SUMMARY EXPERT OPINION
SEPP65 ISSUES OF AMENITY: **APARTMENT DEPTHS**
PROPOSED INDEPENDENT LIVING UNITS AND RACF
THE TERRACES
Scottish Hospital No 2 Cooper Street, Paddington

27 September 2010

1.0 PRELIMINARIES

1.1 I provide this summary opinion in response to a request for technical advice relating to the interpretation of a provision in the Residential Flat Design Code, pursuant to the provision of information of SEPP 65 compliance for the above proposed development.

1.2 I comment on the appropriate application of **.Part 03 .Building Design** .Building Configuration .Apartment Layout *Rules of Thumb***:**

- The back of a kitchen should be no more than 8 metres from a window. *(RFDC p. 69)*

1.3 My qualifications and experience are set out in *Appendix A: Credentials*.

2.0 DOCUMENTS AND INFORMATION

I base my opinion on DA architectural drawings, numbered DA203 through DA211, DA221, 222, 231 and 232, Issue P11 at 14.09.10, by JPR Architects.

3.0 PERFORMANCE OBJECTIVES AND CONTROL

3.1 The control

The relevant *Rule of Thumb* relating to apartment depths appears in the introductory section of**.Part 03 .Building Design** of the Residential Flat Design Code, under *.Building Configuration .Apartment Layout*.

Objectives
- To ensure the spatial arrangement of apartments is functional and well organised.
- To ensure that apartment layouts provide high standards of residential amenity.
- To maximise the environmental performance of apartments.
- To accommodate a variety of household activities and occupants' needs.

To give effect to this objective, the Better Design Practice notes include:
Design apartment layouts, which respond to the natural and built environments and optimise site opportunities, by *inter alia*:
- locating habitable rooms, and where possible kitchens and bathrooms, on the external face of the buildings thereby maximises the number of rooms with windows
- maximising opportunities to facilitate natural ventilation and to capitalise on natural daylight, for example by providing:
- corner apartments
- cross-over or cross-through apartments
- split-level or maisonette apartments
- shallow, single-aspect apartments (see Natural Ventilation and Daylight Access).

The Rules of Thumb state:
- Single-aspect apartments should be limited in depth to 8 metres from a window.
- The back of a kitchen should be no more than 8 metres from a window.
- The width of cross-over or cross-through apartments over 15 metres deep should be 4 metres or greater to avoid deep narrow apartment layouts.
- Buildings not meeting the minimum standards listed above, must demonstrate how satisfactory daylighting and natural ventilation can be achieved, particularly in relation to habitable rooms (see Daylight Access and Natural Ventilation).

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3.2 Kitchen to glazing depth

The proposed design of some apartments in the development appears to fail to satisfy the *Rule of Thumb*, which requires 'the back of a kitchen should be no more than 8 metres from a window'.

This applies for 41 (50%) of the 82 apartments proposed, with the qualification that of that number, 36 of the apartments fail the test for only part of the area of the relevant Kitchens, and only four (5%) have the Kitchen so located as to fall entirely beyond the specified maximum distance.

3.3 Relevant performance and amenity issues

The control clearly seeks to assure

- a reasonable standard of *natural ventilation*; and
- if possible, relatively *high daylight autonomy* and avoidance of the use of artificial light during daytime.

The question to which I therefore address myself is whether the *Rule of Thumb* is a necessary or sufficient condition to achieve those objectives.

4.0 DISCUSSION

In my experience the planning of the apartments in question conform with common practice in the marketplace — this particular *Rule of Thumb* is commonly disregarded where it is demonstrable that the placement of the kitchen partly further than the nominated 8m depth from the glazing line is a reasonable consequence of trade-offs which achieve otherwise advantageous amenity outcomes.

This being an independent living unit development, the issue is further highlighted as a problem related to the provision of minimum dimensions for the living and dining spaces, so as to assure circulation clearances comparable to adaptable dwellings. Because of that dimensioning, the overall depth of 8m would be overly restrictive of effective planning of a majority of the apartments.

4.1 Natural ventilation

None of the apartments in question are single aspect. All are dual aspect apartments, with assured cross ventilation. It is expected that the kitchens are also provided as normal with effective exhaust ventilation. The ventilation of the kitchens which are in part or in whole in excess of 8 m from the glazing line would not appear to be relevant to the determination of this issue.

4.2 Daylighting

I would be pleased to support the principle that all apartments should have bright and naturally lit kitchens, sufficient for the performance of the tasks associated with their use. The practical reality is that in the overwhelming majority of apartments available in the marketplace, priority is not placed on this particular design outcome. There are two reasons for this:

- It is a higher priority to allocate the external windows in most apartments to the primary habitable rooms, being the living space and bedrooms.
- Any kitchen working surface that is further than 2 to 3m from a suitably sized and unobstructed window will not generally achieve by daylighting alone the relatively high service illuminance for the critical tasks such as cutting (ideally in excess of300 lux). Therefore in practice, even kitchens apparently **conforming** to the distance limitation in the *Rule of Thumb* will require supplementary artificial task lighting during daylight hours.

At best, kitchens placed remote from the glazing line are likely to achieve relatively low ambient daylight levels, comparable to that considered safe and adequate for general circulation space (50 lux).

It is certainly true that the daylight factor necessary to achieve even this level of natural lighting is dependent on limiting the depth from the glazing line. However, the nominated 8 m distance is not by itself a sufficient condition for this purpose. Likely daylighting levels are critically dependent on the detailed layout of the apartment.

I note that in the mix of apartments under consideration in this development, a variety of layouts apply, and the likely projected daylight levels will clearly not correlate with the distance of the back wall of the kitchen from the nearest point on the glazing.

5.0 CONCLUSION

5.1 In dealing with the apparent nonconformity of a proportion of the proposed apartments with the *Rule of Thumb* limiting the distance of kitchens from the glazing line, it is appropriate to take into consideration the greater benefit of more generous dimensioning of the living and dining spaces and their associated circulation zones. To adhere to a maximum 8m distance would unduly limit the ability to plan the independent living units appropriately to encourage ageing in place with potential changes in mobility.

5.2 Natural ventilation does not seem to be a critical determinant, as all the relevant apparently nonconforming apartments are dual aspect and cross ventilated.

5.3 Natural light autonomy cannot be demonstrated for apartments that do conform to the maximum 8m depth. Kitchen bench tops further than 2 to 3m from a suitably sized window, will still require artificial lighting to assure the service illuminance for kitchen tasks. Ambient light for general safety is also not guaranteed by a formulaic application of the 8m maximum distance, if detailed planning is disregarded. In this respect, *all of the apparently nonconforming apartments in this development can be said to achieve comparable likely levels of ambient daylighting to typical apartments which would be considered otherwise complying with the* Rule of Thumb.

In practice, artificial lighting is required for task lighting for many otherwise complying kitchens, with its back wall close to the allowable 8 m from the glazing line. In that respect, the apparently nonconforming kitchens proposed here are indistinguishable in their likely performance.

In my considered opinion, the application of the 8 m maximum distance from the glazing line would be an inappropriate constraint on what appear to be well planned apartments, with well considered trade-offs to maximise their general amenity.

It is clear to me that minimum dimensions for unobstructed circulation and well lit primary habitable spaces are a much higher priority. I have advised the Applicant that little or no diminution of available daylighting can be clearly attributed to the particular instances where the nominal 8m dimension has been exceeded.

A.0 CREDENTIALS

Steve King B.Arch(Hons.) Dip.Bdg.Sc. (Sydney)

I have been teaching architectural design, thermal comfort and building services at the Universities of Sydney, Canberra and New South Wales since 1971. Since 1992, I have been a Research Project Leader in SOLARCH, the National Solar Architecture Research Unit at the University of NSW. Until its disestablishment in November 2006, I was the Associate Director, Centre for Sustainable Built Environments, UNSW.

My research and consultancy includes work in solar access, energy simulation and assessment for houses and multi-dwelling developments, building assessments under the NSW SEDA Energy Smart Buildings program, appropriate design and alternative technologies for museums and other cultural institutions, and asthma and domestic building design. I am the principal author of *SITE PLANNING IN AUSTRALIA: Strategies for energy efficient residential planning*, funded by the then Department of Primary Industry and Energy, and published by AGPS, and of the RAIA Environment Design Guides on the same topic. Through UNISEARCH and NEERG Seminars, I conduct training in solar access and overshadowing assessment for Local Councils. I have delivered professional development courses on topics relating to energy efficient design both in Australia and internationally.

SOLARCH/UNISEARCH were the contractors to SEDA NSW for the setting up and administration of the House Energy Rating Management Body (HMB), which accredits assessors under the Nationwide House Energy Rating Scheme (NatHERS), NSW. I was the technical supervisor of the HMB, with a broad overview of the dwelling thermal performance assessments carried out in NSW over five years. I have been a member of the NSW BRAC Energy Subcommittee, and also a member of the AGO Technical Advisory Committee on the implementation of AccuRate, the new mandated software tool under NatHERS. I undertook the Expert Review for the NSW Department of Planning, of the comparison of NatHERS and DIY methods of compliance for Thermal Comfort under BASIX, and was subsequently a member of a three person expert panel advising on the implementation of AccuRate in BASIX.

I teach the wind and ventilation components of environmental control in the undergraduate course in architecture at UNSW, and am the author of internationally referenced, web accessed coursework materials on the subject.

I have undertaken a number of daylight studies for residential development applications, including the Statement of Evidence and appearance as Court appointed expert in *258 Crows Nest Dev v North Sydney*, Land and Environment Court 11468 of 2005.

I am a Registered Architect and maintain a specialist consultancy practice in Sydney and Canberra. I have delivered a number of key papers relevant to the local compliance regime, including *Daylight & Solar Access* (Invited paper) Reading between the lines: making sense of consultant reports. Understanding the environmental sciences essential to development applications, NEERG Seminars 31 August 2006. I regularly assist the Land and Environment Court as an expert witness in related matters.

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