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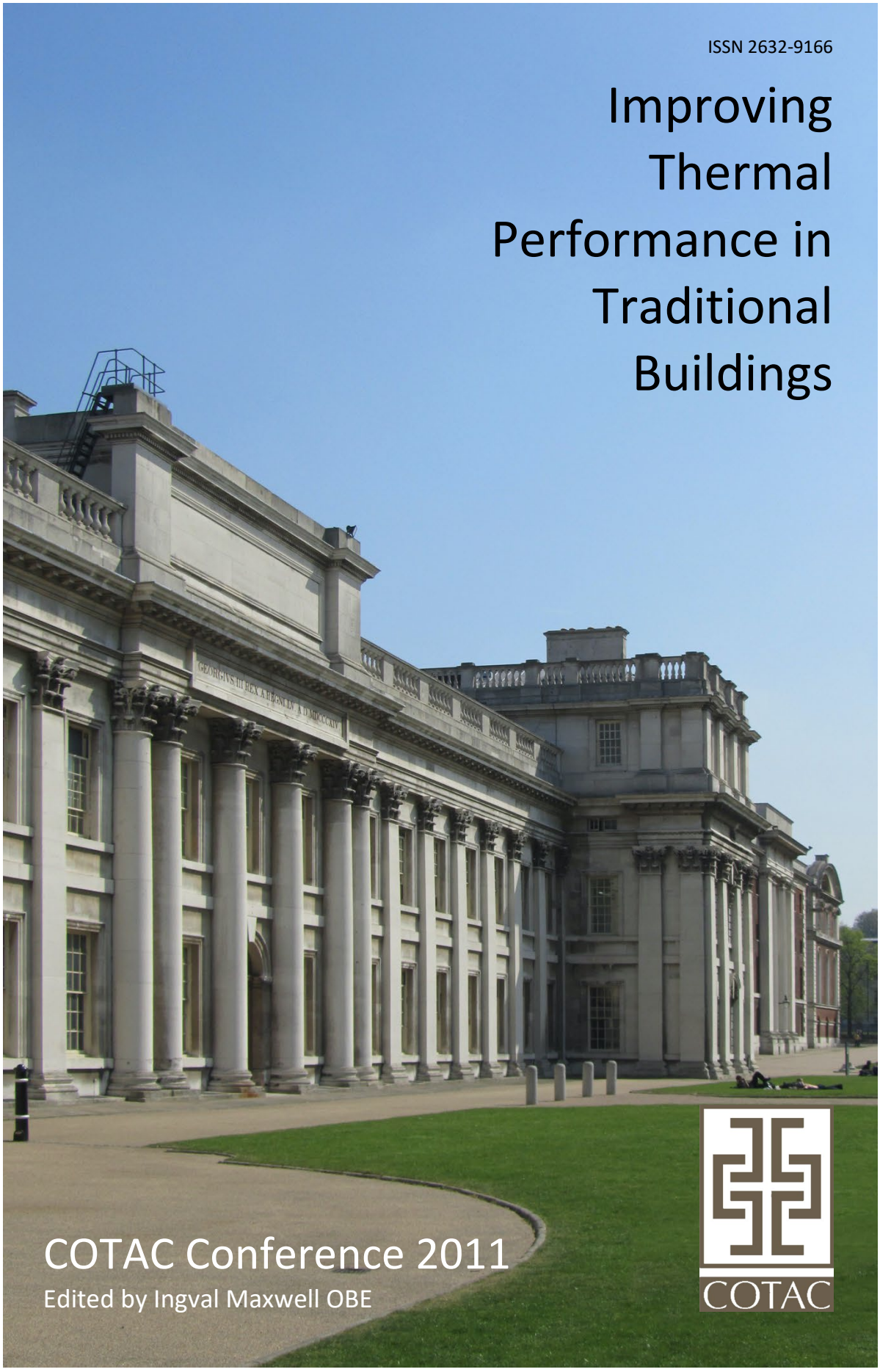
Improving Thermal Performance in Traditional Buildings



COTAC Conference 2011

Edited by Ingval Maxwell OBE

COTAC

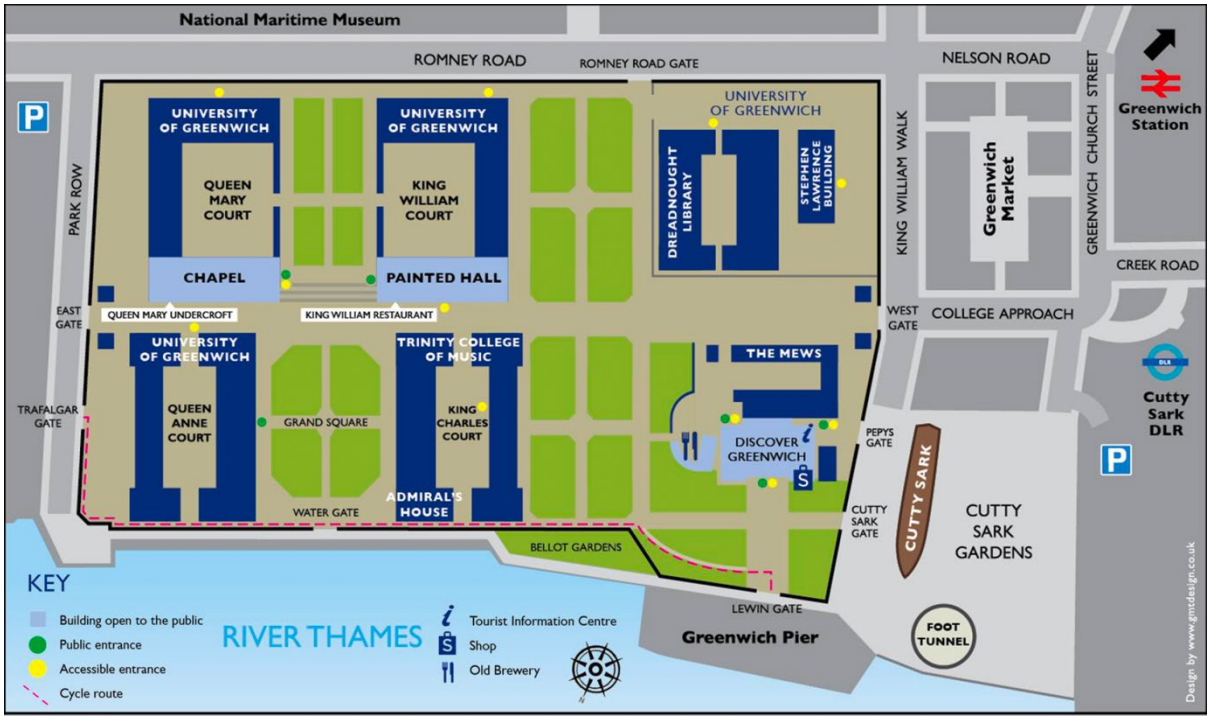
Council on Training in Architectural Conservation (COTAC)

COTAC originated in 1959 in response to the need for training resources for practitioners in the repair and conservation of historic churches. Since its inception the Charity has consistently worked to lift standards across the UK's conservation, repair and maintenance (CRM) sector. This has involved working in partnership with national agencies, professional and standard setting bodies, educational establishments and vocational training interests.

Whilst every care has been taken in the preparation of this document, COTAC specifically exclude any liability for errors, omissions or otherwise arising from its content. Readers are encouraged to verify any adopted information, as appropriate.

Acknowledgments

The Conference was organized by COTAC with sponsorship from Linford, the BRE Trust, CIAT and IHBC. It was supported by the Building Crafts College; Historic Scotland, English Heritage, Department for Business Innovation & Skills, SPAB, CIOB, and National Trust, to which COTAC offers thanks. Thanks are also due to the various conference speakers for the information freely offered through their various presentations which also underpins the abstracts in this report.



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Improving Thermal Performance in Traditional Buildings

COTAC Conference Abstracts
King William Undercroft, Old Royal Naval College, Greenwich, London: 15–16 November 2011

Edited by Ingval Maxwell OBE

Conference Summary

Over two days, this conference was held in the King William Undercroft, in the Old Royal Naval College, Greenwich, London on 15th and 16th November 2011 by kind permission of the Greenwich Foundation. Its principal theme was to promote the sustainability of traditionally constructed buildings, improving their thermal performance, and other measures. It brought together a wide variety of knowledgeable speakers in the field to present the latest findings based on recent research projects across the UK, and some valuable case studies.

Building upon the opportunities presented by the Old Royal Naval College, being part of the World Heritage Site, where many buildings have been adapted for reuse, the event focussed on providing the most up-to-date information on the retrofitting of energy-efficient measures in existing traditionally constructed buildings across the UK.

A particular emphasis was put on enhancing energy performance. By assessing available information it concentrated on offering emerging best practice that would be of interest to a wide variety of policymakers, local authority staff, practitioners and contractors.

A key focus was determining relevant and sensitive site solutions that have been determined through recent research and published technical papers. This information challenged some of the hitherto, wrongly based, assumptions to explore aspects of embodied energy that created a strong emerging argument against the wholesale removal of internal linings, historic or otherwise. An underlying issue was whether or not the wrong questions were being asked!

This event provided practical guidance that could be applied in day-to-day activities to help deliver improved thermal performance in traditionally constructed buildings. Information was also offered on how government initiatives and current research findings were going to impact on the industry; how to obtain technical information; and to improve energy performance, along with understand a range of approaches aimed at delivering sustainable, cost-effective and energy efficient traditional buildings.

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Welcome Address
Duncan Wilson, OBE, Chief Executive, Greenwich Foundation (substituted by John Taylor)

Greenwich Foundation is the charity responsible for running the Old Royal Naval College estate and for opening the Painted Hall, Chapel, Visitor Centre and grounds to the public. As well as being responsible for the maintenance of one of Europe's finest and most extensive groups of Baroque buildings, the Foundation manages a programme of major open-air public events, Chapel concerts and Painted Hall dinners. In March 2010, the Foundation opened to the public its new 'state of the art' interpretation and education centre for the Maritime Greenwich World Heritage Site, 'Discover Greenwich'. The centre incorporates a working commercial Microbrewery, on the site of the historic Royal Hospital brewery of the 1830's.

Biography
Duncan Wilson came to Greenwich in 2002 from the Somerset House Trust, where he led the project to restore the public spaces and open the site to the public from 1997. Successes included the Courtyard, fountains and ice rink, the Admiralty restaurant, and the Terrace café and sculpture exhibitions. Before that he was at DCMS as head of Libraries Division for three years, and prior to that at Treasury, where he worked on the defence and industry desks. He is a chartered accountant, and his first post-qualification job was as Financial Controller of English Heritage. However, before accountancy he worked as a professional archaeologist, and has a post-graduate degree in European Archaeology from Oxford University. He was awarded an OBE for services to heritage in 2007.

Session 1: Research in Context

The Industry Perspective
Paul Morrell, OBE FRICS HonFRIBA
Government Chief Construction Adviser, Department of Business Innovation & Skills, and Cabinet Office

It is now a cliché that the real challenge of addressing climate change in the built environment resides in the existing stock, the great majority of which will still be with us in 2050 – by which time we are committed to reduce our CO2 emissions by 80%. The assumption behind that commitment is that emissions within the built environment can be brought down to close to zero, but we do not yet know how to do that in even the most straightforward of existing buildings, and we also know that even for new buildings the energy performance actually achieved rarely matches the design criteria. Add to that the special skills demands of buildings with heritage value and the lack of integration in our industry, and the scale of the challenge becomes stark: an industry that is reputedly low on innovation and short of skills, needs to become rich in both – and all at a time when it faces some of the toughest economic conditions in its history. This calls for realism, without yielding to scepticism, and for a cool look at the need for reform both in the structure of the industry and in its way of doing business. This is not a new call, but perhaps the twin challenges of a shortage of cash and an excess of carbon will provide the stimulus that makes the difference.

Biography
Paul Morrell was appointed as the Government's first Chief Construction Adviser in November 2009 with a brief to champion a more coordinated approach to affordable, sustainable construction. He is a chartered quantity surveyor by training and was formerly senior partner of Davis Langdon, where he worked from graduation until retiring in 2007. He was a founder member of the British Council for Offices, and served as President in 2004/5; is a fellow of the RICS, and an honorary fellow of the RIBA; and served as a CABE Commissioner from 2000 to 2008, finishing as Deputy Chairman. He was awarded an OBE for services to architecture and the built environment in the 2008/9 New Year Honours list. In Government, Paul lead the recent BIS study into low carbon construction, is on the Board of the Major Projects Authority and the newly created Green Construction Board, and chairs the Cabinet Office's Government Construction Board.

The challenge facing existing buildings
Ewan Hyslop, Historic Scotland

The presentation will give an outline of Historic Scotland's approach to energy and sustainability considerations across the estate, based on the statutory obligations that have now come into force under the climate change act. As a user and operator of historic facilities the agency needs to demonstrate that the existing built environment has a part to play in climate change mitigation, and by virtue of its sunk carbon cost is very much part of the solution, not the problem. Starting from an understanding of current energy use, an outline will be given on how improvement works were prioritised and what measures were cost effective, mindful of the unique and often iconic nature of the sites. Fabric and how it performs is not the only strand in the carbon debate; the manner in which we do business has a significant effect – what products we buy, how we use a range of material in the diverse range of services that we deliver. Integral to all these works is the need for the engagement of staff – for on that element most works will founder without appropriate engagement and education.

Biography
In 2010 Dr. Ewan Hyslop was appointed to the post of Depute Director of Historic Scotland Conservation Group, and was charged with managing the agency's climate change and sustainability activity.

Historic Scotland's Research Programme
Roger Curtis, Historic Scotland

This presentation will outline the approach taken by Historic Scotland when upgrading the thermal performance of traditionally constructed homes and buildings. This will identify priorities for work and key areas of intervention, as well as the background principles of ventilation and water vapour management that is crucial for the continued health of the building. Each element of the fabric will be discussed with respect to thermal performance and improvement, along with details of the site trials and the measures tested. Results, where

they have come through, will be discussed. Other factors pertinent to the discussion will be considered, including developing technical advice for the public, and the delivery of the upgrade by the construction sector and related professions.

Biography

After military service Roger Curtis joined a conservation contractor, based in Perth, whose work, ranging from Castle consolidation and restoration to upgrading domestic buildings, churches and associated facilities, focused on mass masonry, structural joinery and lime works. He joined Historic Scotland in 2006 as Conservation Resource Management, and is presently Technical Research Manager, responsible for a diverse mix of research strands that includes energy efficiency in traditional buildings, and the properties and behaviour of traditional materials. He will focus on the evaluation of practical site trials that have been on-going since 2007 as these have an emphasis on determining appropriate solutions for traditionally built structures of all types and sizes.

English Heritage Research and Perspective

Chris Wood, English Heritage

This talk will consider some of the conflicts between current initiatives aimed at improving energy efficiency and its effects on the historic environment. It will concentrate on the work that English Heritage is engaged upon including; partnerships with various local authorities aimed at producing benign solutions to upgrading historic buildings, current research projects, and the guidance aimed at building control officers in the public and private sectors. The English Heritage research project into *'Improving the Thermal Performance of Traditional Windows'* was carried out in conjunction with Historic Scotland who commissioned similar tests on a 6 over 6 timber sash window. The English Heritage research included additional work covering different types of secondary glazing, as well as work on condensation.

Biography

Chris Wood is Head of the Building Conservation and Research Team at English Heritage and has worked in the Building Conservation and Research Team for the last 17 years. The team specialises in dealing with the problems of deteriorating materials on historic structures. He is responsible for running a number of research programmes, as well as managing English Heritage training courses on building conservation. He has served on the ODPM Working party dealing with Part L of the Building Regulations and was the co-author of English Heritage's Guidance Note, Building Regulations and Historic Buildings. Prior to joining English Heritage, Chris was a director of an architectural practice specialising in the repair and refurbishment of historic buildings. This followed 12 years as a conservation officer with two local authorities.

Session 2: Improving Performance in Action

Energy performance of heritage buildings - predictions and performance

Tim Yates, BRE

As a country, we are committed to reducing our CO_2 emissions by 80% by 2050, and the refurbishment of the existing housing stock is seen as essential in any plans we may have to meet that target. In planning how we can reduce the CO_2 associated with our housing we have access to a range of models and tools to predict the costs and benefits of improving insulation, changing boilers, etc. However, we know that the benefits must be real and not just predicted, so it is important to monitor the energy consumption and performance of houses before and after improvements are made.

This presentation reviews some earlier projects where monitoring took place, and looks at more recent work undertaken by BRE in England and Wales on traditionally built houses, including listed buildings and those in conservation areas. The presentation will also include some findings on the costs of reducing CO_2 emissions, and the benefits to the environment and to the people living in the properties.

Biography

Dr Tim Yates is Technical Director at the Building Research Establishment, and has more than 30 years involvement in the built heritage. He started as a field archaeologist in Northampton and then moved into the analysis of materials, particularly medieval glass, and the geochemistry of recent carbonate deposits, to the weathering of buildings. He has been at BRE since 1986, working initially on the effect of acid rain and air pollution on buildings and building materials, then looking at climate change and buildings, and has experience of many years working on the drafting of British and European Standards for the construction industry.

He is currently responsible for projects relating to the long term performance of buildings and including the selection and testing of stone and mortar for new and heritage buildings, the assessment of building defects, and the sustainable refurbishment of older buildings.

Embodied Energy and Existing Structures

Dr. Gillian F. Menzies BEng PhD CEng CEnv MEI FHEA

Traditional materials and construction techniques were developed in, and designed for, a world where energy was expensive. Decisions to improve the existing building stock must be based on careful appraisal, bearing in mind the cultural and social significance of a building, whilst considering its embodied energy and whole-life energy costs. Historic buildings need to be retained and maintained, but not at any cost. They need to be affordable to occupy, and sufficiently heated to minimise maintenance and repairs. Improvements need to be achieved in-line with Building Regulations and within reasonable financial constraints. Typically historic buildings come out very badly in energy assessments – sometimes due to flawed assumptions, and often due to a lack of accurate or holistic data.

The principals of lifecycle thinking will be presented, with an appraisal of current industry guides, reports and inventories. A discussion of how lifecycle issues can be applied to historic buildings will be offered. It is concluded that retaining existing buildings is preferred to demolition and construction of new buildings, where energy performance is naturally good, or where it can be improved through a range of mitigating solutions and occupancy adaptations. Retaining old buildings and seeking to enhance their energy performance in sensitive ways is in keeping with heritage conservation, sustainability, and progress towards a low carbon society.

Biography

Dr Menzies has been in post at Heriot Watt University since 2000 and has a track record of research in Life Cycle Assessment and sustainable building design. She is Programme Leader for the MSc Carbon Management in the Built Environment (launching in September 2011), a Chartered Engineer, Chartered Environmentalist, member of the Energy Institute (EI) and the British Institute of Facilities Management (BIFM), and a CIBSE Low Carbon Consultant

is qualified in Energy Engineering (BEng Hons 1st Class), Napier University 1989-1993; PG Diploma Technology Management, University of Stirling 1993-94; PhD Environmental Engineering (LCA), Napier University 1995-1998. From 1994 until 2000 she gained commercial consultancy experience of computerised building simulation, energy analysis, and building user comfort assessments, the indoor environment and facilities management.

Energy Efficiency and Health - Getting the Balance

Dr Richard Hobday MSc PhD CEng MEI

When people are asked about indoor conditions, they express a preference for windows that open, fresh air, sunlight and control of their environment. Yet regulations now favour sealed buildings which impose close controls on internal conditions. This is a radical departure from the traditional approach to construction in this country. If refurbishment follows the airtightness and ventilation strategy required in all new buildings it might prove harmful to occupants, and to the buildings. They will not be sustainable if they are unhealthy. Much that was once known about creating healthy indoor environments has been overlooked in recent years. Also, there is a notable lack of published data both on indoor air quality, and other health factors, in highly energy-efficient buildings.

Biography

Richard Hobday is an engineering consultant who has been has been involved in a wide range of projects concerned with sustainability and health in the built environment. He received his MSc and PhD from Cranfield University, where he specialized in energy conservation. He has a number of design guides to his name; and two critically acclaimed books *The Healing Sun: Sunlight and Health in the 21st Century* (1999), which has been translated into seven languages, and *The Light Revolution: Health Architecture and the Sun* (2006). An Energy Institute member and Chartered Engineer, he teaches and lectures internationally.

Appropriate Approaches for providing Comfort in Historic Buildings
Professor Susan Roaf, BAHons AADiploma PhD ARB WCCA FRSA, Heriot Watt University

In 2011, authors Michael Humphries, Fergus Nicol and Susan Roaf produced a Report for Historic Scotland on *Thermal Comfort and heating options for Traditional Buildings.* In it they discussed the most suitable way of enabling thermal comfort for the occupants of traditional buildings, ensuring good internal air quality, a healthy environment and sensible heating costs. The report covered:

- Thermal comfort in historic buildings and how it was achieved.
- The benefits of traditional radiant heat delivery systems in traditional spaces.
- Modern heat delivery, largely based on warm air and convective systems, and a comparison with historic options.
- Consideration of modern alternative delivery systems and the energy differences of the two contrasting systems.
- Discussion of the different fabric requirements for the 2 systems.
- Related natural ventilation considerations.
- Questions of Energy and Comfort in designing heating systems for traditional systems.

The authors drew from their extensive experience in the field to prepare the report. They also reached out to the academic community in the UK, and beyond, to investigate other work being done in this field to show what additional work is required to ensure that Historic buildings are appropriately heated, in an energy and cost-effective way, in the future. The presentation will cover the findings of the report.

Biography
Sue Roaf is Professor of Architectural Engineering at Heriot Watt University in Edinburgh, and a former Oxford City Councillor with an international reputation for work on photo-voltaics, passive building design, eco-housing, and the education of architects. She is also an award-winning teacher, designer and author of 12 books, and is currently working in the field of Adaption to Climate Change.

National **Trust Energy Efficiency Lessons Learned**
Rory Cullen + Malcolm Anderson

This presentation will explore the lessons learned from a selected number of sustainability projects that the National Trust has undertaken, which will include Grade I listed mansions as well as cottages. It will highlight the variety of buildings and structures that the Trust looks after, and its approach to sustainability. Often the biggest difference can be made from the simplest measures, and the use and success of internal 'Bronze standards' in the both cottages and mansions will be highlighted and explained.

As the largest heritage body in Europe, the National Trust *'Strategy to the year 2020'* fully embraces sustainability, with the aim to be self-sufficient and negate the use of fossil fuels. Progress on this will be explained through a series of case studies on different sustainable

measures, from ground and air source heat pumps to solar panels, bio-mass boilers, rainwater harvesting and hydro schemes, recycling and sourcing local materials.

The Trust has already completed over 150 medium to large-scale sustainable projects, and the many considerations for integrating this technology into listed buildings will be explained. The shortcomings, lessons learned, and successes will also be probed, and the methodology for sharing this information with internal staff, other organisations and members of the public demonstrated.

Biography
Rory Cullen has been Head of Buildings at the National Trust for nine years. He is responsible for ensuring that the highest building standards are maintained for over 30,000 buildings and structures across England, Wales and Northern Ireland, many of which are listed. He is the functional lead for a team of 100 Building Surveyors and 180 directly employed Tradesmen. In previous guises he has been a Conservation Officer and, prior to this, was a University Estates and Facilities Manager. He has an MSc in Building Conservation, is a Fellow of the Chartered Institute of Building, and a member of the Institute of Historic Buildings.

Biography
Malcolm Anderson is an Environmental Practices Adviser to the Southwest region of the National Trust. He works across all areas of the Trusts activities, helping colleagues by providing practical guidance on how to reduce the environmental impact of the National Trusts day to day activities. Much of his current workload relates to energy; security, efficiency and generation. He joined the Trust after a successful nine years with BRE and this background in pragmatic applied research helps enormously in his work for the NT, applying modern technologies to difficult to treat landscapes and buildings.

The Real Life of Buildings: in situ monitoring and the performance of traditional buildings
Dr Caroline Rye, Lead Researcher, SPAB

This presentation will provide an overview of research conducted on behalf of the SPAB concerning the performance and energy efficiency of traditional buildings. Over the past two years the Society has made a study of heat loss through solid wall constructions via a survey of the in situ U-values of a variety of traditionally built walls. This study found a significant discrepancy between U-values measured in situ and those derived by standard calculation and thus provides some evidence to suggest that the conventional methods of heat loss quantification underestimate the thermal performance of solid walls. In addition to this work the SPAB has embarked upon the SPAB Building Performance Survey that monitors various aspects of the performance and behaviour of seven buildings prior to refurbishment work. This research broadens the scope of enquiry to include other factors that affect the energy profiles of older buildings and includes air permeability tests, thermographic survey, surface and interstitial moisture monitoring and indoor air quality assessment. The project is currently at a midway point and this presentation will report back on the findings of the research thus far prior to a further programme of refurbishment monitoring during the 2011-2012 winter season.

Biography
Dr Caroline Rye has always had an interest in the relationship between traditional buildings and sustainability since she first worked as a timber-frame carpenter on historic buildings for, amongst others, Charley Brentnall at Carpenter, Oak and Woodland. Her interest in building monitoring originated whilst studying for an MSc in Historic Building Conservation at Portsmouth University and the original SPAB U-value research was conducted as her thesis project under the guidance of Dr Paul Baker of Glasgow Caledonian University. As a result of her research work she has set up ArchiMetrics a company to measure and predict the performance of buildings using in situ monitoring a partnership with Cameron Scott of Timber Design Ltd. She is currently undertaking design consultancy and research work on both new and traditional buildings for the SPAB as well as, amongst others, Kevin McCloud (HAB Housing) and The National Trust.

Session 3: The positive way ahead

Forward Together: the COTAC Perspective
Lord Patrick Cormack DL FSA (delivered by Henry Russell)

In existence for over 50 years, the Conference on Training in Architectural Conservation (COTAC) is an educational charity uniquely covering the whole of the UK and has a long held strong sense of community. COTAC gives of its time and expertise in the strategic support, and practical development, of a number of quality and standards initiatives at all levels of education and training across the conservation, repair and maintenance industry sector.

Many of these enterprises have promoted strong practical ideas that have exercised considerable influence, and made a real difference in the future of the sector. From accommodation kindly provided by the Building Crafts College, Stratford, and with much support from its members, COTAC has worked discretely and influentially, contributing an estimated value of over £110,000 of 'in-kind' support to such initiatives during 2010 alone.

In existence for over 50 years, the Conference on Training in Architectural Conservation (COTAC) is an educational charity uniquely covering the whole of the UK and has a long held strong sense of community. COTAC philanthropically, unstintingly and freely gives of its time and expertise in the strategic support, and practical development, of a number of quality and standards initiatives at all levels of education and training across the conservation, repair and maintenance industry sector.

Emphasising its integrated multi-level developmental approach, over the past two years COTAC has actively participated in the following initiatives:

- Drafting the final version of the 2009 APPG Memorandum of Understanding
- Participating in the ICOMOS UK Education and Training Group Working Party
- Engaging with the 4 Home Countries regarding Conservation Accreditation
- Enabling and servicing the pan-professional Edinburgh Group

- Participating in the RIBA Building Conservation Accreditation Scheme Steering Group
- Maintaining and promoting the understandingconservation.org website
- Participating in the Construction Industry Council National Occupational Standards revision
- Participating in ConstructionSkills higher-level National Occupational Standards Development
- Participating in the National Heritage Training Group
    - Executive Committee
    - London Regional Network
    - Education and Training Working Group
- Participating in the Construction Liveries Group
- Participating in the Learn Direct and Build Advisory Board
- Drafting the Ascentis Awarding Body NVQ Level 2 Heritage Qualification

Many of these enterprises have promoted strong practical ideas that have exercised considerable influence, and made a real difference, in the future of the sector. From accommodation kindly provided by the Building Crafts College, Stratford, and with much support from its members, COTAC has done so discretely, influentially and, without recompense, contributing an estimated value of over £110,000 of philanthropic 'in-kind' support to these initiatives during 2010 alone.

COTAC's Track Record

COTAC's recent track record in the field of building conservation includes engaging with a number of quality and standard setting, professional, and industry bodies including:

Drafting the final version of the 2009 APPG Memorandum of Understanding

- The comprehensive overview and insight drafted and provided by COTAC ensured that this document, endorsed by English Heritage and ConstructionSkills, addressed the necessary integration of building conservation knowledge, skills and materials in its final version.

ICOMOS UK Education and Training Group Working Party

- COTAC participation and input to inform on the revision and updating of the 1993 ICOMOS International Conservation Education and Training Guidelines, consistent with change having occurred in the UK conservation sector.

Engaging with the 4 Home Countries regarding Conservation Accreditation

- Enabling discussion to aim for a consistency in approach across the Home Countries' conservation grant awards schemes in requiring accredited status as a condition of grant, and enabling their membership of the Edinburgh Group.

Enabling and servicing the pan-professional Edinburgh Group

- Support provided by COTAC for a necessary dialogue across the professional bodies on behalf of commissioning clients, this unique group brings together the operators of 7 different building conservation accreditation schemes to ensure consistency in their application, standards and results. Professional membership of the group includes the RIBA, RICS, RIAS, RSUA, AABC, CARE, CIAT, RIAI, and IHBC amongst others.

RIBA Building Conservation Accreditation Scheme

- Promoting its operational support activities, the RIBA Conservation Accreditation Steering Group in the current development of its Conservation Accreditation Scheme for Conservation Registrants, Conservation Architects, and Specialist Conservation Architects. The RIBA scheme is also adopted by the RSUA and the RIAW.

AABC Conservation Accreditation Scheme Management Board

- COTAC currently participates on the AABC Management Board for its Building Conservation Accreditation Scheme, and undertakes assessments of individual applications.

Maintaining and promoting the understandingconservation.org website

- With a lack of available structured CPD provision in building conservation matters this freely available website hosted by COTAC is satisfying a wide variety of professional needs, including providing support for the 7 building conservation accreditation schemes. It has recorded over 600,000 hits since it went live 5 years ago.

Construction Industry Council Revision of National Occupational Standards

- COTAC sat on the CIC Conservation NOS Working Group in the development of a Level 3 specifically targeted towards conservation officers and those involved in dealing with conservation work approvals and applications. It currently sits on the CIC Conservation Level 4 NOS Working Group to help address the development work in Standards for Planners, Building Control and Conservation personnel.

ConstructionSkills Development of Higher-level National Occupational Standards

- On behalf of ConstructionSkills, COTAC has developed higher-level National Occupational Standards for Masonry, Brickwork, Carpentry and Joinery, Plastering, and Painting & Decorating. Now evolving as Level 4 Vocational Qualifications and Foundation Degrees, the proposal is that they will be used by the appropriate Guilds, working with the Trade Federations, as the basis for the awarding of Master-craft status.

Mentoring

- COTAC is encouraging mentoring in support of craft skills developments.

National Heritage Training Group

- COTAC has strongly supported NHTG from its inception more than six years ago and has provided considerable intellectual and technical input and administrative support for its development and activities. COTAC also provides two of the four honorary officers – the Vice Chair, and the Treasurer.

NHTG Executive Committee

- Sitting on the NHTG Executive Committee, COTAC has consistently provided a strong voice to help it ensure strategic uniformity with other developments across the sector, outwith the NHTG sphere of interest.

NHTG Regional Networks

- COTAC Chairs and provides the Secretariat for the NHTG's London Network.

NHTG Education and Training Working Group

- COTAC Chaired and sat on the NHTG's Education and Training Working Group to help provide a consistent voice into its developments to encourage consistency with other education and training developments across the sector in conjunction with Trade Federation membership.

Construction Liveries Group

- Through the Chairman, COTAC is engaged with the Construction Liveries Group. It sits on the relevant working party promoting higher-level Awards leading to a recognition of Mastercraft status, and in the development of Mentoring schemes aimed at encouraging and supporting the next generation of specialist craftsmen and women.

Learn Direct and Build

- COTAC sits on the Learn Direct and Build Advisory Board, inputting technical and strategic advice on the development and use of 30 virtual electronic distance e-learning packs by the 41 Scottish Building Craft Colleges, and helping to ensure consistency in their dissemination with other education and training developments across the sector.

Drafted the Ascentis Awarding Body NVQ Level 2 Heritage Qualification

- The integrated framework drafted by COTAC for the Ascentis Level 2 Heritage Qualification was prepared in such a way as to offer a preliminary understanding of building conservation matters aimed at 14 to 19-year-olds. This framework was subsequently endorsed by Awarding Body, ABC, and led to the NHTG's incorporation of the ABC Level 2 Award as a target in its accepted HLF 'Skills for the Future' Grant application.

Future Perspective

As a charity COTAC has the background, experience and commitment to continue working with a wider range of other partners to continue to drive a huge culture change in the conservation, repair and maintenance sector of the entire construction industry and has a strong interest in the retention of the pre-1919 traditionally built heritage. That is the reason why it has initiated and organised this important conference. In recognising that a 'used' building is more sustainable than one that sits empty, it also recognises the challenges faced by the industry in carrying out effective retrofitting works to make this possible. This conference goes some considerable way towards revealing what is currently being developed, what is likely to start influencing the market-place and what implications these issues have for the future well-being of that building stock.

With its track record extending over the past 50 years, COTAC has been positively supported by the unstinting commitment of its trustees, membership and related key players, including the official conservation bodies in each of the four home countries, who all share its common cause to improve the capabilities of the conservation, repair and maintenance sectors of the UK's construction industry.

In the current economic climate it is highly likely that more effort will inevitably be placed on retaining the country's existing building stock. To do so effectively and appropriately requires a considerable enhancement in developing an appropriate awareness, and supporting the many emerging initiatives. With its on-going commitment to the range of related developments that are currently in hand, and to develop the new initiatives identified in its forward plan covering the period 2010 - 2015, COTAC will continue to promote its base principles in an ever-increasing area of need. COTAC also continues to stand ready to participate with others, and will continue to call upon its significant voluntary resources, as it has done so in the past, to provide the required support when requested.

Biography

Lord Patrick Cormack retired as the Conservative Member of Parliament for South Staffordshire in 2010, having served in the House of Commons for almost exactly 40 years. During his parliamentary career, he served on the Speaker's Panel of Chairs and the House of Commons Commission, also sitting on the Select Committees for Education, Science and Foreign Affairs. He chaired the Northern Ireland Affairs Committee and the Works of Art Committee and remains Chairman of the History of Parliament Trust. He founded the All Party Arts and Heritage Group, the largest of its kind in Westminster, and was Chairman for some 30 years. A Freeman of the City of London and a Fellow of the Royal Historical Society, he has authored books on English cathedrals, the history of Parliament, and the life of William Wilberforce. In 2010 it was announced that he was to enter the peerage. With a dedication to building conservation, he is also Chairman of the SPAB William Morris Craft Fellowship.

Education and qualifications, passing on the technical knowledge

John Edwards MA, DipBldgCons, CEnv, FRICS, FCIOB, IHBC RICS Accredited in Bdg Cons

The UK has the oldest building stock in the western world, with more than twenty per-cent traditionally built with solid walls. This requires a substantial resource of traditional building craft skills along with traditional building understanding and expertise. One may expect the UK building industry to have developed this resource, but research suggests otherwise, with less than a third of the craft skill work force undertaking work to traditional buildings having all the necessary skills.

The UK must address both the supply side, by increasing the numbers of properly skilled crafts people, and addressing the demand side, by increasing the knowledge and expertise of professionals. This must concern mainstream, as the majority of work to traditional buildings involves mainstream and not the specialist conservation sector. The requirement to retrofit for climate change will see £billions spent on traditional buildings and many consider this as a potential threat. But it could also, on many occasions, be a potential opportunity to improve the knowledge of mainstream crafts and professionals that may have broader longer-term benefits for traditional buildings. This will, however, require a substantial amount of training and up-skilling of both crafts and professions, the majority of whom at present have a knowledge base developed from new construction technology and materials.

Biography

John Edwards is a Chartered Environmentalist who first undertook non-destructive surveying techniques and environmental monitoring of buildings in 1981, and has since worked on many different types of buildings ranging from Castles and Cathedrals to domestic scaled buildings in the UK and beyond. Qualified in architectural and building conservation at postgraduate level, as well as being RICS accredited in building conservation, since 2009 he has held a senior professional position in the Conservation Department of English Heritage where he has a national remit. Representing English Heritage at BSI and in the development of European Standards, latterly he has been involved in the European Standards on condition surveys and energy conservation. He also Chairs the task group on the revision of *BS7913: 1998: The Principles of the Conservation of Historic Buildings*, and leads on professional and craft skills

development, training and education. In this capacity he is a member of the steering panel responsible for developing National Occupational Standards for the British Governments 'Green Deal', and he has recently been appointed as Assistant Director: Cadw

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Thermal Shield Project

Chris Thomson, Head Property Services, Castle Rock Edinvar Housing Association, Edinburgh

Timing is everything! We had just developed our energy strategy for existing buildings that highlighted a number of challenges around improving the thermal efficiency of properties within mixed tenure tenements, and within a conservation area. The construction type did not allow a traditional approach, so when Adam Dudley Architects, and Misia Jack Consultants, highlighted a potential solution we were keen to be part of the project. We needed to think beyond Scottish Housing Quality Standards and consider how to improve the energy performance of our existing properties. Hard to treat properties can be costly, so the solution had to be affordable, replicable and conducted whilst the house was still occupied. The design had to be sympathetic both to the planners and the building users.

The technical aspects of the project ensured that we considered all of the above and more. We discovered challenges along the way, both in the construction and following feedback from our customers. Add in the challenge of a B listed building; the project was to have no adverse impact on the form or function of the existing fabric. Through financial and technical support from Historic Scotland we were able to pilot a number of measures previously untested collectively within this environment.

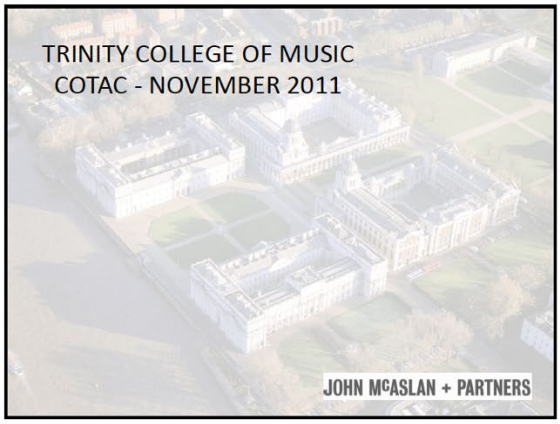
Our project included a bespoke window design that allows the traditional sash and case window to operate, including easy clean opening; a design that allowed doors and timber working shutters to be insulated and workable; a practical approach to insulate solid wall construction; and a sympathetic wall finish to ensure the wall remained breathable and attractive to the building user. We are now monitoring the outcomes; initial results are positive with a 46% reduction in heat loss through the solid walls, and an 88% reduction following the secondary glazing installation. With this level of success we are now preparing a larger-scale programme to ensure we replicate the benefits.

Biography

Chris Thomson is the Head of Property Services for Castle Rock Edinvar, a subsidiary of Places for People. He previously had worked in the social housing sector for 18 years, and held various positions during that time. Prior to working within Housing he worked within preservation of properties where he specialised in damp and rot treatments. He completed his studies at Napier University holding a BSc (Hons) in Building Engineering Management. Chris leads the asset management, factoring and direct works teams for Castle Rock Edinvar. Castle Rock Edinvar has been short listed this year for the social housing provider of the year corporate sustainability award.

Greenwich Case Study 1

Pauline Nee, John McAslan + Partners Specialist Heritage Team



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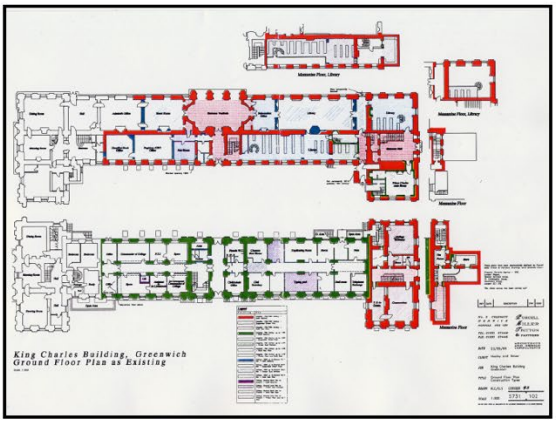

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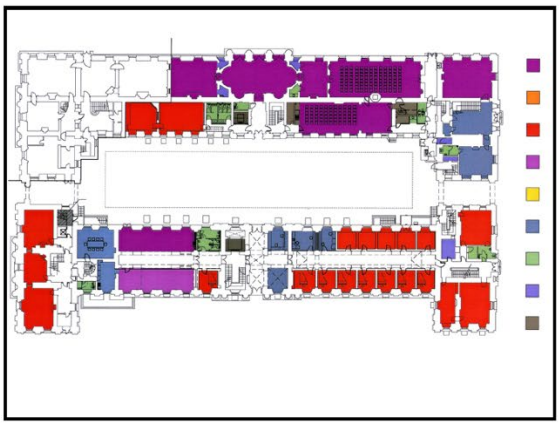

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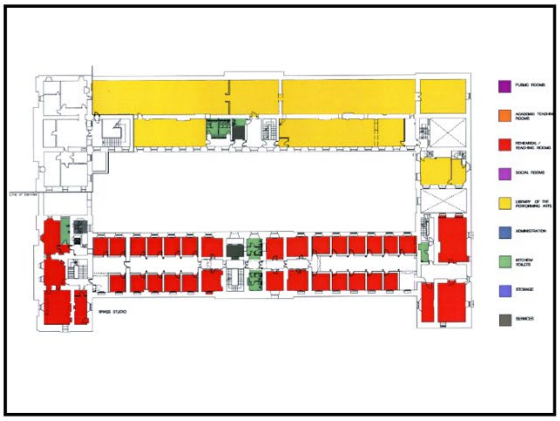

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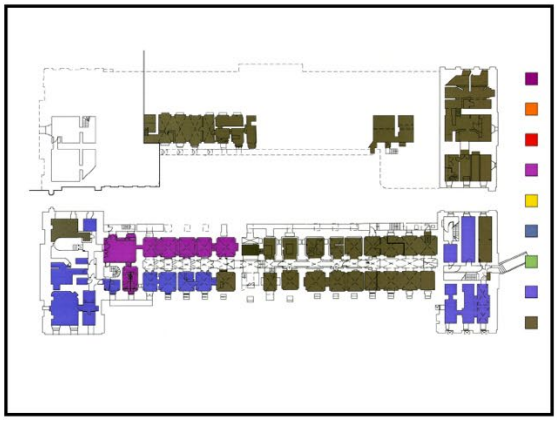

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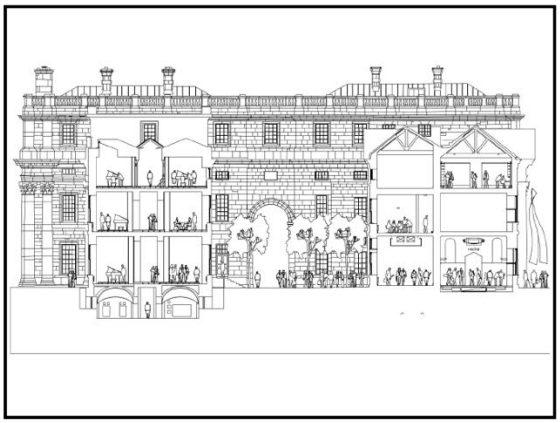

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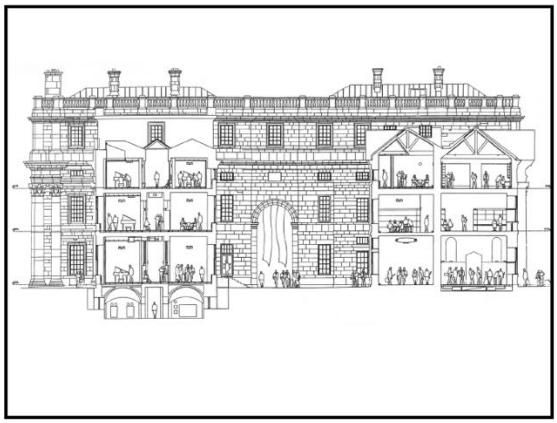

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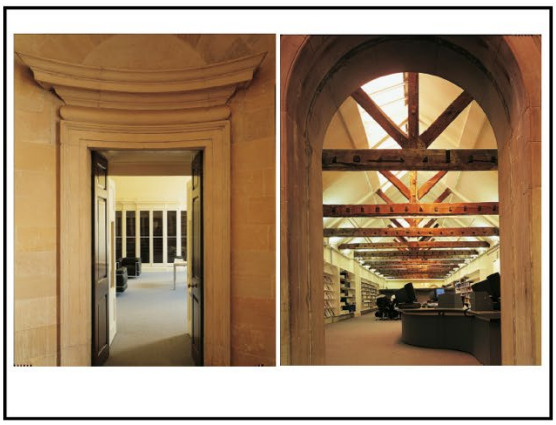

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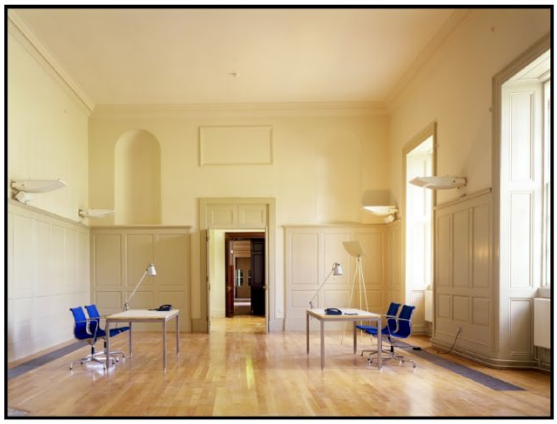

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Trinity College of Music, Greenwich

John McAslan + Partners was appointed in 1999 as architect to masterplan, design and implement the re-modelling of the King Charles Building at the historic former Royal Naval College at Greenwich for Trinity College of Music. Trinity, one of Europe's oldest conservatoires, previously occupied three buildings in London's West End. operations, whilst providing a unique setting for the College.

Their move to the World Heritage Site at Greenwich consolidated their operations, whilst providing a unique setting for the College. Grade I listed and a Scheduled Ancient Monument, the 7,500 sqm four-floored cloistered King Charles Building was constructed over a hundred year period commencing in 1664, and involved England's great triumvirate of Baroque architects: Wren, Hawksmoor and Vanbrugh. The project was completed on schedule for initial occupation in October of 2001, while a new design phase has commenced which investigates possibilities to enclose the central courtyard with glazed roof so this central area can become a year-round performance and amenity space.

Biography

Pauline is Head of Historic Buildings at John McAslan and Partners, a practice renowned for its adaptive reuse of buildings, including the internationally acclaimed Roundhouse in London. Pauline leads the team currently working on the renewal of the Grade ll* listed Hornsey Town Hall, which will incorporate a new flexible performance space. She is working on a range of other historic projects, including renewal of the Friends House meeting room at Euston, and the transformation of Kings Cross Station. She has just completed a project repairing and restoring the earthquake damaged Iron Market in Haiti, and is advising on the dismantling and re-erection of a traditionally constructed house in Qatar.

Greenwich Case Study 2
Jonathan Parry BSc BArch(Dist) MSc RIBA, is a Partner at Dannatt Johnson Architects

Adaptation of the former Royal Naval College buildings to meet the functional and technical requirements of a modern university.

The Presentation will cover.

- Spatial fit and servicing new functions within the historic environment.
- Examining how the projects at the Royal Naval College were conceived and arranged from the perspective of function, fit to existing space, and the provision of modern services.
- Alteration and intervention necessary for 21st Century building requirements.
- Determining service routes through the historic fabric.

Biography
Jonathan Parry's experience within the practice is on heritage and education projects, including; works with the Royal Botanic Gardens at Kew, English Heritage, Historic Royal Palaces at the Tower of London, and a number of schools and universities. He completed his architectural training at the Welsh School of Architecture, Cardiff in the early 1980's, followed by a Masters Degree in Construction Management at the University of Reading.

Greenwich Case Study 3
Richard Brearley, Architect RIBA, Siddell Gibson Architects

Retrofitting Energy Efficient Measures in Traditionally Constructed Buildings
The inherited building stock suitable for upgrading was predominantly constructed in the ninetieth century during the rapid urban expansion associated with the consequences of the Industrial Revolution. Typical construction consisted of solid load bearing masonry walls with brick and stone stepped foundations with timber floors and roof structure, clad in either slate or (less commonly) in lead sheet. Windows and internal fittings were timber, with cast or wrought iron framing and concrete clinker infill floors employed as special structures where increased strength or wider spans were required. The benefits of this inherited type of construction are durable, flexible and permeable structures, with high-embodied thermal mass in the masonry. However, the dis-benefits include virtually non-existent thermal insulation, and a high degree of ventilation via chimneys, flues and ill-fitting draughty windows and doors.

The standard approach to improve energy efficiency in existing buildings, triggered by Part L of the Building Regulations requirements for conservation of fuel and power, is to upgrade thermal insulation particularly at roof level and under floor, to replace or upgrade external windows and doors with double glazed units or secondary glazing, with improved draught proofing detailing. Heating sources are typically upgraded by use of condensing boilers in domestic buildings, and possibly condensing CHP units in greater occupancy and/or public buildings. The application of the above should be undertaken on a case-by-case basis, with the benefit of particular understanding of a building's qualities and upgraded accordingly.

Two examples will be discussed, where the Listing status and conservation requirements affect the evaluation of gains and losses of particular retrofitting strategies that were adapted to suite the particular fabric, as follows:

- The Discover Greenwich Visitors Centre, within the Grade II existing building on the ORNC site.
- New French School, London, being a conversion and extension of a Listed London Board School, into a 700 pupil Lycee Francais.

Conference Discussion Paper

Green Deal Needs Radical Re-Think for Traditional Buildings: Paper to support Press Release by COTAC, IHBC, and SPAB, for submission to DECC Green Deal meeting 28 November 2011
Drafted by John Preston MA DipTP MRTPI IHBC, IHBC Education Secretary and COTAC Trustee

COTAC's conference "Improving Thermal Performance in Traditional Buildings", held in Greenwich on 15-16 November 2011 highlighted many serious flaws in the current Green Deal proposals for up to 25% of existing buildings. These flaws have to be remedied if the Green Deal is to achieve its aims. The conference was organised by the Conference on Training in Architectural Conservation (COTAC), supported by the Institute of Historic Building Conservation (IHBC) and the Society for the Protection of Ancient Buildings (SPAB). Speakers and delegates included some of the most knowledgeable UK researchers and practitioners in the field.

Conference delegates supported appropriate improvements to the performance of historic and traditional buildings, as a vital part of meeting the challenges of Climate Change. The issue is how to achieve this, without:
1) damaging the buildings themselves, and so
2) incurring avoidable long-term costs for their owners, and
3) causing needless harm to the character and fabric of our historic buildings, towns and cities, and
4) wasting large amounts of public money in the process.

The UK has the oldest building stock in the western world. About a quarter of our entire stock of buildings is traditionally built. Speakers showed that the current Government SAP energy and 'U' value heat loss calculations for buildings (on which the potential improvements to be achieved through the Green Deal are based) very significantly underestimate the performance of traditional solid-walled buildings. This flaw proved by accurate performance measurement of a range of traditional buildings (see SPAB research) puts into question the reality (for such buildings) of the claimed improvements on which the Green Deal has been based.

Further serious flaws noted in the current proposals arise from their failure to consider embodied energy and whole life cycle costing. In the Green Deal proposals to improve energy performance of buildings, as with the introduction of Part L of the Building Regulations a

decade ago, Government has overlooked the energy and resource costs of the upgrading works themselves. However research has shown that, for example, single glazed windows can easily be upgraded to provide better U Values than provided by replacement modern double glazed windows: costing less, and a greener approach.

Delegates were very concerned that the Government's requirements for training and accreditation of Green Deal Advisers who will decide how public money is to be spent, and Installers who will do the work and receive the money, do not even mention the need to understand traditional building construction.

Such understanding is vital for a key issue highlighted at the Conference, but overlooked by the Green Deal proposals: that for improvements to achieve claimed benefits, the building MUST BE IN GOOD REPAIR. The aims of the Green Deal will only be achieved, and the improvements it will fund can only succeed, if the building is in good repair to start with**.**

Therefore, one of the key requirements for Green Deal advisers and installers should be that they understand the construction and repair of traditional buildings. Otherwise, if such buildings are mistakenly repaired with modern materials and techniques, this will inhibit their breathability, which can lead to accelerated deterioration and greater heat loss. For example, new impermeable insulation applied to a damp wall will only trap the dampness, leading to further decay. Delegates were very concerned that the Green Deal proposals do not recognise these risks of inappropriate works leading to major long-term problems, and the potential liabilities arising. Who will be responsible, and who will pick up the bill, if things go wrong with the advice or the installation through lack of knowledge or understanding?

Delegates were also very concerned at the total absence, in the Green Deal proposals, of any mention of the legal protection of historic buildings, towns and cities, through listed building and conservation area legislation. Inappropriate "Green Deal" works could severely damage the character of historic buildings and places. Who would be legally responsible (and so liable to prosecution) if unauthorised works were carried out? Would it be the homeowner, the Green Deal Adviser, the Installer?

Delegates called for a joined-up Government approach, recognising the risks of applying a "one size fits all" approach, and following the example in the Building Regulations of special consideration for buildings of historic and traditional constructions, encouraging their improvement but without loss of character. They called for a radical rethink of construction industry craft training, which is currently 100% focused on new build, to reflect the 40% of the workload comprised by repairs, maintenance and improvement. They saw the Green Deal as a "once-only" opportunity to re-focus the training of construction industry crafts and professionals on to repairs rather than replacement, and in so doing to promote carbon savings.

In conclusion, delegates noted that if we ignore the facts and treat traditional buildings like modern ones, we risk wasting money on retrofit, increase carbon output, and put 6 million UK buildings at risk of accelerated decay. They called on Government to carry out a thorough risk assessment, before it is too late.

The Risks:
If the current proposals for Green Deal skills remain unchanged:

1. Property owners will be urged, by Government sponsored Advisers and Installers, to carry out works that could significantly damage, not improve, traditionally constructed properties. This has serious medium to long-term implications in terms of creating the need for consequential remedial repairs with resulting increased costs substantially offsetting claimed benefits.

2. Buildings perform in complex ways, but the Government sponsored Advisers and Installers will only be required to understand the particular products or systems with which they deal. This narrow approach will preclude the offering of impartial advice to property owners on what option, or combination of options, may work best for their property.

3. The application of external insulation, which is a key part of the Green Deal initiative, will be particularly damaging to historic and traditionally constructed buildings through changing their appearance, dimensions and methods of collecting and discharging rainwater. In addition, as such structures need to "breathe", any moisture trapped within walls could lead to serious health risks for both occupants and buildings.

4. The current proposals totally ignore the hard-learned lessons of the past where, far too often, impermeable so-called "maintenance free" surface coverings have occasioned much remedial work at considerable expense and upheaval, frequently adding to future maintenance costs rather than reducing them.

5. Such an ill-informed approach, compounded by inappropriate works, also leads to large sums of public and private money being wasted. This has been repeatedly illustrated through the previously promoted 'trends and fashions' of replacing windows with non-repairable substitutes, adopting cement and plastic-based renders, and ill-advised stone-cleaning techniques.

6. The character of our cities, towns, and individual historic and traditionally constructed buildings will be needlessly damaged, possibly on a vast scale. Any buildings designed as a group, such as semi-detached houses, terraces, etc., will be at risk of uncoordinated and un-neighbourly works resulting in visual and physical damage to the character of individual buildings and their surroundings, creating a real reduction in their 'sense of place'.

7. This risk might be compared to the loss of traditional cast iron railings and gates, that were supposedly melted down for the war effort. Such removals significantly changed the character of hundreds of streets throughout the country, for a 'perceived' greater good. But, it was only after the event, when it was revealed that the iron was not suitable for the intended purpose, that the futility of their removal became apparent.

That is not the situation here; potential problems can be clearly foreseen. There is no need or justification for inappropriate works to take place, other than through the Government's haste to put this scheme in place without thinking through all the risks, and likely consequences.

8. The Green Deal proposals do not mention listed buildings or conservation areas, or consider that many of the 6 million traditionally constructed buildings have exactly the same functional, technical and performance issues to contend with as those identified as being 'historic' through the planning legislation. Neither does it address the risks involved in breaching such established controls, nor who would have legal responsibility for any such contraventions, or what might go wrong with the installation – would it be owner, Adviser and /or Installer?

Changes Needed:

1. Joined-up Government, with the Green Deal proposals fully cross-referenced to the Planning system, Building Regulations and other relevant legislation.

2. Green Deal Advisers and Installers who are to work on historic and traditionally constructed buildings must be required to understand how such buildings perform and function holistically, and what solutions may, or may not be, appropriate in individual cases. They should also be informed on what would degrade the 'sense of place' of communities.

3. Potential qualifications for Green Deal Advisors and Installers should specifically include such an explicit understanding of historic and traditional building construction technology and performance.

4. Green Deal Advisors and Installers should be required to clearly state with what types of building construction they are familiar with, and should be placed under an explicit obligation not to advise and/or work on building types with which they are not familiar.

5. Green Deal Advisors and Installers should be required to clearly state, up front, whether they are only trained for, sponsored by or otherwise tied to a particular system or product; and, if so, to advise property owners that alternative approaches may be available and possibly preferable for the property in question.

6. The Government should give clear and specific Green Deal guidance for historic and traditional buildings, including encouraging property owners to seek appropriate supplementary professional advice when relevant.

Conference Resolution

Conference delegates resolved that:

1. Government should link the Green Deal initiative across all Departments responsible for Planning, Building Control, Heritage, and National House Condition Survey interests.

2. Government should require the National House Condition Survey to:
    a. Be amended to incorporate the Green Deal initiative in its on-site survey assessment approach

    b. Subsequently record and illustrate the efficacy of Green Deal initiatives across the range of properties that are being monitored.

3. Government should require Green Deal Advisers and Installers to
    a. Have an understanding and expertise in the special requirements of traditional building construction and its performance

    b. Clearly state their relevant ability, experience and competence to assess such building techniques, technologies and systems.

    c. Be able to provide traditional building property owners with a range of relevant options to enable them to make sound choices on appropriate renovation and energy efficiency measures for their building, circumstances and situation.

Draft Press Release: COTAC Conference identifies Green Deal "One size fits all" challenge for one in every four homes

The Department for Energy and Climate Change (DECC) launched its *"Green Deal and Energy Company Obligation"* consultation on 23 November, and on 24 November it announced a £200m funding boost for the Green Deal. Climate Change Minister Greg Barker introduced *"the most ambitious and comprehensive home improvement programme that Britain has seen since the Second World War. We aim to touch nearly 14 million homes by 2020….but we've got to get it right".*

But will they get it right? There is a serious chance of that money being put at risk, unless the Green Deal proposals are changed to recognise that 25% of the country's building stock are of solid-wall traditional construction.

To address the needs of some 6 million properties across the UK the hastily produced proposals require significant and urgent improvement, if the Government's climate change aims are to be fully achieved. The associated issues, risks and challenges were highlighted in detail at the well-attended conference "Improving Thermal Performance in Traditional

Buildings**”**, held in Greenwich on 15-16 November 2011. Organised by the Conference on Training in Architectural Conservation (COTAC), supported by the Institute of Historic Building Conservation (IHBC) and the Society for the Protection of Ancient Buildings (SPAB), some of the most knowledgeable researchers and practitioners in the UK presented their recent research findings.

These results graphically challenged the Green Deal initiative and its intended ambitious aims for the country's traditionally constructed building stock, and identified the threat of needless harm to the character and quality of our towns and cities. The conference also considered that there was a necessity for joined-up working across Government to link the Green Deal initiative with Planning, Building Control, Heritage, and National House Condition Survey interests to avoid un-necessary haste of putting a scheme in place without fully thinking through and considering all the implications, and likely consequences.

This integration was argued as essential to ensure that money spent in delivering the Green Deal was properly assessed and audited, and that homeowners were offered a full understanding of relevant options available to them, and the implications of these for their buildings.

Chairmen

Richard Davies, DipArch (Hons) RIBA ARB AABC

Richard Davies has been involved with the care and development of the built environment throughout his 30-year architectural career. During 1976-86 he held the posts of Superintending Architect/ Regional Director South/ Directing Architect/ Director of Technical Services in English Heritage and, from 1986-95, was a UK representative to ICCROM (the UNESCO founded International Centre for the Study, Conservation and Restoration of Cultural Property) where he became a member of the council, and was Chairman of the Academic Advisory Board. In 1993 he established MRDA Architects

He has extensive experience in the refurbishment and redevelopment of culturally sensitive sites and buildings to meet the current and future requirements of modern operations, living and environmental standards. As Partner at MRDA, he has worked on a wide range of listed buildings and scheduled ancient monuments. He has also been appointed architectural and planning advisor in a variety of international projects in the Gambia, Mozambique China and Nigeria. He regularly lectures, and produces articles on conservation practice and training.

In addition to his work in private Practice, he is also:

- Chair of the COTAC Trustees
- Vice Chairman of the National Heritage Training Group (NHTG)

Principal Architect on the Register of Architects Accredited in Building Conservation (AABC) and member of the AABC assessment panel.

Ingval Maxwell OBE DADun RIBA FRIAS CAABC ACA FSAScot

Ingval Maxwell qualified as an architect in 1969, spending his entire professional career dealing with the conservation of ancient monuments and historic buildings until his retirement from Historic Scotland in 2008. He is a past Chairman of the Scottish Vernacular Buildings Working Group, and past Convener of the Scottish Stone Liaison Group, the Scottish Conservation Forum in Training and Education, and the Scottish Historic Buildings Fire Liaison Group, He represented the UK on the European Commission COST Action C5 programme "Urban Heritage, Building Maintenance", was initiator and Chairman of the European Science Foundation's COST Action C17 "Fire Loss to Historic Buildings", and a member of the European Construction Technology Platform "Focus Area Cultural Heritage". Currently, he is a member of the RIBA Conservation Register Steering Group; the AHRC/EPSRC Science and Heritage Advisory Group; the Journal of Architectural Conservation Editorial Advisory Board; and an Honorary Member of the ICOMOS International Scientific Committee on Stone. He is also a Trustee of the Conference on Training in Architectural Conservation, and the Charles Wallace India Trust; an Advisory Committee Member of Learn Direct and Build, and Chairs the Advisory Committee of the EC FP7 European Union Cultural Heritage Identity Card project.

Henry Russell OBE MA (Cantab) DipBldgCons FRICS FSA IHBC

Henry Russell is a COTAC trustee and Course director of the Conservation of the Historic Environment programme at the College of Estate Management, Reading. He is also Parliamentary Liaison Officer for The Heritage Alliance in connection with the Localism Bill and the National Planning Policy Framework and chair of Gloucester Diocesan Advisory Committee for the Care of Churches.

John Taylor MBE MA MSc FCGI

John Taylor is a Cambridge civil engineering graduate and served for 30 years in the Royal Engineers. He commanded the Army's Amphibious Engineer Regiment and subsequently served on the Defence Policy Staff. He was appointed MBE for operational planning in Germany. He took up a second career centred on his long-standing interests in urban planning, architectural conservation and traditional building crafts, and was Chief Executive of the British Urban Regeneration Association for five years and chaired the Panel of Assessors for the Secretary of State's Regeneration Award Scheme.

He was appointed by the Carpenters Company, as Director of Building Crafts College from 1997–2007, when he planned the move to its new site alongside the Channel Tunnel Rail Link at Stratford in East London, in 2001. The College expanded rapidly and achieved national recognition as the Centre of Vocational Excellence in Traditional Building Crafts. He planned a further extension of the College, which opened in 2008. He was awarded a Masters Degree in Historic Building Conservation at Bath University in 2002, and appointed a Fellow of the City and Guilds of London Institute in 2003.

He is a Liveryman of the Carpenters' and the Masons' Companies. In retirement, he continues to serves as Chairman of the Livery Companies' Skills Council, Hon Secretary of COTAC, and Hon Treasurer of the National Heritage Training Group. He is a Trustee of several charitable bodies, including the City & Guilds of London Arts School and the Construction Youth Trust.

Conference Sponsor: Linford-Bridgeman

Linford

Linford is a long-established building group with an outstanding reputation across regeneration, restoration and new-build construction. The company was founded nearly 140 years ago, and has a long track record in the successful delivery of high-quality building and restoration services. It works across the UK from offices in the Midlands, the North West, the South West and North Wales. Its construction service is focused on delivering high standards in building with a commitment to sustainable development.

The Linford-Bridgeman restoration division is one of the UK's leading specialists in the care and repair of historic buildings and sites. The ability to combine these skills into one seamless service means their expert teams are increasingly involved in exciting urban regeneration and renewal projects, transforming existing sites and structures to create new spaces for living and working. The approach to all work is built on staunch commitments to high standards, sustainability and environmental best practice, and on the strength of our relationships with clients, professional teams and subcontractors.

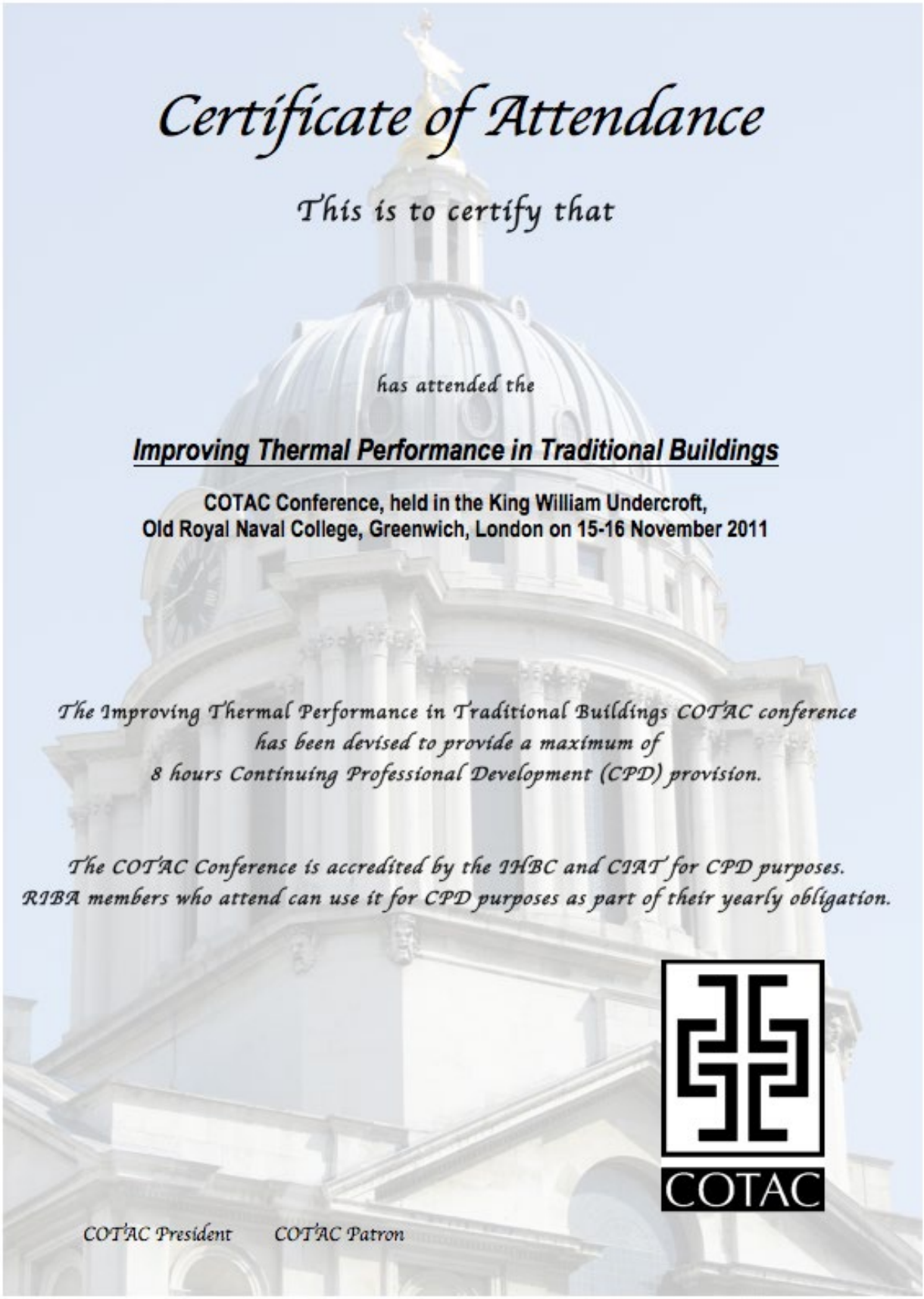
Conference Sponsor: BRE Trust

BRE Trust

The BRE Trust is a charitable company whose objectives are through research and education, to advance knowledge, innovation and communication in all matters concerning the built environment for public benefit. BRE, along with BRE Global Ltd and FBE Management Ltd are wholly owned subsidiary companies of the Trust. This ownership structure enables BRE to be held as a national asset on behalf of the construction industry and its clients, independent of specific commercial interests and protects BRE's impartiality and objectivity in research and advice. As a charity for research and education, the BRE Trust commissions 'for public benefit' research from the BRE Group of companies and elsewhere.

It awards scholarships and bursaries to PhD and MSc students and provides financial support for the Chairs held by the Directors of the Centres that together form the 'BRE-Universities Partnership'. Profits made by the subsidiary companies are passed to the Trust and used by it to promote its charitable objectives.

The Conference was also supported by:


Certificate of Attendance
This is to certify that
has attended the
Improving Thermal Performance in Traditional Buildings
COTAC Conference, held in the King William Undercroft,
Old Royal Naval College, Greenwich, London on 15-16 November 2011
The Improving Thermal Performance in Traditional Buildings COTAC conference
has been devised to provide a maximum of
8 hours Continuing Professional Development (CPD) provision.
The COTAC Conference is accredited by the IHBC and CIAT for CPD purposes.
RIBA members who attend can use it for CPD purposes as part of their yearly obligation.
COTAC
COTAC President
COTAC Patron

Conference Programme

15 November 2011

1030 **Welcome Address**
Duncan Wilson, OBE, Chief Executive, Greenwich Foundation

Session 1: Research in Context. Chair: Richard Davies

1045 **Opening address: The Industry Perspective**
Paul Morrell, OBE FRICS HonFRIBA, Government Chief Construction Adviser, Department of Business Innovation & Skills and Cabinet Office

1115 **The challenge facing existing buildings**
Ewan Hyslop, Historic Scotland

1145 **Historic Scotland's Research Programme**
Roger Curtis, Technical Research Manager, Historic Scotland

1215 **English Heritage Research and Perspective**
Chris Wood, English Heritage

Session 2: Improving Performance in Action. Chairman: Ingval Maxwell OBE

1400 **Energy performance of heritage buildings - predictions and performance**
Tim Yates, Technical Director, Centre for Construction, BRE.

1430 **Embodied energy and existing structures**
Dr Gillian Menzies, Heriot Watt University.

1500 **Energy Efficiency and Health - Getting the Balance**
Dr Richard Hobday.

1600 **Appropriate Approaches for providing Comfort in Historic Buildings**
***Professor Sue Roaf**, Heriot Watt University.*

1630 **National Trust Energy Efficiency Lessons Learnt**
Rory Cullen and Malcolm Anderson, National Trust

1700 **The Real Life of Buildings: in-situ monitoring and performance of traditional buildings**
Dr Caroline Rye, Lead Researcher, SPAB

1730 Finish: *1745 - 1900 COTAC Standing Conference [AGM]*

2000 - 2145 **Dinner: King William Undercroft: Speaker: Lloyd Grossman** OBE FSA

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Session 3: The Positive Way Ahead. Chairman: Henry Russell OBE

0915 **Moving Forward Together: the COTAC Perspective**
Lord Patrick Cormack, House of Lords

0945 **Education and qualifications, passing on the technical knowledge**
John Edwards, Assistant Director: Cadw.

1015 **Thermal Shield**
Chris Thomson, Castle Rock Edinvar Housing Association, Edinburgh

1115 **Greenwich Case Study 1: (TBC)**
Trinity College of Music, Greenwich
Pauline Nee, John McAslan + Partners Specialist Heritage Team

1145 **Greenwich Case Study 2:**
Adaptation of the former Royal Naval College buildings to meet the functional and technical requirements of a modern university
Jonathan Parry, Partner, Dannatt, Johnson Architects

1215 **Greenwich Case Study 3**
Retrofitting Energy Efficient Measures in Traditionally Constructed Buildings
Richard Brearley, Architect RIBA, Siddell Gibson Architects

1245 **Question Forum. Chairman: John Taylor MBE**
The Wider Sustainability Considerations

1315 **Concluding remarks + Finish**

Site visits and tours 1430 - 1600

Historic Tour: led by a Greenwich Foundation Yeoman, covering the story of the site, including: Queen Anne Undercroft (Jacobean – not normally open to the public), grounds, Painted Hall, Chapel, Skittle Alley and Admiral's House.

Technical Tour 1: Pepys's Building, Old Brewery, New Visitor Centre, Clore Education Centre, and the Trinity School of Music buildings: led by Richard Brearley of Siddell Gibson Architects.

Technical Tour 2: Greenwich University Buildings: led By Jonathan Parry of Dannatt, Johnson Architects