Construction Employment and Training Forecast 2001-2005

A CITB Research Document – January 2001

NTO
NATIONAL TRAINING ORGANISATION

CITB

Contents

Foreword

FOREWORD BY CHRIS HUMPHRIES

Director General, British Chambers of Commerce

I am delighted to provide the foreword to this new report from CITB (the Construction Industry Training Board). This is the fourth in a series of annual reports which have, by now, become an established source of information on construction skills in the UK.

Comprehensive and regular labour market information is an essential component of the government's strategy for skills. In short, it provides the evidence on which to make plans and allocate resources. National Training Organisations (NTOs) are uniquely placed to provide information on demand for skills in their industries and CITB's work in this field shows how important it is to be well 'earthed' to employers. As the National Skills Taskforce recognised, a particular strength of CITB's approach is that it is forward looking and allows employers, individuals and policy makers to anticipate what needs to be done in the future.

Construction is experiencing a period of greater activity which the report expects to continue in the short to medium term. Information on significant national and regional projects shows where and when this activity is likely to occur. As a result, some occupations, in particular regions of the country, will be in short supply unless training is increased. Already, as the report notes, employers are experiencing difficulties in recruiting workers with the skills they need now and for the future.

As well as an analysis of demand for skills in the industry, the report usefully contains detailed up-to-date information on current skills supply. This enables CITB and its partners in training – employers, the Regional Development Agencies (RDAs), the Learning and Skills Council (LSC) and training providers – to agree what needs to be done to support the industry and help it compete.

CITB's work in this area provides a model for NTOs in other sectors to follow. Publishing systematic forecasts over a number of years, and adapting their format to the evolving training infrastructure, has provided CITB's partners with a valuable service which I am happy to commend.

Chris Humphries
Director General

Construction Employment and Training Forecast – Executive Summary

This document, the fourth in the series, provides medium-term projections for labour demand in the construction industry and estimates of the future need for recruitment and training.

The forecasts are based on a model of the construction labour market that provides estimates of employment by occupation, at national and regional levels for the next five years. It assumes an annual growth rate in output of 2.7%, which is the mid-point of the five year forecasts produced by Business Strategies Ltd (BSL). This growth rate is considered appropriate to account for construction work associated with plans announced in the Government Spending Review for 2000 – 2004.

At this level of output, overall employment is expected to remain steady, but with variations occurring between different sectors and occupations. Throughout the industry, however, significant numbers of additional new recruits will be required each year within the period covered by the forecast, mainly to replace those lost through retirement.

According to CITB's estimates of the numbers of people entering training, there is currently a shortfall between the supply of qualified new recruits and demand from the industry. This would appear to be consistent with reports of skills shortages in the industry.

CITB also expects that, in the short-term, employers will continue to experience regional recruitment difficulties. Low levels of unemployment across the economy mean that the construction industry will need to compete harder against other industries to fulfil its labour requirements.

CITB's response to these challenges is set out in their annual Business Plan and in the new Sector Workforce Development Plan to be published in January 2001. These plans will set out how CITB will work with industry, the new Learning and Skills Council, the Regional Development Agencies in England (and the equivalent bodies in Scotland and Wales), training providers and other strategic partners in order to meet these skill challenges.

Key Points

- Over the forecast period 2001 – 2005, the total employment in the industry is expected to increase by 53,000 (or by less than 0.75% per year). See Table 1, page 8.
- Around 74,000 new recruits will be required each year between 2001 and 2005 (making 370,000 over the five-year period). Of these 74,000, approximately 64,000 will be required each year for replacement and the balance (of 10,000 each year) for the increase in construction employment. See Table 2, page 9 and Appendix A, page 18.

  This compares with the 1999 forecast of 73,000 per year over the period 2000 – 2004. The higher figure in this year's report, despite lower initial employment levels, is due to the assumption of a higher retirement rate from the workforce and therefore a higher replacement ratio. See *Interpretation*, page 16 and Diagrams C3 – C5, pages 48 – 50.

- Manual workers in the Building Trades will continue to be the largest group in terms of employment and required intake, followed by those in Building Services, Civil Engineering and Specialist Building. See Diagrams 4a – 4e, pages 12 – 13 and Table 3, page 14.
- The occupations with the largest annual recruitment will be, in descending order: Carpenters & Joiners, Managers, Electricians, Clerical Staff, Bricklayers and Plumbers. See Table A1, page 19.
- In terms of employment growth, non-manual occupations are expected to gain between 8% and 10%. Manual occupations are expected to increase but at a lower rate. Plasterers are the exception with a decline of 15%.
- Except for the Building Trades and Building Services, informal training remains the most common form of skill development for construction site occupations. CITB's On-site Assessment and Training (OSAT) scheme aims to improve on-site training and provide the opportunity to obtain formal qualifications. See Table 3, page 14.
- For the Building Trades, some 90% of the required intake is met through formal training. For Specialist Building and Civil Engineering there is potential to expand and formalise skills in the workforce, either by training new recruits or the certification of existing workers. See Table 3, page 14.
- Regional differences in activity have increased. As a consequence, regional requirements for additional recruitment will continue to vary considerably according to the scale of activity, workforce size and different rates of growth. See Appendix A, page 20.
- Greatest additional demand continues to be expected in the Eastern, South East and South West regions, with output growth above the national average. Over the forecast period 2001 – 2005, increases in activity well below the national average are expected in Wales, Scotland, and Yorkshire and The Humber. According to BSL, annual growth will be highest at 3.7% in the Eastern region, and lowest at 1.5% in Scotland. See Appendix A, pages 22 – 43.

  Given the wide range of regional growth in activity forecast by BSL, it is not surprising that changes in employment also vary considerably from region to region. The employment figures in Tables A2 to A12 show employment in the industry declining in Wales and the West Midlands. By contrast, employment in the southern regions increases by over 10% between 1999 and 2005.

- In the medium-term (i.e. over the period 2001 – 2005), skill shortages will become prevalent in the industry if recruitment falls much below the forecasted yearly requirement of 74,000. Skill shortages will appear most acute in the largest occupations, such as Carpenters & Joiners, Bricklayers, Plumbers and Electricians because of the sheer numbers involved. Geographically, the problem will be worse in the southern regions, where unemployment is below the national average while construction activity is expected to increase at a faster rate than in the rest of the country.

Part One: Skills Demand

Introduction

NATIONAL TRAINING ORGANISATION (NTO)
Since 1998, government has designated leading organisations to be the focus for training in each sector.

TECs/LECs
Locally based employer-led bodies providing government funding to support training and enterprise across all sectors.

REGIONAL DEVELOPMENT AGENCIES (RDAs)
The Regional Development Agencies for England were set up in 1998 to co-ordinate the economic and social development at the regional level.

LEARNING AND SKILLS COUNCILS
Responsible for planning, funding and managing all post-16 education and training other than higher education.

FE COLLEGES
Colleges of Further Education providing courses to students aged 16+, usually to NVQ/SVQ, GCSE or A-level standard.

HE COLLEGES
Colleges of Higher Education providing degree courses, postgraduate courses and Higher National Diplomas.

BUSINESS STRATEGIES LIMITED (BSL)
A leading business and economic forecasting organisation, providing a range of forecasting services covering all aspects of economic and business activity.

As a **National Training Organisation,** CITB is responsible for co-ordinating construction training to meet the industry's needs. To inform this process, CITB produces forecasts and analyses of skill demand in the industry on an annual basis. These should be of interest to the various organisations involved in construction training – principally **TECs/LECs, Regional Development Agencies (RDAs)**, future **Learning and Skills Councils, FE** and **HE colleges,** private training providers and larger construction companies. From the job-seeker perspective, the forecasts can be useful to those involved in recruitment, particularly careers advisers, in giving guidance on future job prospects.

CITB's *Construction Employment and Training Forecast* report provides a useful tool in the planning of construction training. Based on work by Warwick University and using a new econometric model developed by **Business Strategies Ltd (BSL)**, it provides a basis on which to plan the delivery of skills in the industry.

The model incorporates both a national and a regional dimension that are fully consistent with each other. The regional dimension takes into account regional differences in output, occupational structure and unemployment thus providing separate models for each region. However, by imposing national constraints on the regional results, the model is also fully consistent at the national level. In this way, it can allow for the considerable inter-regional mobility common to the construction industry.

In this new report, the forecast has been rolled forward one year to cover the period 2001 – 2005. Comparisons with the 1999 forecast reveal that:

- The rate of unemployment, which is used to derive total labour supply, has remained unchanged at 7%.
- By continuing to use BSL's forecast for construction output, projected activity is slightly higher than 1999 expectations.
- By 2004, total employment is expected to be 1,481,000 (1999 forecast: 1,502,000). The lower growth rate in employment is due to lower than expected output growth in 1999.

Furthermore, because of the ageing of the construction workforce over the past 10 years (see Appendix C), we have increased the replacement ratio from last year.

For the regional tables (Appendix A), the same boundaries for Scotland, Wales and the new RDAs are used. This should ensure continued relevance of the model results at the regional level, although some adjustments may have to be made to accommodate the boundaries of the emerging Learning and Skills Councils.

Methodology

The model adopts a **top-down approach** which takes as its starting point the forecast of employment and training needs for Great Britain as a whole. The resulting forecast of total construction employment is then shared among 22 occupations (including non-construction operatives), see Table A1 on page 19.

For the occupational shares, a historical series has been estimated back to 1980, updated to 1999 using the results from the Spring 1999 **Labour Force Survey** and projected forward to the year 2005.

Labour demand is approximated by total employment plus 5% to take into account long running vacancies. Initial supply is given by total employment plus a percentage for the unemployed, using the **International Labour Office (ILO) definition**. Changes in supply are estimated using a stock/flow approach, the main outflow being attributed to retirements and estimated as a percentage of total supply.

Previous runs of the model were based on an average replacement ratio of 4.6%. In the current run, we have increased this ratio to 5.0% based on recent evidence from the Labour Force Survey, including changes in the age profile for all occupations in the construction industry.

At the national level, the forecast of total demand is subtracted from the forecast of total supply to obtain the annual required intake by occupation over a five-year period. At the regional level, separate submodels have been developed for the nine RDAs of England plus Scotland and Wales (henceforth referred to as the regions). On the supply side, regional differences in unemployment are taken into account. For both demand and supply, occupational shares reflect regional differences which can be considerable.

Trained intake is derived from CITB's measures of formal training in annual surveys. This includes **Modern Apprenticeships, National Traineeships** and other formal long-duration training at craft and operative level leading to NVQ Level 2 or higher. Drop-out from training is estimated from CITB and Further Education Funding Council data.

A fuller explanation of the methodology used is available on request.

TOP-DOWN APPROACH
The analysis starts at the national level with total construction employment and output and is subsequently broken down by occupation and region.

LABOUR FORCE SURVEY (LFS)
A quarterly employee-based survey carried out on behalf of the Office of National Statistics. It was started in the early 1970s to comply with the European Community regulations.

INTERNATIONAL LABOUR OFFICE (ILO) DEFINITION
The ILO definition of unemployment includes all actively looking for a job irrespective of their unemployment related benefit entitlement.

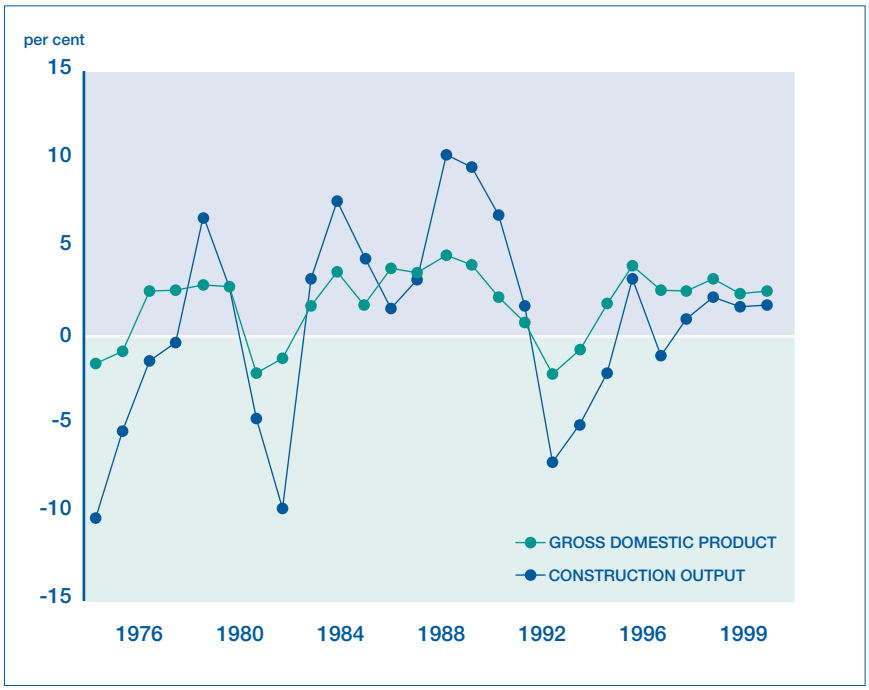
MODERN APPRENTICESHIPS
Vocational training courses to achieve NVQ/SVQ Level 3.

NATIONAL TRAINEESHIPS
Vocational training courses to achieve NVQ/SVQ Level 2.

Forecast of Construction Activity and Employment

Diagram 1 shows the relationship between Gross Domestic Product and construction activity over a quarter of a century. In the period 1974 – 1994, construction output tended to be subject to wide fluctuations. Over the past decade, a moderate but more stable growth rate has prevailed. The forecast over the next two years is for a continuation of this trend. This stabilisation in construction activity should result in a more favourable environment for recruitment and training.

Diagram 1
Construction Output and Gross Domestic Product, 1974 – 1999 Yearly growth rates in 1995 prices

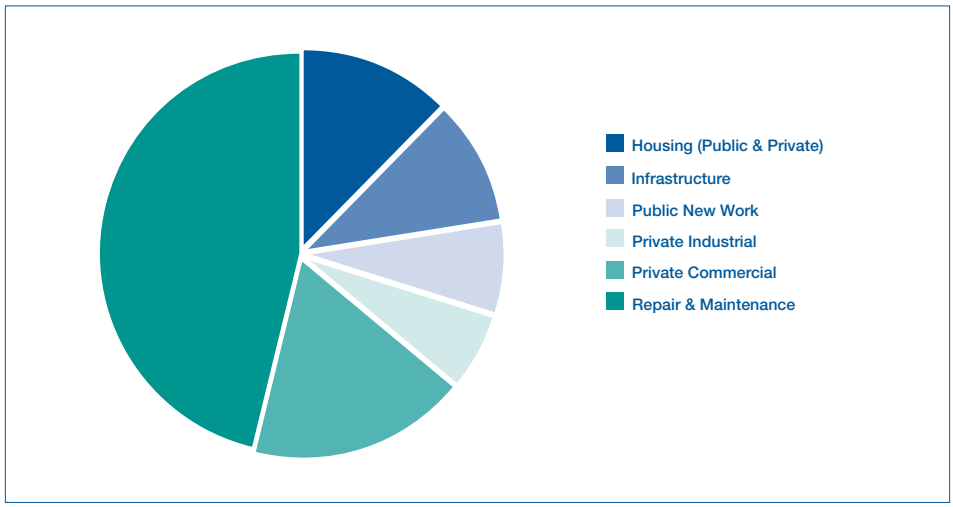


Source:
Actual: Office of National Statistics; Department of the Environment, Transport and the Regions (DETR)

'This stabilisation in construction activity should result in a more favourable environment for recruitment and training.'

For 1999 as a whole, construction output increased by approximately 1% from the 1998 level to £56,903m in 1995 prices. This figure appears surprisingly low and might well be revised upwards when the Department of the Environment, Transport and the Regions (DETR) releases final figures for 1999. Diagram 2 gives a breakdown of the 1999 total construction output by main sector and shows that Repair & Maintenance constitutes nearly 50% of the total with Private Commercial output as the second largest sector.

Diagram 2
Construction Output by Sector: 1999



Source:
Department of the Environment, Transport and the Regions (DETR)

The two main forecasting organisations in the industry are **Construction Forecasting and Research (CFR)** and **Construction Products Association (CPA)**. Both publish short-term forecasts covering a two-year period.

Over the period 2000 – 2002, CPA's latest forecast (August 2000) projects a growth rate for construction output of between 2% and 3%. On the effect of the Government Spending Review, CPA states the following:

'The Construction Products Association does not forecast a boom for the industry, but rather a period of steady and sustained growth, which will be underpinned by the additional Government funding announced in the Current Spending Review. This comes at a time when Private Sector construction activity is starting to level off.'

CFR's forecast (July 2000), coming just before the Current Spending Review, is less optimistic than CPA's in expecting a growth rate between 1.5% and 2.0% for construction output over the same period.

CONSTRUCTION FORECASTING AND RESEARCH (CFR)
A consultancy specialising in the economic analysis of the construction and related industries.

CONSTRUCTION PRODUCTS ASSOCIATION (CPA)
Represents the UK producers and distributors of construction products, components and fittings.

For the current run of the model, we have adopted BSL's forecast of construction output. For the medium-term, BSL expects construction activity to sustain the firm upturn which began during the second half of 1999. In 2000, construction output is expected to increase by 2.8%. Over the rest of the forecasting period, 2001 – 2005, the growth rate of construction output is expected to vary from 2.2% to 3.5% averaging 2.7% over the period as a whole. Some deceleration in Private Commercial output should be compensated by stronger growth in Infrastructure, Housing and Public Non-residential.

Table 1 below shows the results of using BSL's forecast of total construction output to estimate construction employment and labour productivity in the industry for 2001 – 2005. Over the forecast period, construction output is expected to increase by 14% from just over £58,000m in 2000 to nearly £67,000m in 2005. Over the same period, construction employment is projected to increase by 3.7% from 1,431,000 to 1,484,000. The low growth rate in employment is due to moderate but steady growth projected for labour productivity.

Table 1
Total Construction Output and Employment: Great Britain 1994 – 2005

Year	Total Output Growth Rate	Total Output	Output Per Head	Total Employment Direct and Indirect (1)
	%	£m 1995 prices	£1995 prices	Number
Actual				
1994	3.4	52692	38000	1384000
1995	– 0.1	52643	38000	1375000
1996	2.3	53863	39000	1370000
1997	3.0	55468	40000	1384000
1998	1.6	56370	39000	1428000
1999	0.9	56903	40000	1415000
Forecast				
2000	2.8	58496	41000	1431000
2001	2.7	60076	41000	1458000
2002	2.7	61698	42000	1474000
2003	2.7	63364	43000	1479000
2004	2.7	65074	44000	1481000
2005	2.7	66831	45000	1484000

Source:
Actual: Department of the Environment, Transport and the Regions (DETR)
Construction output forecast is based on BSL's forecast
Construction employment forecast is from the CITB Employment Model, 2000
(1) The model currently uses the narrower DETR definition of construction employment which is employer-based. This is consistent with the measure of construction output. The estimate of construction employment from the Labour Force Survey (LFS), which is employee-based, is some 20% higher. See Appendix C for LFS's data on the construction industry

Although the Government Spending Review (2000 – 2004) is unlikely to result in a sharp increase in construction output in any one year, it should sustain growth in the industry over the forecast period. For example, planned spending on roads should compensate for the likely decline in commercial output. CPA forecasts a growth rate for construction output of between 2% and 3% over the period 2000 – 2002. A forecast of 2.7% is broadly in keeping with CPA's forecast which was issued after the Government Spending Review.

Other commentators are also reasonably optimistic for the industry. For example, the Royal Institution of Chartered Surveyors (RICS) in their July 2000 report state that:

'Surveyors are confident that longer term prospects for both activity and employment [in the construction industry] are good.'

To account for alternative scenarios, we have also run the model using a lower growth rate (2%) and a higher growth rate (3.9%) than our base case (2.7%). The consequences for employment and required intake are shown below.

Table 2
Alternative Scenarios: Employment and Trained Requirement, 2001 – 2005

Growth Rate of Output	2%	2.7%	3.9%
Total Employment in 2005	1424000	1484000	1571000
Annual Average Trained Requirement	63000	74000	92000
Cumulative Trained Requirement	315000	370000	460000

Source:
CITB Employment Model, 2000

If the 3.9% growth rate was maintained over the five-year period (which seems unlikely) this would result in an additional annual skill requirement of 18,000. While a 2% growth rate in output would result in a decrease in the required intake of 11,000. On balance, a growth rate between 2% and 2.7% seems more likely.

'Surveyors are confident that longer term prospects for both activity and employment [in the construction industry] are good.'

Construction Employment by Occupation

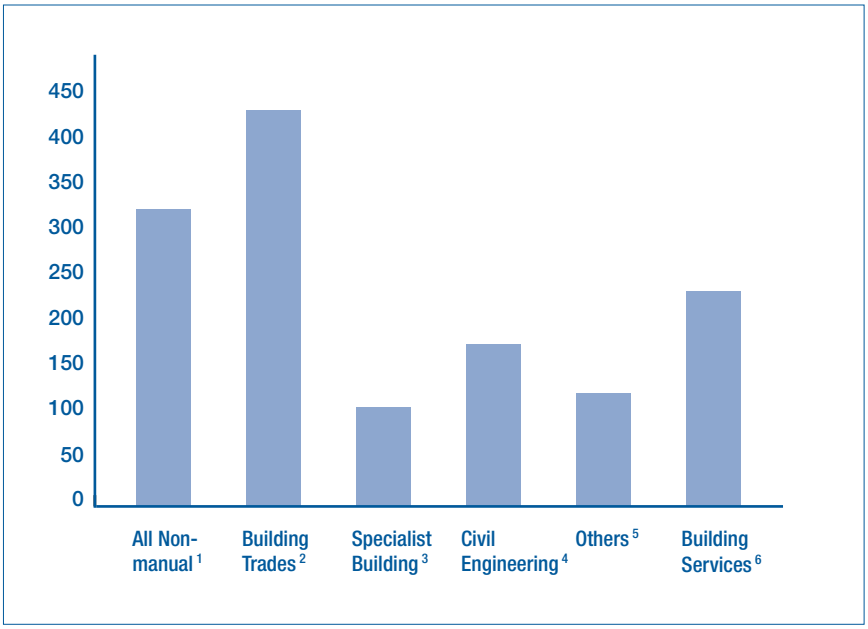
STRATEGIC FORUM OF CONSTRUCTION NTOs
The group of National Training Organisations (NTOs) in the construction sector who, together with TOPIC, are committed to developing a coherent education and training framework for the whole sector.

TOPIC
The Training Organisation for Professionals in Construction was established to promote and support the provision of high quality training for professionals.

As shown on page 7, the construction industry covers a number of sectors, from Repair & Maintenance to Public New Work, and it relies on a variety of skills and occupations. Diagram 3 focuses on the occupational categories that can be found across these sectors. This diagram gives the broad brush picture; more detailed information can be found in Appendix B.

It is important to realise that the broad occupational categories illustrated in Diagram 3 do not correspond to the construction output sectors in Diagram 2. For example, Civil Engineering Trades will be found in all the sectors but in varying proportions – mostly in Commercial and Infrastructure and, to a lesser degree, in Housing.

Diagram 3
Construction Employment by Main Occupational Categories in 000s: 1999



Sources:
CITB Employment Model, 2000
Department of the Environment, Transport and the Regions (DETR)
Office of National Statistics: Labour Force Survey, Winter 1999
Strategic Forum of Construction NTOs: Survey of Employment by Occupation in the Construction Industry, Spring 1998
(1) All Non-manual includes Managers, Clerical Staff, Professionals and Technicians
(2) Building Trades includes Carpenters & Joiners, Bricklayers, Painters & Decorators and Plasterers
(3) Specialist Building includes Roofers, Floorers, Glaziers and other Specialist Building Operatives
(4) Civil Engineering includes Scaffolders, Plant Mechanics, Plant Operatives, Steel Erectors/Structural and Civil Engineering Operatives
(5) Others includes General, Non-construction and Maintenance Operatives
(6) Building Services includes Electricians and Plumbers
Please see Appendix B for a further breakdown of occupational categories

Forecast of Annual Additional Labour Requirements, 2001 – 2005

Diagrams 4a – 4e overleaf show the average annual labour requirement for selected skills, as forecast by the CITB Employment Model, over the period 2001 – 2005. The forecasts represent the number of trained workers required each year to satisfy both the replacement of the existing workforce and the need for extra workers created by the higher demand. The figures do not take into account the training which may be required to improve the standards in the existing workforce and should, therefore, be treated as lower estimates of training requirements.

'The forecasts represent the number of trained workers required each year to satisfy both the replacement of the existing workforce and the need for extra workers created by the higher demand.'

These forecasts of annual requirement only apply to skilled trades that can be easily identified using existing occupational categories. They do not include Civil Engineering Operatives, of which approximately 4,600 would be expected to join the industry each year but generally not through formal training. Under this broad category, there are a number of skilled trades for which the training is usually on site.

Similarly, approximately 5,000 General Operatives would be expected to join the industry each year but not through formal training.

Additional Annual Labour Requirement, Average

Diagram 4a Building Trades: 2001 – 2005

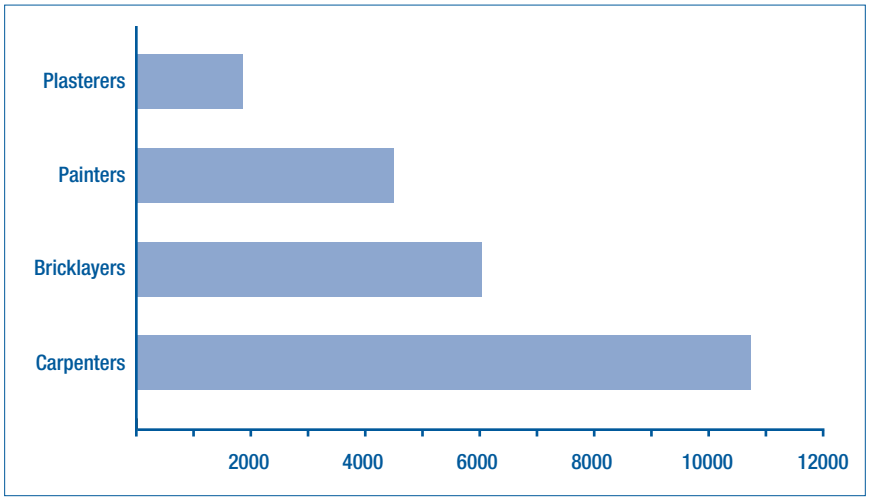


Diagram 4b Specialist Building Trades: 2001 – 2005

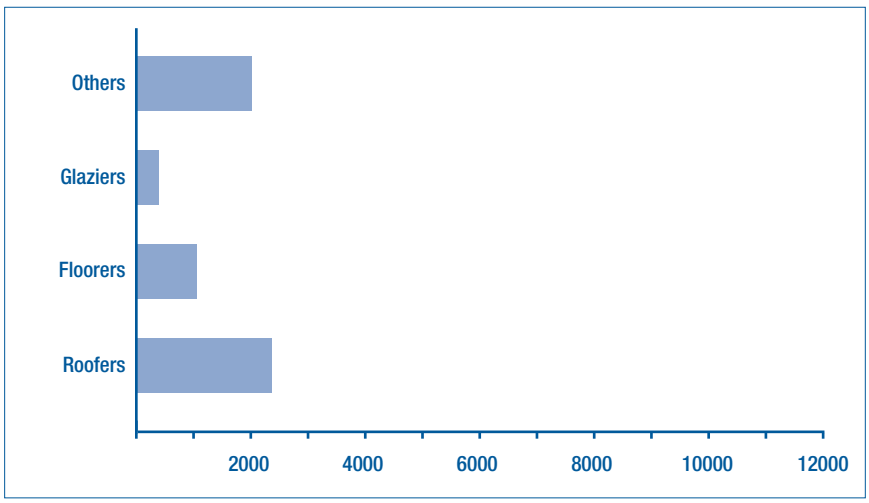


Diagram 4c Building Services: 2001 – 2005

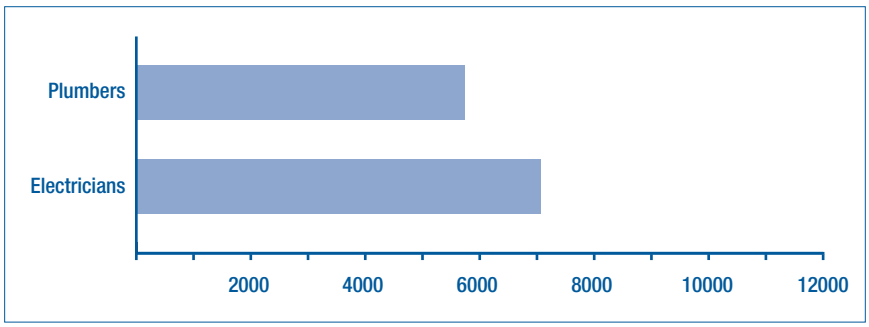


Diagram 4d Civil Engineering Trades: 2001 – 2005

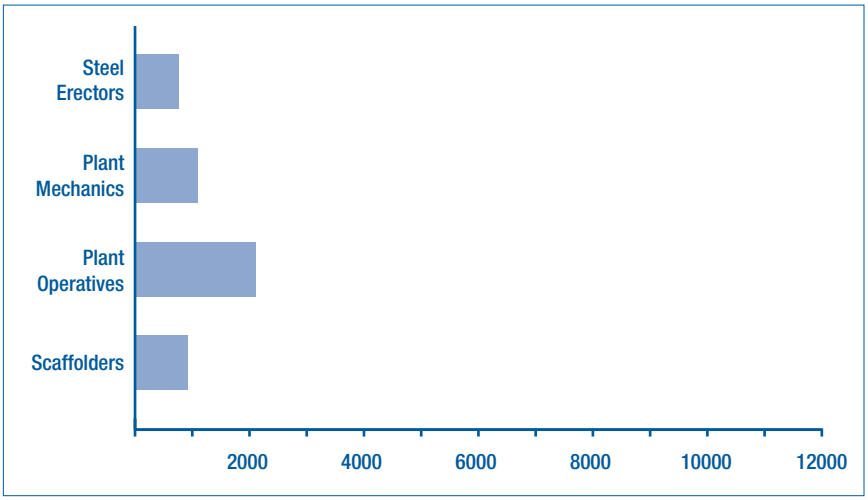
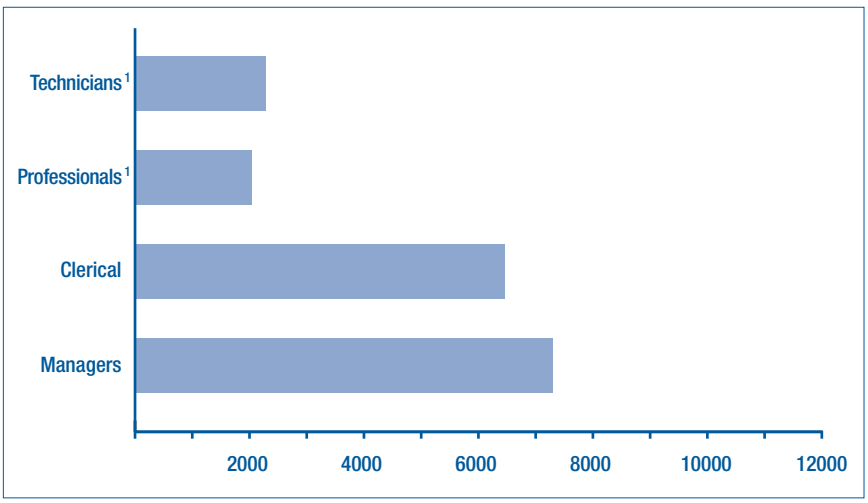


Diagram 4e Non-manual: 2001 – 2005



Source:
CITB Employment Model, 2000
(1) Required intake for Professionals and Technicians working in the construction industry as defined by the Department of the Environment, Transport and the Regions (DETR). See Appendix C

Skill Requirements and Training

Skills in the construction industry are acquired in a variety of ways. It is important to recognise, therefore, that figures for overall requirement do not necessarily equate to formal 'off-the-job' training. Other contributions, particularly 'on-the-job' training and conversion training of operatives transferring from other industries, need to be taken into account.

The training needs of each occupation should be considered separately, taking into account the length and type of training. For young new recruits to the Building Trades, a two-year formal training period is now typical except in Scotland. Specialist Building operatives typically undergo a mixture of 'on-the-job' training and short courses, while 'on-the-job' training is considered most appropriate for a number of Civil Engineering trades.

Table 3 gives the additional labour requirement, as forecast by the CITB Employment Model, compared with the first year formal intake in the Building, Specialist Building and Civil Engineering Trades. The table shows the average annual requirement over the forecast period 2001 – 2005 compared with the expected trained output in 2001. It also gives the expected shortfall in formal training assuming that first year annual training intake remains unchanged over the forecast period.

Table 3
Forecast of Shortfall in Formal Training

Annual Average 2001 – 2005	Building Trades (4)	Specialist Building Trades (5)	Civil Engineering Trades (5)
New Intake of Trainees (1)	28000	770	540
New Output of Trainees (2)	21000	770	540
Required Craftspeople (3)	23000	5770	4900
Shortfall in Formal Training	– 2000	– 5000	– 4360

Source:
CITB Employment Model, 2000 and CITB Training Numbers Survey 1999/2000
(1) This is the actual figure for trainees starting in 1999 and is used as a base for comparison in future years
(2) Assuming a two-year training period
(3) Forecast of required yearly intake, average for 2001 – 2005
(4) For Building Trades, a total drop-out rate of 25% is assumed
By adopting a drop-out rate different to the one used here, the reader will be able to derive different results for the shortfall in formal training.
(5) For Specialist Building and Civil Engineering Trades, a zero drop-out rate is assumed

The result is that for the Building Trades, some 90% of the required intake would appear to be met through formal training. By contrast, the percentage falls to less than 15% for Specialist Building and Civil Engineering Trades.

Within Building Trades, we have assumed that 30% of trainees in Carpentry & Joinery are lost to the construction labour market. This is to take into account the possibility of the trainees going into manufacturing rather than construction. Similarly, for Bricklayers, a 30% drop-out rate is also assumed to account for early transfers to other trades within the construction industry, such as Roofing. In the other building trades, as in previous years, early leavers from formal training are estimated at 20% of new intake.

In general, the shortfall in formal training for all trades shown in Table 3 should not be equated to skill shortages in the sense of insufficient numbers of skilled operatives to meet existing demand. A distinction also needs to be made between labour supply in the construction industry, approximated in the model by total employment plus unemployment, and the supply of formally trained operatives, given in Table 3. On the other hand, employers' perceptions of skill shortages in the Building Trades could be worse than indicated by the 10% shortfall in formal training. This is because newly trained operatives may not be able to fill the skill shortages based on employers' requirement for experienced operatives to work on large sites.

'...newly trained operatives may not be able to fill the skill shortages based on employers' requirement for experienced operatives to work on large sites.'

On-the-job training continues to play an important role in the construction industry. CITB's **On-Site Assessment and Training (OSAT)** scheme, introduced in 1999, is designed to support this. The number of companies participating in the scheme is increasing rapidly. The scheme is expected to become the main vehicle for both improving the standard of training and for providing formal recognition of existing skills in the construction workforce.

ON-SITE ASSESSMENT AND TRAINING (OSAT)
A CITB programme that gives workers the opportunity to gain formal qualifications through training and assessment in the workplace.

Interpretation

Our aim in producing these forecasts and analyses is to provide information for those involved in planning construction training provision, i.e. CITB Area Managers, Learning and Skills Councils, RDAs, TECs/LECs, FE colleges and private training providers. By providing information on employment and recruitment needs based on industry-specific occupations, it should help the various partners to formulate consistent policies and be useful to individuals planning their career in the industry.

Because construction training traditionally takes time to complete successfully we have focused on meeting industry's underlying skill requirements over a five-year period. Moreover, because training provision cannot be easily switched on and off, we have not tried to model the 'cycle' or annual fluctuations in construction activity. The output forecast is based on BSL's latest forecast, but we have smoothed out the profile of output growth for both the national and regional models.

The consequences of this approach are given in Table A1 in Appendix A. The figures in this table show that, despite a lower growth in total employment, the additional labour requirement is slightly up from the 1999 forecast.

The relation between changes in employment and perceived skill shortages is illustrated in Diagram 5. During the early 1990s total employment was high but decreasing at a fast rate. This meant that the percentage of employers reporting difficulties in recruiting skilled staff for key construction trades was low.

In 1994, there was an improvement in activity with construction output increasing at an annual rate of 3.4%. During 1994, the percentage of employers reporting difficulties in recruiting skilled operatives increased sharply.

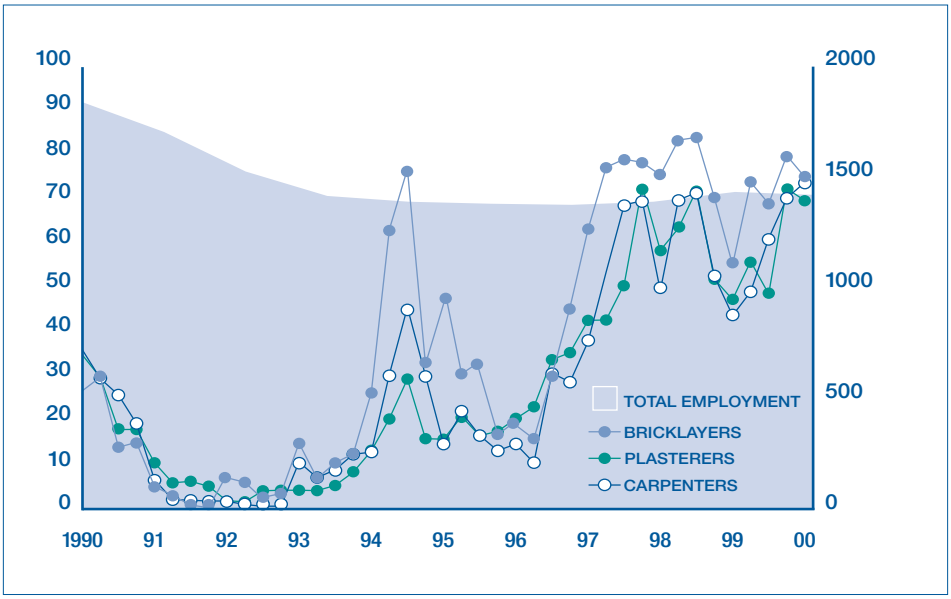
Between 1994 and 2000, employment has been fairly stable around the 1.4m mark. Unemployment has continued to decline reaching 7% (compared to nearly 20% in the early 1990s). This has resulted in an increasingly tight labour market and employers experiencing difficulties in recruiting skilled operatives.

Over the forecast period 2001 – 2005, we expect construction output to continue to increase at much the same rate as in the economy generally. This, coupled with the tight labour market situation, is likely to result in continued recruiting difficulties for employers. This further underlines the importance of the measures to support recruitment and upskilling now being undertaken by CITB.

The age profile in Appendix C reveals an ageing of the construction workforce over the past 10 years. This can be expected to result in more people retiring each year thus providing opportunities for more young people to join the industry. We have modelled this change by using a higher average replacement ratio than in the 1999 run of the model. See page 5.

Diagram 5

Labour Availability (% of firms reporting difficulty) and Total Employment (000s)



Source:
Construction Confederation *Construction Trends Survey, Quarter 1 2000* and DETR

In numerical terms, the biggest annual requirements are expected to be, in descending order: Carpenters & Joiners, Managers, Electricians, Clerical Workers, Bricklayers and Plumbers. For Plasterers, a decline in total employment is forecast due to an increased use of dry lining in new buildings (which is less labour intensive).

More generally, it needs to be noted that these forecasts of skill demand are based on industry growth projections and assume that levels and patterns of skills within the workforce will remain as before. The figures should, therefore, be treated as lower end estimates of training requirement which could be sensibly added to take account of the industry's needs for a better skilled workforce in the future. Moreover, although the forecasts of output take some account of significant large scale one-off projects, the estimates for future skill requirements cannot ensure that all unexpected demands are met. Where local knowledge of any such additional demand is available then separate provision, for instance through short updating-skills training for adults, should be considered.

Finally, it needs to be emphasised that all forecasts are subject to a margin of error. The figures in the tables are rounded to the nearest ten, and are indicative rather than precise. The margin of error will tend to increase as the model focuses on particular localities and the smaller occupations. Thus, for the purpose of planning training at the national level, a top-down approach to modelling is preferable.

Appendix A

National Forecast

Table A1 gives total construction employment (excluding non-construction operatives) analysed into 21 main occupational groups in 1999 and 2005, the last year in the current forecasting period. Further breakdown of each group is given in Appendix B. The table also shows the average additional annual requirement over the period 2001 – 2005 as well as the cumulative requirement over the same period.

It should be noted that 'Managers' is a widely defined occupational category covering Site Managers and Working Proprietors as well as Company Managers. The Carpenters & Joiners group is seen to be the single largest manual occupational category in the industry, followed by Electricians, Bricklayers and Plumbers, including Heating and Ventilating Engineers. The figures for Plumbers and Electricians only include operatives working in the construction industry as defined by the Department for the Environment, Transport and Regions (DETR). They do not include Plumbing and Electrical operatives working in manufacturing.

It is important to realise that the total labour requirement is made up of two elements:

- the number required to replace normal outflows (e.g. retirements) from the existing workforce
- the extra intake required by increases, if any, in total employment

For the forecast period as a whole, approximately 64,000 each year are required for replacement of existing workforce while the balance of 10,000 is required for the increase in employment in the industry

'For the forecast period as a whole, approximately 64,000 each year are required for replacement of existing workforce while the balance of 10,000 is required for the increase in employment in the industry.'

In the following table, please note that the employment totals do not include non-construction operatives and, therefore, differ from the totals in Table 1 and Diagram 3.

Table A1

Total Construction Employment and Additional Requirement by Occupation *
Great Britain

	Employment		Average Annual Requirement	Cumulative Requirement
	1999	2005	2001 – 2005	2001 – 2005
Managers	133600	145400	7290	36500
Clerical	117800	128800	6420	32100
Professionals	38200	41500	2050	10200
Technicians	37800	41700	2080	10400
Carpenters & Joiners	200900	211500	10770	53900
Bricklayers	113200	117800	6060	30300
Painters & Decorators	84500	85700	4450	22200
Plasterers	38700	32700	1830	9200
Roofers	43800	44400	2300	11500
Floorers	20000	20200	1050	5200
Glaziers	7500	7600	390	2000
Other SB Operatives [1]	37200	40100	2030	10200
Scaffolders	17200	17400	900	4500
Plant Operatives	39900	42500	2150	10800
Plant Mechanics/Fitters	21000	22200	1130	5600
Steel Erectors/Structural	13800	14300	730	3700
Other CE Operatives [2]	87300	91400	4610	23000
General Operatives	73200	75700	3840	19200
Maintenance Workers	23700	25700	1300	6500
Electricians	130800	139200	7080	35400
Plumbers	106300	113800	5780	28900
Total	1386400	1459600	74240	371300

Sources:
CITB Employment Model, 2000
BSL's Forecasts
*A detailed breakdown by occupations is given in Appendix B. The shares of some of the occupational categories have been revised in accordance with the results of the latest Labour Force Survey.
(1) Specialist Building
(2) Civil Engineering

Regional Forecasts

For each regional forecast, we have included a brief commentary outlining key factors in the construction sector for each region. As far as possible, we have kept the information uniform across regions and each section includes information on:

- activity – this includes current and expected activity, of which only the top projects are listed based on information available up to Spring 2000
- skill shortages/gaps reported to CITB Area staff in Spring 2000
- provision of training

For each commentary, the approach is short-term in reporting the current situation, and that over the next six to twelve months. This is in contrast to the regional tables which are based on medium-term perspective.

The regional forecasts are given in Tables A2 to A12. The figures in these tables are based on separate regional models consistent with the total employment and required intake forecast by the national model. For each region, the tables include:

- total employment by occupation in 1999 and 2005
- the annual average required intake over the forecasting period 2001 – 2005
- the cumulative required intake over the period as a whole

As for the national table, the total labour requirement consists of two elements:

- the number required to replace the existing workforce
- the extra intake required by increases in total employment, if any

For each region, labour demand is related to expected changes in output, and labour supply to the unemployment rate in the region. The relationship between output and employment will vary from region to region because of differences in output mix and the structure of industry. The replacement ratio will also vary from region to region since total employment is projected to increase (or decrease) at different rates across regions.

Construction is a relatively mobile industry. Major contracts are tendered for on a national basis and a site workforce is normally brought together from a very large travel-to-work area. It is not, therefore, necessary (or wise) to try and balance construction labour markets on a very local (say TEC area) basis. It is more important to ensure that supply meets demand over a wider area (at least at national level), and it is for this deliberate reason that CITB's analysis is only taken down to the level of the regional development agencies (RDAs) as defined on the opposite page.

England
Regional Development Agency Areas

London:	All boroughs
South East:	Hampshire, West Sussex, East Sussex, Kent, Surrey, Berkshire, Oxfordshire, Buckinghamshire, Isle of Wight
Eastern:	Cambridgeshire, Norfolk, Suffolk, Essex, Hertfordshire, Bedfordshire
South West:	Cornwall, Devon, Somerset, Dorset, Avon, Wiltshire, Gloucestershire
East Midlands:	Northamptonshire, Leicestershire, Nottinghamshire, Derbyshire, Lincolnshire
West Midlands:	Hereford and Worcester, Warwickshire, West Midlands, Staffordshire, Shropshire
North West:	Lancashire, Greater Manchester, Cheshire, Merseyside, Cumbria
Yorkshire and The Humber:	North Yorkshire, Humberside, West Yorkshire, South Yorkshire
North East:	Durham, Tyne and Wear, Northumberland, Cleveland

Scotland:	All unitary council areas
Wales:	All unitary council areas

Due to revisions in the data by the Office of National Statistics (ONS), there are some differences in the regional shares of construction employment from the previous report.

London

In the London area, construction output in 1995 prices is forecast to increase by an average yearly rate of 2.3% over the forecast period 2001 – 2005. This compares with the 2.7% growth rate for Great Britain as a whole. In 1999, the rate of construction unemployment at 7% was the same as the national average, but there is some evidence to suggest that fewer of the unemployed are likely to get jobs in construction than in other areas of the country.

Current major projects

- **Commercial:** A £600m development of the Docklands Exhibition Centre comprising a trade centre, two hotels and retail areas; a £475m redevelopment of Wembley Stadium.
- **Infrastructure:** A £320m refurbishment of Euston railway station.
- **Public:** A £340m refurbishment of government-owned office buildings in Horse Guards Avenue.

Expected major projects

- **Commercial:** A £350m project for the White City Shopping Centre comprising shops, leisure facilities and housing; a £300m project for offices in the City including new and refurbishment work.
- **Infrastructure:** A £400m refurbishment of Thameslink railway stations (contract awarded); a £277m Channel Tunnel rail link project involving tunnelling under the Thames.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 80% of employers in London experienced difficulties in recruiting skilled staff. The recruitment of Carpenters & Joiners and Bricklayers was worst affected, followed by Professionals, Plasterers, Painters & Decorators, Scaffolders and General Operatives.

Recruitment difficulties are unlikely to ease in the London area since approximately 75% of employers expect an increase in workload over the next six months.

Provision of training

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. London accounted for 400 candidates in 25 companies.

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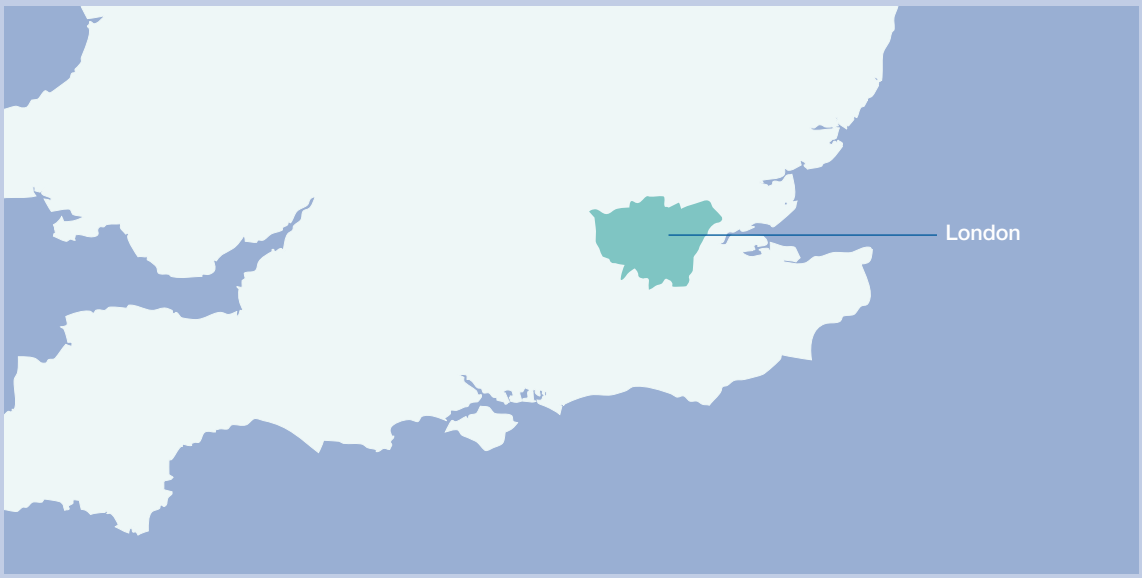
Table A2

London

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	16490	16850	840	4200
Clerical	14540	15040	740	3700
Professionals	4720	4910	240	1200
Technicians	4660	4790	240	1200
Carpenters & Joiners	25420	27900	1370	6850
Bricklayers	13530	13260	670	3350
Painters & Decorators	10100	9640	490	2450
Plasterers	4660	3690	200	1000
Roofers	5230	4980	250	1250
Floorers	2390	2270	120	600
Glaziers	890	850	40	200
Other SB Operatives [1]	4450	4580	230	1150
Scaffolders	2050	1960	100	500
Plant Operatives	5040	5070	250	1250
Plant Mechanics/Fitters	2650	2580	130	650
Steel Erectors/Structural	1750	1690	90	450
Other CE Operatives [2]	10990	10890	540	2700
General Operatives	9250	8640	440	2200
Maintenance Workers	3000	3200	160	800
Electricians	16500	16910	850	4250
Plumbers	13400	13820	690	3450
Total	**171710**	**173520**	**8680**	**43400**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



South East

The South East is expected to be an area of relatively strong growth over the forecast period 2001 – 2005, and construction output in 1995 prices is forecast to increase by an average yearly rate of 3.2% compared to 2.7% for Great Britain. Given that unemployment in the industry at 4% is well below the national average (7%), employers may encounter difficulties in recruiting skilled staff.

Current major projects

- **Housing:** Strong activity is expected throughout the region.
- **Infrastructure:** Channel Tunnel rail link in Kent.
- **Commercial:** Redevelopment of Basingstoke town centre; continued development of Portsmouth Harbour.

Expected major projects

- **Housing:** In the longer term, there are proposals for very significant growth in housing in the region.
- **Commercial:** A £75m mixed redevelopment of the existing DERA site in Farnborough, Hampshire comprising new offices, laboratories, workshops and infrastructure; an £85m redevelopment of a site in High Wycombe to include shops, cinema and residential dwellings.

Reported skill shortage

According to an internal CITB survey undertaken in Spring 2000, most employers in the South East experienced difficulties in recruiting skilled staff in a number of occupations. Amongst manual workers, recruitment of Carpenters & Joiners and Bricklayers was worst affected followed by Plasterers and Scaffolders. Some employers also experienced difficulties in recruiting General Operatives and Wood Machinists. For non-manual staff, problems were reported in recruiting both managers and professionals.

Recruitment difficulties in the South East are likely to worsen as nearly 65% of employers surveyed expected their workload to increase over the next six months.

Provision of training

Guildford College has closed the Brickwork department due to the inability to recruit a suitably qualified instructor. Aldershot Building Centre has expanded in association with Farnborough College.

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The South East accounted for 2,160 candidates in 140 companies.

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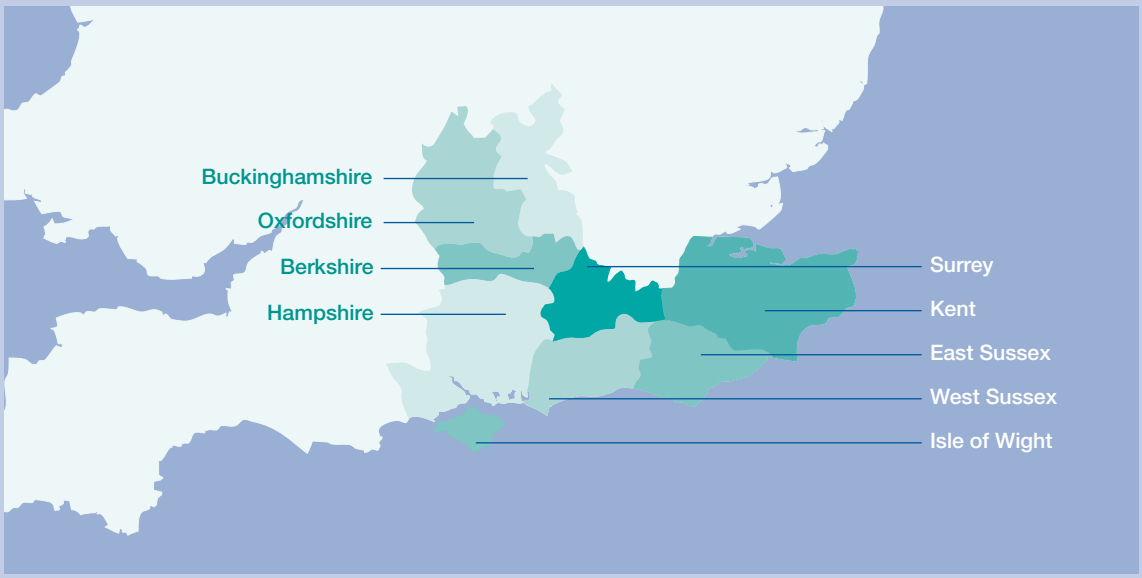
CITB, in conjunction with five other National Training Organisations, has been working with the South East Economic Development Agency to produce a strategy for construction skills in the region. The work aims to prioritise workforce and skills issues in the South East.

Table A3

South East

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	23650	27040	1490	7450
Clerical	20850	24030	1320	6600
Professionals	6770	7720	420	2100
Technicians	6690	7750	430	2150
Carpenters & Joiners	22050	27460	1500	7500
Bricklayers	17820	20310	1130	5650
Painters & Decorators	13290	14750	830	4150
Plasterers	6140	5660	350	1750
Roofers	6890	7640	430	2150
Floorers	3140	3480	200	1000
Glaziers	1180	1310	70	350
Other SB Operatives [1]	5850	6630	370	1850
Scaffolders	2700	3000	170	850
Plant Operatives	5850	6650	370	1850
Plant Mechanics/Fitters	3080	3370	190	950
Steel Erectors/Structural	2030	2240	130	650
Other CE Operatives [2]	12760	14390	800	4000
General Operatives	10740	11990	670	3350
Maintenance Workers	3480	4040	220	1100
Electricians	19160	22160	1230	6150
Plumbers	15570	18120	1010	5050
Total	**209690**	**239740**	**13330**	**66650**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



Eastern

In the Eastern area, construction output in 1995 prices is forecast to increase by an average yearly rate of 3.7% (the highest in Great Britain) over the forecast period 2001 – 2005. This compares with the 2.7% growth rate for Great Britain as a whole. In 1999, the rate of construction unemployment at 5% was below the national average of 7%.

Current major projects

- **Housing:** There are major house building projects in all counties in the region. In Ravenswood, Ipswich, an eight-year project has just started.
- **Infrastructure:** A number of road building projects are underway, including a £200m project for the A13.
- **Industrial:** Broadland Business Park, Thorpe.
- **Commercial:** Work is continuing on the Riverside housing and shopping area in Norwich. There is continued expansion of cargo warehousing at Stansted.

Expected major projects

- **Housing:** Further development is expected, particularly in Suffolk and South Cambridgeshire. A major development is expected in Cambridge that includes 3,000 houses and a shopping centre.
- **Infrastructure:** A £20m access road for Stansted airport; a £800m tender is out for upgrading the Bedford-Brighton Thameslink rail route. Other projects include improving the St Ives-Cambridge railway line and a major road building project in Cambridge.
- **Commercial:** Redevelopment of the Nestlé site in Norwich to leisure purposes is due to start in 2001, subject to planning permission. Other projects include Cranfield University and development of Ipswich West Dock.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 80% of employers in the Eastern area experienced difficulties in recruiting skilled staff. The recruitment of Carpenters & Joiners and Bricklayers was worst affected, followed by Plasterers, Managers and Professionals.

Recruitment difficulties are unlikely to ease in the Eastern area since 70% of employers expect an increase in workload over the next six months.

Provision of training

New Basildon College is now offering construction courses in Brickwork, Carpentry & Joinery and Painting & Decorating. Otley College is restarting its construction operation programme, possibly doing Plastering.

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The Eastern area accounted for approximately 40 companies and 2,860 candidates, 2,000 of whom are in two large organisations.

CITB has been working with East of England Development Agency to produce a strategy for construction skills in the region. A report, *Bridging the Gap*, has been published that analyses information on both labour supply and demand for the region.

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Table A4

Eastern

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	14660	16660	1020	5100
Clerical	12930	14730	900	4500
Professionals	4190	4720	290	1450
Technicians	4150	4770	290	1450
Carpenters & Joiners	17480	21440	1300	6500
Bricklayers	12650	14250	880	4400
Painters & Decorators	9440	10350	640	3200
Plasterers	4360	3970	270	1350
Roofers	4890	5360	330	1650
Floorers	2230	2440	150	750
Glaziers	840	920	60	300
Other SB Operatives [1]	4160	4650	290	1450
Scaffolders	1920	2100	130	650
Plant Operatives	3870	4350	270	1350
Plant Mechanics/Fitters	2040	2200	140	700
Steel Erectors/Structural	1340	1470	90	450
Other CE Operatives [2]	8450	9410	580	2900
General Operatives	7110	7760	480	2400
Maintenance Workers	2310	2630	160	800
Electricians	12680	14510	900	4500
Plumbers	10300	11870	730	3650
Total	**142000**	**160560**	**9900**	**49500**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)

South West

The South West is expected to be an area of strong growth over the forecast period 2001 – 2005, and construction output in 1995 prices is forecast to increase by an average yearly rate of 3.4%. Given that the rate of construction unemployment (3%) is well below the national average (7%), employers may encounter difficulties in recruiting skilled staff.

Current major projects

- **Housing:** A £45m project in Bristol comprising 820 units.
- **Infrastructure:** A £55m refurbishment of Fairford airport, Gloucestershire; a £30m refurbishment project in Gloucester for mains replacement and maintenance; an £82m road maintenance project in Exeter stretching over five years.
- **Public:** A £134m new hospital is under construction in Swindon; a £35m project involving building and refurbishing schools in Swindon; a five-year building project has recently started at GCHQ, Cheltenham.

Expected major projects

In general, Objective 1 status for Cornwall and Objective 2 status for Bristol and Torquay are likely to increase construction activity in the South West.

- **Infrastructure:** A £200m project for the construction of a new power station, Plymouth.
- **Public:** A £35m project for a new Tourist Information Centre at Stonehenge, near Salisbury.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 85% of employers in the South West experienced difficulties in recruiting skilled staff. The recruitment of Bricklayers was worst affected, followed by Carpenters & Joiners, Managers and Professionals.

Recruitment difficulties are unlikely to ease in the South West since 60% of employers expect an increase in workload over the next six months.

Provision of training

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The South West accounted for approximately 890 candidates in 60 companies.

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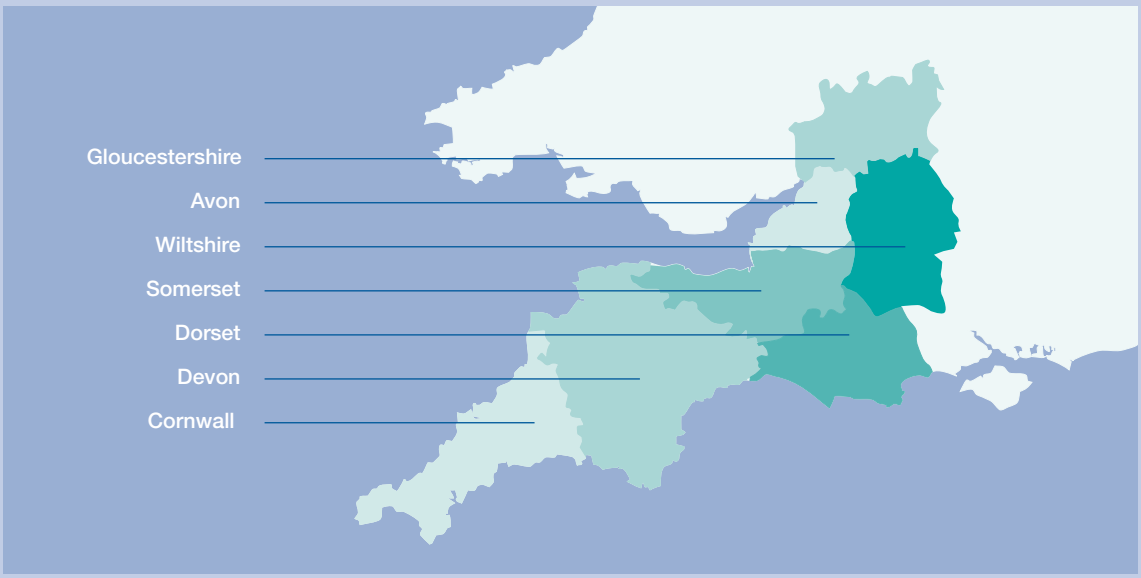
Table A5

South West

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	10250	11470	640	3200
Clerical	9040	10130	560	2800
Professionals	2930	3230	180	900
Technicians	2900	3280	180	900
Carpenters & Joiners	20200	21260	1220	6100
Bricklayers	11860	12810	720	3600
Painters & Decorators	8850	9310	530	2650
Plasterers	4080	3570	220	1100
Roofers	4590	4820	270	1350
Floorers	2090	2200	120	600
Glaziers	780	820	50	250
Other SB Operatives [1]	3890	4170	240	1200
Scaffolders	1800	1890	110	550
Plant Operatives	3870	4210	240	1200
Plant Mechanics/Fitters	2040	2200	120	600
Steel Erectors/Structural	1340	1440	80	400
Other CE Operatives [2]	8450	9040	510	2550
General Operatives	7110	7650	430	2150
Maintenance Workers	2310	2520	140	700
Electricians	12690	13870	780	3900
Plumbers	10310	11340	640	3200
Total	**131380**	**141230**	**7980**	**39900**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



East Midlands

In the East Midlands, construction output in 1995 prices is forecast to increase by an average yearly rate of 2.4% over the forecast period 2001 – 2005. This is very close to the 2.7% growth rate for Great Britain as a whole. In 1999, the rate of construction unemployment (4%) was below the national average (7%).

Current major projects

- **Infrastructure:** A £450m project at Newark, Nottinghamshire to provide a combined cycle gas turbine with administrative block and workshops; a £50m land reclamation project at Chesterfield, Derbyshire.

Expected major projects

- **Infrastructure:** A £45m project to build local roads for the Silverstone bypass, Northampton; a £45m project to build a new road in Brackley, Northamptonshire; a £300m power station in Nottinghamshire.
- **Housing:** A £54m residential development in Northampton of approximately 1,070 houses, including local infrastructure.

Reported skill shortages

Employers are reporting difficulties in recruiting skilled staff in Plastering, Carpentry & Joinery (particularly a shortage of Formworkers) and Roofing.

Provision of training

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The scheme has been particularly successful in the Midlands (East and West) which accounted for approximately 1,630 candidates in 80 companies.

CITB Midlands has been working with a number of universities, notably in assisting Coventry University to produce the report entitled *Construction Supply Chain Skills Project*.

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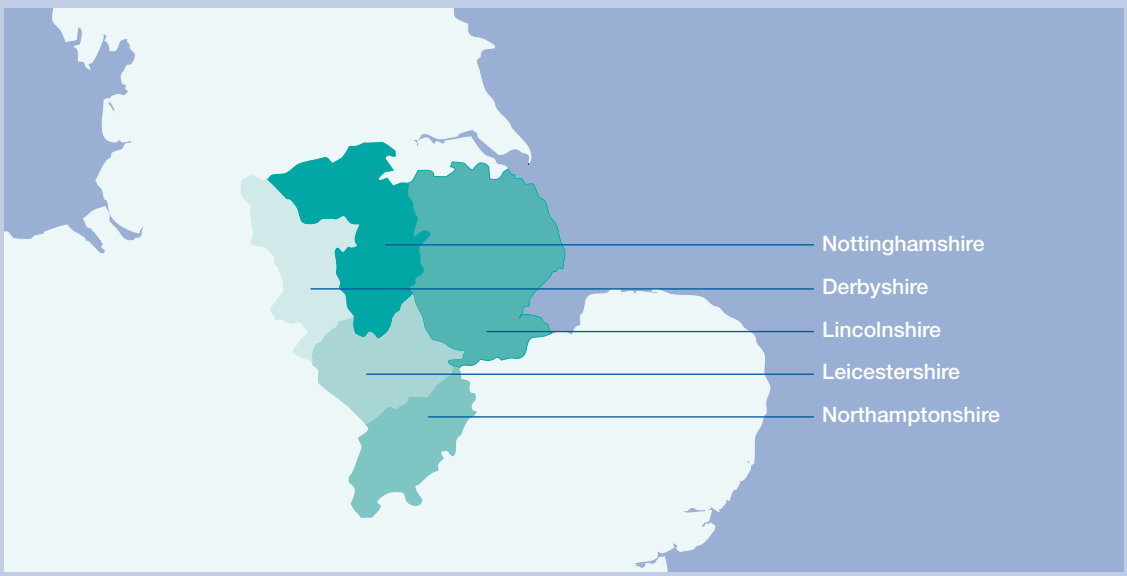
Table A6

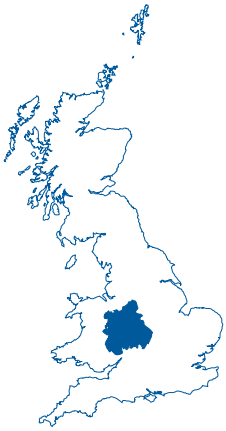
East Midlands

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	9430	10130	480	2400
Clerical	8330	8990	420	2100
Professionals	2720	2890	140	700
Technicians	2690	2960	140	700
Carpenters & Joiners	12680	12790	630	3150
Bricklayers	7650	7830	380	1900
Painters & Decorators	5780	5760	280	1400
Plasterers	2400	1990	100	500
Roofers	2990	2980	140	700
Floorers	1360	1360	70	350
Glaziers	510	510	20	100
Other SB Operatives [1]	2540	2860	130	650
Scaffolders	1170	1170	60	300
Plant Operatives	2990	3290	150	750
Plant Mechanics/Fitters	1580	1700	80	400
Steel Erectors/Structural	1040	1040	50	250
Other CE Operatives [2]	6420	6750	320	1600
General Operatives	5330	5520	260	1300
Maintenance Workers	1730	1860	90	450
Electricians	9800	10320	490	2450
Plumbers	7960	8440	400	2000
Total	**97100**	**101140**	**4830**	**24150**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



West Midlands



In the West Midlands, construction output in 1995 prices is forecast to increase by an average yearly rate of 2.7% over the forecast period 2001 – 2005. This is the same as the national average. In 1999, the rate of construction unemployment (5%) was below the national average (7%).

Current major projects

- **Commercial:** There is major activity in Birmingham including a new £250m three-level development for the Bull Ring Shopping Centre; a £250m multi-purpose project comprising retail, leisure and residential facilities; an £80m mixed retail and residential development project.

- **Public:** A £68m redevelopment of Russell Hall Hospital, Dudley; a £69m contract to build a new prison at Uttoxeter, Staffordshire; a new £91m hospital in Worcester.

Expected major projects

- **Infrastructure:** A £425m project for the Birmingham Northern Relief road comprising 43km of dual, three-lane motorway and associated facilities; a £100m project to build traffic control centres for Birmingham.

Reported skill shortages

Employers are reporting difficulties in recruiting skilled staff in Bricklaying, Carpentry & Joinery and Plastering. Electricians are also in short supply.

Provision of training

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The scheme has been particularly successful in the Midlands (East and West) which accounted for approximately 1,630 candidates in 80 companies.

CITB Midlands has been working with a number of universities, notably in assisting Coventry University to produce the report entitled *Construction Supply Chain Skills Project.*

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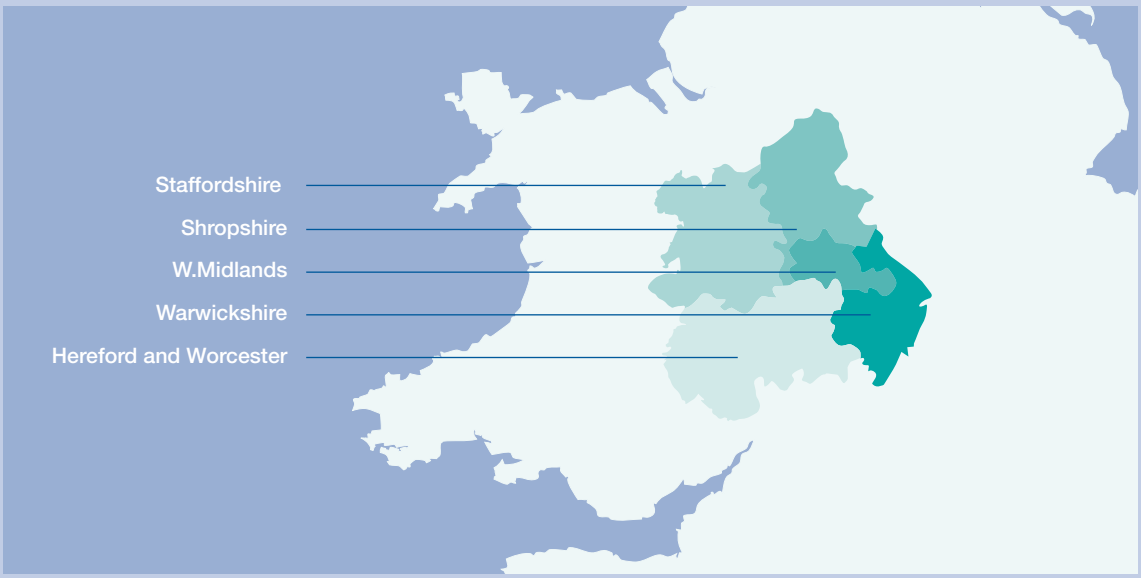
Table A7

West Midlands

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	11610	11930	590	2950
Clerical	10230	10680	520	2600
Professionals	3320	3430	170	850
Technicians	3280	3410	170	850
Carpenters & Joiners	17680	16360	850	4250
Bricklayers	9350	9080	460	2300
Painters & Decorators	6970	6600	330	1650
Plasterers	3220	2530	140	700
Roofers	3620	3420	170	850
Floorers	1650	1560	80	400
Glaziers	620	580	30	150
Other SB Operatives [1]	3070	3110	150	750
Scaffolders	1420	1340	70	350
Plant Operatives	4180	4180	210	1050
Plant Mechanics/Fitters	2200	2240	110	550
Steel Erectors/Structural	1450	1400	70	350
Other CE Operatives [2]	9130	8950	440	2200
General Operatives	7680	7860	380	1900
Maintenance Workers	2490	2530	130	650
Electricians	13710	13550	680	3400
Plumbers	11130	11080	550	2750
Total	**128010**	**125820**	**6300**	**31500**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



North West

Over the forecast period 2001 – 2005, the average yearly growth rate of construction output in the North West is expected to be 2.2% compared with 2.7% for Great Britain as a whole. In 1999, the rate of construction unemployment at just over 7% was similar to the national average.

Current major projects

- **Public:** In Manchester, major construction is underway in preparation for the 2002 Commonwealth Games, including a new athletics stadium and associated infrastructure. Also underway, at Salford Quay, is the construction of the Imperial War Museum for the North.
- **Commercial:** A £50m project to build a conference hotel, including infrastructure, in Manchester; a £45m project for a new hotel and leisure centre (also in Manchester).
- **Infrastructure:** In Lancashire, a £140m Railtrack improvement/maintenance contract over a five-year period; a £100m maintenance contract for 600 miles of track, Manchester; a £55m gas compression facility in Barrow-in-Furness, Cumbria. In Liverpool, infrastructure projects include the Waterfront development and city centre Ropewalks.

Expected major projects

- **Infrastructure:** There are various regeneration projects, for example, Speke Garston. The North West Development Agency's (NWDA) strategy makes provision for regeneration of the Mersey Belt (especially Liverpool city centre and East Manchester) and establishing a new vision for Furness and West Cumbria.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 78% of employers in the North West experienced difficulties in recruiting skilled staff. Recruitment of Painters & Decorators seemed to be worst affected, followed by Carpenters & Joiners and Bricklayers. However, only 50% of employers surveyed expect their workload to increase over the next six months compared to the national average of 66%.

Provision of training

The NWDA has targeted construction as a sector for skills development. CITB, in conjunction with other construction National Training Organisations, submitted a bid to the NWDA against its Skills Development Fund. The bid has been successful and CITB will, with its partners, be developing a number of projects over the next two years to enhance skills in the construction sector.

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The scheme has been particularly successful in the North West which accounted for 750 candidates in 55 companies, compared with CITB's own target of 40 companies.

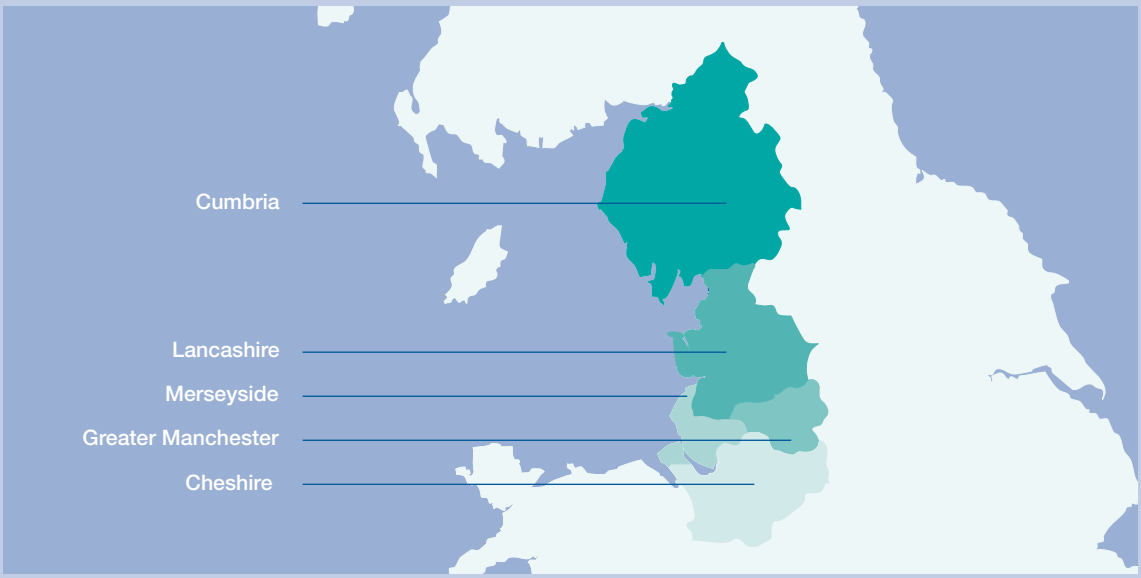
ON-SITE ASSESSMENT AND TRAINING (OSAT)
A CITB programme that gives workers the opportunity to gain formal qualifications through training and assessment in the workplace.

Table A8

North West

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	13060	13780	690	3450
Clerical	11510	12290	610	3050
Professionals	3740	3920	190	950
Technicians	3690	4000	200	1000
Carpenters & Joiners	25720	25400	1320	6600
Bricklayers	10010	10090	510	2550
Painters & Decorators	7470	7330	380	1900
Plasterers	3450	2810	160	800
Roofers	3870	3800	190	950
Floorers	1760	1730	90	450
Glaziers	660	650	30	150
Other SB Operatives [1]	3290	3490	170	850
Scaffolders	1520	1490	80	400
Plant Operatives	3270	3420	170	850
Plant Mechanics/Fitters	1720	1790	90	450
Steel Erectors/Structural	1130	1150	60	300
Other CE Operatives [2]	7140	7280	370	1850
General Operatives	6010	6040	310	1550
Maintenance Workers	1950	2020	100	500
Electricians	10720	11050	560	2800
Plumbers	8710	9040	460	2300
Total	**130400**	**132570**	**6740**	**33700**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



Yorkshire and The Humber

Over the forecast period 2001 – 2005, the average yearly growth rate of construction output in Yorkshire and The Humber is expected to be 1.6% compared with 2.7% for Great Britain as a whole. In 1999, unemployment at just over 7% was comparable to the national average.

Current major projects

- **Commercial:** A £100m mixed development project in South Yorkshire comprising offices, hotel and local infrastructure; a £100m mixed project in Leeds comprising a hotel, shopping centre and cinema.
- **Infrastructure:** A £250m project in Humberside to build a combined heat and power plant; a £74m project in York to upgrade above ground infrastructure for water distribution and a £75m project to upgrade the underground water sewage pipework; a £75m project in Barnsley to upgrade above ground water infrastructure; an £85m project to build a new power station, Goole.

Expected major projects

- **Commercial:** A £200m mixed project in Bradford comprising a multiplex cinema and a variety of retail shops; a £100m mixed development in Leeds comprising leisure, residential and commercial property.
- **Public:** A £125m project in Leeds comprising both new and refurbishment work.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 56% of employers in Yorkshire and The Humber experienced difficulties in recruiting skilled staff. The recruitment of Carpenters & Joiners and Bricklayers was worst affected, followed by General Operatives.

Provision of training

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. Yorkshire and The Humber accounted for 500 candidates in 45 companies.

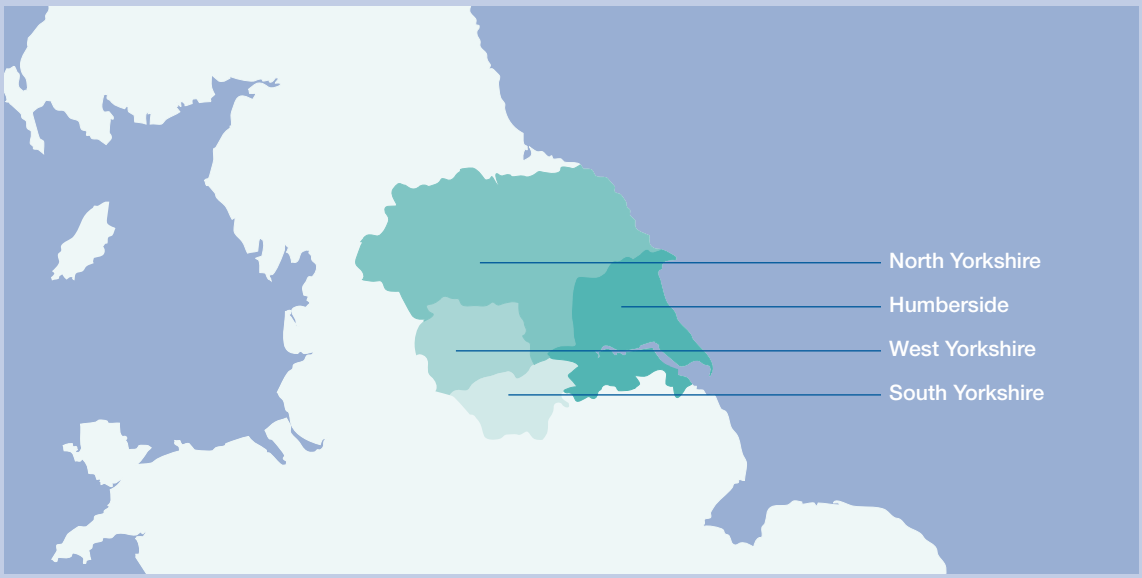
CITB has been working with three South Yorkshire Training and Enterprise Councils on a construction skills project for the sub-region.

ON-SITE ASSESSMENT AND TRAINING (OSAT)
A CITB programme that gives workers the opportunity to gain formal qualifications through training and assessment in the workplace.

Table A9
Yorkshire and The Humber

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	11790	13000	490	2450
Clerical	10400	11280	420	2100
Professionals	3370	3690	140	700
Technicians	3330	3750	140	700
Carpenters & Joiners	18740	17990	720	3600
Bricklayers	9200	9360	360	1800
Painters & Decorators	6860	6800	270	1350
Plasterers	3170	2610	110	550
Roofers	3560	3520	140	700
Floorers	1620	1610	60	300
Glaziers	610	600	20	100
Other SB Operatives [1]	3020	3320	120	600
Scaffolders	1400	1380	50	250
Plant Operatives	3170	3410	130	650
Plant Mechanics/Fitters	1670	1800	70	350
Steel Erectors/Structural	1100	1160	40	200
Other CE Operatives [2]	6930	7340	280	1400
General Operatives	5830	6110	230	1150
Maintenance Workers	1890	2010	80	400
Electricians	10400	10930	420	2100
Plumbers	8450	8940	340	1700
Total	**116510**	**120610**	**4630**	**23150**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



North East

Over the forecast period 2001 – 2005, the average yearly growth rate of construction output in the North East is expected to be 2.1% compared with 2.7% for Great Britain as a whole. In 1999, the rate of construction unemployment at 11% was well above the national average of 7%.

Current major projects

- **Commercial:** A £70m mixed development in Darlington expected to be phased over 10 years; a £62m project comprising the construction of a regional music centre in Gateshead.
- **Infrastructure:** A £76m project comprising the construction/refurbishment of two railway stations and various civil engineering works, Sunderland; a £50m project to replace gas mains, Newcastle-upon-Tyne.
- **Public:** The last stage of a £96m project to build the new Dryburn Hospital, Durham.

Expected major projects

- **Commercial:** A £100m mixed development project for the regeneration of Middlehaven dockland area; a £65m leisure and retail development, Newcastle-upon-Tyne.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 80% of employers in the North East experienced difficulties in recruiting skilled staff. The recruitment of Carpenters & Joiners and Bricklayers was worst affected, followed by Plant Operatives, Plasterers, Managers and Professionals.

Recruitment difficulties are unlikely to ease in the North East since 76% of employers expect an increase in workload over the next six months.

Provision of training

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. The North East accounted for approximately 730 candidates in 35 companies.

CITB has been working with the University of Northumbria and employers' federations to produce a whole-industry labour market study. The project has been supported by the **European Social Fund**.

ON-SITE ASSESSMENT AND TRAINING (OSAT)
A CITB programme that gives workers the opportunity to gain formal qualifications through training and assessment in the workplace.

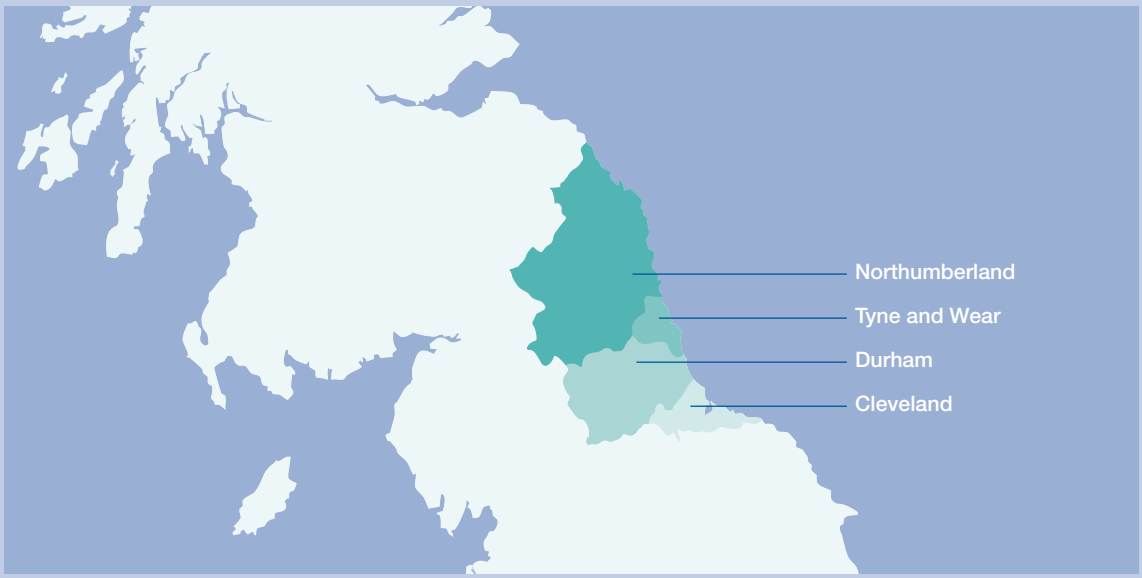
EUROPEAN SOCIAL FUND (ESF)
Set up in 1958 to support employment and promote labour mobility within the European Community.

Table A10

North East

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	5090	5240	280	1400
Clerical	4480	4730	250	1250
Professionals	1450	1490	80	400
Technicians	1440	1510	80	400
Carpenters & Joiners	9430	9120	500	2500
Bricklayers	4910	4850	260	1300
Painters & Decorators	3660	3520	190	950
Plasterers	1690	1350	80	400
Roofers	1900	1820	100	500
Floorers	870	830	50	250
Glaziers	320	310	20	100
Other SB Operatives [1]	1610	1680	90	450
Scaffolders	750	720	40	200
Plant Operatives	1730	1770	90	450
Plant Mechanics/Fitters	910	930	50	250
Steel Erectors/Structural	600	600	30	150
Other CE Operatives [2]	3780	3760	200	1000
General Operatives	3180	3150	170	850
Maintenance Workers	1030	1050	60	300
Electricians	5670	5710	310	1550
Plumbers	4610	4670	250	1250
Total	**59110**	**58810**	**3180**	**15900**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



Scotland

Over the forecast period 2001 – 2005, the average yearly growth rate of construction output in Scotland is expected to be 1.5% (the lowest in Great Britain) compared with 2.7% for Great Britain as a whole. The rate of construction unemployment (9%) was above the national average of 7%.

Current major projects

- **Infrastructure:** A £120m project for waste services that is expected to be completed in three months, Tayside; a new £100m project for three sewage treatment works, Dundee; two projects for sewage treatment works, both worth £80m, in Aberdeen and in Elgin.

Expected major projects

- **Housing/Commercial:** A £500m mixed scheme in Glasgow comprising a large leisure, retail, office and housing development.
- **Housing/Infrastructure:** A £500m mixed project in Edinburgh comprising 5,800 houses with school provision and transport infrastructure.
- **Infrastructure:** A £100m project for Loch Katrine water supply, Glasgow.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 80% of employers in Scotland experienced difficulties in recruiting skilled staff. The recruitment of Carpenters & Joiners and Bricklayers was worst affected, followed by Plant Operatives, Managers and Professionals.

Recruitment difficulties are unlikely to ease in Scotland since 65% of employers expect an increase in workload over the next six months.

Provision of training

There is concern over the rationalisation of colleges throughout Scotland, but, as yet, no closures are reported.

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. Of these, Scotland accounted for 640 candidates in 15 companies.

CITB has been keen to develop links within the new education and training infrastructure under the Scottish Executive. The CITB Scottish Manager is a member of a number of key policy and research groups, including the NTO National Council Bench Marking group and the new Beattie group on social inclusion in training.

CITB has developed close relationships with the Highlands and Islands Enterprise and its network of Local Enterprise Companies. This has resulted in a document analysing the local skills needs of the sector.

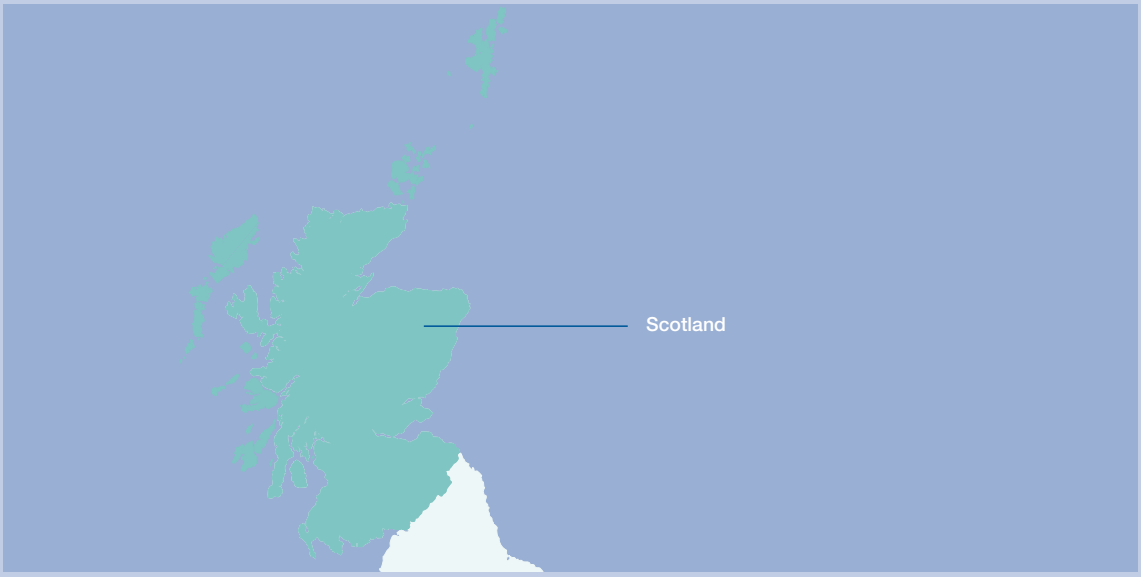
ON-SITE ASSESSMENT AND TRAINING (OSAT)
A CITB programme that gives workers the opportunity to gain formal qualifications through training and assessment in the workplace.

Table A11

Scotland

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	12910	15010	540	2700
Clerical	11380	13090	470	2350
Professionals	3690	4210	150	750
Technicians	3650	4240	150	750
Carpenters & Joiners	20320	22160	840	4200
Bricklayers	10150	10850	410	2050
Painters & Decorators	7570	7880	300	1500
Plasterers	3490	3020	120	600
Roofers	3930	4080	150	750
Floorers	1790	1860	70	350
Glaziers	670	700	30	150
Other SB Operatives [1]	3330	3810	140	700
Scaffolders	1540	1600	60	300
Plant Operatives	3910	4350	160	800
Plant Mechanics/Fitters	2060	2410	90	450
Steel Erectors/Structural	1350	1470	50	250
Other CE Operatives [2]	8810	9670	360	1800
General Operatives	7180	7850	290	1450
Maintenance Workers	2330	2780	100	500
Electricians	12810	14270	530	2650
Plumbers	10410	11670	430	2150
Total	**133280**	**146980**	**5440**	**27200**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



Wales

Over the forecast period 2001 – 2005, the average yearly growth rate of construction output in Wales is expected to be 2.3% compared to 2.7% for Great Britain as a whole. In 1999, the rate of construction unemployment (12%) was well above the national average (7%).

Current major projects

- **Housing:** Moderate activity.
- **Infrastructure:** Comparatively slow.
- **Commercial:** A £70m project for the Wales Millennium Centre, Cardiff Bay; a £50m re-development project for Morfa Stadium, West Glamorgan; a £50m shopping centre development in Newport, Gwent.
- **Public:** A £60m project to build a new hospital and associated infrastructure in Port Talbot, West Glamorgan.

Expected major projects

- **Infrastructure:** Strong activity is expected as a result of the new Welsh Assembly, particularly for roads and rail due to the need of improved links between North and South Wales. A £47m project to build an access road for Cardiff airport is due to start April 2001; a £45m road project comprising the construction of a dual two-lane carriageway at Newport, Gwent; proposed by-pass road in Usk.

Reported skill shortages

According to an internal CITB survey undertaken in Spring 2000, 85% of employers in Wales experienced difficulties in recruiting skilled staff. Recruitment of Carpenters & Joiners and Bricklayers was worst affected, followed by Plasterers, Managers and Professionals.

There is a general uneasiness about availability of skilled labour. In North Wales, in particular, there have been problems in recruiting skilled shopfitters.

More generally, it is difficult to get IT staff in the construction industry which is possibly due to the low level of pay offered. However, only 50% of employers in Wales expect their workload to increase over the next six months compared to the national average of 66%.

Provision of training

There are no major concerns regarding college closures. The main concern is over the low number of trainees. This is seen as likely to create difficulties in the future.

Since its official start in February 1999, **On-Site Assessment and Training (OSAT)** has been expanding rapidly in Great Britain as a whole. 50 candidates took part in the pilot scheme at the end of 1998 and, by Summer 2000, this number had increased to approximately 11,000 candidates in 519 companies. Wales accounted for 350 candidates in 25 companies.

CITB in Wales has undertaken an innovative project funded by the National Assembly for Wales to investigate ways in which multi-skilling in construction crafts could be incorporated into Modern Apprenticeships.

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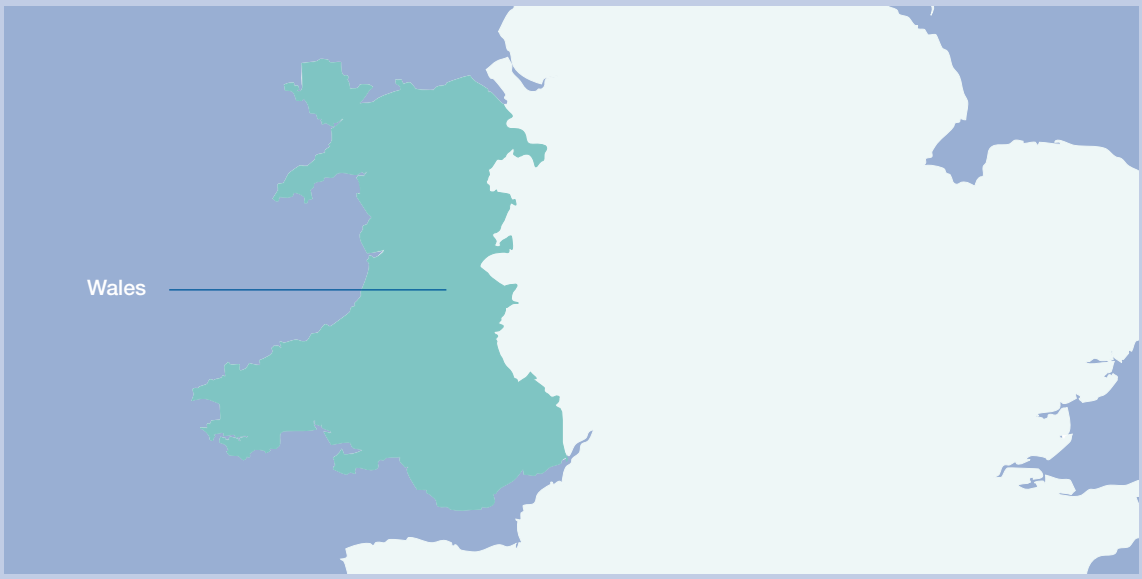
Table A12
Wales

	Employment		Average Annual Requirement 2001 – 2005	Cumulative Requirement 2001 – 2005
	1999	2005		
Managers	4630	4340	240	1200
Clerical	4080	3810	210	1050
Professionals	1330	1240	70	350
Technicians	1310	1230	70	350
Carpenters & Joiners	11230	9620	540	2700
Bricklayers	6060	5170	290	1450
Painters & Decorators	4520	3760	210	1050
Plasterers	2090	1440	90	450
Roofers	2340	1940	110	550
Floorers	1070	890	50	250
Glaziers	400	330	20	100
Other SB Operatives [1]	1990	1820	100	500
Scaffolders	920	760	40	200
Plant Operatives	2040	1810	100	500
Plant Mechanics/Fitters	1070	970	50	250
Steel Erectors/Structural	710	630	30	150
Other CE Operatives [2]	4450	3940	220	1100
General Operatives	3740	3130	180	900
Maintenance Workers	1210	1070	60	300
Electricians	6680	5940	330	1650
Plumbers	5420	4860	270	1350
Total	**67290**	**58700**	**3280**	**16400**

Source: CITB Employment Model, 2000; Business Strategies (notes as in Table A1)



Appendix B

Detailed Occupational Breakdown

The following tables give further occupational breakdown of the numbers employed in Great Britain for most groups in Table A1. The more detailed occupation categories given here mirror, as far as possible, NVQ categories.

Table B1:

Wood Trades	Number
Carpenters & Joiners (Sitework)	154947
Carpenters & Joiners (Benchwork)	35123
Shopfitters	5504
Formworkers	1854
Wood Machinists	3472
Total Wood Trades	200900

Table B2:

Trowel Trades	Number
Bricklayers	107898
Cavity Wall Tie Installers	487
Facade Maintenance/Cleaning	1364
Stonemasons	3451
Plasterers (Fibrous)	7535
Plasterers (Solid)	27022
Dry Liners	4143
Total Trowel Trades	151900

Table B3:

Roofing Trades	Number
Thatchers	249
Slaters and Tilers	27440
Built-up Felt Roofers	6122
Sheeters and Cladders	6035
Single Ply Roofers	1570
Liquid Applied Roofers	270
Mastic Asphalters	2114
Total Roofing Trades	43800

Table B4:

Flooring Trades	Number
Floorcoverers, including Carpet Fitters	7991
Wall and Floor Tilers	12009
Total Flooring Trades	20000

Table B5:

Other Specialist Building Trades	Number
Ceiling Fixers	8229
Demountable Partition Erectors	8006
Demolition Operatives	17654
Steeplejacks/Lightning Conductor Engineers	3311
Total Other SB Trades	37200

Table B6:

Steel Trades	Number
Steel Erectors/Riggers	6734
Structural Steel Workers	7066
Total Steel Trades	13800

Table B7:

Plant Operating Trades	Number
Crane Drivers	2149
Plant Operators	37751
Total Plant Operating Trades	39900

Table B8:

Other Civil Engineering Trades	Number
Asphalters	8218
Bar Benders/Steel Fixers	1054
Public Utilities Distribution Operatives	21227
Mason Paviors	5864
General CE Operatives	50937
Total Other Civil Engineering Trades	87300

Table B9:

Maintenance Trades	Number
Maintenance Operatives	7000
Thermal Insulation Engineers	16700
Total Maintenance Trades	23700

Table B10:

Plumbing Trades	Number
Plumbers	27952
Heating and Ventilating Engineers	71002
Refrigeration and Air Conditioning Engineers	7346
Total Plumbing Trades	106300

Table B11:

Administrative Staff	Number
Managers	133600
Supervisors	38946
Clerical Staff	67109
Sales Staff	11745
Total Administrative Staff	251400

Table B12:

Professional Functions	Number
Planning Services	2493
Architectural and Design	5072
Engineering and Design	9080
Surveying	21555
Technical	37800
Total Professional Functions	76000

Source:
Office of National Statistics: Labour Force Survey, Autumn 1999
Strategic Forum of Construction NTOs: Survey of Employment by Occupation, Spring 1998
CITB Employment Model, 2000

Tables B11 and B12 give further occupational breakdown for non-manual occupations in the construction industry. For professional and technical functions, it should be noted that between 70% and 80% of construction professional and technical staff work for professional partnerships and are not therefore included in total construction employment as defined by DETR.

Appendix C

The Construction Labour Market

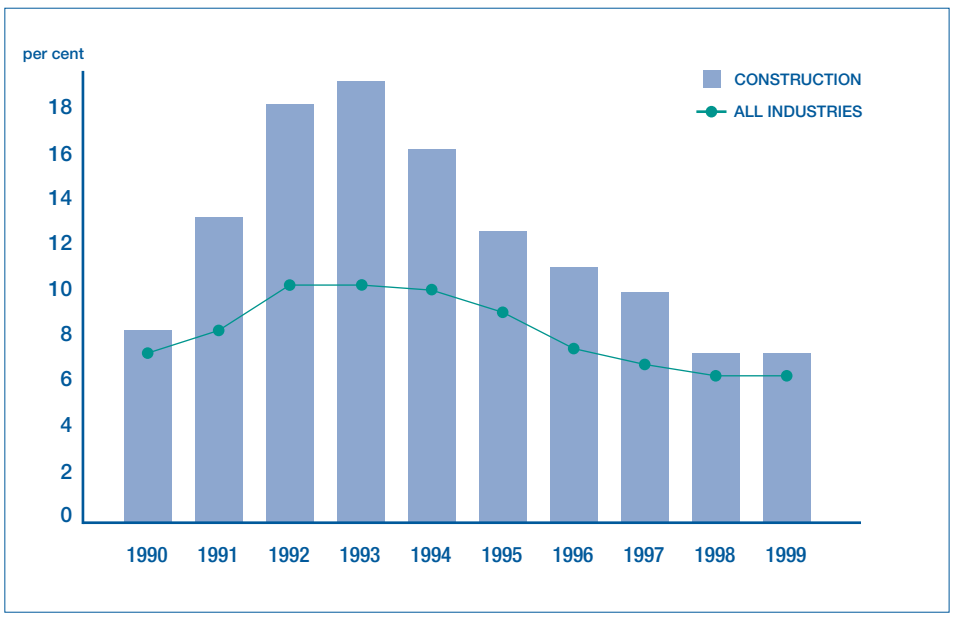
During the 1990s, the construction labour market underwent considerable changes. In the following section, we will concentrate on three main aspects:

- the sharp decline in the unemployment rate both in absolute terms and relative to the national rate
- the rise and subsequent decline in the share of self-employment in total employment
- the changes in the age profile of the workforce

We will also compare the two estimates of total construction employment by the Department of the Environment, Transport and the Regions (DETR) and by the Office of National Statistics (ONS). The lower of these two estimates is currently used in the CITB Employment Model. A table on all construction professionals is also included.

Diagram C1 reveals a sharp increase in the unemployment rate in the construction industry during the first half of the 1990s followed by an equally sharp decline during the second half of the decade. Currently, unemployment in the industry at 7% is close to the average for the whole economy of 6%.

Diagram C1
Unemployment Rate, 1990 – 1999
Construction and All Industries



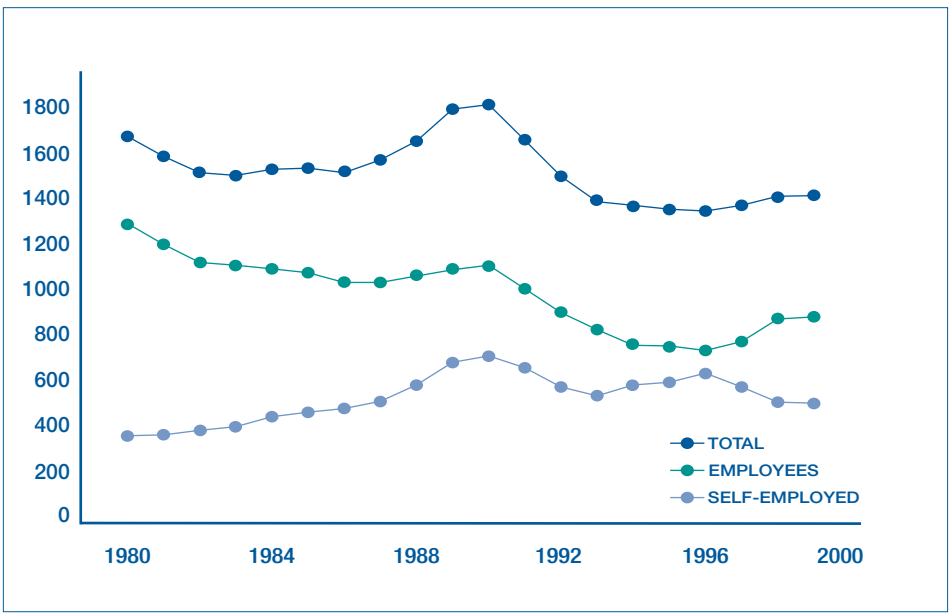
Source:
Office of National Statistics: Labour Force Survey, Spring 2000

As shown in Diagram 1 on page 6, construction output was declining at a faster rate than GDP during the early 1990s – while in the second half of the decade, the recovery in construction activity was slower than in other sectors. This resulted in an outflow from the construction industry into other sectors that contributed to the decline in the construction unemployment rate.

Diagram C2 shows total construction employment over the past 20 years. Total employment reached a peak in the late 1980s, declining sharply in the first half of the 1990s. At the same time, the share of self-employment increased to 47% in 1996 from 22% in 1980. With the introduction of stricter controls over self-employed operatives by the Inland Revenue and Contributions Agency, the share of the self-employed declined to 36% over the following two years. According to the DETR, for 1999 as a whole, the share of the self-employed has remained unchanged at 36%. Overall, the impact of this initiative to review the status of self-employed operatives has been less than originally expected.

However, as more firms have sought to employ staff directly rather than as self-employed sub-contractors, this may have added to their perception of skill shortages.

Diagram C2
Construction Employment, 1980 – 1998
Employees and Self-employed (000s)

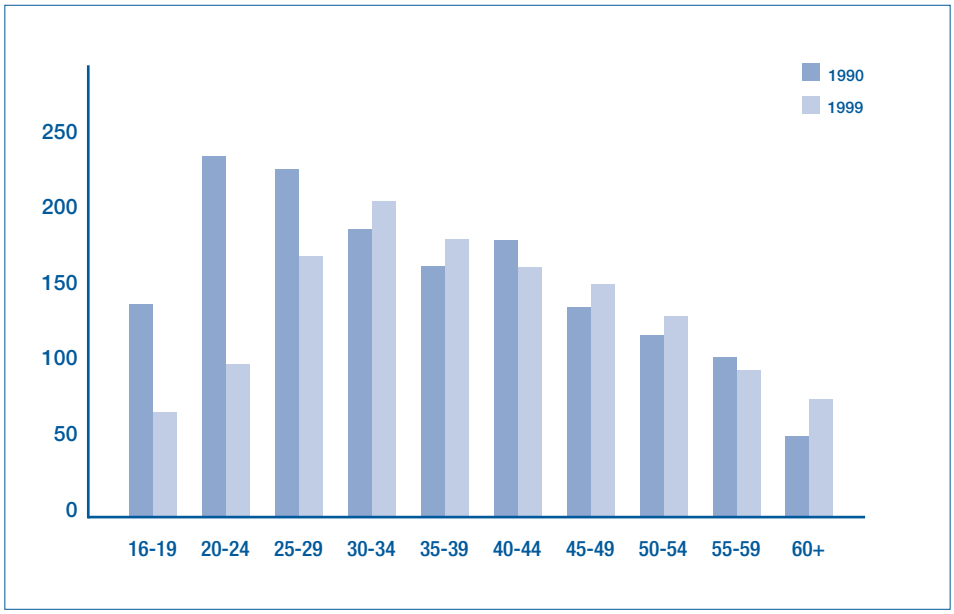


Source:
Department of the Environment, Transport and the Regions

Diagram C3 shows the age profile for operatives in 1990 and 1999. The diagram illustrates the sharp decline in the share of the younger age groups in total employment as well as some increase in all age groups from 45 years of age and over. This ageing of the workforce in the industry is consistent with the marked decline in recruitment during the early 1990s (which would disproportionately affect the younger age groups). Nevertheless, it is the cause of some concern. In diagram C4, however, comparison between 1998 and 1999 shows some recovery in the intake of the 16 – 19 year group.

Diagram C3

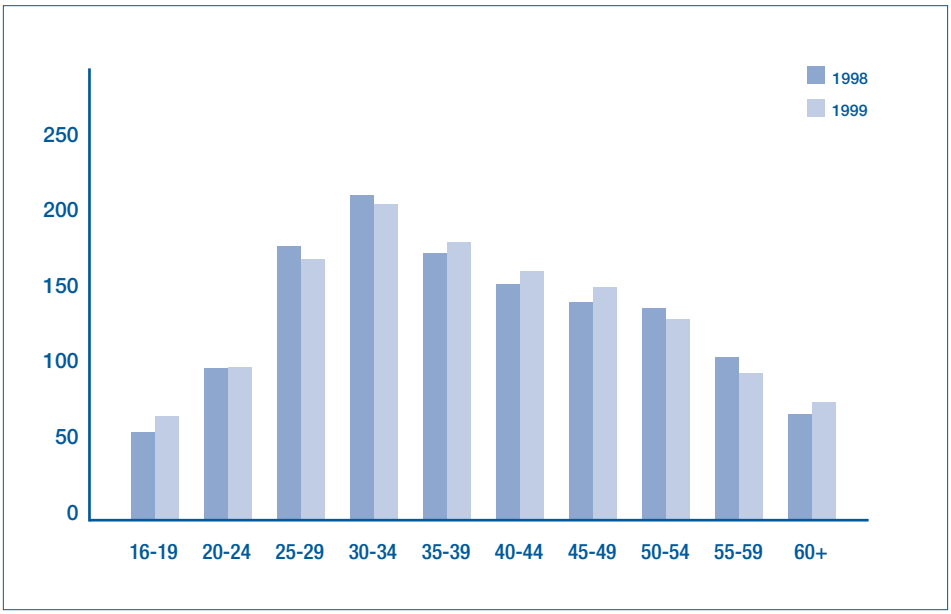
Age Profile of All Manuals in Construction, 1990 and 1999 (000s)



Source:
Office of National Statistics: Labour Force Survey, Spring 2000

Diagram C4

Age Profile of All Manuals in the Construction Industry, 1998 and 1999 (000s)



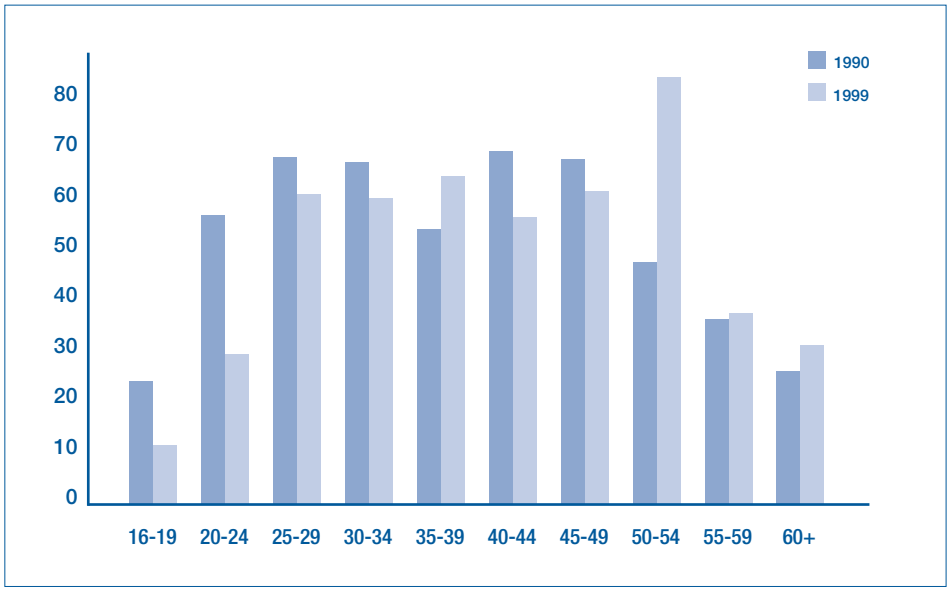
Source:
Office of National Statistics: Labour Force Survey, Spring 2000

'This ageing of the workforce in the industry is consistent with the marked decline in recruitment during the early 1990s (which would disproportionately affect the younger age groups). Nevertheless, it is the cause of some concern.'

Diagram C5 shows the age profile for non-manuals in the industry and reveals a sharp increase in the age group 50 – 54 as well as some decline in the intake of the age groups 16 – 19 and 20 – 24. In order to return to the previous age profile, the industry needs to attract a significant number of young people. However, in reality, the industry will have to rely on increasing entry at all ages.

Diagram C5

Age Profile of All Non-manuals in the Construction Industry, 1990 and 1999 (000s)

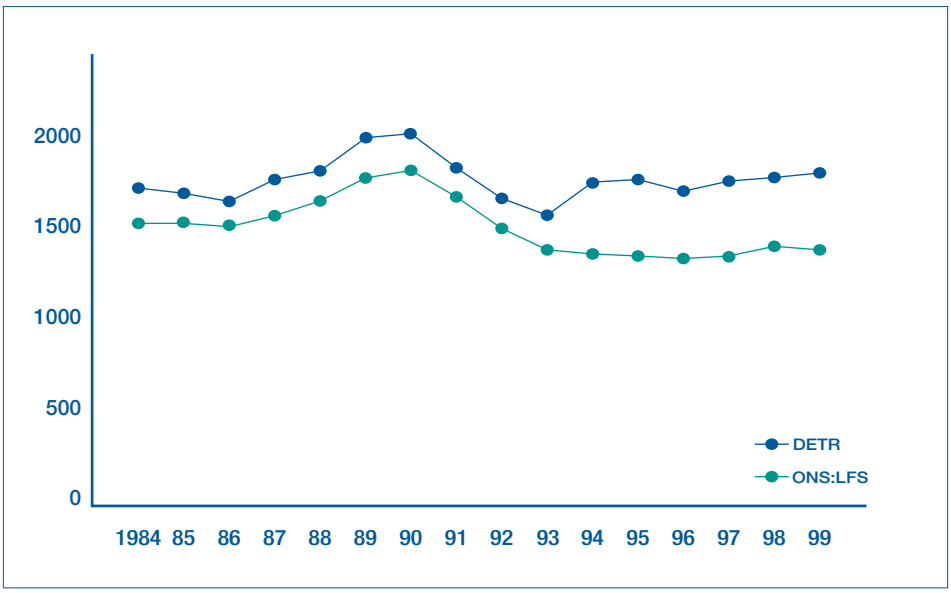


Source:
Office of National Statistics: Labour Force Survey, Spring 2000

Alternative Estimates

From 1984, we have consistent data on total employment in the construction industry from the Labour Force Survey (LFS) carried out by the Office of National Statistics (ONS). Diagram C6 illustrates the difference between the estimates of total construction employment by DETR and ONS.

Diagram C6
Total Construction Employment, 1984 – 1999 (000s)
Estimates from DETR and ONS



Source:
DETR, ONS: Labour Force Survey

DETR conducts an employer-based quarterly survey, in which data on both output and direct employment in the construction industry are collected. The department maintains two registers of organisations classified to the construction industry. The main register, largely based on VAT returns, contains private contracting firms from which samples are drawn for regular enquiries into orders, output and employment (employees-in-employment only). The other register relates to direct labour organisations (DLOs) in the public sector. Because both employment and output figures are collected from the same producing units, the two sets of figures are consistent.

The DETR's estimates of output and employment have always included an allowance for 'unrecorded' output and 'missed' workers. In 1993, the DETR decided to revise its estimates of output and employment to bring its own series more in line with estimates produced by ONS. However, the two series moved further apart in 1994, a year when output in the industry was increasing at a yearly rate of 3.4%, after declining for three consecutive years in the early 1990s.

The Labour Force Survey (LFS) is an employee-based survey, started in 1973 and now carried out every quarter. The LFS provides information on both employees-in-employment and the self-employed. Apart from the Census of Population, which is only carried out every 10 years, the LFS is the only source of information on self-employment in the construction industry.

While the LFS is likely to overestimate, the DETR is likely to underestimate the size of the construction workforce. Individuals responding to the LFS's questionnaire may wrongly classify themselves to the industry. On the other hand, DETR's VAT register of employers will fail to capture small companies below the VAT threshold. The number of such companies is likely to have increased in recent years.

However, for modelling total employment in the construction industry, we need to use DETR's estimate of total employment, the only estimate which is fully compatible with DETR's estimate of total construction output.

Construction Professionals

Table C1 below gives the total employment of construction professionals in the construction industry as defined in official statistics (Standard Industrial Classification 45) and in other sectors of the economy. The table is based on figures from the LFS and the Standard Occupational Classification (SOC)categories. The figures show that less than 30% of all construction professionals work in the construction industry as defined by DETR. The rest work in professional consultancies or partnerships, or in the public sector. The percentage in construction varies from 47% for civil engineers to 10% and 9% for architects and draughtspersons respectively.

Table C1
Average Spring 1995 – Spring 1998

	In Construction	Outside Construction	Total	% in Construction
Total Professionals	90097	226753	316846	28
210 Civil Engineers	34508	38489	72996	47
260 Architects	3916	36585	40500	10
261 Town Planners	3086	10364	13450	23
262 Building Surveyors	14367	47803	62170	23
303 Architectural Technicians	2422	13614	16035	15
304 Civil Engineering Technicians	5057	5374	10431	48
310 Draughtspersons	5676	54965	60641	9
311 Building Inspectors	2226	2424	4650	48
312 Quantity Surveyors	18839	17135	35973	52

Part Two: Training Supply

Craft and Technician Training

The Trainee Numbers Survey, an annual survey of construction training providers across Great Britain, forms one part of the Labour Market Information produced by the CITB. It measures levels of training, with the results used to project the number of skilled workers who will enter the industry. When analysed alongside the forecast labour requirement for the trades covered in Part One, these results highlight potential skill shortages or surpluses.

The survey is carried out between October and December each year, and counts only those students who actually attend a course, as opposed to those who merely enrol. The advantages of using the survey, rather than other sources of student numbers, are that information is available quickly, and that detailed occupational data is given at national, regional and local levels. The information is, therefore, more revealing, and allows projections of skill supply to be made in greater detail.

Numbers of trainees are given for different construction courses, with new starters classified by age and gender. Colleges are not obliged to complete the survey, so it may not include all trainees attending courses across the country. However, the response rate is high enough – about 85% nationally – to give an accurate indication of training levels.

The following table shows the total number of trainees on construction courses at NVQ/SVQ Levels 1 to 3 (and their equivalents). It looks beyond the Building Craft Trades (which were analysed in detail in Table 3, Part One) and includes Technicians, Plumbers & Gas Fitters amongst others.

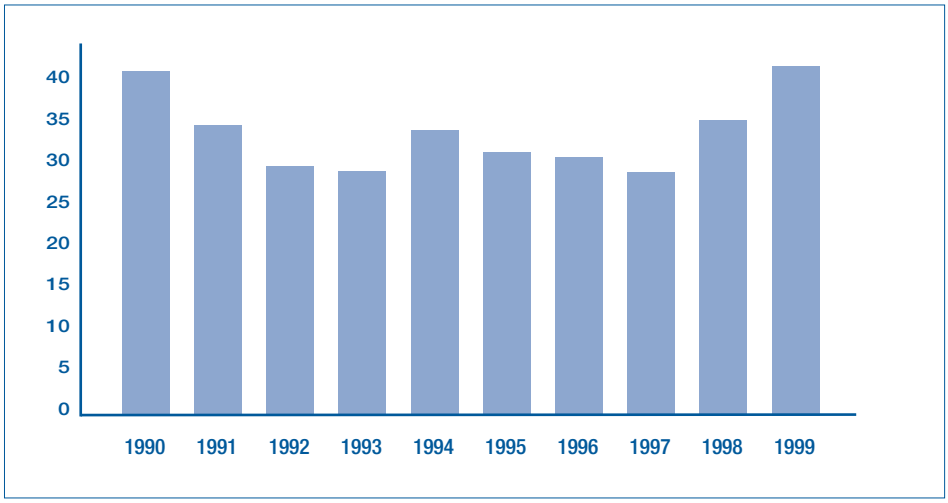
Number of First Year Enrolments on Construction Courses at FE Colleges and Training Centres: 1999/2000 (Great Britain)

	Trainees		
Qualification	Under 18	Over 18	Total
Technicians	2015	3495	5510
Carpenters & Joiners	7940	6405	14345
Bricklayers	4310	4000	8310
Painters & Decorators	2435	2365	4800
Plasterers	430	580	1010
Roofers	300	80	380
Floorers	95	135	230
Glaziers	10	20	30
Other Specialist Builders	65	85	150
Scaffolders	260	30	290
Plant Operatives	20	10	30
Plant Mechanics	110	65	175
Steel Erectors/Structural	0	15	15
Other Civil Engineers	5	10	15
General Operatives	1470	495	1965
Maintenance Workers	0	5	5
Plumbers & Gas Fitters	3600	1400	5000
Total	23065	19195	42260

Source:
CITB Trainee Numbers Survey 1999/2000

The following diagram illustrates the trend in training levels across all construction qualifications at Craft and Technician level.

Numbers of First Year Enrolments on Construction Courses at FE Colleges and Training Centres (000s): 1990 – 1999

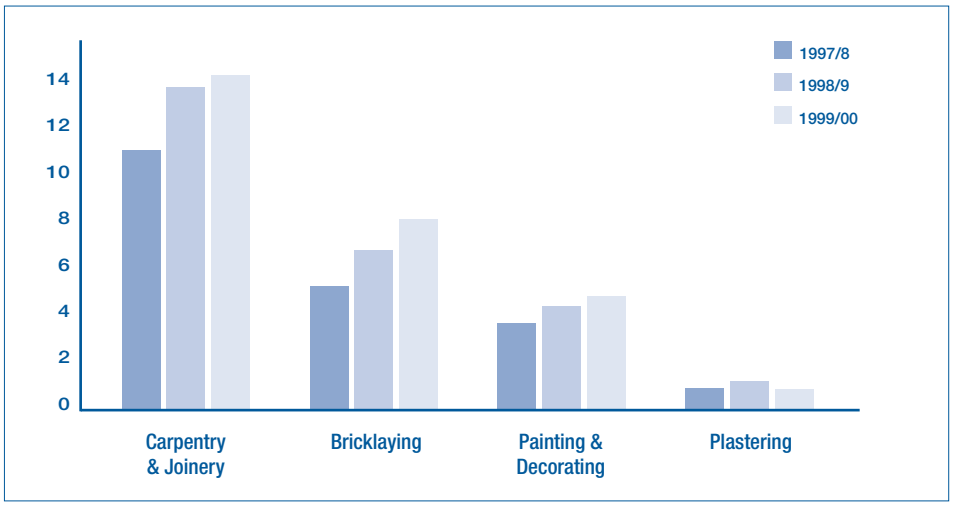


Source: CITB Trainee Numbers Survey

Throughout most of the 1990s, the number of first year trainees has fluctuated around 30,000. This figure was down some 10,000 on the late 1980s, and was in line with a drop in the workforce of around 450,000 over this period. The last two years have seen a recovery in numbers, to the levels last reached in 1990.

The diagram below illustrates the increase in training in Building Crafts over the past three years. The increase is evident across most occupations, with Plastering being a notable exception.

Comparison of First-year Intake by Occupational Group (000s): 1997/8 – 1999/00 (Great Britain)



Source: CITB Trainee Numbers Survey 1999/2000

Apprentices

An analysis of previous surveys has shown that, nationally, approximately one-third of first-year trainees are starting Apprenticeship-type training. This is taken to be an NVQ/SVQ Level 2 or higher and excludes those who, while taking a construction course, do not work for construction companies.

While it is not possible to gauge the exact number of apprentice-type trainees from the survey – and there will undoubtedly be annual and regional variations – there are probably in the region of 13,500 to 14,500 starting each year in Great Britain.

Equal Opportunities

Overall, the proportions of women and ethnic minorities in training at Craft and Technician levels are higher than the proportions in employment. Of the 42,000 first-year trainees, approximately 4% were female (1,740), and around 5% were from an ethnic minority (2,190). The results indicate a tendency for women to be attracted to Painting & Decorating and Technician courses, and for trainees from an ethnic minority to take courses at either NVQ/SVQ Levels 2 or 3.

Comparison with FEFC numbers and NVQ registrations

There are several differences between the numbers of trainees supplied by the Further Education Funding Council (FEFC) and those from the Trainee Numbers Survey. Whereas the Trainee Numbers Survey is concerned primarily with the number of first-year trainees starting construction courses, the FEFC records the size of the whole student population across all years.

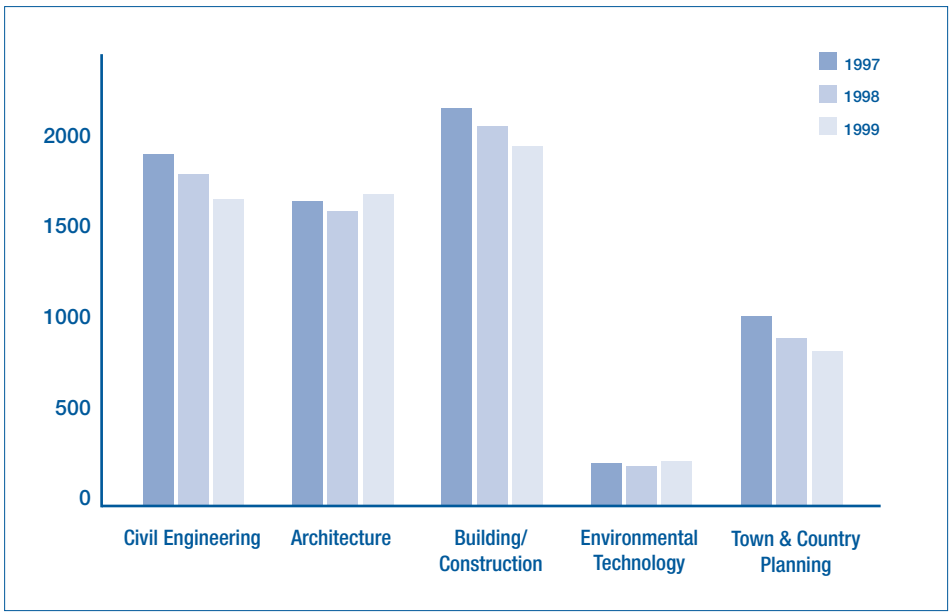
By being carried out in November or December each year, the Trainee Numbers Survey counts only those who actually attend a course, and excludes those who may enrol but not turn up. It also avoids the problem of double counting those enrolled on more than one course, by being a head count of trainees within a college.

Finally, the FEFC has a much broader definition of construction training that encompasses such areas as Town and Country Planning, Furniture Restoration, and so on. The net result of these differences is to make the FEFC data on trainees some three to four times greater than that of the Trainee Numbers Survey.

Degree Qualifications

The National Construction Careers Group publishes numbers of new entrants to construction-related degree and HND courses. The information is obtained from UCAS (Universities and Colleges Admissions Service). The figures, reproduced in the diagram below, show a fall in the number of students accepted onto Civil Engineering, Building/Construction and Town and Country Planning courses, but an increase in numbers starting Architecture and Environmental Technology courses.

Comparison of First-year Intake on to Construction-related Degree Courses 1997/8 – 1999/00 (UK-based Students)



The long-term trend for the number of females accepted onto degree courses is upwards. Proportions are highest in Architecture, Environmental Technology, and Town and Country Planning at between 30-35%. Proportions of women starting Civil Engineering and Building/Construction courses are around 12 – 13%.

Between 10 – 14% of entrants to Civil Engineering, Architectural, and Town & Country Planning Courses are from an ethnic minority, compared to around 7% on Building/Construction Courses. These figures are comparable with previous years.

CITB Research Department Publications

As a National Training Organisation, CITB is responsible for helping the construction industry meet its skill requirements. In order to do this, CITB aims to develop a comprehensive understanding of the industry and its future prospects, as well as an analysis of its skill needs and how those needs are to be met. To inform this, CITB maintains a programme of research and labour market information comprising a range of qualitative and quantitative projects. These include surveys of employers, training establishments and trainees as well as evaluations of particular activities in which CITB is involved.

This report, setting out the industry's future skill needs, is a key part of CITB research and labour market information work. The forecasts contained in it are used as a basis for planning training provision, the allocation of resources and the development of new qualifications and other training products. CITB has a policy of publishing its work in this area, to share the information with those partners in training who might benefit from it. This is recognised as a primary role of CITB as a National Training Organisation and is designed to help our industry meet its skill needs and thereby enhance its competitiveness.

CITB's research and labour market information can be found at:
www.citb.co.uk

CITB would like to thank the Department for Education and Employment for their help in this work.

Details of other CITB research and labour market information is available from:

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If you have any comments on this report, would like further copies or to be added to our mailing list, please contact:

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