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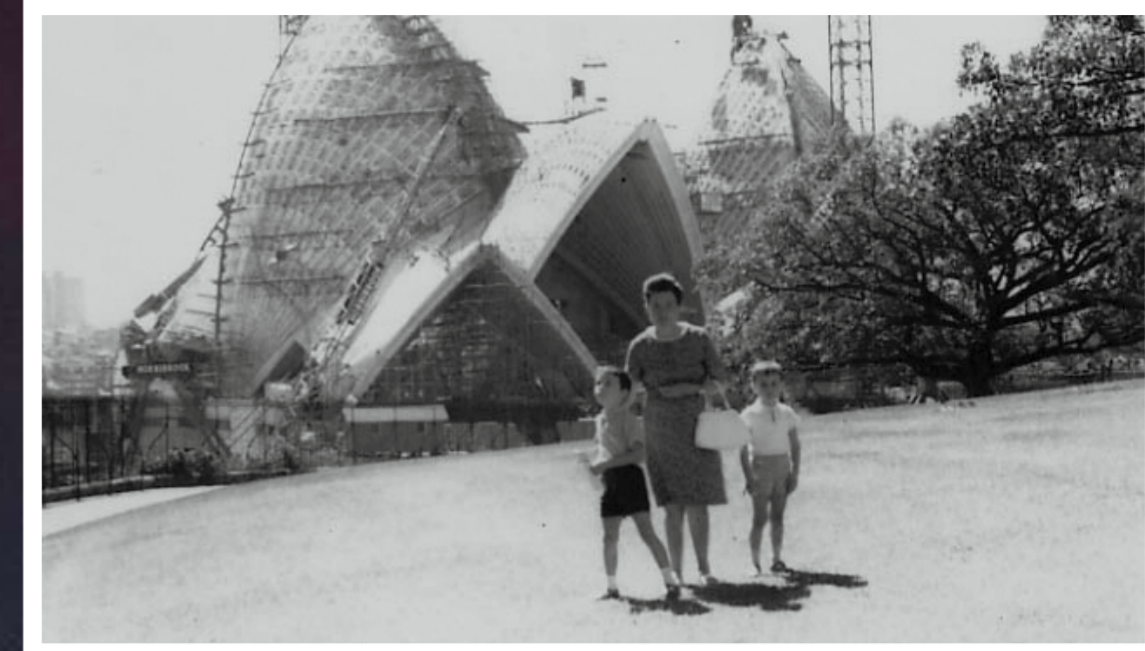
“It's now becoming more representative of an inclusive Australia by embracing and celebrating the culture of Australia's First Peoples [Aboriginal and Torres Strait Islanders]. This has only happened in the last 20 years or so”

— Nathan Moran, CEO, Sydney-based Metropolitan Local Aboriginal Land Council



# Celebrating the splendour of Sydney Opera House

The Lighting of the Sails by Yarrkalpa (Hunting Ground) during VIVID Sydney 2022 festival. — Destination NSW



The Opera House under construction. Peter Sekules is on the right and the image was taken by his father.



View of the Sydney Opera House and Sydney Harbour Bridge from the Royal Botanic Gardens Sydney. — Neena Bhandari

innovative. The main requirement was for a safety glass that could be cut to shape on site. Toughened glass was thus rejected and laminated glass was chosen and imported from Boussisou Souchon Neuwessel in France. There's a very fine Demi Topaz tint in the glass itself to reduce the glare", explains Sekules.

"The other important aspect of this type of glass is what's called structural glazing. In other words, the glass is not just a window, it acts as a wall, and above the foyer spaces, it's not a skylight but it acts as a roof, which means you could minimise the framing. Also, to clean the glass, contractors can physically stand on it", he adds.

## The gleaming tiles

But what really makes the outer facade of the Opera House are the roof structures commonly referred to as concrete shells, clad by one million ceramic tiles made of clay and crushed stone by Höganäs of Sweden.

Sekules explains, "Utzon was very much influenced by Islamic, Indian and eastern architecture and Japanese ceramics. He travelled to diverse places, including America, Mexico, China and Japan, looking at how buildings which have been there for hundreds, if not thousands, of years had weathered over time, and that's why he selected the ceramic finish".

"The tiles are double baked with a glazed finish that gives it its distinct sheen. It took three years to develop and do mock ups in various environmental situations to test the endurance, particularly its waterproof feature. Utzon was very mindful of how the environment could interact with the design, even from a practical maintenance point of view. For example, one of Utzon's ideas was to use seawater from the harbour for the air conditioning systems," Sekules adds.

It's quite extraordinary that despite being exposed to the vagaries of nature, in the past 50 years, only 11,000 tiles have been replaced. There are over 40,000 spare tiles stored in a warehouse.

In his *Design Principles* published in 2002, Utzon would remark that the tiles "were a major item in the building. It is important that such a large, white sculpture in the harbour setting catches and mirrors the sky with all its varied lights down to dusk, day to day, throughout the year."

"In the late 1990s, we re-engaged Utzon to document his original design concepts and ideas to help guide any future work at the Opera House. Together with his *Design Principles*, we have a Conservation Management Plan that guides the refurbishments, such as recent upgrades to accessibility in the building and acoustics in two of the venues", says Laura Matarese, Heritage Manager at the Opera House.

## Climate change challenges

As the building is on a peninsula jutting into the harbour, climate impact assessment, monitoring and adaptation plans are being put in place to future proof the building against the risk and implications of sea level rise, king tides and extreme weather events.

According to Fort Denison Sea Level Rise Vulnerability study (2008), a synthesis of the best available scientific information suggests that sea level rise in Sydney Harbour due to climate change could range from around 4-38cm by 2050 to 16-89cm by 2100.

A New Zealand fur seal has made the northern side its home, giving visitors a visual connection to what exists around the Opera House naturally and in the harbour.

"We have installed a series of artificial reefs, made from marine grade stainless steel, around the Opera House. These structures have increased marine diversity and added eight additional species, and the most recent survey last year showed an endangered species, White's Seahorse (*Hippocampus whitei*). We have also planted species, such as kelp and seagrass, which is helping restore and protect the habitat of small juvenile fish species," says Emma Bombonato, environmental sustainability manager at the Opera House.

The Opera House continues to evolve. "It's now becoming more representative of an inclusive Australia by embracing and celebrating the culture of Australia's First Peoples [Aboriginal and Torres Strait Islanders]. This has only happened in the last 20 years or so. It's now a place where First Nations art and culture is on display and we're one of the most prominent groups performing at the Opera House", says Nathan Moran, chief executive officer (CEO) of the Sydney-based Metropolitan Local Aboriginal Land Council.

The sails of the iconic building regularly feature various light art installations, including telling First Nations people's stories for events such as Vivid Sydney.

A complex of performance spaces hosting music, ballet and theatre, the Opera House has become a favoured spot for multicultural and citizenship ceremonies, exchanging wedding vows, raising birthday toasts, and free community events, exhibitions and festivals.

The Sydney Opera House CEO Louise Herron hopes that people everywhere would "come to experience what's on offer and reflect on the Opera House's past, present and future."

The World Heritage listed site marks its 50th anniversary this year, offering visitors an array of events to witness its grandeur up close



Sydney Opera House Forecourt. — Neena Bhandari



View of Sydney Opera House with the city skyline from across the Harbour. — Neena Bhandari



White's Seahorse in the artificial reef. — Sydney Opera House

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— Emma Bombonato, environmental sustainability manager, Sydney Opera

long, wide ridge, jutting out into the harbour. It was part of an area rich in resources, providing oysters, mussels and fish for Aboriginal people.

Peter Sekules, a former architect who now works as a tour guide at the Opera House, remembers his first look at the building when he was about five years old. "My late father used to take photos around the harbour and there is a picture from the early 1960s of myself with my brother and grandmother at The Royal Botanic Garden Sydney with a backdrop of the Opera House under construction".

It was in 1957 that Danish architect Jørn Utzon, who was just 38 then, beat 232 other entries in a competition to design a dedicated performing arts venue in Sydney. The construction began two years later with 10,000 workers.

In 2007, the Opera House became the youngest cultural site to join the coveted world heritage list of other universally treasured places, such as the Taj Mahal in India, the ancient Pyramids of Egypt and the Great Wall of China. Though universally acclaimed today, the Sydney Opera House was designed and built amidst controversy following a series of disputes, setbacks and cost blow outs.

The proposed cost was AU\$7M which spiralled to AU\$102M as the construction timeline extended from the expected four years to 14 years. Utzon resigned in February 1966 and left Australia after the government stopped payments to him. He never returned to see his design take shape. The Opera House was completed under the supervision of Australian architect Peter Hall and was inaugurated by Queen Elizabeth II on October 20, 1973.

Sekules recalls sketching the building as his bus would go over the Harbour Bridge, past the Opera House, during his commute from home to the university and back when he was studying architecture. And then as luck would have it, he got an opportunity to work with Mr Hall.

"It's quite emotional to come back to the Opera House as a tour guide now and tell its story because it's been such a huge part of my life", says Sekules. "It's not a static building or a museum, but it has continually evolved as a precinct for not just entertainment, but as an educational facility for kids, adults and patrons".

He says, it is interesting to see children's perception of the building on the junior tour. "First thing they will talk about, on viewing the building, is how tall it is. [The Opera House equals an average 22-storey high building] That's exactly how Utzon had imagined it when he incorporated the glass element, for example, which goes all the way from the roof to the ground. It doesn't matter what height you are, the visitor gets that fantastic connection with the outside", Sekules adds.

The glass walls are the second most important feature of the building's facade - after the concrete shells that form the roof. "We have over 6,200 square metres of glass. There are over 2,000 panels and 700 different shapes. The extent and the type of glass that Utzon used was very



by Neena Bhandari

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