

SPS Citadel Access Protection

Enhanced protection against hostile attacks

Location	Accesses leading to safe area or "Citadel"
Design	SPS protection panels
Installation	By ship's crew/steel contractors

Summary

SPS Citadel Access Protection provides:

- A new final barrier to delay and deter hostile attacks
- Protection within 90 seconds
- Enhanced protection from impact loads, blasts and projectiles
- FB6 ballistic compliant designs available

Background

Citadel protection is a proven concept that has a successful track record for protecting ships and crew from piracy. The internationally recognised Best Management Practice to Deter Piracy in the Gulf of Aden and off the coast of Somalia recommends that due consideration should be given to establishing a secure citadel that "is designed and constructed to resist a determined pirate trying to gain entry for a fixed period of time". SPS is an ideal product for citadel hardening.

Details

SPS Citadel Access Protection delays and deters entry to the safe refuge. The SPS protection panels create a formidable final barrier that is specifically designed to prevent unauthorised access. The SPS panels are typically located 125mm inside the existing doorway and can be installed on new construction vessels or retrofitted on existing vessels.



View from outside Citadel



View from inside Citadel

The SPS system comprises of a solid steel frame, SPS panels and clamps. The solid steel frame is straight forward to install and is constructed from standard steel profiles. The frame is fully welded around the existing doorway and the SPS panels are then secured against the frame using specially designed clamps. The SPS barrier can either be constructed from a single hinged SPS door or interlocking SPS panels that are manhandled into position.

Once installed, the SPS barrier creates a detail free surface that can be rapidly deployed within 90 seconds. The panels slot into position and are secured by tightening tommy screws in the clamps. When closed, the SPS panels create an extremely strong barrier that can withstand far higher impact loads than equivalent steel structures with superb protection against ballistics and shrapnel damage. European Standard FB6 ballistic compliant panels constructed from hardened steel are available.

¹ Local removal/relocation of insulation and services may be required to fit the frame

SPS for Citadel Protection

Crew safety is the upmost importance to all seafarers, operators and owners, never more so than when under attack by pirates. Installing SPS Citadel Access Protection at entrances to the designated citadel will better protect the crew. SPS will delay the advance of pirates while the crew retains command and control of the vessel and waits for outside assistance.

The composite structure of SPS creates an extremely strong barrier that is highly resistant to impact loads typically inflicted by mechanical tools. The installed doorway was tested by repeatedly hammering/stabbing the panels with 5kg sledge hammers, picks and pikes (see pictures below). The panels proved extremely resilient, resisted indentation, remained flat and secure after multiple attacks.

The composite structure of SPS provides triple-barrier protection that is far superior to standard steel water-tight doors. Ballistic tests conducted at leading military facilities

in the US, UK and Japan demonstrated that SPS structures outperform steel structures. Ballistic tests by QinetiQ (UK) indicate that the risk of penetration from projectiles is reduced by 75% and that these projectiles are stopped at higher angles of attack. The test series also demonstrated that SPS panels reduce the risk of fragmentation (scab) from the outside surface of the panel, which is a common cause of injury to personnel and damage to property.

Sandwich Plate System - SPS

SPS™ is a structural composite material made up of two metal plates bonded with a polyurethane elastomer core. SPS delivers high strength, superb impact resistance and enhanced stiffness making it a more robust alternative to conventional stiffened steel structures.

SPS is now used in a wide variety of products including structural flooring, stadia and arena terraces, blast enclosures, ships, offshore structures and bridges.



Test Equipment
Hammers, picks and pikes



SPS Panel Test
SPS panel repeatedly attacked



QinetiQ Ballistics Test
75% more protection from bullets and fragments