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FIRE PROTECTION IN WALL AND CEILING SYSTEMS. DESIGN PRINCIPLES, COMPLIANCE AND SPECIFICATION

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1. What are the three components of a Fire Resistance Level (FRL), and what does each represent?

Structural adequacy, integrity and insulation. Structural adequacy refers to the ability to support load, integrity prevents the passage of flames and gases, and insulation limits temperature rise on the non-fire side.

2. Define 'non-combustible' as it applies under the NCC and provide an example of a compliant material.

A material that does not ignite or burn when tested to AS 1530.1. Example: concrete, fibre cement.

3. Explain the difference between passive and active fire protection systems.

Passive fire protection limits the spread of fire through construction and materials (e.g., fire-rated walls), while active systems detect and suppress fires (e.g., sprinklers, alarms).

4. How does the NCC define a loadbearing wall, and how does this affect the required FRL?

A loadbearing wall supports vertical loads beyond its own weight. Therefore, the FRL must include a structural adequacy component.

5. What is the purpose of a smoke wall?

A smoke wall is designed to prevent the passage of smoke between compartments.

6. What is a Group Number in the context of fire protection and how is it determined for internal wall and ceiling linings?

A Group Number classifies how a material contributes to fire growth based on its surface spread of flame and smoke release. It is determined by testing to AS 5637.1, which measures heat release rate and smoke development under controlled conditions.