

COST
ACTION C17:
BUILT HERITAGE:
FIRE LOSS TO
HISTORIC
BUILDINGS

Executive
Summary of
Recommendations

TECHNICAL
CONSERVATION,
RESEARCH AND
EDUCATION
GROUP



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

Executive Summary of
Recommendations

Edited by
Ingval Maxwell OBE

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Management Committee

| | | |
|-------------------------------|-------------|------------------------------|
| Dr. Wolfgang Kippes | Austria | MC WG4 Chairman |
| Mr. Dietmar Wohltan | Austria | MC WG1 |
| Prof. André de Naeyer | Belgium | MC |
| Prof. Petar Hristov | Bulgaria | MC WG1 |
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| Mr. Ingval Maxwell OBE | UK | MC Chairman WG1 Chairman WG3 |
| Mr. Stewart Kidd | UK | MC WG2 Chairman |

Working Groups

| | | |
|--------------------------------|-------------|---------|
| Ms. Galina Mileva | Bulgaria | WG1 WG3 |
| Mr. Alberto Dusman | Italy | WG1 |
| Mr. Einar Karlsen | Norway | WG1 WG3 |
| Mrs. Lenka Molek | Slovenia | WG1 |
| Mr. Erik Egardt | Sweden | WG1 |
| Ms. H elene Hanes | Sweden | WG1 WG3 |
| Mr. Alois Schaelin | Switzerland | WG1 |
| Mr. Steve Emery | UK | WG1 WG3 |
| Prof. Johannes Legler-Diesbach | Austria | WG2 WG4 |
| Ms. Mirella Bindo | Italy | WG2 |
| Mr. Luca Nassi | Italy | WG2 WG4 |
| Mr. Geir Jensen | Norway | WG2 |
| Dr. Jolanta Muskalska | Poland | WG2 |
| Dr. Miguel Gomez-Heras | Spain | WG2 |
| Mr. Thomas Erenmalm | Sweden | WG2 |
| Mr. Daniel Rusch | Switzerland | WG2 |
| Dr. Christian del Taglia | Switzerland | WG2 |
| Mr. Nick Jordan | UK | WG2 |
| Mr. Yuri Minin | Israel | WG3 |
| Mr. Luigi Pastorelli | Italy | WG3 |
| Mr. Ivar Clausen | Norway | WG3 |
| Mr. Konrad Fietko | Poland | WG3 |
| Mr. Josip Korosec | Slovenia | WG3 |
| Mr. Jerzy Respondek | Switzerland | WG3 |

| | | |
|-------------------------|-------------|-----|
| Mr. Torger Korpberget | Norway | WG4 |
| Mr. Aleksander Spec | Slovenia | WG4 |
| Mr. Per Rohlén | Sweden | WG4 |
| Prof. Thorbjorn Thedéen | Sweden | WG4 |
| Mr. Rino Buchel | Switzerland | WG4 |
| Mr. Mike Coull | UK | WG4 |

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Siena: (Photo P Rohlén)

FOREWORD

Through the ready cooperation, goodwill and considerable effort by all involved, the four year COST Action C17 programme has largely met the original aims as set out in the Memorandum of Understanding. This has been economically managed in a collaborative multi-disciplinary, multi-national manner. The programme has also benefited from detailed exposure to a wide variety of related practical projects that were studied on-site.

The Action has readily, and freely, built upon members' current research initiatives and knowledge. In support of the agreed intentions, this approach has also resulted in the production of an appropriate range of newly published material arising from activities in Bulgaria, the Nordic countries, Scotland, England and Switzerland.

The programme has served to promote the use of data, methodologies and management systems to assist a broader clientele achieve a necessary balance between fire engineering needs and conservation requirements to assist in the future preservation of the European built heritage. Such an audience, as originally intended, has included property owners; public asset managers; official bodies; fire brigades and fire authorities; fire industry equipment manufacturers and suppliers; professional and technical bodies; building and artefact conservation interests; insurance companies; heritage bodies and organisations; and the tourist industry.

Considerable national and international influence has emerged through the work of the members. They have frequently reported a widespread positive reaction by authorities in their countries on how the Action outcomes have impacted on current thinking on the topic. Whilst the original programme has been successfully achieved, the results of a good deal of associated research activity, well beyond the scope of the initial intentions, have also been gathered. Although most of the collated material has been made available on the Action's web site <www.heritagefire.org>, the considerable body of researched material, information, guidance and data emanating from the Action's work is also being made available through these publications and the associated CDRom.

Particular thanks are due to all contributors who supplied papers, presentations and illustrations throughout the life of the Action. Their contributed efforts and support have led to the creation of a remarkable body of new work on the topic.

Ingvál Maxwell, OBE

Director

Technical Conservation, Research and Education

Historic Scotland

Chairman COST Action C17:

Built Heritage: Fire loss to Historic Buildings

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August 2007



The destructive force of fire

COST ACTION C17: BUILT HERITAGE: FIRE LOSS TO HISTORIC BUILDINGS

SUMMARY OF ACTION AND RECOMMENDATIONS

INGVAL MAXWELL

In addition to the current serious levels of loss to life and contents, the number, authenticity and quality of European historic buildings is now recognised as being steadily eroded through the effects of fire but the full extent of this is unknown. Fire has always been a threat to culturally valuable historic buildings and surroundings. Building construction work, day to day activities, events and exhibitions all create different degrees of risks. Human factors, lit candles, open fires and chimneys in poor condition are also responsible for starting many incidents, as are lightning strikes. Historic buildings are often built from easily-ignited materials. They can be located in isolated places, often too far from a fire station to allow the fire brigade sufficient time to arrive to extinguish a fire before it has created some (frequently considerable) degree of damage and loss.



Newliston House, West Lothian: (Photo: I Maxwell)

An emerging proposal to initiate an integrated approach to the established problems was offered to the *2nd COST Urban Civil Engineering Conference: The future of the city; New Quality for Life* event in Bled, Slovenia in 2001 and accepted. Follow-up activities resulted in the final Memorandum of Understanding (MoU) being formally agreed by the COST Office in Brussels. This document promoted the implementation of a European concerted research approach, ultimately designated as “*COST Action C17 Built Heritage: Fire Loss to Historic Buildings*”, which was formally inaugurated in Brussels in December 2002.

The agreed MoU identified four work-packages:

- *Working Group 1: Data, loss statistics and evaluating risks.*
- *Working Group 2: Available and developing technology.*
- *Working Group 3: Cultural and financial value.*
- *Working Group 4: Property management strategies.*

COST C17 had as its central objective the definition, at a European level, of the degree of loss to built heritage through the effects of fire, and the promotion of remedial actions and recommendations to combat these using minimal invasive techniques. The Action also aimed to address a general lack of statistical information, and a common lack of understanding and appreciation of what measures are available and required. It sought to provide good practice guidance on how to sensitively retrofit modern day fire protection equipment into historic fabric, and to develop related management expertise in dealing with this problem in historic premises.

The operational framework of the Action was developed to consider the special nature of the value of historic buildings, the economic aspects of cultural historic value, and the need for measures to minimise damage if a fire occurs. Specifically this required consideration of the:

- *vulnerability of historic buildings to fire*
- *risk assessment methodologies*
- *protection of fabric and content*
- *prevention of fire and fire spread*
- *detection and suppression requirements*
- *training and management of staff*
- *insurance considerations*

In pursuing these intentions, there was a need to integrate and coordinate the associated factors so that a common understanding of the issues might emerge. To achieve meaningful results during the intended life-span of the programme, a strategic approach was adopted. This focused on:

- *compiling statistical data on the extent of heritage at risk.*
- *promoting statistical research into the consequences and causes of fires – both major fires and more minor incidents (such as small fires to which the fire brigade are not called or false alarms) and their impact. Using risk assessment data gathered as a basis for discussion, a dialogue began to be established with insurance bodies to seek the development of insurance products more closely tailored to historic buildings.*
- *establishing a well-documented survey of up-to-date technical expertise to assist in influencing future developments in fire protection technology for use in historic buildings.*
- *defining an appropriate range of passive and active technical equipment countermeasures.*
- *considering alternative approaches to assist in stemming current loss levels.*
- *organising a series of conferences and/or workshops to develop thinking for effective risk assessment techniques and risk mapping using insurance company and other data.*
- *promoting findings and benefits of relevant risk assessment methodologies and property management support.*
- *effecting know-how dissemination through publishing proceedings and recommendations.*

MEMBERSHIP COUNTRIES INVOLVED

Membership signatory countries involved participants from Austria, Belgium, Bulgaria, Denmark, Finland, France, Hungary, Israel, Italy, Macedonia, Netherlands, Norway, Poland, Serbia and Montenegro, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. In addition, corresponding membership interests were established with other organisations and networks, including:

| | |
|---------------------------|---|
| Baltic Countries: | <i>Association of Castles and Museums around the Baltic Sea</i> <i>Federation of Finnish Insurance Companies</i> |
| Canada: | <i>Parks Canada</i> |
| Europe: | <i>Comité technique international de prévention et d'extinction du feu (CTIF)</i> |
| Russia: | <i>Russian Civil Defence and Disaster Management Research Institute</i> <i>International Informatization Academy</i> <i>WORLD Academy of Sciences for Complex Security</i> <i>Academy of State Fire Service of Emercom of Russia</i> |
| United States of America: | <i>NFPA Cultural Resources Committee</i> |
| United Kingdom: | <i>Scottish Historic Buildings Fire Liaison Group</i> <i>Scottish Building Standards Agency</i> <i>Historic Buildings Fire Research Coordinating Committee</i> |

The Action has also encouraged new networking opportunities. In Sweden, the National Property Board SFV established a Swedish network of members involving the National Heritage Board; Swedish Rescue Services; Legal, Financial and Administration Services Agency "Kammarkollegiet"; St Erik Försäkring AB and other insurance companies; Property owners; and consultants in fire safety. In the UK its work also fed into the Chief Fire Officers Association (CFOA).

The international network created by COST Action C17 had a very important role to play. It was recognised that the more fire-fighters know about a building when called out to a fire, the greater the chances will be of that building, or significant parts of it, being saved. It is, therefore, important to provide the fire and rescue services with relevant information on all the values involved, and on the actual conditions that could influence the practical aspects of effective fire-fighting.

At present, it often happens that the fire fighters are not even aware that they may have been called out to an identified historic building or location. If a written action plan could be made available for every such building, this would greatly assist. The plan's primary aim would be to inform and facilitate rapid and effective action on the part of the fire services should the need arise.

Events as they unfold during the first few minutes of a fire incident occurring play a decisive role in what course the fire will take. The installation of fire alarms is predominantly there for life safety, and should be regarded as a minimum level of fire protection by giving early warning before the fire takes full hold. As many of our historic buildings are situated in remote locations, a fire safety officer should be appointed to address, and reduce, the associated risks. If available current technology is incorporated, it is possible to contain the fire until the fire brigade reaches the site and fire-fighting operations begin.

Many historically valuable buildings are not covered, or are inadequately covered, by insurance. This increases the risk to building and contents. Many valuable buildings that are insured also carry insufficient cover in relation to their historic value. All too often insurance companies are unaware that a historically valuable building might be involved in a fire; the need for knowledge sharing is paramount.

Concluding in December 2006, the work of COST Action C17 has been published as a series of Conference Proceedings in support of a Final Report, with all of its documentation also available in DVD format. A summary of the key findings are set out below

FINDINGS EMANATE FROM THE ACTIVITIES OF WORKING GROUP 1

Existing Information

In acknowledging that, across Europe, a variety of opportunities exist at this time to influence and promote the need for a greater recognition of the needs of historic buildings in fire safety work, there is a need to find various mechanisms in each country to try to shape emerging legislation and political thinking on the issue. In doing so, the needs of the built heritage should be better recognised, included, and reported on, in consequence of any emerging new legislation.

Scottish Historic Buildings National Fire Database

The methodology of the Scottish Historic Buildings National Fire Database project is proposed as a model that other countries might consider adopting. Collaborative efforts should be made to share emerging feed back information on the scale of fire loss to the built heritage that database projects will uncover in the fullness of time.



Bower Building, Glasgow University, Scotland: (Photo: Historic Scotland)

Minor Fire Incidents

Pursuing the development of a unified electronic fire reporting systems in European countries is also a means of raising awareness of the real degree of historic building fires. With today's computer network technologies, every modern country should be able to assemble a national database of fire incidents using a standardised coding. This would make it possible to readily share commonly established data to a consistent standard. There is a follow-up need to consider how to establish and promote more accurate data on near misses so that lessons learnt in controlling these incidents might be better disseminated for the benefit of heritage property managers, and risk awareness training programmes.



Drummond Place, Edinburgh: (Photo: I Maxwell)

History of Detection and Suppression Systems

Additional research needs to be undertaken to identify and promote more positive examples of the effective and successful introduction of fire detection and suppression systems in historic properties. The findings and analysis of that work should be promulgated as good practice.

Definitions of Terms

Further work needs to be done to agree the uptake of a universal set of agreed definitions to cover all aspects of risk management, and the use of fire-fighting technology in historic buildings.



Thatched Cottage, Stanford in the Vale, Oxford, England August 2005 fire (Photo: SPAB)

FINDINGS EMANATE FROM THE ACTIVITIES OF WORKING GROUP 2

Non-destructive physical properties evaluation of fire loss to historic buildings

New ways need to be found of using real data to estimate fire loss to historic buildings and their contents on the basis of materials, constructions and artefacts using non-destructive evaluation methods.



Hofburg Palace, Vienna December 1992 (Photo: Schloss Schonbrunn)

Structural damage and stabilisation problems post-fire

Immediately after a historic building fire, where the building may also constitute a danger to the public, the authority with jurisdiction should consider the value of the structure and its cultural and historic importance prior to a decision on the buildings' future being reached.

Availability of traditional skills which will be required in post-fire situations

The issue relating to the need to identify and assess the specialist skills that will be required for the conservation, restoration or reconstruction to deal with fire losses to historic buildings should not be overlooked. There is a need to consider the creation of a permanent and effective European network of institutions and organisations who can deal with fire loss in the built heritage, and this should lead to the consequential enhancement of initiatives, spread of relevant information and increased international collaboration.



Porvoo Cathedral, Finland after October 2006 fire: (Photo: Seppo Perkurinen)

State of the Art Solutions to Fire Protection

A greater awareness of the range of developing technologies, and traditional and new measures that are available, and how they can be integrated sensitively within historic structures to effect the protection of people, contents and building fabric, should be promoted more widely.

Introducing technology into historic and cultural buildings

Primarily, the insertion of fire detection and suppression systems in historic buildings should be -

Introducing technology into historic and cultural buildings

| | | |
|---|----------------------------|--|
| 1 | Essential | <i>The fire systems should be central to meeting the objectives of the protection of life, buildings and contents.</i> |
| 2 | Appropriate to Risk | <i>Any system that is installed should be apposite to the risks being considered.</i> |
| 3 | Compliant with legislation | <i>Systems should be installed according to demonstrable performance-based and other legislatively prescribed standards of safety.</i> |
| 4 | Minimally invasive | <i>The retrospective fitting of fire systems should involve minimal degrees of physical intervention on the historic structure.</i> |
| 5 | Sensitively integrated | <i>Installed systems should be designed to be integrated sympathetically with the historic fabric and its detail.</i> |
| 6 | Reversible | <i>Fire systems should be installed according to a reversible, 'plug-in, plug-out' installation philosophy.</i> |

(Table: I Maxwell)

Fire Safety Regulations Relating to Historic Buildings in Europe



Sprinkler: (Photo: S Kidd)

Remoteness of Sites

With a remit closely following that undertaken by the Action, a related report, “*Lessons Learnt from Fires in Buildings*” was published in 2003 by the European Commission Directorate-General Joint Research Centre. In a variety of case studies, specific lessons were described for a wide range of structures. These included many remotely located historic buildings. The 2003 Report concludes with a recap of lessons learned, and these should be more widely accepted and understood.

FINDINGS EMANATE FROM THE ACTIVITIES OF WORKING GROUP 3

Cultural value

All those involved in work with historic buildings should be familiar with the principal international charters relating to the heritage. Any decision to reconstruct a historic building following fire should be based on an analysis of:

- the cultural historic, emotional and economic value of the building
- available knowledge of the building, and
- an assessment of the possibility of reconstructing the building to an appropriate quality

Recording and documentation should be undertaken for all historic buildings, appropriate to the historic significance of, and presumed need for, the building



*Great Hall,
Stirling, Scotland
(Photo: I Maxwell)*

Cultural value and national economies

The responsibility for the protection of a building against fire should be clarified in the regulations for listed buildings. In addition to those funds that are available to assist with other conservation measures, grants from the community should be made available for fire prevention measures to listed buildings. The governmental bodies responsible for historic buildings should consider returning funds which have been generated from the tourist industry back into the safeguarding of the built heritage

Research into the influence of historic buildings, and of historic surroundings on the economy of an area, should be initiated and supported by governments and responsible institutions. To the greatest possible extent, partial and total reconstruction of fire damaged historic properties should be undertaken using the same materials and the same constructional techniques as the original.



Burns Monument after November 2004 fire, Kilmarnock, Scotland (Photos: East Ayrshire Council)

Insurance of historic buildings: financial data

The State and other authorities responsible for the built cultural heritage should:

- stipulate by law that owners of listed buildings should take out an appropriate level of insurance cover for their historic building and this should accurately reflect the nature of the risks associated with such buildings
- ensure that listed buildings regulations include a requirement stating that it is the building owner's responsibility to insure a historic building against fire
- provide grants to property owners to support the installation of appropriate fire prevention measures



Porvoo Cathedral, Finland after October 2006 fire (Photo: M Jokinen)

The insurance companies should:

- take responsibility for setting the insurance amount and establishing the degree of risk, particularly in the case of small property owners
- cover all relevant costs to allow appropriate loss recovery to take place directly after a fire (for administration and planning), and to allow cover for investigation into appropriate methods of repair or reconstruction
- devise a set of terms and conditions that allows the use of appropriate materials and construction techniques for historic buildings, including the replacement of historic embellishments where necessary
- provide the property owner with information from which to gain a full understanding of the risks associated with historic buildings. This should address:
 - appropriate risk management principles
 - the need for protection
 - realistic valuations of reconstruction costs for heritage buildings
 - specialists who can advise the property owner



Obecní dum, Prague, Czech Republic. (Photo: I Maxwell)

The property owner should:

- protect the property
- avoid first risk insurance and chose the full value/worst case scenario. If they do choose first risk insurance, they should become fully aware of the risks that will be involved
- be aware of, and claim the right to use, appropriate traditional materials, construction and embellishments for historic buildings – it is not ‘irrational’ to choose these materials and methods
- be aware of, and maintain that embellishments like mouldings, stucco, ornaments, wall paintings, etc, in historic buildings are not ‘art’, but are part of the building itself

All those engaged in protection of cultural heritage should encourage the media to pay attention to:

- the protection or lack of protection of valuable cultural historic buildings
- appropriate insurance cover
- how insurance companies can act responsibly when offering insurance

Evaluation of risks: special measures for historic buildings

Analytical methods based on logical systems rather than using statistics (i.e. fault tree and event tree analysis), should be used for small individual and large complexes of buildings

Considering the consequences of the loss of a historic building, the risk analysis should include:

- loss of economic value (in terms of providing a modern replacement of premises of the same quality as the building which has been lost)
- loss of historic cultural and emotional value
- loss of a positive image for the local community
- loss of economic impact on the tourist industry
- additional costs for reconstruction

The special characteristics of historic buildings should be described and analysed in the risk analysis to recognise the:

- particular vulnerability of the building
- activities taking place in the building
- fabric of the building and its structural features
- surroundings of the building, and the activities that take place there
- probability of fire ignition
- length of time required for the fire brigade to arrive

If there is a need for technical fire prevention measures to be installed, and these cannot be achieved due to the risk of damage to the historic fabric of the building, this decision should to be clearly understood and formally recorded at senior management level



Santa Maria della Scala, Siena (Photo: I Maxwell)

The ethics of loss recovery

There should be a fire performance plan for each building that includes:

- information explaining the special cultural historic value of the building and its contents
- the organisation of the staff, with an appointed salvage team leader responsible for managing salvaged items when they are brought out from the building
- a contact list noting specialist conservators appropriate for the type of items and the structure of the building which may have to be conserved after a fire

Equipment should be kept available on site to assist in the care of salvaged items, and the remains of the building

Regular contact with the fire rescue service is required to ensure their understanding of the special conditions necessary to safeguard the historic value of the building

Building owners should notify their insurers of any circumstances that will arise where the building may be used by an enterprise that may increase the risk of fire

Tenancy agreements should include information about:

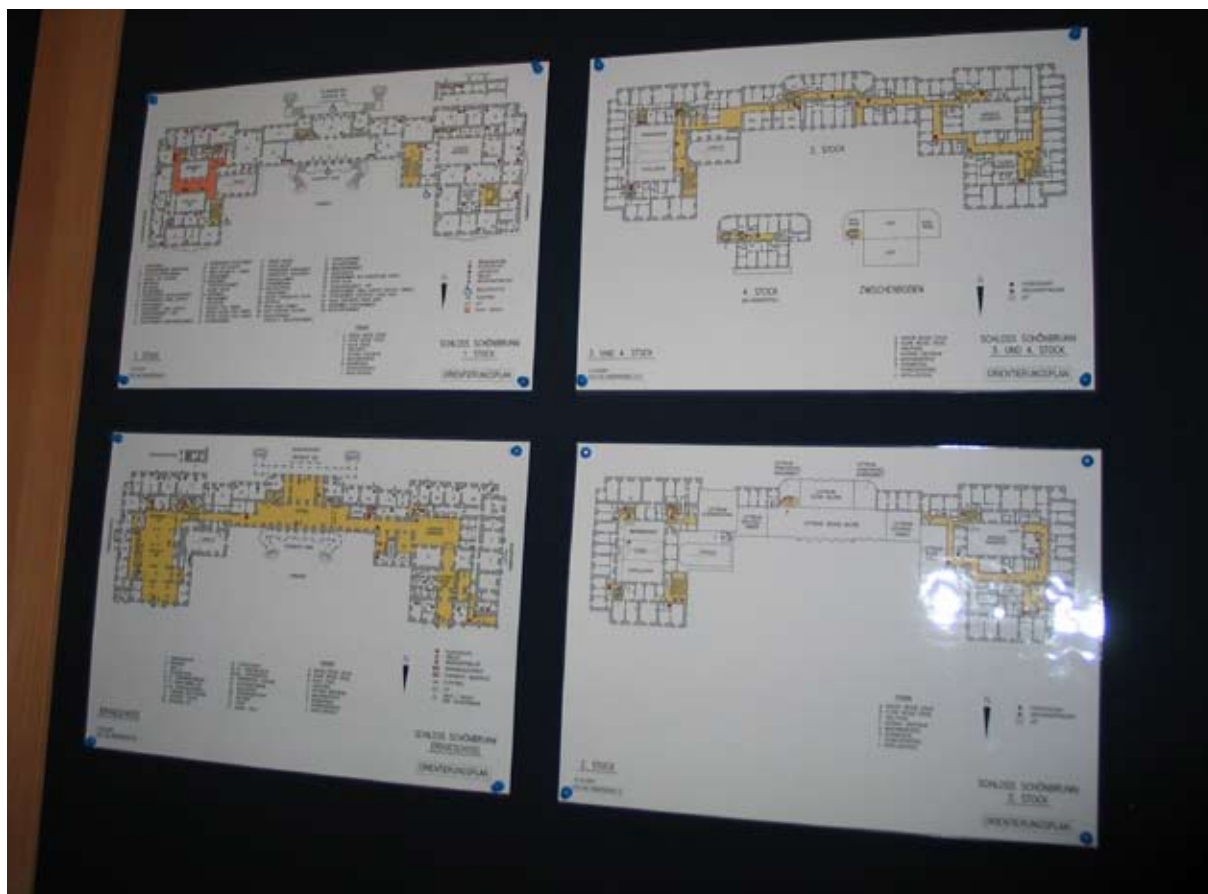
- the historic value of the building
- the vulnerability of the building
- activities which are forbidden in the building (e.g. smoking, use of candles, storage of flammable items)



Schloss Schonbrunn Damage Limitation Team exercise: (Photo: S Kidd)

FINDINGS EMANATE FROM THE ACTIVITIES OF WORKING GROUP 4

Comprehensive documentation should be prepared to describe the building and its fire prevention appliances, the usage of the building, the organisational structure in place for fire prevention, and the alterations that occur. This documentation should be compiled and maintained by in-house personnel who are well versed in the operation and building details.



Schloss Schonbrunn documentation. (Photo: I Maxwell)

Information on all fire safety systems and components be detailed in a Fire Safety Handbook. This Handbook should include: drawings, especially floor plans showing locations of fire extinguishers; hose reels; hydrant points; gas shut-offs; wiring diagrams, charts, specification sheets and replacement parts lists. The Handbook should also incorporate the operational, service and maintenance instructions for fire protection systems and equipment, together with details of any modifications or upgrades undertaken on the equipment.

A Fire Safety Log Book should be created and used to record information such as:

- Fire training sessions undertaken or delivered, including the duration of the event, the content and the names of those who attended
- Fire drills undertaken, including the time, duration and the names of those who participated. The record should include a 'comments' column for noting any particular problems or other observations. If a problem or difficulty has been encountered, details of the remedy should also be provided
- Inspections or visits by the insurance company, fire brigade or other persons including brief details of any observations made

- Full details of all fire equipment and fire systems maintenance, including emergency lighting. It is suggested that this information is recorded in the Fire Safety Log Book even when there are separate maintenance logs for equipment such as fire detection or alarm systems
- Details of any fire incidents, false alarms or other matters of interest, together with the responses or remedial action taken.

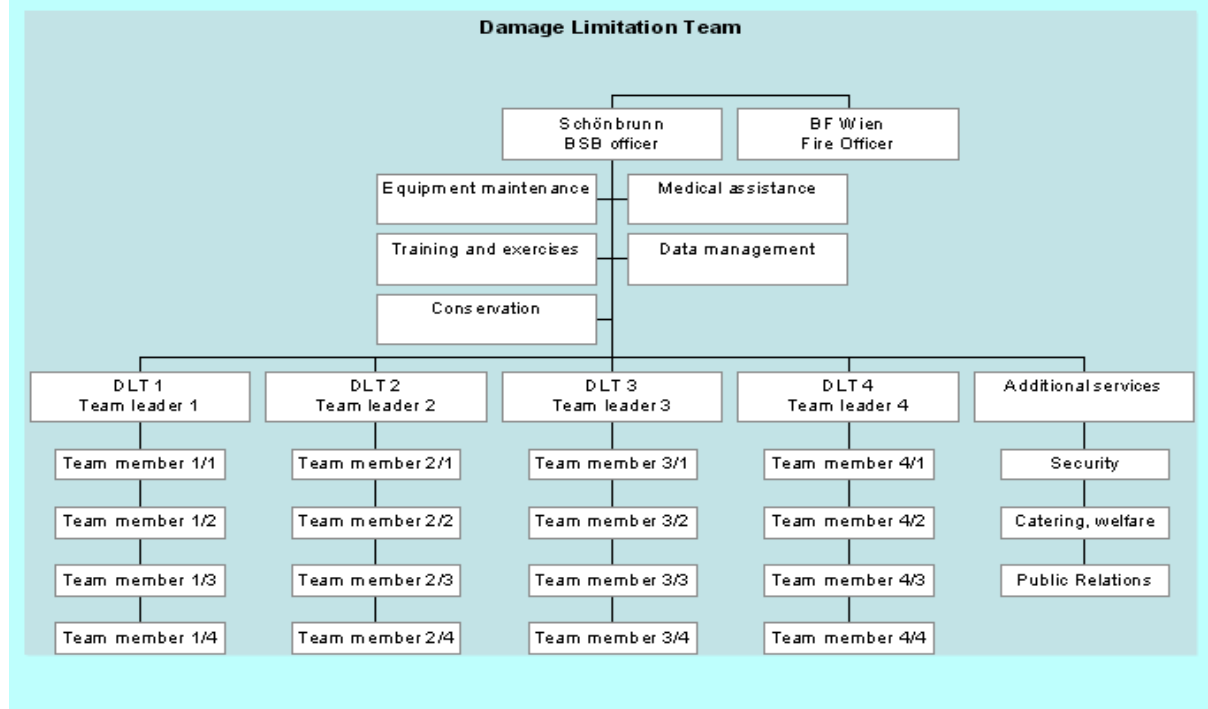


Schloss Schonbrunn documentation: (Photo: I Maxwell)

A Damage Limitation Plan should form the basis for all the work to be carried out after a fire. The Plan and should set out in some detail the organisations response to the emergency to include such information as:

- A brief description of the premises and the use to which it is put
- A sketch plan showing access roads, drives, fire hydrants and other features such as main gas valves and electrical switch rooms
- Identification of the items that can be removed in an emergency, together with pre-identified safe locations to which the items will be taken
- Allocation of tasks to employees and others, together with home/mobile phone numbers
- Duties of managers and supervisors
- Liaison with the fire and rescue service
- Names and addresses of resources such as contractors, conservation specialists, etc

DLT - Organisation



Schloss Schonbrunn Damage Limitation Team structure: (Diagram: W Kippes)

In developing a Damage Limitation Plan a system of categorisation should be established to ensure that clear priorities exist for object removal. This should identify:

- First priority: items of international heritage value which are intimately connected with the building or its previous occupants
- Second priority: items of national value or which are important to explain the history of the building or its occupants. This should also include items that have a high monetary value
- Third Priority: items which would be difficult or expensive to replace and which contribute to the history of the building
- Unclassified: items that will be left in place

SHORT TERM SCIENTIFIC MISSION: ‘COMPARISON OF DATA CATEGORISATION OF EUROPEAN COUNTRIES FIRE REPORTING STATISTICS’:

KALLE REIVILA

From the limited available data it is considered that establishing eight levels of fire causes would be sufficient for European historic building managers to gain useful information. However, due to insufficient and inconsistent common national data it is not possible to specify exactly what those eight levels would be without first reaching a broader agreement in each country as to the appropriate categories. This would involve further detailed discussion to determine the relevant required data on historic building fires at a pan-European level.

However despite this shortcoming, from the available data, the most common causes of fire in historic buildings could be summarised as follows:

1. Arson
2. Electrical fault
3. Match
4. Smoking Materials
5. Candle
6. Heating equipment
7. Natural causes (lightning)
8. Hot works

In presenting this list it should be considered as the result of an initial explorative analysis made possible by the STSM. From a statistical point of view the empirical data is insufficient to be able to verify the figures and conclusions.

What the STSM did make clear is that pursuing the development of electronic fire reporting systems in European countries is the way to raise the monitoring of historic building fires to an adequate level. As the visit to the UK ODPM demonstrated, a view is held that acquiring relevant empirical data on fires which have occurred is probably too burdensome a task to undertake.

Moreover, with today’s computer network technologies, every modern country should be able to assemble a national database of fire incidents using standardised coding. This could either involve creating full data sets or a statistically valid sample. Insurance sources and other vital records can also be useful, but the public fire brigades in each country tend to be the primary suppliers of information and facts about the major fires experienced by each country.

Initial experiences with comprehensive electronic fire reporting systems (the Finnish PRONTO being a pioneer in this), and the extraction of statistical data from them, illustrates that any system is only as good as the information input into it. For preventative and managerial purposes, having a first class statistical tool is of little use if the input does not represent the reality. To help overcome this issue, training and development of any electronic systems should be effected through cooperation with fire brigades and cultural heritage professionals.

SHORT TERM SCIENTIFIC MISSION: ‘MANAGEMENT STRATEGIES TO SECURE INTEGRATION OF DAMAGE LIMITATION TEAMS AND PROFESSIONAL FIRE SERVICES’: MIKE COULL

In order for all members of the Action to benefit from this Short Term Scientific Mission, the good practice that has been highlighted within this report needs to be disseminated and where necessary supplemented. Where there are areas for further development this must be addressed as part of the outcomes of the Action. The following recommendations are offered:

1. There is a need to demonstrate examples of ‘Management Strategies to secure integration of Damage Limitation Teams and professional fire services’
2. Guidance should to be provided to owners of properties on developing management plans for their properties to include areas such as Damage Limitation and Liaison with the fire service. This could take the form of a short guide.
3. Guidance should to be provided to Fire Services. In particular, the information available to crews and how this should be used. Training should be provided on the unique features of a fire in a heritage property with exercises carried out at heritage properties, to improve damage limitation awareness and training along with the level of operational response to heritage properties.
4. The terminology used to describe the mitigation of fire damage should be standardised across Europe as ‘damage-limitation’. Maintaining the term ‘salvage’ does not convey the positive and proactive approach necessary from damage limitation strategies. ‘Salvage’, by implication suggests a tactic of recovering contents and mitigating damage at the time of, or immediately following, intervention tactics. ‘Damage limitation’ is about pre-planning, consultation with occupiers, having established and widely understood procedures for individual risks and is a dynamic process conducted before, during and after incidents.



(Photo Riksantikvarn)

ACTION CONCLUSIONS

There can be little doubt as to the relevance, value and significance of the COST programme initiative. Providing a wide range of participants the opportunity to become involved, sometimes for the first time, in concerted European research activities is a welcome and mutually beneficial concept.

In the case of COST Action C17 “Fire Loss to the Built Heritage” the multi-level, multi-disciplinary, membership has produced a unique synergy that has benefited all who have participated. Through having the ability to interface professional members from the scientific and academic community with practitioners who have dealt with real fire loss incidents has inevitably contributed to the strength and value of the Action. This is nowhere best seen than in the effort, commitment and dedication to work towards addressing the full range of topics as set out in the Action’s Memorandum of Understanding. The ready ability to share and exchange knowledge and experience has been a great strength through the 4 years of the Action’s activities. Much has been achieved as a result, and a strong commitment and willingness exists to ensure that the relevant networking connections continue long after the Action has terminated. International cooperation has been exemplary between all but 2 of the 20 participating nations. Regrettably colleagues from Denmark did not attend any of the meetings and Serbia and Montenegro joined so late in the Action’s programme that it was equally not possible to fully participate.

On the other hand, interest in the Action’s activities were more than recognised on the international stage with colleagues from Canada, USA, Russia and countries around the Baltic Sea becoming involved as corresponding members to be kept abreast of Action activities. Further evidence of this influence occurred during the life of the Action when 4 individual members from England, Scotland, Austria and Italy were invited to join the North American Fire Protection Association’s Standard Setting Cultural Resources Committee.

A prolific series of unique papers and presentations have been offered by members. Covering the broad range of Action topics these were freely provided at each of the related Seminars and Workshops held in conjunction with Action MC and WG meetings. In many cases local participation was also encouraged. As a result additional presentations were received from established and younger colleagues during Action events in Scotland, Austria, Bulgaria, Sweden, Norway, Finland, France, Slovenia and Italy. During these events the level of collaboration and involvement has been exemplary. Throughout the Action the timetable has been rigorously adhered to. In no small way, the self-imposed discipline by the members in meeting set deadlines has greatly contributed to this achievement.

Through the ready cooperation, goodwill and considerable effort by all involved, the four year COST Action C17 programme has largely met the original aims as set out in the Memorandum of Understanding. This has been economically managed in a collaborative multi-disciplinary, multi-national manner. The programme has also benefited from detailed exposure to a wide variety of related practical projects that were studied on-site.

The Action has readily, and freely, built upon members’ current research initiatives and knowledge. In support of the agreed intentions, this approach has also resulted in the production of an appropriate range of newly published material arising from activities in Bulgaria, the Nordic countries, Scotland, England and Switzerland.

The programme has served to promote the use of data, methodologies and management systems to assist a broader clientele achieve a necessary balance between fire engineering needs and conservation requirements to assist in the future preservation of the European built heritage. Such an audience, as originally intended, has included property owners; public asset managers; official bodies; fire brigades and fire authorities; fire industry equipment manufacturers and suppliers; professional and technical bodies; building and artefact conservation interests; insurance companies; heritage bodies and organisations; and the tourist industry.

Considerable national and international influence has emerged through the work of the members. They have frequently reported a widespread positive reaction by authorities in their countries on how the Action outcomes have impacted on current thinking on the topic. Whilst the original programme has been successfully achieved, the results of a good deal of associated research activity, well beyond the scope of the initial intentions, have also been gathered. Although most of the collated material has been made available on the Action’s web site <www.heritagefire.org>, the considerable body of researched material, information, guidance and data emanating from the Action’s work is also being made available through these publications and the associated CDRom.



Melhus: (Photo P Rohlén)

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