

Installation instructions



Each ACO Building Material product supports the ACO system chain

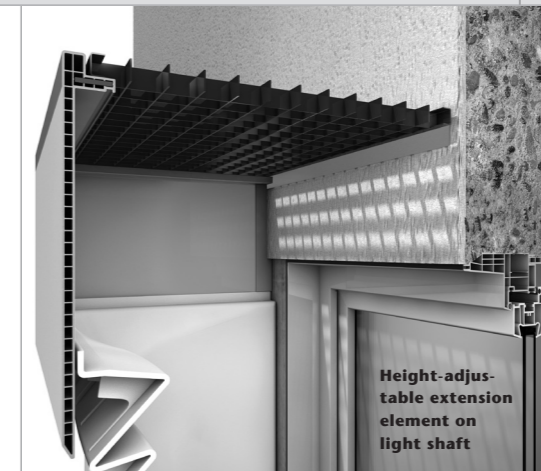
System solutions for the cellar

- Basement windows
- Assembly panels for light shafts
- Pressurised watertight light shafts
- Backflow systems

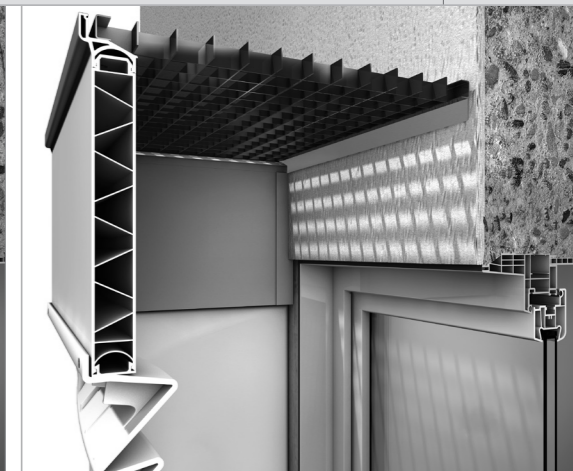
Infrastructure for house and garden

- Bath drainage
- Well covers
- Façade drainage channels
- Linear drainage
- Point drainage
- Doormats
- Honeycomb panels and gravel stabilisation
- Linear infiltration
- Rainwater harvesting

Barn windows and escape doors



Height-adjustable extension element on light shaft



Fixed extension element on fixed extension element



Height-adjustable extension element on fixed extension element

Installation instructions for ACO extension elements for ACO Therm® light shafts

Solutions for a wide range of different application cases

ACO Hochbau Vertrieb GmbH

Postfach 11 25
97661 Bad Kissingen
Neuwirtshauser Straße 14
97723 Oberthulba/Reith
Tel. 09736 41-60
Fax 09736 41-69

hochbau@aco.com
www.aco-hochbau.de



Important note: Please read before installation

Fixing of the extension elements

Height-adjustable extension elements are only screwed to the light shaft or the fixed extension element. It is usually not necessary for them to be screwed to the wall. Fixed extension elements **generally** have to be screwed to the wall or perimeter insulation. Further information about assembly can be found in these assembly instructions.

Notching and shortening of extension elements

ACO extension elements can be shortened or notched at the wall side on site. In addition, extension elements with extended side flanks are available. These can be used for optimum bridging of transition elements to the brick facade. Shortened or extended gratings are available in different overall depths. When these gratings are used, new grating pin holes with a diameter of 10 mm must be drilled in the grating support of the extension element. See pages 8, 9 and 10.

During the building phase

The light shafts and extension elements must be protected against falling objects during the building phase. Light shafts and extension elements may not be subjected to loads until they have been backfilled.

Only backfill and compact with the grating in place (stiffening frames cannot be used as a substitute for gratings). Fill with homogeneous backfilling material layer by layer and compact this. DIN 18300 must be heeded during this work. Ensure there is enough distance between the vibrator plate and pit rammer. Enlarge the distance from layer to layer. Ensure there is a distance of at least 1 m to the extension element when using heavy equipment.

Shortening fixed extension elements

Fixed extension elements can be shortened to the appropriate height on site. The cut edges must be fitted with the appropriate channel sections available. Fixed extension elements from a design width of 1250 mm are steel-reinforced in the section chambers at the front. This must be considered when they are cut to length. See page 6 and 7.

Accessibility

- Accessibility up to max. 150 kg
- Light shafts depth 400/600: no more than 3 extension elements can be used
- Light shafts depth 700: no more than one extension element can be used

Trafficability

- Trafficable up to max. 6 kN wheel load
- Light shafts depth 400/600: no more than 2 fixed extension elements can be used
- Light shafts depth 700: Large light shafts are generally not trafficable

Light shafts and extension elements can only be driven on with a trafficable grating, the corresponding installation kit and only ever over the long side resp. parallel to them installation wall. All other application cases must be discussed with AC application technology.

Publicly accessible area

ACO light shafts and extension elements may only be used in publicly accessible areas following consultation with ACO application technology. Local regulations must always be taken into account.

Important note on grating removal

The gratings must be removed in such a way that the grating pins in the wall can slide smoothly out of the grating pin holes in the extension element. For this, the grating should be raised at the wall side.

Backfilling the excavation pit

Installation kits

Art. no.	Installation kit for height-adjustable extension elements
315787	Extension elements with depth 400/600
315821	Extension elements with depth 700 (large light shafts)

Art.-Nr.	Installation kit for fixed extension element
315928	Extension elements with depth 400/600
315929	Extension elements with depth 700 (large light shafts)

Height extension or height adaptation in mm						
Extension elements (ASE)	1 fixed ASE	2 fixed ASE	3 fixed ASE	1 height-adjustable ASE	1 fixed and 1 height-adjustable ASE	2 fixed and 1 height-adjustable ASE
Depth 400	275	525	775	30 to 300	305 to 580	555 to 825
Depth 600	275	525	775	30 to 300	305 to 580	555 to 825
Depth 700	270	-	-	30 to 300*	-	-

* Only possible for light shafts of the sizes 1500 x 1000 x 700 and 1500 x 1500 x 700

Installation of a height-adjustable extension element

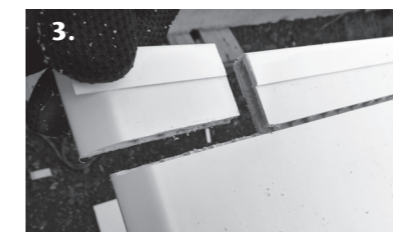
Application case: accessible on light shaft or fixed extension element



1. Assemble the light shaft in accordance with the light shaft assembly instructions and then remove the light shaft grating. Measure the dimension from the top edge of the ground to the top edge of the light shaft grating edge.



2. Transfer the dimension measured to the outside of the height-adjustable extension element. Starting point is the top edge of the height-adjustable extension element. (This point is not relevant for the installation of a height-adjustable extension element onto a fixed extension element.)



3. Cut out the area below the marking using a metal cutting saw or other suitable saw. Use the cutting guide for this. (This point is not relevant for the installation of a height-adjustable extension element onto a fixed extension element.)



4. Use a 4 mm drill to drill through the grating edge of the light shaft and/or the fixed extension element. Pre-drilling is not required for light shafts of the new 600 series. Here, the pre-perforations can be screwed through directly. Keep a distance of about 50 mm away from the wall at the side. Drill the drillholes evenly spaced.
Number of drillholes:
– up to light shaft width 1250 mm: 2 drillholes on each side, 4 drillholes at the front
– from light shaft width 1500 mm: 3 drillholes on each side, 6 drillholes at the front



5. Slide the height-adjustable extension element over the light shaft or the fixed extension element and align it. Then screw from the inside out, starting with the two rear screwing points.



6. Slide the wall connection profile against the wall and insert the grating.

Note

In order to be able to slide the extension element over the light shaft and up to the wall, a section of the rear side flank must be disengaged. This prevents the extension element colliding with the light shaft flange and the fixing screws. See step 1-3.



Installation of a fixed extension element

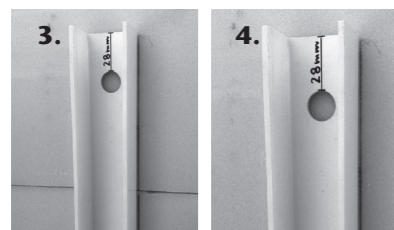
Application case: accessible on perimeter insulation/trafficable at cellar wall



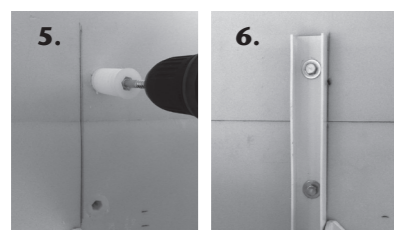
1. Following light shaft installation, place the fixed extension element including inserted grating into the grating support of the light shaft.



2. Mark the outer edge of the wall connection profile at both sides on the installation surface. Remove the extension element from the light shaft and remove the wall connection profile from the extension element.



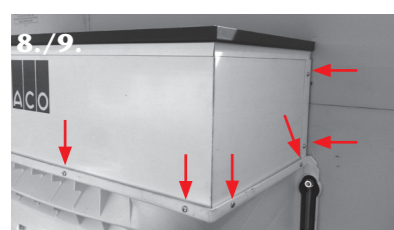
3.+4. Place the wall connection profile in the light shaft grating support and align according to the marking. Make sure the fixing points are positioned correctly. Mark the fixing points.



5.+6. Screw the spiral anchors for insulating material in using the 8x70 screw included in the installation kit (to do this screw the screw with thread into the drill or cordless drill). When spiral anchors are used, all fixed elements are generally to be screwed to the perimeter insulation. If insulation has an insulation thickness of less than 10 cm, spiral anchor and screw must be shortened on site. Before shortening the insulation anchor, screw it into the insulation material slightly. Screw the wall connection profiles using 8x70 screws and washer.



7. Slide the extension element into the wall connection profiles and press into the light shaft grating support.



8. Screw the extension element to the light shaft. Pre-drill using a 4 mm drill. Use Spax screws with tip for this. Screw in 4 screws on the front (6 for large light shaft) and 2 on each side (3 for large light shaft).

9. Screw wall connection profile to extension element from the outside using 2 screws. Pre-drill 2 holes at the top and bottom per side. Then screw in the screws without tip.

Application case trafficable up to 6 kN wheel load

Screwing must be directly to the cellar wall. Installation cannot take place on the perimeter insulation in this case. Use the 8x70 screws with plastic anchor. In the case of light shafts depth 400 and 600, 2 fixed elements clicked on top of one another can be used. Each of the elements must be screwed to the wall. Equally, a trafficable grating must be used. Generally speaking, large light shafts cannot be driven over. You will find information on clicking the fixed extension elements together in these installation instructions as well.

Installation of several fixed extension elements

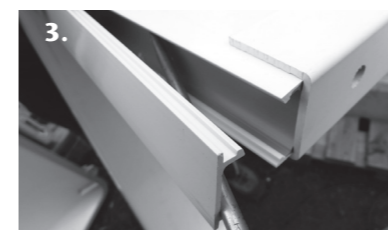
Application case: clicking the fixed extension element together



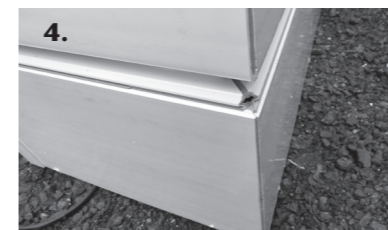
1. **Use of 3 fixed extension elements:** Remove the grating support profile on the lowest and middle fixed extension element. First pull the side sections off to the rear.
Use of 2 fixed extension elements: Remove the grating support profile on the lowest fixed extension element. Pull the side sections off to the rear.



2. Use a screwdriver to remove the front grating support profile. Position the screwdriver at the side and release the click attachment at one side. Then the grating support profile can be removed completely.



3. **Use of 3 fixed extension elements:** Remove the support profile on the middle and top fixed extension element.
Use of 2 fixed extension elements: Remove the support profile on the top fixed extension element.



4. Click the extension elements together using the tongue and groove system. A hammer and a wood strip (to protect the plastic parts) can be used as an aid for this. Please start at the wall on one side and establish the connection piece by piece.



5. Carry out installation as explained on the previous page. To do this, screw all wall connection profiles with the perimeter insulation or cellar wall. Trafficable extension elements (only possible with fixed extension elements) must be screwed directly to the cellar wall. Now insert the extension elements into the wall connection profiles, push down and press into the light shaft grating support. Screw the bottom extension element to the light shaft. Screw the wall connection profiles to the extension elements. Refer to step 9 on the previous page for more information.

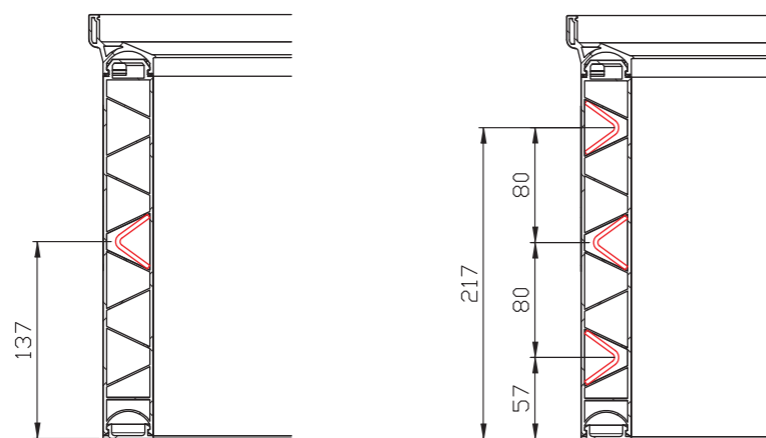
Note

The fixed extension elements can be connected using a tongue/groove system. This results in a smooth connection between the elements. In addition, sturdiness against soil pressure is increased when the tongue/groove system is used. The grating support and/or the lower cover profile must be removed for this. If the fixed extension elements are only placed on top of one another, they must be screwed to each other at the grating edges. Refer to step 8 on the previous page for more information.

Reduction of the overall height for fixed extension elements

Fixed extension elements can be shortened to the appropriate height on site. The cut edges must be fitted with the appropriate channel sections available. Fixed extension elements from a design width of 1250 mm are steel-reinforced in the section chambers at the front. The reinforcement bars must be removed if necessary when these are cut to length. Extension elements with design widths of 800 and 1000 mm do not have any reinforcement bars. These elements can be cut to length directly.

Position of the reinforcement bars:



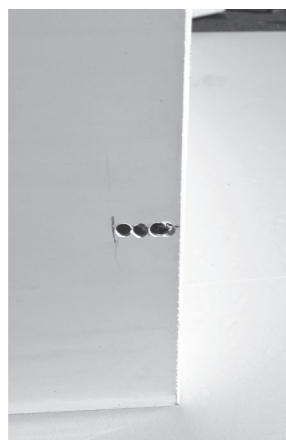
1250 x 400 Art.-no. 315775
 1250 x 600 Art.-no. 315831+315781
 1250 x 800 Art.-no. 375023+315833

1500 x 700 Art.-no. 315785
 2000 x 700 Art.-no. 315786

In as far as one of these steel reinforced extension elements is to be cut to length, please remove the reinforcement bars as follows:



Determine the position of the reinforcement bars and mark the profile thickness (35 mm).



Drill 3-4 drillholes next to one another. Use the drillholes to determine the section alignment.



Open the section chambers using further drillholes so that the reinforcement bar can be removed.



Remove reinforcement bar

Art.-no.	Channel section sets for shortened fixed extension elements	
375127	Channel section set for extension elements	800 x 400
375128	Channel section set for extension elements	1000 x 400
375129	Channel section set for extension elements	1250 x 400
375130	Channel section set for extension elements	1000 x 600
375131	Channel section set for extension elements	1250 x 600
375132	Channel section set for extension elements	1000 x 800
375133	Channel section set for extension elements	1250 x 800
375134	Channel section set for extension elements	1500 x 700
375135	Channel section set for extension elements	2000 x 700

Shortening the fixed extension elements



Determine the overall height required and transfer this to the extension element. The thickness of the channel section



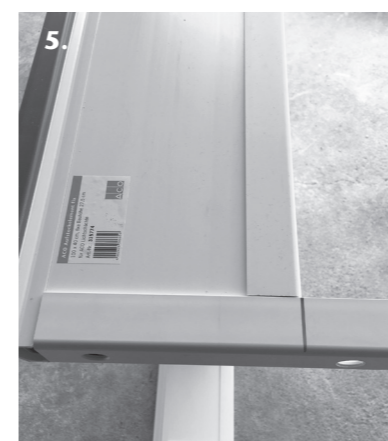
Use a jig saw to cut the extension element to length. Remove reinforcement bars if necessary first.



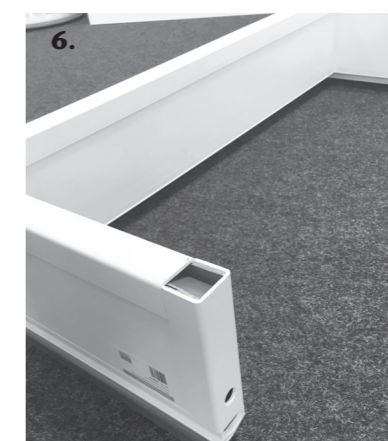
Fit the channel section onto the front cut surface



Fit channel section onto the side cut surfaces



Shorten the wall connection profile



Slide the wall connection profiles in place. The shortened extension element can now be installed. See page 4

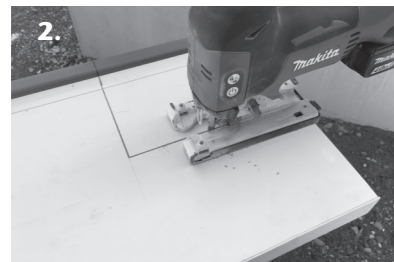
Notching the extension elements on the wall side

Fixed and height-adjustable extension elements can be cut at the wall side so that transition elements to exterior insulation and finishing systems (EIFS) can be operated optimally.

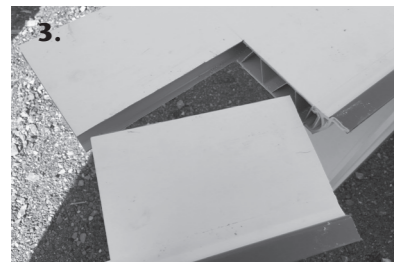
Protruding exterior insulation and finishing system (EIFS):



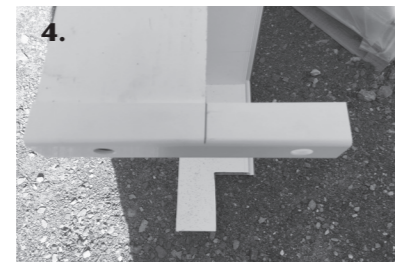
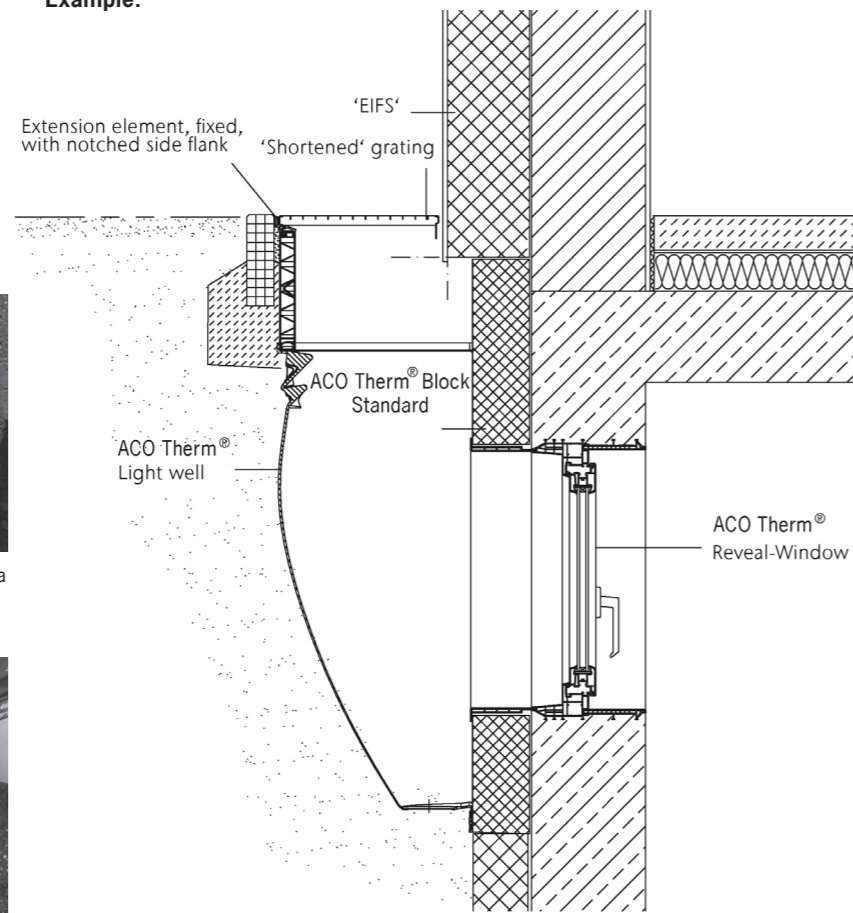
1. Remove wall connection profiles. Mark the area to be notched



2. Use a jig saw to cut the notch out



Example:



4. Slide the wall connection profile in place and cut to size



5. Slide the wall connection profile in place. The extension element can now be installed. See page 3 and 4

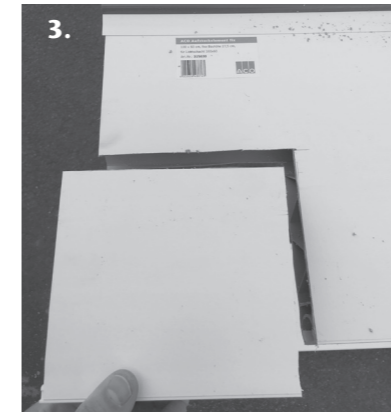
Recessed facade



1. Remove the wall connection profiles and mark the notch

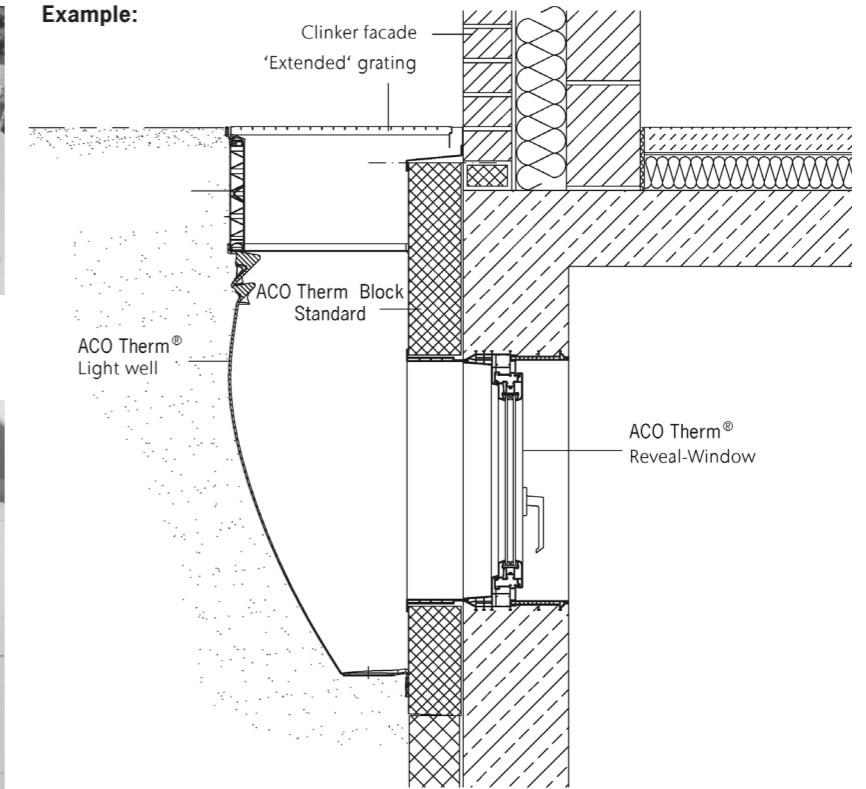


2. Use a jig saw to cut the notch out

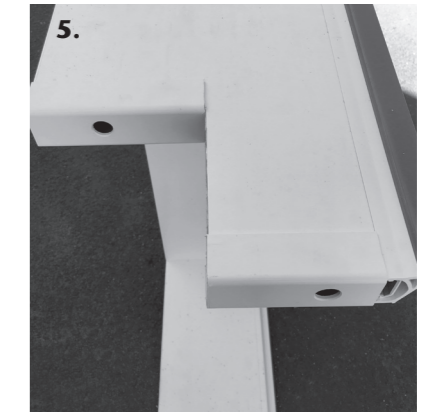


3. Use a jig saw to cut the notch out

Example:



4. Slide the wall connection profile in place and cut to size

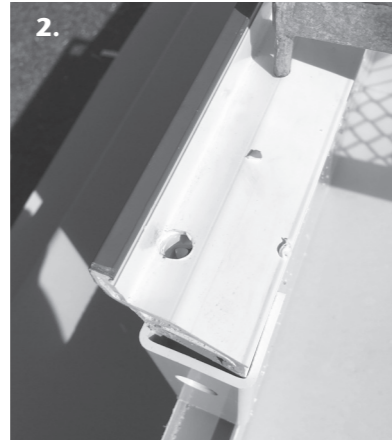


5. Slide the wall connection profile in place. The extension element can now be installed. See page 3 and 4

Use of shortened and extended light shaft gratings



1. Place the shortened or extended grating in the extension element and mark the grating pins.

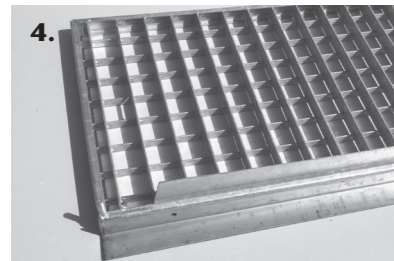


2. Use a 10 mm drill to drill the grating pin hole

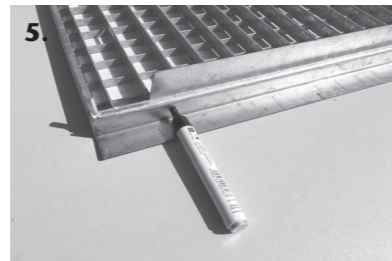


3. Insert the grating

To seal the gap between the façade and the light shaft grating completely, so-called adapter brackets can be used. Adapter brackets are available in the depths 10, 20, 30 and 40 mm.



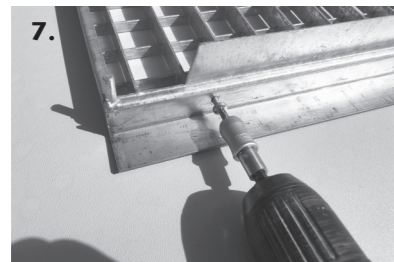
4. Place the light shaft grating on a level surface and position the adapter bracket in the centre of the back of the grating



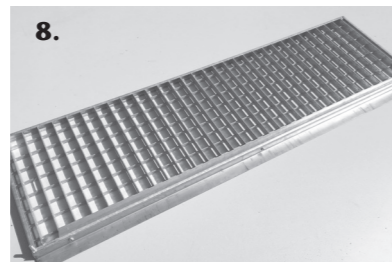
5. Mark the fixing points



6. Pre-drill using a 4 mm drill

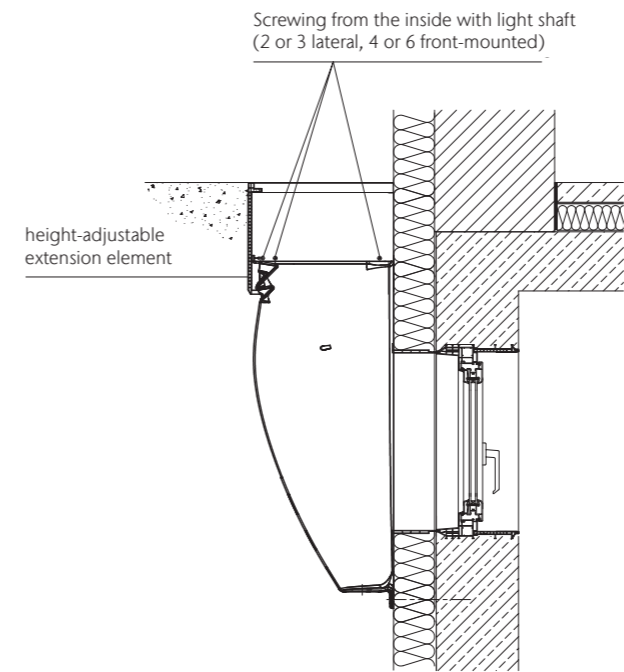


7. Screw the adapter bracket to the grating

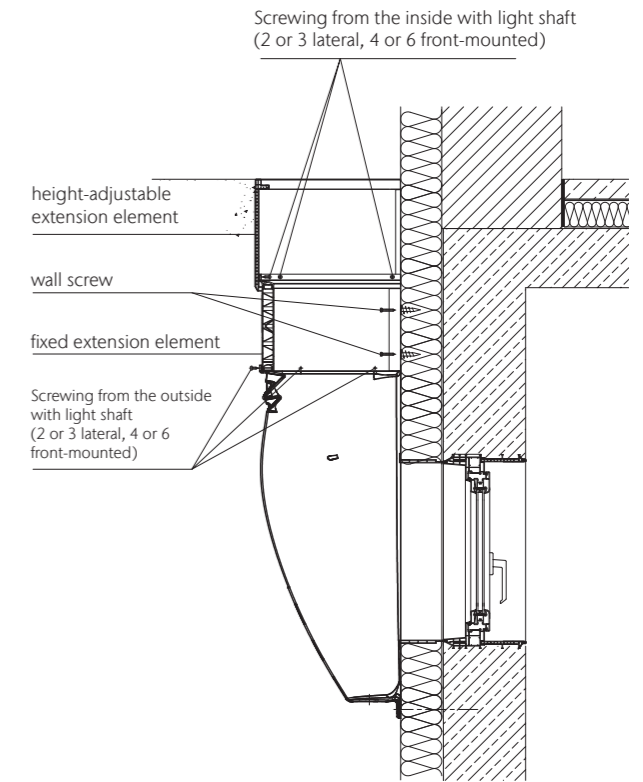


8.

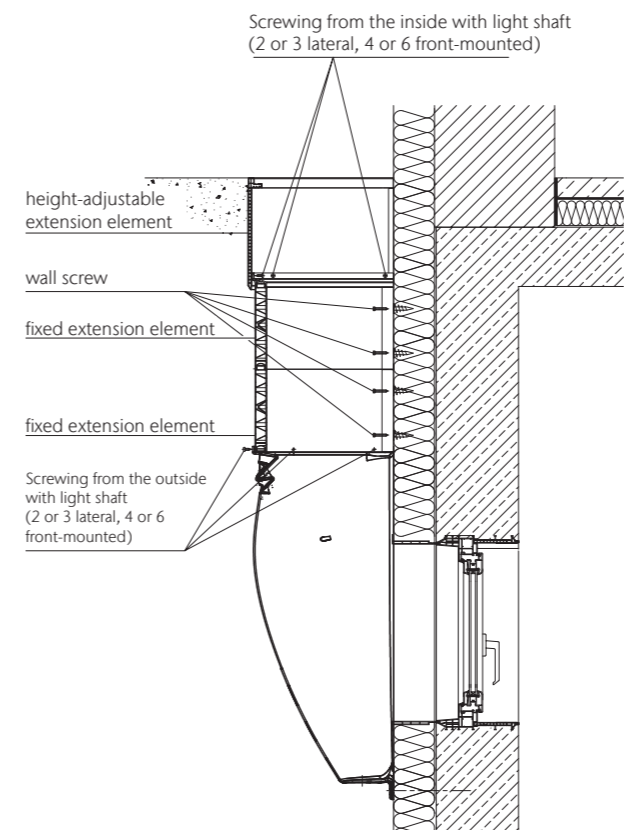
One height-adjustable extension element on light shaft – accessible



One height-adjustable and one fixed extension element – accessible. Installation on perimeter insulation using spiral anchor



One height-adjustable and two fixed extension elements on light shaft – accessible. Installation on perimeter insulation using spiral anchor



Two fixed extension elements on light shaft – trafficable. Installation directly on the cellar wall

