

## Skills and the construction process

This comparative study of social housing construction in Britain, Germany and The Netherlands shows that in Britain recent declines in the level of training, and an increase in the use of subcontractors, have had a detrimental impact on the quality of British social housing. The study, by Linda Clarke and Christine Wall of the University of Westminster, found:

- f** The level of training, and its funding, are lowest in Britain and highest in The Netherlands. The British system is fragmented and localised compared to the German and Dutch industry-wide systems, which provide flexible and transferable skills.
- f** The decline in construction training in Britain is associated with the dramatic rise in self-employment. The organisation of training has shifted away from the firm and workplace and into training establishments.
- f** Stable, direct (payroll) employment and a local basis of activity, as found in Germany and The Netherlands and in British medium-sized firms, are prerequisite to firms taking on trainees.
- f** The British construction workforce is low-paid and casually employed, has unpredictable levels of skill, and works very long hours, compared to workers in German and Dutch housebuilding firms and their associated subcontractors.
- f** The proportion of labourers/unskilled workers in the German and Dutch construction industries has declined significantly, whereas in Britain it has risen.
- f** The level of site supervision on the British case study sites was twice as high as in The Netherlands and Germany, though much lower on those of British medium-sized firms with directly employed workforces than on those of larger British construction firms.
- f** The speed of construction was nearly four times greater on the Dutch housing sites than the British, with the average labour input of the structural trades in The Netherlands half that of Britain or Germany.
- f** The German and Dutch sites exhibited a higher degree of organisational and technical complexity than the British, and were more mechanised.
- f** Average net building costs from the case studies were highest in Germany and lowest in The Netherlands, though the German housing had the highest quality and gave the best 'value for money'.

## Introduction

This study examined the training and supply of labour for the construction of social housing in Britain, and how this affects the quality of the final product. The comparison with German and Dutch housing provides valuable examples of how social housing may be procured and constructed in different ways.

## Training

In Britain there are a number of routes by which school-leavers can enter construction training, both through colleges and firms. The extensive use of labour-only subcontracting and self-employment, especially in the South East, has reduced the amount of training done through firms. In the North of England, where direct employment is higher, there are correspondingly far higher numbers of trainees despite construction activity being three times less than in the South East.

In contrast, the German 'dual system', where apprenticeship with training is divided between the firm and college, provides the only way for school-leavers to gain a vocational qualification. In The Netherlands both apprenticeship and college-based training with work placements lead to the qualification of 'skilled worker'.

Unlike Britain, the training systems operating in Germany and The Netherlands are regulated through the 'social partners' (employers and trade unions), and standardisation and planning are centralised (though responsive to local labour market needs) through regional administration centres (the German *Kammer* and the Dutch *ROCs*).

In comparison, the British system is employer-led and localised in provision through the Training and Enterprise Councils (TECs), though dependent on centralised funding from the government for the majority of courses (run primarily in Colleges of Further Education). This makes planning for industry-wide training needs problematic, though the Construction Industry Training Board (CITB) maintains its role as the statutory body responsible for the administration of construction industry training through the levy-grant system. In Britain the levy on firms is 0.25 per cent on main contractors' direct (payroll) employees and 2 per cent on payments to labour-only subcontractors, in contrast to The Netherlands where it is 2.8 per cent of the payroll and Germany where it is around 2 per cent (annually adjusted).

When similar training is compared at a national level, the ratio of trainee bricklayers and carpenters to construction workers is twice as high in Germany and substantially higher in The Netherlands than in

Britain. The largest percentage of trainees were found to be training as carpenters in both Britain and The Netherlands, whereas in Germany trainee bricklayers are the largest group. Training itself is more task-specific and less theoretical in Britain than the other two countries.

## Building firms

The structure of the construction industry in Britain is characterised by an increasing polarisation into large and small firms, with the number of small firms growing and the number of medium-sized firms declining.

This decline of medium-sized firms and of local authority Direct Labour Organisations (DLOs) - both associated with stable direct employment and the necessary infrastructure for training - has taken place alongside both a decrease in social housebuilding and a decline in construction training. The medium-sized firms which remain continue to play an important role in training and in building for housing associations.

In contrast, medium-sized locally based firms in Germany contribute much more to national output and are prominent in training and social housebuilding. In The Netherlands, large, regionally based firms dominate the social housebuilding market, together with a large number of smaller specialist contractors.

In Britain, large contractors employ no operatives and subcontract all work through 'supply-and-fix' (which supply labour and materials) and 'labour-only' subcontractors. Only the medium-sized contractors maintain a core of trainees and directly employed workers. In Germany and The Netherlands, labour-only subcontracting is restricted to very particular circumstances. The share of subcontracting as a proportion of gross construction output has, however, been increasing.

## Organisation of labour

The level of skill has increased among construction workers in both Germany and The Netherlands. The proportion of labourers/unskilled workers in the German and Dutch construction industries has declined significantly, in sharp contrast to Britain where it has risen.

Self-employment in Britain represents about 60 per cent of construction employment; there has been a fall in the number of directly employed workers by 50 per cent and in the number of trainees by 33 per cent since 1980. In contrast, in Germany self-employment (eligible only to those in possession of a *Meister* certificate) stands at 11 per cent of the construction workforce and in The Netherlands at 12 per cent.

The rate of unionisation is highest in The Netherlands, at 60 per cent of the construction labour force, followed by Germany at 35 per cent and Britain at under 30 per cent. Collectively agreed rates for construction workers in Germany are more than double, and in The Netherlands double, the British collectively agreed rates. On the case study sites the German hourly earnings were 80 per cent more than those on the British sites.

Hourly labour costs in Britain are half those in Germany and almost half those in The Netherlands. Britain has, in all, the lowest total hourly wage cost, the lowest social charges, the lowest gross wages in relation to purchasing power, and the highest number of hours worked per week. These low labour costs and the casual labour force appear, however, to be counter-productive with respect to productivity, and consequently project costs (measured as British construction output per employee) is about 60 per cent of the German and Dutch levels.

### Construction process

All the British case studies, a total of 672 units, were of traditional brick-and-block cavity construction with a restricted use of prefabricated components. Site mechanisation was low, technical and social interfaces simple, and a narrow range of trades and specialisms were involved.

The use of concrete as a construction material predominated in the German and Dutch case study sites. These also had high levels of mechanisation, more complex technical and social interfaces, and higher numbers of specialist contractors. Despite this greater complexity of process, levels of site supervision on the German and Dutch sites were half those on the British sites.

The industrialised housebuilding process found on Dutch case study sites, combined with a high use of prefabricated components, gave a speed of construction four times greater than the British and three times greater than the German. All the case study firms in Germany and The Netherlands owned a wide range of site plant, including cranes, whereas only a quarter of the British firms owned plant, and this was usually site transport.

The low levels of mechanisation found in Britain parallel a labour intensive construction process. On the case study sites it was found that, for the structural trades, over twice as much labour was required to produce one square metre as on the Dutch sites.

The largest numbers of errors of workmanship were found on those British sites where there was 100 per cent subcontracting of the structural trades. No

control was exercised by the British housing associations over the choice of subcontractors, unlike their German and Dutch counterparts.

### The product

The average size of a two-bedroom four-person home for the social housing sector was smaller in Britain than in Germany and The Netherlands. The Dutch units were the most spacious, and both Dutch and German housing provided more storage space than Britain. Higher insulation requirements, together with a higher level of awareness of environmental issues, were evident in the Dutch and German specifications. Taking the above factors into account, the quality of the product was higher in The Netherlands and Germany than in Britain.

This picture changes when long-term maintenance costs are taken into account. Dutch housing was the cheapest to produce (at 388 £/sq.m, compared to 992 £/sq. m in Germany and 571 £/sq.m in Britain); however, it also appeared to have the highest maintenance requirements and shorter life-cycles for its component parts. In terms of 'value for money' in the long term, therefore, German housing came top with its greater durability and lower maintenance costs.

### Conclusions

There are important economic and social factors to be taken into consideration, as well as advantageous 'value for money' ratings, when assessing the British position.

First, the construction process has the economic disadvantage of being considerably less productive and slower than in either Germany or The Netherlands. There is little room to improve this without radical change, given the low level of technology involved in the process and the narrow range of skills employed. In contrast, the high level of investment in training by the Dutch and German construction industries and the industry-based training systems produces a workforce more able to adapt to new technologies, materials and processes.

Second, social housing in Britain is the product of a relatively low-paid, casually employed workforce with an often unpredictable level of skill, necessitating high and costly levels of supervision. In contrast, the workforce in Germany and The Netherlands is relatively well-paid, directly employed with good social conditions, and is regulated by the social partners. This workforce is more capable of planning, undertaking and controlling their work with the minimum of supervision.

## Recommendations

### **Clients**

- Support needs to be given to the new Skills Certification Scheme through encouraging contractors to use skill-certificated operatives.
- Existing medium-sized firms with direct employees should be supported.
- In Britain, as in Germany and The Netherlands, the client should exercise choice over the selection of subcontractors and discretion as to whether labour-only subcontractors should be used.

### **The industry**

- Skill-certificated operatives should be employed and the use of self-employed and labour-only subcontracting reduced for new housebuilding in order to re-establish a training infrastructure.
- Training needs to be carefully regulated when it forms part of the contractual agreement.

### **Training**

- Changes should be made to ensure trainees acquire adequate and comprehensive expertise in their trade, including site experience.
- An industry-wide system must be devised covering all areas of construction activity.
- Far higher levels of training are required to meet the skill needs of today's European construction processes.

## About the study

The study was conducted through interviews with leading practitioners in construction training, housebuilding contractors, union officials, housing associations and further education colleges in Britain, Germany and The Netherlands. These were followed by a detailed analysis of twelve case study sites (six in Britain, and three each in The Netherlands and Germany), carried out in conjunction with the Fachhochschule Dortmund and the Technical University of Eindhoven and each, with the exception of one German site, with over 50 units of social housing.

## Further information

The full report - Skills and the construction process: A comparative study of vocational training and quality by Linda Clarke and Christine Wall - is published by The Policy Press in association with the Joseph Rowntree Foundation (price £11.45).

### *Related Findings*

The following *Housing Findings* look at related issues:

- 112** Investment in social housing to fall to lowest level in many decades (Jun 94)
- 140** Creating local jobs from construction expenditure (Mar 95)
- 145** Housing association minority ethnic building contractors and services (Jun 95)
- 163** Improving the efficiency of the housing repair and maintenance industry (Nov 95)

For further details of these and other *Findings*, please contact Sally Corrie on 01904 629241.



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