

COST
Technical Committee UCE
COST Action C17

Built Heritage: Fire Loss to Historic Buildings

PROGRESS REPORT

Period: from 13 December 2002 to 31 December 2005

Start date of Action: **13 December 2002 (Report issued 21 January 2006)**

This Report is prepared by the Management Committee of the Action and presented to the relevant Technical Committee. The report is a "cumulative" report, i.e. it is updated annually and covers the period beginning from the start date of the Action.

CONTENTS

1. OVERVIEW: ACTION IDENTIFICATION DATA	P 2
2. OBJECTIVES	P 3
3. TECHNICAL DESCRIPTION AND IMPLEMENTATION	P 4
4. PARTICIPATION AND COORDINATION	P 4
5. RESULTS	P 26
6. DISSEMINATION OF RESULTS	P 36
7. ECONOMIC DIMENSION	P 37
<i>[8. SELF EVALUATION (only in the last annual progress report)]</i>	P 38
Annex A: WG 4 Management Strategies: (Revised Approach to MoU)	P 39
Annex B: List of Action Members Co-ordinates (Updated to 23 October 2005)	(Separate document)

COST Action C17: Built Heritage: Fire Loss to Historic Buildings

Progress Report covering the period 13 December 2002 to 31 December 2005

1: OVERVIEW: ACTION IDENTIFICATION DATA

Summary Position of COST Action C17 as at 31 December 2005

Draft Memorandum of Understanding Ref: 327/01 dated 21 December 2001
Memorandum of Understanding Ref: 236/02
Entry into force: 18 April 2002
End of Action: 12 December 2006
Memorandum of Understanding language: English

The Action was initiated with 5 Membership Signatory Countries in April 2002. At the end of December 2005 the number of Action Membership Signatory Countries: 20

Country	Date of signing	Status
Austria	18 April 2002	Confirmed
Belgium	06 January 2005	Confirmed
Bulgaria	09 September 2002	Confirmed
Denmark	18 April 2002	Confirmed (No attendance to date)
Finland	18 April 2002	Confirmed
France	05 May 2003	Confirmed
Hungary	13 May 2005	Confirmed
Israel	14 April 2004	Confirmed
Italy	21 November 2002	Confirmed
Macedonia	06 December 2004	Confirmed
Netherlands	21 January 2005	Confirmed
Norway	13 May 2002	Confirmed
Poland	01 October 2004	Confirmed
Serbia + Montenegro	23 June 2005	Confirmed
Slovenia	16 May 2002	Confirmed
Spain	18 April 2002	Confirmed
Sweden	23 April 2003	Confirmed
Switzerland	05 September 2002	Confirmed
Turkey	01 October 2004	Confirmed
United Kingdom	18 April 2002	Confirmed

In addition to the formal Member Country involvement, Corresponding Member interests have continued to grow and have now been established with:

Russia

- *Russian Civil Defense and Disaster Management Research Institute*
- *International Informatization Academy*
- *WORLD Academy of Sciences for Complex Security*

- *Academy of State Fire Service of Emercom of Russia*
- USA
- *NFPA Cultural Resources Committee*
- Europe
- *Comite Technique International de Feu (CTIF) Europe Commission*
 - *European Fire Sprinkler Forum*
 - *Eurosprinkler*
- UK
- *Scottish Building Standards Agency*
 - *Scottish Historic Buildings Fire Liaison Group*
 - *Historic Buildings Fire Research Co-ordinating Committee*
 - *National Fire Sprinkler Network*
 - *Donald Insall Associates Ltd*
- Baltic Sea Countries
- *Association of Castles and Museums around the Baltic Sea*
 - *Federation of Finnish Insurance Companies*

Over the period an “*Illustrated Master List*” of Members and Corresponding Members coordinates has been compiled and updated. Listed by Country and COST Action C17 involvement, this list includes individual contact details, a photograph and a brief CV of the members’ professional interests.

A non-illustrated list, only presenting the written compiled details, corrected to 26 October 2005, is referred to as Annex B (Separate document)

2 OBJECTIVES

The Memorandum of Understanding (MoU) Intentions

The formal COST Action C17 Memorandum of Understanding stipulates that:

“The main objective of the Action is the definition at European level of the degree of loss to the Built Heritage to the effects of fire and for the proposal of remedial actions and recommendations to combat such loss, using minimal invasive techniques”

The Action Technical Annex focuses on the intended Objectives and Scientific Programme, identifying 4 work packages to be dealt with through the establishment of 4 interlinked Working Groups of relevant experts to the different topics.

Initiated in December 2002, it was anticipated that the four-year programme will be achieved in a multi-disciplinary, multi-national manner through the collaboration and integration of a variety of related projects and partnership country interests. It will also aim to build upon the range of current research initiatives, and recently published associated material.

At the end of the programme, the intended outcomes will be the promotion of data, methodologies and management systems to assist a wide range of end-users balance fire engineering needs with conservation requirements in European historic buildings.

During the course of the Action the MC agreed to revise the terms of reference for Working Group 4 activities as proposed by the Chairman, Wolfgang Kippes, on 6 December 2003. This was agreed so that the outcomes would have a greater degree of practical use and application by heritage property managers. These revisions are set out in Annex A (Page 30)

3 TECHNICAL DESCRIPTION AND IMPLEMENTATION

Determined by the available budgets the technical work of the Action has had to be organised as economically as possible. To maximise on available finances an approach which integrated Management Committee and Working Group meetings at the same venue was adopted as an operating principle.

In addition to further maximise on this approach, related seminars and workshops have been integrated with these meetings. Arranged by the Action's host member, this has had the added benefit of involving many additional interested parties in the work of the Action where much mutual benefit was achieved.

Formal participating country interest has increased the membership of the Action considerably over the first 2 years of activities. In addition a number of corresponding membership interests have been approved by the MC and these are now included in the issues of all papers. This interest in the work of the Action has greatly added to our knowledge in the 4 Working Group areas of activity and consequential influence.

In consequence of the adopted all-embracing approach the Action has been very successful in amassing a considerable body of evidence in support of its work. Much of this is new and unique to the subject (Details are set out below in Section 4)

COST Office Secretarial support at meeting has been greatly appreciated when it has been possible to provide that. Otherwise much of the secretarial work involved in preparing for, writing up, and keeping the meeting documents flowing has fallen to the MC and WG Chairmen. Considerable assistance has also been given at local level by Action host members in arranging the various meeting locations and support backup to ensure that the available time to meet can be maximised.

4 PARTICIPATION AND COORDINATION

For an up-to date list of participating countries, the official MC and WG members, and details of their co-ordinates corrected to 23 April 2005, see Annex B (Separate document).

Set out below are details of the various Management Committee meetings, Working Group meetings and the completed STSM undertaken in support of WG 1 activities, over the report period. This also lists the various papers produced or received at these meeting, the presentations made at the various Seminars and Workshops and related publications that had a bearing on the various events.

(Because of the extent, relevance and wide range of these documents, this report has also been used to create a compiled working index of all that has been collated and achieved so that this information can inform the remaining work and activities of the Action.)

Management Committee Meeting No. 1 Brussels 13 December 2003

The inaugural meeting of COST Action C17 was held in DG Research, Square De Meeus 8, Room 9G, 1049 Brussels with 10 of the 12 signatory countries being represented.

The background to the Action was discussed, and the operating rules of the COST Action programme were revealed by the Scientific Secretary. The membership of the Management Committee was formalized, and Chairmen appointed as follows:

- Ingval Maxwell: UK
Chairman Management Committee
- Stefano Marsella: Italy
Vice-Chairman Management Committee

- Ingval Maxwell: UK
Chairman Working Group 1: Data, loss statistics and evaluating risks.
- Stewart Kidd: UK
Chairman Working Group 2: Available and developing technology.
- Kerstin Westerlund: Sweden
Chairman Working Group 3: Cultural and financial value.
- Wolfgang Kippes: Austria
Chairman Working Group 4: Property management strategies.

Prof. Paul Vandeveld, Co-ordinator of the related FP5 thematic Network FIRE-TECH project attended and made a presentation. He briefly explained his project objectives, scientific analysis, network, work plan and current status

Meeting Record:

- Full details of the Meeting are recorded in the Minutes dated 20 January 2003

Working Group Chairmen Meeting No. 1 Brussels 27 June 2003

The meeting was called to discuss the consequences and uncertainties created by the transition period being experienced by the COST Programme in its move to the European Science Foundation (ESF), and how that might impact on the original proposed programme for Action C17. Because of on-going budgetary constraints, the Scientific Secretary explained that caution had to be exercised in planning too many meetings.

In recognition of this, a meeting methodology for the Action was established where the time available would be maximised. This would be achieved by doubling up MC and WG activities as far as possible during future meetings. In addition arrangements would be made where ever possible to plan and prepare related developmental seminars and workshops at all meeting locations.

Meeting Record:

- Full details of the Meeting are recorded in the Minutes dated 9 July 2003

Document released to members after the meeting included:

- *Heritage Under Fire, Second Edition*, Ed Stewart Kidd, 1995
 - *TAN 11 Fire Protection Measures in Scottish Historic Buildings*, HS TCRE, 1997
 - *TAN 14 The Installation of Sprinkler Systems in Historic Buildings*, HS TCRE, 1998
 - *TAN 22 Fire Risk Management in Heritage Buildings*, HS TCRE, 2001
 - *Disaster Recovery and Business Continuity Planning*, Stewart Kidd, 2002
-

Management Committee (and Working Groups) Meeting No. 2 Edinburgh 5-6 September 2003

The meeting was arranged as a joint Scientific Session with the Scottish Historic Buildings Fire Liaison Group. Representatives of the English Heritage Historic Buildings Fire Research Co-ordinating Committee also attended.

During the Scientific Session oral presentations were made on:

- *Managing Fire Safety in Historic Buildings Technical Advice Note:*
Stewart Kidd
- *Fighting the Cowgate Fire:*
Lothian and Borders Fire Brigade
- *Recording work after the Cowgate Fire:*
RCAHMS
- *Scottish National Historic Buildings Fire Database Update on progress:*
Mike Coull Sharon Haire
- *Integrated Risk Management Planning in Scotland – an update:*
Brian McKenzie HMI Fire Services
- *Fire Research Database:*
Paddy Elson, English Heritage
- *FIRE-TECH: Fire risk evaluation to European Cultural Heritage:*
Steve Cooper Warrington Fire Services
- *Fire Protection of Historical Buildings Heritage in the Republic of Bulgaria:
Statistical Review and Risk Analysis:*
Valentin Vladimirov (Authors Petar Hristov and Galina Mileva)
- *Buildings at Risk Register, Scotland:*
Alice Wilson, Historic Scotland

Associated Scientific Study inspection visits occurred to view fire protection measures at:

- *National Library of Scotland, George IV Bridge, Edinburgh:*
Bill Jackson
- *General Register House, National Archives of Scotland, Princes Street, Edinburgh:*
Bob Phillips
 - *Demonstration of the “Inergen” gas fire suppression system*

- *Newhailes, National Trust for Scotland, Musselburgh:*
National Trust for Scotland, and
Forbes Lesley Network, Consulting Engineers

Document released to members during the meeting included:

- *Old and New Towns of Edinburgh (United Kingdom) Report and Conclusions on the Cowgate Fire, 19 December 2003*
As recorded following discussion at the UK World Heritage Committee Meeting, June 2003
- *Edinburgh Old Town And New Towns World Heritage Site Reactive Monitoring Report on Fire in December 2002*
Historic Scotland, January 2003
- *Report regarding systems for protection of attics and roofs of wood by*
Jan G Holmberg, KTH/ITEK, Stockholm dated 15 August 2003
- *International Council of Museums, Museum Emergency Programme dated 21 January 2003.*
- *Instructions on fire safety in national monuments Internal regulations 46 Swedish National Property Board 13 June 2001*
Kerstin Westerlund SNPB Ref 224/412/99 13 June 2001

Document released to members after the meeting included:

- *COST Action C17 WG 1: Item 1.1.1: 23 page report on “Information on the total number of cultural heritage buildings” together with a country wide list of “Specific Heritage Legislation” and “Urban Planning and Environment Legislation”, dated 25 November 2003*
Prepared by Alice Wilson
- *Edinburgh Old Town Fire Report November 2003*
- Extract From ‘Resolutions of the Affociated Architects’ 1792
- *Copy of UK Reporting Proforma FDR1*
- *Fires in Swedish churches 1996-2002. List dated 17 October 2003*
Erik Egardt
- *Fire Test 12 Chatham Row, Bath 2 March 1967*
(R F Little, Bath City Council)
- *Submitted 1 page article on COST Action C17 to Forum KGS Nr 3/2003 September 2003.*
Alfred Moser
- *Comments on WG 1 activities 9 November 2003*
Marilyn Kaplan
- *Fires In Scottish Historic Buildings List No 3 Effective From January -November 2003*
Ingval Maxwell
- *Counter Disaster Planning in Historic Buildings*

A letter dated 3 September 2003 from Mr Bengt Kylsberg, President of the “*Association of Castles and Museums around the Baltic Sea*” was presented to the Action Chairman seeking to formalise a link with the Action, to keep his Association members up to date with C17 developments. This was agreed.

Meeting Record:

Following Working Group Parallel Sessions, where presentations and discussion on the Group's research activities formed the agenda, feedback reports were offered by the 4 Working Group Chairmen.

- Full details of the Meeting are recorded in the Minutes dated 16 September 2003
- Meeting photographs Edinburgh dated 5-6 September 2003
- WG 1 Meeting Notes dated 8 September 2003
- WG 2 Notes of Meeting were issued on 21 November 2003
- WG 3 Minutes of meeting dated 18 November 2003
- WG 4 Meeting Notes dated 8 September 2003

Management Committee (and Working Groups) Meeting No 3 Schloss Schonbrunn, Vienna, Austria 5-6 December 2003

The meeting format following the agreed pattern of Management Group and Working Group Parallel Sessions, where presentations and discussion on the Group's research activities formed the agenda. Feedback reports were offered by the 4 Working Group Chairmen.

The meeting programme also included a Research Seminar "*Development and Utilisation of Fire Modelling in Historic Buildings*".

During the Seminar oral presentations were made on:

- *Overview of Evacuation Planning at Schloss Schonbrunn:*
Wolfgang Kippes
- *Modelling evacuation procedures at Schonbrunn:*
Prof Ed Galea
- *Fire Protection of the Piccinni Theatre in Bari (Prescriptive vs Performance-based Codes):*
Vincenzo Nuzzolese and Mirella Bindo
- *Application of performance based codes – S Maria della Scala Complex, Sienna:*
Luca Nassi and Stefano Marsella
- *CFD Modelling of smoke spread, temperature increase, and visibility in building fires:*
Alfred Moser and Alolis Scalin
- *Rational Fire Safety and Egress Concept for a Small Mediaeval Castle:*
Jerzy Respondek
- *Fire Protection of Traditional Gassho style Japanese Houses:*
Ingval Maxwell

Associated Scientific study visits to see fire suppression and detection systems in operation around Schonbrunn Palace were also arranged.

14 documents were released to members prior to the meeting on 26 November 2003 from:

- *Blank Fire Risk Assessment proforma*
- *Counter Disaster Planning in Historic Buildings*
- *Fire Test on No.12 Chatham Row, Bath (2 March 1967)*

- *Report of fire FDRI(94) proforma*
- *Extract from “Resolutions of the Associated Architects” 1792*
Steve Emery (English Heritage)
- *Report on Edinburgh Cowgate Fire 7 December 2002*
Lothian and Borders Fire Brigade
- *New COST Action C17 Built Heritage – fire loss to Historic Buildings*
Alfred Moser
- *Comments on WG1 and WG2*
Marilyn Kaplan dated 14 September 2003
- *Fires in Swedish Churches 1996-2002*
Erik Egardt
- *WG1 Item 1.1.1 Research into number of listed buildings.*
Alice Wilson
- *List of Members*
Association of Castles and Museums around the Baltic Sea
- *CFPA Europe List of Addresses*
Stewart Kidd
- *List of fires in Scottish Historic Buildings January-November 2003.*
Ingval Maxwell

Document released to members after the meeting included:

- *Custom Narratives on Fires Involving Museums, Libraries, Planetariums, Historical Properties and Churches*
Prepared by: Marty Ahrens, Fire Analysis and Research Division, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471, USA. Dated December 2003
- *Performance Based Codes Vs Prescriptive Rules: The Case of the Application to Fire Protection of Heritage in Italy*
Stefano Marsella
- *Notification from the Swedish Rescue Services Agency. 2001:2. Systematic Fire Prevention Work. Recommendations and comments on systematic fire prevention work. Decreed 20th December 2001.*
Erik Egardt
- *Expression of interest in participating to the COST Action C17 “Built Heritage : Fire Loss to Historic Buildings” “Non-destructive Physical Properties Evaluation of Fire Loss to Historic Buildings”*
Valentin Vladimirov, dated 10 November 2003
- *A Review of Some Problems concerning the Estimation of the Cultural and Financial Value of Historical Heritage*
Galina Mileva

Meeting Record:

- Full details of the MC Meeting are recorded in the Minutes dated 10 February 2004
- Meeting photographs Vienna dated 5-6 December 2003
- WG 1 Progress Report 1 Vienna 6 December 2003 (Updated 10 February 2004)
- WG 2 Note of Meeting dated 1 December 2003
- WG 3 Progress Report dated 11 February 2003

- WG 4 A revised Working Group Framework presented by Wolfgang Kippes dated 11 February 2003 was agreed (See Annex A)
- Details of the Spanish Cultural Heritage number were presented by Marianna Llinares
- List of WWW contacts for Switzerland by Alfred Moser dated 8 December 2003

Management Committee (and Working Groups) Meeting No 4 Trondheim and Røros, Norway 16-18 April 2004

The meeting format following the established pattern of Management Group and Working Group Parallel Sessions. Held in the Archbishops Palace, Trondheim, it was also arranged as a joint Scientific Session. An associated Scientific Study Visit to the World Heritage Town Røros, and a monitored Scientific experiment to test the efficacy of Water Mist Systems on a fire affected two storey wooden structure at Melhus, near Trondheim was also arranged.

During the Scientific Session oral presentations were made on:

- *Fire protection strategy and the application of water mist in stave churches*
Sjur Helseth
- *Water in fire extinction:*
Stewart Kidd
- *Fire extinguishing properties of water mist:*
Ragnar Wighus, SINTEF, Norway
- *Water mist installations in cultural heritage buildings*
Geir Jensen, Interconsult, Norway
- *Presentation of the fire protection project for the World Heritage Town Røros:*
Anne Steen-Hansen, SINTEF, Norway

Associated Scientific study visits occurred to:

- Fire-test focussing on flashover control using low-pressure water-mist at Melhus
- Baugshaug House
- Røros World Heritage Site

Document released to members during the meeting included:

- *Performance Based Design for a "Sustainable" Fire Protection of an Historical Theatre: International Conference on Fire Protection of Cultural Heritage; Aristotle University of Thessalonika, Greece, 2000.*
V Nuzzolese
- *Performance-based Fire Protection of Historical Structures: Forum for International Co-operation on Fire Research, Fire Safety in Buildings, ICITE, Milano, Italy, 2001.*
V Nuzzolese
- *Smoke Control for Fire Control: Comparing, by means of simulation models, effects of forced versus natural ventilation during a fire in public premises with relevant presence of burning materials: European conference on Safety and Reliability; ESREL, Trevino, Italy, 2001.*
V Nuzzolese
- *"Can we learn from heritage lost in fire? Experiences and practises on the fire protection of historic buildings in Finland, Norway and Sweden" ISBN 951-616-115-4.*

M Mattinen

- *A List of Fire from the National Service “FIRE AND EMERGENCY SAFETY” database under the Ministry of Interior of Bulgaria*
Excel list prepared by Petar Hristov and Galina Mileva

Document released to members after the meeting included:

- A proposal by Chris Hood (UK) regarding *Water Mist “Proposed Heritage Accreditation Fire Test”* dated 19 April 2004

Meeting Record:

- Note of Research Seminar: *“The Application of Water Mist in Cultural Heritage Buildings”* held in the Archbishop's Palace Trondheim, and Associated Scientific Programme, Melhus, Trondheim and Roros, Norway: 16 and 18 April 2004, dated 11 May 2004
- Full details of the MC Meeting are recorded in the Minutes dated 11 May 2004
- Meeting photographs Trondheim dated 11 May 2004
- WG 1 Progress Report 2 Trondheim 17 April 2004 (Updated 11 May 2004)
- WG 2 Notes of Meeting were issued on 15 May 2004
- WG 3 Minutes of meeting dated 4 July 2004

WG 3 Meeting a) Stockholm, Sweden 10-11 June 2004

The meeting took place in the headquarters of National Property Board, Packhus gränd 5, Stockholm Old Town. The main purpose was to discuss and obtain new knowledge and information about:

- Risk (assessment, evaluation), analysis, consequence and measures to take
- Principles about the insurance companies approach to cultural heritage and the possibilities for change
- The ethical aspects of loss recovery including its impact on authenticity

During the Meeting oral presentations were made on:

- *Risk (assessment, evaluation), analysis, consequence and measures to take Risk; concept, analysis, perception in theory*
Prof Torbjörn Thede´en
- *Risk analysis and measures to take in practice*
Olle Norrby and Johan Renvall Brandgruppen AB
- *Bonde Palace in Stockholm Case study*
Johan Renvall Civ ing Brandgruppen AB
- *Cultural heritage evaluation as factor in risk evaluation*
Kerstin Westerlund SFV
- *Building Fire Performance Methodology*
Steve Emery
- *Insuring practices and principles in Finland*
Seppo Pekurinen Loss prevention manager

- *Insurance of historic buildings in Stockholm*
Anders Carlsund managing director CEO
- *Insuring state owned property in Sweden*
Bo Palmqvist
- *Analysis of the fire risks and an overview of the intensions how to protect the building*
Ann-Britt Larsson Deputy property manager National Property Board
- *What can be done on site as fire prevention and to minimize the damage in case of fire, the loss recovery.*
Håkan Lundblad Superintendent the Royal Collections
- *Study of mobile salvation wagon*
Håkan Lundblad

Led by Rolf Karlsson, Property manager SFV and Pehr Forsström, General Theatre Manager, an associated Scientific Study visit occurred to the Royal domain of Drottningholm Palace and the Court Theatre to investigate the installed fire protection measures.

Document released to members during the meeting:

- *Insuring practices and principles in Finland* Seppo Pekurinen

Meeting Record:

- WG3 Minutes of Meeting 8 July 2004 revised 23 August 2004, and
 - WG 1 2003.10.15 rev 04.04.03 (kewb/Cost17/workgr3act41)
 - WG 3.1.1 dated 4 March 2004 (cost17/wg311int.doc.eur)
 - WG 3.1.2 20.11.07 rev04.03.23/04.14 (cost17/wg312def.cult.val.eur)
 - WG 3.1.3 20.11.29 rev04.05.27 (cost17/wg313loss.authenti)
 - WG 3.2.1 2004.04.11 rev 06.02 (cost17/wg321value.economi)
 - WG 3.2.3 2004.06.02 (cost17/wg323costs.reconstr)
 - WG 3.3.1 2004.03.22 (kewb/Cost17/wg331ins.comp.data)
 - WG 3.4.1 2004.06.03 (kewb/Cost17/wg341risk.evalua)

WG 1 Meeting a) Schloss Schonbrunn, Vienna, Austria 16-17 July 2004

Held in Schloss Schonbrunn, Vienna, the aim of the meeting was to:

- establish commonality in the various adopted approaches
- identify the range of differences
- devise the specific data needs from the users perspective (by comparing the 2 points)
- consider what needed to be done to integrate the systems
- determine what follow-up action needed to be pursued in each country.
- prepare a draft questionnaire (as required at 1.2.3)

During the Meeting oral presentations were made on:

- *“Developing an Internet-based Data-base system on European Fire Events, and the Results from existing statistics from NFPA, USA”*
Wolfgang Kippes

- “*Electronic recording system of fire statistics in the UK*”
Steve Emery
- “*Electronic recording system of fire statistics in Bulgaria*”
Petar Hristov and Galina Mileva
- “*Electronic recording system of fire statistics in Finland*”
Kalle Reivila
- “*Electronic recording system of fire statistics in Sweden*”
Erik Egardt
- “*Electronic recording system of fire statistics in Norway*”
Einar Karlsen
- “*Schult’z Hazard Analysis*”
Alberto Dusman

A Scientific Site inspection of recently completed fire detection and suppression systems in Schonbrunn Palace was also undertaken.

Following discussion it was agreed that a STSM should be arranged and carried out to test the hypothesis that – “*Identifying and setting eight levels of fire causes would be sufficient for European historic building managers to gain useful information*” and that the Mission would be undertaken by Kalle Reivila of the Finnish National Board of Antiquities, and hosted by Historic Scotland in Edinburgh.

Documents released to members during the meeting included:

- “*Il Soccorso alle Persone Disabili: Indicazioni per la Gestione dell'emergenza*”
Ministero dell 'Interno, Rome, Italy. 2004
- “*Accessibilita e Sicurezza dei Luoghi di Lavoro. Manuale per la progettazione degli uffici e dei locali aperti al pubblico*” Stefano Marsella and Paolo Mirabelli, Il Sole 24 Ore, 2001 ISBN 88-324-4457-7
- “*Risk Analysis Methods in Museums*” Schult’z Series Casa Editrice Il Prato. CD ROM
- “*Electronic recording system of fire statistics in Bulgaria*”
Petar Hristov and Galina Mileva

Meeting Record:

- WG 1 Progress Report 3 Vienna 16-17 July 2004 (Update 31 August 2004)
- Annex Report Part A: Presentation of Research Activity dated 28 July 2004
- Annex Report: Supplementary Papers dated 28 July 2004
 - UK: Fire Reporting Proforma FDR1
 - Sweden: Fire Reporting Proforma
 - Swedish Fire Statistics by Building Category: 1996 - 2001
- Meeting photographs Vienna dated 25 July 2004

Management Committee (and Working Groups) Meeting No 5 Varna, Bulgaria 9-11 September 2004

The meeting format following the established pattern of Management Group and Working Group Parallel Sessions. Held in Varna Free University, Varna, Bulgaria it was also arranged

in conjunction with an International Workshop *“Built Heritage: Fire Loss to Historic Buildings”*. During the Workshop oral presentations were made on:

- *“Built Heritage in the System of National Security”*
Assoc. Prof. Evgeniy Sachev, Director of the National Centre for Museums, Galleries and Arts of Ministry of Culture, Bulgaria
- *“Integral Model of the Risk during Fire Works”*
Assoc. Prof. Vladimir Tomov, Varna Free University, Bulgaria
- *“Process and Practice in a Major Review of Fire Risk in Historic Buildings”*
Stewart Kidd, UK
- *“Methodological and Law Problems of Risk Assessment”*
Assoc. Prof. Petar Hristov and Galina Mileva, Varna Free University, Bulgaria
- *Arezzo Public Library: Risk Assessment and Data Problems in a Fifteenth Century Building”*
Luca Nassi, Italy
- *“Using “The Fire Performance Methodology” To Determine the Level of Fire Safety Intervention Required”*
Steve Emery, UK
- *“Fire in a Simple Enclosure: Simulations with CFD and Zonal Model Approaches”*
Christian Del Taglia, Switzerland
- *“Examination of Setting on Fire Some Materials at Electric ARC Welding”*
Assoc. Prof. Vladimir Tomov, Varna Free University, Bulgaria
- *“Textile Flame Retardant Materials Applied in Historic Buildings As a Simulation of the Fire Hazard”*
Jolanta Muskalska, Poland
- *“Integrated Safety and Life Support Systems of Intelligent Buildings”*
Prof. Dr. Nikolay Topolskiy, Academy of State Fire Service of Russia
- *“Flame Retardants for the Protection of Textiles from Fires in Public Buildings from Cultural and Historical Heritage”*
Assoc. Prof. Nikolay Simeonov, Chemical Technology and Metallurgy University, Sofia, Bulgaria
- *“Technical and Hydraulic Characteristics of Nozzle Water Curtain”*
Assoc. Prof. Jany Neikova, Academy of Ministry of Interior, Faculty “Fire and Emergency Safety” Bulgaria
- *“Comparative Study of Combustibility of MDF Boards Improved with Polymer Coatings”*
Assoc. Prof. Panayot Panayotov, University of Forestry - Sofia, Faculty of Forest Industry, Bulgaria
- *“Technical Provision for Early Fire Detection in Built Heritage – Cultural and Historic Buildings”*
Mr. Stoyan Denev, Emergency, Fire and Ecological Defence Association, Bulgaria
- *“Protection from Fire Disaster of Historical Shopping Centers”*
Mr. Emin Pehlivan, Director of Fire Brigade of Izmit , Turkey
- *“Built Heritage Protection in the Conditions of Global Terrorism”*
Gen. Kiril Voinov, Director of the National Service “Fire and Emergency Safety” of Ministry of Interior, Bulgaria
- *Fire at the Duchess Anna Amalia Library, Weimar, Germany, on 2nd September 2004*

Per Rohlan, Sweden

An associated Scientific Study visit to see fire precaution measures in the World Heritage Site of Nessebar was also arranged

Document released to members before the meeting included:

- 3 Reports by Geir Jensen (Norway) on “*Water Mist for Protection of the Heritage*” and “*Water Mist Engineering AS fire tests*” in Kristiansand and Trondheim, Norway were distributed on 14 July 2004
- ‘*PCP Forum No. 3*’ was released by Rino Buchel, Federal Officer for Civil Protection, Berne, Switzerland.

Document released to members after the meeting included:

- *COST Action C17: “Built Heritage: Fire Loss to Historic Buildings” International Workshop, 9 – 12 September, Varna, Bulgaria. Summary Report:*
Ingal Maxwell, 30 September 2004
- *European Science Foundation: Report on CTIF’s Work to COST Action C17 Meeting:*
Dennis Davis, Chairman CTIF Europe Commission, 27 September 2004
- *Fire Damage of Heritage Building Stones: Methodological Considerations on Current Research*
M. Gomez-Heras, M. Alvarez De Buergo, M.J. Varas, R. Fort, M. Morcillo, C. Molpeceres
- *EMERCOM of Russia, Russian Civil Defense and Disaster management Research Institute, Moscow. New Safety Technologies Moscow 2002*
- *NIKOLA Y VAPTSAROV Naval Academy Certificate Presented to COST Action C17 during the International Workshop, Varna, Bulgaria, on 10 September 2004 Copy Certificate*
- *FIRE-TECH WWW Contact Information* as at 24 September 2004

It is also anticipated that a full set of *Workshop Proceedings* will be produced by Bulgarian COST colleagues in due course.

Future STSM's

To cover WG 2 areas of interest Stewart Kidd (UK), WG 2 Chairman, proposed the following future STSM’s on 1 August 2004:

- Damage limitation/fire brigade liaison
- Use of technology in detecting and suppressing fire
- Fire Brigade practice in intervention
- Risk assessment models

It was also proposed that the *Damage limitation/fire brigade liaison* STSM might be undertaken by Mike Coull (UK) with a mission to Fire Brigade colleagues in Vienna early in 2005. MC agreed to this WG 2 STSM proposal and encouraged details to be worked up and finalised.

Meeting Record:

Full details of the Meeting are recorded in the:

- Collated International Workshop Associated Papers dated 27 September 2004
- Compilation of Meeting Photograph dated 27 September 2004
- MC Minutes dated 29 September 2004 (Including summary WG 1, 2, 3 and 4 reports)
- Working Group Associated papers dated 2 October 2004 including:
- WG 1 Updated Progress Report contained in the MC minutes dated 29 September 2004
- WG 1: *Item 1.1.1 – Finland*
Kalle Reivila dated 6 September 2004
- WG 1: *Item 1.1.1 – Sweden*
Kerstin Westerlund and Erik Egardt dated 6 September 2004
- WG 1: *Item 1.1.1 – Italy*
V Nuzzolese: dated 11 September 2004
- WG 1: *Item 1.1.1 – Turkey*
 - *Historical Places in the Kocaeli City*
 - *Historical Places in the Istanbul City*
Emin Pehlivan, Fire Chief of Kocaeli Municipality, Turkey: dated 17 September 2004
- WG 1 *Proposed Short Term Scientific Mission: Detailed Work Plan: 5-13 October 2004*
Kalle Reivila, National Board of Antiquities, Finland. 19 August 2004.
- WG 1: Data, Loss & Statistics (Position as at 13 September 2004)
 - *Written returns from co-ordinating bodies for building insurance*
 - *Written returns from various national Fire Protection Associations*
Alice Wilson
- WG 2 Notes of Meeting were issued on 20 September 2004
- WG 2 Meeting Minutes, Varna, 10th September 2004
Stewart Kidd
- WG3 Meeting Minutes, Varna, 10th September 2004.
Kerstin Westerlund 29 September 2004
- WG 3: *Cultural and Financial Value 04.04.02rev 09.01 cost17/wg311int.doc.eur2*
Maire Mattinen
- WG 3 sub-section Minutes of meeting dated
 - WG 3.1.2 20.11.07 rev04.03.23/07.09
 - WG 3.1.3 20.11.29 rev04.05.27
 - WG 3.2.1 2004.04.11 rev 06.02
 - WG 3.2.2 2004. 06.02
 - WG 3.3.1 rev 04.06.09 08.25
 - WG 3.3.2 2004.08.26
 - WG 3.3.3 2004.08.26
 - WG 3.4.1 rev 04.08.30
 - WG 3.4.2 rev 04.08.30
 - WG 3.4.3 2004.08.26
 - WG 3.5.1 2004.08.30

WG 1 Short Term Scientific Mission: ‘Comparison of Data Categorisation of European Countries Fire Reporting Statistics’ 5 – 13 October 2004, Edinburgh, Scotland

Undertaken at Historic Scotland, Edinburgh, Scotland by Kalle Reivila, National Board of Antiquities, Finland, the aim of the Short Term Scientific Mission was to set common criteria for facilitating direct comparison of data categorisation from each COST Action C17 participating country’s fire statistics.

Reporting to the Action Working Group 1, The Mission was to address the hypothesis that identifying and setting up eight levels of fire causes would be sufficient for European historic building managers to gain useful information.

By comparing the detail from each country’s reporting pro forma system, the STSM was also to address:

- How to include historic buildings data in the fire reporting processes
- How to ensure more effective links between the historic building authorities and those compiling fire statistics
- How to make data on historic buildings more accessible
- The possibility of agreeing a common format of categorising and analysing historic buildings data that could be included in the reporting pro-forma procedure

To support the actual data analysis and comparison, two scientific visits were made:

- The Scottish Historic Buildings National Fire Database was demonstrated at Grampian Fire and Rescue Service in Aberdeen
- A visit to ODPM’s Statistics & Social Research Branch’s Fire Statistics & Research Division in London enabled a demonstration of the Finnish electronic recording systems of accidents to officials responsible for developing the UK equivalent

The final 11 page Scientific Report was presented on 3 November 2004 and was successfully endorsed and approved.

WG 3 Meeting b) Paris, France 28-29 October 2004

The meeting was held in the Salon de Caryatids, Hotel de Ville, Place de Hotel de Ville, Paris, attended by 21 participants and locally organised by Simon Singer. The following papers were presented:

- *The Insurance Policy of the City of Paris*
Marianne Delage Joubert
- *How to handle cultural historic value in risk analysis*
Kerstin Westerlund
- *When is the fire risk too big*
Ingval Maxwell
- *How to put philosophy, ethic and emotions into practice*

Ivar Clausseen

- *Insurance of historical buildings in:*
 - *Austria* Dietman Wohltan
 - *United Kingdom* (Ecclesiastical Insurance Group) Ian Wainright
 - *Finland* (Federation of Finnish Insurance Companies) Seppo Pekurinen
 - *Sweden* (Legal finance and Administrative Services Agency) Bo Palmqvist
 - *Sweden* (St Erik Försäkring) Monica Ekwall
 - *Norway* Ivar Clausen(7 PowerPoint presentations of the above were also collated)
- *Approaches and Methods of Fire Risk Quantitative Evaluation for Heritage Buildings in Bulgaria*
Petar Hristov and Galina Mileva

Associated Scientific study visits took place to view fire protection measures at the:

- Chateau de Versailles
- Eiffel Tower, Paris

Meeting Record:

- Full details of the Meeting are recorded in the Minutes, dated 8 December 2004
- Compilation of Meeting Photographs, Paris, dated 21 November 2004
- WG 3 Paris Meeting Chairman's Comments, dated 21 November 2004

WG 2 + 4 Joint Meeting Schloss Schonbrunn, Vienna 7-9 December 2004

Held in Schloss Schonbrunn, Vienna, the successful joint WG 2 + 4 meeting, was locally organised by Irena Machatschek, and attended by 25 participants.

The following papers were presented:

- *Effects of fire on sandstone*
Miguel Gomez Heras
- *White paper on portable extinguishing agents*
Geir Jensen/Sjur Helseth
- *Final report on Evacuation Modelling Project at Schloss Schonbrunn*
Dr Ed Galea
- *Modelling of fire loading in a single compartment simulation of a heritage building*
Christian del Taglia
- *Water Mist updates and review of proposed installation at Schloss Schonbrunn*
Stewart Kidd
- *Anna Amalia Library, Germany*
Per Rohlen
- *Management issue training*
Wolfgang Kippes

(It is intended to compile all meeting papers on a CD ROM for issue to Action members at the Siena, April 2005 meeting)

An associated Scientific study visits took place to Klosterneuburg, and to the Sisi Museum in the Hofburg Palace, Vienna to assess the fire protection measures

Document released to members during the meeting included:

- *Analysis of the building EXODUS evacuation simulation study of Schloß Schönbrunn*
Prof E. R. Galea, Dr S. Gwynne, Mr L. Filippidis and Dr P. J. Lawrence. Fire Safety Engineering Group. University of Greenwich
- *CV: Prof Edwin. R. Galea: BSc, Dip.Ed, Phd, CMath, FIMA, AMISASI, MIFireE,*
CAA Professor of Mathematical Modelling, Director Fire Safety Engineering Group. University of Greenwich

Meeting Record:

- WG 2 Minutes of Meeting, dated 29 December 2004
- Proposed draft contents of WG 2 work for Final Report

Management Committee (Number 6): Working Group Chair Meeting Number 2 Stansted, England: 9-10 February 2005

Attended by the 4 Working Group Chairmen, the meeting was held in the Stansted Airport Hotel, Stansted, England to discuss and agree the format of the Action's Interim and Final Report

Interim Report

A draft Interim Report, covering the period 13 December 2002 to 31 December 2004, was discussed in detail. This presented a summary collation of all oral presentations, scientific site visits, collected papers issued to members before, during and following meetings. WG Chairmen were invited to add to this material by offering an introductory summary of each WG's activities and achievements set against the MoU intentions over the report period. It was agreed that this report should be finalised for issue to the COST office by the end of March 2005

Final Report

It was noted that the Framework for the Final Report had already been discussed and agreed by the MC at the 3rd MC Meeting in Schloss Schonbrunn, Vienna on 5-6 December 2003

Suggested sub-frameworks for the WG 2 and 3 Sections of the Action's Final Report were tabled by Stewart Kidd and Kerstin Westerlund for discussion. Amendments were offered, and both authors undertook to revise their proposals and resubmit them to the Chairman for incorporation in the papers for discussion during the MC part of the Siena meeting in April 2005 Ingvall Maxwell agreed to prepare a similar outline for WG 1 as soon as possible, and Wolfgang Kippes undertook to prepare the same for WG 4 in advance of the Siena meeting.

Meeting Record:

- Minutes of Meeting, dated 12 February 2005

Management Committee (and Working Group Meetings) Number 7 Santa Maria della Scala, Siena: Italy 7-8 April 2005

The meeting was held in the Santa Maria della Scala Complesso Museale, Istituzione del Comune di Siena, Italy and was organised and supported by Luca Nassi of the Ministry of Interior, Fire Department of Siena, who also arranged a one day International Workshop in the Santa Maria della Scala conference facility in conjunction with the COST meetings.

The Workshop focussed on the conservation, security and fire protection measures that had been installed in Santa Maria della Scala as part of a major refurbishment scheme. It involved c100 attendees from a wide range of disciplines, including senior fire-service officials and local dignitaries. As a number of papers were delivered in Italian, simultaneous translation into English was provided throughout.

Reports on work progress in the Action were also presented by all four WG Chairmen during the programme.

Associated Scientific Visits occurred with a guided tour of the fire protection installation works in Santa Maria della Scala, and to the Banca Monte dei Paschi di Siena.

Meeting Record:

- Draft Minutes of the Management Committee (and Working Group Meetings), dated 11 April 2005
- International Workshop, Santa Maria della Scala, Siena, Italy: 7-8th April 2005 Summary Report, (I Maxwell dated 23 April 2005) 12 pages containing notes of the following workshop presentations:
 - *The Restoration of Santa Maria della Scala, Siena*
Dr Guido Canali, Architect.
 - *Problems of restoring Santa Maria della Scala*
Ms Tatiana Campioni, Municipality of Siena.
 - *General Principles of Protection*
Mr Mauro Marchini, Engineer
 - *Simulation tests to establish an appropriate risk-based analysis for the Santa Maria della Scala*
Gabriele Ballocco: Canali Associates/ Fire Engineering Politecnico di Torino
 - *RFID for Visitors Monitoring in Santa Maria della Scala*
Prof. Alessandro Mecocci, University of Siena,
Department of Information Engineering
 - *Santa Maria della Scala: Results of an Emergency Evacuation Exercise*
Mr Pietro Foderà, Commandant, Siena Fire Services
 - *Fire in the Windsor Building, Madrid, Spain: 12 February 2005*
Ms. Llinares-Cervera and Mr. Miguel Gómez-Heras
 - *Materials behaviour at the Windsor Building*

Miguel Gomez Heras

- *Risk Analysis*
Prof. Torbjorn Theedeen, Centre for Safety Analysis, KTH, Sweden
- International Workshop; Misure Antincendio e Patrimonio culturale: Santa Maria della Scala, Siena, Italy: 7-8th April 2005: Workshop Photographs (I Maxwell dated 11 April 2005) 10 pages. This illustrates information obtained through the two scientific visits to:
 - *Santa Maria della Scala, Siena*
 - *Banca Monte dei Paschi di Siena*
- A set of 4 papers from Bulgarian colleagues (P Hristov + G Mileva dated 14 April 2005) 17 pages. These papers have been previously issued to some MC and WG members over the past two years but, due to the uncertainty as to who they have been released to, they are issued again in an omnibus set.
 - *“Fire Protection of Historical Buildings (heritage) in Republic of Bulgaria Statistical Review and Risk Assessment”*
Petar Hristov and Galina Mileva, Varna Free University
 - *“Approaches and Methods of Fire Risk Quantitative Evaluation for Heritage Buildings in Bulgaria”*
Petar Hristov and Galina Mileva, Varna Free University
 - *“A Review of Some problems concerning the Estimation of the Cultural and Financial Value of Historical Heritage in Bulgaria”*
Galina Mileva, Varna Free University
 - *“Electronic recording system of fire statistics in Bulgaria”*
Petar Hristov and Galina Mileva, Varna Free University
- *WG 1 Data and Statistics Slovenia: Part 1 Report*; Details received from Lenka Molek, Undersecretary, Ministry of Culture, Cultural Heritage Directorate. (L Molek dated 5 April 2005). 7 pages

The following papers were issued by e-mail to members on 8 October 2005:

- *Dormitory Fire Sprinklers Special Considerations* received from Dorothy L Freeland of Arthur J Gallagher on 11 July 2005. (2 pages)
- *Organisation of the Protection of Cultural Heritage in the Netherlands* by Jacques Aikerboom dated 26 July 2005 (5 pages)
- *Organisation of the Fire Services in the Netherlands* by Jacques Aikerboom dated 25 July 2005 (4 pages)
- *New Smoke Detection System from Vision Systems* by Steve Emery dated 30 September 2005 (3 pages)
- *List of Unintended Activations of Sprinkler and Water Mist Systems in Heritage – Norwegian record* by COWI dated 12 June 2005 (4 pages)
- *Poland* by Jolanta Muskalska dated 28 April 2005
- *Swiss Annual Report* by Alfred Moser dated 25 July 2005 (10 pages)

The following papers were issued by e-mail to members on 9 October 2005:

- E-report issued by European Fire Sprinkler Network intimating that the NFPA web site has published recent performance data on the benefits of sprinkler systems in the USA
- E-report data from *HMC AS - CCS_Cobra Norge* on the Nordic countries *COBRA Cold Cutting Extinguisher fire* fighting system together with a web page link <www.ccs-cobra.no>

The following papers were issued by e-mail to members on 11 October 2005:

- Interim draft WG 1 Final Report dated to 27 September 2005
- PDF copy of a paper submitted to the Fire Prevention and Fire Engineering Journal on 20 July entitled *COST Action C17: Built Heritage: Fire Loss to Historic Buildings*
- Outline draft programme for a proposed joint COST C17 NFPA Combined Meeting and Scientific Seminar in Slovenia during May 2006.

Details of the “*Pressurecheck Fire Sprinkler Booster System*” marketed by “Vipod Fire Protection Ltd” were issued to members on 5 July 2005.

Management Committee, New Lanark, Scotland 14-15 June 2005

The proposed MC approved meeting due to be held in New Lanark, Scotland on 14-15 June 2005 had to be cancelled due to a lack of funds. This was agreed during the Siena meeting.

Management Committee and Working Group Chair Meeting Number 8 Culture Hall, Helsinki, Finland: 14 -15 October 2005

The Management Committee, an International Workshop, held in two sessions, and five Joint Working Group Sessions were held in the premises of The Culture Hall, Helsinki.

During the International Workshop presentations were made on:

- *Hypoxic air system*
Geir Jensen
- *Statistical Data Of The Number Of Fires In Switzerland, The Cause Of Damage And The Building's Purpose.*
Daniel Rusch
- *Turbulence Model Validation for Computational Fluid Dynamics (CFD) fire modelling.*
Daniel Rusch
- *Borini Construction Spiral Fire Escape Stair*
Ingval Maxwell
- *St Michaels Mount, Cornwall, England: Management of Risk in a Historically Significant in Premises where Access is Severely Limited*
Nick Jordan
- *Wardington Manor, Oxfordshire, England*
Steve Emery
- *Sodra Rada Church, Sweden*
Thomas Erenmalm
- *OxyReduct system by Wagner*

- Wolfgang Kippes
- *Picture Hanging Model*
Wolfgang Kippes

Meeting Record:

- Draft Minutes Management Committee and Working Group Chair Meeting Number 8 dated 6/8 November 2005
 - International Workshop: Culture Hall, Helsinki, Finland 14-15 October 2005: Workshop Photographs, dated 24 October 2005
 - International Workshop Session, dated 3 November 2005
 - Joint Working Group Sessions, dated 3 November 2005
-

Approved Short-Term Scientific Mission (STSM) programme for 2006

Following endorsement of proposals at the Helsinki MC Meeting the under-noted detailed STSM programmes of 3 missions to be carried out early in 2006 was devised, and formally approved, by the end of December 2005

COST C17 STSM 1 (2006):

Management Strategies to secure integration of Damage Limitation Teams and professional fire services (WG 4)

Proposed Dates: 19 February 2006 – 24 February 2006

Applicant: Mike Coull (Scotland)

Host: Wolfgang Kippes, Schloss Schonbrunn, Vienna, Austria

Aim of the STSM: Expanding on research undertaken within the United Kingdom, this research sets out to develop the management strategies required for the establishment of Damage Limitation Teams along with the training and development of these teams to secure integration with professional fire and rescue services. Research to be undertaken will involve:

1. Consideration of documentation available on the management of a Damage Limitation Team, including the regulation and control of members of the team.
2. The contents of a written management plan for a historic palace to identify the role and responsibility of the Damage Limitation Team within the plan.
3. The examination of Emergency plans and in particular how Damage Limitation Plans are developed and integrated into these, along with key considerations involving the safe and secure evacuation of artefacts.
4. The co-ordination and integration of the emergency services response with particular emphasis on the relationship between Damage Limitation Teams and the professional fire services.
5. The level of training required by members of Damage Limitation Teams to develop and maintain their skills. The training available to professional fire fighters to consider the unique features of a historic palace and the integration of training through joint exercises.

It is anticipated that during the STSM there will be a number of interfaces with the host along with others within Schloss Schonbrunn responsible for the management of fire safety within the palace and those directly involved in the Damage Limitation Plan. Liaison will take place with the local professional fire service and any local government official identified by the host.

The completion of the STSM should include the following elements:

1. The production of a STSM Scientific report including information on the purpose of the visit, a description of work carried out during the visit and a description of the main results gained.
2. Production of articles covering each of the areas identified within the research to be undertaken section in order to incorporate these into the findings of Working Group 4.
3. Wider dissemination of the articles produced in order to advise heritage agencies and professional fire services of the findings of the research.

COST C17 STSM 2 (2006):

Review of research on burnt stones in built heritage (WG 2)

Proposed Dates: To be finalised

Applicant: Miguel Gómez-Heras (Spain)

Host: Budapest University of Technology and Economics, Hungary

Aim of the STSM:

1. Completion of a comprehensive evaluation of the state of art of research on burnt stones to issue a review paper that could take part of the final report of the action.
2. To make use of the host institution equipment to carry out a comparative research of the results of traditional and innovative techniques for testing the effect of fire in building stones.
3. Strengthening the liaison of two out of the few European research groups that have expertise on this subject.

The study of the decay promoted in building stones by fire is of crucial importance in the context of the understanding of the loss that fire generates in the historic buildings. Most of its significance lays in the fact that most of the built Cultural Heritage contains stone if it is not built as a whole with it. References to the changes undergone by stone during and after fires are scarce and there is a lack of a comprehensive state of the art of the advances that have been accomplished in this area. This state of the art would be of great utility as a background reference for future research on the subject and also to establish actuation policies for practitioners. In the context of the forthcoming completion of the COST action C17, this revision is particularly apposite, as it will generate material enough to fulfil the aim of showing the available technology on stone fire testing. Both the research group of the applicant and of the host institution account together for most of the research papers on this field in last years, and therefore are specially appropriate to carry out this revision.

Budapest University of Technology and Economics has equipment for burning stones and expertise which is not available at the applicant's institution. This equipment consists of oven-based burning devices. The applicant has hitherto carried out burning tests with laser-based techniques and aims to make a comparative study between these two techniques.

Specifically, two stone types, already tested with laser techniques, will be selected for this purpose on the basis of their use in Spanish historic building from Roman time. These are the Villamayor sub-arkose and the Uncastillo calcareous lithoarenite.

Presently there are not lasting liaisons between the research groups dealing with fire effects on building stones. At this point is necessary to discuss future strategies for a better European networking of researchers that could eventually conduct to applications to European projects.

Therefore, planned tasks will include:

1. Bibliographic research on the existing methods for fire testing of stone and their results and discussion of future strategies for laboratory and on site research on the subject.
2. Production of a review paper to be presented in a forthcoming workshop framed within COST C17 meetings and final drafting of the section of the final inform in relation with the Available and Developing Technology on fire testing of building stones.
3. Laboratory simulated burning of samples of Spanish building sandstones (Villamayor and Uncastillo) with oven-based techniques to be compared with results obtained from laser-based simulated burning techniques.
4. Discussion on future strategies to promote networking of scientists working with burnt stones with the aim of pursuing a European Project on the area.

COST C17 STSM 3 (2006)

Management Security System for protection of Built Heritage (WG 4)

Proposed Dates: 27 February 2006 – 07 March 2006

Applicant: Jan Holmberg (Sweden)

Host: Mr Torger Korpberget, Operating Manager, Maihaugen, Lillehammer, Norway

Aim of the STSM: To understand and identify the Management Security philosophy at Maihaugen, Lillehammer, Norway. Maihaugen is the largest open air museum in Norway with timber buildings dated from year 1250. Mr Korpberget is responsible for the safeguarding of the museums buildings and collections, and is considered to be a leading expert on Management Security Systems.

The research undertaken will for example include:

- Consideration of documentation available
- Consideration of the management ambitions and the staff understanding of emergency planning.
- Consideration of Risk Assessment principles used.
- References of Maihaugen polices to TAN 11 and TAN 22 from Historic Scotland.
- Consideration of the management and the staff cooperation with resources outside the museum (fire brigade, military forces, voluntary Damage Limitation Team, police and cultural institutions around Lillehammer)
- Report on training of staff
- Translation into English of written documentation

The applicant will undertake the mission with the understanding that museum fire losses clearly demonstrate a need to better protect collections. To be effective, fire prevention programs must be fully supported by all levels of management, adequately funded, and run by knowledgeable staff.

Fire prevention programs can reduce the risks and consequences of fire. Fire prevention procedures such as inspection lists and hazard reporting systems can make program administration easier. The most important single element for a successful Management Security System is believing that fires can happen to anyone.

5 RESULTS

Set out below are a number of observations by Action Members on the impact of COST Action C17 activities on current initiatives in their respective countries. In following through, and promoting, the emerging Action's findings of the agreed MoU framework it is clear that considerable international influence, already identified in 2004, continued to be exercised during 2005.

Against this success, a degree of frustration has been felt by members where the available budget has curtailed Action activities. The initial period of the Action's work was also hindered by the general uncertainty surrounding the transfer of the COST programme to the ESF. This meant considerable caution had to be exercised in planning, committing to, and arranging the initial meetings at a time when there was an immediate need for members to meet on a more frequent basis to formalise, and capitalise on, the links that had been established through the programme.

This level of frustration continued into 2005 when, again, the lack of available funding had major implications on the proposed work of the Action. Whilst individual members, and the COST Office Secretariat staff, continued to offer their fullest support at all times, the cancellation of the planned joint meeting with American NFPA colleagues in Scotland during June 2005 lost a valuable opportunity to develop these links and effect a relevant exchange of information as envisaged in the original MoU.

In addition, the news of further budget restrictions, extending into 2006 that was announced during the Helsinki meeting in October 2005 had a negative effect on the planned programme of working meetings for the final year of the action.

With funding only available to hold 2 full meetings of the Action in its final year, it was recognised that a considerable amount of unplanned additional work and effort would now solely fall on the individual Working Group Chairmen to try to conclude the Action within the agreed programme duration.

Efforts will be made to share this work out through the Action's e-mail connections to members but it is recognised that this will be much less productive compared to the original intention of setting a series of specific deadlines for Working Group presentations and discussions during the final year.

Partly off-setting this difficulty was the beneficial allocation of specific funding to the Action to undertake up to 4 STSM's over the remaining work period. Early formal agreements and

approvals were achieved before the end of December 2005 to undertake 3 of these, and appropriate details worked up by the individuals concerned.

Austria:

In Austria we assume that the number of listed buildings is about 60.000; the official confirmed number is 15.000; the most cultural heritage we find in Lower Austria.

From an international perspective we very much appreciate the cooperation regarding COST-action in the four dimensions. We already learnt a lot from the different perspectives of the joined countries. Austria does not have special loss-statistics from the insurance industry for the cultural heritage (special sources could only be derived from Finland) but Austria is the only country where the cooperation between the fire brigade and insurers is designated by the technical guidelines for pre-loss fire protection (TRVBs could also be an example for other countries).

In the cost-sessions we worked out that in the long run the cooperation between the fire-brigades and the insurance industry will be of great importance (i.e. special standard drafts/questionnaire for cultural heritage buildings).

Schönbrunn has developed this approach with special certification processes through the Austrian Fire-Brigade-Association. These issues could also have influence on a broader international basis for risk management (standardization). As a consequence the insurance industry will have to apply special premium-schedules for cultural heritage. We have to convince the insurance industry by adopting our points of view in mid-term.

Dietmar Wohltan
8 February 2005

Denmark

In 2002 one of my colleagues asked me if I was interested in joining COST Action C17 on Historical Buildings. I was interested, and I had also participated in the forerunner project in CIB W14 on Mount Athos many years ago, and as you can see on the picture enclosed, we have indeed fire safety problems concerning historical buildings in Denmark. Unfortunately, my department changed research strategy shortly after, and it was decided that we should concentrate on a few subjects. For me this meant that I should spend most time on my research on fire exposed concrete structures, where I have developed a set of design methods for any structure of any concrete at any time of any fire.

Although I include studies of Roman and Phoenician concrete structures and their fire resistance, my work and duties as a deputy head of department leaves very little time for dealing with fire aspects of historical buildings in general. At the same time I can see, that your group is very active and successful, which shows me that I can not find time to contribute to the work as I feel that I should in order to participate, and this grows rapidly worse the more success you have.

I will therefore let it be up to you, whether you want to cancel me from the mailing list, or keep me as a kind of associated member, who can be consulted on specific matters, for example if your group should do anything on fire resistance of ancient concrete structures. I wish you and the COST Action C17 all the best for obtaining its goals.

Kristian Hertz
3 November 2004

Finland:

The most important effect that the Action has had in Finland during the past two years is the Nordic collaboration project "Can we learn from the heritage lost in fire?" It is clear that this project would not have been started without the National Board of Antiquities' participation in the Cost Action C17.

Other positive impacts include greater awareness of heritage at risk and problems associated with monitoring of historic building fires as well as statistics in general. Advanced international contacts in heritage fire protection as well insurance sector has also been on positive result of the Action.

Kalle Reivila
18 Oct 2004

Finland:

"Built Heritage: Fire Loss to Historic Buildings" – projekti (2002-2006) pyrkii parantamaan historiallisesti arvokkaiden rakennusmuistomerkkien paloturvallisuutta sekä luomaan strategioita ennakoivaa suojelua varten. Projektin myötä kootaan tilastotietoa sekä sattuneista paloista että vahinkojen taloudellisista vaikutuksista.

Rakennusperintöön ei voida soveltaa voimassa olevia turvallisuusmääräyksiä, koska ne on laadittu lähinnä uudisrakentamista varten. Siksi tarvitaan spesifisiä vanhaa rakennuskantaa säästäviä ja hienovaraisia ohjeita ja suosituksia. Kokemukset kulttuurihistoriallisesti arvokkaissa rakennuksissa sattuneista vahingoista auttavat toimenpidesuosittelun laatimisessa. Projektin tavoitteena on vaikuttaa historiallista rakennusperintöä koskevien turvallisuus- ja palosuojelumääräysten yhdenmukaistamiseen Euroopassa. Projekti kokoaa myös kokemuseräistä tietoa siitä, millaisin toimintamallein ja laittein voidaan hallita erilaisia kriisitilanteita.

Projektin tarkoituksena on

1. määrittellä tulipaloissa menetettyjen historiallisten rakennusten määrä ja taloudelliset seurausvaikutukset (tilastointi)
2. tehdä ehdotus ehkäisevistä toimenpiteistä
3. laatia suositukset ehkäiseville toimenpiteille käyttäen mahdollisimman vähän asennuksia vaativaa tekniikkaa.

"Built Heritage: Fire Loss to Historic Buildings" –projektin puheenjohtajana toimii arkkitehti, professori Ingwall Maxwell (Historic Scotland / Technical Conservation Research and Education sekä Scottish Historic Buildings Fire Liaison Group). Museovirastosta projektiin

osallistuu kaksi henkilöä (Martti Jokinen ja Maire Mattinen). Lisäksi työhön sisältyy Suomea koskevan tiedon hankinta ja tiedon välittäminen Suomeen.

"Built Heritage: Fire Loss to Historic Buildings" -projektia ohjaa Management Committee, jonka lisäksi on neljä temaattista työryhmää:

1. Vahinkojen tilastointi ja riskien arviointi
2. Saatavilla oleva tekniikka ja sen kehittäminen
3. Kulttuuri- ja taloudelliset arvot

4. Omaisuuden hallintastrategiat sekä kohteiden käyttö- ja hoitosuunnitelmat

Tällä hetkellä projektiin osallistuu edustajia mm. seuraavista maista: Bulgaria, Espanja, Italia, Itävalta, Norja, Ranska, Ruotsi, Slovenia, Suomi, Sveitsi ja UK.

Martti Jokinen ja Maire Mattinen
8 December 2004

Italy:

The effects of the COST activity on the national heritage protection bodies in Italy is a rather complicated question to answer, since we believe that the COST Action has deeply helped our work, even if there are not clear results yet.

The main result which we can highlight concerns the capacity to address the problem of heritage fire safety under a shared point of view. In other words, the possibility to discuss with peers those arguments has given us an enormous strength in the current work. As a result, we (Ministry of the Interior - National Fire Services Department) have had the possibility to propose to the Cultural heritage Ministry a cycle of lessons to their officials. (It is very probable that in the near future one engineer from such Ministry will ask to join the Action).

So, the first result concerns the training activity and the consequent effort of publishing a specific book aimed to fire engineers and fire officers. One more effect is bound to the study we are going to start in Sienna, together with the Santa Maria della Scala Foundation. Even in this case, the backup of the COST Action has allowed us to ask for research funds (which are not assured, yet) which could help us in building a network of Universities and fire-safety related organizations which do normally study the problem, even if separately.

At the moment we have no other possibility to further expand the commitment in spreading the COST work, given that each of us works in this field during his free-time. Actually, we must admit that our dream is organizing a European training structure. This is certainly a long term work, but it could not be imagined without the COST network.

Stefano Marsella and Luca Nassi
24 September 2004

Norway:

Riksantikvaren will in co-operation with The Directorate for Civil Protection and Emergency planning carry out a survey on the fire protection of wooden towns. This survey will help us

to get an overview of the number of historic wooden towns and buildings, the current situation when it comes to fire protection and suggestions for improved fire protection measures. The lectures given in Edinburgh on the fire registration of cultural heritage in Britain has given us incentives in this work.

Through COST the extensive fire protection measures in Norwegian heritage buildings will be evaluated, particularly through the STSM which will be carried out Geir Jensen. COST has provided us with a network and a forum to discuss technical solutions for cultural heritage.

Einar Karlsen
5 October 2004

Poland:**Uzasadnienie merytoryczne dotyczące woli przystąpienia Instytutu Inżynierii Materiałów Włókienniczych do Akcji COST C17.**

Celem akcji COST C17 "Built Heritage: Fire Loss to Historic Building" jest ochrona zabytkowych budynków w Europie przed zniszczeniem w wyniku pożarów. Projekt ma charakter multi-dyscyplinarny i międzynarodowy. Biorą w nim udział przedstawiciele m.in. Austrii, Finlandii, Francji, Grecji, Włoch, Norwegii, Słowenii, Szwecji, Szwajcarii, Wielkiej Brytanii.

W Polsce pożary stanowią również istotne zagrożenie dla życia i zdrowia ludzi i są jednocześnie przyczyną zniszczeń wielu budynków, w tym także zabytkowych. Według danych statystycznych Komendy Głównej Państwowej Straży Pożarnej w roku 2003 doszło do 220 199 wybuchów pożarów, z czego 32 129 miało miejsce w budynkach (w tym 2 931 w budynkach użyteczności publicznej i 25 302 w budynkach mieszkalnych). Liczba zabitych przekroczyła 500 osób, a rannych 2 800. Statystyka pożarów dotycząca I-go kwartału roku 2004 nie wykazuje niestety tendencji spadkowych w tym zakresie.

Tematyka akcji COST C17 związana jest ściśle z tematyką badań i prac technologicznych, realizowanych od wielu lat w Instytucie Inżynierii Materiałów Włókienniczych w Łodzi. Instytut jest placówką naukowo-badawczą, która specjalizuje się w badaniach i opracowaniach nowych technologii włókienniczych materiałów wyposażenia wnętrz, takich jak:

- 1- tkaniny obiciowe mebli i ścian,
- 2- zasłony, kotary, firany i pokrowce,
- 3- pokrycia podłogowe.

Prowadzone w IIMW działania w zakresie tematyki Akcji COST C17 mają charakter dwukierunkowy i dotyczą:

- 1- projektowania i technologii wytwarzania wyrobów odpornych na zapalenie, w tym również odtwarzania wyrobów o charakterze historycznym;
- 2- badań i oceny wyrobów w aspekcie ich zachowania się pod wpływem działania ognia.

W zakresie problematyki związanej z wytwarzaniem wyrobów o zwiększonej odporności na zapalenie w IIMW zrealizowanych zostało szereg prac naukowo-badawczych, w wyniku których opracowano technologie wytwarzania tego rodzaju wyrobów. Wyniki tych prac wdrożone zostały zarówno w Pracowniach Półtechnicznych Instytutu, jak i współpracujących

z Instytutem zakładach przemysłowych. Opracowano również technologie i wytworzono trudnozapalne materiały, przeznaczone do wnętrz zabytkowych, takich jak np. Zamek Królewski w Warszawie, Zamek Królewski Wawel w Krakowie, Dom Mieszczkański Uphagena w Gdańsku, Pałacyk Herbsta w Łodzi, Belweder w Warszawie, Pałac Biskupi w Kielcach , itp. Zespoły badawczeskupiające specjalistów z zakresu mechanicznej technologii włókna, chemicznej obróbki włókna i projektowania wzorów i struktur włókienniczych opracowują wyroby o parametrach odporności na zapalenie dostosowanych do ich przeznaczenia użytkowego i wymagań bezpieczeństwa przeciwpożarowego. Tematyka bezpieczeństwa przeciwpożarowego jest przedmiotem wieloletniej współpracy IIMW z Komendą Główną Państwowej Straży Pożarnej w Warszawie i Centrum Naukowo Badawczym Ochrony Przeciwpożarowej w Józefowie.

Analizując tematykę Akcji COST C 17 oraz biorąc pod uwagę stan bezpieczeństwa przeciwpożarowego obiektów zabytkowych w Polsce oraz możliwości wykorzystania doświadczenie i potencjału naukowego Instytutu Inżynierii Materiałów Włókienniczych, podjęliśmy działania na rzecz przystąpienia do tej Akcji COST.

Dorota Puchowicz Dr. Eng.

Poland:

In Poland fires pose also a significant danger to human life and health as well as there are causes of destruction of many buildings, including historic ones. According to statistical date of The State Fire Brigade Headquarters 220 199 fires including 32 129 in buildings in the year 2003 broke out (2 931 in public utility buildings and 25 302 in residential buildings). Over 500 deaths and 2 800 injures were noted. Fire statistics in the first three months of 2004 unfortunately don't show a downward trend in this range.

The aim of the project undertaken within the framework of Cost C 17 is the assessment of fire hazard in historical objects resulting from the use of textiles with various decorative and utilitarian purposes as well as undertaking preventive measures limiting breaking out fires and minimization of the resultant losses, among other things, as a result of successive exchange of textiles in the reconstructed and renovated historical objects for materials characterised by high resistance to fire acting and limited flame spreading rate.

We are expecting that the dissemination of the results of our study, specially among the authorised institutions responsible for the renovation of historic objects in Poland will have a positive effect in the form of the improvement of fire safety in these objects. Moreover, international contacts enabling our participation in Cost C 17 provide a good ground for further interest of other units in collaborating with us in the field of finding solutions to assuring higher fire safety being applied in other countries.

Jolanta Muskalska
28 April 2005

Slovenia:

Josip Korosec informed at the Siena meeting on 7-8 April 2005, that he had produced a page describing the Action's activities during the Varna meeting. This had been published in the

Sweden:

State of the Action “Fire Loss to Historic Buildings” and its impact on daily work

1. The national network

We have created a national network of about twenty people representing various knowledge, professions and institutions:

- National Property Board (ownership of State owned property)
- National Heritage Board (central authority of cultural historic valuable property)
- Legal, finance and Administrative Services Agency (Insurance of State owned property)
- Swedish Rescue Service
- The Association of Parishes within the Church of Sweden
- Royal Technical University in Stockholm KTH
- Insurance companies (St Erik försökring, länsförsäkringar)
- Insurance broker (Bolander & Co)
- Consultants on risk analysis and risk assessment (Brandgruppen AB)

Meetings to which all members of the network are arranged 5-6 times a Year

The aim of the network is to:

- discuss issues that cover different disciplines and find solutions and new ways to act
- to inspire to new efforts
- to spread information from COST 17 international to a wider group in Sweden
- to collect information from Sweden to the international network

Responsible to carry the work forwards in the subject fields of the four COST 17 Working Groups are:

- WG 1 (Data, law, statistics and evaluating risks) Erik Egardt Swedish Rescue Services
- WG 2 (Available and developing technology) Jan Holmberg Royal Technical University
- WG 3 (Cultural and financial value including insurance) Kerstin Westerlund National Property Board
- WG 4 (Property management strategies) Per Rohlen National Property Board

All of them are members of the international working groups on the same subjects. Kerstin Westerlund is a member of Management Committee. She chairs the Swedish net work and the international WG 3.

2. Impact on daily work in Sweden

2.1 The whole work

The broad group including people from different fields of knowledge has made the discussions vital and inspiring. The new contacts have increased the knowledge of all its

members. Problems that cover different disciplines have been handled and will probably find solutions. New efforts have been undertaken on various subjects

WG 1 Data, law, statistics and evaluating risks

In Sweden COST 17 has vitalised the cooperation between Swedish Rescue Service and National Heritage Board in their efforts to create a structure for better information to the fire brigade about what buildings are of cultural historic value.

In Sweden work has started to clarify the definitions of the terms used as tool for and in planning of the work of the fire brigade to get into a building to extinguish a fire, with special attention to historic buildings. A small national working group is created for that purpose.

The International work to collect information about the total number of listed buildings of different categories will be very useful when it is finished.

The international work to collect information about the total number of destroyed or partly destroyed historic buildings all over Europe during recent years will be of great interest when completed. Also other kind of statistic will be of interest

WG 2 Available and developing technology

In Sweden contacts between the Technical universities have increased thanks to COST 17.

In National Property Board discussions about the level and the art of fire protection between interests of fire security and preserving of historic values have been vitalised specially with regards to the specific properties own by the board.

WG 3 Cultural and financial value including insurance

The Swedish agency with responsibility for insurance of state owned property says that they have reached “understanding of the complexity of preventive measures and insurance solutions specific for cultural historic valuable buildings, not least from economic point of view”. COST 17 has encouraged the involved people to get new ideas and to work more actively to find new solutions. Work to archive proper insurance amounts have begun. We also hope that we will achieve better incentives for protection.

Both in the international and the Swedish network the involved insurance companies, property owners and institutions are discussing about how to get:

- awareness of the cultural historic value
- better incentives for fire protection.
- insurance fees with regards to the level of fire protection
- proper agreement about the terms of insurance
- insurance amounts big enough for proper reconstruction with regards to the cultural historic value

The understanding that cultural historic value and economy related to it has to be taken into account in risk analysis is increasing and step by step taken into instructions and daily job in National Property Board.

The lack of demands for fire protection of listed buildings have been noticed and discussed. Representatives from the National Heritage Board in Sweden who are responsible for the

regulations with regards to listed buildings will discuss that. Also the question if the grants given to maintain listed buildings could be used for fire protection have been brought up to the surface.

WG 4 Property management strategies

The most important achievement is exchange of practical experience especially in the field of:

- loss recovery and salvation work
- training of personal

The work with systematic fire protection in National Property Board has been influenced in a positive way. Also the discussions to find the right balance between technical and management fire protection have been influenced in a good way.

Kerstin Westerlund
3 November 2004

Enclosed:

Reflections from the National Heritage Board in Sweden about the work within COST 17:

The contacts in the network and the information given on the workshops have increased our knowledge and we believe that even our knowledge and experiences have been useful in the discussions. We think that the broad group, with different experiences, has made the discussion vital and inspiring.

We are satisfied with the information from the international meetings and contacts that was given to the Swedish mirror group. It has mostly been useful. What we are still missing is easy-read (intermediate) reports written and printed in books or published on Internet.

We will here mention some of the most important tasks to continue dealing with in the future:

- Exchanging experiences both within Sweden and between countries.
- Making good solutions for organised fire protection in cultural heritage buildings, involving all responsible powers (owner, rescue service, cultural heritage authorities and so on) and including all functions (rescue plans, risk assessments, owner's organisation, technical equipment and so on).
- Making lists over good solutions for fire extinguishing and rescue installations in cultural historic environments.
- Making good statistics over fires in historic buildings.
- Making lists over good solutions for insuring invaluable properties

Thomas Erenmalm and Kerstin Alexandersson
Swedish National Heritage Board
14 October 2004

Switzerland

Extracts from the Annual Scientific report of the COST Action C17, Built Heritage – Fire Loss to Historic Buildings, for the year 2004, prepared for the Swiss State Secretariat for Education and Research, SER.

Switzerland contributes to the activities of the Working Group WG-2 “Available and Developing Technology.”

A first area of interest is mainly objective-oriented and aims at several practical issues, such as optimizing fire detection methods and developing fire-fighting strategies. The final objective is to protect human health and life, to conserve cultural heritage and to prevent material loss in general.

The second area of interest is method-oriented and aims at the development or improvement of the different scientific (engineering and physics) tools, which are required for the realization and execution of the above-mentioned tasks.

On a national level progress is on schedule and many of the tasks listed in the Action work statement are almost completed. Switzerland has contributed to the work of all Working Groups with extensive involvement in WG-2. On the other hand, we have gained access to valuable international information and benefited from new contacts with cultural heritage specialist from the participating countries.

The remaining project time will be used to complete all investigations. Much attention will be paid to the task of properly reporting the results and disseminating information in Switzerland. An article has been published in the Forum of the Swiss Kulturgüterschutz. The ETH On-line newsletter ETH-life has reported on our COST Action. The Action has also been presented at a Seminar at the HTA Luzern

Dissertation work of Daniel Rusch at the ETH Zurich is financed by an SBF Project and contributes toward the objectives of the COST Action C17, Built Heritage – Fire Loss to Historic Buildings. Prof. Thomas Roesgen of the Institute of Fluid Dynamics, ETHZ supervises the Ph.D. work in collaboration with the Air & Climate Group, ETHZ.

Alfred Moser
Air & Climate, Department of Architecture ETH-Zentrum, Zurich
25 July 2005

**The Geneva Association Information Newsletter, Geneva, Switzerland.
World Fire Statistics No 20/ October 2004, Editorial.**

Progress on European Fire Statistics

The lack of any standardised fire statistics internationally means that the data on national fire costs collected by the Centre are seldom internationally comparable. However, in an attempt to overcome this difficulty, various adjustments have been agreed to, country by country, in order to try to publish figures on as internationally comparable a basis as possible. This is inevitably a somewhat inexact procedure.

The Centre believes that the published figures are nevertheless likely to provide a better basis for international comparisons than any others available, but it is always interested in any initiatives aimed at improving the availability and comparability of fire statistics internationally. It is for this reason that the Centre has been actively participating in the “Augsburg 2000” project, jointly sponsored by the Federation of European Union Fire Officers’ Associations (FEU), with the aim of developing a European database of fire statistics and on which a first report is now in the closing stages of preparation. If backed by

commitments from the countries concerned, this initiative offers the potential for significant improvements in the availability, reliability and comparability of relevant data in the long term. However, although nearly every one concerned is keen to approve the general aims of such a project, experience suggests that reaching agreement on detailed proposals for action is more difficult, and that mobilising the effort and resources needed to change existing practices is liable to be both time-consuming and problematic.

One hopes that similar concerns will not arise in respect of a more recent initiative, this time backed by the European Commission, organised in 2003 by a team from five EU countries under Swedish leadership, and aimed at identifying common problems arising throughout Europe in the handling of fire and other incidents. This is to be applauded for its rapid progress so far: its report, *Prevention of fires and other incidents*, was already published in February 2004. Besides a number of recommendations to national governments, the report proposes the establishment with EU support of a voluntary network of European national fire safety authorities to pursue those issues requiring a collective approach and not already handled by other bodies. On the Centre's particular field of interest, the report presents conclusions with which we would heartily agree: "Statistics and facts around all fires are essential for all nations. Fire brigade statistics are only one input besides many other sources such as data from insurance companies, facts on populations and buildings...Statistics need to be of high quality and well defined...There is also a need to better understand the differences when benchmarking is performed within and between countries."

A third European fire safety initiative concerns historic buildings, for which fire data are even sparser among different countries than for fire statistics generally. A recent meeting of experts decided:

- that the time may be right to promote an additional requirement for the reporting of fire incident information by fire brigades to get better data on historic buildings, and
- to seek a common format for including historic buildings data in the fire reporting procedure.

They resolved on further work aimed at enabling all European data to be effected on a common basis. This initiative may give added impetus to the European quest for better and more comparable fire statistics.

October 2004

6 DISSEMINATION OF RESULTS

COST Action C 17 Publicity

The setting up of COST Action C17 was explained in an article entitled "Cultural Exchange", published in the December 2002 edition of "Fire Protection and Fire Engineers Journal".

Kerstin Westerlund and Erik Egardt presented oral material on fire in historic buildings and the proposed work of the Action during:

- Conference for Firemen, Uppsala, Sweden in April 2002

1 page article on COST Action C17, Built Heritage, - Fire Loss to Historic Buildings, Forum KGS/PBC/PCP Nr. 3/2003, BABS, Bern, December 2003.

International Conference “Integrating Historic Preservation with Security, Fire Protection, Life Safety and Building Management Systems” held at the Instituto Superiore Antincendio: Rome on 10-11 April 2003. Mr Maxwell had prepared a paper on Action C17 entitled “The Challenge Before Us” and noted that a previous background paper on the setting up of Action C17 was also included in a paper by Dr Papaioannou of Thessaloniki. A presentation had also been made at the Conference referring to the work of Action C17.

The Chairman was interviewed by Bulgarian TV on 10th September 2004 on the work of the Action during the Varna International Workshop and that was due for National broadcast on 13th September. This followed an earlier TV interview on the Action and the Varna International Workshop by Petar Hristov that had been broadcast on 9th September 2004.

Stewart Kidd presented oral material on the work of the Action during:

- Slovenian FPA Conference, 1-3 October 2003
- Colvin Trust Conference, November 2004

The Chairman presented oral material on the work of the Action during a number of Fire Conferences and Seminars. These included:

- Conservation Seminar Outreach Fire Safety Officers Course Module C for Scotland, Fire Service Training College, Gullane, Scotland: 10 January 2003
- Fire Service Training and Research Trust, L+BFB HQ, Lauriston Place, Edinburgh: 14 July 2004
- Fire Restoration of Historic Town Centre Conference, Chester, England: 19-20 October 2004.
- Strathclyde Fire Brigade Sprinkler Conference, Loch Lomond, Scotland: 27 October 2004
- BASA Sprinkler Conference, Manchester, England: 11 November 2004
- FIRETECH Concluding Seminar, University of Ghent, Belgium: 30 November 2004
- Irish Georgian Society Fire Conference, Dublin, Ireland: 14 April 2005
- BASA Sprinkler Conference, New Lanark, Scotland: 14 June 2005
- NFPA Cultural Resources Committee meeting, New Lanark, Scotland: 15 June 2005
- COST Heritage Workshop, Florence, Italy: 21 October 2005

The Chairman was invited to prepare an article on the work of the Action for the Editor of the *Fire Prevention and Fire Engineers Journal*. A four page illustrated article appeared in the October 2005 edition (pp 20-23)

7 ECONOMIC DIMENSION

It is difficult to estimate of total manpower expressed in person-year dedicated to the activities of the Action for each of the last 2 years. But, given the range of interested parties; the support activities of arranging and holding meetings; researching and preparing specific papers; travelling to and attending meetings; and preparing, co-ordinating and disseminating papers in support of Action activities, it is possible that this has aggregated to approximately 5 person-years across the membership over the total duration of the Action so far.

Comprehensive details of the funds received from the COST budget for each year and for the entire duration of the Action utilised for Secretariat, Publications, Workshops and Seminars,

MC meetings, Short-Terms scientific missions, and other interests are not available at this time. Support information will be required from the COST Office to provide this data.

Set against this significant commitment of members' time, the support arrangements provided by their parent organisation and the membership country, the built heritage of Europe continues to be attacked through the devastating effects of fire.

Original, authentic and unique buildings and their contents continue to be destroyed in each country where, on daily basis the financial value of such losses aggregate to many millions of Euro each year.

Against this on-going threat to the integrity of the built heritage stock the input, activities and outcomes of the Action are critical.

[8 SELF EVALUATION (This has to only be prepared in the last annual progress report)

Whilst there is little doubt as to the positive international value and influence of the Action's outcomes so far, in advance of completing this section of the Report at the end of the Action's activities in December 2006, reference might be made at this stage to the concerns that are set out in the introductory remarks to Section 5 above.

It need to indicate, in no more than 1 page, what were, in the opinion of the MC, the main successes, the drawbacks (if any) and the key difficulties encountered (if any) of the Action.]

Ingval Maxwell
Chairman Management Committee
COST Action C17
Edinburgh

21 January 2006

COST C17 Built Heritage: Fire Loss to Historic Buildings

Working Group 4 Management Strategies: (Revised Approach to MoU)

Progress Report Vienna, Working Group 4, Meeting 6 December 2003

The following revised Working Framework was presented by Chairman Wolfgang Kippes and agreed at the MC Meeting in Schonbrunn Palace, Vienna on 6 December 2003

1. Documents
 - written documents of management plans (Management handbook)
 - plans, drawings (description of premises) – updating documents
 - regulation and control
 - logbook and records (including false alarms,)
 - Organigramm
 - assessment of structures (before\after event)
 - assessment of artefacts\objects at risk (inventory, value estimation)
2. Management Plans (contents of handbook)
 - 2.1. Emergency plans:
 - objects Informations
 - and alarmlogistics
 - evacuation plans
 - artefact evacuation \ damage limitation plans
 - public relations
 - key control
 - opening\ closing procedures
 - post alarm reaction plan (visitors – artefacts – recovery team)
 - secure evidence (records, documents)
 - 2.2. Coordination and integration of emergency services response:
 - Fire Brigade
 - Police
 - Ambulance
 - Army
 - own staff
3. Training
 - awareness
 - management plans (rescue procedures, evacuation, etc.)
 - handling of fire fighting units
 - damage limitation training
 - refreshing training
 - joint exercises
 - (training of decision makers?)

4. Evaluation
 - risk assessment (internal\external)
 - assessment of structures (before\after event)
 - external audit
 - evaluating the performance

5. Loss recovery
 - ethics of loss recovery (WG 3)
 - management of loss recovery:
 - priorities, funding, documents, provide resources, etc.

Political statement about strategies of site management

To do:

Collect all information\documents existing to the inventory above and add to the relevant aspects perspective: Trondheim-meeting

Wolfgang Kippes
Chairman Working Group 4
Vienna