British Antarctic Survey
Mobile Garage and Workshop

Halley base, located on the floating Brunt ice shelf in Antarctica, is the most isolated scientific station operated by the British Antarctic Survey. It is relieved once a year, with supplies being landed by ship on the ice shelf and then towed on sledges seven miles to the base.

Following the erection of Halley 5 between 1988 and 1990, consisting of three single-storey buildings on raised and jackable steel platforms, the British Antarctic Survey decided to construct a permanent garage facility for the various items of plant and equipment used at the base. As well as providing enough space to house and maintain large vehicles, the building had to be relocatable in order to counter the effects of accumulated snow and ice that eventually bury static structures in the Antarctic.

In 1992 Bennett Associates were appointed consulting engineers for this project and worked with VM Fabrications to design and build the structure.

The completed building, which came into use in 1993, is 16 metres long, nine metres wide and six metres high and able to house vehicles weighing up to 15 tonnes. The main access doors provide an opening approximately five metres by five metres. It is fully self-contained and includes heating, ventilation, water, electric power and compressed air supplies, provision for waste water and oil and also various work-benches, storage and lifting equipment. An internal temperature between +10°C and +15°C can be maintained despite external temperatures as low as -55°C.

In order to allow the building to be moved from one position to another on the ice shelf before it becomes ice-bound, the garage has been mounted on a pair of skids, with low friction coatings. The skids are fully integral with the structure to increase mechanical strength, and the building overall is designed to be extremely rigid so it retains its squareness despite being towing over uneven ground. It weighs approximately 18 tonnes, so it can be pulled by a bulldozer winch once the skids have been broken free of the ice by inflatable airbags.

The building itself and all the services and fittings have been designed for minimal maintenance because of the cost of transporting materials to the Antarctic and the difficult working conditions.

Bennett Associates designed the garage in modular form with the minimum number of components and fixings so that it could be handled and assembled easily by staff at the Halley base. No special tools were needed, and fixings were a convenient size to work with, given that staff wear thick gloves virtually all the time when outdoors at Halley.

Before the building was shipped from the UK to Antarctica, it was fully pre-assembled and then dismantled for packing.

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