INSTALLATION INSTRUCTIONS

FOR CERETHERM ETICS SYSTEMS

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Introduction

The effectiveness of a building's insulation system depends on proper design, developed in collaboration with the architect and designer. The main contractor, site manager and contractor should read this manual and the contractor should additionally read in detail the technical data sheets (TDS) of the products used. In addition, national building regulations, standards and good workmanship practices should be observed.

The selection of a suitable Ceresit Ceretherm system should take into account the location of the building - e.g. the risk of dust, biological contamination, the presence of tall vegetation, urban or coastal areas - and the economic viability. The better the properties of the materials, the greater the resistance to external factors, the longer the durability and the better the aesthetic effect of the ETICS system.

The choice of façade colours should take into account the physical properties - dark shades heat up more than light ones.

It is the contractor's responsibility to check the technical condition of the substrate and the structural conditions. If there is any doubt about the work description or other data, consult a Henkel technical representative and obtain written confirmation of the proposed solutions.

The technical condition of the substrate (i.e. the façade to be insulated) must be checked before work begins, with particular attention paid to the load-bearing capacity, moisture content and evenness of the surface.

Permissible surface deviations for ETICS systems:

- Deviation of the render surface from the plane and straight line: not more than 3 mm in a maximum of 3 places when checked with a 2 m patch.

- Deviation from vertical and edge: no more than 10 mm at storey level and generally no more than 30 mm over the entire height of the building.

Conditions for starting insulation work:

- The roof and windows are fitted.

- Insulation work on foundations, balconies and terraces is completed.

- Adjacent surfaces that will not be insulated are protected.

- Wet works inside the building have been completed.

- Wall moisture content ≤ 6%.

- All flashings and horizontal surfaces of parapets, attics and other structural elements are installed.

Work stages in the Ceretherm system:

1. preparatory work

2. Collection of materials and equipment

3. Installation of scaffolding and protective covers (nets, sheeting)

4. Removal of existing flashings and sills

5. substrate preparation

6. installation of insulation boards

7. application of basecoat with glass fibre mesh

8. rendering of facade, painting of facade

9. Installation of new flashings and window sills

10. dismantling of scaffolding and cleaning of the area around the building

Building plinth insulation

Preparation

The building plinth must be properly insulated and damp-proofed before any wall insulation work begins. In the case of a new building, insulation of the plinth is carried out during construction. In older buildings, this often requires exposing the foundation by excavating it. In this case, a specialist should be consulted for a safety assessment.

Wall levelling

Foundation walls should be levelled before damp proofing. Ceresit CT 29 mortar is used to level mineral substrates, applied in layers of up to 10 mm to the primed substrate. For spot repairs, layers of up to 50 mm can be applied, but the total thickness should not exceed this value. For larger irregularities, additional levelling with concrete is recommended.

- The outside sharp corners should be rounded (r ≥ 3 cm).

- Fill the internal corners with Ceresit CX mortar, creating a concave surface (r ≥ 4 cm).

Bitumen coating

For very porous and uneven surfaces where membranes cannot be used, Ceresit solvent-free fibre-reinforced waterproofing compound CP 43 is recommended. The substrate should be previously cleaned and primed with Ceresit CP 41. After 24 hours, layers of CP 43 can be applied.

For stone walls that are cracked or exposed to pressurised water, the insulation should be carried out in two layers, with glass fibre mesh in the first layer (with an overlap of approx. 10 cm). In addition, the use of Ceresit BT 21 self-adhesive waterproofing membrane is recommended in cracked areas.

Bitumen membranes

Walls of new buildings and foundations with a uniform surface can be covered with Ceresit BT 21 membranes. Before bonding, the surface should be cleaned and primed with BT 26. After the primer has dried and cured, the adhesion should be tested - if more than 30% of the layer peels off when tested, wait a few hours and repeat the test.

The membrane is glued vertically, from top to bottom, starting from the corners, which are reinforced with 30 cm wide strips. Once the membrane has been glued, it should be smoothed with a rubber roller, paying particular attention to overlaps (min. 8 cm).

Mineral waterproofing

Ceresit mineral waterproofing compounds CR 65 or CR 90 can be used for straight foundation walls. For waterproofing on the pressure side (external), CR 65 or CR 90 is used. For waterproofing on the opposite side (internal) or for substrates that require flexibility, CR 90 with crystallising effect is used.

- It is applied to a matt damp (not wet) substrate.
- Recommended substrates: concrete class B15 (min. 3 months), cement and cement-lime plaster (min.10 mm), cement surfaces (min. 12 MPa, min. 28 days).

Manual application: first coat with brush, second coat crosswise. The interval between coats should not exceed 12 hours. Ceresit CL 152 tape should be used at expansion joints.

Foundation insulation

Insulation materials

Boards are used to insulate the foundations:

- EPS HD (high-density expanded polystyrene),
- XPS (extruded polystyrene),

- PIR/PUR (polyisocyanurate/polyurethane).

The choice of adhesive depends on the type of waterproofing:

- Mineral waterproofing: Ceresit CT 84 or CT 85 or other cementitious adhesive component of the system according to ETA.
- Bitumen waterproofing: Ceresit CP 43 or CT 84.

CT 84 is supplied in pressurised containers and applied with a PU foam gun.

Important installation notes

- Do not seal the perimeter of the insulation boards (do not make a so-called frame) - this allows any condensation to drain between the waterproofing and the board.
- Cementitious adhesive is applied in the form of patches.
- PU adhesive is applied in vertical strips.

Protective and finishing layers

- The underground part of the insulation boards should be covered with a drainage layer.
- The above-ground part is reinforced with Ceresit CT 85, CT 87 or CT 100 mortar.
- The use of two layers of reinforcing mesh is recommended - using the wet-on-wet method.

When using CT 100:

1. First, reinforcing mesh CT 327 is embedded into the mortar.
2. This is followed by a standard reinforcing mesh.
3. The whole is covered with an additional layer of mortar (e.g. CT 100).

Plinth finish

The basecoat can be finished with:

- clinker tiles (Ceretherm Ceramic system),
- Ceresit CT 77, CT 79 render,
- Visage products.

The Impactum system (CT 100 + CT 79) provides impact resistance of up to 100 J.

Fire protection recommendations for ETICS systems

Purpose of fire precautions

ETICS insulation systems, especially those based on EPS (expanded polystyrene) boards, require additional fire protection to limit the vertical and horizontal spread of fire. These protections aim to:

- Protection of window and door areas.
- Reducing the 'chimney' effect in the gaps between boards.
- Increasing the fire resistance of the façade.

Mineral wool fire protection strips

Location of lanes

According to manufacturers' recommendations, mineral wool strips should be used in the following locations:

- Above each row of windows - at least 30 cm high.
- Along the top edge of the façade - under the eaves or ceiling.
- In expansion zones - to break the continuity of combustible material.
- In the corner areas of the building - for tall buildings(>25 m).

Belt dimensions

- Minimum belt height: 200 mm.
- Thickness: in accordance with the thickness of the insulation at the site.
- Length: the strip should be continuous over the entire width of the façade.

Material wool

- Mineral wool lamella or board of reaction to fire class A1.
- Density: min. 90-120 kg/m³.
- The boards must be heat resistant and not emit toxic gases.

Assembly

- Mineral wool strips should be glued to the entire surface of the substrate..
- Mandatory fixing - min. 6 pcs./m², taking into account the edge zone.
- The strips must fit tightly between adjacent EPS boards - no gaps.

- A standard basecoat with fibreglass mesh is used on the strips.

Additional protection measures

- Window and corner profiles should be made of non-combustible materials (e.g. aluminium).
- Facade renders with improved fire resistance (e.g. silicate, silicone render).
- Avoid continuity of combustible materials vertically - use of wool barriers.

Documentation and compliance

- All components of the system must have a European Technical Assessment (ETA) including fire classification.
- Insulation design should take into account local fire regulations.
- It is recommended that a fire protection expert be consulted when designing ETICS for multi-storey buildings.

Substrate preparation

Assessment of existing ground

Before starting insulation work, the quality of the existing substrate should be carefully checked. It should be:

- load-bearing,
- compact,
- dry,
- free from substances that impair adhesion (e.g. grease, bitumen, dust).

Methods for checking bearing capacity:

- Pull-off method: required pull-off strength ≥ 0.08 MPa.
- Styrofoam method: glue a 10×10x10 cm polystyrene cube with a thin layer of adhesive (≤1 cm). After 3 days, tear off the cube by hand. The break-off should be entirely in the polystyrene.

If the break-off is in the substrate layer or at the interface with the adhesive, all poorly bonded parts of the substrate should be removed and primed, e.g. Ceresit CT 17

Cleaning the substrate

- Dirt and weak layers are removed with a strong jet of water or mechanically (scraping, tapping, grinding).
- Algae and moss infested areas should be cleaned with a steel brush and treated with Ceresit CT 99.
- The adhesion of the existing render is checked by tapping with a hammer - a deafening sound means the render must be removed.

Priming of absorbent surfaces

- Absorbent substrates (e.g. aerated concrete) are primed with Ceresit CT 17.
- Drying time: approx. 2-4 hours.
- The primer prevents the adhesive mortar from drying too quickly, allowing it to set fully and correctly.

Assessment of ground geometry

Before installing the system, the evenness of the surface must be checked. Depending on the degree of unevenness, a suitable installation method is selected to ensure the durability and aesthetics of the façade.

Ground levelling

- Unevennesses of up to 1 cm can be levelled out with a layer of adhesive mortar.
- Larger cavities (up to 2 cm) should be filled with mortar in two layers.
- Protruding parts should be removed.
- Unevenness above 2 cm is levelled out with insulation boards of different thicknesses (do not reduce the thickness below the design value).

Installation of base profile

Fastening of base profile

The lower edge of the building's insulation is protected with metal or plastic base profile. The horizontally aligned profile simplifies the installation of insulation boards over the entire wall surface, protects the insulation from rodents and marks the aesthetic lower edge of the insulation system.

- The profile should be fixed at least 30 cm above ground level.
- Maximum fastener ("pin") spacing: 50 cm.

Fastening profiels to uneven surfaces

If the substrate is uneven, use spacer wedges to prevent the base profile from bending.
Note: The base profile must be installed perfectly horizontal and straight.

Fastening beads in the corners of the building

In the external corners, special care must be taken to ensure that the beads are cut and fitted precisely. It is advisable to install the profile in such a way that the vertical outer section is not interrupted - this ensures continuity of lines and an aesthetically pleasing finish of the façade edges.

Installation of insulation boards

Selection of adhesive mortar

The choice of adhesive mortar depends on the type of Ceretherm system and the conditions on site. The adhesive mortar must be part of the system according to the National or European Technical Assessment.

Mixing cement mortar

- Pour the contents of the package into a measured quantity of clean water.
- Mix with a mechanical mixer until a homogeneous mass without lumps is obtained.
- Set aside for 3-5 minutes and then mix again.
- Add a small amount of water if necessary.
- Shelf life: 1.5-2 hours.
- Do not add water to hardening mortar! Such mortar should be disposed of.

Application of the first layer of mortar to mineral wool boards

To improve the adhesion between the wool and the adhesive mortar, a thin layer of the prepared mixture should be rubbed into the surface of the board immediately before the mortar is applied. This step can be skipped in the case of pre-primed boards.

Application of mortar to insulation boards

- The finished mortar is applied with a trowel in a 3-4 cm wide strip along the edge of the board and in several patches with a diameter of approx. 8 cm in the centre.
- If the substrate is level, the adhesive mortar can be applied all over the insulation board using a notched trowel (trowel size 10-12 mm).
- For large areas, the use of mortar spraying equipment is recommended.

Note: Correct application of mortar to the edges of the boards is crucial for fire safety - it prevents the formation of a chimney draft between the insulation boards and the substrate.

PU adhesive for EPS/XPS boards

- Special Ceresit CT 84 polyurethane adhesive can be used to install EPS or XPS boards.
- Particularly suitable for smooth substrates with unevenness differences of up to 20 mm.
- The XPS boards should be rubbed down with a grater or sandpaper before installation.
- CT 84 adhesive should be at room temperature (for this purpose, store the containers in a warm room for about 12 h before use).
- Application on walls: strip along the edges and one strip through the middle.
- Application in the plinth and underground zone: 4-5 vertical strips.
- After 2 hours, sanding, dowelling and reinforcement can be carried out.

Bonding of PIR/PUR boards

- Ceresit CT 85 cement mortar, applied with a notched trowel (12-20 mm), is used for PIR/PUR boards.
- To avoid air movement behind the boards, a thin layer of mortar should also be applied to the wall.
- Alternatively, PU adhesive CT 84 (described above) can be used.

Installation of insulation boards

- Installation begins at the corners of the building and around windows and doors.
- Once the mortar has been applied, the board is pressed against the wall by tapping with a long trowel.
- The boards are laid tightly, from bottom to top, in a so-called passing pattern (like bricks).
- Only whole boards are used in the corners.
- The boards must not overlap expansion gaps in the structure - the expansion gap must be duplicated in all layers of the insulation system and sealed accordingly, e.g. by installing an expansion profile.
- The vertical joints between the boards must be at least 10 cm from the expansion joint.

Installation of boards around windows and doors

Installation of insulation boards around windows

To prevent cracks in the basecoat and render, insulation boards must not meet directly at the edges of window and door openings. Whole boards with an L-shaped cut-out should be used at the corners of windows and doors.

Additional guidance:

- Once the boards have been glued in place, the edges should be cleaned of any excess mortar.
- Adhesive residues can cause thermal bridges and cracks in the finishing layer.
- In the case of deep-set windows, the sides of the reveals and the sill should be additionally insulated.
- Ceresit CR 166 waterproofing is recommended under the sills to protect the façade from leaks.

Filling joints between boards and dowelling

Filling gaps between insulation boards

- The boards should be installed to avoid gaps.
- However, if they arise:
    - Gaps > 20 mm: fill with insulation material (e.g. PU foam or mineral wool).
    - Gaps < 20 mm: can be filled with Ceresit CT 84 low expansion polyurethane foam.

Note: All gaps must be filled to prevent thermal bridges.

Levelling the board surface

- After the adhesive mortar has dried (after 2-3 days on average):
    - Trim protruding board edges and excess foam.
    - Level the surface with a sandpaper trowel or special grater.
    - Replace damaged sections of the boards.
    - Clean the surface of loose particles.

Additional board fixing with dowels

Additional fixing should be part of the facade insulation design. The type of dowels, their number and positioning are selected by the architect on the basis of calculations taking into account, among other things, the size of the building, its exposure, terrain conditions and wind load zone.

Dowels installation

Method 1: Dowels with a threaded washer (e.g. Ecotwist)

- Special dowels with a disc-shaped washer are used, which screw directly into the polystyrene foam.
- They provide good anchorage without having to deepen the hole.

Method 2: Countersank instalation

- To minimise the formation of thermal bridges:
    - A 2 cm deep cavity is made in the insulation board.
    - The dowel is installed so that its disc is below the surface of the board.
    - The cavity is covered with a disc of insulating material.

Method 3: Surface instlation

- The dowel is installed so that its washer is flush with the surface of the board.
- If the dowel is set too deep and covered with mortar, discolouration can occur in these areas in cold weather.

Preparation for installation of window sills

Once the insulation boards have been installed and aligned, the space must be prepared for installation:

- sills,
- blinds,
- other window and door frame components.

Principles:

- Insulation boards should be cut appropriately to fit the shape of the sills and trim.
- It is particularly important to seal the junction between the frame and the sill plate.

- It is recommended that the sheeting is set on a reinforced and rendered substrate and sealed with Ceresit FT 101 or CS 51 flexible polyurethane sealant.

Basecoat - preparation and installation

Levelling the surface of insulation boards

- EPS boards exposed to UV radiation for more than 14 days should be sanded to remove the damaged layer.
- Boards with added graphite ('grey') and uncoated PIR/PUR boards should also be sanded before further work is carried out.

Preparation of the basecoat mortar

- For the fixing of the reinforcing mesh, the following are used:
    - ZU - Ceretherm Popular system
    - CT 87 - Ceretherm Premium system
    - CT 100 - Ceretherm Impactum system
    - CT 85 / CT 85 Winter - Classic and Ceramic systems
    - CT 190 / CT 190 Winter - Wool systems
- CT 100 is a ready-mix impact-resistant mortar - no mixing with water is required.
- During drying, protect the layer from wind and excessive drying.

Application of mortar to mineral wool

- To improve the adhesion between the mineral wool boards and the basecoat:
    - Rub a thin layer of CT 190, CT 87 or CT 80 into the surface of the board.
    - Then apply a basecoat.

Installation of window profiles

- The profiles are installed along the joint between the insulation and the window or door frame.
- They seal the joint between the basecoat with the render and the wall structure.
- The profiles have self-adhesive strips on elastic foam or rubber with which they are fixed to the window or door frame. The foam or rubber ensures a tight connection.
- Some profiles have a protective film - this should be removed before installation.

Corner protection

- External corners and edges of window and door openings are protected with corner profiles made of PVC, aluminium or stainless steel.
- The most convenient are ready-made mesh profiles that automatically create an overlap of the reinforcing mesh.

Additional reinforcement of corners of window and door openings

- All corners of window and door openings must be reinforced with additional strips of fibreglass mesh.
- Minimum strip size: 35 × 20 cm.
- The mesh should be fixed at an angle to the corner to prevent diagonal cracks.

Protection of expansion joints

- Expansion joints in the building are secured with a special expansion joint profile.
- The profile is fitted into the basecoat, providing a flexible and durable bond.

Additional reinforcement of ground floor walls

- For all systems (except Ceretherm Ceramic), an additional layer of mesh is recommended on the ground floor walls.
- Height of additional reinforcement: minimum 2 m above ground level.
- The aim is to increase the mechanical resistance of the façade to accidental impacts and vandalism.

Application of mortar and reinforcing mesh

1. A strip of mortar approximately 1.1 m wide is applied to the surface of the boards, starting from the top.
2. A notched trowel with 10-12 mm teeth is used.
3. A cut reinforcing mesh is applied to the fresh mortar.
4. The mesh is pressed down with a long steel trowel, smoothing the mortar through the mesh.
5. The mesh should be no deeper than the middle of the mortar layer.
6. Smoothing direction: from the centre of the mesh solid towards its edges.
7. The mesh must not be visible once the surface has been levelled.
8. The mesh blocks must overlap by approx. 10 cm.

Important notes

- It is not permissible to lay fibreglass mesh directly on the insulation boards and cover it with the mortar. This leads to weakened adhesion and cracking of the top layers of the insulation system.
- To check the correct installation, pull back the mesh slightly - if it has been fixed correctly, the substrate will be evenly covered with mortar.

Mechanical application

- Mortars CT 85, CT 190, CT 87 can be applied mechanically, e.g. using a Wagner Plast Max pump with nozzle No. 14.

Additional fastening of the mesh with mechanical fasteners

- In Ceretherm Ceramic systems, the reinforcing mesh is additionally mechanically fixed.
- Metal core dowels are driven through the freshly applied layer of reinforcing mortar.
- The anchorage depth of the dowels must be in accordance with the technical assessment of the anchors.
- Number of dowels: min. 8 pcs./m².

Installation of additional basecoat layer

- In the Impactum system:
    - The CT 327 grid is embedded first.
    - The usual reinforcing mesh is then applied.
    - The whole is covered with an additional layer of mortar (approx. 2 mm).
- The wet-on-wet method is always used.
- The reinforcing mesh must not be visible after the final coat has been applied.

Edge shaping

- The edges of the building and the reveals are most easily formed with a corner trowel.

Removal of minor irregularities

- The next day after applying the basecoat (when it is not yet fully cured):
    - Trowel marks can be sanded off.
    - Minor cavities can be filled with mortar.

Application of facade render

Priming

- Priming can be started when the basecoat has dried completely (usually after 3 days).
- Use:
    - Ceresit CT 15 - for the silicate render,
    - Ceresit CT 16 - for other renders.
- The primer is applied with a brush or roller in one even layer.
- Drying time: approx. 3 hours.
- For intense colours, a primer similar in colour to the render is recommended.
- Note: not applicable to Ceretherm Premium (CT 87), Impactum and Ceramic systems.

Preparation of mineral render

- Pour the contents of the packet into a measured quantity of clean, cold water.
- Mix with a mixer until a homogeneous mass is obtained.

Preparation of ready to use renders

- Acrylic, silicate, silicone, silicate-silicone, elastomeric and mosaic renders are ready for use.
- They only need to be mixed thoroughly before use.
- Check the shade on an invisible surface of the façade before application.

Application of a thin-coat render

- The render is applied with a long steel trowel at an angle to the thickness of the guide grain.
- Excess material is removed with long, even trowel.
- Renders with a stone structure (e.g. CT 60, CT 72, CT 74, CT 174, CT 79) can be applied by machine. For spraying, for example, a Wagner PC 35 unit with nozzle 12 or 14 is used.

Troweling the thin-coat render

- Troweling is done by rubbing a long trowel flat on the surface until the desired texture is achieved.
- In the case of rustic render (''woodworm''), different patterns can be achieved: vertical (''rain''), horizontal or circular - depending on the direction of the trowel movement.

Mixing renders in different colours

- It requires precision and more time.
- Masking tape is applied along the designated line.
- The render is applied and smoothed with a trowel.
- When the work is complete, the tape is removed together with the excess material.
- Once the render has dried, its edge is secured with new tape and another colour is applied.

Working break

- Interrupted rendering can result in differences in shade, this is particularly true of silicate plasters.
- If a break is unavoidable:
    - Finish the work in a less conspicuous place (e.g. at the edge, behind a drainpipe, near a parapet).
    - Mark the line with tape, apply render and smooth.
    - Remove tape with excess render.
    - Once dry, secure the edge and continue working.

Avoiding shade differences between batches

- Products from one batch should be used on one wall.
- If this is not possible, the 3 bucket method is used:
    1. Use up half of the last bucket from the previous batch.
    2. Add half the new bucket, mix and use half.
    3. Add the other half of the new bucket, mix and use half.
    4. Repeat with the next bucket until the entire new batch is used up.

Closing of expansion joints

- Once the render has dried, the expansion joints should be filled with a flexible material.
- Depending on the width of the gap:
    - < 35 mm - an expansion joint profile or polyurethane sealant is used.

- > 35 mm - Ceresit FT 101 Flextec sealant is used together with a flexible foam cord (e.g. PE or PP).

Finishing render painting

- The dried mineral render can be painted with Ceresit facade paint.
- In the case of intensive colours and in unfavourable conditions (temperature below +10°C or humidity above 80%), the render should be primed with Ceresit CT 17 before painting with facade paint.
- Two coats of paint with a brush or roller are recommended.
- The ready-mixed render can be tinted at the factory, but if it needs to be painted:
    - Proceed as with mineral renders.
    - For spray painting recommended equipment: Wagner PS-3.23, PS-3.25, PS-3.29, PS-3.31, PS-3.34, PS-3.39, HC-950, HC-970, SuperFinish-23plus: SF-27, SF-31.
    - Nozzle: 0.017-0.0123 in.

Application of mosaic and decorative plasters Visage

- Plinths exposed to dirt or contact with water should be covered with a mosaic render such as Ceresit CT 77.
- After priming the surface with Ceresit CT 16, the render is applied and smoothed with a long metal trowel.
- For decorative plasters in the Visage range, follow the installation instructions on the product data sheet (TDS).

Installation of ceramic tiles

Preparation of the adhesive mortar

- Ceresit CM 17 or CM 90 adhesive mortar should be used for bonding ceramic tiles.
- Pour the contents of the pack into a measured quantity of clean water and stir with a mixer.
- The finished mixture should be homogeneous, without lumps.

Tiles

- Use pressed or pultruded, frost-resistant ceramic tiles complying with EN 14411:2013:
    - Absorbability: up to 10%

    - Unit weight: max 50 kg/m²
    - Surface area: max 0.36 m²
    - Thickness: 5-20 mm
- Acceptable grades: Ala, Alb, BIa, Blb
- Frost-resistant natural stone boards complying with EN 1469:2005 can also be used.

Bonding tiles and filling joints

- The tiles can be installed after the basecoat has dried (usually after 3-5 days).
- Ceresit CM 17 adhesive mortar is applied with a notched trowel suitable for the size of the tile.
- Recommended method: buttering-floating method - mortar on the tile and on the substrate.
- Minimum adhesive layer thickness: 4 mm.
- Recommended trowel size: 4 mm for tiles, 6 mm for wall.
- Minimum joint width between façade tiles: 6 mm.
- Once the tiles have been laid, remove any excess mortar from the joints.
- For grouting use:
    - Ceresit CE 43, CE 40 or CT 32

Filling of expansion joints

- Once the mortar has set, the expansion joints are filled with a flexible sealant:
    - Ceresit FT 101 or Makroflex Fusion.
- Secure the edges of the tiles with masking tape.
- Apply the sealant by hand or with an electric gun.
- The joints should be filled without gaps, leaving no voids.
- After 5 minutes, spray with soapy water and smooth with a wet brush.
- Remove excess sealant immediately.

Technical solutions

Avoiding thermal bridges and leaks on horizontal surfaces

- Horizontal surfaces in contact with walls (e.g. terraces, roofs, balconies) are particularly vulnerable:
    - the formation of thermal bridges,
    - water leaks.

Terraces and balconies:

- The most critical area is the horizontal board.
- In the case of balconies, both the structural and sloping boards must be insulated.
- In the case of a sloping board (e.g. slope) with insulation underneath - ensure continuity of insulation between the wall and the board.
- If the terrace is above a heated room:
    - insulate the front edge and top surface of the board.
- In the case of a terrace on the ground:
    - the bottom side of the board should also be insulated and sealed.

Recommendation:
Seal the surfaces of balconies and terraces with Ceresit CR 166 and then continue with the tiling. This will make the façade durable and easy to clean.

Insulation of the connection to the roof

- Roof joints are particularly vulnerable areas:
    - thermal bridges,
    - water leaks.
- The specifics of the roof type must be taken into account:

Pitched roof:

- The insulation should be extended behind the windbreak so that it covers the edge of the insulation under the roof.

Flat roof:

- The insulation must extend all the way to the edge flashing.

- Flashing should:
    - project beyond the wall,
    - have a drip profile to prevent water from running off the façade.
- The inner corner of the façade connection to the flashing should be additionally sealed with Ceresit FT 101 or Makroflex Fusion.

Additional requirements - maintenance and use of Ceresit facades

Conditions for carrying out the work

- Insulation work should be carried out in dry conditions (no rain, relative humidity below 80%).
- Surfaces should be protected from:
    - direct sunlight,
    - rain,
    - strong winds.
- Air temperature: +5°C to +25°C.
- Scaffolding should be sheltered and covered.

Ceresit CT 240 and CT 280 winter additives

- Use when the temperature falls below +10°C.
- CT 240 - for ready-to-use render and paint (e.g. CT 60, CT 74, CT 79, CT 48).
- CT 280 - for adhesive and basecoat mortars (e.g. CT 83, CT 180, CT 137).
- Dosage:
    - 1:1 for renders (1 bottle per 1 bucket),
    - 1:2 for paints and primers,
    - 1:1 per 25 kg of dry mortar.

Do not use winter additives for silicate plasters and paints.

Rules for working in cold conditions

- Mortars with winter additives must dry for at least 8 hours at temperatures above 0°C.

- Use heating under scaffolding covers where necessary.
- Do not direct hot air directly at the wall - this can interfere with the setting of the mortar.

Ecological recommendations and waste disposal

General principles

ETICS systems should be designed and constructed with sustainability in mind. The in-charge management of building materials and the proper disposal of waste have a significant impact on the environment and human health.

Minimisation of waste

- Careful planning of the quantities of materials (insulation, mortar, render) helps to limit surpluses.
- Cutting the insulation boards should be done with precision to minimise waste.
- Use leftover mortar and render as part of the current work - do not allow it to harden without use.

Waste segregation

During the works, waste should be segregated according to local regulations. Typical fractions are:

- Mineral waste (e.g. mortar and plaster residues) - waste code 17 01 01 or 17 09 04.
- Plastic waste (e.g. PU foam, film packaging) - code 15 01 02.
- Hazardous waste (e.g. used chemical packaging) - code 15 01 10.
- Insulation waste (e.g. EPS, XPS, mineral wool) - code 17 06 04 or 17 06 03.

Disposal and recycling

- EPS and XPS boards can be mechanically or energetically recycled.
- Mineral wool should be sent to specialised recycling facilities.
- Mortar and plaster packaging (paper bags, plastic buckets) should be emptied and recycled.
- Construction waste must not be incinerated on site or disposed of in municipal waste.

Transport and storage

- Materials must be stored in such a way that they are protected from damage and environmental contamination (e.g. under cover, on pallets).

- Chemicals (e.g. primers, adhesives) should not be allowed to leak into the ground or into drains.

Environmental documentation

- In the case of large developments, it is recommended that a waste transfer sheet and documentation confirming waste disposal is maintained.
- It is advisable to use products with Environmental Product Declarations (EPDs) and environmental labels (e.g. EU Ecolabel).

Facade maintenance

Reviews

- Recommended inspection of the façade once a year, preferably in April-May.
- Check:
    - cracks, cavities, mechanical damage,
    - lichens (algae, fungi),
    - dirt,
    - graffiti.

Mechanical damage

- Repair as soon as possible.
- Shallow cracks: clean and paint with CT 110, CT 48 or CT 54.
- Deeper damage: restore layers according to ETICS.

Lichens (algae, fungi)

- Wash with water, then apply Ceresit CT 99.
- Remove damaged layers to healthy substrate (at least 1 m around).

General soiling

- Clean Ceresit CT 98 (by hand or with a pressure washer).
- Washer nozzle: min. 50 cm from the wall, at an angle of 45°.

Graffiti

- We recommend contacting a company that specialises in spray paint removal.

Summary

- There is no universal maintenance manual for all façades.
- If in doubt - consult your Ceresit representative.
- Work should be carried out in accordance with:
    - technical data sheets (TDS),
    - building regulations,
    - health and safety rules.