



Environmental and Heritage Conservation Services

Environmental Building Solutions Ltd. provides independent scientific advice and analysis on building health problems, occupational hygiene, environmental monitoring, fungal, insect pest and damp problems in buildings, museums, bridges, ships, jetties and other landmarks. The services offered include:

Timber Decay and Stone Deterioration:

Non-destructive Investigation, analysis and environmental control of dry rot, wet rots and wood boring insects and deterioration of stonework.

Damp Condensation and Moisture:

Detection, analysis and advice on environmental management of rising damp, penetrating damp and condensation.

Mould Growth:

Investigation, analysis, monitoring and environmental remediation of moulds.

Building Health:

Sick building syndrome, allergy problems, legionella, mould, lighting, indoor air quality, and advice on the management of building health problems.

Occupational Hygiene:

Dust, fumes, gases and vapours monitoring, noise and vibration monitoring, testing of local exhaust ventilation equipment, COSHH audits, staff training.

Environmental Monitoring:

Monitoring of airborne pollution, monitoring of environmental noise and vibration, contaminated land sampling and analysis, air and water quality control.

Pest Management:

Investigation of pest problems both inside and outside the building environment including e.g. pigeons, cockroaches, Pharaoh's ants.

Conservation Science & Environmental Monitoring:

Short term and long term conservation monitoring and control of environmental conditions in buildings after fire, flood and general neglect supported by computer simulation/modelling tools.

Research & Development:

Research into environmental monitoring and computer simulation/modelling techniques, building health, moulds, moisture and decay of building materials.

Litigation:

A dedicated service for litigation matters covering environmental health, occupational hygiene, analysis of building defects, timber decay, mould and indoor air quality and preparation of independent reports and expert witness work.

Head Office
Galley Cottage
Galley Lane
Great Brickhill
Milton Keynes
Buckinghamshire
MK17 9AA
Dorking Office

Telephone: + 44 (0) 1525 261922
Fax: + 44 (0) 1525 261923
email: ebs@ebssurvey.co.uk
web: www.ebssurvey.co.uk
Telephone: + 44 (0) 1306 875498



Occupational Hygiene Services

Environmental Building Solutions Ltd. provides independent scientific advice and analysis on occupational hygiene, health problems and environmental monitoring in workplace, commercial and industrial environments. The services offered include:

Occupational Hygiene

Monitoring of airborne concentrations of dusts, fumes and gases in the workplace to assess compliance with the requirements of the Control of Substances Hazardous to Health (COSHH) Regulations 2002. Evaluation of results and practical advice on any remedial actions necessary

Anthrax Management

Advice and practical help in assessing the risks associated with anthrax contamination of animal hair in building fabrics. Building surveys to determine levels of contamination and advice for subsequent management of risks.

Local Exhaust Ventilation

Measurement of the efficiency of local exhaust ventilation systems to ensure effective operation in accordance with the requirements of HS(G) 54 "Maintenance, Examination and Testing of Local Exhaust Ventilation"

Contaminated Land Assessment

Comprehensive advice and investigation ranging from an initial desktop review of the site history to a full sampling and analysis study to assess contamination and the likely environmental impact associated.

Environmental Noise & Noise at Work

Measurement of noise exposure in the workplace, to assess compliance with present and impending legislation. Advice and assistance to reduce noise levels provide appropriate hearing protection and safeguard the hearing of employees. Measurement of ambient noise levels for a variety of purposes such as nuisance assessment, preparation of planning applications or selection of control measures.

Air Quality Monitoring

Comprehensive monitoring service for a range of contaminants to assess the acceptability of the environment for the particular situation. This may include perimeter monitoring to assess the likely impact of fugitive emissions from process sites, or the impact of engine exhaust emissions from transport systems.

Research & Development:

Research and development work into occupational hygiene, environmental monitoring and indoor air quality.

Litigation:

A dedicated service for litigation matters covering environmental health, occupational hygiene, mould and indoor air quality and preparation of independent reports and expert witness work.

Head Office
Galley Cottage
Galley Lane
Great Brickhill
Milton Keynes
Buckinghamshire
MK17 9AA
Dorking Office

Telephone: + 44 (0) 1525 261922
Fax: + 44 (0) 1525 261923
email: ebs@ebssurvey.co.uk
web: www.ebssurvey.co.uk
Telephone: + 44 (0) 1306 875498

Property Care

EBS has wide ranging experience in the conservation and preservation of buildings and offers expert multi-disciplinary advice supported by laboratory and computing facilities.

EBS approaches the control of timber decay organisms by the management of the building environment. This enables EBS to recommend the most up-to-date and cost effective conservation and preservation techniques.

Examples of the services offered are given below.

- Investigation into causes of decay of building materials, contents and Decorations
- Analysis of timber decay infestations, such as dry rot (*Serpula lacrymans*), wet rots, woodworm (*Anobium punctatum*), wood boring weevils and death watch beetle (*Xestobium rufovillosum*)
- Damp and decay analysis involving investigation of rising damp, penetrating damp, and damp proof courses
- Advice on insect and pest management
- Prevention of stone decay
- Preservation of wall paintings, books, museum and gallery specimens
- Non-destructive inspection techniques
- Inspection, ecology, monitoring and environmental control of decay organisms
- Monitoring the drying out of buildings after fire and water damage
- Advice on refurbishment of buildings after fire damage
- Conservation and preservation of historic Buildings

EBS offers advice on legal issues and an expert witness service in litigation cases in the above issues

Head Office
 Galley Cottage
 Galley Lane
 Great Brickhill
 Milton Keynes
 Buckinghamshire
 MK17 9AA
Dorking Office

Telephone: + 44 (0) 1525 261922
 Fax: + 44 (0) 1525 261923
 email: ebs@ebssurvey.co.uk
 web: www.ebssurvey.co.uk
 Telephone: + 44 (0) 1306 875498



Environmental Monitoring – Sustainable Solutions to Conservation

Environmental Building Solutions Ltd. provides independent scientific advice and analysis on the environmental risk assessment, conservation and monitoring of historic buildings their structure, environments and contents.

EBS has wide ranging experience in long term monitoring, stabilisation and control of environmental conditions in buildings after fire, flood and chronic water ingress due to general neglect.

EBS environmental monitoring services include Weather Stations, Internal, External, Fabric and material monitoring, Environmental Data loggers, Moisture Profiling and Mapping.

Measured parameters include UV, Lux Levels, Temperature, Humidity, Dew Point, Vapour Pressure, mortar sample analysis, moisture content of timber and masonry.

Data from both short term and long term monitoring is analysed and can be used by EBS, where necessary to recommend a range of measures, which can be implemented to achieve optimum environmental conditions.

This could include installation of a permanent monitoring system by an independent company, if necessary to link up with the BMS system, which could alter the environment within the building. This is particularly applicable in historic buildings, Museum and Galleries, Castles, Libraries and Archives.

Current Projects Includes

- Cardiff Castle, Cardiff, Wales
- Farnleigh House, Dublin, Ireland
- Mont Orgueil Castle, Jersey, Channel Islands
- National Library of Scotland, Edinburgh, Scotland
- Dover Castle, Dover
- Crown Prosecution Services Head Quarters, London
- Royal William Yard, Plymouth

Environmental monitoring allows for a cost-effective, long-term holistic solutions to environmental stabilisation of the historic fabric and contents.

Head Office
Galley Cottage
Galley Lane
Great Brickhill
Milton Keynes
Buckinghamshire
MK17 9AA
Dorking Office

Telephone: + 44 (0) 1525 261922
Fax: + 44 (0) 1525 261923
email: ebs@ebssurvey.co.uk
web: www.ebssurvey.co.uk
Telephone: + 44 (0) 1306 875498



Building Biology and Environmental Health Problems in Buildings

EBS provides expertise in the investigation of sick buildings by carrying out surveys on internal and external environmental conditions as follows.

Indoor Environment

- materials - formaldehyde, solvents, mineral fibres and pesticides
- construction - airtightness and energy conservation vs ventilation for occupants and fabric
- services and controls - thermal comfort, air conditioning, and control of indoor micro climate
- spatial arrangement - building layouts, ceiling heights and volume of space per occupant
- occupants - occupant activities, moisture and pollutants
- lighting levels, noise, radon

Outdoor Environment

- global pollution - SO_x, CO_x, NO_x, O₃, CFC emissions and pesticide residues, natural hazards - radon

Environmental Health Surveys

- management - advice on stress and illnesses in the built environment
- medical - human defence mechanisms; enzyme detoxification, immune and physiological responses
- psychology - psychological, perceptual and behavioural aspects of the built environment

Health, Hygiene and the Environment

- management of insect pests in domestic, office and industrial premises
- environmental effects of pesticides
- management of structural-threatening insect pests
- assessment of biological and chemical health hazards in buildings
- management of house dust mite, fungi and mould infestations and allergy problems in buildings, epidemiology and environmental assessment

EBS offers advice on legal issues and an expert witness service in litigation cases in the above issues.

Head Office
Galley Cottage
Galley Lane
Great Brickhill
Milton Keynes
Buckinghamshire
MK17 9AA
Dorking Office

Telephone: + 44 (0) 1525 261922
Fax: + 44 (0) 1525 261923
email: ebs@ebssurvey.co.uk
web: www.ebssurvey.co.uk
Telephone: + 44 (0) 1306 875498



Environmental Remediation of Moulds, Mites and Environmental Health Surveys

Environmental Building Solutions Ltd (EBS), provides independent scientific advice and analysis on biological contaminants in buildings.

The investigation, analysis, identification and remediation of environmental health problems caused by biological contaminants require a multidisciplinary approach. It combines the skills of experienced building mycologists and pathologists, environmental health scientists, and specialists in the environmental monitoring of condensation, moisture and damp in the building fabric. EBS has in-house scientists and specialists in these fields.

A thorough knowledge of the biology, ecology, physiology and epidemiology of moulds and mites is a pre-requisite for an accurate assessment of the problem in the indoor environment. A complete house dust mite, mycoflora and environmental investigation is carried out using air samplers and a range of hand held instrumentation and equipment. This is then followed by laboratory analysis to identify and count microbial contaminants.

EBS approaches the control of moulds and mites in buildings by the management of the building environment. The infestation is controlled by an environmental micron high degree filtration system. This system removes 99.76% of fungal spores from the affected areas. The micron filtration system is tested to the IEC 312 filtration standard.

A technical report is prepared to identify whether the premises are prejudicial to health or not.

Detailed recommendations and specifications can be provided for the long-term solution of any problems discovered.

Head Office
Galley Cottage
Galley Lane
Great Brickhill
Milton Keynes
Buckinghamshire
MK17 9AA
Dorking Office

Telephone: + 44 (0) 1525 261922
Fax: + 44 (0) 1525 261923
email: ebs@ebssurvey.co.uk
web: www.ebssurvey.co.uk
Telephone: + 44 (0) 1306 875498

Historic Buildings: Building Fabric Decay and Environmental Monitoring

The following is a selection of our projects involving investigations of building fabric decay and environmental monitoring.

Royal William Yard, Plymouth

Detailed diagnostic non-destructive surveys of damp and timber decay in the Brewhouse and Tower buildings at Royal William Yard, a Scheduled Ancient Monument. Followed by a long-term programme of monitoring environmental conditions and fungal/insect infestation combined with recommendations to protect and dry down the building.

Client: Gilmore Hankey Kirke Architects



The Fitzwilliam Museum, Cambridge

Non-destructive environmental surveys of moisture, timber decay, moulds and air quality. A programme of regular monitoring of environmental conditions is currently being implemented.

Client: The Fitzwilliam Museum

The National Library of Scotland, Edinburgh

Detailed non-destructive environmental surveys of moisture, timber decay and air quality. An ongoing programme of monitoring infestations, environmental conditions and air quality is currently underway.

Client: The National Library of Scotland

Windsor Castle

This project involved three years of monitoring the mycoflora at Windsor Castle following the fire damage. The investigation involved monitoring the mycoflora at various locations within the Castle and comparing it with the external environment.

Client: Hutton + Rastron



Berg Cottage, Barkway, Royston

Environmental and diagnostic survey of moisture and timber decay problems at this 400-year-old timber-framed cottage using non-destructive instrumentation. Provision of detailed recommendations for drying down the building, repair and restoration of damaged structures, preventative maintenance and long term environmental monitoring.

Client: The National Trust



Kingsway College, London

Environmental survey of moisture and timber decay problems in this Grade II Listed building and provision of detailed recommendations for further investigation and remedial works.

Client: GTMS

New End Hospital, Hampstead

Detailed diagnostic and non-destructive surveys of moisture and timber decay problems, followed by long-term programme of monitoring the environmental conditions and making recommendations for the protection of the building fabric.

Client: Berkeley Homes (North London) Ltd

Oxford Road Station, Manchester

A series of diagnostic non-destructive investigations of timber decay to the structural timber elements of the station building using the latest Resistograph technology, combined with careful monitoring of environmental conditions.

Client: Railtrack



Royal Academy of Music, London

Non-destructive inspection of historic plaster ceilings following partial ceiling collapse and observations of extensive cracking. Provision of recommendations for remedial works including regular monitoring and improvement of environmental conditions.

Client: Royal Academy of Music

Kingsway College, London

Environmental survey of moisture and timber decay problems in this Grade II Listed building and provision of detailed recommendations for further investigation and remedial works.

Client: GTMS

New End Hospital, Hampstead

Detailed diagnostic and non-destructive surveys of moisture and timber decay problems, followed by long-term programme of monitoring the environmental conditions and making recommendations for the protection of the building fabric.

Client: Berkeley Homes (North London) Ltd

Church of St Blaise, Haccombe, Devon

Environmental and diagnostic survey of moisture and timber decay problems of this historic listed building using non-destructive technology. Detailed recommendations include environmental remediation works followed by a programme of long term monitoring of masonry moisture profiles.

Client: Paul Bedford Architect

Church of St Mary the Virgin, Edlesborough

Environmental investigation of biological growths, stone deterioration and history of remedial repair works to the external fabric of the church.

Client: Philip Hughes Associates



Moy Timber Bridge, Inverness, Scotland

Highly detailed non-destructive investigation of timber decay to this Grade A Listed timber railway bridge using the latest Resistograph technology.
Client: Railtrack



Oxford Road Station, Manchester

A series of diagnostic non-destructive investigations of timber decay to the structural timber elements of the station building using the latest Resistograph technology, combined with careful monitoring of environmental conditions.

Client: Railtrack

Telč Castle, Czech Republic

Non-destructive environmental and timber decay survey of UNESCO preserved castle. The project involved detailed investigation and long-term monitoring of decay and infestation and making recommendations for environmental control.

Client: Telč Town Architect

The Corn Exchange, Manchester

Detailed diagnostic non-destructive surveys of damp and timber decay in the aftermath of the Corn Exchange bombing. These surveys were followed by a long-term programme of monitoring environmental conditions and fungal and insect infestation combined with recommending measures to protect and dry down the building.

Client: Bucknall Austin/Frogmore Estates

United Reformed Church (Round Chapel), Hackney, London

Environmental surveys of moisture and building fabric decay combined with long-term, regular programme of monitoring environmental conditions. This refurbishment project won the Civic Trust Award for 1998.

Client: Cazenove Architects Co-operative



Henry Lucas Hospital, Wokingham

Detailed non-destructive environmental survey for damp and timber decay. .

Client: Leonard Design. Architects



Henry Lucas Hospital, Wokingham

Victoria Law Courts, Birmingham

Detailed non-destructive environmental survey for damp and timber decay of this Grade 1 listed building. Resistograph testing of roof trusses to plot extent of decay.

Client: Birmingham City Council

BBC Theatre, Golders Green

Detailed non-destructive environmental survey for damp and timber decay. Inspection of Ornate ceilings following localised collapse.

Client: Insignia Richard Ellis.

Bedford Arms Hotel, Woburn

Detailed non-destructive environmental survey for damp and timber decay of this medieval public house.

Advice on management of Deathwatch beetle infestation and drying out of the building fabric.

Client: John Living Partners



Dorchester Abbey, Dorchester On Thames

Dorchester Abbey, Dorchester On Thames

Detailed non-destructive environmental survey for timber decay. Resistograph testing of roof trusses to plot extent of decay.

Client: Martin Ashley, Architects

St Peters Church, Northampton

12 Months monitoring of the building to establish causes of mould growth to internal finishes.

Client: The Churches Conservation Trust.



St Peters Church, Northampton

St Andrews Church, Mickfield, Suffolk

Detailed non-destructive environmental survey for damp and timber decay.

Client: Nicholas Jacob

St Mary Magdalene Church, Willen

Detailed non-destructive environmental survey of the roof structure for timber decay .

Client: Shenstone and Partners, Architects

St Michaels Church, Laxton

Detailed non-destructive environmental survey of the roof structure for timber decay.

Client: C.J.Moxon. Architect

St Michaels Church, Stewkley

Detailed non-destructive environmental survey of the tower roof structure for timber decay. Resistograph testing of tower roof timber structure to plot extent of decay.

Client: Hockley and Dawson, Engineers



St Mary the Virgin, Sunbury on Thames

St Mary the Virgin, Sunbury on Thames

Detailed non-destructive environmental survey for damp and timber decay . Resistograph testing of tower roof to plot extent of decay.

Client: Martin Ashley Associates

Immanuel College, Bushey

Detailed non-destructive environmental survey for damp and timber decay. Detailed survey of tower roof timbers.

Client: Daniel Rosenfelder, Architects



Immanuel College, Bushey

Monastery of St Francis, Manchester

Detailed non-destructive environmental survey for damp and timber decay of this Grade 1 listed building. Resistograph testing of roof trusses to plot extent of decay.

Client: Austin Smith Lord

Curzon St Station, Birmingham

Detailed non-destructive environmental survey for damp and timber decay. Stress grading of structural timbers.

Client: Birmingham City Laboratories

Haggerston Library, London

Detailed non-destructive environmental survey for damp and timber decay. Advice on drying out of the building fabric.

Client: JCMT Architects

Old Rep Theatre, Birmingham

Stress grading of structural timbers supporting the theatre stage. Detailed non-destructive environmental survey for timber decay

Client: Faber Maunsell, Engineers



Clare Priory, Clare, Suffolk

Clare Priory, Clare, Suffolk

Detailed non-destructive environmental survey for damp and timber decay following flooding.

Client: Clare Priory

Moreton hall School, Bury St Edmunds

Detailed non-destructive environmental survey for damp and timber decay.

Client: The Whitworth Co-partnership



Moreton hall School, Bury St Edmunds

128 Harley St, London

Detailed non-destructive environmental survey for damp and timber decay of this Grade 2 listed building. Resistograph testing of roof trusses to plot extent of decay.

Client: C M Parker Browne

Chorleywood Surgery, Chorleywood

Detailed non-destructive environmental survey for damp following localised flooding.

Client: Faber Maunsell. Engineers

City Arms, Canterbury

Detailed non-destructive environmental survey for damp and timber decay of this medieval public house.

Advice on management of Deathwatch beetle infestation and drying out of the building fabric.

Client: Calford Seaden Partnership

The Underground Hospital, Dover

Environmental monitoring and remediation of moulds.

Client: English Heritage



The Underground Hospital, Dover

Moulton Windmill, Spalding

Detailed non-destructive environmental survey for damp and timber decay. Detailed survey of structurally damaged to the cap and curb.

Client: John Boucher



Moulton Windmill, Spalding

Rural History Centre, Reading

Detailed non-destructive environmental survey for damp and timber decay . Resistograph testing of roof trusses to plot extent of decay.

Client: University of Reading

Stable Yard cottages, Hardwick Hall

Detailed non-destructive environmental survey for damp and timber decay. Advice on management of Deathwatch beetle infestation

Client: Clive Dawson, Hockley and Dawson Engineers

The Silk Museum, Macclesfield

Detailed non-destructive environmental survey for damp and timber decay . Advice on management of extensive Dry Rot infestation and drying out of the building fabric.

Client: Austin-Smith-Lord, Architects



Tewkesbury Abbey, Tewkesbury

Tewkesbury Abbey, Tewkesbury

Detailed non-destructive environmental survey for timber decay. Resistograph testing of roof trusses to plot extent of decay. Stress Grading of structural timbers and species identification.

Client: Clive Dawson, Hockley and Dawson Engineers