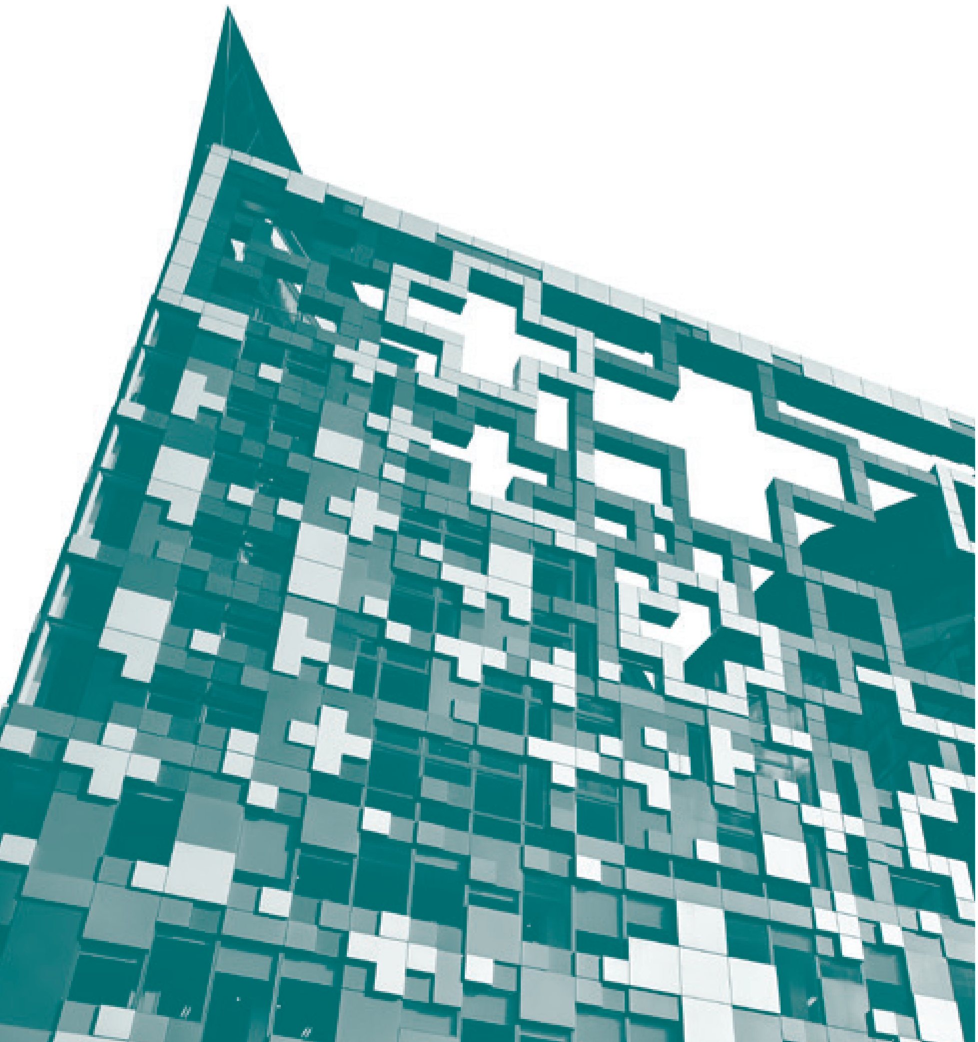
CITB RESEARCH

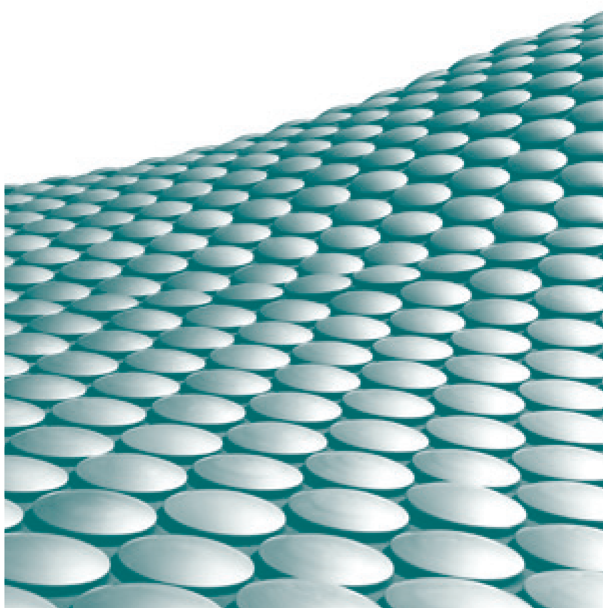
INDUSTRY INSIGHTS

WEST 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 – WEST MIDLANDS

Construction output in the West Midlands is forecast to grow at an annual average rate of 1.8% in the 2018-2022 period. This compares favourably to the expected gains of 1.3% at the UK level. It also represents an upgrade from last year's forecasts, which also saw a 1.3% rise in the region, in the five years to 2021. Employment is anticipated to grow at an annual average rate of 0.8% between 2018 and 2022, outperforming the UK average gains of 0.5%. The annual recruitment requirements (ARR) for the region is projected to be 3,390 in the same period. This represents 1.5% of base 2018 employment, a higher ratio than the UK's at 1.2%.

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

9.3%

Employment is forecast to grow by

0.8%

a year on average

The West Midlands has an ARR of

3,390

KEY FINDINGS

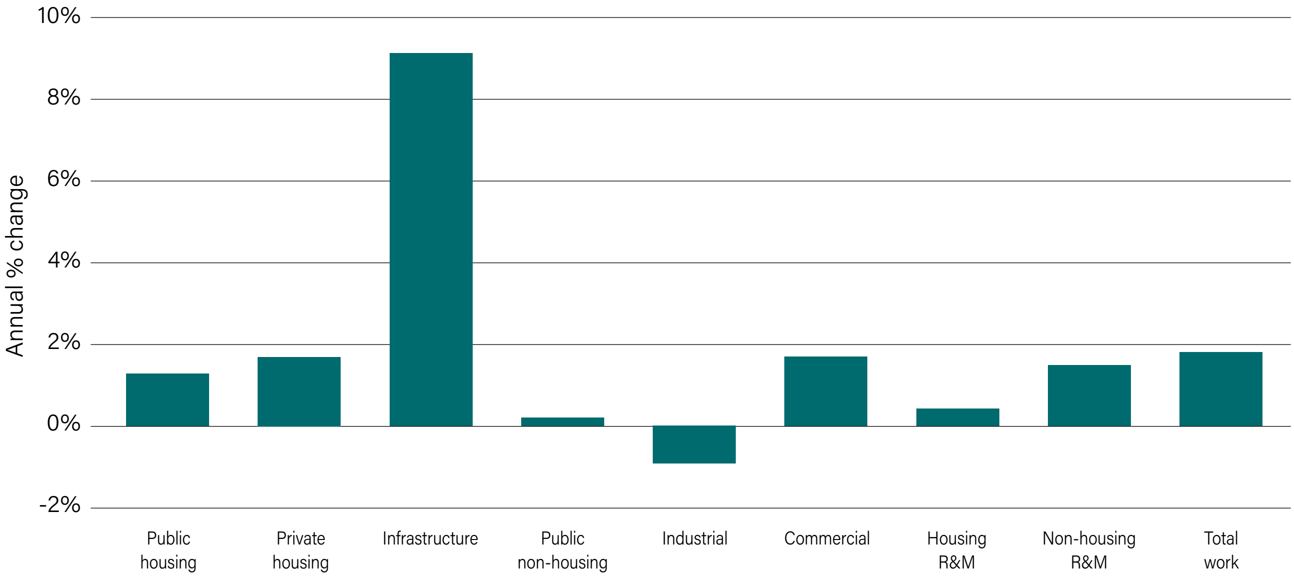
Total construction output in the West Midlands increased by 3% in 2016 to £11bn in 2015 prices. This follows gains of 8%, 8% and 4% in the three previous years, and the outturn was the highest it has been since 2006. The increase was driven by rises in output of 34% and 20% in the private housing and industrial sectors respectively. The former rose to an all-time high of £2.5bn. The infrastructure and commercial sectors also both grew, but by a much more moderate 5% and 3% respectively. Conversely, there were output declines of 4% and 8% in the public housing and public non-housing sectors.

The private housing and industrial sectors continued to contribute strongly to growth in the first three quarters of 2017, registering gains of between 28% and 17% in current prices compared with the same period a year earlier. In addition, the public housing sector turned around its weak 2016 performance, growing by 13%, from a low base, and in the commercial sector output appears to be trending up, growing by 22%. However, the infrastructure sector made by far the largest contribution to growth, doubling to over £1bn. The public non-housing sector did less well, with output falling by 8%.

Total construction output is expected to grow at an annual average rate of 1.8% in the 2018–2022 period, with the increases skewed slightly to the short-term. An anticipated 9.3% annual average increase in infrastructure construction output, including strong rises in 2020 and 2021, makes by far the largest contribution to growth. A number of large projects, including work on the HS2 scheme, and £250m of government funding to improve other transport in the region will contribute towards the gain. This is offset somewhat by an anticipated contraction of 0.8% in the industrial sector in the same period, and a gain of just 0.1% in public non-housing output.

Total construction employment is forecast to grow at an annual average rate of 0.8% in the five years to 2022, which compares favourably to an estimated gain of 0.5% at the national level. The majority of the 28 occupational categories (21) are expected to see an increase. The ARR for the West Midlands is projected to be 3,390 in the same period. This represents 1.5% of base 2018 employment, a higher ratio than the UK's at 1.2%. None of the occupational categories were flagged as having a high ARR requirement (more than 5% of base 2018 employment), however nine were deemed to have medium requirements (between 2.6% and 5% of base 2018 employment).

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 – WEST 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 in the West Midlands is forecast to grow at an annual average rate of 1.8% in the 2018-2022 period, which compares favourably to the expected gains of 1.3% at the UK level.

THE OUTLOOK FOR CONSTRUCTION IN THE WEST MIDLANDS

CONSTRUCTION OUTPUT IN THE WEST MIDLANDS – OVERVIEW

In the West Midlands construction output grew by 3% in 2016, to £11bn in 2015 prices. Growth moderated compared to the three previous years, when output rose by 8%, 8% and 4% respectively, however, in level terms the outturn is at its highest level since 2006.

The 2016 gain was driven by a 34% rise in private housing output, and a 20% gain in the industrial sector. There were also modest increases in output in the infrastructure and commercial sectors. The rises were partially offset by a 4% in the public housing sector, an 8% fall in the public non-housing sector, and an 11% decline in repair and maintenance (R&M) work.

INDUSTRY STRUCTURE

The diagram, Construction Industry structure 2016–UK vs. the West Midlands, illustrates the sector breakdown of construction in the West Midlands, compared to that in the UK. Effectively, the percentages for each sector illustrate what proportion of total output each sector accounts for.

Infrastructure construction output continued to be under-represented in the West Midlands in 2016, compared to the UK average. Between 2011 and 2016, infrastructures share of total output in the region has fallen from 10%, to 7%. This compares to a fall at the UK level from 13%, to 12%.

Conversely, the industrial sector remains over-represented, accounting for 6% of total construction output in 2016, compared to 3% nationally. This position was reinforced by a 20% increase in output in the sector last year, against a 7% contraction in the UK as a whole.

The private housing and non-housing R&M sectors are also somewhat over-represented in the region, both taking 3% larger shares than across the UK, while the housing R&M sector is proportionally 4% smaller in the West Midlands.

The share of new work in the West Midlands is similar to the UK's at 65% compared with 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.

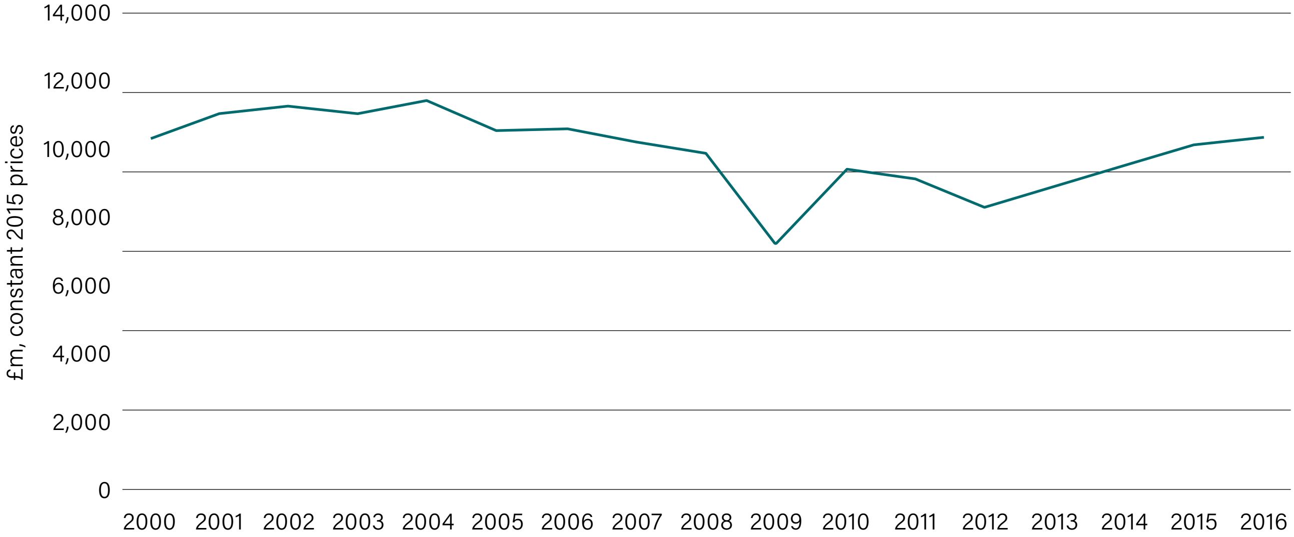
ECONOMIC STRUCTURE

Gross value added (GVA) in the West Midlands grew by 1.5% in 2016 to an all-time high of £119bn in 2013 prices. The rise was in line with the 2015 increase, though represents a significant slowdown compared to the 3.3% rise in 2014.

GVA growth in 2016 was primarily driven by output gains in the accommodation, food services and recreation and wholesale and retail sectors of 4.5% and 3.4% respectively. There was also a healthy rise in information and communication output of 3.2%, and a 2.8% rise in the professional and other private services sector.

In the utilities and transport and storage sectors growth was less assured, at under 2%. Finance and insurance and manufacturing registered marginal increases, while public services output fell by nearly 1%.

CONSTRUCTION OUTPUT 2000-2016 – WEST MIDLANDS



Source: ONS.
Ref: CSN Explained.

CONSTRUCTION INDUSTRY STRUCTURE 2016 – UK VS WEST MIDLANDS

	UK	West Midlands
Public housing	3%	3%
Infrastructure	12%	7%
Industrial	3%	6%
Housing R&M	19%	15%
Private housing	20%	23%
Public non-housing	7%	5%
Commercial	19%	21%
Non-housing R&M	17%	20%

Source: ONS, Experian.

UK West Midlands

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

	Actual	Forecast (Annual % change, real terms)					
	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Professional & Other Private Services	30.4	1.8	1.5	1.6	1.7	2.1	2.6
Public Services	22.0	1.1	1.1	1.4	1.8	2.1	2.5
Manufacturing	17.3	1.2	0.9	1.5	1.2	1.3	1.6
Wholesale & Retail	15.2	1.9	1.3	1.6	1.9	2.4	2.9
Finance & Insurance	5.3	0.5	1.0	1.2	2.1	2.4	3.1
Total Gross Value Added (GVA)	**119.1**	**1.5**	**1.3**	**1.6**	**1.7**	**2.0**	**2.4**

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

Despite the healthy rise in professional and other private services output, the sector remains underrepresented in the region, compared to the UK average. Between 2008 and 2016 its share in the West Midlands has grown from 23.6% to 25.5%, while in the UK as a whole it has risen from 24.2% to 27.6%.

The lower share of output in the professional services sector in the region is largely offset by a higher than average portion attributable to the manufacturing and wholesale and retail sectors. The share of output contributed by both sectors has remained fairly stable over the last five years and came in at 14.5% and 12.7% respectively in 2016. This compares to 9.8% and 11.4% in the UK.

The public service sector, the worst performing large sector in the region in terms of growth in 2016, accounted for 18.5% of total output. This is down from 20.6% five years earlier. At the national level the share is down from 18.8% to 17.7% over the same period.

FORWARD LOOKING ECONOMIC INDICATORS

GVA in the West Midlands is estimated to have grown by 1.5% in 2017 to a renewed high of £120.9bn. The gain was in line with the increases in the two previous years.

Growth is expected to moderate to 1.3% in 2018, before slowly recovering. The gains are projected to remain below 2% until 2021, and average 1.8% in the 2018-2022 period. The pattern of growth is similar in shape to the national average, however the contraction in 2018 is slightly deeper, and the subsequent recovery is slower.

The slowdown in overall growth in 2018 is driven primarily by a projected easing in the gains in the region's large wholesale and retail sector from 1.9% to 1.3%. In addition, increases in the accommodation, food services & recreation are anticipated to more than halve from 4.3% to 2%.

A slowdown in consumer spending in 2017 had a relatively large downward impact on growth in the aforementioned sectors. Decelerating spending growth was caused largely by a fall in real household incomes, given rising inflation as a result of a marked depreciation in sterling following the European referendum result.

These pressures should slowly ease through 2018, and from 2019 as consumer spending recovers, growth in output in the wholesale and retail sector will begin to outpace the regional average. Expansion in the accommodation, food services and recreation sector is also anticipated to improve, though is unlikely to outpace the national average until 2022.

In the professional services sector, growth is also expected to moderate in 2018, to 1.5%, from 1.8% in 2017, as Brexit related uncertainty impacts on profitability. These pressures are anticipated to slowly ease through the forecast period, and growth is projected to rise to 2.6% by 2022.

In the same period (2018–2022) the unemployment rate is expected to rise from 5.3% to 5.7%, before easing back. This compares to a more modest rise from 4.5% to 4.7% at the national level. However, the projected rate by 2022 is well down on the peak of 9.2% in 2013.

ECONOMIC INDICATORS – WEST 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)	95.2	-0.7	0.8	1.0	1.4	1.6	1.9
Household spending (2013 prices)	91.7	1.2	0.7	1.4	2.0	2.1	2.1
Working age population (000s and as % of all)	3,567	61.6%	61.5%	61.6%	62.0%	61.9%	61.8%
House prices (£)	175,333	4.6	2.1	2.2	2.2	2.5	3.7
LFS unemployment (millions)	0.16	-4.9	-1.3	4.9	4.1	1.0	-2.4

Source: ONS, DCLG, Experian.

NEW CONSTRUCTION ORDERS GROWTH 2000-2016 – WEST MIDLANDS VS GB

Source: ONS.
Ref: CSN Explained.

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

	Actual	Annual % change				
	2016	**2012**	**2013**	**2014**	**2015**	**2016**
Public housing	149	27.1	13.8	-53.5	-17.2	34.2
Private housing	1,837	11.1	29.6	34.4	13.0	33.5
Infrastructure	1,110	-11.8	-41.9	14.8	0.4	145.6
Public non-housing	405	-21.1	5.1	-12.0	-22.4	-15.1
Industrial	670	28.2	140.9	-27.7	50.1	-1.0
Commercial	1,832	-8.0	-5.3	83.4	-34.0	75.0
Total new work	**6,003**	**-4.5**	**8.8**	**18.0**	**-7.1**	**45.1**

Source: ONS.
Ref: CSN Explained.

NEW CONSTRUCTION ORDERS – OVERVIEW

Total construction orders increased by 45% in 2016 to £6bn in current prices. This follows a decline of 7% in 2015, and is the second highest orders total on record, bettered only by the 2007 outturn.

A 146% rise in infrastructure orders drove the increase. The commercial, public housing and private housing sectors also offered support. In the former, orders grew by 75%, with 34% increases registered in the two others. The rises were partially offset by falls in construction orders of 15% and 1% in the public non-housing and industrial sectors respectively.

NEW CONSTRUCTION ORDERS – CURRENT SITUATION

In the first three quarters of 2017 new construction orders totalled £7.2bn in current prices. This represents the largest total for this period of any year on record, a 68% increase on the same period of 2016, and a larger total than 2016 as a whole. On a four-quarter moving total basis construction orders rose by 55% quarter-on-quarter in the third quarter of 2017, also an all-time record increase.

The very strong increase in the first three quarters of 2017 was driven predominantly by a rise of 475% in infrastructure construction orders, as the region took its share of the £6.6bn of civil engineering contracts let for HS2 in the third quarter. There were also gains of 9% and 7% respectively in the private housing and industrial sectors. The upward moves were offset slightly by contractions of around 45% in the public housing and commercial sectors.

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.

The private housing and industrial sectors contributed strongly to growth in the first three quarters of 2017, registering gains of 28% and 17% respectively compared with the same period in the previous year. In addition, the public housing sector turned around its weak 2016 performance, growing by 13%, from a low base, and in the commercial sector output appears to be trending up, growing by 22%.

Healthy gains in most of the sectors in the first three quarters of 2017 were all overshadowed by a doubling of infrastructure output to over £1bn. This is a larger outturn than the total for 2016 as a whole. On a four-quarter moving total basis output has increased for five quarters in a row, and the rise of 36% in the third quarter of 2017 is the largest on record.

In 2017 as a whole total construction output in 2015 prices is estimated to have grown by 11%, to £12.2bn, the highest outturn on record. Beyond this, in the 2018-2019 period output is projected to continue to grow, but at a more modest annual average rate of 2.2%. The gains are underlined by healthy growth in the public housing (5.1%), infrastructure (3.8%) and private housing (3.2%) sectors. The public non-housing and commercial sectors are both projected to grow by 1.9%, while a 1.7% contraction is anticipated in the industrial sector.

With more emphasis in government circles on social housing supporting overall house building targets, the prospects for the public housing sector are improving. Funding to the tune of £48m has been allocated under the 2016–21 Shared Ownership and Affordable Homes Programme, for the construction off 1,590 homes across the Midlands and Yorkshire. 500 of the homes will be built in the West Midlands, supporting healthy construction output growth in the sector in 2018 and 2019.

Leaving aside the exceptional growth in new orders in the third quarter of last year, the vast bulk of which relate to the HS2 project, Severn Trent Water are currently part way through a £300m project to improve the resilience of the water network that provides Birmingham and the surrounding area, which will contribute towards output growth into 2018. Work on upgrading the M6 to a smart motorway between junctions two and four is also expected to begin imminently, at an estimated cost of between £155mn and £234mn. The project is scheduled to last until March 2020. These schemes should drive moderate growth of around 3.8% a year on average in the short term.

A sustained upward trend in orders bodes well for construction output in the private housing sector in the short term, although the gains in excess of 20% seen in the last couple of years are unlikely to be sustained. Private housing starts and completions continue to accommodate growth, after five consecutive years of expansion. In the first half of 2017 starts rose by 28%, to 7,420, compared to the same period of 2016. Completions grew by 26% to 6,340. A particularly large project expected to start in early 2018, subject to planning consent being granted, is a three-tower block unit on the site of a former Renault car dealership on the high street in Digbeth. The development, funded by Shanghai-headquartered boutique investment bank PGC Capital is expected to contain around 515 apartments.

Projected annual average output growth of 1.9% in the public non-housing sector in the 2018-2019 period is underlined by a 5% gain in 2019. A number of projects in the pipeline should support growth, University College Birmingham's £100m investment in student facilities, including a £38m higher education centre in the jewellery quarter. The second phase of the development, worth £65m has been deferred by Birmingham Council, though could commence later this year.

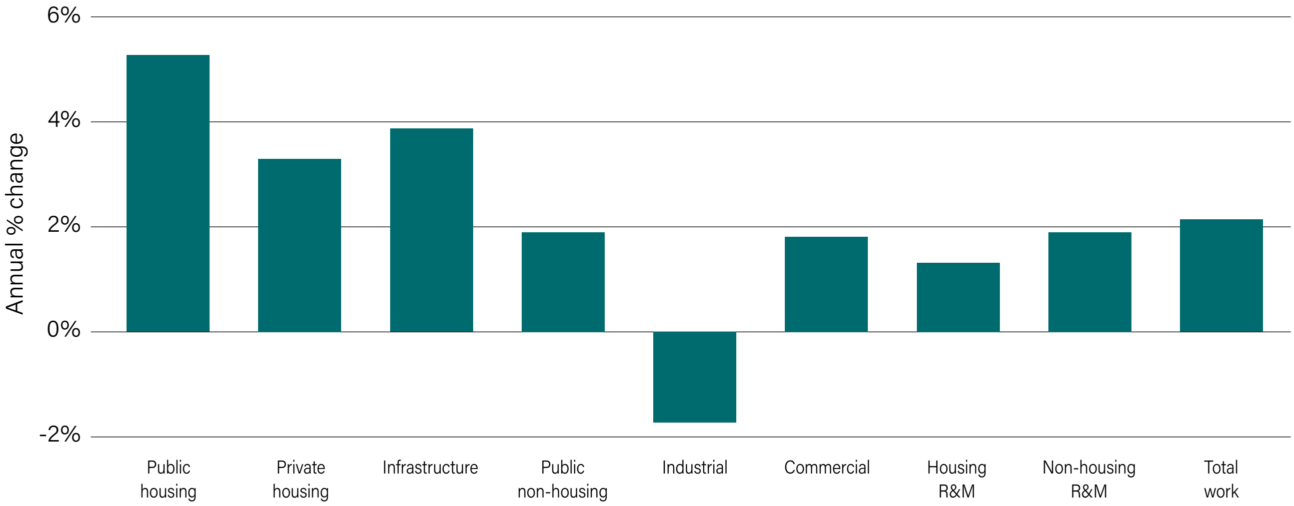
Strong orders growth in the commercial sector in 2016 supported robust construction output gains in 2017, and this should continue into 2018, albeit at a much lower rate. Beyond this, growth is anticipated to dry up given a dearth of projects in the pipeline. This mirrors somewhat an anticipated slowdown in Gross Value Added (GVA) growth in the industries that support the commercial sector. In the wholesale and retail and professional and other private services sectors gains are forecast to slow to 1.3% and 1.5% respectively in 2018, from 1.9% and 1.8% in 2017. In the accommodation food services and recreation sector growth is predicted to more than halve to 2%.

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

	Actual	Forecast (Annual % change)			Annual average
	2016	2017	2018	2019	2018-2019
Public housing	345	11%	5%	5%	5.1%
Private housing	2,531	11%	2%	4%	3.2%
Infrastructure	734	20%	6%	2%	3.8%
Public non-housing	588	0%	-1%	5%	1.9%
Industrial	641	11%	-5%	1%	-1.7%
Commercial	2,300	12%	3%	0%	1.9%
New work	**7,139**	**11%**	**2%**	**3%**	**2.4%**
Housing R&M	1,628	13%	1%	2%	1.4%
Non-housing R&M	2,244	8%	1%	3%	2.0%
Total R&M	**3,872**	**10%**	**1%**	**2%**	**1.7%**
Total work	**11,011**	**11%**	**2%**	**2%**	**2.2%**

Source: Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2019 – WEST MIDLANDS



Source: Experian.
Ref: CSN Explained.

> Employment in the West Midlands is anticipated to grow at an annual average rate of 0.8% between 2018 and 2022, outperforming the UK average gains of 0.5%.

With new industrial orders falling by 1% in 2016, the sector is likely to struggle to recapture the surge in construction output growth it has enjoyed in the last two years, and a 5% contraction is anticipated for 2018. Other than the construction of Jaguar Land Rover's 988,000 square foot logistics hub in Solihull, there are very few major projects currently underway, or in the pipeline, that could provide upside potential.

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 West Midlands where output in the sector is estimated to have grown by 13% in real terms. One possibility for this may be that a quieter housing market, in which housing transactions have stalled at around 1.2 million for the past four years, is leading to home owners spending more on significant improvements to their properties rather than trading up. Growth in the sector is expected to slow markedly over the next two years as a delayed reaction to the weaker consumer environment.

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

In the 2018-2022 period total construction output is expected to grow at an annual average rate of 1.8%. This represents a mild slowdown compared to the short-term gains.

The public housing, private housing and public non-housing sectors are all expected to see a substantial slowdown in growth in the long-term, with annual average gains for the 2018–2022 period projected to come in at 1.2%, 1.6% and 0.1% respectively. The commercial sector is also anticipated to act as a mild drag on growth with the increases easing to 1.7%. Countering this deceleration is a marked uptick in construction output in the infrastructure sector which is projected to grow by 16% in 2020 and 28% in 2021, and rise at an annual average rate of 9.3% between 2018 and 2022.

The infrastructure sector will benefit from the onset of work on the HS2 high speed rail project, connecting London to Birmingham and beyond, on which preparatory construction work on phase 1 should start in 2018/19. The construction cost of the whole project is estimated at around £21.4bn, a significant share of which will benefit the West Midlands. In addition, the Wolverhampton Canalside and City Interchange project is undergoing a £130m transformation. The scheme, which commenced in 2017, will create a modern railway station handling more than 4.7 million passengers a year, and is due for completion in 2021. A similarly large project is the upgrade of the M6 between junctions 13 and 15, expected to start by March 2018. It is estimated to cost between £232.3m and £335.4m, and to complete by the end of March 2022.

Government funding will also be accommodative of growth in infrastructure construction in the region. In November 2017 the Prime Minister announced that £250m would be spent on improving transport in the West Midlands. The money is the first allocation from a new £1.7bn 'Transforming Cities' fund, designed to improve transport links and promote local growth within city regions across the country.

Decent growth, at an annual rate of 1.7%, is also expected for the commercial sector between 2018 and 2022. The gains should be enabled by a steady recovery in the UK economy as uncertainty surrounding Brexit clears somewhat. Of particular importance to the commercial sector is a projected uptick in GVA in the wholesale and retail sector from below 2% in 2020, to almost 3% in 2022. Similarly, in the professional and other private services sector GVA is expected to rise from 1.7% to 2.5% in the same period.

In the public housing and public non-housing sectors growth is likely to be less assured in the long term, constrained by a lack of work in the pipeline. In relation to the former, Birmingham City Council has raised £45m from corporate investors through a new secure loan scheme known as 'Brummie Bonds'. The funding will be used to help build 89,000 new homes by 2031 through the Birmingham Municipal Housing Trust. The latter sector could benefit from Cheshire East Council's plans to revitalise Crewe town centre. The work could add around £50m to output between now and the end of 2020. Unless some larger projects emerge, construction output in the sectors will struggle in the longer term.

Private housing construction output growth is also expected to lose some steam in the longer term. This reflects somewhat of a consolidation from the record highs of recent years. The aforementioned Digbeth tower block scheme could support gains out to 2022, but more confirmed projects would need to enter the pipeline if further meaningful growth is to emerge.

BEYOND 2022

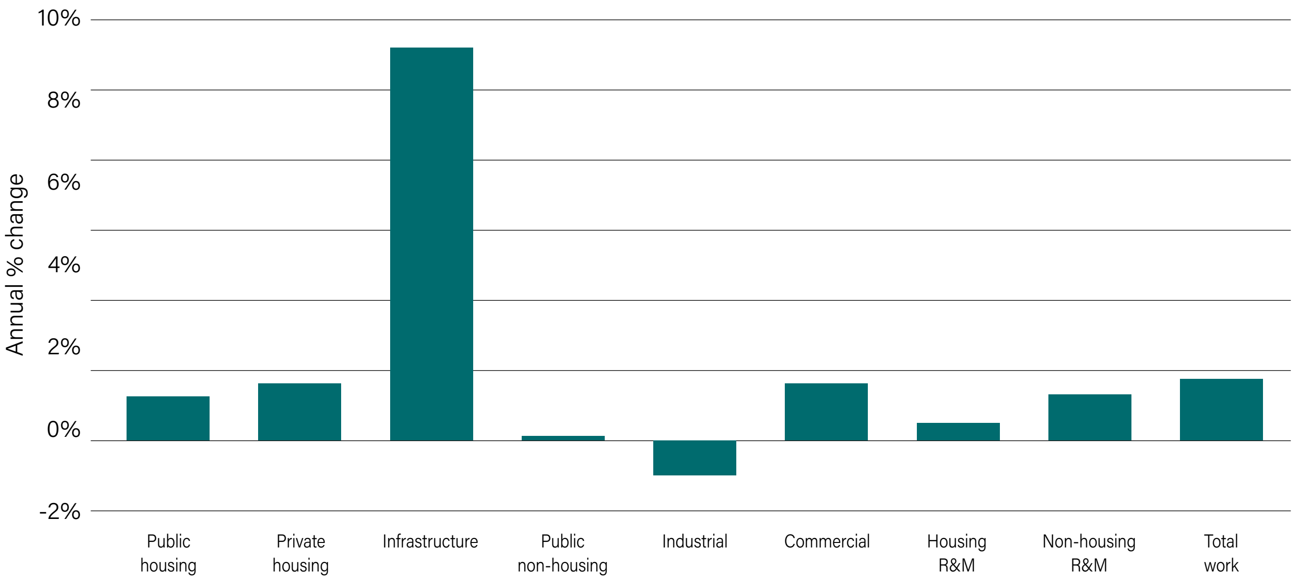
The infrastructure sector should continue to make a relatively large contribution to construction output in the West Midlands beyond 2022. The region will benefit significantly from works on the HS2 high speed railway project well beyond the current forecast period, with completion of the scheme not due until 2033.

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

	Estimate	Forecast (Annual % change)					Annual average
	2017	2018	2019	2020	2021	2022	2018-22
Public housing	385	5%	5%	-6%	0%	3%	1.2%
Private housing	2,807	2%	4%	1%	1%	0%	1.6%
Infrastructure	878	6%	2%	16%	28%	-2%	9.3%
Public non-housing	586	-1%	5%	-5%	0%	2%	0.1%
Industrial	714	-5%	1%	-1%	0%	1%	-0.8%
Commercial	2,579	3%	0%	-1%	3%	3%	1.7%
New work	**7,947**	**2%**	**3%**	**1%**	**5%**	**1%**	**2.3%**
Housing R&M	1,844	1%	2%	0%	-1%	1%	0.4%
Non-housing R&M	2,433	1%	3%	2%	1%	0%	1.4%
Total R&M	**4,277**	**1%**	**2%**	**1%**	**0%**	**0%**	**1.0%**
Total work	**12,224**	**2%**	**2%**	**1%**	**3%**	**1%**	**1.8%**

Source: CSN, Experian.
Ref: CSN Explained.

ANNUAL AVERAGE CONSTRUCTION OUTPUT GROWTH 2018-2022 – WEST MIDLANDS



Source: CSN, Experian.
Ref: CSN Explained.

CONSTRUCTION EMPLOYMENT FORECASTS FOR THE WEST MIDLANDS

TOTAL CONSTRUCTION EMPLOYMENT FORECASTS BY OCCUPATION

The table presents actual construction employment (SICs 41-43, 71.1, and 74.9) in the West 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 West Midlands has been on a very strong upward trend in the past two years according to data from the Labour Force Survey (LFS). It rose by 6.5% to 218,300 and it estimated to have grown by another 5% in 2017 to 229,500, exceeding its 2008 peak by 2%.

Construction employment is projected to slow markedly and grow at an annual average rate of 0.8% in the five years to 2022, although this still compares favourably to estimated gains of 0.5% at the national level. In level terms this equates to a rise from around 229,500 in 2017 to 239,200 in 2022, a new high.

The majority of the 28 occupational categories (21) are expected to see an increase in employment in this period. The largest rises are anticipated for steel erectors/structural fabrication (3.9% a year on average), construction project managers (3.7%), architects (3.6%), and construction trades supervisors (3.5%).

The West Midlands shares the same general trend with the UK that stronger growth is projected for the managerial/ administrative and professional occupations, than the trades/ manual ones.

TOTAL EMPLOYMENT BY OCCUPATION – WEST MIDLANDS

Annual recruitment requirement (ARR) by occupation

Occupation	Total employment 2018	Total employment 2022	ARR
Non-manual occupations			
Other construction process managers	22,870	25,200	410
Construction Trades Supervisors	4,370	4,880	190
Non-construction professional, technical, IT, and other office-based staff	34,580	33,310	100
Construction Project Managers	2,530	2,920	90
Senior, executive, and business process managers	20,760	20,110	–
Non–construction operatives	3,260	3,080	–
Manual occupations			
Wood trades and interior fit-out	18,180	18,950	700
Labourers nec*	10,060	11,390	320
Electrical trades and installation	20,020	18,910	220
Bricklayers	4,480	4,860	120
Steel erectors/structural fabrication	2,880	3,270	80
Scaffolders	1,880	2,110	70
Painters and decorators	7,340	7,870	50
Specialist building operatives nec*	3,730	3,670	50
Logistics	2,800	2,740	<50
Building envelope specialists	7,720	7,730	<50
Civil engineering operatives nec*	2,350	2,400	<50
Plumbing and HVAC Trades	14,720	14,710	–
Plant operatives	2,510	2,430	–
Plasterers	2,390	2,180	–
Roofers	4,190	4,380	–
Glaziers	3,330	3,300	–
Plant mechanics/fitters	7,910	7,960	–
Floorers	1,460	1,470	–
Professional occupations			
Other construction professionals and technical staff	15,810	18,050	610
Surveyors	5,990	6,150	150
Civil engineers	3,340	3,650	100
Architects	1,340	1,540	<50

*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 West Midlands is projected to be 3,390 for the 2018-2022 period. This represents 1.5% of base 2018 employment, a higher ratio than the UK's at 1.2%. Over the five-year forecast period this equates to nearly 17,000 new recruits required, over and above normal flows.

None of the occupational categories were flagged as having a high ARR requirement (more than 5% of base 2018 employment), however nine were deemed to have medium requirements (between 2.6% and 5% of base 2018 employment). The highest of these were construction trades supervisors (4.3%), wood trades and interior fit-out (3.9%), other construction professionals and technical staff (3.9%), scaffolders (3.7%) and construction project managers (3.6%).

On an absolute level, the largest requirements are for wood trades and interior fit-out (700 a year on average), other construction professionals and technical staff (610), and other construction process managers (410).

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 – WEST MIDLANDS

	2018-2022
Non-manual occupations	
Non-construction professional, technical, IT, and other office-based staff	100
Other construction process managers	410
Senior, executive, and business process managers	–
Construction trades supervisors	190
Construction project managers	90
Manual occupations	
Wood trades and interior fit-out	700
Labourers nec*	320
Electrical trades and installation	220
Painters and decorators	50
Plumbing and HVAC Trades	–
Bricklayers	120
Plant operatives	–
Logistics	<50
Plasterers	–
Roofers	–
Scaffolders	70
Specialist building operatives nec*	50
Building envelope specialists	<50
Steel erectors/structural fabrication	80
Glaziers	–
Plant mechanics/fitters	–
Floorers	–
Civil engineering operatives nec*	<50
Professional occupations	
Other construction professionals and technical staff	610
Civil engineers	100
Surveyors	150
Architects	<50
Total (SIC 41-43)	**2,500**
Total (SIC 41-43, 71.1, 74.9)	**3,390**

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

COMPARISONS ACROSS THE UK

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

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

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

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

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

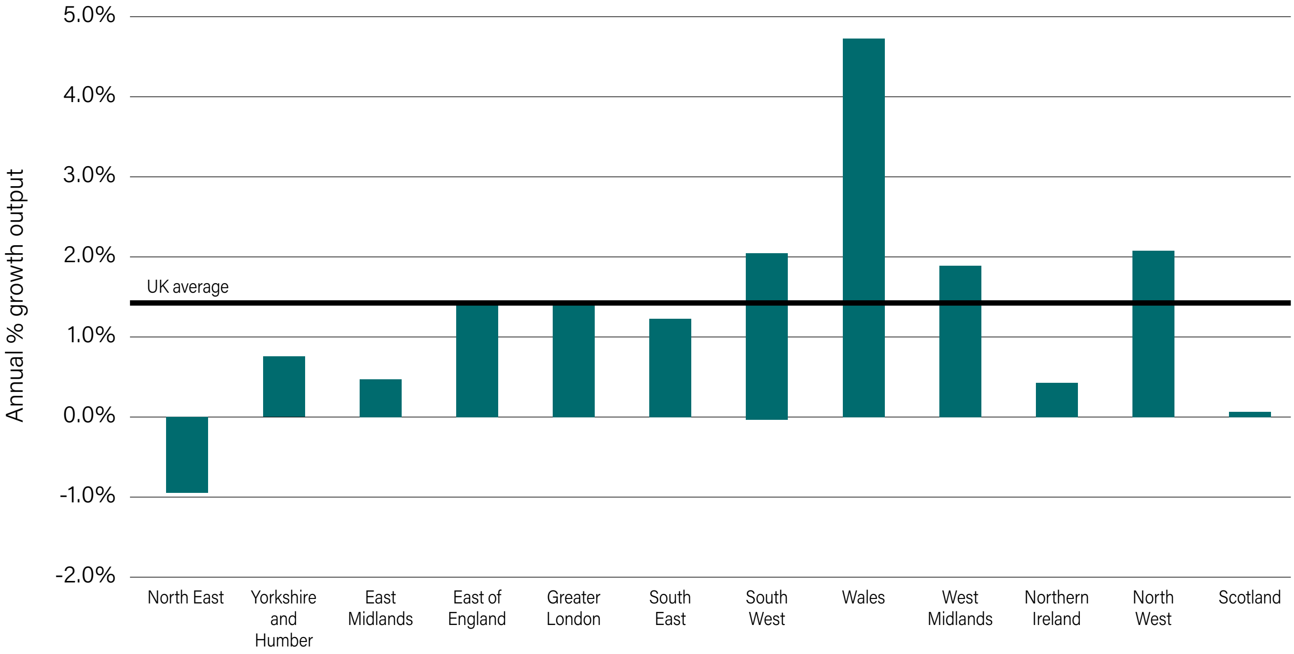
It is the case across the English regions that growth in the construction sector will tend to reflect expansion in the wider economy, unless the region benefits from the siting of major infrastructure projects. Both the South West and North West, which lead the English region growth rankings with 2% a year on average, will benefit from new nuclear build, at Hinkley Point in the case of the former and Moorside in the case of the latter. Enabling works at Hinkley Point have been ongoing for some time while some work at Moorside is projected to begin in 2022. London, and the East Midlands and West Midlands will also see good growth in infrastructure activity as work on High Speed 2 builds up over the forecast period. The strong infrastructure growth in the West Midlands should enable it to experience annual average expansion in total construction output of 1.8%, just behind the South West and North West.

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

Employment growth across the regions and devolved nations tends to mirror that of output, but at a lower level to take account of expected productivity gains and with some minor adjustments depending on whether output growth is in high or low labour intensive sectors. Annual average employment growth is projected to range from a high of 2.1% in Wales to a low of -1.6% in the North East, against a UK rate of 0.5%.

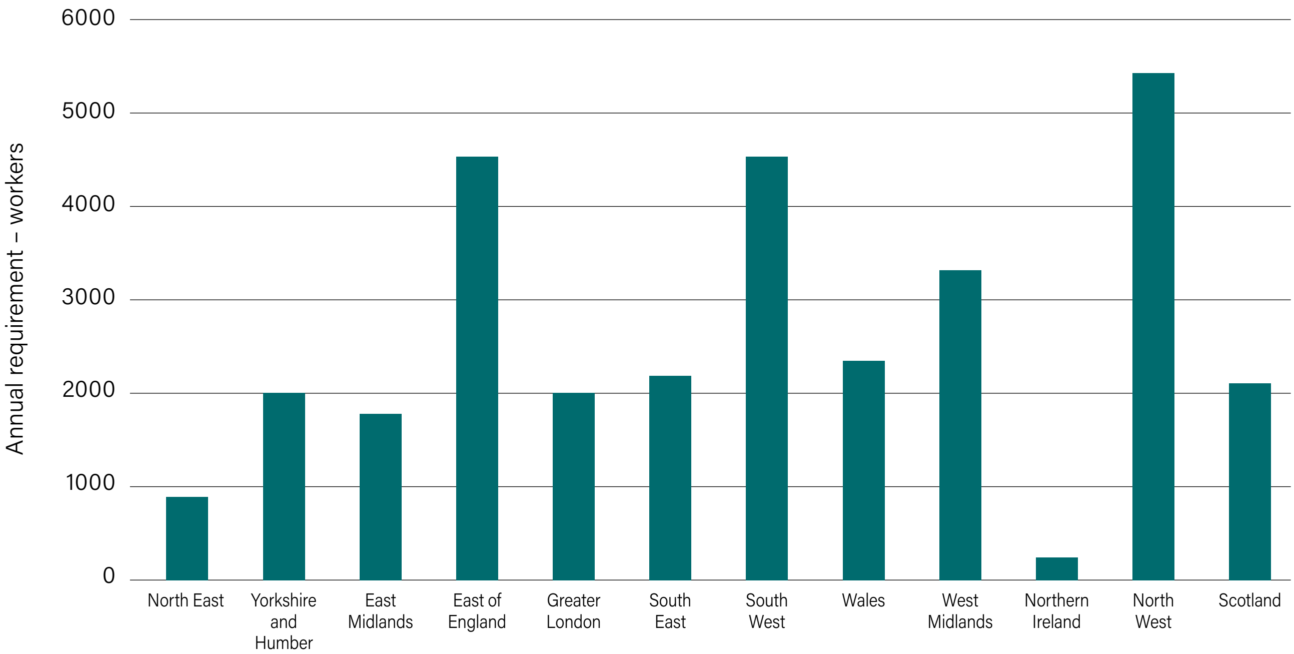
As the annual recruitment requirement (ARR) takes into account known supply-side factors, such as intra-regional labour movements and movements between other industries and construction, the pattern can look significantly different to the profile of output and employment, as some regions and devolved nations have historically strong net inflows and some suffer from large net outflows. For the 2018 to 2022 period, the largest absolute 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 Annual recruitment requirement (ARR) for the West Midlands is projected to be 3,390 for the 2018-2022 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 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:

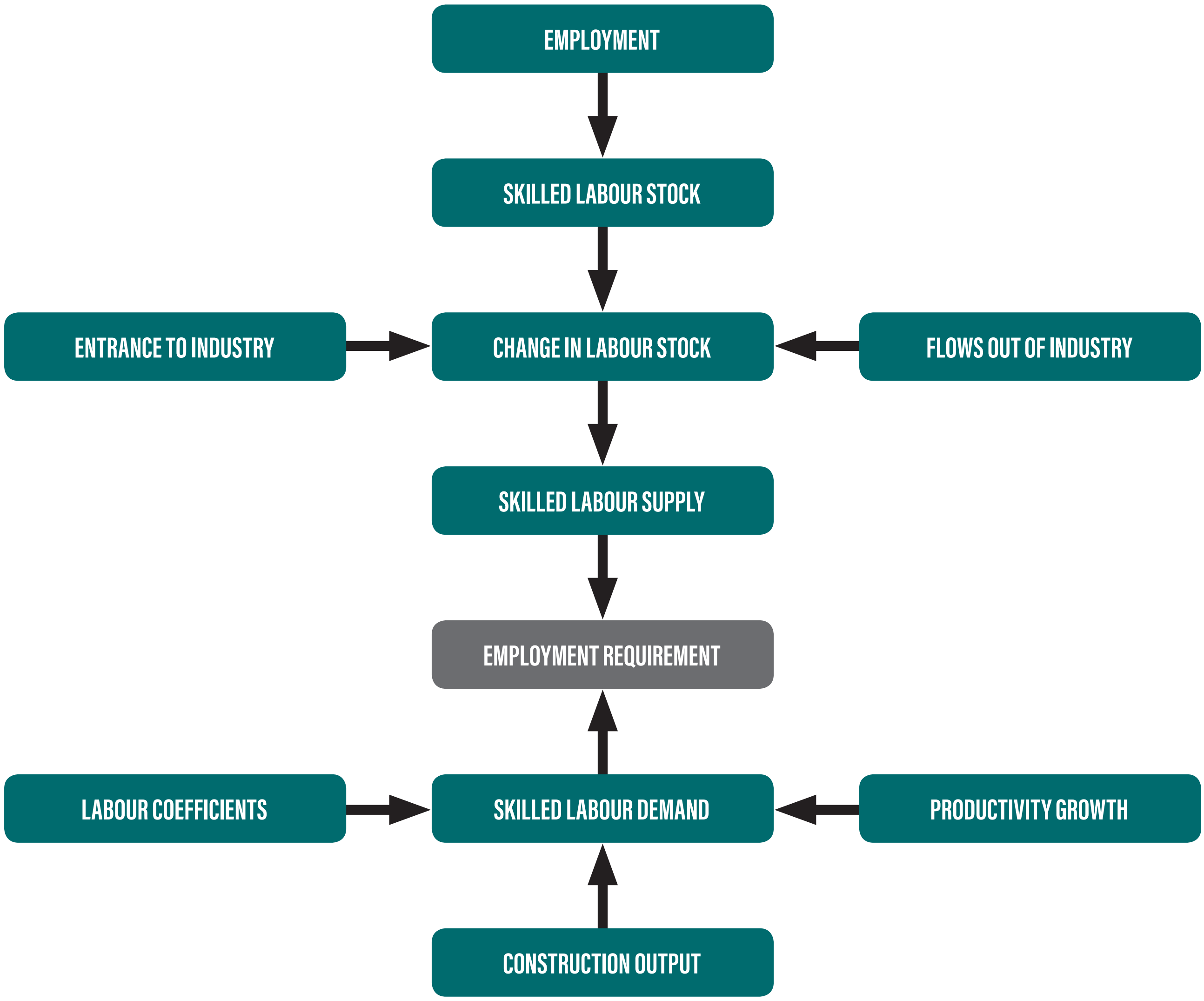
- Transfers to other industries
- International/domestic out migration
- Permanent retirements
  (Including permanent sickness)
- Outflow to temporary sickness and home duties.

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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