CITB RESEARCH

INDUSTRY INSIGHTS

EAST MIDLANDS

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.

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SUMMARY – EAST MIDLANDS

Construction output in the East Midlands is forecast to increase at an annual average rate of 0.5% in the 2018–2022 period, this compares unfavourably to projected growth of 1.3% at the UK level. Given the relative weakness in construction output gains, employment is expected to fall by 0.2% a year on average between 2018 and 2022, compared to annual average increases of 0.5% nationally. The annual recruitment requirement (ARR) for the region is projected to be 1,720 for the same period, representing 1% of base 2018 employment, a lower ratio than the UK's at 1.2%.

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

4.6%

Employment is forecast to decline by

0.2%

a year on average

The East Midlands has an ARR of

1,720

KEY FINDINGS

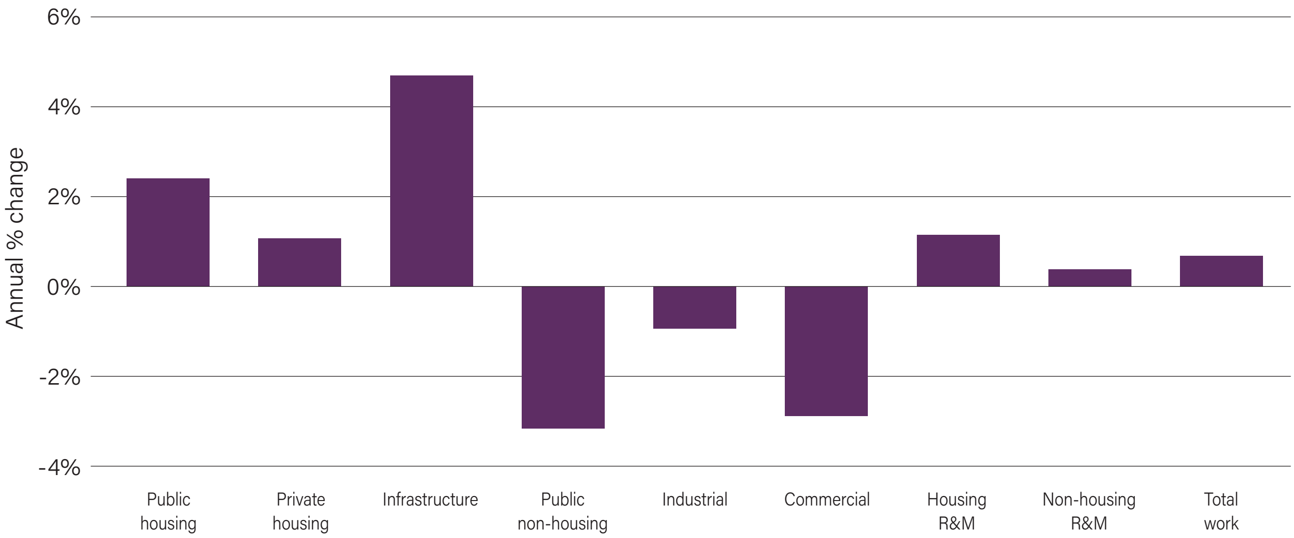
Total construction output in the East Midlands rose by 6% in 2016 to £8.7bn in 2015 prices, broadly in line with the 2015 gain. Construction output had been rising since 2013 though it remained below the pre-recession peak of nearly £10bn. The commercial sector drove the gains in 2016, with output increasing by 47%, to £1.4bn, the first increase in six years, and the largest outturn since 2010. The infrastructure and public non-housing sectors also made decent gains, at 9% and 8% respectively, building on growth of 47% and 14% in 2015. At £1.3bn infrastructure output was at an all-time high.

In 2017 construction output in 2015 prices is estimated to have fallen by 1%, putting an end to three years of solid growth. Beyond this, in the 2018–2022 period annual average growth is expected to come in at 0.5% a year. Annual gains of 2% in 2020 and 1% in 2022 underline the improved outlook in the long term.

The pattern of growth amongst the components of total construction sees the infrastructure sector grow most strongly, at an annual average rate of 4.6%, aided partly by the build-up of work related to HS2 and the expectation that a large offshore wind farm will be built, at Triton Knoll, in Mablethorpe, Lincolnshire. The public and private housing sectors remain middling performers, with growth projected to average 2.3% and 1% respectively. In the public non-housing, commercial and industrial sectors output is anticipated to fall by -3.3%, -3.1% and -0.8% on an annual average basis.

Total construction employment is forecast to fall at an annual average rate of 0.2% in the five years to 2022. This compares unfavourably to a projected gain of 0.5% at the national level, and sees employment drop from an estimate of over 180,000 in 2017, to below 179,000 in 2022. Of the 28 occupational aggregates, only 15 are expected to register employment growth in this period. The ARR for the East Midlands is projected to be 1,720 for the 2018–2022 period. This represents 1% of base 2018 employment, a lower ratio than the UK's at 1.2%. None of the 28 occupational categories were flagged as having a high ARR requirement (over 5% of base 2018 employment).

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 – EAST MIDLANDS



Source: CSN, Experian.
Ref: CSN Explained.

REGIONAL COMPARISON 2018-2022

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

Source: CSN, Experian.
Ref: CSN Explained.

> Construction output growth is forecast to average 0.5% a year, focussed on Public/Private Housing and Infrastructure.

THE OUTLOOK FOR CONSTRUCTION IN THE EAST MIDLANDS

CONSTRUCTION OUTPUT IN THE EAST MIDLANDS – OVERVIEW

Total construction output in the East Midlands rose by 6% in 2016 to £8.7bn in 2015 prices, broadly in line with the 2015 gain. Construction output had been rising since 2013, though remained below the pre-recession peak of close to £10bn.

INDUSTRY STRUCTURE

The diagram, Construction Industry structure 2016 – UK vs. the East Midlands, 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.

Infrastructure (15% vs. 12%) and industrial (7% vs. 3%) construction output made up somewhat larger shares of total output in the East Midlands than nationally in 2016, supported by relatively strong growth in the former. In contrast, the commercial sector continued to be underrepresented (16% vs. 19%), despite a far larger annual gain in the region than at the UK level in 2016. However, the biggest structural difference between the construction industry in the East Midlands and the UK is the much smaller share, 13%, that housing repair and maintenance (R&M) takes in the former compared with the latter (18%). This contributes to a market that is more weighted towards new work than the UK as a whole (69% vs. 64%).

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 Midlands grew by 1.9% to an all-time high of £98.3bn in 2013 prices. GVA growth was up compared to the 1.3% posted in 2015, but well down on the 2014 gain of 3.5%.

Output in the wholesale and retail sector grew by a robust 4.5%. Professional services, registered a healthy 2.3% increase, while manufacturing output rose by 1.4%. Conversely, there was a 0.2% fall in output in the public services sector.

ECONOMIC STRUCTURE

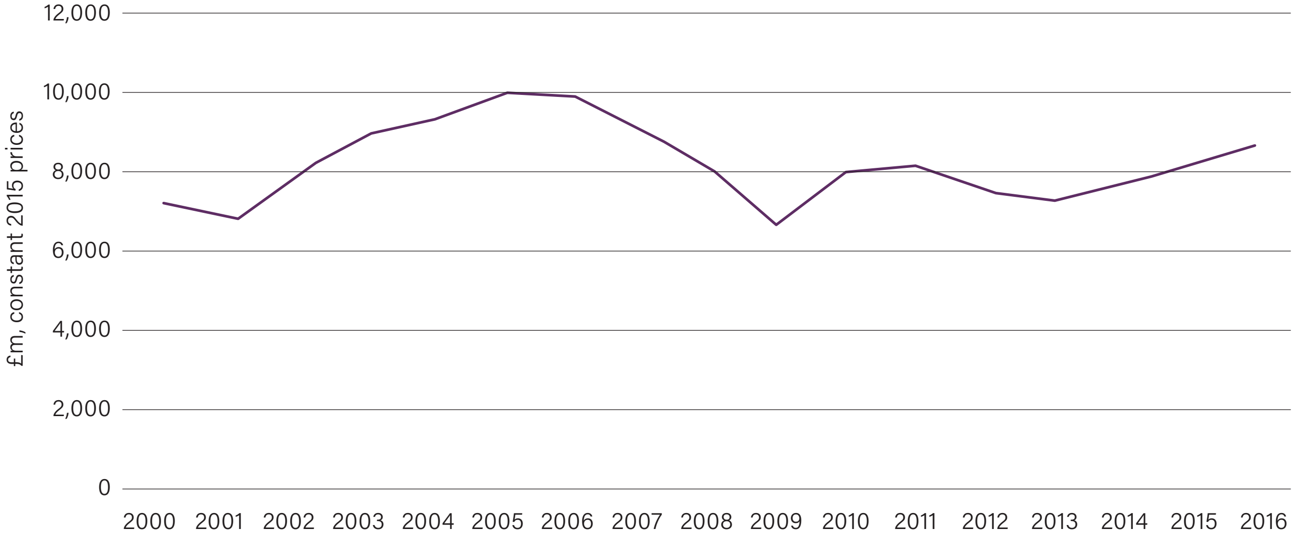
Despite registering healthy output growth in 2016, the professional service sector remains underrepresented compared to the UK average, accounting for 24.4% of output, as opposed to 27.6%. The strong growth in the wholesale and retail sector was reflected in an increased share in the region to 14.1%, from 13.7% in 2015. This compares to 11.4% nationally in 2016.

The underperforming public service sector makes up a larger share of output in the East Midlands, than nationally, at 18.7%, against 17.7%. Furthermore, the sectors' share of output in the region has risen by 0.3% since 2006, while nationally it has fallen by 0.7%. The manufacturing sector is also overrepresented at 16.8% against 9.8%.

FORWARD LOOKING ECONOMIC INDICATORS

Annual GVA growth in the East Midlands is estimated to have moderated to 1.7% in 2017, from 1.9% in 2016, taking GVA to a new high of £99.9bn. The gains are projected to ease further, to 1.5% in 2018.

CONSTRUCTION OUTPUT 2000-2016 – EAST MIDLANDS



Source: ONS.
Ref: CSN Explained.

CONSTRUCTION INDUSTRY STRUCTURE 2016 – UK VS EAST MIDLANDS

Sector	UK	East Midlands
Public housing	3%	2%
Infrastructure	12%	15%
Industrial	3%	7%
Housing R&M	19%	13%
Private housing	20%	21%
Public non-housing	7%	8%
Commercial	19%	16%
Non-housing R&M	17%	18%

Source: ONS, Experian.

UK East Midlands

ECONOMIC STRUCTURE – EAST MIDLANDS (£ BILLION, 2013 PRICES)

	Actual	Forecast (Annual % change, real terms)					
	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Professional & Other Private Services	24.0	2.1	1.8	1.9	2.0	2.3	2.8
Public Services	18.3	1.0	1.1	1.5	1.9	2.0	2.4
Manufacturing	16.5	1.6	1.1	1.5	1.2	1.1	1.4
Wholesale & Retail	13.9	1.8	1.4	1.8	2.0	2.4	3.0
Transport & storage	4.4	2.1	2.0	2.2	2.1	2.5	3.2
Total Gross Value Added (GVA)	**98.3**	**1.7**	**1.5**	**1.8**	**1.8**	**2.0**	**2.5**

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

Beyond this output, growth is anticipated to accelerate slowly, and average 1.9% in the 2018-2022 period. This broadly mirrors the likely trajectory of UK output, although by 2022 the gains at a national level are expected to be roughly a percentage point higher.

Sterling depreciated markedly following the European Union referendum result in June 2016, and the inflationary pressures this has created are having varying impacts on output amongst the different sectors. Real household disposable incomes in the region are estimated to have fallen by 0.3% in 2017. This is reflected in a marked slowdown in output growth in the wholesale and retail sector, to an estimated 1.8% in 2017, from 4.5% in 2016.

Somewhat surprisingly this has not prevented a pick-up in accommodation, food services & recreation output growth to an estimated 4.4%. Manufacturing output growth has also accelerated slightly, from 1.4% to 1.6%, supported in part by enhanced export price competitiveness.

Uncertainty created by the EU referendum result appears to have weighed on output gains in the information and communication, finance and insurance and professional services sectors. Estimated growth in the first more than halved to 2.2% between 2016 and 2017, while in the other two sectors deceleration was marginal.

Inflation and the influence of political uncertainty on the economy are expected to slowly ease in the 2018-2022 period, though output growth is anticipated to remain below its recent historical rate in the worst affected sectors until at least 2020. The wholesale and retail sector is likely to be the most adversely impacted.

In the same period the unemployment rate in the region is expected to rise slightly from 3.9% in 2017 to 4.1% in 2022, before falling back. However, this compares to a recent peak of 8% in 2012 and is well below its historic average. It also compares favourably to the slightly higher unemployment rate profile at the national level.

NEW CONSTRUCTION ORDERS – OVERVIEW

Total construction orders in the East Midlands fell by 19% in 2016, to £3.6bn in current prices. Excluding the 2015 level, when orders increased by 34%, this is the largest outturn since 2010.

The percentage increase in orders in 2015 was the largest on record, and was driven by strong gains in all sectors other than public and private housing. Particularly strong growth of 119% left infrastructure orders at a record high of £1.4bn.

These trends generally reversed in 2016. There was a return to growth in the public housing sector, at 30%, and private housing orders grew by 10.1%. However, at less than £100m and £1.1bn respectively, orders remain well down on their pre-financial crisis levels.

Conversely, in the infrastructure sector orders fell by 56%, to £594m. This is almost exactly in line with the average in the eight years prior to the bumper 2015 outturn. Public non-housing sector orders also fell, by 63%, to an historical low of just £234m

The commercial sector saw a second consecutive year of strong new orders growth in 2016, of 28%, building on the 30% increase in the previous year and taking their level up to £872m, their highest level since 2008.

ECONOMIC INDICATORS – EAST MIDLANDS (£ 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)	79.6	-0.3	1.1	1.2	1.5	1.7	2.1
Household spending (2013 prices)	87.2	1.9	0.6	1.5	2.1	2.2	2.2
Working age population (000s and as % of all)	2,919	61.9%	61.8%	61.8%	62.2%	62.1%	61.8%
House prices (£)	170,000	5.8	2.5	2.2	2.2	2.4	3.5
LFS unemployment (millions)	0.11	-12.9	2.2	5.3	3.8	-0.5	-4.8

Source: ONS, DCLG, Experian.

NEW CONSTRUCTION ORDERS GROWTH 2000-2016 – EAST MIDLANDS VS. GB

Source: ONS.
Ref: CSN Explained.

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

	Actual	Annual % change				
	2016	**2012**	**2013**	**2014**	**2015**	**2016**
Public housing	82	5.1	-3.2	-30.8	-24.1	30.2
Private housing	1,132	19.6	95.6	-20.7	-2.2	10.1
Infrastructure	594	116.5	-34.3	24.0	119.4	-56.3
Public non-housing	234	-30.6	20.7	-2.7	18.4	-62.9
Industrial	676	-28.9	80.4	29.7	35.2	2.3
Commercial	872	1.7	-15.1	-4.0	30.2	28.0
Total new work	**3,590**	**9.7**	**19.1**	**-3.4**	**34.1**	**-18.8**

Source: ONS.
Ref: CSN Explained.

NEW CONSTRUCTION ORDERS – CURRENT SITUATION

In the first three quarters of 2017 new construction orders totalled £4.5bn in current prices, a 52% increase on the same period of 2016. On a four-quarter moving total basis orders rose by 36% quarter-on-quarter in the third quarter of 2017, to £5.1bn, the highest they have been since the fourth quarter of 2006.

The increase has been driven almost entirely by the infrastructure sector, in which new orders more than quadrupled in the first three quarters of last year compared with the same period in 2016. The total for the third quarter of 2017, at £1.57bn, was the highest quarterly figure in the region since the series began in 1985 and represents the East Midland's share of contracts on the HS2 project. The strength of new orders growth in the infrastructure sector is reflected in the four-quarter moving total, which was up 129% quarter-on-quarter in in the third quarter of 2017.

In all other sectors except the industrial one, new orders fell sharply on a three-quarter on three-quarter basis. The largest contractions were in the public housing and public non-housing sectors, where orders fell by 71% and 25% respectively. They also dropped by 21% and 16% in the private housing and commercial sectors on the same basis.

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.

Construction output in the first three quarters of 2017 totalled £6.62bn in current prices, unchanged on the same period of the previous year. New work contracted by 4% but repair and maintenance (R&M) was up by 9%. The falls in new work were centred in the public non-housing and commercial construction sectors, with declines of 51% and 7% respectively. All the other new work sectors experienced rises in output, although except for the small public housing and industrial sectors, they were relatively modest.

In 2017 as a whole, construction output in 2015 prices is projected to fall by 1%, putting an end to three years of solid growth. Beyond this, output in the 2018-2019 period is expected to remain stable. Falling outturns in the public non-housing (-5% a year on average), industrial (-2.6% a year on average), and commercial (-7.4%) sectors are anticipated to marginally outweigh gains in the infrastructure (5.7%), public housing (1.2%) and private housing (2.2%) sectors.

The mild growth projected for the public housing sector in the 2018–2019 period comes off a very low base, and is underlined by a recent up-tick in housing starts. After falling by 10% in 2016, public sector housing starts grew by 23% comparing the first half of 2017 with the same period of 2016. A significant potential project in the pipeline is Leicester City Council's £30m council house improvement programme which would run between 2018 and 2020 if it gets the go ahead. Stronger growth is unlikely to materialise given a dearth of other projects.

Several ongoing, high value projects are expected to support a continuation of the decent output growth of recent years in the private housing sector in the 2018–2019 period. On the site of Gedling Colliery in Nottinghamshire, work is underway on a £64m project to build 1,000 new homes. This makes up only a small part of a scheme to build 7,250 homes in the area by 2028. Work has also commenced on construction of 500 homes under the first phase of the Berry Hill Mansfield development, a mixed-use scheme on the boundary of Nottingham and Mansfield.

In the infrastructure sector a healthy pipeline of work underlines the strong output growth outlook between 2018 and 2019. Work is already well underway at SEGRO Logistics Park East Midlands Gateway, having started in February 2017. SEGRO will fund £100m of infrastructure at the interchange, including a 50-acre rail terminal and extensive road improvements, designed to give the best possible connectivity to the 10 plots now available to occupiers. The project is expected to be completed by the end of 2019. However, the main engine of growth in 2019 will be work relating to the HS2 project. While the line itself only clips the south-west corner of Northamptonshire, there are plenty of ancillary works, such as depots, planned for the region.

The large fall in public non-housing construction orders in the first nine months of 2017 is anticipated to stifle output growth in the sector in the short-term. Furthermore, a distinct lack of sizeable projects in the pipeline provides little upside potential. One project that will contribute to output is the second phase of Loughborough University's science building refurbishment. The £30mn upgrade is currently underway, and is due for completion in the summer of 2019.

There were also large falls in construction orders in the first three quarters of 2017 in the industrial sector, which underlines the weak outlook for output. The largest project currently underway is the 261,000 square foot Nickel 28 distribution warehouse development in South Normanton, but this is due for completion in the third quarter of 2018.

In addition to a slump in orders in the first nine months of 2017, the commercial sector has a relatively large exposure to persistent uncertainty relating to the UK's withdrawal from the EU. The offices sub-sector appears to be particularly at risk, with the only evident major projects in the pipeline for the region falling under the retail sub-sector.

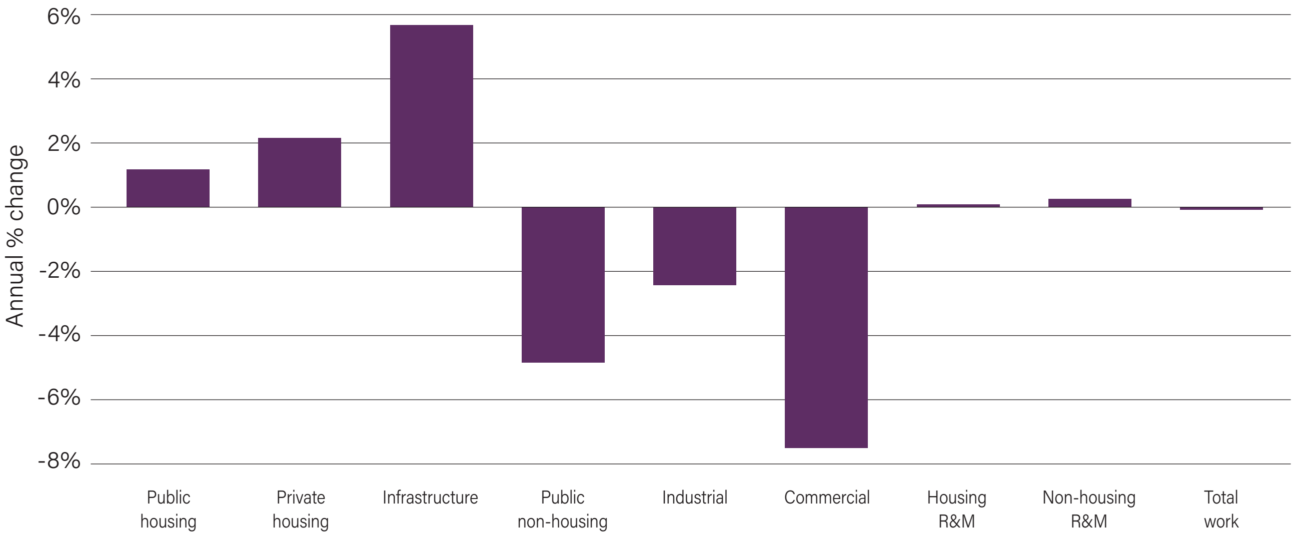
Two of the largest retail projects due to commence next year are an expansion of the Fosse Park shopping centre in Leicester, and the Broadmarsh shopping centre redevelopment in Nottingham. The projects will contribute £135m and £89m respectively to commercial construction output between 2018 and 2020. A £70m mixed-use commercial construction project named 'Derby Triangle' is also due to commence imminently and will include 780,000 square feet of offices, warehouses and industrial space, as well as a pub, restaurant and a car showroom.

CONSTRUCTION OUTPUT – EAST MIDLANDS (£ MILLION, 2015 PRICES)

	Actual	Forecast (Annual % change)			Annual average
	2016	2017	2018	2019	2018-2019
Public housing	188	5%	1%	2%	1.2%
Private housing	1,810	6%	2%	3%	2.2%
Infrastructure	1,289	-4%	3%	9%	5.7%
Public non-housing	695	-23%	-8%	-2%	-5.0%
Industrial	644	9%	-3%	-3%	-2.6%
Commercial	1,357	-7%	-7%	-8%	-7.4%
New work	**5,984**	**-2%**	**-1%**	**1%**	**-0.3%**
Housing R&M	1,165	7%	0%	0%	-0.1%
Non-housing R&M	1,515	-1%	0%	1%	0.5%
Total R&M	**2,681**	**2%**	**0%**	**0%**	**0.2%**
Total work	**8,664**	**-1%**	**-1%**	**1%**	**-0.1%**

Source: Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2019 – EAST MIDLANDS



Source: Experian.
Ref: CSN Explained.

> Employment is forecast to decline by 0.2% a year on average.

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

In the 2018-2022 period the annual average growth rate for total construction output is projected to come in at 0.5%, a mild improvement compared to the 2018–2019 period. Annual gains of 2% in 2020 and 1% in 2022 support the improved outlook.

The pattern of growth amongst the components of construction output remains broadly similar to the short-term. The infrastructure sector is anticipated to grow the most strongly, at an annual average rate of 4.6%. The public and private housing sectors remain middling performers, with growth projected to average 2.3% and 1% respectively. In the public non-housing, commercial and industrial sectors output is anticipated to fall by 3.3%, 3.1% and 0.8% on an annual average basis.

Infrastructure construction output is likely to be supported by works on a scaled-down version of the Triton Knoll offshore wind farm, in Mablethorpe, Lincolnshire. Furgo recently won a £3m contract to undertake a programme of seabed and sub-floor investigations making-up part of the preparatory works ahead of the construction of 160 6MW turbines. A final decision regarding investment is expected in 2018, with full onshore construction starting shortly after, and offshore construction starting in 2020. The first power from the project could be utilised as early as the first quarter of 2021 and part of the £2bn potential project cost, will be attributable to infrastructure construction output.

Output from the HS2 project in the region is expected to peak in 2020 and then start to tail off, contributing to strong overall growth in the sector in that year. Construction of a strategic rail freight interchange in South Derbyshire will also add around £250mn to infrastructure output in the East Midlands. A confirmed project of similar size is the £349mn upgrade of M1 junctions 13 to 19 to a Smart Motorway. The project will commence in March 2018, with completion expected in June 2021.

In the public and private housing sectors construction output will continue to benefit from a number of large projects due to commence in 2018 and 2019. As well as the ongoing programme to deliver over 7,000 new homes at Gedling colliery there are development prospects for Hanwood Park in Kettering, which would involve the construction of up 5,500 homes.

In the public non-housing, industrial and commercial sectors output is expected to continue to struggle from a lack of projects in the pipeline in the long-term forecast period. However, in the latter two sectors growth is anticipated to pick up somewhat in 2022, in line with an improvement in overall economic growth in the economy. The former sector is projected to be the worst performing, with output unlikely to grow meaningfully unless government spending in the region becomes more accommodating.

Previous research has indicated that disposable incomes and consumer spending tend to be the two variables that impact most on housing R&M expenditure. Thus, in a period when the former is under pressure and growth in the latter is decelerating, a slowing of growth at best, and a contraction at worst, in the housing R&M sector would be expected. However, across the UK as a whole, and in some regions, this relationship seems to have broken down in 2017, and this includes the East Midlands where output in the sector is estimated to have grown by 7% in real terms. It may be that a quieter housing market, in which national housing transactions have stalled at around 1.2 million for the past four years, is leading to home owners spending more on significant improvements to their properties rather than trading up. However, output in the sector is expected to stagnate over the next three years as a delayed reaction to the weaker consumer environment, before growth returns towards the end of the forecast period.

BEYOND 2022

High Speed 2, the high-speed railway linking London, Birmingham, the East Midlands, Leeds, Sheffield and Manchester, will continue to make a significant contribution to infrastructure construction output in the region beyond 2022. Under phase two of the project planned, a new station – the East Midlands hub – at Toton Sidings has been proposed, to serve Nottingham, Derby and Leicester.

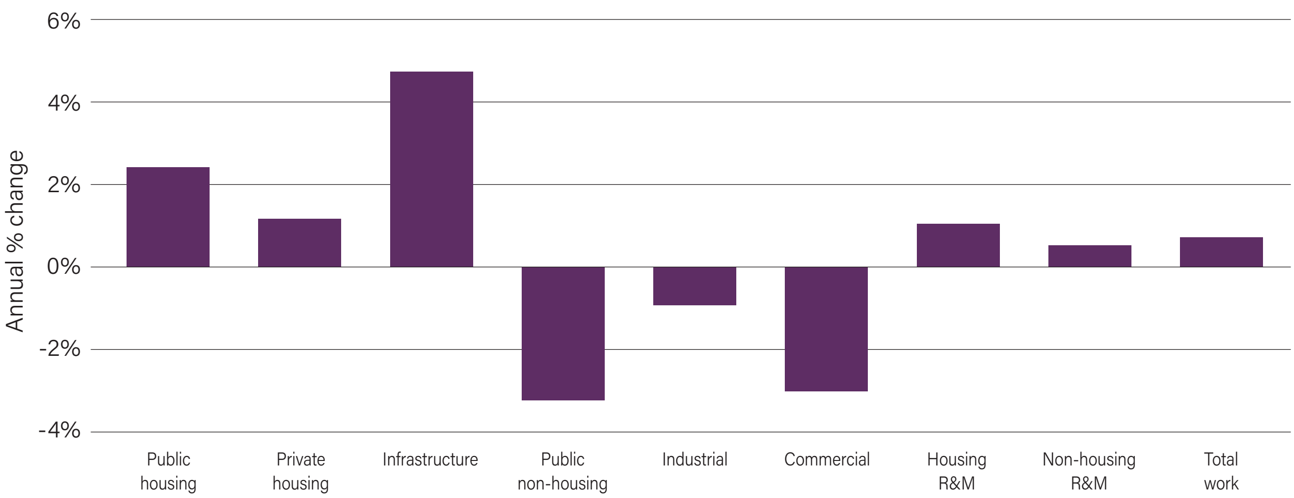
In addition, last year, the UK government unveiled 19 investment opportunities to the tune of £7bn, as part of the 'Midlands Engine' scheme. The projects, all or some of which could materialise beyond 2022, were presented to foreign investors and include a £1bn upgrade to Nottingham city centre, and redevelopment of a £625mn Science and Enterprise Park at Loughborough University, Leicestershire.

CONSTRUCTION OUTPUT – EAST MIDLANDS (£ MILLION, 2015 PRICES)

	Estimate	Forecast (Annual % change)					Annual average
	2017	2018	2019	2020	2021	2022	2018-2022
Public housing	198	1%	2%	0%	6%	4%	2.3%
Private housing	1,911	2%	3%	1%	-1%	1%	1.0%
Infrastructure	1,237	3%	9%	15%	-2%	0%	4.6%
Public non-housing	536	-8%	-2%	-5%	0%	-1%	-3.3%
Industrial	699	-3%	-3%	-2%	-1%	5%	-0.8%
Commercial	1,266	-7%	-8%	-3%	0%	3%	-3.1%
New work	**5,847**	**-1%**	**1%**	**2%**	**-1%**	**1%**	**0.5%**
Housing R&M	1,243	0%	0%	0%	4%	2%	1.0%
Non-housing R&M	1,502	0%	1%	1%	0%	0%	0.4%
Total R&M	**2,744**	**0%**	**0%**	**0%**	**2%**	**1%**	**0.7%**
Total work	**8,591**	**-1%**	**1%**	**2%**	**0%**	**1%**	**0.5%**

Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 – 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 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 Midlands reached 174,560 in 2016 according to data from the Labour Force Survey, a 3% increase on the previous year and its highest level since 2009. Further expansion to 180,780 is estimated for 2017, a 4% rise on 2016's level. These good rates of employment growth have come on the back of three years of strong output growth between 2014 and 2016, although 2017 was a less buoyant year.

Output growth over the 2018 to 2022 period is projected to be much less robust than in the recent past and not enough to drive further employment growth in the East Midlands. Thus, employment is expected to fall at an annual average rate of 0.2% in the five years to 2022. This compares to an estimated increase of 0.5% at the national level. In numbers terms this sees employment fall from an estimate of over 180,000 in 2017, to below 179,000 in 2022.

Of the 28 occupational aggregates, 15 are predicted to register employment growth between 2017 and 2022. The largest gains are anticipated for the civil engineers (3.5% a year on average), specialist building operatives (2.4%), and plant mechanics/fitters (1.7%).

As is the case at the UK level, the managerial/administrative and professional occupations are generally expected to fare better than the trades/manual ones.

TOTAL EMPLOYMENT BY OCCUPATION – EAST MIDLANDS

Annual recruitment requirement (ARR) by occupation

Occupation	Total employment 2018	Total employment 2022	ARR
Non-manual occupations			
Non-construction professional, technical, IT, and other office-based staff	27,070	26,850	330
Other construction process managers	13,290	13,810	190
Construction Trades Supervisors	1,900	1,890	<50
Construction Project Managers	2,420	2,510	<50
Senior, executive, and business process managers	11,390	11,540	–
Non–construction operatives	3,070	2,710	–
Manual occupations			
Specialist building operatives nec*	4,860	5,190	190
Painters and decorators	5,210	5,290	180
Wood trades and interior fit-out	18,210	16,530	160
Plumbing and HVAC Trades	11,740	11,570	120
Electrical trades and installation	16,360	15,400	90
Plasterers	5,600	5,390	90
Steel erectors/structural fabrication	1,370	1,410	50
Glaziers	3,140	3,200	50
Labourers nec*	8,900	8,550	<50
Bricklayers	4,590	4,490	<50
Scaffolders	570	560	<50
Building envelope specialists	8,510	8,520	<50
Civil engineering operatives nec*	2,250	2,320	<50
Plant operatives	3,920	3,460	–
Logistics	1,640	1,490	–
Roofers	1,780	1,750	–
Plant mechanics/fitters	3,880	4,100	–
Floorers	1,410	1,410	–
Professional occupations			
Civil engineers	3,080	3,510	110
Other construction professionals and technical staff	9,190	9,530	–
Surveyors	4,520	4,820	–
Architects	830	780	–

*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 ARR for the East Midlands is projected to be 1,720 for the 2018–2022 period. This represents 1% of base 2018 employment, a lower ratio than the UK's at 1.2%. None of the 28 occupational categories were flagged as having a high ARR requirement (more than 5% of base 2018 employment). Four occupations were deemed to be of medium requirement (between 2.6% and 5% of base 2018 employment), while the anticipated requirement for all the remaining occupations is low (up to 2.5% of base 2018 employment). The medium requirement occupations were specialist building operatives (3.9%), steel erectors/structural fabrication (3.6%), civil engineers (3.6%) and painters and decorators (3.5%). In absolute terms the highest ARR's are expected for non-construction professional, technical, IT, and other office-based staff (330), other construction process managers (190), specialist building operatives (190) and painters and decorators (180).

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 MIDLANDS

	2018-2022
Non-manual occupations	
Non-construction professional, technical, IT, and other office-based staff	330
Other construction process managers	190
Senior, executive, and business process managers	–
Construction trades supervisors	<50
Construction project managers	<50
Manual occupations	
Wood trades and interior fit-out	160
Labourers nec*	<50
Electrical trades and installation	90
Painters and decorators	180
Plumbing and HVAC Trades	120
Bricklayers	<50
Plant operatives	–
Logistics	–
Plasterers	90
Roofers	–
Scaffolders	<50
Specialist building operatives nec*	190
Building envelope specialists	<50
Steel erectors/structural fabrication	50
Glaziers	50
Plant mechanics/fitters	–
Floorers	–
Civil engineering operatives nec*	<50
Professional occupations	
Other construction professionals and technical staff	–
Civil engineers	110
Surveyors	–
Architects	–
Total (SIC 41-43)	**1,610**
Total (SIC 41-43, 71.1, 74.9)	**1,720**

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.

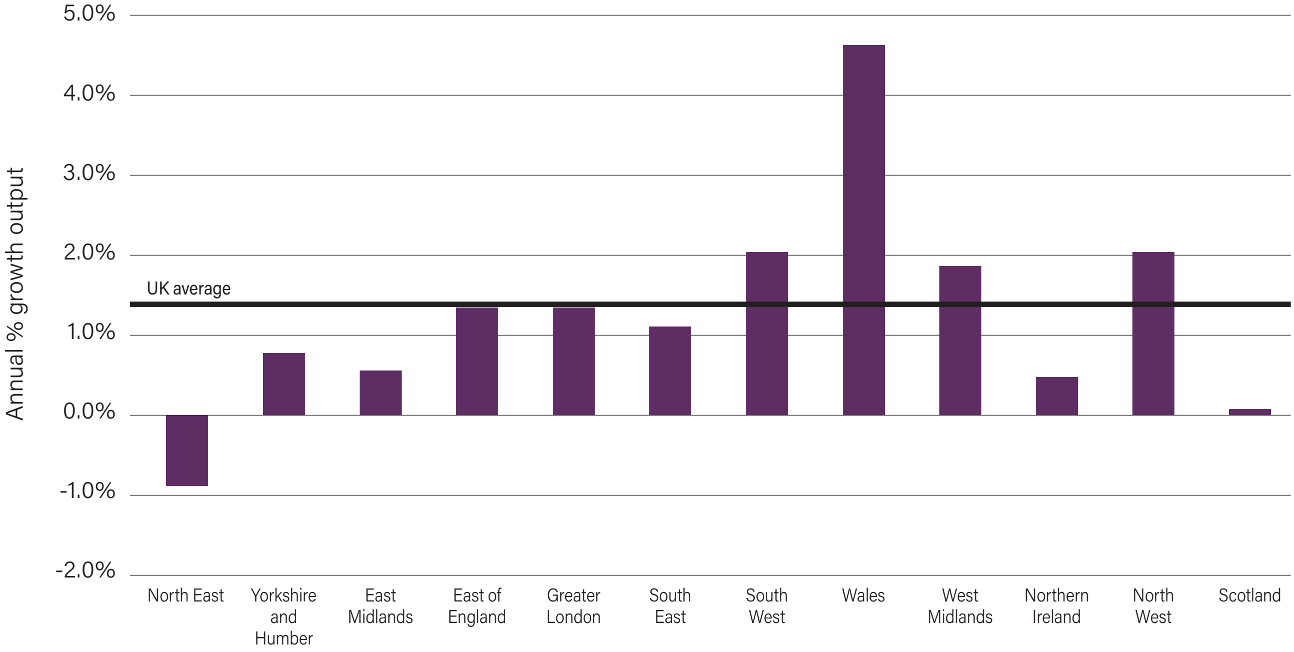
It is the case across the English regions that growth in the construction sector will tend to reflect expansion in the wider economy, unless the region benefits from the siting of major infrastructure projects. Both the South West and North West, which lead the English region growth rankings with 2% 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%.

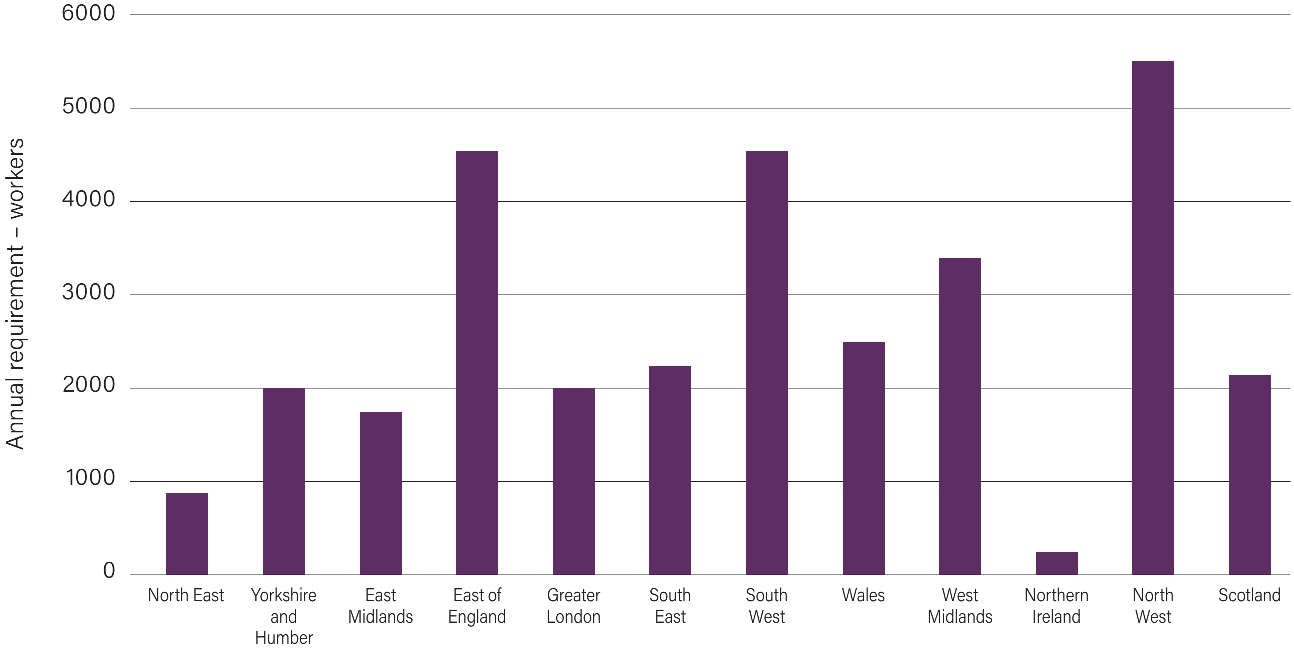
As the annual recruitment requirement (ARR) takes into account known supply-side factors, such as inter-regional labour movements and movements between other industries and construction, the pattern can look significantly different to the profile of output and employment, as some regions and devolved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

ANNUAL AVERAGE OUTPUT GROWTH BY REGION 2018-2022



Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL RECRUITMENT REQUIREMENT (ARR) BY REGION 2018-2022



Source: CSN, Experian.

> The East Midlands has an ARR of 1,720.

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:

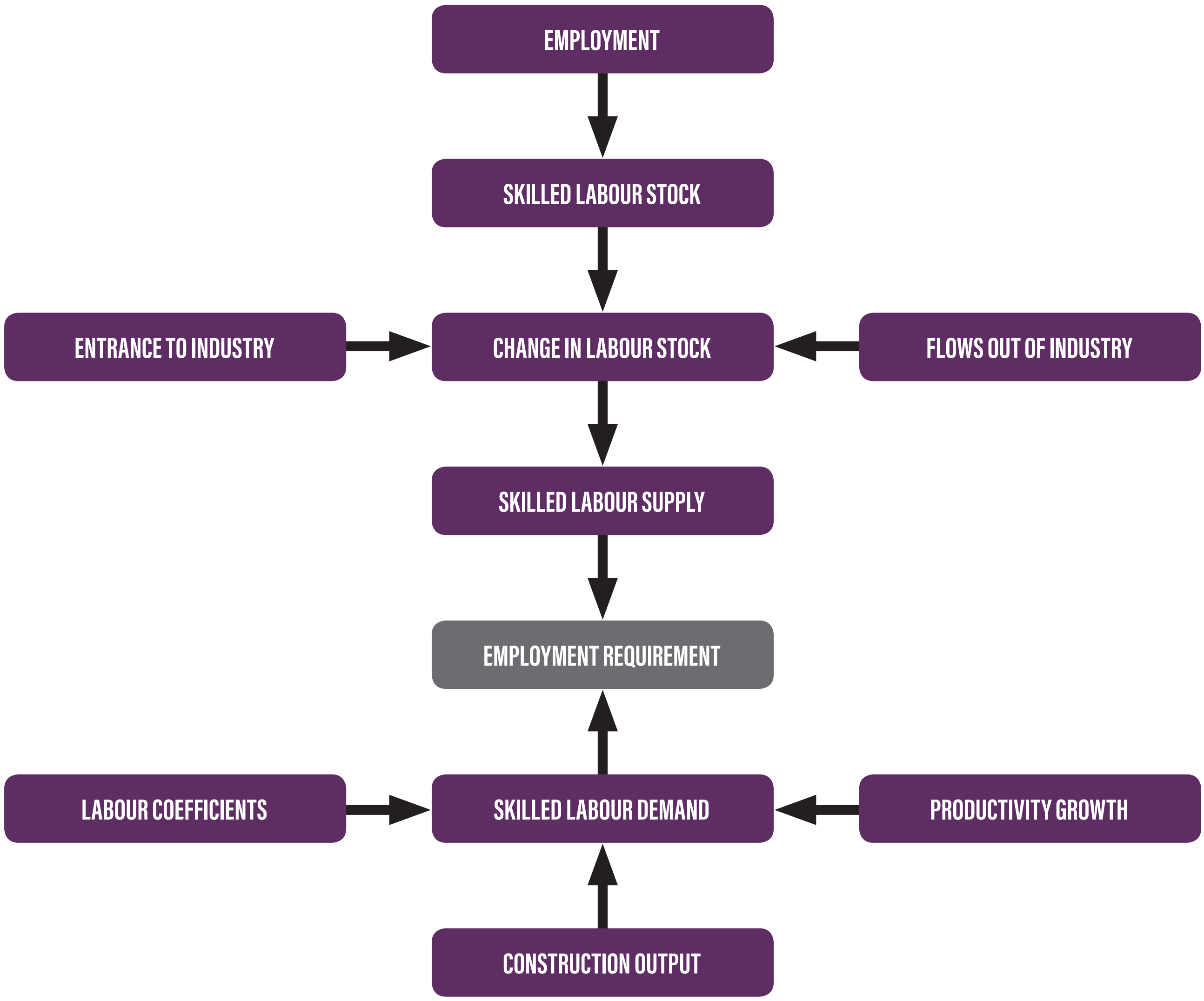
- Transfers to other industries
- International/domestic out migration
- Permanent retirements
  (Including permanent sickness)
- Outflow to temporary sickness and home duties.

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 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[1]

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[1]

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, stagers 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

CITB RESEARCH

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