





## **CODE OF PRACTICE**

ATLAS ETICS UK 2022

## EXTERNALL WALL INSULATION ATLAS CODE OF PRACTICE

- System designer requirements for authorised installers
- Step-by-step installation guide
- Maintenance guide
- Complaints and warranty policy
- ATLAS contact details



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## **TABLE OF CONTENTS**

Ι.	INTRODUCTION - ATEAS GROUP	
2.	CUSTOMER SERVICE	4
3.	MARKETING SUPPORT	6
4.	CONTRACT	6
5.	COOPERATION WITH PARTNERS IN THE UK	6
	ATLAS – System designer	7
	Official Distributor	
	Approved ETICS installer/contractor	
6. E	ETICS INSTALLATION	
	DESIGN	11
Į	U – VALUE	11
Е	ETICS SELECTION	11
	Substrate preparation, pull – out test	12
	Insulation	
	Fixing requirements	
	Adhesive	
	Mechanical fixings (anchors)	
	Profiles	
	Firebreaks	19
	Reinforced layer	19
	Rendering coat	
	Paint coat	22
(	Construction details insulation	24
A	ATLAS ETICS INSTALLATION	24
	System preparation	25
	Substrate preparation	25
	Insulation selection. Foamed polystyrene board fixing	25
	Reinforced layer preparation	
	Primer preparation	27
	Thickness of ATLAS ETICS coats	27
	Design for impact	28
A	ATLAS ROKER/AVAL ROKER ETICS INSTALLATION	29
	System preparation	29
	Substrate	30
	Mineral wool board fixing	30
	Reinforced layer	31
	Primer preparation	32
	Thickness of ATLAS/AVAL ROKER ETICS coats	32



Version 1/21 Issued on 01.10.2021

	Design for impact	33
Δ	ATLAS XPS ETICS INSTALLATION	33
	System preparation	34
	Substrate	
	Attaching extruded polystyrene (XPS) panels	34
	Reinforced coat	36
	Primer preparation	36
	Thickness of ATLAS XPS ETICS coats	36
	Design for impact	38
H	HEALTH AND SAFETY	38
Ν	MATERIALS DATA SHEETS	39
7.	REACTION TO FIRE	39
٨	ATLAS ETICS	30
	ATLAS ROKER ETICS	
	ATLAS XPS ETICS	
	General conditions	
8.	WIND LOADS	
9.	EASE OF MAINTENANCE	42
	External thermal insulation durability	42
	Check of the technical conditions of elevation - recommendation	
	Elevation maintenance - recommendations	
	Main repairs – repairs of damages, scratches and cracks of elevation	
	Hydrophobisation of substrate with Atlas Silstop	
	Painting	
	Final remarks	49
10.	GUARANTEE	49
11.	COMPLAINTS PROCEDURE	49
12.	ATLAS ADDRESS & CONTACT DATA	51



Version 1/21 Issued on 01.10.2021

#### 1. INTRODUCTION - ATLAS GROUP

Atlas is one of the largest European producers of construction chemicals. The products our company offers are used in constructing and renovating residential and non-residential buildings. Our offer includes products aimed at DIY enthusiasts and professionals looking for solutions to major building problems. Today, with almost 30 years of experience in designing, manufacturing and using our products, Atlas can offer construction materials which guarantee the highest quality, durability and safety.

**ATLAS GROUP** consists of fifteen business entities. The concern has ten plants, and raw materials for their products come from its own four mines - of gypsum, anhydrite and quartz sand.







































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ATLAS implements its mission by designing, manufacturing and trading building materials.

Main groups of products:

- Materials for Fixing Ceramic and Stone Tiles
- Composite Thermal Insulation Systems and Renders
- Self-levelling Screeds and Smoothing Compounds
- Ready-to-use Mortars
- Sealing Materials
- Paints
- Gypsum Products
- Materials for Historic Building Renovation
- Priming, Washing and Protective Materials

We offer our Customers safe and environment friendly products. We achieve that by reliable designing, modern technology and discerning quality control. It is possible due to long-term cooperation with proven group of suppliers for raw materials, packaging and services.

Developing partnership cooperation and trade advisory system, we meet our Customers' expectations.

We strengthen our market position not only by trade expanding and taking care about brand prestige but as well by generating profit ensuring company's growth.

To meet our employees satisfaction we care about job stability, safe work conditions and promoting higher qualifications within the complex of trainings.

Proceeding our economic policy, we undertake to prevent environmental pollution. Thus, we care about our and the posterity natural environment.

By carrying about the health of each human being we aspire to ensuring safety, prevent the possible accidents at work, potential accident events or morbid conditions.

We undertake to respect legal requirements.

Within an Integrated Management System we enhance our products and activity, taking particularly into consideration environmental impact.

### 2. CUSTOMER SERVICE

ATLAS GROUP guarantees vast customer service during all phases of distribution and installation cooperation:

- 1. Technical service
- 2. Marketing service
- 3. Current customer service

### Technical assistance

Wide range of information concerning ATLAS ETICS is easy of attainment on official ATLAS website: <a href="https://www.atlas.com.pl/en/systems/thermal-insulation-systems/">https://www.atlas.com.pl/en/systems/thermal-insulation-systems/</a> <a href="https://www.atlas.com.pl/en/download/brochures/">https://www.atlas.com.pl/en/download/brochures/</a>



Version 1/21 Issued on 01.10.2021

The official website offers the following data:

- Technical data sheets of products
- ETICS detailed description (properties, products, installation, maintenance)
- Patterns of colours of renders and paints
- Certificates, technical approvals etc.
- Company data
- Contact

All technical data sheets, technical approvals and system descriptions can be easily downloaded in a pdf. file version.

ATLAS offers also a direct technical support to architects, installers, contractors and distributors in a form of phone technical services:

+48 667 771 730 - 24h help desk (English speaking)

In case of more detailed issues one may be requested for an official inquiry in writing. In such case the following e-mail addresses are valid:

<u>export@atlas.com.pl</u> bkonczewska@atlas.com.pl

### Marketing assistance

bspis@atlas.com.pl

### Customer assistance

Current customer assistance concerning e.g.:

- order preparation
- shipments
- phone and e-mail inquiries
- after sale commercial care

is conducted by ATLAS GROUP EXPORT DEPARTMENT:

ATLAS GROUP EXPORT DIRECTOR MICHAŁ GOSŁAWSKI +48 607 781 018

mgoslawski@atlas.com.pl

UK&IE SALES MANAGER BARBARA KOŃCZEWSKA

+48 667 771 730

bkonczewska@atlas.com.pl

TECHNICAL SUPPORT **ARKADIUSZ ŁOŚ** +48 601 979 810 alos@atlas.com.pl



Version 1/21 Issued on 01.10.2021

#### 3. MARKETING SUPPORT

ATLAS GROUP assures wide marketing support for any entity engaged in ATLAS ETICS installation and/or distribution

The marketing support is mostly free of charge and consists of supplying with:

- product catalogues
- technical instructions
- advertisement boards
- patterns of colours
- patterns of ETICS
- patterns of structures of renders
- other gadgets

ATLAS GROUP presents its products at the most recognized international fairs and business meetings (Germany, Great Britain, Russia, Ukraine, Jordan, Dubai) and cooperate with ATLAS distributors at preparation, design and service of their fair stand during local or national meetings and fairs.

### 4. CONTRACT

All ATLAS ETICS approved installers are obliged to make a contract with their investors on each project conducted. We do not impose any particular contract form, but please remember to list in the project contract the following details:

- data of the Parties
- address of the project location
- project description
- ETICS used (with a list of products to be used, especially indicated the type of thin-coat render to be installed, the amount of products should reflect their consumption and substrate absorptiveness)
- Installation start time
- Approximate time of work
- Installer responsibility
- Installer warranty on ETICS installation

### 5. COOPERATION WITH PARTNERS IN THE UK

ATLAS bears responsibility for the ETICS installation, therefore ATLAS must control the sale and use of the materials. Therefore, the special titles of Official ATLAS Distributor or/and Approved ATLAS ETICS Installer were introduced which entities registered in the United Kingdom may apply for.

An up-to-date list of Official Distributors is available at ATLAS customer service units on request.

ATLAS bears responsibility for the ATLAS ETICS installation performed only by his Official ATLAS Distributor or/and Approved ATLAS ETICS Installer.



Version 1/21 Issued on 01.10.2021

#### ATLAS - System designer

System Designer is obliged to:

- a) Assure access to any technical materials regarding the manufactured products and their use (free of charge). It includes:
  - Up-to-date product catalogues
  - Up-to-date certificates (BBA, ETA and other, if legally required)
  - Up-to-date instructions
- b) Assure free of charge training of the Approved Contractor's/Approved Installer's workmen in time and place mutually agreed.
- c) Assure essential technical support in a form of e-mail, letter or phone correspondence.
- d) Give current information regarding any quantity, quality, legal changes concerning the products and their use.
- e) As not all of the ETICS elements are manufactured by ATLAS (e.g. insulation panels), he assures an up-to-date list of accepted insulation manufacturers.
- f) Issue free of charge certificates to Official Distributors, Approved Contractors/Approved Installers, ETICS Operatives and ETICS Supervisors.

#### Official Distributor

The Official Distributor is an entity that:

- a) Was given by ATLAS representatives the official terms of cooperation and pricelist in writing. The title of Official Distributor is confirmed in writing, in a form of certificate issued by the System Designer authorized representatives.
- b) Purchases the ATLAS's products directly from his authorized units, i.e. from the Atlas Export Department.
- c) Distributes the products among partners without any exclusive or preferential price, quantity or quality rights.
- d) Has adequate storage facilities to assure proper storage and delivery conditions of ETICS elements.
- e) Distributes the insulation manufactured by companies different than ATLAS in accordance to an up-to-date list of accepted manufacturers confirmed with the ATLAS representatives.
- f) Keeps on stock vast amounts of ETICS materials to assure constant distribution of products. In case of temporary lack of particular materials assures their prompt accessibility on customer's request.
- g) Conducts the preliminary selection and technical training of the installers and proposes particular entities for further ATLAS training and assessment.
- h) Assures essential technical support in a form of e-mail, letter or phone correspondence. Assures access to any technical materials regarding the ETICS products and their use (free of charge). It includes:
  - Up-to-date product catalogues
  - Up-to-date technical certificates and/or approvals (BBA, ETA and other, if legally required)
  - Up-to-date instructions

The Certificate of Official Distributor is valid for 2 years – after this time the distributor is obliged to pass the theoretical and practical exam to be granted the renewed certificate.



Version 1/21 Issued on 01.10.2021

The Certificate may be terminated earlier in case of:

- Considerable breach of rules presented in these regulations, and in spite of 1-month notice calling for breach termination, the breach continues.
- Negligence or improper storage and use of products, use of products not in conformity with instructions
  presented in up-to-date manufacturer's catalogue, or interference into product quantity and quality
  composition.
- other circumstances that may bring ATLAS or ATLAS ETICS into disrepute

Each Official Distributor is obliged to participate in a free of charge theoretical and practical training forwarded by System Designer company at least once every two years<sup>1</sup>. The time and place of training is to be arranged mutually. The training should last at least 3 days.

The training comprises of:

- a) Theoretical part
  - Terms of use of ATLAS ETICS
  - Types of ATLAS ETICS, terms of selection a suitable system
  - Current legal environment
  - Description of products and their use
  - Design preparation U value calculation, products selection etc.
  - Terms of installation of each part of thermal insulation systems
  - Frequent mistakes and ways to avoid them
  - Repairs and maintenance of thermal insulation systems
  - Duties and responsibilities of approved contractors/installers
- b) Practical part
  - Practical installation of ATLAS ETICS
  - Practical repairs of thermal insulation systems

### Approved ETICS installer/contractor

ATLAS ETICS Approved contractor/Approved installer is obliged to comply with the following requirements:

- Has proven knowledge of the ATLAS ETICS use and installation (practical and theoretical)
- Has a current ETICS Contractor (Installer) certificate issued by the Official distributor
- Has adequate number of trained workmen to assure correct and prompt system installation
- Has at least one workman responsible for current supervision of installation of ATLAS ETICS (ETICS Supervisor), that:
  - Has been additionally trained in principles and terms of installation of ATLAS ETICS, confirmed with a proper certificate.
  - Has a minimum of 3 years' experience (theoretical and practical) in the thermal insulation systems installation.
  - Has a current ETICS Supervisor card issued by Official Distributor or ATLAS valid for 3 years (with possibility of revision).

<sup>1</sup> Unless major changes in construction law and requirements, certificates content, etc. are introduced. In such cases it is advised to participate in training ahead of implementation of new rules.



Version 1/21 Issued on 01.10.2021

- Confirms the correctness of installation of each part of the ATLAS ETICS.
- Has at least one ETICS Operative, that:
  - Has been additionally trained in principles and terms of installation of ATLAS ETICS.
  - Has a minimum of 3 years' experience (theoretical and practical) in the thermal insulation systems installation.
  - Has a current ETICS Operative card issued by the Official distributor valid for 3 years (with possibility of revision).
  - Has sufficient knowledge of BS-EN 13914-1:2016 Design, preparation and application Of External rendering and internal plastering.
- Prepares the insulation project in accordance to the up-to-date regulations and ATLAS technical requirements. In case of non – standard project prepares a bespoke project and confirms it with ATLAS authorized technical representatives.
- Records and renders reasonably accessible to ATLAS representatives the technical and photo files of currently forwarded and completed projects. Prepares the check-list report in accordance to the ATLAS requirements. The technical data should list the following elements:
  - Full address of the project site;
  - ETICS used with list of the materials used;
  - Time of installation of each part of the system;
  - Details insulation of window and door reveals, plinth, attics, fixings design, thermal bridging, etc.;
  - Indicates the elements where, due to specific building construction, the minimum required
     U value was not complied with gives the reason of inconformity and the particular U value reached (e.g. at window reveals);
  - Check out reports in accordance to the ATLAS requirements.
- Complies the technical procedures of Systems installation in accordance to: regulations (e.g. Technical Guidance Document), current ETA and IAB certificates regulations, other regulations on installation and maintenance of thermal insulation systems, construction practice and other manufacturer's instructions presented in up-to-date catalogues, brochures or other publications.
- Allows, on written notice of ATLAS, the inspection of each phase of the ATLAS ETICS installation at any time and obligatory at least once per 6 months.

Each ATLAS ETICS contractor/installer complying with requirements of ATLAS is to be granted the ATLAS ETICS (ETICS Contractor/Installer) certificate. The Certificate is valid for 3 years – after this time the installer is obliged to pass the theoretical and practical exam to be granted the renewed certificate:

The Certificate may be terminated earlier in case of:

• Considerable breach of rules presented in these regulations, and in spite of 1-month notice calling for breach termination, the breach continues.



Version 1/21 Issued on 01.10.2021

- Negligence or improper storage and use of products, use of products not in conformity with instructions presented in up-to-date manufacturer's catalogue, or interference into product quantity and quality composition.
- other circumstances that may bring ATLAS or ATLAS ETICS into disrepute

Each Approved Contractor/Installer is obliged to participate in a free theoretical and practical training forwarded by ATLAS company at least once in 3 years. The time and place of training is to be arranged mutually.

The training comprises of:

- c) Theoretical part
  - Terms of use of ATLAS ETICS
  - Types of ATLAS ETICS
  - Current legal environment
  - Description of products and their use
  - Design preparation U value calculation, products selection etc.
  - Terms of selection of a suitable thermal insulation system
  - Terms of installation of each part of thermal insulation systems
  - Frequent mistakes and ways to avoid them
  - Repairs and maintenance of thermal insulation systems
  - Duties and responsibilities of approved contractors/installers
- d) Practical part
  - Practical installation of ATLAS ETICS
  - Practical repairs of thermal insulation systems

### 6. ETICS INSTALLATION

Installation shall be carried out by trained applicators who work under accreditation of PAS 2030 or other valid accreditation for system installation in the UK. Installation shall be in accordance with the System designer's instructions, general engineering principles and OHS regulations, current ETA and BBA certificates regulations, other regulations on installation and maintenance of thermal insulation systems, construction practice and other manufacturer's instructions presented in up-to-date catalogues, brochures or other publications.

Approved Installer/Contractor prepares a bespoke site package for each project, including U-value calculations, requirements for materials handling and storage, method statements for installation, building details, fixing requirements, provision for impact resistance, maintenance requirements etc. This document forms part of the contract documentation for circulation to the home owner and the installer. Installers will be expected to adhere to the specification.

In case of standard projects it is not obligatory to confirm the project design with System Designer authorized technical representatives. Any deviations from the standard System Designer requirements must be approved the System Designer authorized technical representatives.

In case of non – standard projects (e.g. buildings higher than 18 m, high wind loads etc.) a bespoke design must be prepared in cooperation with the System Designer's authorized technical representatives and confirmed by them.



Version 1/21 Issued on 01.10.2021

#### **DESIGN**

The design of the ATLAS ETICS should indicate the following elements:

- a) site full address
- b) home owner's name and, if different, the investor's name
- c) building purpose always follow the up-to-date regulations in the system selection. Because of their purpose some buildings may demand special ETICS solutions (e.g. fire barriers)
- d) building location the location of the building impacts the material selection, e.g. it is suggested to use easily cleaned renders (silicone, mosaic) for walls exposed to high contamination or road traffic.
- e) U value indicate the U value to be reached. In case of elements, where the minimum U value rate cannot be reached because of the construction limitations (e.g. window reveals) indicate the particular U value reached.
- f) system name, list of selected products with quantity always take into consideration the substrate absorption in product consumption calculations
- g) details indicate the details insulation in accordance to System Designer requirements and graphic schemes. In case of any deviations from the System Designer requirements always confirm the design of details with the System Designer authorized technical representatives.
- h) time of installation indicate the time of installation of each system element particular weather conditions may have effect on the product selection (e.g. in temperatures 0 up to +5 it is allowed to use ATLAS STOPTER K20 only).

### U – VALUE

Thermal conductivity, (U – value), is the property of a material that indicates its ability to conduct heat. It appears primarily in Fourier's Law for heat conduction. Thermal conductivity is measured in watt per kelvin per meter ( $W \cdot K^{-1} \cdot m^{-1}$ ). Multiplied by a temperature difference (in Kelvin, K) and an area (in square meters,  $m^2$ ), and divided by a thickness (in meters, m) the thermal conductivity predicts the energy loss (in watts, W) through a piece of material. To calculate the U – value follow the recommendations of the EN ISO 6946:2017. It is allowed to use any electronic U – value calculators available (e. g. on – line). The thermal conductivity and water vapor permeability is given in the technical data sheets of the products. For insulation follow the data presented on the package or in manufacturer's technical data sheet. The particular U – value to be reached is specified in the up – to – date local or national building regulations. In case of elements, where the minimum U – value rate cannot be reached because of the construction limitations (e.g. window reveals) indicate the particular U – value reached. In case of doubt, it is requested to confirm the calculations with System Designer Official Distributors or technical representatives.

#### **ETICS SELECTION**

Thermal insulation	EPS polystyrene	Elastified EPS polystyrene	XPS polystyrene	Mineral wool/lamella
Effect	- providing external walls with appropriate thermal insulation	- providing external walls with appropriate thermal insulation - providing external walls with appropriate sound insulation	- providing external walls with appropriate thermal insulation - creating a long-lasting thermal insulation, resistant to mechanical damage, moisture and biological factors (decay)	- providing external walls with appropriate thermal insulation - providing external walls with appropriate sound insulation - providing external walls with appropriate fire resistance - providing external walls with appropriate vapor permeability insulation
ETICS name	ATLAS		ATLAS XPS	ATLAS ROKER



Version 1/21 Issued on 01.10.2021

Main ETICS coats					
Basic fixing		ATLAS STOPTER K20 ATLAS HOTER U ATLAS HOTER S ATLAS STOPTER K-50	ATLAS STOPTER K20 ATLAS HOTER U ATLAS HOTER S ATLAS STOPTER K-50	ATLAS STOPTER K20 ATLAS HOTER U ATLAS HOTER S ATLAS STOPTER K-50	ATLAS ROKER W ATLAS ROKER U mechanical fixings ATLAS STOPTER K-50
	(mechanical) king	mechanical fixings	mechanical fixings	mechanical fixings	mechanical fixings
fixing Reinforced coat		ATLAS STOPTER K20 ATLAS HOTER U ATLAS STOPTER K-50 ATLAS STOPTER K-100  Glass fiber mesh	ATLAS STOPTER K20 ATLAS HOTER U ATLAS STOPTER K-50 ATLAS STOPTER K-100  Glass fiber mesh	ATLAS STOPTER K20 ATLAS HOTER U ATLAS STOPTER K-50 Glass fiber mesh	ATLAS ROKER U ATLAS STOPTER K-50 Glass fiber mesh
Key	coat	ATLAS CERPLAST ATLAS SILKON ANX ATLAS SILKAT ASX	ATLAS CERPLAST ATLAS SILKON ANX ATLAS SILKAT ASX	ATLAS CERPLAST ATLAS SILKON ANX ATLAS SILKAT ASX	ATLAS CERPLAST ATLAS SILKON ANX ATLAS SILKAT ASX
	Mineral	ATLAS CERMIT ND ATLAS CERMIT WN	CERMIT ND CERMIT WN	CERMIT ND CERMIT WN	CERMIT ND CERMIT WN
Thin -	Acrylic	ATLAS ACRYLIC RENDER ATLAS CERMIT N-100 ATLAS DEKO M	ATLAS ACRYLIC RENDER ATLAS CERMIT N-100 ATLAS DEKO M	ATLAS ACRYLIC RENDER ATLAS CERMIT N-100 ATLAS DEKO M	ATLAS ACRYLIC RENDER
layer	Silicate	ATLAS SILICATE RENDER	ATLAS SILICATE RENDER	ATLAS SILICATE RENDER	ATLAS SILICATE RENDER
render	Silicone	ATLAS SILICONE RENDER ATLAS SILICONE- SILICATE RENDER AVAL ACRYLIC-SILICONE RENDER	ATLAS SILICONE RENDER ATLAS SILICONE- SILICATE RENDER AVAL ACRYLIC-SILICONE RENDER	ATLAS SILICONE RENDER ATLAS SILICONE- SILICATE RENDER AVAL ACRYLIC-SILICONE RENDER	ATLAS SILICONE RENDER ATLAS SILICONE- SILICATE RENDER AVAL ACRYLIC-SILICONE RENDER
Optional coat					
	Acrylic	ATLAS SALTA E	ATLAS SALTA E	ATLAS SALTA E	n/a
	Silicate	ATLAS SALTA S	ATLAS SALTA S	ATLAS SALTA S	ATLAS SALTA S
Paint	Silicone	ATLAS SALTA ATLAS SALTA N ATLAS SALTA N PLUS	ATLAS SALTA ATLAS SALTA N ATLAS SALTA N PLUS	ATLAS SALTA ATLAS SALTA N ATLAS SALTA N PLUS	ATLAS SALTA ATLAS SALTA N ATLAS SALTA N PLUS

Insulation work should be carried out in favourable weather conditions. The substrate and ambient temperature during installation and during the drying of the individual materials should be between  $+5^{\circ}$ C and  $+25^{\circ}$ C, relative air humidity below 80%. ATLAS STOPTER K20 can be used in temperatures  $0 \div +25^{\circ}$ C during the application, and not less than  $-5^{\circ}$ C within 8 hours after the application conclusion. The façade should be covered and protected from precipitation, direct sunlight and strong wind. It is recommended to install protection mesh along scaffolding. In winter time the use of protection mesh along scaffolding is obligatory

### Substrate preparation, pull – out test

Before insulation works commencement it is essential to examine the technical condition of the façade (substrate), with special attention paid to load capacity of the substrate, its humidity and evenness.

ATLAS ETICS (systems) can be used to insulate plastered or not plastered solid concrete walls as well as walls made of bricks, aerated concrete blocks, concrete and structural clay tiles. The substrate should be even, structurally sound and free from anything that may impair mortar adhesion (e.g. grease, bitumen, dust). The existing dirt and layers with low strength should be removed by blasting them off with a high – pressure jet of water or mechanically (scratching, chipping, polishing). Surface with algae and moss should be cleaned with a steel brush and then protected with ATLAS MYKOS. Wash off under pressure or scrape off the remainder of poorly adhering paint coats. Hammer off loose or flaking elements ("hollow" sound indicates that the old render has separated from the wall and must be removed) and fill in defects using materials recommended for that purpose e.g. ATLAS PLASTERING MIX, ATLAS ZW330, or other. Any unevenness up to 10 mm should be levelled to the thickness of the adhesive mortar, larger depressions or irregularities of the surface up to 20 mm should be smoothened. Bigger unevenness



Version 1/21 Issued on 01.10.2021

(more than 20 mm) should be levelled by fixing insulation boards of different thickness (the minimum board thickness cannot be lower than the required one calculated in the insulation project).

If in doubt as to substrate quality and absorptiveness, assess its loading capacity in actual conditions by means of the pull-off method. The result (adhesion) should not be lower than 0.08 MPa. It is recommended to conduct a pull – off test – clean the substrate, prime the substrate with ATLAS UNI-GRUNT, apply with an adhesive layer of less than 10 mm small pieces of insulation ( $10 \times 10 \text{ cm}$ ) at 8 - 10 different points of the substrate. After 72 - 96 hours pull off the fixed insulation – if the insulation breaks within the insulation (living part adhered to the substrate) the capacity is correct. If the insulation tears off with adhesive or adhesive and parts of the substrate – increase the binding of the of weak, dusty or highly absorptive substrates by the priming with ATLAS UNI-GRUNT. The priming should be conducted at least 2 hours before the insulation application.

Before the insulation works commencement additional conditions must be fulfilled:

- roofing work, assembly or replacement of windows, insulation and substrates of terraces or balconies must be finished or commissioned;
- all adjacent surfaces which will not be insulated have been properly protected against damage;
- all heavy external elements have been replaced and the quality of their fixing checked. Any corroded or damaged fixings must be replaced. As it is not allowed to fix any heavy elements to the ETICS the length of fixing has been checked, and, if necessary, replaced. All metal elements have been assembled in the substrate with ATLAS MONTER assembly mortar.
- all flashings and horizontal surface protection of attics, cornices and other elements have been finished to extract any rain water that might be present at the façade.

The layers of ETICS should be protected against direct sunshine, rainfall and strong wind. It is recommended to install protection mesh along scaffolding. In winter time the use of protection mesh along scaffolding is obligatory. It is not allowed to carry the works in snowfall, rain or strong wind.

### Insulation

The thickness of thermal insulating material should be in accordance with the technical design and selected individually for each wall of the building, based on the calculated overall heat transfer coefficient U, amongst others. The heat transfer coefficient should meet the requirements as to the thermal insulation properties of partitions, set out in the technical and regulations currently in force.

Always use the insulation in accordance to the System Designer requirements listed in the IAB Certificate, European Technical Approvals and instructions. The code of the insulation must be indicated on the package or in technical data sheet issued by its manufacturer.

a) In case of EPS boards (system ATLAS ETICS) use only seasoned, self – extinguishing expanded boards according to EN 13163. Do not use EPS panels of unknown code, declaration of conformity or aging time<sup>2</sup>. An up – to date list of accepted polystyrene boards is available by System Designer customer service and Official Distributors' representatives.

<sup>&</sup>lt;sup>2</sup> As a standard practice polystyrene blocks should be matured (aged) before cutting into separate boards for 6 up to 8 weeks, but this time differs and depends on a particular technology of production. Common European norms EN 13163 and EN 13164 do not designate a minimum time of seasoning, but to issue a declaration of conformity, the manufacturer is obliged to declare the dimensional stability parameter in 2 cases:

<sup>-</sup> in laboratory conditions (23°C, 50% relative humidity, 28 days)

<sup>-</sup> in specified conditions (23°C, 90% relative humidity, 48 hours)

The necessity of declaration of this parameter if the declaration of conformity is to be issued, imposes proper technology of production and seasoning.



Version 1/21 Issued on 01.10.2021

- b) In case of mineral wool (MW) and lamella boards factory-prefabricated coated or uncoated mineral wool boards (MW) or lamella according to EN 13162.
- c) In case of XPS factory prefabricated uncoated panels made of extruded polystyrene foam (XPS) according to EN 13164.

All insulation materials listed above are easy of attainment in all European Union countries and the United Kingdom.- Each ATLAS ETICS Official Distributor is obliged to offer insulation products consistent with proper designation codes together with other system elements. If a full list of ATLAS ETICS official distributors in Ireland and in the UK requested, please make contact to: Barbara Konczewska (bkonczewska@atlas.com.pl)

### Fixing requirements

#### Adhesive

The first step in the application of thermal insulation is to attach a plinth strip, which makes it easier to attach the first and next row of insulation panels along the horizontal line as well as provides a reinforcement for the lower edge of the system. The strip should be attached to the plinth of the building with dowels (min.  $3 \text{ pcs/}1\text{m}^2$ ), not lower than 30 cm above the ground level.<sup>3</sup> This distance ensures system protection against rising damp and also protects the rendering from contamination – mud particles carried by raindrops bouncing off the pavement or ground. If a plinth strip is impossible to install (e.g. if the thermal insulation is thicker than the largest available strip size), it can be replaced by two layers of glass fibre reinforcing mesh with a drip profile installed on the bottom edge of the insulation.

When the plinth strip has been installed, the thermal insulation panels can be attached. The first row of panels is installed so that it is supported by the plinth strip. Subsequent rows of panels should be staggered (the vertical joints between panels should alternate). The panels should be staggered both on wall surfaces and on the corners of the building. The principal element that bonds the thermal insulation to the substrate is the adhesive.

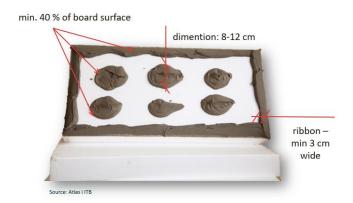
Mix the mortars with suitable amount of clean water. It is best to mix it mechanically, using a drill with a mixer. It is not recommend to add amount of water different than given in the technical data sheet, as it decreases the mortar durability.

It is applied to the panel surface in strips and dabs. The strip of adhesive applied along the panel perimeter should be at least 3 cm wide. Apply 6 - 8 dabs of adhesive, ca.  $8 \div 12$  cm in diameter, distributed evenly on the remaining surface. The adhesive applied to the panel should cover at least 40% of its surface (60% after application and pressing).

CODE OF PRACTICE 14 / 52



Version 1/21 Issued on 01.10.2021



When the adhesive has been applied, the panel should be immediately placed on the substrate and pressed down with strokes of a long float. This ensures good distribution of the adhesive and allows to avoid deformation of the board's end face. The thickness of adhesive under the panel should not be higher than 10 mm. The boards should be tightly fixed, close to each other, in one plane. To avoid cracks in the reinforced layer and render coat, they should not touch each other in one line (should miss each other). Adhesive should not get to the boards joints. Any cracks between boards should be filled with the material used for the insulation (e.g. polystyrene or mineral wool). Do not use dished, broken or cracked boards.

When the adhesive used for insulation application has set (usually after 2-3 days) it is possible to cut off any protruding board edges on the corners and grind the whole surface down with a long float covered with sand paper or special rubbing board. Any uneven board edges should be eliminated and smoothed off. Finally clean the board surface to remove any loose particles.



Version 1/21 Issued on 01.10.2021

#### Adhesive selection

- +++ Adhesive particularly recommended
  - + Adhesive can be used

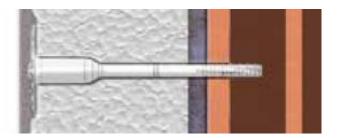
Adhesive name	ATLAS STOPTER K20	ATLAS HOTER S	ATLAS HOTER U	ATLAS STOPTER K 50	ATLAS ROKER W	ATLAS ROKER U
		Adhesive designation	n for ETICS systems			
Insulation panels application	+++	+++	+++	+++	+++	+++
Reinforced coat application	+++		+++	+++		+++
		Types of insulation	panels to be used			
EPS polystyrene boards	+++	+++	+++	+++		
XPS polystyrene panels	+++	+	+	+++		
Elastified EPS polystyrene boards	+++	+++	+++	+++		
Mineral wool/lamella				+++	+++	+++
		Substra	te type			
Uncoated wall	+++	+++	+++	+++	+++	+++
Cement – lime plaster	+++	+++	+++	+++	+++	+++
Reinforced concrete	+++	+	+	+	+++	+
Old paints	+++		+	+	+++	+
Old thin – layer renders	+++	+	+++	+	+++	+
Parameters						
Adhesion to concrete	≥0.25MPa	≥0.25MPa	≥0.25MPa	≥0.25MPa	≥0.25MPa	≥0.25MPa
Adhesion to insulation products	≥0.08MPa	≥0.08MPa	≥0.08MPa	≥0.1MPa	≥0.08MPa	≥0.08MPa
Mortar reparation temperature	0 ÷ 25ºC	+5 ÷ 30ºC	+5 ÷ 30ºC	+5 ÷ 30ºC	+5 ÷ 30ºC	+5 ÷ 30ºC

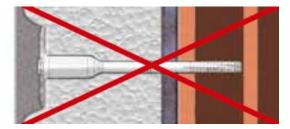
### Mechanical fixings (anchors)

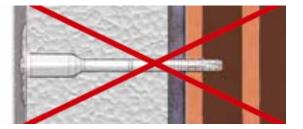
The technical design of thermal insulation should contain detailed information on the number, type and distribution of mechanical fixings (anchors). The type of fixings should take into consideration the building location and type of substrate and insulation products to be used. Unless otherwise specified in the technical documentation, a minimum of 2 fixings should be installed for each panel (at least  $4 \div 5$  for  $1m^2$  and  $4 \div 6$  for  $1m^2$  in MW/lamella – based ETICS). Additional mechanical fixings are recommended on corners of the building or for panels thicker than 15 cm. Additional mechanical fixing is required in the case of thermal insulation of buildings higher than 12 meters. The depth of anchoring of fixings in the structural layer of the wall should be in accordance with the manufacturers' specifications. Do not harm the insulation structure when drilling or anchor installing. The fixing should not stick out of the insulation.



Version 1/21 Issued on 01.10.2021







Additional fixing using anchors can be commenced no earlier than 24 hours after attaching the panels.

The following types of mechanical fixings (anchors) are recommended:

- Fixings with hammer in nylon pin recommended for EPS polystyrene boards, minimum embedment depth 25 mm
- Fixings with hammer in steel pin with plastic coated head recommended for EPS, XPS, MW and lamella panels, minimum embedment depth 25 mm
- Long expansion zone insulation fixings with hammer in steel pin with plastic coated head recommended for EPS, XPS, MW and lamella panels, minimum embedment depth 60 mm
- Stainless steel fixings recommended for lamella boards fire barriers, minimum embedment depth 50 mm

It is allowed to use any mechanical fasteners covered by ETA issued according to ETAG 014. Each ATLAS ETICS Official Distributor is obliged to offer proper ETICS fasteners together with other system elements.

The fixings are inserted into the drilled holes. The drilling tool must be suitable for the material of the bearing layer in order to combine maximum efficiency and safety. Make sure to avoid strong strokes when drilling into thin partition materials. It is recommended that the anchors should be fixed in a way minimizing the occurrence of thermal bridges. Holes with depth of 20 mm are ground into the board so as to provide support for the flange of the anchor disk. The space should be filled with a disk made of the respective insulation material.

#### **Profiles**

In order to increase the resistance of the insulation system to mechanical damage, enable free water drainage, and provide expansion joints, appropriate profiles are used. The profiles are installed in specific places on the façade, such as corners, reveals, window sills etc. The profiles can also be installed during the embedding of reinforcing mesh in the reinforced coat. The profiles are installed using ATLAS STOPTER K-20 or ATLAS HOTER U (for ATLAS ETICS and ATLAS XPS ETICS) or ATLAS ROKER U (for ATLAS ROKER ETICS) adhesive before the application of the basic reinforced layer. In a first step apply an uniform mortar layer 15 cm wide, than place the profile into mortar and press down with a steel float. Afterwards embed profile in the middle of the mortar bed.



Version 1/21 Issued on 01.10.2021

The following profiles can be used:

**Drip profiles -** are fixed on horizontal edges of window and door reveals, and other façade cavities. It is also fixed on the lower edge of the thermal insulation if the skirting board cannot be used e.g. thermal insulation boards are thicker than the largest available board size. They ensure mainly correct removal of water flowing down the vertical façade surfaces. Therefore, they eliminate the risk of stains and plaster damage. The profiles also protect the edge from mechanical damage.

Corner profiles - are fixed on various edges exposed to mechanical damage during utilization e.g. in door and window reveals, quoins, etc. Mechanical harm does not result in permanent damage of the edge owing to the elasticity of the material.

Window profile - is fixed between window or door frame woodwork and finishing layers of the thermal insulation system. They are available in two widths: 6 and 9 mm. The window profile has a polyurethane tape that eliminates plaster cracks and damages resulting from thermal expansion of reveals and plaster. Moreover, it facilitates arrangement and control of plaster thickness and, during work, protects woodwork from dirt; protective foil can be quickly and easily adhered to profile "flap" and then quickly removed after work conclusion by breaking off the flap with used foil. The window profile protects the space between the casing and plaster from humidity, dirt, microorganisms and insects, and improves thermal, sound and damp insulation there. It can be used for all types of joinery (wood, PVC, aluminium). Select the type of profile (6 or 9 mm) appropriately to the assumed thickness of the reinforced layer and plaster. On the casing, mark the planned contact line with the plaster coating and then remove the white protective strip on the polyurethane tape and adhere the profile to the casing so that its edge corresponds with the aforementioned line. The profile is always fixed with the "flap" towards the inside of the opening. When the yellow protective strip is removed, adhere appropriately cut foil that protects the joinery in this place of the profile. Fill in the inside of the profile completely with the reinforced layer and thin-layer plaster. Break off the flap with the foil after completed work.

Expansion joint profile - is fixed between thermal insulation boards in places where construction expansion joint go through or if the thermal insulation layer needs to be divided. It is available in two versions: straight – expansion joint on the façade plane , and angle - expansion joint in the internal corner. The profile can be used in the expansion gap of 10 to 30 mm width. The profile consists of two parts: hard (PVC-U) - that contacts thermal insulation boards, and soft (PVC-P) – that fills in the space between them. The soft part is made in the coextrusion process; therefore, its combination with the hard part ensures very high durability and resistance. The expansion joint profile ensures permanent tightness (to humidity, dirt, microorganisms and insects) and correct cooperation of adjacent parts of the building and thermal layer arrangement. Tightness of the whole expansion joint depends on correct combination of two successive profiles vertically: the upper one and the lower one. They are combined using a special assembly section attached to every profile. It is made of soft PVC-P and has an adhesive layer (with a protective tape). Adhere the assembly section to the lower end of the upper profile (on the bottom of its soft part) and to the upper end of the lower profile (on the top of the soft part). It is also possible to use overlaps – the upper profile needs to overlap the lower one. To do that, cut off 10 mm sections from the hard part of the profile so that the overlap is made only of the soft parts. To obtain perfectly straight run of combined profiles, apply attached plugs that, during fixing, are to be pressed from the bottom in the sticking out parts "tips" of the upper profile and then the lower profile.

Sill profile- is fixed under the sill, ensuring appropriate expansion joints between the sill and thermal insulation system layers. The sill profile ensures permanent tightness (to humidity, dirt, microorganisms and insects) and stiffens the sill (owing to appropriately shaped upper profile surface). The sill profile has a polyethylene tape that eliminates plaster cracks and damages resulting from thermal expansion of materials. Moreover, it facilitates application and control of plaster thickness. When fixing the profile, pay special attention to even cutting of thermal insulation boards to opening clearance and horizontal profile fixing. Directly before profile fixing, remove the protective tape from the polyethylene foam strip.



Version 1/21 Issued on 01.10.2021

**Note:** Before fixing the expansion joint profile, fill in the gap with thermal insulation material e.g. polyurethane or polyethylene expansion joint cord. After profile fixing, protect the gap from dirt resulting from work related to preparation of the reinforced layer or plaster. To do that, put foamed polystyrene strips on it; remove the strips after plastering.

Stop bead (with fiberglass mesh) are fixed at the edges of buildings to provide a straight and sharp line for the coating. They protect the render against impacts - the mesh wing additionally secures the edges. The bead enables connection of renders of different colours but also to stop site works and start again at any given moment.

Clip on profile (with mesh) is fixed onto starter track to ensure a firm connection with the insulation board and durability. Profile ties the base track with reinforcement mesh, ensuring the most professional finish possible. There's a catch on the bottom of the drip which prevents capillary rise under the insulating material. Profiles limit crack occurrence in the place of jointing the plaster on the base profile and provide perfect structural and visual finish and closure of the system.

#### **Firebreaks**

In case of any project requiring special fixing provisions (e.g. for building higher than 18 m or with high wind loads where extra mechanical fasteners should be used) always confirm the project details with the System Designer authorized technical representatives.

Firebreaks should be installed on joints of external wall with internal compartments (ceiling, partition walls. The fire barrier should be of non-combustible material, i.e. mineral fibre or lamella, be at least 150 mm high and 200 mm wide, continuous and unbroken for the full perimeter of the building and for the full thickness of the insulation. Firebreaks should be adhesively bonded to the substrate, the thickness of an adhesive should be smaller than the EPS adhesive thickness. Reinforce the boards with ATLAS ROKER W or ATLAS ROKER U adhesive. Afterwards mechanically fix the reinforced layer (through the mesh) with stainless steel fire fixings and even the surface to the EPS reinforced layer level. The mechanical fixing should at 500 mm centres for horizontal firebreaks, and 1 000 mm for vertical ones.

Any deviations from the fixing provisions listed must be approved by the System Designer authorized technical representative.

### Reinforced layer

The reinforced coat consists of a glass fibre mesh embedded in a coat of ATLAS STOPTER K-20 or ATLAS HOTER U (for ATLAS ETICS and ATLAS XPS ETICS) or ATLAS ROKER U (for ATLAS ROKER ETICS) adhesive. The mesh has an appropriate mechanical strength, a uniform and strong weave, and a high resistance to alkali. The installation of the reinforcing coat should be commenced no earlier than 2 ÷ 3 days after the installation of insulating panels. First, any uneven spots on the surface of the thermal insulation panels should be removed by sanding. Then the wall surface should be reinforced in the corners of windows and doorways by embedding ca. 20x30 cm sized mesh strips in the adhesive coat. The strips should be placed at 45° angle to the reveal edges. Installation of the reinforced coat involves application of a uniform coat of adhesive to the entire surface of thermal insulation material and embedding strips of reinforcing mesh in the adhesive. To make it easier, the mesh can be first pressed into the adhesive in a few spots and then the entire strip is embedded using a notched trowel. A correctly embedded mesh should be completely invisible under the coat of adhesive and it should not be in direct contact with the panel surface. The reinforced coat should be continuous, i.e. the subsequent strips of mesh should overlap by a minimum of 10 cm, and 15 cm on corners. The mesh strips should also overlap with the mesh of the finishing profiles. The overlaps should not coincide with the joints between adjacent panels. Two layers of mesh should be used where necessary, i.e. on the ground floor level of the building and on the plinths. The final step consists of smoothing the reinforced mesh with a steel trowel. This should be done with great care, for constructional and aesthetic reasons. Any uneven spots left after this step should be removed by sanding. Since



Version 1/21 Issued on 01.10.2021

the rendering is relatively thin, and should be uniform on the whole surface of the facade, any uneven spots left on the reinforced coat may prevent correct installation of the rendering. The thickness of the reinforced layer – not less than 3 mm for EPS & XPS boards, min. 5 mm for MW/lamella boards.

It is allowed to apply additional reinforced layer to increase the durability and resistance of the system against accidental impacts, e.g. on the ground floor walls. Apply the additional reinforced layer before the application of the basic layer – the final mesh layer can be applied only when the additional reinforcement is set.

The day after the application it is allowed to polish off the signs left by the long float with a sandpaper and to fill small cavities if necessary. The edges of the building are most easily shaped and polished with a long angle float.

The layers of ETICS should be protected against direct sunshine, rainfall and strong wind during their application and drying. It is recommended to install protection mesh along scaffolding. In winter time the use of protection mesh along scaffolding is obligatory. It is not allowed to carry the works in snowfall, rain or strong wind. If a drop in temperature below+5°C has been forecasted for 3 consecutive days, adhesives other than ATLAS STOPTER K20 should not be applied. If there is a drop in temperature below 0°C for the next 3 days forecasted, all works should be stopped.

### Rendering coat

The top finishing coat of ATLAS ETICS systems may consist of a thin layer rendering, or rendering coated with facade paint. If ATLAS CERMIT ND FOR PAINTING mineral render is used, it is absolutely essential to apply a top coat of facade paint for protection and aesthetic appearance.

The finishing coat should be selected based on the calculations of thermal and moisture protection properties for the wall to be insulated and the service conditions for the insulation system. In design preparation the following factors should be taken into consideration:

- Water vapor permeability of substrate for walls made of materials with high vapor permeability (e.g. cellular concrete) or for mineral wool/lamella based ETICS renders with high water vapor permeability should be used (e.g. mineral or silicate);
- Building age for old building walls renders with high water vapor permeability should be used (e.g. silicate);
- Neighbourhood the neighbourhood of green areas may create conditions for existence of mould, lichen, alga and moss. In such case it is recommended to use renders with high alkaline reaction (e.g. mineral or silicate with pH~12). All dispersive renders have biocide additives and low absorptiveness which reduce the risk of microorganism existence.
- Building location for buildings located close to heavy traffic roads or other sources of pollution silicone render is recommended, due to its self – cleaning ability.
- Colour it is possible to choose a particular colour from the ATLAS PATTERN OF COLOURS 400 for acrylic, 256 for silicate and 480 for silicone. The patterns of colours are available at System Designer representatives, Official Distributors' representatives and on web site <a href="www.atlas.com.pl/en">www.atlas.com.pl/en</a>. In order to avoid variations in shades of coloured renders, it is advisable to render any one stretch of surface using product with the same manufacturing date. If the renders are used in thermal insulation systems, avoid dark colours with reflection coefficient of scattered light below 20%. Share of the renders in such colours should not exceed 10% of façade surface. Some colours should not be applied on strongly insulated surfaces these ones are additionally marked in the pattern of colours.
- Price some renders are cheaper (e.g. mineral), some more expensive (e.g. silicone). The price depends on the chemical composition of a render and does not have an effect on a product quality.



Version 1/21 Issued on 01.10.2021

### Render selection

- +++ high level
- ++ medium level
- + basic level

Render type	mineral	Acrylic		silicate	silico	one
Render name	CERMIT ND	ACRYLIC RENDER	DEKO M	SILICARE RENDER	SILICONE RENDER	ACRYLIC- SILICONE RENDER
Type of binder	cement	acrylic re	sin	resins dispersion, liquid glass	resins dis silicone	
Texture	spotted	spotted	mosaic	spotted	spot	ted
Max. aggregate thickness [mm]	1,5 2,0	1,5	1,0 2,0	1,5	1,5 2,0	1,5
Number of colours	white/to be painted	400	TM0/TM1  unlimited TM3 – 20 TM5 – 13 TM6- unlimited	264	480	400
Vapor permeability	+++	+		+++	+ -	+
Impact resistance	+	++		++	++	+
Water resistance (hydrophobicity)	+	++		+	++	+
Aging resistance	+++	++		+++	++	+
Dirt resistance	+	++		++	++	+
Biological factors resistance	+++	+ ++		+++	+ +	+

Installation of the rendering coat can be commenced about three days after the application of the reinforced coat. Regardless of the type of the thin-layer ATLAS render to be used, it should be preceded by a coat of an appropriate render primer, suitable for the type of rendering selected. The render primer prevents the penetration of impurities from the adhesive into the render, protects and reinforces the substrate and, above all, increases the bond strength between the render and the substrate. Besides, the render primer can act as a temporary protection of the reinforced coat (until the render is applied) for up to six months from its installation. The rendering may consist of thin-layer renders with grain size between 1 mm and 2.0 mm (depending on the type of render). They can be coated with ATLAS facade paints, in accordance with the procedure described in their respective technical data sheets.

ATLAS thin – layer renders should be applied over prepared substrate as an even layer using a float made of stainless steel. Thickness of the layer should correspond with the aggregate grain size. Remove excess of material, place it in the bucket and mix.

Form texture of the surface using a float made of plastic with circular moves for spotted texture renders and vertical or circular moves (depending on the expected line arrangement) for rustic texture renders.<sup>4</sup>

Open time of the mass (between mortar application and floating) depends on substrate absorptivity, ambient temperature and mass consistency. Experimentally (for a given type of substrate and given weather) determine the maximum area that can be prepared in one technological cycle (application and floating). Apply the mix using the "wet on wet" method, preventing one batch from drying before application of another one. Otherwise the

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<sup>&</sup>lt;sup>4</sup> Notes: For mosaic renders ATLAS DEKO M always smooth wet render in the same direction. The mosaic render is particularly recommended for plinths or socles liable to become dirty or get in contact with water. The lack of uniform render texture due to local irregular floating may result in differences in colour shades on the rendered surface.



Version 1/21 Issued on 01.10.2021

"seams" will be visible. Plan technological gaps in advance e.g. in corners or building angles, under rainwater pipes, etc. Apply a self-adhesive tape along a pre – defined line. Then apply the render and float it. Afterwards remove the tape together with the excess material. When the render is set, protect its edge with the tape and apply the render on the next working field.

If you wish to combine renders of different colours apply a self-adhesive tape along a pre – defined line. Then apply the render and float it. Afterwards remove the tape together with the excess material. When the render is set, protect its edge with the tape and apply the differently coloured render.

Protect the rendered surface during work and when it dries from direct sunlight, wind and precipitation. Drying time depends on the render type, substrate, temperature and relative humidity of air. In case of increased humidity and temperature ca.+5°C, render setting time may extend.

Use the scaffolding net covers obligatorily during the render application and drying (for at least 3 days in temperature of +20°C and relative air humidity of 60%). The distance between the insulation board surface and the scaffolding cannot make the floating of the render difficult. It is not allowed to carry the works in snowfall, rain or strong wind. If a drop in temperature below +5°C has been forecasted for 3 consecutive days, renders should not be applied.

#### Paint coat

Renders can be coated with ATLAS facade paints, in accordance with the procedure described in their respective technical data sheets.

Render coatings can be painted after complete drying, not earlier, however, than:

#### Acrylic paint ATLAS SALTA E:

mineral renders: after 4÷6 weeksacrylic renders: after min. 7 days

#### Silicate paint ATLAS SALTA S:

- mineral renders: after 48 hours

Silicone paint ATLAS SALTA/ATLAS SALTA N/ATLAS SALTA N PLUS:

- mineral renders: after min. 5 daysacrylic renders: after min. 7 days
- traditional plasters: after min. 2÷4 weeks

Apply thin and even layer of ATLAS paints to prepared substrate. Use a roller or brush, or paint by spraying not earlier than 6 hours after substrate priming. The number of applied paint layers depends on substrate absorption and structure (two layers are recommended). Apply the next layer crosswise to the first one min. 6 hours later. Plan technological gaps in advance e.g. in corners or building angles, under rainwater pipes, etc. Apply paint continuously (with the "wet on wet" method) on the planned surface, avoiding any breaks in work.

Apply the successive layer after the previous one completely dries (after min. 6 hours), crisscross, maintaining the same direction of application for a given paint layer. Use undiluted paint for the final coat. Plan technological gaps in advance e.g. in corners or building angles, under rainwater pipes, etc. Apply paint continuously (with the "wet on wet" method) on the planned surface, avoiding any breaks in work. The drying time depends on the substrate, temperature and relative humidity of air and is from ca. 2 to 6 hours. The time depends on colour intensity of the paint used. Uniform colour of the painted surface largely depends on the degree of substrate drying. Applied paint slightly smoothens substrate texture in a natural manner. In case of painting surfaces differing in respect of texture and technical parameters, different colour shades of the same paint may result.

Do not paint in case of high humidity and low temperatures (below +5°C). Protect the painted surface during work and when it dries from direct sunlight, wind and precipitation.



Version 1/21 Issued on 01.10.2021

Non-observance of manufacturer's requirements, in particular in respect of substrate preparation, method of application and façade protection from weather, may result in discolouration and salt efflorescence - this is a completely natural phenomenon.

To avoid differences in colour shades, apply paint of the same production date on one surface. Applied paint slightly smoothens substrate texture in a natural manner. In case of painting surfaces differing in respect of texture and technical parameters, different colour shades of the same paint may result. If the paints are used in thermal insulation systems, avoid dark colours with reflection coefficient of scattered light below 20%. Share of the paints in such colours should not exceed 10% of façade surface. Some colours should not be applied on strongly insulated surfaces – these ones are additionally marked in the pattern of colours.

### Paint selection in respect of substrate

- +++ Paint particularly recommended
  - + Paint can be used

Paint type	acrylic	silicate	silic	one		
Paint name	ATLAS SALTA E	ATLAS SALTA S	ATLAS SALTA N ATLAS SALTA N PLUS	ATLAS SALTA		
	Substrate					
Concrete/reinforced concrete	+++	+	+++	+++		
Cement & cement – lime plaster	+++	+++	+++	+++		
Mineral thin - layer	+	+++	+++	+++		
Acrylic thin - layer	+++		+++	+		
Silicate thin - layer	+	+++	+	+		
Silicone thin - layer	+		+++	+		

### Paint selection in respect of its features

- +++ high level
- ++ medium level
- + basic level

Paint type	acrylic	silicate	silicone	
Paint name	ATLAS SALTA E	ATLAS SALTA S	ATLAS SALTA N ATLAS SALTA N PLUS	ATLAS SALTA
	Feat	ures		
Coverage	+++	+++	+++	+++
Vapour permeability	+	+++	++	++
Water resistance	+	++	+++	++
Dirt resistance	+	++	+++	++
Biological factors resistance	++	+++	+++	+++



Version 1/21 Issued on 01.10.2021

Use the scaffolding net covers obligatorily during the render application and drying (for at least 1 day in temperature of +20°C and relative air humidity of 60%). It is not allowed to carry the works in snowfall, rain or strong wind. If a drop in temperature below +5°C has been forecasted for 3 consecutive days, paints should not be applied.

#### Construction details insulation

Proper insulation of the construction details (balconies, corners, window reveals, bases etc.) is extremely important and should be described in detail in the insulation design. Always remember to avoid thermal bridges, and, if the construction of a particular detail, does not allow to reach the minimum U – value required, always indicated the particular U – value reached. Always follow the manufacturer's instructions, it is recommended to use the finishing profiles.

#### Balconies and terraces insulation

Install the insulation on the wall in accordance to the System Designer requirements and provisions. For the substrate below the starter track use the XPS polystyrene boards. Between the basic insulation and the XPS insulation leave of joint with an expanding tape and seal with ATLAS SILTON S sanitary silicone.

#### Insulation finishing at eaves

The wall insulation should be joined with the roof insulation and ensure the insulation continuity. After the wall insulation assemble gutters, pipes and flashing.

#### Flat roof attic insulation

Apply EPS boards to the vertical attic elements, and XPS boards on the horizontal surface. When the adhesive is set, apply ATLAS HOTER U/AVAL KT 55 or ATLAS STOPTER K20 adhesive on the XPS boards and top parts of the EPS boards in the attic area (ca. 15 cm). Embed the glass fibre mesh. When the adhesive is set, apply the reinforced layer on the vertical and horizontal attic surfaces. Afterwards fix mechanically (into the substrate) cement fiber boards. Apply the render coat and install the flashing. The joint of render coat and flashing seal with ATLAS SILTON S/ATLAS ELASTIC sanitary silicone.

### Anchoring of a structural element

Apply the 15 cm wide layer of ATLAS HOTER U/AVAL KT 55 or ATLAS STOPTER K20 adhesive mortar around the element. Embed the 40-55 cm glass fibre mesh into the adhesive leaving parts of it free. When the adhesive is set install the insulation boards, leaving a joint 10 mm wide between the element and the insulation. Turn the free mesh parts on the boards and embed into ATLAS HOTER U/AVAL KT 55 or ATLAS STOPTER K20 adhesive mortar. Apply the reinforced layer and the render coat on the surface. The joint around the element seal with ATLAS SILTON S/ATLAS ELASTIC sanitary silicone.

### Joint of different insulation - based ETICS

The joint of different can be done with a set – off (Figure 14) or in one layer (Figure 15). For the set – off joint apply the starter track leave a joint between ETICS systems with an expanding tape and seal it with ATLAS SILTON S/ATLAS ELASTIC sanitary silicone. For the one layer – joint use the expansion joint profile and follow the System Designer provisions.

### ATLAS ETICS INSTALLATION

ATLAS is an External Thermal Insulation Composite System (ETICS) with render coatings. The product has been given European Technical Approval no. ETA-06/0081 issued in accordance with guidelines of European Technical Approvals ETAG 004: 2000.

The main objectives of the system are as follows:

- providing external walls with appropriate thermal insulation,
- increase durability of external walls by ensuring better protection from weather.



Version 1/21 Issued on 01.10.2021

The thermal insulation technology consists in fixing thermal insulation made of foamed polystyrene boards to the substrate and preparation of a reinforced layer, a render coating and, optionally, a paint coating on the insulation. ATLAS can be used only as an adhered system or as an adhered system with additional mechanical fixing. The system can be applied on new or existing external surfaces of vertical building wall (plastered or not) made of masonry or adhered materials, such as bricks and blocks (ceramic, lime-sand, stone, cellular concrete), or of concrete (poured at the construction site or in the form of prefabricated elements). It can also be fixed on surfaces of horizontal or tilted structural elements provided that they are not directly exposed to precipitation. These may include ceilings over passages, internal walls and roofs (on the ceiling's side) of garages or cellars adjacent to heated rooms. The substrate on which ATLAS will be used should have reaction to fire class: A1 or A2-s1 d0 according to EN 13501-1.

### System preparation

In the system design and during work, take into account requirements of ETAG 004: 2000, ETA-06/0081 Approval and the technical and legal regulations currently in force in the country where the system is to be installed. This applies especially to the requirements as to the insulating properties of partitions, energy efficiency requirements, construction safety, fire safety and the conditions of starting and conducting a building project. Besides, all work should be done in accordance with the information contained in the technical design of thermal insulation, technical instructions issued by ATLAS and in the Technical Data Sheets of the individual components of the system. Technical documentation should be developed individually for a particular building, with consideration to its location and construction.

#### Substrate preparation

ATLAS ETICS system can be used to insulate plastered or not plastered solid concrete walls as well as walls made of bricks, aerated concrete blocks, concrete and structural clay tiles. The substrate should be even, structurally sound and free from anything that may impede mortar adhesion. Hammer off loose or flaking elements and fill in defects using materials recommended for that purpose e.g. ATLAS PLASTERING MIX, ATLAS ZW330. Wash off under pressure or scrape off the remainder of poorly adhering paint coats. In case of weak, dusty or highly absorptive substrates, prime using ATLAS UNI-GRUNT.

### Insulation selection. Foamed polystyrene board fixing

Thermal insulation comprises of seasoned, self – extinguished, factory – prefabricated, expanded polystyrene EPS according to EN 13163 with the designation code and other properties given in Table below:



Version 1/21 Issued on 01.10.2021

Designation code according to EN 13163	EPS-EN 13163-T2-L2-W2-S1-I EPS-EN 13163-T2-L2-W2-S2-I EPS-EN 13163-T2-L2-W2-S2-I EPS-EN 13163-T2-L2-W2-S2-I	)2-DS(70,-)2-TR100 )2-DS(70,-)2-TR100 )2-DS(70,-)1-TR150			
Reaction to fire according to EN 13501-1	Maximum density (kg/m³)	Thickness (mm)	Class		
EPS panels	20	20 ÷ 250	E		
Surface condition		Cut surface			
Water absorption, partial immersion (%) according to EN 1609	≤ 1,0				
Water vapour diffusion resistance factor (µ) according to EN 12086	20 ÷ 40				
Tensile strength perpendicular to the faces in dry conditions (kPa) according to EN 1607	according to TR in above mentioned designation codes				
Shear strength (N/mm²) according to EN 12090	$0.02 \le f_{\tau k} \le 0.10$				
Shear modulus of elasticity (N/mm²) according to EN 12090 - standard EPS - elastified EPS*		$1,0 \le G_m \le 3,0$ $0,3 \le G_m \le 1,0$			
Thermal resistance	Defined in the CE m	arking in reference to E	N 13163		

<sup>\*</sup> Designation codes show the minimum level required by the System Designer. Any insulation with indicators same or higher may be used — each element of the designation code may be treated separately.

Begin with fixing a skirting board on the wall. It ensures level maintenance in case of the first and successive layers of foamed polystyrene boards and reinforces the lower system edge. It should be fixed on the base of the building not lower than 30 cm under the ground level. This distance ensures system protection from capillary moisture and secures the plaster coating from dirt such as mud caused by raindrops falling on pavement or ground. Skirting boards can be replaced by reinforcing mesh or two layers of glass fibre mesh.

When the skirting board is fixed, begin application of the thermal insulation. Fix the first row of boards on the basis of the initial board. Place successive boards alternatively. This is applicable on the wall surface and in building corners. The main component that fixes foamed polystyrene to the substrate is ATLAS HOTER S/AVAL KT 53 adhesive. It is applied on boards using the "strip-point" method. The circumferential block located along board edges should be at least 3 cm wide. Evenly distribute 6÷8 patches of 8÷12 cm in diameter on the remaining surface. The mortar applied should cover at least 40% of board surface. Place the board on the substrate and press it down the substrate immediately after mortar application. In some cases, use ca. 4÷6 plastic fasteners for 1 m². Use mechanical fasteners in corners of buildings or in case of foamed polystyrene that is more than 15 cm thick.



Version 1/21 Issued on 01.10.2021

Additional mechanical fixing is required if thermal insulation of buildings is more than 12 m high or if load capacity of the substrate is low and difficult to determine. Details as to the quantity, type and length of fasteners and their arrangement should be included in the thermal insulation project. Begin additional fixing of the thermal insulation using mechanical fasteners not earlier than 1 day after board fixing. The anchoring depth of additional fixing elements in the structural wall layer made of solid materials should be min. 6 cm. In case of cavity bricks, structural clay tiles or cellular concrete blocks, fasteners need to be anchored min. 9 cm.

### Reinforced layer preparation

To improve resistance of the thermal insulation layer to mechanical damage, before setting in the mesh, apply ATLAS corner profiles on all vertical building quoins as well as door and window casings. Begin preparation of the reinforced layer not earlier than 2 days after board fixing. The reinforced layer consists of a glass fibre mesh set in ATLAS HOTER U/AVAL KT 55 or STOPTER K20. The mesh recommended for ATLAS ETICS system is characterized by appropriate mechanical strength, regular and durable braid, and resistance to alkali. Start the reinforced layer from grinding possible irregularities of foamed polystyrene boards. Then, apply a layer of ATLAS HOTER U/AVAL KT 55 or STOPTER K20 adhesive and distribute it evenly on the surface using a notched float. Set previously cut mesh strip in the mortar. It is convenient to first press the mesh into the mix only in a few places and then set in the whole strip using a notched float. If the mesh is set correctly, it is not visible under the adhesive. The reinforced layer has to be continuous i.e. successive mesh strips should overlap min. 10 cm, whereas overlaps in quoins should be min. 15 cm. Mesh overlaps cannot correspond with joints between foamed polystyrene boards. Reinforce wall surfaces near the contact places of vertical and horizontal quoins of window openings and doorways by setting in additional mesh strips askew. Finally, smooth the reinforced layer using a float made of metal. The work has to be very careful not only due to structural reasons, but also because of layer appearance. If there are any irregularities after smoothing, grind them off. Due to small thickness of the plaster coating (1.5 mm, 2 mm and 3 mm), any irregularities in the reinforced layer may prevent correct render coating preparation.

### Primer preparation

Regardless of the type of ATLAS thin-layer plaster applied on the thermal insulation, prepare a priming layer made of priming mass on the reinforced layer. The priming coat should be appropriate for a given render type: ATLAS CERPLAST mineral and acrylic renders, ATLAS SILKAT ASX silicate renders, ATLAS SILKON ANX silicone renders. The priming coat will prevent any contamination of adhesives from reaching the render layer, reinforce the substrate and increase render adhesion to the substrate. Moreover, priming coats may serve as temporary protective layers of the reinforced layer (before render is applied) for up to six months from their preparation.

### Thickness of ATLAS ETICS coats

Table below presents the thickness of all elements of ATLAS ETICS applied on the insulation material already fixed with anchors:

Components	Base	Particles size (mm)	Thickness (mm)	Consumption (kg/m²)
	To be used w	BASE COATS with all finishing coats indicat	ed here after	
ATLAS STOPTER K20	Cement based powder requiring addition of 0,20 ÷ 0,22 l/kg water; Base: sand, cement, limestone filler, synthetic resin, additives	-	2,0 ÷ 3,0	3,0 ÷ 3,5 (powder)
ATLAS HOTER U AVAL KT 55	Cement based powder requiring addition of 0,20 ÷ 0,22 l/kg water; Base: sand, cement, limestone filler, synthetic resin, additives	-	2,0 ÷ 3,0	3,0 ÷ 3,5 (powder)



Version 1/21 Issued on 01.10.2021

		GLASS FIBRE MESHES			
ATLAS 150 ATLAS 165 ATLAS 340	-	-	-	-	
		KEY COATS			
	To be used	with finishing coats indicate	d here after		
ATLAS CERPLAST or ATLAS SILKAT ASX or ATLAS SILKON ANX	Water, styrolacrylat binder, mineral fillers, silicone emulsion, additives	-	-	0,25 ÷ 0,35	
		FINISHING COATS			
ATLAS CERMIT ND mineral	Powder requiring addition of 0,18 ÷ 0,26 I/kg water; Base: sand, cement, Iimestone filler, synthetic resin, additives	1,5/2,0	Regulated by particles size	2,5 ÷ 2,8 (powder)	
ATLAS Acrylic render	Ready to use paste; Base: sand, acryl- copolymer binder, mineral fillers, additives	1,5	Regulated by particles size	2,5 (paste)	
ATLAS Silicate render	Ready to use paste; Base: sand, silicate binder, mineral fillers, additives	1,5	Regulated by particles size	2,5 (paste)	
ATLAS Silicone ATLAS Acrylic-silicone	Ready to use paste; Base: sand, silicone resin, mineral fillers, additives	1,5/2,0 1,5	Regulated by particles size	2,5 ÷ 3 (paste)	
DECORATIVE FINISHES (PAINTS) – used optionally					
ATLAS SALTA E ATLAS SALTA S ATLAS SALTA ATLAS SALTA N ATLAS SALTA N PLUS	Ready to use pigmented liquid; Base: acryl-copolymer binder (acrylic paint) Base: silicate binder (silicate paint) Base: silicone resin (silicone paint)	-	-	0,125 ÷ 0,250 In case of silicate paint: 0,200 ÷ 0,280	

### Design for impact

The resistance to hard body impacts (3 Joules and 10 Joules) and the perforation (Perfotest), determined according to ETAG 004:2013 (with mesh: SSA 1363 SM(100) or VERTEX 145A/AKE 145A/R 117 A 101) lead to categories given in Table below:

		Single basecoat 3,0 ÷ 5,0 mm <sup>(2)</sup>	Double basecoat 6,0 mm <sup>(2)</sup>
Standard EPS +	ATLAS CERMIT ND mineral	Category III <sup>1</sup>	Category III <sup>1</sup>
base coat	ATLAS Acrylic render	Category II <sup>1</sup>	Category II <sup>1</sup>
ATLAS STOPTER K20 (with relevant key coat)	ATLAS Silicate render	Category III <sup>1</sup>	Category II <sup>1</sup>
finishing coat indicated hereafter:	ATLAS Silicone render	Category II <sup>1</sup>	Category II <sup>1</sup>



Version 1/21 Issued on 01.10.2021

Standard EPS + base coat	ATLAS CERMIT ND mineral	Category III <sup>1</sup>	Category III <sup>1</sup>
ATLAS HOTER U (with relevant key coat)	ATLAS Acrylic render	Category III <sup>1</sup>	Category III <sup>1</sup>
(with relevant key coat)	ATLAS Silicate render	Category II <sup>1</sup>	Category II <sup>1</sup>
finishing coat indicated hereafter	ATLAS Silicone render	Category II <sup>1</sup>	Category II <sup>1</sup>
Elastified EPS +	ATLAS CERMIT ND mineral render	Category III <sup>1</sup>	
base coat	ATLAS Acrylic render	Category III <sup>1</sup>	
ATLAS STOPTER K20	ATLAS Silicate render	Category II <sup>1</sup>	
(with relevant key coat) + finishing coat indicated hereafter:	ATLAS Silicone render	Category II <sup>1</sup>	
Elastified EPS +	ATLAS CERMIT mineral render	Category III <sup>1</sup>	
base coat	ATLAS Acrylic render	Category III <sup>1</sup>	
ATLAS HOTER U	ATLAS Silicate render	Category II <sup>1</sup>	
(with relevant key coat) + finishing coat indicated hereafter	ATLAS Silicone render	Category III <sup>1</sup>	
<sup>1</sup> us	e categories according to ETA <sup>2</sup> with glass fibre mesh		

#### ATLAS ROKER/AVAL ROKER ETICS INSTALLATION

ATLAS ROKER is an External Thermal Insulation Composite System (ETICS) with render coatings. The product has been given European Technical Approval no. ETA-06/0173 issued in accordance with guidelines of European Technical Approvals ETAG 004: 2000.

The main objectives of the system are as follows:

- providing external walls with appropriate thermal insulation,
- increase durability of external walls by ensuring better protection from weather.

The thermal insulation technology consists in fixing thermals insulation made of mineral wool boards to the external surface of building walls and preparation of a reinforced layer, a plaster coating and, optionally, a paint coating on the insulation. The system can be applied on new or existing external surfaces of vertical building wall (plastered or not) made of masonry or adhered materials, such as bricks and blocks (ceramic, lime-sand, stone, cellular concrete), or of concrete (poured at the construction site or in the form of prefabricated elements). It can also be fixed on surfaces of horizontal or tilted structural elements provided that they are not directly exposed to precipitation. These may include ceilings over passages, internal walls and roofs (on the ceiling's side) of garages or cellars adjacent to heated rooms. The substrate on which ATLAS will be used should have reaction to fire class: A1 or A2-s1 d0 according to EN 13501-1.

### System preparation

In the system design and during work, take into account requirements of ETAG 004: 2000, ETA-06/0173 Approval, ETA-06/0281 Approval and technical and legal regulations applicable in the country in which the system will be used, in particular in respect of partition insulation, energy requirements, structural safety, fire safety, and conditions of work commencement and conduction. Moreover, carry out all work in accordance with information included in the technical project of the thermal insulation, Technical Sheets of individual system components and other ATLAS technical instructions. Technical documentation should be developed individually for each building



Version 1/21 Issued on 01.10.2021

and adjusted to its degree of complexity. ATLAS ROKER system consists of non-bearing structural elements; therefore, it does not affect stability of elements to which it is fixed. The value of additional thermal resistance R the wall achieves after the system is applied needs to be calculated in accordance with EN ISO 6946 as the total of product's thermal resistance to thermal insulation and thermal resistance of the finishing layer render. If required in accordance with EN ISO 6946, calculations should take into account effect of thermal bridges resulting from application of mechanical fasteners. The system complies with the criteria of item 5.1.4.2 in ETAG 004: 2000. Therefore, no limits as to wall length or the distance between system expansion profile are introduced unless these result from other requirements, in particular structure of the building in which the system will be used. Carry out thermal insulation work in favourable weather Substrate and ambient temperature during work and when individual materials dry should be from +5°C to +25°C. The façade should be covered and protected from precipitation, direct sunlight and strong wind.

### Substrate

The substrate should be even, structurally sound and free from anything that may impede mortar adhesion. Hammer off loose or flaking elements and fill in defects using materials recommended for that purpose e.g. ATLAS PLASTERING MIX, ATLAS ZW 330. ATLAS ROKER system can be fixed to substrates covered with strongly adhering coats of façade paints or thin-layer plasters. Wash off under pressure or scrape off the remainder of poorly adhering paint coats. In case of weak, dusty or highly absorptive substrates, prime using ATLAS UNI-GRUNT. The substrate should be prepared in accordance with ETAG 004: 2000 requirements. If in doubt as to substrate quality, assess its loading capacity in actual conditions. The result (adhesion) should not be lower than 0.08 MPa; then, damage in the thermal insulation layer can be deemed as a positive result of the tearing test of the adhered square.

#### Mineral wool board fixing

Thermal insulation comprises of factory-prefabricated coated or uncoated mineral wool boards (MW) or lamella according to EN 13162 with the designation codes and other properties given in the Table below:

Designation code according to EN 13162	MW-EN 13162-T4-DS MW-EN 13162-T5-DS( MW-EN 13162-T5-DS	(TH)-CS(10)40-TR15-W (TH)-CS(10)40-TR15-W TH)-CS(10)40-TR100-W (TH)-CS(10)30-TR10-W TH)-CS(10/Y)50-TR80-V	/S-WL(P)-MU1 /S- WL(P)-MU1 /S-WL(P)-MU1
Reaction to fire according to EN 13501-1	Maximum density (kg/m³)	Thickness (mm)	Class
MW board	135,0	20 to 250	A1
Tensile strength perpendicular to the faces in dry conditions (kPa) according to EN 1607	according to TR in a	above mentioned design	ation codes
Shear strength (N/mm²) according to EN 12090	$0.02 \le f_{\tau k}$		
Shear modulus of elasticity (N/mm²) according to EN 12090	$1,0 \leq G_{m}$		
Thermal resistance	Defined in the CE marking in reference to EN 13162		



Version 1/21 Issued on 01.10.2021

\*Designation codes show the minimum level required by the System Designer. Any insulation with indicators same or higher may be used – each element of the designation code may be treated separately.

Thermal insulation thickness should be selected individually for each wall in the building, among others, on the basis of overall heat-transfer coefficient U. It should comply with thermal insulation requirements of partitions specified in applicable technical and legal regulations. Begin with fixing a skirting board on the wall. It ensures maintenance of even level in case of the first and successive layers of thermal insulation boards and reinforces the lower system edge. It should be fixed on the base of the building not lower than 30 cm under the ground level. This distance ensures system protection from capillary moisture and secures the plaster coating from dirt such as mud caused by raindrops falling on pavement or ground. If a skirting board cannot be used (e.g. if the thermal insulation layer is thicker than the largest available board size), it is allowable to use two layers of glass fiber mesh with a drip profile on the lower edge of the thermal insulation. When the skirting board is fixed, begin application of the thermal insulation. Fix the first row of boards on the basis of the initial board. Place successive boards alternatively (vertical joints between boards should be shifted in relation to one another). This is applicable on the wall surface and in building corners. From the point of view of the technical project and load transfer, the system can be only adhered (with lamella boards made of mineral wool) or adhered with additional mechanical fixing (with regular or lamella boards made of mineral wool). Adhesive can be applied on thermal insulation layers using two methods: partially (only regular boards) or completely (regular and lamella board, in case of even and smooth substrate). Partial application is referred to as the "strip-point" method. First float board surface with a thin layer of the mortar and then apply the "proper layer" using the "strip-point" method. The circumferential block located along board edges should be at least 3 cm wide. Evenly distribute 6÷8 patches of 8÷12 cm in diameter on the remaining surface. The mortar applied should cover at least 40% of board surface. Place the board on the substrate and press it down the substrate immediately after mortar application. Begin fixing mechanical fasteners not earlier than 1 day after board fixing. Use 4÷6 fasteners for 1 m<sup>2</sup>. Details as to the quantity, type and length of fasteners and their arrangement should be included in the thermal insulation project. The anchoring depth of additional fixing elements in the structural wall layer should be consistent with requirements of their manufacturers. To improve resistance of thermal insulation layer arrangement to mechanical damage, ensure free water removal and professional preparation of expansion joints, fix finishing profiles on the thermal insulation layer. The profiles are applied in all special places of the façade such as: corners, reveals, sills, etc. They can also be fixed with setting mesh in the reinforced layer of the system. In case of profile fixing, use ATLAS ROKER U adhesive.

#### Reinforced layer

The reinforced layer consists of a reinforcing mesh made of glass fibre set in ATLAS ROKER U mortar. The mesh is characterized by appropriate mechanical strength, regular and durable braid, and resistance to alkali. Begin preparation of the reinforced layer not earlier than 2 days after board fixing. Then, reinforce wall surfaces near the contact places of vertical and horizontal quoins of window openings and doorways. To do this, set 20x30 cm mesh strips in it. The strips should be at the angle of 45° in relation to the lines determined by reveal edges. To prepare the reinforced layer, distribute ATLAS ROKER U mortar evenly on the whole thermal insulation surface and then set in successive mesh strips. First, apply mortar layer using 2/3 of the final quantity and distribute it evenly. Set previously cut mesh strip in the mortar. First press it down in several spots in the applied mortar and then carefully cover it with the mortar using a notched float so that the mesh is not visible. Then, apply the remaining 1/3 of the mortar and carefully smooth the surface. If the mesh is set correctly, it is not visible under the adhesive; it should not directly contact the thermal insulation layer. The reinforced layer has to be continuous i.e. successive mesh strips should overlap min. 10 cm, whereas overlaps in quoins should be min. 15 cm. Overlaps are also required in contact places of the proper reinforcing mesh with the finishing profile mesh. Mesh overlaps cannot correspond with joints between mineral wool boards. Finally, smooth the reinforced layer using a float made of metal. The work has to be very careful not only due to structural reasons, but also because of layer appearance. If there are any irregularities after smoothing, grind them off. Due to small thickness of the plaster coating and the fact that is has to be maintained on the whole façade surface, any irregularities in the reinforced layer may prevent correct plaster coating preparation.



Version 1/21 Issued on 01.10.2021

### Primer preparation

Regardless of the type of ATLAS thin-layer plaster applied on the thermal insulation, prepare a priming layer made of priming mass on the reinforced layer. The priming coat should be appropriate for a given render type. The priming coat will prevent any contamination of adhesives from reaching the render layer, reinforce the substrate and increase plaster adhesion to the substrate. Moreover, priming coats may serve as temporary protective layers of the reinforced layer (before plaster is applied) for up to six months from their preparation.

### Thickness of ATLAS/AVAL ROKER ETICS coats

Table below presents the thickness of all elements of ATLAS ROKER ETICS applied on the insulation material already fixed with anchors:

Components	Base	Particles size (mm)	Thickness (mm)	Consumption (kg/m²)
		BASE COATS		
	To be used w	ith all finishing coats indicat	ed here after	
ATLAS ROKER U	Cement based powder requiring addition of 0,22 ÷ 0,24 l/kg water; Base: sand, cement, limestone filler, synthetic resin, additives	-	4,0 ÷ 5,0	5,5 ÷ 6,5 (powder)
		GLASS FIBRE MESHES		
ATLAS 150 ATLAS 165 ATLAS 340	-	-	-	-
		KEY COATS		
	To be used	with finishing coats indicate	d here after	T
ATLAS CERPLAST  or  ATLAS SILKAT ASX  or  ATLAS SILKON ANX	Water, styrolacrylat binder, mineral fillers, silicone emulsion, additives	-	-	0,3
		FINISHING COATS		
ATLAS CERMIT ND	Powder requiring addition of 0,18 ÷ 0,26 I/kg water; Base: sand, cement, Iimestone filler, synthetic resin, additives	1,5/2,0	Regulated by particles size	2,5 ÷ 2,8 (powder)
ATLAS Silicate render	Ready to use paste; Base: sand, silicate binder, mineral fillers, additives	1,5	Regulated by particles size	2,5 (paste)
ATLAS Silicone render	Ready to use paste; Base: sand, silicone resin, mineral fillers, additives	1,5/2,0	Regulated by particles size	2,5 ÷ 3 (paste)
_		/E FINISHES (PAINTS) – used	optionally	
ATLAS SALTA S ATLAS SALTA ATLAS SALTA N ATLAS SALTA N PLUS	Ready to use pigmented liquid; Base: silicate binder (silicate paint) Base: silicone resin (silicone paint)	-	-	0,125 ÷ 0,250 In case of silicate paint: 0,200 ÷ 0,280



Version 1/21 Issued on 01.10.2021

### Design for impact

The resistance to hard body impacts (3 Joules and 10 Joules) and the perforation (Perfotest), determined according to ETAG 004 (with mesh: SSA 1363 SM(100) or VERTEX 145A/AKE 145A/R 117 A 101) lead to categories given in Table below:

		Single basecoat
Mineral Wool panels	ATLAS CERMIT ND	Category III <sup>1</sup>
+ [	ATLAS Silicate render	Category II <sup>1</sup>
base coat ATLAS ROKER U (with relevant key coat) + finishing coat indicated hereafter:	ATLAS Silicone render	Category II <sup>1</sup>
Mineral Wool lamella	ATLAS CERMIT ND	Category III <sup>1</sup>
+ [	ATLAS Silicate render	Category II <sup>1</sup>
base coat ATLAS ROKER U (with relevant key coat) + finishing coat indicated hereafter	ATLAS Silicone render	Category II <sup>1</sup>
¹ use categor	ies according to ETAG 004, clause 6.1	L.3.3, table 8

### ATLAS XPS ETICS INSTALLATION

ATLAS XPS is an External Thermal Insulation Composite System (ETICS) with render coatings. The product has been given European Technical Approval no. ETA-07/0316, issued in accordance with guidelines of European Technical Approvals ETAG 004: 2000. The thermal insulation technology consists in fixing thermal insulation made of extruded polystyrene (XPS), that combined with ATLAS thermal insulation products, makes a specialistic thermal system.

Considering the characteristics and type of the thermal insulation, ATLAS XPS system can be applied on new or existing external surfaces of vertical building wall, ground course, foundations and basement walls.

The main objectives of the system are as follows:

- providing external walls with appropriate thermal insulation,
- increase durability of external walls by ensuring better protection from weather,
- providing durable thermal insulation resistant to damages, moisture impact and biological agents (decay),
- the use of one type of thermal insulation material on the whole external wall surface (XPS boards can be also applied below ground level) or mixing of different thermal insulation materials on one external wall surface the system is compatible with ATLAS/AVAL composite thermal insulation system with EPS polystyrene boards (according to ETA-06/0081).

The thermal insulation technology consists in fixing thermal insulation made of extruded polystyrene boards to the substrate and preparation of a reinforced layer, a render coating and, optionally, a paint coating on the insulation. ATLAS can be used only as an adhered system or as an adhered system with additional mechanical fixing. The system can be applied on new or existing external surfaces of vertical building wall (plastered or not) made of masonry or adhered materials, such as bricks and blocks (ceramic, lime-sand, stone, cellular concrete), or of concrete (poured at the construction site or in the form of prefabricated elements). It can also be fixed on surfaces of horizontal or tilted structural elements provided that they are not directly exposed to precipitation. These may include ceilings over passages, internal walls and roofs (on the ceiling's side) of garages or cellars adjacent to heated rooms. The substrate on which ATLAS XPS will be used should have reaction to fire class A1 or A2-s1 d0 according to EN 13501-1.



Version 1/21 Issued on 01.10.2021

#### System preparation

Both in the design phase and during the actual application of ATLAS XPS system consideration should be given to the requirements of ETAG 004: 2000, European Technical Approval ETA-07/0316 as well as the technical and legal regulations currently in force in the country where the system is to be installed. This applies especially to the requirements as to the insulating properties of partitions, energy efficiency requirements, construction safety, fire safety and the conditions of starting and conducting a building project. Besides, all work should be done in accordance with the information contained in the technical design of thermal insulation, technical instructions issued by ATLAS and in the Technical Data Sheets of the individual components of the system. Technical documentation should be developed individually for a particular building, with consideration to its location and construction. ATLAS XPS consists of non-bearing building elements and does not affect the stability of the elements to which it is attached. The additional thermal resistance R that a wall gains after the system is installed should be calculated according to EN ISO 6946 as the total of the thermal resistance of thermal insulating material and the thermal resistance of render finish coats. If required, the calculations should allow for the effect of thermal bridging due to the use of mechanical fasteners. The system meets the requirements of section 5.1.4.2 ETAG 004: 2000, so no restrictions are introduced as to the wall length or distance between expansion joints, unless they arise from other factors, especially the construction of the building on which the system is to be installed. Insulation work should be carried out in favourable weather conditions. The substrate and ambient temperature during installation and during the drying of the individual materials should be between +5°C and +25°C. The façade should be covered and protected from precipitation, direct sunlight and strong wind.

#### Substrate

The substrate should be sound, flat and cleaned of any materials that might affect adhesion. Insufficiently bound or loose substrate fragments should be knocked off, and the resulting holes should be repaired using appropriate materials, e.g. ATLAS PLASTER MIX or ATLAS ZW330. ATLAS XPS system can also be fixed to substrates finished with strongly bonded coats of facade paints or thin-layer plasters. In these cases the thermal insulating material should be attached using ATLAS STOPTER K-20 or ATLAS HOTER U adhesive. Residues of peeling coatings should be removed by pressure washing or scraped off. Weak substrates or substrates of high absorption should be primed with ATLAS UNI-GRUNT emulsion. The substrate should be appropriately prepared to meet the requirements of ETAG 004: 2000. If the substrate quality is doubtful, a bond strength test should be carried out in real conditions. The result (bond strength) should not be lower than 0.08 MPa.

### Attaching extruded polystyrene (XPS) panels

Thermal insulation comprises of factory – prefabricated uncoated panels made of extruded polystyrene foam (XPS) according to EN 13164 with the designation code and other properties given in Table below:



Version 1/21 Issued on 01.10.2021

Designation codes according to EN 13164	XPS-EN 13164-T2-CS(10/Y)200-DS(TH)-TR100-WL(T)1, XPS-EN 13164-T1-CS(10/Y)250-DS(TH)-TR100-WL(T)1,		
Reaction to fire according to EN 13501-1	Maximum density (kg/m³) ¦,	Thickness (mm)	Class
XPS panels	40,0	20 to 200	E
Water absorption, partial immersion (kg/m²) according to EN 1609	≤ 1,0		
Water vapour diffusion resistance factor µ according to EN 12086	μ = 100 to 200		
Tensile strength perpendicular to the faces in dry conditions (kPa) according to EN 1607	≥ 100		
Shear strength (N/mm²) according to EN 12090	$0.02 \le f_{\tau k}$		
Shear modulus of elasticity (N/mm²) according to EN 12090	1,0 ≤ G <sub>m</sub>		
Thermal resistance	defined in the CE marking in reference to EN 13164		

<sup>\*</sup>Designation codes show the minimum level required by the System Designer. Any insulation with indicators same or higher may be used – each element of the designation code may be treated separately.

The thickness of thermal insulating material should be in accordance with the technical design and selected individually for each wall of the building, based on the calculated overall heat transfer coefficient U, amongst others. The heat transfer coefficient should meet the requirements as to the thermal insulation properties of partitions, set out in the technical and regulations currently in force. The first step in the application of thermal insulation is to attach a plinth strip, which makes it easier to attach the first and next row of XPS panels along the horizontal line as well as provides a reinforcement for the lower edge of the system. The strip should be attached to the plinth of the building, not lower than 30 cm above the ground level. This distance ensures system protection against rising damp and also protects the rendering from contamination - mud particles carried by raindrops bouncing off the pavement or ground. If a plinth strip is impossible to install (e.g. if the thermal insulation is thicker than the largest available strip size), it can be replaced by two layers of glass fibre reinforcing mesh with a drip profile installed on the bottom edge of the insulation. When the plinth strip has been installed, the thermal insulation XPS panels can be attached. The first row of panels is installed so that it is supported by the plinth strip. Subsequent rows of panels should be staggered (the vertical joints between panels should alternate). The panels should be staggered both on wall surfaces and on the corners of the building. The principal element that bonds the thermal insulation to the substrate is the adhesive. It is applied to the panel surface in strips and dabs. The strip of adhesive applied along the panel perimeter should be at least 3 cm wide. Apply 6÷8 dabs of adhesive, ca. 8÷12 cm in diameter, distributed evenly on the remaining surface. The adhesive applied to the panel should cover



Version 1/21 Issued on 01.10.2021

at least 40% of its surface. When the adhesive has been applied, the panel should be immediately placed on the substrate and pressed against it. For even and smooth substrates it is possible to spread the adhesive evenly on the whole panel surface using a notched trowel to produce a coat 2÷5 mm in thickness. Additional fixing using mechanical fasteners can be commenced no earlier than 24 hours after attaching the panels.

The technical design of thermal insulation should contain detailed information on the number, type and distribution of fasteners. Unless otherwise specified in the technical documentation, a minimum of 4 fasteners should be installed for each panel (at least 4 for 1 m²). Mechanical fasteners are recommended on corners of the building or for panels thicker than 15 cm. Additional mechanical fixing is required in the case of thermal insulation of buildings higher than 12 meters. The depth of anchoring of additional fasteners in the structural layer of the wall should be in accordance with the manufacturers' specifications. In order to increase the resistance of the insulation system to mechanical damage, enable free water drainage, and provide expansion joints, appropriate profiles are used. The profiles are installed in specific places on the façade, such as corners, reveals, window sills etc. The profiles can also be installed during the embedding of reinforcing mesh in the reinforced coat. The profiles are installed using ATLAS STOPTER K-20 or ATLAS HOTER U adhesive.

#### Reinforced coat

The reinforced coat consists of a glass fibre mesh embedded in a coat of ATLAS STOPTER K-20 or ATLAS HOTER U adhesive. The mesh has an appropriate mechanical strength, a uniform and strong weave, and a high resistance to alkali. The installation of the reinforcing coat should be commenced no earlier than 2 days after the installation of insulating panels. First, any uneven spots on the surface of the thermal insulation panels should be removed by sanding. Then the wall surface should be reinforced in the corners of windows and doorways by embedding ca. 20x30 cm sized mesh strips in the adhesive coat. The strips should be placed at 45° angle to the reveal edges. Installation of the reinforced coat involves application of a uniform coat of adhesive to the entire surface of thermal insulation material and embedding strips of reinforcing mesh in the adhesive. To make it easier, the mesh can be first pressed into the adhesive in a few spots and then the entire strip is embedded using a notched trowel. A correctly embedded mesh should be completely invisible under the coat of adhesive and it should not be in direct contact with the panel surface. The reinforced coat should be continuous, i.e. the subsequent strips of mesh should overlap by a minimum of 10 cm, and 15 cm on corners. The mesh strips should also overlap with the mesh of the finishing profiles. The overlaps should not coincide with the joints between adjacent panels. Two layers of mesh should be used where necessary, i.e. on the ground floor level of the building and on the plinths. The final step consists of smoothing the reinforced mesh with a steel trowel. This should be done with great care, for constructional and aesthetic reasons. Any uneven spots left after this step should be removed by sanding. Since the rendering is relatively thin, and should be uniform on the whole surface of the facade, any uneven spots left on the reinforced coat may prevent correct installation of the rendering.

### Primer preparation

Regardless of the type of the thin-layer ATLAS render to be used, it should be preceded by a coat of an appropriate render primer, suitable for the type of rendering selected. The render primer prevents the penetration of impurities from the adhesive into the render, protects and reinforces the substrate and, above all, increases the bond strength between the render and the substrate. Besides, the render primer can act as a temporary protection of the reinforced coat (until the render is applied) for up to six months from its installation.

#### Thickness of ATLAS XPS ETICS coats

Table below presents the thickness of all elements of ATLAS XPS ETICS applied on the insulation material already fixed with anchors:

Components	Daga	Particles size (mm)	Thickness	Coverage
Components	Base	Particles size (mm)	(mm)	(kg/m²)



Version 1/21 Issued on 01.10.2021

BASE COATS  To be used with all finishing coats indicated here after				
ATLAS STOPTER K20	Cement based powder requiring addition of 0,20 ÷ 0,22 l/kg water; Base: sand, cement, limestone filler, synthetic resin, additives	-	2,0 ÷ 3,0	3,0 ÷ 3,5 (powder)
ATLAS HOTER U	Cement based powder requiring addition of 0,20 ÷ 0,22 l/kg water; Base: sand, cement, limestone filler, synthetic resin, additives	-	2,0 ÷ 3,0	3,0 ÷ 3,5 (powder)
		GLASS FIBRE MESHES		
ATLAS 150 ATLAS 165 ATLAS 340	-	-	-	-
		KEY COATS		
	To be used	with finishing coats indicated	d here after	
ATLAS CERPLAST or ATLAS SILKAT ASX or ATLAS SILKON ANX	Water, styrolacrylate binder, mineral fillers, silicone emulsion, additives	-	-	0,25 ÷ 0,35
		FINISHING COATS		
ATLAS CERMIT mineral	Powder requiring addition of 0,18 ÷ 0,26 I/kg water; Base: sand, cement, Iimestone filler, synthetic resin, additives	1,5/2,0	Regulated by particles size	2,5 ÷ 4,5 (powder)
ATLAS Acrylic render	Ready to use paste; Base: sand, acryl- copolymer binder, mineral fillers, additives	1,5	Regulated by particles size	2,5 ÷ 4,5 (paste)
ATLAS Silicate render	Ready to use paste; Base: sand, silicate binder, mineral fillers, additives	1,5/2,0	Regulated by particles size	2,5 ÷ 3,5 (paste)
ATLAS Silicone render	Ready to use paste; Base: sand, silicone resin, mineral fillers, additives	1,5/2,0	Regulated by particles size	2,5 ÷ 3,5 (paste)
DECORATIVE FINISHES (PAINTS) – used optionally				
ATLAS Salta E ATLAS Salta S ATLAS Salta ATLAS Salta N ATLAS Salta N Plus	Ready to use pigmented liquid; Base: acryl-copolymer binder (acrylic paint) Base: silicate binder (silicate paint) Base: silicone resin (silicone paint)	-	-	0,125 ÷ 0,250 In case of silicate paint: 0,200 ÷ 0,280



Version 1/21 Issued on 01.10.2021

### Design for impact

		Single basecoat 3,0 ÷ 5,0 mm <sup>(2)</sup>	Double basecoat 6,0 mm <sup>(2)</sup>
Rendering system:	ATLAS CERMIT ND	Category III <sup>1</sup>	Category III <sup>1</sup>
base coat	ATLAS Acrylic render	Category III <sup>1</sup>	Category II <sup>1</sup>
ATLAS STOPTER K20	ATLAS Silicate render	Category III <sup>1</sup>	Category II <sup>1</sup>
(with relevant key coat) + finishing coat indicated hereafter:	ATLAS Silicone render	Category III <sup>1</sup>	Category III <sup>1</sup>
Rendering system:	ATLAS CERMIT ND	Category III <sup>1</sup>	Category III <sup>1</sup>
base coat ATLAS HOTER U	ATLAS Acrylic render	Category III <sup>1</sup>	Category II <sup>1</sup>
(with relevant key coat) +	ATLAS Silicate render	Category II <sup>1</sup>	Category II <sup>1</sup>
finishing coat indicated hereafter	ATLAS Silicone render	Category III <sup>1</sup>	Category III <sup>1</sup>
<sup>1</sup> use categories according to ETAG 004, clause 6.1.3.3, table 8			

<sup>&</sup>lt;sup>2</sup> with glass fibre mesh SSA 1363 SM (100)

#### **HEALTH AND SAFETY**

Health & safety procedures are constant for all types of ETICS. The use of products is described on each package, health & safety cards are available at (Polish language version) http://www.atlas.com.pl/pl/atlasarchitekta/

English version is available on request.

In case of each product all marking concerning the health & safety is indicated, e.g. all products containing cement have Xi marking together with written caution: "Irritant. Contains cement. Protect skin, eyes and respiratory tract. Keep away from the reach of children. Do not inhale dust. In case of contact with eyes, immediately rinse with plenty of water and seek medical attention. In case of ingestion, immediately seek medical attention and show the packaging or label".

In the system design and during work, take into account requirements of ETAG 004: 2000, European Technical Approvals, technical and legal regulations applicable in the country in which the system will be used, in particular in respect of partition insulation, energy requirements, structural safety, fire safety, and conditions of work commencement and conduction. Moreover, carry out all work in accordance with information included in the technical project of the thermal insulation, Technical Sheets of individual system components and other ATLAS technical instructions.



Version 1/21 Issued on 01.10.2021

#### **MATERIALS DATA SHEETS**

All technical data sheets of the products manufactured by the System Designer are attached to this Code of Practice document.

All products technical data sheets are also available on:

- ATLAS GROUP official website http://www.atlas.com.pl/en/katalog/
- ATLAS Catalogues of Products (printed and electronic version)

Each data sheet is checked, revised, and if needed, updated at least once a year. In case of significant change in product characteristics, legal environment etc. the data sheets are updated immediately.

#### 7. REACTION TO FIRE

#### **ATLAS ETICS**

The reaction to fire is determined to ETAG 004 clause 5.1.2.1. The product reached the classification given in Table below:

Configuration	Maximum declared organic content of the rendering system	Declared flame retardant content of the rendering system	Reaction to fire class according to EN 13501-1
ETICS ATLAS with mineral/ inorganic based rendering system:	Base coats ≤ 3,50% Finishing coats ≤ 4,90%	0%	B – s1,d0
ETICS ATLAS with organic based rendering system:  EPS of thickness up to and including 250 mm  Adhesives: STOPTER K20, HOTER U, HOTER S Base coats: STOPTER K20, HOTER U Finishing coats: ATLAS ACRYLIC RENDER (with key coat CERPLAST) or ATLAS Silicone render (with key coat SILKON ANX)	Base coats ≤ 3,50% Finishing coats ≤ 10,28%	0%	B – s2, d0
All other configurations (with decorative finishes)	-	-	No performance determined



Version 1/21 Issued on 01.10.2021

#### ATLAS ROKER ETICS

The reaction to fire is determined to ETAG 004 clause 5.1.2.1. The product reached the classification given in Table below:

Configuration	Maximum declared organic content of the rendering system	Declared flame retardant content of the rendering system	Reaction to fire class according to EN 13501-1
ETICS ATLAS ROKER/with mineral/inorganic based rendering system:			
MW of thickness 20 up to 200 mm			
Adhesives: ROKER W, ROKER U	Base coats ≤ 4,05%		
■ Base coats: ROKER U			
<ul> <li>Finishing coats: CERMIT mineral (with</li> </ul>	Finishing coats ≤ 4,904%	0%	A2 – s2,d0
key coat CERPLAST) or ATLAS Silicate			
render (with key coat SILKAT ASX)	Decorative finishes ≤ 13,50%		
<ul> <li>Decorative finishes: ATLAS Salta S,</li> </ul>			
ATLAS Salta, ATLAS Salta N, ATLAS Salta N Plus			
ETICS ATLAS ROKER/with mineral/ inorganic			
based rendering system:			
MW of thickness 20 up to 200 mm	Base coats ≤ 4,05%		
<ul><li>Adhesives: ROKER W</li></ul>	F: : 1:	00/	6 2 10
<ul> <li>Base coats: ROKER U</li> </ul>	Finishing coats ≤ 8,419%	0%	C – s2, d0
<ul><li>Finishing coats: Silicone render</li></ul>	Decorative finishes ≤ 13,50%		
<ul> <li>Decorative finishes: Salta E, Salta S,</li> </ul>	Decorative milianes 3 13,30%		
Salta, Salta N, Salta N Plus			
All other configurations (with MW of thickness >	-	-	No performance
200 mm)			determined

## ATLAS XPS ETICS

The reaction to fire is determined to ETAG 004 clause 5.1.2.1. The product reached the classification given in Table below:

Configuration	Maximum declared organic content of the rendering system	Declared flame retardant content of the rendering system	Reaction to fire class according to EN 13501-1
ETICS ATLAS XPS rendering system indicated			
hereafter:			
<ul> <li>XPS of thickness 20 up to 200 mm</li> </ul>			
<ul> <li>Adhesives: STOPTER K20, HOTER U, HOTER S,</li> </ul>	Adhesives: ≤ 3,50%		
<ul> <li>Base coats: STOPTER K20, HOTER U</li> </ul>	Base coats ≤ 3,50%		
<ul> <li>Finishing coats: CERMIT mineral (with</li> </ul>		0%	B – s2,d0
key coat CERPLAST) or SILKAT (with	Finishing coats ≤ 4,904%		
key coat SILKAT ASX)			
<ul> <li>Decorative coats: ARKOL E, ARKOL S</li> </ul>	Decorative coats ≤ 13,50%		
(with primer ARKOL SX), ARKOL N			
(with primer ARKOL NX), FASTEL (with			
primer ARKOL NX)			
ETICS ATLAS XPS rendering system indicated			
hereafter:			
<ul> <li>XPS of thickness 20 up to 200 mm</li> </ul>			
<ul> <li>Adhesives: STOPTER K10, STOPTER</li> </ul>	Adhesives: ≤ 3,50%		
K20, HOTER U, HOTER S,			
Base coats: STOPTER K20, HOTER U	Base coats ≤ 3,50%		
■ Finishing coats: CERMIT acrylic (with		0%	C – s2, d0
key coat CERPLAST) or SILKON (with	Finishing coats ≤ 10,28%		
key coat SILKON ANX)	5		
■ Decorative coats: ARKOL E, ARKOL S	Decorative coats ≤ 13,50%		
(with primer ARKOL SX), ARKOL N			
(with primer ARKOL NX), FASTEL (with			
primer ARKOL NX)			



Version 1/21 Issued on 01.10.2021

#### General conditions

With regard to fire stopping of cavities and limitations on use of combustible materials, walls must comply with Sections B3.2, B3.3 and B4 of TGD to Part B of the Building Regulations 1997 to 2008.

The mineral wool board is classed as non-combustible as per Table A8 d) of TGD to Part B of the Building Regulations 1997 to 2008.

Stainless steel fire fixings to be provided at the rate of one per square meter when specified. The fixing design should take account of the extra duty required under fire conditions.

Vertical and horizontal fire barriers shall be provided at each compartment floor and wall, including the second floor level of a three-storey single occupancy dwelling.<sup>5</sup>

Firebreaks should be adhesively bonded to the substrate and mechanically fixed with stainless steel fire fixings at 500 mm centres for horizontal firebreaks, and 1 000 mm for vertical ones. The fire barrier should be of non-combustible material, i.e. mineral fibre or lamella, be at least 150 mm high, continuous and unbroken for the full perimeter of the building and for the full thickness of the insulation. It is allowed to use any anchors covered by ETA issued according to ETAG 014.

Combustible material must be separated from a brick or blockwork chimney by at least 200 mm from a flue, or 40 mm from the outer surface of the brick or blockwork chimney, in accordance with Clause 2.15 of TGD to Part J of the Building Regulations 1997 to 2008. Metal fixings in contact with combustible materials should be at least 50mm from a flue.

In accordance to Section B4 of TGD to Part B of the Building Regulations 1997 to 2008 the provisions for the external surface of walls are as follows:

	Distance from any point on the relevant boundary *		
Height of building (m)	Less than 1 m	1 m or more	
Less than 18	Class B - s3, d2 (European) or Class 0 (National)	No provision (unless it is a building described in Note (1))	
More than 18	Class B - s3, d2 (European) or Class O (National)	Class B - s3, d2 (European) or Class 0 (National) (2)	

## Notes:

notes:

\* The relevant boundary might be a notional boundary.

- (1) Any part of the wall of a building comprising flats or maisonettes, or a building in the Residential (Institutional), Other Residential, Assembly and recreation purpose groups, which is 10 m or less above the ground or above a roof or any other part of the building to which people have access, should be Class C s3-d2 (European) or have an index of performance (I) not more than 20 (National). Timber cladding at least 9 mm thick is also acceptable.
- (2) Surfaces between 0 and 18 m above the ground may comprise of any material of Class C s3 d2 (European) or have an index of performance (I) not more than 20 (National). Timber cladding at least 9 mm thick is also acceptable.

<sup>&</sup>lt;sup>5</sup> Fire barriers graphic scheme – Figure 13 attached to this paper.



Version 1/21 Issued on 01.10.2021

#### 8. WIND LOADS

Details as to the quantity, type and length of fasteners and their arrangement should be included in the thermal insulation project (in accordance with the requirements of BS 5427:Part 1 and BS 6399: Parts 2 and 3). Unless the technical documentation specifies requirements in this respect, use ca. 4÷5 fasteners for 1 m². In addition, fixings around window and door reveals should be at a maximum of 400mm centres in each board or section of board. Use mechanical fasteners in corners of buildings or in case of foamed polystyrene that is more than 15 cm thick. Additional mechanical fixing is required if thermal insulation of buildings is more than 12 m high.

This number of fasteners will be sufficient for general areas, but additional fasteners will be required for areas with high wind loads – a double line of fasteners for fixing panels to intermediate supports. For calculations of wind load use the methods listed in BS 6399.

The anchoring depth of additional fixing elements in the structural wall layer should be consistent with requirements of their manufacturers. All anchors covered by ETA issued according to ETAG 014 can be used.

In case of any project requiring special fixing provisions (e.g. for building higher than 18 m or with high wind loads where extra mechanical fasteners should be used) always confirm the project details with the System Designer authorized technical representatives.

#### 9. EASE OF MAINTENANCE

#### External thermal insulation durability

According to European Technical Approvals the durability of ETICS should last minimum 25 years on condition that all system elements are used, and the installation is conducted in accordance to Manufacturer's requirements. According to ETAG 004:2000, being the guidelines to European Technical Approvals, current maintenance of the finishing layer is essential to proper durability of all system elements. As ease of maintenance the following actions are provided repairs of damaged elements and, if necessary, application of new products or paints, consistent with system elements already used.

### Check of the technical conditions of elevation - recommendation

The revision of technical conditions of elevation should be conducted systematically, best in spring time, just after the end of winter, when the likeness of possible damages is the biggest and weather conditions allow quick repairs. The table below shows the list of elements that should be checked systematically and advised maintenance actions:

## CHECK OF THE BUILDING ELEMENTS

Elements to be checked	Scope of check	Maintenance action*
Condition of roof covering, roof flashing, eaves, wind bents etc.	Check of tightness of joints between flashing, between flashing elements,	Replacement of damaged or corroded elements, sealing of
Condition of window flashing, window sills, balconies, attics, etc.	occurrence of corrosion, damages caused by wind etc.	joints, protecting of elements from corrosion
Tightness of permeability of sewerage systems and gutters	Tightness of gutters elements and their joints, mechanical damages, corrosion	Removal of leaves and dirt, sealing of joints, repair of damages
Condition of sealing and construction dilatations	Occurrence of cracks in dilatations, condition and any damages in the sealants	Only after consultation with architect and specialist construction companies



Version 1/21 Issued on 01.10.2021

Fixing of additional elements on elevation: billboards, lighting etc.	Condition of fillers round the fasteners, occurrence of runs, corrosion of metal elements	Removal of damaged fillers in accordance to manufacturers' recommendations		
* Recommendations listed above are just additional and should not be treated as a part of present ease of				

#### CHECK OF THE EXTERNAL ELEVATION LAYER - RENDERS AND PAINTS

Elements to be checked	Scope of check	Maintenance action
Condition of surface in respect of dirt	Occurrence of organic or inorganic dirt – effect of sedimentation of dust, fumes, ash, dirt etc.	<ol> <li>Surface cleaning</li> <li>Surface painting (optional)</li> </ol>
Condition of surface in respect of biological contamination	Occurrence of organic dirt: Mould (black or dark grey deposit) Alga (green deposit) Mould & alga (green – black deposit)	<ol> <li>Surface cleaning</li> <li>Removal of biological contamination with special agents</li> <li>Surface painting (optional)</li> </ol>
Condition of surface in respect of mechanical damages, occurrence of cracks etc.	Depth and size of cracks	<ol> <li>Surface cleaning</li> <li>Filling cracks or application of a new layer</li> <li>Surface painting (optional)</li> </ol>
Condition of surface in respect of change of colour, fading, discolouring	Extent of change of colour, fading, discolouring	<ol> <li>Surface cleaning</li> <li>Priming</li> <li>Painting</li> </ol>
Condition of surface in respect of runs	Location and size of runs	<ol> <li>Finding the reason of runs</li> <li>Elimination of the reason of runs (e.g. repairs of damaged flashing)</li> <li>Priming</li> <li>Painting</li> </ol>
Condition of surface in respect of efflorescence		<ol> <li>Surface cleaning</li> <li>Priming</li> <li>Painting</li> </ol>

### Elevation maintenance - recommendations

## REMOVAL OF DIRT FROM ELEVATION SURFACE

#### **WASHING**

**MECHANICAL** – hydrodynamic machine washing, the water pressure from 50 up to 150 bar. This method allows to clean most of dirt, even the old one. If necessary, the use of detergents and special washing agents is allowed. The temperature of water should not be higher than 140 °C. Use of warm water gives better effects. Caution: always check the water pressure, detergent or agent on a small surface before whole elevation washing. All works should be done in accordance to health & safety procedures and manufacturers' instructions. Do not wash with water dusty and low-durable surfaces (e.g. monuments), do not wash the elevation in low temperature.

**MANUAL** – recommended only in case of small surfaces, use warm water with detergents or special washing agents and a brush with properly long stiff bristles.



Version 1/21 Issued on 01.10.2021

STEAM WASHING – less effective than washing with water, but allows to prepare old, flaking paint for mechanical removal. Should be done mechanically with temperature up to  $140 \, ^{\circ}\text{C}$ .

**SANBLASTING** - recommended in case of very old, strongly adherent dirt. Usually done on well-maintained architectonic details and elevations with vast amount of sculptures (mainly monuments).

**CHEMICAL CLEANING** - recommended for the removal of strongly adhering layers of paint and graffiti. Conducted with use of special chemical agents – after application on a surface agent softens the paint layer and allows its easy mechanical or manual removal.

#### REMOVAL OF BIOLOGICAL CONTAMINATION FROM ELEVATION SURFACE WITH ATLAS MYKOS

Occurrence of biological contamination of elevation surface is the effect of its original dirtying. The layer of dirt creates conditions for existence of mould, lichen, alga and moss. At the beginning the contamination is on the elevation surface only (deposit, slight decolouring), but if not removed, it leads to significant changes of colour and substrate damages.

ATLAS MYKOS is a high quality fungicide designed for removal of organic contamination (fungi, mould, lichen, algae and moss) from surfaces of structural elements. It can be also used for protection of mineral surfaces – both fresh and existing (but cleaned) ones - from degrading activity of microorganisms. In case of applying the fungicide to substrates other than mineral, it is recommended to make a test on a small part of substrate.

#### SUBSTRATE PREPARATION

Use ATLAS MYKOS on dry substrates. Before commencement of work, protect the surface from effects of precipitation and sunlight to prevent excessive drying of the fungicide. Eliminate all possible sources of moisture, resulting from, among others, leaky insulation, bad roof flashing and leaky water supply and sewerage systems, as well as leaky rain-water piping.

### **CONTAMINATION REMOVAL**

Apply the appropriately prepared solution evenly on dried substrate using a brush, paint roller or by spraying. Wait a few minutes before contamination removal. Clean the substrate e.g. by scrubbing it with a brush. Finally, rinse the surface thoroughly with clean water. If the substrate contains intensive microbiological contamination, repeat all the aforementioned actions or apply undiluted ATLAS MYKOS.

## MINERAL SURFACE PROTECTION

Apply the appropriately prepared solution evenly on dried and previously cleaned substrate using a brush or a paint roller or by spraying. Paint surfaces on which ATLAS MYKOS has been applied not earlier than after 48 hours from agent application. We recommend the use of silicone paints and agents, as they reduce absorptiveness of substrates and a risk of new biological contamination.

If the agent has been used indoors, the room in which it has been applied can be used not earlier than 48 hours from agent application.

Main repairs – repairs of damages, scratches and cracks of elevation



Version 1/21 Issued on 01.10.2021

## ELEVATIONS WITH TRADITIONAL CEMENT AND CEMENT-LIME PLASTER AS FINISHING COAT

The table below shows the list of most common damages to elevations and advised repair technology with sets of ATLAS/AVAL products.

Damage	Technology of repair	ATLAS/AVAL products
Local surface scratches and cracks (the render coat adhered to substrate – no thud when knocked with a hammer)	<ul><li>1.Surface washing</li><li>2.Broadening the cracks with a spatula</li><li>3.Priming of the cracks</li><li>4.Filling of cracks</li><li>5.Priming and painting to reach solid colour of elevation</li></ul>	UNIGRUNT/AVAL KT 17 REKORD ARKOL NX/AVAL KT 47 ARKOL N/FASTEL/AVAL KT 48/ AVAL KT 46
Broad elevation scratches and cracks (no loosening of render coat – no thud when knocked with a hammer)	1.Surface cleaning 2.Priming of elevation 3.Application of reinforced layer according to ETICS technology 4.Key coat application 5.Application of thin-layer plaster	UNIGRUNT/AVAL KT 17 STOPTER K20/AVAL KT 85 GLASS FIBRE MESH (VERTEX 145/AKE 145 or SSA-1363SM(100)) CERPLAST/AVAL KT 16 CERMIT mineral/AVAL mineral CERMIT acryl/AVAL acryl SILKAT ASX/AVAL KT 15 SILKAT/AVAL silicate SILKON ANX/AVAL KT 76 SILKON/AVAL silicone
Local loosening of render coat (visible loss of render coat, thud when knocked with a hammer)	1.Removal of damaged render 2.Priming of elevation 3.Application of a new plaster coat 4.Priming and painting to reach solid colour of elevation	UNIGRUNT/AVAL KT 17 ATLAS PLASTERING MIX/ AVAL KT 111 ATLAS LEVELLING MORTAR
Flaking of paint, change of colour, fading, discolouring, runs, stains	Surface washing     Priming and painting to reach solid colour of elevation	ARKOL E/AVAL KT 44 ARKOL NX/AVAL KT 47 ARKOL N/AVAL KT 48 FASTEL/AVAL KT 46

## ELEVATIONS WITH EXTERNAL THERMAL INSULATION OR THIN-LAYER RENDER AS FINISHING COAT

Damage	Technology of repair	ATLAS/AVAL products
Mechanical damages of thin- layer render and/or scratches and cracks of surface, reinforced layer complete	1.Removal of the thin-layer render coat 10 cm round the damage, do not harm the reinforced layer 2.Cleaning the substrate of dust 3.Key coat application 4.Application of a thin-layer render on the damaged part 5.Priming and painting to reach solid colour of elevation (optional)	CERPLAST/AVAL KT 16 CERMIT mineral/AVAL mineral CERMIT acryl/AVAL acryl (only on EPS or XPS ETICS) SILKAT ASX/AVAL KT 15 SILKAT/AVAL silicate SILKON ANX/AVAL KT 76 SILKON/AVAL silicone ARKOL E/AVAL KT 44 (only on EPS or XPS ETICS) ARKOL SX/AVAL KT 52 ARKOL S/AVAL KT 54 ARKOL NX/AVAL KT 47 ARKOL N/AVAL KT 48 FASTEL/AVAL KT 48



Version 1/21 Issued on 01.10.2021

Damages of thin-layer render coat, reinforced layer and insulation material	<ol> <li>Removal of damaged thermal insulation with the insulation layer</li> <li>Removal of the thin-layer render coat 10 cm round the damage, remove the adhesive, leave the glass fibre mesh</li> <li>Preparation of the thermal insulation and filling the damaged part</li> <li>Application of the adhesive on the new thermal insulation, application of the reinforced layer (new mesh strips should overlap 10 cm the old mesh)</li> <li>Key coat application</li> <li>Application of a thin-layer render on the damaged part</li> <li>Priming and painting to reach solid colour of elevation</li> </ol>	EPS and/or XPS ETICS: STOPTER K20/AVAL KT 85 HOTER U/AVAL KT 55 GLASS FIBRE MESH (VERTEX 145/AKE 145 or SSA-1363SM(100)) CERPLAST/AVAL KT 16 CERMIT mineral/AVAL mineral CERMIT acryl/AVAL acryl SILKAT ASX/AVAL KT 15 SILKAT/AVAL silicate SILKON ANX/AVAL KT 76 SILKON/AVAL silicone  Mineral wool ETICS: ROKER W, ROKER U GLASS FIBRE MESH (VERTEX 145/AKE 145 or SSA-1363SM(100)) CERPLAST/AVAL KT 16 CERMIT mineral/AVAL mineral SILKAT ASX/AVAL KT 15 SILKAT/AVAL silicate SILKON ANX/AVAL KT 76 SILKON ANX/AVAL KT 76 SILKON ANX/AVAL KT 76	
Loosening of thin-layer render, reinforced layer complete	<ol> <li>Removal of the thin-layer render with a spatula</li> <li>Cleaning the substrate of dust</li> <li>Priming</li> <li>Filling the surface with a cement-based adhesive</li> <li>Key coat application</li> <li>Application of a thin-layer render</li> <li>Priming and painting (optional)</li> </ol>	As above	
Small scratches and micro- cracks of the surface	<ol> <li>Surface washing</li> <li>Priming and painting (paint with good covering properties)</li> </ol>	ARKOL NX/AVAL KT 47 ARKOL N/AVAL KT 48 FASTEL/ARKOL KT 46	
Regular cracks of the elevation surface (straight vertical and horizontal cracks), cracks structure the same as the structure of insulation boards joints	<ol> <li>Surface washing</li> <li>Application of a new reinforced layer on the whole elevation</li> <li>Key coat application</li> <li>Render coat application</li> <li>Priming and painting (optional)</li> </ol>	STOPTER K20/AVAL KT 85 GLASS FIBRE MESH (VERTEX 145/AKE 145 or SSA-1363SM(100)) CERPLAST/AVAL KT 16 CERMIT mineral/AVAL mineral CERMIT acryl/AVAL acryl (only on EPS or XPS ETICS) SILKAT ASX/AVAL KT 15 SILKAT/AVAL silicate SILKON ANX/AVAL KT 76 SILKON/AVAL silicone	
Flaking of paint, change of colour, fading, discolouring, runs, stains (render coat complete)	<ol> <li>Surface washing</li> <li>Filling of defects (if necessary)</li> <li>Key coat application</li> </ol>	ARKOL E/AVAL KT 44 ARKOL NX/AVAL KT 47 ARKOL N/AVAL KT 48 FASTEL/AVAL KT46	



Version 1/21 Issued on 01.10.2021

	Render coat application Priming and painting to reach solid colour of elevation

#### Hydrophobization of substrate with Atlas Silstop

ATLAS SILSTOP is a colourless solution of silicone dispersion in an organic solvent. After application, it reacts with components of air and with water in pores of the construction material. This reaction reduces absorptive degree of the primed material; therefore the protected surface is not contaminated easily and precipitation water runs down freely on the surface providing additional cleaning. ATLAS SILSTOP penetrates the material, at the same time providing great permeability of water vapor. It is resistant to alkalis, acid rain, UV radiation, aggressive urban environment and temperatures from -20°C to +80°C.

ATLAS SILSTOP is designed for hydrophobization and protection of absorptive stone elements, substrates made of ceramic (e.g. brick walls) and lime-sand materials, concrete and mineral plasters from adverse effect of external environment. It is perfect for priming substrate under silicone paints. It can also be used for hydrophobization of old façade paint coats tightly adhering to the substrate and thin-layer mineral and acrylic plasters. It is suitable for indoor and outdoor use.

CAUTION: Do not use the agent on substrates layers of which (at the depth of agent penetration) contain materials not resistant to organic dissolvent e.g. foamed polystyrene located under the reinforcing layer of the thermal insulation system.

#### SUBSTRATE PREPARATION

The substrate should be dry, structurally sound and free from dust, dirt, oil, grease and wax.

#### APPLICATION

Apply the undiluted emulsion over the substrate with a roller or paintbrush. Application of another layer (on very absorptive substrates) or painting, e.g. ATLAS ARKOL N/AVAL KT 48 silicone paint, can be started when the first layer has completely dried i.e. after 6 hours.

#### PAINTING (optional)

Depending on needs painting with silicone paint ATLAS ARKOL N/AVAL KT 48 or ATLAS FASTEL/AVAL KT 46 is possible. In such case the layer of ATLAS SILSTOP becomes a priming layer for this type of paints.

## **Painting**

Painting can be the last phase of renovation or maintenance of elevation surface, or a separate action bringing back the elevation beauty. Painting serves as:

- decorative action gives the elevation a fresh, homogenous and attractive look
- technical action creates a layer protecting the elevation against weather conditions, levels surface absorbability and fills in micro cracks.

## SUBSTRATE PREPARATION

The substrate should be dry, stable, even and structurally sound i.e. strong enough; it should be free from anything that may weaken adhesion, in particular dust, dirt, fat and wax.

## **PAINT SELECTION**



Version 1/21 Issued on 01.10.2021

In case of renovation painting the choice of paint is very important. For example, the silicate paint should be used for renovation painting of surfaces already painted with a silicate paint or silicate render coats. The Table below presents the recommendations concerning the paint selection:

Type Name	Acrylic ARKOL E AVAL KT 44	Dry acrylic CERTON	Silicate ARKOL S AVAL KT 54	Silicone ARKOL N AVAL KT 48	Silicone FASTEL AVAL KT 46
		Substra	ite type		
Concrete/ Reinforced concrete	***	***	*	***	***
Plaster (cement and cement- lime)	***	***	***	***	***
Lime plaster	-	***	-	-	-
Thin-layer mineral render	*	***	***	*	***
Thin-layer acrylic render	***	*	-	***	***
Thin-layer silicate render	*	*	***	*	*
Thin-layer silicone render	*	*	-	***	***
Asbestos- cement plates	***	-	-	***	***
		Prop	erties		
Covering	***	***	**	***	***
Steam permeability	*	**	***	**	**
Water fastness	***	**	**	***	***
Dirt resistance	**	*	**	***	***
Biological factors resistance	**	*	**	***	***

<sup>\*\*\* -</sup> high level

#### **PRIMING**

Priming of substrate strengthens and evens substrate absorptivity and increases adhesion of paints. In case of renovation painting priming is even more important than in primary painting, as the substrate has been weakened by outdoor conditions.

## **PAINTING**

<sup>\*\* -</sup> medium level

<sup>\* -</sup> basic level



Version 1/21 Issued on 01.10.2021

Apply thin and even layer of ATLAS/AVAL paint on prepared and primed substrate. Use a roller or brush, or paint by spraying. Apply one or two layers depending on substrate absorptivity and structure. Plan technological gaps in advance e.g. in corners or building angles, under rainwater pipes, etc. Apply paint continuously (with the "wet on wet" method) on the planned surface, avoiding any breaks in work and preventing coat application on partially dried paint. Protect the painted surface during work and when it dries from direct sunlight, wind and precipitation. The drying time depends on the substrate, temperature and relative humidity of air and is from ca. 2 to 6 hours. Note: to avoid differences in colour shades in case of colour paints, apply paint of the same production date on one surface. Applied paint slightly smoothes substrate texture in a natural manner. In case of painting surfaces differing in respect of texture and technical parameters, different colour shades of the same paint may result.

#### Final remarks

All recommendations listed in this ease of maintenance set the basic repair and maintenance rules. All works should be done in accordance to health & safety procedures and manufacturers' instructions. When in doubt please make contact to professional maintenance companies or ATLAS technical advisors

#### 10. GUARANTEE

According to European Technical Approvals the durability of ETICS should last minimum 25 years on condition that all system elements are used, and the installation is conducted in accordance to Manufacturer's requirements. According to ETAG 004:2000, being the guidelines to European Technical Approvals, current maintenance of the finishing layer is essential to proper durability of all system elements. As ease of maintenance the following actions are provided repairs of damaged elements and, if necessary, application of new products or paints, consistent with system elements already used.

Each ATLAS ETICS installer is obliged to grant minimum a one-year warranty on the system installation.

On investor's/homeowner's request an extra warranty (for up to 5 years) on the installation of ATLAS ETICS may be granted, provided that the system has been installed and maintained according to ATLAS instructions and requirements.

The Certificate of Warranty and General Terms and Conditions are presented in Attachment 2 to this document.

### 11. COMPLAINTS PROCEDURE

ATLAS GROUP complaints procedure is a part of the integrated quality management system (number PS - 17) and is conducted by ATLAS Technical Department.

#### **COMPLAINT RECEPTION**

- ATLAS shall be liable for any damage to the goods resulting from improper packaging, and return the Buyer costs incurred in connection with it.
- Complaints concerning the quantity and quality of the goods are to be made within 14 days from the date of receipt of goods by the Buyer. The date of receipt of goods is considered to be the date of acceptance of goods to the Buyer's warehouse/location.
- Complaints regarding hidden defects of the goods shall be made by the Buyer to ATLAS immediately after their detection, not later than 14 days from the detection of the defect. The right to place a complaint concerning hidden defects of the goods is valid within one year after the date of sale.
- The reception of complaint can be conducted by the installer's representative or ATLAS Technical Department representative.
- A complaint can be received by any means of communication (telephone, fax, e-mail).
- If a complaint is addressed to the installer's representative he is obliged to pass the complaint to ATLAS representative immediately. All the documents concerning the complaint and a filled-in "Complaints form" is to be sent to ATLAS representative not later than 5 working days after complaint reception.



Version 1/21 Issued on 01.10.2021

Send any available samples of unused and used products to ATLAS Technical Department within 5 working days after the complaint reception. Indicate on the sample the complaint number, customer name and date of complaint.

**COMPLAINT INVESTIGATION** 

- Each complaint should be investigated in maximum 30 days after the complaint reception.
- Regardless of the inspection effect (positive or negative) an answer to the complaint is to be prepared in writing, in the language of the original complaint.
- In case of variance in quality, confirmed by ATLAS, ATLAS shall replace the goods with variance in quality, or reduce the purchase price in a form of correcting invoice issue.
- The return of cost of installation of invalid products is to be settled in a separate contract, basing on mutual agreement.

## **COMPLAINT FORM**

Complaint form is presented in Attachment 3 to this paper. This document is sent to any ATLAS distributor or approved installer together with the Code of practice.



Version 1/21 Issued on 01.10.2021

#### 12. ATLAS ADDRESS & CONTACT DATA

ATLAS Spółka z ograniczoną odpowiedzialnością 91-421 Łódź, Kilińskiego 2, Republic of Poland

NIP: PL9471936467 REGON: 100253695

Bank:

"Bank Rozwoju Exportu" S.A. o/Łódź,

Piotrkowska 148/150 90 – 063 Łódź SWIFT: BREXPLPWLOD

PLN: PL24114011080000224638001071 EUR: PL48114011080000224638001027

www.atlas.com.pl export@atlas.com.pl