

1. Introduction

This Guidance Note provides information on the steps considered necessary to prepare surfaces and apply a Liquid Applied Waterproofing System (LAWS) to existing roofs and balconies. The roof, balcony or walkway may be pitched or flat, they may also be cold, warm, inverted, or green roofs. The guidance is appropriate if it is intended that the existing surface is to be left in place, or it is to be brought to a state where a LAWS can be applied, eg over new insulation or refurbished substrate to comply with the requirements of the Building Regulations in:

- **England and Wales.** Approved Document L (Conservation of Fuel and Power).
- **Scotland.** Section 6 of the SBSA Technical Handbooks.
- **Northern Ireland.** Part F

It should be noted that roof refurbishment requires Building Regulation approval in line with ADL of the building regulations, and an improvement in the thermal performance of the roofing element may be a requirement of this regulation. This should be brought to the attention of the local building control office for their formal approval prior to works being undertaken.

Substrates may include bituminous and non-bituminous membranes and coatings, profiled sheets, concrete, slates and tiles. The existing roof or balcony should first be assessed to establish the need for and the suitability of a LAWS system. Included at this initial assessment stage must be consideration of whether the thermal performance of the structure needs to be improved as required by current Building Regulations. If suitable then the installation must be carried out to the correct specification by competent contractors, with due regard for all statutory and Health and Safety requirements

2. Roof, Balcony and Walkway Inspections

Roof, balcony and walkway inspections must be undertaken with due regard for current Health & Safety legislation.

The roof, balcony or walkway must be assessed for fragility and unless it can be shown beyond all doubt to be non-fragile, must be treated as fragile, and accessed in line with the requirements of the ACR Green Book.

Safe access and egress must be provided for the inspection, with fall prevention measures in place where necessary.

When inspecting an existing roof, balcony or walkway the following are some of the main items for consideration.

Remember to not only look at the exterior surfaces but also where possible to look internally for any signs of problems

Insulation is insufficient

The build up of the existing roof, balcony or walkway must be determined from the original drawings and documentation, identifying where possible, any subsequent roof refurbishment works, or from core samples. The original drawings may not be a true representation of the present roof system and core samples will help to supplement this information. If the insulation is insufficient, and the criteria cited in Part L Building Regulations (see separate guidance) are met then an upgrade of insulation is required.

The surface is dirty or contaminated

- The roof may not be well maintained
- There may be sources of contamination either from the site or from sources near to the site?

If the roof, balcony or walkway is leaking

Determine if the roof is leaking or whether it is a condensation problem.

Check if the leaks are:

- Through the existing membrane or deck. If leakage is due to isolated faults it may only be necessary to carry out local repairs. An extensive LAWS will only be necessary where faults are widespread, leaks are difficult to trace, or if protection to extend the life of the existing surface is required.
- Through associated details, rooflights, flashings, copings, faulty rendering, or damp courses. In these cases a LAWS may not resolve the ingress.
- If the leakage has saturated the underlying insulation and structure.

If the roof, balcony or walkway is ponding

Possible reasons for ponding are:

- The original design did not include adequate falls.
- Deflection of the structure, in which case adding additional weight may not be practical.
- Failure of the existing deck or insulation. If this has occurred the roof or balcony will need to be stripped, either to an acceptable level, or re-built to accept a LAWS.

Note that, although most modern membranes or LAWS will perform well under ponding conditions ponding is not necessarily a reason for reproofing or replacing the balcony deck, However, there is no doubt that efficient falls and good drainage are advantageous and as such, all specifications should comply with British Standards, Agrément Certification and best practice.

If there is condensation

Condensation is usually a sign of:

- Insufficient insulation.
- Excessive humidity in the building below.
- No ventilation between roof deck and ceiling in a cold roof construction. The solution is to add insulation to convert the construction to a warm roof.
- Lack of an adequate vapour control layer. This would lead to saturated insulation. It will normally prove necessary to remove the existing system and renew with a sound vapour control layer, insulation and LAWS.

If there are cracks or splits

In the main area of the roof or balcony:

- These may be an indication that the existing membrane or coating has been fully bonded to a substrate which has been subjected to movement, such as timber decks, plywood, particle board or polystyrene insulation. Solid decks such as concrete may have cracked because of movement, shrinkage, or inducement cracks. Asphalt may have aged or be subject to undue movement.

In the details:

- This will be an indication that no allowance has been made for differential movement and that a re-design of the details may be all that is required.

If there are blisters in the membrane

Interlayer blistering often occurs as a result of inadequate solar protection. More severe blistering can occur as a result of interstitial moisture from water ingress.

Blisters may also be a sign of trapped water below the surface, e.g. saturated insulation, and/or a very high vapour drive:

- If the blisters are interlayer the cap sheet and the underlayer and, as long as they are small and the underlayers are sound, they can be left.
- If the blisters are more severe ensure that they are not compromising the attachment of the system and its ability to resist the effects of wind loads, otherwise, they can be left providing they are not damaged.
- If blisters are due to trapped water or vapour drive consider installation of vents.
- If a blistered roof or balcony is to have a LAWS it will be necessary to cut and seal all blisters before the LAWS specification is installed.

Attachment

It is important to check that the attachment of the existing substrate to the deck is satisfactory and capable of resisting wind loads, this can be checked with test cuts. If the attachment is suspect a suitable mechanically fixed arrangement should be considered.

Condition of roof, balcony or walkway surface

It is essential to assess the whole roof, balcony or walkway for any variation in condition and establish where repairs are to be carried out before overlaying. It is also necessary to determine the best method of preparation, which could include for example scabbling or in exceptional cases water jetting, provided the surface can be satisfactorily dried out. Identification of the top layer is also essential to determine any necessary primers and select the most appropriate specification.

Ancillary items

Determine how minor associated building works are to be included, e.g. rooftop and balcony equipment, parapets, roof lights etc, in order to ensure compatibility of the system.

3. Suitability of Liquid Applied Waterproofing Systems

The great advantages of a LAWS are :

- Lack of disruption, as the existing substrate is normally left in place;
- The homogenous nature of a seamless coating;
- The capability of coping with irregular surfaces and the ease of installation.
- Rainwater is kept out of the building during the course of the works.

A simple overcoating solution will be suitable if the following criteria exist:

- The substrate is clean and dry.
- The existing roof, balcony deck or walkway and any insulation are generally dry and structurally sound.
- The existing thermal performance meets the requirements of the Building Regulations.
- The existing waterproofing can be suitably prepared to accept LAWS.
- The additional weight of the LAWS is within the loading capacity of the roof, balcony deck or walkway and building structure.
- The height of upstands and details, d.p.c.'s etc., allow for the additional thickness of the LAWS including any additional insulation.
- The attachment of the existing waterproofing is satisfactory.
- The LAWS is compatible with the existing substrate. Adhesion tests may be necessary.
- If the specification requires new or additional insulation; provision of a suitable carrier membrane may be required - or as recommended by the manufacturer.
- If any of the preceding criteria cannot be met then consideration should be given to stripping and relaying the roof and balcony area.

4. Preparation for Liquid Applied Waterproofing Systems

Upgrade the insulation if required.

The existing roof, balcony surface or walkway must be cleaned and prepared to receive a LAWS.

- Remove all loose material, make clean and dry.
- If the roof, balcony or walkway has a chipping finish, either loose or adhered, these must be removed as far as is practicable.
- Make good all defects
- Blisters should be star-cut and made good e.g. re-adhered.
- Ruckles should be inspected and, if necessary, made good. If solid and well adhered - they can be overcoated.
- Skirtings must be inspected and if necessary made good. Provision for re-installation must be made if missing or inadequately formed.
- Lift metal flashings to enable installation of LAWS beneath .
- LAWS may be finished into a suitable chase cut into brickwork.

- Water outlets must be inspected to ensure they are not blocked, are sound and free draining. Additionally, water should not be impeded by the build up of previously applied systems. Gutters must be cleaned and inspected.
- Ensure that rooflights, vents, gutters and other fittings are capable of being treated or flashed onto.
- Increase heights if necessary where insulation is being added or falls are being changed.
- Agree arrangements for making good to pipes, vents, flues, handrails, etc. Add or renew collars and flashings. Only lift lightning conductors, cables, etc by prior arrangement.
- Fit new vents if required and agreed by the client.
- Agree access and safety requirements. LRWA Guidance Note 1 – Section 2: Access.
- Inspect for fire risk particularly if torches or solvent - based materials are being used.
- Asbestos cement sheets are to be prepared only to current Health and Safety Executive requirements, and the requirements of the ACR Green Book.
- Check to ensure that adequate appropriate fire fighting equipment is available.
- Pre-treat with a biocidal solution if part of manufacturer's recommendations.
- Prime existing surfaces or treat in accordance with manufacturer's instructions.

5. Application of Liquid Applied Waterproofing Systems

- Application should be in accordance with LRWA's Code of Practice and individual manufacturer's instructions.
- Use only approved and properly trained contractors.
- Allow for adequate site monitoring.
- Full consideration must be given to current Environmental, Health & Safety requirements for storage and use paying particular attention to COSHH and other relevant documents. Refer to the CHIP Safety Data Sheets issued by the manufacturer/supplier.

6. Guarantees

The following documents are important requirements for the purpose of providing practical guidance with respect to the refurbishment of roofs and balconies:

- Properties in relation to fire – EXTERNAL SPREAD OF FLAME
- Weathertightness – RESISTANCE TO MOISTURE
- Regulation 7 – MATERIALS AND WORKMANSHIP

6. Ancillary Information

- Make reference to the LRWA Code of Practice.
- Check manufacturer's reputation, systems certification and validity.
- Guarantees may require that inspections are carried out at regular intervals.
- Maintenance requirements as laid down by the owner, contractor or manufacturer must be respected.
- REFER TO LRWA MEMBERS FOR SYSTEMS AVAILABLE

LRWA represents a group of manufacturers, applicators and raw material suppliers who are dedicated to best industry practice. Advice can be given, either centrally or from individual manufacturers, with the intention of supplying and applying systems to a client's full satisfaction. LRWA is involved in the preparation of European Technical Approvals, as the UK's official trade body, in conjunction with the BBA and EOTA. The Association produces a series of Guidance Notes, often in collaboration with the leading contractors' representative bodies, thus seek into reinforce the performance and quality potential of liquid roofing systems.

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, it must be emphasised that the Association has itself not verified the information by independent testing: for this reason and because the Association has no control over the precise circumstances in which it will be used the Association, its officers, employees and members can accept no liability arising out of its use, whether by members of the Association or otherwise. The publication is of a technical nature only and makes no attempt to state or conform to building regulations or other legal requirements; compliance with these must be the individual user's own responsibility.