

PAS 64:2013

Mitigation and recovery of water damaged buildings – Code of practice



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Foreword

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This PAS is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

Use of this document

It has been assumed in the preparation of this PAS that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

As a code of practice, this PAS takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care

should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this PAS is expected to be able to justify any course of action that deviates from its recommendations.

BSI permits the reproduction of the text in Annex M, on pages 44 to 46.

Supersession

This PAS supersedes PAS 64:2005, which is withdrawn.

Presentational conventions

The provisions in this PAS are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this PAS does not of itself confer immunity from legal obligations.

Particular attention is drawn to the following specific regulations:

- The Management of Health and Safety at Work Regulations 1999 [1]
- The Electricity at Work Regulations 1989 [2]
- The Provision and Use of Work Equipment Regulations 1998 [3]
- The Special Waste Regulations 1996 [4]
- The Health and Safety at Work etc Act 1974 [5]
- The Workplace (Health, Safety and Welfare) Regulations 1992 [6]
- The Control of Asbestos Regulations 2006 [7]
- The Construction (Design and Management) Regulations 2007 [8]

Introduction

Water damage to a building can lead to increased public health risk and a reduction in its value and usefulness, which can increase over time if not dealt with in a managed and co-ordinated way.

Mitigating water damage by effective drying solutions is an important part of the total recovery process. Cleaning protocols and assessment of indoor air quality might also be required depending on the profile of the water damage incident.

This PAS provides recommendations and guidance for the restoration of a water damaged building from the initial incident to the point at which repair and reinstatement commence.

1 Scope

This PAS gives recommendations for the mitigation and recovery of buildings damaged by water. It is applicable to all forms of water damage to buildings.

It covers the mitigation and recovery process including:

- a) initial inspection of a water damaged building;
- b) setting drying and cleaning goals (including air quality goals);
- c) selecting the drying and cleaning techniques and equipment to be used;
- d) monitoring the drying and cleaning progress;
- e) verifying drying and cleaning goals have been met;
- f) documentation for provision to the customer.

It also provides further guidance to support the application of this PAS including descriptions of techniques and equipment in current use, example forms and example calculations.

This PAS does not cover building repair and reinstatement. However, it is recognized that the restorative drying process is a primary stage of the overall repair and reinstatement process.

It does not cover the restoration of contents other than the implications for drying or restoring the building.

It is for use by restorers and may be of interest to building owners and occupiers, insurance companies and their representatives and those involved in the subsequent repair and reinstatement of a building.

2 Terms and definitions

For the purposes of this PAS, the following terms and definitions apply.

2.1 air

invisible gaseous substance which has the capacity to carry moisture in varying, measurable quantities

2.2 atopic

predisposition towards developing an allergic hypersensitivity reaction

NOTE *A person with atopy will typically have one or more of the following hypersensitivity reactions: eczema (atopic dermatitis), allergic rhinitis (hay fever), allergic conjunctivitis or allergic asthma. People with atopy also have a tendency to have food allergies.*

2.3 building

main structure with walls and roof plus its permanent fixtures and fittings

NOTE 1 *Examples of permanent fixtures and fittings include sanitary appliances and fitted kitchens.*

NOTE 2 *Buildings insurance policies usually include outbuildings but cover is policy specific and may be referred to in the event of a claim.*

2.4 cleaning

process of locating, identifying, containing, removing and disposing of unwanted substances, odour and staining from an environment or material to reduce damage or harm to human health, animals, wildlife or valuable items

2.5 cleaning goal

pre-determined target cleanliness level based on suspected contamination, presence of odour, staining and measurement of actual levels of pollutants by an established method

2.6 contaminant

substance that could cause harm to humans, animals, wildlife and the environment or property

NOTE Examples of contaminants include mould, mildew, fungi, bacteria, viruses, asbestos, lead, arsenic, oil, sewage and effluent.

2.7 contents

items contained within a building that are not structural materials or fixtures and fittings

NOTE Examples of contents include free standing appliances, artwork, clothing, curtains, electronic equipment, furniture, rugs and personal possessions. Contents insurance is usually policy specific and may be referred to in the event of a claim.

2.8 decontamination

removal, neutralization or dilution of surface or air borne particles that could be harmful to humans, animals, wildlife and the environment

2.9 desiccant

substance that has a high affinity for water and is used as a drying agent

NOTE Examples of desiccants include calcium oxide and silica gel.

2.10 drying

process to remove absorbed moisture from wet structural materials

2.11 drying goal

target moisture level based on a known equilibrium moisture content (EMC) (see 2.13) or equilibrium relative humidity (ERH) (see 2.14) or wood moisture equivalent (WME) (see 2.44) or other accepted method of measuring moisture

2.12 environmental moisture control

process of controlling moisture in both affected and unaffected areas of a building to control or reduce the likelihood of secondary damage

2.13 equilibrium moisture content (EMC)

percentage moisture content (see 2.22) of a structural material at the point where the structural material is saturated with moisture at the relative humidity and temperature of the surrounding air

2.14 equilibrium relative humidity (ERH)

relative humidity of the indoor air at the point where the indoor air and the building are no longer losing or gaining moisture from each other

2.15 extraction

initial removal of standing or excess water from buildings and contents

NOTE Examples of extraction methods include vacuuming and pumping.

2.16 humidity ratio (HR)

also known as specific humidity
amount of moisture in a defined mass of air expressed as either kilogram per kilogram (kg/kg) or grams per kilogram (g/kg)

2.17 hygroscopic material

material that readily retains moisture or water vapour from air

2.18 indoor air quality

air quality within and around a building

NOTE This is particularly relevant to the health and comfort of the occupants of the building. The indoor air quality can be affected by gases, particulates, microbial contaminants or any mass or energy stressor that can induce adverse health conditions.

2.19 initial inspection

collection of data to determine the degree of loss to the physical structure and contents of the affected building and contents

2.20 method statement

written procedure outlining steps and how to perform a desired task

2.21 mitigation

act of limiting current and future loss or damage to building and contents

2.22 moisture content

amount of moisture present in a structural material expressed as a mass or a percentage of the mass of the structural material when dry

2.23 moisture map

documented visual guide accompanied by field test results taken at incremental points, indicating the extent of water damage

NOTE An example of a moisture map is given in A.2.

2.24 pathogenic agent

microorganism (such as a bacterium or virus) that causes disease in humans, animals or plants

2.25 permeance

degree or factor to which a structural material transmits water in its liquid or gaseous form

2.26 pre-incident condition

condition of the building and contents at the time before the incident

2.27 primary damage

damage sustained as a result of direct contact with water or contaminants

NOTE 1 Examples of primary damage include staining, swelling, dissolving, cupping and buckling of hard wood, delamination of furnishings and fixtures, migration of dyes, weakening of adhesives, rusting and corrosion and microbial contamination.

NOTE 2 See also definition of secondary damage (2.36).

2.28 psychrometry

study of the relationship between atmospheric air mixtures in regards to air, humidity and temperature

NOTE Psychrometry deals with measuring and understanding the thermodynamic properties of air and water vapour mixtures, to enable restorers to properly analyse and manage conditions during drying.

2.29 recovery

steps or mechanisms put in place, in a controlled way, to restore the affected area to its pre-incident condition

2.30 relative humidity

amount of moisture present in air expressed as a percentage of the amount needed for saturation at the same temperature

2.31 remediation

act of reversing or stopping secondary damage

2.32 restoration

process of repairing or renovating a building so as to restore it to its original condition

2.33 restorer

damage restoration contractor or firm that is responsible for the restoration of damaged buildings

2.34 risk zone

area in which a level of risk has been identified

2.35 schedule of works

complete detailed listing of required tasks to return the building and contents to a pre-incident condition

2.36 secondary damage

damage to structural materials sustained from indirect or prolonged exposure to contaminants migrating or absorbed moisture or humidity and mildew growth

NOTE See also definition of primary damage (2.27).

2.37 site

address or location at which work is carried out on a water damage restoration

2.38 structure

building and all permanently affixed materials and finishes

NOTE This includes items such as carpentry, plasters and finishes.

2.39 technically competent person

person who has demonstrated a level of skill, knowledge, attitude, training and experience to reasonably perform a desired task

2.40 vapour pressure

pressure exerted by humidity on the surrounding environment

NOTE Vapour pressure is directly related to the humidity ratio.

2.41 vulnerable individuals (health)

individuals being unusually severely affected by a substance either as a result of susceptibility to the effects of these substances or as a result of a greater than average exposure following a water damage incident

SOURCE: WHO Europe [9].

2.42 water damage

impairment of the habitation and function of buildings and contents by the unwanted intrusion of water and high humidity

2.43 white glove test / white towel test

rubbing of a clean white cotton glove/white cotton towel against a surface of a structural material that has been previously cleaned

NOTE An absence of any residue transfer would indicate the cleaning goal has been achieved.

2.44 wood moisture equivalent (WME)

percentage moisture content in a non-conductive structural material as taken from a moisture content scale derived by measuring the relative moisture content of wood when in contact with the non-conductive structural material

NOTE Moisture meters used in non-conductive surfaces are calibrated to a scale called WME. This is because wood is fairly consistent with regard to moisture content, even within different species, whereas other structural materials, like sand/cement or plaster, vary according to their particular composition. Consequently, structural materials are measured on the WME scale which would be equivalent to the moisture content a piece of wood would assume if placed in contact with the material being tested.



3 Mitigation and recovery process

NOTE The objective of drying and cleaning a building after water damage is to remove excess water, to inhibit further deterioration and to return affected structural materials to their drying goal; whilst mitigating potential health risks to employees, visitors and occupiers during and post remediation and minimizing the disruption to building owners or occupiers.

3.1 General

The restorer should implement the principles of project management during a water damage mitigation and recovery project, which should include the following stages:

- a) initial inspection (see 3.2);
- b) setting drying goals and the time frame to achieve these drying goals (see 3.3);
- c) setting cleaning goals and the time frame to achieve these cleaning goals (see 3.4.1);
- d) assessment of the impact of the water damage on the indoor air quality of the building (see 3.4.2);
- e) selecting drying techniques and equipment (see 3.5);
- f) selecting cleaning techniques and equipment (see 3.6);
- g) selecting indoor air quality cleaning techniques (see 3.7);
- h) monitoring the drying progress and verifying drying goals have been met (see 3.8);
- i) verifying cleaning goals have been met (see 3.9);
- j) verifying indoor air quality goals have been met (see 3.10);
- k) documentation for provision to the customer (see Clause 4).

NOTE Drying, cleaning and indoor air quality goals and the methods used to achieve these goals are components of a process leading to a mitigated and recovered building. Consequently, the decision to incorporate each component and the precedence in which order they are completed is based on the results obtained during the initial inspection (see 3.2). The results from the initial inspection are used to establish the extent of the scale of building material moisture levels, uncleanliness and the pollution of the indoor air as a direct result of the water damage when compared to a typical building in normal use.

3.2 Initial inspection

The restorer should perform an initial inspection of the building, within a defined time frame as documented in their service standard procedures.

NOTE 1 The aim of this initial inspection is to gather data on site specific conditions which influence the decision making process.

The service standard procedures should document:

- a) the time frame within which the initial inspection is to be performed following the reporting of the water damage incident including:
 - 1) time frame for a single building;
 - 2) time frame for multiple buildings in accordance with a defined order of precedence as given in b);
- b) the precedence for types of water damage incidents and affected groups of individuals for which a priority response is required.

NOTE 2 The initial inspection is usually performed as soon as possible (within 24 hours) following the discovery of the water damage. Some incidents benefit from a faster response time (2 to 4 hours) as this will increase the effects of mitigation measures (e.g. if standing water is present; when the source of water is immediately likely to be harmful for occupants health; or when occupants are at a higher risk of harm from a water damage incident, such as elderly or disabled occupants).

The restorer should identify and record:

- i) the estimated depth and/or area and/or volume of water involved in the damage;
- ii) the building type, construction materials used, build techniques and any relevant historical or construction issues;
- iii) the source of the water damage;
- iv) the length of time the building has been affected by water damage;
- v) pre-existing water damage to the building or other sources of potential damage which might negatively influence the restoration attempt;
- vi) a schedule of emergency mitigation works to make safe, limit further loss, extract standing water and control harmful contaminants within the building;

- vii) areas outside of the initial loss that might be at risk and require environmental moisture control;
- viii) damage to structural materials or finishes that are deemed to be not restorable, which require demolition and removal or are barriers to evaporation that might require removal to expedite drying in accordance with a defined stripping out guide;

NOTE An example guide to the stripping out of structural materials is given in A.3.

- ix) damage to services such as electrical, gas or clean water supply that might need emergency attention, a temporary supply required or fully repaired to allow works to commence;
- x) actual moisture measurement readings and corresponding drying goals for each of the structural materials being dried and the moisture currently held within the air externally and internally (humidity ratio);
- xi) a schedule of works for drying the structural materials, based on achieving the drying goals whilst taking account of occupiers' health, safety, wellbeing and environmental impacts;
- xii) a schedule of works for cleaning the structural materials, based on achieving the cleaning goals whilst taking account of occupiers' health, safety and wellbeing;
- xiii) an assessment of the effect of the water damage on indoor air quality;
- xiv) potential health risks to employees, visitors and occupiers during and post remediation, and any mitigation measures incorporated into the restoration plan as a result;
- xv) energy meter readings prior to works commencing (gas, electricity, etc.).

NOTE 3 An example of an initial inspection form is given in A.1.

NOTE 4 An example of a moisture map that can be used in conjunction with the initial inspection form is given in A.2.

3.3 Setting drying goals and the time frame to achieve these drying goals

The restorer should set the target moisture content of the structural materials being dried, and refer to this as the drying goal (see 2.11).

NOTE 1 This can be done by reference to a pre-determined moisture measurement threshold of the structural material or by comparing to structurally similar but unaffected parts of the building. Examples of practical moisture measurement thresholds are given in Annex C.

NOTE 2 An example of a drying goal recording document is given in Annex D.

The restorer should use the appropriate moisture measurement equipment in order to survey and set the

drying goal(s). Moisture measurements should be taken from the air outside of the building, the air inside the building, and from within the structural materials themselves as this data assists in the decision process to choose a drying method.

NOTE 3 Guidance on moisture measurement is given in Annex E.

The drying goal(s) should be set within 48 hours after the initial inspection.

3.4 Setting cleaning goals and the time frame to achieve these cleaning goals

3.4.1 Structural materials

The restorer should set the target level of cleanliness for each of the structural materials being cleaned, and refer to this as the cleaning goal.

NOTE 1 This can be done by reference to a pre-determined cleaning goal for the structural material or by comparing to structurally similar but unaffected parts of the building.

The cleaning goal(s) should be documented and communicated to all interested parties.

NOTE 2 Examples of cleaning goal recording documents are given in Annex F.

The restorer should use the appropriate equipment in order to survey and set the cleaning goal(s).

The cleaning goal(s) should be documented within 48 hours of the initial inspection.

3.4.2 Indoor air quality

Where poor indoor air quality is suspected, the restorer should set a target level of indoor air quality within the building and refer to this as the indoor air quality goal(s).

The indoor air quality goal(s) should be documented within 48 hours of the initial inspection.

NOTE 1 This can be done by reference to a pre-determined indoor air quality goal for the structure or by comparing to external conditions or structurally similar but unaffected parts of the building. Information on environmental sampling and air quality goals is given in G.2.4.

NOTE 2 Indoor air quality can deteriorate quickly over a short period in time dependent on the prevailing environmental conditions. Monitoring of indoor air quality may therefore be considered on an ongoing basis and not only conducted at the beginning and end of the project.

The restorer should use the appropriate equipment in order to survey and set the indoor air quality goals.

A health risk analysis for exposure to poor indoor air quality should be undertaken. The health risk analysis should include the occupants, the restorer attending site, other representatives of organizations that might attend the site, or any other person that might reasonably be expected to attend site (e.g. members of the public).

NOTE 3 Guidance on biological amplification during a water damage is given in Annex B.

NOTE 4 An example occupant health risk analysis from exposure to poor indoor air quality is given in Annex G.

3.5 Selecting the drying techniques and equipment

NOTE 1 Once moisture evaporates from structural materials and contents into the air, humidity is likely to increase within the structure unless this moisture is removed by use of ventilation or dehumidification. Failure to remove evaporating moisture can retard the drying process and in the worst instances, create conditions in which secondary damage can occur, e.g. mould and microbial growth.

NOTE 2 Examples of drying methods and systems are given in Annex H.



In order to dry a building quickly and efficiently, the drying method should be selected on evaluation of the following factors:

- a) indoor and outdoor humidity ratio;
- b) potential health risks to employees, visitors and occupiers during mitigation and restoration;
- c) potential security risks of leaving windows/doors or other apertures open to assist drying;
- d) the wider environmental impact of the drying method;

NOTE An example of an environmental impact assessment of drying method is given in Annex I.

- e) the ambient air temperature in which the drying method is being used;
- f) the availability of sufficient power;
- g) the estimated time frame it will take to reach the drying goals;
- h) its effect on structural materials;
- i) the availability of drying equipment;
- j) its effect on the controlled demolition and repair process, i.e. can some materials be left in situ rather than removed;
- k) a cost benefit analysis;

NOTE An example of a cost benefit analysis is given in Annex J.

- l) the impact of the drying method on the occupier and their ability to use the property during the drying process if they are remaining in residence;
- m) the ability of the restorer to monitor the drying method appropriately taking into account any constraints (such as the remoteness of the property).



3.6 Selecting the cleaning techniques and equipment

In order to clean materials quickly and efficiently, the cleaning method should be selected on evaluation of the following factors:

- a) potential health risks to employees, visitors and occupiers due to the cleaning process;
- b) the wider environmental impact of the cleaning method;
- c) the availability of sufficient power;
- d) safe disposal of waste generated from the cleaning process.

3.7 Selecting the indoor air quality cleaning techniques

NOTE After a water damage incident, microbial activity can increase which in turn can affect the quality of the air within the indoor environment.

The restorer should assess the likely impact of poor indoor air quality as a direct result of the water damage incident for the following factors:

- a) the source of the water;
- b) the presence of substances in the water that could promote microbial growth (e.g. sewage);
- c) the length of time the water has been left unmitigated;
- d) the temperature of the environment, internally and externally;
- e) the amount of moisture in the air (g/kg);
- f) whether an occupant or other person exposed to the indoor environment claims symptoms which can be attributed to poor indoor air quality;
- g) the presence and levels of visible mould and microbial growth;
- h) the likely presence and levels of mould and microbial growth in hidden voids such as partition walls;
- i) the presence of a person that is especially vulnerable to poor indoor air quality (see G.1).

3.8 Monitoring the drying progress and verifying drying goals have been met

The restorer should design a monitoring programme in accordance with the drying method used.

As part of the monitoring programme, the restorer should monitor the drying equipment installed and record the measurement of moisture and its progress towards the drying goal.

Restorers should document a service standard where the frequency of the monitoring is determined by the type of incident, the drying method and risks to the occupier's health, safety and wellbeing.

Where monitoring activity indicates that drying goals are not being achieved in the expected manner, the restorer should review what factor(s) are having a negative impact on the drying regime.

NOTE 1 *The restorer may review their initial loss assessment to establish a reason for the drying failure or conduct a further loss assessment taking into account prevailing conditions.*

Once the reason for the failure has been identified, the restorer should set new drying goals and the time frame to achieve these drying goals in accordance with 3.3 and select the drying techniques and equipment to be used in accordance with 3.5.

NOTE 2 *The restorer might need to recommend the use of an alternative method for drying to address the drying failure.*

A completion inspection should be undertaken and documented to verify that the drying goals have been met. The moisture measurement data for each affected material should be recorded and communicated to all interested parties.

NOTE 3 *Interested parties would normally include the customer, homeowner, insurer, loss adjuster, surveyor or building repairer.*

NOTE 4 *For examples of drying goal data, see Annex K.*

3.9 Verifying cleaning goals have been met

After cleaning, a completion inspection should be undertaken and documented to verify that the cleaning goals have been met.

The cleaning goal should be verified through one or more of the following:

- a) visual inspection to include removal of all visible deleterious material and removal or suitable treatment of stains;
- b) white glove or white towel test (as defined in 2.43);
- c) appraisal of material surfaces for biological activity using suitable sampling and analysis techniques.

The cleaning goal measurement data for each affected material should be recorded and communicated to all interested parties.

3.10 Verifying indoor air quality goals have been met

Where remedial action has been undertaken to improve the indoor air quality within the building, a completion inspection should be undertaken and documented to verify the indoor air quality goals have been met.

This should include:

- a) removal of odour specific to the water damage incident;
- b) visual inspection to include the reduction or removal of visible particulates such as dust;
- c) air sampling using suitable sampling and analysis techniques.

NOTE 1 *Guidance on indoor air quality surveying techniques is given in G.2.*

NOTE 2 *Attention is drawn to the legislative requirements in:*

- *Workplace (Health, Safety and Welfare) Regulations 1992 [6];*
- *Air Quality Standards Regulations 2010 [10].*

The indoor air quality measurement data for each affected room should be recorded and communicated to all interested parties.

4 Documentation for provision to the customer

The restorer should maintain, retain and provide to the customer as a minimum the following records:

- a) internal and external psychrometric records (including relative humidity, humidity ratio and temperature);
- b) structural materials moisture content records, including drying goals, cleaning goals and moisture contents at the start and completion of the drying works;
- c) the scope of work together with the mitigation and recovery plans to include any survey results of pre-incident moisture ingress or building faults that might influence the drying programme;
- d) where relevant, contents and personal property inventories signed and dated by the restorer (and customer/consumer if present at the time);

***NOTE** It might be relevant to maintain contents and personal property inventories, for example, where the restorer has authority to move them to storage.*

- e) detailed work logs/diary, including a description of:
 - 1) actions;
 - 2) timing;
 - 3) location;
 - 4) methods used;
- f) photographic records;
- g) equipment logs or similar documents that include a description of all equipment, materials, supplies and products used on the project, the quantity and length of time used (where applicable) and other relevant information;
- h) site specific risk assessment documentation signed and dated by the restorer;
- i) electrical and gas readings, including detailed calculations of how much power the equipment has used;
- j) a completion certificate indicating that mitigation and recovery of the water damaged building has been carried out in accordance with PAS 64:2013, which includes as a minimum:
 - 1) the final moisture content readings of affected materials and confirmation where drying goals have been met;

- 2) a statement confirming cleaning methods undertaken and the evidence to confirm that cleaning goals have been met;
- 3) a statement confirming indoor air quality assessments undertaken and the evidence to confirm the indoor air quality conditions have been met;
- 4) where applicable, a statement which details why a material or structural component cannot or has not been restored.

***NOTE 1** An example completion certificate is given in Annex L.*

***NOTE 2** An example of an information leaflet is given Annex M.*



5 Building repair and reinstatement

NOTE 1 Although this PAS cannot cover all the current best practice in building repair and reinstatement, it is important to note that the drying phase of a building is often a critical element of the overall recovery process.

If the restorer responsible for the drying phase of the building is not responsible for the building repair phase, then a hand-off document should be made available detailing important aspects of the drying works. This should include as a minimum:

- a) a description of materials removed during the drying process to assist in the specification for restoration;
- b) structural material drying goals;
- c) the residual moisture contents of structural materials at the end of the drying phase;
- d) any identified building defects or pre-existing moisture ingresses that were not specified as part of the water damage loss;
- e) the building's internal temperature and humidity.

NOTE 2 Where the building contractor is appointed during the mitigation/drying phase, it is beneficial to the building repair and reinstatement stages if the restorer engages and liaises with the contractor as soon as possible. This is to ensure that the building repairer can specify the reinstatement works correctly.

NOTE 3 It is important for the building repairer (or any person responsible for the building prior to reinstatement works) to maintain normal ambient internal temperature and humidity conditions, as changes could adversely affect the repair process. Maintenance of dry and warm conditions inside the building helps to avoid the possibility of the re-wetting of the building, which could occur in certain atmospheric conditions. The building repairer may need to take into account other building maintenance issues or instances of non-flood related damp penetration of the building prior to the commencement of the reinstatement works. Some structural material drying goals might not be suitable for some reinstatement works (e.g. for the application of certain finishes such as wood flooring).

NOTE 4 Some properties, especially those at greater risk of periodic flooding (for example those properties on a recognized floodplain), might be appropriate for repairing with resilient measures to assist the building in coping with a water damage incident in the foreseeable future.

NOTE 5 Further guidance on resilient building repair and reinstatement is given in Guide to resistant and resilient repair after a flood [11].

