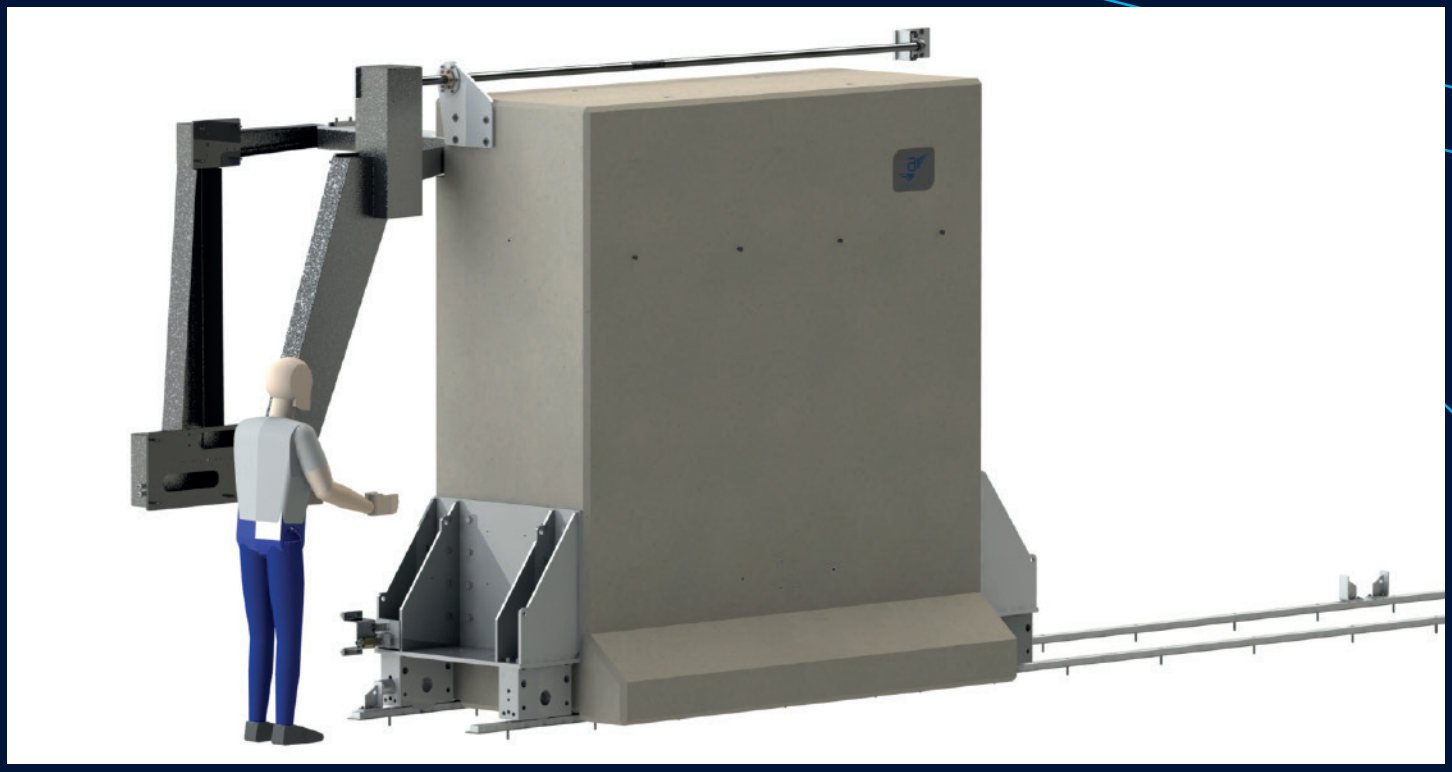
Aquila Nuclear Engineering

SHIELDED FACILITIES

CASE STUDY

PROJECT TITLE: **CONCRETE SHIELDING DOORS**
CLIENT: **ESS**



AIMS AND OBJECTIVES

Aquila won the contract with ESS for the following scope of supply:

- Design of a suitable open/closing function for three regular concrete doors.
- Manufacturing of three complete concrete shield doors including the opening and closing functionality.
- Installation and commissioning of the three concrete shield doors at ESS in Lund, Sweden.

ABOUT THE CLIENT

The European Spallation Source (ESS) is one of the largest science infrastructure projects being built in Europe today. Designed to generate neutron beams for science, ESS will benefit a broad range of research, from life science to engineering materials, from heritage conservation to magnetism.

PROJECT OVERVIEW

- The three concrete shield doors (2.8m height x 2.6m width x 1m thick) provide a shielding function across the access doorways to the Triangular Rooms in the ESS Target Building. Each shield door is manufactured from standard density concrete and has a mass of approximately 19 Tonnes.
- The shielding element of each door is concrete, cast with a steel framework. This includes attachment points for four COTS crane wheel units, mounted on the outer side of the door, transferring the load, via rails, through to the building floor structure.
- Each door can be manually opened, from either side, via one of two drive chains, mounted on the adjacent build wall structure.
- The shield door geometry (width versus height) and the wheel pitch combine to ensure that the shield door can withstand a 20KN side load applied at the upper edge of the door, without toppling.

SUMMARY

Aquila took the design specification provided by ESS and worked with key subcontractors for the design and manufacture. Assembly and function testing was carried out on-site at Aquila prior to a team of SQEP personnel being sent to install and commission the concrete shield doors at their final locations; levels 90, 100 & 110 at the ESS in Lund, Sweden.

The simple, practical approach taken by Aquila for the design of the concrete shield doors has resulted in ease of operation, and minimal in-service maintenance.

Pragmatic, cost effective solutions, always

T: +44 (0) 1962 717 000
E: info@aquilaeurope.co.uk
linkedin.com/company/2439808
twitter.com/aquilanuclear1

Aquila House, Hazeley Enterprise Park,
Hazeley Road, Twyford, Hampshire
SO21 1QA, United Kingdom

ACCREDITATIONS

Aquila Nuclear Engineering is part of Cyclife – EDF Group