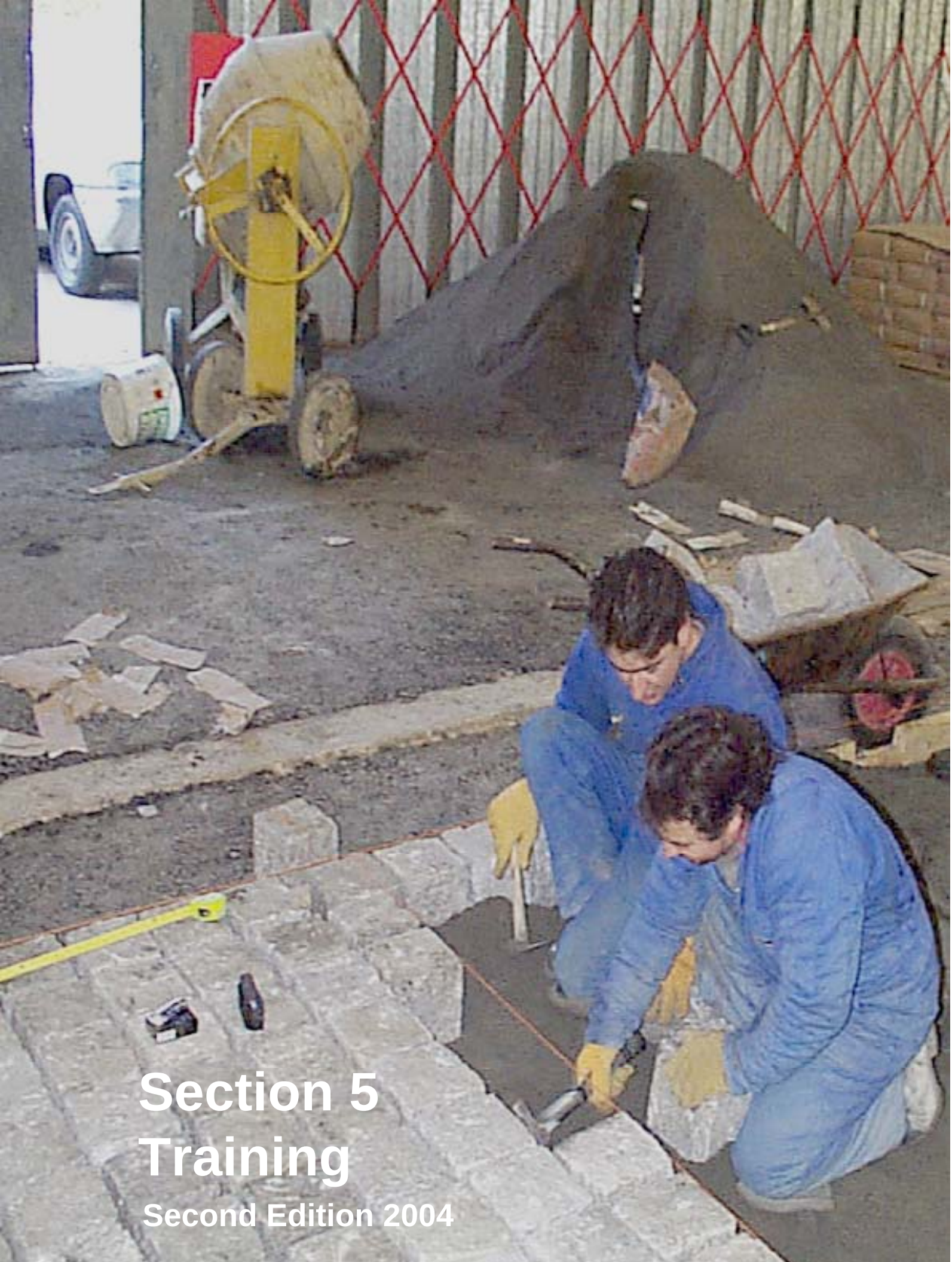

Section 5
Training

Second Edition 2004

5. TRAINING

5.2 Practical Training

European experience shows that the use of skilled and properly trained personnel is of paramount importance in streetscape projects involving stone surfaces. The tendering procedure (see 1.4) should ensure that the Main Contractor has appropriate skills and experience. Designers should obtain references and consider visiting completed schemes. Guarantees that experienced craftsmen will be deployed during the works should be obtained.

Training for the construction industry is the responsibility of the Construction Industry Training Board (CITB), which has been established since 1966. CITB is the National Training Organisation (NTO) for construction and is responsible for developing qualifications, training systems and educational materials.

The particular skills of a “mason paviour” are recognised within the Construction and Civil Engineering Services N/SVQ level 2. This qualification deals with the laying of natural and manufactured materials to paved surfaces of varying sizes. It additionally covers the requirements of the Roads and Streetworks Act. There also exist stonemasonry National/Scottish Vocational Qualifications (N/SVQs) at levels 2 and 3 with content relevant to the preparation and laying of natural stone material.

Training for craftsmen can take place in a college or training centre as well as the workplace. Due to the nature of the work carried out however training is more suited to the workplace. CITB offers guidance and financial support to employers wishing to train apprentices/operatives either on or off-the job or as a combination of both.

Notwithstanding the existence of the N/SVQ qualification it is still important that clients are aware of the scope of the training that leads to this qualification and be able to assess its suitability for their purposes. It is essential that any practical training scheme for laying natural stone materials in a streetscape environment deals with the following issues: -

Theory

- Basic principles of flexible and rigid construction
- Matching stone shapes and sizes to applications
- Basic principles of material compaction
- The importance of joint and bedding strength
- The need for accuracy and tolerances that are appropriate to the situation
- Grout properties and mixes
- Common failure mechanisms

Practice

- Recognition of poor quality stone elements.
- Instruction in sorting and selecting element shapes and sizes for different applications and laying patterns.
- Setting out skills
- Preparation of foundation surfaces
- Compaction techniques
- Construction of structural support layers and edge restraints
- Preparation and use of bedding and jointing materials, including a range of proprietary products
- Positioning and bedding of elements
- Application of compaction forces to pavement surfaces
- Grouting techniques

- Cleaning and finishing practices
- Maintenance requirements and techniques especially for unbound pavements
- Recognition of common types of failure
- Repair of common types of failure
- Techniques for accessing services and reinstatement

It is clear that if the considerable investment in the use of natural stone paving is to continue, the vocational training of all those operatives who will construct and maintain the new streetscapes must be taken seriously. Only if there is a long-term programme of such street works with associated maintenance, will there be commitment from Clients and Contractors to invest in training. If the industry perceives natural stone streetscapes as a fashionable fad that will fade then they are unlikely to invest in the long-term vocational training that is required. There is therefore an onus on clients to demonstrate to the industry that they are serious about natural stone streetscapes and that they are here for the long term.

Guidance

The use of qualified and experienced personnel is of paramount importance. Evidence of training in the workplace is required and should be promoted by Employers and Industry.

5.2 Professional Training

It is equally clear that greater understanding and technical competence needs to be acquired by all those professionals involved in the assessment design and management of stone pavements.

The subject needs to be introduced into the curricula of courses in engineering civic design architecture and landscape architecture.

It is also important that the subject is introduced to those who have policy and budgeting responsibility for future urban environments

A greater understanding of the stone product and its uses in pavement constructions should be introduced into courses on geology.

The detailed course content will be dependent upon the requirements of the market and the balance of the different courses being studied. At the very least teaching on natural stone pavements should be introduced into all courses where pavement engineering is currently being taught as a significant type of road surfacing.