

WICONA®

By  Hydro



More than just
a closed cavity façade

» WICTEC Modul air

UNITISED FAÇADES IN ALUMINIUM

A closed cavity system solution with a 10-year guarantee which unites the unitised façade, dry air and solar shading systems. This is WICTEC Modul air.



Developed by WICONA and long-term tested under real operating conditions. The result speaks for itself. We guarantee!



» We offer you more

More value for investors.



“The many advantages of the multifunctional WICTEC Modul air façade help us greatly in marketing the building.”

- 10-year guarantee on profile, dry air and solar shading systems
- 24/7 service and maintenance ensure long-term functionality and maintain the value of the property
- More usable area thanks to a reduced façade depth – at the same time the profile ratio of the façade is reduced, resulting in greater cost effectiveness
- Less cleaning: cleaning the solar shading devices is completely unnecessary; only 2 glass surfaces to clean instead of 4
- Less maintenance: reduced need for maintenance of the solar shading drives thanks to being easily accessible outside the cavity
- High energy efficiency: with U values below passive house level, the costs for heating and cooling the building are reduced
- Longer service life of the solar shading equipment due to its protected location inside the cavity

More comfort for building users.



“WICTEC Modul air facades create an attractive working environment, which is why we score points with specialists.”

- Light-filled rooms thanks to the high glass ratio resulting from integrated solar shading
- Integrated solar shading devices stay clean and can be used irrespective of the weather
- Dry air systems avoid humidity and condensation, ensuring a lasting clear view to the outside
- Maximum thermal insulation ensures comfortable surface temperatures – $U_w \geq 0,55 \text{ W/m}^2\text{K}$
- Ventilation vents can be incorporated if required for specific projects
- Maximum sound insulation thanks to double-skin design

More design freedom for architects.



“Technical highlights and sophisticated design options – the perfect combination for every architect.”

- Numerous design versions from a framed look to a structural glazing solution
- Unrestricted façade design: no need for maintenance and cleaning vents or fittings
- Maximum glazed areas with low frame ratio
- Maximum transparency with controllable entry of light and heat thanks to integrated solar shading
- Great variety of façade options: unitised construction, suspended or punched façade versions are possible
- Less planning effort: calculation and simulation as required for ventilated double-skin façades are no longer needed

More expertise for façade fabricators.



“WICTEC Modul air offers the best opportunities to stand out from the competition and make a name for yourself with clients.”

- Tested quality from one source: façade, dry air system, solar shading, guarantee, maintenance and service
- WICONA and the façade fabricator provide a complete quality plan from manufacture to installation
- WICONA supplies a structural solution and design planning for the façade, including manufacturing guidelines
- WICONA works out the layout of the dry air system, the dimensioning of the pipework and the distribution network in the building
- WICONA ensures the professional manufacture and installation of the façade units relying only on certified WICTEC Modul air partners
- WICONA handles the installation, commissioning and subsequent maintenance of the dry air system



» How we make a difference

WICTEC Modul air – a complete package solution!



Façades, solar shading devices, dry air system, manufacture and installation by certified WICONA partners, guarantee, maintenance and 24/7 service – all from one source. All components optimally coordinated and long-term tested ensuring top functionality and safety with low operating and maintenance costs.

Exclusively from WICONA.

Façades

WICTEC Modul air is a sealed double-skin façade whose cavity is not connected to the indoor climate or outside weather and is constantly flushed with dry air.

Solar shading

WICTEC Modul air uses only systems which are certified and have been tested for operational reliability over a long period. Thanks to being protected in the cavity, the solar shading device can be used at any time irrespective of the prevailing weather conditions.

There is no need at all for cleaning the solar shading devices. The drives are located outside the cavity and are easily accessible from the room. This significantly reduces the level of maintenance.

Dry air system

The constant flushing with dry air via a central low-maintenance dry air system creates an almost clean-room environment in the cavity. This avoids any visible condensation or soiling. Cleaning the cavity of the associated glass surface is no longer necessary, cleaning costs are reduced.

Manufacture and installation

The professional manufacture and installation of WICTEC Modul air façade units is carried out solely by trained and certified WICTEC Modul air partners.



Photo: © Philipp Funke, Zürich

WICTEC Modul air – because we can!

Over several years of intensive research and development have gone into the WICTEC Modul air system. Long-term studies in different climatic zones and comprehensive tests under real operating conditions at WICONA's outdoor test facilities have yielded data and information for precise detailed engineering. **Result: the perfect interaction of all the components.**

Calculations, tests and approvals

- Determination of the mechanical durability with integrated solar shading systems (20,000 cycles) based on ift guideline VE-07/3 and DIN EN 1279-4:2018-10.
- Fogging precipitation according to DIN 75201:2011-11, DIN EN 1279-6:2021-05 and on an entire WICTEC Modul air facade element based on ift guideline VE-07/3.
- Light, solar and thermal verifications according to EN 410, EN 673, EN ISO 52022-3, EN 12898:2019, DIN EN ISO 12631:2018-01 and DIN EN ISO 10077-2:2018-01.
- Airborne sound insulation according to EN ISO 717-1:2013, EN ISO 10140-1:2016 and EN ISO 10140-2:2010.

Your benefits at a glance



10 year system guarantee from WICONA



Highly efficient solar shading can be operated regardless of weather conditions



Investment protection and value retention



No condensation thanks to ventilation design with dry air system



Maximum usable space



High solar gain and use of daylight



Low operating costs



Effective thermal insulation



Everything from one source



High sound insulation



»» Our guarantee

10 year guarantee on the dry air system and solar shading devices with the WICONA maintenance contract.

Dry air system and solar shading

- Maintenance agreement with annual service for WICONA dry air system from year 1
- Maintenance agreement with annual service for WICONA solar shading from year 1



WICONA dry air system

The maintenance agreement for the WICONA dry air system includes maintenance, inspection, service, preventative maintenance and repairs to the dry air system.

Long-lasting reliability is a quality feature of the WICTEC Modul air system. If the dry air flushing system develops a fault, our 24/7 service specialists will be on site: repairs will be carried out within the shortest time, 7 days a week.

WICONA solar shading

The maintenance agreement for the WICONA solar shading devices includes maintenance, repair and the replacement of individual solar shading units if required, plus visual inspections and operational checks. During maintenance, the end stops of the solar shading devices are readjusted and positioned as necessary.



» WICTEC Modul air system description

Façade technology

The WICTEC Modul air profile system consists of a continuous, highly thermally insulating surrounding frame with co-extruded polyamide strips. This frame holds the internal triple glazing and the external frame of the single glazing in a single profile. The WICTEC Modul air makes use of the patented unitised façade gasket to absorb slab deflections.

At the top of the façade units the internal glazing can be divided via a horizontal transom profile allowing the incorporation of a panel (which can be removed for inspection purposes if required). Feeding through the solar shading drive, fixing the curtain wall and supplying the dry air technology are all done under hermetic seal in the top profile of the façade. The design of the glazing system provides for a stand-alone cavity, separate from the surroundings. Options for the external appearance are a frame look or structural glazing.

The compact design of the WICTEC Modul air façade allows construction depths can be drastically reduced compared to traditional double-skin façades, producing cost-effective designs and preserving valuable usable space. The façade units are completely prefabricated in the workshop including glazing, enabling shorter installation times and hence shorter construction times to be achieved. WICTEC Modul air can be used as a unitised curtain wall, as a suspended façade or as a punched façade.

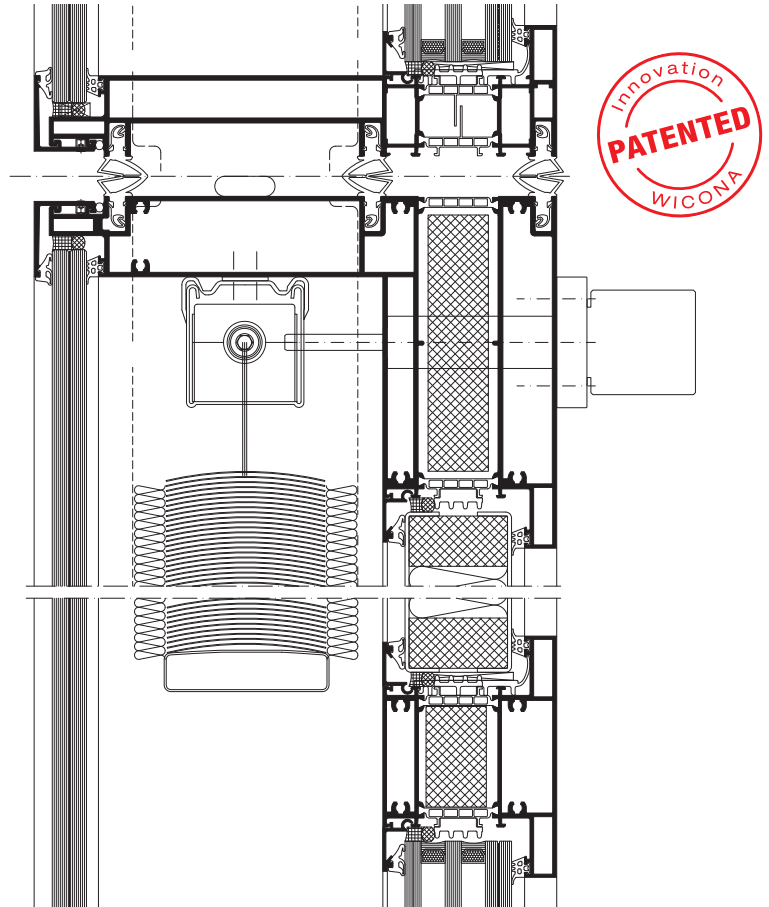


Photo: © Philipp Funke, Zürich

Central dry air technology

The WICONA dry air system ensures the continuous flushing of the cavity. The dry air plant draws in ambient air, then filters, compresses, dries and stores it. The quantity of air produced and the main and supply pressures are controlled and distributed in such a way that an adequate air change is ensured for all façade units at all times. This makes sure on the one hand that there is never any condensation in the cavity and, on the other, that the dry air system operates with the best possible energy efficiency.

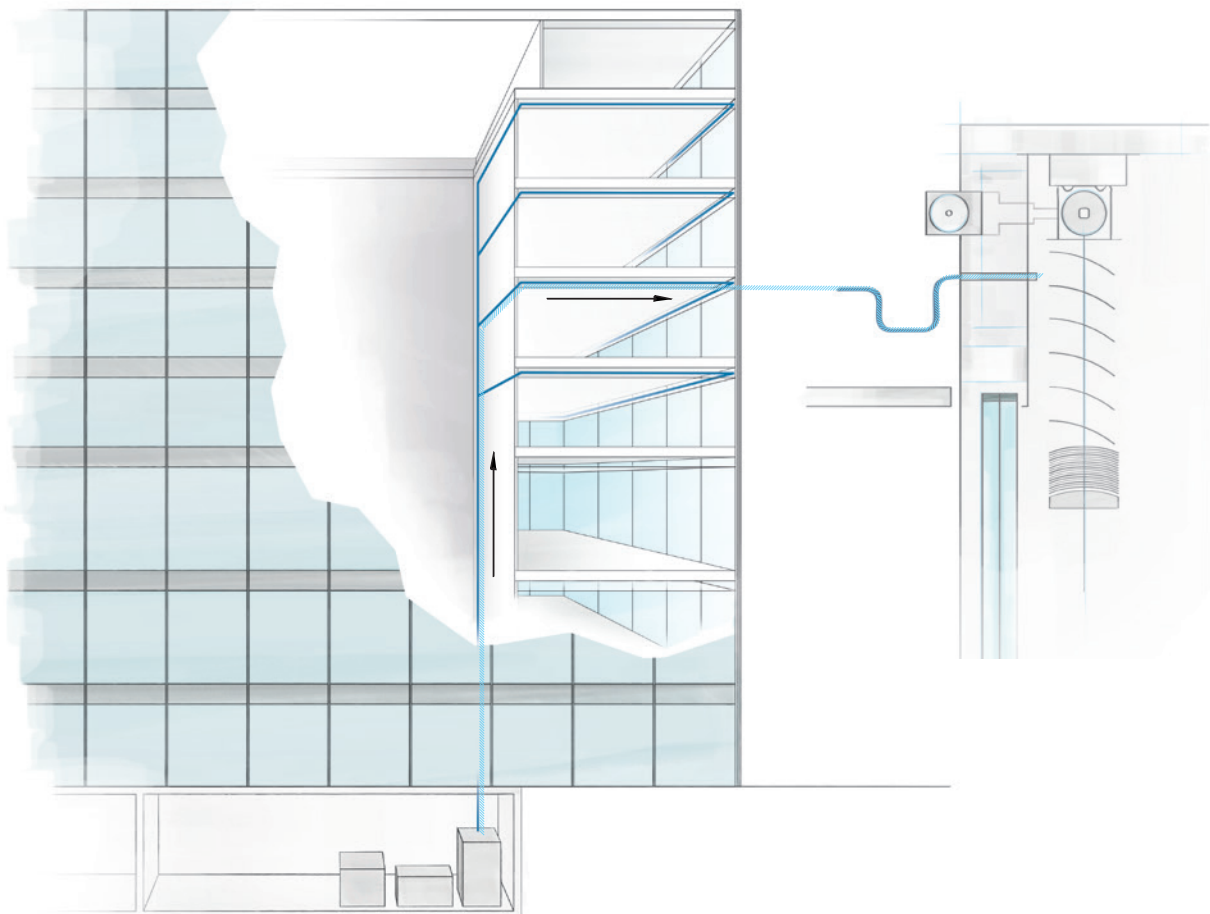
The selective filter systems of the dry air plant prevent visible soiling of the cavity. The conditioned air is distributed in the building via riser and floor distribution pipes. Each of the façade units obtains the correct amount of dry air via a maintenance-free façade junction.

The necessary supply of dry air is regulated by a centrally located control system. In addition, maintenance-free safety devices protect the piping system and the cavity from overpressure.

The operation of the dry air system is monitored continuously by a fault indicator module. Any breakdown or fault of a functionally important component produces a failure message and the fault is remedied within the time period stated in the maintenance agreement.

The dry air plant requires a space of only 8 m² to 15 m² in the main control room, depending on the size of the building and number of façade units.

The benefit of the WICONA dry air system compared to other systems results from the efficient layout based on WICONA's research and development. The plant size is reduced to the minimum necessary, thus considerably reducing the investment costs for the dry air plant.



Solar shading technology

The solar shading system is protected in the cavity and can be operated at any time to prevent overheating of the rooms or provide glare protection, irrespective of the weather.

The sun protection is tested for long-term function and fogging behaviour in accordance with the applicable guidelines for usability.

The motor of the solar shading device is attached on the room side outside the cavity and is therefore easily accessible for maintenance purposes.

The associated WICONA connecting element ensures airtight and tolerance-free connection of the drive motor to the shaft of the solar shading device. The 230 V/50 Hz motor features a limit switch and thermal protection.



Venetian blinds

The blind consists of flat aluminium slats (width 80 mm).

The powder coating of the aluminium components is usually carried out using HWF powder colours. The aluminium parts should be coated in a light shade. Alternative colour specifications and special colours can be tested on request.



Photo: © Josef Meyer Stahl und Metall AG / Fotograf: FELDERVOGEL

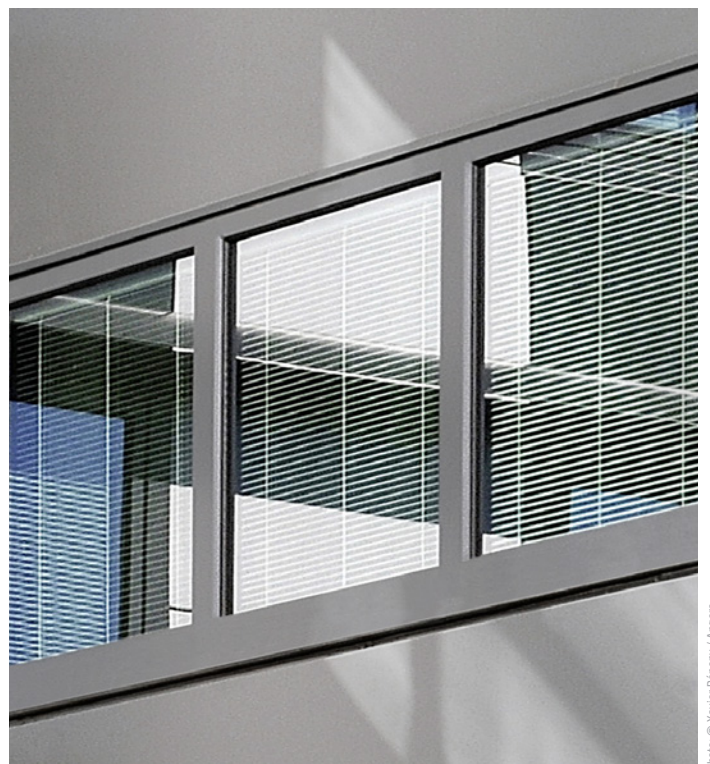


Photo: © Xavier Bérony / Angers

» Leading the field in ambitious
curtain wall projects





Photo: © Franz Rindl-Schjerve

» SCHULHAUS ZENTRUM

Horw, Switzerland



Photos : © Franz Rindlisbacher

The Schulhaus Zentrum Horw, a steel system building from the 1970s, no longer fulfilled the requirements for space, climate skin, building automation, fire safety, etc.

The completely renovated and expanded Schulhaus Zentrum now has the Minergie standard, thanks in part to the innovative curtain wall system WICTEC Modul air from WICONA.

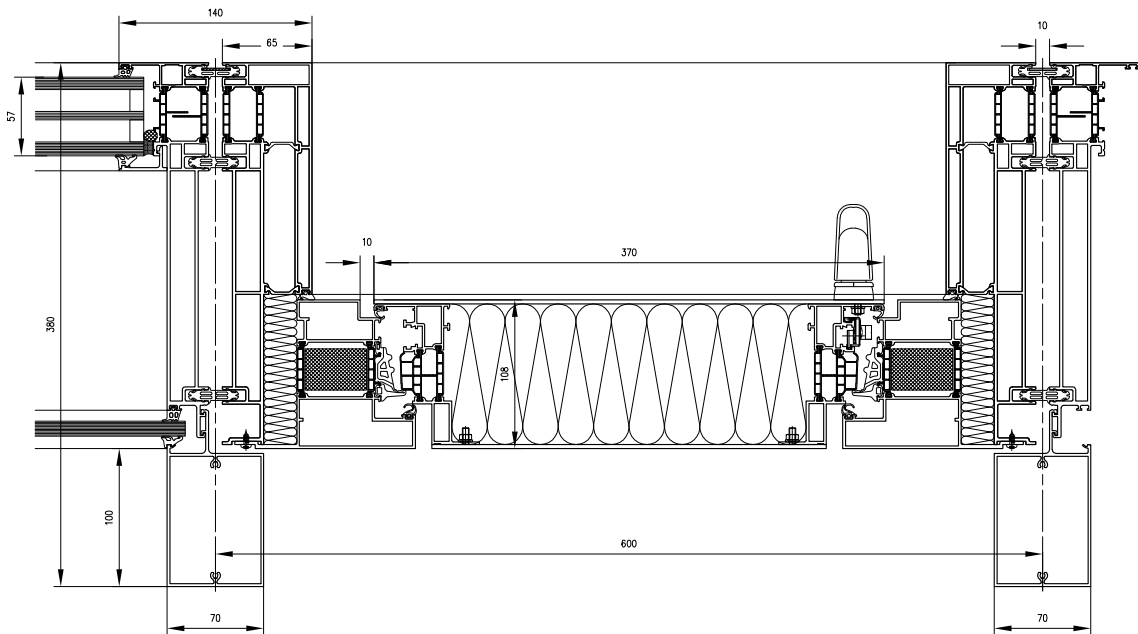
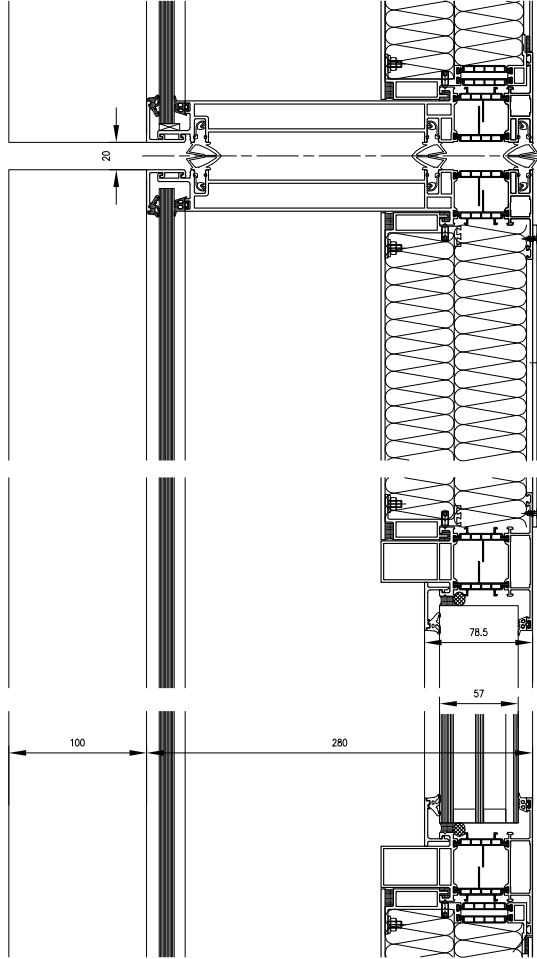
Thanks to its technical features and the attractive design the more or less “new” school attracts plenty of attention. On what is now an area of 7,500 m² there are 28 rooms for classes and groups, two kitchens, a music room, a common room and a management room providing space for everything that a modern school with an ambitious teaching programme requires.

A special visual feature of the façade in Horw is the elements which are opaque from outside but transparent from inside. This is due to a special fabric made by the Swiss company Sefar AG (Heiden).

Project data

- Completion 2017
- Façade area 3,400 m²
- 343 WICONA Modul air units
- Entrance façade as a stick construction
- Natural ventilation with WICLINE 75 evo ventilation flap
- Dry air system in the plant room in the attic
- The dry air is distributed via a riser and then via distribution ducts to each floor.

- Client: Horw municipality, Canton Lucerne
- Architect: Lussi + Partner AG Architekten ETH SIA BSA
- Curtain wall designer: gkp fassadentechnik AG
- Fabricator: SOTTAS SA



» ZWEIFEL POMY-CHIPS AG (Extension building)

Spreitenbach, Switzerland



Photo: © Philipp Funke, Zürich

The Swiss family-owned company Zweifel Pomy-Chips AG has decided to expand their production site for its potato crisps by adding another office and service building. In addition to creating more office space and more room for research and development, the new building also houses a staff canteen and visitor centre.

In order to guarantee a high quality of the interior, the building envelope had to have large glass surfaces and profiles that were as narrow as possible in order to achieve maximum transparency. In addition, the façade system had to meet high requirements in terms of sustainability and energy efficiency, as well as providing convincing solar, weather and sound protection.

In consultation between the client, facade planner and architects, it was decided that the closed cavity façade system WICTEC Modul air was the ideal system to meet these requirements. Thus, 170 units of the WICTEC Modul air façade system were installed in a total façade area of 1,500 m².

Project data

- Completion 2019
- Façade area 1,500 m²
- 170 WICONA Modul air units
- Entrance façade as a stick construction
- Natural ventilation with WICLINE 75 evo ventilation flap
- Dry air system in the technical room in the attic
- The treated air is distributed to the floors via vertical and horizontal pipes

- Client: Zweifel Pomy-Chips AG
- Architect: ZSB Architekten SIA AG
- Curtain wall designer: Mebatech AG
- Fabricator: Josef Meyer AG

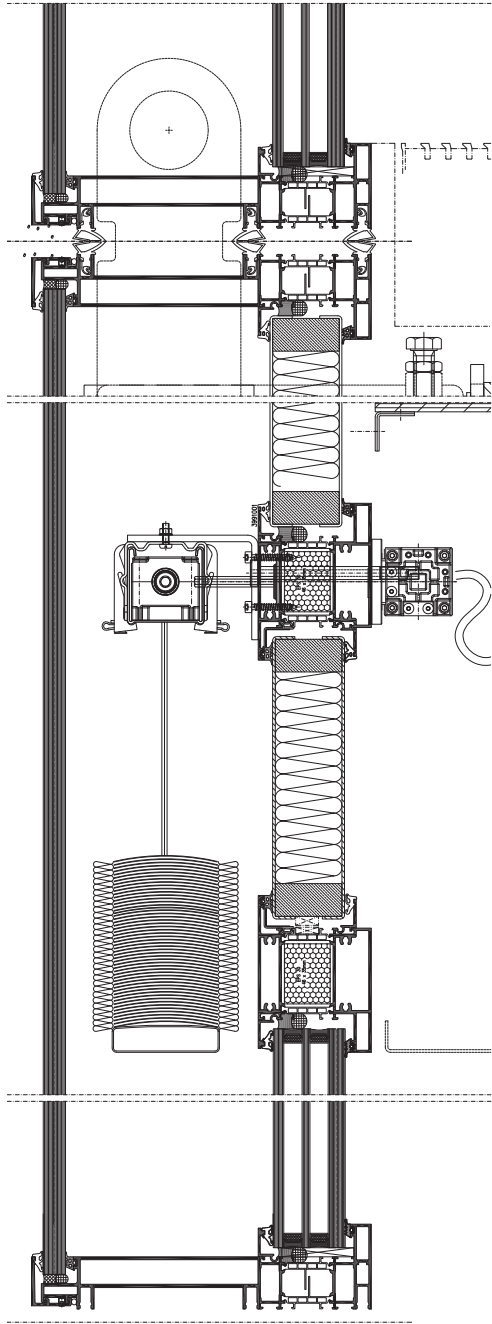
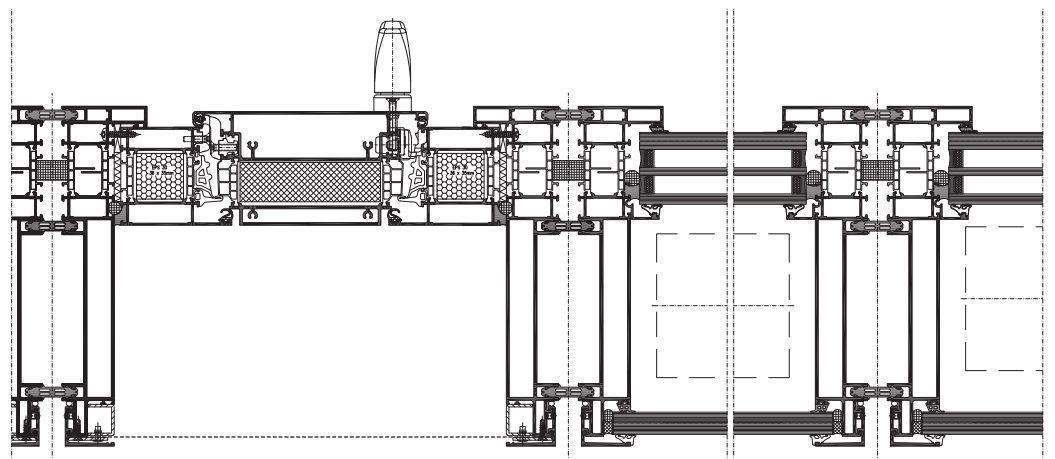
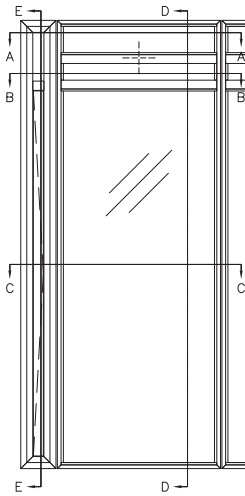


Photo: © Philipp Funke, Zürich



» Commitment and Sustainability

WICONA demonstrates its strong commitment to the environment in all areas: by using recycled and low-carbon materials, with a product design that is adapted to a circular economy, and produced within a responsible supply chain. In addition, these statements are certified by external organisations to ensure maximum transparency.

HYDRO CIRCAL

We are demonstrating our focus on sustainability by using Hydro CIRCAL for our system solutions, one of the most sustainable aluminium alloys in our sector. Hydro CIRCAL is a range of prime quality aluminium made with a minimum of 75% recycled end-of-life aluminium (post-consumer scrap). The production process is verified by an independent third party (DNV-GL), and confirmed by an EPD (Environmental Product Declaration). Hydro CIRCAL also has one of the smallest CO₂ footprint worldwide: 2.3 kg CO₂ per kilo of aluminium – 4.5 times less than the world global primary average.



HYDRO REDUXA

Hydro REDUXA is a low-carbon aluminium, which is made by using renewable energy sources like hydro power. The result is aluminum with a maximum carbon footprint of 4.0 kg CO₂e per kg aluminum, which is one of the world's lowest carbon footprint. Hydro REDUXA is verified by an independent third party (DNV-GL), covering all carbon emissions from bauxite mining and alumina refining to the production of aluminum in electrolysis and casting. It is also confirmed by an EPD (Environmental Product Declaration).



100% RECYCLED POLYAMIDE

WICONA is one of the first suppliers worldwide to use thermal insulation strips made from recycled polyamide for the thermal insulation of its systems. Available as standard right away, no extra cost, with outstanding mechanical and physical properties and an excellent environmental performance. At the same time there is a large gain in sustainability due to low consumption of energy and resources. Therefore the recycled version features a considerably improved production ecobalance.



CRADLE TO CRADLE CERTIFIED® – SILVER AND BRONZE FOR WICONA

Sustainability has always played a key role at WICONA. At the beginning of 2017, WICONA system solutions were Cradle to Cradle Certified® at the Bronze level. Cradle to Cradle Certified® is the world's most advanced science-based, multi-attribute certification program for designing, making and verifying materials and products that are safe, circular and responsibly made with integration of beneficial Environment, Social and Governance features. Since then 14 WICONA systems have been Cradle to Cradle Certified® at the Silver level and 4 other systems at the Bronze level. In order to achieve one of the five levels of certification (from Basic up to Platinum), a product must satisfy the minimum requirements of the relevant level in all five categories. These categories are: material health, material reutilization, renewable energy and carbon management, water stewardship, social fairness and biodiversity.



ENVIRONMENTAL PRODUCT DECLARATION (EPD)

An Environmental Product Declaration (EPD) is an independently third party-verified document that communicates precise, transparent and comparable information about the life-cycle environmental impacts of a product. But it is not only limited to products, such as a window, but can also be applied to materials (an aluminium billet), assembly parts of products or even for services (like maintenance). This document is used for many different applications, e.g. public procurement or green building rating schemes (i.e. BREEAM, LEED, DGNB). In addition, WICONA offers the opportunity to obtain the EPD certificate for exactly the desired product and design automatically from the WICTOP software in a simple and intuitive way.



ALUMINIUM STEWARD INITIATIVE (ASI)

ASI is a multi-stakeholder, non-profit, standards-setting and certification organisation. It is the most internationally recognised standard, which addresses the environmental, social and governance (ESG) aspects of the entire aluminium value chain. The assessment is based around the sustainable production of aluminium, from bauxite or mining to the production of semi-fabricated products, taking into account the recycling of pre- and post-consumer scrap. Hydro was one of the first companies, that received this recognition, in accordance with its commitment to a more sustainable future.



FURTHER CERTIFICATIONS FOR THE DECLARATION OF SUSTAINABLE BUILDINGS

WICONA offers certifications of materials, products and manufacturing processes, which are helpful to certify the sustainability of buildings, with seals such as LEED, BREEAM, DGNB, WELL, etc.

» Your partner from the start

The WICONA support team has many years' experience, and will support you through your project – with planning, technical drafts, calculations and drawings.

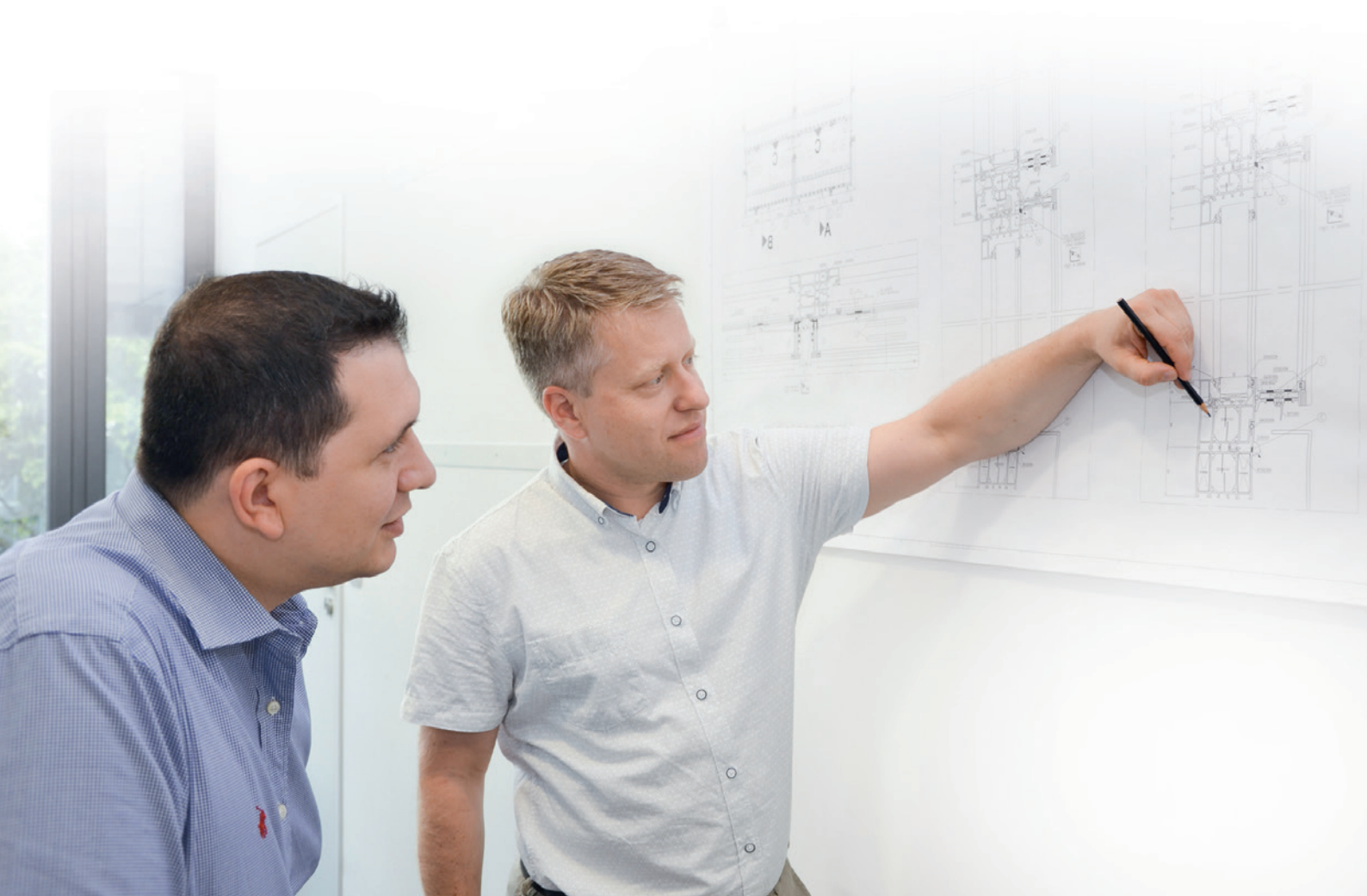
At WICONA, we know the importance of local contacts and fast, efficient support in project planning and implementation. We also know that a global reference and knowledge base is invaluable in all phases of the construction process. WICONA combines both of these strengths.

With our local presence, we make sure you always get the support you need for efficient, optimum planning. We will work together to design the perfect solution for your specific project, with regular meetings and a close dialogue.

We offer you a strong reference portfolio of global WICONA projects realised worldwide. With our know-how and support, you can rely on us throughout the whole process, whatever the nature of your project.

Beyond the richness of its catalogue, WICONA has developed a renowned know-how and established a team for special projects situated in Ulm. More than 30 engineers are working on special projects with bespoke designs for large international architectural projects. This guarantees the quality and homogeneity of the WICONA range, gathering, adapting and approving all the products in accordance with the technical requirements and test certificates.

For each design, its experts control the process from start to finish, ensuring that all performance commitments are met.



Test Centre Bellenberg

Just as for the catalogue solutions, specific solutions are also thoroughly tested to ensure an optimal performance once set up on site. Most of them are tested in our Test Centre in Bellenberg that certifies all WICONA catalogue products. Certified by the IFT Institute, the German equivalent to the Scientific and Technical Centre for Building, it brings together all the control equipment to ensure the exceptional quality of the products. WICONA ensures the reliability as well as the mechanical, thermal, acoustic and reliability performances of all its solutions, both catalogue and bespoke.



Façade test rigs

The façade test rigs make it possible to perform tests on samples with maximum dimensions of 10 m x 10 m. Customers are able to freely select the dimensions of their test specimens within these limits. The following tests can be carried out at the façade test rigs:

- Air permeability in accordance with EN 12153
- Static water tightness in accordance with EN 12155
- Dynamic water tightness in accordance with EN 13050
- Wind load resistance in accordance with EN 12179
- Impact resistance in accordance with EN 14019
- Accident-proof vertical glazing in accordance with TRAV

Window test rig

The rig is designed for windows, doors, fixed panels and combinations. The maximum dimensions of the units including test frame are 3.6 m x 3.5 m. The following tests can be carried out at this bay:

- Air permeability in accordance with EN 1026
- Water tightness against driving rain in accordance with EN 1027
- Wind load resistance in accordance with EN 12211
- Loading with soft and heavy body impact in accordance with EN 13049

Tension/compression testing machine

Static tests using tensile and compression loads are carried out on the tension/compression testing machine. These are also carried out in alternance. The component strength (in accordance with EN 14024), material strengths and screw pullout values are tested, amongst others.



© Conné van d'Grachten

Fitting test rig

Dynamic tests on fittings and elements are carried out on doors and windows up to a height of 4 m. For example, continuous operational testing in accordance with EN 1191 and testing of fittings for windows and French doors, requirements and test procedures for turn/tilt and turn and tilt fittings in accordance with EN 13126-8 can be carried out. Sash widths of up to 1550 mm can be tested.

Hot Box

- Determines heat transfer coefficients for framework profiles (U_f) in accordance with EN 12412-2
- Gauges new insulating materials
- Verifies material properties
- Validates computer programs

Austria

5201 Seekirchen
☎ +43 6212 2000
✉ info@wicona.at

Benelux

3400 Landen
☎ +32 11 690316
✉ info.hbs.be@hydro.com
✉ info.hbs.nl@hydro.com
✉ info.hbs.lu@hydro.com

Croatia

10010 Zagreb
☎ +385 01 2048 217
✉ info@wicona.de

Czech Republic

619 00 Brno
☎ +420 602 745 407
✉ info@wicona.cz

Denmark

8240 Risskov
☎ +45 7020 2048
✉ wicona.dk@hydro.com

Estonia / Latvia

75312 Rae vald Harjumaa
☎ +372 657 66 35
✉ info@wicona.ee

France

02200 Courmelles
☎ +33 3 23598200
✉ wicona.fr@wicona.com

Germany

89077 Ulm
☎ +49 731 3984-0
✉ info@wicona.de

Hungary

1031 Budapest
☎ +36 (1) 4533457
✉ info@wicona.hu

Ireland

Dublin D22 X286
☎ +353 1 4105766
✉ info.hbs.ie@hydro.com

Italy

20063 Cernusco sul Naviglio MI
☎ +39 02 924291
✉ info@wicona.it

Kosovo-Albania

Prishtina 10000, Kosovo
☎ +38 349 28 02 22
✉ info@wicona.de

Lithuania / Latvia

02244 Vilnius
☎ +370 5 2102587
✉ baltics.lt@wicona

Norway

2007 Kjeller
☎ +47 22 42 22 00
✉ wicona.no@hydro.com

Poland

92-620 Łódź
☎ +48 42 683 63 73
✉ wicona.pl@hydro.com

Romania

032332 Bucharest
☎ +40 724 743 070
✉ info@wicona.de

Serbia

11070 Beograd
☎ +381 11 312 18 35
✉ info@wicona.de

Slovakia

82105 Bratislava
☎ +421 918 725 098
✉ info@wicona.sk

Slovenia

2201 Zg. Kungota
☎ +386 2 620 99 70
✉ info@wicona.de

Spain

08195 Sant Cugat del Vallès
Barcelona
☎ +34 93 573 77 76
✉ wicona.es@hydro.com

Sweden

574 81 Vetlanda
☎ +46 470 78 74 00
✉ wicona.se@hydro.com

Switzerland

5506 Mägenwil
☎ +41 62 887 41 41
✉ info@wicona.ch

Turkey

34149 Istanbul IDTM A1/16
☎ +90 212 4657650
✉ info@wicona.tr

United Kingdom

Tewkesbury, GL20 8SF
☎ +44 1684 853500
✉ info.uk@wicona.com

China

Beijing 100005, P.R.C
☎ +86 10 6059 5686 ext. 805
✉ contact.wicona.international@hydro.com

Singapore

608831 Singapore
☎ +65 6513 2126
✉ contact.wicona.international@hydro.com

United Arab Emirates

Dubai
☎ +971 4 887 00 96
✉ contact.wicona.international@hydro.com

United States of America

☎ +1 (516) 519-4635
✉ info.na@wicona.com

Other countries

31037 Toulouse
☎ +33 5 61312626
✉ contact.wicona.international@hydro.com