

Fine Art Salvage Guidelines



Why do you need a Fine Art Salvage Plan?

Country houses today are often complex organisations that can be, in part, a private home, museum, wedding or corporate venue, film set, shop or restaurant – the list is extensive. Disasters can strike any organisation, large or small, arriving in the shape of storm, fire, flood or even a terrorist outrage. To overcome a disaster and the spiral of impact that follows, an action plan is required in advance. Indeed any organisation that undertakes a logical, structured view of the threats facing it and then works out how to respond to them, has already reduced the impact if disaster strikes. If the organisation also trains staff in implementing the plan, it has an excellent chance of surviving the disaster and recovering quickly.

This set of guidelines aims to prompt owners of historic properties, their agents and staff, into considering the many aspects of risk management and prevention, as well as advice on points to consider when formulating a Fine Art Salvage Plan. As no two properties, contents or potential disasters will be the same, either in scale or nature, this manual does not contain advice that is too prescriptive or site specific. Each individual property needs the flexibility of a ‘series’ of potential salvage plans for every possible scenario. We hope therefore that these fine art salvage guidelines are interpreted against the specific requirements of your property and will form the basis of your fine art salvage planning. This is not a document to be read in hindsight!



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Glasgow School of Art



The first half of the Glasgow School of Art building was designed by Charles Rennie Mackintosh in 1899 and the second in 1909. The Category A listed building, still used for its original purpose as an independent art school, has often been regarded as one of the finest buildings in Scotland. It was severely damaged by fire on the 23rd May 2014 when a fire began in the basement, quickly spread upwards and although it was brought under control quite quickly, (the fire brigade were onsite in less than three minutes), significant damage was done to the historic studios and stairways. The renowned Mackintosh library was destroyed but fortunately much of the archive survived although there was some water damage. The fire began in the basement sculpture studio in a most unlikely way. A student was using a canister of expanding foam in close proximity to a hot slide projector, causing flammable gases to ignite. The fire rapidly spread through the building which has a number of timber lined walls and voids. The building is extremely well documented and the restoration of the building was relatively straightforward.

Clandon Park House



The fire at Clandon Park House, a Grade I listed building near Guildford, Surrey occurred on April 29th 2015 and rendered the once magnificent Georgian building a roofless shell. It was the worst fire in the history of the National Trust. The fire was most likely caused as a result of a faulty connection in the electrical distribution board. A lack of fire protection to the fuse cupboard ceiling and the stately home's historic design allowed the fire to spread. The fire brigade commented that 'it is the hidden voids in this type of building that allow unpredictable and uncontrollable fire to spread'. Sadly large proportion of the collections were lost and this included the Surrey Infantry Museum, which was located within the basement. With the collections lost questions have been raised as how best to reinstate the building.

Windsor Castle



For over four years from June 1988, the Upper Ward at Windsor Castle had been subject to a comprehensive works programme, in which the unreliable 1950s electrical wiring and heating systems were replaced. Fire compartmentalisation to prevent the spread of a blaze and a new automatic fire detection system were also installed, although sprinklers were not. As with many historic buildings, it was calculated that the damage caused to valuable interiors simply by introducing sprinklers, let alone the damage that they might do if they went off by mistake, would not be worth the reduction in fire risk that they would bring. The subsequent fire in the castle did not alter this view.

As the rolling programme of works moved through the building, each area in turn was emptied of art until the work was completed. At the time of the fire the Private Chapel, because of its convenient location, was used to inspect and store paintings that had been removed from neighbouring rooms undergoing rewiring. Some twenty-four pictures from surrounding rooms were being stored there on 20th November 1992. With the entire project only weeks away from completion, and the fire detection system only ten days from conclusion, spotlights with mirror backed tungsten bulbs in the Private Chapel, only intended to throw light onto the altar at Easter, were switched on unnecessarily, in error. It is thought that a large Benjamin West painting was leaning against a curtain, which in turn was pressing onto a bulb. Fire was detected at 11:20am. Some thirty paintings were saved in a hurried removal from the chapel and surrounding area. The only loss in the room was an eighteenth-century William Kent-style frame.

The rest of the story is well-recorded, but in brief, ten pumps were sent for, and the fire lasted for fifteen hours, devastating one hundred and fifteen rooms, vaporising those at the seat of the fire, and causing around five times the amount of damage than the fire at Hampton Court Palace and twenty times that seen at Uppark. In all, £35 million worth of damage was caused to the building. This would have been considerably more had the salvage operation in those rooms not been so effective. Luck was an issue as most of the rooms that burned had no furniture or works of art in at the time. Some fire compartmentalisation had been in place and the fire brigade held the fire within boundaries. The salvage operation was a model of its kind.

As part of the pre-arranged response to the fire, a 25 strong salvage squad was contacted as soon as the first emergency call had been made. It was soon realised that more help was needed and every available removals van in the region was summoned to the castle, as were soldiers from the Combermere Barracks in Windsor with as many Bedford vehicles they could spare to take salvaged

items to a prearranged store in the Great Park. Due to the value of the pieces being moved, the Thames Valley Police had thrown a cordon around the entire castle to prevent looting. As the salvage plan swung into action the Gobelins tapestries in the Grand Reception Room, which were attached with Velcro and poppers, were pulled down with a sharp tug. It was estimated that the Royal Library, which was not affected, would take three hours to clear including the most important collection of drawings and prints in existence. The aim of the salvage list was to get out the most valuable first – for example drawings by Leonardo da Vinci and Holbein – via a human chain, to a place of safety. In the State Dining Room two items were so large that they had been packed and stored in situ – Sir William



Beechy's George III on Horseback at a Revue and a 1820s Gothic sideboard designed by A.W.N. Pugin. The room was abandoned to the fire and was last inspected by the fire brigade at 6:30pm. The Duke of York offered to go in and cut the Beechy from its frame but was advised not to do so. By 7pm it was lost, some seven and a half hours after the fire was detected.

Among the lessons learned from the disaster were the need for automatic fire detection, fire compartmentalisation and fire-stopping voids, flame retardant treatment of curtains, trained salvage teams and visitor workers, and the importance of liaising with the fire brigade.

Heveningham

At Heveningham, the Suffolk mansion house built in 1780, the east wing was in the process of being extensively renovated when, on 8th June 1984, as works were approaching completion, a fire started, thought to be caused by a painter using a blowlamp to burn paintwork off a window frame. Fortunately the antique contents had been removed from the wing and during the fire these were salvaged from the house. The fire crew also removed a valuable chandelier in a well-prepared way. However, £1.5 million-worth of damage was caused.

Hampton Court

At Hampton Court, on the night of 31st March 1986, a fire was detected in the Cartoon Gallery. The ceiling was said to be 'bubbling' from the heat. As lateral spread was a concern, it was decided to vent the roof, which in itself posed a major and dangerous problem. It took six men with crow bars almost twenty minutes to roll back enough of the inch thick lead sheet from the roof. This greatly eased the situation by allowing the fire to vent (fire crews often open up glass domes above staircases for this purpose). During the fire, brigade personnel assisted with the removal of valuable art treasures. Tragically, the body of a woman was also recovered. The fire brigade operations were finally closed down on 6th April. The loss was approximately £20 million and the building was subsequently fully restored. At the inquest it was stated that the cause of the fire was probably a candle.



Uppark



The 17th century house Uppark in West Sussex, owned by the National Trust, was undergoing an extensive programme of work to the roof, which had been badly damaged in the storm of October 1987. Scaffolding surrounded the building as the work neared completion. On 30th August 1989, heat from an oxy-acetylene torch, used to weld lead, ignited roof timbers. A massive salvage operation began with some personnel working in hazardous conditions to retrieve the contents of the house.

As a result, ninety-five per cent of the basement and ground floor contents were saved, plus some of the contents from the first storey before the roof collapsed. In the end seventy-five per cent of the building sustained damage by fire and collapse. The loss was approximately £25 million. Six years later the Court of Appeal finally ruled the contractor liable against arguments of being relieved from liability for the fire under its contract. The house re-opened in 1996 fully restored. It is interesting to note that Coleshill in Berkshire, a house of equal historic importance, was damaged by fire in 1952 and was demolished by 1958. Such has been the change in the way we regard our heritage.





Fire

The principal peril concerning most clients is that of fire, and the resultant smoke and water damage. A fire occurs when a fuel is raised to ignition temperature by a heat source in the presence of oxygen. Smoke and hot gases will rise until they reach a ceiling or roof and will then spread laterally forming a layer (mushrooming), until they reach a wall. The layer then thickens and moves downwards, continuing until it reaches an opening such as a window. Building up in intensity, the fire will spread further if unconfined, until it reaches an unobstructed upward route such as a staircase. Smoke and hot gases will discover any hidden voids or cavities, spreading the undetected fire and causing the smoke to clog areas far removed from the original source of fire.

Risk reduction measures and prevention methods

A fire risk assessment should be undertaken at all properties to include possible sources of ignition, likely fire spread and vulnerable areas. It can be convenient to carry out the risk assessment in combination with that required under the general fire precautions legislation in the workplace – the Regulatory Reform (Fire Safety) Order 2005 and the Fire (Scotland) Act 2005. More information about risk assessments can be found on Health and Safety Executive's risk management website.

Automatic fire detection

In larger buildings, especially those with residential accommodation, a fully addressable Automatic Fire Detection system should be designed, installed and serviced according to the appropriate British Standard, BS 5839. These systems are strongly recommended for all historic properties of an extensive nature such as mansion houses, as swift detection and summoning of the fire brigade can save invaluable time in the safe evacuation of family members and staff, the tackling of a fire and limiting its spread, and the safe removal of historic contents. Two thirds of all fires occur after 6pm so it is clearly of benefit to have the installation continuously monitored by a remote alarm-receiving centre, to alert the fire brigade automatically, rather than relying on somebody taking the initiative to notify the emergency services in the panic of an evacuation, or in response to break-glass or bell-only activations. Modern sensors can detect the initial presence of a fire and thanks to technological developments, they can be discreetly located in sensitive historic interiors, providing 'wire-free' communication to the control panel by radio. Wire-free detectors are battery operated and do, therefore, require additional maintenance. Telephone line monitoring via the secure method BT Red CARE is one of the best known systems, but alternatives are available. The advice of your insurance company should be sought on the preferred method of line monitoring.

Open fires

Open fires are not recommended. If used, flues should be checked for their integrity or lined and they should be swept at least annually. Spark arrestors should be fitted to all open fires and should comply with BS 3248. If green, fruit or unseasoned woods are burnt, these can leave heavy tar and other deposits that can adhere to a spark arrestor mesh and thus limit its ability to prevent spark escape from the chimney. In these circumstances, their usage is not recommended, but as a control measure,

the chimneys must be swept more frequently. Rooms with open fires should ideally not be left unattended.

Chimneys often form the support internally for timber bearers – fracture of the chimney linings can expose these to direct heat and combustion. Such fractures can also release fatal carbon monoxide gases; installing carbon monoxide detectors to rooms with open fires or with chimney stacks passing through would provide an early warning of flue fracture. In addition, unprotected or naked flames – for example, candles or from smoking – should be avoided.



Hot works

Many fires are the result of the careless actions of building contractors. As a principle there should be no hot works – plumbing, lead roofing work, paint stripping, welding – within six metres of the building. If unavoidable, a hot work permit should be agreed in writing. Hot work arrangements must include the provision of additional fire-fighting equipment together with the implementation of other necessary fire precautions, which may include the removal of contents. Competent monitoring should continue for at least two hours after cessation of works, as fires have been known to occur several hours later. Due regard must be paid also to prevailing weather conditions. You should inform your insurer of any such works in advance and as soon as practical. (A copy of the Loss Prevention Council's recommendations for Hot Work, which includes a sample hot work permit, can be purchased from: www.thefpa.co.uk.)

Safety problems to consider during building works:

- Loss of fire separation caused by the removal of doors or repair of partitions or ceilings.
- Temporary isolation of fire detectors to avoid false alarms due to dust.
- Additional fire loading caused by the temporary storage of building materials and packaging.
- Additional sources of ignition caused by temporary lighting, plumbing works and sparks from cutting equipment.
- Similar monitoring is required when employing contract caterers.

Electrical faults

These are a common cause of fire and the likelihood of a fault occurring increases with the age of the installation. Danger signs include: overloaded sockets, damaged rubber-insulated or older lead-covered wiring, worn flex, taped connections or timber channels for wiring. Unguarded or electric heaters other than fan heaters, oil-fired radiators and night-storage heaters should be viewed with caution. In larger historic properties the electrical system may have developed piecemeal over time and regular testing is therefore required. Remedial works may include re-earthing and partial rewiring repairs and, as good practice, it is strongly recommended that at least every five years the electrical system be inspected by a NICEIC approved contractor to the UK Standard, BS 7671, who will then



issue an Electrical Installation Condition Report; any remedial work highlighted during the survey must be corrected as soon as possible.

Central heating

Wherever possible historic buildings should be heated by means of modern central heating systems using gas or oil fired boilers (or equivalent such as proprietary installed wood chip). These, however, can cause their own problems, as wet systems can be a hazard to the fabric of buildings. Oil boilers should have a fusible shut-off valve to the fuel supply line and should be located in a fire-proofed room preferably away from sensitive areas. The oil tanks should be further away still. Should tanks serving the property appear to be reaching the end of their life they should be replaced with double-skinned PVC tanks with renewed seating and supply piping. Portable heaters using paraffin oil or liquefied petroleum gas are a serious fire hazard and their use should be avoided. Structural timberwork can withstand some fire – because when it chars, the layer of charcoal protects the core. Timber can be made more combustible when the surface has become friable due to decay or insect attack, so make sure timberwork is inspected whenever possible. Do note however that wood preservative treatments can often temporarily increase the risk of fire as they are often solvent based

Arson

Malicious fires started by vandals, disgruntled employees, thieves or visitors account for over half of all major fires in the UK. Historic buildings, sadly, are often chosen as targets by arsonists because of their high public profile. Think of the infamous Jonathan ‘Mad’ Martin at York Minster in 1829 or the more recent arson attack at Peterborough Cathedral in November 2001 that resulted in a loss in excess of £2 million. For this reason, the property’s physical security should be kept under constant review. There will however be a trade-off between physical protections such as internal shutters, locks, etc., and fire brigade access and emergency escapes prepared in accordance with current legislation. All new staff should be vetted, including taking up references. If provided, public access into and through the house should be closely monitored and restricted.

Lightning conductors

These provide safeguards against sparks from static electricity. Lightning is a form of static electricity. It has extremely high electrical potential and energy and can generate extremely high temperatures. Lightning is a random, capricious event that is not well understood. What is known is that lightning tends to strike the tallest object on the ground in the path of its discharge – chimneys, spires, towers, roofs and parapets being the most likely structures.

The lightning bolt generally follows a conductive path to the ground. A low impedance path, for example, a copper lightning rod with an air terminal connected to the ground and earthed in accordance with BS 6651:1992, should be installed on all historic buildings to prevent lightning currents from taking other possible destructive routes.

The effect of the sun

The rays of the sun can also lead to a somewhat remote possibility of fire, usually assisted by some manmade implement. Such a scenario would be extremely difficult to detect as a fire hazard.

However, the sun's rays shining through a piece of window glass, which may be ideally curved and placed to act as a magnifying glass, have been known to ignite curtains, for example – via a bubble or some other irregularity on a window pane. Such an event was the cause of a fire in the drawing room at Bradley House.

Supply of water

Many historic properties are fortunate in being located near sources of water, whether streams, rivers, lakes, bore holes or ponds. Today swimming pools form an additional, if limited, source of emergency water. Where there is no water hydrant or alternative water supply available, consideration should be given to the provision of a water storage facility, which can take the form of a water tank, swimming pool or pond. Around 20,000 litres (4,000 gallons) is generally considered a minimum requirement, although this would provide one pump with water for eight minutes only; 50,000 litres (10,000 gallons, or roughly 16' x 10' x 10') is probably a more realistic size. All persons on site should be familiar with the location of fire hydrants.

Fire extinguishers

There are several types of fire extinguisher on the market. All have different characteristics and properties that may in themselves be detrimental to works of art. Fire brigades will advise on the most effective types of extinguisher to install in public rooms, offices, boiler rooms, etc. For best results, fire extinguishers should be on an annual maintenance contract from the supplier. The role of fire-extinguishing appliances should not be overstressed, but they can be extremely effective if the correct type is used on a fire in its early stages. To this end, it is very important that personnel are familiar with both the location and use of all extinguishers. In brief, water extinguishers are at their most effective when fighting fires involving carbonaceous materials such as paper, wood and hay or straw. They are especially suited to deep-seated fires due to their cooling effect and potential seepage to the seat of the fire.



Foam-based units have a similar but lesser effect on carbonaceous fires, but they are well suited to contained oil spillages. However, they are extremely dangerous if used on burning oil. Both water and foam can be dangerous if used on fires involving electrical equipment. Carbon dioxide (CO₂) extinguishers are usually recommended for liquid and electrical fires. They must not be used on metal fires. Carbon dioxide is not harmful to works of art or fragile artefacts; however, it may leave a deposit of fine ice on the surface of objects located close to the point of discharge. It is safe for use where



there is a risk of electric shock but gives no protection against re-ignition of ordinary 'class A' combustible materials. Carbon dioxide extinguishers make a loud noise when activated and contact with the 'horn' must be avoided – the low temperature can cause burns to the skin. Suitable training for all staff is strongly recommended to ensure that these extinguishers are used in a safe and effective manner.

Argonite and other suppression gases are available in alternative systems. Argonite provides a total flood of the enclosed space. Although it has a slow discharge time, it is a safer option than CO2 in places where people are involved, such as archives or libraries. [Halon extinguishers have many benefits over water, foam or dry powder but because of their damaging effect on the environment no new halon production has been permitted in the UK since 2002. Where halon extinguishers are already installed they should only be discharged during a real fire and not during training exercises, servicing or maintenance. They can remain in service for up to twenty years from installation, at which point they will need to be replaced by an alternative type of extinguisher.]

Carbon dioxide and dry powders are virtually universal in general application, although they can cause splashing of oil. Care should also be taken that fires do not re-ignite following their use, due to their limited cooling powers. Gaseous fire extinguishers such as carbon dioxide or halon can be dangerous in enclosed spaces due either to a reduction in oxygen levels or the production of harmful by-products. Dry powder extinguishers should not be used in rooms where there are works of art. They give off a cloud of very fine powder particles that permeate the air and travel long distances. These easily become trapped in tiny crevices and may react with fragile materials and damage fine mechanisms or artefacts.

Both water based and Aqueous Film Forming Foam (AFFF) extinguishers are not recommended for use in rooms containing works of art. Foam extinguishers emit a blanket of chemical foam that may react with any objects it comes into contact with.

The European Standard for Fire Extinguishers (BS EN 3) states that all new extinguishers are to be coloured red, although a coloured band forming 5% of the surface can be used to indicate contents, using the traditional colours (red, black, blue, cream etc.). The standard also details 'icons' that must be used to identify the type of fire for which each extinguisher is suitable. It is very important for all staff to understand the colour-coded bands that indicate usage. Ideally, all extinguishers in any one building or situation should have the same colour and appearance. Thus, there should not be any mixing of appliances of the two standards. In certain circumstances a fire blanket may be considered as an alternative, to smother isolated fires where works of art are involved.

P50 Maintenance free fire extinguishers are now available which have a twenty year lifespan and require no discharge testing or refilling for ten years, although regular visual inspections are recommended.

Fire compartmentalisation

The construction and layout of historic buildings frequently incorporate features that can assist the rapid development and the hidden spread of fire, for example, there may be panelling that covers continuous and interconnecting voids. These cavities may contain substantial amounts of dust, plus



scarf from the original joiners' work – a highly flammable mix. For relatively small expense, the insertion of fire stopping and cavity barriers without detriment to the fabric of the building should always be considered. These measures will provide some form of containment and reduce the risk of fire spread accordingly (for more detailed technical and construction specifications for the Introduction of Compartmentalisation please refer to LPC Design Guide for the Fire Protection of Buildings 2000, with particular reference to cavity barriers). Examples of where cavity barriers should be used are in hidden voids above suspended ceilings, and floating or raised floors, and in larger voids behind panelled walls. The LPC guide recommends that cavity barriers should have a minimum fire resistance of thirty minutes and be located in line with all fire separating walls or doors and spaced not more than twenty metres apart. Fire doors might also be considered in less historically sensitive areas.

Fire and flood risk assessment

The Fire Safety Order 2005 requires fire risk assessments to be carried out. More information can be found on fire safety via the Health and Safety Executive's website. In brief, businesses must:

- Carry out a fire safety risk assessment
- Check that a fire can be detected within a reasonable time and that people can be warned
- Check that everyone in the building knows what to do if there is a fire
- Check that people who may be in the building can get out safely
- Provide well-maintained fire-fighting equipment
- Check and maintain fire-safety equipment
- Record details of the assessment if there are five or more workers. This is particularly relevant for employers of five or more staff who may be assigned salvage duties.
- Keep sources of ignition and flammable substances apart
- Avoid accidental fires, e.g. make sure heaters cannot be knocked over
- Ensure good housekeeping at all times, e.g. avoid build-up of rubbish that could burn
- Consider how to detect fires and how to warn people quickly if they start, e.g. installing smoke alarms and fire alarms or bells
- Have the correct fire-fighting equipment for putting a fire out quickly
- Keep fire exits and escape routes clearly marked and unobstructed at all times
- Ensure your workers receive appropriate training on procedures they need to follow, including fire drills
- Review and update your risk assessment regularly

A more detailed risk assessment of the hazards likely to be present at the time of any incident will need to be undertaken and documented to ensure staff are not unduly exposed to risk. It is strongly recommended that the advice of the local fire officer be sought on the above fire control measures and the attendance of the local fire brigade be actively encouraged to provide the brigade with site familiarity, location of water supplies, access routes and to make them aware of the estate salvage plan (see p. 10-13 and also useful contacts, pp.26-27.).

Where possible, pipe runs (and kitchen and laundry areas in domestic accommodation) should be modified so as not to be sited above rooms with valuable contents or rooms with plasterwork, panelling, stone or marble floors, etc. Should new bathrooms, for example, be incorporated within



sensitive areas, a lead 'tray' can be constructed in the floor void to redirect potential floods away from delicate decoration or works of art.

If such alterations are not possible, do not site 'sensitive' objects beneath pipe runs or areas of likely leaks. If this is unavoidable, cover objects with loose polythene when the property is closed to the public to protect against and monitor potential leaks. In larger properties it is possible to incorporate a rising main water control valve (or diaphragm). This monitors the water flow and so can limit the amount of escaping water caused by a significant leak, by automatically cutting off the main supply. The valve should also be able to be connected to the alarm via a shunt system. Your local water utility can provide information on these devices. Keep objects at least four inches off the floor in storage areas or wherever appropriate. Locate all isolation valves and taps in the building and ensure this information is recorded on plans held within the Emergency Wallet system (see p. 11). Inspect all pipes, radiators, etc. regularly and get them fixed at the first sign of leaking. Old water tanks can fail over time and should be replaced by new PVC designs. Never leave water running in sinks.

Regularly check environmental conditions, such as the height of nearby water courses or the level of ponds and lakes. Some properties have submersible pumps in cellars to keep a rising water table in check. If there is a flood in a building DO NOT attempt to enter any of the affected areas until the electricity supply has been shut off. The supply should then be locked off to prevent inadvertent reconnection by anyone else subsequently entering the building.



Establishing your Fine Art Salvage Plan

The basic principle of any emergency plan is that it provides a framework for an organisation to rely upon in a crisis – the plan has to be flexible, clearly written and easily understood. It is crucial to ensure that all members of a household (and other people where necessary) are aware of sensible procedures for different kinds of emergency. Procedures should be thorough but workable and updated annually. The plans must be made available to all adults and older children in the family, staff members, and others who are reliable. A fire drill practice or rehearsal should be held at least once a year so that the response of those involved can be tested. For example, at Chatsworth, there is a weekly practice.



Plans should be developed for:

- Fire, flood, crime or threat of a criminal act
- Accident or injury to someone
- Press enquiries in the event of an emergency

Familiarity with the building and estate

Everyone using the building should know the location of:

- Stairways, escape routes and emergency exits
- Cut-off points for utilities (water, electricity and gas)
- Communications equipment (telephones, mobile phones and two way radios)
- Emergency equipment and materials, and protective clothing

Local fire officer

Contact with the fire brigade at a local level, with the Divisional Officer, as well as with the Fire Prevention Officer at county or city headquarters, is important at the outset when planning for emergencies. Brigades have expertise and apparatus for dealing with the aftermath of fire and flood. The precise location of the property for emergency vehicles is important. Use the Ordnance Survey Grid reference for accuracy. In the event of a disaster, the Fire Officer in charge will be responsible for all operations. Erect a large notice saying 'ONLY ATTEMPT ACTIONS IF SAFE TO DO SO UNDER THE INSTRUCTION OF THE FIRE OFFICER'. Close liaison with the local brigade beforehand will help you recognise the limitations within which your own emergency support team must work. Liaising with the fire brigade will also help them understand your priorities for the rescue and handling of contents during an emergency.

The police

It is also important that you discuss your emergency plans with local police, in particular the Crime Prevention Officer. During an emergency the police may be able to assist in maintaining the security of the house and rescued items. They may also be able to help with the management of visitors, onlookers and traffic. However, it is important to recognise that the police may not always be able to help with additional staff, and security firms cannot always provide support at very short notice.

Emergency wallets

Emergency Wallets (clear plastic sleeves or folders) containing important and detailed information should be compiled and kept up to date. Two copies should be made. Some of the information will be a security risk and must be sensitively stored. Their location must be agreed and access must be at the appropriate security level. Ideally, an Estate Office copy should be near the Emergency Equipment store, in a site of low risk, and the other near the intruder/fire detection system panel in the house. Consider having a security key box fixed at an agreed place in the house with a limited number of keys to the box issued to family and staff. Placing it near the Fire Detection System's alarm panel would be ideal.



- Building workers should always be discouraged from carrying out any hot work on site. If it is essential, they must be closely supervised and the site thoroughly inspected and monitored afterwards to prevent a smouldering fire.
- Building workers must always be informed of emergency procedures – including means of escape, and location and operation of fire-fighting equipment. All contractors must comply with the hot work permit.
- All boilers, chimneys, radiators, heaters, hot-water cylinders and other hot surfaces should be clear of easily combustible materials such as paper products.
- All fuel supplies and cleaning materials should be securely stored and positioned at least one metre (three feet) from any existing or potential ignition sources.
- Fire alarms, including any Automatic Fire Detection Systems, should be tested regularly, preferably weekly.
- Fire doors should be clear of obstruction, kept shut, and if possible self-closing (via electromagnets, to which the power cuts when the alarm sounds). Exit doors should be able to be opened from the inside in an emergency.
- Fire escape stairways, hatches and ladders must be kept clear and in good condition.
- Fire extinguishers must be in working order, annually serviced and clearly on view.
- Open fireplaces and electrical and gas fires must be properly maintained in good condition.
- A no smoking ban should be maintained as a house rule in specific areas, i.e. where combustible liquids such as turpentine and similar materials are stored. Suitable non-combustible receptacles should be provided for discarded smoking materials in designated smoking areas.
- Electrical wiring must be maintained and unused appliances switched off at the plug – for example, television sets that are not in regular use.
- Socket outlets should not be fitted with adaptors unless for a temporary connection such as Christmas tree lights, which are unplugged at night.

Flood: general precautions

A far more common cause of loss than fire are the various forms of water damage, from simple water penetration, to burst pipes, or even flood.

- Most historic properties have a complex arrangement of roofs. Each of the rainwater hoppers and any hidden gutters behind parapets should be checked and swept clean at least once a year in autumn but preferably each month in the autumn and winter seasons. All areas of roof covering, especially felt/asphalt, flashings, and glazing (skylights etc.) should be checked for signs of deterioration.
- Drains must be inspected regularly.
- If installing domestic accommodation in historic properties, consider specialist plumbing techniques that minimise flood damage.
- Install a rising main water control valve to cut off the mains if a leak does occur.
- Keep 'wet' central heating systems well maintained: check boilers, radiators, tanks and pipework for leaks.
- Make sure all staff know the location of stopcocks and water valves within the building.
- Externally, monitor the local water table by keeping an eye on water levels in rivers and lakes.

- Always shut off and lock shut the electricity supply before entering a flooded building.



An Emergency Wallet should contain the following information:

- ✓ An up-to-date list of telephone numbers (work, home and mobile) of the people who need to be informed about the emergency. Lists of telephone numbers should be marked at the top 'FOR USE IN EMERGENCY'. Emergency telephone lists contain individuals' private numbers – if used for any reason other than an emergency, it might be considered an infringement of privacy. Emergency telephone lists should only be made available to those who need to know (see Telephone Tree, p.13).
- ✓ Addresses and telephone numbers of emergency services for gas, electricity and water companies.
- ✓ Basic floor plans of the buildings showing location of main disconnection and isolation cocks for gas, water and electricity services. Items such as the location of any fixed LPG storage tanks, compounds or storage of LPG cylinders, cabinets/bins/rooms used for storage of flammable liquids/products and storage facilities for any other hazardous chemicals. Also mark the location of all drains and manholes. Copies of these plans should be available for the fire brigade.
- ✓ A photocopy of the inventory arranged in category order by type of content.
- ✓ Addresses and telephone numbers of builders, plumbers and electricians who are familiar with the property and are willing to carry out 24-hour emergency work. Ideally, they should be the firms who originally installed the equipment.
- ✓ Addresses and telephone numbers of firms for hiring and buying specialist equipment and materials. These might include:
 - A 24-hour plant hire firm that can supply portable pumps, generators, extractor fans, heaters and building dryers, dehumidifiers, and wet-vacs (a dormant contract to supply at time of need is advisable).
 - A local blast-freeze plant with a contract renewed annually (access arrangements will probably be advisable).
 - A freezer van hire company – for transporting books to a blast-freezer plant in warm weather.
 - Builder's merchant to supply polythene, plywood, wood battens, sack barrow, and material for making duck boarding.
 - Hardware or specialist plastics supplier for polythene, foam sheets (white) and ethafoam.



- Local library for the loan of trolleys for moving books. Tea trolleys from restaurants can also be used. Alternatively trolleys can be made by the house staff or the estate joiner, using the same castor wheels used on four-wheel bogies.
- Water damage service – Munters UK Limited has five regional offices in England (see p. 27). It specialises in mopping-up operations following a flood, and supplies absorption-type dehumidifiers (more effective at low temperatures than the refrigeration type).

Priority Salvage Cards

- Each Emergency Wallet should contain Priority Salvage Cards for each principle room. The cards should be designed so the identification and safe removal of a specified item is as straightforward as possible. Remember these cards may have to be read by torchlight in possibly smoky conditions and should therefore be clearly and consistently laid out.
- Ideally they should be made of card and laminated in plastic to make them more durable. Each card should be numbered. Details such as the fire zone, floor, room name and size should be noted for ease of reference.
- The card should contain an orientation plan of the property along with a more detailed plan of the room in question, showing possible entry and exit points – for example, windows and doors – as well as notable features such as fireplaces, etc.
- The location of ‘priority’ objects should be clearly noted. To aid the viewer a small clear photograph of the object should be placed on the card together with a short description.
- Values should never be included.
- Should an object require any special form of removal this should also be explained – for example a picture may be hung by mirror plates and would require a screw driver to remove.
- Always remember that the reader may not be familiar with ‘art’ reference terms or a particular artist’s work. Could you tell the difference between a Hepplewhite and a Chippendale chair in an emergency?
- Try not to overload the card with information. Use additional cards for rooms with many objects and use colour coding to highlight key information. Ask your local fire brigade what format they would find most useful.
- Periodic checks to ensure the safekeeping and updating of the cards will be necessary. Unless there are reasons to revise details, such as re-decorating or new purchases of works of art, a bi-annual review should be often enough.

Telephone tree

A telephone tree operates in an emergency, with one person ringing two others, then those two both ringing two more (according to a pre-planned call-out list), and so on, until everyone who needs to be alerted has been. An easily updated list of contact numbers, which can be modified during summer and other holiday times, must be compiled.

Options for the rescue and protection of contents

There are two phases of action to be taken:

- The rescue of objects that are threatened by fire and by a subsequent drenching in water.



- The protection of those objects from the effects of residual water, smoke and soot, or damage from something like a collapsing ceiling or accidental clumsiness induced by panic or haste.

Probable course of action

Imagine a fire starting in a specific place. How many adjoining rooms would be affected by smoke and water? Which neighbouring rooms would you need to evacuate? Which large objects could you only hope to protect in the short term, and where would you take salvaged items? This sort of detailed, advanced planning will save you time and give you the confidence to implement an effective emergency plan.

Preparation is all

- Decide which the most valuable items to be rescued are.
- Know what is portable. Do not waste time on the grand piano, or a huge picture in a heavy frame bolted to the wall.
- Be selective, especially when evacuating the whole house. Try to rescue at least one example from a set of chairs, lamps, pelmets, curtains or tapestries, or a fragment of wallpaper for restoration purposes.
- Remember family items: portraits, busts, papers, etc. These maybe in themselves of only moderate financial worth but of great historic, sentimental or academic value.
- Produce an evacuation plan: if a fire gets worse, remember partial damage is preferable to loss, so get things out quickly, and get your family, others and yourself out too.

Safe areas

Accessible Safe Areas, to which the contents of the house will be moved, should be identified and agreed beforehand during planning discussions with the fire brigade and your local Crime Prevention Officer. Constant surveillance of the Safe Areas is essential – one member of the Emergency Support Team should be permanently stationed there during the incident, and should account for salvaged items removed to other locations. Records of these transfers are essential and should be part of the responsibility of the Emergency Support Team receptionist. If a temporary Safe Area has to be used because no suitable permanent area is available, the location of the temporary space should be agreed with the fire brigade and included in the plan for your house. Care must be taken to liaise with the Fire Officer in charge so that the temporary Safe Area is out of the way of fire-fighting vehicles. Also consider the need for alternative temporary shelter such as a tent that can be easily and quickly erected.

Removing items

Emphasis should be placed upon removing objects closest to the danger of flood and fire. Depending upon the severity of the emergency and the size of the piece of furniture, painting, etc., or the sheer volume of the objects (such as libraries containing several thousand books), it may be impossible to remove every object. Create 'safe rooms' as initial decanting locations. Unless undertaken with extreme care, removal can in itself cause more damage than the catastrophe. Objects that cannot be



moved should be covered with polythene sheeting to prevent damage from water and smoke. Remember polythene is itself flammable. In areas likely to be breached by fire use commercial fire blankets.

- Polythene sheeting for covering up large pictures and pieces of furniture should be pre-cut to size and kept in the designated store for emergency materials.
- Attach battens to the ends of polythene sheets to make it easier to place them over the tops of picture frames or book cases.
- Where possible, bring the polythene sheet right down behind the object, guiding the sheet between object and wall, to protect it from water running down the wall.
- For covering large pieces of furniture such as state beds, polythene sheeting can be placed in position using long poles.
- Many fire brigades have salvage tenders that will contain additional waterproof sheeting for protecting contents.
- Where furniture sits directly on floors, wooden blocks (6 x 6 x 3 inches is an ideal size) can be placed underneath to minimise damage from water pooling on the floor.

Ideally objects removed to the designated Safe Area should be checked against the inventory as soon as they arrive there or as soon as possible after the event. When damaged items are packed for removal, the exterior should be labelled with the inventory number or, if not immediately identifiable, a brief description of the object.

Easing the removal of larger items

Some larger pieces of furniture are made up of separate pieces held together with screws. In some cases, it may be possible to remove screws so that the furniture is more quickly dismantled. Quick-release bolt systems, operated by a special key section, should be considered for items such as large paintings, mirrors and pier-glasses that are screwed to the wall.

Inventories and exit books

Inventories and exit books must be regularly updated and improved. It is important that photographs of objects are clear. A video of a room is good for giving an overall impression, but individual items should be photographed preferably with a 35mm or digital camera. Images can easily be stored digitally on a CD-ROM. Photographs are not only invaluable in the case of theft but also for restoration. The inventory at the property must be kept in a safe, secure area at low risk from danger. Photocopies of the inventory must be kept with the Emergency Wallets (but these documents should not contain values). The contents must be checked against the inventory as soon as possible after the event. Ideally, items should be checked as they are rescued and placed in the secure area.

Freezer and furniture removal vans

During an emergency it may be necessary to remove books that have become wet to a local blast-freezer plant. You may also need to store rescued contents in a local furniture warehouse if there are no adequate storage facilities at the property. Access for vehicles should be worked out well ahead of time.



Testing and revising your plan

Emergency plans should remain fluid – they are never complete. It is a matter of testing and rehearsal, and making revisions and adaptations as circumstances change.

Guidelines for Training Emergency Support Teams

Press enquiries

In this media-driven age it is likely that any major event will be picked up by either local or national press, radio or television. A spokesperson should be prepared to offer a response. Media coverage may generate a large number of general enquiries and onlookers, creating additional security and safety concerns

Training of emergency support teams

The purpose of an Emergency Support Team is to prevent or reduce damage to the contents of historic and large houses caused by flood or fire. Emergency Support Teams are not to be exposed to danger and, in the event of a fire, will only be allowed to follow the directions of the Fire Officer in charge. Training of Emergency Support Teams is very important. Knowledge of the house and contents, and training in procedures, handling and care of different objects is essential. Safe working practices must be adopted and followed by Support Team members at all times in accordance with the Fire Precautions (Workplace) Regulations 1997.

The team leader and deputy

The leader will usually be the householder or Estate Manager and the deputy leader a senior member of staff. However, in some cases it may be more appropriate for the deputy to actually act as leader of the team. In the event of a major catastrophe involving the emergency services, the householder will be very busy liaising with them. At many houses there may be only one person and he/she will have to carry out the duties until help arrives.

It is important that members of the Emergency Support Team, and in particular the leader and the deputy, remain calm. Some people may panic under stress and this should be borne in mind when selecting the leader and deputy. Both leader and deputy must have the day - and night-time telephone numbers of all the Support Team members and a list should be held in the Emergency Wallet (see p. 11). Contact with team members during an emergency should be by means of a telephone tree (see p. 13). A receptionist must also be selected to record the location and movement of all salvaged items (see p.14 - p.16).

Members of the team

Membership of the team will be voluntary. Ideally it will be made up of staff, including resident house staff, gardeners and estate staff. A good idea is to link up with neighbouring houses of a similar kind (HHA members, etc.), and model the team upon one at a nearby National Trust or English Heritage property. Local museums and libraries could also assist with finding conservators (any living locally



may be prepared to attend an out-of-hours incident); they may also list conservation workshops offering a 24-hour emergency response.

Emergency Support Team members should be physically fit and in good health with full use of their senses, i.e. smell, hearing and sight, and have good reflexes and co-ordination. Although members are not to work in dangerous circumstances, they should be prepared to work in stressful, unpredictable situations. They should have confidence in their ability but an awareness of their limitations. Anyone concerned about their fitness should first seek medical advice before volunteering.

Rehearsals

It is important to meet once a month initially, and thereafter, half yearly, to become familiar with the contents of the house, to practise handling objects, to refresh knowledge of rooms and contents, and to rehearse the emergency drill. In large houses, a room should be made available in which the team can practise handling objects of little importance in a simulated emergency, for example taking down empty picture frames, packing modern ceramics, moving spare furniture, etc. In planning for such training, conservators' advice should be sought on the dismantling, and/or in-situ protection of large or fragile objects, fittings and fixtures. It is also worth inviting the fire brigade to these sessions as they may wish to learn more about the general (rather than specific) importance of the contents in your house and the best way to handle them. Team members should always work in pairs. This requires regular practice for good co-ordination in an emergency. Fitter team members should take on above ground work, such as climbing a ladder to remove pictures, and the removal of larger, heavier objects. Other members should move smaller objects away from the room to Safe Areas. A full-scale exercise should be held at least every two years.

Familiarity with priority salvage cards

Ensure the team is familiar with:

- The most important items in the house.
- The most important items in each room.
- The order in which the entire contents of each room should be evacuated, bearing in mind ease of removal and need for speed.

Health and safety training

Members of the Support Team should be taught how to lift heavy and large objects properly, and receive training in basic ladder safety. One member of the team ideally should be qualified in first aid. As a matter of course, a first aid kit should be included with the emergency equipment. In the event of an emergency, the Support Team may be working in difficult or adverse conditions, and may encounter various tasks that require training. These might include working at heights, working in the dark, working on ladders, working in confined spaces, working under stress or exhaustion, in conditions of heat or cold; they may be handling sharp objects or come into contact with chemicals. Basic Health and Safety guidelines on how to work in these conditions should be consulted and team members should be familiar with them. The fire brigade is able to advise on these matters.



Emergency materials and equipment

During heavy snowfall or following storm damage, houses may be cut off and unable to receive supplies of emergency materials from commercial suppliers or neighbouring properties with comparable equipment stores. Your house should have a basic supply. The equipment and materials must be readily accessible, no matter where the flood or fire occurs. The exact requirements at each property must be individually assessed. Materials such as white foam sheets and polythene sheeting should be pre-cut and stored ready for emergencies. The exact list and quantity of materials will depend upon the size and idiosyncrasies of each house. Large houses may require more than one set of equipment depending on the layout. One person should be responsible for maintaining an up to date list of the emergency materials and equipment at the property, regularly ensuring that they are in good order and rotating perishable materials at regular intervals.

Emergency materials

Most materials are available from ironmongers or builder's merchants:

- **Polythene sheeting** – temporary protective sheeting available in rolls, 110 microns clear or opaque in 4 metre widths. Allow enough for:
 - Covering everything in two rooms. Also allow enough to cover all the bookcases in the library, large paintings, four poster beds and tapestries.
 - Carrying wet textiles.
 - Spreading out textiles, wallpaper etc.
- **White foam sheets** – available in thicknesses from 5mm to 100mm, in widths of 600mm, and in varying lengths as required: 12mm thick foam sheets are usually adequate for busts and 25mm thick sheets will normally suffice for heavier and larger pieces of sculpture. Foam sheets are suitable for all delicate objects. Each house should contain enough to protect and cover the sculpture. Ethafoam is available from Polyformes Limited (see useful contacts, p.27). However, please note that white foam sheets are a fire risk and storage should be in accordance with Health and Safety Executive Guidance Note GS3 or HS (G)1. Ideally, they should be stored in a half-hour fire-resistant structure and not in a basement or stored beneath occupied rooms.
- Rolls of good quality kitchen **paper towels** (plain white).

Materials available from stationers:

- Fords Gold Metal white blotting paper, 140g/m weight, 1 packet = 250 sheets, printed in 50s. Allow 100 large sheets for 1,000 books plus extra for prints, watercolours, paintings and metalwork. Available from ARJO Wiggins Fine Papers Limited (see useful contacts, p.27)
- Brown wrapping paper
- Heavy-duty elastic bands – all sizes
- Waterproof sticky tape
- Acid-free tissue paper
- Plastic Jiffy bags and larger polythene bags of all sizes (preferably clear and not black) – essential for houses with libraries
- Small cardboard boxes or plastic seed trays for collecting broken pieces of glass, pottery or porcelain



- Bubble wrap
- Large artist's portfolios for storing unframed paper items. Available from any art suppliers and most stationers.

Materials from miscellaneous sources:

- Blocks of wood measuring 6 x 6 x 3 inches. Start with, say, a minimum of fifteen sets of four blocks (depending on the size of the house) to raise furniture off wet floors
- White blankets
- Dustsheets – either old bed sheets or seconds
- Boxes (strong, collapsible cardboard boxes that can be stored flat for books and ceramics). Available from Paul Corbett Company Limited (see useful contacts, p.27)

Emergency equipment

- Put together an emergency tool box (ideally one for each floor of the house) containing: tool holster (worn strapped to the waist for carrying hand tools), screwdrivers of different sizes, pliers, pincers, hammer, tack lifter, jemmies, axe with protective cover, Stanley knife with spare blades, bolt cutter, percussion staple gun, nails and screws.
- First aid kit and blankets
- Rubber gloves, plastic bowls, plastic buckets
- Shovels, bass brooms, floor squeegees
- Hand torches
- Canvas webbing lifting straps, eight cm wide x three m long
- Canvas or nylon slings for books
- Heavy duty plastic carrier bags for carrying smaller books, papers and documents
- Ropes (soft, with nylon core, e.g. sail line)
- Ladders, double extension with non-slip feet (lightweight alloy)
- Steps, four and seven tread (lightweight alloy)
- Keys to manholes and water and gas supplies
- Sack barrows (with removable plywood sides and lining for moving pieces of sculpture)
- Four-wheel bogies – a small padded board mounted on swivel castors. House staff or the estate joiner should construct as many as necessary
- Emergency portable lighting
- Portable two-way radios (or mobile phones) for instant contact between members of the support team
- Wet-and-dry vacuum cleaners and dehumidifiers

Protective clothing

It is important to involve Emergency Support Team members in choosing protective clothing that they will wear. Hard hats and coveralls should be easily identifiable both in daylight and at night: they should indicate that the wearer belongs to the Emergency Support Team and should be distinguishable from protective clothing worn by the official emergency services. The names of Support Team members can be sewn or stencilled onto coveralls to help with identification, particularly at night.



- Hard hat
- Hard-hat light (such as the ones that miners and cave explorers wear)
- Protective boots
- Protective gloves
- Coveralls
- Reflective jacket or vest



Handling Guidelines Books

Character

Take time to decide on the most important books to save. If time is of the essence, take first editions, illuminated or older illustrated and boxed books first. Do not forget archival material as it will often be more important than most of the books. Vellum books or materials should be very high priority for rescue because they can so easily be damaged by contact with water.

Equipment

Canvas or nylon sail cloth slings, with wooden or aluminium or reinforced resin battens stitched into the ends, are best for handling books. They make loading and unloading much easier. A canvas sling can be carried in each hand for a balanced load. Heavier loads can be managed if a canvas webbing strap (three to four inches wide) is slung over the shoulders and attached to the handles of the sling like a yoke. Plastic skips (wheelie bins) are preferable to cardboard boxes, but slings are still the easiest to handle. A canvas, plastic or nylon sail cloth chute may be helpful in clearing a large library situated on the upper floor of a house. The chute should be designed like a children's slide so that the books do not hit the ground with speed. Heavy duty plastic shopping bags or carrier bags can be used for carrying smaller books or documents and archival material to safety.

Handling

Books should be handled as carefully as possible. Take them from the shelves by reaching over the front of the book and pulling it off the shelf. If there is a space between the back of the shelves and the wall remember that water will run down the wall to the bottom shelf and then out onto the floor. It is important in this case to begin removing books from the bottom shelves first. Books of roughly the same size should be packed together. This should not be a problem as books of similar size are often arranged together on shelves.

Slings

Books should be stacked on the spread sling with their spines facing inwards. Four piles of octavo or two piles of quarto volumes should fit into slings comfortably in this way.



Plastic skips

Books should be stacked flat in plastic skips and should not be wedged in vertically as this can damage spines.

Safe area

Books should be stacked in a dry safe area. Consideration should be given to the position of the safe area so that access by freezer trucks is possible in case the books become wet (avoid vacuum drying valuable books).

Ceramics, Glass and Small Miscellaneous Items

Character

Ceramics, glass and small miscellaneous items are fragile and ideally should be wrapped before removal from a room. With the exception of small miscellaneous objects made of organic materials, they are more susceptible to damage from heat than from water.

Equipment

Bubble wrap or fast foam should be pre-cut into three or four sizes for wrapping ceramics, glass and small objects. Ceramics and glass should be transported in rigid collapsible plastic boxes (which can pack flat for storage). Solid plastic skips can also be used but they are heavier to carry and the lids cannot be secured. Where a large quantity of ceramics are displayed (e.g. a dinner service or in display cabinets), it is important to have boxes, skips and packing materials prepared ready.

Handling

Heavier and larger items should be packed first in the bottom of the box, with lighter, smaller objects on top. Think about what types and shapes of objects can be packed together quickly e.g. plates and bowls. Rehearse packing quickly using jam jars, modern plant pots, tea-room cups and plates. Elaborate figurines can be laid down on their side if they have a reasonably flat back. Never stack one figurine on top of another. If there is not enough time to wrap individual pieces, simply fold pre-cut pieces of bubble wrap or fast foam between objects to prevent them touching. Very large ceramics or objects may be more easily and safely carried by two people inside a plastic dust bin. Where it is not possible to remove the ceramics from the room, try to place them under tables or large solid pieces of furniture against the wall, to protect them from falling plaster and masonry. Chandeliers are difficult to handle, and should only be moved if there is a real danger that either the chandelier itself will fall or debris will fall on it. Advice from a chandelier expert should be sought in the planning stage. Connections to chains or cables can be adapted for quicker removal. The electrical supply should be easily isolated and a quick release connection fitted to the wiring so that it can be easily and quickly disconnected. With practice, two or three people should be able to lower a chandelier or lantern by means of poles with hooks but only if this has been planned and rehearsed in advance.



Safe Area

Leave ceramics and glass in containers, stored in a dry secure place until there is time and sufficient storage space to unpack them. If wet, any small objects made of organic materials or metal must be quickly blotted dry using sheets of white absorbent kitchen paper.

Note

Where possible when working, handle recovered glass and ceramic items over a soft surface.

Furniture including Clocks, Musical Instruments and Taxidermy

Character

Some furniture can be too large for easy or quick removal. The assembly of various parts can be complicated for they are often held together or fixed to walls by screws. Keep chests of drawers empty for quick removal or alternatively, use them to store something practical such as commercial fire blankets, which will aid the recovery process.

Equipment

Upholstery webbing is useful for carrying heavy furniture. Several sets of different lengths should be stored throughout the house. Blocks of wood (6 x 6 x 3 inches) can be placed beneath furniture to prevent damage from wet floors. A lightweight four-wheeled trolley is recommended for moving large pieces of heavy furniture. A smaller bogey is recommended for less bulky pieces. Connecting a webbing strap to the front of the bogey will make it easier to pull and handle.

Handling

In many cases the only means of removing large pieces of furniture is by carrying them. Webbing should be wrapped around your hands and slung beneath the piece of furniture so that it is carried just below waist level with arms fully extended. Webbing can also be used to keep drawers shut while furniture is being moved. Do not use carrying handles on furniture as they are usually only decorative features. Be familiar with the handling of very delicate items of furniture with inlaid or veneer surfaces, and how furniture dismantles. Very large objects must be assessed in terms of priority and how long it will take to move them. Then you have an informed basis on which to make a decision about whether removal is practical if an emergency arises. Large objects that cannot be removed should be left against a wall and protected from water and falling debris. Marble or stone table-tops should be carried vertically like a pane of glass. Consider methods and means of in situ protection of carved woodwork – for example fixtures and fittings – that cannot be removed in a reasonably short amount of time.

Safe Area

Furniture, clocks, musical instruments and taxidermy should be stored in a dry safe area, on blocks of wood covered in polythene.



Note

It is important to have furniture restorers and conservators on site within hours of an emergency. If exposed to water or extremes of heat, important furniture will need to have appropriate clamping put in place to prevent excessive warping.

Metalwork and Metal Movements of Clocks

Character

Metal can be severely damaged if it becomes wet. In some cases, metalwork can be very heavy, while metal movements of clocks are often housed in wooden cases that are extremely heavy in themselves (see also furniture, p.20). There are two categories of metalwork objects: those that are movable and those that are fixed or too large to remove. For the latter, seek advice from a conservation specialist on protecting metalwork in situ.

Equipment

Metalwork can be carried by various means – heavier objects can be transported in plywood-lined sack barrows or on four-wheel bogies.

Handling

Lift items carefully by holding the base or the most solid stable part. As a last resort, metalwork objects can be thrown from a window as damage from impact can be repaired. It would be best to place objects in heavy-duty plastic or canvas bags before resorting to this. Armour should be removed from dummies and carried to safety. Metal chandeliers or lanterns are usually hooked to a chain just above the chandelier. Connections to chains or cables can be adapted for quicker removal (see also Glass, p.19). Door furniture can be destroyed in a fire. If there is time, remove handles, lock plates, locks, etc.

Safe Area

The safe area should be dry and warm, in contrast to conditions normally required for other types of contents.

Note

Metal objects (clocks, guns, swords, etc.) can be easily damaged by inappropriate handling due to the natural acids in skin and sweat. Always wear clean porters' gloves or use a cloth to remove deposits. A finger mark made in a second can take hours or even days to remove from sensitive surfaces. Handle firearms of any age with great caution. Remember that a gun loaded one-hundred years ago can still kill or maim. If unsure, seek expert help. Swords and daggers can be extremely sharp. Care should always be taken when a blade is withdrawn from sheath or scabbard. Do not attempt to force mechanisms, locks or jammed parts.



Paintings

Character

The optimum temperature for paintings is around 25°C, although any temperature above freezing point and below 45°C is acceptable, provided cooler temperatures do not precipitate moisture. When moved, a picture should be gradually acclimatised to any new temperature. The humidity figure is more critical and should be kept at a constant between 45 and 55 percent. Excess moisture can result in pigment failure or mildew, but excess dryness can be equally detrimental. Paintings and their frames are delicate and must be handled with care. Great damage is likely to be done by water as well as fire. The surface of the painting is susceptible to scratching and abrasion. The canvas may tear if pressure is put on it, or from impact with a sharp point. Mouldings may break off a frame if roughly handled and gilded surfaces are easily abraded. Wet paintings and frames need to be handled with particular care. The paint and gilding is easily removed if touched. Wet paintings may turn white – this looks alarming but can be reversed by a conservator if the damage is mainly to the varnish layers. If the paint and ground layers are also wet, then there is a great risk of flaking and the painting should receive urgent attention. Large paintings, however important, may have a lower priority because of the difficulty of moving them. The same applies to paintings in architectural surrounds, or those hanging very high.

Equipment

Use metal and wire cutters for cutting chains or wires when paintings cannot be lifted from hooks. A jemmy may be necessary to remove security screws quickly. Paintings that are hung high should be lowered carefully by using canvas webbing. If picture lights are attached to frames then it will be necessary to isolate the electrical supply and disconnect the wiring or fixture before the painting can be safely removed from the wall. Use polythene sheeting with a batten attached to the end to protect paintings from smoke and water damage when it is impractical to remove them. Only as a last resort, use a Stanley knife to cut a canvas out of its frame. The canvas must then be carefully rolled with the painted surface facing outward. It is quite possible to cover certain items that cannot be removed with pre-cut sheets of marine ply, using clout nails to secure the boards in place. This will protect the pieces from all but the most ferocious of direct fires – partial damage is preferable to total loss. Commercially sized fire blankets can be used to cover artwork stacked in a corner.

Handling

Paintings can be very heavy, especially those that are glazed. Always work in pairs, although the handling of full-length portraits and larger paintings will require at least four people. Most paintings can be lifted off their hooks with an upward movement. Paintings should always be lifted by their frames, never by their stretchers. They should be held by parts of the frames without elaborate mouldings. Small frames should be held upright, with one hand in the centre at the bottom of the frame and the other between half and two thirds of the way up one side. Larger frames should be lifted by two people with one hand supporting the weight of the painting from the bottom frame member, and the other holding the painting upright by a side frame member. A painting should never be picked up by the top frame member alone – the weight of the painting can easily pull the frame apart. Large paintings should be lifted down with two people upon ladders on both side and two more



on the ground to receive the painting. Canvas webbing should be placed round the frame where there is no elaborate moulding, to lower the painting.

If a painting is wet, it should be carried with the painted surface facing away from the carriers to minimise the risk of clothes brushing against the paint and damaging it. Hands should be kept in one position on the frame to reduce the area of damage to the gilding.

Safe area

Paintings should be divided into two groups: those that require immediate attention from conservators and those that can be left. Wet paintings require the most urgent attention; torn or scratched paintings can wait. Dry paintings should be stacked vertically in a cool, dry secure place. If there is room, each stack should contain no more than four similarly sized paintings. They should rest on cushions of bubble-wrap, Jiffy foam, polyurethane foam or blocks of wood. They should be stacked face-to-face and back-to-back. Frames should be separated with pieces of bubble-wrap or foam. Never lean a frame against the canvas of another painting, from the front or the reverse. Check that fixings, hooks, chains and wires do not stick into any other painting. If there is room, wet paintings should be laid face up on blocks of wood to allow air to circulate. If there is not room to lay them flat, then they should be stood vertically on their own. If the frames are wet, they should not be stacked, as the gilding will be damaged if it is in contact with other frames, or with bubble wrap or foam.

Sculpture and Plasterwork

Character

Sculpture is frequently too heavy to carry. Heat and smoke can do great damage to sculpture. Marble, stone, scagliola and plaster are porous and will absorb water and dirt. Alabaster will dissolve in water. Water will set up rusting in iron fixings frequently found in sculpture.

Equipment

A sack barrow with a plywood lining can be used to remove smaller pieces of sculpture. When pieces are too large to move they can be protected from falling masonry and plaster with white foam sheets and white dustsheets. Do not cover sculpture with anything coloured as the dye may stain.

Handling

Due to the weight of sculpture, resources in terms of manpower and equipment should be assessed in the preparation stage of emergency planning. Seek the help of a conservation adviser who will be able to recommend the best way to move sculpture, the numbers of people required and the time it is likely to take. If removal is not possible, protection should be provided. Plywood or boards will protect from falling debris. Freestanding sculpture may require a protective framework to withstand roof collapse. Polythene sheeting draped over sculpture protects it from water. Wooden battens wrapped in polythene can be placed beneath marble and stone plinths by rocking the plinths from side to side. This will prevent the absorption of water off the floor. To protect stone or marble floors from wet and grit, put down duck boarding. Remove excess water with wet-vacs, and clean up grit as



frequently as possible. Protect plaster reliefs on walls from wet if they cannot be removed. Smaller pieces of sculpture should be removed from danger. If there is not enough time to remove larger pieces of sculpture, they should be placed on the floor against the wall, which will give protection from heat, smoke and falling masonry. Avoid polythene if there is a fire.

Safe area

Sculpture requires a large storage area. Remove to a secure dry area.

Textiles

Character

Many textiles are heavy and bulky, especially carpets and tapestries and, when rolled, will take several people to move them. Although textiles do not break, they will tear and split when moved especially if they are in a fragile and light damaged condition. Once wet they become weaker and more likely to tear when handled. Textiles are often difficult to take down and Emergency Support Teams should familiarise themselves with the different fixings.

Equipment

Polythene sheeting and white dust sheets are important for supporting textiles when carrying them. Where textiles cannot be moved, cover them with polythene to protect them from water and smoke, but not fire. Tack lifters and Stanley knives may be needed to remove tapestries from architectural frames.

Handling

Support Team members should work in pairs, as textiles can be heavy. Carpets and tapestries should be rolled; windows, bed curtains and larger textiles carried on sheets of polythene or dustsheets. Do not roll or fold fragile or wet textiles into small parcels.

Tapestries

Textiles are readily shifted if attached to the walls by Velcro or 'poppers' rather than carpet tacks. (In the long term, tacks can have a detrimental effect on textiles as they oxidise and eventually erode the surrounding material.)





Carpets

If it is impossible to remove a carpet, roll it with its underfelt and place it against a wall for protection.

Safe area

The safe area should be secure, clean, dry and as large as possible for laying out the larger textiles.

After the incident

Access to the premises may be restricted by structural damage or because of an investigation into the cause of the incident. The structural integrity of the building or its remains must be established as a first priority by specialist advisers and before any stabilising measures are carried out on site. If the incident is a result of a crime, the police will require the scene to be preserved whilst evidence is gathered, and this can take time. Consider setting out the means and resources to minimise damage to premises and equipment. List the names and telephone numbers of those companies and craftspeople trained to respond and include the following:

- ✓ Points of contact for all utilities
- ✓ Transport and removal companies
- ✓ Building contractors, architects and structural engineers

The following should also be considered:

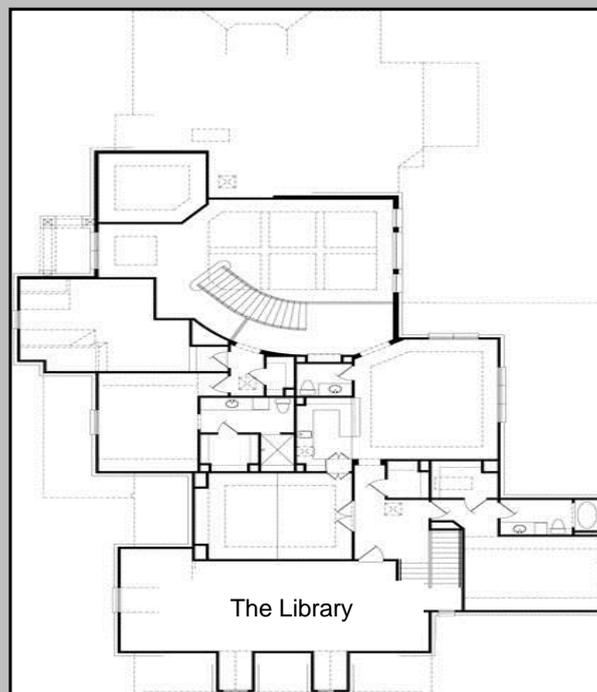
- Damaged roofs must be covered with tarpaulins or sheeting in order to minimise subsequent rainwater damage
- Appropriate warning signs and barriers should be erected
- Residual water should be removed using squeegees, suction equipment
- Install dehumidifiers to remove excess moisture from the fabric of the building
- Recruit additional personnel to assist with salvage
- Longer-term secure storage should be identified for salvaged materials
- Recharge used fire extinguishers
- Clean and rewind hose reels
- Alarm systems should be reinstated as soon as possible
- Premises should be safeguarded – broken windows boarded up, doors padlocked
- A security or guarding service may be needed

Appendix i: How to make a Priority Salvage Card

- Use a photo of the object and add a short description
- Note any special removal instructions
- Include a plan of the room and one of the building
- Laminate finished cards for durability

Card No.	4
Fire Zone	1
Floor	Ground
Room	The Library
Size	26m x 15m

Plan of the Building



Locate the most important items in each room and mark on the card:



The Library





Useful Contacts

ARJO Wiggins Fine Papers Ltd.

Fine Papers House
PO Box 88
Lime Tree Way
Chineham
Basingstoke
RG24 8BA
Tel: 01256 728728
www.arjowiggins.com

British Antique Furniture Restorers' Association (BAFRA)

The Old Rectory,
Warmwell,
Dorchester
DT2 8HZ
Tel: 01305 854 822
www.bafra.org.uk

British Fire Services Association (BFSA)

17 Larch Close
Ruskington
Sleaford
Lincolnshire
NG34 9GB
Tel: 01526 830255
www.bfsa.org.uk

British Library

96 Euston Road
London
NW1 2DB
Tel: 0870 444 1500
www.bl.uk

Chief Fire Officers' Association (CFOA)

9-11 Pebble Close
Amington
Tamworth
Staffordshire
B77 4RD
Tel: 01827 302300
www.cfoa.org.uk

For all categories of conservators contact:

Conservation Register

Unit 1.5 Lafone House
The Leathermarket
London SE1 3ER
Tel: 020 3142 6799
www.conservationregister.com

Easistore Group Limited

Enterprise House
Edenbridge
Kent TN8 6HF
Tel: 01732 861560

English Heritage Customer Services Department

PO Box 569
Swindon SN2 2YP (General Enquiries)
Tel: 0870 333 1181
www.english-heritage.org.uk

The Fire Industry Association (FIA)

Tudor House
Kingsway Business Park
Oldfield Road
Hampton TW12 2HD
Tel: 020 3166 5002
www.fia.uk.com

Fire Protection Association (FPA)

London Road
Moreton-in-Marsh
Gloucestershire GL56 0RH
Tel: 01608 812500
www.thefpa.co.uk

FRS, the Fire Division of BRE

Bucknalls Lane
Watford
Hertfordshire
WD25 9XX
Tel: 01923 664000
www.bre.co.uk/frs

**Health & Safety Executive (HSE)**

Tel: 0845 345 0055

www.hse.gov.uk

Home Office

Direct Communications Unit

2 Marsham Street

London

SW1P 4DF

Tel: 020 7035 4848

www.homeoffice.gov.uk

ICON (Institute of Conservation)

C/o Icon, The Institute of Conservation

1.5 Lafone House

The Leathermarket

Weston Street

London

SE1 3ER

Tel: 020 3142 6786

www.icon.org.uk

Institution of Fire Engineers (IFE)

IFE House

64-66 Cygnet Court

Stratford-upon-Avon

CV37 9NW

Tel: 01789 261463

www.ife.org.uk

Institute of Plumbing

64 Station Lane

Hornchurch

Essex

RM12 6NB

Tel: 01708 472791

www.plumbers.org.uk

Munters UK Limited

Property Damage Restoration Services

Blackstone Road

Huntingdon

Cambridgeshire

PE29 6EE

Tel: 01480 432243

www.munters.co.uk

National Trust

Heelis

Kemble Drive

Swindon SN2 2NA

Tel: 01793 817400

www.nationaltrust.org.uk

Plowden & Smith Limited

190 St Ann's Hill

London SW18 2RT

Tel: 020 8874 4005

www.plowden-smith.com

Institution of Electrical Engineers (IEE)

Savoy Place

London WC2R 0BL

Tel: 020 7240 1871

www.iee.org.uk

Polyformes Limited

Cherrycourt Way

Leighton Buzzard

Bedfordshire LU7 8UH

Tel: 01525 852444

www.polyformes.co.uk

Royal Institute of British Architects (RIBA)

66 Portland Place

London W1B 1AD

Tel: 020 7580 5533

www.architecture.com/TheRIBA

Royal Institution of Chartered Surveyors (RICS)

RICS HQ

12 Great George Street

London SW1P 3AD

Tel: 024 7686 8555

www.rics.org.uk

Society for the Protection of Ancient Buildings (SPAB)

37 Spital Square

London E1 6DY

Tel.: 020 7377 1644

www.spab.org.uk