

1. Introduction

The coating of profiled Fibre cement sheet roofing and Cladding in order to extend the waterproofing life of such structures has long been within the realms of the liquid roof waterproofing industry. This Guidance Note highlights some of the issues that need to be taken into consideration when undertaking this type of work.



Before



After

2. Fragile Materials

Profiled Fibre cement roofs are considered fragile materials and all works must be conducted in accordance with the relevant guidelines. One of the main types of fibre cement is asbestos which have further guidelines, in particular, the requirements of the Control of Asbestos cement Regulations 2012 and HSE guidance notes available at; <http://www.hse.gov.uk/asbestos/essentials/>

No attempt to inspect or work on a fragile roof or walkway on the roof should be undertaken without first confirming that it is safe to do so. Please see HSE guidance "Fragile Roofs - Safe Working Practice" which can be found at; <http://www.hse.gov.uk/pubns/geis5.pdf>

Falls through fragile roofs and fragile roof lights cause death and serious injury. They account for almost a fifth of all the fatal accidents which result from a fall from height in the construction industry.

The above information was correct at the time of writing this document. Current Health and Safety information should always be referenced before carrying out any works.

3. Roof Survey

A full roof survey will establish any problems that exist with the existing roof this should be carried out by mechanical access where possible to avoid direct access on to the fibre cement sheets themselves. Precaution with direct access should be taken in line with current regulations.

Some common issues with this type of structure include;

- Loose fixings and fasteners
- Cracks to Fibre cement sheets
- Missing profile filler pieces – Ridge and Eaves
- Translucent sheet deterioration or failure
- Poor detailing to roof projections- Pipes, Vents, etc.
- Moss/lichen build up on sheets
- Leaking gutters

There are many criteria about the existing roof construction that need to be established Such as;

- Knowledge of the actual roof structure would also be an advantage when it comes to decision making about the type of detailing required on the project. Is it single skin, twin skin?
- What is the lining panel – metal, plasterboard, or fibre cement?
- Is there any insulation between the lining panel and the outer skin?

4. Points to Consider

Condensation

Installing a seamless waterproofing skin over the existing structure may create a situation where condensation problems are going to be exacerbated. Depending on the roof structure and the building use, ventilation may have to be introduced into the structure, most fibre cement sheets roofs are designed to breathe as they do not have sealed sheet laps as you would have in metal profiled sheeting.

Fixings

Fixings are probably the main reason for water ingress in this type of roof. Over the years the sealing washers (Rubber, Neoprene etc.) will have deteriorated and perished. The fact that some of the washers will have perished will mean that some of the fixings will be loose which in turn will allow water ingress. Many of the fixings will also be affected by rust and will prove difficult to tighten up. All the fixings should be wire brushed and given individual treatment in accordance to the coating manufacturer's specification, (if wire brushing fixings used to retain asbestos sheets, further health and safety considerations should be followed) this would generally involve the application of a reinforcement which would be bedded in the coating material prior to the application of the full coating specification.

Lap Joints

Lap joints on Fibre cement should be considered carefully, as stated previously fibre cement sheets generally do not have sealed laps at time of installation. This allows the roof to be ventilated and minimises condensation issues, by sealing the laps with a seamless liquid system can cause condensation dependant on the building use. Further consideration has to be given to internal air pressure. Large warehouse/manufacturing buildings with large roller shutter doors can experience sudden increases in internal air pressures when these doors are opened which can cause the fibre cement sheets to be forced off their fixings as the air has nowhere to escape. Individual manufacturers should be consulted over this consideration.

Poor Detailing to Roof Projections

This type of problem usually occurs when plant (ventilation or refrigeration equipment) and pipe projections have been fitted after the completion of the original roof. This type of problem is generally a design fault and needs to be rectified prior to the application of the coating specification. The best method to detail such penetrations is to insert an apron cover sheet on top of the profiled sheets, extending under the ridge capping down past the penetration. This arrangement will prevent ponding behind the penetration.

Gutters

Gutters will generally need to be cleared of all accumulated dirt, debris and any other deleterious material and then washed as part of the surface preparation (HSE guidance note a10). When coating these prepared gutters, particular attention should be paid to the gutter joints as this is the main point of potential leaks. Generally these joints will require additional reinforcement to the liquid coating to accommodate any movement in the joint in line with manufactures specifications.



Translucent Sheet Failure

The treatment of translucent sheets is probably the area within profiled fibre cement sheet roofs that contributes to the greatest number of failures when it comes to the coating of profiled fibre cement sheet structures. Failures should not happen providing simple guide lines are followed.

If the translucent sheet has deteriorated to such an extent that the glass fibres are free or the sheet has lost its structural integrity the sheets should be renewed and replaced. Replacement translucent sheets should meet Class C or Class B non-fragile ratings in accordance with the "Red Book" ACR(M)001:2011¹.

The coating of any translucent sheets should be carried out with extreme caution with regards to health and safety. Some manufacturers do not recommend this at all so individual manufacturers should be consulted.

The pattern of the translucent sheets is important when it comes to the decision of what treatment is required. Depending on the individual roof and the manufacturer's specification, if the translucent sheets run from ridge to eaves and if the translucent sheets are in good condition it may be possible to clean the translucent sheets and finish the profiled sheet coating on the down slope of the translucent sheet profile.



If the translucent sheets are laid in a checker board pattern they could be coated with a pigment free coating in order to both maintain the translucent quality of the sheets and also to ensure that the whole roof maintains the seamless feature of a liquid coated roof. Even if the translucent sheets have been replaced consideration should be given to coating the sheets to maintain the continuity of seamless coating. Detailing the joints between inline rooflight panels and the surrounding profiled sheets can be problematic and the individual manufacturer's recommendations should be followed.

The lap of downward facing edge should be checked as excessive movement caused by a lap that is too big can cause movement greater than that of the coating's capabilities. The maximum recommended lap is no greater than 150mm with 50mm beyond the furthest fixing point being preferred.

5. Applying the Coating

Please note that these instructions are for guidance only. Always refer to individual manufacturer's instructions

Observe health and safety executive requirements see HS/G 189/2 working with fibre cement

When preparing and treating a fibre cement surface, all work must be carried out strictly in accordance with the guidelines laid down by the Health & Safety Executive, by the Local Authority or any other official body concerned with this project. All operatives must be experienced and/or trained for the operation. The operation must be closely monitored to ensure that contaminated waste is not allowed to escape. All waste must be correctly labelled, transported and disposed of safely at an appropriate facility. Contractors seeking advice on methodology should contact the HSE infoline on 0845 345 0055. All fibre cement sheets should be brought back to a sound, hard surface for treating. A 'closed head' cleaning system or similar system, as approved by HSE guidelines, is recommended.

Replace cracked and damaged sheets. Loose and soft materials wet and remove. Allow to dry. Inspect all fixings/bolts/studs, replace any damaged, badly corroded or missing. Wire brush or mechanically abrade to remove rust and clean to bare metal finish (if wire brushing fixings used to retain asbestos sheets, further health and safety considerations should be followed).

Tighten bolts/studs as necessary and cut back to approximately 5mm above the nut.

Remove and kill off all signs of moss and algae growth by applying fungicidal wash.

Undertake an adhesion test to determine if the roof area and associated details require priming, the test area should be as manufacturer's instructions. The adhesion test should be undertaken at locations throughout the roof to ensure all areas are covered.

Apply the coating as specified, usually, by airless spray. If more than one coat is required it is recommended that contrasting colours are used to ensure correct coverage.

LRWA was founded in 1979, and consists of the UK's leading manufacturers of liquid roof coatings and related material suppliers. It aims to raise awareness about the technical and financial benefits of specifying liquid applied roofing systems and to establish both product and installation standard to ensure optimum performance is achieved; to this end LRWA has been involved in the writing of European Technical Approvals as the official body in conjunction with the BBA and EOTA.

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