

06 March 2019

161394 SAAF

Multiplex Constructions Pty Ltd
Level 22, 135 King Street,
Sydney. NSW 2000

Attention: Brendan Glynn

Wynyard Place - 285 George Street
Structural Design Statement – Roof Slab Demolition

Dear Brendan,

We provide this structural design statement in support of the S4.55 modification to SSD consent for the demolition of the existing roof slab and rebuild of a new composite steel roof system. TTW report *180928_StructuralDesignConceptReport_Rev A_285GeorgeStreet* provides additional commentary on the condition of the existing roof slab.

The key structural items leading to the decision to demolish the existing reinforced concrete roof slab include:

1. Material testing results determined that the average concrete compressive strength for the roof slab is less than 20MPa. AS3600 excludes the design of structural elements for concrete strengths less than 20MPa.
2. Material testing determined that the average carbonation depth of the existing concrete exceeds the cover to reinforcement. This has resulted in corrosion of existing reinforcement and spalling in some locations. These test results demonstrate that the durability of the existing slab to remain for a further design life could not be achieved in its current condition.
3. Structural analysis of the existing roof capacity, assuming no degradation of the materials occurred and a minimum compressive strength of 20MPa indicates that the existing roof slab has insufficient capacity to resist the proposed structure loadings.
4. The proposed roof change which will include a lightweight metal deck roof system to seal the envelope of the building, with a secondary trafficable floor structure above. The new roof system design will comply with relevant Australian Standards.

For the above reasons the existing roof slab cannot meet the requirements for structural certification for a further design life.

Should you require anything further please contact the undersigned.

Yours faithfully,
TAYLOR THOMSON WHITTING (NSW) PTY LTD



KEVIN BERRY
Director

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