

Project Report / January 2021

Changi Airbase (East) in Singapore realises its first “green” hangar which produces more energy than it requires

For a long time, experts considered the “net energy positive building” or a building without a heating system as a milestone for the energy efficiency approach. The idea of a building which produces more energy than it requires for its own operation and may even become an energy producer, used to be a vision for the distant future. These kind of flagship projects are characterised by the best possible increase of a building’s energy efficiency and simultaneous minimisation of the energy consumed by the building’s processes.

The Republic of Singapore Air Forces (RSAF) built its first “green” hangar in spring 2020. It produces more energy than it consumes, which means it has a positive energy balance. The new 8-storey high hangar can produce up to 1,225 MWh of electrical energy each year; via solar panels using the abundant sunshine in Singapore. Additionally the surplus energy is supplied into the public electrical grid.

Now, this new hangar harbours the Airbus A310-300 MRT (Multi-Role Transporter), which can be used as an multi-purpose transport aircraft as well as an in-flight refuelling tanker.

For this new construction, owners, architects and applicators decided on the co-operation with Sto SEA Pte Ltd, selecting the reliable floor coating system StoPox BB from their local product line. The concrete substrate was first applied with the epoxy screed StoPox EPS GP used to touch-up the concrete substrate as well as for partial levelling. This epoxy screed was selected for its high mechanical stress properties and ease of installation. Next, the prepared substrate was coated with the epoxy primer coating StoPox GH 205 which was selected for its high adhesive abilities with the substrate and its capability for use in both interior and exterior floors.

The coloured epoxy coating StoPox BB was then applied for the subsequent top coat. StoPox BB features a very good resistance against varying and constant temperatures from -30° C up to +90° C (dry heat) and up to +30° C (wet heat). This coating was chosen for its glossy surface to aid in the detection of any oil leaks, screws, nuts or any other small components left on the floor. Further with the additional attributes such as high durability to impact, high chemical resistance to jet fuel, slip resistance and its ease of maintenance; this coating meets the stringent requirements of an aviation coating. To complete the system, the UV-stable sealing coat StoPur TC UV was applied. This fast drying polyurethane seal was also selected for its excellent chemical and abrasion resistance and its ease of cleaning.

Through the system build-up described above, a long-lasting industrial floor coating system was achieved and Sto SEA Pte Ltd was able to contribute by supplying the material for a sustainable floor coating to the first positive energy balance “green” hangar of the Republic of Singapore Air Forces.

Who & What

Project:	Changi Air force-Hangar, Singapore
Owner:	Ministry of Defence (MINDEF), Singapore
Application:	03 / 2020
Systems/Products:	Floor Coating System (local product range Sto SEA)
	Priming coat StoPox GH 205
	Levelling EP screed StoPox EPS GP
	Coating StoPox BB
	in RAL 7038 and 7047
	Sealing coat StoPur TC UV
	in RAL 7038 and 7047

