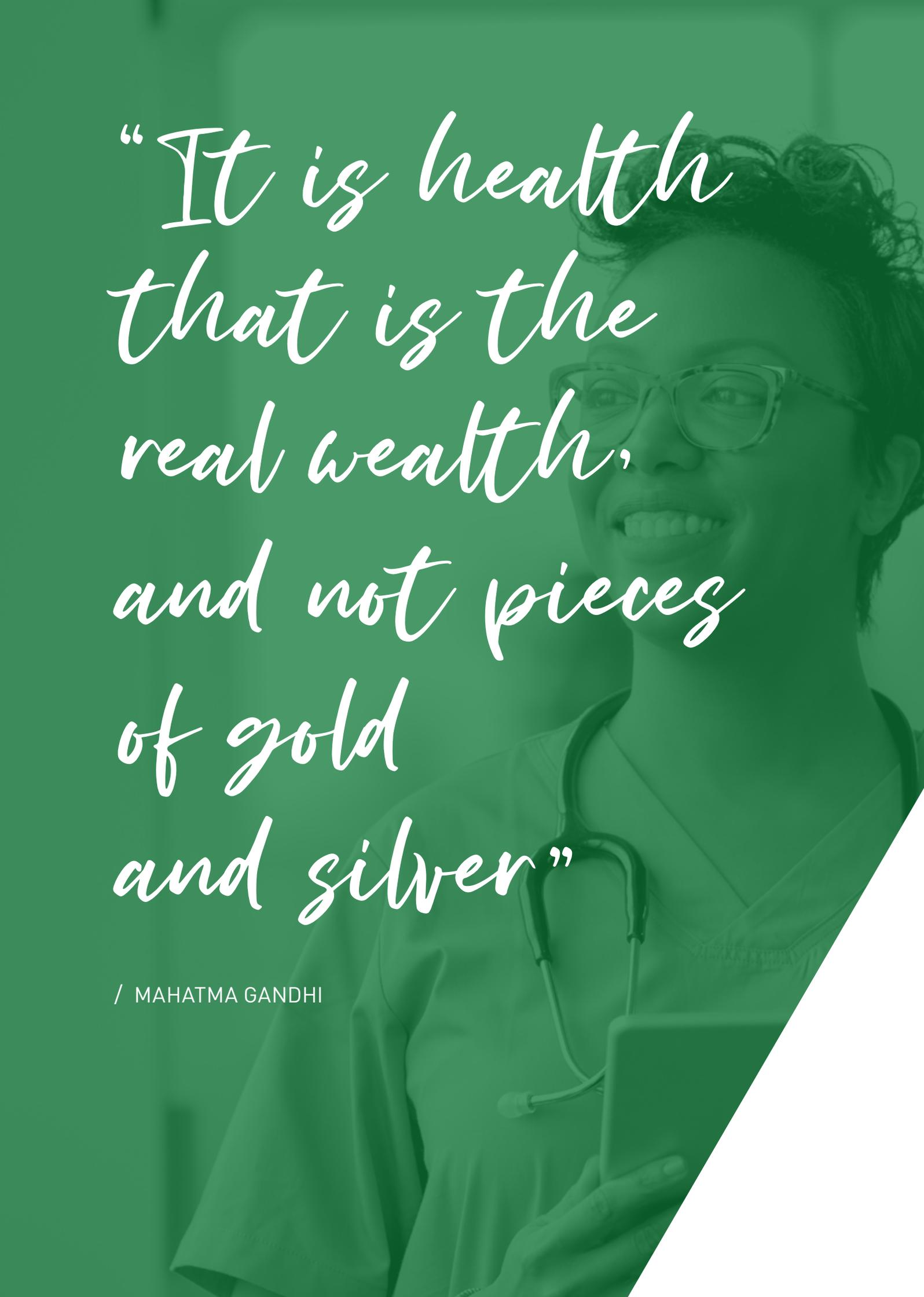


# HEALTHCARE BUILDINGS



**sapa:**



*“It is health that is the real wealth, and not pieces of gold and silver”*

/ MAHATMA GANDHI

# EDITORIAL

Healthcare facilities were historically built with the sole purpose of providing medical care, leading to the design of overly sterile and dark environments often completely disconnected from the outside world. These facilities focused very little on how the design impacted the patients and staff inside.

However, there has been a major shift in the healthcare industry to create more positive spaces that help patients heal faster, more comfortably, and ultimately help to provide better care.

One of the ways architects are improving the design of healthcare facilities is through the incorporation of natural daylight, which has proven to be a powerful healing tool. Research has linked natural daylight to faster patient recovery rates, decreased dependency on medication and reduced staff and family stress.

Acoustic insulation and temperature control are other opportunities for architecture to positively contribute to occupants' general well-being. Large high-performance glazing facades, windows and doors play an important part in this achievement.

Navigation and accessibility are important factors when considering that hospitals receive a large number of visitors every day. Safety, another essential feature, especially in psychiatric health premises, explains the importance of heavy-traffic large doors with secured locking and motorized systems.

Last, but not least, most healthcare facilities are open 24/7. Investors are subsequently looking for ways to reduce operating costs and are more and more opting for green constructions. These are cost-effective and boost low carbon emissions throughout the entire life cycle.

Our solutions meet the requirements of healthcare buildings in terms of sustainability, comfort, safety and design. Curtain walls, windows and doors, which come in multiple versions, provide adequate answers to the different needs expressed by professionals.

As part of Hydro group, we carry the commitment to sustainable development. As a global supplier of aluminium with activities spanning the entire value chain, Hydro aims to reduce its overall CO<sub>2</sub> emissions by 30% by 2030.





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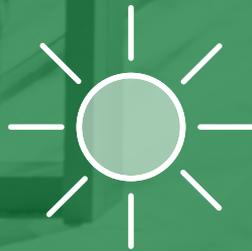
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# HOW ARCHITECTURE CAN POSITIVELY CONTRIBUTE TO MEDICAL CARE



## / DESIGN POSITIVELY IMPACTS PATIENT SATISFACTION SCORES

A research has shown that hospitals that feature new designs and amenities send patient satisfaction scores vaulting skyward.



## / DAYLIGHT REDUCES PAIN RELIEF MEDICATION

Research has demonstrated a clear link between daylight/sunlight and a reduced requirement for pain relief medication in hospitals.



## / TEMPERATURE AFFECTS WELL-BEING

A recent study has shown that temperature plays a role in the health and the well-being of people with respiratory problems.



## / SUSTAINABILITY HAS COST SAVINGS POTENTIAL

The use of artificial lighting in healthcare facilities is responsible for about 20% of the total electricity used. Another good reason to opt for green architecture with large glazing.



## / ACOUSTIC MATTERS FOR GOOD HEALTH

According to the World Health Organisation, overnight noise in a hospital raises blood pressure and can even increase the incidence of heart disease.

# REQUIREMENTS FOR EFFECTIVE HEALTHCARE BUILDINGS

## / ACOUSTIC

Many sounds are present in hospital environments, including those from beepers, alarms, machines, rolling carts, HVAC systems, and conversations, among other sources. These can be severely irritating to both patients and staff.

Thanks to their performance, our aluminium solutions can significantly reduce noise pollution. Even in a highly exposed situation, they guarantee unprecedented acoustic comfort.

## / TEMPERATURE

Thermal insulation is essential to create a comfortable environment for both patients and staff. It's also a great solution to decrease the energy demand of heating and cooling systems.

Our solutions are entirely designed with thermal break. They can accommodate very high-performance insulation glazing. These features reduce thermal loss and help maintain a comfortable temperature in all seasons.

## / DESIGN

The importance of the physical appearance of a healthcare building should not be minimized. A hospital that is attractive builds a sense of well-being among patients, their family and medical staff. Design is our constant concern and part of our DNA. Many combinations are possible and particular attention is paid to the treatment of colour and the offer of various finishes. In addition, the wide variety of handles and accessories offers the possibility to adapt to different styles of architecture.



## / SAFETY

Healthcare facilities are usually open 24 hours a day, seven days a week, and are required to be accessible to the public. As a result, there are hundreds of unknown visitors to a hospital daily. A strong, comprehensive access control system can improve overall security, decrease hospital liability, and increase patient and staff safety.

Our curtain walls, windows and doors systems come with exceptional fire and burglary resistance options. SAPA 2086 Fire door, our fire protection door can compartmentalize the spread of flames and fumes, and strengthen heat resistance.

## / SUN SHADING

Complete darkness is the secret for a good rest. This is especially important in hospitals where resting means faster recovery.

Our wide choice of shading solutions such as brise-soleil, shutters and integrated blinds allows many possible combinations for windows and facades. One can benefit from warmth from the sun in the winter and solar protection in the summer, as well as energy savings by adjusting the amount of natural light entering the rooms.

## / LIGHT

Natural light provides high-quality lighting and visual comfort. In hospitals, studies showed that natural light influences the psychological stability of patients and complete recovery.

Our curtain walls feature large dimensions to create maximised glazed surfaces for natural light intake.

## / ACCESSIBILITY

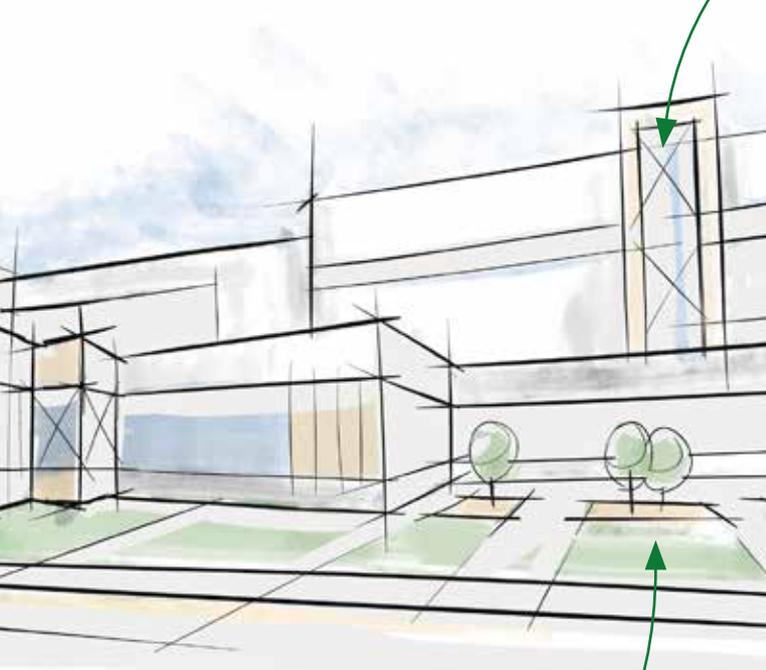
Healthcare buildings are required to enable patients and visitors, including people with disabilities to freely and safely move and access the premises. The entrances should allow easy wheelchair movement through it, and doors must be resistant enough to cope with heavy traffic.

Our system solutions has been developed for areas of heavy use like hospitals. Disabled access threshold achieves regulations for door and balcony door access, while maintaining weather performance and meeting most standard international regulations. In addition, our systems can be motorised to support manoeuvring while the height of our handles is adaptable to accessibility needs.

## / SUSTAINABILITY

Energy saving measures can play a significant role for lowering energy consumption and energy costs, as well as for environmental protection.

Most of our products profile sections are made of Hydro CIRCAL®, a premium quality aluminium range comprising at least 75% of recycled aluminium sourced from post-consumption waste, i.e. end-of-life joinery. Hydro CIRCAL® has one of the lowest carbon footprints in the world: 2.3 kg of CO<sub>2</sub>/kg of aluminium.



# RUSTIC ARCHITECTURE AND SUSTAINABILITY

/ KJELLEPARKEN Tønsberg, Norway

**Kjelleparken is a health center where health is spelled in capital letters. Here, the health center is surrounded by a rustic landscape where a vegetation belt thrives around the environment. The design has been based on the surroundings, while the geometry has been characterized by the care's needs regarding performance and easy accessibility for patients. Environmentally friendly materials that can withstand the changing trend where also high on the list in the planning process and with energy-efficient consumption, the building has been classified as energy-saving class A. Through Umbra Produkter AS, SAPA has delivered windows and doors to Kjelleparken.**

HEALTH is in focus when Kjelleparken 2017 opened its gates to the outside world, this health center is located in a rustic setting between the city of Tønsberg and Jarlsbergs estate.

Here you can find a chiropractor, health clinics and a new emergency room that will be able to provide care to Tønsberg and 6 other communities. In addition to this, there are also other health-related activities on site, including pharmacies and a competence center for jobseekers.

By keeping all activities health-related, the associations can bring joy and benefit from each other.

## Rustic landscape

Here, the population will find a meeting place where nursing and health goes hand in hand. With good service and friendly staff, visitors can experience an engaging and pleasant meeting together with the peaceful environment and stylish design. In the process of regulation and completion, the relationship to the rustic landscape has left its mark on the building's design, height, and materials. Regarding the execution of the building's interior design, the largest renter became a decisive factor and sustainable materials with a visual expression that can cope with changing trends had to be in focus according to the project's architect.





LEGEVAKT  
FARMOTEKI

FOTIARAKTIA  
MEDISINSKE KLINIKK

FONIX  
EPIKEMUS





– The building’s largest renter is the emergency room, which has also been responsible for the building’s geometry and depth. Strict logistical requirements for patient flow and safety with separate entrances for the general public, ambulance, police and infection unit, while staff have a good overview and quick access has been an important parameter. The client has had a goal of a building with good and sustainable materials and an expression that can withstand changing trends. The main volume is dressed in shingles of brick, while transverse slats and details are dressed with natural-colored wood panels in varying widths, explains KB Arkitekter.

### The vegetation belt

It has also been important for the agricultural authorities and the protection authorities to clearly set a boundary between the urban environment and beautiful landscape, through a vegetation belt. The belt has become the building’s surface water deflector and energy park, where the stream is laid in a path through groundwater table and then flows out over an agricultural area. Therefore, Kjelleparken takes care of the advantages of the environment around the landscape and generate less pressure from lower-lying areas.

The building is equipped with 15 energy wells that have been drilled 250 meters deep and are located at the northern and partly eastern part of the area, right by the vegetation belt. The wells provide Kjelleparken

with both heat and cooling through energy from, among other things, heat pumps. The building is also in energy saving class A, which is a confirmation that Kjelleparken is built with a strong environmental thinking.

- The building dampens the large landscape and incorporates the intention of the area plan with ribba in the east-west direction to open the view between the wooded hill and the cultivated landscape. Towards the agricultural area in the north is the buffer zone, which is also the building’s energy park, as well as an open stream that handles surface water for the area, explains KB Arkitekter.

### / PROJECT

**Architect: KB Arkitekter**

**Metal Builder: Umbra Produkter AS**

### / PRODUCTS

- **SAPA Window 1086**
- **SAPA Door 2086**

*Photography: KB Arkitekter*

# ORIGINAL ART AND ARCHITECTURE WITH A LONG LIFESPAN

/ FINSPÅNG'S HEALTHCARE CENTER Sweden

Beautiful architecture and inspiring design characterize Finspång's new healthcare center in Sweden, where unique art can be found among the common areas but also on the walls of the building structure. The project has received the award Miljöbyggnad Silver, where they have worked a lot on a construction technology that has a long lifespan. Energy savings have been made through solar panels that are located on the roof and an outstanding glass and aluminum facade can be found in the health center's courtyards, among other places. Through GlasLindberg, SAPA has delivered facades and doors in recycled Hydro CIRCAL aluminum.

**Architect:** Arkitema

**Photo:** Region Östergötland





Already early in the planning process around Finspång healthcare center, there were many factors that would be involved in maintaining all the advanced requirements and authority's that exist in today's society. The health center had to satisfy all material-, health-, functional- and social requirements. What came out of this became something completely unique where the expression "close care" occurs in all corridors. A strong collaboration with competent and experienced individuals has created a high level of commitment to the project since many live in or near Finspång. The building covers approximately 17,000 square meters and is divided into five floors where they have: a childcare center, midwife clinic child and youth clinic, inpatient rehabilitation, doctor's office, home care, laboratory, specialist nurse clinic, investigation unit and outpatient department.

Arkitema, who is the architect for the project, are explaining the importance of having many different departments close to each other and that patients can receive complete care at the healthcare center without having to seek care in another city.

– Directly from the entrance hall you reach the health square, pharmacy and lab. On the entrance level, there are also four combi rooms that function as reception hotels, rooms that can be booked by clinics that do not have regular operations in Finspång, either recurring or sporadically. A good "Close care" example, where patients can be offered a visit here, instead of having to go to the hospital in another city, explains Arkitema.

### **Design combined with harmonic colors**

With beautiful and calm environments, research has shown that the experience of stress in hospitals is reduced and that it can contribute to a healthier and more caring environment. An important factor for the care staff is to have a well-planned and attractive work environment to enjoy their everyday work. Which the design of Finspång healthcare center has succeeded in, where the environment radiates harmony and inspiration, both for patients and the staff. By having calm and bright color shades combined with background walls that have accent colors and ele-





ments of wood in the interior, the harmonious feeling that exists in the design is emphasized. Conscious art has been placed where visitors, staff and patients are in as much as possible to stop and generate inspiration that creates unique experiences in the healthcare center's premises. The art is magnificent and original, which is both in the middle of a room, but it also interacts with the building construction through the walls.

### **Focus on the project's lifespan with environmentally friendly materials and energy savings**

The healthcare staff's company cars run by electricity and can easily be charged in the healthcare center's parking lot, which simplifies and benefits both the environment and the staff. Finspång health care center is exposed with 600 panels with solar cells located on the roof, and the expected electricity production is 160,000 kWh per year, which corresponds to the electricity needs for about 32 single-family homes. The beautiful courtyards provide dynamism and differ from the hospital environment, which enhances the patients' experience. An outstanding glass and aluminum façade also adorns the court-

yards. The environmental aspect of the project is at a high level where they have worked hard with energy savings and material selection. Arkitema wanted to combine this to create a sustainable and favorable construction that will have a long lifespan.

– The healthcare center has a white terrazzo façade in the upper levels and a glass / aluminum façade in the lower levels. The building is classified Miljöbyggnad silver and has solar cells on a large part of the roof and on the south facade of the fan room. Separating flows, strengthening patient safety and working with construction technology that has a long lifespan are some of the principles that guided the project, explains Arkitema.

One of the materials used in the project is SAPAs aluminum façade and doors in Hydro CIRCAL, which is an aluminum alloy with at least 75% proportion of recycled aluminum from, for example, glass facades and windows that have been dismantled from buildings and are thus completely recycled. This has been delivered to the project by GlasLindberg.



### / PROJECT

Architect: Arkitema

Metal Builder: GlasLindberg Fasad AB

### / PRODUCTS

- SAPA Door 2086
- SAPA Facade 4150

*Photo: Region Östergötland*





# A BUILDING WITH ZERO FOSSIL EMISSIONS AND RECYCLED ALUMINUM FACADES

/ LINDEBERGHOME Oslo, Norway

**Comfort and wide views from a beautiful roof top can now be found at Lindeberghome in Oslo. An environmentally friendly BREEAM Excellent certified project, where it has succeeded in achieving zero fossil emissions during construction. This is largely due to the local energy wells on site. Likewise, this has meant that energy consumption has been extremely low and contributed to a more environmentally friendly place. SAPA's recycled aluminum system in Hydro CIRCAL has been used for the project, which has been delivered by H-Fasader GlassTeam. They have succeeded to deliver 6,6 tons of SAPA's facades, doors, and windows to Lindeberghome.**



**Architect:** HUS-arkitekter  
**Photographer:** Hundven-Clements Photography



In 2017, the demolition work of the former old retirement home in Lindeberg started and instead would a more modern home be built from the ground up and take its place as the new Lindeberghome. In 2021, the new building was inaugurated, which contains 144 care places, treatment rooms and a café. Likewise, the beautiful Lindeberg's brook is bubbling along the lovely courtyard and exercise tracks. The accommodation is future-oriented and aims to be a pleasant and environmentally friendly place, both for those who live and work there.

### **Automatic technology in focus**

From the very beginning, a lot of planning and time has been invested in creating and shaping a comfortable home where the building's crown jewel is the beautiful roof top that looks out towards Oslo. Welcoming and warm common areas will strengthen

the welfare while technology will make it easier for staff to focus more on custody to the patient. With an automated technology, all rooms have a private bathroom with an associated toilet that has raising and lowering functions as well as flushing. Hairdryers will also be available in the rooms the reason for this is that the resident can manage themselves as much as possible. This automation technology is completely unique in Oslo.

### **Environmentally friendly construction with zero fossil emission**

Lindeberghome is heated by 28 energy wells together with approximately 1,000 solar panels that are located on the building's roof, facades and on a pergola that sits above the roof top. During construction, the wells were used to generate energy and heating, which has resulted in the project's CO2 emissions being dras-

tically reduced and benefiting Lindeberg's business community. The construction site has also managed to be completely fossil-free during the construction process and has used energy-generating machines as much as possible but has also managed to reduce its energy costs. The construction site has succeeded in creating a circular workplace where all energy and fuel are within the construction area, moreover, was this included already from the beginning of the detailed process planning.

- We prepared a process plan that contained a written assessment of the sketch project's development opportunities and how we could work together in the project so that the project could be implemented within technical and financial framework, without reducing content or scope, says HUS arkitekter, who is the architect for the project.

HUS arkitekter continues to explain the importance of the mutual trust that exists between the actors in order to successfully row the project ashore.

- The plan for user involvement was included in the process plan where important success criteria were the establishment of mutual trust, a clear mandate for commitment and a controlled, step-by-step process with increasing degree of details and maturity of solutions, says HUS arkitekter

Lindeberghome construction is certified with Excellent according to BREEAM.

### Design with low consumption

Lindeberghome is no standard project, it has, among other things, advanced technical properties that are out of the ordinary. The building is also designed to use only one-fifth as much energy as the plan- and building code usually requires for this type of construction. This is an amazing and exciting design that has really focused on the environmental aspect and has taken the construction to a more future-oriented thinking. A 3D model has also been used to structure the work in the best way, which helped to solve various problems along the way.

- The pilot project was carried out with several weekly meetings where Integrated Concurrent Engineering (ICE) was an important process tool. The actors were co-located, discussed and solved problems with extensive use of a 3D model. The process was well-structured, says HUS arkitekter.

Through H-Fasader GlassTeam has delivered 6,6 tons of SAPAs facades, windows, and doors to Lindeberghome. By using SAPA's facades, windows, and doors in Hydro CIRCAL recycled aluminum energy savings has been possible. As Hydro CIRCAL only requires 5% of the energy needed to produce primary aluminum.



#### / PROJECT

Architect: HUS-arkitekter AS

Metal Builder: H-fasader GlassTeam AS

#### / PRODUCTS

- SAPA Door 2086
- SAPA Window 1086
- SAPA Facade 4150.

Photographer: Hundven-Clements Photography





# A FUTURE-ORIENTED HOUSING WITH NEW WELFARE TECHNOLOGY

/ VALLA NURSING HOME Linköping, Sweden

**Vallastaden has built a new nursing home for the elderly with dementia. Here, a future-oriented nursing home has been opened where the focus is on the individual's needs and well-being. With a new welfare technology, people with dementia receive more individualized care. This has helped the care staff to be able to receive more efficient and personal care, however they have also succeeded in raising the integrity of dementia patients. The garden at Valla nursing home has a beautiful and harmonious feeling where there are many places for different activities, including balance training. Through ALAB Aluman AB, SAPA has delivered recycled aluminum facades, windows and doors that are made from Hydro CIRCAL recycled aluminum.**

The new nursing home in Vallastaden is built for the elderly with dementia. Here the focus is on the individual's needs and well-being at the same time as the environment should radiate surveillance and coziness. The nursing home includes three floors with 60 apartments that are accessible for people with dementia who are no longer able to live on their own. There are also premises in the building that are dedicated to daily activities, here the target group is instead elderly with dementia who still can live on their own. These daily activities provide stimulation both for the demented but also for their relatives. A section in the nursing home is also designed specifically to younger people with dementia up to the age 70.

The purpose of the nursing home is for the elderly to be able to take care of themselves, moreover, be active as far as they can with the help and support from the care staff. There is another premises on the ground floor of the building that is rented by KFUM (an activity association), they have an extracurricular activity for children with special needs and their families. KFUM also interacts with the nursing home where the elderly could ride a dua bike twice a week. At the nursing home, there is also a SPA and light therapy room that has a human-centered lighting. This construction shows evidence of how to build and think sustainable for all different stages of life, both on a social level but also on an environmental level.



**Architect:** White Arkitekter och Winell & Jern Arkitekter  
**Photographer:** Göran Billeson



The nursing home is built with a well-thought-out interior where art embellish the walls. The exterior of the nursing home is something completely unique where the facade is dressed in a rusty sheet metal that will get a beautiful patina over time. Through Alab, SAPA has delivered recycled aluminum facades, windows, and doors in Hydro CIRCAL to the project. Hydro CIRCAL is 75% recycled aluminum that comes from, for example, previous facades and windows that have been dismantled from buildings. This means that the construction has an optimal sustainability lifecycle where the facade also has a 4 times lower climate footprint compared with the European average for primary aluminum.

### **Orangery and balance training that thrives in the garden**

Extra investments have been made in the outdoor environment of the building. A beautiful greenery that thrives in the garden. Calming and harmonious feelings arise when you look out at the forest behind the building. Through the greenery you can walk on a wide paved road that stretches around the garden. Here, the elderly has access to a balance gym with various stations that will strengthen their balance ability. In the courtyard there is a nice orangery that the elderly can stay in, the floor is implemented with heating coils which means that it can be used even in the wintertime. These activities encourage the elderly to spend more time outside, which then contributes to a better prosperous in the long run.

### **Welfare technology that takes healthcare to the future**

Vallastaden's nursing home is outed to be a test bed for a new welfare technology. Here, researchers from Linköping University have been involved in the working process to develop various digital solutions. The purpose is to improve, facilitate and streamline care to be more future-oriented. Welfare technology provides the opportunity for safer care for the elderly, where the focus is on the elderly being able to have a great influence on their own everyday lives. In every apartment the elderly has access to a tablet, which can be helpful for both them and the care staff. The tablet provides opportunities for the elderly to take photographs, draw, play games and make video calls to their relatives. While the care staff can easily reach implementation plans and life stories through it. Digital supervision has also been applied at night, which increases the feeling of security for those with dementia. Other digital solutions available at the care home are digital locks, security alarms with GPS positioning and digital medicine signing.

#### **/ PROJECT**

**Architect: White Arkitekter and Winell & Jern Arkitekter**

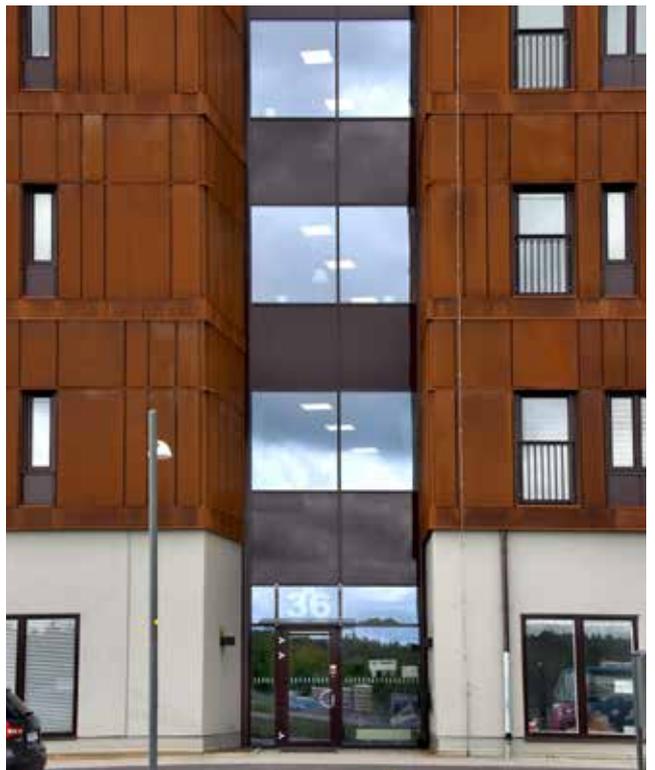
**Metal Builder: ALAB Aluman AB**

#### **/ PRODUCTS**

- SAPA Facade 4150 SX
- SAPA Door 2086

*Photographer: Göran Billeson*





# TRANSPARENCY AND NATURAL LIGHT EVERYWHERE

/ LINDESBERG HEALTH CENTRE, Sweden

The architecture of well-being is nothing new. It started in the beginning of the 20<sup>th</sup> century as part of a modern movement. Healthy housing was a core concept already then, and many buildings were built in the endeavour to improve well-being through design. The common thread of this type of architecture revolves around generous amounts of natural light, views of the outside and the use of ultra-modern technology. Lindsberg health centre is no exception as the building was designed with daylight simulation, energy calculations and microclimate analysing tools.



**Architect:** White Architects  
**Photographer:** Åke E:son Lindman & White



Lindesberg Health Centre is beautifully designed with wooden panels combined with an aluminium glass facade, natural concrete and a glass roof. The building consists of two main parts – the residential area and the healthcare centre. Both are connected through a dazzling glass gallery that goes by the name of “Gallery of Senses”. The atrium is the core of the building and a natural gathering area for occupants.

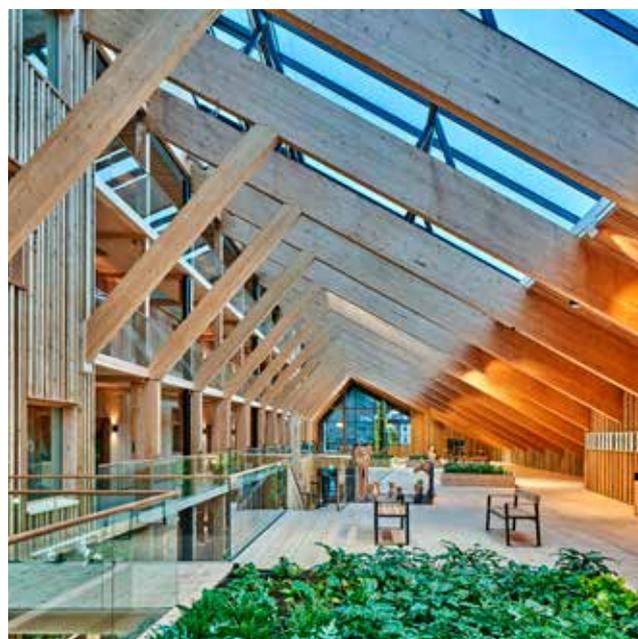
To enter either part, one must walk through the gallery. The purpose is to create a protected environment and a tranquil city dwelling. “Gallery of Senses” is technically an inner park environment, but to visitors and tenants, in and outside are merged thanks to large glass partitions. Walking through the building, natural light is flooding in from almost everywhere, not only through the glass roof, but also from large glass sections and even through the floor, partly made of glass.

Natural light had a big role to play already in the design phase, all 32 units even get a sky view thanks to all the glass partitions in the building.

This project is carefully designed and equipped with beautiful and sustainable materials. Throughout the project, energy calculations and day light simulations have been made in compliance with environmental building certifications. Part of the building’s energy comes from the solar panels on the roof. The residential part has been awarded according to SGBC environmental building silver and the health care centre has been awarded according to SGBC environmental building gold.

Lindesberg Health Centre is connected to nature, the railroad and the travel centre. No matter if you live in the building or not, this should be your “go-to” place when craving for peace and harmony.

The facade includes high acoustic insulation system with laminated glass to reduce noise pollution and maintain a quiet and peaceful environment. The glass roof was built with 5050 and is constructed to be energy friendly and self-cleaning. All doors are high-traffic resistant with high insulation performances.





### / PROJECT

Architect: White Architects

Metal Builder: GlasLindberg Fasad AB

### / PRODUCTS

- SAPA Facade 4150
- SAPA Glazed Roof 5050
- SAPA Doors 2086 & 2050

*Photographer: Åke E:son Lindman & White*



# FOCUS ON PROSPEROUS PEOPLE AND A SUSTAINABLE ENVIRONMENT

/ KUNGÄLV HOSPITAL Kungälv, Sweden

**When Kungälv hospital no longer could meet society's care needs, a new planning process started to build a new building that would efficient and improve care, both for the staff and patients. The new hospital is decorated with idyllic pictures made of ceramics that will reflect the city and the river. The individual's integrity and solidarity have been emphasized by having built several single rooms, which then contributes to more well-being for the patients. With several single rooms, patients' safety can also be increasing, and a decrease of spread infection becomes possible. With the help of GlasLindberg, SAPA's recycled aluminum facades and doors in Hydro CIRCAL have been delivered to the project. By using circular materials, the project emphasizes its sustainable thinking and thus minimizes the footprint on the environment.**

With the new renovation of Kungälv Hospital, a total of 10 care departments can now be found in the hospital. In collaboration with the former 1960s building, a new identity has been created for the hospital. The project radiates modernity and has a focus on

a future vision where 280 care places will exist. The project for Kungälv Hospital has been run by Västfastigheter and the architects are Sweco and Aart arkitekter. Skanska is the construction contractor.





Architect: Sweco & Aart arkitekt  
Photographer: Bert Leandersson

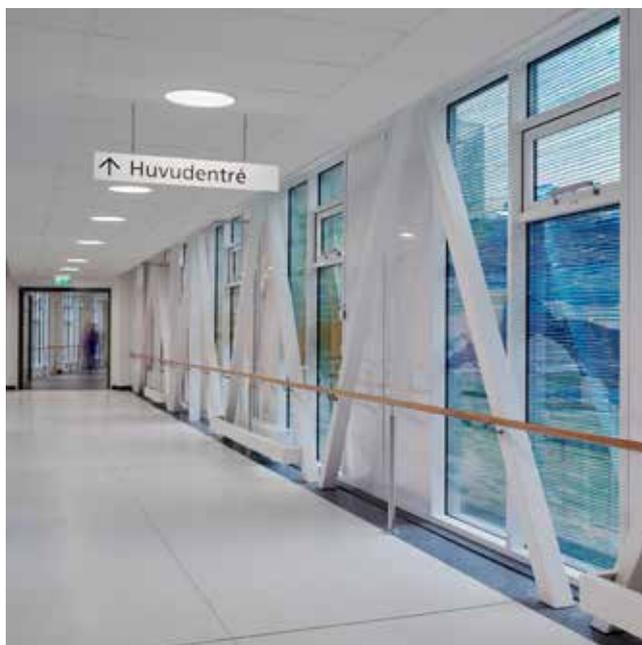
## Well-being that can be seen through concrete art

The ambition with the hospital is that it should be effective and caring, regardless if they are patients, relatives or staff. This gave Sweco and Aart arkitekt a lot of valuation in when they planned the project.

– Together with Aart, we have had the ambition to create a care environment that conveys that there is an awareness of both children's and adults' needs and that the family is in safe hands. Throughout the project, we have worked in a structured and creative way where the focus has been on creating well-functioning environments, says Pernilla Nordén, responsible architect at Sweco.

The patients' rooms has with the help of two artists, created a charismatic and familiar feeling for each room, where ceramic tiles with motives adorn the walls. The theme for the art has been the city (Kungälv) and the river that flows through. When the patients are in the rooms, the concept of the art is that it can create a conversation between individuals, furthermore, will this create a sense of belonging. This goes to prove of the strong caring idea that is in the core of this project.

The design of the new building is the connection to the old building, which creates beautiful courtyards with a unique feel both to the patients and care staff. There is also a new foyer where various events can be coordinated. The green outdoor environments in combination with light input can also be enjoyed from inside the patient rooms through the large windows. The captivating surroundings that the hospital has can also be viewed from the windows where Bohuslän's beautiful landscape is in focus.



## Sustainable environments are in focus

The architects have placed great emphasis on starting from a life cycle perspective, which has been reflected in the hospital's facade. Here, too, the architects spin that the facade should radiate care, warmth, and consideration. This has thus given a remarkable result and received the certification Miljöbyggnad Guld.

– Even with the external design, the goal has been for the building to breathe warmth, care and consideration. The facade material is robust and consists of prefabricated concrete where the architects have created a variety and richness of detail, a lightly ground concrete meets a gray grooved concrete. To enable a future renovation, the window replacement is well balanced. The façade design also considers the high goals for the building's energy consumption and for being able to be certified according to Miljöbyggnad Guld, says Sweco.

During the building construction, active work has been done regarding sorting of waste so that nothing would go to landfill, however instead 67% of all waste was recycled and 33% was combustible.

With the help of GlasLindberg, SAPA's aluminum facades and doors have been delivered to the project. The products are manufactured by Hydro CIRCAL with at least 75% recycled aluminum from, for example, previous facades and windows that were subsequently dismantled from buildings. The melting process of Hydro CIRCAL aluminum consumes only 5% of the energy required for primary aluminum production. This circular material generates a 4 times lower climate footprint than the European average.



## Solidarity and individual rooms are going to strengthen the integrity

Kungälv Hospital's previous premises were lacking in having limited number of single rooms for the patients, which then became one of the needs that the new premises would meet. During the planning process, a group of individuals got to be involved and opinionized about current functionalities, furniture, and consumables. This has contributed to improvements that have been made early in the planning and has created a more efficient working environment. For example, there is now a tube post where blood samples and blood bags are collected, which reduces the running for the care staff.

– Thanks to a full-scale model of a care room during the process, it has been possible to test, evaluate and improve the rooms' function and design. An important part of the assignment has been to work on the basis of different scales where the hospital's operations have a central role in how the building has been designed, says Sweco.

With the single rooms, has this made an increased patient safety possible. The spread of various viruses

is drastically reduced with the help of a separate room, bathroom, and toilet. The interplay between privacy and social interaction also becomes significantly greater when the care staff now can have undisturbed conversations with the patients and their relatives. A silent alarm has also been installed at the hospital and the right care staff can be reached directly by the patient without major running and noise in the corridors.

### / PROJECT

**Achitect: Sweco & Aart arkitekt**

**Metal Builder: GlasLindberg Fasad AB**

### / PRODUCTS

- SAPA Door 2086
- SAPA Facade 4150

*Photography: Bert Leandersson*



# FOCUSES ON THE GLOBAL SUSTAINABILITY GOALS

/ FOSSHAGEN RESOURCE CENTER Lier, Norway

**A thriving garden with a stimulus for nature will lift care for the elderly to a higher level. With many common areas and activities, this will create a more pleasant home that blurs the traditional framework for care for the elderly. People with dementia and disabled individuals will easily be able to move freely among the common areas both indoors and outdoors. Fosshagen resource center has worked according to four pinots in the global sustainability goals and the project is certified according to BREEAM Very Good. Through FasadeConsult AS, SAPA has delivered facades, windows, and doors in recycled Hydro CIRCAL aluminum.**

With the three existing nursing homes, Lier community in Norway finally decided that a home specifically for the elderly with dementia would be built. However, it was clear from the beginning that this housing would not be perceived as a retirement home but instead as a resource center. The main functions of the resource center were common areas, housing, the laundry room, the kitchen, and the administration base. There will also be several different activities in the common areas, including hair and foot care, activity rooms and a library.

Fosshagen resource center should be a place that is associated more as a pleasant home rather than a home for the elderly sick. With this as a starting point, innovative ideas and thoughts were created for the

architect, which broke with the character of the traditional institution.

- Most of the proposals we competed against looked like typical institutions. We would rather create something that has the warmth of a home, both for those who will live there and for those who will work here. Architecture is important because it forms the framework for our lives, and healthy houses can also give us healthier lives, says Reiulf Ramstad Arkitekter.

Fosshagen is designed as a small village with cozy rooms both inside and outside, which makes the elderly feel a certain vicinity and good accessibility to the care staff. Good resources for wheelchairs and





**Architect:** Reiulf Ramstad Arkitekter and Norconsult Solem Arkitektur

**Photographer:** Ivar Kvaal

walkers are available for easy access both indoors and outdoors, which was important in the planning. Even the severely disabled individual shall be able to move forward unhindered on their own without the need for assistance from others. It was also important that visitors and residents could easily find and understand the various functions that exist and avoid corridors with changed directions as well as redundant doors to make it easier for the demented. With a spacious design, simple functions, and a stimulating outdoor environment, Fosshagen resource center becomes a successful and harmonious place to stay, which was important for the architect to highlight.

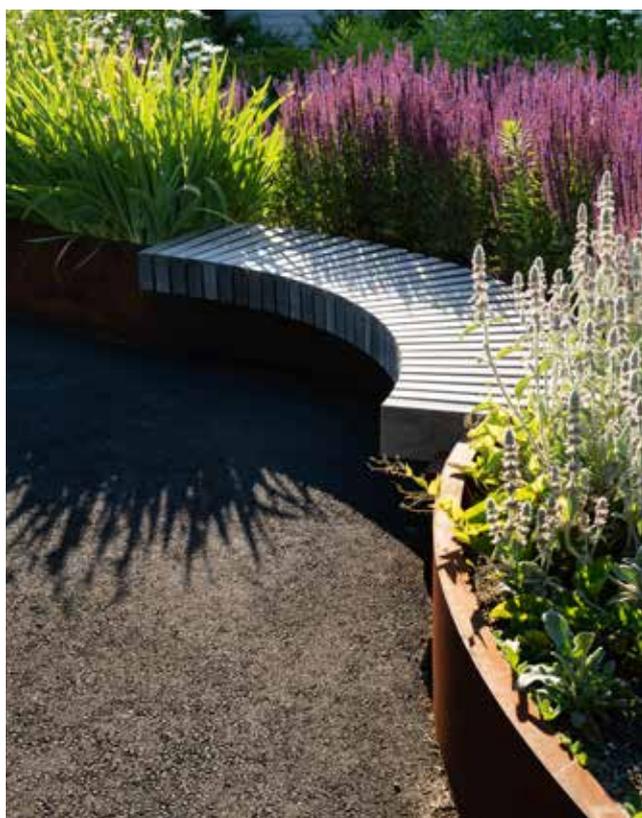
- For several decades, elderly care has almost been seen as a balancing act. Housing for people who can no longer manage to take care of them self has often an almost degrading standard. It is citizens who have stood for a lifetime and then they end up in this framework. I believe that these people should be celebrated, and that we should be so generous that we give them a good framework to go through the last phase of life in a dignified way, says Reiulf Ramstad Architects.

The outdoor area is designed to protect from sun and rain. The flourishing gardens have beautiful and well-planned walkways that open up for collective activities and walks, which the architects put a lot of time and planning around to optimize the experience for the elderly and visitors.

- A lot has been invested in the outdoor area. Here, users get beautiful frames, with more than 100 different plants and flowers. The sense system, with scents, colors and experiences, is one of the things that comes to us first, and it is perhaps one of the last things that leaves us as well, says Reiulf Ramstad Architects.

Fosshagen has received the certificate stamp "Very good" in BREEAM for the project. The focus has been on the material use and energy properties found in the construction. The material has been closely monitored in detail to know exactly what material has been used. The building is also a passive house with low energy of class A and is supplied with geothermal heat through 15 energy wells. By using geothermal heat, up to 70% energy savings are made.

Thanks to Fosshagen resource center, has this project touched on four of the global sustainability goals, which is a future-oriented thinking that impresses.



### / PROJECT

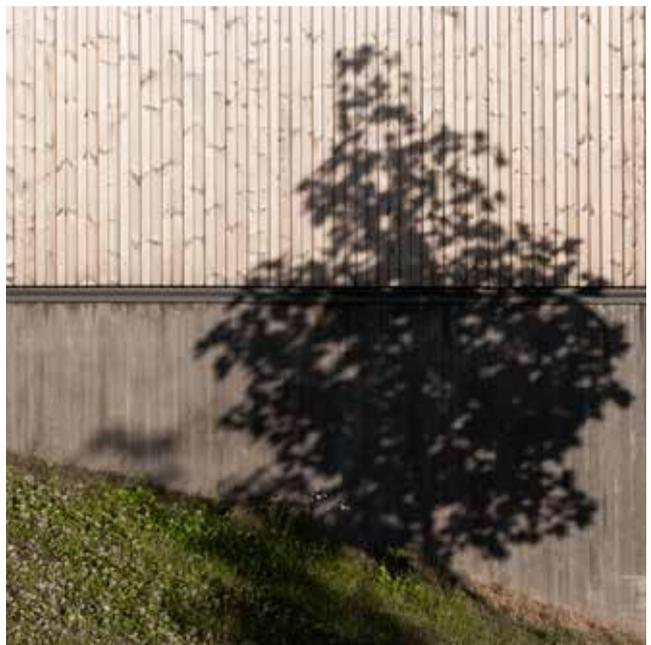
Architect: Reiulf Ramstad Arkitekter AS and Norconsult Solem Arkitektur

Metal Builder: FasadeConsult Aluminium AS

### / PRODUCTS

- SAPA Facade 4150
- SAPA Door 2086
- SAPA Roof Glazing 5050

Photographer: Ivar Kvaal





**Architect:** Nordplan AS  
**Photographer:** Werksted v/Marius Beck Dahle

# BEAUTIFUL VIEWS AND FUTURE VISIONS

/ KULATOPPEN CARE CENTER Måløy, Norway

**Now, the elderly at Kulatoppen care center can enjoy a harmonious and health-focused home where the technology takes nursing towards the future. Located on the mountain's top, a fantastic view of the strait is given. The building is not only placed in a beautiful place, but it also uses an efficient and environmentally friendly heating. SAPA has through H-fasader Stette AS delivered facades, windows and doors to Kulatoppen.**



With an exceptional outlook and beautiful views, the newly built Kulatoppen care center stands in place at Deknepollen, Måløy, Norway. With a spectacular ground area at the top of the mountain, the elderly gets a view unlike any other. With the modern care buildings, the three floors plus basement have a surface area of total 3,000m<sup>2</sup>. The previous 76 care places have been expanded to 100 with the new construction, which is a remarkable expansion and the reason for this is the expected increase of elderly people in need of healthcare within the near future.

Besides good indoor environments at the care center, have they also focused on beautiful large green outdoor areas.

- The outdoor area has a sensory element with water, textures, colors, scents and flavors and is adapted for activities between Bouletrack, barbecue area, greenhouse and training equipment. says Nordplan AS, architect for the project.

Even the design of the outdoor area is carefully planned with many important aspects such as highlighting the elegant views from the mountain top.

- In the design of the outdoor area, emphasis has been placed on the fact that there should be protected zones adjacent to the building, but that the stunning view should be easily accessible along the walkway on the outskirts of the area. says Nordplan AS.



## Welfare technology

Thanks to the project, the elderly care has gained an incredible lift, where the welfare technique has led to a future oriented thinking that will benefit the health-care. With a modern chip that is placed in a piece of jewelry, it is programmed to sense if the elderly has access or not to doors and entrances through a positioning field. Likewise, a patient warning system with motion function will be installed so that the nursing staff will be alarmed through an app system if an elderly goes out of his/her room or has fallen in the room. This helps the staff to be able to quickly be there for the elderly if nursing is needed. Even smart light systems are established, they can detect the outer light factors and adapt to color and strength to the patients' rooms, which creates a more comfortable and prosperous experience. This welfare technology is revolutionary and raises healthcare to new levels regarding good health and well-being, which is also one of the global goals that they are aiming to reach.

## Earth heating

With the hard weather conditions that exist on the top of the mountain, external blackout curtains were not an option, however instead they selected to have integrated sun protection in the glass. When it comes to the heating of the building, an efficient and innovative environmentally friendly heating system is used. This by taking advantage of the deep wells that are on the ground area which then circulates the heat by using a heating pump system and heat exchanger. Through this, the consumption of operating cost is low and the need for purchased energy and electricity is drastically reduced. The roof of the building is installed with heating and cooling through tubes which are waterborne, and the indoor temperature is automatically regulated by using the outdoor temperature. All of this means that the heating of the construction is minimal and environmentally friendly.

SAPA has through H-facade Stette AS delivered facades, windows and doors to Kulatoppen care center. By using SAPA's facades, windows and doors in aluminum, a saving of 11,3 tons CO<sub>2</sub> emission has been made. Which is approximately 4 times lower in emissions compared to the European average for primary aluminum.



### / PROJECT

Architect: Nordplan AS

Metal Builder: H-facades Stette AS

### / PRODUKTER

- SAPA Facade 4150 SX
- SAPA Door 2086 SX
- SAPA Window 1086 SX

Photographer: Werksted v/Marius Beck Dahle







# WORKING TOWARDS CREATING GREENER BUILDINGS

**In 2018, the industry accounted for 39% of the world's energy and process-related carbon dioxide emissions. Legislation is forcing the building and construction industry to bring down its greenhouse gas emissions, and quickly. Consequently, building systems suppliers are being asked to adjust and accept a new role. Because not only do they need to develop technically advanced systems that are built to last, they need to manufacture such systems with the lowest-possible carbon footprint. And they need to be able to prove that they themselves are sustainable suppliers.**



In a sustainable future, our continued success will depend on our ability to offer systems that combine top performance with a low carbon footprint. It will also depend on its ability to become a sustainable supplier. In this work, collaboration will be key, both with customers as well as with suppliers.

As a fully integrated aluminium company, Hydro has been attacking this challenge from all parts of the value chain, and for several years now. It has addressed the mining of bauxite and refining of alumina, the production of primary aluminium, the high-tech sorting of post-consumer scrap and development of low-carbon aluminium alloys, and the commercialization of sustainable building systems.

Acknowledging that change needs first to occur internally, so we have imposed sustainability targets and have identified several inside-out actions divided into:

- **Greener metal sourcing.**  
Hydro CIRCAL®, Hydro REDUXA®, low-carbon remelted aluminium
- **Greener components sourcing.**  
Recyclable, bio-sourced, low-carbon accessories
- **Greener production and sites.**  
Energy used, water, waste and fumes treatment
- **Greener transport and packaging.**  
Less packaging, transport route optimization
- **Greener workplace.**  
Commuting and travel, IT and data

### **Aluminium is key to zero-energy buildings**

Lightweight and infinitely recyclable, aluminium is increasingly the material of choice. It accommodates growth while constraining carbon emissions.

### **Among the greenest aluminium in the world**

Producing some of the aluminium with the lowest carbon footprint in the world, Hydro wants to make sure that this attractive metal is made available to consumers who care about the sustainability of the products they use.

Hydro CIRCAL® is the most attractive alloy available to the building market, in terms of carbon footprint. Its footprint of 2.3 kg CO<sub>2</sub> per kg of aluminium is more than three times lower than the primary aluminium average in Europe and more than six times lower than the global average.

This alloy contains no less than 75% post-consumer scrap, taken from dismantled windows and facades. Hydro CIRCAL® is verified by DNV GL and confirmed by an Environmental Product Declaration (EPD).

Meanwhile, Hydro REDUXA® – a primary aluminium product – offers a carbon footprint of maximum 4.0 kg CO<sub>2</sub> per kg of aluminium. This alloy, too, has been verified by DNV GL and confirmed by an EPD.

Hydro has achieved this low footprint for Hydro REDUXA® by using the same source of bauxite and alumina and by utilizing improved-efficiency smelters based on hydroelectric power. Other contributing factors are the improved sourcing of anodes and full control on the steps where it sources the cold metal.



### Certified aluminium makes a difference

More and more consumers, companies and public procurers are making purchase decisions using sustainability criteria. For this, objective labels, standards or certificates are a useful aid because they indicate under which environmental and social standards the products were produced.

We work continuously to lower our own emissions, increase recycling and help our customers develop products that enable CO<sub>2</sub> savings – among others. In order to do so we have obtained the following certifications for parts of our production, and continuously work to roll this out across our business.



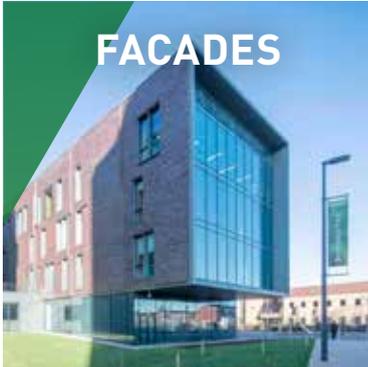
*The leading multi-attribute, multi-industry science-based standard for verifying products for the circular economy with integration of beneficial Environment, Social and Governance features.*



*Independent certification scheme covering the entire value chain of aluminium to address sustainability challenges from a Environment, Social and Governance issues perspective.*

# OUR OFFERING

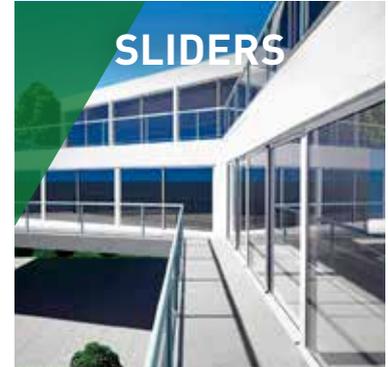
/ A wide range of products and solutions suited to your needs ...



SAPA 4150  
SAPA 4150 SSG  
SAPA 5050 SG



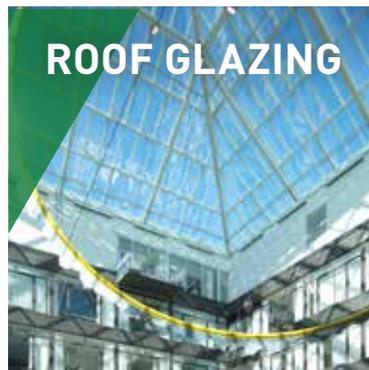
SAPA 1086  
SAPA 1086 BLOCK WINDOW  
SAPA 1086 VINTAGE  
SAPA 1086 SCREEN  
SAPA 1050



ARTLINE  
AMBIAL  
SAPA 1086  
SAPA 2160  
SAPA 2115



SAPA 2086  
SAPA 2060  
SAPA 2050  
SAPA E-FRAME



SAPA 5050



SAPA 3086  
SAPA 3050



SAPA 4550



EI 60  
EI 30  
E 30  
A 30



RC2  
RC3

... featuring assets complying with the requirements of healthcare buildings



ACOUSTIC



AIR  
PERMEABILITY



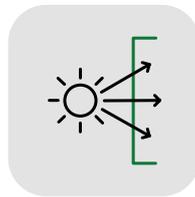
WATER  
TIGHTNESS



THERMAL  
ISOLATION



WIND  
RESISTANCE



LIGHT  
CONTROL



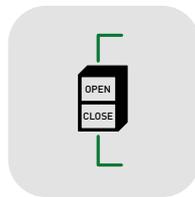
FIRE  
RESISTANCE



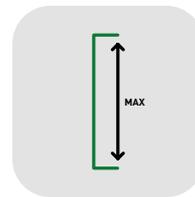
SECURITY



DISABLED  
ACCESS



MOTORIZATION



LARGE  
DIMENSIONS

## ABOUT SAPA

Imagination makes the world go round. At SAPA, it's our driving force and way of doing things. It allows us to move forward, innovate and inspire. Where others just see a window, we see cutting-edge technology that benefits both the users and the environment. We see the future.

The SAPA brand from Hydro was created over 60 years ago and is a pioneering international specialist in architectural aluminium systems. We have established an unrivalled reputation for innovative and

inspiring design solutions, building up a portfolio of impressive award-winning projects.

Our aluminium building solutions have been used to create purpose-designed facades, windows and doors for diverse sectors of commercial and residential buildings. We have a clear understanding of the requirements of architects, contractors, developers, fabricators and occupiers which enables us to develop a innovative, technically advanced and flexible product portfolio.

**sapa:**

By  **Hydro**

## Hydro Building Systems, Region Nordic, Baltic & Poland

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