



Second layer with Aerogel
Insulating-Plaster

The advantages of a second layer with Aerogel insulating-plaster



✓ Anchor bolt marks disappear

Aerogel insulating plaster completely covers over unsightly anchor bolt marks in the façade. Since the applied layer is only 3 cm thick (instead of 6 cm in the case of conventional insulation) the overall layer thicknesses is reduced.



✓ Improved thermal insulation

Applying even a thin layer of Aerogel insulating plaster of the existing render results in a considerable improvement in thermal insulation, thus adding value to the building being renovated. The layer thickness can be calculated and applied in a carefully controlled manner to give exactly the required U-value.

✓ No visible outlines of underlying panels

The application of aerogel insulating plaster results in a homogeneous layer through which traces of the underlying panel structure are not visible. The facade will not bow in or bulge out, as can occur with sheet insulation.

✓ Use of anchor bolts not necessary

Buildings undergoing renovation and improvement work often remain inhabited during the work. Fitting anchor bolts to secure panels is a noisy process which is made unnecessary when Aerogel insulating plaster is applied over existing render. Using Fixit 222 Aerogel Insulating Plaster means no anchor bolts are necessary.



✓ No surface condensation

The higher mass in weight as with conventional insulation and the absorbency properties of Aerogel insulating plaster reduce the humidity on the surface. This reduce the algae and fungal infestation on the façade and the maintenance.

✓ No hollow spaces between insulating layers

When applying render over existing insulating façades, adhesive must be applied to the whole of the joint surface, and hollow spaces cannot be entirely avoided. The dew point increases as a result of the application of additional insulation, but the capillary effect of the Aerogel insulating plaster transports humidity to the outdoors. The façade remains intact.

Preparation and evaluation of the situation

Substrate matrix

Substrate	Layer thickness < 5 cm	Layer thickness < 7 cm	Layer thickness ≥ 7 cm
EPS / Mineral wool	Fixit 439*	Fixit 439 + Welnet 3 cm	Fixit 439 + Welnet 5 cm
Embedded mesh	Fixit 462*	Welnet 3 cm	Welnet 5 cm
Finish coat	Fixit 462*	Welnet 3 cm	Welnet 5 cm

* = apply a 5 mm layer and roughen horizontally with a brush.

Fire block

Fire Safety Standard 1 – 15

Art2, §2 – Applicability

- 2 Existing buildings and structures must be modified appropriately to meet fire safety standards
 - a in the case of significant constructional or operational modifications, extensions or change of use.
 - b if the danger to persons is particularly high.

The decision as to whether fire blocks must be implemented or not is **ALWAYS** and **SOLELY** the responsibility of the competent authority.

Checklist for assessing substrate before applying a second layer with Fixit Aerogel insulating plaster

>> CHECK

Checklist for Evaluating Substrate Quality when Applying a second layer with Fixit Aerogel Insulating Plaster

Substanzverantwortl. (Name, Vor- und Nachname): _____

Termin: _____

Client: _____

Architect: _____

Company: _____

Objekt: _____

E-Mail-Adresse: _____

Bauwerksadresse: _____

Assessment of existing render

Is the base coat layer sufficiently strong (2 – 7 mm layer thickness)?

Yes No **Remove render completely down to insulation layer**

Is the reinforcement completely embedded in the base coat layer?

Yes No **Remove render completely down to insulation layer**

Is the adhesion of final render adequate (pull-off test)?

Yes No **Remove final render**

Is the final render water absorbent (swelling test)?

Yes No **precoat excessively absorbing surfaces with penetrating primer coat**

FIXIT

>> CHECK

Does the render surface show signs of bowing out (subsurface bubbles, hollows etc.)?

Yes No **cut open and level surface with Fixit 462 / 439**

Does the render surface show signs of algae or fungal attack?

Yes No **clean surface and apply Fixit 383 Facade Algicide**

Assessment of water drainage in the vicinity of the external insulation

Is the external render in contact with a water drainage surface?

Yes No **corrective work necessary**

Does rainwater drain away from the facade?

Yes No **corrective work to give an external drainage slope of 1.5% necessary**

Assessment of other shortcomings

Are obvious defects visible, with detachment of sheet material?

Yes No **cut away and replace detached sheets**

Are hidden defects such as insect or small animal infestation present?

Yes No **cut away and replace detached sheets**

Is the facade fixed in place with anchor bolts?

Yes No **before applying Fixit 462 or 439 the existing sheets of insulation must be fixed in place with impact anchor bolts. If Welnet is to be used no additional mounting of anchor bolts is required.**

Are the insulating sheets firmly bonded together?

Yes No **if the spaces between sheets are more than 2mm wide these must be closed with EPS wedges**

FIXIT



to the checklist

U-value Calculations using Fixit 222 Aerogel High-Performance Insulating Plaster

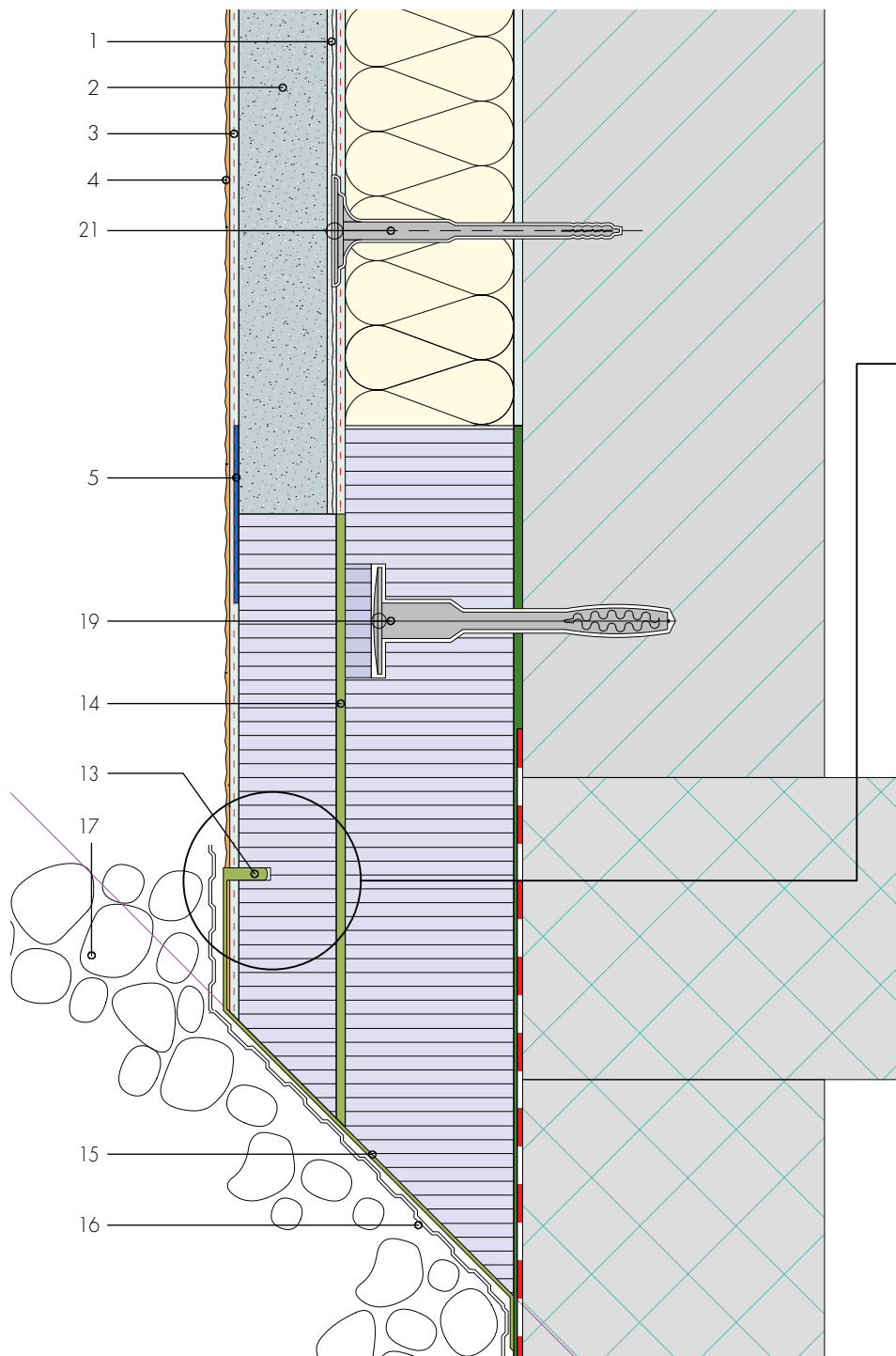
Standing building with standard 17.5 cm brickwork, EPS insulated, not monitored

		New U-value after a second layer	
		0, 25 W/m ² K	0, 20 W/m ² K
Current insulation thickness	Current U-value	Required second layer thickness of Fixit 222 Aerogel insulating plaster	
EPS 6 cm	0,53 W/m ² K	6,0 cm	8,5 cm
EPS 8 cm	0,43 W/m ² K	4,5 cm	7,5 cm
EPS 10 cm	0,36 W/m ² K	3,5 cm	6,5 cm
EPS 12 cm	0,31 W/m ² K	3,0 cm	5,0 cm
EPS 14 cm	0,27 W/m ² K	–	3,5 cm
EPS 16 cm	0,24 W/m ² K	–	3,0 cm

Standing building with standard 17.5 cm brickwork, mineral wool insulated, not monitored

		New U-value after a second layer	
		0, 25 W/m ² K	0, 20 W/m ² K
Current insulation thickness	Current U-value	Required second layer thickness of Fixit 222 Aerogel insulating plaster	
SW 6 cm	0,60 W/m ² K	6,5 cm	9,5 cm
SW 8 cm	0,50 W/m ² K	5,5 cm	8,5 cm
SW 10 cm	0,42 W/m ² K	4,5 cm	7,5 cm
SW 12 cm	0,36 W/m ² K	3,5 cm	6,5 cm
SW 14 cm	0,30 W/m ² K	3,0 cm	5,5 cm
SW 16 cm	0,28 W/m ² K	–	4,5 cm

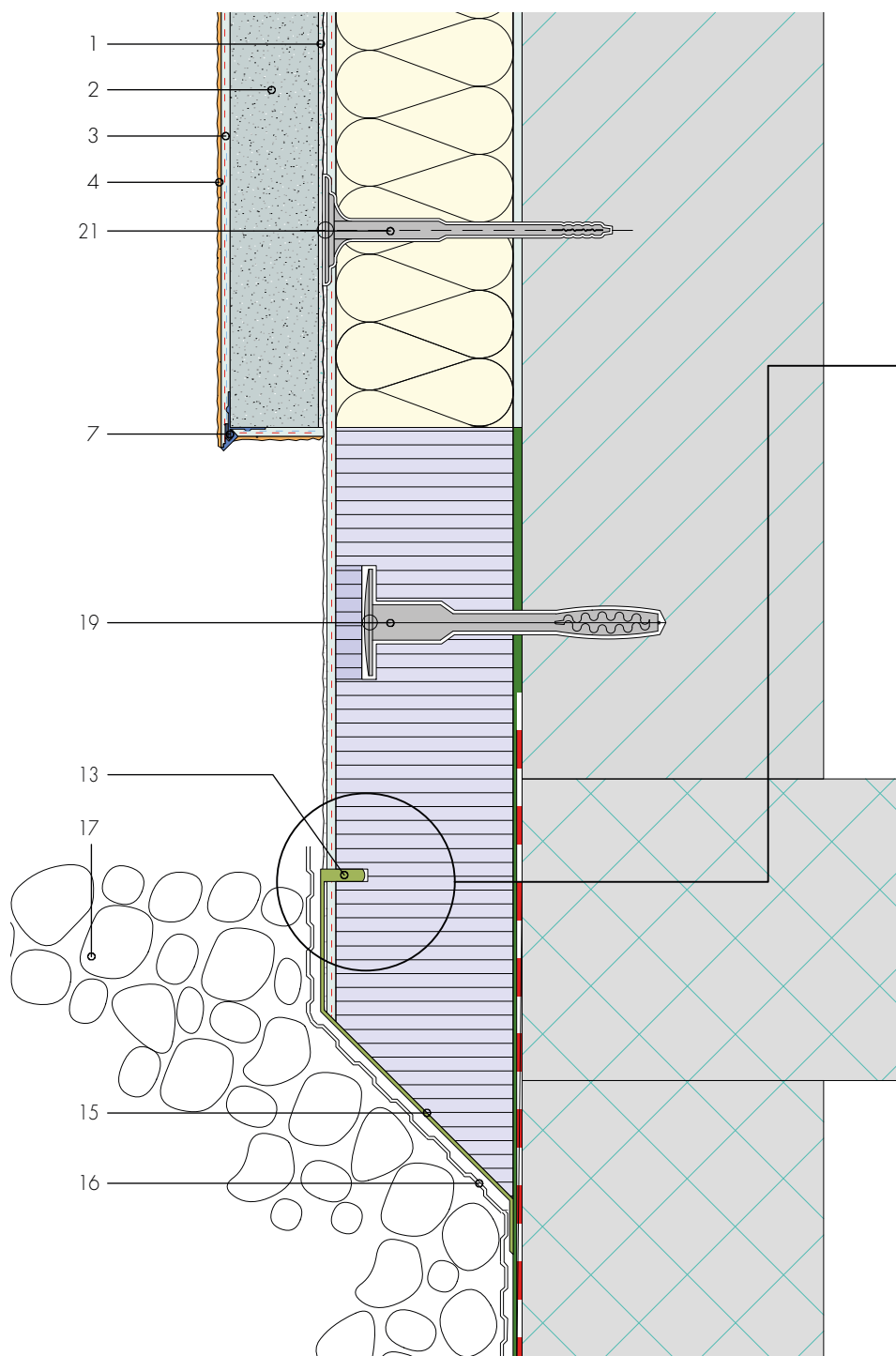
**Detail second layer –
base cladding flush with
perimeter insulation**



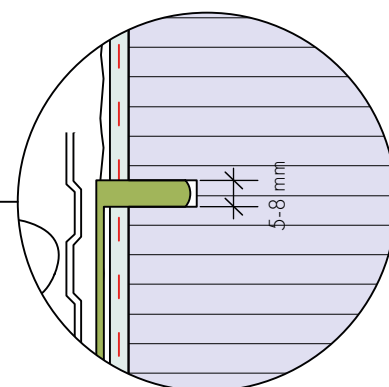
Detail of capillary slot 5 to 8 mm wide.
Fill with Fixit 373 Multiflex

- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 5 Barrier textile
- 13 Capillary slot
- 14 Base cladding, outer surface completely
covered with Fixit 373 Multiflex
- 15 Apply a layer of Fixit 373 Multiflex
- 16 Profiled drainage sheet
- 17 Rubble fill
- 19 Mounting anchor bolt
- 21 Impact anchor bolt H1 eco

**Detail second layer –
base cladding with
perimeter insulation**

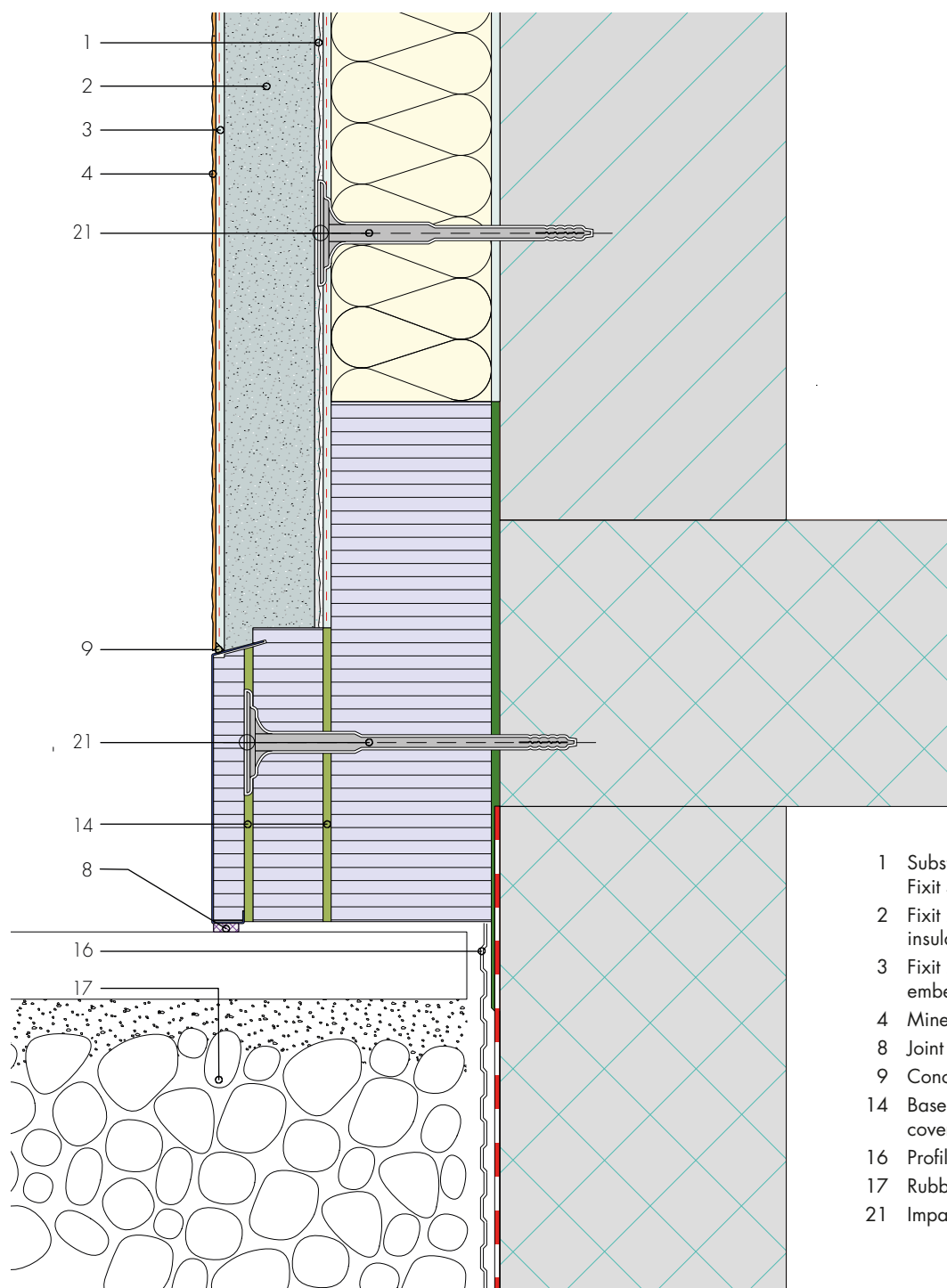


Detail of capillary slot 5 to 8 mm wide.
Fill with Fixit 373 Multiflex



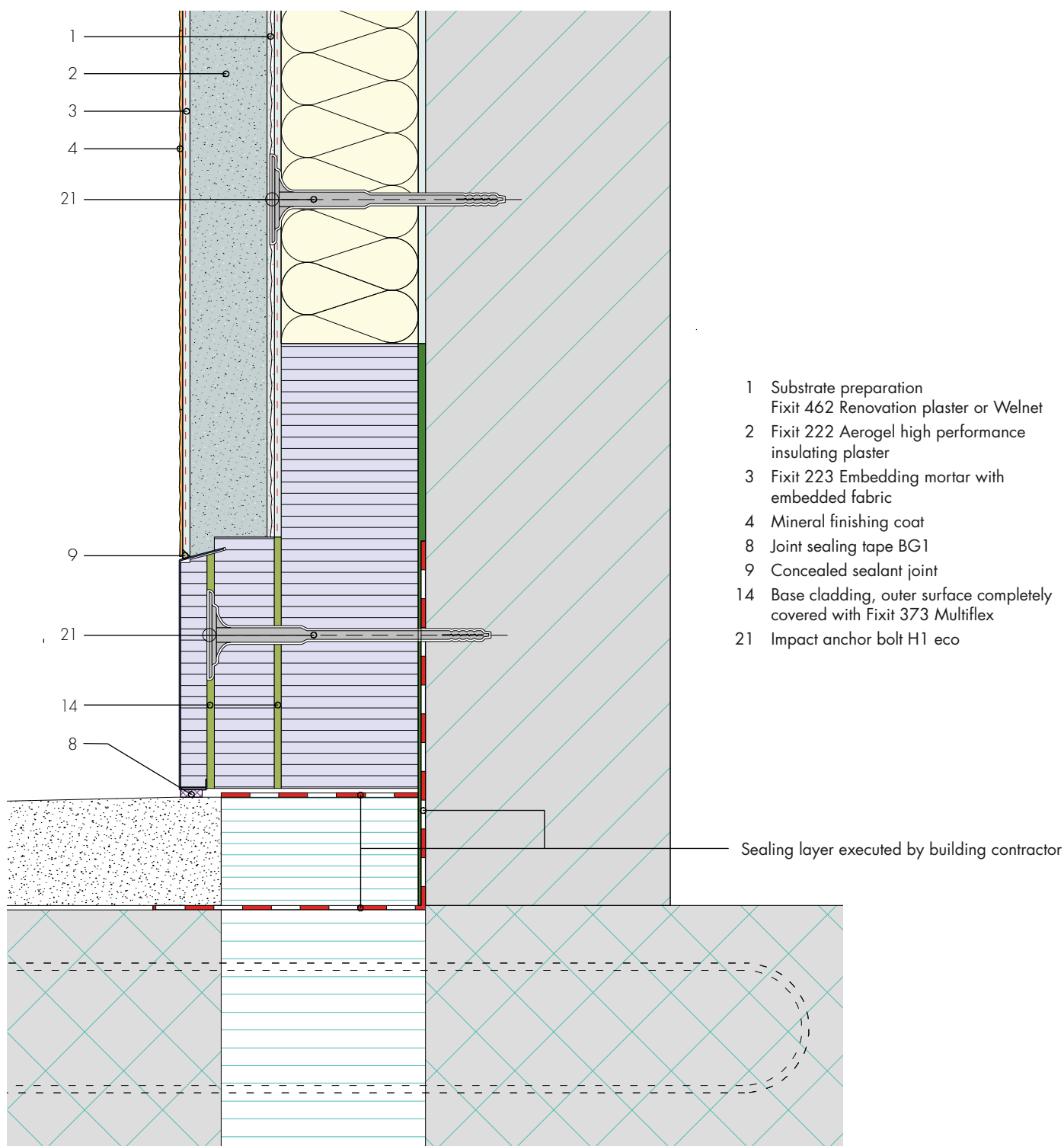
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 7 Edged drip profile with textile inlay
- 13 Capillary slot
- 15 Apply a layer of Fixit 373 Multiflex
- 16 Profiled drainage sheet
- 17 Rubble fill
- 19 Mounting anchor bolt
- 21 Impact anchor bolt H1 eco

**Detail second layer –
base cladding of sheet
metal over existing
surface**



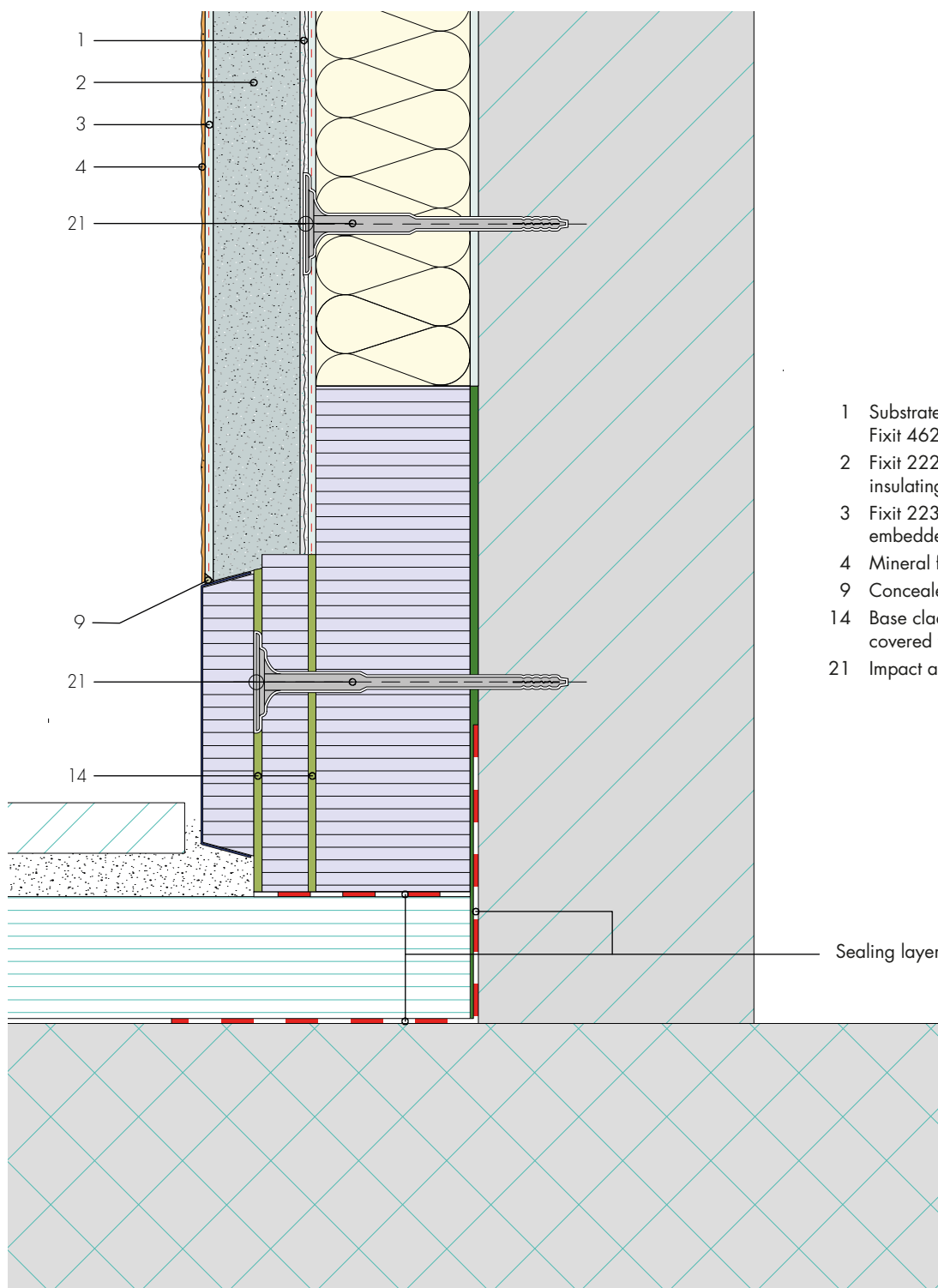
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 8 Joint sealing tape BG1
- 9 Concealed sealant joint
- 14 Base cladding, outer surface completely
covered with Fixit 373 Multiflex
- 16 Profiled drainage sheet
- 17 Rubble fill
- 21 Impact anchor bolt H1 eco

**Detail second layer –
junction to base with
base skirting of sheet
metal**



- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 8 Joint sealing tape BG1
- 9 Concealed sealant joint
- 14 Base cladding, outer surface completely
covered with Fixit 373 Multiflex
- 21 Impact anchor bolt H1 eco

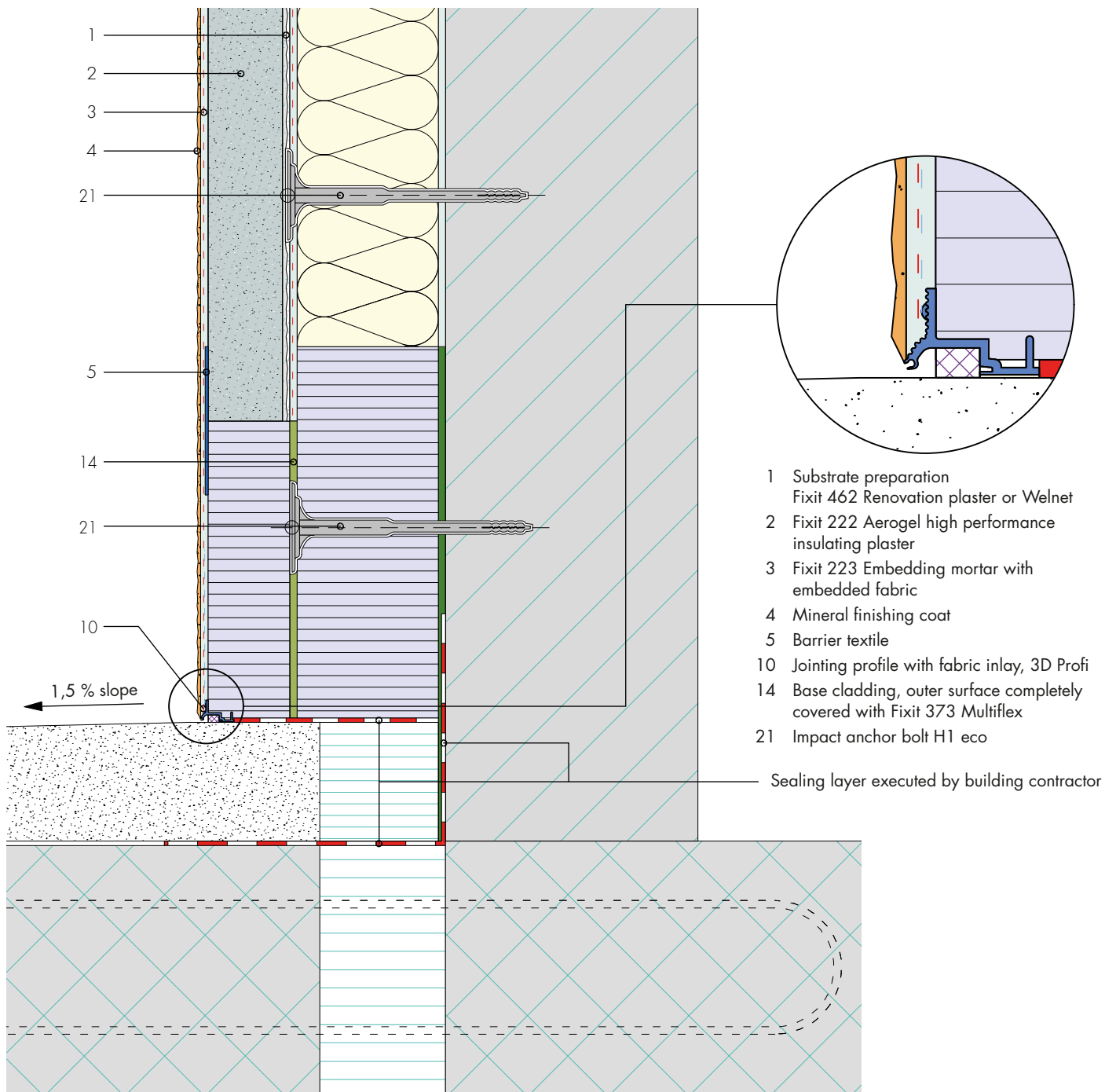
**Detail second layer -
junction to base with
insulated sheet metal
base**



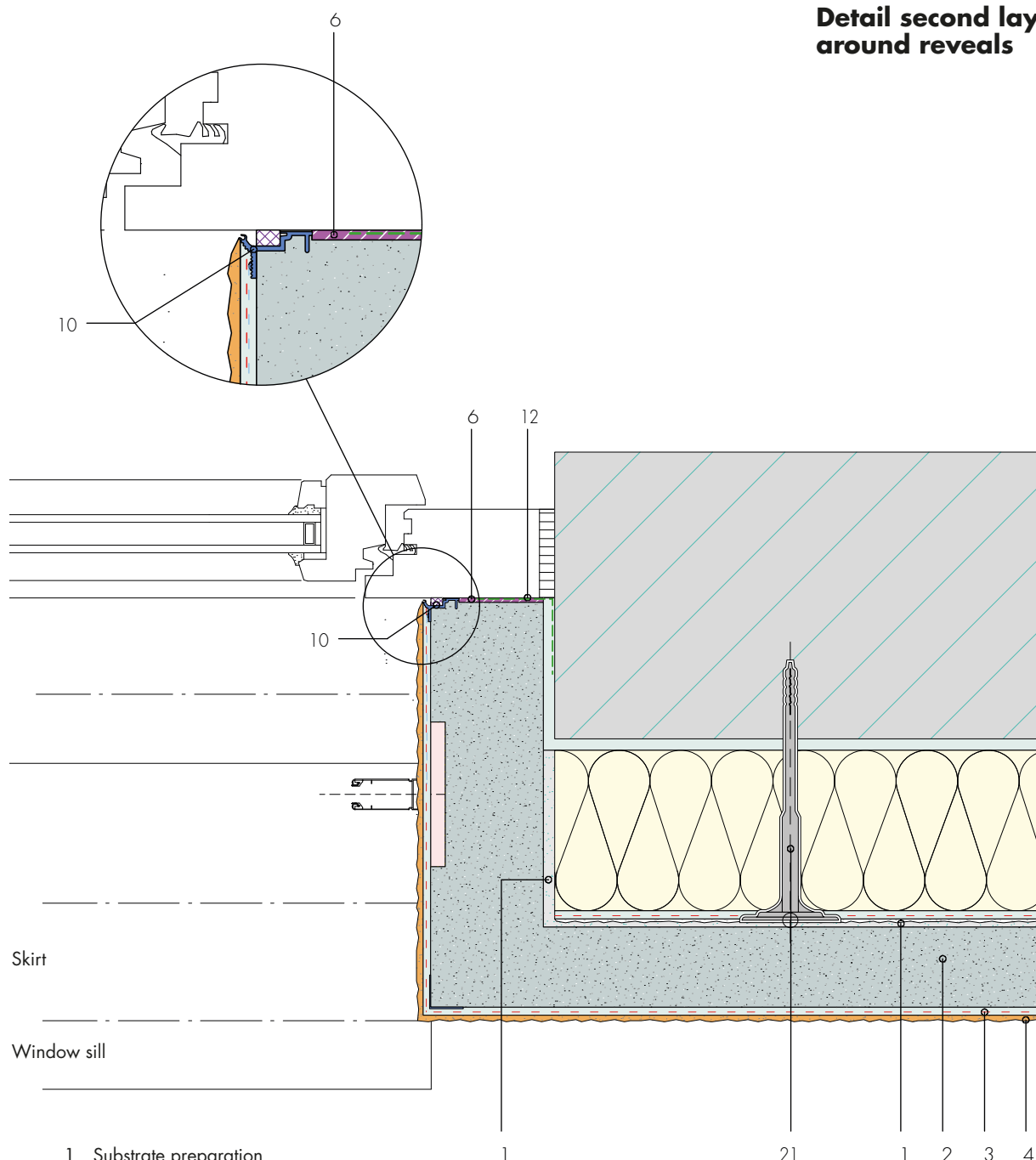
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 9 Concealed sealant joint
- 14 Base cladding, outer surface completely
covered with Fixit 373 Multiflex
- 21 Impact anchor bolt H1 eco

Sealing layer executed by building contractor

**Detail second layer –
junction to base with
jointing profile**

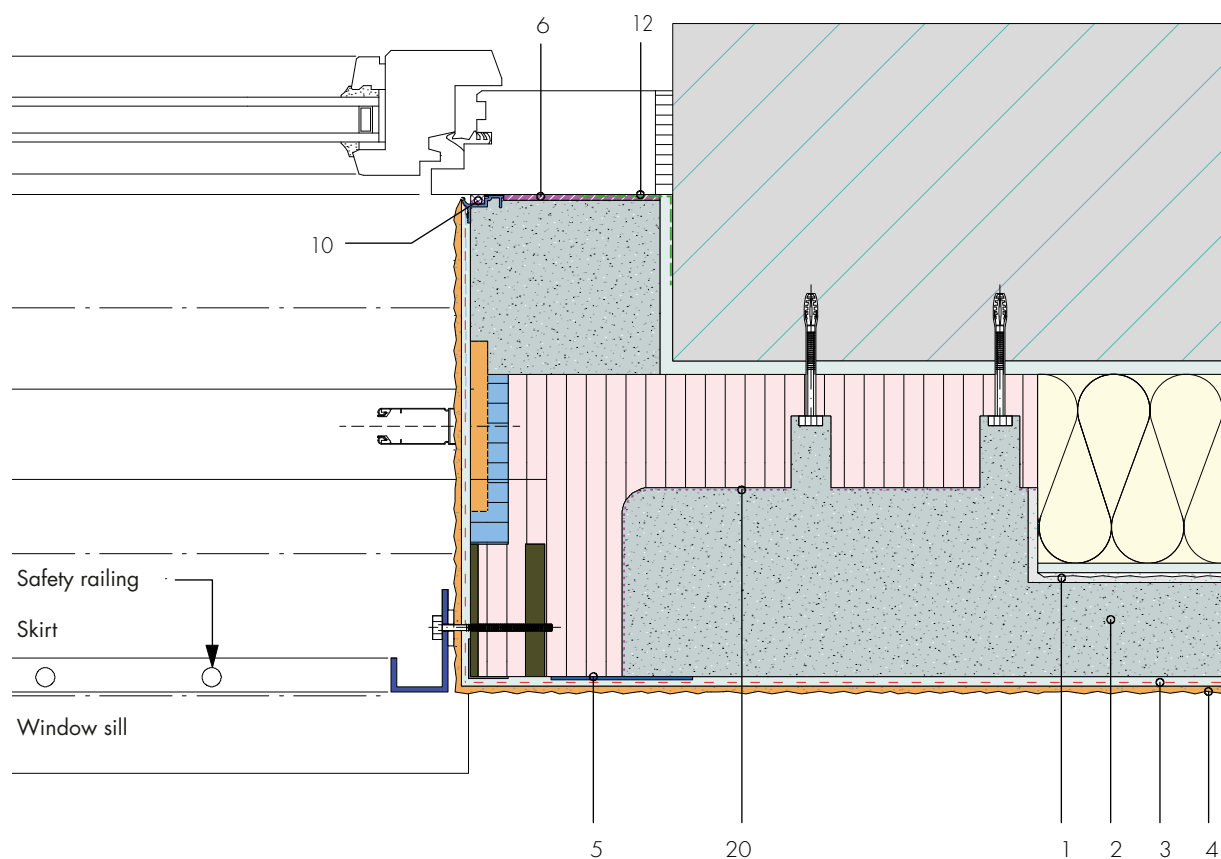


**Detail second layer -
around reveals**



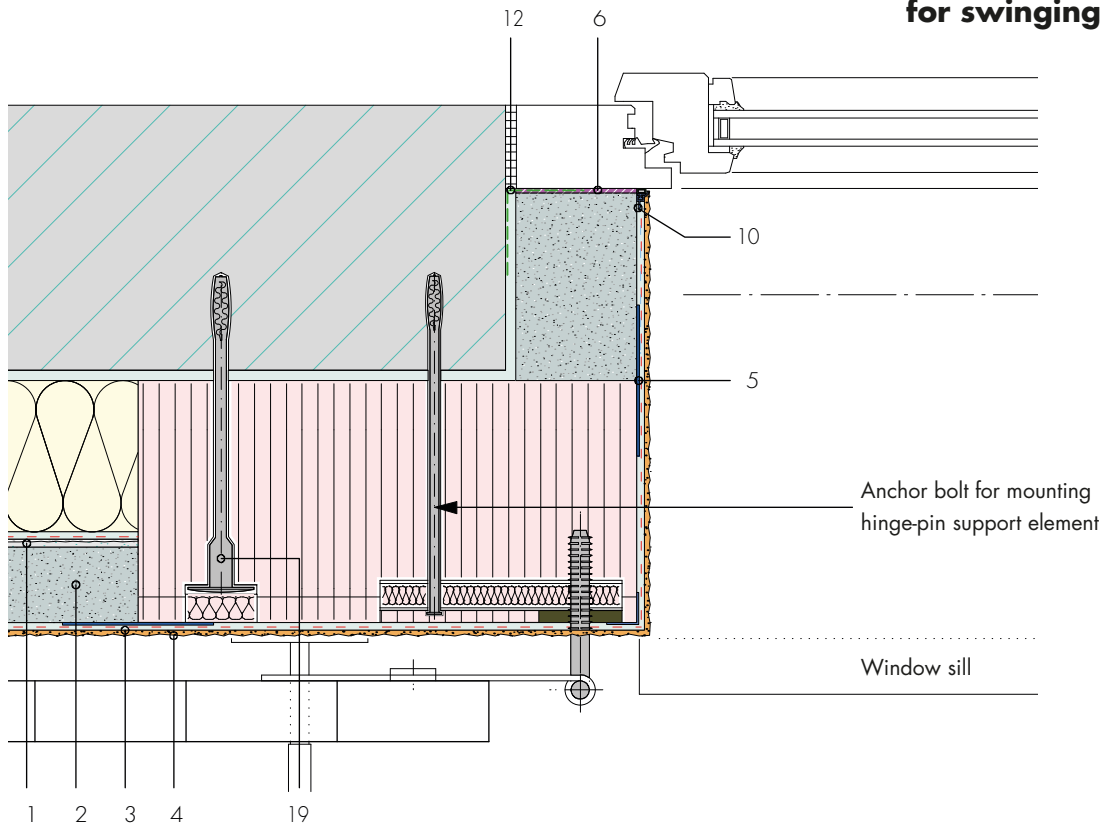
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 6 Thermal barrier tape
- 10 Jointing profile with fabric inlay, 3D Profi
- 12 Air-tight membrane
(fitted by building contractor)
- 21 Impact anchor bolt H1 eco

Detail second layer – around a French balcony



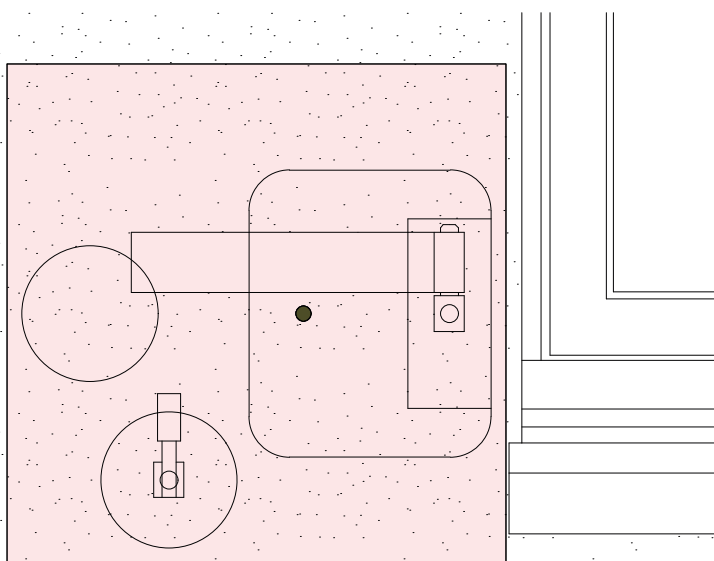
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance insulating plaster
- 3 Fixit 223 Embedding mortar with embedded fabric
- 4 Mineral finishing coat
- 5 Barrier textile
- 6 Thermal barrier tape
- 10 Jointing profile with fabric inlay, 3D Profi
- 12 Air-tight membrane (fitted by building contractor)
- 20 Fixit 346 quartz special adhesive bridge

**Detail second layer –
around a hinge-pin support
for swinging shutters**



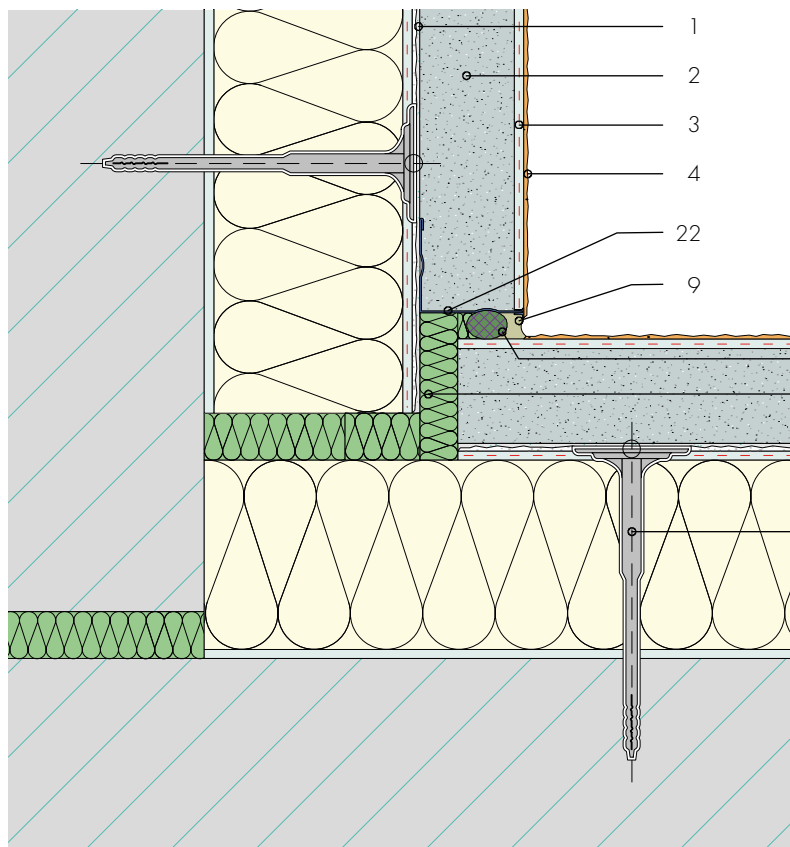
Anchor bolt for mounting
hinge-pin support element

Window sill



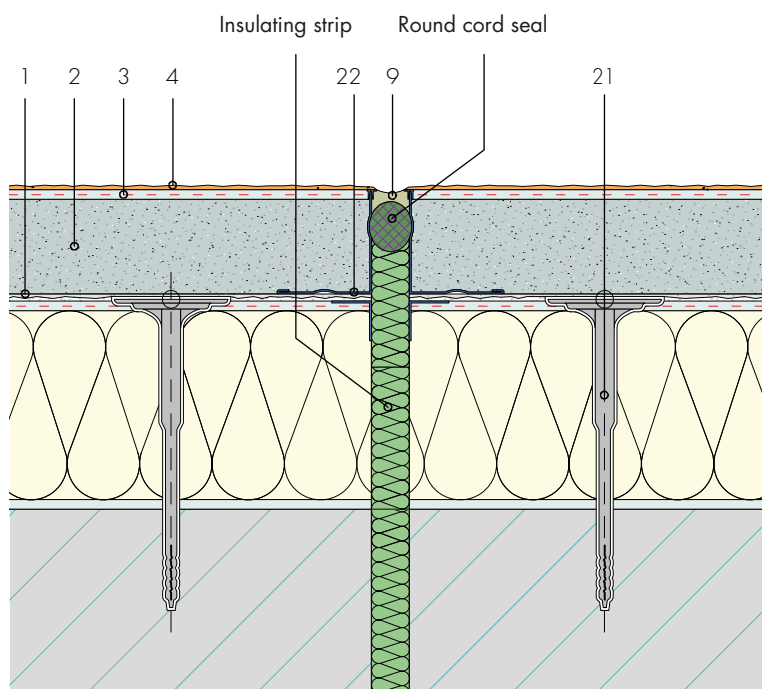
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance
insulating plaster
- 3 Fixit 223 Embedding mortar with
embedded fabric
- 4 Mineral finishing coat
- 5 Barrier textile
- 6 Thermal barrier tape
- 10 Jointing profile with fabric inlay, 3D Profi
- 12 Air-tight membrane
(fitted by building contractor)
- 19 Mounting anchor bolt

Detail second layer - around expansion joints

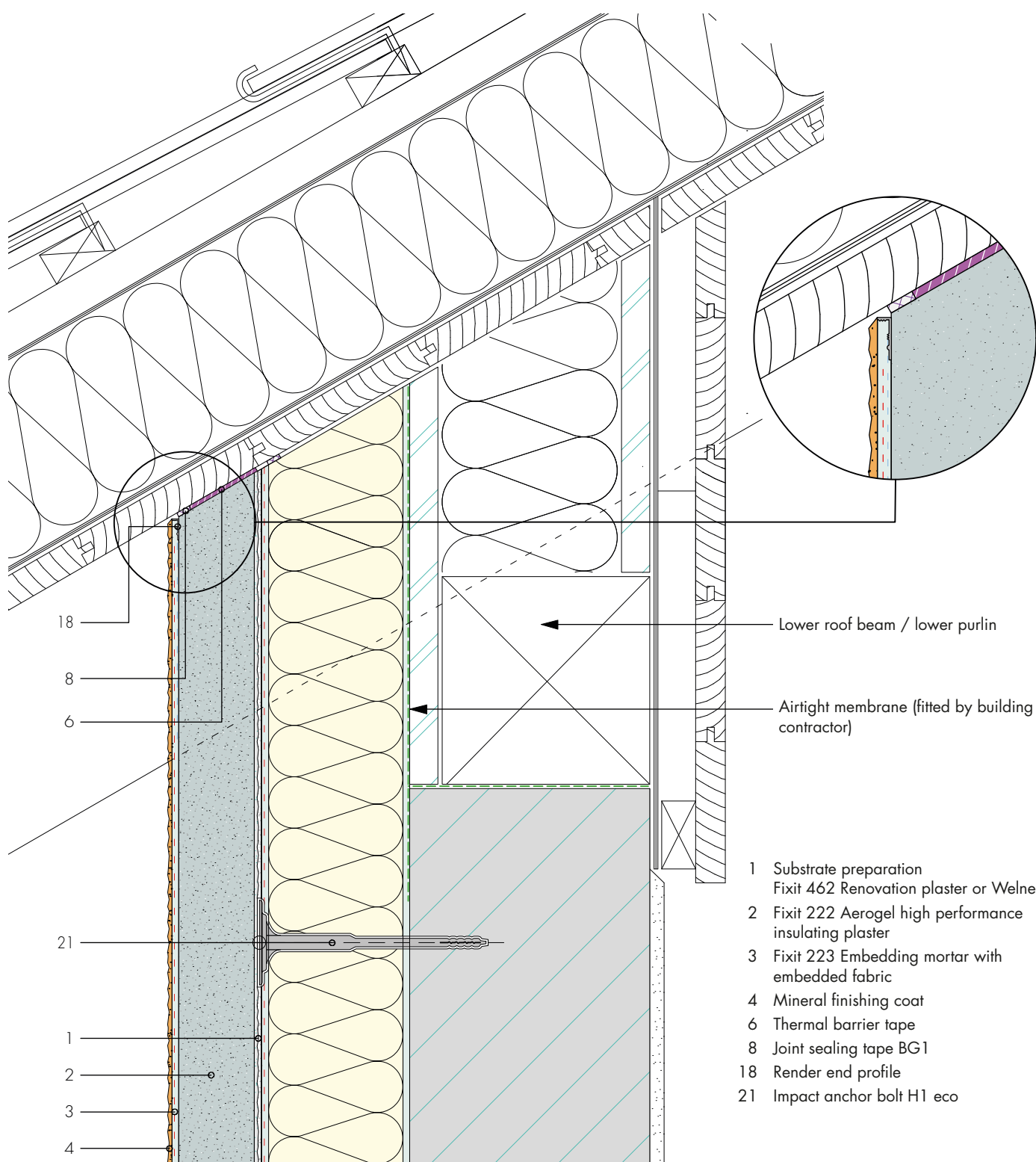


Round cord seal
Insulating strip

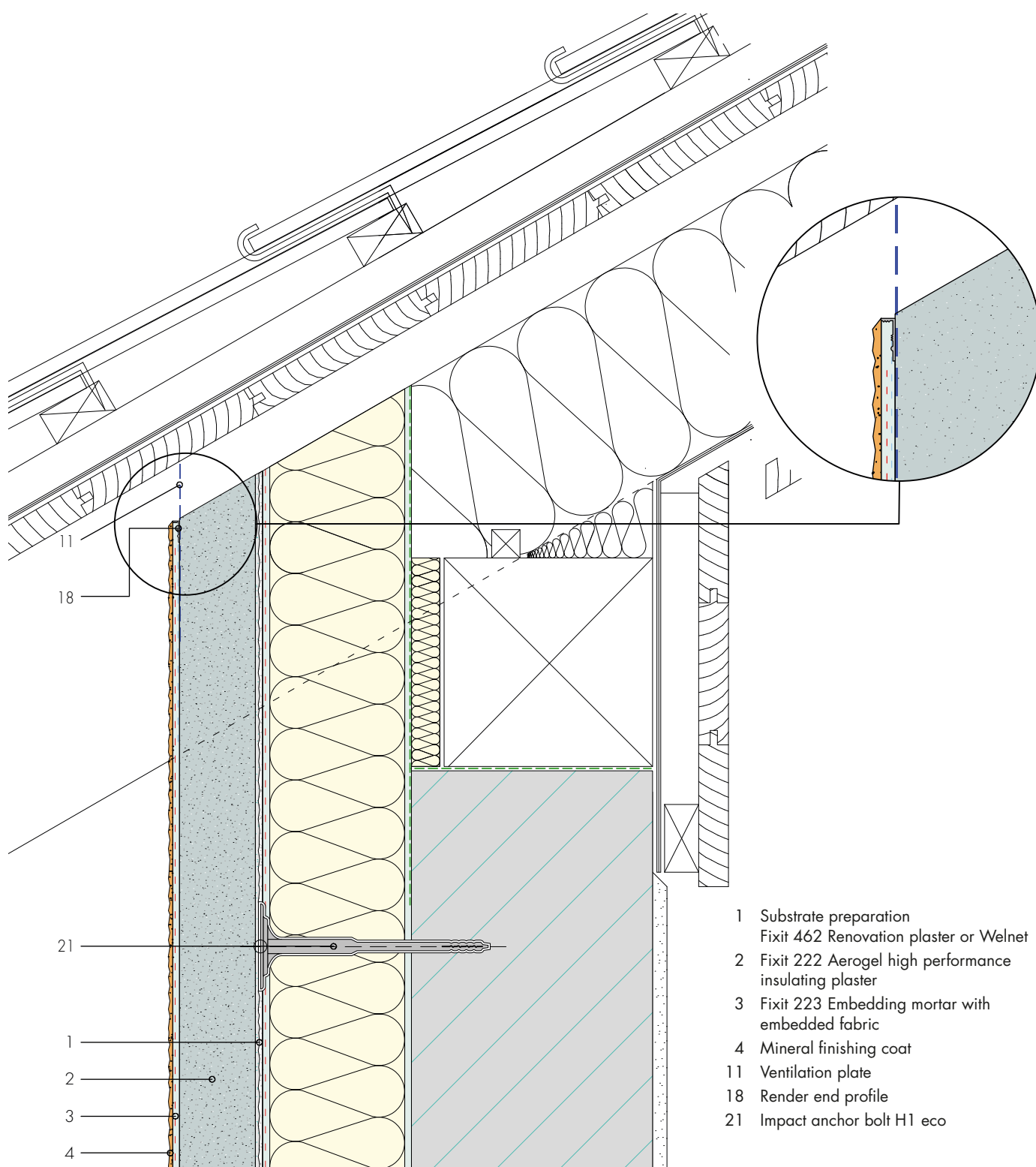
- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance insulating plaster
- 3 Fixit 223 Embedding mortar with embedded fabric
- 4 Mineral finishing coat
- 9 Concealed sealant joint
- 21 Impact anchor bolt H1 eco
- 22 Insulating render end profile



**Detail second layer –
single-skin unventilated
roof (warm roof)**



**Detail second layer –
twin-skin ventilated roof
(cold roof)**

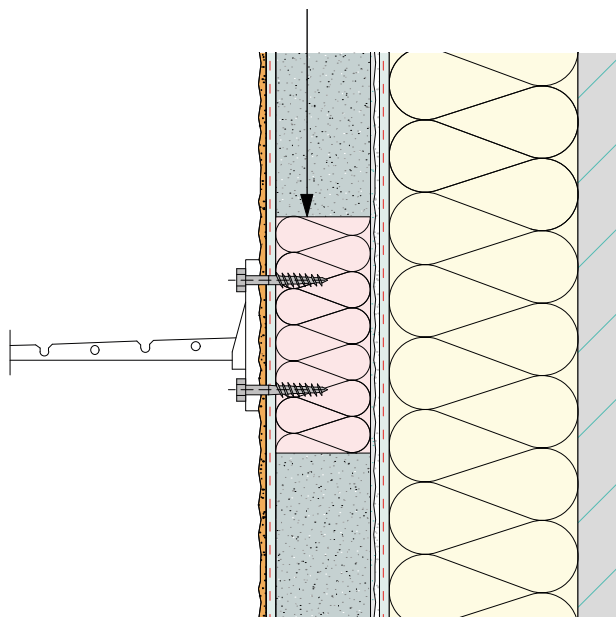


- 1 Substrate preparation
Fixit 462 Renovation plaster or Welnet
- 2 Fixit 222 Aerogel high performance insulating plaster
- 3 Fixit 223 Embedding mortar with embedded fabric
- 4 Mineral finishing coat
- 11 Ventilation plate
- 18 Render end profile
- 21 Impact anchor bolt H1 eco

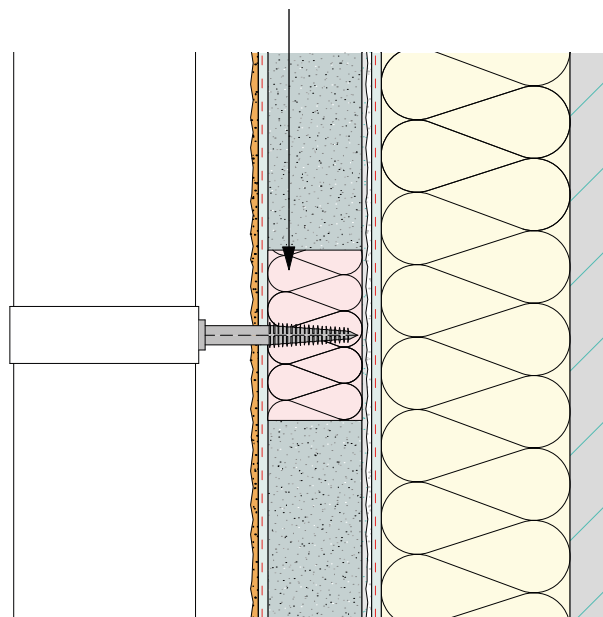
Mounting other objects

for EPS

Mounting cylinder VARIZ Ø 125 mm

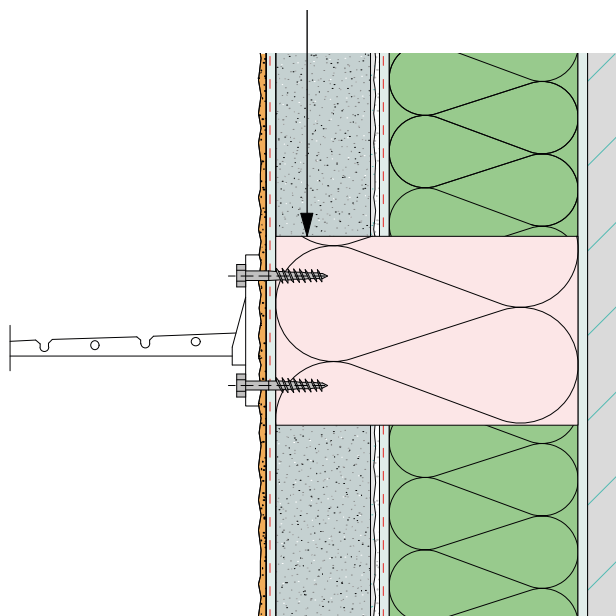


Mounting cylinder VARIZ Ø 90 mm

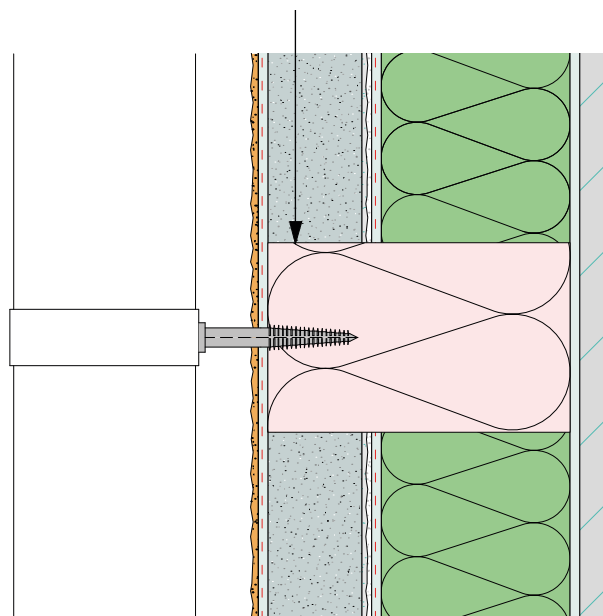


for mineral wool

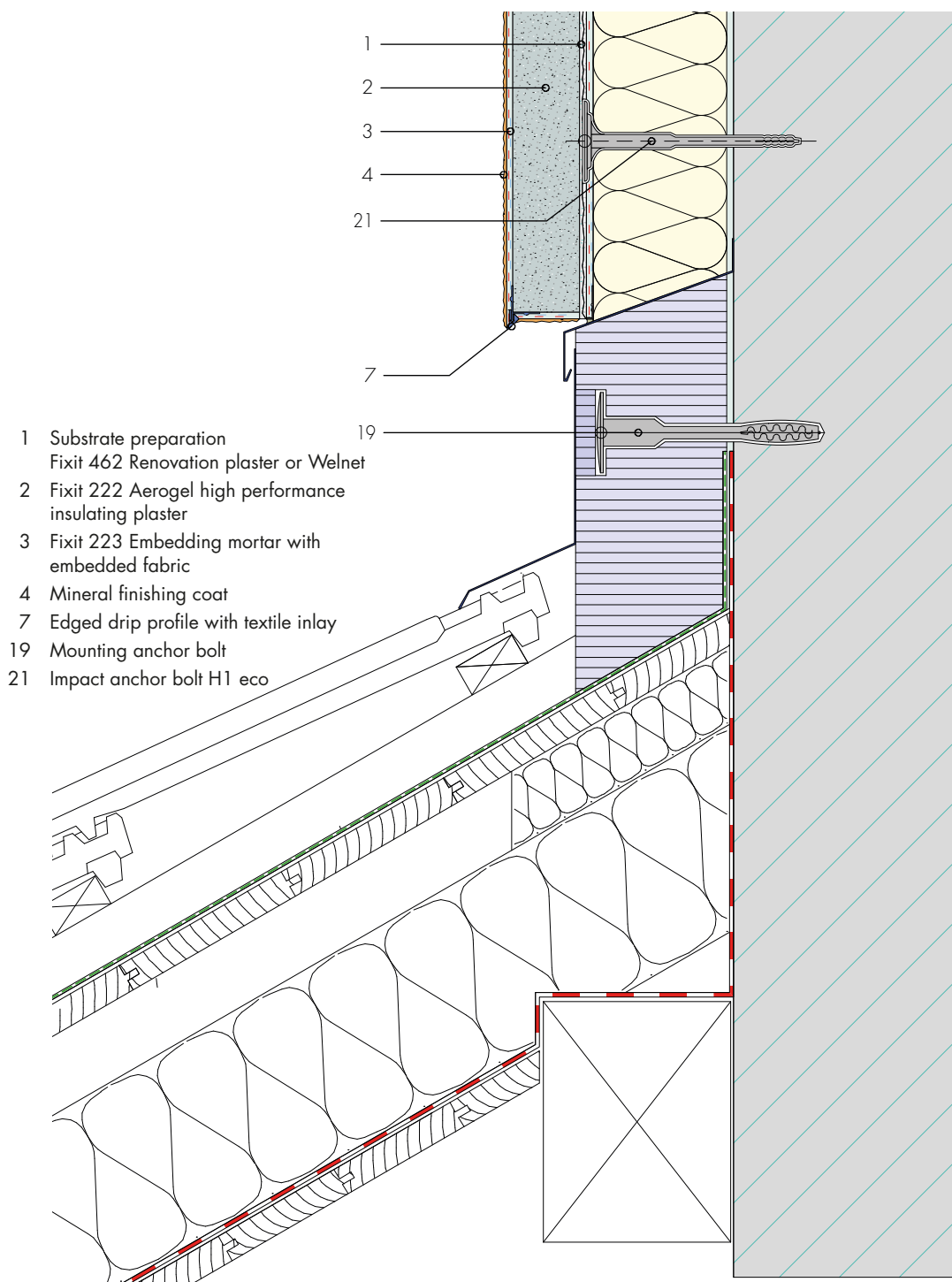
Mounting block VARIR 100 x 150 mm



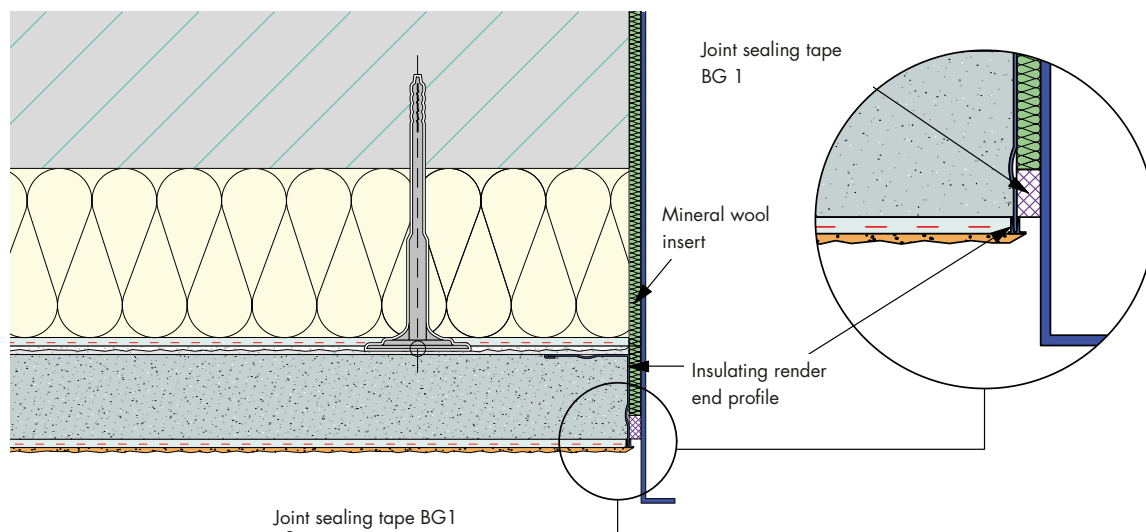
Mounting block VARIR 100 x 100 mm



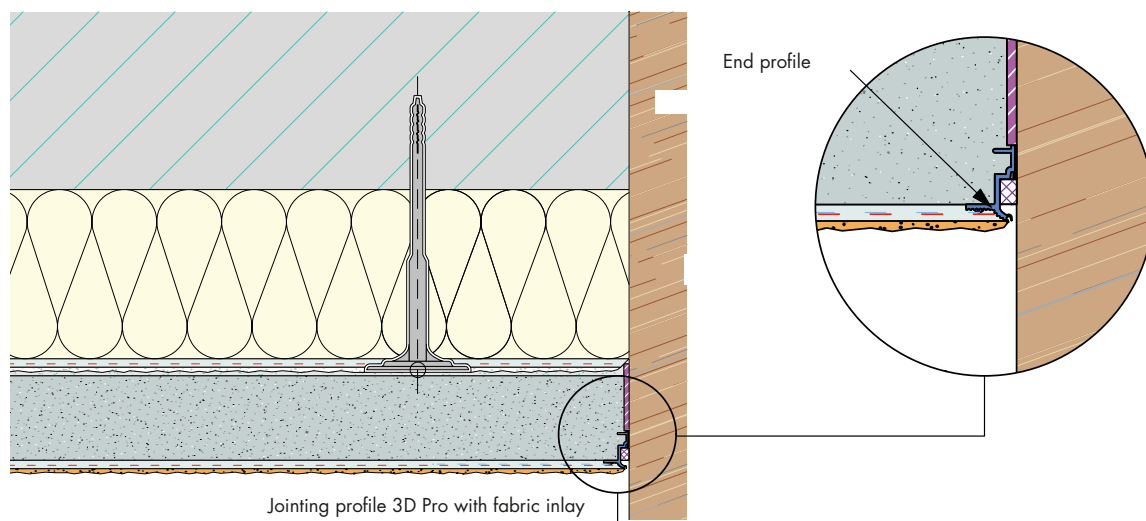
Detail second layer – joint with sloping roof



Separating cut with pre-compressed joint sealing tape (metal door-frame)



Joint with end profile (wood)





Isokalk AS ble etablert i 2015 som Fixit AG sin representant i Norge.

Fixit AG er etablert i 1908 da de 8 største kalkgruvene i Sveits slo seg sammen. Fixit AG er morselskapet i The Fixit group, som har 2600 ansatte i 18 land.

Isokalk er superisolerende kalkmørtel med Aerogel – Det originale navnet er Fixit 222. Dette ble det viktigste resultatet av et fireårig forskningsprosjekt i EU som het «Sustainable Renovation of Historical Buildings». Fixit 222 kom på markedet i 2012 og er i ferd med å bli et foretrukket alternativ blant antikvarer og utbyggere som skal bevare, transformere og isolere eksisterende bygningsmasse innen tegl, stein og betong.

Kontakt Per Jæger

Mob: (+47) 915 95 295

Mail: per@isokalk.no

Isokalk AS
Holtegata 22A
0355 Oslo, Norge
www.fixit-aerogel.com
www.isokalk.no