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TOTAL RENDERING SOLUTIONS

Maintenance & Repair Manual

Introduction

This guide is designed to offer information on best practice for inspecting SPS Envirowall ETICS systems and also offers guidance on the general maintenance. In the event of any repair works that may be required, these must be done by an SPS Envirowall approved applicator and be in accordance with the Repairs section of this manual.

When considering any maintenance and repairs to the system, careful thought must be given to safe working access to enable the works to be completed. In some instances, secure anchor points may have been allowed for in the initial façade design and we would advise consulting with the original façade design drawings. In all instances, any access that is required for the works must be in accordance with latest legislation, be installed by qualified personnel and risk assessments completed.

When using ladders, the ladders should not be directly rested on the render coating as this may damage the render coating, even if protected ends are fitted to the ladders. If ladders are use, these should be fitted with a load spreading plate to distribute the weight over the render coating.

Rope access may also be used for carrying inspections and maintenance. When using rope access the operatives must wear soft shoes and walk, not swing or jump down the façade. Care should be taken of protruding elements such as window cills to ensure no risk is presented for damaging these elements or damaging the rope access.

When following this guide it is worth noting that in some sections the guidance may vary dependant on the render finish. It is the responsibility of the reader to ensure the correct guidance is followed for the relevant render finish.

Living with the system

External fixtures

Careful consideration should be given at design stage for any external fixtures and fittings to ensure suitable support grounds are present. External fixtures and fittings include, but are not limited to the following.

- Satellite dishes and brackets
- Lighting
- Washing lines
- Hanging baskets
- Fence and gate posts
- Door bells
- Porches
- Telephone lines

Should a new fixing point be required after the application of the ETCIS system SPS Envirowall recommend two types dependant on the weight of the new fixture and fitting.

For new fittings less than 5kg in weight use SPS Envirowall spiral plugs (ESPDU). The fixings are installed using hand tools only and are screwed into the render coating taking care not to over tighten. A mastic bead must be used on the final thread of the spiral screw to seal the fixing. When used in polymer renders, it may be necessary to drill a 3mm pilot hole first. A traditional external grade screw can then be used for fixing the new external fixture back to the spiral screw head.

For new fittings greater than 5kg in weight we recommend the use of Fischer Thermax fixings that are fixed back to the main building substrate. These are purpose built fixings that are designed for us in cladding systems and have high resistance to flexing.

Future Surrounding Groundwork's

The external wall insulation system is terminated along the line of the damp proof course, so any future ground works to driveways or gardens should not rise above this line. When carrying out heavy works in close proximity to the render façade it may be prudent to use a temporary protection board to prevent damage to the render coating. After carrying out any heavy ground works we would recommend carefully inspecting the base track for any damage that may have been caused.

Plants & Shrubs

It is advisable to avoid planting climbing plants such as Ivy close to the wall as these can be very destructive over time to the render surface.

Inspection of the ETICS system

Inspection Programme

Inspections of the façade and building should be carried out on a regular basis to look at the condition of the finish and any potential issues that would cause the system to fail. It is the responsibility of the building owner or nominated representative to inspect the façade within 30 days after practical completion and annually report any visual defects to the façade installer, main contractor and SPS Envirowall. Inspections may take place more frequently and any defects identified should be notified to the façade installer, main contractor and SPS Envirowall.

In addition to the annual inspection the owner or nominated representative must obtain a Condition Assessment and Survey report in the 10th year and every 10th year thereafter. This must be carried out by a RICS surveyor or other suitably qualified body.

On multi-dwelling sites with a high percentage of archetypal repetition, it is recommended that a minimum of 5% of the total site is inspected and surveyed ensuring that the units are varied from one inspection report to the next.

Areas to be inspected

The following list is not exhaustive, but is intended as a guide for the most common areas for inspection. Every project is unique and may pose additional areas for inspection. In all instances, a photographic log must be submitted with the report to the façade installer, main contractor and SPS Envirowall.

General Façade appearance. The façade should be inspected for any areas of render that are showing signs of failure or have blown of the façade. The façade should also be checked for any signs of cracking or undue stress on the render paying particular attention around openings and penetrations, around external fixtures and fittings and around rainwater goods. Whilst coloured renders will fade over time, any areas of significant discolouration may require further inspection.

Mastic and seals. All mastic joints and sealants must be inspected for signs of degradation, including sealants to non SPS Envirowall elements that may impact on the façade performance i.e. copings. It should be noted in the report the duration the mastic sealant has been in place for and it's working life expectancy as stated by the supplier.

Openings. Areas around window and doors should be inspected for cracks at corners, signs of blown render around the reveals and head and seals around frames and cills. Corners of the render should also be checked around doors for signs of damage.

Base tracks. Base tracks can be prone to damage in areas of high foot traffic and should be inspected for signs of damage or buckling.

Corners. External corners of the render façade can be prone to damage in areas of high foot traffic or around door openings and should be inspected for signs of damage or chipped render.

Boiler flues and other penetrations. These should be inspected to ensure any mastic seals are in good condition and there are no signs of stress on the render system. The inspection should also be used to highlight any penetrations that have been replaced and these should be reported to the façade installer, main contractor and SPS Envirowall. It is the responsibility of the building owner or their representative to ensure that any replacement penetrations meet the original design specification, or better, and are in accordance with the requirements of SPS Envirowall and notional standards that may be applicable.

New external fixtures and fittings. Any new external fixture and fittings should be reported in the inspection report, i.e. hanging baskets, satellite dishes, etc. It is the responsibility of the building owner or their representative to ensure that any new fixture and fittings are installed in accordance with the requirements of SPS Envirowall and notional standards that may be applicable

Maintenance

Cleaning the facade

All renders will experience some form of discoloration over time and the speed in which this occurs is dependent on the following factors: -

- Type of render used
- Orientation of the façade
- Geographical location
- Location in relation to roads, local industry, trees and greenery, etc.
- Detailing – Cills and copings that have insufficient overhang and allow water to drain down the façade of the building will increase the speed at which facades become stained.

Facades that do not receive much sunlight and therefore remain damp over long periods of time will be more susceptible to algal growth. Mineral and polymer based renders are more prone to discoloration than synthetic acrylic and silicon renders.

It is up to the building owner or their representative to determine if and when the building façade requires cleaning.

Please note that not all render coatings are suitable for power washing and the guidance offered in this document does not refer to the use of a power washer due to the variance in machines on the market. Should a power washer be used it is up to the building owner or their representative to determine the correct pressure to be used and if the render coating is suitable. The machine must be set so it is not on a focused blasting operation and be fan sprayed applied a minimum of 1.5m away from the façade.

General Cleaning of the Façade

It is difficult to state when the building façade may need cleaning as this is dependant on many factors and also on client expectations on appearance. For through colour renders it is recommended that the façade is cleaned at least every 10 years, however this will not invalidate any warranty should this not be done.

1. Apply suitable protection to neighbouring surfaces and ensure all windows, doors and vents are closed (where possible).
2. Working top to bottom apply fresh warm water to the façade to remove surface particles. A stiff brush should be used on heavily soiled areas paying attention not to disturb any aggregates that may be present in the render coating.
3. If required, a mild detergent or traffic film remover can be applied and washed off.
4. If required, repeat the above steps.

Algal Cleaning. Biological organisms have an incredible ability to adapt to almost any environment. Biological organisms fall into two main categories, algae (including lichen) and mould. Algae's prefer a very rough surface structure while moulds tend to prefer a smoother surface.

For an organism to grow in a certain environment, different requirements on abiotic (physical and chemical) and biotic (biological) factors have to be fulfilled. Suitable conditions for growth of organisms on façades are certain ranges in temperature and a high moisture level (RH), but also the surface structure, nutrient availability, pH, cardinal direction etc. might be influencing. Different organisms have different demands on these factors and it is a complex interaction of these different factors that decides if an organism can grow in a certain environment. It is very difficult to say exactly why one property or one elevation may encourage these growths more than another property or elevation.

Surface algae can be removed in several ways and it is advised that a small area of the façade which is out of general sight is tested with an undiluted concentration to assess its suitability.

SPS Envirowall Fungicidal Wash.

1. The render façade must first be cleaned down as per the guidance given under ‘General Cleaning of the Façade’ prior to any application of fungicidal wash. During the cleaning process, a fungicidal agent may be applied with a brush to concentrated areas prior to the treatment of the main area.
2. Ensure the façade is dry and clean from any adhesion-reducing residue.
3. Working top to bottom and ensuring suitable protection is in place to neighbouring surfaces, apply the diluted fungicidal agent with a brush, roller or spray machine. Best results are achieved by using a hard brush. For information on diluting the SPS Envirowall Fungicidal Wash please refer to product data sheet.
4. Allow approximately one hour before rinsing the façade with brush and clean water or hose pipe.
5. Algae on treated areas should start to disappear within 1 to days of treatment. In highly soiled areas, re-treatment may be required.

Should another brand of fungicidal wash be used, the above guidance can be used, but must be tested as outlined above and diluted and applied in accordance with manufacturer’s instructions.

SPS Envirowall Enzy-Clean

Enzy-Clean is an active enzyme cleaner which is non-toxic and its simplest term, eats dirt. It is a more environmentally friendly solution to aggressive cleaners that are available. The product should be diluted in accordance with product data sheet with clean water, for best results use water between 30 to 60□ Celsius. As the product is not an aggressive cleaner it is important to note that it will not produce results instantly.

1. The render façade must first be cleaned down as per the guidance given under ‘General Cleaning of the Façade’ prior to any application of Enzy-Clean. Ensure the façade is dry and clean from any adhesion-reducing residue.
2. Working top to bottom and ensuring suitable protection is in place to neighbouring surfaces, apply the diluted Enzy-Clean with a brush, roller or spray machine. For information on diluting the SPS Envirowall Enzy-Clean please refer to product data sheet.
3. The surface must be kept dry and not rained on for 24 hours for the product to start working effectively.
4. Temperatures must remain above 12□ C for the enzymes to work. Should the temperature fall below this, the enzymes will slow down or become dormant until the temperature rises again.
5. The enzymes should remain active for 3 months and survive by eating the surface contaminants. Once the enzymes become inactive, they are simply washed away.

It is worth noting that due to the nature of this product, the façade may appear dirtier in the first instance as the enzymes start working before the effects can be seen.

Colour

SPS Envirowall through colour renders are manufactured using UV stable colourfast pigments, however as with all building finishes the renders will weather over time showing slight changes in shade.

There is no hard and fast rule as to when the façade may require an equalising coat to refresh the colour and the time at when this is carried out is dependent on the building owner. Some facades may never receiver an equalising coat.

Should a section of an elevation or one of two adjacent elevations only be re-coated there will be an obvious shade difference between the new coating and the existing coating.

1. The render façade must first be cleaned down as per the guidance given under 'General Cleaning of the Façade' and any algal treatment required should be completed following the guidance given in the 'Algal Treatment' section of this guide.
2. Apply suitable protection to neighbouring surfaces and ensure all windows, doors and vents are closed (where possible).
3. Working top to bottom apply the first coat of the equalising paint watered down in accordance with the product data sheet.
4. Once the first coat has dried, working top to bottom apply a second undiluted coat of the equalising paint.
5. Once the equalising paint has dried, carefully remove any protection and clean any spillages.

The equalising paint must be compatible with the existing coating. The following table gives guidance on the suitability of the renders and paints. If you require further information, or are unsure as to what coating you need, please contact your local SPS Envirowall branch.

	Acrylic Paint	Silicon Paint	Nano Enhanced Pain
Granomin	Yes	Yes	Yes
Granol Acrylic	Yes	Yes	Yes
Granol Silicon	No	Yes	Yes

NB, if the render has already received a paint coating, then the same paint must be used for all subsequent coats.

For synthetic through colour renders, the façade must be re-painted in year 30 to prolong the life expectancy.

Graffiti

There are a number of anti-graffiti paints or sacrificial layers on the market. It is SPS Envirowall's policy to advice against the use of these as they may have an adverse effect on the performance of the render coating. Should the client wish to use an anti-graffiti coating then please contact SPS Envirowall for guidance.

Dash and Brick Effect finishes

For removal of graffiti, please follow the guidance outlined in 'General Cleaning of the Façade' section of this manual. Care should be taken with dash finishes not to remove the dash chippings as this will make the render look bald, should the chippings become dislodged, the render coating will still perform its original function.

Synthetic Through Colour finishes

For removal of graffiti, please follow the guidance outlined in 'General Cleaning of the Façade' section of this manual. Should this not prove to be successful, then a new equalising coat can be applied following the guidance outlined in the 'Colour' section of this manual.

It should be noted that not all forms of graffiti can be removed. Should only part of the façade receive a new coating, then colour shading may be visible.

Mastic Replacement

Most mastic seals have a life expectancy shorter to that of the SPS Envirowall ETICS system and should be replaced in accordance with the manufacturers stated life expectancy.

1. Protect any neighbouring surfaces using suitable protection, i.e. window frames and cills.
2. Using a utility knife, carefully burrow the tip under an edge of the mastic sealant.
3. Begin to peel away the sealant and using the edge of the utility knife, carefully inch around until the sealant has been removed.
4. Using a suitable cleaner and a microfiber cloth rub away any marks or mastic residue.
5. Once the area has dried, apply the new mastic sealant in accordance with the manufacturer's instructions.
6. Dispose of the mastic sealant in accordance with local waste regulations.

SPS Envirowall does not take any responsibility for the correct specification of the mastic sealants used.

Efflorescence

Efflorescence is a natural occurrence when using cementitous based materials and whilst not detrimental to the performance of the finished render, it can become unsightly. The most common causes for efflorescence are detailed below, but it these are not the only causes and it may be that a combination of items can cause its occurrence.

- Contamination from the substrate
- Excess water in the substrate delaying the curing process of the cementitous coatings
- Low application temperatures and prolonged low curing temperatures
- High relative humidity during application temperatures and prolonged high relative humidity during curing
- Surface water from condensation or rainfall

Consideration should be given to ensure working temperatures and relative humidity to ensure the risk is kept minimal and any newly applied material is protected from surface water whilst curing.

Should efflorescence occur and the client wish to remove it, there is no hard and fast rule, but the following may be used as guidance as the nature of the efflorescence and the manner in which it can crystallise will vary.

1. Apply suitable protection to neighbouring surfaces and ensure all windows, doors and vents are closed (where possible).
2. Working top to bottom apply fresh warm water to the façade to remove surface particles. A stiff brush should be used on heavily soiled areas paying attention not to disturb any aggregates that may be present in the façade.
3. Carefully remove protection

Should the above not prove to be effective, then a mild diluted brick acid can be used. Care should be taken when using acid based materials and a sample section must be tested out of the main line of sight to ensure compatibility. When using acid based cleaners, the coating of the outer polymers may be eroded causing the system to be more susceptible to dirt. The use of an acid wash may also cause the render colour to fade.

REPAIRS

Introduction to Repairs

During the inspection programme or general maintenance of the system, damage may become apparent and should be noted and treated accordingly. Damage may also be caused by hard body impact, addition of new external fixtures or any building work carried out.

The system manufacturer, specialist contractor and main contractor must be informed within 30 days of discovery of any damage for their records and be given the opportunity to inspect the damaged area prior to any repairs being varied out.

Any repairs must be carried out by SPS Envirowall trained operatives with notice given tot SPS Envirowall should we want to inspect the repairs.

Failure to notify SPS Envirowall or use trained operatives will invalidate any warranty issued.

Suitability of Products Used for Repairs

It may not be possible to use SPS Envirowall material in all repairs. For this reason we have outlined requirements for assessing products suitability.

- Please check with SPS Envirowall as we may have knowledge on the sue of the repair products for suitability.
- Check to see if the product has been tested and carries accreditation
- Does the material meet the requirements of Trade Body standards

If it does not fall into the above categories, a small section of materials should be used and assessed over 30 days to assess the following: -

- Colour match
- Has the material bonded to the relevant repair works
- Has the material set to create a suitable repair and seal
- Does the material have a maintenance regime, if so, this will need to be added to the clients inspection and maintenance programme.
- Has the material placed any additional stress onto the system.

Crack Repairs

Cracks appearing in the system coating may be caused by a number of different factors. Any cracks that do appear should be noted and repaired if required. If the cracks are repaired, careful monitoring of the affected areas should carry on as there may be underlying problems that may cause further damage.

Any cracks appearing around window and door openings or at floor slab level should be noted and a careful inspection of the internal finishes should be conducted as there may be movement in the structure. The SPS Envirowall systems are not designed to accommodate structural movement or excessive movement in the structure.

Hair line cracks – Acrylic and Silicon Render Coatings

Whilst these coatings are highly resistant to cracking, occasionally hair line cracks may appear. Should this be the case, then these are not detrimental to the performance of the render coating.

Any cracks other than hairline cracks should be noted for future records and closely inspected for signs of water ingress. If no signs of water ingress or evident, the cracks should be monitored as part of the inspection regime to ensure they do not open up further and allow water to ingress.

Cracks greater than 2mm in width should be repaired using of the following methods.

Cracks not exposing the insulation

1. Using a sharp pointed tool, carefully rake out the crack enough to allow the application of a silicone sealant.
2. Remove all dust and ensure the area is dry
3. Carefully apply silicone sealant to the crack and whilst still soft apply the textured topcoat ensuring the sealant is fully covered.
4. Avoid overloading the crack zone area to prevent highlighting the repair. In some instances it may be preferable to apply the topcoat without the grain.

Cracks exposing the insulation

Please refer to the section of this manual titled Damage To The System

Hair line cracks – Polymer and Mineral Coatings

Whilst these coatings are manufactured using high strength polymer binders, occasionally hair line cracks may appear. Should this be the case, then these are not detrimental to the performance of the render coating.

Any cracks other than hairline cracks should be noted for future records and closely inspected for signs of water ingress. If no signs of water ingress or evident, the cracks should be monitored as part of the inspection regime to ensure they do not open up further and allow water to ingress.

Cracks greater than 2mm in width should be repaired using of the following methods.

Cracks not exposing the insulation

1. Using a sharp pointed tool, carefully rake out the crack enough to allow the application of a silicone sealant.
2. Remove all dust and ensure the area is dry
3. Carefully apply Mendrend Flexible Fissure Infill to the crack
4. Avoid overloading the crack zone area to prevent highlighting the repair.

Cracks exposing the insulation

Please refer to the section of this manual titled Damage To The System

Render Delamination

Should the render show signs of delamination, blistering or blowing, the loose areas should be removed and replaced using the following guidelines.

1. The areas of loose render should be clearly marked
2. Any surrounding areas should be tested for delamination using a light hammer test to determine any loose material. This can be determined by a hollow sound being heard. If further areas are identified, these should also be clearly marked.
3. Carefully remove any loose material using a wire brush and bolster chisel taking care not to damage surrounding areas or the base coat.
4. Remove any surface dust prior to the application of any new material.
5. Once dry, apply a new finish coat in accordance with the original material specification.

Damage To The System

Damage to the system must be treated to prevent wide scale problems occurring. When damage occurs the type of damage and the cause (if known) must be recorded and the façade installer, main contractor and SPS Envirowall notified.

Once identifying and damaged areas, suitable protection must be used to prevent further damage occurring and if needed, protection to the public and highways from any falling debris.

The area of damage must be thoroughly investigated to determine the extent of damage and if any water has ingressed into the system. Neighbouring areas must also be inspected for damage along with the base of the system.

The following is a breakdown on how to complete a full system repair.

1. Clearly mark the section(s) to be repaired. Never patch an area that is less than the square length of the trowel
2. Carefully remove the finish down to the base coat layer 65mm larger around the damaged area. For repairs larger than 1m² this should be extended to 115mm.

3. Cut through the base coat as straight as possible around the damaged area.
4. Remove all of the damaged insulation back to the substrate always leaving 65mm of exposed base coat. For repairs larger than 1m² this should be extended to 115mm.
5. Cut a piece of insulation board to tightly fit into the hole, if larger than 200 x 200mm in size, fix with mechanical anchors. The insulation board should always be adhesively fixed, irrespective of the original project specification.
6. Ensure the insulation board is fixed flush with surrounding insulation, when using EPS this can be rasped flush.
7. Apply new base coat to the area and install new reinforcing mesh ensuring a 50mm overlap with the existing exposed base coat and mesh. For repairs larger than 1m² the overlap should be 100mm.
8. Carefully feather the new base coat to ensure the new mesh is fully embedded and to minimise the visual impact of any ridges to the repaired area.
9. Once cured, apply new topcoat and finish in the normal manner taking care not to overlap the new and old material.

If damage is to the finished layer only, first complete stages 1 and 2 then complete stage 9.

When making repairs, it is important to note there will be a colour variance between the

newly applied render and the existing render and is not always possible to mask the repaired area. If a number of repairs are made to an elevation, consideration should be given to applying an equalising layer as detailed in the section titled ‘Colour’.

Window And Door Replacement

During the lifespan of the ETCIS system it is likely the windows and doors of the building may need to be replaced including any sub-frames they are fixed into. If just the door or window casement is needed to be replaced then this is unlikely to create any damage to the system or need any further treatment, but should the sub-frame

be replaced then this can be done either from the inside of the building or the outside. The guidance given below is only in relevance to the ETICS system only and any references to other products are for guidance only.

Replacing from the inside

1. Carefully remove any mastic sealant as outlined in steps 1 to 4 in the section titled ‘Mastic Replacement’.
2. If an APU bead has been used in place of a mastic bead, follow the same principles ensuring that the bead is not dislodged from the render and carefully removing the foam seal strip once the frame has been removed.
3. Taking care not to damage the render coating, remove the frame by leaning it inwards.
4. Once the frame has been removed and the system has been exposed carefully remove any sealing tape that may be present on the leading edge of the insulation.
5. Prior to the installation of the new frame, install new sealing tape to the insulation towards the outer line and if an APU bead is present, install a new foam seal.
6. Install and secure new frame
7. Install new mastic sealant if required
8. Carefully inspect the reveals and heads for any damage that may have been caused and repair if needed.

Replacing from the outside

1. Carefully remove any mastic sealant as outlined in steps 1 to 4 in the section titled ‘Mastic Replacement’.
2. Taking care not to damage the main façade render coating, carefully remove the insulated render to the reveals and heads back to the corner bead exposing the return leg.
3. Carefully remove the frame taking care not to damage the main façade render coating.
4. Install the new frame and secure into place.
5. Install new insulated render to the reveals and heads including replacement seals as per the original project specification.
6. Install new mastic sealant if required

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