

Port Storage and Warehousing



# Rubb innovative port storage buildings

Rubb port buildings provide dockside marine terminals with bulk cargo storage solutions that offer maximum flexibility with respect to multiple handling methods and configurations. Relocating and re-using these buildings is easy and cost effective.

The PVC cladding on a Rubb warehouse structure will not corrode in a marine environment and allows the structure to accept differential settlement. These same features give Rubb an advantage when it comes to preventing leaky roofs - an issue that is common at many port facilities.

Rubb structures provide large, column free spaces that are illuminated by natural light through the translucent roof. This important feature provides a safer, more efficient working environment than other traditional warehouse buildings. Rubb structures offer a flexible planning alternative to conventional buildings due to their ability to be efficiently reconfigured or relocated to suit the changing needs of a busy port.

Rubb buildings are suitable for warehousing a variety of goods, even extremely sensitive materials. Our climate-controlled warehouses allow for dehumidified storage environments, while our bulk storage and break bulk facilities are ideally suited for storing and protecting materials under the strenuous conditions of the marine environment.

In addition to our warehouses and port storage buildings, we offer shipyard buildings to enclose fabrication projects and ship cocoons and covers which protect goods while at sea. You can read more about Rubb's port projects at www.rubb.co.uk



## Port of Sunderland

28m span x 65m long BVE

Rubb Buildings Ltd helped provide a cost efficient solution for Sunderland City Council at Hendon Docks. This versatile cargo storage area was needed to develop the Port of Sunderland's cargo handling capabilities.

In conjunction with SGW Construction, Rubb erected a 24m (78.7ft) span x 65m (213.2ft) long BVE cargo handling and storage facility with 7.65m (25ft) sidewalls.

The design and quality of the structure provides a safe and pleasant cargo storage solution.

A clear span hot dip galvanized framework allows the maximum use of available storage space.

The translucent roof provides a natural source of light and the customised structure ensures safe and secure access to the facility.

Marc Simpson of Robertson Simpson Ltd, the architect and project manager, said: "Rubb Buildings helped us to provide the best and most cost efficient answer for the needs of Sunderland Council to deliver on this project."



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# Advantage points

The design and planning flexibility, speed of construction and durable, cost effective operation of Rubb buildings provide port operations worldwide with a major competitive edge. Rubb's unrivaled skills and experience in the ports market enable us to design, fabricate, deliver and install responsibly engineered structures which fully meet our port clients' needs.

- Steel/fabric hybrid designs
- Proven durability
- High quality materials
- Bright, clear span efficient space
- Modular design flexibility
- Completely relocatable

- Crane liftable
- Superior corrosion protection
- Fire retardant fabric membrane
- Low life cycle cost
- Fast custom design and construction
- First class customer service





## Tradewood and Co.

101m span x 95m long Triple Link BVE

Having the capability to increase storage capacity is critical for many businesses. Rubb Buildings Ltd has the storage solution to help companies optimise their growth and profitability.

For Tradewood Agencies it was certainly the bigger the better. This Rubb warehouse facility in Belfast, Northern Ireland is a massive structure.

With a span measuring 101m (331.4ft) span snd length of 95m (311.7ft), the Triple Link BVE provides a floor area of 9,595 square metres.

The warehouse provides plenty of space to store a range of timber and timber products including doors, flooring and plywood for distribution throughout Ireland and the UK.

The facility boasts an overall height of 12.93m, which coupled with Tradewood's translucent roof, enhances the bright interior typical of a Rubb building.

On completion of the main structure the client added a 320m<sup>2</sup> mezzanine floor to provide office space for its growing team of employees.





### E.ON Energy Biomass Plant 31.5m span x 137.5m long BVC

Rubb worked with AJS Contracts Ltd to provide its tallest structure to date and first biomass fuel processing and storage facility to energy giant E.ON UK.

The 31.5m span x 137.5m long building at Ironbridge Power Station, Shropshire, UK, has an apex height of 21m.

The roof provides rigidity with minimum deflection, providing stability and support for a 200 ton roof-mounted conveyor system used for the dispersal of biomass fuel products.

The structure features a roof pitch of 35° which was designed around the angle of repose of the biomass materials being processed at the plant.

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 AJS/E.ON requirements that all elements of the structure were to be designed and manufactured in the UK. The steel framework of the building is protected from corrosion by hot dip galvanizing. Galvanising is the process of metallurgically bonding a tough coating of zinc in 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.

Martin Wylie, AJS Contracts Ltd, Renewable Energy Divisional Manager, said: "The real breath of fresh air for AJS was to work with a UK turnkey contractor, a company who can design, manufacture and install the complete package, providing auditable quality procedures and more importantly an excellent understanding of UK Health, Safety and Environmental regulations.

"Rubb Buildings have developed a product that can be rolled out globally across the renewable industry sector and AJS Contracts would be more than happy to recommend their services to any prospective client."

Project Manager Andy Knox said: "Rubb rose to the challenge to complete our first biomass storage structure to date, demonstrating our diversity and versatility as a company."



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## About the Rubb Group

we will never stop innovating ...

Rubb started making engineered fabric structures in Norway in 1968 and has gone on to become a world leader in the design, manufacture, delivery and erection of fabric building solutions.

Rubb Buildings Ltd, UK, was founded in 1977 and has a proud history of delivering innovative and quality structures to a wide range of clients.

Highlights include our ground-breaking military hangars, sunshades, shelters, warehouses and workshops, specialist sport buildings and storage buildings for a variety of sectors including aviation, ports, construction, bulk storage and environmental (waste and recycling).

All Rubb UK products are designed and manufactured at our UK plant in Gateshead, Tyne and Wear.

Rubb provides a well-engineered steel or aluminium frame and a PVC coated polyester fabric cover which is tensioned over the frame to provide a tight fitting shell. Variations include provisions for alternative materials, such as steel cladding.

Rubb has earned a reputation for tackling unique projects with a strong commitment to building codes and standards. Our customers' needs are paramount from quotation to project completion and beyond. We also have engineering facilities in Norway, USA, China and Poland.



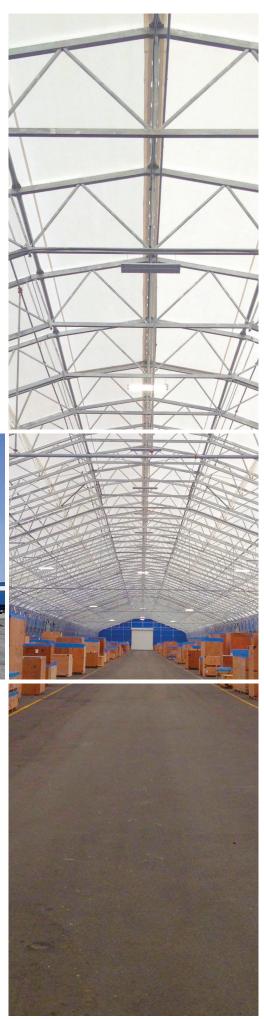
## Virginia International Terminal

30m span x 306m long FXI

The most impressive aspect of this 30m x 306m FXI port structure is its length. The project requirements were well suited to the technical advantages of Rubb buildings:

**Relocatability**: The building is leased to WM Jordan for three years, with an option to extend. This provides Virginia International Terminal with the flexibility it needs to manage its ever changing logistical requirements. The building can stand permanently in Newport News, or be relocated to another port if needed. **Efficient warehouse**: The translucency of the PVC roof provides excellent interior lighting conditions. This is conducive to worker productivity and safety of personnel and goods stored in the building.

**Reliable protection for high value goods**: The Virginia International Terminal building is used to store valuable machinery. Virginia International Terminal and leaseholders WM Jordan and were very pleased with the quality, robustness, and overall performance of the completed Rubb port storage building.



## Liftable. Moveable. Extendable. Relocatable.



Rubb Buildings Ltd specialises in the design, manufacture and erection of robust and reliable engineered fabric covered structures.

Rubb's BLE Series of port storage and warehousing buildings are extremely versatile and feature many qualities that can benefit port organisations.

Rubb structures are strong, durable, competitively priced, extendable, relocatable and custom designed to meet your specific project and location requirements.

In addition, BLE facilities are equipped with lifting points, providing crane connections which allow the structure to be elevated into position.

The BLE Series can also be designed to be mounted and run on a track system to provide a perfect solution for large scale production lines or coverage of ships and dry docks.

Rubb's BLE buildings are easily extendable and can also be relocated as required. Our experienced team of design engineers can provide a tailor made solution to suit your logistical needs.



#### Port of Belfast 45m span x 217.5m long BVE

Rubb Buildings Ltd has helped a storage building project grow at the Port of Belfast.

Rubb began working with Belfast Harbour Commissioners in 2001 to ensure that their ever changing and ever expanding storage requirements were met as use of the port developed.

The first port building was erected in 2001 at the head of the dockside area. It measures 24m (78.7ft) span x 45m (147.6ft) long. In 2003 a much larger port structure measuring 45m (147.6ft) span x 175m (574.1ft) was installed at a different

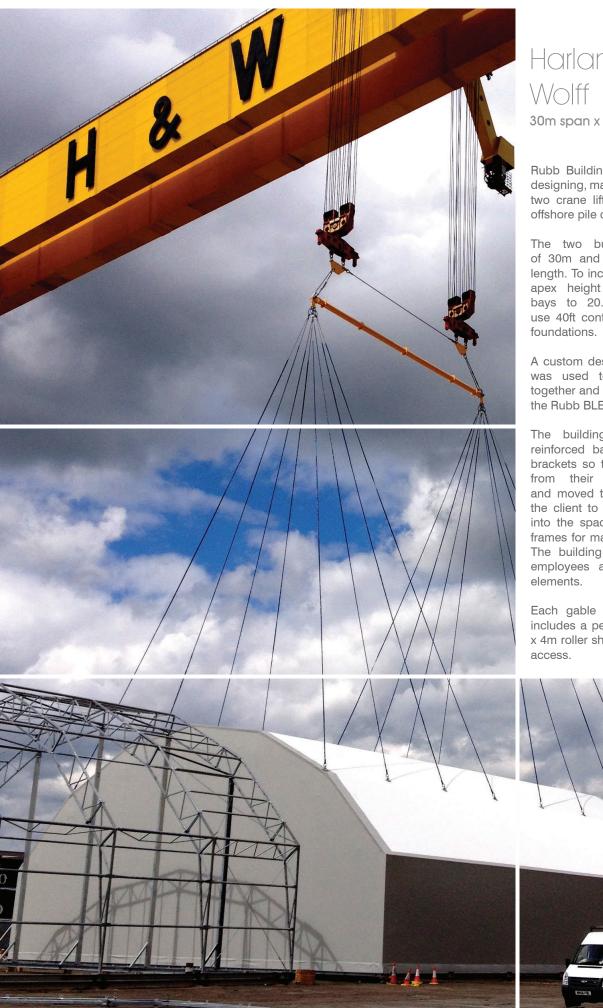
location on the dockside and in 2004 this was extended to 217.5m (713.6ft) in length.

In 2005 the Rubb design team was given a brief to erect the largest possible building on the remaining land on this site. Careful consideration had to be given to the design because of restrictions created by the nearby dockside traffic.

A 32m (104.9ft) span x 60m (196.8ft) long building was installed, maximising all possible space available. This increased the storage area constructed by Rubb to a massive 14,347m2.



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## Harland and Wolff

30m span x 35m long BLE

Rubb Buildings Ltd was tasked with designing, manufacturing and erecting two crane liftable buildings to cover offshore pile clusters.

The two buildings feature spans of 30m and each measure 35m in length. To increase the overall internal apex height of the manufacturing bays to 20.2m, H&W decided to use 40ft containers as the building's foundations.

A custom designed supporting frame was used to hold the containers together and act as the fixing base for the Rubb BLE structures.

The buildings are designed with reinforced base beams and anchor brackets so they can be easily lifted from their container foundations and moved to one side. This allows the client to then crane lift materials into the space within the foundation frames for manufacturing procedures. The building is replaced to protect employees and materials from the elements.

Each gable end of both structures includes a pedestrian door and a 4m x 4m roller shutter door for equipment access.

we will never stop innovating...

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