



AMSTEIN + WALTHERT



The art of engineering ...





... is all about making proper  
use of **resources.**

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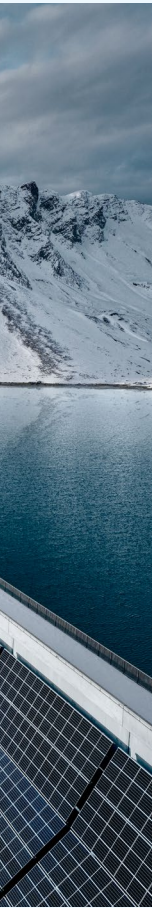
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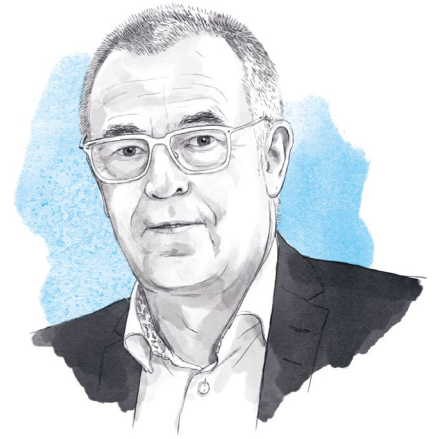


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**Promoting resources.** Why progress only occurs when we empower people to create it. And why we're pushing extra-occupational learning to the forefront.



**The world has been turned upside down. We live in turbulent times with unprecedented questions and challenges.**



As an engineering company, one essential question remains in focus: How do we preserve, use, secure and promote our resources?

In answering this fundamental question, our employees are our most essential resource at Amstein + Walthert Group. With their knowledge and commitment, they make meaningful contributions each and every day. The foundation for this is a joint understanding of quality, commitment and resilience. This might mean, for example, confidently promoting future-oriented technical solutions to customers with an eye on resource use.

We are pleased to share our views in this corporate brochure and we hope it gives you food for thought.

We wish you a stimulating and insightful read.

Christian Appert  
Group CEO

# Conserving resources

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## Too much of our energy is used unintelligently.

- ✎ We humans tend to open the windows in overheated spaces. And now that the Earth itself is becoming an overheated space, we need intelligent solutions more than ever.

# Buildings need to learn what's good for people.



example, use temperature and CO<sub>2</sub> measurements to detect if and how many people are in a meeting room. Depending on these results, the central software controls the heating and ventilation requirements of the room. Of course, the system will also have an insight into the meeting room schedule and the weather forecast, in order to create a healthy and productive room climate for the participants in time for the start of the meeting at eight in the morning.

**The DTS system developed by Amstein + Walthert checks the real performance data of the building services equipment and rooms in real time. Deviations from the planned target can be detected immediately and the causes identified.**

**In 95% of all corporate buildings, rooms are regularly illuminated, heated, ventilated and cooled... for employees who aren't even there. In other words, technology often fails to meet demand. It's time buildings started thinking for themselves.**

In the building sector, which is responsible for almost half of the energy consumption and one third of the CO<sub>2</sub> emissions in Switzerland, intelligent building technology could easily reduce consumption by 15–20%. This is why we're working tirelessly to make buildings smarter.

First of all, we need a whole lot of sensors that transmit real-time information to a central control system via the Internet of Things (IoT). IoT sensors that, for

Ultimately, an artificial intelligence (AI) system that is capable of learning will autonomously manage the building through all seasons, providing optimal value in terms of energy efficiency, economy and human well-being.

Before this can happen, however, practice must first deliver what theory promises. Even today, systems are so complex that facilities in new buildings seldom work seamlessly together and achieve the desired performance values right from the start. That is why we (as the first in our field) have developed a digital test system (DTS) that has revolutionised test routines. This is an important step in creating an optimally regulated facility – with or without AI support.



**Amstein + Walthert supports certifications from national and international labels.** These support environmental and socially relevant objectives in the area of sustainability and increase the value of real estate.

↳ **Andreas Huterer**  
CEO iccon AG



## Building with foresight, means circular thinking.

**Energy efficiency has long been the epitome of sustainability. But the requirements are now much more stringent. Today, we have to look at new buildings holistically in terms of their impact on the environment, society and the economy. And we have to understand buildings as part of the circular economy.**

When it comes to heating, the release of CO<sub>2</sub> emissions has long been the focus. Many future-oriented alternatives are already part of the solution and no longer part of the problem. But the responsibility of building investors begins with the choice of location and building materials. Most buildings are still designed as consumer objects, although at least 15% of the materials could be recycled, including the concrete.

The principle of waste separation can definitely be applied to the building industry, for example by using fewer composite materials or using reversible screws instead of glue. Using a comprehensive energy and waste management system, life-cycle costs can be calculated in a completely new way.

Such comprehensive concepts also take into account, for example, the batteries of electric vehicles, which can be useful in terms of economic energy use with bidirectional charging. The same goes for photovoltaic façades or grey water that is treated for reuse.

Sustainability efforts add value to a property, even if they are associated with higher initial costs. Certifications from independent bodies help to distinguish future-oriented properties in a way that increases their value. For this reason, Amstein + Walthert has been committed to successfully carrying out certification processes for national and international sustainability labels for many years.

### Leading sustainability labels



#### Switzerland

- ↳ Minergie-A, -P, -ECO
- ↳ GEAK
- ↳ SNBS
- ↳ DGNB System Switzerland



#### International (selection)

- ↳ DGNB
- ↳ GNB (DACH region)
- ↳ BREEAM (Europe) D
- ↳ LEED (worldwide)
- ↳ WELL (worldwide)

# THE CIRCLE

## The district among certified buildings.

BEST  
PRACTICE

**In order to carry weight, certifications must also be able to keep pace with large-scale projects. The Circle at Zurich Airport is the size of an entire district and is the highest-scoring LEED Platinum-certified building in Switzerland.**

Thanks to the aspirations of the building's owners, Flughafen Zürich AG & Swisslife AG, the realisation partner HRS Real Estate AG and sustainability management of Amstein + Walthert, the Circle has become a Swiss flagship project for sustainable large-scale construction. The Circle is not only the largest building ever to be awarded the Swiss Minergie-Standard, it also enjoys a sterling international reputation thanks to the LEED Platinum label.

LEED is the ultimate benchmark for sustainability in real estate in international comparisons, and Platinum is the highest possible award level. To be awarded Platinum, a project must score 80 points; the Circle sets a new benchmark with 93 points. This outstanding result was made possible by numerous innovative measures: heat and cold, for instance, are exchanged between the different usage areas as needed and are stored in the ground via energy storage piles. Collected rainwater is fed into the sanitary facilities or used to irrigate plants, and the corresponding catchment basins are distributed throughout the entire site. Recycling saves a lot of water, and of course photovoltaic systems on the roofs provide electricity that flows to where it is needed.



Although the 180,000 m<sup>2</sup> surface area with its 2,700 rooms is used in many different ways, for certification purposes the Circle was considered an infrastructural unit. This made the certification process significantly more demanding. The particular challenge was coordinating and controlling all the teams from the most diverse specialist areas from planning to commissioning. The LEED award is therefore also a fantastic testament to the teamwork of all parties involved.

**THE CIRCLE, Switzerland's largest new building, is an international giant in the field of sustainability.** Never before has a Swiss building of this size received the LEED Platinum or Minergie labels. In addition, the atmospheric and extremely high-quality lighting design developed by Reflexion AG impressed not only the visitors at the airport, but also the jury of the renowned German Design Awards.



# Using resources

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© Michel Jaruss

# Ingenuity is an inexhaustible source of energy.

- ✎ Instead of sticking to the tried and tested, let's question it as often as we can. As a society, we suffer from too many good ideas that we have either not implemented or implemented too late.

# Courage and determination must now become a habit.

**For decades, we have known that changes in our climate are a global crisis. We are now paying more for the damage than for the innovations that would have prevented it. Resources and ideas are available, but what we need now is courage and determination.**

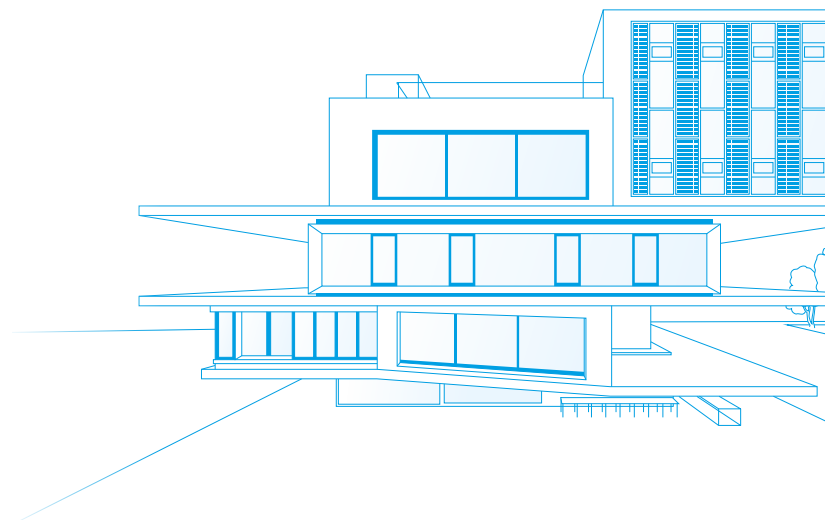
However, entrenched technologies are usually cheaper, easier to budget for and more politically palatable, which is why they often stand in the way of progress. A beneficial future effect can only be achieved if clients and their service providers are prepared to set goals that are always a touch more ambitious than the standard requires.

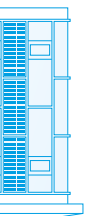
Empa is a good example of this. It announced a competition for the commissioning of a study on the renovation of several older office buildings. The competition invited the best ideas for creating the most sustainable solution. Encouraged by the open objectives, our specialists also considered aspects that were not immediately obvious: for example, night cooling via the façade or the possibility of shading and landscaping the car park. Using thermal simulations of the interior throughout the day, they also simulated in advance the effects of global warming over the coming decades. This enabled us to identify appropriate measures, which in the end swung the competition in our favour.

Empa also promotes future-oriented ideas at the intersection of research, business and the public sector with its modular research and innovation building NEST in Dübendorf. Here, we were also involved with “Urban Mining & Recycling” as part of the theme of the circular economy. We must be willing to finance projects of this kind in Switzerland especially. These projects call for more time and energy to be invested in new solutions.

## **NEST (Next Evolution in Sustainable Building Technologies)**

Empa’s modular research institute and innovation building promotes innovative building and energy technologies and accelerates their availability on the market.





# The sun is very generous when it shines.

**Solar energy is undoubtedly the most productive of all energy sources. Though it has one disadvantage: We need its power most when the sun doesn't shine. One of our greatest challenges is how to store the summer surplus for the winter?**

Our solution is in the middle of the forest: solar panels on the roofs produce electricity to run a restaurant and generate hot water via thermal absorbers. The oil heating system, which used to emit around 18 tonnes of CO<sub>2</sub> per year from 6,000 litres of oil, is no longer needed. But this alone would not have won the Lägern Hochwacht excursion restaurant the 2022 Swiss Solar Prize.

We came up with the idea of storing summer solar energy for the winter – in a former military bunker nearby. This seasonal energy storage facility consumes solar energy in the form of ice, of all things. In winter, heat is recovered from the cold of the ice via heat exchangers. We can't think of a more intelligent way to make use of a former military bunker!

But the winter problem can also be mitigated by means of alpine photovoltaic systems, which produce three to four times more winter electricity above the fog line than comparable systems on the Swiss Plateau. Various feasibility studies in the Swiss Alps testify to the project's excellent prospects.



It would also be conceivable for PV systems on buildings to produce hydrogen using the energy surplus in summer. This would provide a highly potent fuel for the winter, which could be used for energy in many different ways. We will find out whether this concept truly pays dividends by conducting a pilot project in Geneva. After all, testing new ideas is always worthwhile.





### Climate-adapted building practices

The latest climate scenarios predict that the number of hot days and tropical nights will increase. More green and blue – instead of grey – in urban spaces and buildings would beneficially reduce the heat load and increase the well-being of inhabitants.

## But the sun isn't always kind to us...

**When the sun shines brightly, it provides us with energy, but it also puts a strain on our infrastructure, our healthcare system, our agriculture and our well being. These challenges will get worse in the coming decades if we do not adapt.**

Summer is becoming increasingly uncomfortable, especially in cities. Heat accumulates in concrete, steel, asphalt and behind glass façades, while evaporated water builds up into ever-larger storm clouds. The solution: climate-adapted buildings. Any one building today must take 40 years of global warming into account.


All conceivable thermal protection measures will influence the design of roofs, façades and even the entire construction methodology. Ideas for vertical landscaping, for example, will grow and flourish, because landscaping not only cools the building, it also protects against UV radiation while reducing the effects of particulate matter. Building technology measures, however, are not enough.

In future, more sun will come from above but also more water, which will fall to the ground in increasingly violent thunderstorms. This water will be unable to permeate the rock-hard ground and will flood cellars and sewers; the result will be damage to both buildings and the landscape.

Rather than setting up refreshing spray systems in cities, we need to ensure that dense root systems of climate-friendly plants are able to soak up the water and pass it on to the foliage for evaporation. More green spaces will help to reduce temperatures while retention surfaces will help to minimise flooding and irrigate plants.

We consider it our job to promote such concepts and to impress upon our clients the importance of climate-adapted building practices.

# Safeguarding resources —

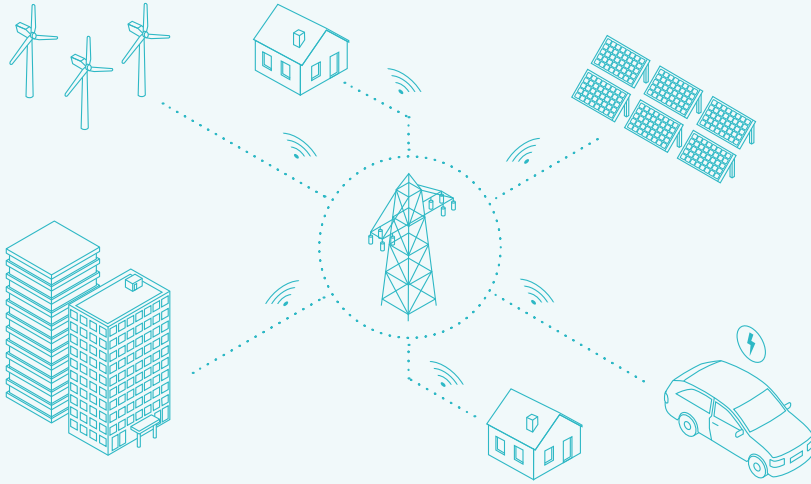
An aerial photograph of a large, curved concrete dam. The dam is the central focus, curving from the bottom left towards the right. Behind the dam is a vast reservoir of deep blue water with visible ripples and some sediment patterns. In the foreground, below the dam, there is a lush green area with some trees and a small concrete structure. The overall scene is captured from a high angle, looking down at the dam and the water.



# Smarter thinking is the foundation of security.

- ✎ Time has shown us that security is not simply gifted. More than ever, we need to consider improbable scenarios and act as though they are already a fact of life.

# Security is only possible if we competently anticipate negative scenarios.



## Security strategy

These days, contemporary risk analyses and security concepts must increasingly take digital and hybrid threats into account.

**As if the forces of nature weren't difficult enough to assess, security experts must now be more attuned than ever to threats posed by people. Crime is becoming more organised, conflicts ever more global and the effects even greater in scale.**

Global crises also exacerbate energy supply problems. It is therefore necessary to reduce international dependencies and to react even faster to the rapidly growing demand for electricity. The electrification of personal transport and heating systems to meet net zero targets is increasingly pushing existing infrastructures to the limit. There is a need for action here, not only in the expansion of renewable energies, but also in the distribution lines, substations, transformer stations... and intelligent controls.

But that's not nearly all. Power companies are also popular targets for cyber criminals. That is why we have developed special services for the cyber security of utilities. We analyse the organisation, processes and infrastructures of the companies and recommend measures to enhance their security culture and IT resilience.

As professional pessimists, it's also our job to identify threats that one might not immediately consider or would rather not think about. Sophisticated access systems with intelligent video surveillance or biometric verification are often in demand. However, our security experts frequently recommend structural security measures such as fences, façade reinforcements, access bollards and even bullet-proof windows. Only comprehensive security can be guaranteed.

**The electrification of personal transport and heating systems to achieve net zero targets is increasingly pushing existing infrastructures to the limit.**



## The health sector is in particular need of attention.

**During the pandemic, the performance of the Swiss healthcare system was primarily measured by the number of (available) beds. However, the fact that each bed also requires a nursing team, and a lot of cutting-edge technology, was often overlooked in the social discourse.**

Hospitals are highly complex and dynamic organisations. A major new building requires about ten years of planning, whereby the primary planning goals also include flexibility for developments that can't be anticipated. Advances in medical technology, for example, can turn even the most meticulous planning upside down at any time.

For example, radiological equipment is becoming increasingly large and more powerful, requiring more electricity and producing more heat. The consequence is that the demand for cooling increases, while the demand for heat decreases. The number of power connections in an operating theatre alone has doubled within just a few years.

The use of BIM (Building Information Modelling) is extremely helpful in efficiently managing this complexity and dynamism in planning. It's what makes comprehensive lean management of challenging construction projects possible in the first place. For example, we created a digital twin of the new main building of the Inselspital Bern →

(Anna-Seiler-Haus). With the help of this model and its degree of detail, all structural and technical building elements could be precisely coordinated and, for example, even fire scenarios could be visually simulated.

The BIM model also helps to test future developments in advance in order to quickly obtain relevant planning data. Such expertise is part of the foundation of our healthcare system, even if only a few people think of the services of engineers when they hear the word “security of medical care.”



### **Inselspital Bern, new construction of the hospital building**

Planning of the new main building with the help of a digital data model: BIM (Building Information Modelling)



# The feeling of safety needs strong infrastructure behind it.

**Those who feel safe don't worry about why this is the case. In fact, safety is a feeling that one has little control over. Engineers, however, do have a modicum of control. Indeed, you owe your relaxed state when driving through a tunnel or over a viaduct to sophisticated safety concepts.**

When it comes to a country's critical infrastructure, risk management is of social, economic and political importance. The point is to identify risks, categorise them according to probability and compare them with the respective extent of damage. Incidents that occur frequently, probably or occasionally require goal-oriented processes and technical solutions, such as securing escape routes in a car tunnel.

It is more difficult to deal with risks that are unlikely or even unimaginable, but which cause immense damage if they nevertheless occur. One such "credible worst case" scenario that seemed improbable years ago is, for example,

a power shortage. This situation forces not just energy supply companies to act, such as by making their grids fit for the power fluctuations associated with the expansion of renewable energies. Railway operators and communications companies are also facing challenges.

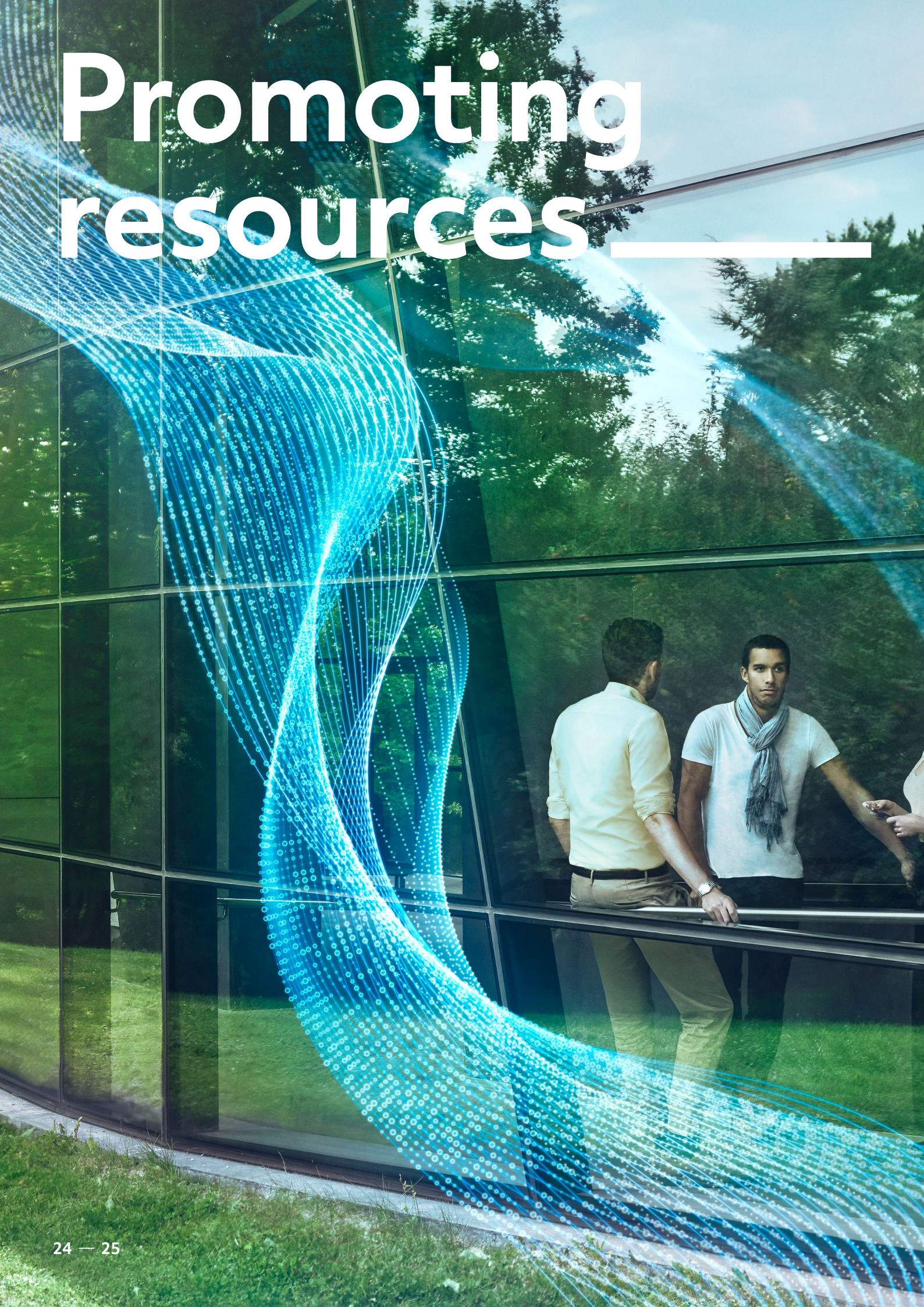
From security concepts to implementation plans, we have been offering comprehensive services for the protection of critical infrastructure for more than 20 years. Whether it concerns transport, the energy supply or communications, the risks associated with critical infrastructure are part of our daily work. But it goes without saying that, ultimately, what we protect with our expertise is not necessarily the infrastructure, but the people who use it.

**Traffic management**  
Our sensor-monitored redundant control systems secure traffic routes throughout the country.



# Promoting resources

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# The greatest potential lies in people.

- Promoting future-oriented technologies and renewable energies is definitely essential. But progress will only come if we empower people to create it.



# We push professional training to the forefront.

**We are successful in the market because we value qualitative growth. The most important guarantor of this is our internal training and development programme, which transforms talented employees into excellent professionals.**

Well-trained professionals are in high demand in our industry. But red carpets and flashy salaries are not our currency of choice to recruit them. Our watchwords are training, development, and opportunities for personal growth and advancement. Having a stint at A+W in your CV has been a key asset for many a career.

After all, the specific expertise we need in our day-to-day work goes far beyond what is taught in public schools or universities. That is why we cultivate our know-how internally, from apprentices and trainees to university graduates and professionals. Our educational offerings are so rich that we refer to them as the A+W University.

In addition to specialised courses, for example, on building technology in hospital buildings or on heat and cold flow management in spaces, there are also

seminars in the areas of personality training, leadership and health. The A+W University is open to all employees, both live or via computer. We have been able to impart 5,000 hours of training to our employees during paid working hours.

Apprenticeship training and trial apprenticeships are also very important to us. On average, we employ about 80 to 90 apprentices throughout Switzerland, and that number is on the rise. We support employees on their educational journey to completing their vocational baccalaureate, higher technical college degree or university diploma, including financial support. We are open and flexible in supporting individual educational and career plans.

Apprentices, students and trainees also spend instructive time with us on construction sites. Here, they learn how important it is to spend some of their professional career wearing rubber boots.

**Our philosophy is one of training, development and advancement.**

## We gear our working conditions in particular to the next generation.

All employers have a social obligation to promote a positive work-life balance, especially in a male-dominated industry like ours.

With 20% female employees, we are well above average in the industry, but of course we are not satisfied. That's why we're making working conditions as flexible as possible for mothers, but also for fathers and students.

Part-time work and home office arrangements are options we frequently use to achieve personal work-life balance. Parents with kids in school especially appreciate being able to coordinate their working and attendance times with school and school holidays.

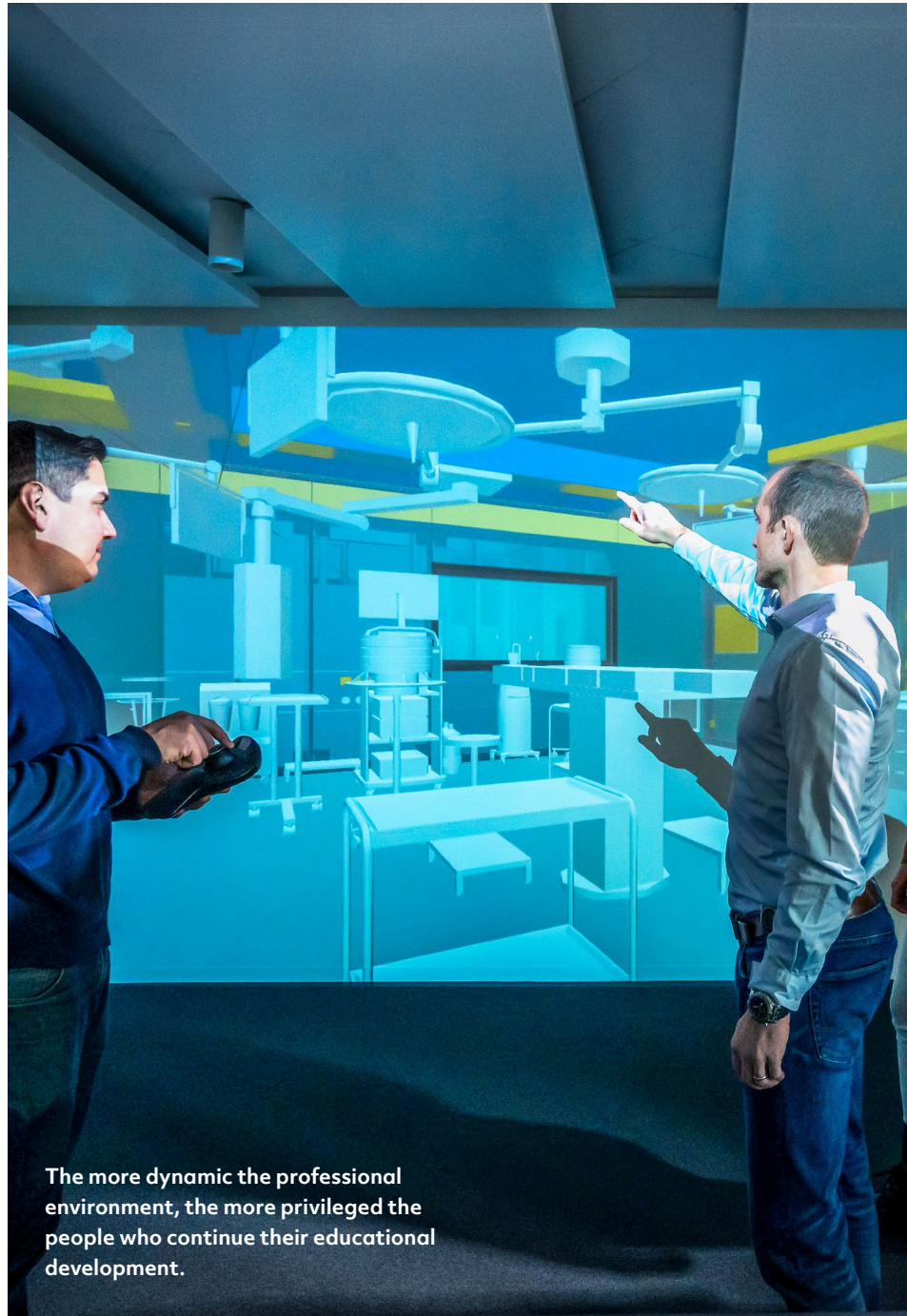
Equal opportunities and equal pay are a matter of course and contribute to the fact that Amstein + Walthert enjoys a sterling reputation as an employer in the industry.



**During my 15 years, I was able to tailor my working hours to the needs of my family and, for example, only work mornings during school holidays. In spite of this challenge, Amstein + Walthert always gave me the opportunity to work on exciting projects.**

↳ **Tanja Koutsogiannakis**  
Team leader, HR Services,  
mother of two children.

# Our employees are a boon to the entire industry.



The more dynamic the professional environment, the more privileged the people who continue their educational development.

**My time at A+W was formative. I still meet many former colleagues in my daily work. Energy Switzerland is largely comprised of the A+W family.**

↳ **Marianne Zünd, lic. phil. nat.**  
Head of Media and Politics  
Member of the Executive Board  
Federal Department of the Environment,  
Transport, Energy and Communications DETEC

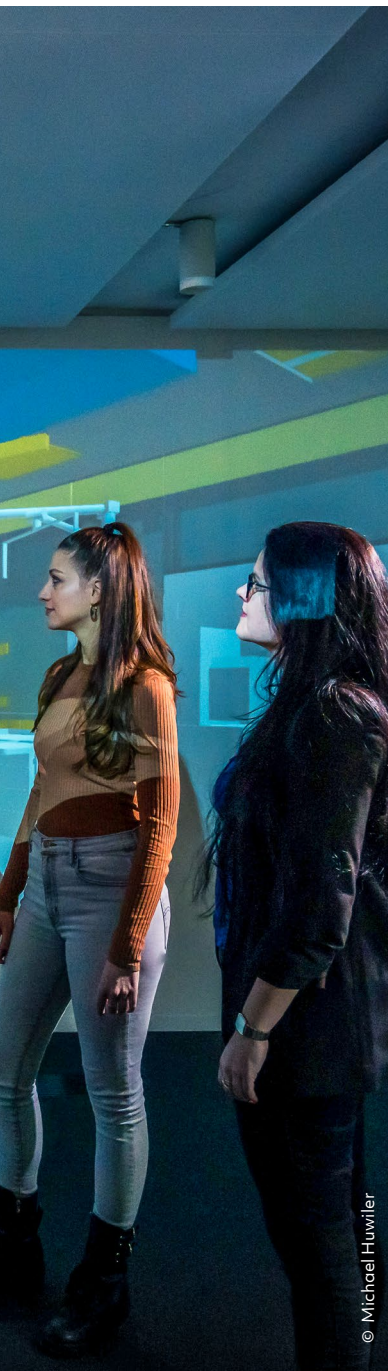


**We don't mind if future professionals use Amstein + Walthert chiefly as a springboard for their careers. We are proud when the entire industry benefits from our education and advancement initiatives, and when our knowledge base bares fruit throughout the country.**

Of course, it's also in our own interests to train and develop professionals. Many of them stay with us for years as experts or return to us out of a sense of loyalty. As one of the major market participants, we consider it a point of honour to be of service to the industry. We are involved in all important associations, political organisations and relevant initiatives.

Many of our employees are represented on boards and committees, working groups and expert councils on topics such as sustainability, digitalisation or energy supply. In addition, thanks to the A+W Forum, which takes place every two years, we have created a prestigious event for interdisciplinary professional exchange throughout the industry.

Even though we must continually prove ourselves in tough competition in the market, it fills us with pride when we meet familiar faces working in successful positions.



We must learn to use  
resources with foresight.





Highest standard for eco-efficiency.  
Cradle to Cradle certified® printing products  
Manufactured by Vögeli AG.



**Amstein + Walthert Group**  
[amstein-walthert.ch/group](https://amstein-walthert.ch/group)