The complete system for the cellar

ACO Therm®
Cellar system

Light shafts
Assembly panels
Window with reveal
Backflow prevention systems

Fast and secure with the ACO Therm® system

The aim of the ACO Therm® cellar system is to offer solutions for different installation situations around the cellar window. From the point of view of the planning architect or fabricator, there would initially appear to be not many problems here. But difficulties around the basement window are often the cause of possible construction delays, cost overruns and subsequent complaints. To avoid this, user-friendly and technically sophisticated products are available for a wide range of requirements.

ACO Therm®3.0 Reveal cellar window

As standard or passive house versions, they have an attractive appearance with the greatest possible incidence of light and offer protection against cold, flooding and burglary as optional variants.

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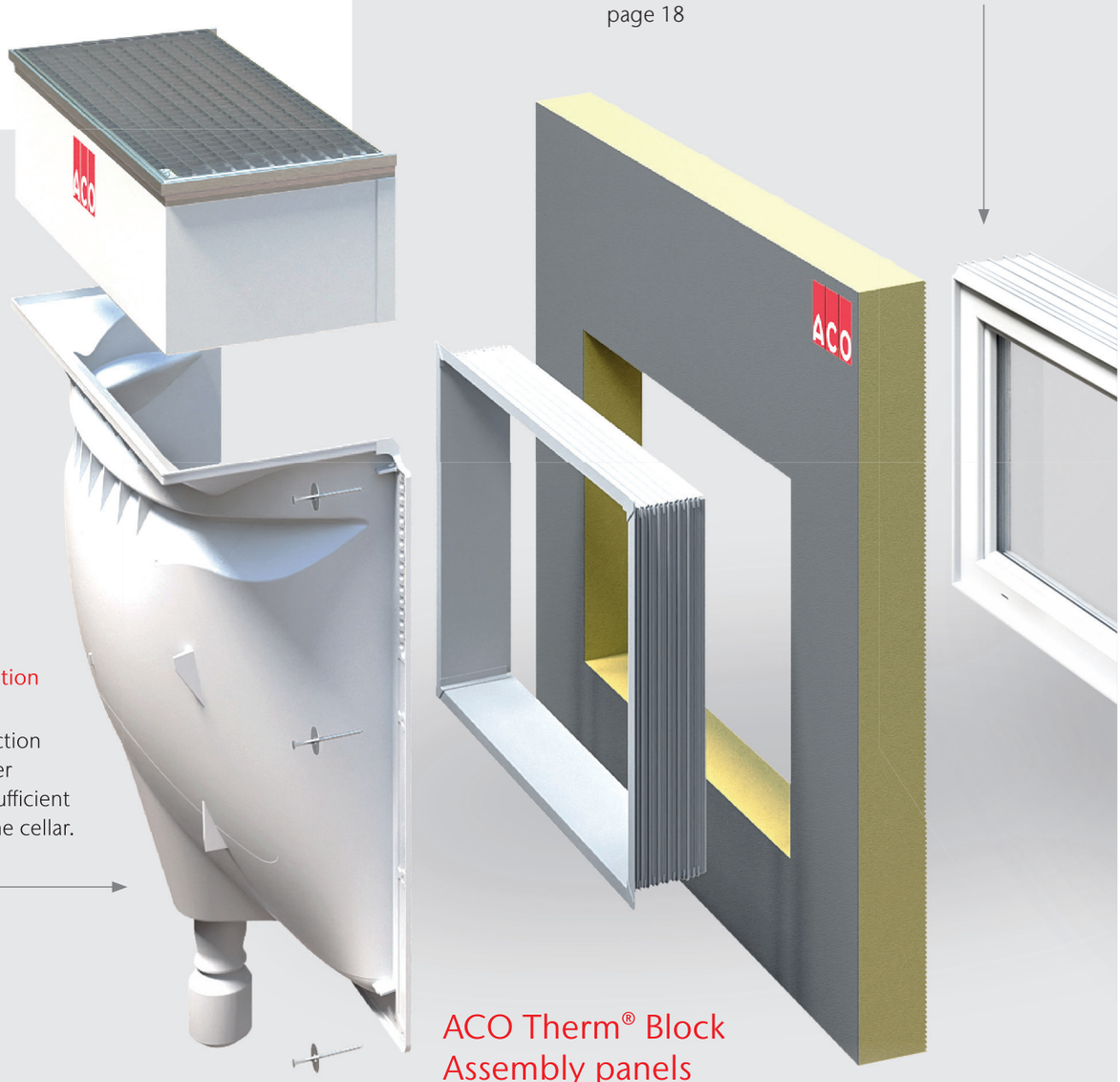

ACO Therm® Light shafts

with drainage connection

provides reliant protection against earth and water pressure and ensure sufficient light and fresh air in the cellar.

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ACO Therm® Block Assembly panels

with insulation connection profile

operate the interfaces between the basement window and the light shaft. In addition to excellent insulating properties, the focus is also on cost- and time-saving connections.

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Supplementary brochures

Components in detail
You can find more information in our product brochures:
ACO Therm® window
ACO Therm® light shafts
ACO Therm® Block

ACO. creating the future of drainage

The worldwide ACO Group. A strong family you can build on.

The ACO Group is one of the global market leaders in the drainage technology sector. Climate change challenges us to come up with innovative solutions in response to new environmental influences. ACO adopts an integrated approach and focuses on professional drainage, efficient cleaning and the controlled drainage or reuse of water. The company's products comprise drainage channels and gullies, oil and grease separating systems, back flow systems and pumps as well as pressurised watertight basement and cellar windows and light shafts.

The family company, which is based in Rendsburg/Büdelsdorf, was founded on the grounds of the Carlshütte, the first industrial company in Schleswig-Holstein, in 1946. The ACO Group's innovation capability is the result of intensive research and development and expertise in the processing of polymer concrete, plastic, cast iron, stainless steel and reinforced concrete.

ACO Building Material System solutions for cellar and house, courtyard and garden.

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.

Headquarter of the ACO group
in Rendsburg/Büdelsdorf

5.000

Members of staff in more than 46 countries (Europe, North Americaand South America, Asia, Australia, Africa)

900 Mio.

Euros turnover in 2020

36

Production locations in 18 countries

ACO Academy
for practical training

Inhaber
Hans-Julius and Iver Ahlmann (left)

Optimally matched

Uniform design in the system

Not only easy to install, but also uniform and discreetly designed - that's what makes the ACO Therm® cellar system stand out.

Even a beginner can see how everything fits together in this well thought-out solution. This technically sophisticated system is a pleasure to work with. The planner also enjoys more planning security. In addition, the cellar system offers increased security and clarity when advising customers.

Advantages of the cellar system

- visible parts in uniform traffic white (similar to RAL 9016)
- greatest possible reflection in the light shaft to provide plenty of light in the basement
- UV-resistant
- large glass surface thanks to discreet window profile
- precisely matched assembly parts
- saves time, costs and stress
- Simple click system for connecting the basement window and insulation connection profile - suitable for the insulation thicknesses of the ACO Therm® block

The ACO Therm® System optimally matched to each other

The ACO Therm® System:

„Perfect if you place value on a beautiful look.“

The **basement window** - kept in uniform and consistent white - has a purist modern, but also classic timeless effect and in turn creates a friendly atmosphere.

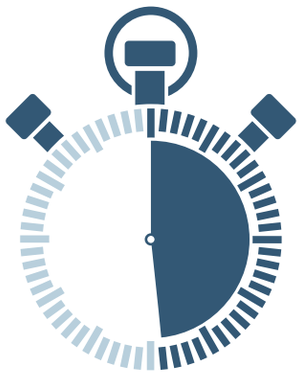
The **Therm Block** assembly panel with a light grey surface provides a discreet transition to the window and the rising house plinth.

The **Light shaft** with its futuristic design and highly reflective white inner surface ensures maximum light in the basement.

Light shaft covers made of real glass or brushed stainless steel with their linear elegance blend in completely with your terrace and ensure an overall harmonious appearance.

Achieve your goal faster with practical assembly panels

With the ACO Therm® cellar system, a lot of time can be saved on the construction site - time is money. Cellar windows and light shafts can be installed more quickly and easily with the cellar system.

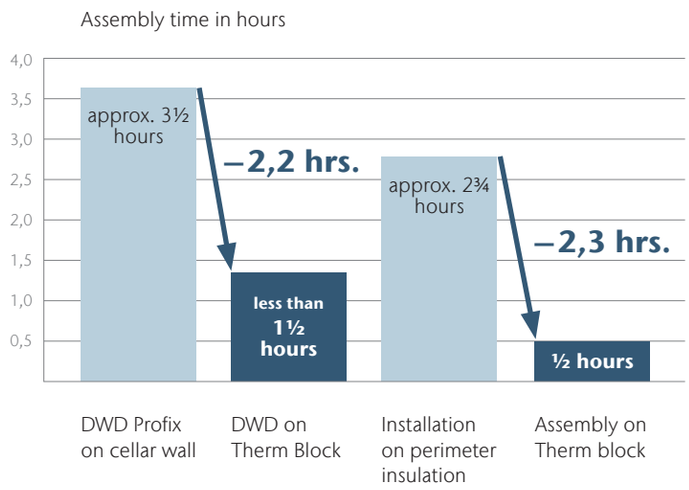


The light shaft installation on ACO Therm® Standard block, which takes approx. 30 minutes to install, saves approx. 2.3 working hours and the associated labour costs compared to conventional installation on perimeter insulation including plastering in the light shaft.

The pressurised watertight light shaft installation on ACO Therm® Block, which takes approx. 1.3 hours, saves approx. 2.2 hours of work compared to conventional pressurised watertight light shaft installation incl. work on the perimeter insulation in and on the light shaft and plastering in the light shaft.

All work with and on the ACO Therm® block can be completed within one working day.

save more than 2 hours during assembly



Advantages of the assembly panel

- finished surface - no time-consuming plastering in the light shaft and no risk of frost and water damage to the plaster
- thermal bridge-free and drill-free light shaft installation in the assembly core located in the Therm Block - no drilling into the basement wall and no risk of hitting reinforcement bars.
- clearly defined and easy to work with sealing areas - Avoids imperfections
- all work steps on the Therm Block can be completed within one working day - longer drying times > 24 h not necessary
- ready-made recesses in the Therm Block to match the basement window - no need for time-consuming work on the perimeter insulation around the basement window

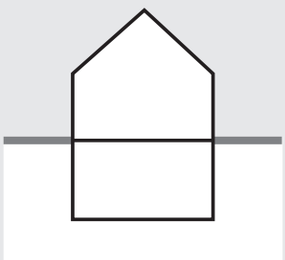
Only approx. 80 minutes were needed for the pressurised water-tight installation

Cellar situation and geographic situation

What does the selection assistant recommend?

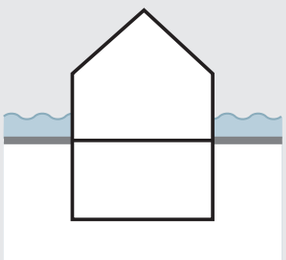
The combination of ACO Therm® reveal cellar window, assembly panel and light shaft is possible for standard installations and for pressurised water-tight light shaft installations.

1



Standard cellar situation

2



Risk of flooding, but no pressurised water

Window integrated in assembly panel

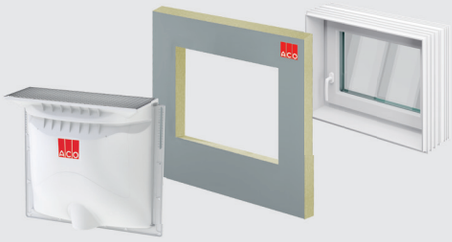
A

- ACO Therm® Light shaft
- ACO Therm® Block Standard with integrated ACO Therm® window
- ACO formwork element or ACO reveal element in the cellar wall

- ACO Therm® Light shaft installed pressurised watertight
- ACO Therm® Block pressurised watertight with integrated flood-resistance* ACO Therm® window
- ACO formwork element or ACO reveal element in the cellar wall

Window in the cellar wall

B

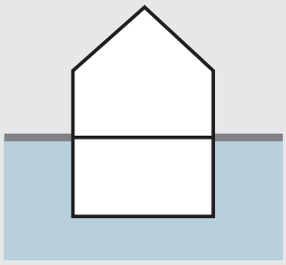


- ACO Therm® Light shaft
- ACO Therm® Block standard with window opening
- ACO Therm® Window in the cellar wall

- ACO Therm® Light shaft installed pressurised watertight
- ACO Therm® Block pressurised watertight with window opening
- flood-resistant* ACO Therm® Window in the cellar wall

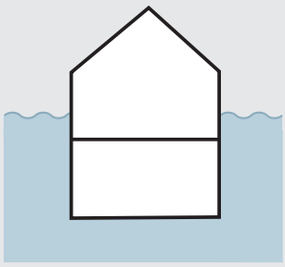
ACO Therm® complete system
- Can be flexibly combined
- for new construction and renovation

3



Pressurised water

4



Risk of flooding and pressurised water

- ACO Therm® Light shaft installed pressurised water-tight
- ACO Therm® Block pressurised watertight with integrated ACO Therm® window as standard configuration
- ACO formwork element or ACO reveal element in the cellar wall

- ACO Therm® Light shaft installed pressurised watertight
- ACO Therm® Block pressurised watertight with integrated flood-resistance* ACO Therm® Window
- ACO formwork element or ACO reveal element in the cellar wall

- ACO Therm® Light shaft installed pressurised water-tight
- ACO Therm® Block pressurised watertight with window opening
- ACO Therm® window in the cellar wall

- ACO Therm® Light shaft installed pressurised water-tight
- ACO Therm® Block pressurised watertight with window opening
- flood-resistant* ACO Therm® window in the cellar wall

ACO Therm® Light shafts

The technical details make the ACO Therm® cellar light shaft universally applicable:

All models are suitable for the common mounting variants and have an extensive standardised range of accessories. Informative installation instructions and installation videos are available for all installation types.

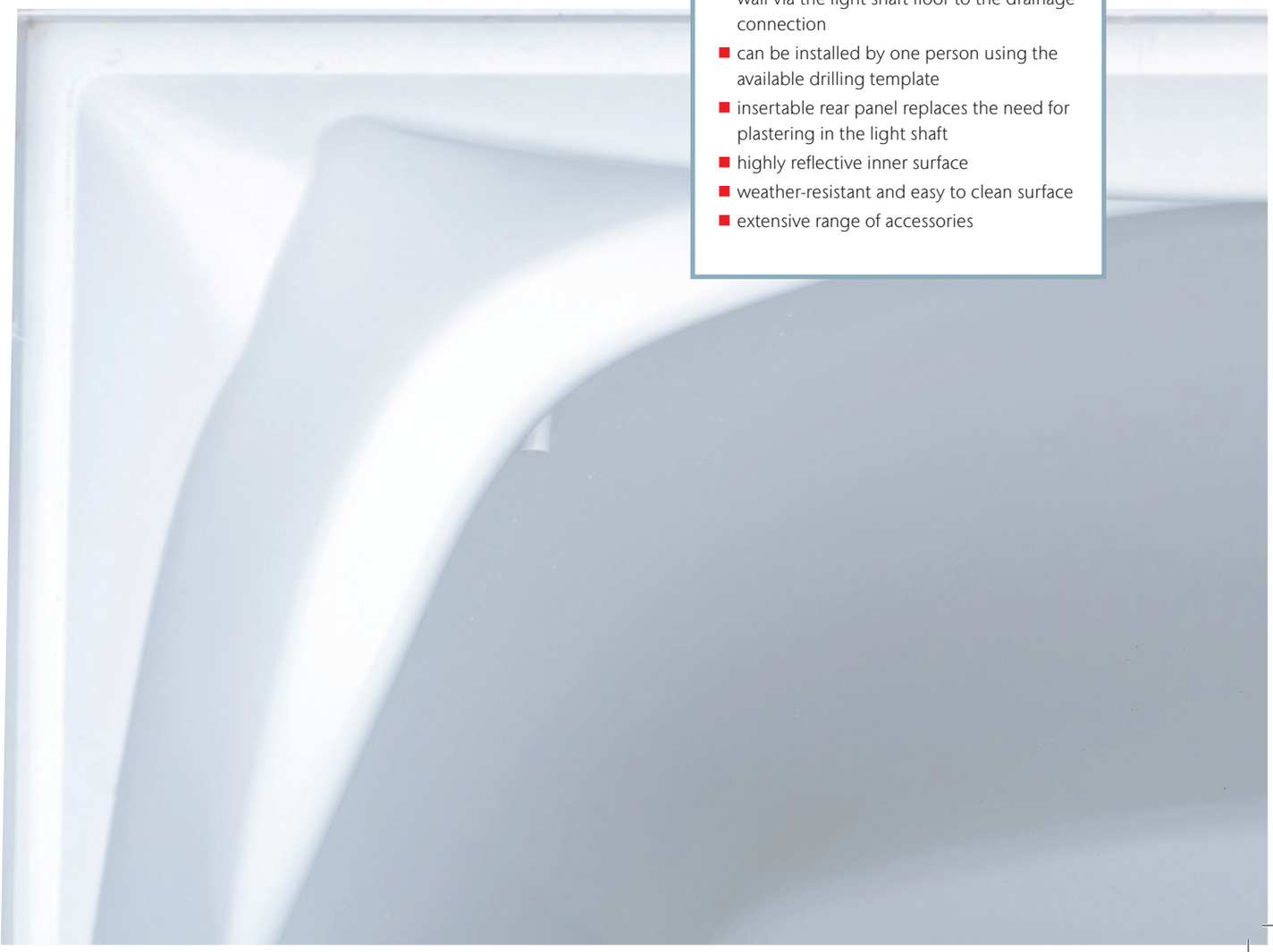
Large light shaft with 700 mm depth

400 mm depth

600 mm depth

Light shaft advantages

- a shaft body for all applications
- optimised component geometry with high dimensional stability
- uniform drainage opening for connecting drainage and backwater valves
- three-sided ground slope:
- rainwater is directed away from the cellar wall via the light shaft floor to the drainage connection
- can be installed by one person using the available drilling template
- insertable rear panel replaces the need for plastering in the light shaft
- highly reflective inner surface
- weather-resistant and easy to clean surface
- extensive range of accessories



Drainage connection or backflow stop

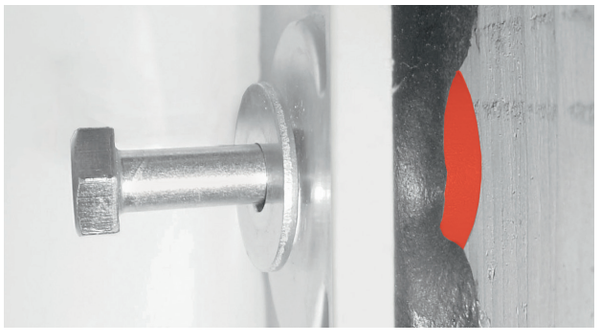
Why not have both?
Up to now, the pressurised watertight drainage connection in the light shaft was common. ACO has added a backflow stop to this light shaft drain. With a practical modular system, it can be adapted to your needs. The light shaft drain with backflow stop and odour trap enables the drainage of the light shaft into the sewer and protects against backflow and sewer odour at the same time. If the sewer system is overloaded (backflow), an internal ball closes the light shaft against standing water from the sewer system. The ACO backwater valve for light shafts has general building inspectorate approval.

Standard installation of the light shaft

With just four fixings, the light shaft is particularly stable and sturdy It can then also be driven over with the appropriate mounting set and grating. Extremely stable heavy-duty anchors are used when the light shaft is mounted on perimeter insulation.

Thanks to the practical height adjustment, the light shaft can also protrude above the bare concrete ceiling in order to adjust the top edge of the light shaft to the height of the finished floor construction.

ACO drilling template: practical spirit level with drill guide for time-saving one-man installation!



Pressurised waterproof light shaft installation

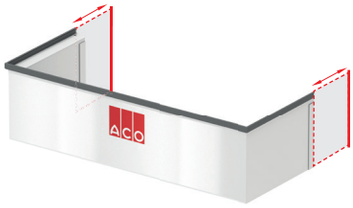
The ACO Therm® light shaft is very dimensionally stable as it is made of polypropylene or glass-fibre reinforced plastic. It is suitable for standard installation as well as for pressurised water-tight installation.

In the case of pressurised watertight assembly, a distinction is to be made between assembly of water impermeable walls or permeable walls. ACO offers suitable systems for both variants. The light shaft is fixed directly to the untreated waterproof concrete wall on a water impermeable wall. When installed on a wall that is permeable to water, the light shaft is usually fixed to bituminously sealed cellar walls.

However, we recommend the combination of ACO Therm® light shaft and ACO Therm® Block assembly panel as the best solution.

ACO Therm® extension elements

Extension elements can be adapted to the on-site installation situation. This allows the side to be notched at the top if the facade insulation is protruding. Elements with extended sides are used for a recessed clinker façade. 4-sided closed elements with visually appealing glass covers are suitable for the exit area of the terrace.



A frequent source of problems on construction sites: the transition from the light shaft to the façade plinth or to the exit on terraces. Particular attention needs to be paid to the thermal insulation and sealing, and also light incidence and appearance at this interface. Easy implementation is possible with careful planning.

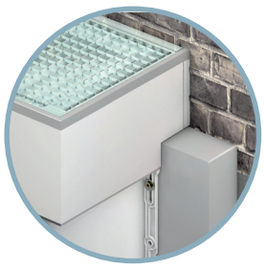
Due to the height-adjustable or fixed extension element, new or even existing ACO Therm® light shafts can be adjusted to existing or modified ground levels in a few simple steps.

Extension element advantages

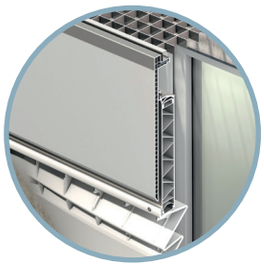
- can be adapted on-site by cutting to size
- adaptation of the extension elements to the slope of the paving
- raising of the light shafts by up to 925 mm possible
- combination of height-adjustable and fixed extension elements possible
- height adjustment via the top extension element
- pressurised water-tight assembly of the fixed extension elements

flexible

adaptable to the facade



Sides can be shortened or detached



Picture shows a combination of extension elements. Up to three elements are stackable

ACO Therm® Block assembly panel

Light shaft assembly on insulation made easy. By using an ACO Therm® block with integrated and firmly embedded window sitting in the insulation level, you get the best possible window connection free of thermal bridges.

ACO Therm® Block Standard
with integrated ACO Therm® window

ACO Therm® Block Standard
with window recess for ACO Therm® window in the basement wall

ACO Therm® Block pressurised water-tight version with window opening for ACO Therm® window in the cellar wall

ACO Therm® Block pressurised water-tight with with integrated ACO Therm® window as standard

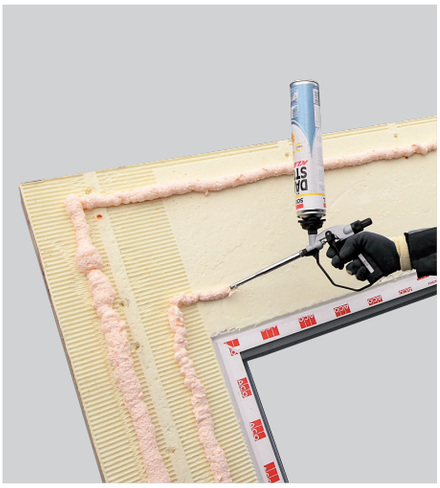
ACO Therm® Block pressurised water-tight version with integrated flood-resistance[1]) ACO Therm® window

Therm Block advantages

- thermal bridge-free installation
- can also be mounted on insulation to make it watertight against pressurised water
- finished surface - plastering is not necessary
- straight edges for easy preparation
- easy installation of the light shaft due to integrated assembly core
- with window recess or window frame
- best possible window connection when using the ACO Therm® Block with integrated window

time-saving

cost-saving

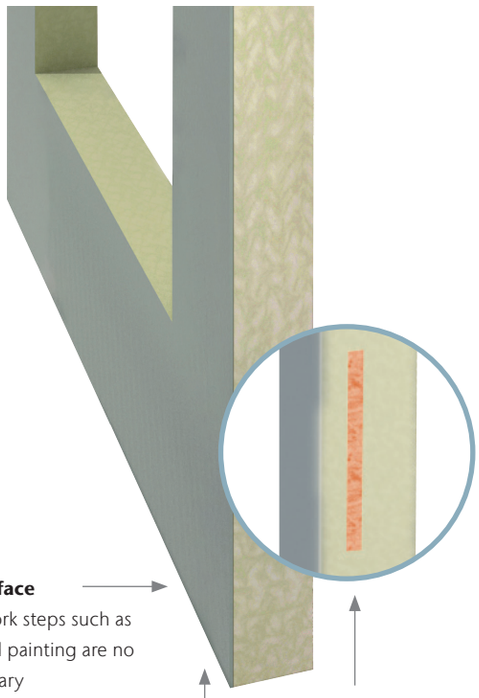


Assembly

The ACO Therm® Block assembly panel is made of highly insulating PUR foam. To avoid thermal bridges, it is glued to the wall without screws. It offers a precisely fitting recess/groove for the ACO Therm® reveal window.

The ACO Therm® light shaft can be easily mounted on the ACO Therm® block in the integrated assembly core using a cordless screwdriver.

The coordinated ACO Therm® cellar system therefore unites the area around the cellar window into a coordinated unit.



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 (integrated wooden panel)
for simple and time-saving assembly of the light shaft with fast screws

ACO reveal window

ACO Therm® 3.0

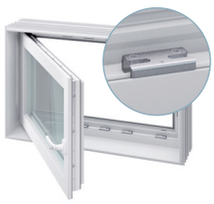
ACO cellar windows with reveal are designed to meet current and future insulation standards. They are available in different versions for installation in the cellar wall: as a standard or passive house version as well as a flood-proof[1]) and burglar-resistant version.

The extra-large glass surface and triple glazing create a living room feeling even in the cellar.

ACO Therm® reveal window Standard

ACO Therm® renovation window
The flood-proof[1]) reveal window HDW-S plus is supplied complete with sleeve and can be retrofitted at any time.

ACO Therm® flood-proof
The window has a reinforced laminated safety glass pane, a watertight frame seal, additional locking points and locking pins and is flood-proof[1]) up to 1.3 m for 24 hours.



ACO Therm® burglary resistant
Due to an increased number of mushroom-shaped locking pins, the reveal window meets the burglar-resistant RC2 design[2]).

ACO Therm® passive house model
Thanks to the excellent Uw value of 0.74, the window is also suitable for passive houses.

Vorteile Leibungsfenster

- largest possible glass area
- optimal amount of light, enhanced by the pure white ACO Therm® light shaft
- narrow window profiles
- Uniform traffic white colour scheme
- optimum thermal insulation due to 82 mm construction depth
- standard window Ug = 0.6 W/(m²K), Uw = 0.83 W/(m²K)
- with contemporary triple glazing

[1]) U_W-values (for window size 123 x 148 cm) calculated with WinIso2D Professional 7.95 acc. to EN 10077-2

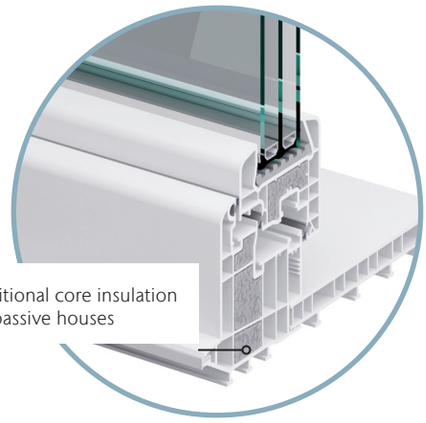
Planning and building with an eye to the future

A large part of the heat in a building escapes through poorly insulated windows. This is why the ACO Therm® 3.0 reveal window is particularly well insulated. It is capable of reducing heat loss and the annual primary energy consumption even more than what is stipulated by the EnEV 2014. It can therefore offer a heat transfer coefficient at the level of a residential window.

The ACO Therm® 3.0 reveal window achieves this especially excellent level of insulation thanks to the following properties:

- 4-chamber plastic sash
- 5-chamber plastic blind frame
  - with thermbank
  - with 82 mm profile depth

The basement window becomes fit for passive houses with additional core insulation.



Tested by the ift Rosenheim

Standard

Resistance
EN 12210
Class C4/B4 from C5

Rainwater resistance
EN 12208
Class 9A from 9A

Air permeability
EN 12207
Class 4 from 4

Sound reduction index
EN 10140-2
RW =36 dB

Thermal Performance
EN ISO 10077-2
Uf 1,0 W/(m2K)

flood-resistant

24 h watertight and flood resistant according to the FE-07/01 guideline

burglar-proof

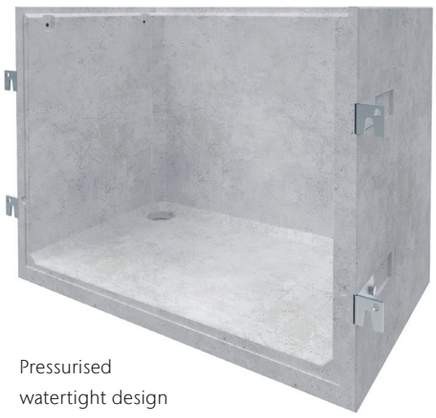
Resistance against burglary
EN 1628 and 1630
Class RC2

Details on the finishing touches

A clean connection to the perimeter insulation is no problem. The practical insulation connection profiles or reveal elements are available for this purpose.

ACO concrete light shafts

The robust all-rounder: ACO concrete light shafts (with and without base) made of reinforced exposed concrete. They provide light and air in the cellar even under difficult conditions where conventional plastic light shafts reach their limits.

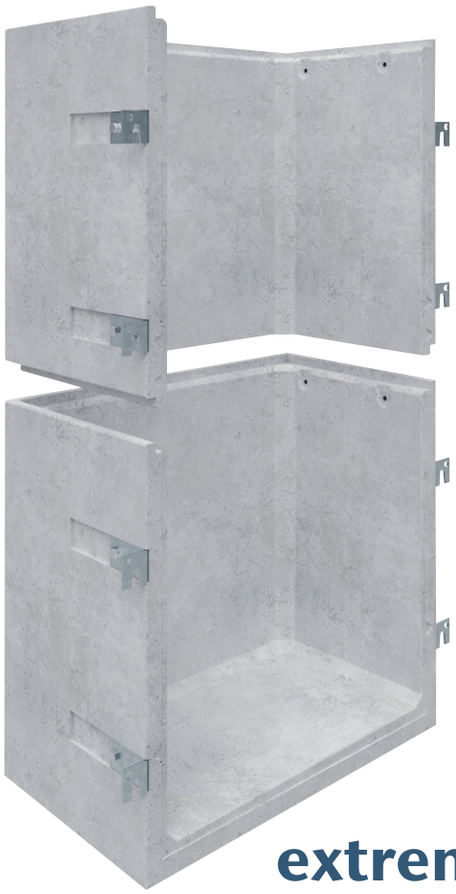


Pressurised watertight design

The ACO concrete light shaft offers many advantages and can be adapted to a wide variety of needs.
A well thought-out fastening system, which is included in the delivery, allows for a short installation time. In addition, the many standard sizes available allow for flexible planning. The desired height can be easily achieved with the ACO attachments. A pressurised water-tight installation is possible on a white tank and when cellar insulation is required at the same time. Once installed, the ACO concrete light shaft is suitable for ACO Therm® reveal windows and many other basement windows. There is a wide range of accessories for the finishing touches, such as backfill panels, light shaft covers and much more.

Concrete light shaft advantages

- brighter, smooth and reinforced exposed concrete in various strength classes
- A wide range of standard sizes ensures flexibility
- Stackable via shiplap
- Two-sided ground slope for safe drainage of accumulating rainwater
- Drainage opening for the installation of drainage connection, backflow stop or sealing plate
- Screw sleeves on the inside to allow damage-free relocation of the light shafts and to accommodate grating lift-off safety devices
- chamfered edges to protect against injuries and chipping
- extensive range of accessories
- factory-prefabricated light shafts for simple and quick pressure-water-tight installation



ACO concrete top sections and attachments enable optimum adaptation to the desired light shaft height

extremely robust

Suitable for all ACO light shafts

Even without the use of an ACO Therm® block, you can save yourself the trouble of time-consuming plastering in the light shaft with the conveniently insertable rear panel. The ACO Therm® light shaft body and the ACO concrete light shaft have a groove on the side of the wall into which the white plastic back panel can be easily inserted.

Inserted rear panel

High quality light shaft covers

All light shafts can be optionally equipped with walk-on capable or drive-on capable cover gratings. Any loads which occur can be safely transferred into the light shaft body via the grating.

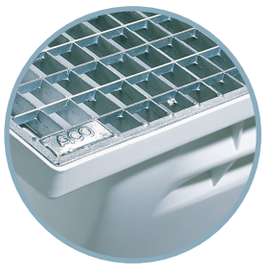
The range also includes stainless steel design gratings, walk-on covers with slip-resistant laminated safety glass specially designed for patio exit areas, as well as leaf and insect protection.

protection against dirt and rainwater

Mesh grating 30/10

Light shaft cover advantages

- durable covers for the most diverse needs
- individually adaptable covers for special requests
- designer covers made of stainless steel and glass provide a visual highlight
- barrier-free installation



Mesh grating 30/30

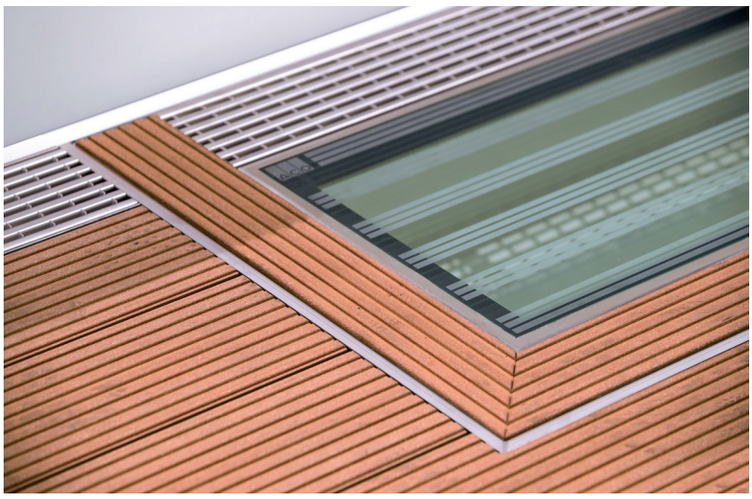
Expanded metal grating

Stainless steel designer grating: available as longitudinal profile or longitudinal rod grating

ACO Vario designer light shaft covers

The Vario designer light shaft cover can be adapted to customer requirements. It can be equipped in a modular system with glass, gratings and inserts made of stainless steel or coated steel. A special feature is the individually fillable frame of the covers. The frame as well as spaces between the ventilation grates can be covered with the existing decking.

Basic element with holder for gratings and insert profiles for customised designs



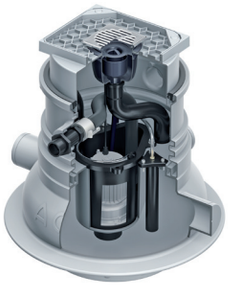
Basic element with partial glass and mounting for grating on terrace side/decking side

ACO backflow prevention systems

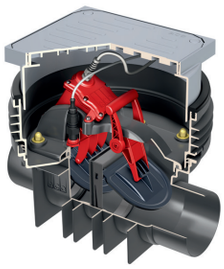
Safely protect valuables: With the cellar protection system, ACO offers secure protection for the cellar and in turn for personal belongings. The backflow prevention system complements the ACO Therm® system with the flood-proof[1]) basement window to form a comprehensive cellar protection system.

Advantages of backflow prevention

- Active backflow prevention with ACO sewage lifting units follows the product standard DIN EN 12050, in which test procedures and quality monitoring are defined.
- passive backflow prevention through ACO backflow stops complies with the product standard DIN EN 13564



Muli-UF underfloor lifting plant



Quatrix anti-backflow device

Maximum safety through system components which ensure dry cellar rooms

Lifting Plant

Lifting plants are the first choice when cellar need to be protected against backwater. Lifting plants convey wastewater over the backflow level into the sewer system. They are utilised when there is no natural gradient to the sewer the usage of the drainage points in the cellar must be guaranteed or high-quality goods must be protected. ACO provides lifting plants for single-family houses or multi-family houses both for grey water free of faeces and for black water containing faeces. Lifting plants also simultaneously protect against water ingress in the event of a backflow and therefore protect furnishings, facilities and valuables.

Backflow stops

An backflow stop is only suitable if the in-house drainage points have a gradient towards the sewer. ACO backflow stops provide safe protection against water in cellars. They prevent wastewater from flowing back into the house when the public sewer system is overloaded by heavy rain or blockage occurs. Who operates a washing machine or shower in the cellar can take advantage of an ACO backflow flap for faeces-free water (grey water) for security. ACO automatic backflow systems for water containing faeces (black water) are utilised for toilets below the top edge of the road outside. These flaps close automatically in the event of a backflow.

Our service offer for you

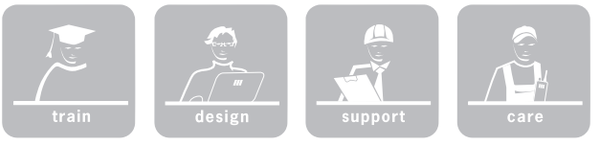
Each project is different and has its own specifications and challenges. Aside from our products, we can also offer you our know-how and services, so we can develop tailor-made solutions together – from planning to support after completion.

Information and further education
In the ACO Academy we share the know-how of the worldwide ACO Group with architects, planners, processors and traders, for whom quality is important. You are invited to share these benefits.

Planning and optimisation
The specification and design of drainage solutions allows many variations. Yet which concept produces the most profitable and technically most reliable solution? We help you to find the right answer.

Construction consultation and support
To ensure that no unpleasant surprises occur between the planning and implementation of a drainage solution, we advise and assist you for a specific project on your construction site.

Inspection and maintenance
ACO products are designed and produced for a long life. With our after-sales offers we ensure that ACO fulfils your high quality standards for many years.



ACO service chain

ACO is your first point of contact in all project phases

Do you have any questions?

askACO

Our invitation for you: askACO

Together we will find the right solution for your specific drainage requirement.

www.aco-hochbau.de/askaco

ACO Building Material in the internet
You will find our products with all the information important to you on the ACO Building Material website. You can use it during planning, not only to access technical descriptions but also the corresponding image information as well as article descriptions and installation notes and information.

www.buildingmaterial.aco

Practical training
Events at the ACO Academy are special: they provide sound practical knowledge on all kinds of construction topics and are the place to meet up and swap notes with practical users from throughout the industry. The ACO academy is a forum for excellent building. Future topics of the construction industry and compact know-how for all aspects of construction are taught with practical reference.

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ACO. creating
the future of drainage

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