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Fire Resistance in Concrete Structures - Lightweight Solutions for Building Refurbishment Under NCC 2025

1. **How has NCC 2025 changed the fire safety requirements of concrete and composite (metal deck) structures?**

   NCC 2025 has removed the FRL concessions that previously reduced or eliminated fire resistance obligations on structural concrete elements.

2. **What sorts of buildings do these fire safety changes apply to?.**

   The changes apply to open-deck carparks and certain sprinkler-protected carparks.

3. **What is the conventional response to FRL increases in these types of structures?**

   The conventional response to increases to the FRL of a concrete element is to add concrete mass through recasting or cementitious render.

4. **What are the negatives of adding concrete mass as a way to meet FRL requirements?.**

   Concrete is heavy and existing structures have limits. Additional mass imposes new dead loads on elements designed for different demands, and confirming whether columns, transfer structures and foundations can accommodate that increase requires structural assessment in its own right.

5. **What types of passive fire protection systems are suitable in these types of applications?**

   Examples include boards, sprays and intumescent coatings applied directly to the concrete substrate.

6. **What are the attractions of these lightweight passive fire protection systems in these types of applications?**

   They add minimal thickness and weight to existing concrete elements to achieve higher FRLs, simplify construction sequencing in occupied or constrained buildings and avoid the structural strengthening that may be required when adding additional concrete.

Competency Codes: PC12, PC28, PC39, PC42