



07/04/2025

234338 SAAA

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Attention: Tom Sharp

## **WSU Indigenous Centre of Excellence** **SSDA – Structural Integrity During a PMF Event**

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Dear Tom

TTW have reviewed the comments from the NSW Planning Department regarding the SSDA for WSU ICOE and have provided responses below. The original comments are shown in [blue](#)

*Evidence from a certified engineer is required to confirm that the building can maintain structural integrity during a PMF event. Consideration must be given to the flood resilience of all building components.*

- Please confirm that the building structures will be designed to withstand the combined loads from occupants and staff, as well as any forces that may arise from flood water and debris during a PMF event, as per the finalised Shelter in Place Guideline for Flash Flooding.*

The flood modelling indicates that during a PMF event, the maximum water velocity will be 2.5m/s and will reach a point approximately 1.5m above the ground floor partially inundating the building for a period of approximately 1 hour. This equates to a horizontal load on the column base of approximately 42kN. This is noted as being below the 5% robustness load the column connections have been designed to as per AS1170.0 CL 6.2.3.

Furthermore, the force generated by the flood water on the ground floor is approximately 30% of the seismic loads the building has been designed for. As such, the building superstructure can be seen as sufficient to resist the forces generated by this water flow onto the superstructure while simultaneously carrying the load of the building occupants sheltering on the upper floors.

This means there is sufficient strength to maintain structural integrity during and immediately after the PMF event allowing for occupants to shelter during the event and evacuate safely once the flood water has subsided. Minimal debris is expected to impact the structure considering the numerous culverts, bunds and roads that provide an obstacle to potential debris.

- If damage to any part of the building structures is anticipated, please discuss the potential risks to property, life, and the environment in the revised FERP, as well as recovery strategies from flooding that would minimise damage and disruption.*

In terms of anticipated damage during the PMF, it is noted that due to the inundation, it is expected there would be some damage to the building façade and its contents present on the ground floor. The steel superstructure used on the eastern half of the building near the theatre would not be expected to sustain long term damage due to inundation as steel is considered a flood compatible material. The timber columns that make up the superstructure on the western portion of the building may become partially damaged during the inundation period due to the uptake of water into the timber. This will not affect their structural integrity during or immediately after the PMF event but may present a risk to their long-term durability which will need to be assessed after the PMF event via an appropriate engineering investigation.

Damaged portions of timber superstructure may be treated or replaced as required to maintain the building function. As such, it is expected that there is only a risk of property damage and not any risk to life during the PMF. The return period of this PMF event is considered beyond 1 in 10,000 years and this building does not perform any post-disaster function.

It should be noted that the damage to the timber superstructure will only occur during a PMF event. During a 1% AEP event, the flood water does not reach the ground floor slab and all the structure below ground floor is constructed using flood compatible materials i.e. reinforced concrete and masonry.

Should you require anything further please contact the undersigned

Yours faithfully,  
**TTW (VIC) PTY LTD**



**SAMEED KHAN**  
**Associate (Structural)**

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