

<i>[Insert name of organisation]</i>
National Construction Code (NCC) Compliance
Section-J, JV3 Reporting Requirements

COMMERCIAL-IN-CONFIDENCE

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1 PURPOSE

The aim of this document is to improve compliance of existing standards. This document is not a new standard in relation to the Section-J minimum mandatory energy efficiency provisions for Class 3 and Class 5 – Class 9 buildings as described in the National Construction Code Volume One.

This document lists the reporting requirements if the JV3 Alternate Verification method using a Reference Building model is used to determine compliance with NCC Section-J requirements for building project.

This document applies to new building and upgrade projects for Class 3 and Classes 5 – 9 buildings.

Compliance with the mandated energy efficiency provisions of Section-J ensures construction of building envelope that has the potential to support energy efficient operation. However, City of Sydney and Better Building Partnership have reviewed compliance reporting for Section-J for new and upgrade developments in their jurisdiction and have found a paucity of detail in relation to compliance reporting, particularly in relation to JV3 analysis.

The reporting requirements listed in this document are designed to ensure a more rigorous reporting and compliance with the Section-J minimum mandatory energy efficiency provisions for Class 3 and Class 5 – Class 9 buildings as described in the National Construction Code Volume One.

These requirements have been developed for Volume 1, 2016 edition that is available online.

2 SIGNATURE PAGE

Provide a report documenting the analysis carried out to confirm Section-J compliance via the JV3 Verification using a Reference Building.

The report must contain, at minimum, the requirements detailed in the following pages.

<p><i>Nominate project stage at which this JV3 Alternate Verification using a Reference building compliance report has been completed:</i></p>	<p>Delete project stages (below) that are not applicable</p>
<p>Project design stage</p>	<ol style="list-style-type: none"> 1. Development Application 2. Concept Design 3. Detailed Design 4. Approved for Construction <p>I confirm that the measures documented for compliance will be implemented during construction phase of this project</p> <p>Signed by: Head Contractor Date:</p>
<p>OR Project construction stage</p>	<ol style="list-style-type: none"> 5. As Built 6. Practical Completion <p>I confirm that the measures documented for compliance have been implemented during construction phase of this project</p> <p>Signed by: Head Contractor Date:</p>

3 MANDATORY REQUIREMENTS

[Insert name of organisation] has the following requirements for energy efficiency and comfort that must be adhered to. These are listed below, and require to be confirmed

<p>Performance trade-off between building envelope components and building services components are strictly NOT allowed. This includes building services like renewable energy systems and/or reclaimed energy.</p> <p>Therefore the JV3 analysis must confirm that the Proposed Building Envelope has been tested against the performance of the Reference (DTS) Envelope, using only DTS Services, and the predicted performance is no worse than the Reference Building</p>	<p>Yes/No</p>
<p>Basement insulation between carpark and ground floor, where required by Section-J DTS requirements, may NOT be deleted. Please confirm that basement insulation has been incorporated</p>	<p>Yes/No</p>
<p>Thermal break requirements for building envelope components are to be incorporated for Roofs and Ceilings (J1.3d) and Walls (J1.5c). Please confirm that thermal breaks, where required, have been incorporated. Provide drawings and documentation that shows the detail</p>	<p>Yes/No/Not Applicable</p>
<p>Thermal bridging in Curtain Wall sections for vision glazing and spandrel systems must be accounted for by finite difference calculation methods to generate whole window and spandrel section U-values. This analysis is usually carried out by the glazing system contractor. Please confirm such analysis has been carried out and the results documented in the JV3 report submitted</p>	<p>Yes/No</p>

<p>In the case of a mixed use development, roof/ceiling insulation MUST be provided between the different Classes of buildings as per DTS requirement. Please confirm that this has been incorporated, and provide drawings that show location of insulation</p>	<p>Yes/No/Not Applicable</p>
<p>DTS services (that is, a real HVAC system) MUST be modelled, even when the use of JV3 is to compare the performance of Proposed vs Reference (DTS) building envelope. The use of ideal heating and cooling systems for JV3 analysis is NOT allowed</p> <p>HVAC systems smaller than 65kW must use MEPS performance values in the simulation model</p> <p>Please confirm the analysis has used a DTS compliant HVAC system model</p>	<p>Yes/No</p>
<p>I confirm that the Mandatory Requirements listed in this table have been complied with in the analysis and will be incorporated in the building during construction</p>	<p>Signed by: Architect/Engineer/Head Contractor/Developer (as applicable)</p> <p>Date:</p>

4 REPORTING REQUIREMENTS FOR JV3 ALTERNATE VERIFICATION METHOD

[Insert name of organisation] requires that a report be submitted to confirm compliance with Section-J, for a project that elects to use the JV3 Alternate verification using a Reference Building method. The table below lists the minimum information that must be incorporated in the report submitted to [Insert name of organisation], and requires the project lead to confirm that these items have been addressed and/or included in the report.

Where reporting of Section-J DTS requirements are called up in the generation of the JV3 analysis, the appropriate reporting template worksheet should be downloaded and completed.

Confirm the software being used for JV3 analysis complies with the ABCB protocol	Record the name and version of software used:
Has that same software, (and same version of the software) been used for both the Reference and Proposed building models for the project	Yes/No
Confirm the building project is located in Climate Zone 5 as per the NCC (within jurisdiction of the City of Sydney)	Yes/No
What is the primary Class of the building according to NCC 2016?	CLASS
If this is a mixed use building, what is/are the secondary Class(es) for the building?	Secondary CLASS(ES) N/A
If there are multiple classifications, confirm that appropriate NCC Glazing Calculators have been completed and used for the JV3 analysis?	Yes/No
The JV3 Alternate Verification method is used when some aspect of the project does not comply with Section-J DTS requirements. Please state which section(s) are non-compliant that triggered the use of JV3 analysis	List of non-compliant Section-J clauses

<p>Has a Reference Building model has been constructed as per Specification JV and JV3? The model must incorporate DTS requirements for building envelope (J1 to J4) and building services (J5 and J6).</p>	<p>Yes/No</p> <p>List all non-compliant clauses (in DTS, JV3 and Specification JV) in the Reference model</p>
<p>Building envelope performance may NOT be traded off against building services. Please confirm that a Proposed Building has been modelled with Proposed Building Envelope and with Reference (DTS) services (identical to that included in the Reference Building model), and that the predicted annual energy use is no more than for Reference Building Model</p>	<p>Yes/No</p>
<p>Confirm that the report incorporates a table listing the differences between the Reference Building envelope components (DTS requirements) and Proposed Building (non-compliant) Envelope components with DTS Services</p>	<p>Yes/No</p>
<p>Confirm that the report incorporates a table with predicted annual energy consumption listing all major end uses (chillers, boilers, DX compressors, fans, pumps, lighting, equipment/GPO) for both Reference and Proposed building models</p>	<p>Yes/No</p>
<p>Confirm that the energy consumption for lighting and equipment/GPO remained the same for energy simulation runs for the DTS Reference Building and the Proposed Building (non-compliant) Envelope components and DTS Services</p>	<p>Yes/No</p>

<p>If testing for non-compliant building services, then a second Proposed Building Model which incorporates Proposed Building Envelope components and Proposed Services requirements must be developed.</p> <p>Confirm that the report lists the differences between the DTS Services and the Proposed Services.</p> <p>Confirm that no changes were made to the Proposed Building Envelope at this stage</p>	<p>Yes/ Not Applicable</p> <p>Yes/No</p> <p>Yes/No</p>
<p>Confirm that the JV3 report incorporates marked up plans, sections and/or elevations for the Proposed Building as modelled that show the different wall constructions, and insulation levels required for compliance.</p>	<p>Yes/No</p>
<p>Confirm that the JV3 report incorporates a tabulated listing for DTS and Proposed construction systems for Section J1 building envelope components. Within the table, please specify the U/R value of each construction, the added insulation U/R value and the resulting total system U/R value.</p>	<p>Yes/No</p>
<p>Confirm that the JV3 report incorporates screenshots of completed glazing calculators as necessary and applicable for all the different classes within the building.</p> <p>Confirm that U-values for glazing systems input to the glazing calculator(s) are whole window U-values and not centre-of-glass values</p>	<p>Yes/No</p> <p>Yes/No</p>
<p>Confirm that the JV3 report incorporates a tabulated listing of the Proposed Glazing System U-Value and SHGC, and the centre-of-glass U value and SHGC</p>	<p>Yes/No</p>
<p>Confirm that the JV3 report incorporates marked up plans for each floor modelled with appropriate thermal zoning.</p> <p>Confirm that the thermal zoning has remained the same for each of the scenarios modelled</p>	<p>Yes/No</p> <p>Yes/No</p>

<p>Confirm that the JV3 report incorporates a table listing the total hours of plant operation, number of hours outside the stipulated range(18° CDB to 26° CDB for 98% of the plant operation time) for each conditioned zone, and confirms compliance for each zone</p> <p>Are there any non-compliant zones?</p>	<p>Yes/No</p> <p>Yes/No</p>
<p>Confirm that the JV3 report incorporates a tabulated listing of design internal loads for occupancy (people load), lighting and equipment/GPO/plug loads for each zone modelled</p>	<p>Yes/No</p>
<p>Confirm that the JV3 report incorporates a tabulated listing of the operational profiles for each of the internal load for each zone modelled</p>	<p>Yes/No</p>
<p>Confirm that the internal load and profiles for occupancy, equipment, lighting, GPO/Plug loads are the same for the</p> <ol style="list-style-type: none"> 1. Reference Building (DTS), and 2. Proposed building with DTS Services" 	<p>Yes/No</p>
<p>Confirm that the JV3 report incorporates a tabulated listing of the infiltration values and a separate table with the infiltration schedule reflecting the ACH rates</p>	<p>Yes/No</p>
<p>Confirm that DHW services and other ancillaries services have been modelled for all scenarios, or have not been considered for all scenarios</p>	<p>Yes/No</p>
<p>Confirm that the JV3 report incorporates an Appendix section that lists each clause in Section J which needs to be addressed to show compliance with JV3 Alternate Verification using a Reference Building Model</p> <p>Treatment of the Reference Building model and the Proposed Building model for each clause must be included in the table</p>	<p>Yes/No</p> <p>Yes/No</p>

<p>I confirm that the Report Requirements listed in this table have been incorporated in the Section-J compliance using JV3 Alternate Verification using a Reference Building Model report submitted to the <i>[Insert name of organisation]</i></p>	<p>Signed by: Architect/Engineer/Head Contractor/Developer (as applicable)</p> <p>Date:</p>
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