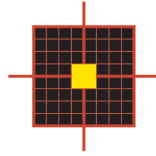




## **ATTACHMENT H**

**Heritage Impact Statement Addendum June 2019**



## DESIGN 5

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#### SYDNEY OPERA HOUSE

#### CONCERT HALL & CREATIVE LEARNING CENTRE RENEWAL PROJECTS

SSD 8663

#### Heritage Impact Statement Addendum

### 1. PURPOSE OF ADDENDUM

Since Design 5 - Architects prepared an assessment of the Heritage Impact of the proposed Concert Hall Renewal and Creative Learning Centre projects, the NSW Heritage Division has requested further information and clarification in regard to particular parts of the project in Attachment A of their Response to Exhibition document dated 20 February 2019.

This Addendum report has been prepared by Alan Croker (director) of Design 5 – Architects and co-author of the original October 2018 Heritage Impact Statement (HIS).

The purpose of this Addendum is to provide background information on the issue of the Concert Hall acoustic upgrade that was not included in the original HIS.

It is acknowledged that the proposed changes to improve acoustics will have high impacts on the original fabric and the aesthetic qualities of the Concert Hall itself. However, it is important to understand how the existing acoustic installations evolved.

### 2. ORIGINAL CONCERT HALL ACOUSTIC DESIGN

Section 5.2.3 of the October 2018 HIS explained the rationale behind the proposal to replace the timber box-fronts and the original acrylic 'doughnut' reflectors and the sequence of trials and tests to arrive at this decision, but not the origin of their original design.

Peter Hall explains their origin on pages 81 and 82 of his 1990 report on *'The Design Approach to the Building with Recommendation for its Conservation'*, also known as 'Hall's Principles'.

*"For sound diffusion, it was desirable that the box fronts be arranged as a zig-zag on plan. It was also desirable that they slope outwards, to reflect some sound upwards into the ceiling zone. The zig-zag was of major visual concern. The planes needed for acoustic reasons needed to be large; architectural reasons said their scale should be fairly small. Acoustician and architects agreed on a dimension both could live with, smaller than Jordan's original request and a little larger than the architects'."*

*"The other major element required for acoustics was the reflectors over the platform. The model tests had shown them to be valuable, but they were likely to present a visual problem in that they would divide the volume above the platform. The organ builder was worried about their effect for organ recitals. Jordan was asked if they could be small and transparent, to avoid the need for them to contain the platform lighting, as they do at Rotterdam. For the model tests, acrylic reflectors were tried, convex on top and bottom surfaces, a bit like flying saucers. This didn't solve the visual problem, so he was asked if any other form was possible. His response was that quite a large diameter was needed for each reflector, but that they would be equally effective if they were hollow in plan, like a doughnut. The doughnut idea appealed, because enough light would get through from the crown for lighting in the reflectors to be unnecessary."*

*It was recognised that there might be performances, apart from organ recitals, when it might be useful if the position of the reflectors could be altered or if they could be removed altogether. The decision to hang them from winches followed. In practice, although the reflectors are necessary (best at 10.5m above the stage floor) for orchestral performance, the ability to remove them is very useful – essential, indeed for opera."*

*The "doughnuts" have fulfilled their acoustic function well. Jordan comments, "The toroidal shape adopted occupies a smaller percentage of the total area but they are assumed generally to be more diffusing, and also somewhat more diffusing in horizontal directions."*

From the above quotes, it is clear that both the original 'saw-tooth' box fronts, and the acrylic 'doughnut' reflectors were designed and configured for their acoustic function by the acoustics engineer, with some reluctance on Peter Hall's part because of their potential visual impacts.

It is worth noting that the proposed changes to the timber panelled box fronts should better align with Peter Hall's original architectural intent for a smaller 'zig-zag' configuration.

There is no question that these elements are required only for acoustic and not aesthetic reasons. As improvement of the acoustic performance of this space is a major focus of this proposed project, it is only logical that a full re-appraisal of these elements is undertaken. This is in accordance with the comment on page 123 in the Conservation Management Plan 4th edition (CMP 4th edition) in relation to the Concert Hall:

*Thus in fine-tuning the acoustics, some change may need to be considered.*

This comment is also in full agreement with Utzon's own comments following his re-engagement in 1999 in relation to the Concert Hall, published in the Utzon Design Principles – page 42:

*"As the present conductor of the Opera House has said the acoustics of the concert hall was very fine at the time it was built. The Sydney Symphony Orchestra came from the Town Hall to the Opera House which of course was much better but since then the Orchestra has had an opportunity to play in various great halls around the world and have seen and heard that*

*there are possibly other and better solutions for creating a better acoustical surrounding, also for the Opera House. So what was good back in the 60's was okay then, but as people develop and as music develops, as our perception of music and place develops, our demands become higher and this development will probably in the future change a lot of features of the Opera House simply because you need to adjust to instruments, as such."*

Utzon here sums up the rationale behind this current proposal to restore the international standing of the Concert Hall's acoustic performance.

Alan Croker

24th June 2019