

The complete system for the cellar

ACO Therm® –

Light shafts, assembly boards, reveal windows



ACO. The future of drainage.



The ACO system chain creates the drainage solutions for the environmental conditions of tomorrow

Increasingly extreme weather events require ever more complex drainage concepts. To this end, ACO creates clever system solutions, which function in both directions: they protect people from water – and vice versa. Each ACO product within the ACO system chain secures the direction of the water with the objective of being able to recover it in a way that makes ecological and economic sense.

Within the ACO Group, ACO Building Material supports the global system chain with protective construction elements and drainage systems for modern and sustainable architecture in the private and commercial building construction sector.

2
III



collect:
Collect and carry

- Drainage channels and yard gullies
- Façade drainage channels
- Bath drainage
- Floor gullies
- Shaft covers



clean:
Pre-treat and treat

- Doormats



hold:
Hold and retain

- Basement window
- Pressurised watertight light wells
- Backflow systems

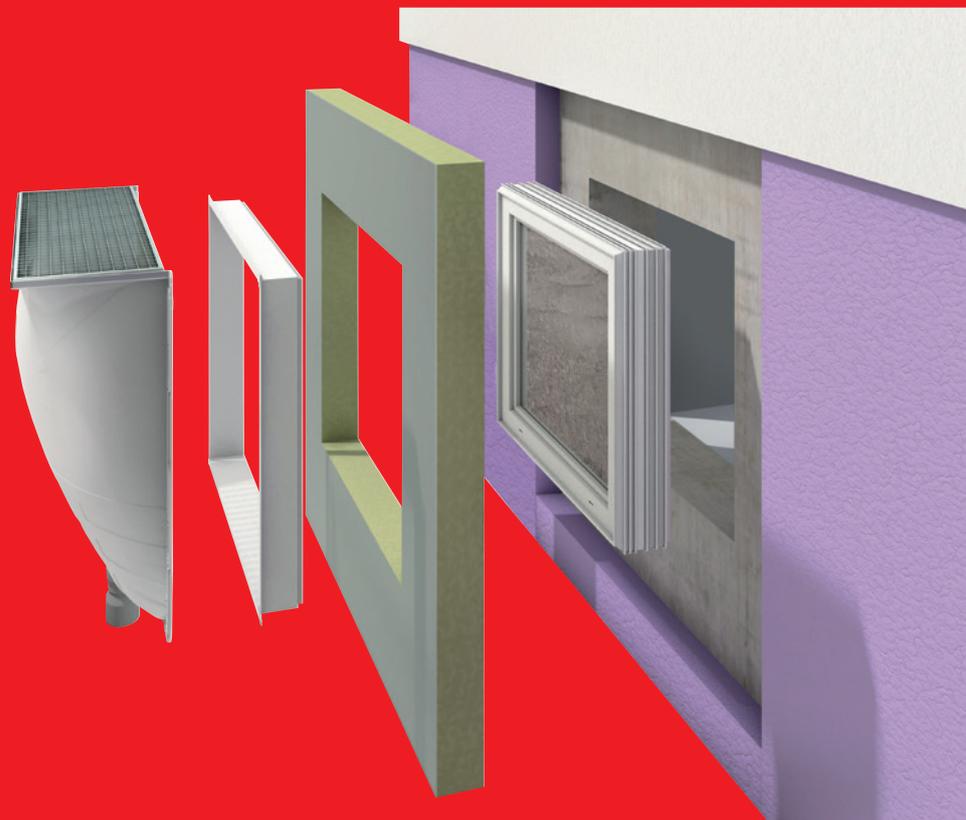


release:
Pump, discharge and reuse

- Linear infiltration
- Honeycomb panels and gravel stabilisation
- Lifting Plant



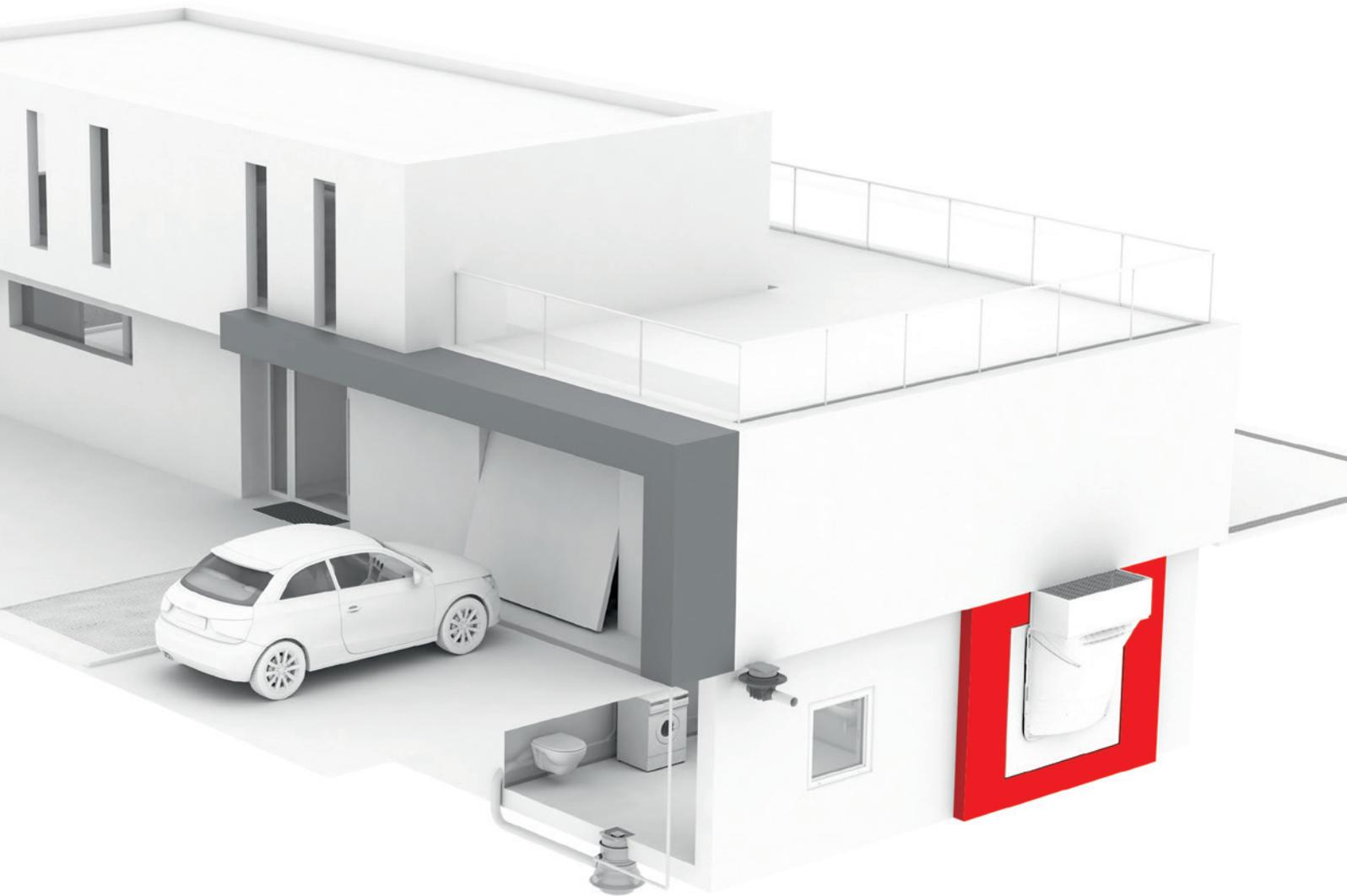
ACO system chain in action



Each ACO Building Material product supports the ACO system chain

ACO Therm® – the complete system for the cellar

Be it a new building or a restoration project – we recommend our ACO Therm® System comprising cellar windows, light shafts, thermally insulating assembly plate and backflow safety valves for modern and secure cellars. The components are presented below. Please download the other product brochures and cellar protection brochures at www.aco-hochbau.de/service/prospekte to find out more about cellars.



The assumption that industrialising the home-building process would lead to ugliness and monotony is not to be feared as long as only the parts are categorised, whilst the houses erected with these parts vary.

Walter Gropius

Prefabrication and rationalisation were key issues addressed by Walter Gropius and his BAUHAUS school back in 1919. Gropius saw his task in prefabricating sensible design elements. The associated reduction of the interfaces as a result of the designed standard solutions was aimed at improving the planning and building construction process, ultimately leading to a reduction in costs for work on existing buildings and new buildings.

The objective of the ACO Therm® cellar system is to create a system solution specifically for cellar window openings. If the plan-

ning architect sees few problems associated around the cellar window, this rules out any possible sources of delay, additional costs and subsequent complaints when implemented on site. Based on this experience, ACO has redeveloped this detail and combined the involved trades into one system solution. The interfaces on the system solution can be simply processed and therefore also give rise to very little cause for complaint, even for long-term construction. Also, the planned detail can be adapted to all situations of the respective project.

Even in the pre-planning phase, the advantage of using the ACO Therm® cellar system becomes apparent because only one tender needs to be issued for the raw construction trade. The greatly simplified treatment of the perimeter insulation and the fact that no plastering or painting is necessary saves both time and money.

Fast and safe with the ACO Therm® system

Advantages of this complete system

- Sensitive cellar window opening and light shaft – are one unit thanks to ACO Therm® products
- Fast assembly of the cellar light shaft on the cellar wall - no drilling or thermal bridges
- Precisely fitting connection of the insulation to the assembly plate
- Free light shaft connection
- No plastering in light shaft
- Connection to the terrace without large step and thermal bridges
- Optimum lighting thanks to adaptable gratings

Uniform design in the system

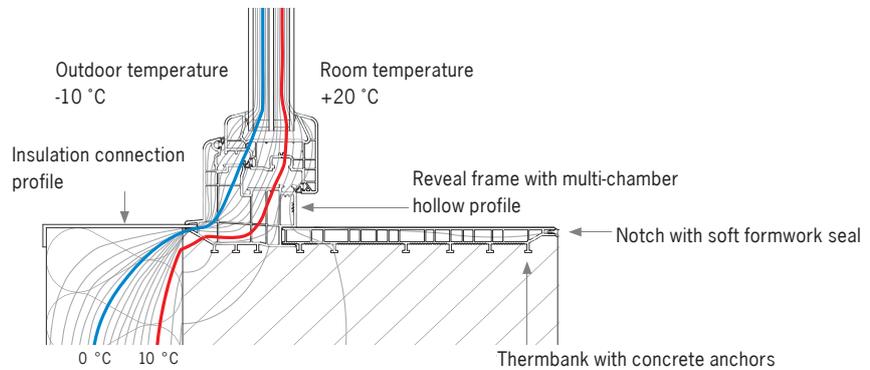
In addition to the technical coordination of simple assembly steps required for the ACO Therm cellar system, the uniform subtle design is also immensely important. Even the most inexperienced building owner can see that everything matches and that this is a well thought-through solution. He not only gets a technically mature solution, but also a good feeling. But apart from these emotional reasons, there are some facts that speak for the ACO Therm® Design:

- Uniform traffic white (similar to RAL 9016)
- Traffic white offers the best possible reflection in the light well and brings a lot of light into the cellar room
- optimal glass surface size of the ACO Therm® 3.0 thanks to the subtle design of the window profile
- Insulation connection profile and ACO Therm® reveal windows merge into one unit thanks to the simple click system – matches the insulation thicknesses of the ACO Therm® Blocks



EnEV2014: Planning and building for the future systematically

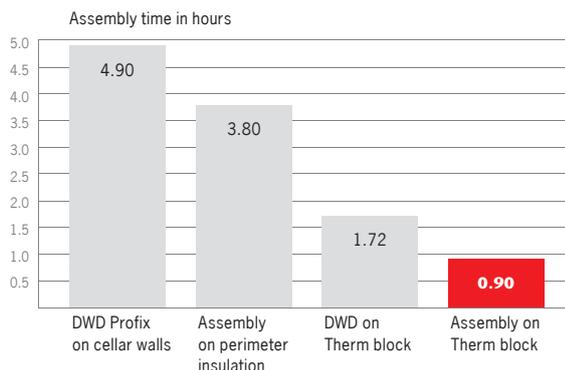
When the amendment to the Energy Saving Ordinance (EnEV), which was passed by the federal government in October 2013, came into effect on 1st January 2016, the specifications relating to the energy quality of buildings and efficient use of energy were increased again. It is the responsibility of the planners, builders, operators of buildings and construction product manufacturers to take this into account. Maintaining property values is clearly linked to compliance with stringent energy standards.



Isotherm curve of the ACO Therm® 3.0 reveal cellar window with perimeter insulation

A systematic approach to certified speed and planning security

When developing the system solution for cellar windows and light shafts, the first practical objects clearly showed that a lot of time could be saved on the construction site by using the ACO Therm® cellar system. And time is money. These statements were confirmed by an independent body, the ARGE//eV (Arbeitsgemeinschaft für zeitgemäßes Bauen e.V., Kiel)



- Download the study at: www.aco-hochbau.de/service/zertifikate/arge-ev



ACO Therm® system components in the standard configuration

1 ACO Therm® 3.0 reveal cellar window

A large part of the heat in a building escapes through poorly insulated windows. The ACO Therm® 3.0 reveal window for the cellar can also play a role reducing the annual primary energy needs and transmission heat loss even more than specified by the EnEV 2014. Thanks to its 4-chamber plastic leaf, the 5-chamber plastic panel frame with Thermbank and the profile depth of 82 mm, a heat transmission coefficient

equal to living room windows is reached. An additional core insulation makes the ACO Therm® 3.0 fit for passive houses. Good insulation values of the window profile allow assembly without any additional insulation in the reveal area. The integrated windows and base sill with concrete claws allow time-saving processing and prepared connections for perimeter insulation and other wall surfaces.

Standard window version

- Standard window $U_g = 0.6 \text{ W}/(\text{m}^2\text{K})$, $U_w = 0.86 \text{ W}/(\text{m}^2\text{K})$
- ACO thermal bridge catalogue which shows the connection details – as a download at www.aco-hochbau.de/produkte/kellerfenster
- With modern triple glazing
- Largest possible glass surface for optimum light intake, reinforced by pure white ACO Therm light shaft
- Optimum thermal insulation thanks to 82 mm construction depth

2 ACO Therm® Block assembly plate with insulation connection profile

Thanks to the ACO Therm® assembly plate Therm Block, the interface around the cellar window and the light shaft becomes a clearly matched unit and unifies all trades into one. The assembly plate ACO Therm® Block made of high-insulating PUR foam is adhered to the wall without screws to match the ACO Therm® reveal window so that no thermal bridges are created. Thanks to the integrated assembly core of the PUR foam board, the ACO Therm® light shaft

can be mounted easily, saving both time and money, and also without any thermal bridges to ensure optimum thermal insulation.

Thanks to the plastic surface, no plastering or painting is necessary. This also saves time and money thanks to the easier handling of the perimeter insulation.

The ACO Therm® Block is also available with an integrated ACO Therm® window.

ACO Therm® Block standard with window recess

- Insulation thicknesses standard 80, 100, 125, 140, 160, 180, 200 mm
- Board sizes 1230 mm x 1400 mm and 1500 mm x 1400 mm (can be turned thanks to continuous assembly core)
- Thermal bridging-free light shaft installation
- Freely positionable light shaft
- Finished surface
- No need to render and coat in the light shaft
- Thermal conductivity 0.025 W/(mK)

3 ACO Therm® light shaft

The ACO Therm® light shaft is made of polypropylene or glass fibre-reinforced plastic which lends it its high form stability. The light shaft can be used both in standard areas and also where there is pressing water. Thanks to the height-adjustable or fixed extension element, new or even existing ACO Therm® light shafts can be adjusted to existing or modified ground levels in a few simple steps.

ACO light shafts

- High-white inner surface and therefore plenty of light in the cellar
- High self-cleaning effect
- ACO Therm® backflow stop as a module with foul air trap and backflow safety valve possible.
- Easy one-man assembly possible thanks to ACO Therm® spirit level.

- Shorter and longer gratings ensure a good connection to the base
- Can be walked and driven over (1.5 kN - 9 kN loadable)
- Light shaft covers, leaf and insect protection as accessories.

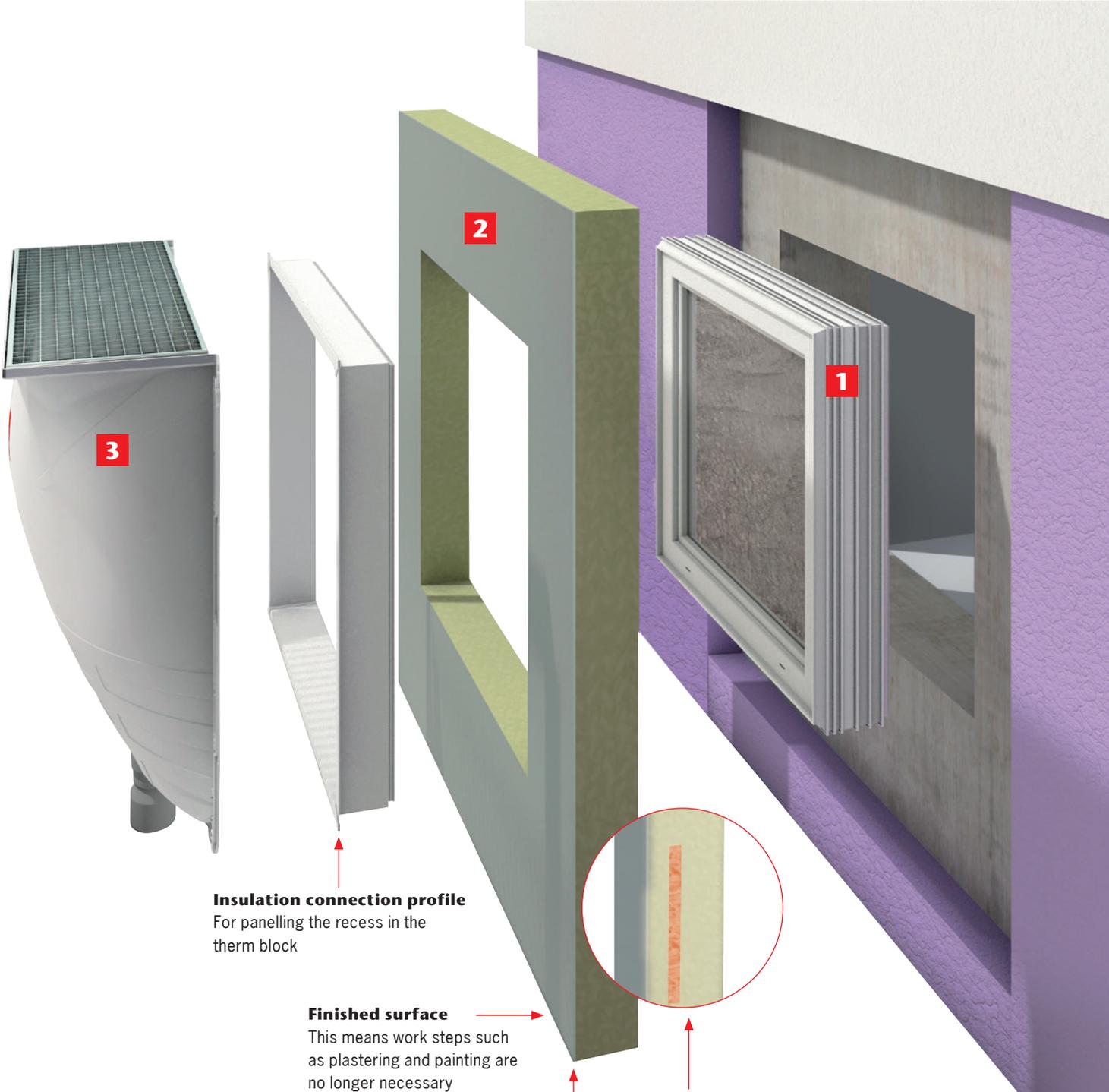
Tip:

For more information about the product please refer to our product brochures:

ACO Therm® windows

ACO Therm® lightwells

ACO Therm® block



Insulation connection profile
For panelling the recess in the therm block

Finished surface
This means work steps such as plastering and painting are no longer necessary

Straight edges
Facilitate the previously time-consuming processing of the perimeter insulation significantly

Assembly core
For simple and time-saving assembly of the light shaft with fast screws

Tip:
Online needs analysis
by ACO cellar systems
<http://aco.me/kellerbedarf>



ACO Therm® system components in the pressurised watertight

Protecting values securely: ACO offers safe protection for your cellar and therefore for your valuable assets. The cellar protection system, comprising the ACO Therm® Block with integrated flood-proof* windows, pressurised watertight assembled ACO Therm® light shaft and the ACO light shaft drainage and ACO backflow safety valves, ensure light, dry and warm cellar rooms.

A flood-proof ACO Therm® window is required if large quantities of surface water can enter the light shaft in addition to pressing ground water.

*24 h test as per ift Guidelines FE-07/01, test report 14-002562-PR01 available for viewing under:
www.aco-hochbau.de/service/zertifikate



**Strong systems
for heavy rainfall**

www.kellerschutz.de



■ ACO Therm® Block dwd with integrated ACO Therm® window standard configuration



■ flood-proof* ACO Therm® window



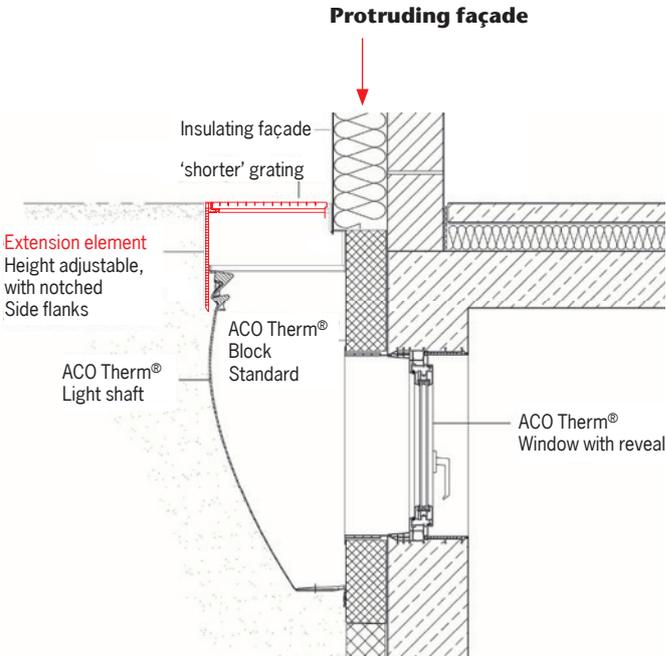
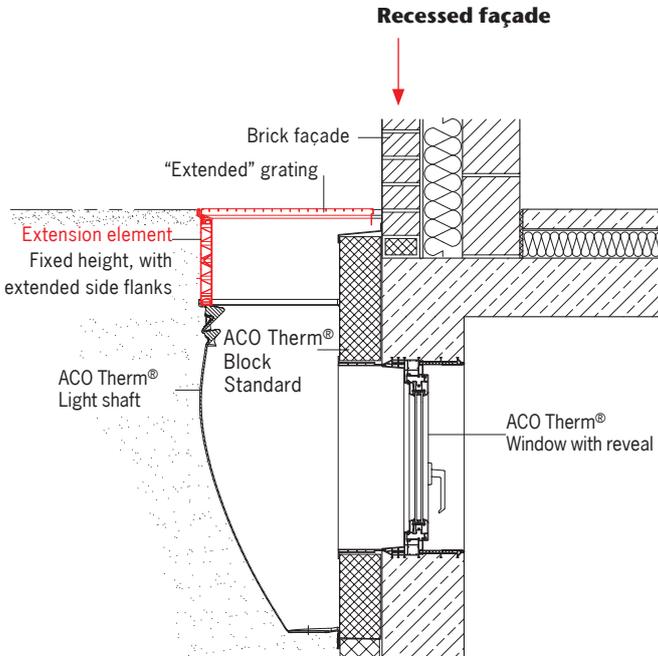
■ ACO Therm® Block dwd with window recess for ACO Therm® window in the cellar wall (optionally in standard or flood-proof* version)

ACO Therm® extension elements For flexible adjustment to the facade

The transition from the light shaft to the façade base and/or the exit to the terrace is a detail that frequently leads to problems on the construction site and requires individual solutions. Particular attention needs to be paid to the thermal insulation and sealing, and also light incidence and appearance at this interface. Simple implementation is possible based on thorough plans.

The transition for a ACO Therm® light shaft can be adapted individually by using an extension element. For instance, a longer flank can be produced which is fitted down to a floor-to-ceiling window. The extension elements (fixed and variable) simplify the execution planning and shorten the installation times.

- Individual cutting of extension elements for the transition to the façade base or the terrace exit
- Adjustments to the height level of over 80 cm are possible
- Assembly allows clean transition in the base/light shaft area
- Thermal bridge-optimised assembly of the light shaft possible even in case of pressing water
- Shortened or extended light shaft grille for connection to the WDVS system





ACO Therm® 3.0 reveal window in clever variants

ACO Therm® flood-proof

A 24 hour flood-proof ¹⁾ version is available for the use of the new ACO Therm® 3.0 reveal window in potential floor regions. It has a reinforced VSG page, a waterproof panel frame seal, additional locking points and mushroom-shaped closing tappets for better burglary protection.

ACO Therm® renovation window

Cellars in existing buildings can be retrofitted with the flood-proof ¹⁾ reveal window HWD-S plus. The HWD-S plus is produced industrially and comes complete with a sleeve. It is installed by a certified ACO service partner.

ACO Therm® burglary resistant

A burglary-proof RC2 model ²⁾ is available for use of the new ACO Therm® 3.0 reveal window where stricter building security specifications apply.

²⁾ Test report 15-000018-PR01 can be viewed under: <http://www.aco-hochbau.de/service/zertifikate>

¹⁾ 24 h test as per ift Guidelines FE-07/01, test report 14-002562-PR01 can be viewed at: www.aco-hochbau.de/service/zertifikate

ACO Therm® passive house model

ACO boosts the residential feeling in the cellar thanks to the better thermal insulation, the comfort, the traffic white colour of the frame, leaf and Thermbank, and the low viewing height which guarantees maximum glass surface. The U_w -value of the passive house model of the ACO Therm® 3.0 is certified by the Passive House Institute Dr. Feist ($U_w=0.74$ W/(m²K); $U_g=0.6$ W/(m²K))³⁾.

³⁾ U_w -values (for window size 123 x 148 cm) calculated with WinIso2D Professional 7.95 acc. to EN 10077-2

ACO Therm® Standard – sizes and depths overview

Depth [cm]	Basic dimensions [cm]							
	75x50	80x60	100x50	100x62.5	100x75	100x100	100x125	125x100
20	■	■	■	■	■	■	■	■
24	■	■	■	■	■	■	■	■
25	■	■	■	■	■	■	■	■
30	■	■	■	■	■	■	■	■
36.5	■	■	■	■	■	■	■	■
40	■	■	■	■	■	■	■	■
Glass surface m ²	0.118	0.184	0.179	0.271	0.364	0.549	0.734	0.734

The dimension is 10 mm each smaller than the basic dimension given

and with details for the final finish

Regardless of whether the window is fitted in the insulation or the brickwork, the insulation connection profile or reveal elements ensure clean and leakproof installation of the window in the brickwork and/or installation.



Insulation connection profiles and reveal elements

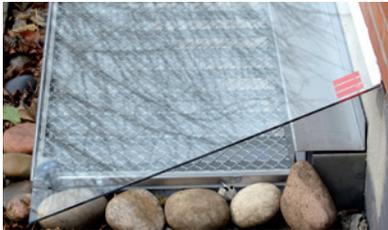
ACO Therm® light shaft with supplementary accessories

Its technical details also make the ACO light shaft universal: each model has gully and putty grooves for the pressurised watertight connection. For standard applications, four screw connections are all that are needed to attach the light shaft securely. An installation set including assembly instructions in eight languages is also supplied.

All gratings are available in different versions. The program also includes a stainless steel frame that can be clipped in, a cover made of safety glass, an attachment for assembly to the perimeter insulation and a drainage connection that is also available in a pressurised watertight version.

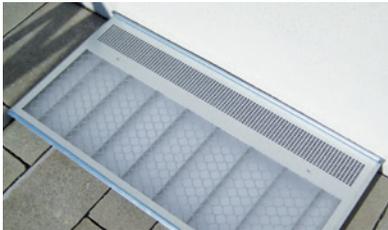
Manhole covers

The ACO light shaft cover made of single pane safety glass (ESG) including the attachment accessories and sealing tape ensures a tight connection to the building wall.



Cover made of ESG glass.

The ACO light shaft cover in galvanised steel with a plastic pane is suitable for many conventional plastic light shafts. It offers reliable protection against rain and leaves. A optional cover box for the ventilation holes protects against façade water.



Access cover

Grating variants



Expanded metal grating



Mesh grating 30/30

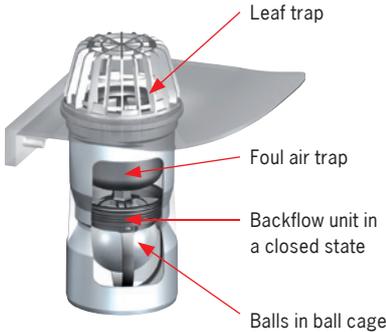


Mesh grating 30/10



Backflow stop

The backflow stop allows the light shaft to be drained into the wastewater drain. If the drains system is overloaded (back-flow) the inner ball closes the light shaft. No water can get into your cellar rooms!





Each ACO building construction product supports the ACO system chain

System solutions for home and cellar

- Basement window
- Pressurised watertight light shafts
- Bath drainage
- Floor gullies
- Backflow stops
- Shaft covers
- Lifting Plant

Infrastructure for house and garden

- Drainage channels and yard gullies
- Façade drainage channels
- Linear infiltration
- Honeycomb panels and gravel stabilisation
- Doormats

Barn windows and escape doors

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