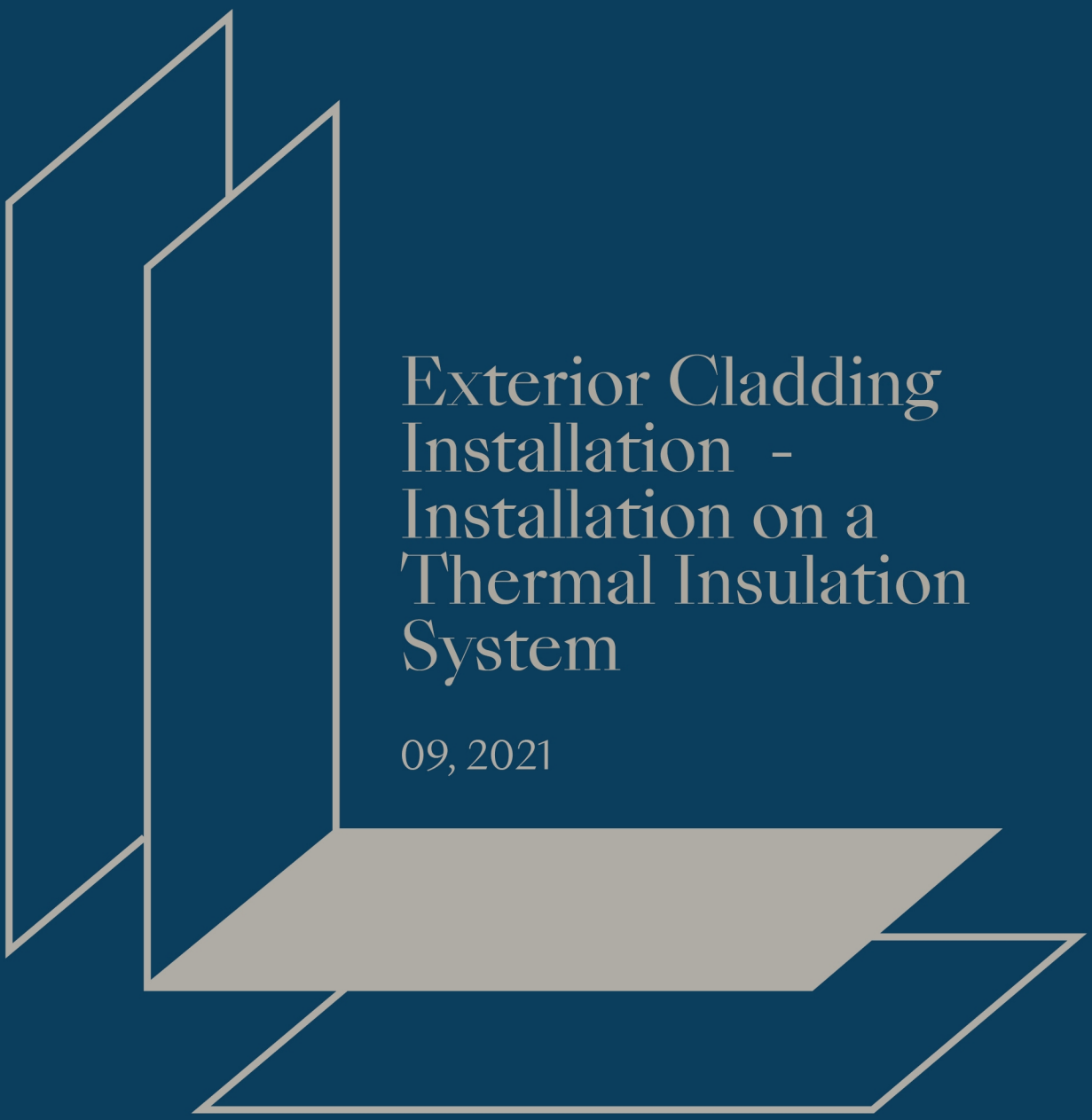


Exterior Cladding Installation - Installation on a Thermal Insulation System

09, 2021

LAMINAM
SUPERIOR NATURAL SURFACES

Contents

Laminam Spa produces and provides porcelain stoneware slabs for the construction of external cladding. The Project Engineer of Laminam SpA provides technical assistance for a correct installation.

For more information, refer to the Technical Guide for cladding & flooring which can be downloaded from the website www.laminam.com

1. The product

Laminam slabs are made with advanced technologies that combine reduced thicknesses and large dimensions with high resistance to mechanical stress, chemicals, wear, scratches and deep abrasions. By nature, the material is hygienic and resistant to frost, mildew and the effects of UV rays. All characteristics and chromatic properties of our slabs are inalterable. They do not change over time or under any weather conditions. These revolutionary slabs are also environmentally friendly: natural raw materials, sustainable technology, and entirely recyclable products are the foundation of Laminam's green philosophy.

Laminam 3+

Features: Laminam 3+ is the basic slab reinforced structurally with a fiberglass blanket bonded on the back with a specific adhesive.
Processubg surface: 1000x3000mm (39.4"x118.1")
Nominal thickness: 3,5mm (1/8")

Laminam 5

Features: Laminam 5 is the basic slab.
Processing surface: 1000x3000mm (39.4"x118.1")
Nominal thickness: 5,6mm (¼")

Laminam 5+

Features: Laminam 5+ is the basic slab reinforced structurally with a fiberglass blanket bonded on the back with a specific adhesive.
Processing surface:
1200x3000mm (47.2"x 118.1") / 1620x3240mm (63.7"x 127.5")
Nominal thickness: 6mm (¼")

To install exterior cladding, it is possible to use the Laminam 3+ and Laminam 5/5+ slabs.
To choose the right slab, we advise you to consider sun exposure, the geographic position and colour of the slabs (dark colours and black tend to attract more heat which results in higher thermal expansion).
The choice of the size to use on the facade must be carefully evaluated to allow the operator to install it correctly (handling, double spreading, bonding and hammering) depending on the wall height and the building site equipment (scaffolding, cranes, lifts).

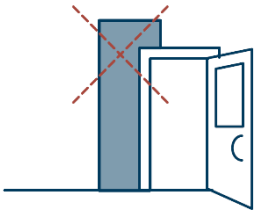
2. Design and installation guidelines

For correct design and subsequent installation, we suggest considering the following aspects:

Choice of size: it is important to assess the building site logistics because installing large format slabs requires adequate space for handling and installation;

Installation scheme: due to their planarity, Laminam slabs can be installed following any scheme, even if they are offset by 50%;

It is necessary to prepare gaps and expansion joints to fit the installation, as indicated in later chapters;



We suggest avoiding “L” shaped cuts, if possible, and cladding those portions with regular non-standard sizes of slab. In these points, in fact, the screeds and plaster transmit stresses and settling of the building over time that can cause crazing to form in the material, which would already be weakened by the irregular cut. Crazing cannot be considered as defect in the material;

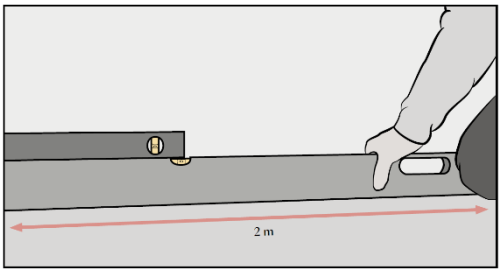
Order of the material: since these are large-sized slabs, check the installation scheme to see the quantity of material necessary for the wall cladding or the floor. Plan to have extra material on hand in case of breakage during processing or for future needs.

The indications provided in the following guide reflect provisions set forth by regulation UNI EN 11493 “Flooring and Wall Ceramic Tilings – Instruction for the design, installation and maintenance of ceramic tilings” and Laminam’s experience. The designer is responsible for verifying conformity and feasibility of the project, with regard to current laws and regulations in the country where the work will be performed.

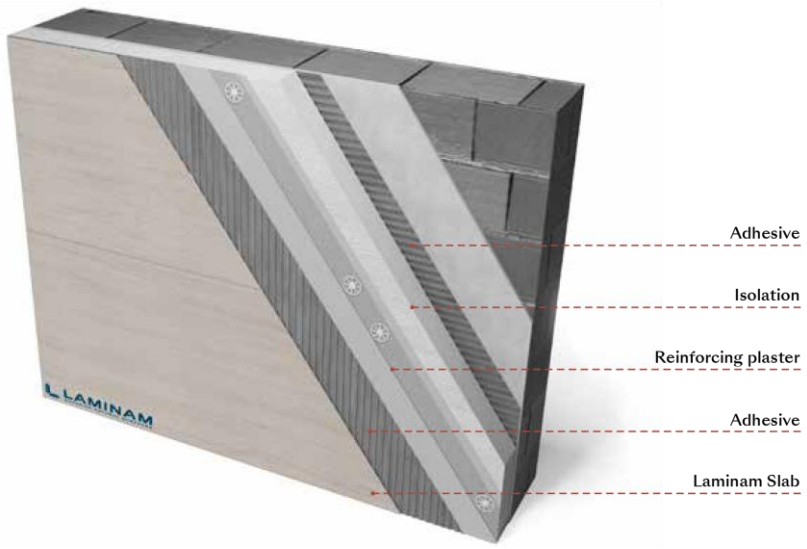
3. Laying Laminam cladding

3.1. Characteristics of the substrate

For correct installation of Laminam slabs, the substrate must comply with the following requirements at the time of installation, indicated in the reference standard UNI 11493-1. If these requirements are not satisfied, it is better to restore them.

Curing	The substrate must be stable and completely cured.
Integrity	The substrate must be complete, free from cracks at the time of installation and also from detached parts.
Strength	The substrate must have a surface resistance that prevents it from showing failures that could result in detachments of elements. At any rate, it is good to verify that the substrate is compact and, if subjected to loads and stress, resistant in the depth of its thickness to bending and compression.
Rigidity	The substrate must be rigid. Based on working loads, its bending deformation values must be within the reference limit.
Planarity	Regardless of the type of substrate, planarity is checked with a method defined in ISO 7976/1 1989, with 2 m long screed: setting the straight edge in all directions, the permissible tolerance is 3 mm. If the substrate is not planar on most of the surface where the slab is to be installed, it must be levelled off or rectified with suitable products. For isolated problems of planarity, correct the spaces by removing or abrading excess parts and filling valleys, also with the same adhesive that will be used at a later time for installing the slabs. 
Surface Finish	The surface finish of a substrate can affect the attachment of adhesive to the substrate. A smooth surface is not favourable. Abrade the surface mechanically to render it rough. In all cases, before performing any type of work on the substrate, it is necessary to carry out all the actions which will guarantee the adhesion of the materials used with the existing substrate.
Humidity	The surface of the substrate must be completely dry to prevent the risk of efflorescence.
Presence of Contaminants	Contaminants (such as cement residue, disarming oils, paints, etc.) must be eliminated with specific systems that will render the laying surface perfectly suited for applying the adhesive.

3.2. Installation on a thermal insulation system



Generally speaking, it is not possible to install ceramic cladding on traditional insulation systems because of the expansion differences between the two materials (stoneware and insulation). For this reason, before thinking about installing an application of this type, it is necessary to verify that the insulation system has been declared by the manufacturer to be suitable as a substrate for cladding. If so, all instructions from the manufacturer must be followed with regard to sizes and colours (medium to light colours are usually allowed, identified by a reflectance index available for all Laminam finishes), gap dimension and frequency, maximum cladding height, etc. If they are not available on the market, or if the designer decides to not use a complete package, it is possible to build an insulation system by applying reinforced plaster on the insulation. Generally, a galvanised mesh for plaster mechanically anchored to the substrate wall is normally fastened to the insulation and covered in a layer at least 15/20mm thick of structural plaster. This type of application must be approved by the plaster producer and the installer based on their experience in the sector. The installer must also set possible limits on the sizes and colours of the material which can be applied.

Laminam suggests using nonstandard sizes such as 1000x1000mm, 500x1500mm with a reflectance index above 20%.

3.3. Adhesive and laying

Installation should be done with C2S2 cementitious adhesives applied with a full spread technique and taking care to now leave empty spaces and air pockets between the slab and the substrate.

A minimum gap of 5 mm is advisable, filled with cementitious filler, epoxy filler or silicone.

Always match the structural joints of the building and install expansion joints in the ceramic cladding every 9 m^2, with the longest side not exceeding 4 m. Expansion joints must be sealed with silicone.

When the cladding has been installed, adopt all the necessary devices to prevent water infiltrations between the slabs and the substrate (installation of top elements, flashings, etc.).

To complete the exterior cladding, and before removing the lifting systems used to install the slabs, it is crucial to clean the surfaces correctly to eliminate all the residue of the building site activities.

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of our own
spaces,
seeking
uniqueness.

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