the fabric

engineer

AS

News & insights | Case studies | 2022 edition

RUBB Building Systems

engineering excellence in

the fabric
engineer

Rubbhall AS / Renthall AS / Plamek AS
Rubb Buildings Ltd / Renthall UK
Rubb Building Systems
Rubb Polska / Renthall PL
Rubbhall Sverige AB

Rubbhall AS is once again grateful to be celebrating a successful year.

Despite the challenges of inflation, high energy costs, and the war in Ukraine, we continue to supply our customers with innovative, high-quality solutions.

Our parent company, Zurhaar AS, has made the strategic acquisition of O.B.Wiik AS, and we look forward to welcoming them into our family of companies. We also anticipate the synergies between us that will serve our clients—some of which we have already begun to implement.

2022 saw a lot of our orders come from repeat custom—something that I am always proud to see as it speaks to the quality, longevity, and ingenuity of our range of products.

Highlights this year include Bobilpark's motorhome hotel (p. 16), our expansion of Quartz Corp's facilities (p. 15), and the continuing progress of Larvikittblokka AS' highly complex second buliding (p. 18), which will be completed at the end of 2022. The variety in just these three projects demonstrate that we really can rise to the challenge of any requirements.

Like many businesses in these uncertain times, we will face some tough challenges in 2023. But the Rubbhall AS team will continue to work hard for the business and our clients to ensure we will always have the solutions to meet their needs.

As always, I am incredibly thankful to our employees and proud of the projects we have completed throughout the year. I look forward to overcoming the challenges 2023 will bring, and sitting down to write this intro once again to look back on another fantastic year for Rubbhall AS.

Erik Storhaug
Rubbhall AS, Managing Director

Sundvollhovet Industriområde,
3535 Krøderen

post@rubb.no

+47 67 11 21 00

www.rubb.no

Built to last
Relocatable
Code compliant
Low maintenance costs
Clear spans
Turnkey solutions
Worldwide service
Rapid construction

In this issue

SCAN FOR MORE

Draken expands Teesside Airport operations with new Rubb hangar

Rubb UK has completed work on a 1,500 sq. m hangar for aviation and technology firm Draken, which will be the new home for its fleet of Alca L-159E 'Honey Badger' jets.

The 30m span x 50m long BVE hangar has been installed in Draken's Teesside Airport base, and will be utilised in training exercises for RAF, US Air Force, and other NATO pilots.

Operated by experienced ex-military pilots, the six 'Honey Badger' jets that are permanently deployed in this hangar will form an aggressor fighter force in these exercises, flying against the visiting pilots over the North Sea to prepare them for high-end contested fights.

Draken CEO, Paul Armstrong, explained: "Our company has been trusted by the UK Government since it was established to deliver advanced training to the RAF and the Royal Navy in the aftermath of the Falklands War. Our aircrew and ground crew take very seriously the nationally significant role they have preparing our military personnel to survive in battle, and they are rightly proud that Teesside is host to this essential new defence capability."

To support these operations, Draken needed a state-of-the-art hangar. Rubb was happy to oblige.

A robust and reliable door system is provided by a 21.5m Heli-Door, specifically designed and manufactured by Rubb for military and aerospace projects. Entry is provided for personnel with four access doors—two to each side wall.

The work area is fully illuminated with 500 lux lighting, and kitted out with a full electrical spec. Engineers and aircrew are kept comfortable year-round with an HVAC, air conditioned, climate controlled system and 150mm of Rubb's Thermohall® insulated fabric.

The hangar is complete with a clean, white roof and goosewing grey walls in Rubb's high-quality PVC cladding, supplied by composite fabric experts Serge Ferrari.

Tees Valley Mayor, Ben Houchen, commented on the project: "Draken has been a long-standing and valued airport partner for years, and they provide a vital service to the UK. Their work in helping to train and prepare our armed forces so that they are ready to protect our great nation at a moment's notice is essential. I'm proud that not only are they located at Teesside Airport, but now with this latest move, they are expanding and creating yet more high-quality, well-paid jobs."

Rubb is thrilled to put our aviation expertise to use in bolstering the local economy, expanding Teesside Airport and further supporting the UK MOD through our cooperation with Draken.

> **These new arrivals mean the company has now more than doubled its operations, and its new hangar is yet another project that has taken shape this year.**
>
> Tees Valley Mayor **Ben Houchen**

Rubb EFASS supports Royal Mail drone trial

> **On time delivery regardless of our customers location or the weather, whilst protecting our environment is our goal. Even though we go everywhere, Royal Mail already has the lowest CO2 emissions per parcel delivered, this initiative will help reduce our emissions even further.**
>
> Chief Executive Officer, Royal Mail **Simon Thompson**

Rubb has designed, manufactured, and installed a 25m EFASS at Kirkwall Airport.

Kirkwall Airport is the main airport serving Orkney in Scotland, owned by Highlands and Islands Airports Limited. The airport services commercial flights from Loganair, and cargo shipments from Royal Mail.

Royal Mail—in association with drone company Windrunners and the Sustainable Aviation Test Environment (SATE) project based at Kirkwall Airport—will use the 25m x 32m EFASS to house its post-delivering drone as part of trials for the UAV system.

The post will be flown by an autonomous drone, called Ultra, which can carry 100kg of post between the trial areas of Kirkwall and North Ronaldsay. The drone, travelling at 90mph, takes only twenty minutes to deliver its post to the remote island community. With a population of just 70, the drone may prove essential to keeping remote areas like North Ronaldsay connected.

© Colin Keldie - Courtesy EMEC

© Colin Keldie - Courtesy EMEC

© Colin Keldie - Courtesy EMEC

Rubb's sustainable system is a perfect match for both this initiative and the region, as efforts are underway to decarbonise Kirkwall Airport in a bid from the Scottish government to become the world's first net zero aviation region by 2040.

The drone system also marks a huge step in sustainability due to the materials used in manufacture, and is up to 30% more carbon efficient compared to crewed aircraft solutions.

Included in the building is a 21.5m Heli-Door—installed and manufactured by Rubb—which ensures easy access for the 10m wingspan of the drone. A pedestrian door to the rear gable and a fire door are also included for the human personnel.

After these successful test flights, Royal Mail announced plans to set up as many as 50 drone routes over the next three years. To achieve this, Royal Mail is set to secure up to 200 more autonomous drones. Royal Mail said the first communities to benefit would be the Isles of Scilly and the Scottish islands of Shetland, Orkney, and the Hebrides.

Rubb & The Grammar School at Leeds team up for tennis & netball facility

Rubb has designed, manufactured, and installed The Grammar School at Leeds' (GSAL) new 2400m² covered sports facility.

The 38m span x 60m long BVC structure—which has the backing of Sport England and England Netball—contains four tennis courts and three netball courts to be enjoyed by both the GSAL students and the community.

Players enter through a 'porch' added to the left wall of the building, which is comprised of a 1.5m span x 15m long BVR extension to the main facility. This goes to show the customisability on offer when designing a bespoke Rubb building tailored to the client's exact requirements.

The flooring is expertly finished with durable Medite Smart Ply 18mm T&G, Tarkolay Isolation Membrane, and 6.5mm Tarkett Multisport in midnight blue and framed with a black border. The four tennis courts are cleanly marked in yellow on top of the three sets of white netball court markings, maximising the usable space.

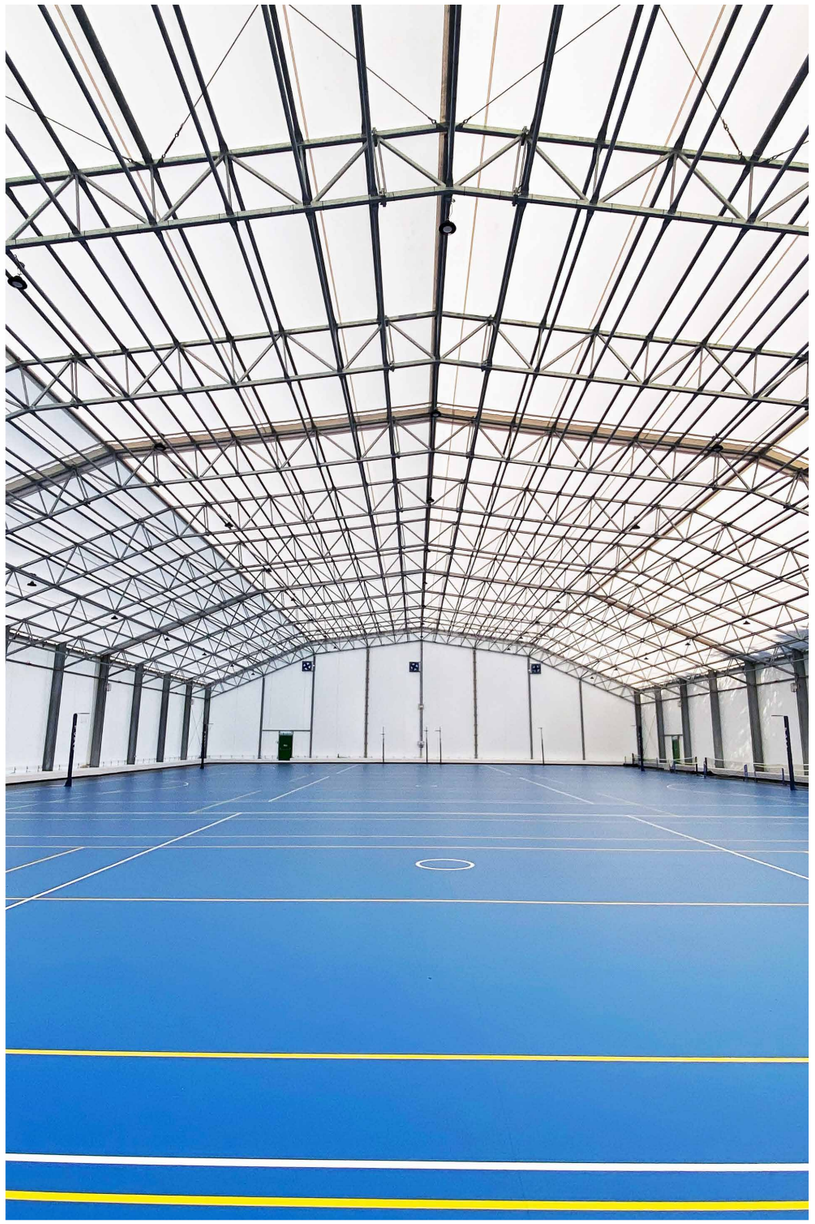
The structures are clad with a high-quality, PVC impregnated polyester fabric; grey to the walls, white to the roof. This translucent white roof allows natural daylight to illuminate the playing area, and is supported by 500 lux LED lighting when needed.

The cladding is complete with two signs featuring GSAL's emblem and motto—Be Inspired. One above the porch, 9.4m x 2.85m; one to the front gable, 2.7m x 3.15m.

To celebrate the opening, GSAL invited Tracey Neville MBE, former netball international and head coach of England, to officially open the facility and break it in with over 100 pupils from across Leeds. GSAL's U15 and U16 netball teams received a training session from Tracey, who then oversaw a skills workshop for pupils from eight local primary schools.

She was joined by Bob Bowman QPM, CEO of Leeds Rhinos Foundation. Bob had this to say: "The partnership between GSAL and Leeds Rhinos coupled with this excellent facility will provide opportunities for the Superleague franchise to integrate themselves with the wider community."

GSAL have made this new sports facility available for hire by the local community during evenings, weekends, and school holidays. More information can be found at **www.gsal.org.uk**.



Which pickleball court is best for you?

As pickleball is a sport that combines many elements of tennis, badminton, and ping-pong, it makes sense that it needs its own set up to get the full potential out of the game.

This can be achieved by tweaking existing tennis and badminton courts, or even making your own DIY court—but for true professional play, something bespoke is required.

If you're in the market for a pickleball court, these are the best options to consider.

Covered pickleball court

Covered pickleball courts are a great option for converting limited outdoor space into a durable, fully bespoke sporting area.

They offer a cost-effective solution specifically designed for pickleball. The regulation court is covered by a high sunshade canopy, and is usually completed by fencing around the perimeter to catch any stray balls. This allows all-weather play—come rain or shine—while providing top-level ventilation for players.

They can also be fitted with high-lux lighting to allow for night-time play and ensure the ball's visibility. This is essentially the covered court's only running cost, as ventilation is supplied naturally by the open walls.

Rubb has recently supplied a covered pickleball court to a popular restaurant chain in Oklahoma. The court measures 63.5 feet wide x 63.5 feet long x 16 feet high, and has proven very popular with players of all skill levels.

Covered courts are often chosen over fully indoor facilities for a few reasons: their increased natural ventilation, minimal running fees, and of course, the lower cost of entry. This makes them an excellent choice for clubs looking to invest in pickleball facilities.

Indoor pickleball court

Custom-designed indoor pickleball courts are the cream of the crop, and are becoming increasingly common throughout the nation as the sport gains popularity.

They can come with a boatload of features, and are fully bespoke to pickleball's requirements. Courts are fully sized for professional play. Wall colours and high-lux lighting are finely tunes to ensure the balls have peak visibility. HVAC units are supplied to ensure comfortable play year-round. MODular buildings can also be connected to include changing rooms, offices, streaming set-ups, etc..

Indoor courts also reduce disturbance for your neighbours. The average noise level coming from a pickleball court is measured around 70 decibels at about 100 feet away from the court. Rubb's Thermohall® system not only provides best-in-class insulation, but also insulates sound. From airfields to heavy machinery, Thermohall® has provided peace and quiet around the world. Pickleball won't be an issue for it.

Though these facilities are the gold-standard, they don't need to cost a fortune. Fabric buildings present a cheaper alternative to traditional structures at reduced cost while retaining durability. Many Rubb buildings have lasted over 30 years. They also represent unique advantages, such as being able to dismantle and move the structure to a new location.

Rubb's sport facility expertise can easily translate to indoor pickleball courts, with many years of experience installing top-class facilities worldwide.

Bespoke indoor pickleball courts are firmly a premium option, but they represent the most feature-complete solution for any pickleball club looking to provide the best experience for their players.

Rubb, Inc. supplied a covered pickleball court to a popular restaurant chain.

They chose Rubb to incorporate this unique architecture into their overall restaurant plans in order to provide weather protection for their guests playing pickleball.

The structure stands at 63.5 ft wide x 63.5 ft long x 16 ft high, and uses Grey 932S Serge Ferrari PVC for its membrane.

The steel was coated using high performance paint system to match the other metal finishes at the restaurant.

Meadowbank Sports Arena transformed into COVID-19 PPE factory

During the height of the UK's COVID-19 lockdown, Bloc Blinds set up shop in this Rubb sports facility to make face shields for healthcare workers.

Meadowbank Sports Arena in Magherafelt, County Derry, is usually full of visitors enjoying the multisport offerings; but two years ago, it became the site of a huge operation to supply healthcare workers across the North and South of Ireland with PPE (personal protective equipment) supplies.

In March 2020, Derry blinds manufacturer, Bloc Blinds, was preparing to close its doors and furlough its workers due to its status as a non-essential business. But then a thought occurred: why not use their expertise to ease the PPE shortage?

It was never an option […] we were going to try and help whatever way we could.

Managing Director, Bloc Blinds **Cormac Diamond**

Diamond needed to find new premises for the production in order to comply with strict social distancing requirements, and the huge open space of the Meadowbank Sports Arena immediately sprang to mind. The 70m span x 145m long structure is the largest of its kind in Europe.

He approached Mid Ulster District Council, which runs the arena, and they said yes instantly. Martin Kearney, Council Chair, explained: "That's the beauty of local government and local people. We can just get on with it."

They quickly got to work setting up over 100 workstations—each appropriately distanced—in the sports arena. Between them, poles were put in place to hook and drag boxes from one table to another, minimising contact.

Initially, all of Bloc Blinds' 120 employees were set to work. Demand quickly outpaced production, however, resulting in them hiring an extra 220 workers over the following weeks. In May 2020, the operation was producing a staggering 500,000 face shields per day for healthcare workers.

I feel very privileged that I'm fit to help our doctors and nurses, who are the people on the front line. You knew you were helping in some way, and that gives you a positive when there's negatives all round you.

Bloc Blinds **Scott McMullan**

Rubb originally completed the huge 70m span x 145m long BVL multisport arena in 2009, and it is still in fantastic shape over 10 years later—often hosting sporting championships, events, and even seeing use as a ballot count centre.

Tveter & Lund AS orders second Rubbhall for boat storage

Rubbhall AS has supplied Tveter & Lund AS with a 25m span x 30m long x 7m leg Rubbhall, which will be used for boat storage.

The hall was installed in September 2022, and follows the completion of their previous 25m span x 55m long x 7m leg Rubbhall in 2019.

Easy access is provided by a roller shutter door, which allows the boats to be towed by truck before being stored on racking, three boats high.

Rubbhall lights up the highway for Bekkevoll Eiendom AS

Rubbhall AS has recently designed and manufactured a new Rubbhall for Bekkevoll Eiendom AS.

The 20m span x 50m long hall will be used for storage and exhibition of caravans and motorhomes.

Included in the Rubbhall is 100mm of Thermohall® insulation, creating a comfortable working environment all year long.

Illuminated LED signs showcasing Bekkevoll's logo are featured on the front and rear of the hall, making sure the structure is seen by drivers both day and night on the busy main road that runs by it.

Rubbhall AS Sales Manager, Øyvind Kristiansen, said: "The Bekkevoll project is a huge success. The customer is very satisfied. They recently hosted a party in the hall with over 2,000 guests.

"The hall is close to the main road with several thousand cars driving by every month, so the illuminated sign is very valuable to their business."

Courtesy CARAVANFESTIVAL

Quartz Corp connects new Rubbhall

Rubbhall AS has connected a new 25m span x 32m long x 6.9m leg Rubbhall with 100mm Thermohall® insulation to an existing Rubb building for Quartz Corp in Drag, Norway.

The building will be used for storage of materials before the integrated conveyor belt transports the product for further processing.

Plamek AS skilfully assembled the project. The difference in span and eaves sizes between the buildings was easily overcome by implementing an insulated overlap, which is welded the same way as standard joints.

The existing building's gable wall has become a separating wall between the two structures, with the existing 4m x 4m roller shutter door enabling access between the two. To the left, another 4m x 4.5m roller shutter door was installed in the new structure to provide outdoor access. There is a third 3.8m x 4.5m roller shutter door to the right sidewall, completing the building's entrances.

Quartz Corp's Norwegian production site is in the heart of fjord country in Northern Norway. The village of Drag lies along the spectacular Tysfjorden in Hamarøy municipality, where abundant natural resources and access to clean energy help fuel a vibrant industrial base in the area.

The company's quartz is mined in Spruce Pine, North Carolina, USA. While quartz is the second most abundant mineral in the Earth's crust, quartz from Spruce Pine is uniquely pure. The quartz is then sent to the state-of-the-art facility in Drag, Norway for on-processing and intense purification to 99.999% SiO_2 levels. By keeping the early processes separate, the Norwegian facility can focus entirely on advanced purification techniques.

Before the new building.

We are very satisfied with the hall; it works well for this purpose. We were very pleased with the follow-up from Rubb during the process and especially the dialogue with Rubb's project manager. Neat and professional dialogue, and everything was delivered as agreed.

Bobilpark **Morten Glenna**

Rubbhall AS' new motorhome hotel is ready for check in

Rubbhall AS has supplied a new motorhome hotel for Bobilpark's latest Norwegian campsite.

The 20m span x 60m long x 6m leg Rubbhall is located in the historic central Tønsberg, which is considered to be the oldest town in Norway.

The Rubbhall's wide clear spans allow the heated motorhome hotel to provide 29 year-round spaces for the vehicles, which will be kept insulated all the while with Rubb's patented Thermohall®.

A powerful ventilation system was installed to prevent humidity from building up in the hall due to the gravel floor's tendency to absorb rain from outside. With this in place, all the air inside the hall can be replaced within an hour.

Previously Rubbhall AS supplied Bobilpark with a 20m span x 25m long x 5m leg insulated Rubbhall, which remains next to its latest building.

The project was completed in October 2021, and has since comfortably hosted many motorhomes from across the country.

Rubbhall AS to deliver second building to Larvikittblokka AS

Last year, Rubbhall AS delivered a sound-insulating hall specially adapted for wire sawing stone to Larvikittblokka and Klåstad quarry in Larvik.

Now, another hall will soon be in place that further facilitates the production of the block stone for large parts of Norway—and it will be one of Rubbhall's most spectacular halls.

CG render of finished hall.

The 27.1m span by 65.6m long building will have a floor area of 1,770 square meters, with over 10m of free height under the roof.

"We want the hall to be large and spacious so that we can do all the work we have to do in the best possible way," says General Manager of Larvikittblokka, Jan Henrik Hansen.

"This will be one of the most challenging halls we have ever delivered," says Øyvind Kristiansen, Key Account Manager at Rubbhall AS.

"The hall has so many functional solutions —even an integrated water collection and gutter system in the floor. The hall will be large, with enough space for everything the customer needs to make their production easier."

Øyvind has been working on the project for a while and is satisfied with how the planning has gone. "Here the customer will get a super hall. It will be specially adapted to meet the customer's needs, for example 10 gates and 4 doors are planned in the hall. And a 40-tonne overhead crane has been set up on the roof."

In Autumn 2021, Larvikittblokka increased its production capacity. Their stone wire sawing operations required a production hall that was both sound-insulating and temperature-regulating. Through Rubb's Thermohall® insulation solution, they received just that.

Now they need to expand.

Larvikite is Norway's national stone. The larvikite block can be used for many things, and is often used for marine projects such as breakwaters, wharves, quay fronts, and quay facilities. On land, the blocks are often used as retaining walls in road, track, and park projects. The stone blocks can also be used for flood and public protection. In Larvik, Larvikittblokka has production in two quarries: Klåstad and Tvedalen.

"When we got our previous Rubbhall, the collaboration worked very well. We therefore chose Rubbhall for this project as well, and can warmly recommend Rubbhall to others. The collaboration and planning goes seamlessly, the assembly team is skilled, and the quality of the halls is top notch. We can without a doubt recommend anyone who is concerned with good quality and functional solutions to choose Rubbhall as their next production hall," concludes a satisfied Jan Henrik Hansen.

Some facts about the new building:

- 1770m2 floor area
- Over 10m free height under the roof
- 100mm Thermohall® insulated walls
- 10 roller shutter doors, 4 access doors
- 6 large windows
- 3 saws, 1 multi-wire saw, 1 rock breaker, treatment plant
- Integrated water collection and gutter system in the floor
- LED lighting
- Air mixers
- 40 tonne overhead crane

"With this second production hall, Rubbhall AS was again the natural choice for us. We are so satisfied with the previous hall, so there was never any doubt about who would deliver the next one.

General Manager, Larvikittblokka **Jan Henrik Hansen**

Largest project delivery in the history of Renthall AS for 8 BNOK Boliden expansion

In 2022 Renthall AS delivered a record 8 fabric buildings to a single industrial company Boliden, located in Odda, Norway.

The project is 2,600 square meter in total and will support the client's ambitious 8 billion NOK expansion which is set to increase their production capacity by more than 75%.

Renthall AS was chosen due to their ability to rapidly deliver from their stock of temporary buildings, which are all ready for installation.

For more than 90 years, Boliden has been exploring, extracting, and processing base and precious metals. Renthall AS is thrilled to support their rapid expansion, while also setting some records of their own!

We are proud to deliver such a large project within its critical timeline, and at the same time receiving a diploma from Boliden for outstanding HSE attention.

CEO, Renthall AS **Terje Hals**

Renthall AS bolsters storage for CCB's offshore installations

Together with their long-time client CCB—located in Mongstad, close to Bergen, Norway—Renthall AS has delivered a new 40m span x 70m length building, insulated with Thermohall® technology.

The building will be used to facilitate more storage for CCB clients on the offshore base, which has seen significantly more activity due to wind projects gaining popularity as oil and gas prices increase.

CCB has been a client of Renthall AS for more than 10 years, and they are happy to continue our strong standing with their offshore bases as we fulfil their need for temporary buildings.

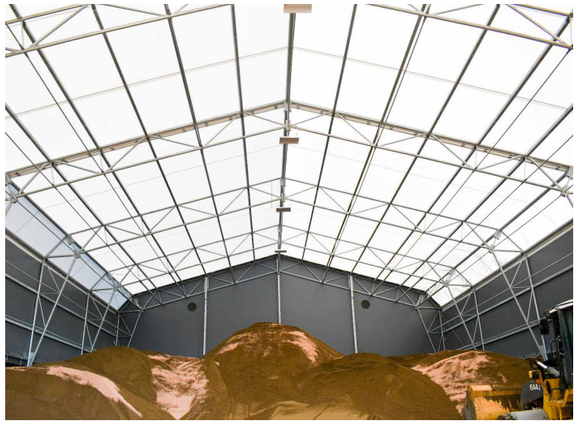
Town of Liberty is Winter ready with new Rubb sand shed

Rubb, Inc. was contracted by the Town of Liberty, Maine to furnish, deliver, and install an 18m span x 30.5m long x 4m leg BVE structure to serve as the Town's new sand shed.

The previous building used by the Town at their DOT facility had failed and needed to be replaced. Rubb's engineering team worked with the Town's concrete foundation supplier to design a building with a high storage (volume) capacity.

The structure sits atop a 3m tall, poured concrete foundation, and stores 2,446.5m³ of the salt and sand mixture. As this structure has a large 6m wide x 7.3m high opening in the front gable with no door, it is considered to be a partially enclosed structure and was designed as such.

Design loads: 105 mph 3-second gust wind, exposure category C, 60 psf ground snow load, and a 1 psf collateral load.



Polyfix AB continues growth with 5th building from Rubbhall AB

Polyfix AB was founded with the aim to supply the playground industry with high-quality, well-designed, and—above all—safe products. Since then, Polyfix AB has expanded its range to include all kinds of playground components which can be assembled in endless permutations.

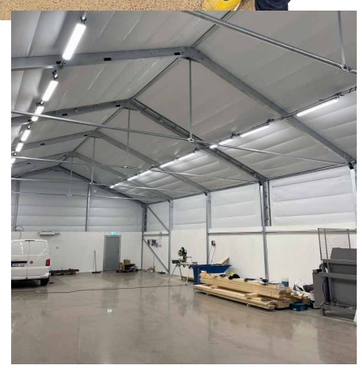
It's no surprise they've needed so many storage expansions from Rubbhall AB over the years.

We met Ralf Burkhard, Polyfix AB CEO, at their factory in Söderköping, Sweden to see the operation first-hand. His father started the company in 1984, nearly 40 years ago. Burkhard took over operations just over 20 years ago to develop Polyfix AB into what it is today.

Earlier this year, Rubbhall AB delivered its fifth fabric building to their ever-expanding operation. The hall is 12m span x 24m long x 4.3 leg with 100mm Thermohall® insulation.

It's a cost-effective solution to expand our production capacity as the company continues to grow.

CEO, Polyfix AB **Ralf Burkhard**



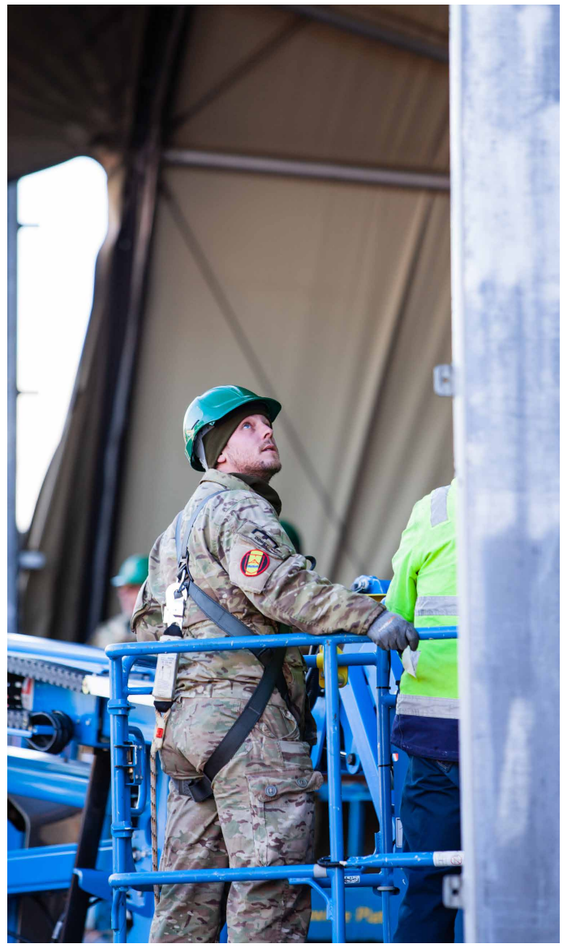
The fabric building has a poured concrete slab and is completed with walls and a mezzanine level. The structure is heated with two air heat pumps and will be used to pack products due to be delivered all over the world.

Burkhard bought his first fabric building from Rubbhall AB around 2010 and today has five halls. Polyfix AB has chosen to expand its capacity with fabric buildings instead of traditional buildings, which has been key to the company's quick expansion due to speed of delivery and cost-effectiveness.

Many companies first think of traditional buildings when they need to expand their premises, but Polyfix AB's first thought is always Rubbhall.

The hangar system is well thought through and has been tried and tested for a long period of time by other defence forces. It helps that there are lot of clever, detailed specific items featured on the product. We know it's the right product for us, and in our general opinion it is a great hangar system.

S3 3rd Construction Battalion
MSgt Vinding Christensen



Danish MOD places triple EFASS order

After successfully supporting Operation Barkhane in 2020, the Danish Ministry of Defence has placed an order for a further three EFASS deployable hangars.

The three 25m span x 40m long EFASS will each sport a 21.5m Heli-Door, with a clear opening of 21.3m wide x 7m high. The aluminium framed structures benefit from double skin, insulated fabric cladding, lighting packages, and 2000kg roof-mounted gantry crane systems.

Back in 2019, the S3 3rd Construction Battalion completed a training session ahead of their hangar installation mission. Rune Vinding Christensen, Master Sergeant OR-8, led the team of nine Danish military personnel at Rubb UK headquarters, in Gateshead, England.

The Danish Ministry of Defence were first introduced to Rubb's military products after seeing them being use by the UK MOD in Afghanistan. There's no better sales pitch than seeing our hangars in action, so it's no surprise Rubb was on their radar for future requirements.

Adam Bowery, Rubb's Military Project Lead, commented: "We are delighted to work with Danish Defence and supply them with an additional three hangars to support the Royal Danish Air Force. As a valued customer, we will be offering ongoing support, and we look forward to welcoming the Engineering Regiment to Rubb UK for installation and maintenance training in the new year."

RAF 5001 Sqn celebrates 80th anniversary

RAF 5001 Squadron members past and present have been celebrating its 80th anniversary this year and held a special luncheon to commemorate the occasion.

Squadron members and invited guests gathered at RAF Wittering for the belated event, which was held one year late due to COVID-19. Attendees included previous squadron members, senior RAF officers, members of the RAF Airfield Construction Officers Association, Airfield Construction Branch, and the Honourable Company of Constructors and Industry.

Over seventy people attended the anniversary lunch, which was held in the Officers' Mess at RAF Wittering. It was a rare opportunity for the Squadron, which meaningfully contributes to so many current operations, to catch up with old friends and celebrate its achievements over 80 years.

5001 Sqn is responsible for the rapid construction of Temporary Working Environment (TWE) and the installation of Portable Aircraft Arrestor Gear (PAAG). TWE provides environmentally controlled facilities, including Rubb military structures, for Fast Jet or Rotary assets and has been supporting exercises and Operations in the Middle East, Afghanistan, Europe, and the Falkland Islands.

5001 Sqn—which reformed in 1999—is dedicated to the provision of expeditionary airfield capabilities. 5001 Sqn was first formed during World War II as part of the Airfield Construction Branch, tasked with constructing and maintaining airfields. 5001 Sqn delivers the modern equivalent of this capability in today's expeditionary focused RAF. The Sqn retains the original motto 'Fit Via Vi' meaning 'A Way is Made by Force'.

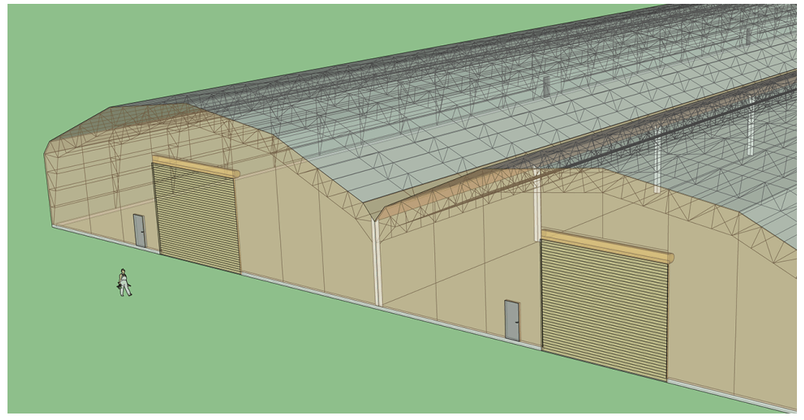
To celebrate the occasion, eight 3D printed commemorative models were awarded at the event. Seven were given to 5001 Sqn members, and one was handed to Rubb's Military Project Lead, Adam Bowery. The impressive model features Rubb's EFASS hangar, a staple of both our military range and 5001 Sqn's workload. The diorama is complete with 5001 Sqn's crest, and a gold plaque reading "5001 SQN / 80th ANNIVERSARY / 1941 – 2021".

Image courtesy CPL. Justin Huffty

Rubb, Inc & Cocoon to build 9,290 sq. m Marine Corps. facility

Marine Force Storage Command (MFSC) is charged with making sure the equipment it stores is ready when the Corps needs it. To help maintain peak readiness, MFSC has called on Rubb, Inc and Cocoon to provide a 9,290 sq. m facility to include a dehumidification system.

The Corrosion-Free Environment will consist of two 30.5m by 152.5m linked structures for a total footprint of 71m by 152.5m and will be used primarily for vehicle storage. The challenge with vehicles is that their various components corrode at different RH levels. For example, the environment has to be dry enough to protect computer systems and electronics, but not so dry as to put rubber and elastomers at risk. The sweet spot is a relative humidity (RH) level of 40% (+/- 5%) which completely protects every component and ensures these critical assets will be in peak readiness when they're needed.



Also included is a remote monitoring service that provides real-time alerts and encrypted weekly and monthly reports to ensure the facility stays at optimal RH levels.

The facility is expected to be operational within 12 months thanks to the utilization of steel-framed fabric structures engineered and manufactured by Rubb. Our building code compliant structures can be operational in far less time—and at far lower cost—than traditional construction.

Ministry of Defence awards Rubb UK with new £9.7m contract

Rubb UK has been awarded a four-year contract with the UK Ministry of Defence.

The new contract will see Rubb continue to provide military shelters, repairs, refurbishments, spare parts, training, and support for infrastructure which can be deployed in the field.

The contract is worth £9.7m, and will help sustain employment for over 51 employees, including several military-dedicated operatives. Key suppliers include Niko Ltd, Hydro, Anixter Fasteners and local suppliers Airowsafe, Birtley Galvanizing, Rotational Engineering, SMW, JK Lifting, and Elite Powder Coatings.

To handle the MOD's requirements, newly appointed Military Project Lead Adam Bowery will oversee operations. "I am delighted to join Rubb at such an exciting time. The awarding of this contract signifies our long-term commitment to support UK Defence, both domestically and internationally.

"Working with strategic partners and suppliers, Rubb are committed to providing the MOD with industry leading, deployable aircraft hangars. As well as offering through-life support to maintain, refurbish, and upgrade their existing buildings to meet specific operational requirements."

To handle the production requirements for the single source contract, Ken Gray has been promoted to MOD Workshop Manager to oversee manufacturing at Rubb Buildings Ltd's Gateshead facility and ensure Rubb's excellence in engineering.

Rubb is a global leader in innovative defence structures and hangars for the military sector. The company has been a long-standing supplier to the UK Armed Forces, going back to 1979 when the RAF tasked the company to supply military buildings for the world-famous Red Arrows.

The Ministry of Defence benefits from Rubb's expertise in deployable hangar solutions, which have been used to house and protect a range of fixed and rotary wing aircraft.

The hangars have been invaluable to UK, Canadian, and US forces deployed on operations across the globe. Rubb continues to provide the Armed Forces with long-term assets and will soon share developments regarding an additional 28m structure to the EFASS range.

Rubb recently fulfilled a three-year single source contract, with a value of £9.5 million with the MOD. This ran until October 2021, and was preceded by another five-year contract valuing £6.86 million which ran from 2013 to 2018.

The new contract strengthens the existing relationship and ensures that Rubb will be able to continue to provide important equipment for the MOD at any given time.

"Working with the MOD is a long-standing relationship that we have built over many years. We are immensely proud to contribute to an industry that provides equipment to support our troops at home and in the field.

As always, I am delighted in the hard work and dedication from all the staff here who are committed to meeting the needs of the defence sector, delivering deployable structures, and instrumental in Rubb's new contract with the MOD.

Managing Director, Rubb UK **Ian Hindmoor**

Rubb EFASS supports MOD Watchkeeper drones at RAF Akrotiri

The 25m span x 36m long EFASS can house four 10.9m wingspan, 6.5m long Watchkeeper drones, as well as a Pinzgauer 6x6 All Terrain Truck which is used as a command vehicle and fuelling point for the UAVs. Easy access is provided by an 18.2m x 6.5m Heli-Door, as well as four personnel doors.

Able to reach altitudes of up to 16,000ft and stay in the air for up to 14 hours, the tactical UAV has proven itself an essential asset on the battlefield. It lets the Army see things up to 200km away and has been used successfully in Afghanistan, where it has played a crucial role in protecting British troops.

Built in the UK by Thales, the Watchkeeper is an autonomous system that always requires a 'human in the loop' to authorise all aspects of its operations from their ground control station (GCS). Watchkeeper is the Army's intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) drone, designed to be used in warfighting as well as a wide number of other scenarios.

The 47th Regiment Royal Artillery (47RA) —the Army's Tactical Unmanned Aerial Systems (TUAS) Regiment—based at Larkhill, Wiltshire is responsible for Watchkeeper. After finishing basic crew training in the UK, the crews come out to RAF Akrotiri to complete vital currencies and flying checkpoints which is facilitated by the good weather around Cyprus.

Engines to EFASS: McLaren engineer supports RAF

The following article is reproduced with permission from Voices of the Armed Forces, by the Ministry of Defence. It features Rubb's 20.4m EFASS deployable hangar system, erected by RAF 5001 Squadron.

Senior Aircraft Technician Proffitt swapped her regular role working with McLaren's first-ever Hyper-GT to working with ground support equipment in Cyprus.

Royal Air Force Reservist Senior Aircraft Technician (SAC(T)) Proffitt has just returned from Cyprus where her work has helped operations in the Middle East. She was responsible for the scheduled maintenance and repair of all ground support equipment including vehicles, generators and hydraulic rigs.

Her role in Cyprus supported the campaign to defeat the global terrorist group Daesh.

Based out of Cyprus, the Royal Air Force continues to survey and strike targets in Iraq and Syria as part of the Global Coalition under the banner of Op SHADER.

In her day job, she works for McLaren Automotive where she is responsible for the delivery of the McLaren Speedtail Hyper-GT.

While in Cyprus she was attached to 5001 Squadron, whose role is to maintain the technical working practices, deployed as environmental protection for aircraft and personnel.

She spoke with Voices of the Armed Forces on her return from Cyprus.

What's it been like to deploy on operations?

"Operation SHADER has expanded my experiences and given me the opportunity to work alongside regular RAF personnel. I have developed and strengthened transferable workplace skills such as resilience, communication and teamwork.

What was day to day life like on deployment?

"Once I had completed my training I fitted into the team seamlessly being able to carry out each task, troubleshoot and problem-solving where required.

"Due to the volume of work that we had in Cyprus, it was imperative that I could complete all of the multiple tasks required to fulfil the role. Therefore my day to day was varied, which kept me on my toes and always learning. Each alternate day we would move onto a new piece of equipment, so very quickly there was a sense of satisfaction as each task was being complete.

What's it like being a reservist?

"I am very fortunate that my employer, McLaren, are very supportive of my role in the RAF Reserves and give me the flexibility to deploy on operations when required.

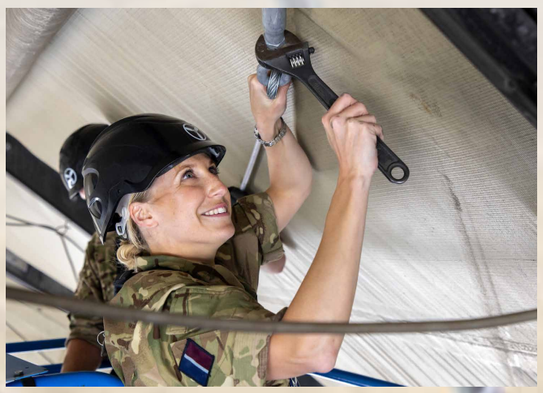
What's the most interesting thing you saw or did?

"I really enjoyed having the opportunity to see Typhoons. I think for me as a technician in the Royal Air Force I have had little opportunity to get up close to any Aircraft.

What was the biggest challenge you faced?

"I would say initially the stricter routine. I am used to planning my diary and workload as I see fit. This became less intense very quickly as the management who were in charge and experts in the role were great at planning the work and workload with the personnel that they had.

"I recognised immediately that it was the strict routine that was giving us such a good efficient output and it just became part of the role."



"Seeing Typhoons take off from Akrotiri, you really get a sense of realisation that this is what all of my training has been for and no matter what your role is, your output is constantly supporting keeping our aircraft in the skies.

Royal Air Force Reservist **Senior Aircraft Technician (SAC(T)) Proffitt**

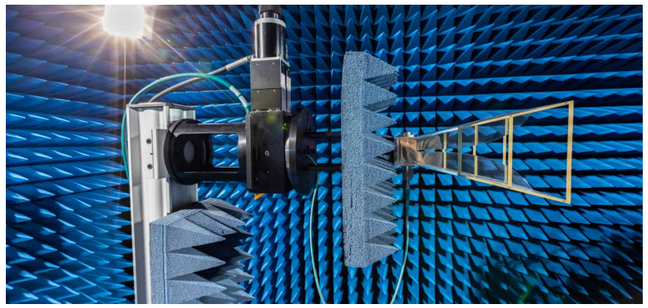
Rubb's Thermohall® insulation is well known for its temperature control, but did you know it also insulates sound?

Thermohall® is Rubb's patented insulation system, which boosts the energy efficiency of hundreds of Rubb's structures across the globe. The system is comprised of non-combustible glass wool insulation encapsulated in air and watertight pockets between the PVC cladding of Rubb's buildings.

From Turkish Technic's giant MRO hangar, to 9m long workshops, the eco-friendly insulation system promotes energy efficiency and comfortable working environments across all sectors and structure sizes...

When Thermohall® was first developed, the Bvggorsk Norwegian Building Research Institute conducted extensive testing of its innate sound reduction properties (specifically the 50mm and 100mm variants, which have been utilised in many of Rubb's projects).

The setup was simple. Two chambers: a transmitter chamber, and a sound chamber—separated by a 4m wide by 2.5m high Thermohall® sample. After the sample wall was mounted, the transmitter chamber was tilted towards the sound chamber, and fastened to its connection points with 1 tonne of pressure per point. This created a perfect seal to the test wall, preventing all sound leakage. Then, the sound chamber's microphones recorded the sound that could penetrate the Thermohall® sample to calculate its overall sound reduction.



The test was carried out in accordance with NS-EN ISO 717-4, and found the following results:

50mm: 19dB sound reduction
100mm: 22dB sound reduction

This provided the baseline for the full findings, which were achieved by adjusting these values to calculate Thermohall®'s effectiveness in real-life scenarios.

Specifically, the study applied algorithms that focussed on traffic and aircraft noise, which are constant factors in the locations of many of Rubb's industrial and aviation projects.

Traffic control reduction:

50mm: 14 dB sound reduction
100mm: 17 dB sound reduction

Aircraft noise reduction:

50mm: 15dB sound reduction
100mm: 18dB sound reduction

Rubb now offers a 150mm option for its Thermohall® packages, so it tracks that this variation would offer even greater sound reduction properties.

The future of Thermohall®

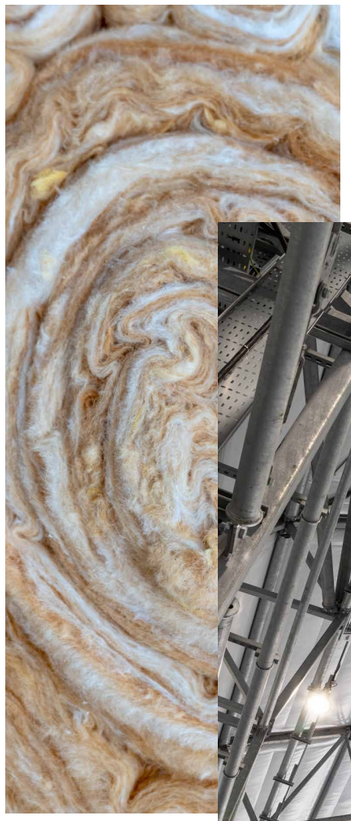
While these results are very positive and can be considered one of the many benefits of Thermohall® technology, Rubb is striving to achieve even more levels of sound reduction with its insulation system.

Rubb, Inc. is currently investigating methods of reaching upwards of 50dB of sound reduction in order to attain recording studio levels of quiet. This will eliminate audible conversations and outside distractions, which is perfect for projects with specific acoustic requirements.

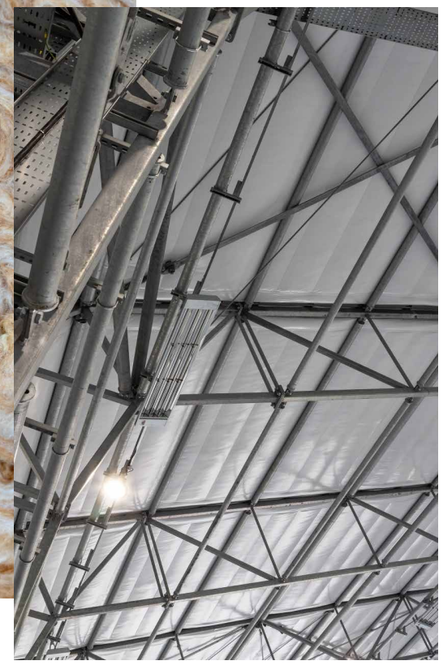
There are several methods that Rubb, Inc. is investigating with its partner, such as:

- Steel-clad sound reduction panels placed in-between the PVC skins
- Tilt-up concrete
- Utilising drywall with resilient channel wall and ceiling assemblies
- Connecting components of the system with vibration dampening connectors.

Some of these methods have already been utilised in previous projects with very satisfactory results, so there is no doubt this will further establish Rubb's buildings as the most functional solutions on the market.



Stay tuned for further developments.



Rubb UK paints the Toon blue for 45th anniversary

Founded in 1977, Rubb Buildings Ltd is celebrating its 45th anniversary this year.

To commemorate, Rubb chose Gateshead Council to light the iconic Gateshead Millennium Bridge in Rubb's signature blue. Bathing the quayside in blue—we could think of no better way to celebrate our local heritage.

Gateshead has been an integral part of Rubb's history, as Rubb has never left its Team Valley location throughout its 45 years. In 1977, the premises was surrounded by fields rather than the familiar business, industrial, and retail landscape of 2022. Now the location is home to Rubb Building Ltd's design, steel, and PVC production—providing jobs for over 50 local employees.

45 years ago, industry innovator Finn Haldorsen started Rubb Buildings Ltd in the UK following success in his Norwegian homeland. When the company was firmly established under the leadership of then Managing Director Bill Wood, he moved to Maine, USA, and founded Rubb Inc in 1983.

Today, Rubb is established in Norway, UK, USA, Poland, and Sweden—with a worldwide reputation for excellence in engineering.

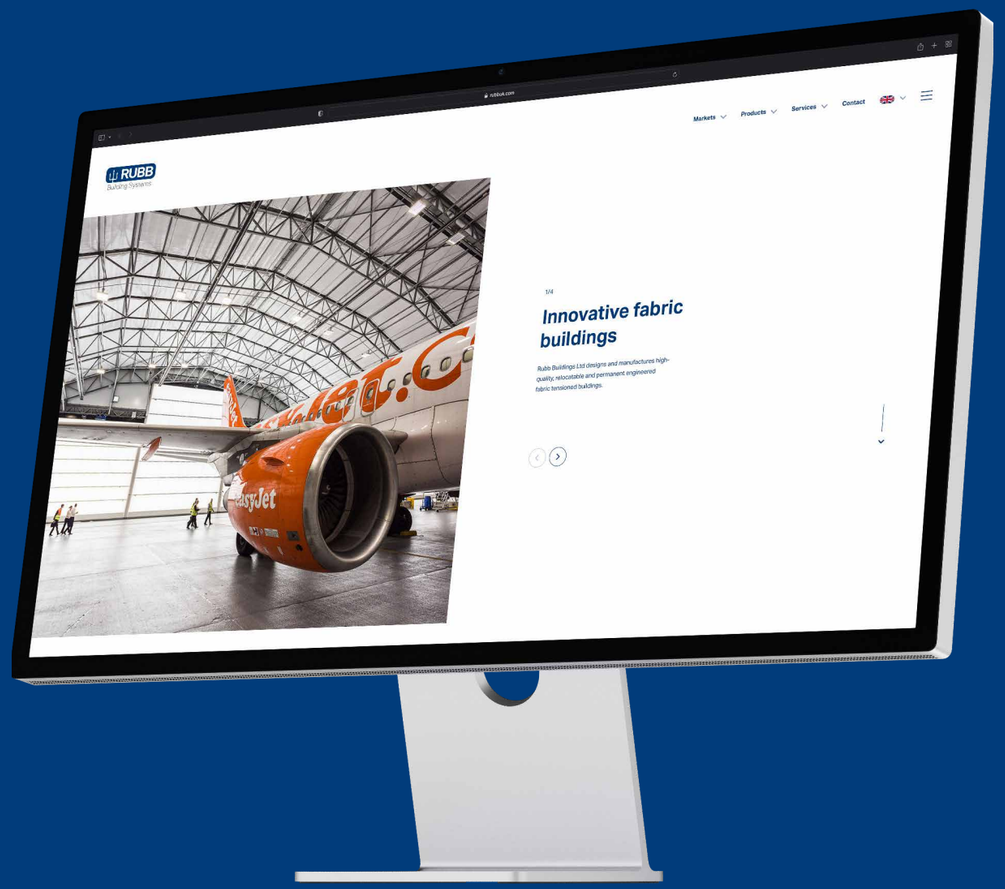
Join the Rubb UK team in raising a glass of Rubb Gin to mark this milestone in our journey—here's to many more!

Our 45 years of excellence in engineering has cemented us as the industry leader in fabric tensile structures. Our wealth of knowledge and experience is down to our family business ethos and low staff turnover. The hard work and dedication of our employees has delivered amazing results for each of our 45 years.

We are proud of our history and very excited for what the future will bring.

Managing Director, Rubb UK **Ian Hindmoor**

Rubb launches new websites



Rubb UK, USA, Norway, and Poland—as well as Rubb Industries AS—have launched newly designed websites for 2022.

You can find case studies, videos, and VR tours, as well as info on Rubb's market sectors, structure range, and services.

Scan the QR code to explore our new site.

Model harbour features world's smallest Rubbhalls

Rubb buildings are known to come in many shapes and sizes, but we haven't made any quite this small…

Nils Arvid Totland, a passionate model boat builder from Haugesund, Norway has spent years working on 'Totlandshavn'—a 1:50 scale model harbour diorama, featuring several miniaturised Rubb structures. From forklifts to shipping containers, the harbour is rendered in painstaking detail.

When did you start making the models?

I started building ship models when I was young. There was a period of about 10 years where I worked as a truck driver, driving all over Europe, so I had to put this hobby on hold.

I took it up again when I got a more 'normal' job at home.

What inspired you to make these models?

I am fascinated by ships and ship design, and like to work creatively with my hands.

The harbour came after I found inspiration from German and Dutch model boat clubs that have some fantastic harbours to sail the models in. I wanted to create something more detailed, and make it look as realistic as possible for diorama pictures of the boats.

Is this project based on any particular harbour?

The 'Totlandshavn' harbour isn't a copy of any harbour, but a fantasy creation that has grown over many years. It started with a small quay, and I have expanded it one piece at a time. The name 'Totlandshavn' is what my friends have started calling it—my last name is Totland, and 'havn' means harbour in Norwegian.

When did you start making the models?

I started building ship models when I was young. There was a period of about 10 years where I worked as a truck driver, driving all over Europe, so I had to put this hobby on hold. I took it up again when I got a more 'normal' job at home.

What inspired you to make these models?

I am fascinated by ships and ship design, and like to work creatively with my hands. The harbour came after I found inspiration from German and Dutch model boat clubs that have some fantastic harbours to sail the models in. I wanted to create something more detailed, and make it look as realistic as possible for diorama pictures of the boats.

Why did you choose Rubb for these models?

I used Rubb structures because it's important to make buildings that people know and can instantly relate to the harbour industry. Rubb buildings are found everywhere, so that was a must-have on the harbour quay.

An update from Rubb Poland

Due to steady orders from Rubbhall AS, Rubb, Inc., Rubb Buildings Ltd, and O.B.Wiik, Rubb Poland's production has been full speed throughout 2022.

They decided early this year to end the renewal agreement for two HF machines and replace them with a new Zemat HF machine.

Marcin Kominiak, Head of Production in Rubb PL, is very satisfied with the new machine and the process of investing in yet another is in progress, planned to be operational early 2023.

Rubb PL has further invested in its working environment with a new ventilation system to improve the climate for their workers.

2022 has been a very challenging year for Rubb PL's Ukrainian staff. Most Ukrainian employees' close family members were safely relocated to Poland earlier this year, at the beginning of the conflict.

Rubb PL showed an incredible humanitarian effort in this, which included sending company cars to carry refugees across the border to safety.

Erik Storhaug, Rubbhall AS and Rubb PL's Managing Director, personally brought a family of five from Poland to Norway, with the youngest members being just 3 and 5 years old.

Rubb's corporate parent, Zurhaar AS, also offered a lump sum donation to all Ukrainian employees in Rubb PL to aid everyday life and facilitate the relocation of family.

Despite the unprovoked war in their homeland, Rubb PL's Ukranian staff have contributed immensely to Rubb PL this year, under the leadership of Marcin Kominiak, supported by Katarzyna Wisniewska.

Renthall hits UK shores

RENTHALL

Renthall UK offers flexible rental terms of temporary steel and aluminium building solutions to provide an excellent cost-effective solution that can be adapted to suit your business requirements.

After huge success in Norway backed by Rubb Industries AS, we have more than 200 buildings in our portfolio globally—with more being added every week.

With the introduction of Renthall UK, we can now offer the quality and experience of the group in favourable and flexible terms for companies and organisations within the public sector and commercial enterprises across the UK.

Our steel frame buildings are modular, fabric buildings that are built to last. While our aluminium frame structures are rapid, cost-effective structures for temporary requirements.

Solutions are adaptable as needed, and when you rent from us you can receive a total package with lights, ventilation, and the various door options as required.

When there is a need for a flexible, temporary solution, renting is an excellent, cost-effective choice.

By renting your next building you receive an overview of operating costs, as well as the stability of a predictable fee that sidesteps capital investment.

Visit www.renthall.co.uk to find out more.

Zurhaar AS buys O.B.Wiik

Rubb's parent company, Zurhaar AS, has acquired O.B.Wiik AS.

Following the acquisition, Zurhaar AS will have a total estimated turnover in 2022 of £124.5 million, and will employ 420 employees globally.

Present in Norway, Sweden, and Denmark, O.B.Wiik is the Nordic region's leading supplier of fabric buildings, work/construction shelters, and tarpaulins. Additionally, they are present in the event market with exhibition, stage, and grandstand solutions on offer. O.B.Wiik is also a preferred supplier of emergency relief shelters with warehouses strategically placed in 8 countries to deliver buildings and shelters during international humanitarian crises.

O.B.Wiik and Rubb Industries currently compete in the fabric building and rental sectors, but this acquisition presents the opportunity to cover markets where Rubb currently lacks representation—events and emergency aid for example. With this purchase, Rubb will have access to a larger market for sale and rental with O.B.Wiik's products and a greater international reach.

The main goal of this acquisition is twofold: to foster these companies' synergies, and to expand internationally.

"We want to praise the seller who, after owning the company for 110 years, now sells all the shares to us. This will strengthen their solidity and create new growth for O.B.Wiik," says Rune Birkeland, Zurhaar AS CEO.

"I am happy on behalf of the family and myself that Zurhaar AS has taken over O.B.Wiik AS. This is a company that has great capacity, knowledge, and experience in the industry both nationally and internationally," commented Kristin Anker after 28 years as the sole owner.

O.B.Wiik Facts

- Present in Norway, Sweden, and Denmark
- Turnover of £44 million
- 90 permanent employees
- Established in 1912

"We are proud to have bought such a traditional company, and we look forward to developing synergies between Rubb Industries AS and O.B.Wiik AS," says CEO Rune Birkeland.

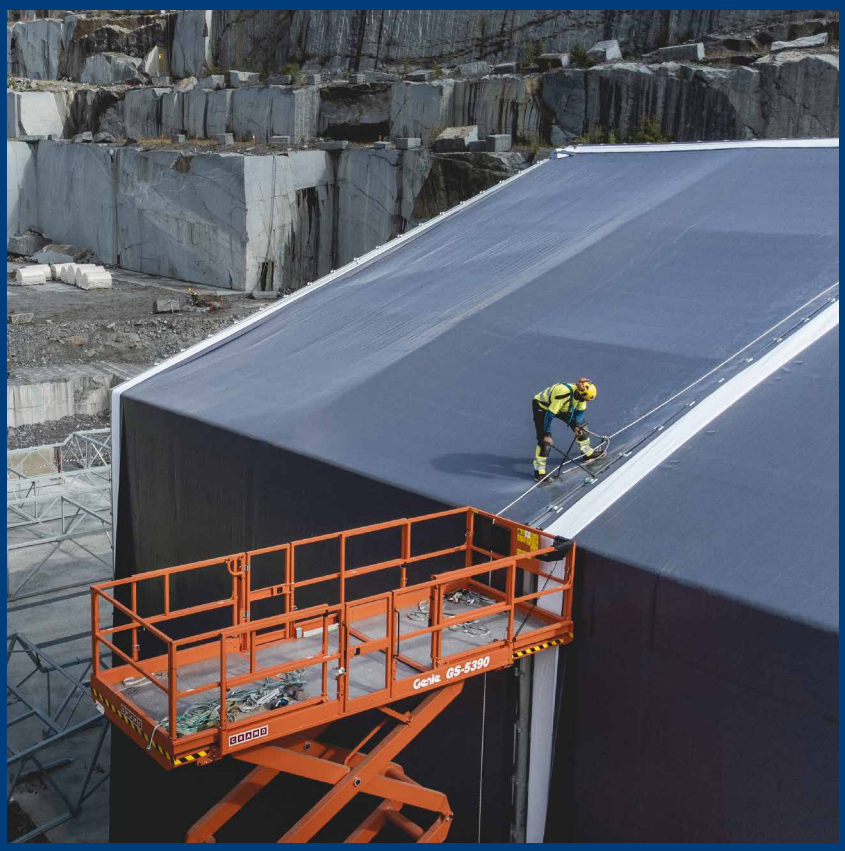
Zurhaar AS' show jumping stars

Simon Yde, one of several riders training with Zurhaar AS-sponsored ZB Competition, has performed very well at both national and international events this year.

Most recently, Simon won the high jump during the Kingsland Oslo Horse Show 2022, cleanly clearing the 2m obstacle (top left). Zurhaar AS is a proud sponsor of ZB Competition, and we look forward to following Simon and the other riders' upcoming events.

Faithful *Fabric Engineer* readers may remember that Mikkeline Zurhaar Birkeland, Zurhaar AS CEO Rune Birkeland's daughter, also enjoyed a successful show jumping career. We're happy to report that after bringing two children into the world, Mikkeline has returned to international competition (bottom left).

excellence in engineering



RUBB
Building Systems
excellence in engineering

Rubbhall AS
+47 32 15 05 00
post@rubb.no
www.rubb.no

Rubbhall AB
+46 70 838 83 31
info@rubbhall.se
www.rubb.se

Rubb Buildings Ltd
+44 191 482 2211
info@rubb.co.uk
www.rubbuk.com

Rubb Building Systems
+1 207 324 2877
info@rubbusa.com
www.rubbusa.com

Rubb Polska
+48 71 72 30 307
info@rubbpolska.pl
www.rubbpolska.pl

Renthall AS
+47 671 12 100
post@renthall.no
www.renthall.no

Renthall UK
+44 191 814 7933
info@renthall.co.uk
www.renthall.co.uk

Renthall PL
+48 25 6324623
poczta@konstpol.pl
www.renthall.com.pl

Plamek AS
+47 67 11 21 00
post@plamek.no
www.plamek.no