

**Maintain our Heritage (MoH)  
Arup Research+Development**

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**FINAL REPORT**

**Research Module 6: Training and Education**

**Maintenance Education and Training for  
Listed Buildings**

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**Submitted by  
De Montfort Expertise Limited  
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## SUMMARY

The aims of ‘Research Module 6: Education and Training’, within the suite of modules commissioned by Maintain our Heritage and forming part of the *Maintaining Value* programme, have been to identify the necessary skills and experience required to perform inspection services and practical maintenance tasks; existing skills gaps; the means by which such skills gaps can be corrected; and methods of monitoring needs, standards, and skills gaps over time.

Primary research has been undertaken to elicit data on the maintenance of heritage and non-heritage properties from three key groups – clients, professional advisers and service providers – together with the views of individuals and organisations involved in training. Additional evidence has been drawn from secondary data sources to provide a contextual framework for this work.

### Skills and experience – inspection services

The key skills and experience identified by the three key groups relate to a practical understanding of traditional materials and forms of construction, together with a general empathy towards the historic environment. With non-heritage properties, emphasis is placed on the ability to analyse a building and diagnose actual and potential defects. The principal skill difference is seen as the ability to identify the character and significance of the building. Common problems relate to cost and access provision, together with inappropriate work and a lack of client understanding for the requirements of heritage properties.

### Skills and experience – practical maintenance tasks

It is again evident that the key skills and experience lie with a practical understanding of traditional materials and forms of construction, but supported by appropriate trade skills and an ability to carry out suitable forms of repair. This includes selecting and carrying out the least damaging form of repair, taking account of issues such as minimal intervention, and avoidance of collateral damage. A broad base of knowledge and experience are prerequisites for carrying out the maintenance of non-heritage properties, together with a good level of workmanship. Principal skills differences are the ability to appreciate the significance of a heritage property and having a practical understanding of the use and performance of traditional materials. Common problems relate to access provision, sourcing appropriate materials, a lack of craft skills, and the insufficiency of property maintenance.

### Identification, correction, and monitoring of skills gaps – inspection services

It is clear from the responses of the three key groups that there is a current and growing lack of experienced practitioners capable of providing a broad range of professional advice concerning the maintenance of heritage properties. This skills gap comes from the loss of experienced individuals and a lack of practical maintenance education within conservation and heritage courses, and is reflected in the often poor standard of professional reports and other documentation. The essential difference between the supply of skills education and training for heritage and non-heritage properties is that of specialist conservation knowledge, but practical experience counts for more than qualifications. Correction of the skills gaps comes down to greater awareness, better promotion and recruitment, more targeted training, and mentoring of newly-qualified individuals by experienced practitioners. Monitoring is seen as a function of skills lists and registers, but these need to be administered over time and have a level of screening that itself requires a level of competence in assessing standards. A national, unified accreditation scheme reflecting the practical, inter-disciplinary nature of conservation is considered essential as a means of monitoring the availability or lack of key professional skills at local or regional levels. Experience is considered of greater significance than training and qualifications, and emphasis should thus be placed on making better use of the existing workforce through targeted heritage training.

### Identification, correction, and monitoring of skills gaps – practical maintenance tasks

The most significant skills gaps relate to the limited supply of practical maintenance education and training, together with the lack of general awareness and sensitivity towards heritage properties. Training must come from experienced craft or tradesmen, rather than the growing number of enthusiasts and material suppliers, and with an emphasis on developing multi-skilled individuals.

Training provision should come ideally through formal apprenticeships or periods of time spent under the mentorship of an experienced individual. College education should include greater emphasis on the requirements of working on heritage properties. The key differences in the practical maintenance of heritage and non-heritage properties are the need to understand and appreciate traditional materials and forms of construction, and the practical ability to select and implement appropriate repairs. Correction of skills gaps comes from re-training existing operatives, increased crafts-based conservation apprenticeships, greater awareness and promotion of conservation within the construction industry, increased maintenance training provision, and positive support from clients and professional advisers for the potential added value attached to using skilled and specialised service providers. Monitoring is again seen as a function of skills lists and registers, but with an emphasis on proven experience rather than qualifications. Above all, emphasis should be placed on making best use of the existing workforce through re-training and re-direction towards the repair and maintenance sub-sector.

#### Setting standards – inspection services

Professional conservation accreditation is seen as a positive means of setting standards by the three key groups, but the use of different accreditation schemes and fragmentation within individual professions is seen as potentially harmful. In terms of maintenance inspection standards, this should form part of current training and accreditation schemes, rather than through the creation of separate initiatives.

#### Setting standards – practical maintenance tasks

The key to attaining high standards is through structured and resourced training, with an emphasis on benchmarked practical craft skills. The system of apprenticeships is favoured over qualification-led training, but there must be more support for service providers to take on school leavers. Without this demand for passing on practical knowledge and experience, experienced craftsmen will retire and the national construction skills base will be depleted. Local craft training centres are favoured over central centres of excellence, as too are local initiatives that bring the three key groups together. Such schemes require commitment and resources that need central and local government support.

#### Monitoring maintenance needs – inspection services

This must come through regular, structured inspections, backed up by the use of a maintenance logbook or manual that passes with the property to new owners. The current system of quinquennial inspections and reports for places of worship is seen as offering a useful model, but of reduced value if the recommended actions are not acted upon within the allocated time periods. Monitoring maintenance needs should be the role of a dedicated maintenance adviser, such as a Surveyor to the Fabric, which would separate the function from other, less-suitable, professional advisers commonly tasked to respond to specific issues (such as conservators, structural engineers, and damp/timber surveyors).

#### Monitoring maintenance needs – practical maintenance tasks

The key to monitoring needs is by the use of properly administered term contracts, where long-term relationships are developed with local service providers and opportunities are taken to operate a system of preventive, rather than corrective, maintenance.

## LIST OF ABBREVIATIONS

ABCM	Association for Building Conservation Management
BRE	Building Research Establishment
BSI	British Standards Institution
CIB	International Council for Research and Innovation in Building and Construction
CIBSE	Chartered Institute of Building Services Engineers
CIOB	Chartered Institute of Building
CIRIA	Construction Industry Research and Information Association
CITB	Construction Industry Training Board
CPD	Continuing Professional Development
CSCS	Construction Skills Certification Scheme
DEFRE	Department of the Environment, Food, and Rural Affairs
DETR	Department of the Environment, Transport and the Regions
DNH	Department of National Heritage
DoE	Department of the Environment
HLF	Heritage Lottery Fund
ICE	Institution of Civil Engineers
ICCROM	International Centre for the Conservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
IHBC	Institute of Historic Building Conservation
IPC	Institute of Paper Conservation
ISO	International Standards Organization
IStructE	Institution of Structural Engineers
LLL	Life Long Learning
MoH	Maintain our Heritage
NCC-R	National Council for Conservation-Restoration
NHTG	National Heritage Training Group
NTO	National Training Organisation
NVQ	National Vocational Qualification
PACR	Professional Accreditation of Conservator-Restorers
PSNTO	Property Services National Training Organisation
RIBA	Royal Institute of British Architects
RICS	Royal Institution of Chartered Surveyors
SoA	Society of Archivists
SPAB	Society for the Protection of Ancient Buildings
SVQ	Scottish Vocational Qualification
UKIC	United Kingdom Institute for Conservation
UNESCO	United Nations Educational, Scientific and Cultural Organization

## **GLOSSARY OF TERMS**

### **Building pathology**

Identification, investigation, and diagnosis of defects in existing buildings.

### **Conservation**

Action to secure the survival or preservation of buildings, cultural artefacts, natural resources, energy, or any other thing of acknowledged value for the future.

### **Corrective maintenance**

Maintenance carried out after failure.

### **Facilities management**

Practice of co-ordinating the physical work place with people and work of the organisation.

### **Heritage building**

A building, monument, or structure that is designated as a listed building, scheduled monument, or lies within a conservation area.

### **Information management**

An organised and structured approach to handling information and data so as to ensure that the right information is provided to the right people at the right time and in the right format.

### **Life-cycle costs**

Total cost of ownership of an item, taking into account all the costs of acquisition, personnel training, operation, maintenance, modification, and disposal, for the purpose of making decisions on new or changed requirements and as a control mechanism in service for existing and future items.

### **Maintenance**

Work undertaken in order to keep or restore every facility to an acceptable standard.

### **Maintenance management**

Structured planning, control and implementation of maintenance activities.

### **Planned maintenance**

Maintenance organised and carried out with forethought, control, and the use of records, to a predetermined plan based on the results of previous condition surveys.

### **Preventive conservation**

Monitoring and controlling the main agents of destruction to ensure practical, cost-effective use and aftercare of sensitive or valuable buildings and their contents.

### **Preventive maintenance**

Maintenance carried out at predetermined intervals, or corresponding to prescribed criteria, and intended to reduce the probability of failure or performance degradation of an item.

### **Project management**

Overall planning, control and co-ordination of a project from inception to completion, aimed at meeting a client's requirements and ensuring completion on time, within cost, and to required quality standards.

### **Whole life-cycle cost**

Generic term for the costs associated with owning and operating a facility from inception to demolition, including both initial capital costs and running costs.

## **BIOGRAPHIES**

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Dr David Watt is a Senior Research Fellow within the Leicester School of Architecture at De Montfort University, Leicester. He has a degree in building surveying, post-graduate qualifications in architectural conservation and conservation science, and a doctorate relating to the recording of architectural facades. He promotes, conducts, and publishes research on various aspects of architectural conservation and building pathology, and is particularly interested in the use of traditional building materials and the influence of people and environmental conditions on buildings and monuments.

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