

Supplementary Guide to the Referral of Performance Solutions for the Use of Combustible Cladding

Contents

1	Introduction.....	2
2	Scope	2
3	Objective	2
4	Registration	2
5	Product Details	3
6	QFES requested considerations.	4
7	Consideration of Sprinklers	6
7.1	Assessment of Sprinkler Failure	6
7.2	Efficacy of Sprinklers Associated with External Wall Fires.	6
8	Evacuation.....	6
8.1	Staged and Horizontal Evacuation.....	6
8.2	Protection at Ground Level Exits	7
9	Relevant Information for QFES from a Comparative Assessment	7
10	Pre-existing Performance Solutions.....	8
11	Format of Submission	8

1 Introduction

Fires which spread via external wall components and/or attachments have demonstrated a capacity for potentially catastrophic outcomes. The National Construction Code (NCC) Deemed to Satisfy (DtS) solution for external walls of buildings of Type A and Type B construction is that they are required to be non-combustible.

2 Scope

These statements apply to all applications involving a performance solution to justify combustible components in an external wall assembly.

3 Objective

QFES does not stipulate fire engineering methodologies but we are primarily concerned with the design and constructed outcome of the building work, in the context of fire safety performance such that:

- QFES is informed of geometrical conditions (access) and performance aspects (working conditions) considering the challenges that may be presented by a combustible façade during fire brigade intervention.
- QFES may provide advice to the designers of the performance solution in relation to the above.

Section 5.5 of the Queensland Fire and Emergency Services (QFES) Guide to the Referral of Performance Solutions describes the QFES' understanding of the safety concern related to the use of combustible cladding and key operational considerations. Included in this is a **Position Statement on the Use of Combustible Cladding** which includes six (6) Key Requirements that need to be demonstrated in relation to the performance of the cladding rectification solution.

The QFES Position Statement Key Requirements are:

1. Involvement of the combustible cladding in fire does not compromise occupant life safety or prevent the safe evacuation of occupants from the building.
2. Involvement of the combustible cladding in fire does not compromise firefighter life safety or firefighting operations with respect to the notification, access, conditions and equipment required by the QFES.
3. The combustible cladding does not cause or contribute to vertical fire spread beyond the storey of fire origin.
4. The combustible cladding does not cause or contribute to horizontal fire spread beyond the fire compartment of fire origin, or fire spread beyond other fire separating elements of construction.
5. The combustible cladding does not contribute to fire spread between buildings on the same site or to adjoining properties.
6. The combustible cladding does not produce flaming or falling debris which may result in fire spread to storeys below the storey of fire origin and/or that presents a hazard for egressing building occupants, bystanders, or intervening firefighters.

QFES has provided this supplementary guidance to assist in producing submissions which contain sufficient information and analysis to inform QFES to assess the application in relation to Key Requirements.

4 Registration

Fire engineers are responsible for substantiating engineering assessment of combustible cladding performance. The fire engineering approach must be submitted by a fire engineer / fire safety engineer, as specified in the **Professional Engineers Act 2002** registered as a Registered Professional Engineer of Queensland (RPEQ) in fire safety and / or fire engineering.

Supplementary Guide to the Referral of Performance Solutions for the Use of Combustible Cladding

(Issue 1 - Effective 04/2021)

RPEQ's are bound to the Board of Professional Engineers of Queensland (BPEQ) *Code of Practice for Registered Professional Engineers* by the *Professional Engineers Act 2002* (Qld), this Code of Practice requires that RPEQ's work within their area of competence and not misrepresent their competence.

5 Product Details

The components of an external wall assembly may include some or all (but not necessarily limited to) the following components:

- Cladding panels (or rain-shield)
- Insulation
- Cavity barriers and fire stopping
- Window detailing framing and lintel
- Vapour barriers and breather membranes
- Framework, bracketry and fixings
- Backing rod, seals
- Glazing (either as part of the cladding system or within a window adjacent to the cladding)
- Internal lining of the external wall
- Other external wall construction details
- Special Fire Services e.g. External Wall Wetting Sprinklers

In order for advice to be provided in relation to the performance solution, a characterisation of the external wall assembly is requested. QFES request a full knowledge of the external wall assembly of the building in relation to the **performance solution proposal**, supported by the following:

1. An Information Pack for each external wall assembly type which contains combustible content, defined by a unique configuration of components, which should include
 - The identification and description of all the components of the external wall assembly;
 - Cross-sectional dimensional drawings of the external wall assembly with each component clearly marked.
 - Product fitness for purposes statements as applicable (for example life span limits)
2. Elevation drawings identifying the specific location(s) of each wall assembly type which contains a combustible component.

Where there is a combustible component in the external wall assembly, the assessment of combustibility of the external wall system is the responsibility of the fire engineer, however the expectation is that the fire engineering analysis is supported by verified analysis of samples, and / or fire testing applicable to the external wall system in question.

The University of Queensland has produced a testing protocol based on fire engineering science principles to repeatedly and reliably measure material properties relevant to fire spread and falling/flaming debris hazards. The protocols are found in <https://claddingmaterialslibrary.com/>.

The Material Library of Cladding Materials is an extensive database of material properties for a wide range of materials and specific components of products used as cladding. The data provided in the Material Library are intended to be used by fire engineers and who have completed the "External Fire Spread Risk in Tall Building Design".

The process to develop the identification of the flammability from materials sampled from a building through cross referencing to a Material Library identified material and hence using the Material Library for analysis material is outlined in Part IV of the UQ Protocols.