Architectural Culture and Reuse

Session 12

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The Aesthetics of Reuse: The Materiality and Vernacular Traditions of Wang Shu’s Architecture

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Architectural design and criticism, Architectural history and theory

As the first locally trained Chinese architect to receive the prestigious Pritzker Prize in 2012, Wang Shu and his work have attracted widespread international attention. This paper examines his work from the perspective of the aesthetics of reuse. Various correlated themes will be discussed, covering visual manifestation of fragmentation, stimulation of tactile sensations, application of folk craftsmanship, continuity of vernacular traditions, regional response to globalization, invitation of reflective nostalgia, as well as resistance against unsustainable consumption. In opposition to massive demolition and extensive urbanization in China nowadays, he demonstrates his keen interest in the rich legacy of regional resources and persistent awareness of the sustainability of cultural traditions. From his small initial experiment of the Five Scattered Houses in Ningbo (2003-06) to larger scale public buildings such as the Xiangshan Campus in Hangzhou (2004, 2007) and the Ningbo History Museum (2008), he reiterates the importance of respecting indigenous culture and responding to nature to resist homogenous globalization and destructive overconsumption. His social-responsive work is worthy of close examination.

Keywords: Aesthetics of Reuse; Spolia; Vernacular traditions; Cultural Sustainability; Contemporary Chinese architecture
Introduction

Urban development in contemporary China is sprawling at an unprecedented speed. Vast areas of old districts and villages have been razed for the ongoing development of glistening skyscrapers and glitzy shopping malls. The scale of destruction and residential displacement has initiated widespread criticism. In the midst of rampant construction activities, demolition sites are ubiquitous generating large amounts of rubble and debris. Against the prevailing widespread urbanization and homogenous globalization in China nowadays, Wang emphasizes the importance of regional resources and traditional craftsmanship.

In the early 2000s, Wang and his team commenced a series of studies on folk building construction in Cicheng town in Zhejiang Province. People living in Cicheng are easily affected by typhoons which can cause their houses to collapse. After natural disasters, local residents have been used to recycling available broken roof tiles and bricks to rebuild their houses within a short period of time. The aesthetic beauty of the reused tile and brick mixed construction method and the regional tradition of using limited available resources renewably deeply impressed Wang. Following his research on Cicheng, discarded tiles and bricks salvaged from demolitions sites have been used in his new architecture and the folk reused building technique has been applied from his small initial experiment of the Five Scattered Houses in Ningbo (2003-06) to larger scale of the Xiangshan Campus of the China Academy of Arts in Hangzhou (2004, 2007) and the Ningbo History Museum (2008).

From Modernist Approach to the Use of Spolia

Despite Wang’s interest in vernacular fabric, his early work, Wenzheng College Library, Suzhou (2001), reflects the substantial influence of modernism to his design. The overall cubic profile of the library and its elevated structure supported by pilotis are similar to the canonical form of Le Corbusier’s Swiss Pavilion, Paris (1932). The glazed facade and flat roof of the library devoid of ornamentation is reminiscent of the Goetz Art Gallery, Munich (1992), by Herzog & de Meuron. The white-washed, flush enclosure of the library is comparable to the abstract, generic volume of the Goetz Art Gallery, which is in fact a simple rectangular container. The smooth surface of the Wenzheng College Library is distinctively different from the tactility of Wang’s later work with the reuse of discarded tiles and bricks.

Reused architectural elements and components are commonly known as spolia. Spolia is derived from the Latin word, spolium, which means ‘the skin or hide of an animal stripped off’ or ‘the arms or armor stripped from a defeated enemy’ (Lewis and Short 2015). Spolia are now extended to cover reused architectural items in contemporary architecture (Meier 2011).

A prominent case of Wang’s use of spolia on an international stage was the Tiles Garden as the Chinese Pavilion for the Tenth Venice Architecture Biennale (2006). More than 60,000 old Chinese roof tiles were reused (Wang and Xu 2006, 6). The whole garden was partly bisected by a promenading bamboo ramp inviting visitors to walk over the roof tiles. Since there is a long tradition of using roof tiles in Chinese vernacular architecture, so walking on the bamboo ramp symbolizes walking over the city, stimulating people to reflect on the impact of urbanization on the traditional urban fabric.

The aesthetics of reuse of Wang’s architecture can be analyzed in terms of visual manifestation of fragmentation, stimulation of tactile sensations, application of folk
craftsmanship, continuity of vernacular traditions, regional response to globalization, invitation of reflective nostalgia, as well as resistance against unsustainable consumption.

**Visual Manifestation of Fragmentation**

The stacking of *spolia* is a visual manifestation of fragmentation. Diverse types of artifacts bear no obvious relationship to each other, but offer a great variety of patterns. Rectangular bricks, curvy roof tiles, and irregular broken pieces are randomly mixed and mingled without following regular running bond. The distribution of solid and void creates an attractive composition. Peculiar shapes of disparate fragments are embedded as unfamiliar accompaniments, drawing attention to the enigmatic juxtaposition. The subtle and stark differences of colours contribute to the intensity of visual enjoyment.

In Xiangshan Campus, original adhesive tapes on bricks and tiles are deliberately untouched, showing the history of everyday objects. Different from the official record written in history books, a vernacular past of everyday existence with no specific dates or names is celebrated.

**Stimulation of Tactile Sensations**

In addition to the intense visual impact of facades, lumps and bumps on walls provoke tactile sensations. Bulky, massive blocks are located at corners, forming a vivid contrast to deeply recessed joints and adjacent stacking of flimsy, delicate tiles.

In the Xiangshan Campus, teaching buildings are connected by bridges. This enables users to be in close proximity to various materials. Diverse visual and spatial sensations are experienced by accessing courtyards with different tones and perceiving the campus from different perspectives at multi-levels. Tactile sensitivity is heightened through meandering as a bodily movement for exploring the campus setting.

The stimulation of tactile sensations of the Xiangshan Campus is comparable to that of the Collage House, Girona (2009) by the Spanish architect, Bosch Capdeferro. In the Collage House, large amount of *spolia* were salvaged and reused (García de la Cámara 2009, 18). The tactility of both old and new materials is juxtaposed in this house with a filmic continuity, arousing intense sensory experiences.

**Application of Folk Craftsmanship**

Wang expresses his keen interest in materiality and handcraft through his work. The visibility of handcraft on material surfaces is clearly shown in Wang’s Top Floor Art Gallery (2000), in which the marks and scratches on steel panels are purposely exposed.

Wang’s subsequent use of *spolia* is a further elaboration of his ongoing application of folk craftsmanship. At the time when the Five Scattered Houses were built, the tile and brick mixed construction method was under threat. Local artisans were unfamiliar with such traditional techniques, requiring Wang to bring relevant photos and detailed arrangement drawings to site for reference (Magrou 2010, 81). Through the continuous experiment of this folk building practice for more than ten years, Wang has established a long-term collaboration with artisans and rescued a regional tradition from oblivion. In addition to the reuse of old bricks and tiles in his work, window hooks, catches and
Continuity of Vernacular Traditions

Wang’s application of folk craftsmanship in his work is closely associated with his aim for the continuity of vernacular traditions. He shows his persistent concern with vernacular fabric and cultural traditions. This area of concern has been further elaborated through his design for the Xiangshan Campus in Hangzhou, especially the notion of establishing a harmonious relationship with nature.

The overall setting of the Xiangshan Campus is distinct from conventional campus design. In China, the mainstream approach is to locate the campus in a government zoned high education district with well-established infrastructural provisions and to adopt a rational campus layout with clear demarcation of zoning. However, when the Xiangshan Campus was under the planning stage, a site to the east of the Hangzhou mountains was selected. Natural landscape was considered vital for campus setting even though there was a temporary lack of infrastructure there. Teaching buildings of the Xiangshan Campus are located around a small hill and are in harmony with the natural landscape. Between teaching blocks and the hill, some areas are allocated as agricultural fields to restore the pastoral scenes of the original site. The original brook around the hill has been reserved as well. The adverse impact of the new campus development to the site is minimized and the vernacular culture paying due respect to nature is revitalized.

Regional Response to Globalization

Wang’s work is a regional response to globalization. Locally available resources, including the use of spolia from demolition sites, folk craftsmanship, and vernacular traditions are incorporated in his work with a distinctive sense of identity. Instead of aiming for a universal solution, his architectural design is an embodiment of locality in response to the surrounding context.

For the Xiangshan Campus Phase I, the disposition of teaching buildings is in dialogue with the natural environment. Buildings are mainly in courtyard typology, being fully enclosed or bounded on three sides. They are organized in a more responsive manner for engaging with the topography of the hill. To establish a dialogue with the scale and height of the central hill, teaching buildings in Phase I have horizontal tiled eaves to emphasize the horizontality of the building complex.

In subsequent Phase II campus design, Wang creates tension between buildings in a playful manner. Deviated from the cubic canonical form of modern architecture, curvilinear roof has been developed, expressing his critical interpretation of Chinese traditional architecture. One salient example is the Teaching Building no. 14 in Phase II, having a water body in front. The striking curvilinear roof and the water reflection on the pond serve as a visual focus in the campus environment.

Invitation of Reflective Nostalgia

The use of spolia from demolished rural Chinese villages in Wang’s work is more than just heaps of bricks and tiles, they evoke nostalgia for a lost past. Wang’s work calls for ‘reflective nostalgia’, involving reflections on history and the meaning of the past for the
present (Boym 2001, 49-55). For the Ningbo History Museum located in a new district of Ningbo, the site is criticized by Wang as a 'no memory area' because all previous old villages there have been totally razed (McGetrick 2009, 74). In response to extensive urbanization erasing local history, the old bricks and tiles of Wang's new architecture is 'a way of preserving time' and can arouse collective memory (Denison and Ren 2012, 125-126).

The nostalgic approach of the Ningbo History Museum is reminiscent of the Neues Museum, Berlin (2009) by David Chipperfield. Inevitable traces of decay of spolia in the Neues Museum are intentionally exposed to arouse visitors to have a reflection of the damages of the past. Comparable to the Neues Museum, the Ningbo History Museum seems to be a ruin composed of archaeological vestiges. This conveys an alternative aesthetics challenging conventional expectations of new public architecture in China and arousing public sentiment of reflective nostalgia.

**Resistance against Unsustainable Consumption**

Apart from the opposition to extensive urbanization and massive destruction, Wang's approach is proactive against unsustainable consumption. In the Xiangshan Campus, more than seven million pieces of old roof tiles and bricks were utilized. This can revitalize traditional craftsmanship, and at the same time, salvage discarded materials, which may otherwise become wastes in dumping grounds after demolition. When I. M. Pei designed the Fragrant Hill Hotel (1982) in Beijing, his main concern was also the continuity of Chinese architectural tradition (Wiseman 1990, 185). However, the use of old tiles and bricks in the Xiangshan Campus was only one-tenth of the cost of new building materials achieving a relatively low construction cost. 1 Comppatively, in Pei’s Fragrant Hill Hotel, the carefully-cut gray tiles on the facades were seventeen times more costly than normal tiles used in vernacular houses (Huang 1983, 69). Besides, a total of 230 tonnes of monoliths were transported to the Fragrant Hill Hotel from a national stone park in Yunnan Province over 3,000 kilometres away (Rubalcaba 2011, 53 & 55). Different from the extravagance of I. M. Pei’s project, Wang’s Xiangshan Campus exemplifies a Chinese vernacular construction approach and is a critique of the prevailing consumption phenomenon in society.

**Conclusions**

The aesthetics of reuse manifested in Wang’s architecture is critical in the Chinese context. Under the impact of global homogenization, the erection of smooth, shiny buildings is ubiquitous in modernized metropolises around the globe. The enormity of demolition and the scale of urbanization are unprecedented in China nowadays for embracing ambitious goals and overwhelming commercialization. In contrast, Wang demonstrates his persistent awareness of indigenous cultural traditions through his work. Rich legacy of regional resources is explored. By revitalizing the vernacular practice of using spolia, tactile sensations are emphasized and folk craftsmanship is applied. Deeply embedded in the natural environment and the local context, his work evokes reflective nostalgia and resists endless consumption. Instead of merely imitating the past, Wang strives to creatively synthesize traditional practices and contemporary construction methods for providing cultural sustainable design solutions. His work is

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1 When these discarded old tiles and bricks were first used, they were one-tenth of the cost of new building materials, but later, these old materials have increased in cost significantly and now become scarce in supply. (Hua 2012, 65). The construction cost of the Xiangshan Campus was maintained at around RMB 2,000/m², approximately US$300/m². (Wang 2005, 103).
influential, inspiring his counterparts and even the general public to deviate from mainstream conventions to have a reflection on the relationship between reuse materiality and massive demolition, vernacular traditions and extensive urbanization, as well as regional specificity and global universality.

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“I hate cheap knock-offs!”: Morphogenetic transformations of the ‘culture of the copy’ and Chinese Identity

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Over the past twenty years, The People’s Republic of China has actively solicited Western architectural practices to design many of their iconic and internationally recognizable cultural icons, such as the stadia of the 2008 Beijing Summer Olympics, the Beijing National Aquatics Center (2003–8), designed by Australian architects PTW Architects, and the Beijing National Stadium (2003-8), designed by Swiss architects Herzog & de Meuron. In such prominent cultural projects, Western architectural practices were partnered with local Chinese practices in order to catalyze cultural and knowledge exchange and, more pragmatically, to document and administer day-to-day building construction. This paper explores the philosophical implications that arise when this cross-cultural partnership leads to the illicit copying of Western-designed buildings in China, such as the Meiquan 22nd Century building’s (2012–) re-presentation of Zaha Hadid Architects’ SOHO shopping complex in Beijing (2011–14). When Western architectural practices collaborate with Chinese partners on projects in China, many fundamental assumptions about Western Copyright Law, and the philosophical structures that underpin it, such as authorship, ownership, and originality, are fundamentally brought into question. Contemporary philosophical discourse concerning the postmodern relationship between a copy and its original is instrumentalized in the paper to the contemporary Chinese context through the application of Morphogenesis. The paper concludes that, rather than re-assembling the creative cultural capital of the West as re-assembled Sino-Frankenstein ‘knock-offs’, China should embrace alternative philosophical and biological processes though which to generate new forms of ‘deviant originality’.

Keywords: Copyright, Copying, Originality, China, Morphogenesis, Identity
Introduction

Transformers: Age of Extinction (2014), presents an action-packed thrill ride of robot-induced mayhem that has come to define the blockbuster Hollywood franchise. As the film progresses, its setting shifts from the United States of America to the People’s Republic of China, providing a sweeping panorama of Hong Kong. The scene foregrounds the penultimate battle between the protagonist Autobots and their human-fabricated robotic clones, brought into ‘being’ via the re-programming of Transformium—the base element upon which the Transformers are composed. Modern China, the mythologized land of the copy, is staged as a battleground between the authentic ‘original’ (Bumblebee) and its ‘copy’ (Stinger). In ultimate victory, Bumblebee raises aloft the head of one of his defeated doppelgangers exclaming, “I hate cheap knock offs!” Bumblebee’s exclamation itself is ironically composed from re-assembled audio samples of Western popular culture. The scene simultaneously presents the West’s acceptance of selective forms of copying, whilst denigrating others. Whilst the West may have come to scorn cheap Chinese ‘knock offs’ (Burry 2005), the Chinese themselves have no ideological problems with counterfeit goods: they love them! The continuing production and consumption of ‘knock-offs’ in China has led recently to the appropriation of Western architectural styles, and in many cases, the wholesale reproduction of contemporary architectural icons of modernity, such as Zaha Hadid Architects’ Wangjing SOHO shopping complex in Beijing (2011–) copied by the Meiquan 22nd Century (2012–) building in Chongqing. When contemporary Western architectural brands operate in China, many fundamental assumptions about Western Copyright Law, and the philosophical structures that underpin it, such as authorship, ownership, and originality, are brought into question. The paper therefore considers the impact of Chinese copying on Chinese consumption and identity, however it does so from a unique and original perspective. Other analyses have studied the cultural anthropology of Chinese consumption and Western aesthetics, or have analyzed Chinese copying from the perspective of International Copyright and Intellectual Property Law, whilst others have interrogated various Western philosophical concepts underpinning copying and the copy. These critiques generally assume a singular disciplinary position. In contrast, this paper attempts to adopt an interdisciplinary approach, drawing concepts from the Cultural and Architectural History of China and the West, Western Aesthetic Theory and Popular Culture, International Copyright Law, Biology, and empirical studies of Chinese consumption in Cultural Anthropology.

The paper therefore aims to contribute originally to the productive critique of Chinese copying through the application of the biological process of morphogenesis. In so doing, the paper firstly aims to better understand how Chinese Communism can culturally intersect with Western Capitalism to shape an evolving form of Chinese cultural identity and, secondly, consider how the culture of copying and consumption of copies themselves might be understood in less pejorative terms. Morphogenesis offers a unique theoretical scaffold that explains the process through which form is generated in organisms. It provides an account of the parameters or ingredients that influence the development of an organism’s form/shape, but does not pre-determine the specific idiosyncrasies that make every organism unique. As such, morphogenesis is akin to the process of semiotic deferral in which a known formal or logocentric end-point is never present. The act of copying and re-assembling of disparate Western architectural styles and their associated aesthetic structures—through the systematic corrosion of embedded cultural signifiers—is a poststructuralist method of semiotic deferral in which meaning and identity is never wholly present. The paper therefore argues that, rather than continuing the postmodern copying and re-assembling of the aesthetics of
Western luxury as a form of artistic ‘ready-made’, China should strategically embrace alternative philosophical perspectives in order to generate new forms of ‘deviant originality’ through which to undermine the manufactured exclusivity and perceived originality of Capitalist luxury brands. As such, morphogenesis is presented as a means through which to rethink how the copy can be understood as emblematic of a new form of identity construction that fuses Western and Chinese aesthetics into a new form of Chinese cultural identity.

The Transformers example also highlights the end of Walter Benjamin’s romanticism and yearning for the ‘aura’ and experiential presence of an ‘authentic’ original (Benjamin 1968; Goldstein and Hugenholtz 2012). The proliferation of computers in all aspects of contemporary Western culture has resulted in the removal of the physical trace or ‘facture’ of the craftsman fashioning their artwork (Bryson 1983), as rapid prototyping and computer-numerical-control fabrication systems reproduce physical works with ever-higher degrees of verisimilitude: “With the electronic and digital ... the very notion of original [is] obsolete. Everything is a copy.” (Bosker 2013, 23) The ontological status of the ‘original’ is no longer relevant in a society saturated with an ever-increasing volume of media content and designers fluent in its appropriation and re-assemblage. As Jean-Francois Lyotard observes: “Eclecticism is the degree zero of contemporary general culture: one listens to reggae, watches a western, eats McDonald’s food for lunch and local cuisine for dinner, wears Paris perfume in Tokyo and “retro” clothes in Hong Kong; knowledge is a matter for TV games.” (Lyotard 1984, 76) Every aspect of our consumer life is infused with contradictions of cultural authenticity, reconstructed as a complex lattice of simulacra of exotic places, experiences, and identities. This is perhaps nowhere more prevalent than in China today where the design, architecture, and aesthetic language of Western luxury is copied and consumed by an increasing Chinese middle-class with little compunction about the moral, ethical, or environmental implications of their consumption.

Chinese middle-class ‘status’ consumption

According to Julie Juan Li and Chenting Su, the influence of the Chinese concept of ‘face’ is a primary driver of the consumption of goods fueling China’s GDP (Li and Su 2007, 241-43). ‘Face’ is intrinsic to all collectivist cultures, which make up 1/3 of the world’s population, but is especially important in understanding the buying habits of the Chinese middle-class (Ting-Toomey 1988). In the West, we might account for ‘face’ as consumptive practices that aspirationally project oneself as part of a desired social group that reinforces culturally accepted norms of behavior within that group, and to differentiate oneself from others external to it (Ang et al. 2001, 222-23). This is further complicated by the ‘interdependent’ social structuring of families and communities: “to the interdependent Chinese, class reflects not only one’s achievement, but also one’s group, usually one’s family, relatives, and kinship clan.” (Wong and Ahuvia 1998, 3) It is through this very need to “enhance, maintain, or save face” that Chinese consumers find themselves more likely to purchase luxury goods to advance their social standing than other cultures (Li and Su 2007, 237). The Chinese display of luxury thus denotes economic, social, and familial success (Wong and Ahuvia 1998, 8). However, the Chinese are more susceptible to the social pressures that arise in maintaining their social status than their Western counterparts, expressing a “need to identify with or enhance [their] image in the opinion of significant others through the acquisition and use of products and brands [and] the willingness to conform to the expectations of others regarding purchase decisions.” (Bearden, Netemeyer, and Teel 1989, 474)
The growing Chinese middle-class desire to own similar status-based commodities as their counterparts in the West. The consumptive desire for, and display of, Western aesthetic styles, brands, and architecture aims to deliberately promote the social status of the middle-class, and demonstrate their judgment and understanding of 'good taste'. Thus, as Immanuel Kant observed of the emerging middle-class of Europe in the eighteenth-century, a citizen is able to denote their social standing to others by demonstrating their knowledge of the limits and boundaries of acceptable ‘taste’ and, as such, be assimilated within a desired socio-economic grouping (Kant and Meredith 1952). The effects of this overt need to display their luxury possessions is a growing legal, moral, and philosophical concern in China, as the goods consumed are not always legally produced. Super-charged consumption breeds piracy of all forms of consumable goods, not least of all China’s recent widespread copying of Western architecture.

**Copying and Copyright Law in China**

Copyright Law post China’s acceptance into the World Trade Organization in 2001, explicitly acknowledges the protection of ‘construction works’, such as architectural buildings, as ‘forms of expression’ that are protected from unauthorized reproduction (Hu Jintao February 26, 2010). This copyright is deemed valid when the ‘construction works’ can be demonstrated to be ‘original’ and specifically applied in a ‘built form’. Copyright only applies to built ‘expressions’, not to ideas, and lasts for the author’s life, plus fifty years. The copyright is deemed to have been infringed when the ‘construction works’ are used without the permission of the author, or copyright holder. Whilst the copying of Classical Western architectural styles is common in China, as it is throughout much of the Western world, it is not an infringement of legal copyright. Whilst the copying of Western Classical architectural styles is common in China, as it is throughout much of the Western world, it is certainly not considered copyright infringement, however the copying of the built ‘expression’ of the Wangjing SOHO shopping complex raises challenges for Chinese Copyright Law (Chen 2012).

In contrast to architectural copying, Wang et al observe that approximately 98% of Chinese engage in computer software piracy (Wang et al. 2005, 341). In addition, up to 90% of daily-use goods available in urban areas are counterfeit (Ang et al. 2001, 221). Whilst Chinese Copyright Law protects against unauthorized reproduction, it is not as clear-cut about the legality of consuming counterfeit goods in China. Whether through the illegal downloads of copyrighted music, movies or computer software, or through the consumption of counterfeit luxury goods, the Chinese make decisions about the consumption of illegal goods through the weighing up of the potential social, legal, and financial impacts each time they consider copying. In other words, their decisions are culturally determined by a simple analysis of the ‘cost versus the benefit’. The Chinese do not take all laws as seriously as their Western counterparts, for example in the USA, who are universal in their adherence to the rule-of-law. As Swinyard et al note, Americans are ‘rule-orientated’, whilst the Chinese are ‘circumstance-orientated’ (Swinyard, Rinne, and Kau 1990, 657). But how does this newfound cultural understanding affect the question of architectural re-production in China? What meaning can we garner from China’s ongoing cultural appropriations of high-status goods and architecture from the West? What affect does it have on achieving a better understanding of what Chinese copying says about Chinese aesthetic sensibilities and their cultural identity today?
What do Copies say?

Medieval European society believed fervently in the apotropaic power of representations of Christ to ward off and protect from perceived evil spirits or forces; such as the use of medicinal bandages (copies) torn in proportion to images of Christ (the original) (Kitzinger 1954, 105), to medieval churches (copies) designed loosely upon proportional relations to the Holy Sepulchre (the original) (Krautheimer 1942, 28), to written documents that sighted the power of Christ’s name in warding off disease and violence (Kitzinger 1954, 103). In medieval European society, the value of the copy was not based in its verisimilitude, but in its like-ness and relational meaning. Inversely, the Chinese subscribe to a philosophical position in which the ‘like-ness’ of the copy is a form of ‘cultural flattery’ (Ang et al. 2001, 221), but absent of the power structures present in its original artifact and cultural setting. The Chinese are thus more able to disassociate the semiotic meaning that oscillates between its sign and signifier then their Western counterparts who rely upon this binary association to infuse meaning in pre-modern, Western Visual Culture. For the Chinese, the authentic ‘like-ness’ of an aesthetic style is more important than its culturally specific meaning.

This cultural indifference towards the integrity or sanctity of the ‘original’ is further demonstrated in the Chinese appropriation of the architecture of the West at the height of the Qing Empire (late-eighteenth century). As a result of the increasing trade and cultural exchange between China and Europe, Western-style pavilions became very popular. Whilst designs were based upon authentic Baroque and Rococo styles (appropriated from seventeenth- and eighteenth-century Europe), they were structurally and aesthetically transformed into ‘proximate imitations’, due to the limited experience or understanding of how to construct buildings in such architectural styles (Zhu 2009, 27–32). In contrast, throughout the nineteenth and twentieth centuries, Chinese public architecture was contrived by the State as symbols of Nationalism: expressing “grand narratives of the nation, its grand tradition, its heroic revolution and its glorious future” (Zhu 2009, 110). More recently, China has witnessed a dramatic opening-up to the West and its social autonomy, and a shying away from the austere and in-humane environments typified by Maoist China (1949-1976) and the grand narratives of Socialism present in the Beaux-Arts traditions it applied (Xue 2006, 16; Zhu 2005, 487). It is no surprise then that the contemporary Chinese, when left to freely appropriate aesthetic styles from the West, have embraced a pluralist postmodern assemblage of aesthetic styles in order to distance themselves from their most recent Maoist past (Bosker 2013, 81).

The widespread copying of Western styles in China can therefore be understood as a combination of ‘fantasy dreamsapes and simulscrapes’ (Bosker 2013), ‘theme-park simulacra’ (Baudrillard 1994), and ‘hyper-realities’ (Eco 1986, 26), that have resulted in an interesting cultural collision of aesthetic form and cultural pragmatism. For example, many new Western-styled buildings are being refurbished after very short periods of use in order to accommodate the specific cultural rituals of everyday Chinese life (Bosker 2013, 51-55). Here Henri Lefebvre’s conception of ‘conceived’ versus ‘lived’ space is instrumentally useful through the acknowledgement of the contradictions inherent between an idealized space, represented by an aesthetic style, and its actual culturally-specific inhabitation (Lefebvre 1991, 38-9). The Chinese actively live in a pluralist postmodern milieu of hyper-real surfaces, images, and simulated environments: The Chinese dwell in the age of the simulacra (Baudrillard 1994).
Deviant originality through morphogenesis

In returning to the Transformer’s anecdote, the relationship shared between Bumblebee (original) and Stinger (copy) demonstrates Greg Lynn’s notion of the ‘primitive’ geometric arrangement upon which all subsequent formal adaptations are based in transforming from one type to another (Lynn 1995, 39). Lynn’s ‘primitive’ can be understood as the locus, or initial neo-platonic form, upon which ‘deviations and derivations’ can be described (Culler 2007). The system of parametric relations that give shape to Bumblebee’s doppelgangers can only replicate certain aspects of its form, not its operational behavior or sentience. They are simplistic re-imaginings of Bumblebee’s visual ‘like-ness’. The relationship thus shared between Bumblebee and Stinger demonstrates the inescapability of the ‘original’ from its systematized parametric copies. The copy thus can always be differentiated from its ‘original’—the degree to which it varies contributing to a quantification of its ‘deviant originality’, or deviation from its original ‘primitive’ form.

The legal case of copyright infringement, being prepared by Zaha Hadid Architect’s in 2012 against the developers/architects of the Meiquan 22nd Century building, has not yet come to resolution at the date of publication of this paper, as legal action cannot be instigated in the Chinese courts until the construction of both buildings is complete. However, Hadid’s growing family of iterative SOHO copies in China (four under construction with more planned) further illustrates the inter-relation between the original and its copy under discussion. Each of the SOHO siblings do not deviate far from the ‘primitive’ coding that underpins their architectural DNA. In collaboration with Patrik Schumacher, Company Director and Senior Designer at Zaha Hadid Architects, and author of numerous texts on computational-based design approaches, Hadid and Schumacher are generating a family of SOHO buildings across China that are generated from a common morphogenetic genome. Whilst similar in their formal language and aesthetic composition, the siblings are the outcome of a complex array of inter-relational rules that govern their growth. Their originality is embedded in their genetic structure: their spatial form is simply a manifestation of this structure. As in all such bio-mimicry-based systems, there is always a phenotype, or dominant presence of one genetic primitive over another; in this case the pragmatics of Chinese cultural ritual over the likeness to Western aesthetic style. But, does it have to be an either/or binary situation?

However, as Tim McGinley has identified, wholly new conceptions of the architectural design process can be defined if these axes of development are reconceived through biological metaphors, such as the application of the axial growth patterns of the Drosophila Melanogaster (common fruit fly) to the critical rethinking of axes applied in the design of architectural form (McGinley 2015, 6–7). Morphogenesis, understood as the biological process through which an organism develops its form, provides a useful alternative lens through which to re-think the methods through which copies relate to their original. ‘Hopeful monsters’ was a concept introduced by evolutionary biologists to envisage the mutations that deviate from the axial directionality of a conventional growth pattern (Weinstock 2008, 172). The ‘hopeful monsters’ concept parallels Mark Burry’s search for a computational-based geometrical language through which to understand and describe the geometrical surfaces of Antoni Gaudi’s in-complete Sagrada Familia Cathedral (1882–) in Barcelona (Burry 2005). Through the morphing of one geometric state (e.g. cube) along a set axis towards another (e.g. cone), Burry sought to forensically interrogate the remnant fragments of Sagrada Familia in order to reveal its formal language. In so doing, a parametricised process of formal morphing occurred as geometries deviated and deformed in order to arrive at the exact geometric
form that matched the building’s fragment. When these deviations and deformations expanded beyond the expected normative pathways for Weinstock, or the Cartesian system used to conventionally describe geometric characteristics for Burry, wholly new ‘deviant originals’ were thus created. Thus the promise of Morphogenesis is, in some small part, to break or transcend the limitations of existing normative models of design; or in the context of this paper, the inter-change between Eastern and Western aesthetics in engendering a new form of Chinese-based identity.

If we reconsider the method of morphing along defined morphogenetic axes in transforming between different states of being in the Autobot—from anthropomorphized robot, to car, truck, or dinosaur—we are provided with a genetic code through which to program the morphogenetic structure of subsequent iterations of the system. Similarly, if we consider the axial development between the copy and its original, between East and West or West to East, we are provided with an insightful alternative morphogenetic-based conception of how China might re-frame its conceptual interaction with the West through “potentials for collaboration and opportunities for bi-directional knowledge transfers.” (Roudavski 2009, 346)

Conclusion

The paper has argued that, whilst Chinese Copyright Law mirrors Copyright Law in the West, the ongoing prevalence of the ‘culture of the copy’ in contemporary China represents a much deeper cultural ambivalence to Western concepts of authorship and originality. The paper argued that the genesis of the ‘culture of the copy’ could be found in China’s ideological disposition to ‘collectivist sharing’, ‘face’, and middle-class ‘status consumption’. It argued that through a recasting of the concept of originality—necessary in differentiating between supposed originals and their copies—a new method through which to subsume and hybridize Western and Chinese aesthetics could be developed. This ‘deviant original’ was therefore proposed through the application of the biological functioning of morphogenesis; as a methodological process where by contemporary Chinese cultural identity could be developed beyond any kinship to aesthetic sensibilities in the West.

As China transitions from kitsch copiers to cultural innovators—from simply mastering other cultures’ creative innovations to generating its own cultural commodity—a morphogenetic approach may yield interesting wholly unknown outcomes to this cultural evolution. Morphogenesis is not a process whereby a known endpoint can be determined or mapped out and therefore provides a liminal state in which its parameters and content have agency on the formation of unknowable material outcomes (Leach 2009). This contrasts with the logocentric nature of the Transformers, in that the Transformer is always in a state of transitioning between formal states of being—in the Burry example, between one geometric type (e.g. cube) to another (e.g. cone). It is always defined by its taxonomic condition of what it is, as much as what it is not. The promise of a morphogenetic approach therefore is to assemble and instrumentalise material behaviors from seemingly incompatible partners in order to generate wholly new, mutually beneficial systems and ecologies. The Frankenstein assemblages that result potentially yield new ways through which to explore the pressing social and environmental challenges of our age. In so doing, Morphogenesis facilitates a transformation of the discipline of Architecture through an operationalized fusion of other disciplinary knowledge beyond its traditional disciplinary boundaries. It allows for the transcending of the limiting parameters instigated by Lynn and Hadid, and the analogies I have attempted to describe through the Transformers-based
parametric replication of operable form, and the development of Chinese identity freed from the pluralistic mish-mash of Western aesthetic styles.

Finally, whilst the productive theoretical outcomes of the paper have yielded an alternative means through which to understand originality and identity formation, it has also reflected on the social impacts of the Chinese ‘status consumption’ of Western domestic planning typologies and aesthetics that are often in direct conflict with the pragmatic and ritualized practices of Chinese domestic life. This cultural fusion has led to dwellings that are aesthetic chameleons: Western from the outside, but Chinese on the inside. This paper has not attempted to solve the consumption challenge that China presents, rather it has aimed to contribute to a more nuanced discussion as to how these consumptive practices affect Chinese identity. The paper has argued that, in embracing a morphogenetic turn, China can thus transcend the cultural and aesthetic limitations perpetrated by its ongoing reliance on Western aesthetics. Such reliance masks China’s own unique cultural identity and inhibits its hegemonic desire to exemplify cultural perfection and trans-national superiority. The morphogenetic turn thus provides China with a means through which to move beyond the destructive purveyors of kitsch aesthetic ‘knock-offs’, to cultural innovators in their own right.

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From Roller Skates to Super Heroes: The Many Lives of the Trocadero

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The Trocadero has lived many lives over the last 125 years. Built in the late 1880s as a highly fashionable indoor roller-skating rink, with billiard salon, clubrooms, baths, hairdressing salons, café and oyster bar, it was the largest and most elegant roller-skating rink in Australia. But as fashions changed, the building quickly became redundant and now it is a rare survivor. Since the 1890s the building has been reincarnated, adapted and reused many times over, sometimes being revitalised as a centre of entertainment attracting new crowds, and at other times being reduced to an empty shell, used as a workshop or storage facility. More recently, after many years of neglect, the building was rescued and resurrected as a state of the art animation studio, entertaining larger crowds than ever, through the production of visual effects for films such as ‘Australia’, ‘Thor’ and ‘The Avengers’.

Throughout its history, each new owner has valued the building in a different way, and it could be said that their values are reflected in the ways in which they have altered, modified, managed and maintained the building to meet their needs. Some of those values are intrinsic to the building itself: its high Victorian aesthetic, beautiful detailing, spatial qualities, functionality, flexibility and quality of light. But other values are associated more with its location, its economic value as a source of livelihood or for potential redevelopment. And yet others are not the values held by the property owners, but rather those applied externally by society, such as recognition of its cultural heritage values: its historic, aesthetic, social and technological values and its rarity. At its lowest point, when the building’s new owner could see no potential other than the value of its land, the building was only saved from demolition by external intervention. The more recent revaluing of the building has contributed to its survival and continued use.

Using the Trocadero as an example, this paper explores the values attached to buildings by their owners and society, both tangible and intangible, and the influence that these values have on the way we use or waste our buildings. It examines whether greater understanding of a building’s history, design intent and intrinsic properties can assist owners in revaluing and respecting their buildings, making fewer and more strategic interventions and minimizing the production of waste.

Key words: values; heritage; adaptive reuse; existing buildings; minimizing waste
From Roller Skates to Super Heroes: The many lives of the Trocadero

Perspectives

Our perspective on the world determines the way we value things, both tangible and intangible. The values we hold determine the decisions we make and the future we create, not only for ourselves, but also for those around us, and the world we live in.

This paper examines the various values that we hold in relation to our built environment and how these influence the way we treat it. Do we regard our buildings as valuable assets or resources to be managed and conserved, adapted and reused, and handed on to future generations? Or do we see our buildings as having only short-term relevance, and thus dispensable in the face of new development? By tracking the life of the Trocadero, located in Newtown, Sydney, this paper explores some of the values attached to buildings by their owners, occupants, developers and society, and the influence that these values have on the way these stakeholders either use or waste buildings.

This paper also explores ways of revaluing our existing building stock. Can greater understanding of a building’s original design intent, history and intrinsic properties lead to fewer and more strategic interventions that respect a building’s integrity and minimize the production of waste?

The Story of the Trocadero

The first time I visited the Trocadero, it was an ugly and dilapidated building. Most of the shops were empty and a shabby roller shutter opened to a very sad and ill-maintained used furniture emporium. There was little to attract the passer by, let alone new tenants or prospective owners. But the Trocadero had not always been like this. It had once been a place of elegance and delight, a highly valued asset in the main street of Newtown.

Skating Rink, 1888-1893

Built in the late 1880s, as a highly fashionable indoor roller-skating rink, with billiard saloon, clubrooms, baths, hairdressing salons, café and oyster bar, it was reputed to be the largest and most elegant roller-skating rink in Australia (Sydney Morning Herald, 5 April 1889, 5). The building comprised four shops facing onto King Street, clubrooms on the two upper floors, and an extremely large skating hall at the rear. Typical of Victorian architecture, the building was elaborately decorated inside and out, with Flemish Gothic façade detailing, a roof top cupola (Figure 1) and highly decorative timber, wrought iron and plasterwork internally. The skating rink featured a fine hardwood floor that turned the corners in the direction of movement, decorative wrought iron trusses spanning the full width of the hall and a long clerestory roof that opened to the sky to allow the hot air to escape (Figures 4 and 5). A cantilevered spectators’ gallery ran around the edges and an orchestra played to accompany the activity (Design 5 Architects, 1995).
Terrace House, 1857-1888

The Trocadero was built during the 1880s economic boom at a time when indoor roller-skating was the height of fashion. It was built on a largely undeveloped site, except for a small terrace house constructed in one corner during the 1850s and another small outbuilding (NSW Department of Lands, 1888). The redevelopment of the site did not result in the demolition of the terrace house, however, but rather its incorporation into the new building where it still survives today (Design 5 Architects, 1995, pp13, 44). Although the house was small in comparison to the new and very smart premises of the Trocadero, it obviously had value to the new property owner. A new shop was added to the front of the existing building, but the rear was retained substantially intact. Even today it retains its elegant geometric timber stair, some early timber and plaster detailing and fireplaces (Design 5 Architects, 1995, pp16-21, 35). Its rear service wing continues to share a party wall with its original terrace partner on the adjoining allotment (Figure 2).
The Need for Change

But fashions change quickly and the elegant skating rink and clubrooms became redundant within just five years of opening. The Sands Directory lists at least 25 indoor roller-skating rinks in Sydney in 1889 and 1890, but by 1891 only 2 remained. The Trocadero closed in 1893, reflecting the impact of the 1890s depression (Sands, 1889-1893). Since then, the building has been adapted and reused many times, sometimes being revitalised as a centre of entertainment and at other times as a workshop or storage facility.

Coach Building and Clothing Factory, 1893-1903

The first adaptation involved a coach building business, which set up in the shop immediately adjacent to the skating rink entry. Alterations included removal of the glazed shop front and opening up of the rear shop wall to accommodate a new carriage workshop (Design 5 Architects, 1995, p53). The building also accommodated a clothing factory (NSW Department of Lands, 1897).

Return to Skating, 1903-1910

In 1903, however, the building had a reprieve and reopened for roller-skating and as a venue for social functions such as balls (Newtown Chronicle and Marrickville Weekly Review, 22 August 1903, 5). Refurbishment included rearrangement of the main entrance and vestibule to enable widening of the adjacent shop and the accommodation to a separate entrance to the tenancies in the former clubrooms on the upper floors. These tenancies included small manufacturing businesses and a second residence over the southernmost shop (Design 5 Architects, 1995, 53-54; Sands 1904-1911).
Picture Palace, Vaudeville and Boxing, 1911-1920

In 1911, the large skating rink was converted to a picture palace or cinema, with modifications to the southern wall to accommodate projection facilities. But this use did not last long either and from 1916 to 1920 the hall became the venue for vaudeville shows and boxing (The Sun, 16 June 1918, 23). During this period, the Sydney University Women’s Settlement used the upper clubroom as a meeting place for soldiers’ wives and mothers (Sands, 1912-1922; Williams, 1988, 21, 24).

The three remaining shops along King Street changed little over the years and were occupied by many different businesses, including refreshment rooms, confectioner, wine merchant, tobacconist, stationer, hairdresser, furniture, clothing, bicycle and venetian blind manufacturers, boot maker and saddler (Sands, 1889-1920).

Properts’ Motor Body Company, 1920-1974

The most dramatic change came with the arrival of Properts’ Motor Body Company, which moved into the shop adjacent to the main entrance in 1920. Business was booming and by 1922 the company had become the major motor vehicle works in the area with 60 employees (Smith, 1922, 103). From 1927, Properts’ leased the main hall for their workshop and opened up the walls between it, the entrance vestibule, the shop and the street. Tracks were laid in the floor and a hoist overhead for lifting and moving the cars (Design 5 Architects, 1995, 57-59). Properts’ purchased the building in 1945 and remained in occupation until 1974 (Land Title, Volume 2248, Folio 118).

Used Furniture Store, 1975-2005

When Properts’ closed, the property was purchased by Moore Theological College, which had its campus and student accommodation nearby (Land Title, Volume 2248, Folio 188). As the college had no immediate use for the building, it leased the main hall to a second hand furniture dealer whilst it considered redevelopment options. Generally, the building was not maintained and fell into disrepair, the state in which I found it when I first visited in 1995 (Figures 3, 4 and 5).

Figure 3: The Trocadero, King Street, Newtown, c1993 (City of Sydney, in NSW Heritage Council, Heritage Database No. 2420848)
Figure 4: View of the skating hall, looking north, showing the mezzanine installed for the furniture warehouse, 1995 (Catherine Forbes, Design 5 Architects)

Figure 5: View of the skating hall, looking south, showing the openings made in the southern wall by Properts’ and previous occupants, 1995 (Catherine Forbes, Design 5 Architects)
Values

Values of the Owners, Occupants and Developers

Throughout its history, each new owner and occupant valued the building in a different way, and their values are reflected in the ways in which they altered, modified, managed and maintained the building.

Frederick Ferrier, who undertook the original development for the skating rink and clubrooms, sought to provide a fashionable venue that would attract and provide for every indulgence of his clientele. The building he commissioned was grand and elaborate, with high quality decorative finishes to satisfy Victorian aesthetic taste. But it was also technologically advanced, incorporating an operable roof over the enormous hall, which was unobstructed by columns through its use of clear span wrought iron trusses. Unfortunately, with the 1890s depression and the reduced interest in skating, the business failed.

Later owners and tenants, particularly those who used the building as a place of entertainment, also valued the spatial and aesthetic qualities of the building. Even though the Victorian detailing must have become unfashionable over time, it was retained. With the exception of modifications made to the main entrance to enable greater diversification of use within the building, the alterations mostly affected the service areas located between the shops and the hall.

The more industrial owners and occupants valued the space and light provided within the immense hall. It made an excellent workshop, as it was flexible and adaptable, could accommodate large machinery and provide a well-lit work environment. Only relatively moderate alterations were required to provide the necessary access through to the street. As fashionable architecture was not as important for factory use, the impact of these modifications on the building’s aesthetic qualities were considered relatively unimportant. Priority was given to functionality and the economic return that factory use could bring.

Although the building’s location on a main street close to the city would have been important to all owners and tenants, it became almost the only value attached to the place by its most recent owners and potential developers. Because the building was seen as having no inherent value, it was regarded as a liability rather than as an asset, and was neglected and allowed to decay. It was only the values attached to the place by others that saved it from demolition.

Heritage Values

In 1993, the South Sydney Heritage Study identified the Trocadero as a place of heritage significance (NSW Heritage Council, Heritage Database, No. 2420848) and, following a more detailed study (Design 5 Architects, 1995), it was included as a heritage item in the South Sydney Local Environmental Plan (South Sydney LEP 1998, item number 568). Because the building was considered to be at risk, the NSW Heritage Council issued an interim conservation order in 1998 and the Trocadero was placed on the NSW State Heritage Register (NSW Heritage Council, SHR, No. 01380). Heritage listing reflects the values attached to the place by the wider community. Cultural heritage values are assessed against criteria set out by the NSW Heritage Council under the NSW Heritage Act (1977) and include historic, aesthetic, social, technical and research values.
The Trocadero was identified as having historic value as a rare surviving example of a purpose built indoor roller-skating rink of the late 1880s, reputedly the largest and most elegant in Australia. It was identified for its aesthetic value as an excellent and rare example of a Victorian Flemish style commercial building in Sydney, with significant internal spaces and detailing. It was also valued for its contribution to the character of King Street and the surrounding Newtown heritage conservation area (Sydney LEP 2012). Over its lifetime the building has had social value as it has contributed to the life of the local community through its provision of entertainment and social events, its contribution to the local economy and livelihoods, and as a place of refuge. The wrought iron roof trusses over the main hall reflect a high degree of technical achievement and the operable clerestory roof is a rare feature in Australia.

The listing of the Trocadero on the NSW SHR has had three positive consequences. Firstly, the building now has legal protection and cannot be demolished. Secondly, the owner is required to meet minimum standards of maintenance and repair (NSW Heritage Office, 1999). And thirdly, access to grant assistance has enabled necessary remedial works to be carried out to make the building weather tight and prevent further decay.

But heritage listing alone does not guarantee the future of the building. A building without a viable and sustainable use will not be maintained and will always be under threat. So how can we revalue our buildings so that they have a sustainable future?

**Revaluing Buildings**

In 2005-2006, in fulfillment of its obligations under the NSW Heritage Act, Moore College repaired the roof and exterior of the building. This work carried the benefit of making the building far more presentable and attractive to tenants (Figure 6).

![Figure 6: The front façade of the Trocadero repaired and repainted, 2015 (Catherine Forbes, 2015)](image-url)
Fuel VFX, 2008-

In 2008, Fuel VFX, a leading Australian company in the creation of visual effects for major films (including Baz Luhrmann's *Australia, Thor* and *The Avengers*), saw potential in the building for its new state of the art computer animation studio. As the interior of the building was still in poor condition following years of factory use and neglect, the company negotiated a low rent in exchange for undertaking refurbishment of the main hall and essential internal repairs.

In preparation for the design for the new studio, Fuel actively engaged in researching the history of the building and its previous uses, including finding images that helped them understand that history better. In doing so, the company saw links between its own activities and past uses of the building, particularly the entertainment and cinema uses. Thus they saw their occupation of the building as a continuance of that history. This affected their approach to the building’s refurbishment. No attempt was made to reverse the changes to the façade and front portion of the building made by Propert’s and previous occupants. The former shop and entrance vestibule were retained to serve as the entrance to the new studio facilities, complete with tracks, steel frame, garage doors and painted signage (Figure 8). The images collected were used to inspire an interpretive artwork illustrating the history of the place, and to be installed on the wall of the entrance vestibule (Figure 7).

![Figure 7: Proposed interpretative artwork telling the story of the Trocadero to be mounted on the wall of the entrance foyer (Fuel VFX, 2009)](image-url)
Following the Burra Charter\(^2\) approach of doing as much as necessary to care for the place, … but change as little as possible (Australia ICOMOS, 2013, 1), a principle that is highly consistent with minimizing waste, much of the surviving original fabric of the building was stabilized and repaired rather than replaced. This included retention of the roof trusses and clerestory windows, the remains of the worn timber skating rink floor, the surviving remnants of the side balconies, timber window joinery and plaster detailing (Figures 10 and 11). Intrusive elements, such as a poorly constructed mezzanine floor introduced by the furniture warehouse, were removed. New elements were introduced using a loose fit approach that would allow their later disassembly and removal without causing permanent damage to the building. Although a new mezzanine and other elements were inserted into the space, the volume and quality of the space was retained (Figure 9). New elements included a sculptural central staircase to provide access to a new mezzanine, a theatrette, meeting rooms, kitchen, bathrooms, mechanical and fire services, fire stairs and lift for disabled access from the basement parking area. Although a fire order placed on the building in 1994 required blocking up the side boundary windows, the reduced light levels complemented the computer based work environment required for the business. Plaster detailing was not reconstructed due to budgetary constraints, but the image of high tech equipment set against the backdrop of a ruin suited the company’s own image (Figures 12 and 13).

\(^2\) The Australia ICOMOS Burra Charter 2013 is the key document used to guide the assessment, conservation and management of heritage places in Australia.
Figure 10 (left): The restored skating rink floor, with its corner turnings, was left exposed in the new kitchen at the northern end of the hall (Catherine Forbes, Design 5 Architects, 2010)

Figure 11 (right): Windows in northern wall were repaired to provide light and ventilation (Catherine Forbes, Design 5 Architects, 2010)

Figure 12: Plaster detailing was retained and stabilized on walls of workspaces (Catherine Forbes, Design 5 Architects, 2010)
Sustainability Values

But cultural heritage and economic values are not the only values relevant to the sustainable adaptation of existing buildings. Other values to be considered include those that are intrinsic to the fabric and design of the building itself.

The existing built fabric is a material resource that already exists in a useable form. Some materials may be irreplaceable (e.g., large dimensioned structural timbers found in warehouses). When a building is retained, it does not require the consumption of more, sometimes scarce, resources to produce its replacement. A building embodies the energy consumed in its original production and fabrication. When it is kept, energy is not spent on its demolition and construction of a new building. Thus fewer carbon emissions are produced. Joinery elements in traditional buildings are usually designed for disassembly and repair, requiring replacement of only worn or decayed parts, rather than wholesale replacement of entire assemblages. Materials were often selected and detailed for durability, ensuring a long life if appropriately maintained.

Before air conditioning became the norm, many buildings were designed for climate, incorporating passive systems such as shading, thermal mass and natural ventilation. The Trocadero was described as the best ventilated in the suburbs (Newtown Chronicle and Marrickville Weekly Review, 22 August 1903, p5). Although fossil fuels were consumed in heating, fuel consumption was minimized by only heating small spaces. Curtains, blinds and draft excluders were used to minimize heat loss, and roof ventilators, external awnings and verandahs were used to reduce heat gain. As electricity was not available, buildings such as the Trocadero were designed to maximize natural light.

Understanding the way a building was designed to work and the design features that it already incorporates can lead to the use of more strategic interventions to improve energy efficiency. Supplementary features can be provided to enhance or complement...
the existing systems and features, rather than ignore and replace them. Insulation may be added to floors, walls and ceilings, alternate heat sources may be considered, and external shading, window and door seals and secondary glazing may be added.

**Conclusion**

By studying the Trocadero, it is possible to see that existing buildings may be valued in many different ways and that the values held by the various owners, occupants and other stakeholders determine the ways in which buildings are treated. A building that is highly valued will be maintained and treated as a valuable resource to be used, loved and handed on to future generations. This results in the minimization or unmaking of waste. A building that is not valued will be treated poorly, and will be allowed to deteriorate and then be discarded, resulting in considerable waste—waste of the energy consumed in its production, waste in the material resource that it contains, waste of the knowledge, skills and technology encompassed in its design and construction, waste of its economic potential, and waste in the loss to the community of its cultural heritage values.

By being engaged in a process of discovery with the designer, owners and occupants can become more familiar with what they have and thus develop a better appreciation of a building’s values. This then leads to more sensitive adaptations and less waste.

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Catherine is an architect with extensive experience in building conservation and adaptive reuse, to which she applies both heritage and sustainability principles. Catherine taught Sustainability at TAFE NSW and is a member of Australia ICOMOS National Scientific Committee on Energy and Sustainability. Catherine prepared the Conservation Management Plan for the Trocadero and was architect for its conservation and adaptive reuse.