



SALT & SAND

excellence in engineering





Rubb's innovative salt and sand facilities are custom designed to suit our clients' needs.

Rubb is a leading provider of tailor-made salt and sand facilities. We work closely with end users to ensure our building designs incorporate the most efficient use of available space.

Rubb has delivered many high quality salt and sand solutions across the world.

Rubb's tensioned fabric structures are strong, durable, reliable and cost effective. Our products feature the highest quality materials. Hot dip galvanized steel frames and premium quality PVC ensure that our fabric facilities are built to last.

Rubb buildings meet the high demands of the bulk storage and warehousing sector—they are robustly engineered to stand up to tough climatic conditions and can be erected quickly at remote locations. Rubb offers a wide range of facilities suitable for temporary or permanent building solutions.

Rubb structures have unparalleled engineering and design capability to provide customized solutions to complex project needs including high wall buildings and liftable buildings.

Rubb has the capability and experience to design, manufacture, deliver and install custom structures.

With Rubb, you can be sure everything is under control from concept to completion—including cost, quality and delivery.

While we generally have the right standard structure available to meet project needs, Rubb can also design custom solutions to meet special requirements. We have the in-house resources to provide a cost effective solution customised to our clients' needs.

Design

Using proven engineering software, we can tailor the project to the specific requirements of the site, type of operations and logistical needs.

Production

Steel and membrane components are fabricated with proper equipment and quality control.

Installation

Pre-engineered and pre-fabricated to make on-site installation by a Rubb crew—or your crew—go smoothly and efficiently.

Structure doors

Rubb offers a variety of different door solutions. They can be selected and designed to suit many size and opening requirements. This flexibility ensures that our clients get the best option for their selected Rubb building type, depending on their operational needs.



Advantage Points



Low maintenance and costs

Our high-quality membrane materials and post-production galvanized welded frames deliver durability over time, making the cost of maintaining Rubb buildings more economical compared to conventional structures.



Energy-efficient roof membranes

Translucent membranes allow natural daylight to illuminate the workspace while the white roof surface reflects heat. Optional Thermohall® insulation minimises heat transfer, prevents condensation and virtually eliminates thermal bridging and air infiltration.



Structure quality

All structures are code compliant, designed to meet wind and snow loadings of its geographical location. Rubb PVC fabric cladding has a manufacturer's warranty of 10 years. Steelwork is hot dip galvanized in post production to eliminate any chance of corrosion, and comes with a 25-year warranty.



Multiple door options

Rubb offers a variety of different hangar door solutions. They can be selected and designed to suit many size and opening requirements. This flexibility ensures that our clients get the best option for their selected Rubb building type, depending on their operational needs.



Complete environmental control

The membrane cladding of a Rubb building is continuously sealed to provide a weather-tight shell. The buildings can be insulated, heated or air-conditioned as required. Rubb structures are uniquely suited for use as dehumidified facilities.



Reduced time on-site

Our established supply chain streamlines coordination of delivery and installation. Pre-fabricated elements and the ability to construct our buildings in a variety of weather conditions speeds up the construction process.



Rapid construction, installation and relocation

Rubb buildings can be quickly erected, dismantled and relocated due to module pre-fabrication. Rubb can provide site supervisors or fully dedicated construction teams to complete any custom project. Structures are transportable by land, sea and air.



Flexible and cost-efficient foundation systems

Rubb buildings can accommodate many foundation options such as concrete up-stand, ballast weights, and ground anchors into an existing surface. Rubb's co-ordination with the groundwork contractor is key for the client to reach the most cost-effective solution.



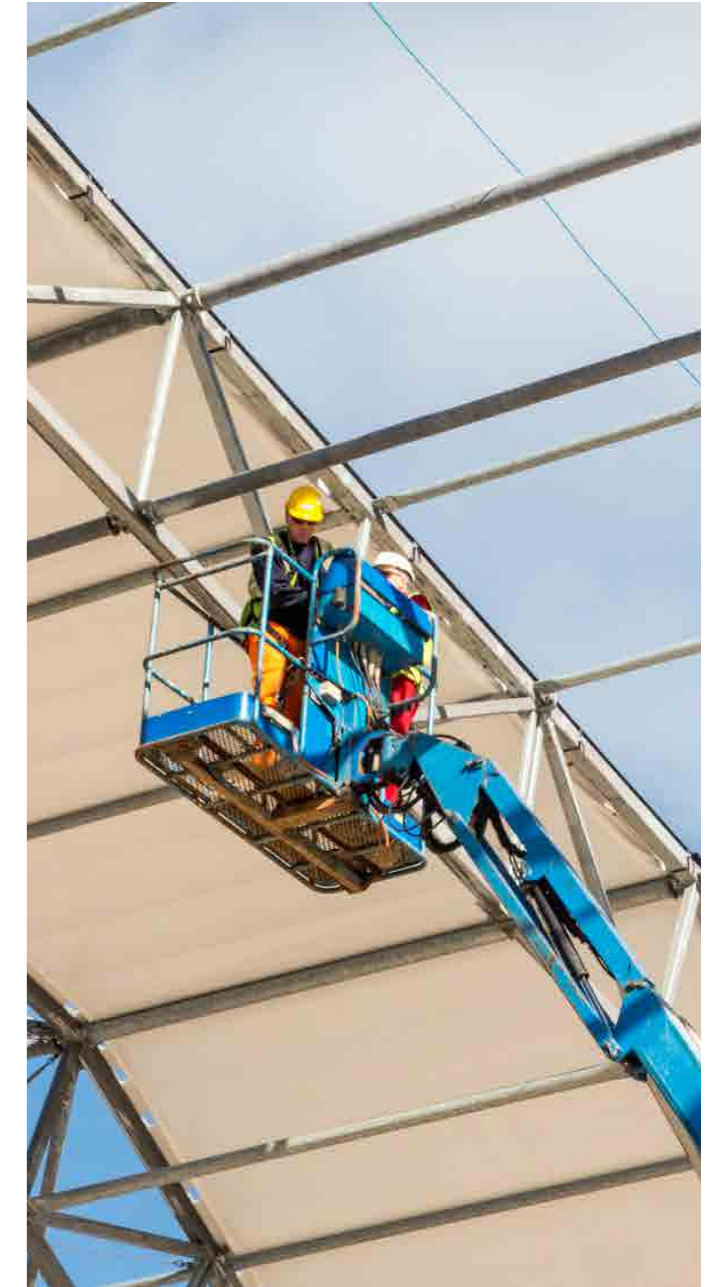
Customisable features

Buildings can accommodate all types of door, ventilation and other systems. They can safely support high loads imposed by overhead cranes, ceiling-mounted HVAC and fire-suppression systems, fall-protection equipment and other superimposed loads.



Comprehensive long-term service

Rubb personnel are on hand to provide help and support, from initial contact and quotation, to installation and beyond. Rubb's commitment to customer service continues after project completion and forms the basis for long-term customer satisfaction.



Sand

E.ON Energy Biomass Facility

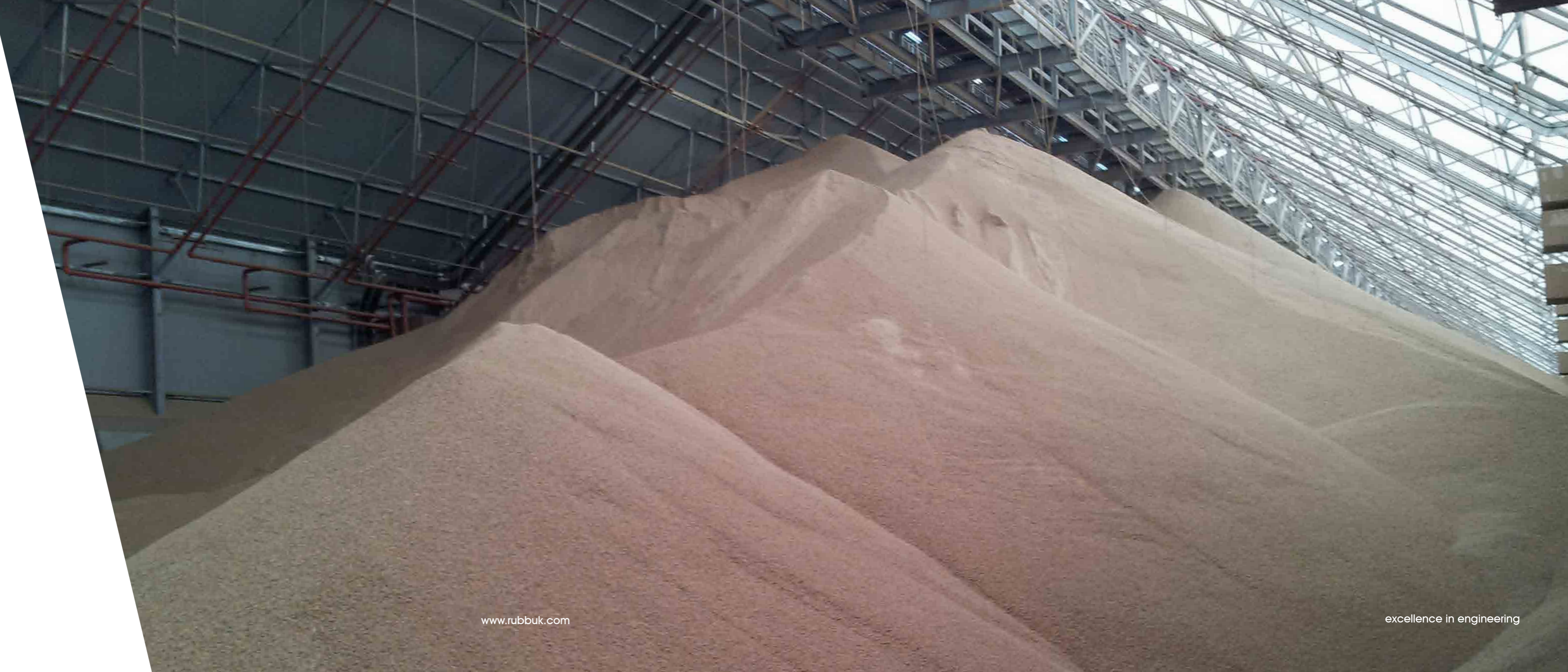
31.5m (103ft) span x 137.5m (451ft) long BVC
Ironbridge Power Station, Shropshire, UK

Rubb worked with energy giant E.ON to provide a biomass fuel processing and storage facility.

The 31.5m (103ft) span x 137.5m (451ft) long building at Ironbridge Power Station, Shropshire, UK, has an apex height of 21m (69ft). The roof provides rigidity with minimal deflection, providing stability and support for a 200 ton roof-mounted conveyor system used for the dispersal of biomass fuel products. The wood pellet processing facility features a roof pitch of 35° which was designed around the angle of repose of the biomass materials. Ironbridge was previously a coal fired power station that has been converted to run on biomass fuel, the first of its kind in the UK.

The UK based Rubb team was readily available to provide advice, support, recommendations, site visits and ongoing solutions regarding the challenges that arose during the project. These included structure height, weight loadings, access and custom door designs. The company also met with E.ON's requirements that all elements of the biomass facility were to be designed and manufactured in the UK.

The steel framework of the building is hot dipped galvanized to protect it from corrosion. galvanizing is the process of metallurgically bonding a tough coating of zinc to the steel surface. The frame is clad with polyester woven base cloth covered on both sides by PVC and coated by a PVDF finish.



Salt

Gateshead Council Salt Barn

30m (98.5ft) span x 30m (98.5ft) long BVE
Gateshead, UK

Rubb rose to the challenge to design, manufacture and install a custom salt storage barn to support Gateshead Council's expanding winter road maintenance plans.

Rubb provided a custom designed salt barn that sits on top of a 3m high concrete supporting wall. The salt storage structure measures 30m (98.5ft) wide x 30m (98.5ft) long with a tapered leg height of 5m (16.4ft). The overall height of the storage facility is 13m (42.6ft).

The building benefits from an open front gable end to maximise storage space and accessibility. To accommodate this large opening, the rear gable of the building was reinforced with anti-flap PVC pockets to prevent fabric damage due to strong winds.

Rubb came up with this flexible storage facility to meet the specific perimeters set by Gateshead Council, including conforming to planning restrictions for the colour of the building, which was clad in goosewing grey and white fabric. Rubb also met the required local building codes throughout the project.



City of Saco Salt Barn

18.29m (60ft) span x 34.4m (113ft) long BVE
Maine, USA

Rubb completed work on the newest addition to the City of Saco's Public Works Department.

The salt storage facility has a span of 18.29m (60ft) with a length of 34.4m (113ft), as well as a 6m (20ft) x 6m (20ft) framed opening on each gable end.

Deputy Public Works Director Chris Gallant officially contracted Rubb for the project in the summer 2014. Rubb engineers designed a custom building and, upon approval of the drawings, erection began in early November and was completed before winter.

The primary use of the facility will be to house large quantities of road salt as well as equipment storage. It will also allow the Saco Public Works Department to pre-purchase and store salt in bulk during the off season, significantly reducing taxpayer cost. Equipment storage has also significantly increased with the installation of the new facility.

The building includes a concrete Bulkblock foundation, hot-dip galvanized steel framing, and tensioned PVC coated fabric in white.



Rocky Coast Salt Barn

18.3m (60ft) span x 28.3m (93ft) long NV
Maine, USA

In the beautiful, quintessentially rocky coast village of Stonington, Rubb provided a municipal salt shed to service the roads of Deer Isle, Maine.

Completed in the Autumn of 2019, the building measures 18.3m (60ft) span x 28.3m (93ft) x 4.8m (16ft) high and is equipped with a 6m (20ft) x 6m (20ft) electric powered Cookson roller shutter door.

The building is mounted upon Rubb's patented BulkBlock foundation system. Essentially, the Bulkblock system provides the structure with a USA code compliant foundation system, while also serving as a retaining wall for road materials.

The Rubb NV structure is also hot dip galvanized which provides the best corrosion protection in the marketplace, far superior to wooden and metal bulk storage facilities.

It is designed to withstand difficult environmental and

corrosive conditions and have much lower maintenance costs than traditional storage facilities.

Rubb salt and sand storage barns can also be designed to accommodate conveyors and other processing methods.

This salt barn is yet another example of Rubb's very high standards of engineering to suit any location and local building codes. The quality materials and trusted construction methods provide a structure with an expected life of more than 30 years.



Gateshead Council's salt storage, 11 years later

In 2008, Rubb rose to the challenge to design, manufacture, and install a custom salt storage barn to support Gateshead Council's expanding winter road maintenance plans (see page 8).

Eleven years later, Rubb returned to the site to find out about the long-term benefits of our salt barns first-hand. We were guided by Interim Street Scene Director, Philip Hindmarsh.

"It's an excellent facility that provides protection for the salt," Mr Hindmarsh said. "It enables far more efficient use of that resource, and also protects the environment."

The salt barn is custom designed to sit on top of a 3m (10ft) high concrete supporting wall. In total, the salt storage structure measures 30m (98.5ft) wide x 30m (98.5ft) long, with a tapered leg height of 5m (16.5ft). The overall height of the storage facility is 13m (42.5ft).

Having been around since 2008, the salt storage barn has faced two of Britain's worst winters on record: 2010 and 2017.

"In February and March of 2017 our salt supplies were really hammered, and we used a large proportion of our stock. In 2010 we used the full 20,000 tonnes and had to purchase more from Peru. Many councils now take part in the Government's salt sharing scheme.

When asked about other challenges overcome by Rubb's

salt storage, Mr Hindmarsh said: "It is very difficult to cover the salt and protect it from the elements outside, so a salt barn is a much better solution. It also provides a better working environment for staff and the drivers when loading up the gritters."

The building benefits from an open front gable end to maximise storage space and accessibility. To handle this large opening, the rear gable of the building is reinforced with anti-flap PVC pockets to prevent fabric damage from strong winds.

This is especially important, as the Gateshead site is laid out in such a way that makes it impossible to turn the structure's opening away from the prevailing wind.

We asked Mr Hindmarsh how it fared over the years in these challenging conditions.

"It has performed well," he said. "The building faces the prevailing wind and has stood up to the corrosive environment over time to protect the salt.

"It's great; it's done its job. It has stood the test of time for eleven years with minimal repairs. It has performed well, despite facing the prevailing wind."

Even in harsh conditions, Rubb structures really are built to last. With eleven years to its name already, this facility is set to last for many more.



Thermohall® Insulated Fabric

Rubb's patented Thermohall® features a flexible insulated fabric system which offers major advantages over other insulating systems:

- Non-combustible glass wool is encapsulated in air and water tight pockets
- Insulation thickness from 50mm to 150mm
- No air gaps in the cladding, which reduces heat loss and helps eliminate condensation
- Buildings are fully relocatable

Development of Thermohall® started several years ago, with the goal of a new and eco-friendly insulation system. Thermohall® is now fully developed and patented. Thermohall® offers great energy savings and is environmentally friendly, both in fabrication and operation.

- Rubb uses a heavy duty PVC fabric with a long, useful life and high density, non-combustible glass wool insulation
- All the materials are recyclable. Steel can be recycled through various means and PVC can be recycled through initiatives which are part of the Serge Ferrari operational supply chain and environmental partnerships. The insulation material that Rubb uses is processed from recycled glass
- Rubb Thermohall® structures combine the best properties of both conventional buildings and fabric buildings, high thermal insulation and full relocatability. All Thermohall® buildings can be delivered to suit our customers' insulation requirements

The outer membrane of a Thermohall® building is manufactured using the same high strength PVC coated polyester material used on Rubb's uninsulated buildings. These materials have a self cleaning exterior finish and feature coated weights ranging from 850g/m² to 950g/m² for most applications.

PVC battens are welded to the outer cladding panels at regular intervals and then to the inner fabric panels to create closed cells to hold the insulation. The +/-550 g/m² inner fabric is white, with a self-cleaning coating on the inside face.

Glass wool insulation sections are enclosed within the completed PVC assembly, which is then sealed to prevent movement of insulation and moisture from entering the cladding system.

Specification

Outer layer Flame retardant heavy duty PVC fabric

Core High density glass wool insulation

Inner layer Self-cleaning, PVC fabric

U-Values (R-Values) US approximate equivalent

Thickness	U Value (SI) W/m2K	R Value (US) ft2-°F-hr/BTU
50mm	0.67 W/m2K	R11
100mm	0.36 W/m2K	R19
150mm	0.25 W/m2K	R27





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