WWA

ARCHITECTURE

30 of the most relevant world architects

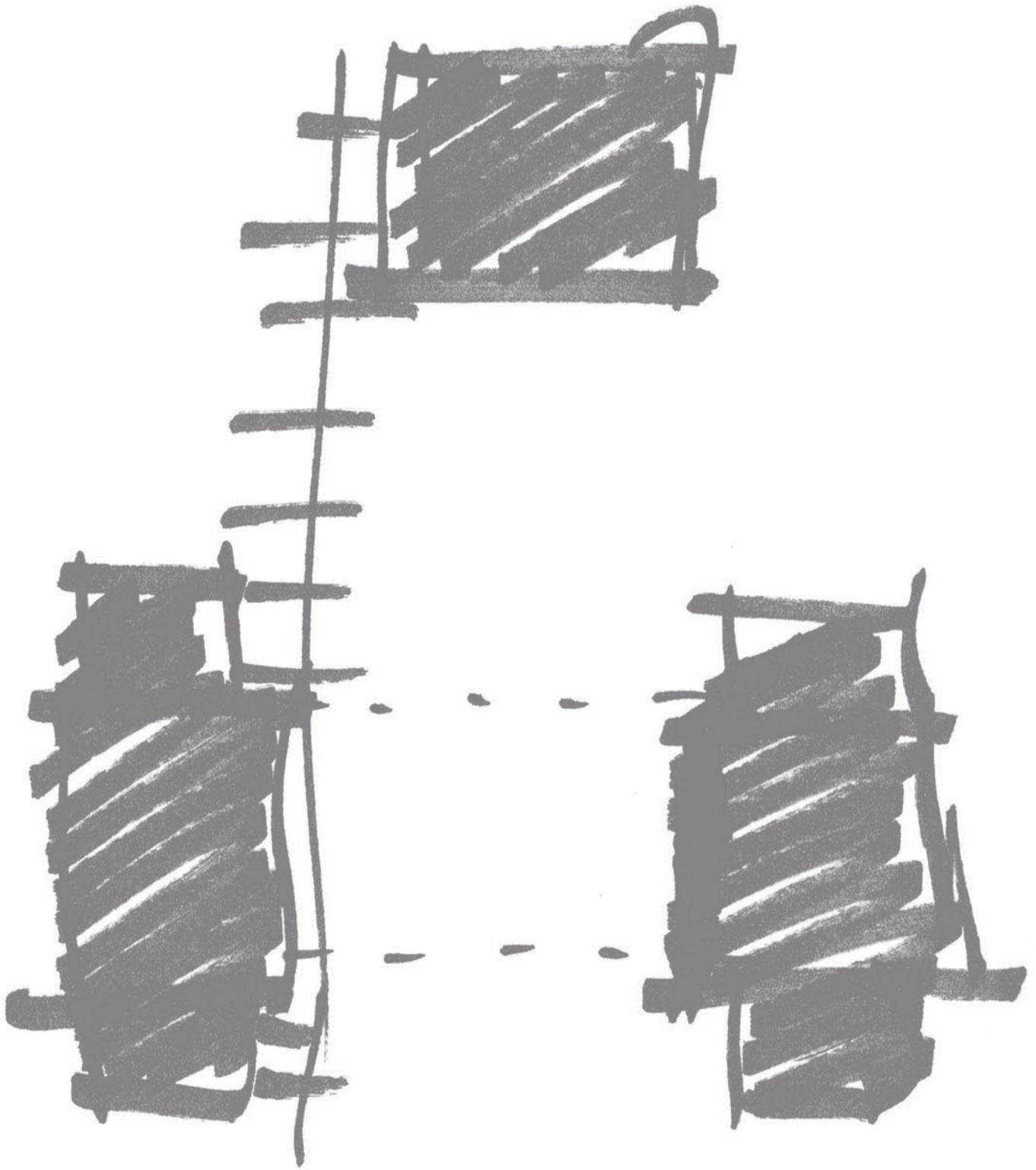
Original Title / Título Original
30 WWArchitecture

Author / Autor
Óscar Asensio
Publisher Coordination / Coordinador Editorial
Natalie Brown
Layout / Diseño y Maquetación
Michael Sorin
Texts / Redacción y Corrección
Andrea Korniusza
Translate / Traducciones
Liliath Padilla, Mbak Ernestine
Correction English texts / Corrección textos Inglés
Liliath Padilla
Cover Design / Diseño Portada
Catherine Chui, Michael Sorin
Images of Cover/Imágenes Portada
© #Up# Jean-Pierre Boss
© #Down# Bjarne Riesto

Creation and Development / Creación y Desarrollo

info@lineaeditorial.net
www.lineaeditorial.net
/Linea Editorial
@linea_editorial
linea_editorial

ISBN: 978-9962-04-647-9



Project: Kittredge House
Architect: Studio One

Contents / Contenidos

With this letter, I want to thank to all architects and studios of architecture, who have collaborated with us in the development of this new book:

ADNBA / Architekten + Partner Dannien Roller / Architéma / ATMOSFERA / Birdseye / Broadstone Architects / Carter + Burton Architecture / Christoph Hesse Architekten / CJS Architects / Darin Johnstone Architects / DOV Designs & Consultant / EP Architects / Gronych + Dollega Architects / Jack Woolley / KG Mimarlık / m3 Architects / Netarq Architecture / Nieberg Architect / PRAXiS *d'*ARCHITECTURE / Ricardo Zurita Architecture and Planning / Robert Harvey Oshatz, Architect / Sebastian Eilert Architecture, Inc. / Seoinn Design Group / Sinclair Building Architecture Design / Stein Halvorsen Arkitekter AS / Studio Terpeluk / Tectonic Design / TECTONIQUES / TORAFU ARCHITECTS / Voltolini Architectures

Thanks to their commitment I was able to compile a material of great architectural and visual quality that I am sure many architecture lovers like me will be able to appreciate and enjoy.

Also, I want to reiterate my sincere gratitude to all and each member of this book because with their contribution we have been able to donate a sum of money to Habitat for Humanity. With this small share, the aforementioned NGO will be able to build decent homes for those who need them the most, thus achieving a better world not only for them but for all of us.

Sincerely, many thanks to all!

Óscar Asensio
Author

Sustainable Development

Sustainable development can be conceived as "a development capable of satisfying the needs of the present, without endangering the ability of future generations to meet their own needs". This definition was used for the first time in 1987, in the UN World Commission on Environment and Development. However, the topic of the environment has been worrying humanity for much longer. Despite this, the United Nations has been the first agency to deal specifically with the issue.

During the first decades of the United Nations existence, issues related to the environment were barely recognized as important among the concerns of the international community. The work of the United Nations Organization in this field focused on the study and use of natural resources and on trying to ensure that developing countries, in particular, had the capacity and power to control their own resources. In the 1970s, a series of agreements on marine pollution was reached, especially on issues related to oil spills, given the growing evidence that the environment was deteriorating on a global scale, the international community was increasingly alarmed by the consequences that development could have for the ecology of the planet and the welfare of humanity. In this state of affairs, it can be seen that the United Nations has been one of the main defenders of the environment and one of the greatest drivers of sustainable development.

Likewise, during the same decade of the 1970s, efforts to expand the fight against pollution in other areas besides the sea were intensified. In 1972, during the United Nations Conference on the Human Environment in Stockholm, the relationship between economic development and environmental degradation was incorporated into the agenda of the international community. After the aforementioned conference, the United Nations Environment Program (UNEP) was created and it continues to this day. This body remains the main authority on the matter. Since 1973, the agency has been creating new mechanisms and has sought solid measures and new knowledge to solve global environmental problems.

Thanks to the different UN conferences on environmental issues and the work of UNEP, focus has been placed on several important environmental issues such as:

- Desertification
- Sustainable development and forests
- Protection of the ozone layer
- Climate change and the warming of the atmosphere
- Water, energy, and natural resources
- Biodiversity and overfishing
- The sustainable development of the small island states (islands)
- The marine environment

- Nuclear safety and the environment
- Populations of highly migratory and straddling fish

During the 1980s, the UN Member States held historical negotiations on environmental issues, such as those relating to treaties for the protection of the ozone layer and the control of shipments of hazardous waste. Thanks to the work of the World Commission on Environment and Development, it was understood the necessity to urgently achieve a new type of development that would ensure the economic well-being of current and future generations, protecting the environmental resources on which all development depends. In the report presented by the Commission to the General Assembly in 1987, the concept of sustainable development was introduced. This new conception is considered an alternative to development, based simply on unrestricted economic growth.

At present, the awareness that it is necessary to preserve and maintain the environment for future generations is reflected practically in all areas of work of the United Nations. The dynamic collaboration established between the agency and governments, NGOs, the scientific community and the private sector is generating new knowledge and concrete measures to solve global environmental problems. The United Nations believes that protecting the environment should be part of all economic and social development activities. Within this new concept of caring for the planet, sustainable architecture plays a very important role.

Carbon Footprint

The carbon footprint is a very important concept for sustainable construction. This is because every architectural project that is carried out leaves its carbon footprint. The type of sustainable construction seeks to reduce the mentioned footprint to the maximum in each of its buildings.

When talking about carbon footprint, it refers to "the totality of greenhouse gases (GHG) emitted by direct or indirect effect of an individual, organization, event or product". The aforementioned environmental impact is measured by carrying out an inventory of greenhouse gas emissions or a life cycle analysis according to the type of footprint. For this, the recognized international regulations are followed, such as ISO 14064, PAS 2050 or GHG Protocol among others. The carbon footprint is measured in mass of CO2 equivalent. Once the size and the footprint are known, it is possible to implement a strategy of reduction and/or compensation of emissions through different programs, whether public or private.

The international carbon footprint standards can be grouped depending on whether the certification corresponds to an organization or a product:

Carbon footprint of an organization: The GHG emissions of an organization are analyzed over a given year or period, generating an inventory of them. The most widely used standards are: GHG Protocol and ISO 14064-1.

Carbon footprint of products or services: This is the case of sustainable architecture projects, as well as all types of architecture. Here all the GHG emissions carried out during the Life Cycle of the product or service in question are analyzed. The most used standards are: PAS 2050: 2011, ISO/TS 14067: 2013, with the support of ISO 14040 and ISO 14044 for the elaboration of the Life Cycle Analysis.

Carbon Footprint and Architecture

In the case of architecture, what is sought is to measure the impact that buildings of any kind cause on the environment.

The mentioned impact is measured through CO2 equivalent. For this, the life cycle of the buildings is used as a parameter, which is divided into phases. All the stages involved in the process of construction, operation and completion of the life of a house or building are analyzed.

Sustainable Architecture

As mentioned above, one of the most important pillars of sustainable development is to satisfy present needs, without creating strong environmental problems and without compromising the demand of future generations. To this effect, sustainable architecture reflects on the environmental impact of all the processes involved in the construction and use of a building beyond its usage. This new approach contemplates a large number of diverse points. These points range from manufacturing materials (which should not generate toxic waste or consume a lot of energy), to construction techniques (which should involve minimal environmental deterioration). Other relevant aspects refer to the house's location and its impact on the environment, its energy consumption and its impact and the recycling of the materials when the house has fulfilled its function and should be tear down, among others.

Sustainable architecture can be considered as the responsible development and direction of a healthy built environment, based on principles of ecological order and efficient usage of resources. Buildings designed with sustainability principles aim to minimize their negative impact on the environment. Through this decision we seek to impact as little as possible on the current and future environment.

Sustainable architecture is based on 5 basic cornerstones

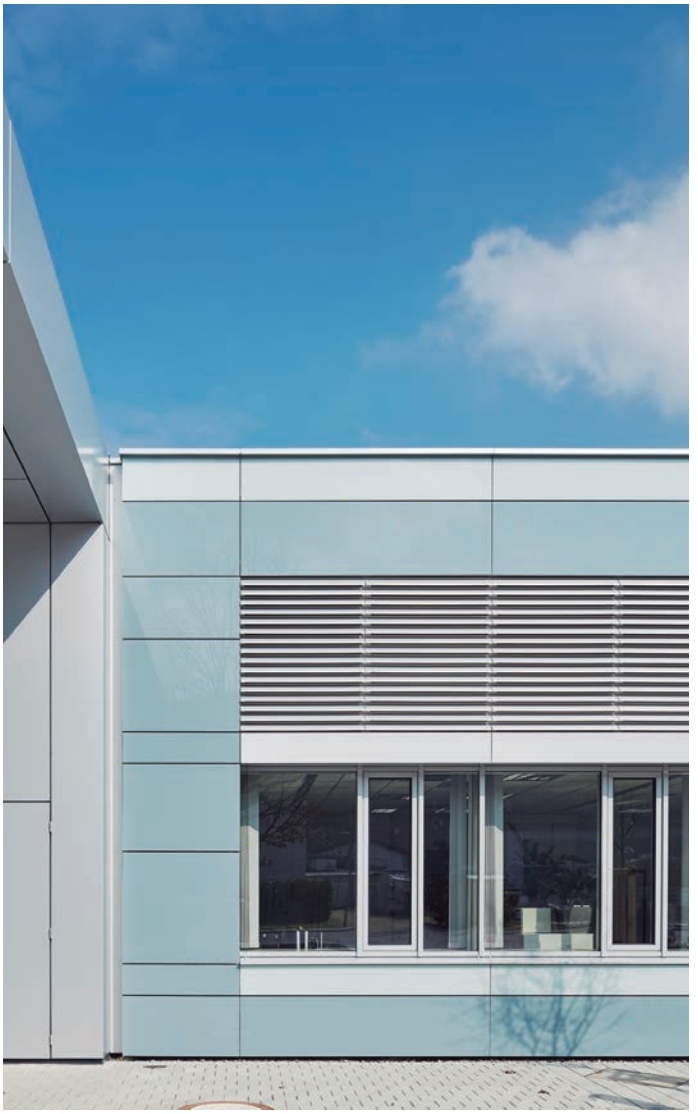
- The ecosystem on which it sits
- Energy systems that encourage savings

- The construction materials
- Recycling and reuse of waste
- Mobility

Here are some topics applicable to any construction system taking into account the aforementioned cornerstones of sustainability:

Environmental

- Respect the environment taking all its components into account, such as water, land, flora, fauna, landscape, social and cultural aspects, etc.
- Have knowledge of the climate where the project is based. Within this parameter, different points are considered, such as the path of the sun (trajectory and intensity), wind, latitude, rainfall and temperature. All these factors must be taken into account at the time of the project location.
- Use materials that can be easily recycled or reused, that do not contain dangerous or polluting products and that favor the saving of raw materials and energy.
- Provide for the use of recycled or reused materials (for example: introduce aggregates or other recycled materials into concretes that allow it).
- Make simple and austere designs. Go by the "less is more" principle. In this way, a smaller amount of natural resources is used.
- Opt for local materials. This choice will prevent the production of carbon dioxide generated by the transport and will generate local production and labor.
- Opt for the use of materials and technologies that have the least amount of carbon dioxide in their life cycle. To do this, it will be necessary to consider the different stages of it: extraction of raw materials, transportation, production processes, use, reuse, recycling and final disposal.



- Design with renewable energies, preserve non-renewable resources and biodiversity.
- Select suppliers that have environmental certifications in their materials, whether national or international (for example: ISO 14000/14.001, IRAM, Forest Stewardship Council -FSC- etc.). Eco-labels are stamps issued by an official entity that guarantee that the material has a low environmental impact and, therefore, is more respectful than others that perform the same function.
- Design closed circuits of water and waste with the aim of being as efficient as possible internally, as well as generating the least amount of emissions to the environment.
- Avoid, in all construction processes, the massive generation of waste, whether they are: solid, liquid or gaseous; with the added obligation of properly managing the waste generated.

Social

- Opt for the use of local materials. Through this election, the development of the local industry can be encouraged and the environment will also be taken care of.
- Train the operators in the use, cleaning and maintenance of tools and work elements to ensure a longer duration of them and greater safety in handling.
- Consider hygiene and safety programs on the job and in any work environment.
- Select carefully the chemicals to be used in cleaning tasks and waterproofing to avoid respiratory diseases.
- Instruct staff through training courses on the company's environmental policy.
- Avoid and prevent volatile organic compounds.
- Promote the reuse and recycling of materials in the work and offices.
- Offer users a manual, with good environmentally recommendable behavior that help reduce the environmental impact of daily life.

Viability of Sustainable Architecture

From the market policy point of view, for viable architecture projects to be viable, a series of points must be taken into account, some of which are mentioned below:

- The projects must be carried out by a multidisciplinary team that includes architects, engineers and other qualified professionals.
- The exterior of the building must be treated correctly, both the windows and the walls.
- Control and management systems must be promoted to maximize the use of energy.

- Studies should be carried out for the systems that capture natural light.
- It is necessary to design systems for heating water using solar panels.

Guidelines to Define Sustainable Architecture

Like all activities, sustainable architecture presents a series of guidelines that define it:

- Adopt new urban regulations in order to achieve sustainable construction (shape of buildings, shading distance, orientation of buildings, waste management devices, etc.)
- Increase the insulation of buildings, while allowing their "breathability".
- Generate cross ventilation in all buildings, and the possibility that users can open any window manually.
- Orient the buildings to the south. Through the implementation of this strategy, it is sought that most of the rooms with energy needs are oriented to the south, while the service stays are to the north.
- Provide an approximate orientation of the windows as follows: 60% to the South; 20% to the East, 10% to the North and 10% to the West.
- Provide sun protection to the east and west, so that only indirect light gets in. Likewise, it is advisable to place protections to the south during the summer so that, during this season, no solar rays enter the interior of the buildings, while they can do it in winter.
- Increase the thermal inertia of buildings. For this it is necessary to increase its mass considerably (roofs, planters, walls).
- Favor the recovery, reuse and recycling of the construction materials used.
- Minimize the waste generated in the construction of the building as much as possible.
- Favor the prefabrication and industrialization of building components.

Sustainable Buildings

Sustainable building can be defined as those constructions that present the least adverse impacts on the natural environment and the built environment, so it approaches the architectural spaces themselves, their immediate surroundings and, more widely, the regional and global scenario.

This type of sustainable construction can also be defined as that which contains those constructive practices that achieve an optimum integral quality (including economic, social and environmental performance) in a very broad manner. In this way, the rational use of natural resources and the proper management of the infrastructure and facilities of the building will

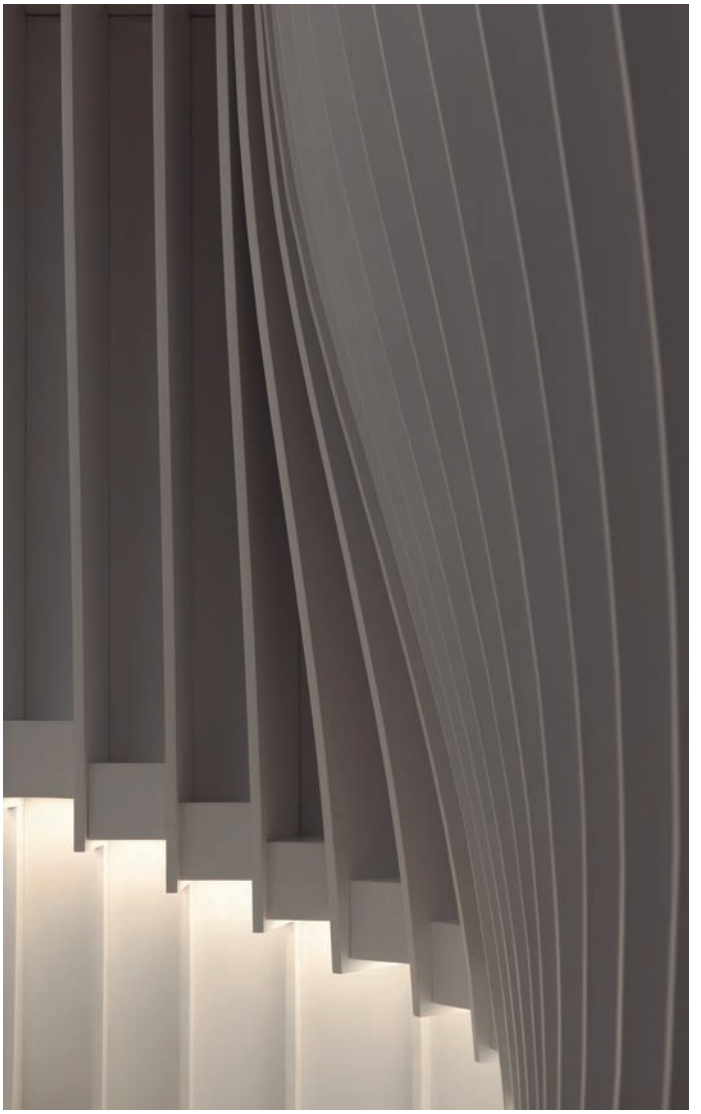
contribute to the conservation of energy and improve environmental quality.

The sustainable building involves taking into account the entire life cycle of the construction in question, taking into account its environmental quality, its functional quality and its value for future use. In the past, attention had been focused mainly on the economic value as the estate value of the building. Qualitative issues have not played the role they deserve in the real estate market. However, in strict quantitative terms, the market is saturated in most countries, so the demand for quality is growing in importance. According to the above, policies must be carried out to contribute to establishing sustainability practices in construction, recognizing the importance of the conditions.

Both the environmental initiatives of the construction sector and the demands of the users are the key factors in the market. Governments can give a considerable boost to the design and construction of sustainable buildings by promoting these developments. It is possible to identify five goals for sustainable buildings:

1. Efficient use of resources
2. Efficient use of energy (including reduction of greenhouse gas emissions)
3. Pollution prevention (including improving indoor air quality and reducing noise)
4. Harmony with the environment (including environmental assessment)
5. Integrated and systemic approaches (including an environmental management program)

Architecture and constructive design play an essential role in the path towards a sustainable energy system, as buildings account for the highest energy consumption in a community.



LEED Certification

The LEED is a certification system for sustainable buildings. This certification was developed by the United States Green Building Council. It was implemented for the first time in 1998, and has been used in several countries since then. LEED is an acronym for Leadership in Energy & Environmental Design.

This certification consists of a set of rules that try to use a series of strategies, aimed at sustainability in constructions of all kinds. These standards are linked to the incorporation, in the construction project, of aspects related to energy efficiency, the use of alternative energies, the improvement of internal environmental quality, the efficiency of water consumption, the sustainable development of open spaces of the land and the selection of materials.

There are four levels of LEED certification:

- LEED Certified
- LEED Silver
- LEED Gold
- LEED Platinum

The purpose of the voluntary certification is to advance the use of strategies that allow a global improvement in the environmental impact of the construction industry.

Welfare, Comfort and Control of the Occupants

The occupant's comfort and welfare are vital aspects in any building interior. In fact, to be healthy, happy and productive, the occupants must feel comfortable and have total control of their environment. This control includes different aspects such as

thermal comfort, lighting and views, acoustics and ergonomics. Feeling too hot or too cold, having poor lighting, not being able to look outside through a window or having to endure too much noise, can be causing stress and thus reducing the quality of life. Because the individuals needs and preferences at different times vary over time, the ability to control the indoor environment is a fundamental component of the comfort and satisfaction of the occupants.

When referring to thermal comfort, different factors are included. These are aspects that not only have to do with temperature. It includes other topics such as humidity or air movement. An area may have the right temperature, but if the air is stagnant or if the air ducts vent directly over certain points, people will not feel comfortable. A functional window can make people feel more comfortable than in a sealed environment where it is kept at the ideal temperature, just because it gives them some control over the environment.

The levels of illumination and the views towards the outside are very relevant aspects of the interior experience. Providing sufficient lighting for specific tasks is essential to protect the eyesight of occupants over time. In addition to helping the entrance of natural lighting, windows that allow you to focus your eyes a greater distance and see the outside, can play a vital role in the comfort of the occupants. Despite what has been said, we must consider that too much light can interfere with some tasks, and direct sunlight or glare can create discomfort as well.

A good lighting design takes into account the tasks carried out in a space, the orientation of the building, the design of the room, the type of glaze and the configuration of the windows, including the type of furniture and the colors of the surfaces. The correct size and proper placement of windows can drastically increase the amount of natural light that is allowed to enter a space; clerestory windows, light shelves, paint and reflective materials reflect and diffuse natural light. In the office buildings, a good design is one that locates the private offices in the center of the building and the cubicles in the perimeter, since in this way natural lighting is attracted in a large area. Likewise, it is important to consider that the divisions of low cubicles allow the passage of natural lighting to the central spaces, while allowing views to the outside. Adjustable window blinds give occupants control over excessive brightness and glare. Natural lighting can also decrease the need for artificial lighting. Natural lighting controls are vital elements, since they help to regulate or completely turn off electric lights when natural lighting is sufficient. These controls must be sectored so that the spaces near the windows, with a lot of natural light, have regulated artificial lighting and that spaces furthest from the perimeter, with less natural lighting, have higher levels of artificial lighting.

Sustainable architecture claims that it is a mistake to think that only vehicles are polluting elements. In fact, nowadays it is believed that buildings can be the biggest consumers of the physical resources of their environment. This is precisely why they are also defined as polluting elements. To this fact it is necessary to add the fact that the construction activity is a great consumer of natural resources, such as wood, minerals, water and different types of energy. Likewise, buildings, once built, continue to be a direct cause of pollution due to the emissions produced in them or the impact on the territory. In this framework, sustainable architecture takes into account the consumption of resources (energy, natural resources), the environmental impact they produce as well as the specific risks for the safety of people. In this scenario, the ecological building materials are configured as an aspect of vital importance.

In construction, it is considered that the ecological materials are those that generate low environmental impact during their manufacturing stage, as well as in the installation and maintenance phase. They are durable and reusable or recyclable elements.

Furthermore, they may be materials that include recyclable elements in their composition and come from resources in the area in which they are to be built. In other words, the use of local materials is promoted. In addition, these materials have to be natural.

Guidelines for a Selection of Sustainable Materials

There are many and different guidelines for choosing sustainable materials. Among some of the most important can be mentioned:

- That they have a long duration
- That they can fit a certain model
- That they come from a fair production
- That they have an affordable price
- That they be valuable
- That they are non-polluting
- That they consume little energy in their life cycle
- That in their environment they have cultural value
- That they come from abundant and renewable sources
- That they possess a percentage of recycled material
- That they have stamps or identifications of environmental organizations that certify them

Materials – preferably ecological– for the construction

Many attributes can be conceived as the basis for a construction material to be designated as ecological. They can occur in any of the phases of its life cycle. In general, construction materials are referred to as preferably ecological because:

- they are collected or extracted and manufactured locally
- they are grown and harvested organically or sustainably
- they are made from rapidly renewable materials, i.e. materials that can be replaced naturally in a short period (for LEED, this period must be 10 years)
- they have recycled content
- they are made of biodegradable materials or susceptible to becoming compost
- they are free of toxins
- they are durable and reusable
- they are manufactured in factories that support the healthcare and rights of workers

Some sustainable materials to build

Hereafter, we will review some of the sustainable materials to build with. Some of them are the most used nowadays. Without a doubt, the list is not exhaustive nor does it aim to include every and all of the possibilities, it is simply a matter of showing some of the alternatives in force today.

Cork

Cork is a 100% natural material. Thanks to its properties, it is perfect to be used as a thermal and acoustic insulator in the sustainable construction of buildings and homes. But this is not all it provides. Cork offers a variety of uses, as it can be applied internally and externally, in floors, walls and ceilings, and contributes to the improvement of comfort and energy efficiency. Cork is synonymous with savings in energy costs in the use of thermal installations.

It is a natural material because it is obtained from the bark of the cork oak through a process that respects the environment. Nowadays, it is becoming a trend in sustainable architecture, given that it is an environmentally friendly material that has a great capacity for acoustic, vibratory and thermal insulation. In addition, it offers great impermeability, durability, igneous

resistance, dimensional stability, etc. It can be applied in vertical and horizontal elements, in interior and exterior finishes, etc.

Cork is a rapidly renewable material. The cork oak renews its bark every 9-12 years. It is precisely this characteristic that makes it possible to obtain cork without harming the tree. It is a natural material and therefore harmless to human health, capable of offering warm and resistant surfaces. In addition, it does not pollute and has an optimal life cycle. It can be recycled and reused easily. Likewise, it removes CO2 from the atmosphere and stores it so that its carbon footprint is low.

Cellulose

Cellulose is another material that sustainable construction uses mostly to isolate. The cellulose insulation is composed mainly of 90% of pre-selected recycled newspaper, and naturally originated boric salts. The paper frays and mixes with the boric salts in a special mill. These salts act as protection against fire and as a means of conservation. It is important to note that they are not harmful to human health or the environment. The entire production process needs very little energy and does not pollute water, air, or soil. It is precisely for all this that cellulose is considered another example of an element suitable for sustainable architecture.

Hemp

Today one of the most innovative uses of hemp fibers is in construction. This is because this material offers great strength, flexibility and has enormous thermal and insulating power. One of its most common uses is as a substitute for wood in the production of planks or insulating panels and also as a main component in compact bricks applicable in the manufacture of exterior walls, interiors and ceilings, replacing conventional bricks.

The houses built with hemp bricks and plates turn out to be more waterproof, resistant and isolated. All this helps to facilitate energy saving and to provide a better soundproofing. In addition, its use as a renewable raw material, has the quality of reducing environmental pollution.

Ecological bricks

Ecological bricks are bricks built with materials that do not degrade the environment and whose manufacture is also respectful of it. They are a green option compared to the usual bricks whose manufacture and materials are not so innocuous.

Ecological bricks have qualities similar to those traditionally used for construction. Therefore, its use does not result in loss of quality since, like most organic products, they undergo more quality assessments than the traditional ones.

Bamboo

Bamboo, also known as Guadua angustifolia, is one of the most used materials by man since ancient times, to increase comfort and welfare in construction and building.

Although it is true that there are multiple uses of bamboo which have a long tradition in Latin America and Asia, it is still very underestimated and little known in the construction field of our days. The most common uses are in crafts or furniture, and in a few cases, it is applied to housing structures.

The most interesting and most impactful use of bamboo can be found in housing construction. Its application is carried out in very different ways, from the construction of roof trusses with the complete bamboo canes, cut only to the length required by design; to the reeds cut into strips to make panels

for residential walls, on which a layer of mortar is placed to close the walls.

Bamboo, a fundamental material in the construction of houses, presents remarkable characteristics of resistance to all the structural requirements that are usually presented in a home. The existence of a mortar plaster of good specifications on the exterior faces, is the first guarantee of durability of the constructions. In any case, the techniques developed for low-cost wood immunization should be applied and the cutting and drying method should be applied, which helps to prevent deterioration due to insect attack. In addition, it is advisable to carry out frequent inspections in the areas most exposed to humidity.

The structural system of a house in which the bamboo is the main material, is made up of mezzanines with bamboo joists, mat and mortar slab; support panels resistant to vertical and

horizontal loads, bamboo reinforcement for support of the roof, foundation consisting of cyclopean reinforced concrete basements, to which the load is transferred by means of a bamboo superstructure, which in turn serves as a mooring between the foundations. Sometimes it is preferred to use, for the structure, some resistant and durable wood. It is processed in part, because hardwoods allow firmer joints and a stiffer construction than bamboo, and partly because sawn wood has more prestige and also certain hardwoods are much more resistant to fungi and insects that lodge within unimmunized bamboo.

When constructing isolated houses with bamboo and wood, it should be avoided to make them than two stories; since, by increasing the height, the center of gravity is raised, the weight is increased as well as the flexibility. When series of houses are built, they must be tied up to each other, so that they work like a larger one. It is convenient to design symmetrical shapes to avoid the horizontal torsion of the construction.

Wood

Wood is one of the most valued building materials. Its resistance to fire, its hardness, manageability, physical and mechanical properties, as well as its decorative possibilities, make it an ideal material to solve many of the problems that arise at the time of design, planning and construction of homes and buildings. In addition, it is one of the most sustainable materials. This is mostly related to its characteristics of obtaining, renewal and the possibility of reuse or recycling. Another advantage of wood in terms of sustainability is that, once its useful life is over, it can be converted into biomass, or be used to build agglomerate (made of recycled wood).

If wood is going to be used in the construction, it is best to opt for species that are indigenous, to avoid the energy consumption that implies the import of exotic woods. Another issue is to set aside the use of endangered species. To be sure that it has been obtained in a sustainable way, it will be necessary to look for stamps that certify it, such as the FSC seal or the PEFC.

Considering all the factors of its life cycle, the environmental behavior of wood is better than that of other products used in construction. This is mainly due to the fact that wood needs a lower energy expenditure in its production, it is natural, biodegradable, recyclable, it is an excellent insulator and it is not toxic, besides fixing CO2 during its growth (which is why it does not leave a big mark of carbon).

Energy and Architecture

Energy efficiency is one of the main concerns and goals of sustainable architecture. Architects and designers make use of various techniques in order to decrease the energy needs of buildings. For this, they are based on saving strategies as well as on the capacity of buildings to use alternative energies.

There is a wide range of these strategies to which sustainable design can appeal. Some of them include active and passive solar heating, water active or passive solar heating, solar electricity generation, groundwater or geothermal heating, and more recently, the incorporation of wind generators into buildings.

All these energies focus on both the materials used and the methods carried out, to obtain greater energy efficiency for the house or the building.

Renewable energy

Reducing demand and increasing energy efficiency often make it profitable to cover most or all of the building's energy needs with renewable resources. In general, it is considered that the so-called ecological energy includes solar, wind, wave-driven, biomass and geothermal energy. Some forms of hydroelectric energy are also considered a part of this group. The use of these renewable energy sources avoids a huge amount of environmental impacts associated with the production and consumption of non-renewable fuels, such as coal, nuclear energy, oil and natural gas.

Some certifications such as LEED make a distinction between the production of indigenous renewable energy, i.e. produced on the area of the construction site itself, and the purchase of ecological energy off-site. The production of energy in the area usually involves a system that generates clean electricity, such as photovoltaic solar panels that are capable of converting solar energy into electricity. On the other hand, the renewable energy generated outside the site is usually purchased at a special price per kilowatt-hour from a utility company or from a Renewable Energy Certificate (REC) provider. These renewable energy suppliers represent the non-tangible and marketable raw materials associated with the qualities of renewable electricity generation. RECs, and their associated attributes and benefits, can be sold independently of the underlying physical electricity associated with a source of renewable energy generation. In cases where it is not possible to buy green energy through a utility company, the use of energy from the building can be offset by purchasing green energy from renewable energy projects in the country.


HOTEL KONGRESS

Project: Vienna Central Station **Photographer:** Roman Bönsch, Vienna **Architect:** Theo Hotz Partner Architekten, Zürich

Con estas líneas, quiero agradecer a todos los arquitectos y estudios de arquitectura, que han colaborado con nosotros en la elaboración de este nuevo libro:

ADNBA / Architekten + Partner Dannien Roller / Architéma / ATMOSFERA / Birdseye / Broadstone Architects / Carter + Burton Architecture / Christoph Hesse Architekten / CJS Architects / Darin Johnstone Architects / DOV Designs & Consultant / EP Architects / Gronych + Dollega Architects / Jack Woolley / KG Mimarlık / m3 Architects / Netarq Architecture / Nieberg Architect / PRAXiS *d'*ARCHITECTURE / Ricardo Zurita Architecture and Planning / Robert Harvey Oshatz, Architect / Sebastian Eilert Architecture, Inc. / Seoinn Design Group / Sinclair Building Architecture Design / Stein Halvorsen Arkitekter AS / Studio Terpeluk / Tectonic Design / TECTONIQUES / TORAFU ARCHITECTS / Voltolini Architectures

Gracias a su compromiso he podido recopilar un material de gran calidad arquitectónica y visual que estoy seguro que muchos amantes de la arquitectura como yo serán capaces de apreciar y disfrutar.

También quiero reiterar mi agradecimiento a todos los integrantes de este libro ya que con su aporte hemos podido donar una suma de dinero a Habitat for Humanity. Con este pequeño granito de arena la mencionada ONG podrá construir viviendas dignas para los más necesitados logrando así un mundo mejor no solo para ellos sino para todos.

Sinceramente, ¡muchas gracias a todos!

Óscar Asensio
Autor

Maren Dannien / Matthias Roller
Architekten + Partner Dannien Roller

www.dannien-roller-architekten-partner.de

Architecture is not objective, but influenced by processes, requirements, budgets and cultural-spatial conditions. Our early cooperation with the client – as early as the task development stage – creates a qualitative coherence between the construction project, urban integration, space, form and material. This not only creates an unmistakable building culture, but also a high level of recognition.

Our focus is on the workplace: the place where we spend most of our lives awake. Although we live in a world that is becoming more and more mobile from day to day, administration and production, research and teaching, education and training, and work are linked to physical places. This topos requires both material and emotional criteria, to which we respond creatively, innovatively and with outstanding design quality.

La arquitectura no es objetiva, sino que está influenciada por procesos, requisitos, presupuestos y condiciones culturales-espaciales. Nuestra cooperación temprana con el cliente, desde la etapa de desarrollo de tareas, crea una coherencia cualitativa entre el proyecto de construcción, la integración urbana, el espacio, la forma y el material. Esto no solo crea una cultura de construcción inconfundible, sino también un alto nivel de reconocimiento.

Nuestro enfoque está en el lugar de trabajo: el lugar donde pasamos la mayor parte de nuestras vidas despiertos. Aunque vivimos en un mundo cada día más móvil, la administración y la producción, la investigación y la enseñanza, la educación y la capacitación, y el trabajo están vinculados a los lugares físicos. Este topos requiere criterios tanto materiales como emocionales, a lo que respondemos de manera creativa, innovadora y con una calidad de diseño excepcional.

Max Planck Campus Day Care Center

Erbe Elektromedizin Production Hall

Max Planck Campus Day Care Center
Tübingen, Germany, 2017
Total Area: 603 m²

On the premises of the Max Planck Campus Tübingen, the converted existing building is surrounded by a U-shaped wooden frame extension. The façade cladding of sand-colored fiber cement panels coats the building with a uniform layer reflecting old and new.

The striking feature of the design concept is the moving folded roofs cape: it functions as a fifth façade, appearing to the viewer like a second landscape in front of the mountain panorama on the horizon. At the same time, it takes over the function of different functional areas in the interior.

The aim is to allocate different room heights and to create individual room qualities (open to protected) according to the pedagogical concept.

En las instalaciones del campus de Max Planck en Tübingen, el rediseñado edificio existente está rodeado por una extensión de marco de madera en forma de U. El revestimiento de la fachada compuesto de paneles de fibrocemento de color arena cubre el edificio con una capa uniforme que refleja lo antiguo y lo nuevo.

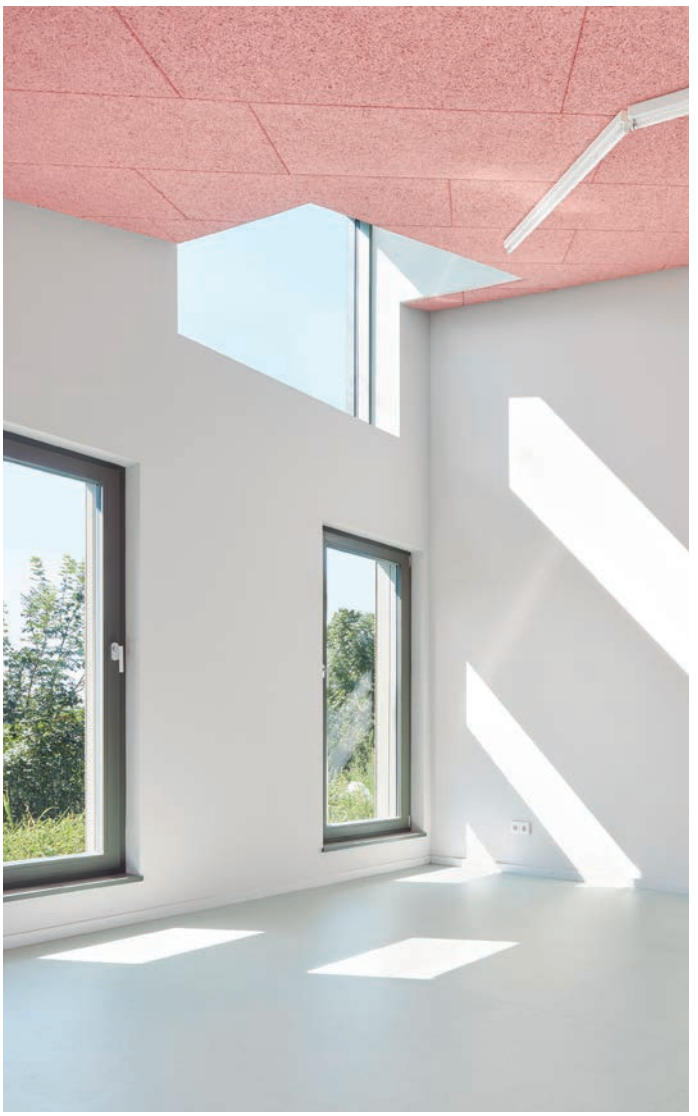
La característica más destacada del concepto de diseño es el movimiento representado por una capa de techos plegados: funciona como una quinta fachada, presentada al espectador como un segundo paisaje frente al panorama montañoso en el horizonte. Al mismo tiempo, caracteriza diferentes áreas funcionales en el interior.

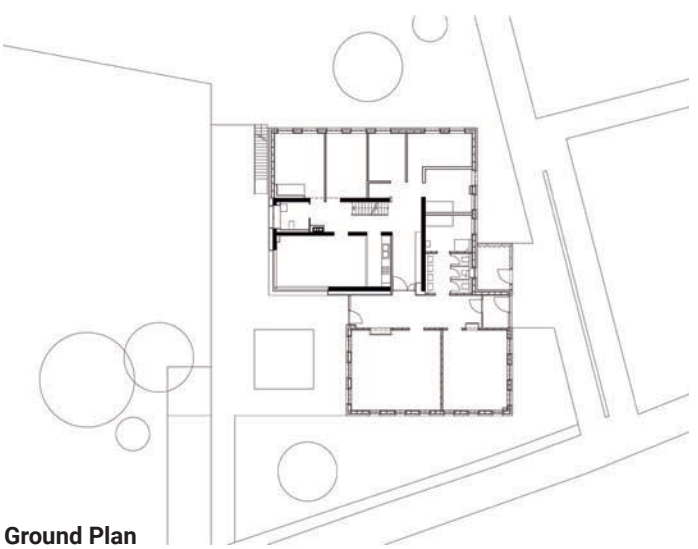
El objetivo es asignar diferentes alturas a los espacios y crear calidades de habitaciones individuales (abiertas a protegidas) de acuerdo con el concepto pedagógico.

Photographer
Dietmar Strauß

Design Architects
Maren Dannien
Matthias Roller
Claudia Hegelau
Simon Kirsch

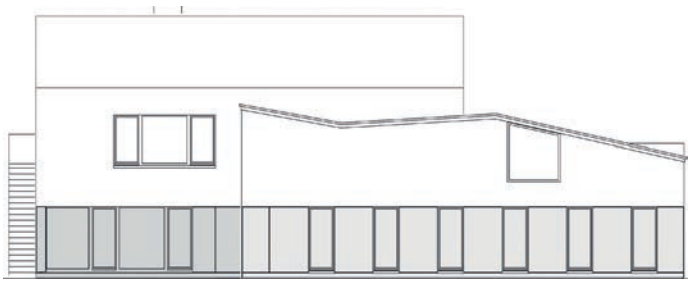
Collaborators
Stefan Fromm Landschaftsarchitekten / Landscape Architect





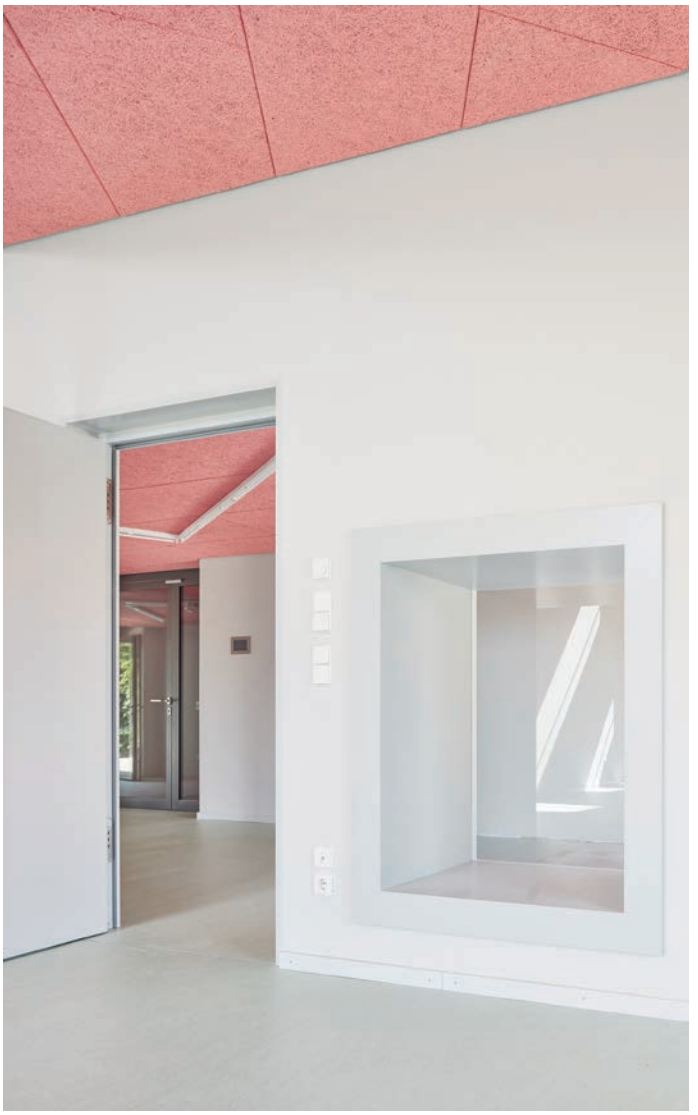
Ground Plan

North-East View



South-East View

South-West View



Erbe Elektromedizin Production Hall
Tübingen, Germany, 2016
Total Area: 5,520 m²

The production hall was built in 1984. The existing building is renovated to add energy efficiency and fire protection. In line with the dynamics of an expanding industrial company, the previously independent building is now part of a steadily growing building cluster as a single-storey and lowest part.

A major aspect is the design of the façade as a large-scale glass joint. It is divided by a horizontal layering motif with continuous bands of colored enameled glass elements, windows and slats. The continuous belt made of weather protection grille serves for the supply of individual exhaust air elements and supply air intakes for production and workshop machines. It enables flexible adaptation to continuously changing production conditions.

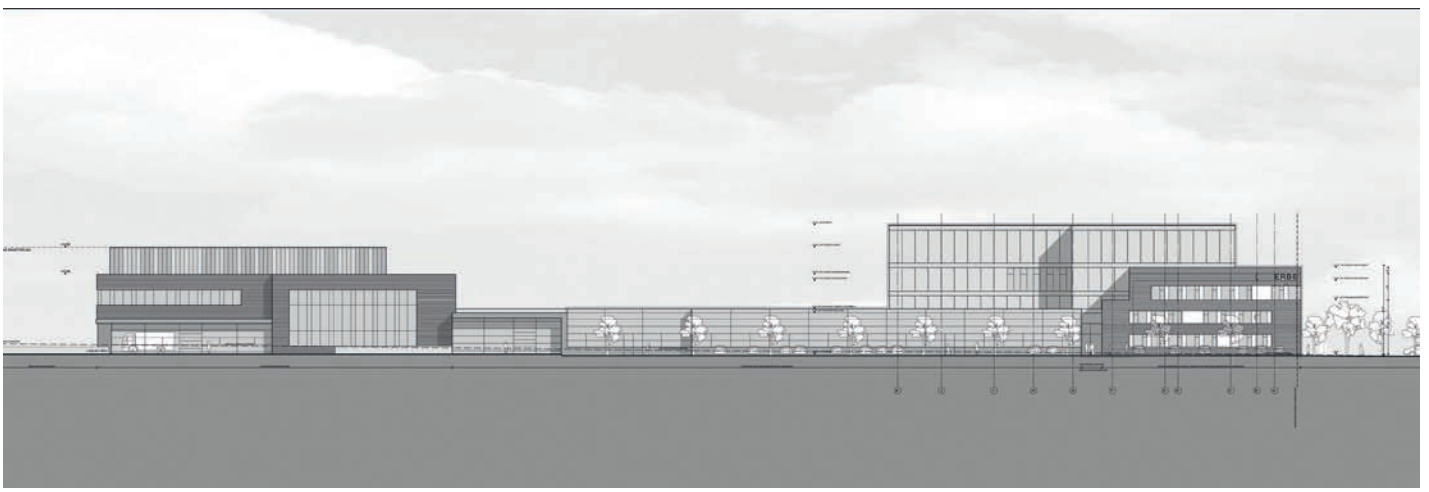
La sala de producción fue construida en 1984. El edificio existente está renovado para agregar eficiencia energética y protección contra incendios. Alineado con la dinámica de una empresa industrial en expansión, el edificio, anteriormente independiente, ahora es parte de un grupo en constante crecimiento como una sola planta, la más baja.

Un aspecto significativo es el diseño de la fachada compuesta de una junta de vidrio a gran escala. Está dividida por motivos de capas horizontales con bandas continuas de elementos, ventanas y listones de vidrio esmaltado en color. La banda continua, compuesta por la rejilla de protección contra el clima, proporciona elementos de escape de aire individuales además de entradas de suministro de aire para las máquinas de las áreas de producción y taller. Permite una adaptación flexible a las condiciones de producción en continuo cambio.

Photographer
Dietmar Strauß

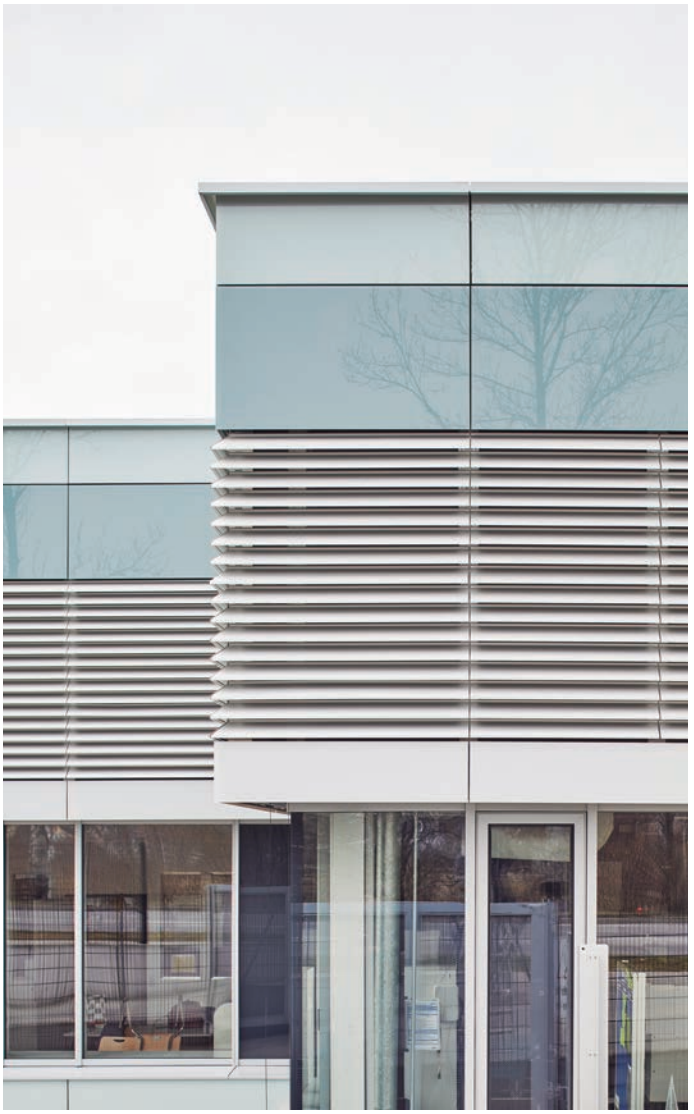
Design Architects
Maren Dannien
Matthias Roller
Simone Ruschmeier
Claudia Hegelau

Collaborators
Dagmar Hedder Landschaftsarchitektur / Landscape Architect



Building cluster

Site Plan



Index of Architects / Índice de Arquitectos

ADNBA
Intrare Ion Voicu 3, Sector 2
020465 Bucharest
Romania

ARCHITEKTEN + PARTNER DANNIEN ROLLER PartGmbB
Alexanderstr. 52
72072 Tübingen
Germany

ARCHITEMA KFT
Bokor utca 9–11
1037 Budapest
Hungary

ATMOSFERA doo
Mandaličina 14
10000 Zagreb
Croatia, EU

Birdseye
3104 Huntington Road
Richmond, Vermont 05477
United States

Broadstone Architects
No.2 Brunswick Court
Brunswick St. North
Dublin D07 ND71
Ireland, UK

Carter+Burton Architecture
11 West Main Street
Berryville, Virginia 22611
United States

Christoph Hesse Architekten
Brunnenstrasse 153
10115 Berlin - Mitte
Germany

CJS Architects
54 South Union Street,
Rochester, NY 14607
United States

Darin Johnstone Architects
7462 N Figueroa St. Ste 206
Los Angeles, CA 90041
United States

Daniel Ostfeld
Architectural Designer & Founder
601 W 26th St. Suite 1275
New York NY10001
United States

ELA STUDIO
Sebastian Eliart
13063 S.W. 133 Court
Miami, FL 33186
United States

EP Architects
36, Lord Byron Avenue, 5th
_oor, o_ce 502
Nicosia 1096
Cyprus

gronych + dollega architekten
Auf dem Hauserberg 1
35578 Wetzlar
Germany

Jack Woolley
38 Thornhill Square
London N16 1BE, UK

KG Mimarlık
Cevdetpasa Avenue
Hamam Street, Sehmen
Apartment, No: 5/11,
34342, Bebek
Istanbul

m3 Architekten AG
Dipl. Arch. ETH/SIA
Asylstrasse 58
8032 Zurich
Switzerland

Netarq Architecture
Juan Garcia-Maruri
6960 Centinela Ave.
Los Angeles, CA 90230
United States

Nieberg Architect
Atelier Axel Nieberg
Tintengraben 1
D-30177 Hannover
Germany

PRAXiS *d*'ARCHITECTURE
2nd Floor, Legendary Center,
Bldg 11 Guomei No. 1 City,
Qingnian Road West Li 2nd Gate,
Chaoyang District, Beijing
China

Rober G. Sinclair Architecture
PO Box 8114
CO 81612 Aspen
United States

Robert Harvey Oshatz, Architect
PO Box 19091
Portland, OR 97280
United States

RZAPS
Ricardo Zurita Architecture & Planning
15 E 40th St Suite 900
New York NY 10016
United States

Seoinn Design Group
107-24 Banpo-dong,
Seocho-gu
Seoul 1 37-044
South Korea

Stein Halvorsen Arkitekter AS
Rosenborggata 19A
0356 Oslo
Norway

Studio Terpeluk
148 Townsend Street
Suite # 1
San Francisco, CA 94107
United States

TECTONIC DESIGN
337 Forest Hills
Rancho Mirage, CA 92270
United States

Tectoniques
11 Boulevard Eugène Deurelle
Lyon 69003
France

TORAFU ARCHITECTS
Chikazawa Bld. 2F
1-9-2 Koyama, Shinagawa-ku
Tokyo 142-0062
Japan

Voltolini architectures
Rue de la Gare 23
1820 Montreux
and
Rue du Riond 11
1896 Vouvry
Switzerland