



08 December 2017

CPP Project 11355

FJMT Studio  
Level 5, 70 King St  
Sydney  
NSW 2000

Attn: Ms. Elizabeth Carpenter

Project: Inner City High School

Dear Ms. Carpenter,

Please find herein a summary of expected wind conditions around the proposed Inner City High School Development. This letter specifically addresses a request from the Department of Planning regarding the likelihood of wind mitigation measures and the requirement (or lack thereof) for further studies. A more detailed qualitative assessment of the pedestrian wind environment may be found in Cermak Peterka Petersen (2017).

### **Public Domain**

The proposed development projects above surrounding structures, and will therefore have some influence over flow conditions at the ground plane. Pedestrian areas in the public domain that may be affected by the building include the footpaths along Cleveland Street to the south, Chalmers Street to the east, and in Prince Alfred Park to the west. These areas are likely to be used as thoroughfares rather than for long-term or stationary activities.

The tower levels are setback from both Cleveland and Chalmers Streets, by approximately 20m in each case. In addition, existing low-rise structures separate the tower from these trafficable areas. This will minimise the impact of the subject development in terms of wind amenity, as vertical downwash flows will be redirected horizontally. For this massing and geometry, the influence of the subject development will generally decrease with distance from its façade, and the large setback will assist in maintaining conditions similar to the existing on these frontages.

The tower levels are also setback approximately 5-10m from the western and northern site boundaries by landscaped terraces descending to the lower level of the park. These will assist in minimising the influence of the structure at ground level. During strong winds from the west, relatively strong breezes would be anticipated at the windward corners of the development, however mitigation is not expected to be required unless long-term stationary type activity such as dining is intended at these areas. The ground-floor entries to the north and west are reasonably well protected by overhanging levels and local topography. On the southern, western, and northern site boundaries, existing large trees and planned landscaping will further assist in ameliorating winds for pedestrians.

Overall, the pedestrian wind environment in public areas would be expected to remain similar to the existing. Taking into account the points above and the intended use of the surrounding areas, no immediate need for permanent mitigation measures in the public domain is anticipated for this development.

## Private Domain

The following discussion is intended to guide design for wind comfort. Recommendations are given with the intention of increasing the proportion of time locations are suitable for their intended use, rather than as a safety/distress requirement.

The lower ground and ground floor quadrangle areas are expected to experience mostly calm conditions, being nested between existing buildings and shielded from prevailing strong wind directions. Retention of landscaping and planting as indicated will also be of some benefit. Slightly stronger conditions may occur where the flow is constricted at the gap between buildings to the north, and at the carpark entry to the south.

The articulated and staggered arrangement of terrace spaces to the west and north on ground level will encourage amenable conditions for at least some of these areas most of the time. Horizontal awnings could be incorporated to mitigate the effects of downwash from the western façade for uncovered areas.

The open levels on Levels 1, 4 and 8 may experience strong cross flows for a significant proportion of the time, as wind is compressed and accelerated through the slot in the façade and across the level. These areas are expected to be acceptable for transient outdoor-type activities only. It is noted the design includes porous mesh around these areas, with a solidity of approximately 25%. This may marginally improve the wind conditions, though if these levels are to be used for long-term stationary activity more often, it would be recommended to increase the solidity of the screens to approximately 60-70%. Alternatively, vertical obstructions distributed across the level could be used to create localised calm spaces.

On Levels 2 and 3, the solid balcony screens on the east and west sides will allow reasonably amenable conditions. A high (>1.5m) balustrade would be beneficial in creating calm conditions for a greater proportion of the time. The level 4 games terrace will be affected by downwash flows from the tower levels above, and higher velocities would be anticipated, particularly near the building corners and tower façade. For the colonnade area close to the building in particular, screening on the east and west sides would be suggested to improve conditions.

The upper level terraces may experience strong cross flows. To increase the proportion of time calm conditions exist, enclosing one side with a solid wall or awning would be suggested.

If quantification of the wind environment in and around the proposed development is required, wind tunnel testing would be necessary.

I trust this information is of assistance, for clarification please contact the undersigned.

Yours sincerely,



Tom Evans  
Project Engineer  
Cermak Peterka Petersen Pty. Ltd.

cc: Matt Glanville, CPP

### References

Cermak Peterka Petersen (2017) Wind Assessment for: Inner City High School.  
*CPP11355\_Inner City High School SSD - Issued 06.06.17\_DS\_R02*