

COST Action C17: 'Built Heritage: Fire Loss to Historic Buildings'
Working Group 4

**Short Term Scientific Mission: 'Management Strategies to secure integration of
Damage Limitation Teams and professional fire services'**



Schloss Schonbrunn 26 February to 03 March 2006.

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Contents

1. Introduction.....	2
2. Purpose of Visit.....	2
3. Scientific Meeting.....	2
4. Scientific Visit to the Vienna Fire Brigade.....	5
5. Schonbrunn Fire Management Plan.....	5
6. Damage Limitation Team.....	7
7. Damage Limitation Team Training.....	10
8. Review of Existing Arrangements.....	11
9. Recommendations.....	14

1. Introduction

This report summarises the Short Term Scientific Mission (STSM) carried out for COST Action C17: ‘Built Heritage: Fire Loss to Historic Buildings’ Working Group 4 (Property Management Strategies) by Mike Coull from the United Kingdom’s Grampian Fire and Rescue Service during the period 26 February to 03 March 2006. The mission was performed at Schloss Schonbrunn and was complimented by a scientific meeting held at Schloss Schonbrunn on 27 February and a scientific visit to the Vienna Fire Brigade.

As preparation for the STSM I attended a course on ‘Emergency Salvage’ organised by the National Trust who own properties in England, Wales and Northern Ireland. I also visited Windsor Castle and Hampton Court Palace to obtain an appreciation of systems in place within historic palaces in the UK.

2. Purpose of Visit

Expanding on research undertaken within the United Kingdom, this STSM set 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. In order to achieve these aims, the following areas for research were identified:

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.

3. Scientific Meeting

A scientific meeting entitled ‘Fire Prevention In Historic Buildings – Liaison with Fire Brigades’ was held on the 27th February at Schloss Schonbrunn. The following participated in this meeting:

Mike Coull	-	Grampian Fire and Rescue Service
A Feiler	-	Vienna Fire Brigade
Nick Jordan	-	National Trust
Wolfgang Kippes	-	Schloss Schonbrunn
Johannes Legler-Diesbach	-	Austrian Volunteer Fire Brigades
Luca Nassi	-	Santa Maria Della Scala
Frank Peter	-	Vienna Fire Brigade
Herbert Polsterer	-	Schloss Schonbrunn
Robert Tidmarsh	-	Schloss Schonbrunn

During this meeting, five presentations were given. I gave the first one, providing an overview of the Historic Scotland National Fire Database and my role as Heritage Co-ordinator for the Scottish Fire Services, a unique partnership between Heritage Agencies and the Fire and Rescue Services.

Luca Nassi then gave an overview of the Santa Maria Della Scala in Siena, Italy. He spoke of a major programme of work being undertaken and the need to look at tailored design solutions for the particular building along with the need to consider management solutions. He highlighted the need for close liaison during the renovation work and the need to define the project scope, and have this agreed by all stakeholders who he listed as:

Building Owner
Building Manager
Designers
Construction team
Tenants
Maintenance Personnel
Jurisdiction Authority – in this case the Fire Brigade.

When considering the design solutions he spoke of performance-based tools where engineering field models were used. This demonstrated that the specified fire safety goals could be achieved even where prescriptive standards could not be met.

He also explained that a technical committee promoted by Santa Maria Della Scala and the National Fire department was actively developing studies on the protection of cultural heritage.

Nick Jordan explained that the National Trust have 350 major properties that are open to the public. He stated that he saw good liaison as providing opportunities to review safety strategies, methods of working and training.

The National Trust encourage liaison through property managers who are required to:

- Liaise with their local Community Fire Station
- Encourage fire crews to visit their properties
- Participate in the formation of a Property Risk Management plan.

When considering the benefits of good liaison, Nick listed these as:

- Having robust and tested procedures in place to deal with an emergency
- Provides for assistance when considering compliance issues
- Knowing what to expect should an incident occur.

Frank Peter then spoke about liaison between the Vienna Fire Brigade and Schonbrunn. When considering the relationship between Schonbrunn and the Vienna Fire Brigade, he stated that the level of intensive collaboration is greater than at any other building in Vienna.

He used two case studies to highlight difficulties in fighting fires in historic properties; these were the Hofburg Palace and the Sofien Saal. In both of these incidents there were no plans available to the Vienna Fire Brigade and there was little or no compartmentation of the roof, allowing fire to quickly spread. In addition, there was only partial fire detection at Hofburg thus enabling the fire to develop undetected until it had fully established and spread through the roof.

The major risks within Schonbrunn that have been identified by the Fire Brigade are:

- Fire in the cavities of walls and ceilings
- Fire in a flat
- Roof Fire

He explained that the roles of the Vienna Fire Brigade and the Damage Limitation Team at Schonbrunn had been clearly defined. The fire brigade would be responsible for:

- Rescue of People
- Smoke Management
- Firefighting

The Schonbrunn Damage Limitation Team is responsible for:

- Evacuation of the premises
- Rescue of artefacts

Through liaison with Schloss Schonbrunn it had been possible for the Vienna Fire Brigade to identify key staff members. The brigade has information on the fire detection and suppression systems, which is also provided to crews responding to an incident.

Maps of the building are made available to responding appliances to assist the orientation of firefighters in the building; there is also a table of flats including a description and direction of windows. To further assist in the orientation of crews, the brigade undertakes 2 or 3 visits of the building each year.

Clear procedures have been developed to assist in the rescue of persons that will indicate the numbers and location of any missing persons.

Johannes Leglar-Diesbach is in charge of a volunteer fire brigade and owner of a historic castle. He is on the board of the Austrian Association of Volunteer Fire Brigades where he has specific responsibility for training of volunteer firefighters and for the cultural heritage.

He explained that 80% of castles in Austria are in private ownership. He further explained that in lower Austria the fire brigades are all volunteer. He has set up a programme of working with owners of properties and fire brigades to develop liaison between both parties to develop joint training exercises and the fire management of the property. During the last 10 years he has organised over 70 exercises in properties. In order to arrange each exercise he has gone through a four-stage process:

- Speak to the local fire brigade to consider the property and the need for an exercise
- Speak to the owner to consider the benefits of holding an exercise
- Bring the owner and the fire brigade together in order to develop a fire plan and to develop the exercise
- Undertake the exercise and consider the learning opportunities that present themselves.

In addition to the training exercises undertaken, a number of seminars have also been held. These cater for some 60 participants and include theoretical issues in the prevention of fires. There is also input on developing management plans for the property.

This scientific meeting proved to be of great benefit in establishing the level of liaison between heritage agencies and professional fire services across a range of countries and differing scales of properties.

4. Scientific Visit to the Vienna Fire Brigade

A scientific visit to the main fire station in Vienna was undertaken. This fire station, located at Floridsdorf, houses four standard fire engines along with specialist units including Turntable Ladder, Hydraulic Platform, two cranes and a number of specialist vehicles utilising a demountable unit system.

During the visit we saw the training facility available to the Vienna Fire Brigade including an indoor tower for training with ladders. Also in this building was a facility for hot fire training. This involves a gas system that includes the ability to have fires in a simulated kitchen and bedroom. There is the facility to use the system for flashover training. In addition, there was a simulation of a gas leak from a pipe, which allows crews to control the flame with a jet of water whilst other members of the team extricate a casualty from a car.

5. Schonbrunn Fire Management Plan

The fire management plan including the roles and responsibilities for individuals within that plan was considered in conjunction with Wolfgang Kippes. Any changes to the fire management plan or proposals for changes to the physical fire prevention and protection measures to be adopted in Schonbrunn is discussed and agreed with the heritage agency and the Vienna Fire Brigade.

5.1 CALLING THE FIRE BRIGADE

There are five different automatic alarm systems covering the most important buildings at Schonbrunn that alerts the fire brigade. When an alarm is actuated, this sounds in the guardhouse and it is the responsibility of the security staff to ensure that the gates are opened to allow access to fire brigade appliances.

The Vienna Fire Brigade will attend all alarms, even if they are informed prior to arrival that it is a false alarm. The local station has one appliance and normally takes approximately 2 – 3 minutes to arrive. The next station can respond in approximately 3 – 5 minutes.

There is no automatic fire detection system in the flats however these areas are covered by the alarm system that is actuated through break glass points. The impact of this to the risk profile can be demonstrated through the fact that there are over 180 flats within Schonbrunn, 52 of which are situated in the main building.

Plans are held in the property showing the layout of the building including features that are of importance in a fire situation. This includes the location and type of fire detection equipment, location of firefighting equipment, location of stairs and emergency exits. These plans are kept in a folder and there are three copies of the folder. One copy is kept in the security office, which is also where the fire alarm control panel is located, the second set is kept in the gatehouse where it can only be accessed in an emergency and the security guards on duty outwith opening hours will provide this to the responding appliance. The third set is kept in a parallel office and can be accessed by the Fire Brigade.

5.2 STAFF TRAINING FOR DEALING WITH EMERGENCIES

Schloss Schonbrunn has forty showrooms and is visited by over two million visitors per year. The safety of visitors is the responsibility of all staff and external guides who are trained by Robert Tidmarsh who is responsible for risk management within the showrooms.

Staff are trained on the emergency exits and their responsibility to ensure the safe evacuation of all visitors. They also receive regular training on the use of portable fire extinguishers. They are instructed to tackle a fire if it is safe to do so utilising the nearest fire extinguisher. If the fire cannot be extinguished using this extinguisher then the member of staff has to evacuate.

External guides are trained on the emergency exits and their responsibility to ensure the safe evacuation of their guests.

5.3 EVACUATING NON-ESSENTIAL PERSONNEL

In the event of a fire then staff and external guides are notified through a system of pager and hand held radios. The external guides are issued with pagers and it is their responsibility to ensure that all members of their group are evacuated to one of the rendezvous points.

The evacuation of all other visitors is the responsibility of staff. The staff are informed of a fire situation by means of hand held radios whilst tannoy announcements will instruct visitors to vacate the premises. A member of staff is usually responsible for 2 – 4 rooms and they are responsible for ensuring these rooms are evacuated. In addition, on each floor there are one or two (depending on season) members of staff responsible for all rooms on that floor. In the event of a fire these staff will check all rooms to ensure that they are evacuated. These members of staff will then advise the Head of Showrooms or the Fire Brigade that all persons have left the building.

Contractors working within Schonbrunn are issued with pagers. This ensures that when guides are notified of an incident, contractors are alerted at the same time and they can evacuate the premises.

Tenants are not evacuated when the fire alarm is actuated. This is a procedure that has been agreed with the Vienna Fire Brigade. In the event that the Vienna Fire Brigade wishes the tenants to evacuate the building there is a siren, which they will sound.

5.4 TECHNICAL ASSISTANCE TO THE FIRE BRIGADE

In the event of a fire, the brigade will be called by one of the five different automatic alarm systems with the location of the building in which the alarm has actuated forming part of the automatic information system to the brigade. On arrival, they will go there and find the fire alarm plans provided. The duty of the security staff at the main gate is to open the gate for optimum access to the brigade and to provide the override key to the brigade if required.

The contact person for the fire brigade is the person responsible for the Showrooms who will make themselves known to the Fire Brigade and will provide any technical assistance required. Outwith opening hours the security staff will contact a member of staff who will respond and provide the technical assistance.

In the event of the Damage Limitation Team being called out to attend the incident then the leader of the Damage Limitation Team will liaise with the Fire Brigade.

Schloss Schonbrunn is currently developing a 'Crisis Management Handbook which includes development of a communications policy. This handbook will be discussed with all external agencies having an interest in Schonbrunn, including the Vienna Fire Brigade in order to ensure full cooperation between all agencies.

5.5 FIRE BRIGADE SUPPORT OF DAMAGE LIMITATION ACTIVITY

The Damage Limitation Team have a role to play in guiding the Fire Brigade through the property should the Fire Brigade request this. It should be stated that no members of the Damage Limitation Team wear Breathing Apparatus and consequently they cannot lead the Fire Brigade in smoke filled areas.

Showroom staff, or the Damage Limitation Team provide any necessary assistance to the Fire Brigade to access secure areas. There is an automatic security system throughout the premises however an over-ride key for the brigade is provided in a key box at the main gate, which only can be opened by a standardised brigade key. This means, the brigade will have access to the over-ride key even when the security staff at the main gate is not present.

6. Damage Limitation Team

Dr Kippes gave me a history of the Damage Limitation Team at Schloss Schonbrunn. The concept of managing fire safety and developing the team was first discussed with Stewart Kidd at a conference held at Duff House, Scotland in 1998. The following year, Mr Kidd undertook an audit of safety management at Schonbrunn and one of his proposals was to improve operational matters of preparedness. Following the publication of his report, Schonbrunn then employed one individual to organise the issues in relation to those recommended by Stewart Kidd.

This included the formation of a Damage Limitation Team and this team commenced training in late 2000. During a meeting of the National Fire Protection Association (NFPA) in June 2001 the work of the Damage Limitation Team was demonstrated through a joint exercise with the Vienna Fire Brigade.

The project to establish the team was then complete and the management of the team became the responsibility of an employee within Schonbrunn, Herbert Polsterer as head of the Damage Limitation Team. Mr Polsterer is the head of a volunteer fire brigade and consequently has experience of fire service procedures.

All members of the team are volunteers. They are not paid for being members of the team, however they do receive a payment for attending the training evenings once per month and they would be paid in the event of responding to an incident.

In addition to their regular monthly training sessions, team members have visited networking partners in Berlin (Castles and Gardens of Prussia Foundation), Hampton Court Palace, London, Imperial Palaces, Madrid, Versailles Palace, Paris and Windsor Castle, London in order to exchange information and good practice with colleagues. This programme will continue with a proposed visit to Scotland in autumn 2006.

These visits also enable team members to collaborate with the host institution and add to their expertise. One example of this is the gloves, which team members wear for training purposes when handling artefacts. On a visit to Hampton Court Palace they established that the gloves worn by the Hampton Court team had a dimpled surface to improve handling and as a result similar gloves were purchased by the Schonbrunn team on their return.

There have been no fires to date for the team to respond to, however they were called out in May 2004 when, following a period of extreme rainfall, they were required to ensure that machinery and equipment located in the basement area avoided damage.

6.1 SELECTION OF THE TEAM

When selecting team members then fitness is one important factor. The standard applied is a general level of fitness; it is not as prescriptive as that which may be applied to staff joining the volunteer or retained fire service. Another factor is the availability of staff to respond to an incident. For this purpose it is preferred if team members live within 20 minutes of Schonbrunn, however if there are sufficient team members meeting this criteria then the distance can be extended as it is recognised that there will be many tasks to be undertaken by the Damage Limitation Team and consequently someone responding in an hour will still have a significant role to play.

Finally, the benefits of having team members from across the range of departments and sections within Schonbrunn enables an exchange of expertise in dealing with the problems that the Damage Limitation Team may face.

6.2 REMOVAL AND RELOCATION OF PRIORITY ITEMS

In order to assist in the removal of the priority items a handbook has been produced that gives a photograph of each room and within the photograph the priority items are colour coded.

Each member of the Damage Limitation Team is issued with a pocket book that has a plan of the building with items such as exit routes; alarm points, extinguisher locations and disabled persons escape points clearly marked.

An object evacuation list is placed within each of the Damage Limitation trolleys. This has details of some 400 items in 40 showrooms. When an item is recovered then the sheet relating to that item is attached to the item. This aids recognition in the post fire phase. These cards are of A5 size and include a photograph of the item and where necessary the number of personnel required to carry the item.

Where it is not possible to remove an item due to its size then the item is protected in-situ by means of fire resistant covers being placed over it.

There are currently 34 members of the Damage Limitation Team. The initial response requires a team of six. This enables two members of the team to be committed to salvage operations, two members of the team to consider security and liaison and the final two members of the initial team to be involved in the packing of removed items. As more team members arrive, they are assigned to a task dependent on the needs of the incident.

Two pre-determined locations for the relocation of items have been agreed with the Vienna Fire Brigade and the team manager will decide on which one should be used during an incident.

The priority lists that have been produced have been developed in a pragmatic manner, considering 'what can reasonably be done by the team in an emergency situation'.

6.3 MOBILISING

If the team are to attend an incident then the method for calling them out is through SMS on their mobile phones. The control room will enter the message and this will be relayed to all members of the team. This relies on coverage of the mobile phone service and can also be slowed down in the event of heavy use of mobile phones.

In the event of the team being turned out for an incident, they will report to the DLT centre. Here there is a sheet for each member of the team to sign when they arrive. This sheet identifies who will be the team leader and there is a section for each member of the team to sign along with a section for where they are to respond. There are clear written instructions provided.

The first member of the team will get information on the alarm and will be responsible for communication and liaison with the Fire Brigade and passing information to other team members via the hand held radios. The next member of the team will be responsible for leading the team. An initial team will consist of six members and as further members of the DLT arrive they will be allocated tasks.

The first two members of the team to respond wear high visibility waistcoats over their overalls to ease identification and to ensure that team members and the Fire Brigade are aware who the team leaders are.

6.4 DAMAGE LIMITATION EQUIPMENT

There are six trolleys strategically placed around the palace, each holding a similar list of contents. In addition, larger, more specialist equipment is stored within the workshop area.

The equipment on the trolleys is not tested during every training session. It is checked on an annual basis and then a seal applied in order to ensure that the equipment has not been used since the last test.

For Personal Protective Equipment the team are provided with hard hats complete with chin straps. In addition, battery operated flashlights can be attached to the hats.

Each member of the team has a one-piece coverall made from Nomex® flame retardant material. The coveralls have 'DLT' printed on the back of them and the persons name is on the front. Boots and gloves are provided to each member of the team.

7. Damage Limitation Team Training

On the evening of 01 March I attended the training session of the Damage Limitation Team. The team train once per month and training lasts for approximately two hours. In addition to this training session, the team are also involved in moving objects and clearing rooms in Schonbrunn when they need to be emptied for renovation work. This provides an additional training opportunity for team members.

There are a total of 34 team members, of which 20 attended the training exercise that I observed. It is a requirement that each team member attends training and they should not miss more than two sessions each year.

During the training sessions all radios and hand held torches are tested. In addition all those attending will register their attendance and a record is maintained of training undertaken.

Within the DLT centre there are training notes on such things as dealing with water damage, what to do in the event of a terror attack and operational instructions for the hand held radio system.

For the exercise, one of the showrooms had to be cleared of all artefacts. The original items are used in all cases except when the team train on the removal of pictures. It was obvious from my observations that the team were well practiced and comfortable with what was being asked of them. The room was cleared in a quick and professional manner.

Items were moved a few rooms along the building where other members of the team were responsible for the packaging and labelling of the items. The Damage Limitation team trolley was taken to this room. The labels that were used for training purposes were hand written, in the event of an emergency then the pre-printed cards identifying each item would be secured to the item.

Following the exercise there was a debrief which enabled all members of the team to contribute and discuss any learning issues from the exercise. Some discussion took place on the brief that team members had received whilst a further discussion was on the number of staff that should be used for carrying some of the vases that were evacuated.

It had been intended to organise annual exercises with the Vienna Fire Brigade, unfortunately this has not been possible and the last exercise was held in 2001. However, the brigade attend on a regular basis to undertake visitations in order to familiarise themselves with the layout of the building and to consider the risks and control measures in place.

These visits enhance the liaison that exists between Schonbrunn and the Vienna Fire Brigade at management level.

8. Review of Existing Arrangements

When identifying the purpose of the visit, it was established that there were five areas for research. Having now undertaken the visit, I felt it would be beneficial to consider the arrangements, not only at Schloss Schonbrunn but also with the other heritage agencies that I have considered and consequently this review considers arrangements at all these properties.

1. Consideration of documentation available on the management of a Damage Limitation Team, including the regulation and control of members of the team.

During my visit I was able to establish that there were good, well-practiced management systems in place at Schloss Schonbrunn. There are written management instructions available in the Damage Limitation Team Control Centre, which detail the roles and responsibilities for team members. The control of team members commences with them 'signing in' when they respond to an incident before control of the team passes to the Team Leader.

The management strategy aligns itself, where possible, to the report on the development of Damage limitation Planning at Schloss Schonbrunn submitted by Stewart Kidd on 12 December 1999.

During the scientific meeting Nick Jordan explained the management systems in place within the National Trust. This includes the requirement for property managers to participate in the formation of a Property Risk Management plan including the need to incorporate written procedures of Damage Limitation Teams.

Prior to undertaking the STSM I visited Hampton Court Palace where I saw documentation relating to their Salvage Team. This contained instruction on the control of members of the team and stipulated "The role of the Salvage Team is to work alongside and, under the direction of, the Emergency Services."

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.

Wolfgang Kippes provided a comprehensive understanding of the management plan for Schloss Schonbrunn and the role and responsibility of the Damage Limitation Team within that. As stated above, there are clear guidance on the roles and responsibilities of Team Leaders and team members when the team responds to an incident.

The role of the Damage Limitation Team is also well known and clearly defined by the Vienna Fire Brigade, as demonstrated by Frank Peter during his presentation to the scientific meeting.

During the National Trust course on Emergency Salvage, the roles and responsibilities of the salvage team and the property manager were well highlighted with property managers tasked to include this in their plans.

Hampton Court Palace clearly define the roles and responsibilities of their salvage team members through a series of scenarios relating to their attendance at various properties.

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.*

The Damage Limitation Plan is well integrated into the emergency plans for Schonbrunn. The development of the Damage Limitation Team has secured this integration while the structured approach to training ensures safe and secure evacuation of artefacts.

Damage Limitation Plans ensure appropriate equipment and floor plans are provided for the team along with detailed information in relation to items, including photographs and advice on removal of items. The provision of pre-arranged storage areas for any items removed from the palace further improves the security considerations of damage limitation.

The information provided as part of the Damage Limitation plan is similar to that provided at Hampton Court Palace where they also catalogue all items and provide detailed floor plans.

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.*

Schloss Schonbrunn provided a very good example of cooperation between the professional fire services and heritage agencies. The one area for improvement that I would identify would be that the Damage Limitation Team and the Vienna Fire Brigade should undertake another joint exercise, as they haven't done so since June 2001. Having said that, it is clear from the presentation given by Frank Peter to the scientific meeting that the fire brigade work closely with Schonbrunn on the development of their management systems and in developing the role of the Damage Limitation Team.

Frank Peter did highlight that the relationship between the Fire Brigade and Schloss Schonbrunn was greater than at any other building in Vienna.

Outwith Vienna, the co-ordination and integration rests with the Austrian Association of Volunteer Fire Brigades. During his presentation to the scientific meeting, Johannes Leglar-Diesbach explained the work he has completed to develop joint training and fire management in heritage properties, again demonstrating a very good example of cooperation.

During my visit to Hampton Court Palace I was made aware that London Fire Brigade attends the palace to look at the procedures and for familiarisation, however there have been no joint training exercises Therefore it is unlikely that London Fire Brigade would be fully aware of the capability of the salvage team.

The National Trust encourages liaison with the fire service through property managers and Nick Jordan explained that property managers are required to liaise with their local Community Fire Station and encourage fire crews to visit their properties.

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.*

At Schonbrunn the team train once per month, for approximately two hours. In addition to this training session, the team are also involved in moving objects and clearing rooms in Schonbrunn when they need to be emptied for renovation work. This provides an additional training opportunity for team members.

There does not appear to be any formalised training for professional firefighters to consider the unique features of a historic palace and there have been no joint training exercises since June 2001.

The training regime employed by the Damage Limitation Team at Schonbrunn is similar to that utilised by the Salvage Team at Hampton Court Palace. Again, there is little formalised training for professional firefighters to consider the unique features of a historic palace and there have been no joint training.

The training undertaken by the Volunteer Fire Brigades in Austria is a good example of joint training making both property owners/managers and the volunteer fire brigade more aware of the issues in relation to fire in heritage properties.

The training provided to managers within the National Trust is another example where fire professionals come together with a heritage agency to discover the unique features of firefighting in heritage properties. However the number of fire professionals that can attend is limited.

The conclusions above all relate to the specific areas of research that was identified prior to undertaking the STSM. There are additional, very good examples of cooperation between the heritage agencies and professional fire services.

All elements of the management strategy in place within Schloss Schonbrunn, including the roles and responsibilities of the Damage Limitation Team, the fire action plan, the introduction of fire detection and suppression systems and all fire safety issues are agreed between Schloss Schonbrunn and the Vienna Fire Brigade.

Luca Nassi was able to provide the scientific meeting with an overview of the Santa Maria Della Scala in Siena, Italy. He highlighted the need for close liaison during renovation work and demonstrated that through this specified fire safety goals could be achieved even where prescriptive standards could not be met.

During my presentation I provided details of the unique partnership that exists between Historic Scotland and the Scottish Fire and Rescue Services.

The STSM and scientific meeting proved however that there is still a need for further work to enhance the relationship between the professional fire services and heritage agencies. There is a need for fire services to be more aware of the unique features that will affect firefighting in a heritage property, property owners and managers need to be aware of the fire service need for information in the event of an incident and the need to pre-plan in order to limit damage in the event of a fire and both must have protocols in place that will ensure cooperation between them.

9. Recommendations

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. I therefore make the following recommendations:

1. The Management committee approve this Scientific Report and include this within the final report of COST Action C17, Working Group 4 to demonstrate examples of 'Management Strategies to secure integration of Damage Limitation Teams and professional fire services'
2. Guidance 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. I would propose to produce this as a short guide, published through Historic Scotland and included within the final report of the Action.
3. Guidance to be provided to Fire Services. In particular, the information available to crews and how this is being used, training provided on the unique features of a fire in a heritage property, exercises being carried out at heritage properties, 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.