

Your ref
Our ref 266402-10
File ref

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7 February 2020

Dear Lou Rosicky,

Concert Hall Renewal Project Façade Structural Design Certificate

We (Arup) are providing façade engineering services to The Sydney Opera House in relation to the Concert Hall Renewal Project, North Foyer Glazed Lift Shaft and Existing Wall Modification. The façade works primarily include new and modified glazed façade to facilitate new Lift 30 shaft.

With respect to all new façade works documented on the drawings listed below, we have prepared specification and design detail drawings for the Project and the same have been prepared in accordance with the Building Code of Australia (2016), and the relevant Australian Standards and Codes of Practice including:

- AS:1170 – Part 0 – General Principles (2002)
- AS:1170 – Part 1 – Permanent, Imposed and other Actions (2002)
- AS:1170 – Part 2 – Wind Actions (2011)
- AS:1288 – Glass in buildings – Selection and Installation (2006)
- AS:4673 – Cold Formed Stainless Steel Structures (2001)
- AS:3600 – Concrete Structures (2009)

We confirm that the prepared design is capable of complying with BCA 2016 FP1.4, conditional on all weatherproofing tests being carried out as nominated in the specification. BCA 2016 FP1.5 is not relevant and is excluded.

We confirm that the details have been prepared in accordance with the DA conditions as described below;

- SSD 8663 B4 – For new works only, consistent with the scope of works. Existing structure and existing adjacent and other facades excluded.
- SSD 8663 B20 – For “structural sufficiency” only. All other aspects excluded.

In instances where new works have a significant impact on the existing facade, these existing façade elements have been reviewed and their capacity checked in accordance with the current Australian Standards noted above. In instances where the new works do



not lead to any significant alterations of the existing facade, these existing facade elements have not been reviewed and are excluded from this certification.

This certification applies to the Issued For Construction Documentation (IFC) project specification and drawings listed below.

Document Title	Rev	Document Type	Issued date
BRN-OveArup-SPEC-FD-0002 Glass Wall and Lift Shaft Specification for Facade Supply and Install	2	Specification	20/12/2018
29-BR-AR201-FA-001 - General Notes Sheet 1	F	Facade Drawing	30/01/2020
29-BR-AR201-FA-002 - General Notes Sheet 2	D	Facade Drawing	27/06/2019
29-BR-AR201-FA-003 - General Notes Sheet 3	D	Facade Drawing	27/06/2019
29-BR-AR201-FA-004 - General Notes Sheet 4	D	Facade Drawing	27/06/2019
29-BR-AR201-FA-010 - Overall Layout 1	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-011 - Overall Layout 2	G	Facade Drawing	27/06/2019
29-BR-AR201-FA-012 - Glass Arrangement 1	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-013 - Glass Arrangement 2	G	Facade Drawing	27/06/2019
29-BR-AR201-FA-014 - Key Elevation and Plan	F	Facade Drawing	27/06/2019
29-BR-AR201-FA-018 - New Mechanical Duct	F	Facade Drawing	27/06/2019
29-BR-AR201-FA-030 - New Roof to Wall Detail	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-031 - New Roof to Wall Detail 2	G	Facade Drawing	27/06/2019
29-BR-AR201-FA-032 - Upper Wall Detail	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-033 - New Roof to Bullnose Detail	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-034 - Bullnose Typical Detail	G	Facade Drawing	27/06/2019
29-BR-AR201-FA-035 - New Roof to Front Wall Detail	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-036 - Front Wall Base Detail	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-037 - Typical Base Detail	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-038 - Wall to Roof Connection	G	Facade Drawing	30/01/2020
29-BR-AR201-FA-039 - Indicative Glass Replacement Methods	E	Facade Drawing	27/06/2019
29-BR-AR201-FA-050 - Glazing Interfaces 1	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-051 - Glazing Interfaces 2	H	Facade Drawing	30/01/2020
29-BR-AR201-FA-052 - Glazing Interfaces 3	F	Facade Drawing	30/01/2020
29-BR-AR201-FA-053 - Glazing Interfaces 4	F	Facade Drawing	30/01/2020
29-BR-AR201-FA-060 - Door Details 1	G	Facade Drawing	30/01/2020
29-BR-AR201-FA-061 - Door Details 2	F	Facade Drawing	27/06/2019
29-BR-AR201-FA-062 - Door Details 3	G	Facade Drawing	30/01/2020
29-BR-AR201-FA-070 - Concrete Precast Section	E	Facade Drawing	27/06/2019

Certification of temporary works, fabrication and installation are to be provided by the contractor.

Notwithstanding anything to the contrary contained in this certificate we are obliged to exercise reasonable skill and care in the performance of our Services under the

Appointment and we shall not be liable except to the extent that we have failed to exercise reasonable skill and care and this certificate shall be read and construed accordingly, and in particular shall be subject to the terms and conditions of the Appointment.

I am a properly qualified person and have a reasonable working knowledge of the relevant codes and standards referenced above.

The information contained in this letter is true and accurate to the best of my knowledge.

Yours sincerely



Alex Edwards, MIEAust, CPEng, NER
Associate Structural Engineer