## ATLAS façade maintenance and renovation







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## 1 introduction

Building façades are exposed to various types of damage occurring as a result of standard use, natural process of weathering and degradation of construction materials throughout the entire building lifespan. The intensity of these processes depends on numerous factors: object location, quality of construction works and appropriate object maintenance.

ATLAS/AVAL insulation systems are durable and can be safely operated for many years provided they are periodically inspected, maintained and repaired. According to European Technical Approvals the durability of ETICS should be minimum 25 years provided only system elements are used, and the application is carried out in accordance to Manufacturer's requirements. According to ETAG 004 (the guidelines to European Technical Approvals), on-going maintenance of the finishing layer is essential in order to ensure proper durability of all system elements.

Keeping technical parameters and unchanged aesthetics of a facade intact for a long time requires both: maintenance and renovation work. This instruction contains the most important recommendations for proper execution of both with special regards to external wall rendering coats.

We sincerely believe that information gathered in this book will facilitate maintenance and renovation works so the user enjoys unchanged appearance of facade for many years.

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## 2 | Maintenance of ETICS recommendations

Façade is exposed to weathering and degradation during its entire lifespan, especially in moderate climate, where large temperature amplitudes and frequent precipitation take place. Façade should be periodically inspected in order to determine the level and range of potential surface damage. This examination allows for elimination of this damage at early stage and plan renovation works in advance.

The assessments should be carried out periodically, preferably in spring time. First of all, appearance of façade should be documented in photos. Further actions and the scope of work should be based on the assessment of the technical condition, potential damage or wear level of thermal insulation system. Caution! Special attention must be paid during examination of buildings made of large prefabricated elements assembled on site. In this case, the relevant domestic instructions concerning maintenance of such type of buildings should be followed.

ELEMENTS TO BE CHECKED	CHECK FREQUENCY	SCOPE OF CHECK	MAINTENANC ACTION	E
Presence of dirt, deposits, stains	minimum once a year, before the end of May	occurrence and level of inorganic contamination (dust, fumes, ash, dirt, mud etc.)	Maintenance acco to paragraph 2	ording 2.1
Presence of biological contamination	minimum once a year (depending on building location and conditions of building use)	occurrence and level of organic contamination (fungi, lichens, algae, mosses)	Maintenance acco to paragraph 2	ording 2.2
Change of colour, fading, discolouration	minimum once a year, before the end of May	extent of discolouration	Maintenance acco to paragraph 2	ording 2.3
Presence of scratches, loosening, cracks etc.	minimum once a year, before the end of May	occurrence of hairline scratches	Instant repair according to respective paragraph:	2.4
		occurrence of local cracking in rendering coat		2.5
		cracking of render and base coat, potentially on entire façade		2.6
		local damage of render, base coat or thermal insulation layer		2.7
		occurrence of render loosening		2.8

## 2.1 | Cleaning of inorganic dirt



DEFECTS	Presence of dirt or stains on render or paint coats	
CAUSES	Subsidence of dust, dirt, fumes and other contaminants on a façade	
RECOMMENDATIONS	Clean the surface with water under pressure, in case of graffiti, surface should be cleaned with dedicated cleaning agents	

## Instruction for the façade cleaning

Wash the surface with pressure washers with adjustable pressure and a nozzle with flattened end. If needed, use special cleaning agents.

Caution! The pressure and type of detergent/cleaner should be selected on the basis of sample application carried out individually for each substrate.

## 2.2 Cleaning of organic dirt (biological contamination)

DEFECTS	Tarnished façade might indicate presence of biological contamination e.g. fungi (black or dark grey tarnish) or algae (green tarnish).	
CAUSES	Presence of biological contamination may result from: - secondary effect of presence of inorganic dirt, - building location, - materials used on façade. Contaminants settling on the surface, e.g. airborne fungi and plant spores combined with high humidity or surface moisture form favourable conditions for the growth of fungi, lichens, algae or mosses. Initially, the contamination is only superficial and it is visible as tarnish and minor discolouration of surface. Over time, contamination leads to large change in colour and damage of structure of substrate.	
RECOMMENDATIONS	Use of ATLAS MYKOS PLUS fungicide, renovative painting with façade paints, if needed (ATLAS SALTA S or ATLAS SALTA N PLUS, depending on the layers underneath). If the origin of the contamination is not known, the case should be consulted with an expert in mycology.	

## Instruction for the facade cleaning

## Step 1. Basic examination

Examine the wall, identify and remove any potential sources of dampness at the area of biological contamination. If necessary, replace flashings, seal or replace gutters and downspouts, carry out additional securing works.

## Step 2. Removal of biological contamination

Before tarnish is removed, the surface should be initially washed with water and cleaning agent. Technology of cleaning (manual or machine cleaning - with pressure washer) should be adjusted to the current conditions, i.e. location and level of contamination. If the contamination is very strong, it needs to be removed mechanically. When the tarnish is slight, the contamination can be removed with wet brush and dedusted.

ATLAS MYKOS PLUS is recommended for removal of a biological contamination. This product should be applied evenly and abundantly until the whole surface is moistened and left for 6-12 hours. Product can be applied with brush, painting roller or sponge. Contamination soaked with ATLAS MYKOS PLUS should be removed mechanically with e.g. wet brush or water under pressure. Biological contamination may be in various stages of development (easy to remove vegetative mycelium and more persistent spores), it is recommended to apply the product three times. Keep breaks from 12 up to 24 hours between subsequent applications.

## Step 3. Surface protection

Surfaces cleaned with ATLAS MYKOS PLUS can be painted at least 48 hours after product application. It is recommended to use the silicone paints ATLAS SALTA, ATLAS SALTA N lub ATLAS SALTA N PLUS. Painting coat should be applied in accordance with the instructions described in section 2.3.



## 2.3 | Renovation painting



DEFECTS	Facade is locally or entirely discoloured, original colour of render or painting coat is changed with visible spots or stains.
CAUSES	Ageing and weathering of render and paint caused by UV radiation or air pollution.
RECOMMENDATIONS	The surface should be painted with acrylic, silicone, or silicate façade paints from ATLAS SALTA line with high coating capacity e.g. ATLAS SALTA (AVAL KT 46) or ATLAS SALTA E. If painted surface is coated with mineral render which was not painted originally, then it is recommended to use silicate paint ATLAS SALTA S.

## Instruction for the renovation painting

## Step 1. Basic examination and substrate preparation

Before painting, type and condition of render should be determined and if the surface was painted. Contamination of the render surface may reduce bonding of paint, make painting difficult and increase paint consumption.

## Step 2. Selection of paint type

In case of renovative painting, it is very important to match the type of paint with the existing substrate. The selection should be in accordance with Table 2.

## Step 3. Painting

Paints can be applied with a roller, brush or spraying unit, in one or two layers depending on substrate structure and absorption rate. Technological breaks have to be planned in advance, e.g. in the corners and angles of the building, under downspouts or joints between two colours. Application must be done continuously, with no breaks in work. Subsequent layer has to be applied when the previous one is completely dry, crosswise to the first one. Keep the same direction of application for single coating. Protect the painted surface against direct sunlight, wind and precipitation during application and paint drying. Time of drying depends on substrate type, temperature and relative humidity.

Caution! In order to avoid differences in colour shades, apply paint of the same production date upon each individual surface. As a result of painting, one may notice slight natural smoothening of the substrate texture. Painting of surfaces of different structure and technical parameters can result in various shades of the same paint colour.

## Table 2. Type of paint for renovation painting, depending on a type of substrate

	Type and name of paint		
Substrate type	acrylic	silicate	silicone
	ATLAS SALTA E	ATLAS SALTA S	ATLAS SALTA
ATLAS CERMIT mineral render, not painted	Х	XXX	XX
ATLAS CERMIT mineral render, painted with acrylic or silicone paints	XX	0	XXX
ATLAS CERMIT mineral render, painted with silicate paints	Х	XXX	XXX
ATLAS Acrylic-silicone render	XXX	0	XX
ATLAS Silicate render	Х	XXX	XX
ATLAS Silicone render	XX	0	XXX
ATLAS Silicone-silicate render	XX	0	XXX

XXX – especially recommended

0 - not recommended

## 2.4 | Repairing of thin, hairline cracks on the façade



DEFECTS	Irregularly distributed thin microcracks.
CAUSES	<ul> <li>- installation errors, e.g. lack of diagonal mesh,</li> <li>- atmospheric conditions,</li> <li>- too dark render colour,</li> <li>- rendering carried out in unfavourable ambient conditions, etc.</li> </ul>
RECOMMENDATIONS	Painting with SALTA N PLUS - paint with ability for bridging cracks up to 500 $\mu m.$

## Instruction for repairing of surface

## Step 1. Basic examination

In this case, the examination consists visual inspection of the façade, in order to confirm cracks width and check if the render is properly bonded to the substrate. If the cracks are wider than 0.2 mm, proceed in accordance with paragraph 2.5.

## Step 2. Substrate preparation

The façade surface must be thoroughly washed, degreased, and left to dry.

## Step 3. Renovative painting

Renovative painting should be carried out in accordance with the principles described in paragraph 2.3.

## 2.5 | Repairing of local cracks on the façade



DEFECTS	Local, single cracks (above 0.2 mm wide) in rendering coat.	
CAUSES	Ambient conditions during building and façade use, application errors, etc.	
RECOMMENDATIONS	The cracks should be filled with permanently flexible material and painted with façade paint with high coating capacity - ATLAS SALTA N.	

## Instruction for repairing of surface

## Step 1. Basic examination

At first, it is recommended to find causes of the arisen defect and determine whether cracks are stable. Ongoing repairs can be carried out only when the cracks are stable. If the cracks are also on the reinforced layer, proceed in accordance with paragraph 2.6.

## Step 2. Substrate preparation

Cracks should be mechanically deepened (be careful not to damage the base coat) and edges should be cleaned of loose fragments of render. The whole surface should be thoroughly cleaned of dust.

## Step 3. Filling of the cracks

It is recommended to fill stable cracks with sealant based on modified silanes. Sealant should be carefully introduced into the crack, ensure continuity of mass and complete filling of space in the whole cross-section of the cracking. Mass should be smoothened and shaped at the area of cracking in order to minimize the exposition of the filled area. Leave the product to dry according to the manufacturer's instructions.

### Step 4. Surface painting

Renovative painting should be carried out in accordance with the paragraph 2.3.

## 2.6 | Repairing of damaged render and base coat



DEFECTS	Cracks of render and base coat with regular or irregular shape, numerous randomly distributed cracks in render.
CAUSES	<ul> <li>too thin base coat layer,</li> <li>lack of overlapping of subsequent mesh strips,</li> <li>type of reinforcing mesh (vulnerable to alkali), etc.</li> </ul>
RECOMMENDATIONS	Application of new layer of base coat and thin-coat render

## Instruction for repairing of surface

## Step 1. Basic examination

First of all, it is recommended to find causes of the arisen defect and determine the scale of damage or loosening of the render around the cracks. If the cracks are regularly distributed and overlap the arrangement of thermal insulation boards or joints between consequent reinforcing mesh strips, they may indicate incorrect application of thermal insulation system.

Cracks of irregular pattern, located in random areas of the façade require individual examination. Special attention must be paid during examination of the buildings made of large prefabricated concrete components assembled on site.

### Step 2. Substrate preparation

If the base coat is damaged without breaking the continuity of the reinforcing mesh, the substrate preparation comes down to washing and degreasing of the surface and removing of loose fragments of render. If the mesh is damaged, it is necessary to remove the render around the cracks (by grinding), reveal mesh and apply additional ATLAS 165 mesh strips with a width of approx. 30 cm, embedded in the adhesive mortar ATLAS STOPTER K-100, ATLAS STOPTER K-50, ATLAS STOPTER K-20, ATLAS Hoter U/AVAL KT 55 or ATLAS Roker U.

## Step 3. Application of reinforced layer

Adhesive mortar should be evenly distributed on the surface, covering the texture of the existing render. Next, the strips of mesh should be embedded in the adhesive. The strips of mesh should be embedded vertically, from the top towards the bottom, with at least 10 cm wide overlap. Properly embedded mesh should be placed inside of the adhesive layer not deeper than in half of its thickness, it must be visible through the adhesive and cannot be in direct contact with the substrate underneath the base coat. For repairing of the cracks it is recommended to use a mesh of increased density, i.e. ATLAS 165 reinforcing mesh.

## Step 4. Application of rendering coat

Render can be applied when the base coat is properly dried i.e. after approx. 2-3 days. It is necessary to use an appropriate priming mass for the given render.

## 2.7 | Repairing of damaged render, base coat and thermal insulation material



DEFECTS	Mechanical damage of thermal insulation system: deterioration of rendering coat, breaking of the continuity of reinforcing layer and damage of thermal insulation material.	
CAUSES	Mechanical damage caused by external factors, e.g. direct impacts.	
RECOMMENDATIONS	Substitution of damaged part of the system, including thermal insulation material.	

## Instruction for repairing of surface

## Step 1. Surface preparation

Insulation in the damaged area needs to be cut out, including the layer of insulation material with e.g. an angle grinder equipped with a suitable disc, so that the substrate is exposed. In approx. 10-15 cm around the damaged fragment, render and base coat needs to be removed. The mesh should be left and only cleaned from residual adhesive. The façade should be protected against staining with the painting tape.

## Step 2. Replacement of the damaged area

The cavity in thermal insulation should be filled with a cut to size piece of thermal insulation material with the same performance as the one that was used originally to insulate the walls. If the material used are polystyrene boards or XPS, it is recommended to use ATLAS STOPTER K-20 (AVAL KT 85) adhesive; in case of mineral wool, use ATLAS ROKER U. The adhesive should cover completely (in 100%) the bottom of the insulation element to be inserted. When the adhesive is set i.e. after approx. 24 hours, apply the layer of adhesive on the inserted element and embed a piece of ATLAS reinforcing mesh in it, keep the given overlap with the original reinforcing mesh. Smoothen the obtained surface in order to level the fresh coating with the original base coat.

### Step 3. Application of a finishing coat

The priming mass for render (appropriate for the intended render) and thin-coat render of the same colour and grain size as used originally can be used approx. 3 days since application of reinforced layer. When render application and texturing is finished, the masking tape can be removed and the appearance of joint between the old and the new render can be unified, e.g. with a sponge. When the new layer of render dries completely, the entire surface of the façade should be painted in order to blend the colours.

## 2.8 | Repairing of loosened rendering coat



DEFECTS	Loosening of the rendering coat, peeling from the substrate.
CAUSES	Execution errors, lack of primer underneath the render, etc.
RECOMMENDATIONS	The procedure depends on the extent of damage: - in case of local loosening, apply the render in the area of loosening and paint entire surface to blend colours - in case of loosening on the large area, apply new base coat and render.

## Instruction for repairing of surface

## Step 1. Basic examination

Examine the façade carefully, find all the places where the render is detached from the substrate. Determine what type of render was originally used on the façade, and what is the aggregate size.

## Step 2. Substrate preparation

Remove loose fragments of render, grind render poorly bonded to the substrate. Be careful not to damage the reinforced layer. The façade surface should be thoroughly washed, degreased and left to dry.

## Step 3. Repairing

In case of local repairs, apply the priming mass upon the area of loosened render and leave it to dry. Apply thin-coat render of the same type and thickness as the one used originally on the façade. The render texture should be unified between the old and the new rendering coat. Finally, the façade should be painted in order to merge the colours – the painting should be carried out in accordance with section 2.3.

In case of many random spots with loosened render, it is recommended to remove loose fragments, apply base coat on the entire façade and apply of new rendering coat. The work should be carried out in accordance with section 2.6.

## 3 | Recommendations concerning major repairs of ETICS



This instruction does not cover the technology of major repairs of ETICS related to the replacement of insulation material and application of an additional layer of insulation material. These types of repairs require an individual procedure for a given building, based on the assessment of its technical condition and collecting any relevant information. Only then the appropriate installation technology can be implemented.

Caution! Installation of external wall insulation in case of poor technical condition of the existing one or adjustment to upto-date requirements on thermal insulation require installation of new EWI layers and is not covered with this document. For more details on insulation of the existing insulation check ATLAS RENOTER system data.

## 4 | Closing remarks and product recommendation

Instruction includes basic principles regarding maintenance or repair works related to ATLAS / AVAL ETICS. Each time when such works are planned, applicable legal regulations must be followed. Works must be carried out according to engineering principles and OHS regulations. Detailed information on the technology of application of individual products can be found in up-to-date Product Data Sheets available on www.atlas.com.pl/en.

## Recommended products for façade maintenance and renovation



### ATLAS CERPLAST/AVAL KT 16 priming mass for renders

- ensures perfect bonding of render reduces absorption rate and
- strengthens substrate
- facilitates render application and texture formina unifies substrate colour
- available in several colours



### ATLAS UNI GRUNT/AVAL KT 17 quick drying priming emulsion

- · reinforces absorptive substrates of any
- type
- high yield, quick-drying decreases and unifies substrate
- absorption rate
- for application in temperature up to +30°C
- · improves bonding to the substrate
- · beneath floors and screeds
- beneath adhesives, plasters, top finishes, paints



### ATLAS MYKOS PLUS concentrated agent for elimination of algae, fungi and lichen

- · cleans façades, terraces and roofs
- protects against secondary biological corrosion
- safe for cleaned surfaces



## ATLAS 165 REINFORCING MESH

- reinforcing fibreglass mesh
- resistant to alkali
- durable elastic

ATLAS STOPTER K-50 21 @ 2 1

## **ATLAS STOPTER K-50**

white general use adhesive for external wall insulation

- white
- no priming mass required
- for mineral wool and polystyrene
- for boards and base coat installation
- also for graphite polystyrene



## Atlas STOPTER K-20

2 in 1 - adhesive mortar for polystyrene and XPS and for mesh embedding

- very good bonding
- reinforced with microfibres
- resistant to cracks and scratches can be used in low temperature (even from 0°C)
- also for graphite polystyrene



### ATLAS STOPTER K-100

highly flexible, cement-free, dispersive adhesive mass for application of base coat in thermal insulation systems

- · resistant to thermal and mechanical load
- · forms thermal insulation of impact resistance of 140 J
- crack bridging
- reinforced with microfibres
- highly hydrophobic
- · does not require priming prior to application of rendering coats
- · for application of new façades and renovation of old ones



## Atlas HOTER U/AVAL KT 55

2 in 1 - adhesive mortar for polystyrene and XPS and for mesh embedding

- improved bonding
- · good water vapour permeability
- rapid strength build-up • on ceramic, concrete and silicate elements



### ATLAS ROKER U

adhesive mortar for mineral wool boards fixing and for mesh embedding

- very high bonding to difficult substrates
- perfect workability
- water vapour permeability
  reinforced with fibres
- improved resistance to cracking and scores

## BESTSELLER



### ATLAS/AVAL SILICONE RENDER

- water vapour permeable
- · low water absorptiveness
- very high resistance to soiling
- very good bonding to substrates



### **AVAL ACRYLIC - SILICONE RENDER**

- vapour permeable
- very low water absorption rate
- highly resistant to dirt
- · high adhesion to the substrate



### ATLAS/AVAL ACRYLIC RENDER

- · low water absorptiveness
- resistant to soiling
- very good bonding to substrates
- easy texture forming
- improved resistance to mechanical damage



### ATLAS SILICONE-SILICATE RENDER

- · very high water vapour permeability
- · low water absorptiveness
- resistant to soiling
- very good bonding to substrates



### ATLAS SILICATE RENDER

- · long term durability and façade protection
- highly alkaline and naturally resistant to mould, algae and lichen
- perfect water vapour and CO2 , permeability
- hydrophobic, highly resistant to atmospheric factors and UV radiation
- outstanding colour durability



### ATLAS SALTA hybrid silicone paint

- · outstanding colour durability
- well coating
- highly resistant to soiling
- no primer required
- low absorptiveness



## ATLAS SALTA N

- façade silicone paint
- long term durability and façade protection
- outstanding colour durability
- self-cleaning ability
- · early resistance to rain
- highly resistant to algae and lichens
- no primer required



## ATLAS SALTA N PLUS

## façade silicone paint

- outstanding self-cleaning ability
- pearl effect
- · long term durability and façade protection
- outstanding colours durability · coats microcracking and shrinkage
- cracks • greatly resistant to algae and lichen
- extremely low absorptiveness
- · perfect water vapour permeability



### ATLAS SALTA E façade acrylic paint

- outstanding colour durability
- perfectly coating and efficient
  highly resistant to algae contamination
- self-cleaning ability



### ATLAS SALTA S

- façade silicate paint
- highly alkaline, resistant to fungi, algae, lichen
- · perfect water vapour permeability
- · long term durability and façade protection
- for painting fresh mineral renders



## **thermal insulation systems**



## DURABILITY

HYDROPHOBISATION IMPROVED IMPACT RESISTANCE SELF-CLEANING ABILITY BIOCIDE CAPSULES RESISTANCE TO UV

## AESTHETICS

INSPIRATION WIDE RANGE OF TEXTURES PATTERNS INTENSIVE COLOURS FREEDOM OF COMPOSITION





## SAFETY

EASY APPLICATION

ENERGY SAVING

CARE FOR ENVIRONMENT

USE IN VARIOUS WEATHER CONDITIONS

## **NOTES**







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