# Construction in Further Education



**NATIONAL REPORT FROM THE INSPECTORATE**

2000-01

**THE FURTHER EDUCATION FUNDING COUNCIL**

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*The Further Education Funding Council (FEFC) has a legal duty to make sure further education in England is properly assessed. The FEFC's inspectorate inspects and reports on each college of further education according to a four-year cycle. It also inspects other further education provision funded by the FEFC. In fulfilling its work programme, the inspectorate assesses and reports nationally on the curriculum, disseminates good practice and advises the FEFC's quality assessment committee.*

*College inspections are carried out in accordance with the framework and guidelines described in Council Circulars 97/12, 97/13 and 97/22. Inspections seek to validate the data and judgements provided by colleges in self-assessment reports. They involve full-time inspectors and registered part-time inspectors who have knowledge of, and experience in, the work they inspect. A member of the Council's audit service works with inspectors in assessing aspects of governance and management. All colleges are invited to nominate a senior member of their staff to participate in the inspection as a team member.*

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# Contents

# Summary

Colleges are major providers of education and training for construction employers and employees, and for full-time students wishing to pursue careers in construction. Colleges respond well to the needs of the construction industry, local communities, and to meet national priorities for widening participation, social inclusion and lifelong learning. The number of students in the main construction programmes has increased by over 22% over the past three years. However, this statistic masks declining recruitment to the crafts at national vocational qualification (NVQ) level 3, and technician courses at level 2 and 3, over the same period. The fall in level 3 craft recruitment at a time of significant skill shortages in the industry is a dilemma for employers because this is the level of qualification required to achieve craftsperson status in most crafts.

Some colleges have developed innovative partnerships with local communities and employers that contribute to urban regeneration and help overcome the lack of work experience opportunities for students. Many colleges have developed good school link programmes organised through construction curriculum centres, despite the difficulties in funding these centres. Construction departments cope well with school pupils dissatisfied with secondary education and/or displaying behavioural problems. A significant number of these students settle down at college and make good progress in achieving a qualification and gaining employment. However, a lack of collaboration between schools and colleges results in many school pupils being prevented from studying construction courses that could benefit both themselves and the work force. Students with learning difficulties and/or disabilities receive effective support. They integrate well with other students and make good progress.

Construction is perceived as high cost and difficult provision to support in many colleges. Courses are constantly under threat of closure, yet few colleges are aware of true operating costs. The total time that students spend on learning activities in the colleges surveyed has continued to fall. There are inadequacies in workshop management and the allocation of space for practical work in construction which are hindering teaching and learning. Despite buoyant enrolments nearly three-quarters of the colleges surveyed have changed the management of construction significantly since the first survey report. The recruitment of senior executives from the construction industry to college governing bodies since the previous survey has fallen by nearly 20%. There are not enough governors or senior managers with appropriate construction expertise to steer the strategic development of construction in colleges effectively.

The quality of teaching and learning in construction lessons is mostly satisfactory or better. However, the grades awarded to the lessons observed are poorer than the average grades for all programme areas. Teachers must cope with complex class groups but few lesson plans have clear strategies to address the diverse needs of students. The best teaching and learning occurs in workshops. Practical activities are well organised and teachers place learning in an industrial context and develop students' understanding of specific construction processes. Some teams are making increased use of information technology (IT) to improve teaching and

learning. However, good practice in construction is not sufficiently shared between course teams and between colleges. The Further Education Funding Council (FEFC), through a national dissemination project supported by the standards fund, is encouraging colleges with good practice to share it with others. There is insufficient collaboration between colleges to develop user-friendly computer-based and interactive software to enhance learning in construction. A high proportion of construction students have poor numeracy and literacy skills and receive additional tuition and support to achieve improvement in these areas. Many students also receive additional tuition and support to overcome the lack of educational content in NVQ programmes and the shortage of work experience. Colleges and the construction industry are introducing new courses that separate education and training from the assessment of competence in the workplace.

In most colleges, the standard of students' practical work is high and meets industry standards. Many students develop good key skills. They also develop extensive portfolios of evidence which include the research they have undertaken and the knowledge they have gained about the job. Overall retention and pass rates have improved over the past three years. However, the number of construction students who gain a qualification, compared with those that start the course, is very low. Students face significant barriers in progressing to higher level qualifications or to employment. The framework for qualifications remains over complex and students are unable to accumulate credit towards a full vocational qualification. The retention rate and pass rate for 16 to 18 year olds are much better than for adults on most courses.

Although construction staff have good industrial experience and are well qualified, the proportion of teachers with professional qualifications or degrees relating to construction has decreased since the previous survey. This is mainly because of the loss of experienced staff through college restructuring. Colleges are having significant difficulty attracting and retaining suitably qualified and experienced construction teachers. Teachers willingly undertake professional development to broaden their skills. Some colleges have made substantial investment in new and high quality workshop accommodation. The FEFC's space standards for workshops, however, have proved restricting for some specialist crafts. Specialist equipment is generally sufficient in quantity and well maintained but much is outdated. Few colleges have computer-controlled woodcutting machinery.

The proportion of construction provision graded good or outstanding has fallen over the past three years. In 1999-2000, of the colleges inspected, only 22% were graded 1 or 2 in construction whereas it was 50% for all programme areas. Overall, colleges grade their provision higher than inspectors. In their self-assessment reports colleges generally omit or give too little weight to significant weaknesses in construction, particularly: shortcomings in the teaching of theory; poor retention and pass rates; a lack of rigour in course reviews; poorly managed workshops; and insufficient sharing of good practice.

# Introduction

## Background to the Survey Report

1 This report assesses the quality and standards of construction provision in further education colleges in England. It incorporates the findings of inspectors and the evidence gained from 60 inspections of construction provision carried out as part of the second four-year cycle of college inspections, 1997 to 2000. It also draws on a survey of construction provision in 30 colleges, conducted between September 1999 and April 2000. The report covers work in the main and specialist crafts, building services and furniture up to national vocational qualification (NVQ) level 3, and technician studies up to level 4. A small element of construction falling within the art and design programme area is also considered; for example, handcrafted furniture and signwriting. The report comments on some of the changes found since the first survey report was published in April 1997, quoting from the conclusions of this survey, where appropriate. Numerical data quoted in this report are based on the response to survey questionnaires, and data provided by colleges through the individualised student record (ISR). The ISR data were not available at the time of the first survey.

2 In undertaking the survey, inspectors sought the views of the main organisations representing the construction industry and took account of national priorities and of themes relating to the first survey report. The main themes included:

- equality of opportunity
- franchising
- key skills
- inclusive learning
- school curriculum links
- support for the community and employers
- students' retention and achievement
- support for students with learning difficulties and/or disabilities
- the use of technology in support of learning.

# Construction in the UK and its Demand for Skilled People

3 The construction industry is central to the economy because it is the mechanism by which new homes, regional regeneration, modern transport facilities and a wide range of other public infrastructure are delivered. A significant proportion of work in construction is in the repair and maintenance field, which involves many small to medium-sized employers. The industry has a major impact on the economy and is viewed as its barometer. It includes nearly 200,000 contracting companies, of which about half are private one-person firms. Only 10,000 of these companies employ more than seven people. The industry employs about 1.46 million people, nearly one in 10 of the United Kingdom workforce. In 1998, output in the whole industry was £56.3 billion, representing about 9% of gross domestic product. The industry embraces 35 different crafts and numerous professional occupations.

4 The United Kingdom (UK) construction companies operate in many parts of the world. The largest company, however, is relatively small in world terms. The highest placed UK company is now eleventh in a league of European contractors based on annual turnover, a fall of three places since December 1999. The value of overseas contracts won by UK companies fell from £4.3 billion in 1998 to £3.7 billion in 1999, mainly as a result of companies coming under foreign ownership and losing control of £1 billion worth of work.

5 The construction industry within the United Kingdom has experienced a buoyant period lately resulting in severe skill shortages around the country. The Construction Industry Training Board (CITB) estimates that: 367,000 skilled workers will be required in construction over the next five years and that 73,000 new recruits will be required each year between 2000 and 2004, 65,000 of whom will be needed to replace those retiring from the industry. The Construction Confederation, in its 1999 quarterly trends survey based on feedback from construction employers, expressed increasing difficulty in finding skilled craftspeople (table 1).

**Table 1. Percentage of firms reporting skills shortages in 1999**

| | *Quarter 2 (%)* | *Quarter 3 (%)* | *Quarter 4 (%)* |
|---|---|---|---|
| Bricklayers | 73 | 69 | 79 |
| General building | 21 | 24 | 21 |
| Carpenters and joiners | 49 | 60 | 69 |
| General civil engineering | 24 | 23 | 17 |
| Skilled civil engineering | 51 | 50 | 49 |
| Electricians | 32 | 50 | 55 |
| Painters and decorators | 20 | 28 | 32 |
| Plant operators | 16 | 30 | 38 |
| Plasterers | 55 | 47 | 72 |
| Plumbers | 35 | 44 | 61 |
| Roofers | 26 | 30 | 36 |
| Scaffolders | 28 | 31 | 42 |
| Steel benders and fixers | 31 | 28 | 29 |

*Source: Construction Confederation, 1999 quarterly trends survey*

# Developments in the Industry

6 The first survey report produced by the Further Education Funding Council (FEFC) inspectorate stated that:

> *the poor public image of the construction industry hindered recruitment to the industry and to related college courses.*

7 The industry continues to be little understood by the general public, especially parents, careers officers and schools. Few people, especially school-leavers and other potential employees, are aware of the wide range of trades and professions and the many opportunities the industry provides. A recent survey of the development plans proposed by regional development agencies found that hardly any of them identified the construction industry as having a major impact on local economies.

8 The colleges, the CITB and other national training organisations, undertake much promotional work to raise the profile of construction but it has had little impact. Many schools consider that courses leading to employment in the construction industry provide opportunities only for pupils with low attainments or behavioural problems. Whilst colleges provide good opportunities for these students, and many make good progress, construction also provides excellent opportunities for high achievers. Construction professionals from this country, such as quantity surveyors, are in high demand across the world and many construction professionals have interesting and demanding work, earning higher salaries than other more favoured professions. This, however, is not the public perception. The government is increasingly working with the construction industry to help it improve its performance and public image.

9 The first survey report identified that:

> *colleges had difficulty in planning strategically for an industry that was adversarial by nature and ravaged by recession.*

10 The government, in partnership with the industry, has established a Strategic Forum of Construction National Training Organisations to aid strategic planning for construction training. The forum is charged with providing improved information on the skill requirements of the industry and, with the Qualifications and Curriculum Authority (QCA) provide advice on rationalising the qualifications relating to the industry which, at present, remain over complex and confusing. A list of members of the strategic forum is at Annex C.

11 A number of research projects, sponsored by government and the industry, have been launched in recent years to identify the skill needs of the industry. Reports on these projects attest to the complex nature of the industry and the difficulties faced in providing colleges and other providers with a sufficiently robust and accurate account of the industry's training needs. The most recent report, *Skills Dialogue for the Construction, Extractive, Property Services and Mineral Processing Industries – a Seminar Working Paper* was published in April 2000. It points out that:

- many traditional skilled craft demarcations are becoming outdated
- the best construction firms are responding positively to clients who express dissatisfaction with services
- there is increasing use of prefabrication in house building
- there is a shift to multi-skill training in some specialist contracting areas
- employers are slow to implement multi-skilling
- some firms are too complacent or unable to adopt modern practices
- in sections of the industry devoted to repair and maintenance, change will inevitably be slow
- recruitment problems, arising from skill shortages are acute within the construction industry
- an ageing workforce is exacerbating recruitment problems in most areas of the industry.

12 The first survey report stated that, in July 1996, the construction industry had only 1,368 modern apprentices. This situation has improved substantially. By 1998, according to a survey of construction employers, there were 28,026 national trainees or modern apprentices in the industry, of which 25,224 were craft trainees, with the highest proportion in wood trades.

# College Responsiveness to Employers and the Community

13 Colleges are major providers of education and training for the industry. They respond well to employers and to local communities. Many construction departments have become smaller because of the reduced demand from industry, arising mainly from the recession in the 1990s. However, a few colleges have closed all their construction courses. There are now 261 colleges in England offering construction courses and the range of courses has increased (table 2). Of the 30 colleges surveyed, most had introduced between one and eight new courses in the past three years, the majority of them to meet the demands of local employers or improve employment opportunities for local people. Over 60% of these colleges had also cancelled courses because the number of students attending was too low to sustain them. Nearly half the colleges in the survey had consulted local employers fully before cancelling courses. Of the colleges surveyed, 86% offered both craft and technician courses covering the main specialist areas. The range of technician courses offered in the colleges surveyed is shown in table 3.

**Table 2. Changes to the courses offered in the colleges surveyed**

| *The main courses introduced* | *The main courses cancelled* |
|---|---|
| Architectural computer-assisted design | First certificate/diploma in construction |
| Construction maintenance skills | Construction supplementary studies |
| Crafts training and assessment for the construction skills certification scheme | GNVQ intermediate construction and the built environment |
| Furniture restoration | Heating and ventilating, levels 2 and 3 |
| Gas safety training and assessment | Wood machining, all levels |
| GNVQ foundation construction and the built environment | Signwriting |
| Health and safety training for the construction skills certification scheme | |
| Inspecting and testing electrical installations | |
| Leadwork | |
| Multi-skills craft training | |
| NVQ general construction operations | |
| NVQ housing management, levels 2, 3 and 4 | |
| NVQ masonry | |
| NVQ plastering, levels 2 and 3 | |
| NVQ site supervision and management, levels 4 and 5 | |
| Portable appliance testing | |
| Site supervisors certificate | |

*Source: survey of colleges, 1999-2000*

In the Northern region, the only two colleges providing courses for the heating and ventilating industry agreed to concentrate the provision at one college when the number of students provided by the industry dropped below a viable size. This was achieved in full consultation with regional employers. Without this level of co-operation, expensive specialist provision would have been lost to the industry.

A college in Yorkshire and Humberside region developed effective links with a local manufacturer of prefabricated timber frame buildings which was facing difficulty in recruiting trained and competent frame erectors. There was also a lack of appropriate NVQs in this specialist area. The college worked in partnership with the employer, the CITB and the QCA to establish an appropriate qualification. It intends to provide appropriate training for the employer when the qualification is accepted for funding purposes.

A college in the North West region, in partnership with a national mechanical engineering contractor, designed specialist elements for courses leading to a national and higher national certificate in building services engineering.

A college in the South West region attracted local employers' interest in developing courses for the glass industry, by organising a seminar featuring a sponsored breakfast and a ride in a hot air balloon. The college successfully attracted a large number of employers, and, subsequently, ran a course for 22 students.

**Table 3. Range of technician work offered in the colleges surveyed, including higher national diplomas and degrees**

| *Technician area specialism* | *Colleges offering provision (%)* |
|---|---|
| Architecture | 46 |
| Building control | 21 |
| Building maintenance | 21 |
| Building services | 39 |
| Civil engineering | 54 |
| General building | 79 |
| Environmental health | 14 |
| Housing | 14 |
| Land surveying | 32 |
| Quantity surveying | 39 |
| Site management | 21 |

*Note: information on these courses was not published in the previous survey report*

14 In addition to supporting the industry, colleges are required to widen participation in education and training and to promote lifelong learning. Students can enrol at different times of the year for their NVQs. Increasingly, they can also enrol for general national vocational qualifications (GNVQs) in many colleges. Flexible patterns of enrolment have helped colleges to attract those students who would not normally enter further education. The number of students on the main construction programmes has increased by over 22% over the past three years, mainly at NVQ levels 1 and 2 in the crafts, level 1 in technician courses, and on courses aimed at widening participation at levels 1 and 2 which are accredited by the National Open College Network (NOCN). During the same period, recruitment to crafts at level 3 has declined, as has technician courses at levels 2 and 3. Where, in a few colleges, enrolments have fallen it is usually because they have inadequate market information or lack appropriate strategies to address downward

trends in recruitment. The range of NVQs offered in the colleges surveyed in shown in table 4.

**Table 4. Range of NVQs offered in the colleges surveyed compared with the previous survey**

| *Craft area specialism* | *Colleges offering provision (%)* | |
|---|---|---|
| | *1996* | *2000* |
| Bricklaying | 90 | 93 |
| Carpentry and joinery | 93 | 96 |
| Electrical installation | 52 | 71 |
| Furniture trades | 21 | 50 |
| General operatives | 28 | 32 |
| Heating and ventilating | 34 | 29 |
| Painting and decorating | 66 | 86 |
| Plastering | 28 | 29 |
| Plumbing | 86 | 86 |
| Wall and floor tiling | 17 | 11 |
| Shopfitting | * | 11 |
| Others† | 24 | 43 |

**data not available for the previous survey report*
*†includes gas installation and gas safety, interior design, masonry, signwork, and wood machining*

15 Construction departments provide good learning opportunities for people with low aspirations who come from areas of social deprivation. Students gain confidence, and develop new practical, interpersonal and learning skills that increase their employment prospects. However, the construction industry regulates the intake to the industry and this sometimes creates tension between colleges and the national training organisations. The problem is greatest when classes contain employed and unemployed students studying at different levels and at different rates, those wishing to develop existing skills, industry-sponsored students, New Deal students, and students with learning difficulties and/or disabilities. Some national training organisations consider that this mix disadvantages sponsored students. Colleges with good employer links have less difficulty in balancing this complex workload than those that do not.

In the East Midlands region, one college offers under-represented groups easy entry to some crafts through a vocational access programme involving carpentry and joinery, brickwork and painting and decorating. Students study a different craft each term. Around 10% of participating students progress to employment in the industry or join full-time courses leading to construction NVQs at level 2.

16 Since the previous survey report, more colleges have developed effective partnerships with local authorities, community groups,

schools and local employer training organisations. These are often arranged through urban regeneration programmes that benefit both participants and the community. Programmes involve specially designed training for adults, including socially excluded groups, run collaboratively with the companies responsible for local building programmes. The companies provide relevant work experience for students once they have developed appropriate levels of skill by studying at the college. Students from these schemes progress to further education and permanent employment. Many unemployed adults are committed to learning and to developing the skills which industry needs. But otherwise willing employers find that they are unable to shoulder the cost of employing retrained adults whilst they develop their craft competences and many, therefore, fail to progress within the industry.

As part of a community project, a college in the Greater London region arranged for craft students from the inner city to design and build a community garden for children with restricted mobility. The growing beds were designed to rise and fall to help the children when planting and maintaining flower arrangements.

17 Some colleges have developed good links with institutions abroad. Such links enrich the content of courses and broaden the students' experience. Colleges which have good links with employers and the local community have successfully gained additional European Union or single regeneration budget funding to develop provision that meets specific local needs. Whilst some of these programmes have been extremely successful, the good practice developed is rarely analysed or disseminated nationally. Much valuable information and expertise is lost once individual projects are completed. Existing funding arrangements do not promote this type of innovation. However, the FEFC is now using the standards fund to promote a national project for disseminating good practice between colleges.

18 A number of colleges have developed innovative and adventurous training projects in partnership with national house builders or housing associations. Such projects, for example, involve students in building houses to commercial standards, working alongside commercial contractors. The finished houses, in these cases, have been of good quality, met statutory requirements and been sold to the general public at market rates. The profits from these ventures are usually given to worthy charities.

One college in the Greater London region links closely with a 'builders network' operated through a community trust project supported by the European Social Fund. The network helps small building companies which have up to four employees of minority ethnic origin. For example, it manages the accounts, wages and contract tenders for the companies. The college, supported by the funds from the single regeneration budget, uses these companies to provide work experience for its students.

19 Colleges arrange a wide variety of 'taster' courses to attract school pupils and adult students but few of them specifically target minority ethnic groups. Although most students enjoy the experience, colleges tend not to check if they subsequently apply for a course. The number of adult returners enrolling for construction in the past three years has increased by 11%. Whilst the proportion of women and minority ethnic students on construction courses remains low, it is generally higher than in the construction industry at large and in the communities served by the colleges. Women are in a majority in some handcrafted furniture courses. In building crafts, most women choose interior design, and painting and decorating courses.

To increase the participation of women, especially those from minority ethnic groups, one college in the North West region provides a wide range of 'do-it-yourself' courses in community centres. The courses include interior design, and painting and decorating. Attendance is negotiated to suit each student's personal circumstances. Numbers of students from under-represented groups on the college's part-time courses have now increased substantially.

20 All of the colleges surveyed provide good opportunities for New Deal clients, including those following the full-time education route and those in employment undertaking job training. Some colleges, however, have difficulty meeting the Employment Service's requirements; for example, that clients attend 30 hours a week over an academic year. New Deal clients generally have poor records of attendance and achievement rates are low.

21 Most small to medium-sized companies depend on the colleges to provide education and training for their employees because they themselves are unable to offer trainees the breadth of work experience necessary to develop the competences specified in NVQs. The majority of courses offered by colleges are NVQs which were designed as work-based qualifications. However, colleges have difficulty in verifying competences gained in the workplace which is more properly the province of the employer. Colleges have focused on developing good realistic work environments for practical skill development, but they continue to face significant pressure to provide work-based evidence that is more the responsibility of the employer.

22 Awarding bodies have increasingly demanded, sometimes unreasonably, that colleges provide evidence of trainees' competence from the workplace. A group of colleges in the North West region recently faced warnings from an external verifier that accreditation would be withdrawn unless they could provide more work-based evidence. The matter was eventually settled by the awarding body. Nearly three-quarters of the colleges surveyed were helping employers to train work-based assessors so that they could assess the competence of employees in the workplace. However, the additional cost of assisting employers with work-based assessment is not covered adequately by the existing funding methodology and most employers are reluctant to pay for the service.

One college in the Northern Region took a large contract with a major national joinery manufacturer to train and assess the competence of 300 wood machinists in the workplace.

To overcome the lack of opportunities for work experience, a college in the North West region developed methods of assessing the competence of young people renovating a group of derelict houses. This formed part of an urban regeneration programme, carried out in partnership with a housing association.

23 The CITB and the QCA are piloting courses intended to separate education and training from work-based assessment. A majority of the colleges surveyed were either participating in the pilot for courses leading to the intermediate certificate of construction or planned to introduce these from September 2000.

24 To help accredit the skills of adults in industry who lack formal qualifications, most colleges have established clear policies and procedures for accrediting students' prior learning. However, there is little demand for these services in construction. Few construction craftspeople can produce the substantial portfolio of evidence required. Instead, most colleges provide these adults with a specially designed training and assessment programme in college that saves time and costs.

25 The first survey report stated that:

*external managing agencies continue to influence the provision in colleges, although their impact varies across the country.*

26 The national construction managing agents contract with colleges and other providers to deliver programmes funded by the training and enterprise councils (TECs). In almost all construction departments, TEC-funded provision is the next largest source of income after the FEFC. Some colleges operate their own managing agencies and contract directly with the TECs. These colleges report that they gain significantly higher rates of funding in supporting local employers than they do through national schemes. It enables them, therefore, to provide a better service to the employer and to the trainees.

27 The main managing agents are also national training organisations, responsible for specifying the content of programmes. Colleges increasingly purchase schemes of work and learning materials from these organisations for their training programmes. Major changes to programme specifications may have significant organisational and resource implications for colleges. Often the specifications do not arrive until after the programmes have started, and this leads to confusion and duplication of effort.

28 Colleges responded well in providing specialist gas safety training and assessment when stringent safety regulations were introduced in 1998. The colleges provided 50,380 short courses for plumbers, heating and ventilating technicians and gas fitters in the year before the regulations came into force. Initially, the industry paid for these services but, in 1998-99, the relevant aspects of gas safety were incorporated in general plumbing courses, effectively transferring the cost of training and assessment to the colleges. Whilst the colleges have supported the industry well in providing these resources, often at significant cost, the provision is not adequately supported through normal funding arrangements.

29 The first survey report stated that:

*potential routes of progression for construction students are obscured by a lack of coherence between construction NVQs and GNVQs and their non-alignment with established industry employment structures.*

30 Craft students continue to face significant barriers to entering higher education because of the differences in content, methods of study and assessment procedures associated with the various construction qualifications. NVQ craft programmes are practically based, requiring students to develop only a narrow range of knowledge and theory to achieve the qualification. The students often lack the necessary technical knowledge and study skills to cope with higher level courses. Some colleges give significant extra tuition to students to better prepare them for future studies. A small and declining number of craft students overcome the barriers and progress to technician or supervisory courses. They are valued highly in the industry as technicians or managers because of their sound understanding of the crafts.

31 Because NVQs are industry-based qualifications they are not always appropriate for students. In attempting to widen participation, colleges have developed additional courses, accredited by the awarding bodies, which are more relevant to the needs of some students. These additional courses increase the complexity of the qualification framework. A research project funded by the QCA identified 549 recognised qualifications, accredited by 142 awarding bodies, which were relevant to the construction industry.

# Curriculum Management and Organisation

32 The recruitment of senior executives from the construction industry to college governing bodies has fallen by nearly 20% since the previous survey. Only 60% of the colleges surveyed had a governor from the construction industry and some of these governors were not from disciplines that formed part of the colleges' curriculum. Construction departments which can liaise with a governor who knows the curriculum, and/or which have good links with local employers tend to be well informed about regional developments in the industry and of related training needs.

33 The first survey report stated that:

> *the significant decline in student numbers has forced colleges to review their departmental structure. …Consequently there are fewer specialist managers.*

34 Despite buoyant enrolments, nearly three-quarters of the colleges surveyed have changed the management of construction significantly or merged their construction and engineering departments to reduce costs. This has been to the detriment of some students. Only half of the construction managers are members of the college's senior management team or have a cross-college role as part of their duties. Managers responsible for construction increasingly do not have a construction background or appropriate technical expertise. Although many colleges have shown a significant commitment to sustain construction provision, senior managers do not always understand the complex curriculum management issues associated with construction. Nearly one-third of the colleges inspected between 1997 and 2000 had significant weaknesses associated with workshop management that hindered teaching and learning and compromised health and safety. Coincidentally, The Association of Colleges has introduced a 'Best Practice Guide for Incorporating Health and Safety into the Construction Curriculum'.

35 Regardless of management structures, all the construction departments inspected have a single point of contact for enquiries. Most queries are dealt with quickly and effectively. Strategic and operational planning at course level is generally good. Many departments set targets for attendance, retention and achievement but they do not always succeed in improving performance. Most colleges have delegated more responsibility to course teams to make them more responsive. Few teams share good practice, however, and there are large differences in performance within and between colleges.

36 Students are made aware of their rights and responsibilities during their induction programmes. In most colleges, craft students study aspects of health and safety soon after enrolling to ensure that they understand the hazards associated with the different specialist crafts. Colleges have increased the tutorial support provided to students, especially for those studying part time. However, tutorials are of variable quality. Some tutorial programmes are well planned and include thorough reviews of individual students' progress. In some cases, tutors do not follow the agreed college programme, fail to awake students' interest or do not monitor their development. In a few colleges, reviews are not frequent enough on full-time courses to enable effective action to be taken where progress is identified as poor. At the informal level, students find most tutors helpful and supportive. Full-time students have good access to careers service interviews. A few colleges apply greater realism to students' mock interviews for jobs by involving employers on selection panels.

37 The first survey report noted that full-time students lacked opportunities for work experience. In the colleges surveyed, around 75% of full-time students now receive effective work experience during their course. To enrich the experience of full-time students, especially technician students, teachers arrange visits to large construction sites, or buildings of outstanding merit. They also arrange lectures

by guest speakers from industry or visits to exhibitions. Students enjoy these activities, which help to widen their understanding of the industry. There has been an increase in the number of full-time craft students requiring work experience, but few construction employers are able to provide it.

In one college in Greater London, over 60% of unemployed students on craft courses are found related work placements. This percentage increases for the second year of the programmes. On technician courses, however, few full-time students are found appropriate work placements.

38 There is little demand from students wishing to study specialist construction subjects at a distance from the college. This type of private study requires substantial investment to develop the appropriate learning materials. A few colleges have collaborated well with national employer groups to ensure that enrolments are sufficient to provide an adequate return on the investment. The learning and assessment materials developed are good. The colleges also offer some individual counselling and tutorial support at centres around the country.

One college in the South West region enables all technician students to study at home using specially designed learning materials. Tutors provide additional support in college at times convenient to the students. The provision has grown over the past three years owing to demand from employers.

Another college in the South West region has designed courses in conjunction with the CITB to help employed students from rural locations, who can only study in their spare time, to gain a formal qualification or change the course of their career in the industry.

In the North West region, one college has a national contract with estate agencies and builders' merchants to support students around the country. It provides good learning materials and telephone support for students studying at home, and holds regional seminars to enable students to meet their tutors.

A college in the West Midlands region enables electrical installation students around the country to study at home. The students are given specialist learning materials and receive personal support from tutors.

39 The first survey report stated that:

*larger colleges often have consultative or advisory groups, each concentrating on a particular area of activity.*

40 Of the colleges surveyed, 72% have advisory groups that include construction employers. Most of these groups were reported to be better supported and more active than those for other programme areas in the same college. A few colleges have reintroduced the advisory boards for construction which collapsed during the recession. The membership of advisory boards typically includes managers of small and medium-sized companies, representatives of careers services and national training organisations, and college managers. A few groups include governors with construction expertise. Some colleges have separate groups for specialist areas of their provision. In a few colleges, advisory group members visit specialist programme teams and workshops to discuss aspects of the curriculum.

41 Effective advisory boards assist colleges in identifying local skill shortages. They also monitor the quality of provision and contribute to new developments in the department. Participating employers often provide employment for part-time students or work experience for full-time students. They also have the opportunity to select potential

employees from the pool of full-time students. The successful colleges have devised novel approaches to attract busy employers to serve on advisory boards and to retain them. Nearly half of the colleges in the survey are represented on local construction employer training groups, which enables them to strengthen their ties with local industry.

A college in the North West region has a strong construction advisory group that meets each term. Membership includes small and medium-sized employers, representatives from the careers service, the CITB, other training organisations and departmental staff. The college organises advisory board meetings for 08.00 hours, enabling busy employers to fit meetings in with their diary commitments. Interesting agendas, lively meetings, and a free breakfast provided from 07.00 hours increase members' interest.

Another college in the Eastern Region has operated an effective construction advisory body and four specialist liaison panels for 25 years. A senior director of a major national construction company, who is also a college governor, chairs the advisory board. The principal also attends.

A college in the East Midlands region achieves close liaison with the industry, through a scheme in which each member of staff, including part-time staff, is paired with a local company. Staff meet their employers regularly to discuss local training needs.

42 Most colleges have developed special short courses to provide additional qualifications for students in specialist aspects of the industry. Successful short courses for industry include gas installation, gas safety, supervisory studies and courses for local specialist employers.

43 Colleges with construction curriculum centres, established some years ago in partnership with the CITB, are strongly committed to their continuation despite difficulties in funding them. Although CITB provides nominal funding, as do some TECs, colleges often run these as 'loss leaders' to demonstrate their commitment to the community, and to help the industry gain higher calibre recruits. The centres enable many school pupils at key stages 1 to 4 the use of construction and built environment workshops for their learning. Courses are often provided for year 10 and 11 pupils, and 14 to 16 year olds disaffected with school life. Most schools with sixth forms, however, do not allow their pupils to visit college and make use of the curriculum centres.

One college in the South West region, acting in partnership with local secondary schools and local contractors, provides an NVQ level 1 in bricklaying for disaffected pupils. The pupils benefit significantly from these arrangements, showing greater motivation and higher levels of achievement.

44 Typical projects organised through construction curriculum centres involve teachers from colleges and schools working together with pupils in designing and building small structures and furniture to improve the school environment. For example, pupils have landscaped gardens and built picnic benches, pergolas and litter bins in school grounds, studying aspects of the national curriculum in a practical context. They measure individual jobs, calculate the materials required and develop their key skills as part of the experience. Some construction teachers visit schools to teach aspects of construction to pupils at key stage 4.

A college in the West Midlands region gained an industry award for the schools link programmes offered through its construction curriculum centre. The college successfully involved numerous school pupils in a 'skills sampling day'. The pupils were set suitably demanding tasks involving, for example,

basic plumbing, building brick walls and making birdcages for the school.

Another college in the Yorkshire and Humberside region offers the GNVQ foundation course in construction and the built environment to local secondary schools, and 'taster' sessions to primary schools. These courses are partly delivered in the schools and are contributing successfully in raising students' achievement. The programme has been extended to accommodate all year 10 pupils in one school.

45 Construction teachers provide effective support for students with learning difficulties and/or disabilities. The students frequently blossom in workshops, developing co-ordination skills and improving practical and interpersonal skills, especially when working alongside craft trainees and being helped by specialist support staff. Many construction departments are providing special courses for the increasing numbers of young people with emotional and behavioural difficulties. All of the colleges surveyed provide specialist support teachers to work alongside construction teachers in helping these students.

In a college in the Midlands, teachers sensitively managed an NVQ programme in painting and decorating for adults with schizophrenia. The adults worked together harmoniously and got on well with other college students.

46 Since the first survey report, colleges have broadened and strengthened their procedures for identifying students who receive additional support to improve their literacy and numeracy skills. Colleges receive additional funding from the FEFC to provide such support but not all TECs provide similar funding for students who are employed. Most colleges use the Basic Skills Agency (BSA) diagnostic tests to assess students' literacy and numeracy levels. A few colleges have devised their own diagnostic tests in conjunction with college specialists to make them more relevant to individual crafts. Where there are no formal initial assessments, tutors often refer students to special support workshops to gain the necessary help. Few students take up this support, however. Few colleges assess the support needs of students on advanced level programmes, yet some of them require additional support with number and communication.

47 Construction departments often state that students do not attend special support workshops because they do not want to be identified as needing such support. However, successful departments overcome these problems; for example, by providing direct support in the workshops, with specialists working alongside craft students and the teachers. Colleges often lack accurate data on the number of students identified as in need of additional support and on attendance rates in support workshops. The proportion of students in need of additional support varies considerably between colleges, but some colleges have identified up to 40% of full-time students who are in need of support. A number of colleges have failed to convince students of the benefit to be gained from receiving additional support. The most successful construction departments attract students to additional support when:

- extra support is provided as part of normal lessons
- students have individual learning plans that are implemented and monitored
- support materials are closely linked to the programme of study
- specialist help is available when it is required
- attendance at support sessions is carefully monitored and rigorously followed up
- tutors are kept informed of individual students' progress.

A college in the Greater London region assesses the learning support needs of all students during induction. Tutors assist each student through a personal development plan and a specialist support worker is allocated if required. The college arranges literacy and numeracy workshops for those studying at below foundation level. Students must maintain an 80% attendance record.

48 Approximately 40% of the construction departments surveyed offer franchised provision and one quarter of them have increased it recently. The proportion of franchised work in the departments varies from 1% to 20% of all construction activity. Franchised work is generally well planned and effective. It is subject to the same rigorous review procedures as are applied to college-based provision. Colleges often contract with industry providers for NVQ training at levels 1 and 2 in the crafts of bricklaying, carpentry and joinery, and painting and decorating. A few colleges have franchised the delivery of GNVQ foundation units to schools. Some colleges have higher education programmes franchised to them by universities. Staff frequently visit franchise partners, often unannounced, to monitor compliance with the contract and to observe teaching and learning.

49 The budgets allocated to construction courses vary widely within departments and between colleges. Delegated budgets are generally appropriate and, in a few departments, generous. Some courses are much more expensive to run than others. However, construction courses in general are often seen as expensive and many are permanently under threat of closure. Such uncertainty undermines the confidence of staff and occasionally prevents effective development of the provision. Despite this, and as reported in the first survey, most colleges and departments are not aware of course operating costs.

50 A growing number of departmental budgets are based upon detailed analysis of the income generated by the number of students enrolled. This may include: students on FEFC funded courses; special programmes paid for by employers; training programmes involving employed students; modern apprentices and New Deal clients. The targets set for the level of income generated are often based upon college-wide targets. Close attention is paid to the teachers' contracted class contact time and expenditure on consumable materials, to ensure that departments remain within the budget allocated.

51 The amount of income that departments generate from sources other than the FEFC differs widely between colleges. As a percentage of total income, the proportion ranges from 3% to 66%. Many departments gain a significant amount of additional income from a wide range of sources (table 5). The few that are less responsive rely almost solely on income derived from the FEFC. The financial surplus which departments are allowed to retain from income-generating activities varies widely between colleges. Some keep all surplus income after deducting operating costs, investing it in resources to improve teaching and learning. Some colleges do not allow departments to keep any surplus income which is poor motivation for the staff involved. Departments on average retain approximately 50% of surplus income.

**Table 5. Average income generated by the construction departments surveyed in 1998-99 compared with that provided by the FEFC**

| *Type of provision* | *Median (£1,000s)* |
|---|---|
| Employment Service New Deal | 45 |
| TEC-funded youth and adult training | 123 |
| Commercial work for industry | 98 |
| Higher Education Funding Council for England | 87 |
| European Social Fund | 68 |
| Other funding and gifts from industry | 306 |
| Total additional income | 728 |
| Income from FEFC | 1,111 |

*Note: figures subject to rounding*

# Teaching and Learning

52 The quality of teaching and learning in construction lessons observed during the past seven years has been mainly satisfactory or good (table 6). However, the grades awarded to the 3,685 lessons observed during this period are poorer than the average grades for all programme areas. There has been no increase in the proportion of poor or unsatisfactory lessons in construction. Over the seven-year period, around 7% of the lessons were rated poor or unsatisfactory, which is similar to the national average. Over 70% of the colleges surveyed believe that the quality of teaching and learning in their institutions has improved.

**Table 6. Inspection grades for teaching sessions in construction, September 1993 to July 2000**

| *Teaching year* | *Inspection cycle* | *Grade (%)* | | | | |
|---|---|---|---|---|---|---|
| | | *1* | *2* | *3* | *4* | *5* |
| 1993 to 1996* | 1 | 12 | 48 | 33 | 6 | 1 |
| 1996-97 | 1 | 11 | 47 | 34 | 7 | 1 |
| 1997-98 | 2 | 9 | 51 | 35 | 5 | 0 |
| 1998-99 | 2 | 9 | 49 | 32 | 9 | 1 |
| 1999-2000 | 2 | 8 | 49 | 37 | 5 | 1 |
| All programmes 1999-2000 (general further education) | 2 | 17 | 45 | 31 | 6 | 0 |

*Source: inspectorate database*
*Note: percentages subject to rounding*
**three-year period addressed by the previous survey report*

53 The first survey report stated that:

> *over the past three years, there has been a steady reduction in the number of taught hours for each programme area.*

54 Table 7 shows the average time that the 30 colleges surveyed spent on different learning activities each week. The total time that students spend on learning activities in the colleges surveyed has continued to decline. The previous report stated that full-time craft and technician students studied on a full range of learning activities for 21.6 hours and 21.2 hours a week, respectively. This has reduced to 18.6 hours and 19.4 hours, respectively. The amount of practical work undertaken by full-time craft students has reduced from 10.4 to 9.8 hours a week.

**Table 7. Average time (hours) each week spent on different learning activities in the colleges surveyed**

| *Type of course* | *Practical Work* | *Theory* | *Key skills develop-ment* | *Students working alone using specially designed resources* | *Tutorial* | *Total* |
|---|---|---|---|---|---|---|
| Craft full time | 9.8 (52.5%) | 4.6 (24.7%) | 1.8 (10.1%) | 1.5 (7.8%) | 0.9 (4.9%) | 18.6 (100%) |
| Craft part time | 4.7 (56.9%) | 2.4 (29.0%) | 0.7 (8.6%) | 0.3 (3.6%) | 0.2 (1.9%) | 8.3 (100%) |
| Technician full time | 2.0 (10.5%) | 11.9 (61.0%) | 1.7 (9.7%) | 2.5 (12.9%) | 1.3 (6.9%) | 19.4 (100%) |
| Technician part time | 1.2 (12.1%) | 6.3 (63.7%) | 0.2 (2.2%) | 1.9 (19.1%) | 0.3 (2.9%) | 9.9 (100%) |

*Source: college survey 1999-2000*
*Note: figures subject to rounding*

55 Departments have increased the practice of bringing classes together for the common elements of study programmes; for example, for health and safety training and site supervision. Most departments try to achieve an appropriate balance between the time students spend on practical and theory work. However, in the colleges surveyed, there are significant differences in the amount of time allocated to various learning activities each week. The time allocated to tutorials has increased, signifying more regular reviewing of students' progress and more support.

One college in the North West region allocates students to practical activities in the workshops for the full period of their attendance. Students can study theoretical aspects and job knowledge in the learning centre matching these to their progress in developing the practical competence required of specific NVQ units. Teachers organise group study for common lesson topics at convenient times.

56 Schemes of work are sound and comprehensive but the quality of individual lesson plans is more variable. Some plans have clear objectives and measurable outcomes for students' learning. To ensure that classes remain viable, lessons often contain groups of students starting at different times, studying at different levels and progressing at their own pace. They also might include employed, unemployed and New deal students. Many colleges claim to be inclusive. Few lesson plans identify the preferred learning methods of individual students or have clear strategies by which to address the diverse needs of students in these complex groups; for example, the range of learning resources required to support students when working on their own or in groups, to extend more able students, or to provide additional guidance for slower learners.

57 The best teaching and learning occurs in workshops. Practical activities are well organised and teachers enjoy demonstrating their finely honed practical skills. Most teachers keep students busy and encourage them to help each other. In these lessons teachers place learning in an industrial context and develop students' understanding of specific construction processes. Once they have developed appropriate practical skills, most students work

on realistic full-size projects that simulate the work undertaken on site. A few colleges identify the length of time within which a student must complete a practical project so as to make the work more relevant to industry. Teachers often work in teams to support students. One teacher might supervise a large group whilst others in the team may give personal tuition to individual students or assess their completed work when they are ready.

58 In the best theory lessons, teachers use a variety of methods to gain students' interest and test their knowledge and understanding. Teachers often refer enthusiastically to their own experience of work and encourage students to share their experiences of employment or of life. They organise lively and interesting activities that relate well to real construction projects and often use humour to create a relaxed atmosphere in which students can learn effectively. Teachers provide students with good personal support and guidance. A few colleges have broadened the range of teaching methods used in an effort to motivate students and to improve attendance and retention rates.

59 Some course teams are making increased use of information technology (IT) to improve teaching and learning. Some teams have developed good computerised presentations. Teachers also make effective use of commercial videos, overhead transparencies and whiteboards to illustrate specific details of construction processes. Students are quick to tell teachers if lessons become too boring or they feel that things could be done better another way. In the best lessons teachers provide concise reviews of the previous lesson and clear summaries of the key points developed during the lesson.

A college in the Northern Region has devised some imaginative methods of working in its construction curriculum centre. The use of commercial authoring software enables school pupils to study some topics on their own. Understanding of construction processes is heightened by visiting local construction sites. The students have produced an interactive CD-ROM based on their experiences. This is used to introduce other pupils to the college and to the construction industry as a potential career. The CITB provided financial support for the project.

60 Most theory lessons are less effective than those in workshops. In some of the poor lessons, teachers are inadequately prepared, lessons are dull and students are not sufficiently involved in their tasks. Some students are not given sufficient time to do their work whilst others are not kept occupied. Teachers often fail to establish the aims of lessons, and the assessment criteria for assignments are ambiguous. They also fail to review previous learning or to relate it to new topics. Students occasionally have to copy notes for unnecessary long periods of time. Teachers sometimes waste valuable study time describing concepts that could be demonstrated in seconds. In some instances students with poor numeracy and literacy skills struggle with basic tasks and receive no help; for example, in measuring or calculating the quantity of materials required for a specific job. Many teachers fail to check that students understand what has been covered in the lesson. On a few occasions, students with mobile phones are allowed to disturb the work of others.

61 The first survey report noted that:

*construction tutors are thorough in monitoring students' attendance.*

62 Poor timekeeping and high absenteeism are features of many courses. In 1999-2000, construction students' average rate of

attendance at lessons was 70% compared with 77% for students in all programme areas, based on the data for general further education colleges in *Quality and Standards in Further Education 1999-2000: Chief inspector's annual report*. The average class size has remained relatively stable over most of the period since the first survey report but it increased in 1999-2000 to 10.9 (table 8). Many teachers do not question students arriving late or interrupting the work of other students. A few colleges have taken stern action to improve attendance and punctuality.

**Table 8. Class size and attendance rates in the lessons observed**

| *Academic period* | *Class size* | *Average attendance (%)* |
|---|---|---|
| 1993 to 1996 | 10.5 | 77 |
| 1996-97 | 10.5 | 73 |
| 1997-98 | 10.9 | 70 |
| 1998-99 | 10.5 | 72 |
| 1999-2000 | 10.9 | 70 |
| All programmes 1999-2000 (general further education) | 10.7 | 75 |

*Source: inspectorate database*

63 The quality of reports provided by departments of construction to parents or guardians of students aged 16 to 18 varies enormously. Some teachers monitor absences rigorously, contacting students and, where appropriate, parents by telephone at the start of the absence period. Others do not. Colleges are providing better information to employers. Most inform employers regularly about employees' attendance and progress. Employed students are sometimes absent because employers require them to complete contracts. Teachers generally fail to convince unemployed students that regular attendance improves their potential to gain and maintain employment.

One college in the Greater London region requires all students to sign a group agreement at the beginning of the year, which states the standard of timekeeping to be achieved. Individual students with poor timekeeping must explain to the group and the teacher their reasons for not being on time and for disrupting lessons. Individual students' performance is discussed monthly at tutorial sessions. Attendance at the college improved following the introduction of this scheme.

Another college in the North West region awards a certificate to students with high attendance and punctuality. Full-time students are reminded that employers visit the college regularly to seek potential recruits and regard good attendance and punctuality as important employment skills. The section has the best attendance rates in the college.

64 Two-thirds of the colleges surveyed provide craft students with additional tuition, if needed, to develop their key skills. Often the support is provided by key skills specialists. Many colleges have improved the development and assessment of craft students' IT skills since the previous report, although this is still a common weakness identified by inspectors. Teachers sometimes

concentrate too much on the use of software applications instead of showing students how the software can improve the accuracy and efficiency of construction operations. The awarding bodies have specified key skills in technician courses for some years and these are developed well in students' assignments. More departments are monitoring and recording the key skills developed by students routinely in their practical projects and assignments. This raises students' awareness of the skills they have developed. Some course teams provide craft students, for example carpenters and joiners, with additional tuition in technical drawing and geometry to overcome the lack of these skills in NVQ specifications.

65 Most departments undertake 'self-help' projects to increase the realism of training activities and to enable students to develop their key skills. Students measure each job and calculate the quantity of materials required. They develop less obvious skills such as problem-solving, working at heights, supervising the work of others and working safely. The projects undertaken by students are extremely difficult for teachers to plan, organise and manage as part of the normal teaching duties. The demands on teachers' time are rarely recognised by college managers or adequately covered by existing funding arrangements.

In one college in the South West region, construction staff use a digital camera to provide evidence of students' work for external verifiers. The evidence is recorded on CD-ROMs. This technology is also used in building surveying to record defects found in buildings which students then have to identify and offer solutions to repair.

66 Most teachers mark and assess students' work accurately and fairly, providing detailed and constructive written feedback and correcting technical errors. A few teachers fail to provide adequate feedback or to correct spelling mistakes, poor grammar and technical errors. Assessment has become more demanding in recent years and it places a significant burden on some teachers, particularly those teaching on craft programmes. Teachers design suitably demanding, industry-related assignments that require students to undertake research, analysis, and practical activities, and to summarise their findings.

67 Although many colleges claim that up to 40% of craft students have poor literacy and numeracy skills, they continue to rely heavily on text-based materials in supporting students working on their own. Open-learning materials allow students to join courses at different times of the year and to progress at their own speed. The materials are generally well written, well presented and full of information on current practice in the industry. The most significant weakness associated with text-based learning materials is the lack of guidance provided to students on the availability of other learning resources to support them, for example, appropriate videos or multimedia applications on construction processes. There are rarely additional support materials for students who are struggling or for those who require more taxing work. In a few colleges, learning materials are of an unsatisfactory standard: they are occasionally outdated, poorly written or poorly reproduced. There is a lack of commercial multimedia learning materials. Few colleges have collaborated on such developments or hold construction-related learning materials on their college computer network for easy access by students and staff.

One college in the North West region reviewed all of its schemes of work and learning materials relating to NVQs. Staff developed detailed checklists that identified what training and assessment facilities were required for each NVQ unit, and the learning resources available to students.

# Student Achievements

68 Most craft students produce good practical work. They understand the standards of competence required to achieve their NVQ units and they often conduct their own assessments of their practical projects before teachers give their verdict. With few exceptions, students duly observe health and safety requirements when carrying out their practical work. Part-time students, especially those on technician courses, usually produce good written work. Their assignments are carefully researched and well presented and they make effective use of IT in presenting data. Full-time students' assignments are of more variable quality. GNVQ students often have the opportunity to present the results of their research to fellow students and, sometimes to employers, and this helps them develop their communication skills. Craft students' written work and communication skills are generally satisfactory and sometimes good. However, their files and logbooks are often badly organised and poorly presented. In a few colleges, technician students develop good technical drawing skills using computer-aided design software.

One college in the Yorkshire and Humberside region set students an assignment on the impact of construction on the environment. In response, students provided substantial evidence to support their findings, including well-researched information downloaded from the Internet and good digital photography.

69 Students' portfolios are generally well presented and the evidence they contain is clearly referenced. The better students take particular pride in their portfolios. They assemble wide-ranging evidence for the competences they have acquired including, for example, photographs of construction work undertaken in the college or on site. Many students, however, fail to complete their portfolios by the agreed target date, which prevents them achieving the full qualification. School-leavers entering further education often have difficulty coping with the greater freedom and responsibility to organise their own work. They make the adjustment more successfully if they are given careful guidance on portfolio development and how to study effectively on their own, as part of their induction to the college.

70 The first survey report stated that:

*the average retention rate for construction courses in 1994-95 was 82% compared with approximately 70% for all vocational courses in the further education sector.*

71 It is not possible to make an accurate comparison between the retention rate for 1994-95 and current retention rates because the retention rate for construction given in the first survey report was based on a sample of 44 colleges only and rates since 1997 have been based on ISR data relating to all colleges in the sector which offer construction courses (table 9). In 1997, the average retention rate for construction was 78% and by 1999 it had risen to 81%, which is marginally above the national average for all programme areas. Retention rates at levels 1 and 2 are lower than the national average and rates for adults are lower than for 16 to 18 year olds. Table 9 includes a substantial number of courses offered at unattributed levels (level x). These include City and Guilds of London Institute (C&G) courses in construction plant operations, firefighting, gas safety and streetworks and updates to the wiring regulations for the Institution of Electrical Engineers, and Chartered Institute of Building (CIOB) courses for continuing professional development.

**Table 9. Retention and pass rates for all construction programmes except courses accredited through the NOCN and special programmes funded by industry**

| *Completion year* | *Numbers and outcome* | *Programme level* | | | | | |
|---|---|---|---|---|---|---|---|
| | | *1* | *2* | *3* | *H* | *X* | *Total* |
| 1997 | Starters | 7,881 | 34,055 | 12,010 | 5,568 | 13,347 | 72,861 |
| | Retention (%) | 71 (80) | 73 (77) | 78 (78) | 84 (84) | 82 (83) | 78 (78) |
| | Pass (%) | 51 (56) | 56 (59) | 63 (63) | 60 (58) | 62 (57) | 60 (59) |
| 1998 | Starters | 11,198 | 35,002 | 11,080 | 4,764 | 14,715 | 76,759 |
| | Retention (%) | 71 (80) | 80 (78) | 79 (78) | 83 (83) | 97 (82) | 86 (78) |
| | Pass (%) | 59 (60) | 73 (64) | 67 (67) | 69 (58) | 94 (62) | 79 (64) |
| 1999 | Starters | 15,977 | 39,942 | 10,622 | 4,907 | 13,040 | 84,488 |
| | Retention (%) | 75 (79) | 75 (78) | 82 (78) | 84 (84) | 87 (*) | 81 (79) |
| | Pass (%) | 58 (62) | 62 (66) | 71 (69) | 68 (62) | 69 (*) | 67 (66) |

*Note: level X refers to students reported to be on courses at an unattributed level. Figures in brackets give the averages for all programme areas.*
**data not available*

72 The ability and educational attainment of new entrants to construction courses varies significantly between the crafts. Those training organisations for specialist crafts that demand higher entry level standards from their students often have the better retention rates. In recent years, managing agents have found it difficult to recruit students of an appropriate calibre. Many students are unable to cope with the demands of NVQ level 2 programmes. They often lack basic skills in numeracy and literacy and struggle with theoretical aspects of the work. Students are generally better motivated if they are in employment when starting their studies. Many employees have the initial experience and/or qualifications which enable them to make a success of their studies. For example, the majority of students in electrical installation and mechanical services must have minimum academic qualifications to be employed in the industry and retention rates on these courses are generally higher than for other crafts.

73 Few colleges analyse the progress that NVQ students make in relation to their levels of achievement when entering the college. In most colleges, this type of value-added analysis is offered only to non-vocational courses. Yet, the achievements of some construction students are significantly higher than might have been expected when they started their courses. A few colleges, for example, have been very successful in raising the performance of students disaffected with secondary education.

At the request of local schools, a college in the Yorkshire and Humberside region enrolled 25 students, aged 16 to 18, who had records of low attendance or poor behaviour. The students were allowed to sample a range of construction crafts before selecting the specialist craft they wished to train for. Most performed well, completed their course and achieved an NVQ level 2. Nearly 75% of them gained employment.

74 Colleges claim that a major reason for mature students leaving courses early is that they seek and gain employment once they have acquired the appropriate skills. Such positive outcomes are not taken into account in

benchmarking data and few colleges can provide evidence of the jobs these students obtain. Students on courses leading to supervisory qualifications often work away from the college. They find it difficult to attend regularly and lack of contact with tutors sometimes leads to a significant level of drop-out. Other commonly quoted reasons for students leaving courses early are that they are on the wrong course or are unable to cope with the demands of assessment. However, few colleges systematically obtain an accurate picture of the reasons why students leave before completing their training.

75 Colleges rarely identify the quality of teaching as an important factor affecting retention rates. However, many colleges have adopted effective strategies for improving retention rates. They include:

- rigorous monitoring of students' attendance
- immediately contacting absent students or, where appropriate, their employers
- holding parents' evenings for the parents of 16 to 18 year olds
- restructuring courses so that students attend college for three days continuously rather than five part-days
- strengthening additional learning support for students who need it
- introducing level 1 courses so that students can obtain a qualification at the end of one year rather than having to study for two years before receiving a level 2 qualification
- arranging site visits and ensuring that courses are industrially relevant
- improving diagnostic testing at induction to ensure that students are recruited to the right course.

One college in the South West region with a poor retention rate on plumbing courses introduced a more specific diagnostic test for its prospective students and provided the students recruited with better specialist support. Retention and achievement rates improved rapidly and the college is now considering developing similar tests for other craft courses.

One college in the Greater London region raised retention rates by providing more regular and better structured tutorials, analysing registers, increasing the time spent on practical activities and introducing learning advisers to support students in the workshops. Students' performance on each course is now monitored against national benchmarks.

76 The first survey report noted that:

*the pass rates for construction courses in the colleges included in the survey declined over the three-year period ending in 1995.*

77 Since the previous report, pass rates have improved on many courses. The overall pass rate in construction rose from 60% in 1997 to 79% in 1998 before falling back to 67% in 1999. It is now slightly above the national average for all programmes. Pass rates have improved significantly at levels 1 and 2 though these remain below the national average. Pass rates on C&G level 3 electrical installation courses collapsed from 73% in 1998 to 27% in 1999. The pass rate for 16 to 18 year olds is significantly better than for adults on most craft courses.

78 Many adults enrolling on construction courses seek only to extend existing skills or to develop sufficient skills to gain employment, change their career or set up as self-employed contractors. Most of the unemployed students, however, are unable to gain the necessary industrial experience to hone the practical skills they develop in college. The pass rates

published by the FEFC relate only to the achievement of a full qualification; for example, an NVQ. Construction NVQs incorporate individual units that do not always enable students to develop job knowledge or practical skills in a logical and sequential way. Teachers, therefore, select individual elements from these units to enable students to develop their skills in a way that makes sense to them as students and complex tracking arrangements are established to ensure that students achieve the full qualification.

79 NVQs and related vocational qualifications attract funding for the whole qualification only and students are recorded as having failed if they leave college without completing all the relevant units. Students leaving with partial qualifications have a significant impact on retention rates. Students enrolled for a whole qualification, however, gain credit for any additional NVQ units they achieve. Annex A shows the increase, 1997 to 1999, in the number of additional NVQ units achieved by students. These additional units help broaden students' skills across different crafts and help to develop a multi-skilled workforce.

80 Some departments have achieved consistently good pass rates on their courses. In these colleges strategies to improve performance focus on:

- appropriate arrangements for the induction of students joining courses at various times of the year
- well-organised work experience for full-time students
- rigorous student progress reviews and action plans
- early investigation of the reasons for poor performance from students
- the provision of good specialist resources to support learning
- measures to ensure that students enrol on appropriate courses
- effective course guidance and tutorial support.

81 In 1999, 43% of the students starting a course gained their intended qualification. Although this is a 4% increase on 1997, it is an unsatisfactory figure and a major reason why construction often attracts lower inspection grades than other provision.

# Staffing

82 Between 1997 and 1999, student enrolments in construction, in the colleges surveyed, increased by 18%. Over the same period the number of full-time construction teachers fell by 8% and the proportion of part-time teachers increased by 24% (table 10). This has placed a substantial administrative burden on the full-time teachers responsible for programmes. The previous survey report noted a reduction in technician staff. This has continued. The lack of technician support in a few colleges is now adversely affecting teaching and learning. The average ratio of technicians to teachers in the colleges surveyed was 1:6. The number of departmental administrative staff has increased by 25%, partly because of the increased demand on teachers for various paperwork.

**Table 10. Percentage change in numbers of staff in the colleges surveyed, 1997-1999**

| *Staff* | *College year* | | |
|---|---|---|---|
| | *1996-97 to 1997-98 (% change)* | *1997-98 to 1998-99 (% change)* | *1996-97 to 1998-99 (% change)* |
| Full-time teachers | -4 | 0 | -4 |
| Part-time teachers | +6 | +17 | +24 |
| Technicians | -3 | -5 | -8 |
| Construction administration staff | +4 | +20 | +25 |

*Source: college survey 1999-2000*
*Note: percentages subject to rounding*

83 The number of female construction teachers remains low; 2% of full-time teachers and 8% of part-time teachers are women. There are women working as full-time teachers in 30% of the colleges surveyed and women working as part-time teachers in 44%. Nearly half the colleges have instructors or workshop supervisors to support teachers and students. In 65% of colleges surveyed the staff profile broadly reflects the profile of the local population in terms of age and ethnicity.

84 Although construction staff have good industrial experience and are well qualified, the proportion of teachers with professional qualifications or degrees relating to construction has fallen since the previous survey (table 11). This is mainly because colleges have lost experienced staff through restructuring and have found it difficult to attract well-qualified specialists from industry. Many part-time teachers are employers and they bring with them up-to-date specialist expertise. However, colleges are reporting significant difficulty in attracting and retaining professionals because the salaries they can offer are lower than those relevant in the industry. The proportion of full-time teachers with the minimum level of teaching qualification has increased. A higher proportion of female teachers have professional and degree level qualifications compared with their male counterparts. There has, however, been a steep increase in the proportion of teachers possessing assessor and verifier qualifications.

85 Many teachers willingly undertake professional development to broaden their skills. In over 90% of the colleges surveyed, construction teachers have been involved in recent professional development activities relating to widening participation. In a few colleges, teachers on foundation courses have been required to gain a basic skills teaching

qualification and some teachers have been trained to handle students with behavioural problems. Almost all instructors hold a relevant level 3 vocational qualification. Many technicians have acquired a basic teaching qualification, enabling them to play a part-time supervisory role in workshops.

A college in the North West region organises staff development activities three times a year. One two-day event dealt specifically with methods of learning and all staff were required to attend. The college has an inclusive learning steering group, which includes construction staff. Review teams draw up action plans to promote inclusive learning. Both lecturers and support staff are members of these teams.

**Table 11. Qualifications held by construction staff in the colleges surveyed**

| *Type of qualification* | *Full-time teachers (%)* | *Part-time teachers (%)* | *Workshop supervisors (%)* |
|---|---|---|---|
| Professional qualifications in construction | 13 (22) | 11 (20) | 0 |
| Degrees relating to construction | 13 (15) | 7 (11) | 0 |
| Higher national diplomas/higher national certificates | 36 (33) | 13 (17) | 11 |
| National diplomas/higher national certificates | 23 (23) | 11 (12) | 3 |
| C&G advanced craft/NVQ level 3 | 80 (68) | 51 (32) | 92 |
| Bachelor of Education/PGCE/ Certificate of Education | 70 (69) | 13 (24) | 11 |
| C&G 7730 | 34 (15) | 9 (9) | 19 |
| Training and development lead body 32/23 | 82 (22) | 22 (18) | 63 |
| Training and development lead body 34 | 42 (16) | 4 (2) | 11 |
| Training and development lead body 36 | 10 (3) | 2 (1) | 0 |
| GNVQ assessor/verifier qualifications | 5 (–) | 1 (–) | 0 |
| No formal qualification in construction | 2 (1) | 2 (2) | 6 |

*Source: college survey 1999-2000*
*Note: figures in brackets refer to the first survey report*

# Accommodation and Equipment

86 Some colleges have invested significantly in good new workshop accommodation. The FEFC's space standards for workshops, however, have proved restricting for some specialist crafts. Building projects undertaken by part-time brickwork students, for example, occupy space in the workshops and have to remain in place until completed. This often leaves inadequate space for other students using the workshops. In general, however, colleges continue to provide extensive and realistic training and assessment facilities. Two-thirds of the colleges inspected over the past three years had good specialist accommodation. In the remaining third, workshop accommodation was poorly organised, inadequately maintained, lacking appropriate storage space or overcrowded, sometimes hindering learning and compromising safety. Colleges need to establish minimum allocations of working and storage space for each craft. Risk assessment of hazardous materials and processes is conducted effectively and there are thorough procedures for testing power tools and machinery.

87 Machinery and hand tools are well maintained but often outdated. Most colleges provide sufficient construction materials and staff are adept at recycling these to save costs. Teachers' personal contacts with employers have led to significant donations of specialist equipment and materials, including expensive items such as bathroom fittings, condensing boilers, plasters and specialist wall coverings. Most colleges rely on these donations from industry. Many hand and power tools in carpentry and joinery are worn out and need replacing. There is an adequate amount of surveying equipment which, in some colleges, is computer controlled. Colleges are increasingly resorting to hiring high-technology surveying equipment because of the prohibitive purchase costs. Few colleges have computer-controlled woodcutting machinery. Materials testing equipment is generally out of date and inadequate.

88 Construction departments were some of the first to develop learning centres to enable craft students to work independently. A few of these centres provide excellent facilities for students. In many cases, however, the centres have been developed as part of the workshop because of the general shortage of accommodation and pressure on colleges to use space more effectively. Where this happens, centres are generally poorly organised and lack sufficient learning resources. Compared with circumstances at the time of the first survey report, craft students have greater access to computers to develop their key skills. However, facilities are still inadequate in some colleges. Technician students have access to good IT resources, including computer-aided design facilities. However, few colleges have up-to-date estimating and project-planning software.

# Outcomes of Inspection and Self-assessment

89 The grades awarded to construction provision in colleges as a result of inspections are shown in table 12. Overall, colleges grade their provision higher than inspectors.

90 In their self-assessment reports colleges generally omit, or give too little weight to, significant weaknesses in construction, particularly: shortcomings in the teaching of theory; poor retention and pass rates; a lack of rigour in course reviews; poorly managed workshops; and insufficient sharing of good practice.

**Table 12. Grades awarded to construction in college self-assessment reports (SAR) and by inspectors and inspection grades for all programme areas**

| *Year* | *Grades 1 or 2* | | | *Grade 3* | | | *Grade 4 or 5* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Construction* | | *All areas* | *Construction* | | *All areas* | *Construction* | | *All areas* |
| | *SAR (%)* | *Inspection (%)* | *Inspection (%)* | *SAR (%)* | *Inspection (%)* | *Inspection (%)* | *SAR (%)* | *Inspection (%)* | *Inspection (%)* |
| 1993 to 1997 | * | 60 | 68 | * | 39 | 29 | * | 1 | 3 |
| 1997-98 | 68 | 62 | 69 | 32 | 38 | 30 | 0 | 0 | 1 |
| 1998-99 | 56 | 50 | 63 | 44 | 32 | 30 | 0 | 18 | 7 |
| 1999-00 | 52 | 22 | 50 | 48 | 69 | 44 | 0 | 9 | 7 |

*Source: inspectorate database*

**self-assessment not part of the previous inspection framework*

# Employer and Student Views on Quality

91 Of the colleges surveyed, 70% have formal mechanisms for obtaining employers' views on the quality of provision. Nearly half of the colleges send out questionnaires. The response rate, however, is poor. A few colleges only seek the views of employers who are paying for courses. Employers who respond to questionnaires generally express high levels of satisfaction. Some small to medium-sized employers consider that the training provided by colleges does not suit their needs. However, most colleges follow NVQ or GNVQ programmes that provide little scope for addressing particular local needs. Colleges respond well when employers pay for what they want.

One college in the Greater London region found that employer surveys helped them to identify shortcomings in the reports on students' progress issued twice a year. Subsequently, a collaborative project with other local colleges led to improvements in the information provided to employers across London.

92 Few construction departments involve employers in course or departmental reviews. Industry advisory groups are the main source of information about employers' views on students' achievements and progression. Some employers are involved in the review of courses undertaken by managing agents, but their involvement is limited mainly to commenting on the quantity and quality of resources to support courses. Occasionally, employers will attend end-of-year visits by industry moderating panels and sample the quality of students' projects. Many construction departments involve employers in monitoring the quality of training on the courses specially designed for them.

One college in the Yorkshire and Humberside region organises end-of-term reviews involving teachers, students, and employers. Employers attend regularly. Focus groups follow up any issues identified in these reviews.

93 In 30% of the colleges surveyed, members of the construction advisory committee reviewed draft self-assessment reports on construction. The colleges found employers' comments to be particularly helpful. Many departments intend to increase employers' involvement in the self-assessment process.

94 In nearly half of the colleges surveyed, student representatives attend team meetings and the colleges respond well to the issues they raise. When students play an active part in course team reviews, colleges gain useful information about learning and its relationship to the workplace. Issues commonly raised by students include improvements to the induction programme, better library facilities, more specialist learning materials, and changes to the curriculum. Students' comments are particularly important when colleges are introducing new areas of work, such as furniture-making or decorative techniques. These courses frequently recruit female students and mature students who raise important issues affecting course organisation; for example, the need for additional female changing facilities, arrangements for childcare or flexible patterns of teaching and learning to cater for those in part-time employment.

In one college in the South East region, the construction department undertakes three surveys annually for each student cohort and for the department as a whole. The management team considers students' responses and these responses also inform the department's self-assessment report. Students are invited to participate in course reviews.

95 Course reviews are of uneven quality. The best reviews are comprehensive and rigorous, and provide the basis for the departmental self-assessment report. Some reviews, however, are not sufficiently detailed. For example, target-setting is unrealistic, because there is little comparison of team performance with national benchmarks. In three-quarters of the colleges surveyed, performance against targets is regularly reported to the management team. In four of the colleges surveyed, students attend the end-of-year course review meetings.

In one college in the Yorkshire and Humberside region, a representative from each course attends the construction student council and council representatives attend the main board of study meetings.

In a college in the North West region, the construction crafts section implemented the following actions as a result of feedback from student representatives and general surveys of students' opinions.

The section:

- introduced an outdoor pursuits programme for all full-time students
- arranged for more vending machines to be installed in the canteen
- modified student timetables from two days each week to day and block attendance.

These changes improved the students' college and site experience.

Another college in the North West introduced residential courses in the spring term to help develop and assess key skills for full-time technician groups.

96 Half the construction departments surveyed reported on how they were contributing to widening participation. However, few departments have reliable data that enable them to compare the performance of different groups of student in terms of their qualifications when enrolling, ethnic background and need for additional learning support. In 70% of colleges surveyed, self-assessment reports referred to widening participation and inclusive learning. In 60% of colleges these issues were referred to in curriculum area reviews. However, few course and curriculum reviews address weaknesses in these areas effectively.

A college in the West Midlands region monitors the effectiveness of its programmes through weekly reports that focus on students' punctuality, attendance and personal development. All reports are passed to trained counsellors who inform schools and parents. Reports from construction teachers are given to specialist support staff. They are also included in team minutes that are copied to senior management.

# Annex A

## Retention and Achievement Rates

| *Programme* | *Completion year* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *1997* | | | *1998* | | | *1999* | | |
| | *Starters* | *Retention (%)* | *Pass (%)* | *Starters* | *Retention (%)* | *Pass (%)* | *Starters* | *Retention (%)* | *Pass (%)* |
| *All construction crafts excluding electrical installation course options and courses accredited by the NOCN (mainly NVQs)* | | | | | | | | | |
| Level 1 | 7,009 | 67 | 52 | 8,605 | 69 | 60 | 9,995 | 75 | 64 |
| Level 2 | 27,762 | 70 | 52 | 26,307 | 68 | 62 | 29,076 | 72 | 62 |
| Level 3 | 6,638 | 76 | 65 | 5,775 | 85 | 68 | 5,523 | 85 | 67 |
| Total | 41,409 | 70 | 54 | 40,687 | 72 | 67 | 44,597 | 74 | 63 |
| *Additional NVQ units in construction crafts to support multi-skilling* | | | | | | | | | |
| Level X | 1,945 | 84 | 48 | 1,328 | 77 | 59 | 2,217 | 83 | 49 |
| *Craft programmes to meet local demand and widen participation accredited by the NOCN* | | | | | | | | | |
| Level X | 3,529 | 85 | 52 | 39,676 | 98 | 94 | 9,229 | 89 | 73 |
| *All electrical installation C&G course options* | | | | | | | | | |
| Level 1 | None | None | None | 1,345 | 86 | 68 | 2,713 | 83 | 70 |
| Level 2 | 5,360 | 88 | 52 | 7,982 | 90 | 58 | 10,267 | 93 | 60 |
| Level 3 | 224 | 81 | 62 | 67 | 73 | 70 | 112 | 87 | 27 |
| Level X | 4,850 | 98 | 80 | 4,525 | 97 | 86 | 4,707 | 98 | 87 |
| Total | 10,434 | 93 | 67 | 13,919 | 92 | 69 | 17,799 | 93 | 69 |
| *Main technician programmes* | | | | | | | | | |
| Level 1 | 872 | 76 | 57 | 1,286 | 69 | 47 | 3,269 | 76 | 45 |
| Level 2 | 933 | 78 | 51 | 713 | 79 | 65 | 599 | 85 | 54 |
| Level 3 | 5,148 | 69 | 65 | 5,238 | 74 | 67 | 4,987 | 74 | 72 |
| Level H | 5,568 | 84 | 49 | 4,764 | 83 | 71 | 4,907 | 84 | 67 |
| Total | 12,521 | 77 | 51 | 11,963 | 78 | 41 | 13,762 | 79 | 62 |
| *Professional development programmes* | | | | | | | | | |
| Level X | 1,180 | 89 | 60 | 2,191 | 88 | 84 | 1,837 | 90 | 81 |
| *C&G streetworks* | | | | | | | | | |
| Level X | 4,783 | 98 | 80 | 5,373 | 100 | 82 | 1,929 | 99 | 90 |
| *Miscellaneous courses including firefighting, plant operators and gas safety* | | | | | | | | | |
| Level X | 581 | 100 | 100 | 1,298 | 100 | 93 | 2,350 | 100 | 95 |
| *Special programmes paid for by industry (mainly to meet gas safety regulations)* | | | | | | | | | |
| Level 2 | 19,410 | 100 | 92 | 53,131 | 100 | 96 | 5,031 | 100 | 93 |

*Source: ISR (1996, 1997 and 1998)*
*Note: level X refers to students reported to be on courses at an unattributed level*
*The table covers most construction craft and technician qualifications for all colleges and age groups, 1997–1999*

# Annex B

## Colleges Involved in the Survey

Accrington and Rossendale College

Aylesbury College

Blackburn College

Bournemouth and Poole College

Carlisle College

Chichester College of Arts, Science and Technology

City of Sunderland College

The College of North East London

The College of North West London

Cornwall College

Darlington College of Technology

Dudley College of Technology

Huddersfield Technical College

Hugh Baird College

Hull College

Leeds College of Building

Lewisham College

New College, Nottingham

Newcastle College

North Devon College

North Lincolnshire College

North Nottinghamshire College

North Warwickshire and Hinckley College

North West Kent College of Technology

St Helens College

Salisbury College

South Birmingham College

Walsall College of Arts and Technology

Warwickshire College, Royal Leamington Spa and Moreton Morrell

West Nottinghamshire College

# Annex C

## Strategic Forum of Construction National Training Organisations

BPEC – British Plumbing Employers Council

CITB – Construction Industry Training Board

EPIC – Extractives and Mineral Processing National Training Organisation

ESTTL – Engineering Services Training Trust Ltd

GINTO – Gas Industry National Training Organisation

NET – National Electrotechnical Training

PSNTO – Property Services National Training Organisation

TOPIC – Training Organisation for Professionals in Construction

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