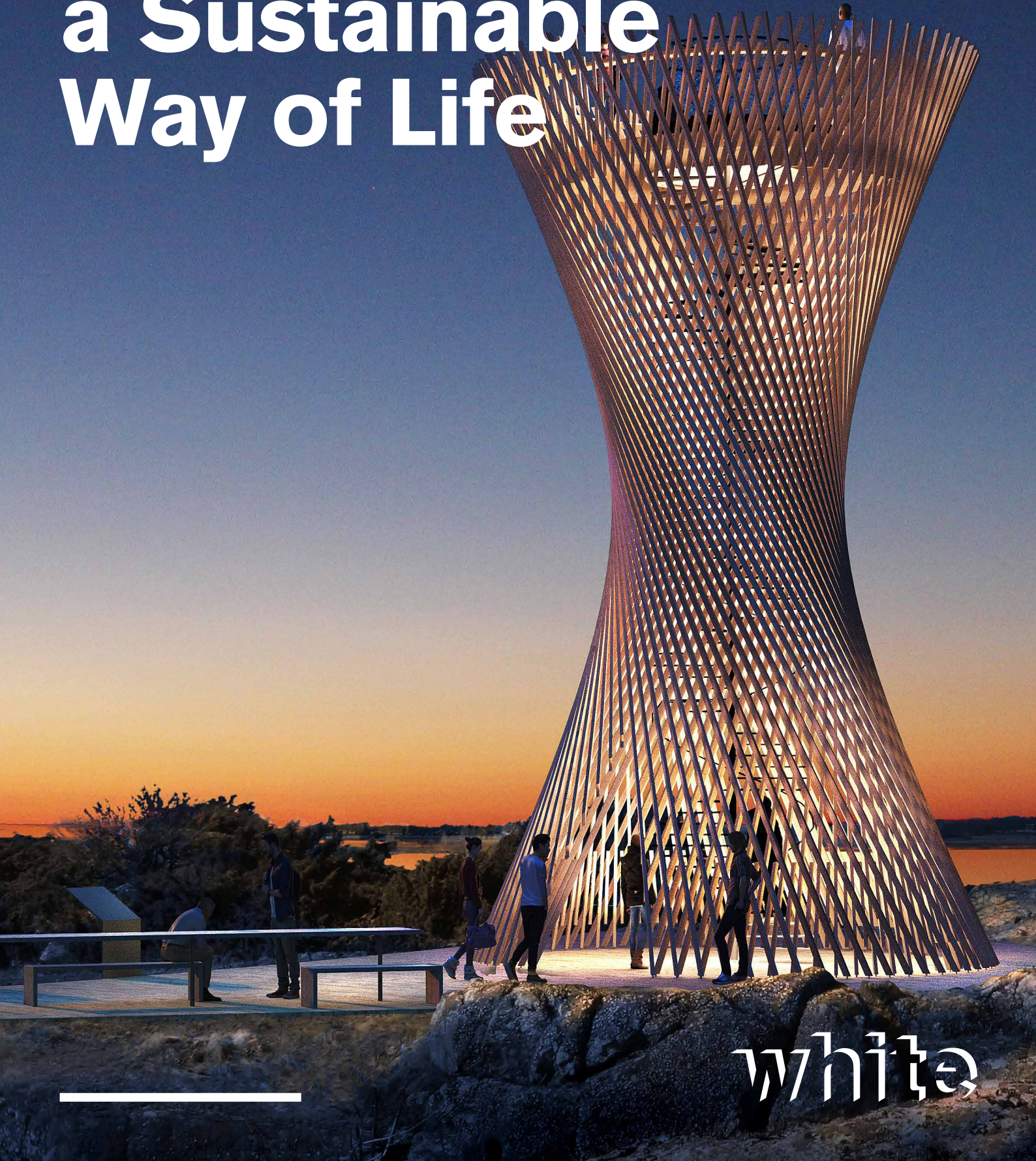

ANNUAL AND SUSTAINABILITY REPORT 2019

Architecture for a Sustainable Way of Life



white

Welcome to White!

White was founded in 1951 on Magasinsgatan in Gothenburg by Sidney White, with the vision of improving society through architecture. Since the very beginning, our company culture has been characterised by social responsibility and a humanistic approach.

White has grown significantly since our beginnings in the 1950s and is now Scandinavia's largest architectural practice. The company is owned by its employees and consists of around 800 staff in 13 offices in Sweden, Norway, Denmark and the UK. During 2019 we were involved in projects in 14 different countries, although our head office still remains at its original address in Gothenburg.

As an employee-owned company we have the possibility to focus on things that we believe make a difference, without short-term profit requirements. Our clients come from both the private and public sectors, and our assignments span everything from housing, offices, hospitals, schools, urban planning, landscaping and interior design, to project management, sustainability and digital design. To ensure that we can create solutions that address the major societal challenges of today, we have built up an organisation with a wide range of skills and expertise that, in addition to architects, also includes engineers, environmental specialists and experts in behavioural science.

Our guiding principles are to be explorative and responsible and to act with respect and participation in everything we do. Our business activities follow the Ten Principles of the UN Global Compact, and the 2030 Agenda for Sustainable Development goals form the basis for all our assignments.

We believe that curiosity and a willingness to learn are important attributes for success, which is why we invest in research and development via White Research Lab.

Our employee-owned company is built upon involvement and inclusiveness. Respect for the equality of every individual and the belief that everyone has the right to a sustainable way of life are fundamental philosophies that constitute the foundation of our architecture and culture. We create lasting values by being good listeners, understanding different perspectives and needs, and focusing on collaboration and partnerships.

We are convinced that, through the art of architecture, we can enable the transition towards a sustainable way of life.

”

We are convinced that, through the art of architecture, we can enable the transition towards a sustainable way of life.

Cover: *The 12 meter high observation tower at Getterön Nature Reserve, entirely in wood, will have an important role as a symbol of the town Varberg, Sweden. Competition winner 2019.*

The Sustainability Report consists of the White Group and its subsidiaries, except subsidiaries Koggensgrand AB, White Tengbom Team (50 percent ownership) or dormant companies. If indicators, metrics or routines do not match this demarcation, it has been noted. The report is based on the requirements of the Swedish Annual Accounts Act, which means that it contains information on sustainability needed for understanding the company's development, position, results, and consequences of the operations. The report includes information on the environment, social conditions, labour, respect for human rights, and anti-corruption. The report relates to the fiscal year from January 1 to December 31, 2019.

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

Images: Åke E:son Lindman, Anders Bobert, Peter Brinch, Fredrik Angner, Christer Andersson, Anders Fredriksén, Angelica Liljenroth, Citu, Jonas Westling, Erik Linn, Luxigon, Soja Film, White View and White Arkitekter.

Contact: Anna Graaf, Director of Sustainability, anna.graaf@white.se.



Content



Promoting Sustainable Life Alexandra Hagen, CEO and Anna Graaf, Director of Sustainability	7	The Past Creates an Attractive School Maja Beskow school, Umeå	22	Light Makes for Better Healthcare Chopin, Karolinska University Hospital, Huddinge	42	An Attractive and Sustainable Campus Student Building, Campus Valla, Linköping	58
Our 2019 in Short Some key figures from the past year.	8	Climate Impact and Our Commitment Green House Gas Protocol	26	Research Leads to New Opportunities White Research Lab (WRL)	46	Awards and Recognitions Successes during 2019	62
Challenges and Opportunities Important national and international challenges.	10	Carbon Neutrality Step by Step Our way to create carbon neutral buildings.	30	Norm-creative and Inclusive Architecture Urban Girls Movement, Skateboard parks and KRUT	48	Following up Our Goals Business Strategy	66
Voices from Three Continents Our international business.	12	Timber Construction Comes of Age Climate impact and attractiveness are the mayor initiators.	34	From Outdated Estate to Green Neighbourhood Gascoigne Estate, London	50	Ethics and Risk Management Our Code of Conduct, ethical rules and risk assessment analysis	70
Sustainability as a Driving Force To enable the transition towards a sustainable life	14	We are White Employees and ownership	36	Creating Value with Ecosystem Services Mölnlycke City Centre	54	Investments and Results Conclusions of 2019	72
Circular Architecture is a Winning Concept Selma Lagerlöfs Center, Gothenburg	18	An Office with a Focus on Health NCC head office, Solna	38	Digital Innovation for Sustainable Architecture New business unit: Digital Business	56	Financial Summary Income statement and balance sheet	74



Promoting Sustainable Life

2019 was characterised by an increased focus on climate change and the goals of Agenda 2030. In times of political instability in many parts of the world, business has an increasingly vital role to play in ensuring a sustainable development of society. White has the ability, and a responsibility, to create long-term sustainable values for our clients and for society as a whole. We have a mission: to enable sustainable life through the art of architecture.

During 2019, we have developed a new strategic plan that raises the bar for our vision: By 2030 all our architecture will be climate neutral, through design excellence. As architects, design is our means for creating sustainable solutions, and we will reach our vision by focusing on new ways of working with materials, energy, circular architecture and sustainable urban development.

We completed a number of excellent projects in 2019. The Student Building (Studenthuset) on Campus Valla in Linköping, the new Emergency Care building at Danderyd Hospital and the new Surgery and Intervention building at Huddinge Hospital have all been awarded Gold Certification from the Sweden Green Building Council and nominated for several design awards. The unique interior design at the Selma Lagerlöf Centre in Gothenburg consists of 92 percent recycled furniture, which has led to lower costs and reduced climate impact, as well as a nomination for the Architects Sweden's "Golden Chair" award for "ethical excellence". Another example of recognition for our long-term commitment within sustainability is the award "Society Actor of the Year 2019" in the sustainability category.

The level of interest in circular architecture, re-use and timber construction increases rapidly. Timber projects currently underway are the 19-storey Sara Cultural Centre in Skellefteå, the Magasin X office building in Uppsala, the Nuuk Psychiatric Clinic in Greenland and the Climate Innovation District in Leeds.

In the regions of Gothenburg and Stockholm, 2019 entailed a downturn for the construction industry, in particular with regard to new housing, which resulted in a reduction in White's turnover. The Öresund region, on the other hand, experienced strong growth and our project the New Hospital in Malmö has paid an important role for White. Sweden has though a significant need of investment in infrastructure, schools, healthcare facilities as well as urban development and there are housing shortages in the urban regions. We therefore see a bright future for our services.

Brexit has caused concerns and insecurity on the UK market, although it has also contributed to government investments that have had a positive effect on the construction sector. Our London studio was our fastest growing unit in 2019. Among our new projects are Moorefields Eye Hospital and the Blackwall Yard Mixed-Use Development in London. The Norwegian market had an extensive growth in 2019, which contributed to the expansion of our studio in Oslo. Our ability to unite sustainability with design makes us attractive internationally and our overseas operations continue to grow as a consequence, with new assignments in East Africa, Germany and Canada.

White is committed and will continue to conduct its business activities on the basis of the UN Global Compact principles, and we intend to accelerate our work in line with Agenda 2030. We hope this report can serve as a source of inspiration for new collaborations, that can enable us to tackle our common challenges together.

”

Design is our means for creating sustainable solutions, and we will reach our vision by focusing on new ways of working with materials, energy, circular architecture and sustainable urban development.

ALEXANDRA HAGEN, CEO
ANNA GRAAF, DIRECTOR
OF SUSTAINABILITY

Our 2019 in short



766 employees, of which 80 are newly employed

1.35

tonnes of CO₂e/annual employee

813mSEK

.....
turnover

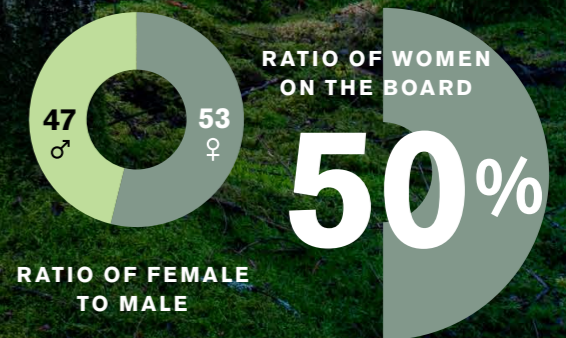


34%

Lower CO₂e-emissions than 2018

19%

of the building projects have timber structure



RATIO OF WOMEN ON THE BOARD

50%

RATIO OF FEMALE TO MALE

We have worked in different countries in 2019

14

Canada, DR Congo, Ireland, Denmark (Greenland), Finland, Kenya, Ethiopia, Indonesia, Germany, UK, USA, Netherlands, Norway and Sweden



20 projects aiming for carbon neutrality

30mSEK

to research and development through White Research Lab, ARQ Research Foundation, Digital Design and Innovation

95%

of business travels are performed by train

Challenges and Opportunities

We live in an age of major social change with crucial challenges for the environment, which affect ourselves and our business in many ways. Through architecture we contribute to the creation of places where we all live, play, learn and heal, which gives us a tremendous opportunity to influence, and secure, the conditions needed for sustainable development on our planet.

CLIMATE CHANGE

Humanity has but a few years to prevent global warming from exceeding 2°C. If we don't succeed in this endeavour, life on Earth will be seriously threatened. The construction sector accounts for nearly 40 percent of the global carbon emissions and will need to undergo a comprehensive transformation in order to achieve the climate goals. The effects of ongoing global warming on ecosystems, refugee movements and resilience are impacting our work. Higher sea levels, reduced biological diversity, increasingly irregular water flows and migration are all developments that place demands on increased competence within areas such as climate change adaptation, demographic development and ecosystem services.

GLOBALISATION

The world is increasingly governed by global relationships. Economics, politics and security issues on one continent give rise to direct consequences at a local level on another. The average life expectancy and level of prosperity for people throughout the world is continuously increasing. At the same time, there is also increasing polarisation, which runs the risk of leading to more conflicts. Segregation and socioeconomic differences mean that the issue of equitable living condi-

tions is becoming increasingly crucial. With new types of housing, norm-creative and equitable planning, social impact assessments and strategic development plans, we can tackle today's social challenges.

URBANISATION

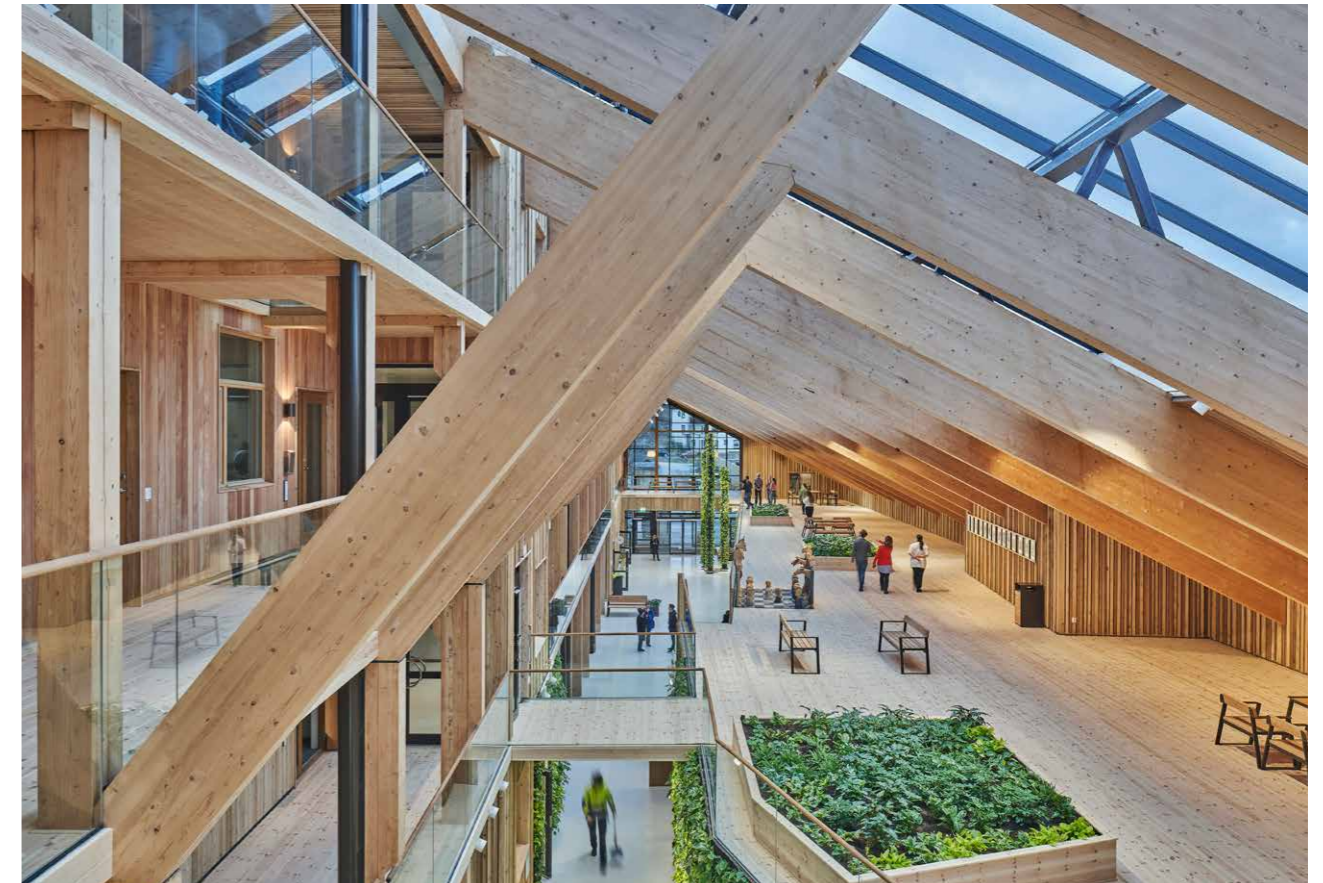
In 2018, 55 percent of the world's population lived in cities; by 2050, that figure is expected to have risen to 68 percent. The trend is no different in Sweden – our major cities and suburban municipalities are expected to experience the heaviest population growth during the next 20 years. With more people living in our cities, there is an increased need for housing, workplaces, public functions and services, and infrastructure. This, in turn, places demands on the construction and civil engineering sector to both satisfy the needs that arise and ensure sustainable development and good living conditions for everyone. Only then can we stay within the planetary boundaries, while also creating buildings and societies with people, health and social wellbeing in focus.

DIGITALISATION

Technological developments are changing how we live and behave and are thus also affecting the demands on the built environ-



With new types of housing, norm-creative and equitable planning, social impact assessments and strategic development plans, we can tackle today's social challenges.



Health Centre in Lindesberg has a timber structure. It offers both health care and homes for the elderly and is located close to nature.

ment. While this leads to new business opportunities, it is also changing our existing ways of doing business. Major online operators utilise the user data available via the internet to plan cities and analyse travel patterns. Digital tools enable citizens to be more involved in the planning process than was possible in the past. Our industry is changing due to the development of new technologies such as BIM, GIS, AI, 3D printing and robotisation. The digitalisation of the design, planning and construction processes entails new business models and changed roles for the industry.

INCREASED COMPETITION

Digitalisation and globalisation processes are creating new business patterns and are leading to increased competition. More companies are enhancing their core business by adding competence within architecture, design and project development. PR and communication agencies are offering concept development in the early stages of projects, technical consultants are building competence within architecture and developers employ their own project designers.

DOWNTURNS YET INVESTMENTS

The rate of growth in the economy suffered a downturn during 2019, and there was a decrease in the level of housing construction in Sweden. In 2020, the Swedish Construction Federation expects the construction sector to experience a further decrease of around two percent compared with 2019. The trend is not quite as dramatic at the European level, where the construction industry is expected to continue to grow, albeit at a slower rate than previously. At the same time, the population growth in northern Europe is leading to a major need for investments in infrastructure and urban development. More than 80 percent of Sweden's municipalities claim to have a housing shortage, and it is estimated that more than 1,000 schools and preschools, 300 homes for adults with special needs and more than 100 retirement homes will need to be built or renovated by 2022. In addition, major investments are also required within healthcare, railways and other infrastructural areas. These investments and projects need to be planned and designed immediately if they are to achieve their goals.

Voices from Three Continents

White's international presence was strengthened during 2019. London is our most rapidly growing office, Oslo is under constant development and we have an established network of clients and business partners in Germany, Canada and Kenya. This involves a balanced mix of mature and rapidly growing young markets. We see tremendous opportunities to create innovative architecture that contributes to a sustainable way of life. But are there any differences between the sustainability challenges on the various continents?

During 2019 the clamour due to the combination of a climate emergency and acute housing shortages became noticeably louder in many parts of the world. The impacts of climate change effects and social challenges on societal development vary between continents.

– *By working in countries with another context we can challenge our existing approaches and standards. Transformations are taking place quickly at present, and by capturing such processes we can achieve interesting synergies for our innovation work and the development of our projects,* says Carl Bäckstrand, Director of White International.

East Africa is experiencing rapid population growth and increasing urbanisation. The countries in this part of the world are eager to see their nations develop into healthy, democratic and stable economies.

– *It will require clearer urban development strategies and inclusive processes to achieve major social impacts,* says Louise Didriksson, Head of Business Development East Africa.

As the level of understanding increases, so does the need to exchange experiences and best practice. During 2020, White will complete the Leadership Centre in Nairobi, in local collaboration with Kenyan architectural firm MMI.

– *The project is one of Africa's first LEED Gold-certified projects and has already*

become an eco-icon. It sets a new standard for energy, ecosystem services and architectural design, adds Louise.

In North America, the development of AI technology is progressing at an enormous rate. In Canada, Google is developing new city districts, and developments within timber construction techniques are moving quickly. Climate changes are accelerating in the northern parts of the country, and the consequences of a melting permafrost are difficult to grasp.

– *We can learn a lot from Canada, although there is also great interest to learn from Swedish examples of sustainable construction. In Vaudreuil-Dorion, outside of Montreal, we have developed a proposal for a new library and city hall together with Ambioner and Zarate Lavigne. By integrating ecosystem services into the project we have created a new green meeting place in an area that has previously been dominated by motor traffic,* says Marie-France Stendahl, Head of Business Development Canada.

In Europe, fossil fuel-based industries are being seriously threatened: Norway is pioneering zero carbon construction, and in Germany the energy transition (Energiewende) is already ongoing. The UK is gathering itself for life post-Brexit, with a progressive public agenda involving social entrepreneurship.

– *Timber construction has a central role in Norway. The country has been develop-*

”
By working in countries with another context we can challenge our existing approaches and standards.

CARL BÄCKSTRAND,
DIRECTOR WHITE
INTERNATIONAL



Leadership Centre in Nairobi will be one of Africa's first LEED Gold-certified projects. Finalized in 2020.

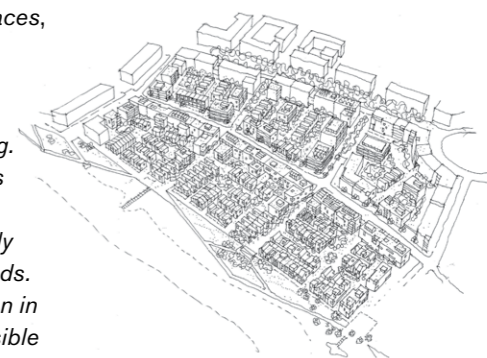
Our low carbon proposal for the library and city hall in Vaudreuil Dorion, Canada.

ing the concept of Zero Emission Buildings for a number of years, and several major construction projects have now been completed using this approach. A number of municipalities are imposing stringent climate requirements on the construction process, and there is a sense of openness when it comes to the creation of innovative architecture, says Sofie Bentzen, Manager of White's Oslo studio.

– *In a number of German cities, as in Sweden, the challenge is to determine how best to transform existing homogeneous districts and buildings into more diversified environments with low climate impact. In Reutlingen, outside of Stuttgart, we will be developing an industrial site into a sustain-*

able mixed-use district, containing homes, gastronomy, atelier and co-working spaces, says Barbara Vogt, Head of Business Development Germany.

– *In the UK we aim to contribute to the development of sustainable housing. The age of speculative housing projects is behind us, and instead there is now growing focus on the creation of socially sustainable districts and neighbourhoods. Our proposal for a 7 hectare master plan in Barking Riverside shows how it is possible to create affordable and carbon neutral projects with a rich and varied design, and with opportunities for shared housing solutions,* says Geoff Denton, Partner at White's London studio.



Our proposal for a 7 hectare master plan in Barking Riverside, UK.

Sustainability as a Driving Force

The core aim of our business is to use architecture to drive the transition towards a sustainable way of life. With sustainability as our primary driver, both for our projects and our organisation, we create long-term value for our clients, for ourselves, for society and for the planet.

THE CHALLENGES

Climate Change, reduced natural resources, threatened biological diversity and increased inequality are just some of the major challenges currently facing society. A high degree of social and environmental commitment has long been a fundamental principle for White's activities. For more than 20 years we have built up expertise in environmental and social sustainability, with the aim of being able to drive sustainability issues forward and to integrate them into our assignments. We are convinced that we can use architecture and our collective know-how to contribute to the development of a better society on a daily basis. The UN's 2030 Agenda for Sustainable Development, and our undertakings in accordance with Global Compact are the starting points for our business objectives, strategic investments and prioritised sustainability issues.

WHAT SUSTAINABILITY MEANS TO US

In our context, sustainability means creating buildings and communities with a focus on people's health and social wellbeing. The fundamental prerequisite is that development must be within the planetary boundaries, and not at the expense of the Earth's resources, the ecosystem or the climate. The economy is the facilitator. In order to create attractive environments, and preserve the Earth's resources, we all need to make conscious choices and the right investment decisions. It is only when social, ecological and economic values go hand-in-hand that we can start talking about achieving *true* sustainable development.

THE GLOBAL GOALS

White works with assignments on a variety of scales ranging from urban planning, buildings, landscape planning and interior design, to studies into environmental and social impacts. Consequently, most of the 17 UN Sustainable Development Goals are relevant to us, either directly or indirectly, to a greater or lesser extent. We have chosen to place extra focus on eight of the goals that we have the opportunity to contribute towards, in our daily work. As of 2020 we will be monitoring all assignments in relation to the UN Sustainable Development Goals and many of their associated targets.

SUSTAINABILITY ANALYSIS

All assignments are unique and the sustainability challenges vary from project to project. We always commence each new project with a sustainability analysis in order to identify opportunities, risks and to prioritise sustainability issues. During 2019 we updated our methodology to ensure that it is now completely in line with our prioritised sustainable development goals, but also takes many other aspects into consideration. By performing a sustainability analysis together with the client and other stakeholders at an early stage of the process, we can create a common vision and strategy for each project. By being prepared to make investments in long-term social and ecological values and gains, we achieve not only sustainable projects, but also a sustainable business.



The UN's 2030 Agenda for Sustainable Development, and our undertakings in accordance with Global Compact are the starting points for our business objectives, strategic investments, and prioritised sustainability issues.

THE UN GLOBAL GOALS FOR WHITE

	GOALS	OUR EFFORTS AND CONTRIBUTIONS
	HEALTH AND WELLBEING Ensure that buildings and environments are good for people's health and wellbeing. <i>Target 3.9 and the following indicators: daylight, air quality, thermal climate, noise, damp and stimulating movement or rest.</i>	We design environments that stimulate health and wellbeing, and have a long experience of healthcare architecture and research into the importance of architecture for people's health. We have daylight specialists and offer indoor environment simulations. <i>Read more on page 38–45.</i>
	SUSTAINABLE ENERGY Reduce energy demand, create buildings that are energy-efficient and increase the use of renewable energy. <i>Targets 7.2 and 7.3</i>	We offer energy and climate calculations. We focus on creating energy-efficient buildings with low carbon footprint and increasing the use of solar energy.
	SUSTAINABLE, EQUITABLE COMMUNITIES Create inclusive and equitable communities, with safe environments, housing for all and safe and sustainable means of transportation. Create access to green areas and public spaces, especially for women, children, the elderly and the disabled. Promote social and environmental connections between urban districts and rural areas. Promote participation-based planning. <i>Targets 11.1, 11.2, 11.3, 11.4, 11.6 and 11.7</i>	We always base our work on the needs of people, and we continually develop new ways to involve people in the planning process. We promote norm-creative and equitable planning. We explore new types of housing and implement ecosystem services in urban planning. We offer social impact assessments and strategic development plans. <i>Read more on page 48–53.</i>
	SUSTAINABLE CONSUMPTION Contribute to efficient use of natural resources, and reduce emissions of hazardous substances and waste to air, water and soil. Reduce the amount of waste by reducing, reusing and recycling materials. <i>Targets 12.2, 12.4, 12.5, 12.8 and 11.6</i>	We have an expanding focus on circularity and new services. We are at the forefront of developments with regard to reusing materials in interior design projects, and drive development in this area within architecture and design. <i>Read more on page 18–25.</i>
	CLIMATE ACTION Reduce emissions of greenhouse gases through energy-efficient buildings, renewable energy, using materials with low climate impacts and promoting sustainable mobility. Implement climate action and climate change adaptation in the planning process, and increase the capacity for restorative regeneration. <i>Targets 13.1 and 13.2</i>	Our goal is that 30% of our projects will be carbon-neutral by 2023 (all of them by 2030). We perform energy and climate calculations for buildings and urban planning. <i>Read more on page 30–33.</i> We offer services for climate change adaptation and ecosystem services. <i>Read more on page 50–55.</i> By 2023, the carbon emissions from our organisation's activities shall be reduced by 30% compared with 2018 levels. <i>Read more on page 26–29.</i>
	ECOLOGICAL DIVERSITY Strengthen the values of ecosystems and biological diversity in the planning process. <i>Targets 15.1 and 15.9</i>	Enhance and implement ecosystem services in the planning process. Clarify the benefits and values associated with ecosystem services in terms of health, climate, environment and social aspects. <i>Read more on page 50–55.</i>
	INNOVATION AND ENGAGEMENT Create partnerships that exchange knowledge, expertise, technology and financial resources - in order to contribute to the achievement of the sustainable development goals in all countries.	White Research Lab promotes research and development in collaboration with academia and industry. We support international collaborative projects and research, e.g. in Kenya. <i>Read more on page 12–13 and 46–47.</i>

The Hotel "House of Choice" in Solna will be one of Scandinavia's first zero-energy hotels. 2,500 square meters of solar cells on the façade and roof, as well as 24 boreholes for geothermal energy, will provide more energy than needed for the operation of the building. The building will be certified Breeam Excellent. Client: Fabega. Completed in 2021.



ENVIRONMENTAL IMPACT

The greatest environmental impact from our business activities derives from our projects. We perform an annual follow-up of our projects regarding aspects such as energy targets, certifications and the most prioritised sustainability aspects. 2019 was the first year in which we performed this follow-up in a manner that relates directly

to the sustainable development goals (see diagram). 47% of the projects have higher energy targets than the Swedish building regulations, and 39% of the projects are assessed in accordance with a certification system. The most common certifications are (in order): Miljöbyggnad (Sweden Green Building Council), Nordic Swan, BREEAM and LEED.

GLOBAL GOALS IN OUR PROJECTS 2019



19%
OF THE BUILDING PROJECTS HAVE TIMBER STRUCTURE

39%
OF THE PROJECTS WILL BE CERTIFIED

47%
OF OUR PROJECTS EXCEED THE SWEDISH ENERGY REGULATIONS FOR BUILDINGS

GOAL 3. Health & Wellbeing / 22%

Daylight, Stimulate physical activities, Indoor environment, Damp proof

GOAL 7. Sustainable energy / 8%

Energy efficient buildings, Renewable energy (i.e solar panels)

GOAL 11. Sustainable and equitable societies / 40%

Safe and secure environments, Equitable and accessible places, Participatory design, Sustainable mobility, Protect cultural values, Economical values

GOAL 12. Sustainable communities / 17%

Materials, Health and wellbeing, Reuse and recycling, Sustainable lifestyles, Timber construction

GOAL 13. Climate action / 9%

Low climate impact of materials and construction, Climate change adaptation

GOAL 15. Ecological diversity / 4%

Implement ecosystem services, Protect the ecological values

SELMA LAGERLÖFS CENTRE

Circular Architecture is a Winning Concept

In order to limit climate change and preserve the Earth's resources society needs to transition from a linear to a circular economy. There is a need for new ways of working and new business models that can facilitate the transition process. In the Selma Lagerlöf Centre in Gothenburg, White – through strong will and creativity – has succeeded in creating one of 2019's best Swedish interior design projects*, with 92% reused furniture – resulting in 70 percent lower costs compared with the use of new materials.

Viewing all existing materials as reusable raw material isn't just a way of saving resources, it is also one of the most effective measures to slow down climate change. The transition to a circular economy requires changes in our lifestyle, attitudes and how we build. White is convinced that, by utilising existing urban areas, buildings and materials to a greater degree, it is possible to create new environments, buildings and products. In addition, new construction also needs to be based on a circular, long-term approach from an early stage of the design process. It might sound obvious, but it requires knowledge and collaboration across many supply chains in order to realise such a process.

In the new Selma Lagerlöf Centre in Gothenburg, great emphasis has been placed on circularity in the form of reused furniture and materials. The centre will be a meeting place for citizens in the Selma Stad district of Gothenburg and includes a library, theatre and municipal offices.

– For us it is a given that we must work in new ways to preserve the Earth's resources. When we analysed the costs for the project, we found that it was almost 70 percent (9 million Swedish kronor [850,000 Euros]) cheaper to focus on maximising the use of reused furniture and materials rather than buying new products, says Annie Leonsson, Lead Interior Architect for the project.

But there were more than just financial gains to be derived from this approach. Users and citizens were involved at an early stage of the process through workshops and interviews.

– We wanted those who will use the premises to feel that this is something they can be proud of, and to make it possible for them to recognise things from the past. At the same time, it's important to be able to see that we've been careful with the use of environmental and economic resources, explains Annie.

The reuse strategy was based on three main elements. Firstly, furniture was reused from six separate existing organi-

sations that would later be moving their activities into the centre. Secondly, used furniture was procured as a complement to the items that already existed. And thirdly, used materials were purchased for the site-built interiors and to make new furniture.

– We wanted people to be able to see that the furniture and fittings have had a previous life. The result is a sort of confetti with different shapes and colours that enhance the concept and combine with the raw building to create a delightful overall effect. The one common element in the design is a "Selma label" that we have placed on everything we have reused, says Annie.

The realisation of this project required a lot of creativity and innovation with regard to procurement, processes and the parties involved. For example, the City of Gothenburg needed to conduct a procurement process with a supplier of recycled and reused goods, something it had never done before. The assignment was awarded to a carpentry firm that assumed

responsibility for the on-site carpentry work and for buying, storing and transporting the reused furniture and fittings. Then there was the issue of

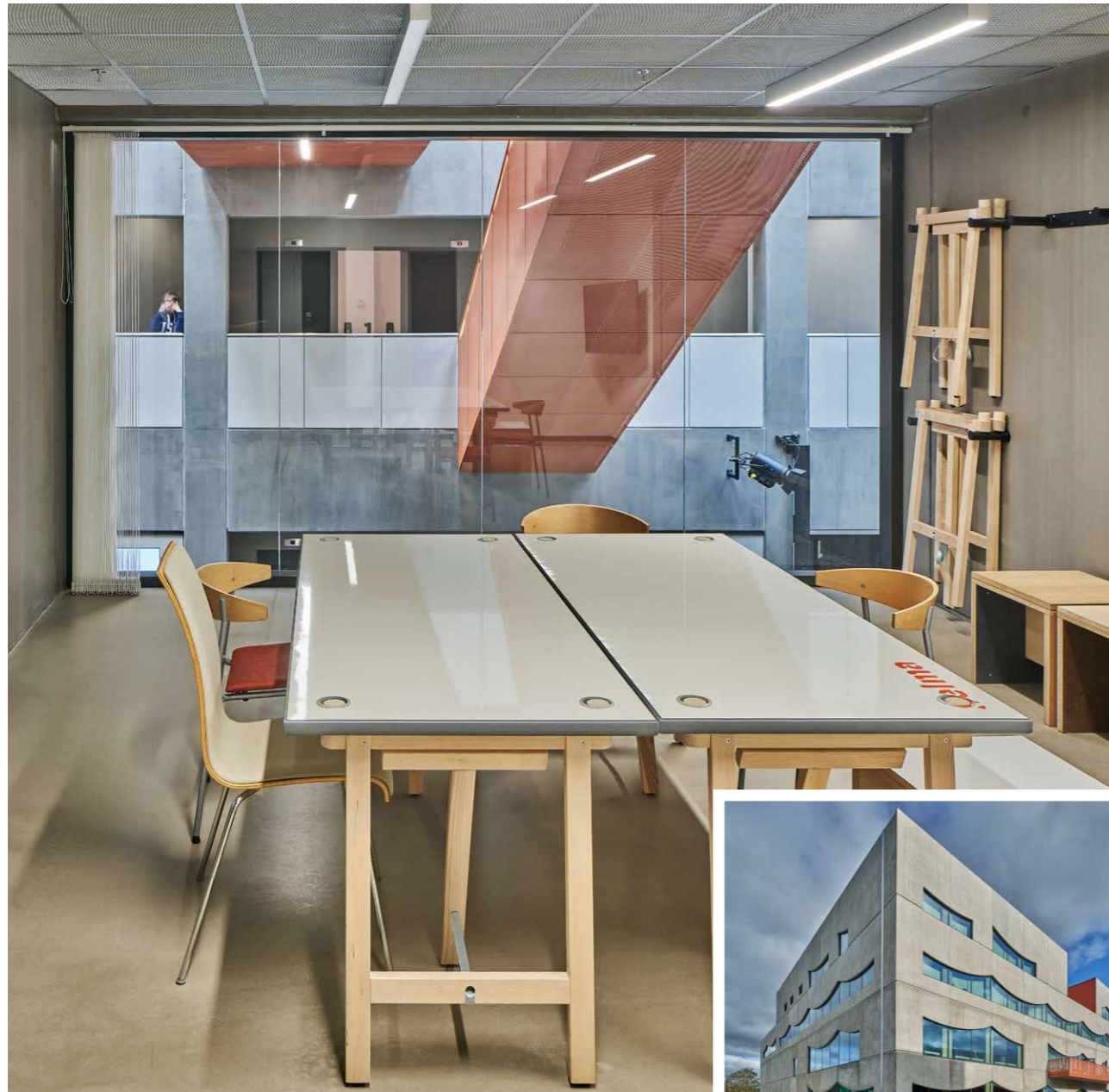
labelling, or marking, all of the reused furniture with the name "Selma". How could that be done? In this case, inspiration was taken from a company that had developed a method for marking shipping containers. An entire weekend was then spent painting the name "Selma" onto more than 3,000 interior design items.

When we analysed the costs for the project, we found that it was almost 70 percent cheaper to focus on maximising the use of reused furniture and materials rather than buying new products.

ANNIE LEONSSON, LEAD INTERIOR ARCHITECT

The work on the Selma Lagerlöf Centre has shown

* The project was one of four nominees for the "Golden chair 2019", the Swedish Architects prize for best interior design.



how crucial it is to have a clear process in order to succeed with a reuse project. The most important is to determine the ambitions at an early stage of the project, to set goals for the amounts of reused materials and to set a time schedule. A reuse project takes a little longer time than a project where all furniture and fittings are new, and it also requires more project management and cost control. A major logistical effort is required to find furniture and fittings that don't need to be transported too far and can be delivered and stored successfully throughout the course of the project.

It is also necessary to perform an initial inventory to identify the items



that are suitable for reuse, and it is important to clarify the roles within the project. For example, is it the interior architect, the client, or the supplier who will assess the quality of the furniture? Finally, more coordination is required of the architect in terms of the furniture and fittings on site.

The Selma Lagerlöf Centre is one of the foremost examples of how it is possible to work in new ways. By adapting the design process and always basing our work on what already exists, we can further the transition towards circular architecture.

Annie Leonsson is an interior architect with a focus on branding architecture and design on a strategic level in close cooperation with users and clients. Sustainability issues and circular design is an important driving force in all projects.



SELMA LAGERLÖFS CENTRE

Location: Selma Lagerlöfs Torg, Gothenburg

Client: City of Gothenburg, District administration – Norra Hisingen

Project period: 2017–2019

Lead interior architect: Annie Leonsson

Area: approx. 6,300 m²

Percentage of reused furniture and materials: 92 %

Budget: The initial calculation showed that the purchase of

new furniture and fittings would cost 12.8 million Swedish kronor. With reused furniture and materials this cost was reduced to 4.1 million kronor.

Climate: The Vinnova-funded project “Business Model Innovation for Closed-loop Furniture Flows”, which involves White and RISE, among others, shows that the carbon footprint can be reduced by 20 to 50 percent through the application of a circular model as opposed to a linear model.

MAJA BESKOW SCHOOL

The Past Creates an Attractive School

One of the greatest threats to the environment and the climate is overconsumption of the Earth's resources. More or less, all existing materials can be viewed as a usable raw materials. Maja Beskow School in Umeå is a good example of how it is possible to significantly reduce climate impact by renovating and reusing existing materials. It is also a creative challenge to find ways to create new, attractive environments from existing buildings.

When Umeå Municipality gave White the assignment of designing the new Maja Beskow School, a key point of focus was the use of redevelopment and construction techniques that made the most of the existing buildings. The original school building was built in the 1950s, and an extension was added in the 1980s. After several years of damp problems, building-related health issues, difficulties attracting students and negative rumours, it was obvious that something significant needed to be done. The building was evacuated in 2016 and was completely renovated, after which the school could be reopened in 2019.

– We felt that we had to reverse a negative trend and leave no stone unturned in the redevelopment process, both in terms of the school activities and the actual premises, says Maria Ohlsson, Lead Architect at White.

– It was important to ensure that the design of the school was based on the perspectives of the pupils and the teachers, and that the premises would support and contribute to the teaching and learning process. White was involved in formulating the brief that Umeå Municipality developed to show how school premises should support pedagogical activities and the creation of a learning work environment. The preparatory work included in-depth interviews with both pupils and teachers, says Maria.

Three goals were set from the very beginning of the project. The first was to "Create secure boundaries" – the school must be characterised by safety and security in the smallest of details, and as a whole. For example, all pupils have a "home area" that contributes to a sense of security and spatial and social belonging. Glazed areas provide visual contact between the rooms and contribute to a sense of openness and security.

The second goal, "Everything has its time", describes the design principle of preserving much of the school's original identity from the 1950s and the architecture of the 1980s extension in the new design. The third goal, to "Create a symbol of sustainability", was manifested in a new entrance building with a strong contemporary character based on wood construction. The entire project has been awarded the Sweden Green Building Council's "Miljöbyggnad Silver" certification.

The goals were based on a clear sustainability analysis. By working with the reuse of existing materials and focusing on transformation and circularity, it was possible to minimise the need for new construction. The two existing parts of the school were renovated on the basis of the eras they represented. In the part dating from the 1950s it was possible to preserve large parts of the original premises.

There were many high-quality materials in this part of the school which could be reused, including

The project has demonstrated how attractive it is to work with sustainability as an overall concept from an environmental, economic and social perspective.

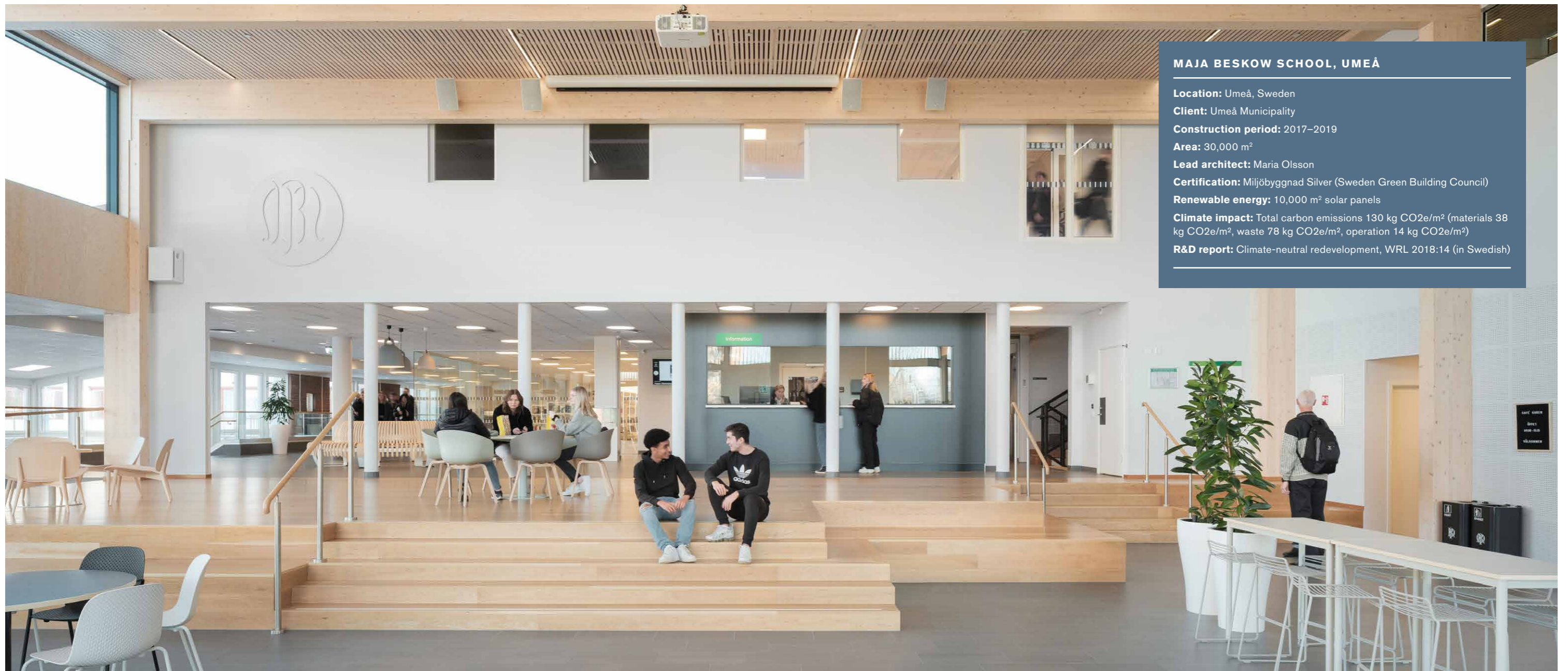
MARIA OLSSON,
LEAD ARCHITECT

limestone floors, brick walls and stairs. The extension from the 1980s required more comprehensive renovation, in particular due to problems with damp and poor daylight, although it was possible to preserve the original structure of the building.

– One of the challenges associated with redevelopment projects is that you always encounter surprises. In this case, for example, we unexpectedly found damp in certain structural

The two different existing parts of the school were renovated from the basis of each era. In the 1950s part, large parts of the existing premises could be preserved, such as limestone floors, brick walls and stairs.





MAJA BESKOW SCHOOL, UMEÅ

Location: Umeå, Sweden
Client: Umeå Municipality
Construction period: 2017–2019
Area: 30,000 m²
Lead architect: Maria Olsson
Certification: Miljöbyggnad Silver (Sweden Green Building Council)
Renewable energy: 10,000 m² solar panels
Climate impact: Total carbon emissions 130 kg CO₂e/m² (materials 38 kg CO₂e/m², waste 78 kg CO₂e/m², operation 14 kg CO₂e/m²)
R&D report: Climate-neutral redevelopment, WRL 2018:14 (in Swedish)

elements, and a decision was made that almost all joists and beams needed to be taken down and decontaminated. But the surprises can also be positive in nature, such as when we found an incredibly beautiful brick wall, or an original stair railing that could be reused, says Maria.

The climate calculation for the project shows that the climate impact from the materials is low compared with a new construction project, but that the climate impact from waste management is high. There are significant environmental gains associated with redeveloping existing buildings rather than building new ones, but it is crucial to minimise waste and to reuse as many materials as possible.

A comparison with other projects also shows that the cost per square metre is significantly lower than for a new building.



– I think that the whole project has demonstrated how attractive it is to work with sustainability as an overall concept from an environmental, economic and social perspective. We have shown that it is in fact possible to reverse negative trends. And, it's fair to say that the high level of pupil applications received by the school in 2019 is proof that our work has been successful, concludes Maria.

Magnus Josefsson, the headmaster at Maja Beskow School, describes the project as follows:

– Our pupils and teachers have been provided with an attractive building, with low climate impact. The most important thing is the close relationship between the pupils and the teachers, and we have striven to create environments that support such a relationship.

Maria Olsson is an architect specializing in early stages. She has extensive experience of working with educational environments for all ages, from preschool to college and university.

The new entrance building consists of a timber frame and manifests a strong, contemporary character.



Climate Impact and Our Commitment

As a company we have an important role to play in inspiring our employees and the world around us to adopt a more sustainable way of life. 95 percent of our domestic business trips are undertaken by train. By introducing a “climate account” for our study tours we have succeeded in reducing our carbon emissions by 82 percent compared with the previous year.

66%
LOWER CO₂e-EMISSIONS PER ANNUAL EMPLOYEE COMPARED WITH 2014



65
LAPS AROUND THE GLOBE BY TRAIN

CLIMATE REPORT

The Climate report has been implemented in accordance with the Greenhouse Gas Protocol, which divides greenhouse gas emissions into direct (scope 1) and indirect (scopes 2 and 3). For White, scope 2 includes heating, cooling and electricity for the offices. Scope 3 includes business and study travels, hotel stays, purchases and waste. There are no emissions under Scope 1.

In 2019, White’s total CO₂e emissions amounted to 916 tonnes, which equates to 1.35 tonnes CO₂e per full-time equivalent employee. This represents a total reduction of 33.7 percent compared with 2018 (33.5 percent per annual employee), and compared with 2014 it is a reduction of 57 percent (66 percent lower per annual employee).

While the reduction compared with 2018 is partly due to new emission factors, the primary reason is drastically reduced emissions from study tours (see below). When analysed per aspect, the emissions per full-time equivalent employee compared with 2014 have been reduced by: 79% for travel, 29% for purchases (including food, IT and electronics and paper), 14% for energy (heating, cooling and electricity) and 83% for waste.

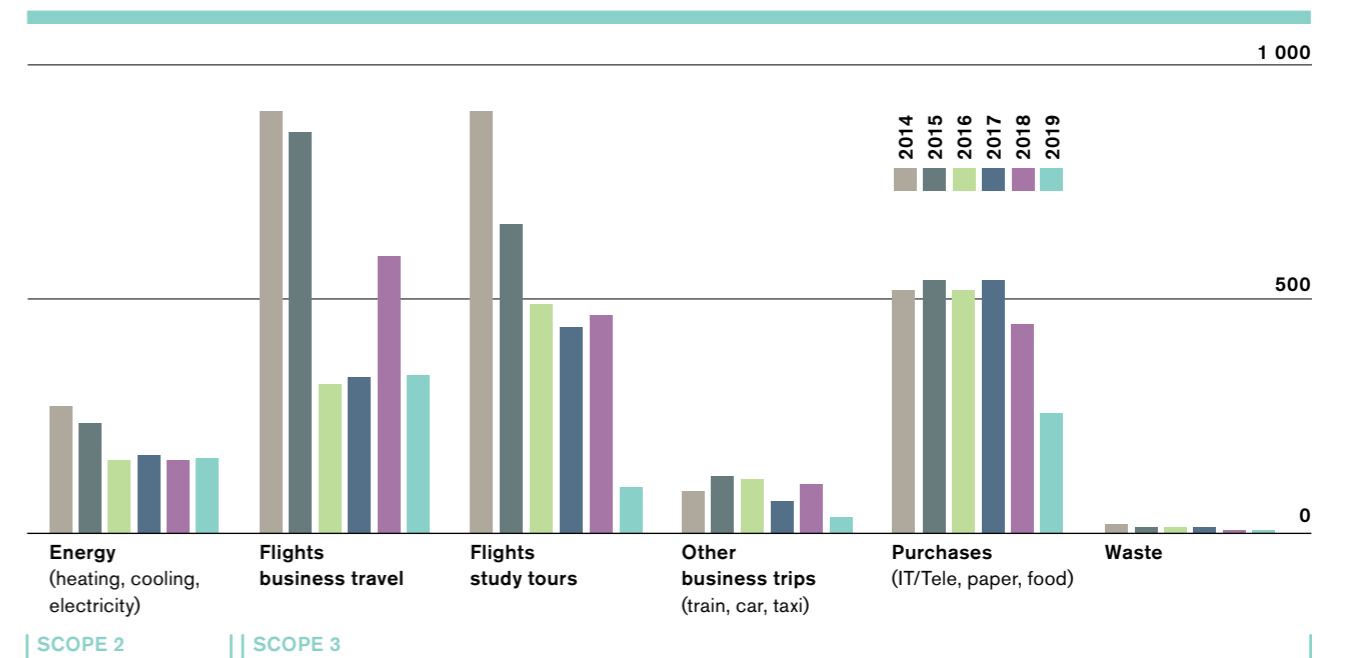
TRAVEL

Our travel policy is clear: we travel by train as a first alternative. 95 percent of our business trips within Sweden are undertaken by train, which equates to 65 trips around the world or 2,599,000 km, an increase of 31 percent compared with 2018.

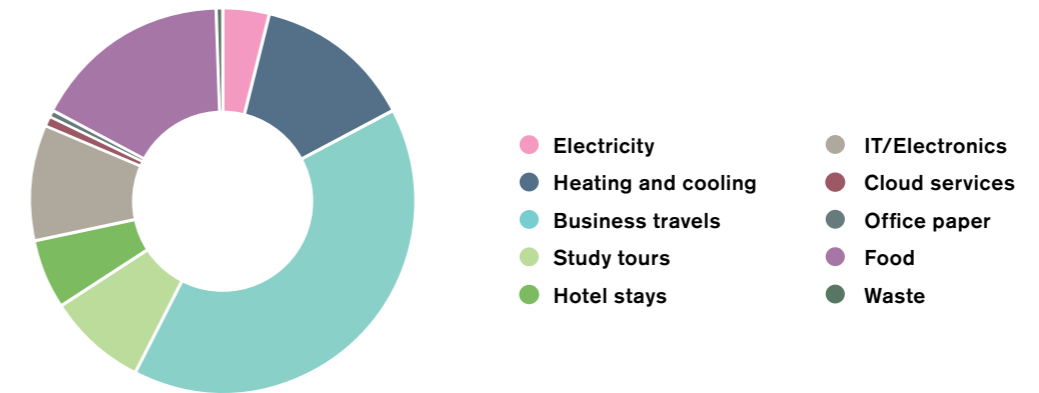
For several years, our study tours have accounted for a large share of our greenhouse gas emissions. In order to reduce the emissions, yet still be able to perform the tours, we introduced a number of measures during 2019, including more study visits within Sweden, the possibility of travelling by train to all destinations in Europe, information about carbon emissions for the different alternatives, and a points system, or “climate account”. This means that employees may only use air travel for one return trip during a three-year period; all other trips must be undertaken by train or bus. The results have been extremely positive: the emissions from our study tours have been reduced by 81.6 percent compared with 2018!

Business trips by air has also been reduced: the number is 27 percent lower, and the CO₂e emissions have been reduced by 22 percent.

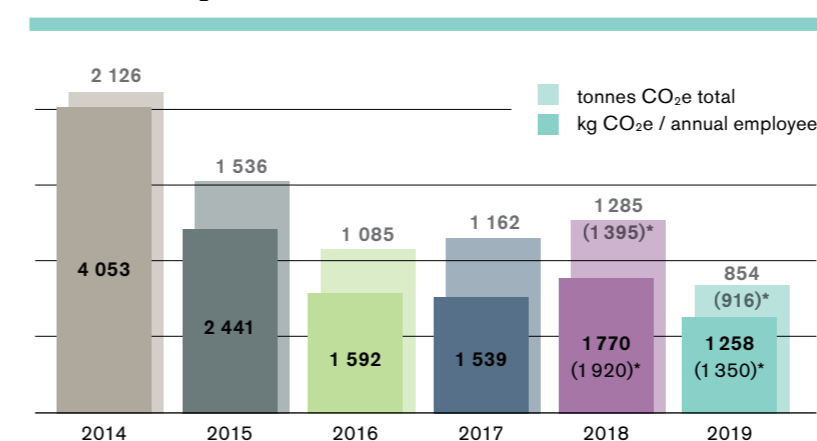
CO₂e-EMISSIONS 2014–2019 (KG PER ANNUAL EMPLOYEE)



DISTRIBUTIONS OF CO₂e-EMISSIONS 2019



TOTAL CO₂e-EMISSIONS 2014–2019



Figures
Data to the calculations have been provided by property owners, energy suppliers, travel companies and compilation from our finance department. Climate calculations are conducted by the South Pole Group in accordance with the Greenhouse Gas Protocol (GHG).

* Figures in parentheses including emissions from cloud services and hotel stays.



"Whitedagen" 2019, White's annual company event, was held in Malmö.

VEGETARIAN MEALS

Our policy is that the company shall only serve vegetarian (or vegan) meals at lunches, parties or other activities, a goal we have almost achieved: 97 percent of meals served in 2019 were vegetarian.

IT, ELECTRONICS AND CLOUD SERVICES

Our climate impact from IT equipment and telephony has been reduced by 27.5 percent compared with the previous year, due to fewer new employees and a reduction in the emission factors. Cloud services account for 0.8 percent of the company's climate impact.

ENERGY AND RENEWABLE ELECTRICITY

95 percent of the electricity at our offices is renewable, and we impose requirements on energy-efficient equipment and lighting. Our electricity and energy consumption has increased since the previous year, which has resulted in an increase in emissions of just over 25 percent. An energy mapping process has been carried out at all offices during 2019 with the aim of identifying possible improvement measures and potential savings.

A CLIMATE-NEUTRAL COMPANY

The climate calculations have been performed by South Pole Group in accordance with the Greenhouse Gas (GHG) Protocol. All of White's emissions have been carbon-offsetting, which means that we meet the criteria for a climate-neutral company. Through carbon-offsetting we contribute to Kariba REDD+ Forest Protection in Zimbabwe and Isangi REDD+ Forest Conservation in DR Congo.

SUSTAINABLE LIFESTYLE

Our offices take various initiatives, adapted to local challenges. Some examples include the provision of a bicycle-sharing system and the arrangement of a bicycle workshop. Health and wellbeing is an important issue, and apart from offering gym membership or equivalent, White also arranges running training, participation in races, bicycle challenges, massage at the workplace, yoga and lectures on topics ranging from stress management and exercise to healthy diets. We can all inspire each other to adopt a more sustainable way of life, for the environment and for ourselves.

34%

LOWER CO₂E-EMISSIONS COMPARED WITH 2018



1.35

TONNES CO₂E/ANNUAL EMPLOYEE

COMMITMENT TO SUSTAINABILITY

We are members of many organisations and associations that advocate and work to facilitate sustainable development. Some of the largest are: *Global Utmaning* (a sustainability think-tank), *Sweden Green Building Council*, *Sustainable Innovation*, *NMC* (Swedish Association for Sustainable Business), *CSR West Sweden*, *the C/O City association* (Ecosystem services) and *Byggarubedömningen* (a building materials database).

WE SUPPORT

Here is a selection of the associations and organisations we support financially: *Médecins Sans Frontières* (Doctors Without Borders), *BRIS* (Children's Rights in Society), *CancerRehabFonden*, *Giving People*, *Aktiv Skola*, *Noll Tolerans mot Mobbning*, *FIKK*, *RSK/Nolltolerans*, *Riksförbundet Narkotikafritt Samhälle*.

Lindeborgs Eco Retreat in Nyköping, "the Eco-barn", is a climate positive facility with hotel, conference and retreat. The old barn has been rebuilt and renovated with wood from the near forest and there is also innovative agriculture and a biological water treatment system. The project is carbon-negative calculated over 50 years, i.e the emissions from material and energy (in total 364 kg CO₂/m²) are less than the captivation of carbon due to its timber construction (-119 kg CO₂/m²) and the biochar production plant (-1944 kg CO₂/m²). There is also renewable energy from solar cells (-119 kg CO₂/m²). Read more in WRL-report 2019:24, Ekoladan, Climate calculation.

Carbon Neutrality Step by Step

The world is facing major challenges in the form of climate change and increasingly scarce resources. Leading a process of change in our industry is a responsibility we take seriously. Therefore, we are focusing on reducing climate impact in all our projects and our goal is that by 2030 all our buildings will be carbon neutral.

In Sweden, the construction industry currently accounts for around 20 percent of all greenhouse gas emissions in the country, and globally the same figure is around 40 percent. White is part of the Fossil Free Sweden initiative and was involved in the work that led to the development of the Swedish Construction Federation's Roadmap for a climate-neutral sector by 2045. The major challenge for the industry involves the reduction of climate impact from buildings and the setting of clear climate goals in projects.

– We want to challenge ourselves and our clients, which is why for the past three years we have set goals regarding the reduction of climate impact from our projects and the aim of creating carbon neutral buildings. We have built up skills and knowledge, methodologies and calculation models, and at present we have 20 or so assignments aiming for carbon neutrality, says Anna Graaf, Director of Sustainability at White.

What definition of carbon neutrality do we use? The aim is for all buildings to have low greenhouse gas emissions from materials, construction and energy use throughout the entire life cycle, and for emissions to be balanced with renewable energy and

carbon storage, in order to achieve net-zero carbon emissions.

In order to succeed it is necessary to have *clear goals*, effective collaboration between the various parties involved and a structured, iterative process. In each case the building volumes, the external envelopes and technical installations must be optimised to *reduce energy demand*, and materials selected that have *low emissions*. Wood is for instance a material with many benefits, such as low climate impact and the ability to store carbon. Projects involving reuse or redevelopment often have a lower climate impact than those involving demolition and new construction.

Furthermore, a *climate budget* needs to be prepared to report emissions from materials, construction and energy, and through continual monitoring and follow-up it is possible to maintain control of material choices, costs and emissions throughout the entire life cycle. Finally, the *climate debt* is balanced with local solutions, so that the net climate impact is either zero or positive.

By always exploring the possibilities to create climate neutral projects we have succeeded in achieving significant climate improvements in our projects during the past three years. One of our completed

”

Carbon emissions from materials, construction and energy use are balanced with renewable energy and carbon storage.

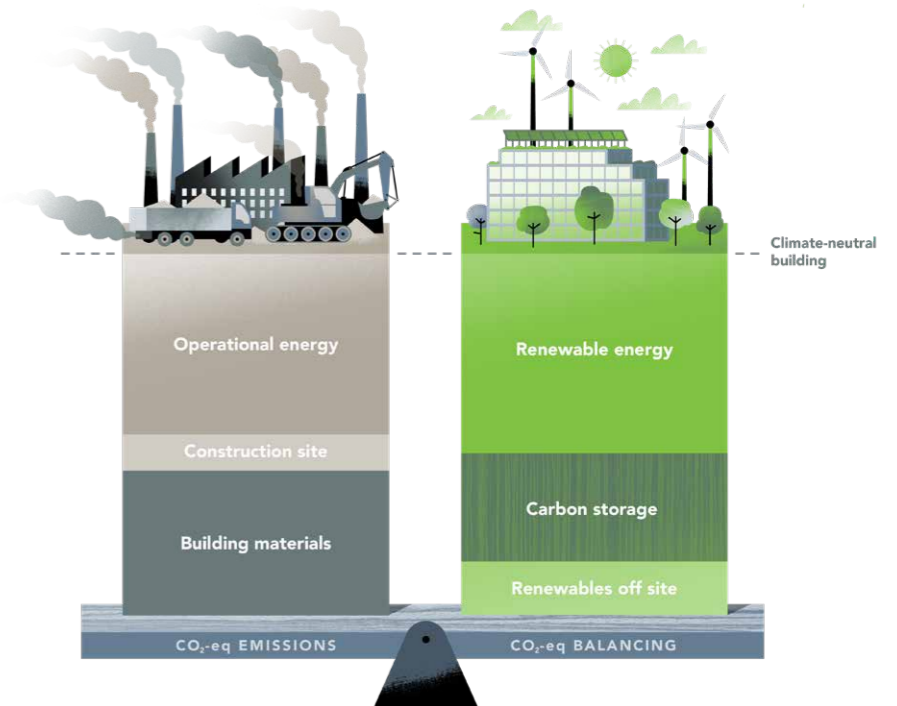
ANNA GRAAF, DIRECTOR OF SUSTAINABILITY

The Climate Innovation District in Leeds is one of the UK's largest housing developments in timber. The homes have low carbon footprint, timber structure, passive house standard, MVHR-system, green roofs and reuse of rainwater. The developer CITU estimates that the wooden frame provides 88 tonnes less carbon emissions than a concrete frame.



projects– the “Eco Barn” – actually ended up being carbon negative. Climate goals are now being set in many of our current assignments, and increasingly contribute to a reduction of climate impacts, in comparison with applicable standards, and making progress towards carbon neutrality one step at a time.

– If everyone involved in the construction industry works together with the aim of reducing climate impact, the process of change will be even quicker. Climate declaration requirements (in Sweden from 2022) and new certification systems (like the Swedish “Zero CO2”) are also developments that are likely to drive progress. We are therefore hopeful that all our architecture will be able to be climate positive from 2030 onward. It is a very tough challenge, but at least we have now started the journey, Anna concludes.



Top: Magasin X in Uppsala will be Sweden's largest wooden office building. The goal is to reach close to zero carbon impact, in terms of energy, materials and construction. The project is being developed for Vasakronan and the building will be completed in 2022.

To the right: Balancing strategy for carbon neutral buildings.

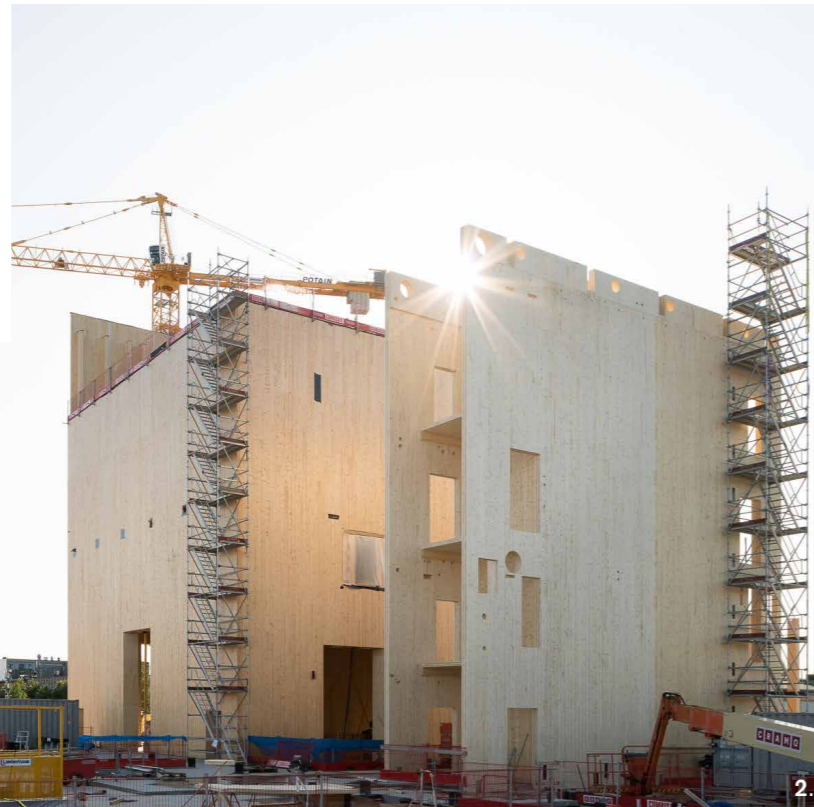


PHOTO: MARTINSSONS



Timber Construction Comes of Age

In recent years White has focused heavily on building up competence in architecture that utilises timber as a structural element. Having previously been used on housing and smaller high-profile projects, there is now a shift in the trend, with timber construction techniques being further applied to offices and larger public buildings. Reduce climate impact and the attractiveness of wood are the primary drivers.

For many years it was forbidden to build wooden buildings in Sweden that were more than two storeys high, due to the risk of fire. The restrictions were removed more than 25 years ago, yet progress has still been slow when it comes to large-scale structures involving timber. Now, however, as focus on the climate impact of building materials has increased, a clear change is noticeable.

– *Timber construction is growing rapidly, and we are seeing a shift towards more large-scale projects and tall timber buildings,* says Daniel Stenqvist, architect at White's office in Gothenburg, who is involved in the international research project Tall Timber Buildings, together with RISE and Linnaeus University, among others. The project involves research into the possibilities of using wood as a challenger to traditional construction techniques for tall buildings.

Wood is unique in that it is a renewable material that binds carbon dioxide. But there are also other environmental benefits to be gained from the use of wood. A large part of timber construction takes place at the factory, which contributes to less waste. It is a light material and is therefore

suitable for adding to an existing structure, which could in turn lead to the preservation of more buildings rather than demolishing them. In one of our projects we found that building onto the existing structure with a wood frame, rather than demolishing it and starting from scratch, was cheaper and led to a significant lower climate impact, a shorter construction time and quicker rental income.

Among wood's many qualities is the fact that it is beautiful, can have many aesthetic expressions, and ages with dignity. Many property owners can attest to the fact that wood contributes to attractive buildings and indoor environments, and studies show that people feel better and experience less stress in environments where they are exposed to wood.

– *There are also tremendous opportunities to combine today's timber construction techniques with the precision and versatility of digital tools. The manufacturing process often takes place with computer-controlled processes. This gives us, as architects, an exciting palette from which to create unconventional designs and beautiful components, without adding to the production time,* concludes Daniel Stenqvist.



Timber construction is growing rapidly, and we are seeing a shift towards more large-scale projects and tall timber buildings.

DANIEL STENQVIST, ARCHITECT

1. Fallskärmen 5 in Örebro consists of 67 apartments built with CLT elements. Client: BJC Group. Completion: 2019.
 2. Sara Cultural Centre, Skellefteå. At 19 storeys, this will be one of the Nordic region's tallest wooden buildings when it is completed in 2021.
 3. Nodí, Nya Hovås, Gothenburg. 4,200 m² new office in timber and CLT. Client: Next Step Group. Completion: 2021.

We are White

White wouldn't be White without the drive and passion of our employees. Our combined competence, experience and creativity are the core of our entire business, and when our employees develop, the company also becomes stronger. White's success is built on having employees who are committed, enjoy their work and have a good balance in life. As we are an employee-owned company, every member of staff shares responsibility, and we have the possibility to focus on what we truly believe in and want to achieve in the long term.

DIVERSITY

In order to be able to tackle the challenges facing society and create long-term value with sustainable architecture, it is both a strength and necessity to have diversity within our team. That is why we strive to build a team of employees with widely ranging skills, knowledge and experience. The team at White includes architects, building engineers, urban planners, landscape and interior designers, behavioural scientists and environmental experts. A quarter of our employees come from countries outside Scandinavia.



"Whitedagen" 2019 in Malmö.

A STRONG CULTURE

White is wholly owned by its employees. Our employees have the opportunity to buy shares in White from their very first year of employment, and we currently have 601 share-owners, which equates to 78 percent of all employees. Of these, 122 are Partners who together own the majority of the company. We are convinced that the co-ownership of our company creates a special bond and a sense of belonging, as well as a strong level of commitment that contributes to our success and ability to achieve our goals. Through introductory days for new employees and the annual "White Day", which is an opportunity for all our employees to spend time together, we build our company culture and strengthen our internal networks.

OUR WORK ENVIRONMENT

We strive to achieve safe and secure employment conditions for our employees, with good benefits and possibilities to influence the way we work. Some of our measures include:

- We have an *Employee Policy* and a *Work Environment Policy*.
- We follow the industry's collective agreements (Almega, Architects Sweden, the Swedish Association of Graduate Engineers and Unionen), and there are local trade union representatives at all our offices.
- We have a *Plan for Equal Rights and Opportunities* that aims to ensure an equitable and equal opportunity workplace that is free from discrimination.
- We implement systematic work environment measures, with central and local work environment plans that are followed up through inspections and surveys. There are health and safety officers at all our offices.
- All employees are entitled to an allowance for gym membership or equivalent health and wellbeing activity, and we also offer an occupational health service.
- We have guidelines concerning *Alcohol and Drugs, Accessibility during Working Hours, Rehabilitation and Work Environment Outside of White's Premises*.
- We conduct an employee survey every other year and based on the results of the survey we produce action plans with focus on equality, work environment, opportunities for development, leadership and company culture. The action plans are then followed up by management and the Board of Directors.

The 2019 employee survey shows that our greatest challenge is reflected in the fact that only slightly more than half of our employees feel that they receive sufficient recovery between shifts. We are therefore actively striving to counteract stress and provide our employees with conditions for a sense of balance between working life and leisure time. The survey also posed the question: "Would you recommend White as an employer to a friend?" We are proud that the result showed an Employee Net Promoter Score (eNPS) of 25, which is a grade considered as "very good".

DEVELOPMENT AND INSPIRATION

Our aim is to provide each of our employees with good conditions for personal development at White. We want our people to be driven by curiosity, creativity and innovation, and we want them to feel that they have found their ideal job with us.

- All employees attend a performance appraisal review with their immediate manager at least once a year. These reviews are used to formulate personal goals for education, training and development, and the goals are then followed up on an annual basis.
- It is possible to apply for an allowance for personal development activities outside of working hours, for example courses.
- All employees can apply for funding for research projects through White Research Lab.

We conduct comprehensive R&D activities through White Research Lab. White Academy offers a wide range of internal courses, some of which are mandatory, while others can be selected based on personal interests and needs. During 2019 around 500 employees have attended some of our courses. Some examples are the Sustainability School and the Timber Construction School. 30 employees have also attended our Mentoring Programme during 2019.

Our study tours, which are offered to all employees, are an important part of our efforts to increase knowledge levels and provide inspiration. In 2019, we arranged trips to Sweden, Norway, Germany, England, Austria, Poland and Estonia. The themes of the study tours varied from destination to destination. In order to reduce our climate impact we were able to undertake all of the trips by train or bus.

500
employees

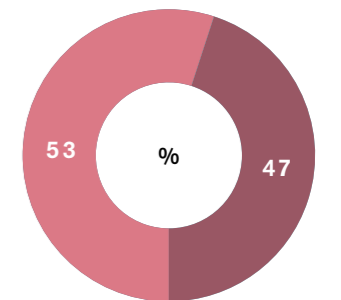


have attended any of the White Academy-courses in 2019

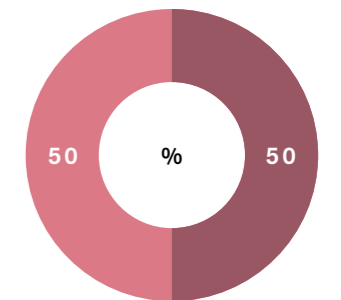


Every employee will have the opportunity for personal and career development, based on their own capabilities, and in the best way possible for their own, and the company's, success.

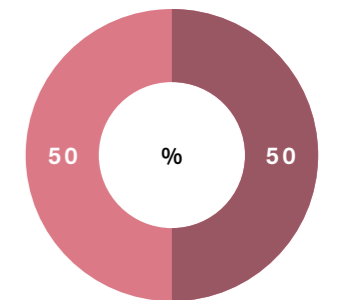
FROM WHITE'S
EMPLOYEE POLICY



EMPLOYEES



MANAGEMENT



BOARD OF DIRECTORS

WOMEN ●
MEN ●

NCC HEAD OFFICE, SOLNA

An Office with a Focus on Health

Good health is a basic requirement for people and society to be able to develop and reach their full potential. There is much evidence to suggest that architecture affects our mental and physical health. An increased focus is therefore being placed on health and wellbeing in the design of urban environments, housing and workplaces.

The design of indoor and outdoor environments has a major effect on how people feel. It can also stimulate a change in behaviour. Daylight and air quality affect our concentration levels and how alert and lively we feel. Access to greenery has a calming effect, and the creation of opportunities for children and adults to be physically active is important for public health in the long term.

Consequently, when NCC planned its new head office in Solna, the company wanted to invest in an environment that enhances the health and wellbeing of its employees whilst also making a positive contribution to social development through high sustainability goals. The building provides workspace for 800 employees and has a strong focus on sustainability and a healthy lifestyle.

NCC's head office is certified as BREEAM "Excellent", which means that it has been subject to stringent requirements with regard to energy, materials, the indoor environment and outdoor areas. Some examples of the measures taken include: the concrete structure from NCC's previous office has been crushed and used as filling material within the area, there is ground source heating and building-integrated photovoltaics. The timber used within the project has been produced in a sustainable manner, and the interior is in compliance with the emission requirements in BREEAM. The building's roof terraces also include greenery, bat boxes and a bee hotel.

– An important aspect of the creation of a healthy environment has been finding ways to stimulate increased physical movement and spontaneous meetings. Based on an initial vision, this has then been expressed architecturally in a num-

ber of ways, says Pi Ekblom, Managing Architect at White.

The building benefits from good spatial connectivity where parts of the structure have been opened up.

– *The openness of the building contributes to ease of orientation, a sense of security and an overview of the entire space*, explains Pi.

The office is divided into zones based on work tasks, which contributes to increased movement and spontaneous meetings. On the ground floor there is also a gym and a cycle parking facility with showers and drying cabinets. The most striking feature is the stairs, or "the vertical spine", in the centre of the building. The stairs are constructed in wood, and each floor has double stairways with walkways in between to facilitate both horizontal and vertical movement. The aim is to make it easy and enjoyable for people to move around in the building, and the results have been positive in terms of the number of steps measured with pedometers at the workplace; in many cases the number of steps taken has been doubled. The design of the stairs has also increased the feeling of connectedness and opportunities for spontaneous meetings.

“ *The openness of the building contributes to ease of orientation, a sense of security and an overview of the entire space.*

PI EKBLOM,
ARCHITECT

Many of NCC's employees spend a lot of time out in the field or at client premises, but they are now being attracted to the head office to a greater extent than before.

Inside the building, much attention has been given to the design of two atriums that have been built using a lightweight timber construction. One of them is open, while the other is glazed and offers a somewhat calmer environment.



– We have heard that employees are now meeting colleagues they barely even knew they had in the past, says Pi.

A number of studies have shown that exposed wood has the same positive effects on people as spending time in nature, for example a lower pulse and less stress. Studies have also been carried out that show that exposed wood in care facilities for the elderly increases the social skills of the residents and thus reduces dementia.

– The exact reasons for this are not known, possibly it is due to the structure and the colour. Wood is also a tactile

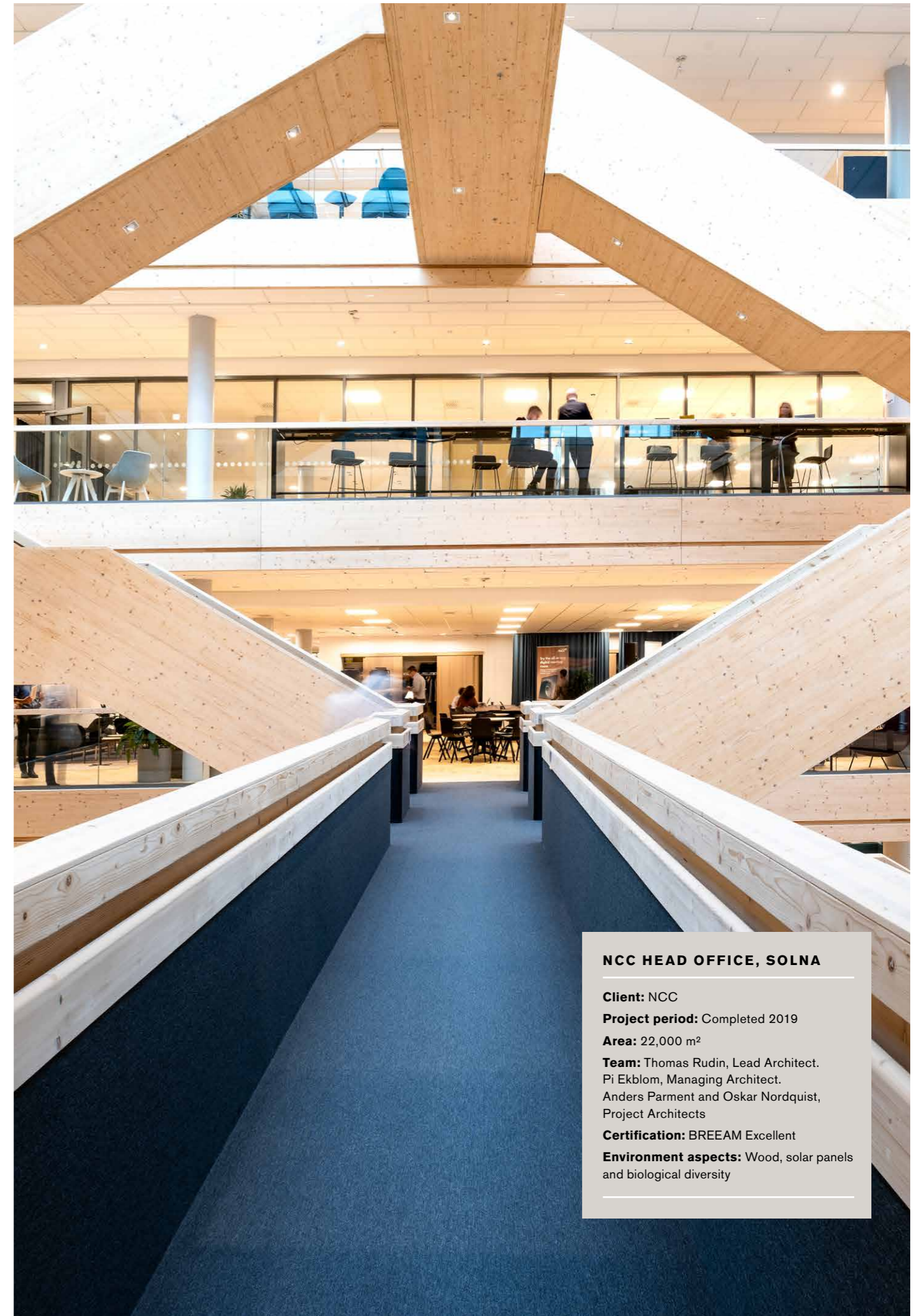
material, and we associate wood with furniture and home environments, which has a calming effect on us. It has to do with creating a sense of security and trust, which is one of the ideas behind the choice of material, says Pi in conclusion.

Louise Wall, sustainability coordinator for the project and Group Director for NCC's environmental group in Stockholm, agrees that the new head office promotes a healthy lifestyle.

– Yes, we have now implemented an activity-based work approach, and we can see that the level of movement is increasing and that employees are having other types of meetings than before, says Louise. The large stairway in the middle of the building, the bicycle parking facility and the gym are all features that provide a great boost and encourage more employees to move around and exercise. It also makes us a more attractive employer, she concludes.



Pi Eklblom is an architect and Head of Development for Timber at White. She has been one of the co-founders of the Timber network for architects "TränätverA" together with AIX architects and The Swedish Timber Construction Office (Träbyggnadskansliet).



NCC HEAD OFFICE, SOLNA

Client: NCC

Project period: Completed 2019

Area: 22,000 m²

Team: Thomas Rudin, Lead Architect. Pi Eklblom, Managing Architect. Anders Parment and Oskar Nordquist, Project Architects

Certification: BREEAM Excellent

Environment aspects: Wood, solar panels and biological diversity

KAROLINSKA UNIVERSITY HOSPITAL, HUDDINGE

Light Makes for Better Healthcare

Everyone is entitled to good health and access to high-quality healthcare. The design of the healthcare environment itself is also an important factor in the provision of good care. Daylight and greenery produce a sense of security and healthier patients. With an increased focus on design, we can create healthcare environments that contribute to increased wellbeing for patients and personnel alike.

December 2019 saw the completion of Chopin, the new extension to Karolinska University Hospital in Huddinge. The new building houses a brand new sterilisation unit, 23 operating theatres, eight intervention rooms and radiology. These activities have previously been conducted in dark premises dating from the 1970s. In order to create a better work environment, access to daylight has been a key point of focus in the project.

Research within evidence-based design has shown that the visibility of greenery and careful attention to details such as natural light and acoustics have a positive impact on the sense of security and lead to quicker recovery times for patients, and greater wellbeing for personnel. The follow-up of some of the healthcare projects in which White has been involved shows that there is a reduction in both the treatment time for patients and health-related staff absences, when the architecture is designed on the basis of people's needs.

– *The architectural design derives its inspiration from Huddinge Hospital's sustainable, rational structure, although with one important addition – consideration of people's senses. Natural light, park views, art and colours have all been key design tools. The soft relief facade is reminiscent of waves on a beach and interacts with the existing architecture,* says Caroline Varnauskas, Lead Design Architect at White.

– *The project has been characterised by fantastic stamina, commitment and competence at all levels. Together with the hospital personnel, we have succeeded in developing a highly specialised treatment environment that is not*

only functional but also beautiful, says Charlotte Ruben, Lead Architect for the Development at White.

All rooms have good access to natural light. A number of studies have shown that daylight increases wellbeing and can reduce the perception of pain and suffering, improve sleep and contribute to reduced stress for personnel. A fundamental principle throughout the entire project has been to make it attractive for personnel to work in these types of challenging and highly technological treatment environments; a vital consideration at a time when the issue of staffing within healthcare represents a major social challenge.

Good hygiene is a fundamental requirement in healthcare environments, not least in operating theatres where there is a major risk of care-related infections.

Good acoustics are also important; noisy environments disrupt the communication between personnel and with the patient, thereby increasing the risk of mistakes. The materials and details have therefore been designed to satisfy stringent hygiene and cleaning requirements while also creating a comfortable acoustic environment.

The colour and material concept aims to create a sense of calm and security.

The work environment in Chopin provides good conditions for the provision of high-quality healthcare in an efficient and long-term manner.

FREDRIK HAGEL,
CLIENT, LOCUM





KAROLINSKA UNIVERSITY HOSPITAL, HUDDINGE

Client: Region Stockholm. **Developer:** Stockholm County Council Property Development through Locum AB. **Contractor:** Skanska.

Planning and implementation: 2014–2019

Area: 29,000 m² new building and 8,000 m² redevelopment

Certification: Miljöbyggnad Guld (Sweden Green Building Council)

White has been the lead architect for the project from initial feasibility study through to completed building, including landscape planning.



1. The conference facilities have direct access to a beautiful atrium with an inviting long table that forms part of the artistic design.
 2. The well-lit stairways encourage daily exercise and contain works of art that surprise and add a poetic dimension.

Light ash is a recurring material in details such as stair railings, waiting rooms and staff areas. Each wing of the building has its own colour code inspired by the changing seasons, which increases ease of orientation in the building.

The project has been carried out with major focus on financial aspects and timetable. But is it really possible to combine good and health-promoting hospital design with a project delivery that is on time and within budget?

– Thanks to clear work processes with a high level of commitment from all involved, we have succeeded in creating a pleasant and sustainable healthcare environment on time and within budget, says Charlotte.

Birger Sundström, project manager at Skanska, uses the phrase “Maximum healthcare for lowest cost” when commenting on the project’s vision and goals:

– In order to achieve the vision, we have needed to think creatively at all levels and fully utilise all the different perspectives and competencies that have existed in the project. It has required an innovative approach to create a building that is as robust, easy to manage and flexible as possible while also focusing on the best interests of patients and personnel throughout the entire process.

Fredrik Hagel, project manager at the client Locum, describes the building as complex, with many technically advanced installations: – *The requirements on quality and functionality in the design of the premises have been very demanding. We, as the client, and the personnel who work in the building are extremely satisfied with the results. The work environment in Chopin provides good conditions for the provision of high-quality healthcare in an efficient and long-term manner.*



Caroline Varnauskas is an experienced architect with extra focus on complex projects within health care and higher education.



Charlotte Ruben is an architect with long experience in healthcare architecture. She is the Head of Business Development for Health Care in the international market and an experienced speaker at events all over the world.

Research Leads to New Opportunities



How can skate parks become more inclusive through design? In the research report "Inclusive skate facilities", White and the Swedish Skateboard Association have conducted a study together with non-normative skateboarders to make more people feel welcome.

In order to be successful, have knowledgeable employees and drive social development, it is crucial for us to have a culture that encourages curiosity, learning and exploration. With our investment in practice-based research and development, we are laying the foundations for assignments and new business opportunities that develop architecture and society in a more sustainable direction.

White Research Lab (WRL) is our organisation for practice-based research and development, with activities ranging from the testing of new ideas in projects to participation in major international research collaborations. In 2019 we allocated 11.2 million SEK to WRL and our external research foundation ARQ.

– *The core of WRL is our 16 competence networks that contribute to our own advancement, as well as that of our stakeholders, through the exchange of knowledge and best practice, says Anna-Johanna Klasander, Director R&D at White. During 2019 we started the new network Transformation and Circularity, which aims to build up expertise and new services with a focus on retention, reuse and design for circular architecture, she continues.*

– *It is of great importance to build up new knowledge on a long-term basis for being able to develop our projects as well as our business, states Anna-Johanna. An example is the Selma Lagerlöf Centre in Gothenburg, a project completed with over 90 percent reused furniture, that was nominated for the Architects Sweden "Golden Chair" award. This cutting-edge project was made possible by a number of years of research and development in the field of circular material and furniture flows.*

Our major R&D collaborations include the Södertörn Model, for which White has been the project manager. It is a collaboration project through which a number

of Swedish municipalities have worked together to develop methods for sustainable urban development.

We have also presented the latest developments within design involving natural light, digital design, climate-neutral construction, timber construction and healthcare architecture at national as well as international conferences.

Two of our PhD students completed their licentiate degrees during the year: one within healthcare architecture and one with focus on the impact of legislation on architecture. Another two colleagues got external funding to start their PhD studies.

One important event during the year was the release of the book *Make Sense*, in which White presents 80 relevant projects along with 20 examples of how research and development contributes to our activities.

White is now launching a new Research Programme for the period 2020–2023. Our research, development and innovation will focus on two R&D areas that aim to address some of society's greatest sustainability challenges:

Circular architecture focuses on transformation, design for reuse, recycling and change processes that aim at retaining and redeveloping instead of replacing, and thus helping to achieve a circular value chain.

Healthy living environments focuses on the design of buildings, public spaces and robust living environments that can meet the challenges of climate change while also supporting people's physical and mental health.



Our book *Make Sense* presents 80 recent White projects and 20 research projects.

Norm-creative and Inclusive Architecture

Cities exist for everyone, which means that they also need to be designed to cater for many different needs. At present there is an imbalance in how people use public spaces in our cities. Architecture cannot singlehandedly resolve all of today's inequalities in society, but it can definitely contribute to the creation of public spaces where more people feel welcome.

For several years now, White has put the limelight on the issue of norm-creative design, and some of our foremost WRL studies are based on the question of how we can create more inclusive environments.

– It is a question of democracy that everyone should be able to utilise and derive benefit from our shared public spaces. By involving people with different needs in the planning process, we create better conditions for solutions that make more people feel welcome, says Teresa Lindholm, Head of Development for Social Sustainability at White.

As early as 2015, the *Places for Girls* project was initiated based on studies that show that girls do not utilise our cities' public spaces as much as boys. Workshops were held at which an urban environment was designed for girls, by girls. The lessons learned have now been spread further, for example to London, where we have involved girls under the slogan #placesforgirls. During 2019, within the framework for Global Utmaning's project Urban Girls Movement*, we have worked with young women in Botkyrka, Stockholm. Their vision for Fittja town square was a brighter town centre with places for socialising. A full-scale cubic pavilion was built, with seating that enabled people to be involved without having to be in the middle of the square. The project has led to #Urban Girls Handbook, a guide for inclusive, norm-creative urban planning and design.**

But equitable urban planning involves more than simply making people feel welcome. It has to do with issues such as health, wellbeing, security and having access to activities and recreation.

The Swedish Skateboard Association, for example, noticed that no less than 78% of its members were men. Together with non-normative skaters, a number of workshops were held to look at how to attract more and different types of people to the activity. Good accessibility, spatial variation, different skating surfaces and design of strong character are all factors that improve conditions for underrepresented groups to feel comfortable in skate parks.

Libraries are important non-commercial meeting places that attract many different kinds of people. They are often centrally located in our cities and can be a neutral meeting place for individuals of all ages and from different levels of society. The fundamental task of libraries is to be open to all, although this means that there also needs to be a broad choice available. When Malmö City Library gave White the assignment of creating a new youth section, KRUT, with focus on equality, young people were involved as co-creators in terms of both design and content. This turned out to be a successful approach, as the rooms have become a popular meeting places that attracts many young people.



For a year, girls and young women between the age of 16 and 25 from Botkyrka have created their own vision of what the city centre could look like for being a place where they feel welcome.

* Urban Girls Movement's thesis is that if a city is planned for girls, it works for everyone.

** WRL report: *Inclusive Skate facilities* (in Swedish), www.whitearkitekter.com

*** Read more in the book "To design an equal space" (in Swedish), www.whitearkitekter.com

“
It is a question of democracy that everyone should be able to utilise and derive benefit from our shared public spaces.

TERESA LINDHOLM, HEAD OF DEVELOPMENT FOR SOCIAL SUSTAINABILITY AT WHITE.

GASCOIGNE ESTATE LONDON

From Outdated Estate to Green Neighbourhood

A core aim of the UN Sustainable Development Goals is to reduce inequalities and create a fairer society for all. Cities should be equitable, safe and inclusive. Their design is of crucial importance for people's health and quality of life. Public spaces can be used to encourage people to meet, increase their wellbeing and – ultimately – strengthen democracy.

As an increasing percentage of the world's population lives in cities, society is faced with challenges such as the risk of increased social divides, housing shortages and strained local ecosystems. The level of ill-health, both physical and mental, is also increasing in society, and it is important to stimulate a sense of belonging and encourage people to be more physically active. If urban development is undertaken with a holistic approach, the challenges can instead become starting points and opportunities for improving the design of our cities. This is the basis of White's work on a placemaking strategy for the Gascoigne Estate in Barking, one of London's largest housing estates.

– *White has been working with housing development on the Gascoigne Estate for just over two years now, and we were recently given the assignment of developing a Placemaking Framework for the entire area, says Jake Ford, Lead Landscape Architect at White. Our client BeFirst wants to apply a holistic approach and make the area sustainable through a transformation from Estate to Neighbourhood, he adds.*

Overall, the project involves the transformation of an outdated housing estate to an environment that is designed for people's different needs and where everyone can feel welcome.

The Gascoigne Estate has faced major social problems and has long been neglected when it comes to investment. BeFirst originally specified four goals for the strategy: *Health and Wellbeing, A Coherent Identity, Connectivity and Walkability and Public Space*. In addition there are also goals concerning public services and climate impact.

– *The various goals are often inter-related. For example, a park with trees can help to manage rainwater, clean the air, and facilitate biological diversity, while also contributing to activity, movement and social interaction, says Jake.*

BeFirst also wants to create a car-free neighbourhood. The strategy will therefore be based on patterns of movement between locations such as workplaces, schools and the underground station, as well as parks and a river. By creating connecting routes between these locations and developing a range of playgrounds and green areas along walkways and cycle paths, conditions are created for activity and security. In England, as in many other countries, there are major problems with obesity and other health problems related to the fact that people are not active enough. It is therefore a high priority to plan urban development in a manner that encourages increased movement and physical exercise.

– *It is quite radical to remove all traffic from an area. It requires a change in urban design whereby streets are adapted for use by people, not vehicles. It must be possible to walk through the area in 15 minutes, otherwise it becomes difficult to get everyday life to function effectively, says Jake.*

As a consequence of the reduced number of vehicles, no garages are being built under the buildings and courtyards. This also reduces the amount of hard surfaces, which contributes to the climate-proofing of the area. There are also plans to plant a large number of trees.

– *There must be safe outdoor environments, and things*

JAKE FORD, LEAD
LANDSCAPE ARCHITECT





to do there. We want to contribute to the development of an area where residents perceive a close relationship between housing and activities in the buildings adjacent to public spaces. We will achieve this by creating active streets out of major roads and offering opportunities for recreation, sport, experiencing nature, and other outdoor activities, says Jake.

There are many schools on the Gascoigne Estate, including England's largest primary school. English schools are often closed environments with an entrance to which visitors must report, and a high fence around the school buildings. The co-utilisation of the premises is also limited. Opening up the school environments is therefore an important part of the strategy to create environments that are available to everyone. Instead of just going to school and then going straight home again, the



aim is to create environments that provide conditions for children to spend time outdoors, not least for girls. At the same time, it requires a change in attitude and behaviour to transform schools into something other than a closed environment.

– The holistic approach is an important aspect of the strategy. The work is based on experiences from Sweden and other Nordic countries, where there are similar challenges when it comes to creating space for children and their various needs, creating conditions for activity and exercise, as well as creating a sense of security. The experiences and lessons learned from the Gascoigne Estate will be of great benefit in our future projects, regardless of what country they take place in, concludes Jake.

Jake Ford is a landscape architect who focuses on landscape design in urban planning projects, both in Sweden and internationally.



**GASCOIGNE ESTATE,
LONDON, ENGLAND**

Client: Be First

Project period: White has been working with housing development on the Gascoigne Estate since 2017. The Placemaking Strategy will be presented in May/June 2020.

Team: Jake Ford, Lead Landscape Architect

Sustainability: Health and social wellbeing, Security, Ecosystem services, Biological diversity

MÖLNLYCKE CENTRE

Creating Value with Ecosystem Services

Many of today's cities are facing environmental problems, such as air, land, water and noise pollution, and lack of biological diversity. Furthermore, the effects of climate change are becoming more evident and our cities are being forced to cope with increasingly greater challenges in the form of floods, heatwaves and droughts. At the same time, those who live in cities are suffering increased physical and mental ill-health. Through enhancing and developing various ecosystem services, we can create a thriving and sustainable environment that also contributes to improvements in our health and wellbeing.

Mölnlycke in the municipality of Härryda is expanding rapidly. In conjunction with the development of the Mölnlycke town centre, the Municipality wanted to make their first strategic investment in ecosystem services. These are usually grouped into four main categories: *provisioning, regulating, cultural and supporting* ecosystem services.

– Sustainable Development Goal 15 means that values associated with ecosystems and biological diversity should be integrated into national and local planning and development. The Swedish government has therefore given municipalities the assignment of integrating urban greenery and ecosystem services into the planning of urban environments by 2025, explains Tania Sande Beiro, Sustainability Consultant at White.

The area already has a strong green identity and rich biological diversity, which the municipality wanted to preserve and enhance in conjunction with the development. White's work involved the use of a systematic analysis to develop proposals for how ecosystem services can be integrated in order to enhance the area.

– Many organisations are aware of how important ecosystem services are for the quality of people's living conditions, but they don't have the right tools to enable them to work with such services strategically and assess which short-term or long-term values they contribute to, says Tania.

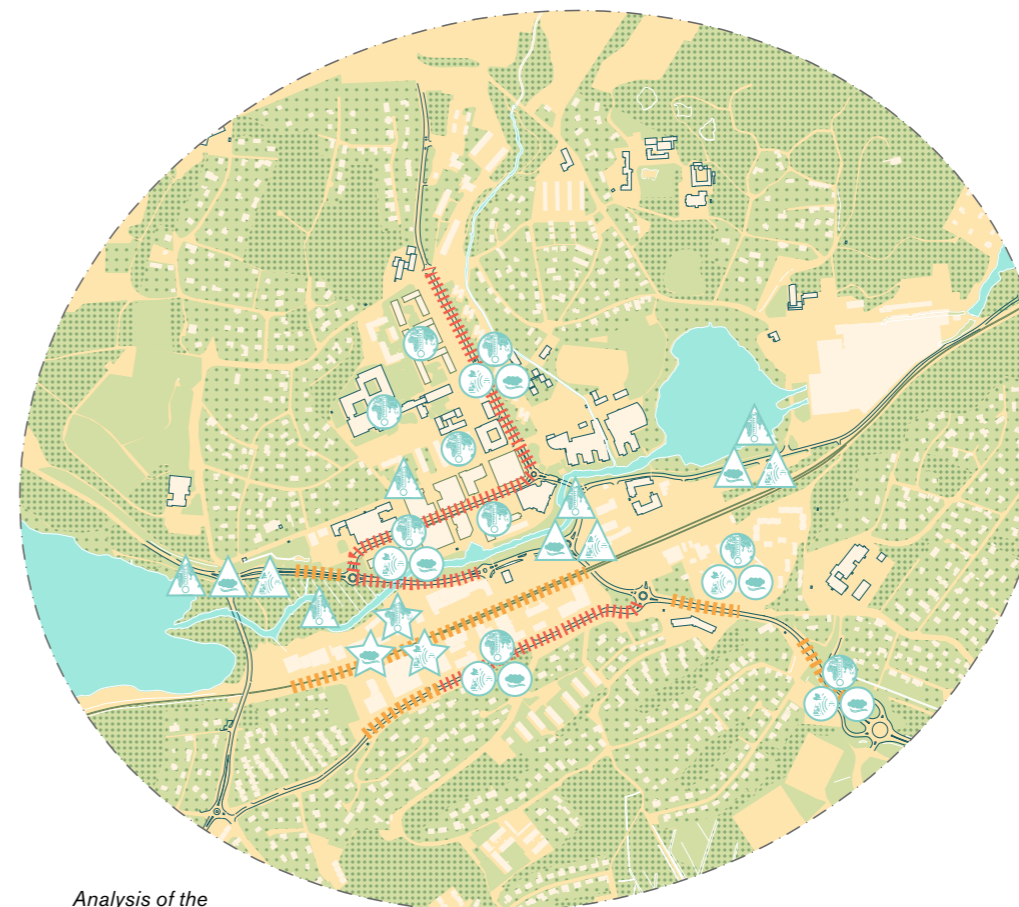


The work process in Mölnlycke was based on White's many years of experience from the development project c/o City, as well as new national guidelines. Step one of the process involved an analysis of existing natural values and ecosystem services, with a focus on the quality of the existing provision, and future needs. Step two involved an evaluation regarding the services that should be protected, enhanced and preserved. Finally, in step three, proposals were submitted regarding design and implementation.

The results highlight the recreational opportunities that can be created by developing existing parks and activity areas, and for reducing noise by planting trees and bushes in strategic locations, as well as the need to develop a strategy for the preservation of areas with rich biological diversity. The work involved landscape architects, ecologists, planning architects and sustainability specialists from the municipality and White.

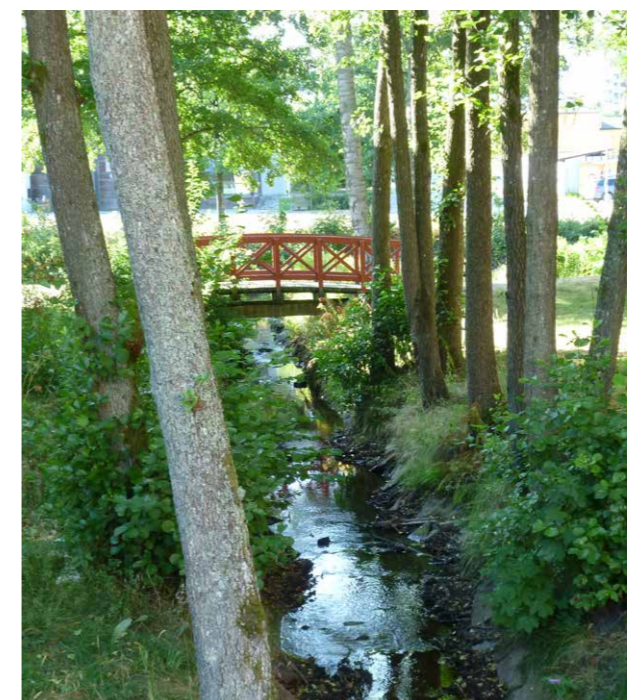
– The collaboration between the various parties involved is an important aspect of the work, says Tania. The next step is to implement the proposals into relevant plans and agreements. The results from this project will form the basis for how the municipality can work with the planning of ecosystem services in the future.

Tania Sande Beiro is Head of Development for Environmental Sustainability at White. She is passionate about developing cities and societies that can handle the sustainability challenges of our times.



- Building with community function
- Building with public function (ex. shop) and housing for the elderly
- Hard surfaces
- Road
- Railway
- Ecosystem service value for noise, air purification and microclimate control
- Level 1 – lawn
- Level 2 – lawn + field layer, shrubs or trees
- Level 3 – lawn + trees + shrubs or field layer
- Recommendations
- Create
- Protect
- Strengthen
- Compensate
- Strengthen with new trees or shrubs
- Create trees or shrubs

Analysis of the existing natural values and ecosystem services, with a focus on the range and quality of the existing provision, and future development needs.



“ Many organisations are aware of how important ecosystem services are for the quality of people's living conditions, but they don't have the right tools to enable them to work with such services strategically. ”

TANIA SANDE BEIRO, SUSTAINABILITY SPECIALIST

ANALYSES OF ECOSYSTEM SERVICES

Location: Mölnlycke Centre, Härryda
Client: Härryda Municipality
Year: 2018–2019
Team: Tania Sande Beiro, Sustainability specialist, Felicia Sjösten Harlin, Ecologist, Hanna Ahlström Isacson, Landscape architect
Area: approx. 400 hectare



Digital Innovation for Sustainable Architecture

During 2019, White expanded its investment in digital services by starting Digital Business, a new interdisciplinary business unit that gathers all of White's digital services under one roof. The aim is to improve our ability to create tomorrow's sustainable architecture, and to offer new opportunities for our clients.

The construction industry is currently undergoing an explosion in digital development, with new methods for collaboration, project design and planning, production and management. Digital innovation is crucial to the industry's ambition to create sustainable buildings and societies. *Digital Business* represents a further development of the services White offers within Building Information Modelling (BIM), computational design, visualisation and sustainability analysis. By bringing all these disciplines together within the same business unit, we can enhance value-creation between our various areas of competence.

– There are tremendous opportunities available through the development of digital business methods in line with White's vision and values concerning quality and sustainability. The digital models for analysis, collaboration and management that we currently create in our assignments are products and services in their own right. By offering digital services and platforms that deliver value over the entire life cycle – through design, production and management – we create new added value

for our clients and strengthen our market position, says Petter Green, Director Digital Business at White.

White is already at the forefront of developments regarding digital services and tools. Within the field of BIM we offer strategic advisory services, coordination and modelling. InForm is our service platform for sustainable buildings and cities and includes daylight analyses, energy calculations and indoor climate, solar and wind simulations. We are also developing models for life cycle analyses and climate calculations in order to be able to create climate-neutral buildings.

Digitalisation also entails new possibilities to create buildings and cities on the basis of people's needs and behaviour. With informed design we can create architecture that delivers in multiple value dimensions, and our expertise within computational design enables us to develop project-oriented digital tools that facilitate creative design solutions and complex forms of architectural expression. We also work with visualisation in various ways, through traditional visualisation methods, film, VR and AR.

”

Digital innovation is crucial to the industry's ambition to create sustainable buildings and societies.

PETTER GREEN,
DIRECTOR DIGITAL
BUSINESS

STUDENT BUILDING VALLA

An Attractive and Sustainable Campus

It is often a creative challenge to balance high environmental goals with functionality and an attractive design. Computational design is the key to the creation of tomorrow's sustainable architecture, as it contributes to the optimisation of materials, climate and energy while also leading to innovation with regard to better performance and more expressive forms of architecture.

When developing the new Student Building on Campus Valla at Linköping University, White wanted to create an attractive environment that would stimulate students and researchers to engage in meetings and discussions, and develop new ideas. At the same time, it was important to achieve a result that was at the forefront of sustainable design. Through a digital design process, the building has been optimised in relation to energy and natural light, and 75 percent of the electricity needed for activities in the building comes from solar energy.

White commenced work on the Student Building in 2014 after being awarded the assignment by Akademiska Hus. The facilities contained in the new building include study places, group rooms, a library, a book depository, as well as test and educational environments.

– *Akademiska Hus and Linköping University had a common vision for the Student Building, with a focus on attractiveness and comprehensive services for students, says Linda Mattsson, Lead Architect at White. Sustainability is a strong profile for Linköping University, so it's important that the building not only is sustainable but also looks sustainable, she adds.*

The Student Building functions as an entrance to the entire campus area and is a landmark that has now become a creative and innovative environment for the many people who use it. The project has also been characterised by a high level of participation and dialogue with the users.

The building is certified in accordance with Sweden Green Building Council's Miljöbyggnad Gold certification, which imposes stringent demands on everything from energy use and choice of materials to the creation of healthy, attractive environments.

– *With the Student Building, Campus Valla has gained a new landmark building and meeting place for students. Right from the initial planning phase, we and Linköping University shared the ambition that the building would qualify for Miljöbyggnad Gold certification, and the achievement of this objective is proof that, through good collaboration, we have succeeded in creating a building that is truly at the forefront of sustainability, says Kerstin Lindberg Göransson, CEO of Akademiska Hus.*

– *A well-known challenge for anyone involved in the design and construction of a building is the fact that objectives concerning the indoor climate, low energy consumption and high-quality natural light often conflict with each other. The aim is always to find the best solution, although sometimes that is barely possible, especially when working with a limited budget and stringent environmental requirements, says Linda Mattsson.*

”

In order to meet tough energy targets and reduce climate impact, it is necessary to integrate the skills and knowledge of many disciplines at an early stage of the project.

LINDA MATTSSON,
LEAD ARCHITECT

could satisfy all of the conflicting requirements, iterative digital processes were used. By studying daylight patterns and the sun's rays, it was possible to optimise the facade in terms of window sizes, which vary depending on the size of the rooms and the different directions in which they face. This ensures that there is sufficient natural light where it is needed most,





**STUDENT BUILDING
LINKÖPING UNIVERSITY**

Client: Akademiska Hus
Construction period: 2017–2019
Team: Linda Mattsson, Lead Architect
 Ola Strandell, Project architect
Area: 16,140 m²
Energy use: Approx. 50 kWh/m²/year.
 1,200 m² solar panels.
Environment: 5% solid wood in the
 construction, facades with 80% solid
 wood elements
Certification: Miljöbyggnad Gold
 (Sweden Green Building Council)
R&D: "Development of an assessment
 method for daylight quality: Early design
 phase simulations of Studenthus Valla in
 Linköping" / WRL

The facade has been optimised in terms of window sizes, which vary depending on the size of the rooms and the different directions in which they face.

that the sunlight doesn't make the premises too hot, and that the energy need is low. In addition to the project's architects, this work also involved HVAC experts, daylight specialists, energy coordinators and glass consultants.

– In order to meet tough energy targets and reduce climate impact, it is necessary to integrate the skills and knowledge of many disciplines at an early stage of the project. As architects we will need to work in an even more interdisciplinary manner, which naturally imposes extra

demands on our ability to manage processes and on cost control and our own skills development, says Linda.

In addition to the facade solution described above, the project also involved a number of other sustainable solutions, including 1,200 square metres of solar (PV) panels. Furthermore, the storey-high facade elements were made from solid wood, a relatively new construction technique, which in this case was developed in collaboration between the architectural team and the facade supplier. This makes the Student Building one of the largest buildings in Sweden with this type of facade solution.

The level of ambition regarding daylight quality has also been high. The requirements for Miljöbyggnad certification focus on the daylight factor, which is primarily a quantitative measurement, but the work on the Student Building has also revolved around the quality of the light, for example how daylight is affected by various materials, and with soft transitions between the dark and light parts of the premises.

Linda Mattsson is an architect with expertise in large, complex projects, especially within higher education, research, innovation and healthcare.



Awards and Recognitions

During 2019 we won several international awards, and it is extremely gratifying to see that our architecture is also gaining attention beyond our home market. At the World Architecture Festival Awards (WAF), often referred to as the “World Championships in Architecture”, we received two awards; one in the category “Future Project – Culture” for the GoDown Arts Centre in Nairobi, Kenya, and one in the category “Future Project – Health” for the Nuuk psychiatric clinic on Greenland. The extension to Carlanderska Hospital in Gothenburg earned us several awards during the year, for example the European Healthcare Design Award in the category “Design for Adaptation and Transformation”, and ICONIC AWARDS: Innovative Architecture in the category “Public/Culture/Education”.

Psychiatric clinic in Nuuk, Greenland – healing architecture in a dramatic place. The new clinic balances quiet and secure architecture in harmony with the Greenlandic landscape and the existing buildings.



1.



2.



3.



4.

AWARDS 2019

- Psychiatric Clinic, Nuuk, Greenland- WAF Awards 2019 - 'Future Project - Health'
- GoDown Arts Centre, Nairobi - WAF Awards 2019 - 'Future Project - Culture' (4.)
- The City of Health, Ängelholm - The Healthcare Building Award 2019
- Forumtorget, Uppsala - Architecture Masterprize - 'Small Scale Landscape Projects' (2.)
- Carlanderska hospital - ICONIC AWARDS 2019: Innovative Architecture (1.)
- Carlanderska hospital - European Healthcare Design Awards 2019 'Design for Adaptation and Transformation'
- Swedish Energy Agency, Eskilstuna - The Office of the Year 2019 (3.)
- White Arkitekter- Social Actor of the Year 2019, category sustainability
- Housing, Fallskärmen 5, Örebro - Nominee - Örebro Building Awards 2019

Following up Our Goals

White's core business is sustainable architecture, design and urban development. Our aim is to contribute to the development of a sustainable society and to create long-term value. We have a clear mission: *"To enable sustainable life through the art of architecture."* By setting goals and carefully managing our activities towards the achievement of these goals, we challenge ourselves and our stakeholders.

VALUES

Fundamental to our activities is our *Owner Directive*, which states that our guiding principles are: *to be explorative and responsible and to act with respect and participation, in everything we do.*

Furthermore, our Code of Conduct for Corporate Sustainability, which is based on the Ten Principles of the UN Global Compact concerning human rights, labour, environment and anti-corruption, is an important guide for how we take responsibility, how we act and the expectations we have on ourselves and our business partners. We also have three policies: Employee Policy, Quality Policy and Sustainability Policy.

Naturally we follow applicable laws and industry requirements, although we also tackle society's challenges and long-term goals with our own high ambitions. We want to – and we have the ability to – impact the world around us in many different ways.

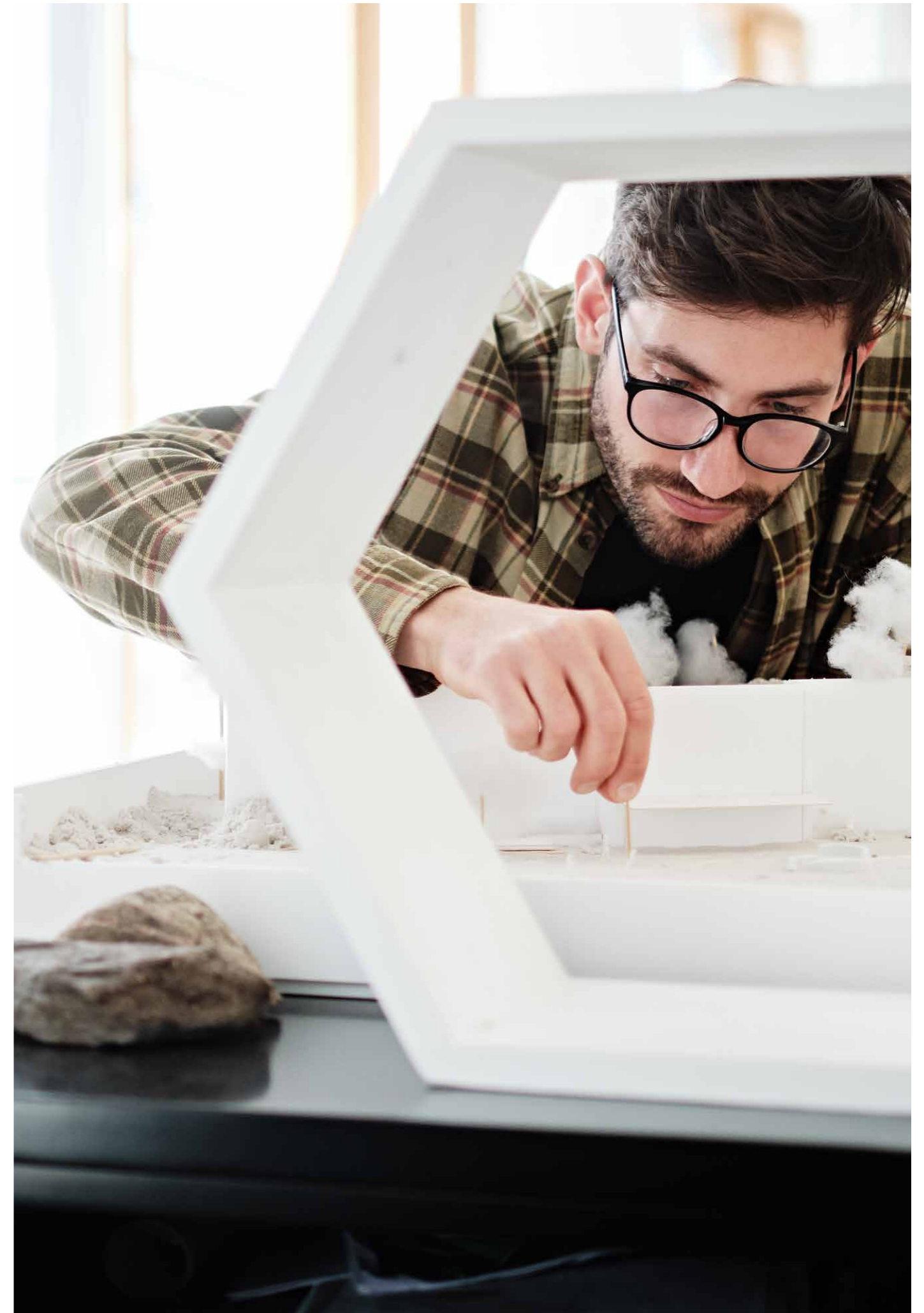
WHITE WORK

To support us in managing our activities and our assignments we have our business system *WhiteWork*, which has been certified in accordance with ISO 9001 Quality Management and ISO 14001 Environmental Management for many years. *Kvalitetsbygget ("Building quality")* is our internal organisation for maintaining and developing *WhiteWork*, and we have a comprehensive level of staff involvement, with quality managers in every working group who assist with continual training and education, and internal audits that are performed twice a year. Measurement of the company's development in relation to quality and environmental performance takes place continuously and is followed up annually at the Management Review meeting.



We will, as one of Scandinavia's leading architecture firms, fulfil high standards and demands, regarding both the work processes and its results.

FROM WHITE'S
QUALITY POLICY



THE TEN PRINCIPLES OF THE UN GLOBAL COMPACT

HUMAN RIGHTS	LABOUR	ENVIRONMENT	ANTI-CORRUPTION
<p>PRINCIPLE 1 Businesses should support and respect the protection of internationally proclaimed human rights; and</p> <p>PRINCIPLE 2 make sure that they are not complicit in human rights abuses.</p>	<p>PRINCIPLE 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;</p> <p>PRINCIPLE 4 the elimination of all forms of forced and compulsory labour;</p> <p>PRINCIPLE 5 the effective abolition of child labour; and</p> <p>PRINCIPLE 6 the elimination of discrimination in respect of employment and occupation.</p>	<p>PRINCIPLE 7 Businesses should support a precautionary approach to environmental challenges;</p> <p>PRINCIPLE 8 undertake initiatives to promote greater environmental responsibility; and</p> <p>PRINCIPLE 9 encourage the development and diffusion of environmentally friendly technologies.</p>	<p>PRINCIPLE 10 Businesses should work against corruption in all its forms, including extortion and bribery.</p>

STAKEHOLDERS

We need to always stay up to date regarding developments in the world around us, in order to be able to develop as a company, prioritise, and take responsibility within our sphere of influence. Our stakeholders include users, property owners, consultants, entrepreneurs, municipalities, organisations, academia, media and our employees (who are also our owners). Views on potential areas of improvement are captured in many different ways: follow-up of assignments, customer surveys, market surveys, performance appraisals, employee surveys, seminars. We have also implemented a whistleblower function via our website. In addition, we follow up our social media, which is the quickest way of reaching our stakeholders and receiving quick feedback about what we are doing. We did not perform a market survey during 2019.

BUSINESS PLAN 2017-2019

As of 2020 we have commenced a new business plan that stretches until 2023. This means that we are now in a position to summarise the previous business plan (for 2017-2019), and we can see that we have succeeded in achieving most of our goals. The three strategies have been to EXPLORE through practice-

based research, CHALLENGE with new perspectives that lead to sustainable solutions, and INSPIRE with evocative architecture. A summary of some of the goals is presented in the table on page 69.

The most visionary goal was to achieve 30 carbon-neutral projects by 2019. As there was a lack of a Swedish definition or generally adopted work methods at the time, we have put a lot of effort into development for achieving this goal. Due to long design processes, we have only completed one such project within the period (which was not just carbon-neutral but was in fact climate-positive). It has also been a challenge to get our clients to adopt the same goal. Having said that, we now have 20 or so ongoing projects with the goal of aiming for carbon neutrality, which is an enormous step in the right direction. Another goal regarding new business models turned out to be difficult to follow up, although during the period in question we have developed business strategies for circular interior design projects, started the Digital Business unit, managed projects in accordance with the "Sustainable Contract" strategy, increased focus on cost control and worked with models for sustainable assessment from an economic perspective.



White inspire with emotive architecture, and sustainability is a driver for creativity in all our projects.

FROM WHITE'S SUSTAINABILITY POLICY

FOLLOW UP ON BUSINESS GOALS

	OVERALL GOALS UNTIL 2020	RESULTS 2019	STATUS
<p>RESEARCH AND DEVELOPMENT See pages 46-47.</p>	The majority of our research is incorporated into our projects and is strengthened through external collaborations.	21 internal R&D projects. 8 with external cofinancing, including ARQ.	✓
	Our research is available and spreads externally.	16 international conferences. 6 reports 2 licentiate theses	✓
<p>EMPLOYEES See pages 36-37.</p>	Our employees have undergone White's mentoring program, 5 % as mentors and 5 % as mentees.	Objective achieved.	✓
	We have further developed new methods for sharing knowledge internally.	E-learning has begun. Seminars are filmed and shared on the Internet.	✓
<p>ENVIRONMENT AND CLIMATE See pages 14-17 and 26-29.</p>	We have participated in 30 zero carbon projects.	We have completed one carbon negative project. 20 ongoing projects with goals of being carbon neutral or negative.	✓
	We have reduced carbon dioxide emissions for energy, travel, purchases and waste by an average of 30 % for each category compared with 2014.	A total of 69% lower CO ₂ e per annual employee compared with 2014. All emissions are climate compensated.	✓
<p>MARKET AND ECONOMY</p>	We win 10 important competitions a year.	Won 11 competitions.	✓
	New business models contribute 5% to our turnover.	No financial summary, but new types of assignments within circularity, design, sustainability management. New business unit Digital Business.	✓

Objective has been achieved: ✓
Objective is not yet reached: ✓

Ethics and Risk Management

A strong level of social involvement and an ethical, democratic approach are a fundamental part of White's company culture. These days, failure to take responsibility for how business activities affect people or the environment is associated with major risks. Through our assignments we promote sustainable development and we believe it is our responsibility to do so. And it is our responsibility to do so.

CODE OF CONDUCT

White's *Code of Conduct for Corporate Sustainability* is our guide for how we take responsibility and act, as employees and as a company, as well as the expectations we have on ourselves and our business partners. Our approach is based on our undertaking to apply the Ten Principles of the UN Global Compact concerning human rights, labour, environment and anti-corruption.

Our employees are also expected to follow the Swedish Construction Sector's ethical rules and Architects Sweden's ethical rules. These rules mean that we oppose all forms of corruption, strive for competition on equal terms, and promote social responsibility in the value chain.

During 2019 we have implemented a whistleblower function, which can be utilised by external stakeholders as well as our employees. Suspicions of improprieties or deviation from our Code of Conduct can be reported on our website. During the past year we have not received any reports of such circumstances or involvement in any form of corruption.

RISK ASSESSMENT

The company's comprehensive risk analysis is reviewed annually and is followed up by the Board of Directors.

The most important risk aspects are those associated with our employees,

the economic situation, economic development and the performance of assignments. We perform continuous follow-ups of key aspects such as our employees' work situation, market developments, KPIs and assignment results.

Our risk assessment, with regard to sustainability and prevention of risk, is presented in the table on page 71. In our assessment, the risk of our activities contributing to directly negative impact from a sustainability perspective is low. Our assignments present us with our greatest opportunity to prevent sustainability risks, which is why a sustainability analysis shall always be performed (see page 14).

RISKS IN THE SUPPLY CHAIN

To ensure that our business partners act in accordance with our values, we have a *Code of Conduct for Customers and Suppliers*, which is in line with our *Code of Conduct for Corporate Sustainability*. When signing agreements, our partners must certify that they have understood the meaning of, and undertake to comply with, our Code of Conduct. An initial evaluation takes place via tender analysis, project analysis, purchasing criteria and sub-consultant assessment. The monitoring and follow-up process then involves interviews with our major suppliers and spot-checks of sub-consultants.

ANALYSIS OF ASSIGNMENTS

Risk analysis for assignments is performed in connection with the tender and contract process and involves an assessment based on our business goals, Code of Conduct for Corporate Sustainability, sustainability goals and economic conditions. Furthermore, for assignments outside Sweden, Norway and Denmark, a country risk analysis is always performed based on the aspects of democracy, human rights and corruption as well as business risks associated with the specific country. The analysis is based on evaluations by Freedom House, the Swedish Export Credit Agency and Transparency International.



White takes limited and controlled economic and operational risks.

FROM WHITE'S RISK POLICY

RISK ANALYSIS

RISK ASPECT	CONSEQUENCE	RISK MANAGEMENT
CLIMATE AND ENVIRONMENTAL IMPACT We work actively to prevent negative environmental impact, both in our business activities and in our assignments.	In our assessment, the risk of our company contributing to directly negative environmental impact is low. Our strength within sustainability contributes to a high level of confidence in us and our brand. Major opportunities to exert influence exist in our assignments.	Requirements regarding travel, purchasing, suppliers and sub-consultants; Sustainability analysis shall be performed in assignments; Competence development via White Academy and White Research Lab; Specialists within climate and environment.
SOCIAL RESPONSIBILITY Our business activities shall not cause, contribute to or be associated with violations of human rights or corruption.	This risk is assessed to be low, although the consequences could be serious for the company, e.g. damaged reputation/brand, as well as economically/legally.	Code of Conduct and ethical rules for employees; Code of Conduct for customers and suppliers; Country risk analysis for assignments outside of our home market.
BUSINESS PARTNERS In their tiers of the supply chain, our suppliers and business partners shall not cause or contribute to violations of human rights, corruption or negative environmental impact.	The consequences could be serious, not only for White, but also for the other parties or the context affected.	Procedures for tender evaluation and project and sustainability analysis; Code of Conduct for customers and suppliers, purchasing procedures and supplier assessment; Sub-consultant assessment.
EQUAL TREATMENT All employees shall be treated equally and with respect. This also applies to our business partners and assignments.	The consequences could be serious, not only for those affected, but also for the company's attractiveness and brand.	Code of Conduct for employees; Code of Conduct for customers and suppliers; Employee Policy; Plan for equal rights and opportunities, with continuous follow-up.
SKILLS AND KNOWLEDGE Having the best employees, and providing them with conditions for constant development, is crucial to the success of our company and the quality of our assignments.	Good opportunities for development make the company attractive. Shortcomings in assignments and damages could lead to losses and a lower level of confidence and trust.	White Research Lab; White Academy and mentoring programme; Performance appraisals and employee surveys.
WORK ENVIRONMENT Our workplace shall be sustainable from a work environment and health perspective. Our employees shall experience a good balance between work and leisure time.	A good work environment, pleasant working conditions and strong leadership are factors that are crucial for the company's attractiveness. The consequences of a poor work environment or lack of balance could be serious, not only for the individual employee, but also for the company as a whole.	We offer an occupational health service and health and wellbeing initiatives; Leadership courses; Performance appraisals for all employees, and employee surveys.

Investments and Results

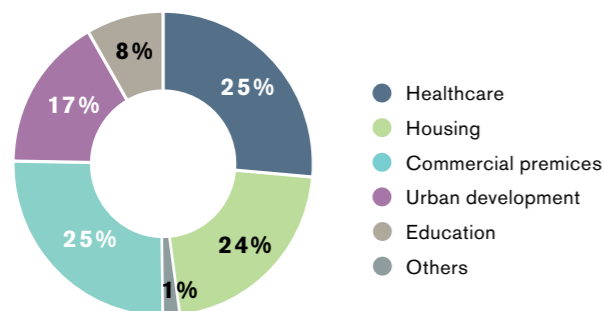
During 2019 we were affected by a slowdown in the Swedish market. On the other hand, our studios in Oslo and London are growing, and we have received a number of new assignments in Canada, Germany and East Africa. Almost ten percent of our turnover in 2019 was generated in countries outside Sweden. It is also gratifying to be able to look back on so many rewarding completed projects, a number of which have been recognised with nominations and prestigious awards.

Our 2019 results were lower than those of recent years, with a continued slowdown in economic activity leading to a reduction in utilisation rates. There has, however, been a high level of activity in the Öresund region, and our assignment involving the new hospital area in Malmö has been an important project for the whole of White. Despite the downturn in earnings, we have maintained a high level of internal investment, in particular within digitalisation, research and development, and competitions. During 2019 we created a new organisation for digital development and started a new business unit, Digital Business. Our investments in research and development continue to be of great importance given that we are a knowledge-driven company. We won several

competitions during the year, both nationally and internationally. Not only do these competitions provide us with an opportunity to work on the most interesting assignments, they also allow us to test new ideas.

The net operating profit for the Group, before and after foundation provisions, amounted to SEK 12.4 million and SEK 9.4 million respectively. This equates to a net operating margin of 2% and 1% respectively. The Group's equity ratio was 38%, and liquidity was good, with a cash flow of 196%. 2,551 new assignments were registered during the year (compared with 2,352 assignments in 2018). The largest market sectors in terms of share of new order value were healthcare, housing and commercial premises.

MARKET AREAS FOR NEW ASSIGNMENTS 2019
(percentage of orders)



The New Region Building (Regionens Hus), Gothenburg: The project has created new premises for the Västra Götaland municipality's operations and includes both a new tower and the rebuilding of an old train station. The project is certified with the Swedish building certification, Miljöbyggnad, level Gold.

FINANCIAL INFORMATION

	2019	2018	2017	2016	2015
FROM THE INCOME STATEMENT*					
Operating revenues	812 779	870 675	964 010	892 156	824 278
Operating profit	9 435	27 868	38 909	60 280	42 605
Profit after financial items	9 837	27 641	40 003	60 307	47 020
Tax on profit for the year	-4 206	-15 176	-8 075	-13 583	-11 147
Profit for the year	5 631	12 465	31 928	46 724	35 873
Minority share of profit for the year	0	1	8	-272	-83
Profit for the year	5 631	12 466	31 936	46 452	35 790
FROM THE BALANCE SHEET*					
Intangible fixed assets	0	0	29	141	666
Tangible fixed assets	2 382	3 881	5 473	9 558	20 901
Financial fixed assets	484	161	728	985	1 190
Current receivables	291 574	284 204	402 295	303 560	271 188
Cash and bank balances	38 059	49 915	36 586	57 076	40 400
Total assets	332 499	338 161	445 111	371 320	334 345
SHAREHOLDER'S EQUITY					
Minority share of equity	6 771	6 978	6 979	6 987	6 715
Provisions	29 748	25 941	25 154	23 957	19 973
Current liabilities	168 271	172 369	261 968	181 597	165 987
Total sum of shareholders' equity and liability	332 299	338 161	445 111	371 320	334 345
KEY FIGURES					
Return on shareholders' equity (%)	3,7	8,8	20,6	31,0	25,1
Profit margin (%)	1,2	3,2	4,1	6,8	5,7
Revenue per employee (KSEK)	1 303	1 294	1 322	1 308	1 304
Equity/assets ratio (%)	38,4	39,3	33,9	42,8	42,4
Average number of employees	624	673	729	682	632

* KSEK

Definitions

Return on shareholders' equity (%): Profit for the year after minority share as a percentage of benchmark equity excluding minority share.

Profit margin (%): Profit after financial items as a percentage of operating revenues.

The equity/assets ratio (%): Shareholders' equity excluding minority share as a percentage of total assets.

WHITE INTRESSETER AB

Organisationsnummer 556598-8499

The New Malmö Hospital creates an environment where people are in focus and combines emotive and sustainable architecture with the latest knowledge in daylight, environmental issues and energy. With its 110.000 sqm, the project is currently one of Sweden's the largest Health Care projects and it is expected to be completed in 2025.



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 climate neutral, through design excellence. We are an employee-owned architecture collective of about 800 employees, with presence in Sweden, Norway, UK, Germany, Canada and East Africa.

TALK TO US!
whitearkitekter.com
[@whitearkitekter](https://www.instagram.com/whitearkitekter)

white