

Proposed residential development  
80-88 Regent Street,  
Redfern NSW 2016

# NSW SUBSECTION J(A) REPORT – NCC 2016

Issue 01

Issue	Description	Author	Date
01	Energy efficient analysis and report	HE	04.01.16



## NCC 2016 – NSW Subsection J(A) – Class 2 - Residential

<b>Project</b>	<b>Residential development, 80-88 Regent Street &lt; Redfern NSW 2016 NSW Subsection J(A) BCA Assessment and Report – to Deemed to-satisfy provisions</b>	<b>Climate Zone</b>	<b>Zone 5</b>	<b>Date</b>	<b>04.01.16</b>
<b>Client</b>	<b>SJB Architects</b>	<b>Building Class</b>	<b>Class 2</b>		

This report has been produced to determine the compliance to NSW Subsection J(A) of NCC 2015 for the building located at the above address. The review has been based upon the documents specified below and information provided by clients, architects and consultants. Should these documents change then this report will require updating to reflect changes and may result in a non compliance with the NCC NSW Subsection J(A).

**Architectural documents:** Drawings by SJB Architects Pty Ltd: Construction Certificate Project No. 5359 Drawing No. DA-0201, 0202, 0203, 0204, 0205, 0206, 0207, 0208, 0209, 0210, 0211, 0501, 0601  
BASIX certificate No. 695486M

**Electrical services documents:** None

**Hydraulic documents:** None

**Structural documents:** None

At the completion of this report where the outcome results in compliance for all clauses this document can be utilized as the certification for the project.  
Compliance is achieved with the completion of the recommendations of this report.  
Compliance to Deemed-to-Satisfy Provisions is achieved by compliance with following clauses.

<b>Part :</b>	<b>Clause:</b>	<b>Compliance:</b>
Part J(A)1 – Building Fabric	J(A)1.0 to J(A)1.2	Y
Part J(A)2 - Building Sealing	J(A)2.0 to J(A)2.2	Y
Part J(A)3 - Air Conditioning & Ventilation Systems	J(A)3.0 to J(A)3.2	Y
Part J(A)4 – Hot Water Supply	J(A)4.0 to J(A)4.2	Y
Part J(A)5 – Access for Maintenance	J(A)5.0 to J(A)5.3	Y

<b>Prepared for:</b>	<b>Prepared by:</b>
<p><b>SJB Architects</b> Level 2, 490 Crown Street, Surry Hills, NSW 2010</p> <p><b>Contact: Stefanie Hughes</b> Phone: (02) 9380 9911 Email: SHughes@sjb.com.au</p>	<p><b>Efficient Living</b> 13/13 Lagoon St, NARRABEEN NSW 2101</p> <p><b>Contact: Haylea Edwards</b> Phone: (02) 9970 6181 Email: haylea@efficientliving.com.au</p>

**SJB Architects PTY LTD are to be ultimately responsible for the final built compliance of NSW Subsection J(A) - Energy Efficiency**

Clause	System	Required action(s) for compliance	Comments
<b>NSW Part J(A)1 - Building Fabric</b>			
NSW J(A)1.1	Application Of Part	See details below	Applicable to Class 2 parts of the development only
NSW J(A)1.2	Compliance with BCA provisions	<p><b>Install:</b> Insulation as specified by BASIX commitments &amp; thermal comfort specifications</p> <p><b>Ensure:</b> All insulation is installed as per AS/NZS 4859.1 and comments.</p>	<p>Insulation to be installed in compliance with AS/NZS 4859.1</p> <ul style="list-style-type: none"> <li>adjoining insulation must abut / overlap and butt up against studs, joists, noggings etc.</li> <li>it must form a continuous barrier.</li> <li>it must not interfere with the safe operation of services or fittings.</li> </ul> <p>Reflective insulation must be installed with:</p> <ul style="list-style-type: none"> <li>the necessary airspace to achieve the required R-Value between the reflective side of the insulation and the building lining or cladding</li> <li>the reflective insulation closely fitted against any penetration, door or window opening</li> <li>the reflective insulation adequately supported by framing members</li> <li>each adjoining sheet must either overlap not less than 50mm or be taped together</li> </ul> <p>Bulk insulation must be installed so that:</p> <ul style="list-style-type: none"> <li>it maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like</li> <li>in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50mm</li> </ul> <p>No additional insulation is required outside of the BASIX requirements.</p> <p>See below for additional requirements <b>J1.3(d)</b>, <b>J1.5(c)</b>, <b>J1.3(c)</b>, <b>J1.6(c)</b> &amp; <b>J1.6(d)</b>.</p>
NCC J1.3(d)	Thermal breaks to roof & ceiling construction	None	As per plans referenced above the proposed external wall construction is cavity brick and therefore <b>J1.5(c)</b> is not applicable.
NCC J1.5(c)	Thermal breaks to external walls	None	As per plans referenced above the proposed external wall construction is cavity brick and therefore <b>J1.5(c)</b> is not applicable.
BCA J1.3(c)	Loss of insulation through ceiling penetrations	None	Loss of insulation through ceiling penetrations have been accounted for in the thermal comfort modelling in accordance with the NatHERS technical notes. As such no further action is required

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NCC J1.6(c) & J1.6(d)	Insulation of slabs with in-slab heating or cooling	None	J1.6(c) is only applicable to concrete slab(s) on ground with an in-slab heating or cooling system; or in climate zone 8. Given that there are no units with in-slab heating/cooling and the proposal is located in climate zone 5 <b>J1.6(c) and J1.5(d)</b> are not applicable. In-screed systems to bathroom or wet areas only are also exempt from the requirements of J1.6(c) and J1.6(d).
<b>NSW Part J(A)2 - Building Sealing</b>			
NSW J(A)2.1	Application of Part	See details below	Applicable to Class 2 parts of the development only. The following requirements are not required where – A building ventilation opening is necessary for the safe operation of a gas appliance; and Parts of the building that cannot be fully enclosed
NSW J(A)2.2	Compliance with BCA provisions	<b>Ensure:</b> The following national provisions are complied with if applicable (a) <b>J3.2</b> Chimneys and flues; and (b) <b>J3.3</b> Roof lights; and (c) <b>J3.4</b> External doors and windows; and (d) <b>J3.5</b> Exhaust fans; and (e) <b>J3.6</b> Construction of roofs, walls and floors; and (f) <b>J3.7</b> Evaporative coolers.	(a) N/A – no chimneys and flues. (b) N/A – no roof lights (c) See J3.4 below (d) See J3.5 below (e) See J3.6 below (f) N/A – no evaporative coolers.
NCC J3.4	Windows and doors	<b>Confirm:</b> Evidence that windows comply with AS 2047 else comply with <b>J3.4</b> .  <b>Ensure:</b> All unit entrance doors are fitted with a self closing mechanism and that these doors are sealed as per <b>J3.4 (c)</b> .  Any other doors that form part of the external fabric of the development must also be sealed as per <b>J3.4(c)</b> .	Window supplier to provide verification that all glazing is sealed to comply with BCA J3.4 or AS2047.  All units have a conditioned area of over 50m <sup>2</sup> and separate the unit from unconditioned areas, therefore a self closing mechanism is required to be install to these entrance doors.  Required door seals – from <b>J3.4(c)</b> (i) for the bottom edge of an external swing door, must be a draft protection device; and (ii) for the other edges of an external door or the edges of an openable window or other such opening, may be a foam or rubber compression strip, fibrous seal or the like
NCC J3.5	Exhaust fans	<b>Ensure:</b> All externally ducted exhaust fans within units are fitted with a sealing device such as a self-closing damper or the like	From the BASIX certificate it is noted that bathroom and kitchen mechanical ventilation is ducted to façade or roof. For the purposes of Section J all areas with-in the units are also considered to be conditioned areas and as such the requirement for a sealing device is applicable.

Clause	System	Required action(s) for compliance	Comments
NCC J3.6	Construction of roofs, walls & floors	<b>Ensure:</b> All new construction forming elements are installed in accordance with <b>J3.6(b)</b>	J3.6(b) summarised: Construction forming elements of the external fabric must be enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves, cornices or the like.  These requirements do not apply to smoke hazard management openings.

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#### NSW Part J(A)3 – Air Conditioning & Ventilation Systems

NSW J(A)3.1	Application of Part	See details below	Applicable to Class 2 parts of the development only i.e. not applicable to carpark or retail areas
NSW J(A)3.2	Compliance with BCA provisions	<b>Ensure:</b> The following national provisions are complied with if applicable (a) <b>J5.2 (a) to (d) and (f) to (g)</b> Air conditioning systems; and (b) <b>J5.3</b> Mechanical ventilation systems; and (c) <b>J5.4</b> Miscellaneous exhaust systems	(a), (b) & (c) to be addressed as part of Mechanical Design Certificate, read in conjunction with BASIX specifications.

Clause	System	Required action(s) for compliance	Comments
NCC J5.2	Air-conditioning systems	<p><b>Ensure:</b> Any air-conditioning system(s) are capable of being deactivated when the building or part of the building served by that system is not occupied.</p> <p><b>Ensure:</b> Any air-conditioning system(s) that serve more than one air-conditioning zone or area with different heating or cooling needs comply with the requirements listed in comments</p> <p><b>Ensure:</b> Any motorized outside air and return dampers close when an air-conditioning system is deactivated.</p> <p><b>Ensure (where applicable):</b> Any items listed below that form part of the air-conditioning system(s) meet the following criteria</p> <ol style="list-style-type: none"> <li>1. Fans comply with <b>Specification J5.2a</b></li> <li>2. Pumps comply with <b>J5.2(c)</b></li> <li>3. Insulation complies with <b>Specification J5.2b</b> and <b>Specification J5.2c</b></li> <li>4. Energy efficiency ratios comply with <b>Specification J5.2e</b></li> </ol> <p><b>Install (if required):</b> A time switch in accordance with <b>Specification J6</b> to any new systems if required by <b>J5.2(g)</b></p> <p><b>Ensure:</b> That any new air-conditioning system(s) comply with all other areas of <b>J5.2</b> where applicable.</p>	<p>Refer to Mechanical Design Certificate to ensure compliance.</p> <p>Any air-conditioning system(s) that serve more than one air-conditioning zone or area with different heating or cooling needs, must</p> <ul style="list-style-type: none"> <li>• Thermostatically control the temperature of each zone or area; and</li> <li>• Not control the temperature by mixing actively heated air and actively cooled air; and</li> <li>• Limit reheating to not more than – <ul style="list-style-type: none"> <li>o for a fixed supply air rate, a 7.5 K rise in temperature; and</li> <li>o for a variable supply air rate, a 7.5 K rise in temperature at the nominal supply air rate but increased or decreased at the same rate that the supply air rate is respectively decreased or increased</li> </ul> </li> </ul> <p>Any ductwork must be sealed and insulated in accordance with <b>Specification J5.2b</b></p> <p>Any piping, vessels, heat exchanges and tanks containing heating or cooling fluid that are part of a system, other than those with insulation levels covered by MEPS, must be insulated in accordance with <b>Specification J5.2c</b></p> <p>Any refrigerant chillers used as part of an air-conditioning system and any packaged air-conditioning equipment must comply with <b>Specification J5.2e</b></p> <p>J5.2(g) states that a time switch must be provided to control each of the following:</p> <ul style="list-style-type: none"> <li>• An air-conditioning system of more than 10 kW<sub>r</sub>.</li> <li>• A heater of more than 10 kW<sub>heating</sub> used for air-conditioning</li> </ul> <p>The above requirements do not apply to a building where air-conditioning is needed for 24 hour occupancy; and</p> <p>Where an air-conditioning system serves:</p> <ul style="list-style-type: none"> <li>• only one sole-occupancy unit in a Class 2 or 3 building; or</li> <li>• a Class 4 part of a building; or</li> <li>• only one sole-occupancy unit in a Class 9c building;</li> </ul> <p>See appendix for relevant specifications.</p>

Clause	System	Required action(s) for compliance	Comments
NCC J5.3	Mechanical ventilation systems	<p><b>Please note:</b> The following requirements are not applicable to a mechanical system that serves <b>only one</b> sole-occupancy unit in a Class 2 building.</p> <p><b>Ensure:</b> Any mechanical ventilation system(s) are capable of being deactivated when the building or part of the building served by that system is not occupied.</p> <p><b>When serving a conditioned space</b> <b>Ensure:</b></p> <ol style="list-style-type: none"> <li>Any system does not exceed the minimum outdoor air quantity required by <b>Part F4</b>, where relevant, by more than 20%; and</li> <li>Have an energy reclaiming system that preconditions outside air; <b>or</b></li> <li>Have the ability to automatically modulate the mechanical ventilation required by <b>Part F4</b> in proportion to the number of occupants</li> </ol> <p><b>Ensure:</b> Fans of a mechanical ventilation system(s) listed above comply with <b>Specification J5.2a</b></p> <p><b>Install:</b> A time switch in accordance with <b>Specification J6</b> to any mechanical ventilation system(s) with an air flow rate of more than 1000 L/s.</p>	<p>Refer to Mechanical Design Certificate to ensure compliance.</p> <p>The requirements of <b>J5.3(a)(i)</b> (or those to the left excluding the requirements for fans and time switches) must not adversely affect smoke hazard management measures required by <b>Part E2</b>; and ventilation required by <b>Part E3</b> and <b>Part F4</b></p> <p>The requirements of "1." Do not apply where:</p> <ul style="list-style-type: none"> <li>Additional unconditioned outside air is supplied for free cooling or to balance process exhaust; or</li> <li>Additional exhaust ventilation is needed to balance the mechanical ventilation as required by the NCC; or</li> <li>An energy reclaiming system preconditions all the outside air</li> </ul> <p>The requirements for a time switch do not apply to a building where mechanical ventilation is needed for 24 hour occupancy; and Where a mechanical ventilation system serves:</p> <ul style="list-style-type: none"> <li>only one sole-occupancy unit in a Class 2 or 3 building; or</li> <li>a Class 4 part of a building; or</li> <li>only one sole-occupancy unit in a Class 9c building; or</li> </ul> <p>See appendix for relevant specifications.</p>

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NCC J5.4	Miscellaneous exhaust systems	<p><b>Confirm:</b> Whether any miscellaneous exhaust systems are associated with equipment that have a variable demand and have an air flow rate of more than 1000L/s; if so</p> <p><b>Install:</b> A variable speed fan or the like; and</p> <p><b>Ensure:</b> That it is capable of stopping the motor when the system is not needed.</p>	<p>Refer to Mechanical Design Certificate to ensure compliance.</p> <p>These requirements do not apply when additional exhaust ventilation is required for NCC compliance to balance the outside air for ventilation.</p> <p>These requirements do not apply to any systems in any sole-occupancy unit in a Class 2, 3 or 9c building and Class 4 part of building</p>



Clause	System	Required action(s) for compliance	Comments
<b>NSW Part J(A)4 – Hot Water Supply</b>			
NSW J(A)4.1	Application of Part	See details below	Applicable to Class 2 parts of the development only i.e. not applicable to carpark or retail areas
NSW J(A)4.2	Compliance with BCA provisions	<b>Ensure:</b> All hot water systems comply with <b>J7.2</b>	See <b>J7.2</b> below.
NCC J7.2	Hot Water Supply	<b>Ensure:</b> Any heated water supply system for food preparation must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia	Part B2 of NCC Volume Three – Plumbing Code of Australia explains the requirements for a variety of hot water systems including solar heater, heat pump heater, gas water heater, electric resistance water heater and wood fired thermosiphon water heater. Electric resistance water heater are heavily restricted and should be avoided. For all the relevant requirements refer to Part B2 of NCC Volume Three. Further information can be provided if required.
<b>NSW Part J(A)5 – Facilities for energy monitoring</b>			
NSW J(A)5.1	Application of Part	See details below	The following is applicable; however it does not apply to items with-in the sole-occupancy units
NSW J(A)5.2	**** Blank clause		
NSW J(A)5.3	Compliance with BCA provisions	<b>Ensure:</b> Compliance with the provisions of BCA <b>J8.3</b> ; as such  <b>Install:</b> The appropriate facilities to record individually the energy consumption of the follow: (i) air-conditioning plant including where appropriate, heating plant, cooling plant and air handling fans; and (ii) artificial lighting; and (iii) appliance power; and (iv) central hot water supply; and (v) internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and (vi) other ancillary plant.	The proposal has been found to be over 2500m <sup>2</sup> ; Therefore compliance with <b>J8.3(a)</b> it is required.