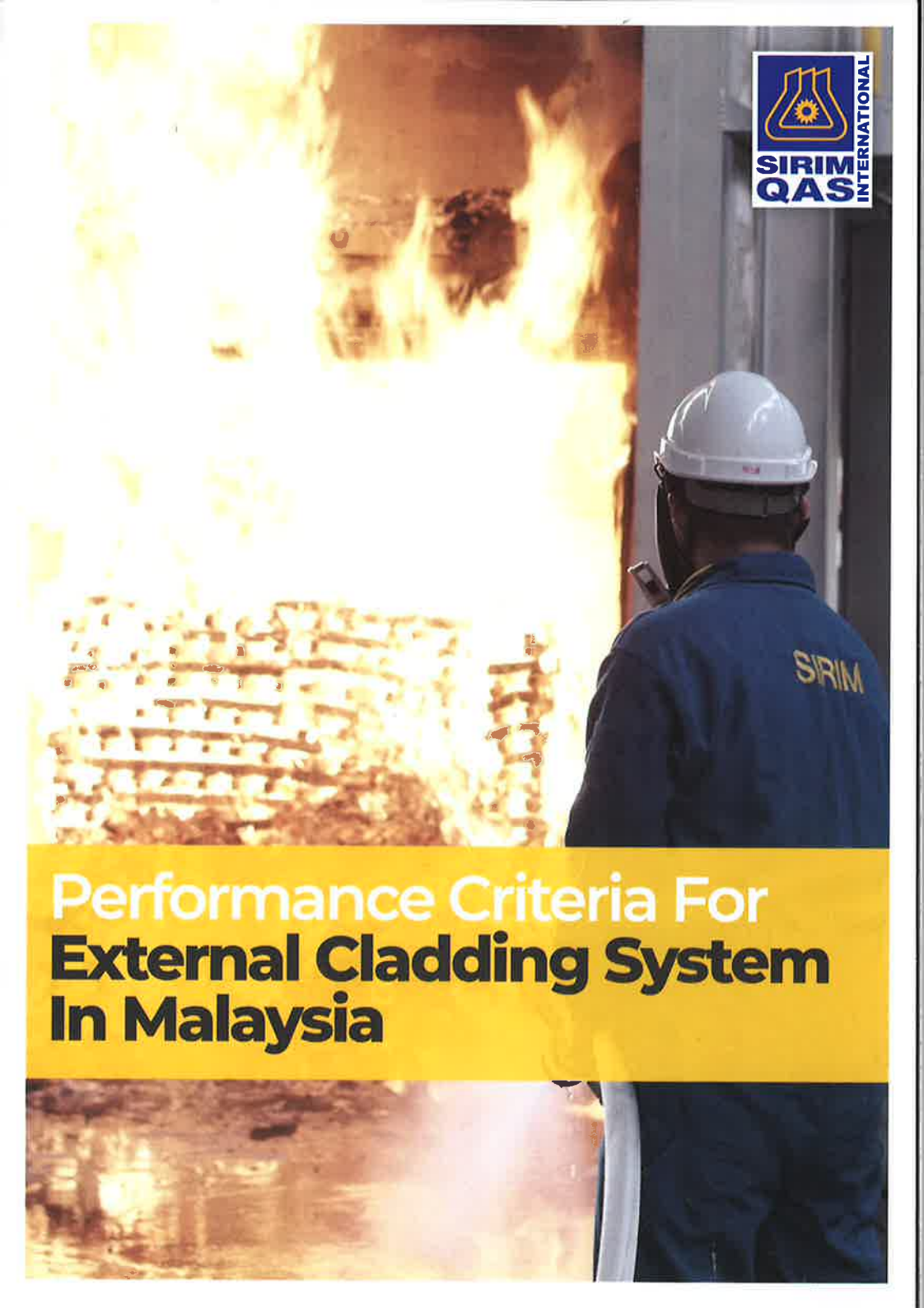

Performance Criteria For **External Cladding System In Malaysia**

Performance Criteria For External Cladding System In Malaysia FPST/DOC/14-1

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1. INTRODUCTION

This document identifies the performance criteria and testing practices undertaken by BOMBA and SIRIM for the purposes of approval of non-load bearing external cladding systems in Malaysia.

The BS 8414-1 Fire performance of external cladding systems test method forms the basis of the full scale test in this document. This test does not cover exposure to radiant heat from a fire in an adjacent building and does not assess the fire resistance characteristics of the system.

The test is intended to represent the action of a fire impinging on the external surfaces of the cladding system. This type of fire can occur as the result of an external fire in close proximity to the building envelope, such as fires involving general waste or malicious fire setting or as the consequence of a fire developing to flashover within a building and breaking out from the room of origin through a window opening or doorway.

2. SCOPE

This document specifies the requirements for non-load bearing external cladding systems applied to the masonry face of a multi-story building and external cladding systems fixed to and supported by a structural steel frame.

3. DEFINITION

For the purpose of this document, the definition contain in BS 8414-1 and BS 8414-2 is applied.

4. DOCUMENTATION

The applicant shall supply the following documented information:

a) A schematic description of the system to identify each component and layer used.
b) A complete set of production drawings (where applicable) and installation drawings relevant to the system submitted for test.
c) Full installation instructions as supplied to the installation contractors.
d) Full information or specification of all component used in the production and installation of the system.

5. VERIFICATION

SIRIM shall oversee the fabrication of the material for cladding to ensure that the description in particular its construction is in conformity with the information provided. All the product verification must be carried before the test conducted.

6. TEST REQUIREMENTS

6.1 Specification of Test Specimen

The specification of the test specimen shall be agreed between the applicant and BOMBA. These details shall be provided to SIRIM as detailed mentioned in section 3. The client shall be responsible for the installation of the system as detailed in their submitted documentation.

6.2 Full Scale Test Method

The test arrangement shall be as described in BS 8414.

6.3 Test Conditions

The conditioning and test environment shall be as specified in BS 8414.

6.4 Test Procedure and Reporting

The test shall be carried out to the procedure and reported fully in accordance with the BS 8414. The timber crib ignition source specified in BS 8414 shall be used for all tests.

A crib collapse zone shall be marked on the floor of the test facility. This shall be 2.4m x 1.2m in area and positioned centrally on the centre line of the hearth opening (2.4m length parallel to the face of the hearth). In addition to the general observations required by BS 8414 regarding system performance during the test; any droplets, debris or collapse to the floor shall be reported with reference to this marked area.

7. TEST PERFORMANCE CRITERIA

7.1 External Fire Spread

Failure due to external fire spread is deemed to have occurred if the temperature rise above T_s of any of the external thermocouples at level 2 exceeds 600 °C for a period of at least 30 s, within 15 min of the start time, t_s.

7.2 Internal Fire Spread

Failure due to internal fire spread is deemed to have occurred if the temperature rise above T_s of any of the internal thermocouples at level 2 exceeds 600 °C, for a period of at least 30 s, within 15 min of the start time, t_s.

7.3 Visible Flaming

Failure of the system is deemed to have occurred if visible flaming, which exceeds the confines of the test rig either vertically or laterally during the full 60 minute test period, is observed. For the purposes of this clause, visible flaming is defined as a continuous flame which is observed for more than 60 seconds duration (i.e. not intermittent or glowing)

7.4 Mechanical Performance

Failure will be deemed to have occurred if there is collapse of the system or part thereof (at least 500 mm length and 200 g), flaming or not, onto the floor of the test facility outside the designated crib collapse zone, see note 1, within the duration of the full 60 minute test period.

7.5 Burning Debris and Pool Fires

Failure is deemed to occur if burning debris or a pool fire develops on the floor of the test facility, outside the designated crib collapse zone, see note 1.

Burning debris is defined as visible flaming for more than 60 seconds duration (i.e. not intermittent or glowing) within the duration of the full 60 minute test period.

Note 1: The crib collapse zone is defined as a 2.4m x 1.2m positioned centrally on the centre line of the hearth opening (2.4m length parallel to the face of the hearth).

7.6 Additional Requirement (BS 8414-2 only)

Where system burn-through occurs so that fire reaches the internal surface, failure is deemed to have occurred if continuous flaming, defined as a flame with a duration in excess of 60 s, is observed on the internal surface of the test specimen at or above a height of 0.5 m above the combustion chamber opening within 15 min of the start time, t_s.

8. FIELD OF APPLICATION OF TEST RESULTS

8.1 Type of system tested

The test results apply to the specific system specification as tested.

8.2 Insulation thickness (IF APPLICABLE)

In order to cover a range of insulation thicknesses, the thinnest and thickest insulation for a given system type, where all other system specifications remain unchanged, shall be tested. Where only one thickness is tested, the BOMBA approval will be limited to that thickness.

8.3 Cavity depths

The range of cavity depths and associated closure systems shall be declared on application as part of section 3. Typically, in order to cover a range of cavity depths, where all other system specifications remain unchanged, the minimum and maximum depths shall be tested. Where only one depth is tested, the BOMBA approval will be limited to that depth.

8.4 Insulation density (IF APPLICABLE)

The test result will only apply to the density tested. If various densities are available, further evaluation will be required.

8.5 Change in inner leaf (BS 8414-1)

The test uses a masonry wall as the inner leaf. Other types of leaves fall outside the scope of this document.

8.6 Change in system substrate (BS 8414-1)

The test will only apply to the system tested. If various are available, further evaluation will be required.

8.7 Position of fire breaks

Where fire breaks are employed, test results will only apply to the type, fixing and position arrangements as tested. The spacing of fire breaks will be limited up to the maximum spacing as tested.

8.8 Classification

Where the system meets the requirement of this document, the system will be classified as meeting requirements of the BOMBA approval.

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