

iCon

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no. 2

Research in Japan #1

# sustainable urban regeneration

## sydney and the opera house

### 1. How the Opera House project started

The story of the Opera House and the successful urban regeneration project at Bennelong Point in Sydney, Australia does not start with an architectural competition held in 1955 but even before.

The English conductor and composer Eugene Goossens (1893-1962) was the director of the New South Wales (NSW) State Conservatorium of Music from 1947 till 1956 and conducted the Sydney Symphony. He is credited for much of the lobbying to the NSW Government to build a music performance venue larger than the Sydney Town Hall which had been used so far. By 1954 he succeeded in gaining the support of NSW Premier Joseph Cahill. But again it was Goossens who insisted on Bennelong Point overlooking Sydney Harbour to be the better site for the venue, whereas Cahill wanted it to be on or near Wynyard Railway Station in the north-western Sydney Central Business District (CBD)<sup>1</sup>. Ironically, Goossens was forced to resign from his positions after a major public scandal in 1956 and left the country before a competition was held.

Bennelong Point is originally a small tidal island, where shortly after the arrival of the first fleet of British convicts in Sydney Cove on

25/26 January 1788 (Australia Day), the Aborigine Bennelong persuaded the NSW Governor Arthur Phillip in 1790 to build a brick hut for him, giving it its name.<sup>2</sup> In 1798 a half moon battery was constructed on the east point, which was upgraded to Fort Macquarie between 1817 and 1821. In 1901 it was demolished to make way for new electric tramway sheds that were named after the earlier military fort, Fort Macquarie Tram Depot.<sup>3</sup> Sydney once had the largest tram system in Australia and the second largest in the Commonwealth after London. The system was in place from 1879 and street mileage, car service and patronage peaked in the 1920s, 1930s and 1940s respectively. During the 1950s closure became labor government policy and the system was wound down in stages and finally ended in 1961.<sup>4</sup> Fort Macquarie Tram Depot was closed in 1955 and demolished in 1958.<sup>5</sup> Bennelong Point is a remarkable piece of land jutting out into Sydney Harbour from the parkland of the Botanical Gardens. Here is where a most successful long-term urban regeneration project started.

In 1955 the worldwide design competition for a Sydney music performance venue at Bennelong Point was launched, receiving 233 entries from 32 countries. In 1957 the winner was announced. The four assessors were Professor H. Ingham

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by Hiroshi Ota  
Institute of  
Industrial Science  
Department of  
Human and Social  
Systems  
Urban  
Regeneration  
[http://www.iis.u-tokyo.ac.jp/cgi/teacher.cgi?prof\\_id=otah&eng=1](http://www.iis.u-tokyo.ac.jp/cgi/teacher.cgi?prof_id=otah&eng=1)

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Ashworth of Sydney, Professor Leslie Martin of Cambridge, American architect Eero Saarinen and NSW Government Architect Cobden Parkes of Sydney. The story goes that when Eero Saarinen arrived, who had not been available for the early stages of the judging, he was presented with ten 'possibles', none of them appealed to him. He then looked through the rejected entries and finding a young Danish architect's proposal, he was struck by it and told his colleagues: 'Gentlemen, this is the first prize.' But even though it was only a blown-up series of sketches of an idea, and even though there were six clauses detailing what would disqualify an entry and his was liable to be disqualified under four of them, Jørn Utzon (1918-2008), the 38-old Danish architect was declared the winner.<sup>6</sup>

## 2. Controversial discussions during construction

The design for the Sydney Opera House was regarded as revolutionary, highly controversial and as mentioned before broke most of the competition rules. But when reading the Assessor's Report, it becomes clear, how strongly they have favoured Utzon's design.

*"The drawings submitted for this scheme are simple to the point of being diagrammatic. [...] We consider this scheme to be the most original and creative submission. Because of its very originality, it is clearly a controversial design. We are, however, absolutely convinced about its merits."*<sup>7</sup>

The scheme features roof shells as geometrically undefined curves in

space, but such shapes demanded completely new ways of designing and calculating, that pushed the frontiers of both architectural and structural knowledge and would have been impossible without the first available computers. In fact, only thanks to the initially close and extremely fruitful collaboration between Jørn Utzon and his structural engineer Ove Arup such an endeavour became possible. To get an impression of the almost inhuman scale this challenge meant for the designers, a quote from Ove Arup in 1965.

*"When you realise that in the course of seven or eight years we alone have spent more than 375,000 man-hours on this job, and over 1,800 computer hours – we could have bought a computer for that money [...]. It has taken us six years to decide the final design of these shells [...]."*<sup>8</sup>

That this herculean task was far from going straightforward, can be quickly understood when seeing the cost and time performance. In 1957 the project was estimated at costing AU\$ 7.2 million and scheduled for opening on 26 January (Australia Day) 1963. But in 1966 after spiraling cost issues and major design problems still unsolved, Utzon resigned, the circumstances of his step will not be discussed here in detail. His position was taken over by a group of four Australian architects, Peter Hall, Lionel Todd, David S. Littlemore and NSW Government Architect Edward Herbert Farmer. The project was built in three stages. Stage I between 1959–1963 saw the construction of the podium. Stage II between 1963–1967 consisted of building the outer shells. Stage III between 1967–1973

consisted of the interior design and construction.<sup>9</sup> This means that Utzon could not realise his vision for the highly architectural interior. The project's final cost amounts to AU\$ 102 million and it was officially opened by Queen Elizabeth II on 20 October 1973. Utzon was the one being scapegoated for the huge increase in cost (14-times the original estimate) and ten years behind schedule. Ironically, although the Opera House was basically his design, he was neither invited to the ceremony, nor was his name even mentioned. This just illustrates how deep the rift between Utzon and the client was, not only at the time of his resignation but even seven years later. Utzon never came back to Sydney to see the finished building. But what he did aim for with his design is maybe best described again by Ove Arup.

*"It is not every day that an Architect gets the job of designing a civic centre for the musical arts on a site which almost forces it to become at the same time a focal point and civic symbol for a city which seeks to destroy once and for all the suggestion that it is a cultural backwater."<sup>10</sup>*

### 3. How the Opera House changed the image of Sydney

The Opera House has not only changed the image of Sydney, but became a landmark for the whole Australian continent and an iconic masterpiece of architecture of the 20th century.

To understand the big impact the Opera House had and still has on the image and cultural life of Sydney and beyond, I want to cite some

official quotes, the first from the Australian Government.

*"Sydney Opera House must be one of the most recognisable images of the modern world - up there with the Eiffel Tower and the Empire State Building - and one of the most photographed. Not only is it recognisable, it has come to represent 'Australia'. Although only having been open since 1973, it is as representative of Australia as the pyramids are of Egypt and the Colosseum of Rome."<sup>11</sup>*

The second quote is taken from the homepage of the City of Sydney:

*"The Sydney Opera House also embodies timeless popular metaphors. The building's organic shape and lack of surface decoration have made it both timeless and ageless. Moreover, it demonstrates how buildings can add to environmental experience rather than detract from it - something of spiritual value independent of function."<sup>12</sup>*

Today, the Sydney Opera House is one of the busiest performing arts centres in the world, each year staging up to 2500 performances and events, drawing around 1.5 million patrons, and attracting an estimated four million visitors. The Sydney Opera House was included in the Australian National Heritage List on 12 July 2005.<sup>13</sup>

That the importance of the Opera House is highly appreciated worldwide, is best illustrated by it being inscribed as a cultural property on UNESCO's World Heritage List on 28 June 2007, as being *"a great architectural work of the 20th century that brings*

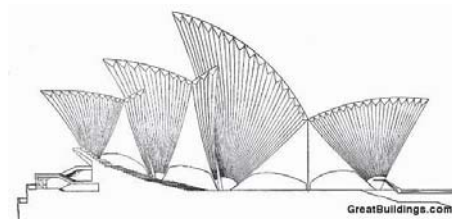
together multiple strands of creativity and innovation in both architectural form and structural design".<sup>14</sup> But even the Danish Ministry of Culture included it as one of twelve outstanding architectural designs of Danish cultural heritage in its "Kulturkanon"<sup>15</sup> (Cultural Canon) in 2006.

Jørn Utzon himself was awarded the Pritzker Price in 2003, one of the world's highest honours in architecture.<sup>16</sup> In 1998 the Sydney City Council reconciled with Utzon by awarding him the symbolic Keys of the City of Sydney. Also in 1998 the Sydney Opera House Trust began negotiations with Utzon for his contribution as an advisor for future renovation and conservation.<sup>17</sup>

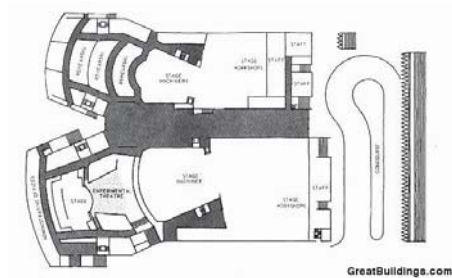
#### 4. Drawings



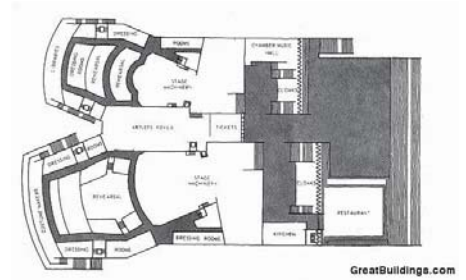
Picture 1: Utzon's original sketch



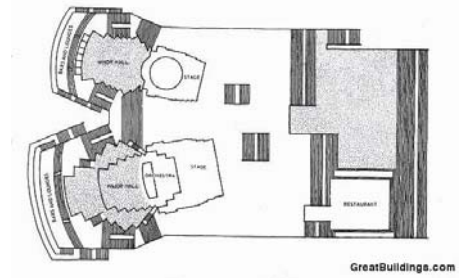
Picture 2: Section



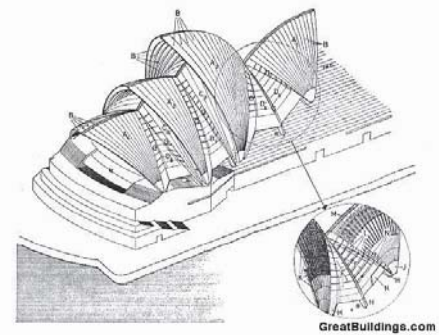
Picture 3: Basement



Picture 4: Lower level



Picture 5: Main level



Picture 6: Axonometry

#### 5. Images

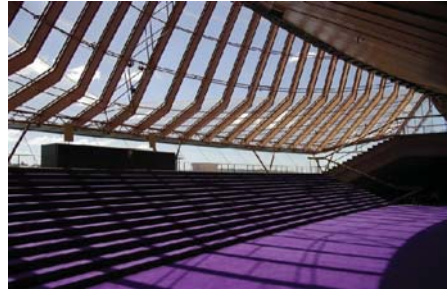
During a study trip to Australia in September 2009 I had the chance to visit Sydney and the Opera House, outside and inside, to join a guided Opera House Tour and to enjoy a concert in the main hall.



Picture 7: View from the Royal Botanic Gardens



Picture 8: Opera House and Harbour Bridge



Picture 13 Interior, glass facade and lobby for main hall



Picture 9: Approach from Royal Botanic Gardens



Picture 14: Stairs inside and outside at nighttime



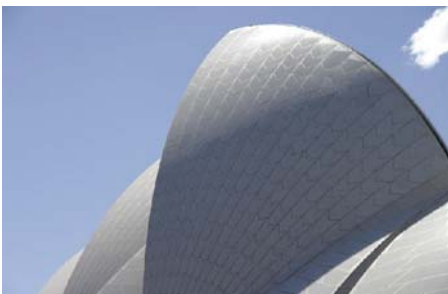
Picture 10: Wide platform stairs



Picture 15: Ribbed shells like orange peels



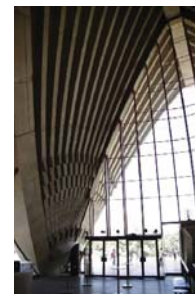
Picture 18: Ribbed shells



Picture 11: Billowy Sails



Picture 16: Main hall for concerts



Picture 19: Ribbed shells



Picture 12 Overlooking harbour and Harbour Bridge



Picture 17: Opera House at nighttime

## References

- 1 Sydney Architecture: Sydney Opera House. In: <http://www.sydneyarchitecture.com/ROC/QUA01.htm>, retrieved 15.11.2009.
- 2 Sydney Opera House. Heritage Council of New South Wales. In: [http://www.visit.heritage.nsw.gov.au/16\\_subnav\\_09\\_2.cfm?itemid=5054880&sort\\_by=&item\\_id=&item\\_name=&suburb\\_name=&product\\_category=&state\\_theme=&product\\_region=](http://www.visit.heritage.nsw.gov.au/16_subnav_09_2.cfm?itemid=5054880&sort_by=&item_id=&item_name=&suburb_name=&product_category=&state_theme=&product_region=), retrieved 15.11.2009.
- 3 Fort Macquarie. In: [http://en.wikipedia.org/wiki/Fort\\_Macquarie](http://en.wikipedia.org/wiki/Fort_Macquarie), retrieved 15.11.2009.
- 4 Trams in Sydney. In: [http://en.wikipedia.org/wiki/Trams\\_in\\_Sydney](http://en.wikipedia.org/wiki/Trams_in_Sydney), retrieved 15.11.2009.
- 5 Fort Macquarie Tram Depot. In: [http://en.wikipedia.org/wiki/Fort\\_Macquarie\\_Tram\\_Depot](http://en.wikipedia.org/wiki/Fort_Macquarie_Tram_Depot), retrieved 15.11.2009.
- 6 Baume, Michael (1967). *The Sydney Opera House Affair*. Sydney: Thomas Nelson (Australia) Ltd. p. 17.
- 7 "Ove Arup's Address to the Prestressed Concrete Development Group, London, on 14 January 1965", in: Michael Baume (1967). *The Sydney Opera House Affair*. Sydney: Thomas Nelson (Australia) Ltd. p. 118-130. p.120.
- 8 *Ibid.*, p. 126.
- 9 *Sydney Architecture: Sydney Opera House*. In: <http://www.sydneyarchitecture.com/ROC/QUA01.htm>, retrieved 15.11.2009.
- 10 See note 7, p.118.
- 11 *Sydney Opera House*. Australian Government, Culture Portal. In: <http://www.cultureandrecreation.gov.au/articles/sydneyoperahouse/>, retrieved 15.11.2009.
- 12 *Sydney Opera House*. The City of Sydney. In: <http://www.cityofsydney.nsw.gov.au/AboutSydney/HistoryAndArchives/SydneyHistory/HistoricBuildings/SydneyOperaHouse.asp>, retrieved 15.11.2009.
- 13 *Sydney Opera House, New South Wales*. Australian Government, Department of the Environment, Water, Heritage and the Arts. In: <http://www.environment.gov.au/heritage/places/national/sydney-opera-house/index.html>, retrieved 15.11.2009.
- 14 *World Heritage List: Sydney Opera House*. UNESCO. In: <http://whc.unesco.org/en/list/166>, retrieved 15.11.2009.
- 15 *KULTURKANON*, (January 2006). Copenhagen, Kulturministeriet. In: [http://kum.dk/graphics/kum/downloads/Kulturkanon/KK\\_Kulturkanon\\_januar06.pdf](http://kum.dk/graphics/kum/downloads/Kulturkanon/KK_Kulturkanon_januar06.pdf), p. 15, retrieved 15.11.2009.
- 16 *The Pritzker Architecture Prize: Jørn Utzon – 2003 Laureate*. The Hyatt Foundation. In: <http://www.pritzkerprize.com/laureates/2003/index.html>, retrieved 15.11.2009.
- 17 See note 2.

## Pictures

- 1 [http://www.visit.heritage.nsw.gov.au/16\\_subnav\\_09\\_3.cfm?itemid=5054880&imageid=5002981&sort\\_by=&item\\_name=&suburb\\_name=&product\\_category=&state\\_theme=&product\\_region=](http://www.visit.heritage.nsw.gov.au/16_subnav_09_3.cfm?itemid=5054880&imageid=5002981&sort_by=&item_name=&suburb_name=&product_category=&state_theme=&product_region=)
- 2 – 6 [http://www.greatbuildings.com/buildings/Sydney\\_Opera.html](http://www.greatbuildings.com/buildings/Sydney_Opera.html)
- 7 – 19 author's archive