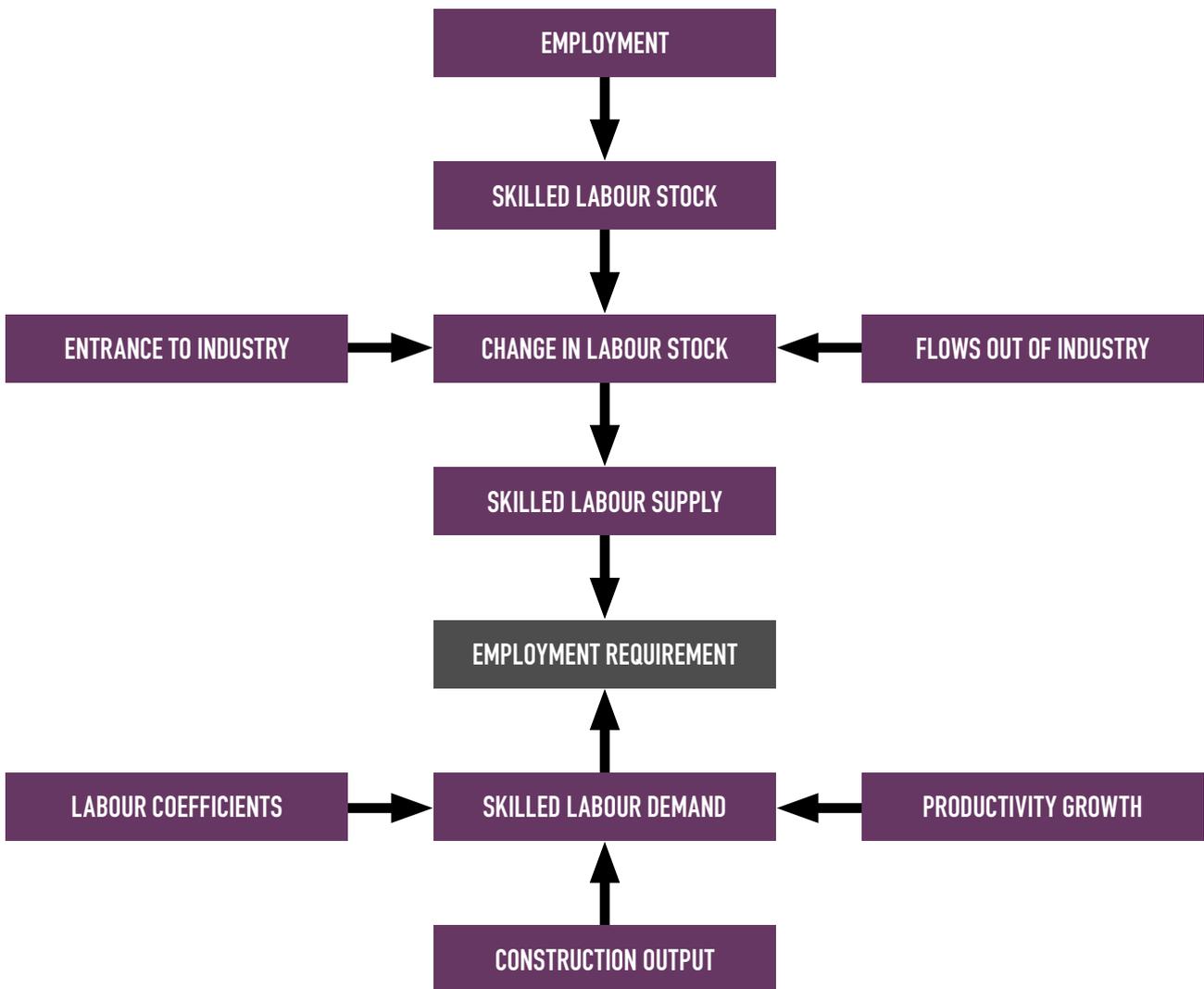
- Transfers to other industries
- International/domestic out migration
- Permanent retirements (including permanent sickness)
- Outflow to temporary sickness and home duties.

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

Flows into the labour market include:

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

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



GLOSSARY OF TERMS

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

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

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

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

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

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

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

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

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

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

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

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

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

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



NOTES

NOTES

- 1 Except for Northern Ireland, output data for the English regions, Scotland and Wales is supplied by the Office for National Statistics (ONS) on a current price basis. Thus, national deflators produced by the ONS have been used to deflate prices to a 2005 constant price basis, so that the effects of inflation have been stripped out.
- 2 The annual average growth rate of output is a compound average growth rate, i.e. the rate at which output would grow each year if it increased steadily over the forecast period.
- 3 Only selected components of gross value added (GVA) are shown in this table and so do not sum to the total.
- 4 For new construction orders, comparison is made with Great Britain rather than the UK, owing to the fact that there are no orders data series for Northern Ireland.
- 5 Employment numbers are rounded to the nearest 10.
- 6 The tables include data relating to plumbers and electricians. As part of SIC 43, plumbers and electricians working in contracting are an integral part of the construction process.
- 7 A reporting minimum of 50 is used for the annual recruitment requirement (ARR). As a result, some region and devolved nation ARR forecasts do not sum to the total UK requirement.
- 8 The Employment and ARR tables show separate totals for SIC 41–43 and SIC 41–43, 71.1 and 74.9. The total for SIC 41–43 covers the first 24 occupational groups on the relevant tables and excludes civil engineers, other construction professionals and technical staff, architects and surveyors. The total for SIC 41–43, 71.1 and 74.9 includes all occupations.



FOOTPRINTS FOR BUILT ENVIRONMENT SECTOR

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

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

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

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

DEFINITIONS: TYPES AND EXAMPLES OF CONSTRUCTION WORK

Public sector housing – local authorities and housing associations, new towns and government departments

Housing schemes, care homes for the elderly and the provision within housing sites of roads and services for gas, water, electricity, sewage and drainage.

Private sector housing

All privately owned buildings for residential use, such as houses, flats and maisonettes, bungalows, cottages and the provision of services to new developments.

Infrastructure – public and private

Water

Reservoirs, purification plants, dams, water works, pumping stations, water mains, hydraulic works etc.

Sewerage

Sewage disposal works, laying of sewers and surface drains.

Electricity

Building and civil engineering work for electrical undertakings, such as power stations, dams and other works on hydroelectric schemes, onshore wind farms and decommissioning of nuclear power stations.

Gas, communications, air transport

Gas works, gas mains and gas storage; post offices, sorting offices, telephone exchanges, switching centres etc.; air terminals, runways, hangars, reception halls, radar installations.

Railways

Permanent way, tunnels, bridges, cuttings, stations, engine sheds etc., signalling and other control systems and electrification of both surface and underground railways.

Harbours

All works and buildings directly connected with harbours, wharves, docks, piers, jetties, canals and waterways, sea walls, embankments and water defences.

Roads

Roads, pavements, bridges, footpaths, lighting, tunnels, flyovers, fencing etc.

Public non-residential construction¹

Factories and warehouses

Publicly owned factories, warehouses, skill centres.

Oil, steel, coal

Now restricted to remedial works for public sector residual bodies.

Schools, colleges, universities

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

Health

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

Offices

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

Entertainment

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

Garages

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

Shops

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

Agriculture

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

Miscellaneous

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

Private industrial work

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

Private commercial work¹

Schools and universities

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

Health

Private hospitals, nursing homes, clinics.

Offices

Office buildings, banks.

Entertainment

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

Garages

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

Shops

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

Agriculture

All buildings and work on farms, horticultural establishments.

Miscellaneous

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

New work

New housing

Construction of new houses, flats, bungalows only.

All other types of work

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

Repair and maintenance

Housing

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

All other sectors:

Repair and maintenance work of all types, including planned and contractual maintenance.³



¹ Where contracts for the construction or improvement of non-residential buildings used for public service provision, such as hospitals, are awarded by private sector holders of contracts awarded under the Private Finance Initiative, the work is classified as 'private commercial'.

² Contractors reporting work may not always be aware of the distinction between improvement or renovation work and repair and maintenance work in the non-residential sectors.

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

OCCUPATIONAL GROUPS

Occupational group

Description, SOC (2010) reference.

Senior, executive, and business process managers

Chief executives and senior officials	1115
Financial managers and directors	1131
Marketing and sales directors	1132
Purchasing managers and directors	1133
Human resource managers and directors	1135
Property, housing and estate managers	1251
Information technology and telecommunications directors	1136
Research and development managers	2150
Managers and directors in storage and warehousing	1162
Managers and proprietors in other services nec*	1259
Functional managers and directors nec*	1139
IT specialist managers	2133
IT project and programme managers	2134
Financial accounts managers	3538
Sales accounts and business development managers	3545

Construction project managers

Construction project managers and related professionals	2436
---	------

Other construction process managers

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

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

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

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

Construction trades supervisors

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

Wood trades and interior fit-out

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

Bricklayers

Bricklayers and masons	5312
------------------------	------

Building envelope specialists			
Construction and building trades nec* (50%)	5319		
Painters and decorators			
Painters and decorators	5323		
Construction and building trades nec* (5%)	5319		
Plasterers			
Plasterers	5321		
Roofers			
Roofers, roof tilers and slaters	5313		
Floorers			
Floorers and wall tilers	5322		
Glaziers			
Glaziers, window fabricators and fitters	5316		
Construction and building trades nec* (5%)	5319		
Specialist building operatives not elsewhere classified (nec*)			
Construction operatives nec* (100%)	8149		
Construction and building trades nec* (5%)	5319		
Industrial cleaning process occupations	9132		
Other skilled trades nec*	5449		
Scaffolders			
Scaffolders, staggers and riggers	8141		
Plant operatives			
Crane drivers	8221		
Plant and machine operatives nec*	8129		
Fork-lift truck drivers	8222		
Mobile machine drivers and operatives nec*	8229		
Plant mechanics/fitters			
Metalworking production and maintenance fitters	5223		
Precision instrument makers and repairers	5224		
Vehicle technicians, mechanics and electricians	5231		
Elementary process plant occupations nec*	9139		
Tool makers, tool fitters and markers-out	5222		
Vehicle body builders and repairers	5232		
Steel erectors/structural fabrication			
Steel erectors	5311		
Welding trades	5215		
Metal plate workers and riveters	5214		
Construction and building trades nec* (5%)	5319		
Smiths and forge workers	5211		
Metal machining setters and setter-operators	5221		
Labourers nec*			
Elementary construction occupations (100%)	9120		
Electrical trades and installation			
Electricians and electrical fitters	5241		
Electrical and electronic trades nec*	5249		
Telecommunications engineers	5242		
Plumbing and heating, ventilation, and air conditioning trades			
Plumbers and heating and ventilating engineers	5314		
Pipe fitters	5216		
Construction and building trades nec* (5%)	5319		
Air-conditioning and refrigeration engineers	5225		
Logistics			
Large goods vehicle drivers		8211	
Van drivers		8212	
Elementary storage occupations		9260	
Buyers and purchasing officers (50%)		3541	
Transport and distribution clerks and assistants		4134	
Civil engineering operatives not elsewhere classified (nec*)			
Road construction operatives		8142	
Rail construction and maintenance operatives		8143	
Quarry workers and related operatives		8123	
Non-construction operatives			
Metal making and treating process operatives		8117	
Process operatives nec*		8119	
Metalworking machine operatives		8125	
Water and sewerage plant operatives		8126	
Assemblers (vehicles and metal goods)		8132	
Routine inspectors and testers		8133	
Assemblers and routine operatives nec*		8139	
Elementary security occupations nec*		9249	
Cleaners and domestics*		9233	
Street cleaners		9232	
Gardeners and landscape gardeners		5113	
Caretakers		6232	
Security guards and related occupations		9241	
Protective service associate professionals nec*		3319	
Civil engineers			
Civil engineers		2121	
Other construction professionals and technical staff			
Mechanical engineers		2122	
Electrical engineers		2123	
Design and development engineers		2126	
Production and process engineers		2127	
Quality control and planning engineers		2461	
Engineering professionals nec*		2129	
Electrical and electronics technicians		3112	
Engineering technicians		3113	
Building and civil engineering technicians		3114	
Science, engineering and production technicians nec*		3119	
Architectural and town planning technicians*		3121	
Draughtspersons		3122	
Quality assurance technicians		3115	
Town planning officers		2432	
Electronics engineers		2124	
Chartered architectural technologists		2435	
Estimators, valuers and assessors		3531	
Planning, process and production technicians		3116	
Architects			
Architects		2431	
Surveyors			
Quantity surveyors		2433	
Chartered surveyors		2434	

*Not elsewhere classified

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

Adam Evans

Research Analyst

0300 456 7226

adam.evans@citb.co.uk

citb.co.uk/csn



In association with

