21 July 2016
Dear Michael

Site 9 Sydney Olympic Park, 3 Olympic Boulevard proposed residential development.
Expert Judgement related to BASIX alterations

The BASIX certificates for the proposed residential development at 3 Olympic Boulevard were provided in the Arup ESD report dated 2nd March 2016 submitted as part of the DA submission. The project fully complied with the BASIX requirements for water, energy and comfort with stamped BASIX plans and certificates. There have recently been a number of minor alterations for the proposed residential tower and this correspondence provides a review of these alterations and an expert judgement on the compliance of these alterations with BASIX.

An Expert Judgment as defined by the National Construction Code as the judgement of an expert who has the qualifications and experience to determine whether a building solution complies with the performance requirements. This expert judgement can also relate to opinions related to BASIX performance for energy, water and comfort for residential class 2 apartments.

The following alterations have been made to the proposed residential development that could potentially have an impact on the BASIX certification.

1. Level 39 penthouse – A new 270m² four bedroom apartment accessed via stairs off Level 38.
2. Level 9 – Deleted 1 north-facing 2-Bedroom facing communal garden to accommodate bicycle store (relocated from Ground Floor).

It is our opinion that although the BASIX certificates will need to be revised to represent the changes the BASIX performance of the building will still be able to be achieved. The following points clarify our support of this statement:

- The key issue is that the Penthouse BASIX thermal comfort performance. The level 39 Penthouse apartment is large but the glass/area to floor area in similar to the other apartments at approximately 30% glass area ratio to floor area.
- The main north east elevation and the narrow living room is favourable to passive winter heating which with reduce the BASIX winter energy requirements.
- The large overhang shade on the north evaluation will allow the penetration of welcome winter sun but will eliminate summer sun.
- The glazing for the façade will need to be a low $e$ double glazing potentially with thermal breaks to improve the overall $U$ value of the façade system. The solar performance (SHGC) of the glass will need to be assessed but we believe it will be a realistic range of SHGC 0.3 to 0.5.
- The deletion of the one north facing apartment to accommodate bicycle storage will not impact the overall BASIX performance.

Overall the alterations will not impact the BASIX energy and water performance and the glass to the Penthouse will have to be assessed using the comfort tool to select the appropriate $U$ value and SHGC performances required for BASIX compliance. The BASIX certificates will need to be revised prior to the Construction Certification stage of the project.

The architectural drawings that were reviewed as part of amendment are the Bates Smart Architectural drawing series DA.01 Revision B. These drawings have been attached to this letter.

Yours sincerely

Tim Elgood
Principal

Attachment- Bates Smart Architectural drawing series DA.01 Revision B
<table>
<thead>
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<td>DA05.001</td>
<td>Shadow Diagrams Winter Solstice June 21</td>
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Notes - Construction General (BASIX)

**Glazing**
- Aluminium framed single clear glazing to internal windows that open to wintergardens
  - U-Value: 6.6 (equal to or lower than)
  - SHGC: 0.69 (+ or – 10%)
- Aluminium framed double clear glazing to curtain walls & glazing to balcony edge
  - U-Value: 4.4 (equal to or lower than)
  - SHGC: 0.5 (+ or – 10%)
Given values are NFRC, total window values

**Roof / ceiling insulation**
- Concrete roof - No insulation
- Plasterboard ceiling - R3.0 bulk insulation to selected units (34.01 and 34.07) with balconies above
- Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above to all other units.
Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.

**Wall / floor insulation**
- Lightweight cladding to all external walls with R1.5 bulk insulation
- No colour nominated
- Plasterboard on studs - no insulation
- 75mm hebel power panel plasterboard lined with R2.0 acoustic insulation to selected units only (7.01 and 8.01)
- 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation to all other units.
- Concrete – R2.1 insulation to all units in level 7 with car park below
- Concrete – no insulation required between units

**Floor coverings**
- 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans
- All 3 & 4 bed apartments tiled throughout

**Central hot water system**
- Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.

**Alternative water supply**
- Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)

**Alternative energy**
- Not required by BASIX
Notes - Construction General (BASIX)

- Roof / ceiling insulation
  - Concrete roof - No insulation
  - Plasterboard ceiling - R3.0 bulk insulation to selected units (34.01 and 34.07) with balconies above. Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above to all other units. Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.

- Wall / floor insulation
  - External Wall: Lightweight cladding to all external walls with R1.5 bulk insulation. No colour nominated.
  - Internal walls within units: Plasterboard on studs - no insulation.
  - Inter-tenancy walls / corridor: 75mm hebel power panel plasterboard lined with R2.0 acoustic insulation to selected units only (7.01 and 8.01). 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation to all other units.
  - Floors: Concrete – R2.1 insulation to all units in level 7 with car park below. Concrete – no insulation required between units.

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- Central hot water system
  - Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.

- Alternative water
  - Reticulated alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance).

- Alternative energy
  - Not required by BASIX.
Notes - Construction General (BASIX)

**Glazing**

- Aluminium framed single clear glazing to internal windows that open to wintergardens.
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**Floor coverings**

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**Central Hot Water System**

- Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.
- Reticulated alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance).

**Alternative Energy**

- Not required by BASIX
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Notes - Construction General (BASIX)

Glazing
- Aluminium framed single clear glazing to curtain walls & that open to wintergardens
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  U-Value: 4.4 (equal to or lower than) SHGC: 0.5 (+ or – 10%)

Given values are NFRC, total window values

Ceiling:
- Concrete roof - No insulation
  Default Colour modelled

Roof:
- (34.01 and 34.07) with balconies above
  Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above to all other units.

Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.

Wall / floor insulation
- Lightweight cladding to all external walls with R1.5 bulk insulation
- Inter-tenancy walls / corridor
  Internal walls within units
  No colour nominated
  Insulation to selected units only (7.01 and 8.01)
- Concrete – R2.1 insulation to all units in level 7 with car park
  Floors:
  Insulation to all other units.

Floor coverings
- 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms
- 3 & 4 bed apartments tiled throughout
- Central hot water system and living areas as per plans
- All 3 & 4 bed apartments tiled throughout

Exit Entry
- RL.12.350
- RL.12.050
- RL.12.450
- RL.13.000
- RL.13.300
- RL.13.650
- RL.13.750
- RL.14.000

Central gas-fired boiler with R1.0 (~38mm) insulation to reticulated alternative water ringmain and supply risers.

Alternative water supply available from Sydney Olympic Park

Not required by BASIX

REV: 20.07.16 Amended DA Issue JS CP
A 01.03.16 Development Application JS CP

Revision Date Description Initial Checked

Site 9, Sydney Olympic Park
3 Olympic Boulevard
General Arrangement Plan

OLYMPIC BOULEVARD

Scale Drawn Project No. Plot File Drawing no.
1 : 200                       @ A1

Bates Smart
1 Nicholson Street Melbourne VIC 3000 Australia T 03 8664 6200 F 03 8664 6300 email mel@batessmart.com.au http://www.batessmart.com.au
Pty Ltd ABN 70 004 999 400
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- Reticulated alternative water

Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)

Alternative energy
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Check all trade work requirements

Legend - General

BG Bulky Goods
Storage Cage

Legend - General

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Check all trade work requirements

Legend - General

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Alternative energy
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Check all trade work requirements

Legend - General
Notes - Construction General (BASIX)

- Roof: Concrete roof - No insulation
  Default Colour modelled
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- Alternative energy
  - Not required by BASIX

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and or the fabrication of any components.

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Residential Parking (52)

- Glazing
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- Alternative energy
  - Not required by BASIX
Notes - Construction General (BASIX)

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- Alternative energy not required by BASIX

Architect: Bates Smart
Sydney

Project No. Plot File Drawing No.
43 Brisbane Street Surry Hills NSW 2010 Australia T 02 8354 5100 F 02 8354 5199 email syd@batessmart.com.au http://www.batessmart.com.au

Checked

Melbourne VIC 3000 Australia T 03 8664 6200 F 03 8664 6300 email mel@batessmart.com.au http://www.batessmart.com.au

Pty Ltd ABN 70 004 999 400

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- Roof / ceiling insulation:
  - Concrete roof - No insulation
  - Plasterboard ceiling - R3.0 bulk insulation to selected units (34.01 and 34.07) with balconies above. Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above to all other units. Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.

- Wall / floor insulation:
  - Lightweight cladding to all external walls with R1.5 bulk insulation
  - Plasterboard on studs - no insulation
  - 75mm hebel power panel plasterboard lined with R2.0 acoustic insulation to selected units only (7.01 and 8.01)
  - 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation to all other units.

- Floors:
  - Concrete – R2.1 insulation to all units in level 7 with car park below
  - Concrete – no insulation required between units

- Floor coverings:
  - 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans
  - All 3 & 4 bed apartments tiled throughout

- Central hot water system:
  - Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.
  - Reticulated alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)

- Alternative energy:
  - Not required by BASIX

- General:
  - All drawings may not be reproduced or distributed without prior permission from the architect.