

**Supplementary
Submission
No 105a**

INQUIRY INTO MUSEUMS AND GALLERIES

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SUBMISSION TO ENQUIRY INTO MUSEUM AND GALLERIES

EXECUTIVE SUMMARY

This submission addresses Terms of Reference (d) and (e) of the enquiry. It points out that, in the process of determining that the Powerhouse Museum will be relocated to Parramatta, the Government has given no consideration to the unique, irreplaceable and fit-for-purpose suitability of the Powerhouse Museum buildings for the display and interpretation of the Museum's impressive transport and engineering collections or to the historic significance of the remaining former Ultimo Power House structures to Sydney's industrial heritage.

The submission asserts that, with reference to the transport and engineering collections alone,

- the loss of the current site of the Powerhouse Museum would be a great loss to Australia's cultural heritage and that
- the government's current plans to relocate the Museum to Parramatta cannot possibly achieve a comparable, let alone better, result.

The submission's arguments are supported by explanations about the complementary relationship between the transport and engineering collections and the former Power House buildings and examples of the ways in which key exhibits have been uniquely provided for and interpreted in the Powerhouse Museum.

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The transport and engineering collections of the Museum of Applied Arts and Sciences are significant for their diversity, rarity and quality. They are also known for their visual appeal and impact, which can only be fully appreciated in a display setting that has no less merit architecturally.

It is difficult to imagine a more fitting architectural environment for their display and interpretation than the Powerhouse Museum. There is a compelling synergy between the building's impressive internal volumes, its architectural features and the exhibits. The display structures mediate this relationship by providing a hierarchy of relative scale. This enables visitors to respond to the collections within a range of exhibition environments from the intimate to the awe-inspiring. (see IMAGE 1)



IMAGE 1: A portion of the *Transport* exhibition gallery looking towards the *Space* exhibition. As an exhibition space, the Boiler House, boasting soaring 21 metre-high walls and unhindered 2000 cubic metre volume, is unique in the world. (Source: http://mumsgrapevine.com.au/site/wp-content/uploads/2015/07/PowerhouseMuseum_Image.jpg)

This process relied upon the resourcefulness of the project managers and staff because of a lack of any comparable museum projects at the time, either in Australia or overseas, to inform the development of the transport and engineering exhibitions.

The cavernous volume of the Boiler House provided the opportunity to make a fresh contribution to museum transportation displays. This was to integrate examples of all types and a range of sizes of transport vehicles in one exhibition. Transport museum displays typically focus on themed exhibitions based on discrete forms of transport – motoring, railways, cycling, and so on. This is often a practical solution to the limited flexibility of exhibition spaces. In the Boiler House – within one exhibition space and its associated storylines – transport exhibits as diverse as a horse bus, steam locomotive, bicycles, motor cycles, motor cars, electric tram, air ambulance, flying boat, tinsplate toys, rocket engine and satellites are displayed and interpreted.

These realisations of the unique opportunities offered by the Powerhouse project were a catalyst for creative thinking. Within this context, the combination of extraordinary collections and remarkable building spaces engendered ambitious aims for the transport and engineering exhibitions.

As a result, when the Powerhouse Museum opened in 1988, unique and superlative descriptors for these exhibitions were claimed, including

- the oldest operating beam engine in the world
- the only permanent steam-powered gallery in the world
- the largest and heaviest aircraft suspended in any museum in the world and
- the largest single volume of transport display space in the world

Through direct experience at the core of the exhibition development process, the author is uniquely placed to address how these exceptional outcomes were achieved, why the loss of the current site of the Powerhouse Museum would be a great loss to Australia's cultural heritage and why the government's current plans to relocate the Museum in Parramatta cannot possibly achieve a comparable result.¹

A little background about the Ultimo Power House will help to convey a sense of its historic significance.²

The Ultimo Power House was built in 1897-99 to serve Sydney's first electric tramway system that, by the 1920s, was the largest in the British Empire, after London's. Electric trams revolutionised the city of Sydney as no other form of public transportation has done and the Ultimo Power House was at the heart of this vast network. In 1994, the Institution of Engineers Australia recognised the heritage importance of the Power House buildings by placing an historic marker on the building fabric bearing the inscription, in part, "the first large power station in New South Wales."³

The decision by a previous state government in 1979 to preserve the Power House buildings and adaptively re-use them to display and interpret the collections of the Museum of Applied Arts and Sciences was inspired and far-sighted. It ensured both the preservation of a magnificent late Victorian "industrial cathedral"⁴ and the provision of a most appropriate home for the public's appreciation and enjoyment of the city's and the state's built industrial heritage.

The relationship between building spaces and exhibitry is an integral aspect of the planning stage of any new museum. This was unusually important in the development phase of the Powerhouse Museum. The nature of this relationship is explored below with reference to specific exhibits from the transport and engineering exhibitions.

1785 Boulton & Watt rotative steam beam engine

At the core of the Museum's steam technology collection is the 1785 Boulton & Watt beam engine, an object so pivotal in the history of industrialisation that it is beyond a dollar value. In the 1980s, this extraordinary technological treasure was painstakingly reconstructed as part of a plan to relocate it to pride of place in the new Powerhouse Museum.

The Boulton & Watt engine is strategically located in the soaring atrium gallery near the Museum's main entrance. This enables visitors to appreciate its sublime engineering from various perspectives, both static and in steam as a "kinetic sculpture"⁵ (see IMAGE 2).

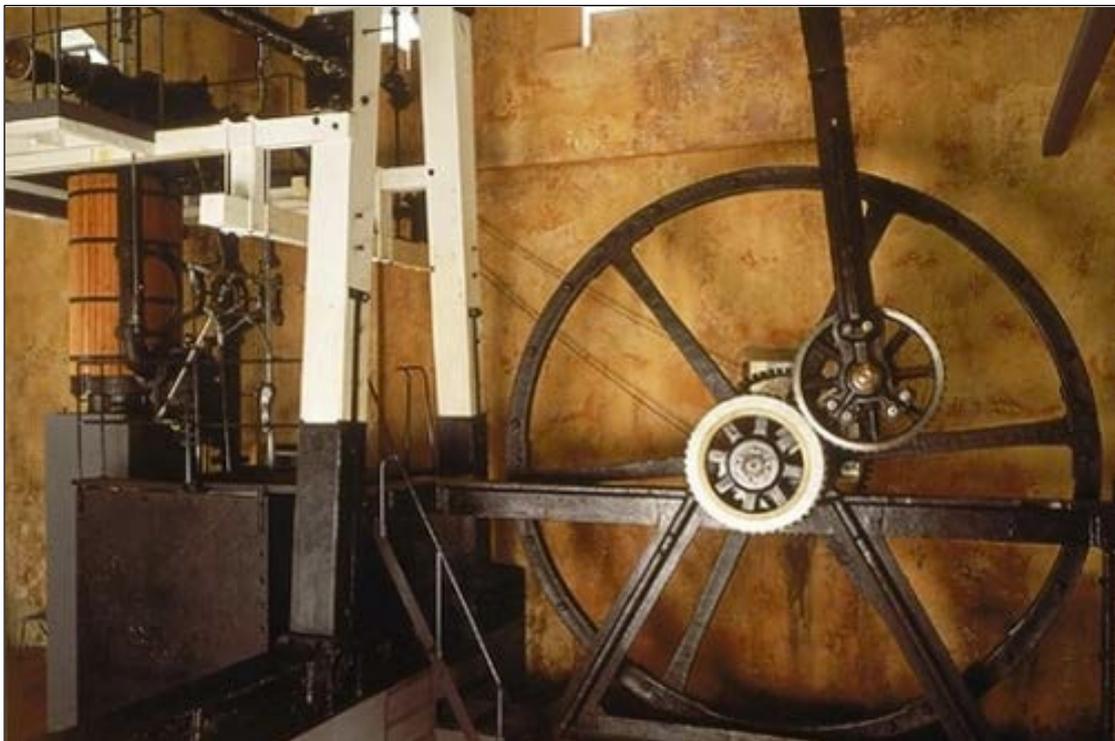


IMAGE 2: Boulton & Watt beam engine. This engine is the ancestor of every steam engine that was used to generate power in the Ultimo Power House, immediately adjacent to its current location. (Source: <http://www.prismaticsciences.com/gallery/Fgallery1-5.jpg>)

A key part of returning the Watt beam engine to steam – and a world's first - was the substantial investment in the infrastructure needed to create a permanent gallery of steam powered exhibits, a facility developed with many generations of visitors in mind, not a mere 30 years.

It is fitting that the Boulton & Watt engine and its associated exhibitions are located in industrial buildings that owe their existence to the steam power that James Watt harnessed for its limitless applications, not least powering tramways. It pays tribute the Watt engine as the progenitor of all rotative steam powered devices. To move the engine from this location would place it at needless risk. To destroy its association with steam power would represent a great loss to the interpretation of Sydney's engineering heritage.

1837 Maudslay beam engine

This engine was built by Maudslay, Sons & Field of Lambeth, England, in 1837. It was used to provide steam power for a brewery in Goulburn from 1837-8 until 1921. Both the engine and the permanent steam gallery in which it operates are unique in the world. As IMAGE 3 shows, the original braced steel structures of the former Engine House and the Case travelling gantry crane (itself a rare item of engineering heritage) are an ideal setting for such an historic exhibit.



IMAGE 3: 1837 Maudslay Sons & Field beam engine
(Source: Powerhouse Museum)

1949 steam locomotive 3830

This massive 200 tonne engine (see IMAGE 4) was the last steam passenger locomotive built in Sydney by the Department of Railways. It was restored to steaming condition between 1992 and 1997 and operated regular steam services until 2009. It is currently under repair for return to service.

In the early planning stages for the Museum, the Boiler House floor was designed to accommodate a locomotive inspection pit at the end of a central rail track installed in the specially strengthened floor (300kPa), specifically to allow this locomotive and others up to its size and weight to be statically displayed. This facility remains intact today.



IMAGE 4: Steam locomotive 3830 in the Grace Bros courtyard, Powerhouse Museum, 2002. The track on which the locomotive is displayed in steam leads directly into the Boiler House. (Source: Powerhouse Museum, photo by Geoff Friend)

1944 Catalina flying boat "Frigate Bird II"

Australian pioneering airman Sir Gordon (P.G.) Taylor flew this magnificent aircraft from Sydney to Valparaiso, Chile in 1951 to establish the practicality of an air route between Australia and South America. It was the world's last great trans-oceanic flight. Before he died, Taylor donated *Frigate Bird II* to the Museum and expressed the wish that if it could not be eventually displayed, it should be scuttled of Sydney Heads rather than deteriorate in a hangar, unseen by the public. We can only imagine how delighted he would have been to witness the spectacular appearance of *Frigate Bird II* as the centerpiece of the Transport gallery in the Boiler House.

The Catalina is the largest and heaviest aircraft suspended in any of the world's museums (See IMAGE 5). Its weight is borne by a specially constructed steel cradle that spreads the load across three of the roof trusses in the Boiler House. This dynamic load is necessary to stabilise the roof structure by causing the loads transmitted to the roof trusses to, in turn, transfer vertical compression loads to the walls.



IMAGE 5: Catalina flying boat "Frigate Bird II" in the *Transport* exhibition (Source: Powerhouse Museum)

A simplified description of the installation process follows: The aircraft was brought in five sections into the empty display hall in May 1987. It was gradually assembled on the floor; wing centre section to hull, tailplane to hull, wing outer sections to centre section, engines to centre section. A sling made of steel cable had been designed and made in advance to pre-set the aircraft on a particular display attitude and this was attached. An electric hoist was used to winch the 8.5 tonne aircraft to its 9-metre high position where it could be seen to best advantage and where the humidity and temperature variations were within acceptable range. A 25mm stainless steel cable was attached to the main lifting point and the hoist was detached. Additional cables were attached to the wingtips to stabilise the aircraft's movements due to air currents caused by the air-conditioning.

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Powerhouse Museum/Museum of Applied Arts and Sciences

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¹ On 11 April 2016, the Premier was quoted in a press report as stating that the new Powerhouse Museum at Parramatta would be "Australia's answer to the Smithsonian." (See <http://www.smh.com.au/nsw/future-of-ultimo-site-uncertain-as-parramatta-powerhouse-rolls-on-20160411-go3m1h.html>). This embarrassing and ridiculous claim could only have been written or made by a person or people who had no notion of the immense Smithsonian Institution, which, comprising nineteen separate museums, is the largest museum complex in the world. Ironically, it also damages the credibility of anything the Government says in its attempts to "talk up" the plans for the proposed new museum at Parramatta; if such a transparently implausible claim is made, how can we take seriously anything else that is said about the new museum?

² "Historic significance" is used here in the terms described by the *Significance 2.0* methodology, widely accepted as the prevailing approach in Australia to significance assessment of built and moveable heritage (See <http://arts.gov.au/sites/default/files/resources-publications/significance-2.0/pdfs/significance-2.0.pdf>)

³ (See <https://www.engineersaustralia.org.au/portal/heritage/ultimo-power-house-1899-1963>)

⁴ The Ultimo Power House was described in this way in the planning stages of the Power House Museum project to denote its architectural qualities.

⁵ This was a description coined by the Powerhouse Museum's architect, Lionel Glendenning.