Carbon Neutral and Circular Architecture
Nature-based Architecture
Architecture for Health and Well-Being
We enable sustainable life through the art of architecture

Architecture for a Sustainable Life
Annual Sustainability Report 2022

white

One of the most complex planning challenges of our time is under way in the heart of Stockholm. The New Slussen – a major lock between the Baltic Sea and the freshwater Lake Mälaren – is being adapted to modern travel patterns, and equipped to cope with a changed climate. New thoroughfares, squares and parks are also being created, for everyone to enjoy. Once complete, the lock will be able to release more water from Lake Mälaren, thus protecting Stockholm from flooding and drinking water contamination in the future.

Welcome to White.

White was founded in 1951 in Gothenburg by Sidney White. The vision was to improve society through architecture. Since the very start, a sense of social engagement and consideration for people have been key features in our corporate culture. White today is one of Scandinavia's leading firms of architects. We are an employee-owned company with over 700 employees and a presence in Sweden, Norway, Germany, the UK, Canada and East Africa. We work with sustainable architecture, urban planning, design, landscape architecture and interior design for current and future generations. Our mission is to enable sustainable life through the art of architecture.

The most sustainable building is the one already built. Working with Higab on restoration of Wernerska Villan in Gothenburg, we have identified solutions that bring out the very special character of this Renaissance Revival villa, and emphasise the original craftsmanship that is very much still in evidence.

Architecture as a Driver for a Sustainable Life

Alongside the Consortium Gran team, we won the competition to develop Makasiiniranta in Helsinki. The area will be transformed into a public waterfront area based on sustainable solutions with low climate impact.

The drive for sustainable transition showing the way forward through a weaker growth for the construction and real estate sector in 2022. The European Commission's Green Deal highlights architecture and design as pivotal success factors in achieving social, ecological and economic sustainability. White is growing internationally, and our network across several geographies enhances our expertise and competitiveness. We find ourselves in a time where our expertise and capacity enable us to contribute to change and progress. Meanwhile there are higher demands on creativity and efficiency, to maintain momentum when economic conditions risk faltering.

2022 began with a recovery following the pandemic. In February, the market was rocked by Russia's invasion of Ukraine. Inflation, higher construction costs, higher interest rates and falling transaction values affected developers and property owners, especially in the housing and commercial real estate segments. The number of technical design stages decreased in favour of early, less investment-heavy stages. Demand from public clients remained good. For instance, during the year we gained continued trust in the refurbishment and extension project on Karlstad Central Hospital.

Our studios in Germany and the UK have increased their turnover as a result of our strategic focus on healthcare. We have won the contracts to design a healthcare and treatment centre in Tübingen, Germany, and the Velindre Cancer Centre in Cardiff, Wales. Our ability to unite design and sustainability was a crucial aspect in winning both contracts.

Earnings for the Group as a whole reflect a weaker market, and turnover fell slightly compared to 2021, to SEK 767 (769) million. Incoming orders outside of Sweden now total 16 percent of all orders.

We are working towards the vision that all projects we are involved in shall be carbon neutral from 2030 onwards. This puts us in a strong position to support our clients in the transition towards sustainability. EU legislation, alongside sustainability requirements from banks and real estate investors, is driving the pace of transition. During 2022, 83 percent of our projects reported links to the global Sustainable Development Goals (SDGs). 5 percent of ongoing projects are planned as being climate neutral, but far more are planned towards some kind of climate goal. In more and more of our landscape projects, ecosystem services and biodiversity are an inherent part of the brief. A high proportion of our interior design projects include reuse and circularity. An important challenge moving forward is to evolve methods for circular architecture at the construction level.

Digitalisation is giving us new opportunities to create sustainable architecture, and turnover in Digital Matter, White's digitalisation scheme, increased in 2022. Digital Matter has, for example, developed a new digital process for reuse called 'ReMake', which has been deployed in several projects and published scientifically. With the aim of meeting stricter requirements, we are also developing methods for climate calculation in early and late stages. We also have high competence in computational design, which offers opportunities for more efficient collaboration in projects.

During the year, we won 38 percent (27 percent) of the competitions we entered. One example is the quality and concept competition for redevelopment of the Makasiiniranta waterfront area in central Helsinki, Finland. We also won 40 percent (34 percent) of the land allocation competitions we entered, including two new climate-positive blocks in Malmö and 250 new timber homes in Hamar, Norway.

All our projects have the objective of contributing to good living environments that create value for our clients, and for society generally. Our projects are covered in the media and win some prestigious awards. Two of the main ones in 2022 were the Nodi office building in Nya Hovås, Gothenburg, and Sara Cultural Centre in Skellefteå. White was also the first firm of architects to win the Swedish Government's Export Prize for Cultural and Creative Industries. We were invited to exhibit at the International Architecture Exhibition of La Biennale di Venezia in 2023. We are continuously developing our brand and position as an international architects practice.

Ongoing weak economic development is predicted in Europe in 2023, and especially in Sweden. London and several German cities, however, are expected to develop faster than average in Europe, and we can see opportunities for positive development on these markets.

We are convinced that architecture can make a contribution to change. White will continue to support and run its operation based on the ten principles of the UN Global Compact and contribute to the aims of the 2030 Agenda. With the power of architecture, we can drive the transition to a sustainable way of life.

Alexandra Hagen

Alexandra Hagen, CEO

White 2022 in Brief

705 employees

53% women

47% men

77% of employees are co-owners

767,000,000 SEK turnover

58 MSEK to education, research, development and innovation

40 granted research projects

11% of projects are related to a WRL or research project

83% of projects have links to the global SDGs

39% of building projects have climate goals (energy and/or materials)

41% of projects are conducted under a certification system

93% of our trips within Sweden are made by train

30% of projects have a bearing timber frame (33% 2021)

8 ongoing carbon neutral buildings

547 tonnes CO_2e emissions (392 tonnes 2021)

0.96 tonnes CO_2e emissions per FTE (0.69 t/FTE 2021)

61% lower CO_2e emissions than in 2018

We have worked in **13** different countries in 2022

Austria, Canada, Ethiopia, Faroes, Finland, France, Germany, Kenya, Latvia, Lithuania, Norway, Sweden and UK

The Queen Silvia Children's Hospital, Gothenburg. Winner of the European Healthcare Design Awards, Interior Design & Arts.

Awards & Competitions

AWARDS

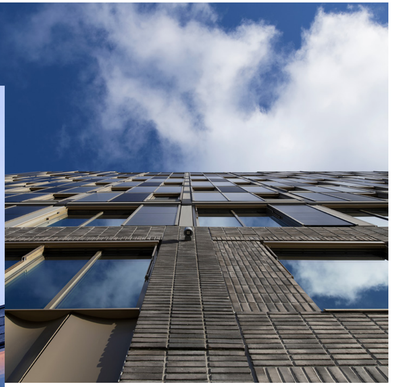
2022 was a successful year in terms of award wins. This is firm recognition that we are constantly developing and creating attractive, sustainable architecture. One prestigious award that acknowledges White's international achievements is the Swedish Government's Export Prize for Cultural and Creative Industries, for the first time was awarded an architectural firm. Sara Cultural Centre in Skellefteå and Moorfields Eye Hospital in London have received several international awards, and many projects have been voted the best architecture in their individual cities.

COMPETITIONS

We have also been successful in competitions and parallel projects, with a 38 percent share of wins. Competitions are an excellent forum for pushing boundaries, testing new ideas and being able to fully integrate architecture and sustainability into an outstanding whole. They are also opportunities to execute interesting and challenging projects. Some of the contracts we won in 2022 were the Velindre Cancer Centre in Wales, UK, the Makasiiniranta waterfront area in Helsinki, and a new healthcare clinic in Tübingen, Germany. ■

Sundbyberg Church, Sundbyberg.
Winner of the Swedish Lighting Prize, exterior.

Sara Cultural Centre, Skellefteå.
Winner of Global Vision Awards Travel + Leisure's 2022, International Award for Wood Architecture and WAF, Completed Buildings – Culture.



House of Choice, Solna. Winner of the Solna Municipality Environment Prize 2022.

Magasin X, Uppsala. Winner of the Uppsala Architecture Award.

Celsius, Uppsala
Winner of Sweden Green Building Awards, Leed Building of the Year.

Oriel, Moorfields Eye Hospital, London.
Winner of WAF, WAFX and WAF Healthcare – Future Projects.

AWARD	PROJECT
Swedish Government Export Prize	White Arkitekter
Global Vision Awards Travel + Leisure's 2022	Sara Cultural Centre, Skellefteå
International Award for Wood Architecture	Sara Cultural Centre, Skellefteå
WAF, Completed Buildings – Culture	Sara Cultural Centre, Skellefteå
European Healthcare Design Awards, Interior Design & Arts	Queen Silvia Children's Hospital, Gothenburg
WAF, WAFX	Oriel, Moorfields Eye Hospital, London
WAF Healthcare – Future Projects	Oriel, Moorfields Eye Hospital, London
Sweden Green Building Awards, Leed Building of the Year	Celsius office building, Uppsala
Lund Urban Design Award	Råängen urban planning, Lund
Solna Municipality Environment Prize 2022	Hotel House of Choice, Solna
Architects Sweden Halland, Architectural Award	Halland Art Museum, Halmstad
Uppsala Architecture Award	Magasin X office building, Uppsala
Swedish Lighting Prize, exterior	Sundbyberg Church, Sundbyberg
Facade of the Year 2022, new production	Torn Parish Hall, Lund
Glaspriset glass prize	Våghuset office building, Gothenburg

COMPETITION	LOCATION
Velindre Cancer Centre, hospital	Cardiff, Wales
Eterfabrikken, housing	Oslo, Norway
The Crichton Project, cultural centre	Dumfries, Scotland
Makasiiniranta waterfront development, city planning	Helsinki, Finland
NMK Tübingen, hospital	Tübingen, Germany
Ringstorp, housing	Örebro, Sweden
Ankerhagen, housing	Hamar, Norway
Lachine-Est, city planning	Montreal, Canada
Campus University Laval, housing	Quebec, Canada
VPOR Ballerud, city planning	Bærum, Norway
Ballerud, school	Bærum, Norway
Nature restoration Vippetangen, Hjortnes Quay	Oslo, Norway
Hagalund, city planning	Solna, Sweden
Järvastaden, landscape	Solna, Sweden
Skeppskajen, housing	Uppsala, Sweden
Mallbo/Boostad, housing	Malmö, Sweden
Flammer Areal, housing	Nehren, Germany

Torn Parish Hall, Lund. Winner of Facade of the Year 2022, new production.

Väghuset office building, Gothenburg. Winner of Glaspriset glass prize.

In Björkhagen in southern Stockholm, 166 new student apartments have now been completed. Prior to construction, a large survey was conducted on how students want to live. Some of the wishes have been integrated in the design of the new buildings.

Sustainability Brings New Opportunities

White has long been committed to sustainability. The industry has gradually taken steps forward, but as the pressure now increases on sustainable finances, we can discern a shift that could seriously speed up the pace. Today, sustainability is increasingly linked to business opportunities , and there are great risks involved in not taking sustainability seriously. On the contrary, there are major opportunities. White offers a palette of competencies and services to ensure that our projects contribute to long-term sustainable values – for our clients, for us ourselves, for society and for the planet.

Anna Graaf, Sustainability Director

HOLISTIC SUSTAINABILITY

The entire construction and real estate industry has a huge responsibility to lead developments in a more sustainable direction, since what we create today will remain for a long time to come. At White, our main opportunity to reduce climate and environmental impact and increase societal well-being lies in our projects.

Sustainable architecture is about taking a holistic approach. The aim is to create environments where people live, work and play, where we feel good, safe and included. But the pre-requisite for construction today is that the development must fall within the planetary boundaries and not be at the expense of Earth's resources, ecosystems or climate. As things develop and financial investments now have to consider social and environmental values, together we can bring about sustainable development – for real.

GLOBAL GOALS

The 2030 Agenda and the EU Taxonomy today serve as the basis for many companies' business objectives, strategic investments and prioritised sustainability issues – as for White. We perform projects on different scales: from urban planning through to designing buildings and creating sustainable living environments. This is why most of the Sustainable Development Goals are relevant to us to a greater or

lesser extent, directly or indirectly. We focus on seven of the goals in particular, as we can pursue these in our projects on a day-to-day basis. They are also key in creating more sustainable buildings.

THE RIGHT FOCUS IN PROJECTS

Each project is unique and entails different conditions. To ensure that our projects have the right focus, we always begin with an analysis involving the client and other stakeholders. In this sustainability analysis we identify risks, prioritise sustainability issues, and formulate goals and a strategy for the project in question. The analysis starts from the SDGs, but also identifies more project-specific aspects of sustainability, all depending on the type of project and the client's objectives.

STRONG EXPERTISE

Over 25 years White has amassed a strong body of expertise in sustainability, and our 40 specialists offer coordination, process management, investigations and analyses in the areas of climate, circularity, energy and ecology, as well as health and social sustainability. We also perform simulations and continuously develop digital methods in order to assure high sustainability performance and an efficient design process.

Our strength lies in being able to put together interdisciplinary teams, and jointly maintaining a holistic approach to the entire process. This means we can drive sustainability issues from vision, through project planning, to finished project and in-use management. By combining sustainability management with active cost management, we can ensure that each project achieves the best performance within given budget limitations. With this collective expertise, we can ensure that sustainability and architecture are integrated into a powerful whole. ■

The Global Goals for White:

GOOD HEALTH AND WELL-BEING
Guarantee healthy outdoor and indoor environments with access to daylight, good air quality and a good thermal climate. Strengthen social well-being through access to green spaces, inspire movement and create safe, equal, inclusive environments. Read more on pages 46–53.

CLIMATE ACTION
Contribute to carbon neutral buildings and environments by reducing energy, using renewable energy, choosing materials with low climate impact and planning for sustainable mobility. Adapt outdoor environments considering climate risks. Read more on pages 28–37.

AFFORDABLE AND CLEAN ENERGY
Ensure energy-efficient buildings and increase the share of renewable energy, e.g solar cells. Process management of energy-positive buildings and areas. Read more on pages 26 and 28–37.

LIFE ON LAND
Enhance ecosystems and biodiversity by integrating ecosystem services. Reduce impact on land and nature. Read more on pages 38–45.

SUSTAINABLE CITIES AND COMMUNITIES
Start from people's varying needs and create inclusive, safe and equal environments, with access to green spaces, housing for all and sustainable mobility. Promote social and environmental links between urban and rural areas. Read more on pages 46–53.

PARTNERSHIPS FOR THE GOALS
Establish collaborations, research and innovation in order to exchange and enhance knowledge and methods that contribute to sustainable development in several countries. Read more on pages 24–27.

RESPONSIBLE CONSUMPTION AND PRODUCTION
Transition to circular architecture by using existing stock, prioritising reuse and recycling, and creating buildings of high quality that can change over time. Read more on pages 28–37.

WHITE OFFERS SUSTAINABILITY EXPERTISE IN THE FOLLOWING AREAS:

- Sustainability Management and Certifications
- Circularity and Reuse
- Climate and Energy
- Digital Sustainability
- Economic Sustainability
- Dialogue Processes and Co-design
- Social Sustainability
- Nature-based Solutions and Climate Adaptation

Gascoigne West is one of East London's biggest estate regeneration projects, encompassing 201 well-planned apartments.

Lungegårdsparken in Bergen, Norway, creates new meeting-places by the water, cleans the water and boosts biodiversity.

Sustainable Architecture Around Europe

The New European Bauhaus **highlights architecture as crucial in facilitating a green transition, and demands on sustainable buildings are increasing. Our Scandinavian approach and experience in sustainable architecture make us competitive internationally. Receiving the Swedish Government's Export Prize is an acknowledgement of our work and efforts. In addition, new insights from other countries enrich our architecture in Sweden. But what issues and challenges are at the forefront on our markets across Europe? In this section, we make a visit to our offices in Norway, the UK and Germany.**

Carl Bäckstrand, Deputy CEO/International Director

Water in Focus in Norway

In Norway, the question is not so much whether companies in the architecture and construction sector work with sustainability, but rather how. With a long coast and deep fjords, water is a key issue in discussions relating to sustainable towns and communities. How can life below and above the surface be healthier, and how can the blue-green perspective be integrated into urban development?

"Water quality is an increasingly topical issue. In many Norwegian towns water is a natural part of life. A lot of housing is being developed alongside water, and people swim in city centres. That's why it's absolutely crucial to take care of life both below and above the surface," says Sofie Bentzen, Office Director at White Oslo.

Since its inception in 2012, White's Oslo office has worked with the blue-green perspective, which puts it at a distinct advantage as these issues come more into focus. In Bergen the office is working on the new Bystrand project and the new Lungegårdspark. We are designing the new beach park and bathing centre on top of stone rubble from work on the Bybanen tramway.

The development will be Bergen's new public living room. The idea is that people in the city should have opportunities to be active in, near and on the water, and that future city parks must combine this need with establishing more urban nature. There are therefore separate activity and bathing zones in the park, along with large spaces that have been less tailored to humans. These are prime spaces for establishing typical west-Norwegian nature, both on land and in the intertidal zone. Last year, the City of Oslo asked the office to conduct a study to deliver concrete suggestions for restoring the nature near and in the water, with the aim of enabling more life and a cleaner Oslofjord. The study is part of the City's work to relocate two ferry terminals that are currently made up of concrete surfaces.

"The study is a clear example of how our work as architects and landscape architects does not stop at the water's edge, but continues into the water and below the surface. Suggestions include measures that facilitate the establishment of seagrass, seaweed and kelp which clean the water and promote new life.

In addition to the blue-green angle, other highly topical subjects in the Norwegian construction industry include wooden architecture, reuse and transformation. Good air quality is another increasingly important area.

"We are facing some huge challenges encompassing all kinds of important issues, and we must work alongside clients and other stakeholders to meet them. With all the collective know-how White has in the form of skilled designers, reference projects, sustainability expertise, opportunities for research and our digitalisation scheme, we have the experience, capacity and everything else in place to successfully drive the transition to a sustainable society," Sofie Bentzen concludes.

Contact: Sofie Bentzen, Office Director, White Oslo.

From Linear to Circular in Germany

The transition from a linear to a circular economy is a pivotal part of the sustainability debate in Germany. In the construction industry, the focus is on the possibility of creating a regenerative system, with the aim of closing and reducing the energy and material cycles.

"In the long run, all players in the construction industry will need to take a stance on circular thinking, and it's already evident that the major contractors and developers in Germany are having to rethink. Moving forward, I think the focus will be on resource-saving solutions such as reuse and harnessing existing buildings," says Fredrik Larsson, Director at White's studio in Stuttgart.

"Change tends to take time, and in order to speed up the process, companies need to consider sustainability initiatives as a competitive asset."

There are several central and local means of control in Germany today for achieving sustainable processes. The German Buildings Energy Act, GEG, aims to minimise buildings' energy consumption, including increased use of renewable energy sources for production of heat, cooling and electricity. The German Green Building Council (DGNB) certification system stipulates criteria for environmental, social and economic sustainability in projects. The system can be applied to new buildings, existing buildings, renovations and operation of buildings. The DGNB also offers a system for city districts with a holistic sustainability perspective. The project's entire life cycle and overall results are considered, rather than individual actions.

Since opening in 2021, our office in Stuttgart has had a distinct focus on sustainability, and all projects are characterised by a strong sustainability perspective. For instance, the Haus Hynsperg housing development in Liederbach is planned to be built with a timber frame, and the Heinzelmann Areal project in Reutlingen is characterised by both wooden architecture and transformation of existing buildings.

"White is well placed in Germany since the office has long prioritised sustainability issues. We have amassed a lot of experience and expertise in the area, which we can draw on in our projects in Germany. It is crucial to be able to present completed projects of high architectural quality, combined with a high level of sustainability."

Our distinct sustainability focus has also proven to be an advantage when recruiting. A lot of staff have actively chosen to work at White thanks to our clear sustainability profile.

"It's clear that parts of the younger generation are more progressive, and I think this could help to speed up the transition to a sustainable future considerably," Fredrik Larsson concludes.

Contact: Fredrik Larsson,
Office Director, White Stuttgart

Heinzelmann Areal, Reutlingen, Germany

The Crichton cultural centre in Dumfries, Scotland, has a focus on sustainability, with reuse, natural materials, adaptation to the landscape and health-promoting architecture. A joint project with O'DonnellBrown Architects and Ekkist.

Towards Carbon Neutrality in the UK

How climate neutrality can be achieved in projects and what the construction industry can do to reduce global impact are hot topics in the UK right now. This is a welcome development, as these issues are guiding the industry in the right direction, according to Michael Woodford, Director at our studio in London.

"There's an ongoing shift in the way projects are financed in the UK, with more and more banks and funds demanding stricter ESG (Environmental, Social, Governance) goals for the projects they finance. This is one of several factors contributing to the change we're seeing compared to just a few years ago. Clear sustainability goals in project briefs are increasingly common, and architectural studios strive to meet the RIBA 2030 Climate Challenge and LETI standards. This in turn means that consultants and clients now discuss these issues far more often," says Woodford.

He believes that the next major development in the sustainability debate will be the shift from goals to regulation, i.e. that the industry will be officially required to achieve the goals. The question of tax exemption for refurbishing buildings is also expected to be an important point on the sustainability agenda. At present in the UK, there is no tax on new builds but there is on transformation projects.

"Monitoring and assessment will be increasingly important in the work towards a more sustainable construction industry. By registering and monitoring buildings, we can ensure that they live up to the sustainability requirements we set when they are designed," Woodford continues.

The London studio has worked extensively with sustainable city planning and placemaking historically, but in recent years it has also begun working increasingly with health-promoting architecture, including natural materials and low-energy buildings. The studio is currently working on the Velindre Cancer Centre in Cardiff, Wales, a project that is representative of how the studio wants to work. The project has high sustainability ambitions and is characterised by biobased materials with low carbon emissions, environmental strategies such as heat pumps and solar panels, and an integrated sustainable drainage system. The Velindre Cancer Centre will be considerately integrated into the Welsh landscape to keep it as untouched as possible.

Moving forward, the London studio can see opportunities to develop commercial buildings with low climate impact. Experiences from White's Swedish projects Magasin X, Nodi and Sara Cultural Centre will be of great value in this process.

"Part of our success in the UK is down to the collective experience that exists within White, and the fact that we have long worked with sustainability issues and therefore have a good body of references. In the UK, evidence and data are crucial in convincing clients. So experience of innovative completed projects combined with White's research are extremely valuable when it comes to developing the London studio."

Contact: Michael Woodford,
Office Director, White London.

Research and Innovation

An explorative culture is a fundamental part of White's core values. White Research Lab is where we conduct practice-based research and development, often in partnership with clients, the academic sector, industry colleagues, government authorities and civil society. In this way we build knowledge together, and jointly contribute to the development of the industry and our shared future. **Anna-Johanna Klasander**, Research & Development Director

DEVELOPING TOGETHER

Knowledge, research and innovation are vital in developing architecture and contributing to the transition towards a more sustainable society. We conduct practice-based research through White Research Lab, and we translate the ideas into concrete offerings via White Innovation Lab. This enables us to contribute new thinking and innovative solutions to our customers and in our projects. Every year, more than 100 employees are involved in different research and development projects.

RESEARCH FOR SUCCESS

In 2022 we were delighted that Nodi, one of the largest wooden office buildings in Gothenburg, was awarded the Per & Alma Olsson Prize for the best new construction in Gothenburg. White's many years of research and development in wooden construction, including the Tall Timber Buildings research project for example, was a key factor in winning the distinction.

Another example is the research project for developing Positive Energy Districts, PED-ID, which has now led to our new service, PEPP – Positive Energy Planning Process.

INTERNATIONAL COLLABORATIONS

We are running several major projects with broad collaborations, both in Sweden and internationally. The Magasin X office building in Uppsala has building-integrated photovoltaics (solar panels), which we developed as part of the EU-funded research project Be-Smart. Focusing on climate and energy, we are also involved in the International Energy Agency (IEA) project Solar Energy Planning, on active and passive use of solar energy in architecture.

Wood remains one of White's main areas of development. One international project that has attracted a lot of interest is Wood for Health. The aim is to develop new surface treatments for visible wood in healthcare environments, and to draft European guidelines for timber in hospitals. In another project, we are looking at old forestry methods to see whether they can reduce environmental impact in forest work and reduce raw material waste.

We are also continuing to drive the transition towards more circular material flows and transformation of existing buildings. British magazine *Architecture Today* highlighted how White's practice-based research helps to bring clients both financial and environmental incentives for circular design (AT #319, 2022).

DIGITAL DEVELOPMENT

We comprehensively develop our digital methods and tools, partly to support our goal of design and sustainability excellence in architecture, and also to streamline processes. WHEAT is our early-stage tool for simulating daylight, microclimate, climate impact, energy and other parameters. Development of climate calculations and life cycle data in Revit is another example. Our involvement in the Digital Twin Cities Centre at Chalmers University of Technology will evolve the way we and our clients work with urban development and circularity moving forward. Read more about digital development on page 33.

SHARING KNOWLEDGE

The White Research Lab is comprised of 15 internal networks that involve all employees in some way. These networks are crucial in developingknowledge and spread it, both internally and onward to our clients. Our newly started network on Climate & Energy will bring together and develop our expertise in the two most important issues in our industry right now.

We have several part-time doctoral students, at both Chalmers University of Technology in Gothenburg and KTH Royal institute of Technology in Stockholm, who are conducting and disseminating research in qualified subject areas. We currently have two professors at Chalmers, as well as many colleagues who regularly take part as guest teachers, lecturers and study supervisors on university courses.

FROM IDEA TO BUSINESS

This is a good summary of how we develop expertise at White: from an idea, via exploration in small or large projects, to concrete knowledge, methods or services, which are ultimately deployed in our projects to raise them to new heights.

Read about more examples on our website. ■

The Interstitial Towers project proposes a new building typology, set on suburban property borders in order to provide ecosystem services, human and non-human habitation, energy production and storage, and rainwater purification.

Biological Diversity on the Coast and in the Sea

In many coastal communities around the world, intensive urbanisation and industrialisation have weakened the ecosystems for flora and fauna in nearby coastal and subaquatic landscapes. Harbour operations and pollution have often destroyed sensitive natural environments to such an extent that it has depleted biodiversity. It is important to increase understanding about these problems and avoid them already in the planning stage.

The development of Oslo Harbour Promenade involves moving two ferry terminals. Commissioned by the City of Oslo, we conducted a study to produce concrete suggestions for nature restoration, with the aim of creating a cleaner Oslofjord. This became a pilot project in White Research Lab to study the factors that cause the death of marine ecosystems in port cities.

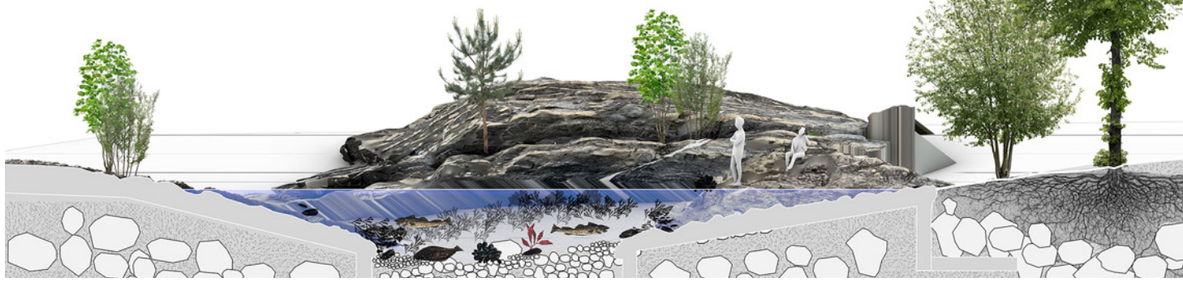
Three projects have been studied:

1. Nature restoration on Salt Marshes in Brooklyn Bridge Park.
2. Greater biodiversity on waterfronts in Sydney.
3. Nature restoration on the sea bed: Eelgrass meadows in Oslofjorden.

All the projects show that nature restoration on varying scales has a positive impact on ecosystems, including greater biodiversity, improved water quality, less erosion, and a greater ability to sequester carbon dioxide.

For Oslo Harbour Promenade, we suggested two natural parks, and below the surface measures are proposed that facilitate the establishment of animals as well as seagrass, seaweed and various shells that clean large volumes of water. This can be achieved for example by removing quay traces and building shallow beach areas.

Contact: Kjetil Torgrimsby, Mads Engh Juel and Pål Dixon Sandberg



Be-Smart: Active Facade with Solar Cells

The evolution of Building-Integrated Photovoltaics (BIPV), which can be seamlessly integrated to become part of a facade or roof, has increased steadily in recent years. BIPV can help to achieve carbon neutral buildings and reduce electricity costs, while also offering high-quality architectural design.

The EU-funded and Horizon 2020 project Be-Smart has looked at ways of reducing the cost of BIPV and improving their performance and architectural qualities. The project included the development of new materials, a wider range of attractive colours and textures, and efficient manufacturing processes for BIPV elements. Full-scale assessment has been carried out in Switzerland, Norway and Sweden. White's Magasin X offices for Vasakronan in Uppsala, Sweden, is one of the demo projects, where more than 500 m² of BIPV have been integrated into the facade.

The project also tested and evolved a tool for analysing solar cell installations, along with a digital design process combined with online PVGIS (for calculating solar power production). This new method makes simulation of solar potential at an early stage far more time and cost efficient, and increases the likely popularity of BIPV solutions in the future. White is now focusing heavily on spreading know-how about solar cells and increase the integration in our projects (www.besmartproject.eu).

Contact: Rickard Nygren and Anders Tväråna

Positive Energy Planning Process

Many cities and municipalities have ambitious plans to be climate neutral by 2030, but although energy is crucial to achieving this goal, it is rarely included in the physical planning. We see major opportunities in creating energy-positive areas, i.e. buildings or blocks that go from being consumers to producers of energy. There is huge potential in better coordinating different energy requirements, and in sharing energy, both between businesses and properties, and over the course of the day and night. Energy-positive areas with local energy sources also increase the reliability of energy supply, as well as more predictable energy costs.

To succeed in this development, energy must be regarded as an urban planning issue and be included in the planning process from an early stage. There is, however, currently no framework for this, so we have developed a service offering called PEPP – Positive Energy Planning Process as part of White Innovation Lab. It entails us leading a collaborative process to develop and implement strategic, holistic and well-established roadmaps.

PEPP is based on our own experiences of working on energy-positive areas, such as the EU-funded PED-ID (Positive Energy District) research project, in which Uppsala Business Park, Sweden, was a pilot project.

Contact: Keith Boxer, Lise-Lott Larsson Kolessar and Andreas Eggertsen Teder.

The new Velindre Cancer Centre in Cardiff, Wales, aims to become the UK's most sustainable hospital, with a focus on low climate impact, natural materials and consideration for nature.

Carbon Neutral and Circular Architecture

White's goal is that all building projects will be carbon neutral* by 2030. This is a huge challenge. The key is to evaluate different design options at an early stage, reduce the energy requirement, and choose materials with low embodied carbon.

One of the most effective measures for reducing climate impact is to transition towards more circular architecture. Our point of departure is to harness what already exists: blocks, buildings, materials and furniture. Increasing the proportion of reuse and creating new attractive environments calls for a new kind of design process and new services. An important aspect of the transition is to create well-designed architecture that is timeless and adaptable over time, optimise materials and spaces, simplify disassembling and use recyclable materials. With the Velindre Cancer Centre we are aiming at carbon neutrality, in Lumi we are testing new digital methods for scaling up reuse, and at Houdini sportswear store and the Psychiatric Clinic, we have created new environments from existing materials and furniture.

* Our definition of carbon neutrality is that emissions from materials, transport, construction and energy use in the building should be balanced out by renewable energy and carbon storage for 50 years.

TO SUPPORT CARBON NEUTRAL AND CIRCULAR ARCHITECTURE, WE OFFER FOR EXAMPLE:

- Climate Calculations
- Climate and Cost Management
- Climate Management
- PEPP: Positive Energy Planning Process
- Environmental and Reuse Inventories
- Reuse Coordination
- Strategy for Circularity and Design Concept

Low Carbon with Natural Materials

The aim for the new Velindre Cancer Centre in Cardiff, south Wales, is to be the UK's most sustainable hospital and set a whole new standard for cancer care. The new centre is around 36,000 m² GIA and has a distinct, ambitious focus on sustainability.

The Velindre Cancer Centre is embedded into the landscape and is surrounded by gardens. The buildings will be designed to reduce impact on the location, and with respect for flora and fauna. Research shows that greenery is of great important in hospital environments. As well as having a calming, healthy effect, it can even speed up the recovery process. New green elements such as a fruit orchard and a shared kitchen garden are planned. Plans also include informal meeting-places and various walking and cycling paths.

"The Velindre Cancer Centre represents a new approach to healthcare in the UK. Built around evidence-based research, our design creates a centre that supports mental and physical well-being for patients and their families, and delivers an ultra-modern workplace for personnel," says Michael Woodford, Director of White London.

Locally produced and natural, biobased materials will be prioritised in order to reduce climate impact. The public areas and Radiology will have a timber frame. Materials such as lime and clay are proposed for the interior, which contribute to a good indoor climate and a calming environment for patients, visitors and staff. To support a circular approach the materials must also be robust, easy to maintain, and able to be repaired or renovated.

The design will also be optimised to reduce material consumption. Life cycle calculations for materials, A1–A5 emissions are estimated at 411 kg CO_2e/m², which is below RIBA 2030 upfront emissions target.

To reduce the energy requirement, the building is well insulated and makes the most of daylight, while also providing sun shade. Heat and cooling come from geothermal and air-source heat pumps, and solar cells will be mounted on the roof. The building aims to exceed the BREEAM rating Excellent.

"With natural materials that have low climate impact, combined with energy-efficient technology and renewable energy on site, we hope to be able to deliver the most sustainable hospital in the UK," Michael Woodford concludes.

What: Velindre Cancer Centre, Cardiff, Wales, UK
Client: Velindre University NHS Trust, Sacyr UK Limited
Consortium: Kajima Partnerships, Sacyr UK Limited, Aberdeen, Andrew Scott, Kier Facilities Services, White Arkitekter, Ingho, Hydroc, BAC, MJ Medical, Turley, Studio Response, Camlins Landscape Architects, Osborne Clarke, Operis and Confab Lab.
Status: Project planning
Sustainability: Carbon neutrality, circular architecture, natural materials, health, ecosystem services
Services: Architecture, Landscape, Sustainability, Climate calculations, Material analyses, Interior design

"We wanted a design that promotes people's well-being, has low climate impact, is flexible and timeless. That's what we have – and so much more."

STEVE HAM, CHIEF EXECUTIVE, VELINDRE UNIVERSITY NHS TRUST

"With ReMake, we can streamline the design process for reuse."

JONAS RUNBERGER, HEAD OF DSEARCH, DIGITAL MATTER

What: Reuse, Lumi block, Uppsala, Sweden
Client: Vasakronan
Status: Ongoing
Sustainability: Reuse, climate
Services: Architecture, Reuse concept

Digital Design Process for More Efficient Reuse

The transition to a more circular economy is a challenge for the construction sector. Preserving buildings and materials that already exist may be fundamental in many projects today, but difficulties arise once reuse needs to be scaled up. The key is to be able to deal with inventory, disassembling and project planning in an efficient way, and we can see a need for a more informed design process.

"Within Digital Matter, White's digitalisation scheme, we have identified a series of important stages where automation can simplify design decisions, so that the reuse of materials can truly become the resource it is," says Jonas Runberger, M.Arch. PhD and Head of Dsearch, Digital Matter.

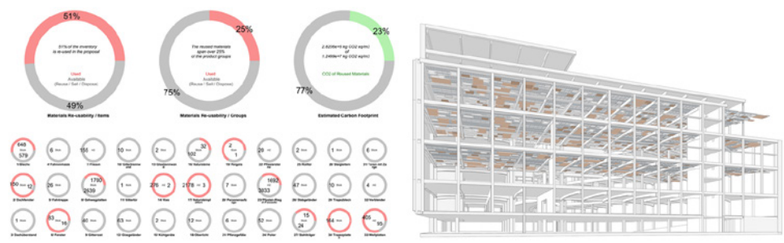
One of our methods is *ReCapture*. We use 3D laser scanning to build a digital model of the building, which can be connected with BIM and various databases, packaged as a basic digital twin. Our circularity experts fill it with information on the building's materials and potential for reuse. It becomes a three-dimensional catalogue of circular resources.

"With our new method, *ReMake*, we are taking the next step and making it possible to efficiently manage complex material libraries in real time during the design process. The design team can be continually updated on current usage of materials and their impact on the climate," says Jonas Runberger.

ReMake has been developed in several parallel projects, including the Järvsö festival pavilion and the Karstadt am Hermannplatz competition in Berlin (read more at white.se).

The Lumi block in Uppsala is currently the scene of one of Sweden's biggest reuse projects. Refurbishment and extension will turn the 15,000 m² office building from the 1970s into modern new premises. The aim is to reuse all existing material, and much of it will be reused in the building itself. But reuse on such a large scale does present a challenge from both a design and a construction perspective. With ReMake we can manage inventoried materials from the building in real time. For instance, 740 new door positions are being matched with a library of 1,088 reused doors based on ten different criteria.

Success with circular architecture calls for a reverse design process, since the design is dependent on which materials are available. White's ReMake approach makes it easy to create with precise control over which elements are used in each step of the design process. This is an important development as the industry evolves towards large-scale reuse moving forward.



“We didn’t expect that we had so much furnishing to deal with, but we ended up reusing 75% of it. The old and new furniture form a harmonic whole.”

PERNILLA JANSSON, PROJECT MANAGER PSYCHIATRY CLINIC, SÖDRA ÄLVSBORG HOSPITAL

Reuse Becomes a Harmonic Whole

From zero to 75 percent reuse. A strong conviction has extended the life of fixtures, fittings and furniture in the renewal of the Psychiatry Clinic at Södra Älvsborg Hospital in Borås, Sweden. White’s interior designers have created an innovative and attractive environment from the existing one, thus saving both money and the climate.

The unit, known as Building 24, welcomes 3,000 patients and 180 employees to the departments for outpatient care and administration. The project is a redevelopment of the previous centre and the final stage of the Psychiatric Clinic which White has been developing since 2012, and which won the WAN Award for Best Future Healthcare Building in 2013.

Experience and research indicate a strong connection between the physical healthcare environment and patient well-being and recovery, particularly in psychiatric care. The premises should be attractive to employees, feel safe and healing for patients, and also be adaptable over time.

White’s interior design team always starts with the aim of reuse, and has several years’ experience in managing efficient reuse projects. The process begins with a needs inventory, followed by mapping and evaluation of existing fixtures, fittings and furniture. Next, a design concept and strategy for the reuse process are prepared. In this kind of project, it is crucial that the architect is involved in the entire process.

In Building 24, the difference compared to the starting situation is striking. Much of the existing furniture was from the 1990s in lacquered beech or birch, with light velour upholstery in patterns typical of that time. Doubts are often expressed about this style when it comes to reuse, says Susanna von Eyben, Lead Interior Architect at White:

“Bearing in mind the existing furniture, you might think there wasn’t much scope for reuse. But furniture of this type is often robust, well designed and of good quality, so it would be completely unnecessary to throw it away. I’m tremendously proud that we now have a fully functioning interpretation with as much as 75 percent reuse,” says Susanna von Eyben.

Altogether, some 900 pieces of furniture of different types, designs and characters were reused. In order to create unity, chairs and tables were repainted and reupholstered in colours such as green, purple and blue. This provides a nice contrast with walls, floors and ceilings, which are neutral grey or beige combined with wood. In rooms with a neutral colour base, it is even more important to create unity with furniture that provides a contrast and gives the room character.

What: Interior design Building 24, Psychiatric Clinic, SÄ Hospital, Borås, Sweden
Who: Västfastigheter/Södra Älvsborg Hospital
When: Completed 2022
Sustainability: Reuse 75%
Services: Interior design, Reuse inventory and coordination.

"The store has been created with consideration for the climate and nature, and is fully in line with Houdini's high sustainability goals."

HENRIK LINDHOLM, LEAD INTERIOR ARCHITECT

Inspired by Nature

Houdini Sportswear has a strong commitment to sustainable development within planetary boundaries. When White was asked to create a flagship store in central Stockholm, Mother Nature was the obvious source of inspiration. The result is an environment that emulates the rhythms of the forest in clearings and bushes, in the middle of the busy city. The goal was to reduce climate impact as far as possible, so restraint and reuse were key aspects of the design.

Customers are met by warm, neutral shades and natural materials. The minimalist environment leaves extensive visual space for the store's products. Houdini's idea is that the store should act as a hub and a complement to online shopping, and vice versa. Consequently, the kitchen in the middle of the shop plays a pivotal part; a place where visitors can gather at the store's various events such as garment care and repair, live shopping, venue hire, cooking and social gatherings. The idea is to invite visitors to take their place around an urban version of the camp fire.

By preserving the building's original architecture and materials, climate impact has been minimised. Where the existing interior could not be used, other reused materials were given new life instead.

The central area features a block floor in pine, created using waste products from the production of solid timber buildings. The choice of floor in this delimited area has saved around 10 kg CO_2e. Fitting the store with two reused kitchens rather than new ones has reduced emissions equivalent to 800 kg CO_2e, or around 400 kg CO_2e per kitchen. The 60 spotlights in the ceiling and a large lightbox are also reused, saving around 1.2 tonnes CO_2e. In addition, the specially designed floor-standing clothes rails have plinths made from reused shelves. The furnishings are flexible so it can be adapted according to needs and season. The concept is scalable and transferrable, so it can be used for new establishments in Sweden and abroad. This makes it easier for future projects to use locally produced materials and thereby minimise transport.

White had a far-reaching brief which included everything from concept work, product design and consultation on sustainability, to premises planning, accessibility and lighting design.

"It has been great fun and very educational working with Houdini and aiming for high goals together. It's crucial to be involved in all aspects of a project if you want to fine-tune solutions and maximise the project's potential, and we made excellent progress here. It was a dream project," says Henrik Lindholm, Lead Interior Architect.

What: Houdini Sportswear Hub, Stockholm, Sweden
Client: Houdini Sportswear
Status: Completed
Sustainability: Reuse, natural materials, low climate impact
Services: Interior design, Design, Sustainability, Lighting design

Charlottenlund cemetery outside Trondheim, Norway, is a faith-neutral site with a design that anchors the burial ground between city and country, mountain and fjord.

Nature-based Architecture

As cities grow, consumption increases and climate change accelerates, the burden on ecosystems becomes heavier. The consequences of climate change are palpable in many places. Consequently, the design of urban environments is of crucial importance for how sustainable a city can be, environmentally, socially and economically.

Greenery in cities supports many vital functions such as biodiversity, air purification, increased well-being, and mitigating the consequences of climate change. Elevated water levels, heavier rainfall, and a warmer climate pose a huge risk to the buildings and inhabitants of urban areas. Fostering, enhancing and integrating ecosystem services to an ever greater extent is necessary if we are to assure a sustainable way of life. Some examples are Sundbyberg Church where darkness is crucial to biodiversity, Ankerhagen, where nature links an entire area, and Excercisfältet where the stormwater pond contributes to a more sustainable city.

TO SUPPORT INTEGRATION OF NATURE-BASED SOLUTIONS, WE OFFER:

Analyses and Strategies for Ecosystem Services
Climate Risk Analyses
Simulation and Analyses of Microclimate (wind, water, heating, sun).

The previous facade lighting spread stray light skywards, while the new lighting has smaller units that reduce excess light. At night time, the facade lighting is switched off and the park lighting is dimmed.

Lighting Designed to Create Darkness

It is common knowledge that biodiversity is under threat, but the fact that light is part of that threat is less well known. Light pollution, which is to say any kind of disruptive, excess outdoor lighting, is a growing environmental problem that has huge negative impact on people and animals alike. Nocturnal animals including many insects, fishes, birds and bats, depend on dark habitats for their survival. For them, light pollution can cause difficulties with navigation, reproduction and finding food.

With new lighting technology, calls to reduce energy use and better knowledge of the adverse environmental impact of lighting, we are now at a point of transition when it comes to outdoor lighting.

"We're at a crossroads whereby we need to consider the adverse effects of lighting, have the courage to reprioritise, and better balance the need for light and darkness. Society needs to reduce light pollution and re-establish dark habitats and a dark night sky. The way I see it, we generally need to move away from high light quantity and towards high light quality," says Clara Fraenkel, Lead Lighting Designer at White.

The new facade and park lighting for the church in Sundbyberg, a suburb of Stockholm, demonstrates the opportunity for more sustainable light environments from a range of perspectives. As well as emphasising the church's architecture and cultural values, while also enhancing safety and accessibility in the park, energy use and light pollution have decreased significantly.

The former facade lighting comprised broad-beamed spotlights mounted high up on the church, which directed a lot of light straight up into the sky. The new solution instead uses several smaller lights with specially adapted optics, which emphasise the church's volume and details while reducing light pollution dramatically. Direct light spilling into the sky has fallen by an estimated 90 percent, which equates to about 100,000 lumens. At night time, the facade lighting is switched off and the park lighting is dimmed, thus reducing light pollution and moving the church and park into a more dormant night mode. This has also helped to reduce the energy requirement by over 70 percent, even though park lighting has increased and the light quality has improved.

"I think the lighting solution at Sundbyberg Church is a future-oriented example which shows that well-planned lighting can increase safety while also reducing light pollution," says Clara Fraenkel. "As lighting designers, we know what needs to be done to counter light pollution – on every scale, from overall planning to individual projects."

Sundbyberg Church was awarded the 2022 Swedish Lighting Prize, Exterior.

What: Sundbyberg Church, Sweden, Lighting Design
Client: Church of Sweden in Sundbyberg
Status: Completed
Sustainability: Biodiversity, light pollution, energy efficiency
Services: Lighting design, Landscape architecture

"Light pollution has a serious impact on the environment, so we need to better balance the need for light and darkness."

CLARA FRAENKEL, LEAD LIGHTING DESIGNER

"In Ankerhagen we are developing the housing concept of tomorrow, focusing on environment, social sustainability and diversity"

KNUT HOLTE, MANAGING PARTNER SCANDINAVIAN PROPERTY GROUP AS

Homes with a Heart for Nature

With the proposal "Ankerhagen – with a heart for nature", White and Scandinavian Property Group AS intend to design the most innovative, green and sustainable wooden housing project in Hamar, Norway.

250 homes are being planned in the area, based on four strong design concepts: reduce climate impact, plan with and for greenery, link the surroundings, and create homes for many different needs.

"The aim is that Ankerhagen should promote a sustainable lifestyle and be an area with zero greenhouse gas emissions. The emphasis is on carbon neutral solutions with regard to choice of materials, as well as sustainable mobility," says Anna Nilsson, Lead Architect.

Hamar Municipality has ambitious climate goals to reduce climate emissions by 40 percent by 2030. Timber is therefore the main material for the housing development, in both the frame and facade. The buildings have sedum roofs, but rainwater is also collected for irrigation.

By convincing the municipal authority to reduce the parking norm from 0.8 to 0.5, the number of parking spaces in the planned garage can fall by 50 percent, equivalent to 2,400 m^2. The lower requirement of concrete and other materials reduces climate impact by around 960 tonnes of CO_2e.

Ankerhagen is close to Hamar town centre, but also near the beautiful nature and recreation area of Anker Forest. The four new housing blocks connect to the nature area through leafy courtyards and a green area between the buildings. The area is linked to its surroundings by pedestrian and cycle paths. The aim is to make cycling an easier choice than driving.

"One major challenge is the site's height difference of 14 metres from north to south. The green spaces are key in ensuring that all the stormwater doesn't gather at the lowest point. With a mixture of vegetation, natural infiltration, water mirrors and rainwater harvesting, the stormwater is managed as a resource and a starting point for the design, rather than being viewed as a problem," says Mads Engh Juel, Lead Landscape Architect.

Different types and sizes of housing are being planned in Ankerhagen, from student accommodation and townhouses, to homes for seniors and people with physical disabilities. There are various shared functions such as a party venue, exercise facilities and a bicycle workshop. Car and bike pooling are also being suggested.

"In Ankerhagen, the idea is that people should be able to live here a long time. You start out on the housing market as a young student with a small apartment, buy a bigger apartment or a townhouse when you start a family, and then downsize later in life without compromising on quality. It creates a sense of security and belonging," says Anna Nilsson.

Ankerhagen combines environmentally friendly material choices with allowing nature to be a fundamental aspect of the design, which solves the water problem, increases the appeal and links the area together. This therefore has the potential to be a pioneering project in sustainable construction, from both an ecological and a social perspective.

What: Homes in Ankerhagen, Hamar, Norway
Client: Scandinavian Property Group AS
Status: Design development documentation, spring 2023
Sustainability: Timber construction, carbon neutral, ecosystem services, climate adaptation, different types of housing, sustainable mobility
Services: Architecture, Landscape, Urban design, LCA, Daylight, Climate calculations

Undulating Form for Water

The city of Uppsala is growing and densifying around Exercisfältet, a former military training area with cultural and historical values. This leads to an increased need to both treat and detain stormwater. The new stormwater pond at Exercisfältet solves both problems, while it also contributes to biodiversity and creates a space for socialising and recreation.

Despite the stormwater pond's strong form and the high altitude of the field, its location in a natural low point in the landscape allows it to land discreetly without disturbing its surroundings. Closest to the city, we have given the pond a sharp edge with robust flood protection in the form of a concrete wall that follows the lines of the block division. Towards the open field, we have instead allowed the pond to follow the undulating forms of nature.

The vegetation is carefully adapted to the natural conditions of the site, and comprises a combination of species that are both hardy and have water-purifying properties. The different parts of the pond are flooded at different amounts of rainfall and have great potential to develop into a good habitat for a wide range of animals and plants.

Around the pond there are generous spaces and paths inviting visitors to move along the water's edge and stop at one of the south-facing seating areas overlooking the field. The pond is already being used and appreciated by people moving around the area. It is likely that development to the south of the pond will continue to move closer to the edge of the jetty, bringing even more life and movement. The pond is designed to accommodate this development and provide an exciting interface between dense block structure and open landscape space.

What: Stormwater pond, Exercisfältet, Uppsala, Sweden
Client: Uppsala Vatten and Uppsala Municipality
Status: Completed 2022
Sustainability: Climate adaptation, biodiversity, stormwater
Services: Landscape, Sustainability

"The stormwater pond protects the city from flooding, while also helping to boost biodiversity and providing a place for people to meet."

CHARLOTTA RÅSMARK, LEAD LANDSCAPE ARCHITECT

The Psychiatric Clinic at Södra Älvsborgs Hospital (SÄS) in Borås, Sweden, is based on a humanistic design philosophy. The buildings create the right conditions for healthcare in a welcoming, healing environment for patient recovery, and for their relatives and hospital staff.

Architecture for Health and Well-Being

The core aim of the global Sustainable Development Goals is to reduce inequalities in society. Cities must be equal, safe, and inclusive. Their design is crucial for human health and quality of life, so they need to be designed to cater for many different needs, such as different kinds of housing. The UN Convention on the Rights of the Child is law in Sweden, which means that all public buildings and environments must be underpinned by its principles.

With architecture we can contribute to healthy environments, by using sound materials and creating environments with good light, sound and air quality, and enabling both rest and physical activity. Contributing to socially sustainable and health-promoting environments is an important societal and public health issue, and this is an essential aspect in all our projects. The design of Indigo stimulates movement, Boostad ensures housing for everyone, and in Eden greenery is creating a healthy work environment..

TO CONTRIBUTE TO AND SECURE HEALTHY AND SOCIALLY SUSTAINABLE ENVIRONMENTS, WE OFFER FOR EXAMPLE:

- Digital Analyses of Daylight, Indoor Climate and Microclimate
- Social Analyses
- Dialogue Processes and Co-Creating
- Socioeconomic Analyses

“Indigo’s design encourages behaviours that improve health in the long term and improve school results.”

LINDA EKMAN, LEAD LANDSCAPE ARCHITECT

Healthier Children in a Joyful Playground

A more active day, improved concentration and a better night’s sleep. These are just some of the benefits for pupils and tenants in the new Indigo building in Nya Hovås outside Gothenburg. From the beginning, the goal has been to create an environment that stimulates movement. Indigo was designed based on research from Sahlgrenska Academy at the University of Gothenburg, and experience from Generation Pep.

The building houses a school for pre-school to Year 5, a gym and three padel halls. Since there was little ground space, the school playground is over three levels: the roof, the yard above the gym and at ground level. The overall design is joyful and appealing with play hills, trampolines and trim trails which increase fitness and boost arm, back and leg strength. A winding wooden staircase is used to reach the three different levels. This is neither the quickest nor the shortest route, but it could be the key to better school results and a healthier life.

Research shows that children’s play becomes more equal, imaginative and less conflictive in natural environments. Extra attention has been focused on girls, since research also shows that they often stop doing sports earlier than boys and are less active on a day-to-day basis.

“According to the school, the girls move around more now, which is a nice affirmation. Even after just a month of use, we heard that the pupils are falling asleep nicely after a day full of movement and activity,” says Linda Ekman, Lead Landscape Architect.

The gym on the ground floor has a ceiling height of over seven metres, with large glass sections that allow a clear view in. There is a point to allowing children to see adults training as a natural everyday activity, as it can prompt them to emulate. The building’s design also contributes to a healthy environment. The large classroom windows let in light and link the indoor environment to the playground.

“The shape of the building, running around the playground, reduces noise and creates a safe environment. The outward facade is discreet, while the yellow and green colours in the interior exude warmth, vitality and safety,” says Joakim Hansson, Lead Architect.

During the evenings, the gym has access to the school playground on the roof and the school’s fully equipped sports hall, so this is also a good example of how spaces can have shared use at different times of day.

What: Indigo, Gothenburg, Sweden. Preschool to Year 5, gym, padel halls.
Client: Next Step Group
Status: Completed 2022
Sustainability: Health and wellbeing
Services: Architecture, Landscape architecture

“I like what Eden represents and genuinely believe in combining health and environment with an attractive working day.”

PERNILLA YTTERBRING, CEO OF QUICK OFFICE, TENANT AT EDEN

From Work Space to Daily Life Space

The Eden office building in Malmö’s new district of Hyllie takes a holistic approach to health and well-being, the aim being to go from ‘work space’ to ‘life space’. Greenery is always nearby, and there are functions to make everyday life easier and more manageable.

The building is 13,000 m² over eight floors, and is designed for the greatest possible flexibility and adaptability to different types of operation. The office premises are organised around a green wedge, a generous shared atrium which allows nature into the building and stimulates all the senses. A generous staircase leads up through the atrium, surrounded by social areas and meeting rooms. The green space extends out onto a shared roof terrace, where there are also two garden meeting rooms.

“The high atrium is a pause, a link and a meeting-place for everyone in the building, whether tenant or visitor,” says James Reader, Lead Architect.

At Eden, greenery plays a leading role. The building is clad with 5,000 plants both outside and in. Research shows that people benefit from being near to greenery. It reduces stress, increases well-being, and can help to boost concentration and performance.

Research also shows that a workplace that cares about employee health experiences greater dedication and happier employees.

Eden is certified to WELL Platinum, which entails a holistic approach to health both as regards the building and the business being conducted: from air quality, light and sound environment, to opportunities for exercise and relaxation, food and drink, choice of materials and activities. Eden is also certified to Leed Gold.

As well as the greenery’s impact on well-being, the large staircase encourage movement rather than using the lift. Daylight floods into the building and the various businesses via the green wedge. There is also mobile sun shielding to prevent overheating. The atrium has natural ventilation which helps ensure fresh air and a quiet environment. In the business premises, the ventilation is adjusted to requirements. In order to further stimulate the senses, there are apple trees in the courtyard and a herb garden on the roof.

The building is characterised by materials that unite high sustainability, low climate impact and high aesthetic values. The slate and wooden slats on the facade reveal fine detailing and craftsmanship, while vertical metal slats and varying window sizes create a rhythm on the larger scale. The wooden slats continue into the atrium and interact with the vegetation. The materials are used according to their natural properties, ensuring they will age beautifully and last well into the future.

What: Eden offices, Hyllie, Malmö, Sweden
Client: Kungsleden/Castellum
Status: Completed 2022
Sustainability: Health and wellbeing, low climate impact
Services: Architecture, Landscape, Lighting, Sustainability

Climate Positive Housing for All

Society is facing major challenges, with a shortage of housing and greater social inequality. This places demands on new solutions, both when it comes to how we develop and build homes and how we plan neighbourhoods. In the City of Malmö/Mallbo land use competition, we wanted to provide financially affordable homes for a broad target group.

Our winning proposal, Boostad, is based on everyone's right to their own home. In partnership with KlaraBo, OBOS, Veidekke, E.ON, Boost by FCR and Fritidsbanken, we are now continuing with two climate-positive blocks east of the Malmömässan exhibition and congress centre in Hyllie.

Mallbo (Malmö Allemansrätt Boende), is a competition model and a tool for achieving the City of Malmö's goal of a more sustainable housing market. Mallbo trials new methods for new builds of apartment blocks at lower rent levels, combined with a broader initiative for social sustainability through added social values and participation.

The aim is to give residents of Malmö access to homes with lower rent levels, with standard rent at SEK 1,400/m².

The proposal comprises 320 apartments, some under rental and some under tenancy-ownership contracts, spread across two blocks with shared courtyards. There is no visible difference between the housing forms as regards the facade or entrance design. Low rents are made possible through efficient building construction with timber modules, low energy and running costs, and reduced ground rent. The low rents are dependent on a low parking norm for the rental apartments: 0.15–0.3 on the basis that mobility measures will be implemented. With a wide range of apartment types, it is possible for people to alter their housing as their needs change, yet still live in the same neighbourhood. The OBOS home-buying model of 'joint ownership' reduces the threshold for owning a home.

Children and adults alike can meet and socialise in the shared green outside area. There are seats, a playground, a barbecue spot, laundry room, a bike pool, workshop and food-growing opportunities.

The living environment for children is further enhanced as the blocks are close to parks, squares and nearby schools, which means they can reach nearby activities unaccompanied.

The blocks aim to be climate positive with a target value for CO_2e according to LFM30, Malmö's local roadmap for a carbon neutral construction and civil engineering sector in Malmö by 2030. The area will also be certified to City-Lab. The climate goal will be achieved with volume elements based on wooden building techniques, the use of recycled building materials and a unique energy concept.

An energy association will be formed to enable production, storage and sharing of energy between the buildings. The collaboration between E.ON, the academic sphere and OBOS/KlaraBo challenges the established electricity market with a local 'Peer2Peer' marketplace. The area is supplied with locally produced, 100 percent renewable energy from solar and wind sources. The digital marketplace enables management of excess energy at neighbourhood level to where the need exists. The innovative energy solution contributes to lower and more stable, predetermined energy costs for residents and administration.

"Our proposal is based on everyone's right to their own home."

RAFAEL PALOMO, LEAD ARCHITECT AT WHITE

What: Boostad homes, Hyllie, Malmö
Client: Mallbo (Malmö Allemansrätt Boende), City of Malmö
Partnership: KlaraBo, OBOS, Veidekke, E.ON, Boost by FCR and Fritidsbanken
Status: Construction start spring 2024
Sustainability: Social sustainability, Climate positive, Housing for all
Services: Architecture, Sustainability, Social sustainability, Climate calculations

Medborgarhuset Civic Hall, Örebro, is one of the most important buildings from the 1960s in Sweden. The building has been awarded the Kasper Salin Prize and is an acclaimed architectural gem. Through our framework agreement with Örebroporten, we are involved in preserving and refining part of Örebro city's cultural heritage.

White arkitekter AB 2022

White is its Employees

Employees are the heart and strength of White. Our knowledge, creativity and commitment are the core of our business and the foundation for creating sustainable projects. Since we own the company together, we have the opportunity to invest in what we believe in. When our employees develop, so does the company.

VALUES AND OWNERSHIP

White's values are based on being explorative and responsible, and acting with respect and participation. It is important to us to uphold and develop the culture that has developed over a long time. Our culture is the basis of an attractive workplace where each employee has the optimum conditions to develop to their full potential.

White is a company owned by its employees and 77% of the employees are shareholders, of whom 117 are partners and majority owners. We are convinced that joint ownership creates a strong sense of commitment towards the company. We also believe that our success hinges on our diversity. This is why we build teams of employees with different skills and experiences, such as architects, engineers, urban planners, anthropologists, environmental experts and digital specialists.

WORKING CONDITIONS, EQUALITY AND HEALTH

Our employee and health & safety policies provide the framework. We strive to provide our employees with safe and secure employment with good benefits and influence. We follow the industry's collective agreements (Almega, Architects Sweden, Engineers Sweden and Unionen) and have union representatives at all our offices. We conduct systematic work environment efforts, with central and local work environment plans that are continuously followed up and safety representatives at all offices.

White shall be a workplace that is free from discrimination and characterised by equality. There is an even gender balance, which extends to senior positions and the board. We strive for diversity from various perspectives and approximately one-quarter of employees have a background outside of Scandinavia. We follow up our 'Plan for equal rights and opportunities' annually through central and local action plans. We conduct an employee survey every other year with a focus on equality, the work environment, development opportunities, leadership, and corporate culture. These are followed up by the company management and board.

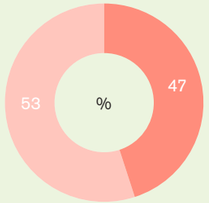
In order to contribute to employees' health, well-being and development, everyone is able to access wellness allowances and study grants. In addition, all employees are offered occupational healthcare. A variety of activities are also organised at the offices, such as running sessions, yoga and massage.

PERSONAL DEVELOPMENT

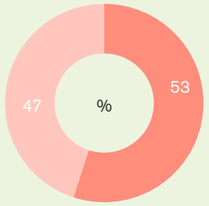
We offer a very wide range of internal training in White Academy. There are courses in different areas such as project execution, digital tools, leadership and sustainability. Furthermore, White Research Lab gives all employees an opportunity to apply for funding for research and development projects in order to explore ideas or deepen knowledge linked to our projects.

Performance appraisals are held with all employees at least once a year, where personal goals for development are set. Through our introduction days for new recruits, our annual White Day when all our employees come together and annual study trips, we build knowledge and strengthen internal co-operation. ■

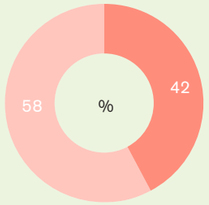
PROPORTION OF WOMEN & MEN



Employees



Senior management



Board of Directors

women men

Focus for the UN Sustainable Development Goals (SDGs) in our projects:

- **Goal 3: Good Health and Well-Being**
  Daylight, Stimulate physical activity, Indoor environment, Damp safety
- **Goal 7: Affordable and Clean Energy**
  Energy-efficient building, Renewable energy (e.g. solar cells)
- **Goal 11: Sustainable Cities and Communities**
  Safe and secure environments, Equal and accessible environments, Involvement of users, Sustainable mobility, Preserve cultural values, Economic values
- **Goal 12: Responsible Consumption and Production**
  Material choices, Health and environment, Reuse and recycling, Sustainable lifestyle, Timber construction, Circular architecture
- **Goal 13: Climate Action**
  Carbon neutrality, Low climate impact of materials, Climate adaptation of outdoor environment
- **Goal 15: Life on Land**
  Ecosystem services and preserving natural values

Sustainability in Everything We Do

Our main opportunity to drive change and influence society in a more sustainable direction lies in our projects. We have ambitious goals so that we stay at the fore and support our customers in achieving their goals. However, our operation shall have a low environmental and climate impact as well. We are striving to reduce the impact in everything we do, and by changing how we travel we have already achieved our climate goals for 2030.

SUSTAINABLE PROJECTS

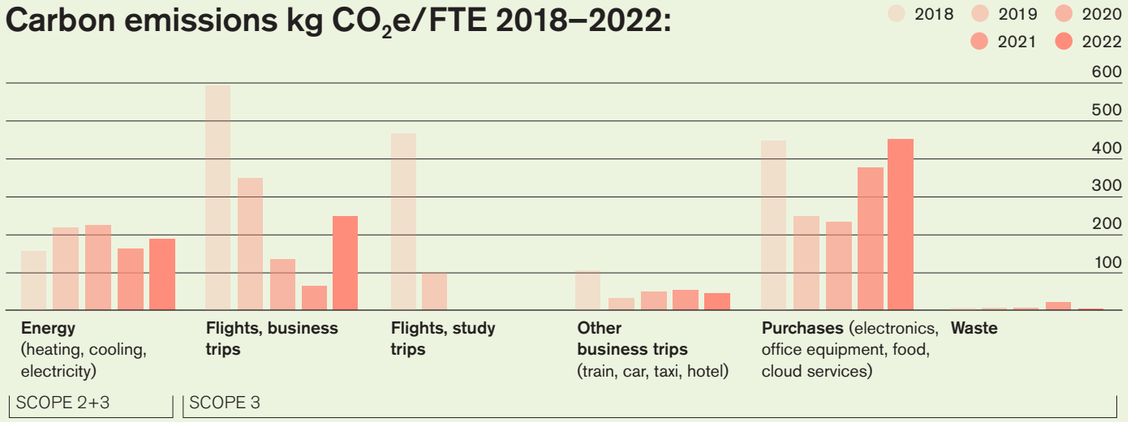
The company's major environmental impact refers to the projects we do. Each year, we monitor the development of our projects, e.g. energy targets, certifications and prioritised sustainability issues. The monitoring is also linked to the global SDGs (see figure).

Timber construction has increased in recent years and is now taking place in all market areas. 30% of construction projects are planned with timber frames, which also helps reduce the climate impact of our projects. More and more clients are setting climate requirements on materials and/or energy, but fewer are aiming for carbon neutrality. This makes it difficult for us to achieve our own target of 30% carbon neutral buildings by 2030. We are currently planning eight projects that are aiming for climate neutrality, and we see a positive trend in the years to come. There has been a significant upturn in the transformation of existing environments and reuse. Reuse is virtually standard today in interior design projects, but it still happens on a smaller scale for buildings.

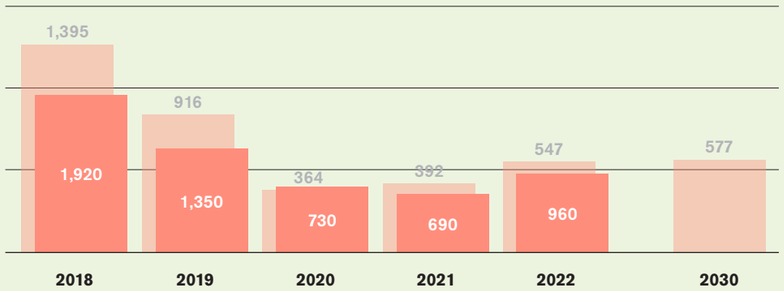
We are seeing more companies focus on tangible measures to strengthen social values. We also notice an increased focus on biological diversity, ecosystem services and climate adaptation, especially in our landscaping projects.

Studio Slaktis on Söder in Stockholm is a temporary meeting-place that highlights the potential of circular interior design.

Carbon emissions kg CO_2e/FTE 2018–2022:



Carbon emissions 2018–2022:



tonnes CO_2e total
kg CO_2e/FTE

Input data

Input data for the operation's climate impact is data from property managers, energy companies, travel companies, and our finance department. This applies to all offices.

The climate calculations have been made by the company 2050 in accordance with the Greenhouse Gas (GHG) Protocol.

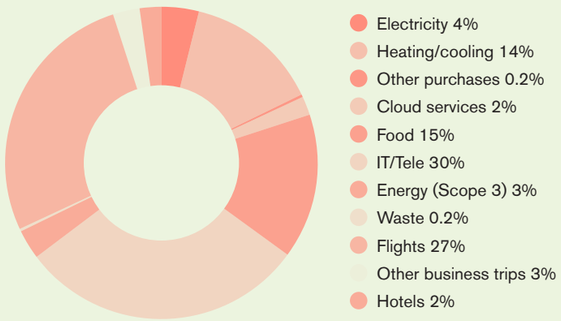
The 2030 bar shows the target level for achieving the 1.5°C goal in accordance with SBTi.

547
tonnes CO_2e emissions in total

0.96
tonnes CO_2e emissions per FTE

61%
lower CO_2e emissions than in 2018

Distribution of CO_2 emissions 2022:



93% **of all trips within Sweden are made by train**
(18% of trips within Europe)

Goals for 2023:

- CO_2e emissions from our operation have decreased by 30% since 2018
- 90% of our trips within Sweden are made by train.
- 50% of trips within Europe are made by train.
- 30% of our projects (buildings) are carbon neutral.
- All of the project are linked to the SDGs.

ENVIRONMENTAL AND CLIMATE ACCOUNTS

Our climate accounts are prepared in accordance with the Greenhouse Gas Protocol and we are covered by Scope 2 (electricity, heating and cooling) and Scope 3 (travel, hotels, purchases, cloud services, waste and energy-related activities), see diagram.

Total emissions in 2022 amounted to 547 tonnes of CO_2e, which is equivalent to 960 kg of CO_2e per FTE. Emissions have increased compared to 2020 and 2021, but these years were pandemic years when we had very few business trips and no study trips.

Compared with the base year of 2018, however, we have reduced carbon emissions by 61% (the goal is 30% lower in 2023 than in 2018). Our emissions are lower than the level for 2030, calculated in accordance with SBTi, which is 577 tonnes of CO_2e.

Travel and hotels: Account for 32% of emissions, corresponding to 174 tonnes of CO_2e.

For many years we have had a policy of always travelling by train where possible. 93% of journeys within Sweden and 18% within Europe were made by train. (The respective goals are 90% and 50%.) Our study trips, which had a major climate impact for several years due to air travel, were solely by train or bus, which contributed to a far lower carbon footprint.

Rental cars and taxis should primarily be electric or green vehicles. Hotels must have a clear focus on sustainability. To encourage employees to cycle more, we have bicycles available to borrow, and we offer bicycle servicing at our offices during the spring and autumn.

Electricity, heating and cooling (Scope 2+3): Account for 21% of emissions, corresponding to 110 tonnes of CO_2e.

In Sweden, all electricity in our operation is renewable. The Swedish offices are connected to district heating and in some cases also district cooling. The rental agreements for the offices in London and Stuttgart include energy and there we base our figures on a European electricity mix.

Purchases: Account for 47% of emissions, corresponding to 261 tonnes of CO_2e, of which purchases of IT/tele form the single largest item. Suppliers must fulfil the criteria in our Code of Conduct for Corporate Sustainability. We place specific demands on different products.

IT and electronics: Criteria encompass energy efficiency, environmental and social requirements on materials and production, as well as health aspects and ergonomics.

Office supplies: Must be ecolabelled and ideally be refillable.

Meals and food: We serve only vegetarian food at lunches and parties, and our ambition is that all food should be organic.

Waste: Accounts for 0.2% of emissions, corresponding to 1 tonne of CO_2e. This figure has decreased since 2021 due to adjusted emission factors. The amount is in line with 2021 (after adjusting for the pandemic year). To minimise waste, we have return systems for e.g. toner cartridges, as well as leasing and reuse of computers and other technical equipment. We avoid disposable items, and primarily order food in serving dishes rather than individual portions.

SCIENCE BASED TARGETS

Calculations in accordance with Science Based Targets show that we must not exceed 577 tonnes of CO_2e for Scope 3 in 2030 in order to keep global warming below 1.5°C. We have already achieved this level, partly due to changed travel habits after the pandemic and partly because we do not travel by air on our study trips.

CLIMATE-NEUTRAL COMPANY

We offset all our emissions and meet the criteria for a climate-neutral company (in accordance with South Pole's definition). Through climate compensation, we contribute to Paradigm Healthy Cookstove and the Water Treatment Project in Kenya.

ENGAGEMENT AND ADVOCACY

We are engaged in many different forums in order to drive the transition at a national level. We are part of Fossil-Free Sweden and support the Roadmap for a climate-neutral construction and civil engineering sector by 2045. We are involved in Architects Declare in Sweden, Norway and the UK, and members of the Haga Initiative, Circular Sweden, CC Build, The Swedish Association for Sustainable Business (NMC), and C/O City sustainability networks. White is also a co-founder of the Sweden Green Building Council and eco-assessment body Byggvarubedömningen.

We support the following organisations, amongst others: BRIS Children's Rights in Society, the Swedish Childhood Cancer Fund and anti-bullying organisation *Noll tolerans mot mobbning*. Our Christmas gift for 2022 went to Save the Children Sweden. ■

30%
of projects have a bearing timber frame (2021: 33%, 2020: 21%)

83%
of projects have links to the global SDGs (2021: 86%)

39%
of projects have climate goals for materials and/or energy (2021: 46%)

41%
of relevant projects are conducted under a certification system (2021: 51%)

56%
of the construction projects have higher energy targets than Swedish Board of Housing, Building and Planning regulations (2021: 56%)

The ten principles of the UN Global Compact:

HUMAN RIGHTS

PRINCIPLE 1
Businesses should support and respect the protection of internationally proclaimed human rights; and

PRINCIPLE 2
make sure that they are not complicit in human rights abuses.

LABOUR

PRINCIPLE 3
Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; and

PRINCIPLE 4
the elimination of all forms of forced and compulsory labour;

PRINCIPLE 5
the effective abolition of child labour; and

PRINCIPLE 6
the elimination of discrimination in respect of employment and occupation.

ENVIRONMENT

PRINCIPLE 7
Businesses should support a precautionary approach to environmental challenges;

PRINCIPLE 8
undertake initiatives to promote greater environmental responsibility; and

PRINCIPLE 9
encourage the development and diffusion of environmentally friendly technologies.

ANTI-CORRUPTION

PRINCIPLE 10
Businesses should work against corruption in all its forms, including extortion and bribery.

Responsible Business

A strong commitment to society and an ethical and democratic fundamental view are guiding principles for White. For us, it goes without saying to take responsibility for our operation's impact on people and the environment. Not taking sustainability seriously is associated with large risks today. Our main opportunity to influence and drive change lies in our projects.

CODE OF CONDUCT, ETHICS AND ANTI-CORRUPTION

White's *Code of Conduct for Corporate Sustainability* is based on the ten principles of the UN Global Compact as regards human rights, labour, environment and anti-corruption. They set the framework for how we act in our projects and in our everyday work, and which requirements we place on ourselves. In order to clarify our expectations of our business partners, we also have a *Code of Conduct for Clients and Suppliers*, which is based on our Code of Conduct for Corporate Sustainability.

Our employees must also adhere to the ethical rules of Architects Sweden and of Svensk Byggtjänst's ethics forum. These rules mean that we oppose all forms of corruption, strive for competition on equal terms and promote social responsibility in the value chain.

We follow and act in accordance with both international and national laws, norms and directives.

This is explained in our three policies: employee policy, quality policy and sustainability policy.

The Code of Conduct for Corporate Sustainability and the policies can be found on our website. We also have a whistleblower service on our website that can be used anonymously by both external parties and our own employees, if they feel that White has acted improperly in some way. During 2022, we have not had any reports of deviations from the Code of Conduct for Corporate Sustainability or reports of corruption or other irregularities.

OPERATIONAL MANAGEMENT: WHITE WORK

To ensure our operation is managed in an efficient, professional manner, and with high quality, we have an operations system in place called White Work. It is certified to ISO 9001 for quality management and ISO 14001 for environmental management. White Work contains project procedures as well as aids and tools for process management, risk minimisation and quality assurance of our projects. In order to maintain and constantly develop and improve our operation, we have external and internal audits twice a year, ongoing training and quality leaders in all groups, in all offices.

Risk analysis:

RISK ASPECT	CONSEQUENCE	RISK MANAGEMENT
CLIMATE AND ENVIRONMENTAL IMPACT We work actively to prevent negative environmental impact, both in our operation and in our projects.	The risk that the company contributes directly to environmental impact is deemed low. Our strength in sustainability contributes to a high level of trust and a strong brand. In our projects, we have good opportunities to make a difference.	Requirements on travel, purchases, suppliers and sub-consultants; Sustainability analyses in all projects; Competence development via White Academy and White Research Lab; Specialists in climate and environmental issues..
SOCIAL RESPONSIBILITY Our operation should not cause, contribute to or be linked to the violation of human rights or corruption.	The risk is deemed to be low, but the consequences for the company could be serious, e.g. damage to trust/the brand, financial or legal consequences.	The Code of Conduct for Corporate Sustainability and ethical rules for employees; Code of Conduct for Clients and Suppliers; Country risk assessment for projects outside of the domestic market.
BUSINESS PARTNERS Our suppliers and business partners should not, in the areas they work in, cause or contribute to the violation of human rights, corruption or negative environmental impact.	The consequences could be serious not just for White, but also for them and the areas in which they operate.	Procedures for tender, project and sustainability analyses; Code of Conduct for Clients and Suppliers, also purchasing procedures and supplier evaluations; Sub-consultant assessments.
EQUAL TREATMENT All employees shall be treated equally and with respect. This also applies to business partners.	The consequences could be serious not just for our employees, but also for the company's brand and attractiveness.	Code of Conduct for Corporate Sustainability; Code of Conduct for Clients and Suppliers; Employee policy; Plan for equal rights and opportunities with ongoing monitoring.
COMPETENCE DEVELOPMENT Having the best employees who can continuously develop is crucial to the company's success and to project quality.	Good opportunities for development make the company attractive. Shortcomings in projects and damage could lead to losses and reduced trust.	White Research Lab; "Grow at White", White Academy; Performance appraisals and employee surveys.
WORKING ENVIRONMENT Our workplace should be sustainable from a health, safety and working environment perspective. Employees should strike a balance between work and leisure time.	A good working environment, satisfaction and leadership are crucial to the company's attractiveness. The consequences of a poor environment and balance could be serious for the individual employee, but also for the company generally.	We offer occupational healthcare and wellness activities. Courses in leadership. Performance appraisals for all and employee surveys.
PANDEMIC AND OTHER ILLNESSES Contagious disease being spread locally or worldwide.	The consequences are major for employees' health and the company's finances. Major risks associated with absence, project losses, earnings and capacity.	Enable remote working and have a good infrastructure in place for digital tools and assistance. Ensure good communication, leadership and different kinds of support for employees as required. Have a broad base of clients and projects to spread the risks.

The tenant-owner housing blocks Operan and Operetten in Malmö provide housing for seniors in the heart of the city. The garden is an intimate, cosy place to socialise and the greenhouse is a place for gardening and celebrations.

Vårhem preschool and parish hall creates a natural meeting-point between the children's and adults' world. The building signals closeness and a sense of small scale, and houses a preschool with two departments for 40 children in total and a parish hall with room for 50 people.

RISKS

Our risk policy states that all employees have a responsibility to ensure that the company is not exposed to unnecessary risk. White shall take restricted, controlled risks. The main risks for the operation are associated with our employees, the execution of projects, the economy and financial development. To minimise the risks, we regularly follow up on areas such as our employees' work situation, financial key performance indicators, project results and market development.

To mitigate the risks in executing projects, we always conduct a risk analysis in connection with tendering and contracts. The risks are evaluated based on our business goals, our Code of Conduct for Corporate Sustainability, and financial conditions. When signing an agreement, the other party must confirm that they undertake to act in accordance with our *Code of Conduct for Clients and Suppliers.*

Country risk assessments are also carried out for projects outside of the Nordic region, linked to democracy, human rights, corruption and business risks. The analyses are based on evaluations by Freedom House, the Swedish Export Credit Agency and Transparency International.

We believe that there is a low risk that our operations will have a direct negative impact from a sustainability perspective. Nevertheless, risks may arise that need managing in our projects, and a sustainability analysis should therefore always be conducted at an early stage. Risk assessment also takes place by way of the project qualification analysis, project risk analysis, procurement criteria and sub-consultant assessment.

STAKEHOLDERS

The wider world and market are constantly changing, and the needs of our customers and stakeholders evolve over time. In order to be relevant to our customers, we need to ensure that we make the right investments and constantly hone our competence, services and business offerings. We have a broad range of stakeholders, from users, property owners, contractors, business partners, the academic sector and media to our employees and owners. We continuously seek their input through experience feedback in projects, customer surveys, employee surveys, market research and dialogue processes. Through our social media, we receive rapid feedback on what we do.

Results for the Year

2022 began with a recovery in the wake of the pandemic, but the market rapidly changed after Russia invaded Ukraine. Inflation, higher construction costs, higher interest rates and falling transaction values affected residential and commercial real estate in particular. Demand from public sector clients, however, remained good.

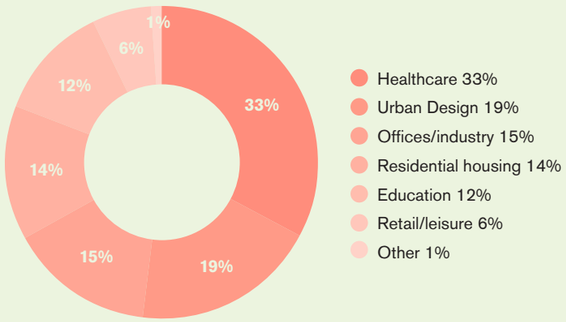
The results for the Group as a whole reflect a weaker market. Turnover for the year decreased somewhat compared with the previous year to SEK 767 (769) million. Incoming orders outside of Sweden in 2022 amounted to SEK 136 million, which corresponds to 16% of total sales. Profit/loss for the Group amounted to SEK -2.2 (+25.9) million. Paused projects, fluctuating demand for housing, offices and construction work phases during the second half of the year, coupled with increased project provisions, had a negative impact on profit.

Turnover within Digital Matter, White's digitalisation scheme, rose to SEK 11.2 (10.5) million. Our studios in Germany and the UK have increased their turnover as a result of our strategic focus on healthcare, with new projects.

An ongoing weak economy is predicted in Europe in 2023. Sweden has the lowest growth forecast in the EU. London and several German cities are expected to develop faster than average in Europe, and we can see opportunities for positive development on these markets. Interest-rate increases are expected to level off during the year, which may give grounds for a market turnaround towards the end of 2023. ■

Market areas 2022:

(% of incoming orders)



Financial summary, White Intressenter AB

	2022	2021	2020	2019	2018
FROM THE INCOME STATEMENT (KSEK)					
Operating revenues	767,407	770,988	746,452	812,779	870,675
Operating profit/loss	-1,881	32,606	26,150	10,262	27,868
Profit/loss after financial items	-1,122	33,331	26,111	9,837	27,641
Tax on profit for the year	-1,074	-7,481	-14,153	-4,206	-15,176
Profit/loss for the year	-2,196	25,850	11,958	5,631	12,465
Minority share of profit/loss for the year	-35	-70	0	0	1
Profit/loss for the year	-2,161	25,920	11,958	5,631	12,466
FROM THE BALANCE SHEET (KSEK)					
Intangible assets	0	0	0	0	0
Property, plant and equipment	1,448	783	1,334	2,382	3,881
Financial assets	393	411	457	484	161
Current receivables	302,960	261,715	248,612	291,574	284,204
Cash and bank balances incl. short-term investments	41,671	77,702	65,151	38,059	49,915
Total assets	346,472	340,611	315,554	332,499	338,161
SHAREHOLDER'S EQUITY	**125,013**	**150,338**	**140,458**	**127,509**	**132,873**
Minority share of equity	–	1,701	1,771	6,771	6,978
Provisions	28,117	29,075	31,631	29,948	25,941
Current liabilities	193,342	159,497	141,694	169,271	172,369
Total shareholder's equity and liabilities	346,472	340,611	315,554	332,499	338,161
KEY METRICS					
Return on equity (%)	-1.6	17.8	8.9	4.3	8.8
Profit margin (%)	-0.1	4.3	3.5	1.2	3.2
Earnings per employee (KSEK)	1,339	1,357	1,355	1,303	1,294
Equity/assets ratio (%)	36.1	44.1	44.5	38.3	39.3
Average no. of employees (FTE)	573	568	551	624	673

Definitions

Return on equity (%)	Profit/loss for the year excl. minority share as a percentage of average shareholder's equity excl. minority share.
Profit margin (%)	Profit/loss after financial items as a percentage of operating revenues.
Equity/assets ratio (%)	Shareholder's equity excl. minority share as a percentage of total assets.

WHITE INTRESSENTER AB
Registered no. 556598-8499

Yours Sincerely

Adalaura Diaz Garcia, Adam Bergendal, Adolfo Barbeito Ulloa, Agne Revellé, Agnes Lundberg, Agnes Orstadius, Aksel Alvarez Jurgueson, Alan Andrews, Alan Paterson, Albin Eidner, Alejandro Pacheco Diéguez, Alexander Akito Kriegelsteiner, Alexander Henriksson, Alexander Nero, Alexandra Hagen, Ali Ghorbanamraji, Alice Andersson, Alice Nilsson, Alison Petty, Alyaa Azhar, Amanda Ersson, Amanda Tiderman Häll, Amilia Björklund, Amparo Ferrando, Ana Grgurac, Anders Arfvidsson, Anders Medin, Anders Olausson, Anders Parment, Anders Perman, Anders Toresson, Anders Tväråna, Anders Åkeflo, Andreas Eggertsen Teder, Andreas Fridh, Andreas Ivarsson, Andreas Milsta, Andreas Mitsiou, Andreas Sture, Andreea Lindberg, Andrei Deacu, Andrew Davies, Angelica Bierfeldt Liptak, Angeliki Baltoyianni, Angharad James, Ann-Charlotte Ström, Ann-Marie Revellé, Ann-Sofie Ek, Anna Arias, Anna Bernmark, Anna Edblom, Anna Ekholm, Anna Eklund, Anna Engström, Anna Graaf, Anna Hedlund, Anna Hellsing, Anna Jönsson, Anna Krook, Anna Lisa McSweeney, Anna Melin, Anna Nilsson, Anna Ottordahl, Anna Röjdeby, Anna Sundin, Anna Uhlin, Anna Weber, Anna Wretlind el-Sayed, Anna Zimdahl, Anna Ågren, Anna-Carin Dahlberg, Anna-Johanna Klasander, Anna-Karin Lisell Selling, Anna-Karin Salovaara, Anna-Lena Elfving, Anneli Andersson, Anneli Wihlborg, Annette Clavier, Annie Leonsson, Annie Söder, Annika Harju Dolah, Annika Jonasson, Annika Lövemyr, Annika Mangold, Annika Yledahl, Anton Jakobsson, Anton Magnusson, Anton Thörne, Antony Saade, Arthur Campling, Arvid Vessman, Arya Azadrad, Atcharawadee Thabphet, August Edwards, August Hugoson, Axel Heyman, Ayoub Chkairi, Barbara Vogt, Ben Griffiths, Birgitta Carlsson, Björn Bondesson, Björn Johansson, Bo Blixt, Bo Hofsten, Bo-Magnus Olsson, Brendan Cooney, Britta Holmblad, Bruno Manrique Carrera, Camilla Lystrand, Camilla Smedéus, Camilla Wegeman, Carin Kollberg, Carin Lindgren, Carina Hillerström, Carl Bäckstrand, Carl Dolk, Carl Hägerström, Carl Lindecrantz, Carl Magnus 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The Swedish Sea Rescue Society RS Hjälmaren base is on a former houseboat that has been converted into a floating station made of sheet metal. The building was one of six finalists in Plåtpriset 2022, an award celebrating innovative, sustainable buildings that use sheet metal facades.

This Sustainability Report encompasses White Intressenter AB and its subsidiaries, with the exception of the subsidiary Koggensgrand AB and dormant companies. Where indicators, metrics or procedures do not tally with this delimitation, this has been duly noted. The report has been prepared in line with the Swedish Annual Accounts Act, which means it contains the sustainability disclosures required to understand the company's development, position and results, as well as consequences resulting from the operation. The report covers aspects related to the environment, social conditions, personnel, respect for human rights and anti-corruption. The report refers to the financial year 1 January–31 December 2022.

The report relates to our commitment according to the UN Global Compact and its ten principles. It also comprises our annual Communication on Progress and will be published on the UN Global Compact website, www.unglobalcompact.com. The report will also be published on the White website, www.whitearkitekter.com.

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UN GLOBAL COMPACT
COMMUNICATION ON PROGRESS

This is our **Communication on Progress** in implementing the principles of the **United Nations Global Compact** and supporting broader UN goals.

We welcome feedback on its contents.

White Arkitekter is one of Scandinavia's leading architectural practices. We work with sustainable architecture, urban design, landscape architecture and interior design for current and future generations. Our mission is to enable sustainable life through the art of architecture. Our vision is that by 2030 all our architecture will be carbon neutral, through design excellence. We are an employee-owned architect collective with just over 700 employees and a presence in Sweden, Norway, the UK, Germany, Canada and East Africa.

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