

COST C17 Built Heritage: Fire Loss to Historic Buildings

Working Group 1 Activities and Standing Agenda Items

**Minutes of WG1 Meeting and Progress Report:
Trondheim, Norway: 17 April 2004**

Working Group 1: Data, Loss Statistics and Evaluating Risks

Chair: Ingval Maxwell, UK

Members attending Trondheim WG1 meeting: 17 April 2004:

Wolfgang Kippes	Austria
Dietmar Wohltan	Austria
Petar Hristov	Bulgaria
Galina Mileva	Bulgaria
Michel Schaal	France
Simon Singer	France
Kalle Reivila	Finland
Alberto Dusman	Italy
Einar Karlsen	Norway
Erik Egardt	Sweden
Kerstin Westerlund	Sweden
Helene Hanes	Sweden
Steve Emery	UK

1.1 Data and Fabric analysis

- 1 Establish available information about the total number of cultural heritage buildings to be considered, their value in cultural and financial terms and the actual risks they are subjected to
 - *Make contact, in all member countries, with government departments responsible for listing cultural heritage to establish:*
 - *Number of listed buildings*
 - *Criteria for listing*

A 24 page data list was compiled from the HEREIN website by A Wilson (UK) and forwarded by e-mail to members on 26 November 2003. Additional information received on Norway, Switzerland to be inserted. The compiled information was recognised as creating a unique summary and could be used as a final report Annex. It was agreed to continue to compile additional data if and when it became available.

- *Link with the European Network of Royal Residences*
 - *Establish case studies on Risk Assessment*

W Kippes (Austria) reported that General Principles on Risk Assessment had been agreed by the Network, but each case would require individual consideration.

- *Make contact with co-ordinating bodies for buildings insurance in each member country to establish the cost and causes of losses to the cultural heritage*

No progress made. Discussion considered that it would be difficult to obtain this data due to commercial, security and private sensitivities surrounding such information.

- *Check out relevant activities of the various national Fire Protection Associations (S Kidd to provide contact addresses)*
 - *Belgium*
 - *Denmark*
 - *Finland*
 - *France*
 - *Germany*
 - *Ireland*
 - *Norway*
 - *Spain*
 - *Sweden*
 - *Switzerland*
 - *UK*

Addresses were obtained from S Kidd (UK) during November 2003. A Wilson (UK) to follow up in correspondence to try to obtain data. This had been done during the early part of 2004 but had elicited a limited response which confirmed that no real statistical information on the extent of the loss was held by the various Associations.

- *Check details held by the World Fire Statistics Centre: Tom Wilmot*

Contact made by A Wilson (UK) but informed that no relevant details were available

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S Emery (UK) reported on an exercise initiated by the Office of the Deputy Prime Minister (ODPM) that sought to analyse fire statistical data amassed over the last 3 years. This would link Fire Brigade GIS information on the location of fires with GIS information on the location of historic buildings to achieve a read-across.

W Kippes (Austria) reported on the availability of a data set of 60 Austrian sites

M Mattinen (Finland) and E Karlsen (Norway) reported on the pending 80-page publication from the Nordic countries (Sweden, Norway, and Finland) project entitled "*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. This was currently being finalised and would be published in English during the spring of 2004. Focussing on the special problems of wooden architecture the contents will include details on Nordic legislation, fire protection methods, advice on what to do after a fire, up to 6 case studies and relevant check lists for fire inspectors and on preparing safety plans.

Following its publication, copies were made available to Action members at the Trondheim meeting in April 2004.

It was also noted that other Nordic publications exist. The Norwegian Cultural Heritage Board had published a leaflet on fire protection of heritage buildings in 1997, and further information was available on the web at www.ra.no and www.dbe.no under the title “*Risikoobjekter*”. The Swedish Cultural Heritage authority together with the Swedish Rescue Agency have published “*Brandskydd i kulturbyggnader*” and a leaflet on the fire protection of churches “*Att skydda kyrkan mot stold och brand*”. A similar publication on the protection of churches was also due to be released at the end of 2003 from the Finish National Board of Antiquities, whilst they had already published a report (in Finish) in 1997 on the fire protection project at the World Heritage Site of the timber built town of Rauma.

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W Kippes (Austria) considered that a problem existed in identifying what was historically important and how difficult it was to develop a system that linked “everything” effectively. E Egardt (Sweden) identified the need to establish appropriate co-ordinates to ensure that the potential of GIS could be fully achieved.

It was recognised that a range of different criteria were used and applied in each of the member countries to determine what constituted a cultural heritage building. Consequently it was agreed to accept this variation as inevitable, and to recognise that the quoted statistics which had been provided were a valid base from which to work.

S Emery (UK) reported that he sat on the *ODPM’s Fire Statistics Users Group* and asked that he be authorised to report on COST Action C17’s progress in its work. This was agreed, and a reciprocal request made that he copy relevant papers to WG1 members for their information.

W Kippes (Austria) requested that the complexity of the issues involved in comparing the different data sets required the need to test the process to determine, and agree on, how to compare such data emanating from different sources. He considered that there was a need to create a structured framework for a master database that would accommodate and incorporate the widest range of available information. He further suggested that a separate Working Group meeting should be arranged on that specific topic, and that this should be followed by specific STSM’s to amass the data to be put into the system. Following discussion, this was agreed. K Reivila (Finland) volunteered to undertake an appropriate STSM that would involve the Finnish National Board of Antiquities and Schonbrunn Palace, Vienna

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- 2 Compile available statistical data on the extent of the built heritage at risk
- *Action point to be progressed once data is gathered from 1.1.1*
 - *Agree relevant date for survey baseline*

It was agreed to conclude this part of the Action at the end of February 2004 and to summarise the findings thereafter. If additional significant information emerged following this deadline it would be considered how best to include the material at that time.

- *Check out details of EC project to harmonise existing fire loss data; Frank Peters*

No details were available from this source

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S Emery (UK) reported that the standard UK Fire Reporting Proforma FDR1 (copies of which had been e-mailed to members on 26 November 2003) was currently being revised in a way that would enable its future use by electronic means. It would be distilled into a single introductory page, behind which would be more in-depth page details to be completed. As Historic building would feature as a category in this procedure it would be possible to obtain more reliable UK statistics in the future. However, no firm date had yet been set for the introduction of the revised procedure.

S Marsella (Italy) noted that the Italian authorities had a large databank of fire incidents but it was difficult to identify details of individual cases.

D Wohltan (Austria) indicated that Austria had no separate details on historic building fires as it was difficult to define sub-categories of buildings in their system.

E Egardt (Sweden) explained that the Swedish Rescue Service Agency system can identify “Churches” and are able to relate them to specific fire report details, and M Mattinen (Finland) noted a similar system exist in Finland.

M Schaal (France) and J Respondek (Switzerland) reported that is not possible to obtain any such statistics in their counties.

G Mileva (Bulgaria) indicated that an official request had been made to the authorities to try to obtain Bulgarian information.

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S Emery (UK) reported that the redesigned UK fire reporting Proforma FDR1 might be ready by June/July 2004. It was requested that the emerging model be made available to WG1 members to help them consider its validity in helping create a generic, uniform, approach that might be promulgated more widely.

K Reivila (Finland) outlined details of the fire reports that were made to the Fire Rescue Service in Finland. This integrated system had been in operation for some time and had accumulated 5 years’ worth of comprehensive data. He noted that no distinction was made between heritage and non-heritage buildings, but it was possible to extract information on church fires. However, he described a sophisticated system that contained “dated” information from which it was theoretically possible to extrapolate information on traditionally constructed buildings. (This could be of direct value given that historic and traditional buildings tended to be constructed in similar ways) He undertook to carry out an interrogation exercise to check the validity of this approach and report back on the findings to WG members.

E Egardt (Sweden) indicated that an electronic reporting system had been in operation in Sweden since 1996 and, following developments, was due to start gathering data on cultural heritage buildings from 2005. The Swedish system can also extract information on church fires, identifying data on the causes of fire, smoke spread, and details of any automatic detection/suppression systems that were involved.

P Hristov and G Mileva (Bulgaria) confirmed that fire statistics had been compiled by the Bulgarian *Fire and Security Safety Fire Service* from the 1990's, but that it was not a complete list. A problem existed in the definition of « immovable historical culture » and how fire officers completed and submitted the required data. There were plans to collect database information.

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- 3 Balance the impact of physical interventions and of potential fire damage with the “value” and “significance” of the site
- *Establish detailed case studies of city fires from each member country*
Chiado, Portugal

The aftermath of the Chiado fire in Lisbon on 25 August 1988 is well documented in the publication “*Alvaro Siza The Reconstruction of the Chiado Lisbon*” (*Investmentos, Comercio e Turismo de Portugal; ISBN 972-737-106-X*). Offering a background description of the city, its Downtown development, and a description of the fire, detailed plans for the recovery of the disaster zone are discussed. This is followed by a series of interviews with the architect, Alvara Siza, and the reproduction of numerous reconstruction detailed drawings.

Edinburgh, Scotland

A concluding “*Report on Edinburgh Cowgate Fire 7 December 2002*” by Lothian and Borders Fire Brigade (UK) had been e-mailed to members on 26 November 2003.

Trondheim, Norway

E Karlsen (Norway) indicated that a report had been prepared and undertook to provide an English summary of it for members, along with its ISBN reference.

- *Establish detailed case studies of individual building case studies from each member country*
Duff House, Banff

I Maxwell (UK) noted that the Duff House project had already featured in the published in Historic Scotland's *TAN 14 “The Installation of Sprinkler Systems in Historic Buildings”* and *TAN 22 “Fire Risk Management in Heritage Buildings”* documents.

Newhailes House, Edinburgh

C Hood (UK) would check with the NTS if they were going to prepare a report on how they effected the retrofit of detection and suppression systems into Newhailes, Edinburgh.

Schonbrunn Palace, Vienna

W Kippes (Austria) will be considering how to prepare PDF documentation on the Schonbrunn fire installation projects for release on the WWW.

Stave Kirks, Norway

It was noted that fire protection projects in the wooden towns of *Old Rauma (Finland); Lillehammer and Roros (Norway) and Eskjo (Sweden)* and the following relevant case studies were included and described in the 2004 Nordic volume “*Can we learn from heritage lost in fire?*”:

Finland - *Aminneborg Manor; Kotaselka logging site hut; 15th-16thC Tyrvaa Church*

Norway - *City block Trondheim; Innset Church; Eidesvoll Church; Ringnes farm*

Sweden - *14thC Sodra Rada Church; City block Jonkoping; Katerina Church*

- *Weigh up risk assessment findings and fire engineering against building conservation needs using “Maxwell Principles”:*
 - *Minimal Intervention*
 - *Reversibility (adopt a plug-in plug-out philosophy)*
 - *Essential to meet objectives*
 - *Sensitivity in installation*
 - *Appropriateness to risk*
 - *Compliance with the law*

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S Emery (UK) explained that the consequences of 20 fires were being analysed by English Heritage in an internal document that would be available by the end of January 2004. This was being prepared in consequence of the need to inform the decision making process on how to deal with the aftermath of the 2003 *Brighton Pier* fire. Given the relevance of the paper to the Action, copies would be made available to members. He also indicated that he could provide copies of a report on fire engineering solutions on a number of small fires in the centre of the town of *Bath, England*.

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S Emery (UK) reported that he had issued a report on the *Bath* fire engineering project and on the *Brighton Pier, England*, fire analysis to WG 3.

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- 4 Identify, analyse, and report on minor fire incidents (where the fire is extinguished without fire brigade attendance, false alarms etc.).
- *Identify reporting mechanisms for fires in each member country to test feasibility of getting comprehensive statistics on minor fires (likely to get minimal response)*
 - *Assess computer data (held by S Kidd) on false alarms from UK and Europe*
 - *Collect examples of national reporting proforma*
 - *UK: FDR 1 and FDR3*

S Emery (UK) informed on FDR1 (as above) and noted that FDR3 would be abandoned as part of the rationalisation approach on the reporting of fires in the UK.

- *Only Sweden and UK publish statistics in the public domain*
- *Some data being compiled in Italy to be checked (Luca Nassi)*

S Marsella (Italy) reported that no information was available from this source.

- *Obtain summary of Versailles data (Michel Schall)*

M Schall (France) reported that Versailles data revealed that approximately 1 minor incident occurred each month and undertook to forward details to Action members. The incidents could be categorised into 3 main groupings – cigarette ends deposited in waste bins, electrical failures, and hot-working projects.

W Kippes (Austria) added that Schonbrunn had experienced 12 near misses over the last 10 years. These could be grouped into incidents in tenant occupied properties in the Palace complex, hot-working projects and outdated electrical installation failures.

- *Create case study data from each member country for different conditions*
- *If no information available report this situation as a positive finding*

D Wohltan (Austria) suggested that it would be difficult to find statistics on near misses from the insurance companies. By the nature of their work they do not get involved in such processes and would not be in a position to compile any data.

S Emery (UK) noted that fire brigades only attend some 10% of all fire incidents and it would be difficult to extract data from the source. He indicated the National Trust for England did hold some data on near misses and undertook to try to obtain a copy for Action members.

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General discussion on the topic confirmed that what data was available would be useful but recognised that it would be difficult to obtain a comprehensive understanding of all of the issues that were involved.

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S Emery (UK) reported that the National Trust data had been published in the Fire Engineering Journal and this had already been forwarded to WG3 members.

1.2 Qualitative Risk analysis

- 1 Establish common definitions of terms to be used
 - *Draw up a list of terms and draft definitions*
 - *Equate levels of fire damage with other risks*
 - *Use TAN 22 as a reference source to be developed*
 - *Circulate draft common definitions to partner countries for comment*
 - *Promote agreed authoritative definitions of each term for use in member country*

I Maxwell (UK) indicated that the English Heritage Fire Risk Assessment document had been sent by e-mail to members on 26 November 2003 and invited S Emery (UK) to describe its functions and use as a possible model for others to consider.

E Karlsen (Norway) confirmed that there was a legal requirement for the Norwegian system of risk assessment to be used every 4 years on historic properties and for it to be used annually on places of public assembly. He indicated that it was similar in form to the UK model and agreed to produce a summary of it in English for members.

M Mattinen (Finland) confirmed similar arrangements existed in Finland, and M Schall (France) informed on the requirements of the national Security Register in France.

K Westerlund (Sweden) confirmed that similar checklist documentation was also used in Sweden but that this was only available in Swedish and would require to be translated.

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In recognising that considerable progress had been made on WG1 activities since the Edinburgh Group meeting on 6 September 2003, it was also recognised that additional work on the Group's agenda was largely dependent upon having further summaries of what had been achieved to date made available. It was therefore agreed to await these and progress the remaining items at the Trondheim meeting in April 2004.

It was also recognised that valuable data could be compiled if all Action C17 members were able to create their own country's list of historic buildings lost to the effects of fire over the 4 year duration of the Action so that this could be brought together into an omnibus list in the final report.

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D Wohltan (Austria) reported that the Financial Market Supervisors Authority in Austria may be a source of information and undertook to check this out and report back.

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- 2 Investigate the history, (and relevant advantages and disadvantages) of buildings with different types of structure and materials and of installing detection and suppression systems in historic properties. Evaluate the risks involved and issues of risk transference.
- *Gather case studies obtained under 1.1.3 by construction type, date and fire protection systems installed*
 - *Compile list and describe earlier examples of retro-fit systems*
 - *Burns' Cottage, Alloway*

A publication entitled "*Alloway The Protection and Preservation of its Memorials of Robert Burns Compiled for the Ayrshire Association of Federated Burns Clubs*" by James Archibald Morris ARAS, issues by the Ayrshire Association of Federated Burns Clubs August 1930 (Ayr: Stephen & Pollock) was copied and issued to Action members by I Maxwell (UK) in March 2004. This publication is an early example of a discussion on the benefits/disadvantages of the use of water sprinkler systems.

- *Salisbury Cathedral 1930's*
- *University Libraries*
- *Seek additional case studies for any identified gaps*
 - *Adaptive reuse*
 - *Churches*
 - *Galleries*
 - *Hotels*
 - *Mansions*
 - *Reused buildings*
 - *Royal Palaces*

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No progress to report

The February 2004 edition of the Fire Protection Association's *Fire Prevention Fire Engineers Journal* focused on Heritage Protection (FP 377 February 2004 FEJ Volume 64 No 241). In the section "Focus Heritage" the following are of interest to C17:

- Page 14. *Pioneering achievement:* Julian Parsons describes the fire protection strategy in place in Longleat House, a stately home in Wiltshire.
- Page 17. *Position of trust:* Colin Packer explains how the National Trust is continuing to protect its heritage properties in a changing environment.
- Page 20. *Town planning:* A fire in Chester provided some key lessons on managing fire safety in historic town centres. Steve Emery reports.
- Page 24. *Finishing touches:* Alistair Murray explains the fire strategy for a restoration project at the Domestic Finishing Mill in Scotland.
- Page 27. *A towering success:* Early detection and sprinkler protection provided a fire-safe solution in the conversion of a Victorian water tower for residential use.
- Page 30. *Holy smoke:* Alex Copping outlines an evaluation procedure for protecting parish churches from fire.
- Page 33. *Country living:* Kirsty McKeown reports from the first in a series of seminars aimed at improving fire safety in country homes.
- Page 37. *Sampling points:* Peter Massingberd-Mundy outlines the benefits of using aspirating smoke detection to protect heritage buildings.

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E Karlsen reported that the fire analysis following the installation of sprinkler systems in 1962 in *Bergen's Bryggen World Heritage Site* had been written up. He undertook to pursue this report and copy it to WG members.

Prior to embarking on the intended next step of WG 1 activities, and set about devising a questionnaire, it was agreed to focus on establishing an overview of the current data-gathering systems and the state of their development.

Following discussion it was decided to hold a specific WG 1 meeting at Schonbrunn Palace, Vienna on 23-24 July 2004

This meeting would receive summary presentation reports from UK (S Emery), Finland (K Reivila), Sweden (E Egardt), Norway (E Karlsen) and Bulgaria (P Hristov) on the current state of data gathering on fire statistics in each country.

The aim of the meeting would be –

- to assimilate the presentations
- to try to establish a commonality between the different data base systems
- to identify what might be done to promulgate a unified approach

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- 3 Establish a well-documented survey of the degree of existing usage
- *Prepare a questionnaire seeking response information on who effects Risk Assessment functions on listed properties*
 - *(Link up response format with other questionnaire needs as identified in following WG remits)*
 - *Run pilot exercise to test questionnaire*
 - *Release questionnaire to seek responses from owners of 10 listed properties in each member country (use personal, or FPA contacts) to establish relevant cases*
 - *In Scotland the developing Fire Database will include information on fire protection measures in Category A listed buildings*

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No progress to report

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No progress to report

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- 4 Establish a common risk assessment methodology, following a critical review of existing methodologies
- *TAN 22 Fire Risk Management in Heritage Buildings provides a basis from which to work*
 - *Produce a standard approach flowing from 1.2.1 and 1.2.3*

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No progress to report

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No progress to report

- 5 Consider remoteness of sites and compile an understanding of the impact of response time “delay” factors
- *Integrated fire risk management*
 - *No, or delayed, alarm system activity*
 - *Lack of Fire Brigade capacity*
 - *Use of Volunteer Brigade*
 - *Identify case studies of remote buildings (Relate to 1.2.3)*
 - *Stave Kirks Norway*
 - *Simonepetra Monastery Mt Athos*
 - *Polish timber churches*
 - *Data-base information on country house fires (S Kidd data)*
 - *Liaise with fire brigades regarding response times and consequent increased risk*

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No progress to report

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No progress to report

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COST Action C17
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