GUIDANCE NOTE No. 17
Best Practice for the Installation of Flues
Passing Through a Flat Roof

1. Introduction

Several factors require consideration when installing a chimney on a flat roof, including fire safety, differential movement, control of air leakage, and, if fitted retrospectively, has the roofing system been damaged and is it still watertight?

The National Association of Chimney Engineers (NACE) expressed concerns around the compatibility of resins after the installation of stainless-steel chimney systems. Most notably, the fire safety aspect of "resin" near to a hot flue passing through a flat roof. This guidance note has been produced by the LRWA Technical Committee consisting of technical experts from the liquid waterproofing and flat roofing industry.

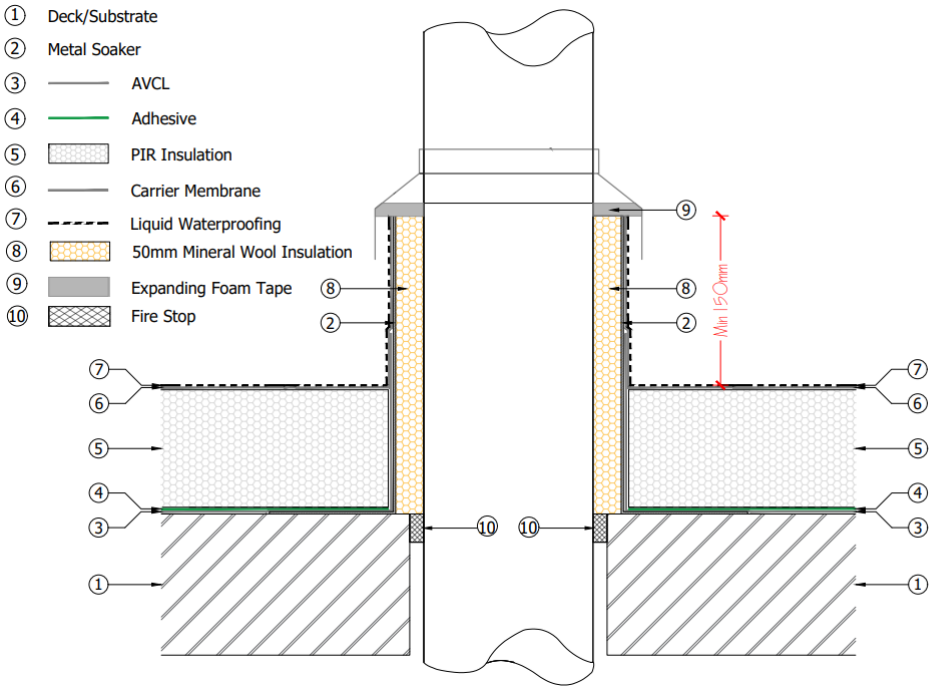
2. Fire Safety According to BS 6229:2018

When installing a roofing system that could incorporate any hot flue passing through the roof, it's advisable to follow the guidance within British Standard BS 6229:2018, which describes current best practice in the design, specification, installation, and aftercare.

Section 4.9 'Fire Safety' refers to this area specifically, stating: "Flues passing through a flat roof should be insulated and isolated from any combustible roof structure and finishes, in order to prevent charring of timber, softening of plastic and bitumen-based materials, and spread of fire."

A typical domestic roof construction consists of a plywood or OSB deck sitting on timber trusses, presenting a significant amount of combustible material potentially impacted by direct contact with excessive heat. There are many other materials within a roof build-up that require detailed consideration as to how to comply with the guidance in BS 6229:2018.

A liquid applied membrane roofing system should not come into direct contact with a hot flue. When installing a flue through flat roofing waterproofing systems, installers should use an isolated sleeve flashing with non-combustible insulation and cravat to terminate the waterproofing as per the detail drawing. LRWA manufacturer members provide installation guidance, detail drawings and training to ensure roofing contractors are fully aware of how to terminate this type of penetration.



NOTE: The cravat termination needs to be applied immediately after the completion of the liquid applied membrane to reduce the risk of water ingress into the roofing system. Please note that this may not fall into the remit of the roofing contractor, therefore responsibility of this application needs to be determined prior to works commencing.

3. Fire Classification

The roofing system owner, predominantly the roofing materials manufacturer, should have the relevant fire testing in place to demonstrate compliance with the relevant guidance i.e. Approved Document B (ADB) or alternative Technical Publication as appropriate based on in your location within the UK.

System owners should be able to demonstrate the 'as installed' roof system has a valid Fire Classification Report, covering external fire penetration and spread of fire.

A roof system is classified in accordance with EN 13501-5, as required in ADB. Based on testing carried out in accordance with TS 1187 Test 4. All system owners, in the UK, aim to achieve a BROOF(t4), rating the highest possible fire classification for roofs

The classification is required to determine how close the as tested roofing system can be to the relevant boundary, including adjacent buildings. The advantage of using systems achieving BROOF(t4), means there is no minimum distance required from the roof to the relevant boundary.

Most liquid applied membranes, when tested as part of a roof system that achieve a BROOF(t4), are unrestricted and can be used anywhere on the roof. Because liquid applied membranes are tested in their fully cured state, it means that the solvent, present its wet state has harmlessly dissipated and the product is no longer classified as hazardous in service. The preliminary test demonstrates, even when exposed to a naked flame the surface spread of fire is limited to no more than 381mm.

4. Installing a Flue Retrospectively

If a chimney is being installed on a flat roof that already exists, contractors should also be aware of section 4.11 within BS 6229:2018, 'Rooftop Components and Installations', which states: "Special care should be taken to avoid damage to the roof system when detailing penetrations of the roof by hot pipes and flues."

Retrospective chimney installation means the design of penetrations should allow not only for isolation of the full waterproofing build up from hot flues, but also differential movement as required between the penetration and roof system, correct termination of the pipe collar to maintain watertightness, and control of air leakage to prevent risk of condensation.

It is advisable for the chimney engineer to consult with the original installing roofing contractor and system owner, to discuss the best way to avoid potential damage to the waterproofing.

Any damage to the existing roof system, or retrospective work carried out without approval, will most likely invalidate any guarantees issued by the system owner or roofing contractor.

5. Safety Data Related to Liquid Applied Membranes

There are several types of liquid applied waterproofing systems on the market and many are classified as non-hazardous, for example, water-based and solvent free.

Any hazards that exist during the installation process are closely controlled by the Control of Substances Hazardous to Health (COSHH) regulations, which protects workers against the risk of exposure to substances considered to be harmful to health.

Safety data sheets, issued by product manufacturers, provide information on to help contractors make a risk assessment. These are essential reading prior to handling any materials. Safety data sheets also declare the flash points of products in their liquid state, to aid safe storage and handling on site. Again, note that liquid applied membranes are not hazardous once cured. At this stage the flash point is also no longer relevant.

6. LRWA Membership Criteria

The LRWA imposes extremely strict criteria for any liquid applied membrane manufacturer, contractor, or associated product manufacturer to become members. This includes adequate training and third-party product certification. This is to ensure the highest of standards remain within our industry, and roofs remain safe and durable for our end clients to use and enjoy.

Any guarantees offered relies on the product being installed correctly and competently, which means training, collaboration and communication is vital.