



SOLTHERM EWI MAINTENANCE MANUAL

RELIABLE INSULATION SYSTEMS **BASED ON EXPERIENCE**

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INTRODUCTION

The **EWI (External Wall Insulation)** systems' durability is designed for about 25 years or more, provided the design has been adopted appropriately, the application has been in conformity with the producer's instruction and the insulation is maintained properly. Our past experience demonstrates that the majority of façade defects result from lack of or insufficient supervision over thermal insulation operations leading to mistakes in substrate preparation (walls) and wall insulation installation. Numerous defects also result from improper finishing of details, which is usually the first source of damage development. A common problem is also lack of periodic façade inspection and assessment and, if necessary, selection of appropriate repair method. Repairs carried out at early stage usually comes down to minor local corrections and thus do not involve substantial financial outlays by the building owner or administrator. Moreover, the facade should be maintained to keep it clean and well-protected. Lack of insulation repairs and maintenance may lead to freezing, damp, loss of insulation properties and the deterioration of building appearance. The coating which is the most vulnerable to damages is the rendering in locations exposed to weather conditions, erosion, acid rains, UV radiation, mechanical stresses, microbial growth (algae, fungi), capillary action especially in lower parts of the building, etc. The above mentioned factors may at an early stage result in microcracks in render coat which, in time, develop into cracks and finally, due to continuous steady degradation, may lead to irreversible damages. Insulation at joinery, roofs, piping or flashing is also

vulnerable to earlier damage or destruction. At these locations sealing and jointing materials are applied, which are much less durable than the insulation itself. The same applies to plinth insulation, which is exposed to water bouncing off building elements, dirt, grime or mechanical damage, etc., which may also reduce insulation durability and requires maintenance and repairs.

During the warranty period Soltherm allows new elements to be fitted or attached to the insulation (in the course of its use) in conformity with the guidelines provided in Chapter III.

Moreover, the user should carry out the following renovation and maintenance activities:

- façade inspection
- dirt and grime removal from surfaces
- repair or replacement of sealing materials
- protective painting of the façade

Any other modifications, penetration or addition to the insulation must be agreed with Soltherm, otherwise it may void the warranty.

All repair activities and their scope must be carried out by the installers, trained by Soltherm and solely in a manner established by Soltherm, which shall be instructed in writing, otherwise the warranty shall become void and invalid.

EWI SYSTEM INSPECTION

The control of the EWI system condition and the record of inspection results during the term of the warranty, guarantee EWI system's reliability, stability and proper functioning and is the condition of its durability for the declared time period. The insulation system check-ups should be regular and on at a least yearly basis. The best suggested season for facade inspection is spring or early summer. The inspection, drawing up reports and keeping records of inspection is the building owner's or administrator's decision and responsibility. Weather conditions during inspection must enable precise assessment. It is also important that the inspection is performed professionally, if possible, and confirmed by a written report providing at least:

- date of inspection
- building location
- name and surname of the inspecting person
- scope of inspection
- checklist
- defect descriptions and their locations
- printed photo documentation of defects

The whole insulated area should undergo regular inspections including:

- 1 Finish coats - render and/or paint coat.** It is necessary to pay particular attention to possible scratching, cracking, flaking or peeling render and/or paint coat, mechanical damage and any tears in insulation system top coats. Such assessment should include all flat surfaces and construction details. Another particularly vulnerable area is plinth insulation, which is most exposed to impact, water bouncing off the building elements, dirt, grime or accumulated snow. The inspection should also involve the assessment of type and degree of soiling and discolourations, if any.
- 2 Rainwater system, downpipes and fittings.** Leaks in the rainwater system is one of the most common damage. In the long-term such damages lead to soiling, discolouration, extensive algal growth, peeling or flaking of render or paint coats and in extreme situations moisture penetration into thermal insulation and deterioration or loss of its insulating properties.
- 3 Mountings, fixtures and fittings.** This applies to all installations attached, or mounted, to the external surface of thermal insulation e.g. TV/satellite aerials, air conditioners, internet installations,

lightning conductors, sensors, outdoor lighting, boxes, blinds, or others. The mounting and fixing, the attached fixtures, fittings and installations should be stable, free from rust, should not cause soiling, damp patches, water streaks and water bouncing off them. If water bouncing off elevation elements cannot be reduced, it is necessary to secure the affected area with flashing.

4 Flashing and sills. You should particularly check the steel flashing for corrosion and damages in lamination. Check for water streaks on the facade and the stability of mounting elements or fixings. Check the quality of connection with the insulation for scratches or cracks both at flashing/sill joints and at connection with insulation material.

5 Sealing with elastic sealants. The lifespan of sealants is maximum a few years, therefore it is essential to check if the seals are tight, continuous, adheres well to the sealed elements, are free from scratches and shrinkage.

6 Other attachments to external walls: attic, pillars, cornice, rails, balustrade, railings, loggia, balcony, etc. Any irregularities and external attachments to the building have an effect on its appearance and maintenance.

7 Condition assessment and details of fixtures, attached to the façade after insulation. Provide all details related to building fixtures, fittings or attachments mounted to the thermal insulation and elements penetrating the insulation material e.g. lighting, hooks, pipes, aerials, post boxes, etc. in the inspection report.

If the inspection, repairs or façade cleaning involve the use of a ladder, it should not lean directly against the insulated wall, not even when the ladder is furnished with plastic end caps. Finish coating of thermal insulation is not resistant to high contact pressure and can be mechanically damaged. Attach a pad made of soft fabric to the upper part of the ladder, which will distribute the load over a larger area e.g. a plank or OSB, covered with extruded polystyrene XPS.

The inspected elements should be checked on the checklist and the identified defects or damages described. An inspection report must be drawn up as provided for in annex 1, which should be sent to the main contractor and Soltherm within 7 days from the inspection.

METHODS FOR MOUNTING NEW ELEMENTS TO THE INSULATED FACADE

Mounting of new elements to the insulation practically always involves punching and penetration of insulating layers and in consequently leads to point thermal bridge, therefore the number of such elements should be kept at minimum level. The attached elements should be light, corrosion resistant and moulded to prevent rainwater from causing damp patches and streaks. Any cavity between the mounted element and insulation material must be sealed.

Light elements weighing less than 2 kg, projecting beyond the building outline up to 150 mm and mounted at the height of up to 3.0 m above the ground level.

Light elements of small dimensions such as plates, number signs, lighting, sensors or thermometers can be fastened using spiral fixings. Drill a hole of 3 mm in diameter, then carefully screw in the fixing by hand to avoid render cracking. Screw the mounted element to the spiral fixing using a threaded screw. Always seal any cavities using a permanently elastic sealant.

Elements weighing above 2 kg and projecting beyond the building outline more than 150 mm.

Heavy elements of larger dimensions and having moving parts such as aerials, pegs or hooks, laundry lines, baskets, blinds, moving decorations, etc. should always be well-anchored in the substrate i.e. the external wall. To minimise thermal bridges it is recommended to use anchors, such as for example Fisher Thermax® of appropriate diameter or other - depending on the weight, shape and the intended use of the element. In case of any doubts, please contact with:

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SEALING

Sealants durability is limited and much lower than EWI system durability, therefore the sealing must be carefully and regularly inspected, filled and replaced, if necessary. In case if any damages, clean and degrease the affected area and seal again. Passage of water into the structure may lead to irreversible damages in the EWI system, deterioration of appearance, reduction of thermal properties, algal growth and may void the warranty. It is recommended to use a PU sealant (polyurethane sealant).

RAINWATER SYSTEM AND DRAINAGE

Make sure that rainwater or drainage systems have no leaks and are well-fitted and mounted. Wind may lead to loosening, displacement or leaking. Ice, snow and accumulation of organic material in gutters or hoppers may result in blockages, damp patches, streaks and system damage. Incorrect outlet moulding, orientation or placement may lead to water splashes and fast accumulation of dirt on the plinth insulation. All new fixtures must be fastened and mounted compliant with chapter III.

PLANTS AND INSULATION

It is crucial that no plants adhere to insulation surfaces and in particular the climbing ones. Long-term contact with plants may cause permanent render or paint coat discolouration as well as algal growth.

FACADE CLEANING

Exterior renders or paints are subject to ageing, which is demonstrated by dirt, grime buildup and dust accumulation, gradual colour fading and in shadowed and damp locations to algal growth. The degree of soiling may depend on various factors like building orientation, local weather conditions, proximity of busy roads and streets, surrounding buildings, local industry, vicinity of forests or water reservoirs. The surface texture is also of some importance since smooth surfaces are more vulnerable to dirt accumulation. Everything may affect the facade appearance, therefore the owner or his representative should care for it and take a decision about facade cleaning and/or painting. The EWI system should be cleaned at least every 10 years, what is a good practice. All SOLTHERM renders and paints are washable with water spray providing the appropriate pressure washer has been selected and the pressure and distance from the cleaned surface have been well adjusted. The whole surface area should be cleaned or its one separate fragment e.g. one wall. You should avoid spot cleaning, which may lead to colour variations due to local changes in colour shade.

Firstly, check if the facade is soiled or affected by algae/lichen/moulds. If you have any doubts, consult a specialist or contact with the SOLTHERM representative.

Prior to washing operations, cover or mask surfaces that are not to be washed such as windows, doors, ventilation grilles and openings, balustrades and railings (all windows and doors must be closed), secure power sources, powered devices and live wires. For light soiling use clean water, in any other case add mild cleaning agents for building façades - SOLTHERM AFC cleaner. Cover or mask surfaces that are not to be washed or could be wetted or soiled such as windows, doors, switches, outlets, etc. Prior to application, thin the SOLTHERM AFC cleaner with water, compliant with the instructions on the packaging and pre-wet the surface to be cleaned with clean water. Remove the dirt with a soft brush or a pressure washer with an adjustable cleaning agent injector or foamer attachment. Allow the cleaner to act for 5 minutes until foaming action stops and rinse with water spray. For heavy soiling use a stiff bristle brush and repeat the cleaning operation, if necessary. Allow surface to dry thoroughly before applying e.g. paint coats. Test apply to determine the dilution and the conditions for cleaning operations.

MICROBIAL GROWTH REMOVAL

Remove any microbial growth (algae, fungi, lichen), if any have been identified.

Prior to washing operations, cover or mask surfaces that are not to be treated such as windows, doors, ventilation grilles and openings, balustrades and railings (all windows and doors must be closed), secure powered devices and live wires. Apply GLO complex to remove and inhibit microbial growth. This is a concentrate and needs to be diluted with

water prior to application at a ratio adjusted to the degree of microbial contamination. Dilution ratios and preparation information are provided on the packaging. After thinning, apply the cleaner on the surface with a soft brush or a roller. Allow the cleaner to act for at least 12 hours in temperature between +10 and +30°C and rainless weather. Afterwards, wet the surface slightly and wash of the agent thoroughly with sprayed clean water. For extensive microbial growth, apply another coating and after min. 6 h, wash off again with water spray.

FACADE PAINTING

Some surfaces, where grime or microbial growth deposited for long, may show discolouration after cleaning. In such cases, over painting coating must be considered. The over painting coating may also be carried out to renovate or change the colour. It is recommended to use a silicone exterior paint such as SOLTHERM STC-P+ or SOLTHERM STC-P eco shield, which are highly vapour permeable and resistant to scrubbing, their colours are based on inorganic pigments, resistant to UV radiation, and which have increased resistance to algae growth.

Prior to washing operations, cover or mask surfaces that are not to be painted such as windows, doors, ventilation grilles and openings, balustrades and railings (all windows and doors must be closed), secure powered devices and live wires. Prior to paint application, prime the cleaned and dry surface with SOLTHERM SNP and allow it to dry for 4 h. Apply evenly two paint coats by brushing, rolling or spraying. Apply the second paint coat when the first is completely dry. Follow the instructions provided in the packaging and the technical data sheet.



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