

National Satellite Test Facility (NSTF)

VRM Cover Plates Requirements Specification

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CHANGE RECORD

Issue	Date	Section(s) Affected	Description of Change/Change Request Reference/Remarks
1	23-Mar-2022	All	First issue
2	11-Apr-2022	2	Update after procurement review. Additional figure (2.3) and notes added to section.
2.1	13-Apr-2022	2	Correction of reference errors

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1. PREAMBLE

1.1 SCOPE

This document defines the requirements to manufacture and install a cover plate system to allow the safe operation of the vertical shaker within the National Satellite Test Facility. The facility is currently under construction at Harwell and is managed by the MACE Group.

1.2 PURPOSE

The vertical shaker and its guided head expander are mounted at floor level within a large reaction mass. There is a large gap between the head expander and the reaction mass walls that must be covered during operations to allow operators to safely work in the facility.

1.3 APPLICABLE DOCUMENTS

AD #	APPLICABLE DOCUMENT TITLE	DOCUMENT ID	ISSUE / DATE
1	Vertical Reaction Mass Sections	NSTF-0747-XX-XXDR-W-100-0083	REV. C01 11 TH JUNE 2020
		NSTF-0747-XX-XXDR-W-100-0084	REV. C01 11 TH JUNE 2020
		NSTF-0747-XX-XXDR-W-100-0085	REV. C01 11 TH JUNE 2020
2	VRM Cover Plate Calculations	NSTF-0747-XX-XXCA-X-100-0013	C02 16 th June 2020

1.4 REFERENCE DOCUMENTS

RD #	APPLICABLE DOCUMENT TITLE	DOCUMENT ID	ISSUE / DATE
1	Construction (Design and Management) Regulations 2015	Statutory Instruments 2015 No. 51	2015
2	Safety of machinery — Permanent means of access to machinery Part 2: Working platforms and walkways	BS EN ISO 14122-2	2016

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2. COVER PLATE CONCEPT

The cover plates have been designed [AD1] and analysed [AD2] by the Ross Group, a subcontractor to Team Corporation who are supplying the test facility. The cover plates are designed to fit around the head expander support structure and be removable during maintenance. See Figure 2-1, Figure 2-2, and Figure 2-3 below:

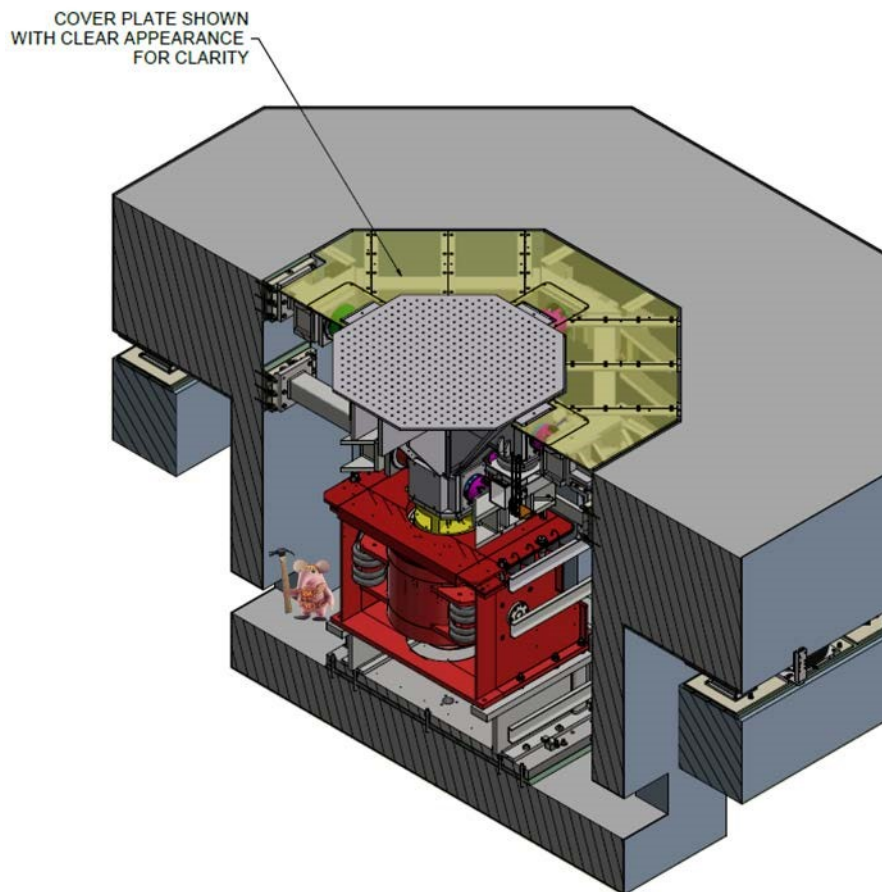
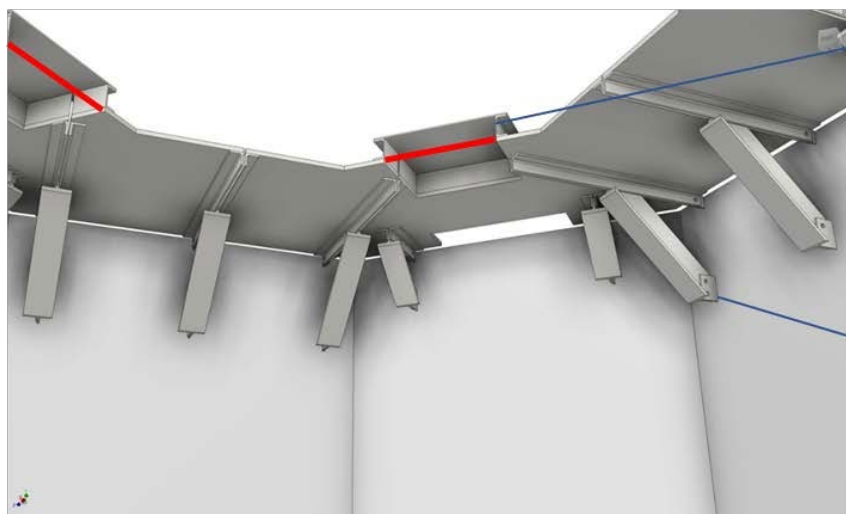


Figure 2-1 Cross section of Vertical Test facility

The cover plates are intended to support people and light trolleys only, not forklifts, cherry pickers, etc. They have been designed for the same load rating as the NSTF general storage areas of 7.5kN/m².

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Raised sections
now level in the
drawings [AD1]

Wall interface
has been
updated in the
drawings [AD1]

Figure 2-2 Early CAD Image of cover plates shown from inside reaction mass

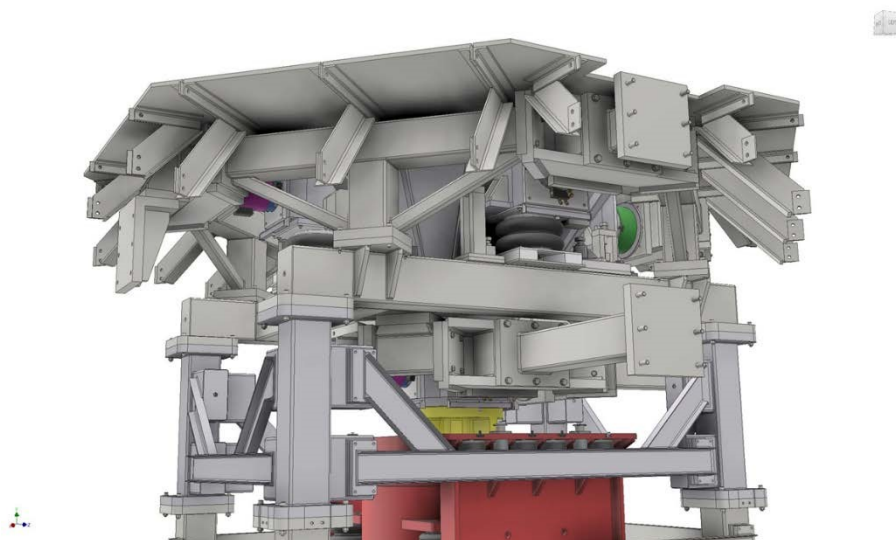


Figure 2-3

**Early CAD Image of cover plates and head
expander support structure**

As can be seen there is limited clearance (40mm nominal) between the cover plates and the head expander support structure. Access for measurement and installation is restricted and will need to be coordinated with Mace and Team Corporation.

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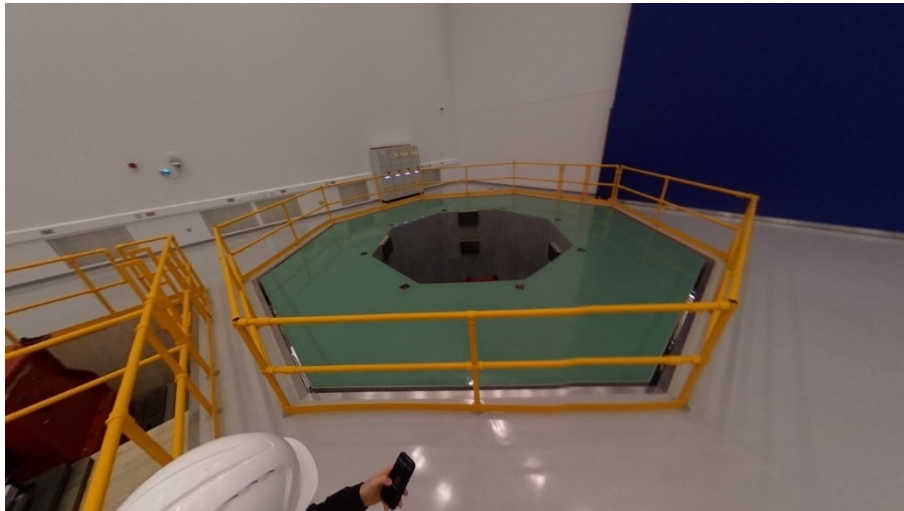


Figure 2-4 Reaction mass as built

The guided head expander installation is scheduled for completion at the beginning of June 2022. Note that the yellow guard rails may be removed once the cover plates are installed.

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3. MANUFACTURE AND INSTALLATION REQUIREMENTS

CP01	The supplier shall manufacture or procure all plates, brackets, fixings, and other components, including transportation, unloading and removal of waste.
CP02	Cover plate dimensions in AD1 are nominal. The supplier is responsible for measuring and templating the as-built configuration and providing drawings.
CP03	<p>The supplier shall install all items in compliance with CDM regulations [RD1] and Mace site rule.</p> <p>Mace will need to approve the Health and Safety Plan, Risk Assessments and Method Statements.</p> <p>Relevant CSCS cards are required, hot works permits are needed for welding activities.</p> <p>Lift Plans are required for any lifting operations.</p>
CP04	<p>The supplier is responsible for all temporary works, safety harnesses, welding equipment (including extraction and screens) and tools.</p> <p>Electrical power is available. The facility overhead crane will be available for suitably qualified operators to use during installation.</p>
CP05	The supplier shall check the design is compliant to appropriate UK requirements including RD2 and can support a distributed load of 7.5kN/m ²
CP06	<p>The cover plates shall be finished in a static dissipative floor finish (for example powder coating ECP 534).</p> <p>Preferred colour RAL 1028 Melon Yellow to match existing safety railings</p> <p>Warning markings shall be added in black to state “Pedestrian and light trolleys only”.</p>
CP07	Brackets shall be primed, undercoated and finished with 2 pack epoxy paint, preferred colour white to BS4800:2011 colour code 00E55.

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CP08	Materials which may constitute a safety hazard, or can cause contamination, shall not be used. Examples are Beryllium Oxide, <u>Cadmium</u> , <u>Zinc</u> , Mercury, Radioactive Materials, Silicones or PVC.
CP09	The steel cover plates shall have an M12 threaded hole at the centre of mass for lifting.

3.1 ADDITIONAL INFORMATION / DRAWING CLARIFICATION

In AD1

- the countersunk bolts and screws identified as ‘See Team Drawings’ shall be M8
- The gaps between plates are shown as 25mm; RD1 states 20mm.