



ESSMANN – ingenious combinations

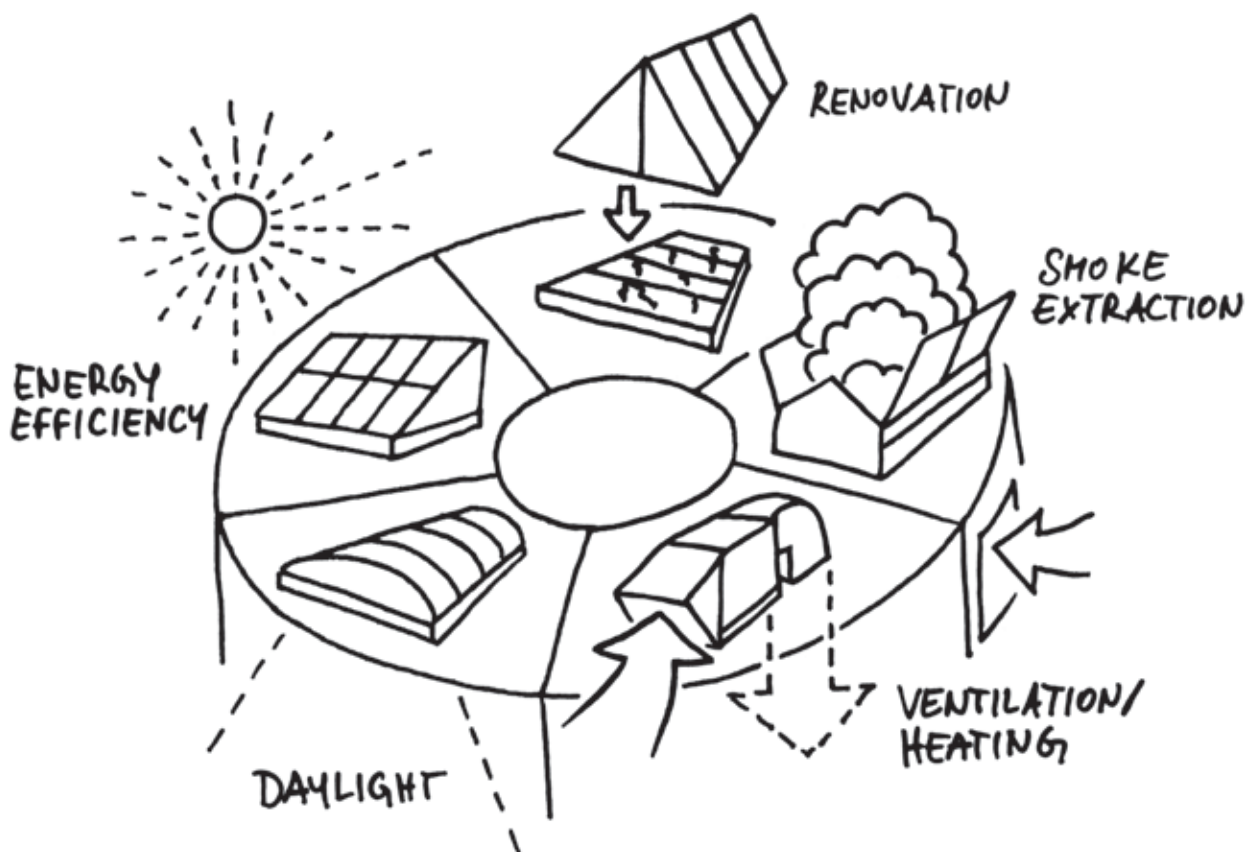


Modules for enhanced efficiency



What you can expect:

- Customer-oriented consultancy and project planning services for new and existing buildings
- Cost-efficient smoke extraction, ventilation/heating and air conditioning solutions
- Best possible utilisation of natural daylight
- State-of-the-art process control technology for integrated energy management
- Tried-and-trusted products and customised solutions for building renovation projects
- Consultancy, project planning, installation and maintenance services from a single source
- Ongoing improvements and development of new products, systems, calculation and simulation tools





System competency for individual, cost-efficient solutions



We can provide comprehensive solutions for optimising the working, ambient and energy conditions in buildings.

Planners, owners, investors and operators of commercial, industrial and public buildings require state-of-the-art and individualised solutions that integrate all factors that affect the project. Starting from the very first meeting and continuing through the planning phase right up to installation and maintenance – and all from “one” competent partner.

With its years of experience and practical expertise gained from executing numerous projects throughout Europe, ESSMANN is familiar with the technical production conditions and problems facing all sectors of industry. As a manufacturer of state-of-the-art lighting, ventilation and fire protection systems, we are, moreover,

capable of responding to the challenges posed by modern architecture, new types of materials and the ever increasing standards demanded of safety and function. The objective: “Integrated solutions for areas of technology which are distinct but nevertheless interact with each other.”

Growing demands

Increasing time pressure, the need to comply with regional and European regulations and standards and growing demands in respect of shape and function are becoming ever more important. ESSMANN’s system technology is certainly capable of rising to these constant challenges, because when it comes to the utilisation of daylight, ventilation and smoke

extraction, we know what we are talking about.

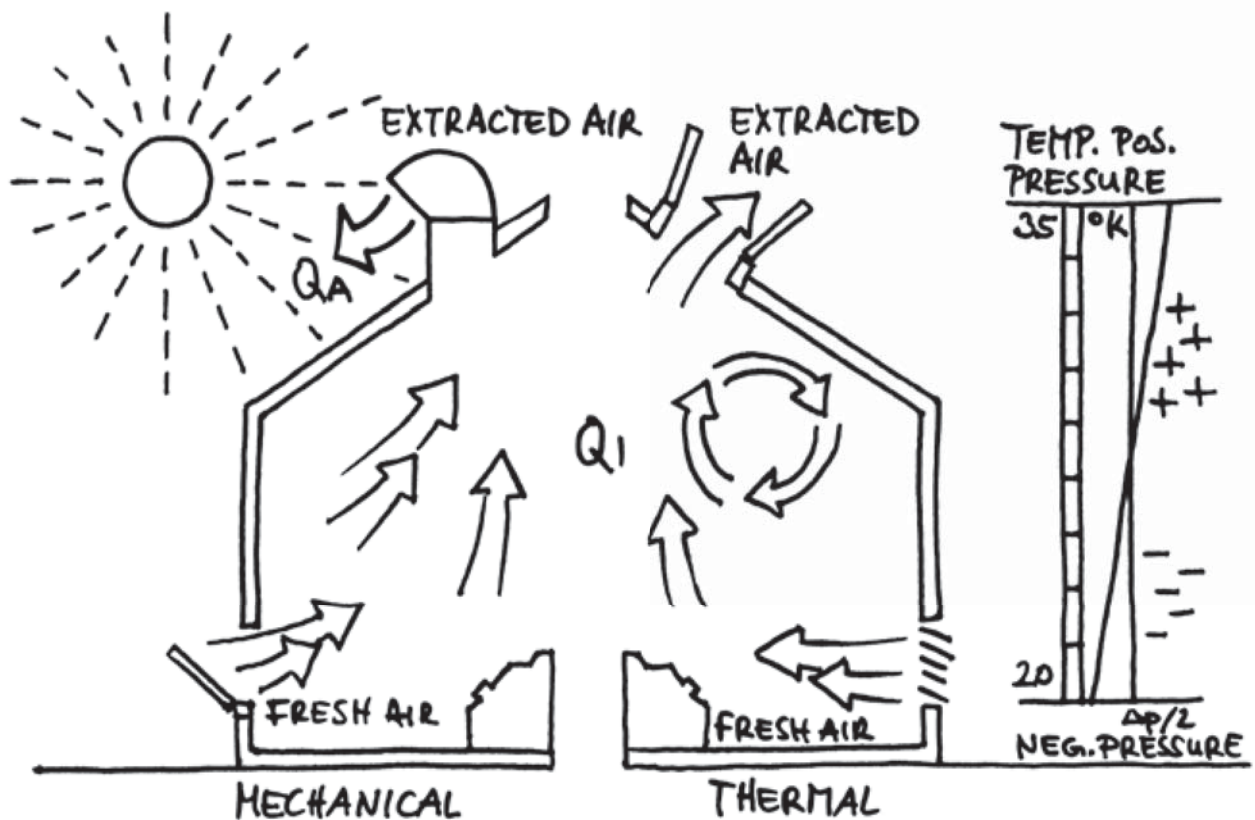
Talking to the right person

For us, building trust starts on initial personal contact. We listen to you and take your very individual considerations, problems and requirements on board. We see ourselves as a competent service provider for complex technological tasks and can give you the right answers in respect of energy efficiency, productivity improvements, cost efficiency, safety and aesthetics.



The benefits for you:

- Improvements in climatic conditions at the workplace
- Ambient air conditions that increase productivity
- Balanced ambient temperatures that boost performance
- Optimal working climate at minimal energy costs
- Individual air conditioning using heating, cooling, air humidifying systems, etc.
- The added benefits of natural daylight, smoke and heat extraction
- Intelligent control systems to ensure the efficient use of energy





Fresh air increases productivity at the workplace



Optimised atmospheric and temperature conditions increase the well-being and performance capabilities of employees – resulting in better quality.

Optimal aeration increases the feeling of well-being and thermal comfort of the employees at the workplace and therefore improves productivity and work effectiveness. Productivity declines by 4% with each one degree Celsius increase above the optimal temperature.

Thermal aeration

Thermal aeration is a self-regulating solution that requires no energy to produce optimal climatic conditions at the workplace in high-temperature rooms or where the ambient air is adversely influenced by smoke and fumes. It is a physical fact that the constantly prevailing difference in temperature between a floor and a roof causes warm air to rise (thermal lift). This acts as a

sort of engine, channelling used air through the ventilation systems in the roof to the outside.

Mechanical aeration

In many cases, aeration and ventilation can only be provided by ventilator-based system units in multi-storey buildings, buildings with special requirements or areas where production activity demands large quantities of fresh air. In these cases, the quantities of air that are actually required need to be calculated precisely, taking account of the reciprocal influence exerted by temperature, pressure, wind influence, etc., to ensure that only the amount of air actually needed is fed into the respective areas, thus minimising the associated energy costs.

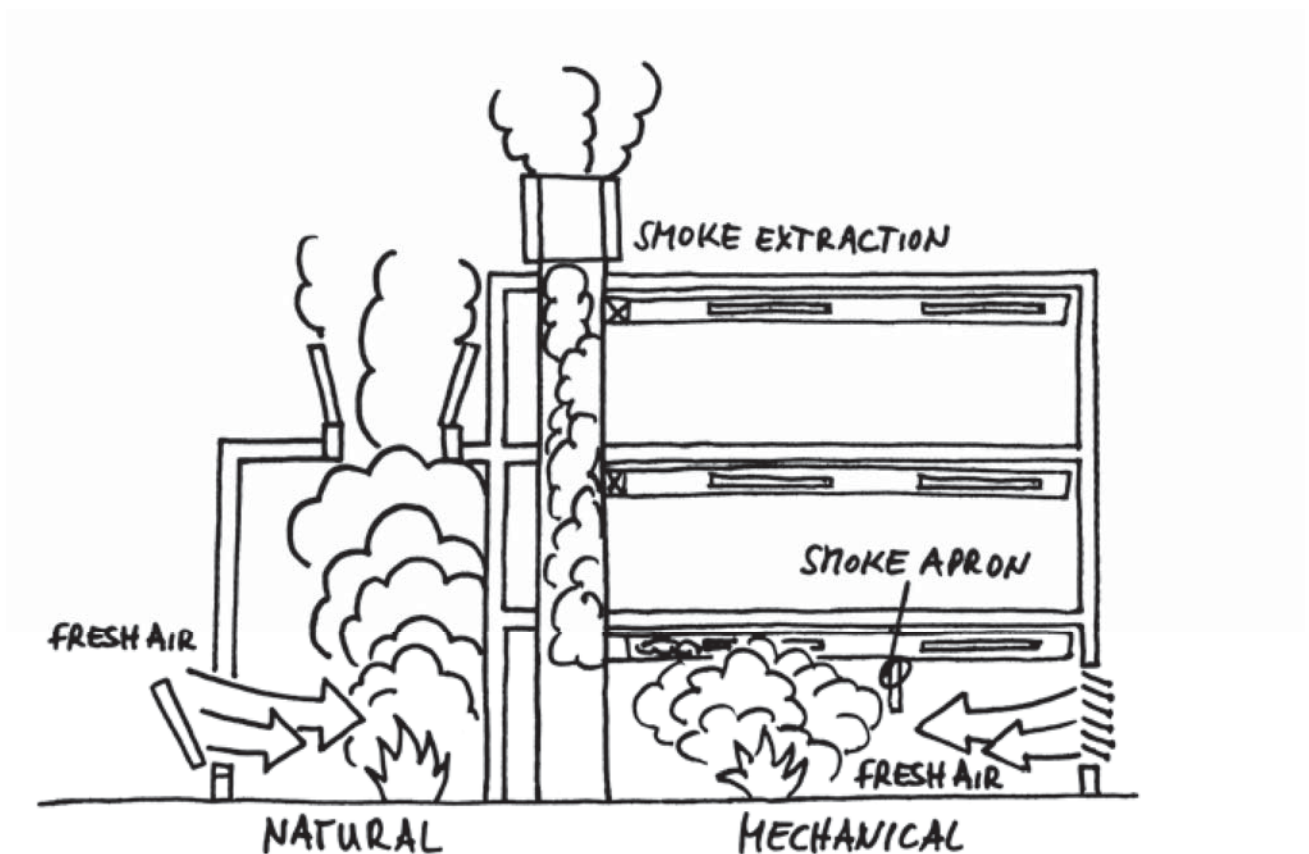
Heating and air conditioning

Together with heat radiation, the temperature, moisture content and speed of air are the climatic factors that directly impact on well-being and, as such, performance capability. Accordingly, the heating and air conditioning must ensure the cost-efficient creation of the physiologically appropriate room climate while generating the least possible emissions.



The benefits for you:

- Early fire detection and automatic activation of SHE and fresh air systems, smoke aprons, etc.
- Employee protection through low smoke levels in escape routes
- Effective fume extraction
- Unhindered visibility allows fires to be quickly fought at the source
- Blazing fires (flash-overs) can be avoided/delayed
- Reduction of thermal stress on the building structure
- Minimisation of consequential damages caused by fire





Reliable protection for people and property in emergencies



Integrated fire protection concepts aim to safeguard both production and supply capability, and customer and/or market shares.

Studies and lessons learned in recent decades show that catastrophes are frequently the result, not of fire and the high temperatures associated with fire, but of the toxic fumes produced in the initial phases of a fire.

Natural/Mechanical

A fire produces heat, smoke and gases that mix with the air in the hall and rise as a result of the thermal lift produced by the increased temperature. Natural smoke and heat extraction (NSE) systems use this active principle and also adjust the amount of air extracted as the temperature rises. Since thermal smoke extraction is, however, frequently not an option in multi-storey buildings, we offer solutions incorporating mechanical

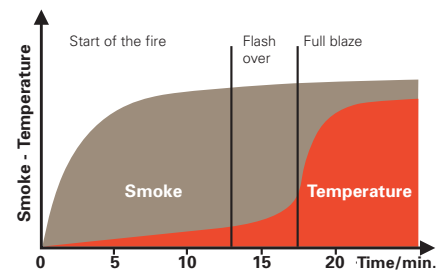
smoke and heat extraction (MSE) systems.

Inflow openings (fresh air)

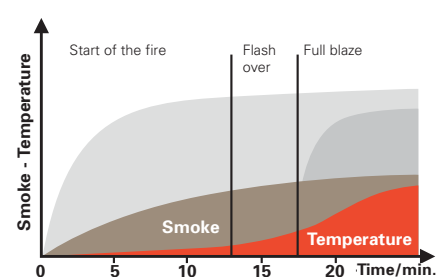
Care must be taken to ensure that sufficient fresh air flows into the lower section of the hall to facilitate the requisite extraction quantities and to enable the smoke and heat extraction (SHE) system to take full effect. These fresh air openings, which should ideally be activated in unison with the smoke extractors, can be integrated into the facade without detracting from its appearance.

Comparison of fire and smoke development

Without smoke and heat extraction



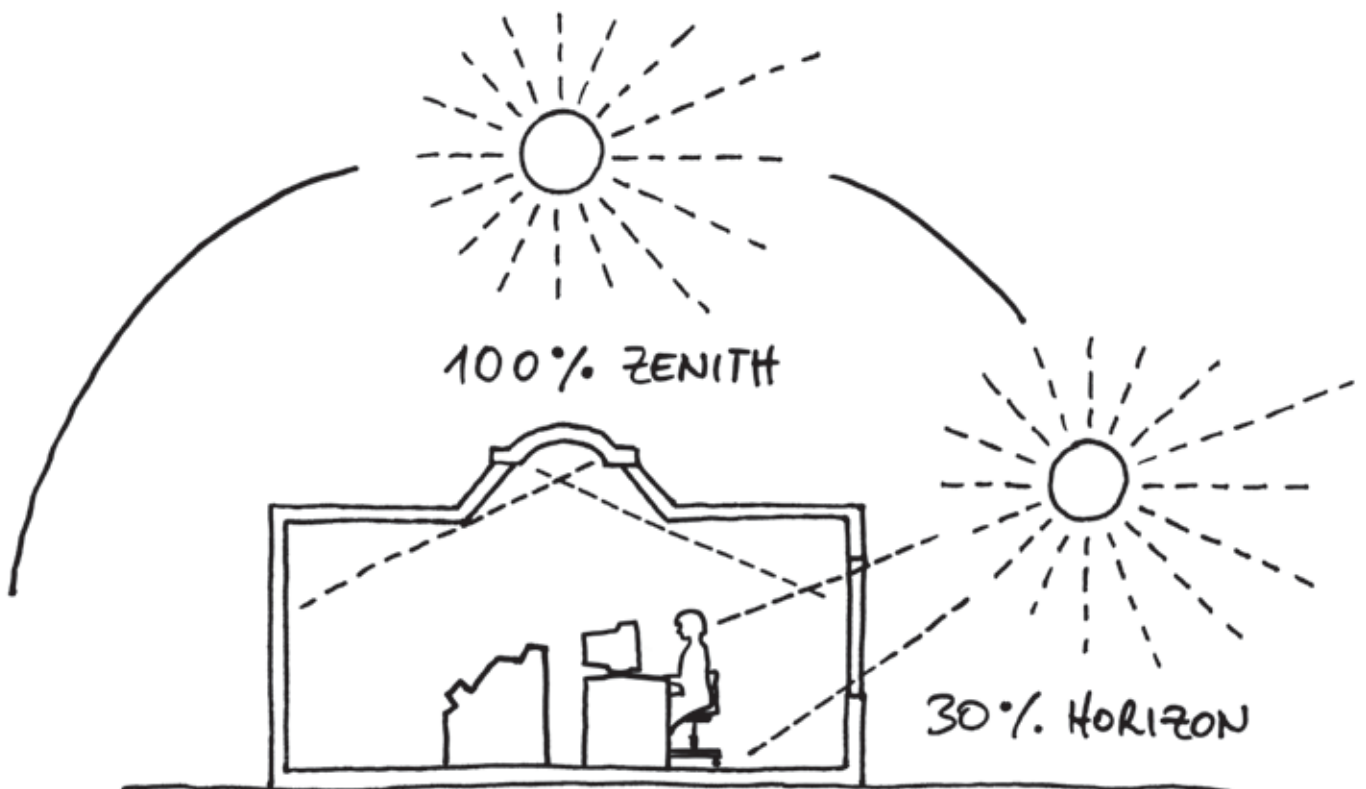
With smoke and heat extraction





The benefits for you:

- Well-lit workplaces enhance performance
- Positive impact on physical and mental well-being
- Fewer accidents
- Increased productivity and less wastage
- The benefits of natural daylight support visual tasks
- Reduced need for artificial light saves energy
- Architecturally enhancing





Working better in natural daylight



If properly planned, natural illumination can lower total energy requirements and create good workplace conditions.

Over the course of their evolutionary development, humans have adapted physically, emotionally and mentally to daylight. 80% of all sensory impressions are visual and communicated by light; one quarter of a human's energy is spent purely on the process of vision. A lack of light can result in illness!

More light from above

Even at heights of just over 4.50 m, the side windows in industrial halls are no longer able to supply sufficient natural daylight to the workplaces. The ideal solution for providing particularly even and bright illumination is therefore to incorporate lighting elements or skylights in the roof (continuous roof lighting systems), which can be individu-

ally integrated into the roof of the hall. Since the light from above is three times more intensive than the light from side windows, the workplaces are well illuminated, which improves the performance capabilities of the employees and thus raises productivity.

Bright as day but with no energy costs

It did not take the introduction of the Energy Savings Directive (EnEV) to make us aware of the energy benefits to be gained from natural interior lighting and the enormous energy savings potential it offers. Careful and modern daylight planning significantly reduces the energy needed for illumination. Combined with intelligent daylight-dependent control systems, this

can be achieved particularly effectively, while the possibility of generating additional solar heat can have a further positive impact on the overall energy balance.

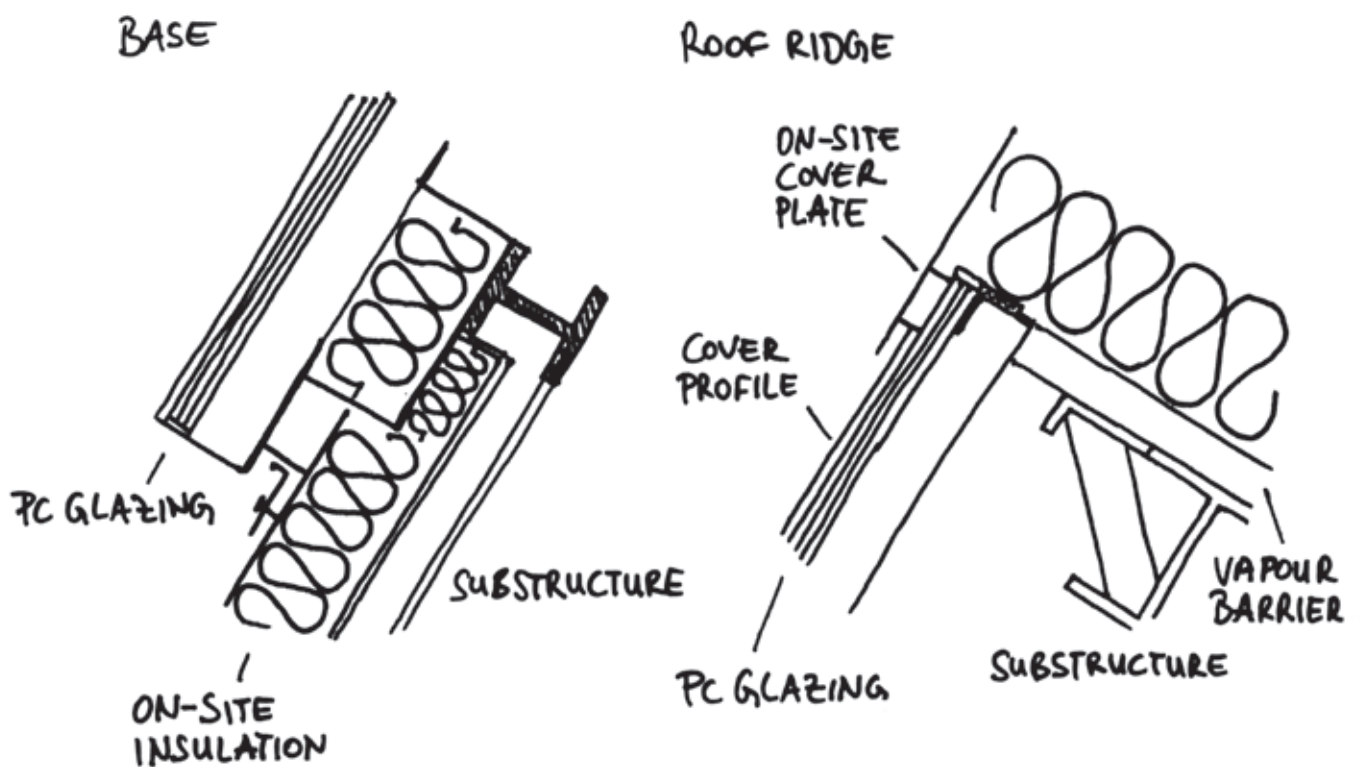
Lighting as a design element

Nowadays, modern architecture frequently uses daylight systems not just as a source of lighting but also as an element of building design with wide-ranging architecturally appealing effects. The industrially pre-fabricated standard systems offer planners virtually unlimited scope for creative design. Made-to-measure solutions are naturally also available for satisfying individual project requirements.



The benefits for you:

- Daylight components that are optimised from an energy consumption perspective reduce heating costs
- Holistic energy-efficiency analysis in line with the Energy Savings Directive (EnEV)
- Reduction of leakages, heating and cooling loads
- Integration of state-of-the-art smoke extraction, ventilation and solar technology
- Integrated coordination across all trades
- Renovation without disrupting production
- Architecturally enhancing





Energy enhancement



Value appreciation and cost-saving adjustments to changed energy cost demands and operating conditions.

In colder months, buildings that are used for industrial purposes lose a lot of energy through transmission and leakage as a result of old skylight glazing, which is frequently only single-glazed or defective. By contrast, direct sunlight radiation on the glazing in summer produces heat problems that can be unbearable. The former use of materials without corrosion protection for the glazing substructures can, moreover, pose the threat of collapsing or potentially cause accidents.

Competent and complete

Wherever possible, renovation works should not disrupt production. Quick construction processes, professional handling, flexible products and good coordination

among the trades all play a crucial role in this respect. We work together with everyone involved in a project to develop execution concepts that also incorporate cross-trade construction processes; from disposing of the old roof superstructures, monitoring the construction schedule, incorporating corresponding safety factors, dismantling and disposing of old parts, right up to assembling additional ventilation, daylight and fire protection systems, bearing in mind the need to link up the control interfaces and to comply with physical construction and technical fire protection specifications.

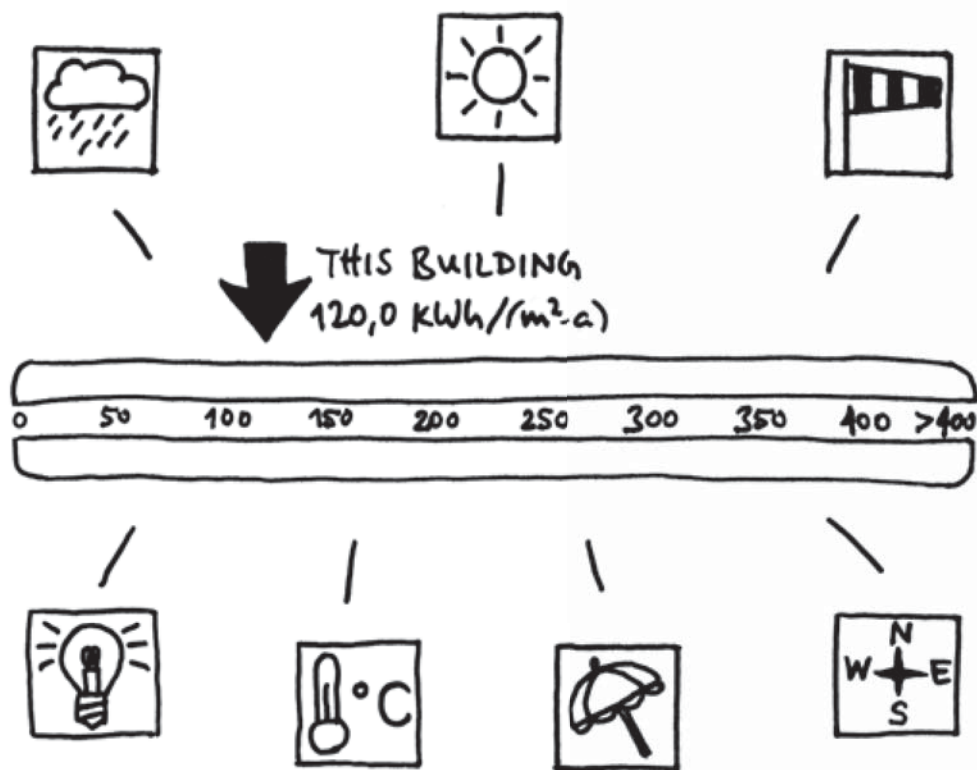
Flexibility

The flexibility of our renovation systems makes them ideal for cost-optimised renovation projects. Focus centres not only on improving the U value, but also on generating diffuse lighting to minimise glare effects while at the same keeping heat radiation as low as possible. We also offer a repair and renovation set for restoring or replacing old skylight domes (even those manufactured by other companies).



The benefits for you:

- Optimisation of your total energy requirements in line with the Energy Savings Directive (EnEV)
- Ongoing reduction of heating and electricity costs
- Optimal utilisation of latent production and thermal heat
- Energy generation using passive and active solar systems
- Minimisation of the energy required for artificial lighting
- Targeted air conditioning for workplaces in line with requirements
- Intelligent control concepts to ensure the efficient use of energy





SAVE ENERGY AND GAIN



Protect the environment, save energy and optimise workplace conditions – all through intelligent holistic planning.

The demand for energy is surging all over the world, as are the prices. As a result, planners and operators are increasingly striving to identify solutions for their construction projects that are both environmentally friendly and energy efficient in an attempt to ensure sustainable concepts that reduce cost pressure and thus strengthen the ability to compete. Energy-optimised and innovative products and energy management systems with control technology are therefore playing an increasingly important role.

Individual cost efficiency

Although energy indicators are frequently used and compared when evaluating energy efficiency in industrial and commercial op-

erations, it is often not possible to clarify in any detail the respective parameters that actually influence the overall balance. An objective and solution-oriented examination of this correlation forms an integral part of our work in that we analyse potential means of saving energy, and identify and eliminate weak points with a view to reducing energy consumption over the long term.

Savings potential

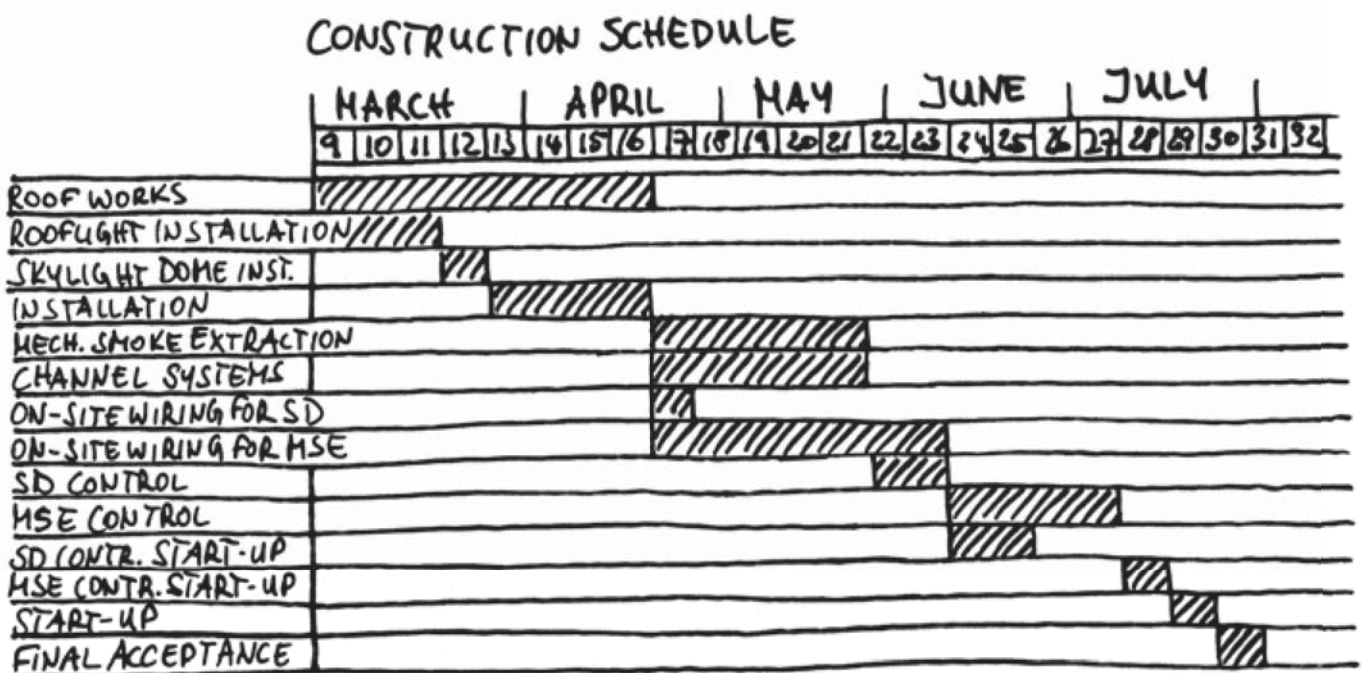
Lighting systems account for as much as 20 % of total energy costs. Simply installing roof skylights in conjunction with daylight-dependent control mechanisms to utilise sunlight, which is available free of charge, can produce energy

savings of up to 80% – while at the same time improving the quality of the lighting. The shell of the building, hall heating systems, ventilation equipment, etc., are further elements that generally account for a major share of the total energy costs. Intelligently planned and energy-optimised ventilation systems, which make use of thermal lift without the need for electricity, for example, or the use of sun protection systems are modern ways of responding to the energy crisis.



The benefits for you:

- Years of experience gained from identifying solutions to numerous problems, which are proven to work in practice
- In-depth understanding of all sectors of industry and their specific technical production environments
- Interdisciplinary cooperation with flat roof and facade experts
- A wide-ranging portfolio of hardware enables intelligent planning flexibility without being tied to specific products
- Widespread customer service in your vicinity
- Strong group competency with a network of specialists





Competent service provider for complex assignments



Individual consultancy and project planning services, in-house manufacturing and installation, and years of certainty from our after-sales service.

For more than 60 years, customer-orientation has been a top priority for our highly qualified staff. Which is why we always start building trust on initial personal contact. Increasing time pressure, interdisciplinary coordination of trades and growing demands on shape and function are increasingly evolving into real challenges, which we tackle on a day-to-day basis in the interests of our customers.

On-site experts

Our widespread network of field service staff ensures that you have “one” competent contact right from the start, from the very first meeting, and all the way through to installation and maintenance.

We will gladly advise you on site, and our trained engineers can conduct a series of ventilation measurements, if necessary, to analyse the status quo, which provides the basis for our individual ventilation concept. We will support you and your construction project throughout the entire process, right up to final acceptance and beyond.

All work is performed only by experts!

Equipped with all well-known certifications, we see the provision of diverse and comprehensive services as a special challenge. In addition to service and maintenance, renovation is an issue that is becoming increasingly

important. After all, SHE systems, for example, must function impeccably and reliably around the clock. If a damage event occurs, it is not just your tangible assets that require protection – ultimately and above all, it is about protecting people.



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