BUREAU SRH Structural Engineering

LEVEL 1 | 17 BRISBANE STREET | SURRY HILLS | NSW | 2010 | AUSTRALIA |
tel +61 2 8302 3200 | admin@bureausrh.com

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Job No: 23039

Marilyn Annecchini
C/o LBM Consulting

Dear Bill and Marilyn

Re: Pilu Freshwater – Pavillion fire protection

Bureau SRH was requested to review the fire protection currently afforded the Pavillion building at Pilu restaurant Freshwater.

Site Inspection

An inspection was undertaken by Richard Barnes on 26 June at Pilu Freshwater. The Pavilion is the single-storey building on the NE corner of the property. There are multiple other buildings on the site, but this review scope excluded all the other buildings.

The Pavillion footprint is approximately square. The roof is a fabric structure, supported on a central column plus four columns on each face of the square. Glass panels in aluminium frames form the four side walls. The glass and aluminium panels do not provide structural support to the roof.

The pavilion structure is not directly visible, as it has been clad with aluminium. Deduction of the structural elements is based on discussion with the builders Glenn and Jacko, plus review of some historical photos. The columns appear to be circular steel tubes, and are estimated to be 100mm diameter. Tube thickness was not attainable from our inspection. There is a steel header beam running over and linking each of the columns. Its size is 125x50RHS.

The northern wall of the Pavillion sits approximately 1250mm from the property north boundary. The other walls are well over 3m from any other boundary.

Fire Requirements

The National Construction Code (NCC) sets out minimum requirements for fire protection of buildings, whilst the Steel structures code AS4100 guides the fire protection achieved by steel members.

NCC Code Requirements

Single storey restaurant use falls withing Type C construction guidelines.

FRLs are then determined by distance from a fire source.
At Pilu, the fire source is deemed to be at the property boundary. The measured distance of the pavilion northern edge to picket fence on the boundary is 1250mm.

NCC requires different FRL based on distance to fire source:

- Structure under 1.5m needs 90 min FRL. That appears to apply to the row of columns and the header beam on the north edge of the pavilion.
- Structure 1.5m to 3m from fire source needs 60 min FRL. This includes the header beams on the east and west edges of the pavilion above the windows.
- All other wall columns in the pavilion are beyond 3m from a boundary, so require 0 min FRL.

Structure fire rating

Pavillion structure more than 3m from the north boundary requires 0min FRL. All steel elements suitably distant from the boundary comply with this requirement.

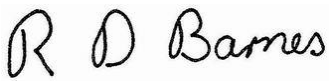
The four steel columns on the north side of the Pavillion, plus the connected steel header beams are within 1.5m of a boundary. There is no evidence of protective fire cladding. Neither columns nor header beams achieve the required 90 min FRL.

Conclusions

The majority of the Pavillion structure is greater than 3m from any boundary. In accordance with the NCC, structure beyond 3m requires 0min fire resistance period. Consequently the majority of the Pavillion structure complies with the fire requirements of the NCC.

Four columns on the north side of the Pavillion, plus connected header beams are within 1.5m of a boundary and so are required by NCC to achieve 90min FRL. This section of structure is not fire rated and so does not achieve the fire requirements of the NCC.

Yours faithfully,
BUREAU SRH PTY LIMITED



Dr Richard Barnes
Structural Engineer