



## Considering Hybridisation of Form and Function in Overarching Movement and Designed Objects

**Stephen T.F. Poon**

Taylor's University, Malaysia

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**Abstract:** In this paper, a critical examination of architectural and design over the last century was conducted in the aim of recognising the dichotomies of modernist and postmodernist design approaches, and in understanding their intrinsic differences, to find the characteristics of form and functions which may produce ideal outcomes in the development of contemporary architectural and lifestyle goods. A review of literature traces the debate of 'form vs. function' that views craftsmanship and production technology differently. A critical inquiry is launched to understand the social and historical significance that have influenced the growth of aesthetic ideologies in post-war Europe. With reference to the classical rationalistic assumptions of architect Louis Sullivan and historian Joseph Rykwert, this research attempts to analyse the impact of 'form vs. function' through a series of case studies presenting the ideals of modern aesthetic appeals. To prove the endurance of both ideologies, examples of architectural approaches and machine-wrought home furnishing were studied. The endurance and legitimacy of modernism was demonstrated, from the principle that "form follows function" where architectural style is concerned, but that has "swallowed function" in the context of mass produced goods for lifestyle use. This evidence led to a discussion of the possibility of hybrid of form, function and cultural sensibilities. In the conclusion, an argument is framed for contemporary design to be shaped on a larger organic vision, in order to develop more fluid aesthetics for today's cultural spaces and objects. Although modernism and postmodernism approach craftsmanship and production differently, this paper argues for a hybridisation of the twin pillars of form (ornamentation) and function (utility or usefulness) as the ideal outcome of contemporary architecture and design practice; that neither technological rationalism, spatial dynamics, historical significance nor social function should predominate in legitimising today's cultural forms, but that all play complementary roles.

**Keywords:** form, function, modernist, postmodernist, architecture, design.

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## 1. INTRODUCTION

A discussion of modern art invariably falters at the intersection where modernists and postmodernists are required to justify one of the critical bases of artistic principles: Which comes first? Form or function? These notional disputes derive from the dichotomies between modernism's attempt to fashion cultural identities, places and artefacts given a set of universal, rational laws, instituted on a systematic, conceptual framework (Ley, 1989, cited in Morley and Robins, 1995: 116). Postmodernism, on the other hand, revisits, revives, reconstructs and reaffirms functional designs to bear historical, cultural and vernacular motifs, with a sense of local roots and communalism embedded in the synthesis of people, place and aesthetics (Morley and Robins: 116).

### 1.1 Familiar Rivals

Form is defined as the external embodiment, shape, structure or configuration of an object or composition of a substance. Function means performance and execution, structural requirements that compose the empirical relationship between how objects look and what it was created or designed to do. Form and function are siblings – intertwined and inseparable, whose differences are important as they mould the ideological frameworks of designers and architects who shape the world, adding modernity and simplicity into the layman's lifestyle starting in the 1920's, an era that coincided with European industrialisation and the mass-production of consumer goods due to the availability of revolutionary building materials and technologies (*The Architects*, 2011). The same dichotomies from the past century confront today's designers and architects, who pursue adaptations in order to discover their own interpretations to the "chicken and egg" conundrum, of form preceding function, or vice versa. What arises in this familiar rivalry is the reality that the construction and generation of design ideas must not preclude practical understanding of more efficient production techniques, functionality of simplified materials, needs alignment,

profitability, while seeking distinctive and economical solutions that harmonise with mass appeal.

## 2. LITERATURE REVIEW

Marcus Vitruvius Pollio (Vitruvius), publishing *De Architectura* in 1 B.C. first propounded the importance of *firmitas, utilitas, venustas*: structural sturdiness (firmness), usefulness (commodity) and beauty (delight) - the three qualities that bespoke the fundamentals of healthful and sound buildings (Smith, 2012; Stein and Spreckelmeyer, 1999: 311). Adolf Loos, in a manifesto, *Ornament and Crime* (1908) plainly urged his fellow modern architects to take the challenge of removing complexity from external structure of buildings, and to return to the fundamental laws of authentic space, where strength means avoidance of material, resource and capital wastage (p. 21). This designing ethos has been significantly debated over the last century since teacher-architect Walter Gropius founded the Bauhaus school of design in Weimar in 1919 to unite the arts and architecture with modern industrial technology (Denzer, n.d.). Institutional fame was cemented with famous artists like Lyonel Feininger, Paul Klee and Wassily Kandinsky rippling through the arts world with examples of design integrity. While painting and sculpture were taught, Bauhaus emphasised on the applied arts, and aesthetic concepts expressed themselves in modern architecture and artefacts that were meaningful, practical, unornamented and engineered for optimal functioning and maintenance. Looking to the modern world rather than the past for inspiration, the aim was to unfold industrial expertise based on social contact, technical skills, economic knowledge, spirituality and other 'equipment' (Snider, 1996, citing Barr, 1938).

## 2.1 Differing Ideologies

I am intrigued with American architect, Louis Sullivan (1896) who applied rationalist thinking and modernist aesthetic principles to designing buildings based on the term he created, '*form ever follows function*' (408). Abridged to 'form follows function', this maxim dominates design theory and practice within and beyond the confines of discussions about architectural spaces, perhaps because architecture is regarded the umbrella discipline uniting all other arts disciplines. At the turn of the 20<sup>th</sup>-century, the rush to hail the new design philosophy and contemporary construction materials were turning points for modernism, creating a theory so intelligent that it proved to be revolutionary. As architect William J. Martin notes (2012), Sullivan attributes lightness of construction to steel and iron (introduced in the late 1800's), while expressive beauty in buildings was ascribed to height.

## 2.2 'Form Follows Function' versus 'Form Swallows Function'

The simplicity behind Bauhaus constructivist ideology is framed by a strict discipline of study while avoiding "all rigidity" in its ability to withstand changes in creative and practical craftsmanship (Gropius, 1919). However, universalist concepts are arguably time-bound by a falsified sense of cohesion (Williams, cited in Morley and Robins, 1995: 40), and Europe, fraught and drained by wars, experimented with the utopian "unity of mediated space" ideal in industrial design and architecture, out of the immense state pressure to rationalise and "reimagine their spaces of identity" (Morley and Robins: 39) reveals modernists' too-narrow framing of aesthetics, where the essence and impact of fragmented societies and contemporary ideologies are rejected or treated separately. Bauhaus' typology of machine-inspired simplicity parses objects into its simplest form, such as basic geometrical shapes as a strategy for mass production in tandem with 19<sup>th</sup>-century European industrialisation. In architecture, ornamentation was frowned on by revolutionary architects who preached minimalist designs through using concrete

columns, cubist shapes, open-plan interior spaces, strip windows, flat roofs and airy functionality (*Architecture*, 2014; *The Architects*, n.d.). In addition to the rising age of consumerism, efficiency and speed mattered. Function became the primer which correlated to this philosophy, and 'form' began to race after the coveted 'function'.

Modernists adopted function carte blanche, on the assumption that design ideas sold on performance value rather than aesthetic appeals. Post-World War II, modernism was being explored as a cultural expression of "technological rationalism" (Rykwert, 1982). With traditional artistic representation abandoned, geometrical and unconventional materials were esteemed, and a shift of aesthetic details of the Renaissance to the idealism of functionalists proved the endurance of this design ideology. Simplicity equates modern, and this intelligence was not disadvantageous.

Joseph Rykwert, a leading scholar and critic of urban design and town planning started essaying in the late 1960s on the vulgarity of rationalistic obsession in attempts to reinvigorate the historical influences of architectural design processes (Royal Institute of British Architects, RIBA, 2013). He challenges architects and planners to build while acknowledging the "emotional power of their work" and providing "referential content in architecture" (Rykwert, 1982). By this, Eric Parry (RIBA, 2013) notes, Rykwert supplied empirical evidence to support his fundamental belief that Western cultures were changing their attitudes towards the Classical orders, with the design of buildings marking a conscious learning about history, science, socio-political development and Oriental influences. As modernist ethos and principles were expressed through architecture, practitioners began centring their debates on the semiotics of the "signifier" and "signified" (In architecture, for instance, asking: *What does this building stand for?*). Rykwert felt it was necessary to redefine function from a sense of its anthropological, biological and social usefulness:

*“Ornament, not the plan ... or the interior ... determined the style of a building. Style was not only about surfaces, it was often also a semiotic device. Until the 19<sup>th</sup>-century you ‘read’ the building as a type - a town hall, a church - by the way the masses were organised ... [then ornaments were] selected. This relationship was replaced by the idea that a building might declare itself to its users by historical, even narrative reference ...”*  
(Rykwert, 2000)

In spite of Rykwert’s radical position in the *First Moderns* (1980), the reactive forces of postmodernism thundered louder and more histrionically during the 1980’s. Cries of ‘lack of authenticity’ among critics against the “systematic appropriation in architecture” were symbolically represented by theme parks built for the masses who could neither understand art’s relation to the human condition, nor appreciate the philosophical intelligence of architecture (*What’s It Worth*, 2012). To construct a feedback loop to the Bauhaus aphorism, postmodernists took an antithetical stance to it by deconstructing modernists’ theories. Hence, ‘form swallows function’ impressed in its ability to project legitimacy without compromising architectural sensibility. With an approach based on intuition, postmodernists created a new paradigm towards perceiving form and function, and aimed at generating design ideas based on the inherent importance of form, as this differentiation of appearance reverted to a critical social awareness of the past.

### **2.3 Semiotics: A Need for Meaning in Living – Past, Present and Future**

Modern societies acquired different necessities as time passes. Our skylines, arts, monuments, spaces and the lifestyles we contrive are transformed, marked by technological progress, educational development and changing values, be it in architecture, adoption of new informational technologies or human advancement and endeavours (Kumar, 1995). Where once architects could poetically label gothic

buildings as “that ecclesiastical romance in stone” (Hardy, 1895), critics of late-Victorian industrialists believe their passions were later corrupted – greed, self-glorification, power - and did not always reflect or consider parochialism as inspiration for innovation in buildings concepts. For example, if the function of a building is to be a church in the 19th-century, as time progresses, its function may evolve due to social factors, but its form cannot mutate alongside newer functions. Hence, arts and architecture, by the pragmatics’ cynical definition, are mere trappings, serving practical purposes at a particular epoch in time. Usage is without doubt a valuable criterion in measuring architectural attainment, but function does not always define form. Instead, form need to embody multiple functions and to comprise fully serviceable spaces.

Constructing a building based on its function is a cliché, argue structuralists (Diaz, 2008): education and language provides larger discourses for the development of human thinking, and modern societies increasingly adopt *semiotics* in cultural sense-making – where meanings of objects are signified, connoted, mediated and interpreted based on social experiences shared by members of the culture that produces them (Walker, 1986).

Walker suggests form implies moving the *tectonic* code (connotative signs or purposeful verbal ideologies) in front of the *graphic* code, which denotes aesthetic beauty (Walker, 1986: 173). Doors, walls, pathways and enclosures are rejected as meaningful in the semiotics relationship of form to function. Instead, architecture must strive with a visual earnestness to portray human creativity, as Diaz (2008), citing Norberg-Schulz (1966: 170) notes, where a dome points to the concept of dignity, the associative values of the tectonic code will be found. Structuralists hold that postmodern architecture must be receptive of change, inconstancy and ambiguity, and through semiotics discourse, it shifts to accommodate spatial structure in its visual eclecticism and versatility (Diaz, 2008).

Peter Eisenman is an architect, theorist and avant-garde critic whose houses were “generated” from the transformation of forms’ emphasis on process determines form (Figure 1). He constructed a series of residential designs beginning in 1967 known as ‘Cardboard Architecture’. The complexity in his work was due to his interest in language and semiotics (*Canadian Centre for Architecture, n.d.*)



**Figure 1:** Falk House exemplifies design regardless of architect or inhabitant

## 2.4 Nature Got It Right

Nature unwittingly and sumptuously displays the forms meant by Louis Sullivan (1896). Found in the essence of objects designed for our pleasure and consumption, forms serves our needs. This gift for form in detail (Sullivan, 1896:7) is a process of metamorphosis that complements nature’s organic environment. Yet, in mechanical environments, forms are almost impossible to mutate. This is the reason designers attempt to imitate nature by inventing forms with long term versatility and



sustainability. Machines, assigned with artificial and practical functions, enhance the functionality of forms, whereas nature's mutation can produce unexpected functions. With the emergence of new forms, classical functions are dissolved and reconfigured. Technology makes it possible to improve spatial relations that recognises our social inequalities, and to overcome the traditional 'dominance and dependence' of particular communities, societies or organisations (Massey, 1984: 8, cited in Morley and Robins, 1995).

## 2.5 Beauty in the Beast

The reductionist approach failed to satisfy human's craving for beauty. Machines, proverbially beautiful in the eye of the beholder, are in fact, works of art. Industrialisation was a starting point in the birth of mega machines. Notwithstanding the worker's hesitation to operate gleaming, hostile-looking structures in production factories - with their configurations of shafts, bolts and knobs - machines that look like monsters, seen at different angles, prove otherwise. Their intrinsic value lay in their purpose: to perform human tasks efficiently. Despite this cold rationale, the precision, elegance, calculation and physics behind machinery structure was unalterably aesthetic, requiring an "honest appreciation of built form" and "a unity of form and finish" (Holgate, cited in Brummett, 1999: 15). Metaphorically, some choose to view machines as canons, having the elegance of mathematical equations, snugly fitting into a scheme in which we can contrive mechanical beauty as situated where the processes of production are maintained at optimally efficient states (Mumford, cited in Brummett, 1999: 15). Prof Barry Brummett of University of Texas at Austin iterates:

*"Machines [like any transcendent symbol] and their related aesthetic experiences and signs, influence meanings, attitudes, values, politics and the distribution of power."* (Brummett, 1999)

### 3. RESEARCH METHODOLOGY

The methodology of research chosen for analysis is a series of case studies to explore the hybrid forms and structures that have proved the endurance of both ideologies qualitatively. Some element of “referential content” (Rykwert, 1982) can be seen when politics, history, science and social influences are fused with postmodernist design sensibilities, ranging from stripped-down home furnishings and the classic tubular steel armchairs, to buildings that show the integrative possibilities of fluid aesthetics and rigorous functionality. This evidence support the author’s suggestion for a hybridisation of form, usefulness, semiotics and a larger organic vision, where equilateral solutions for architecture and mass produced creative design artefacts which integrate form and function could be idealised.

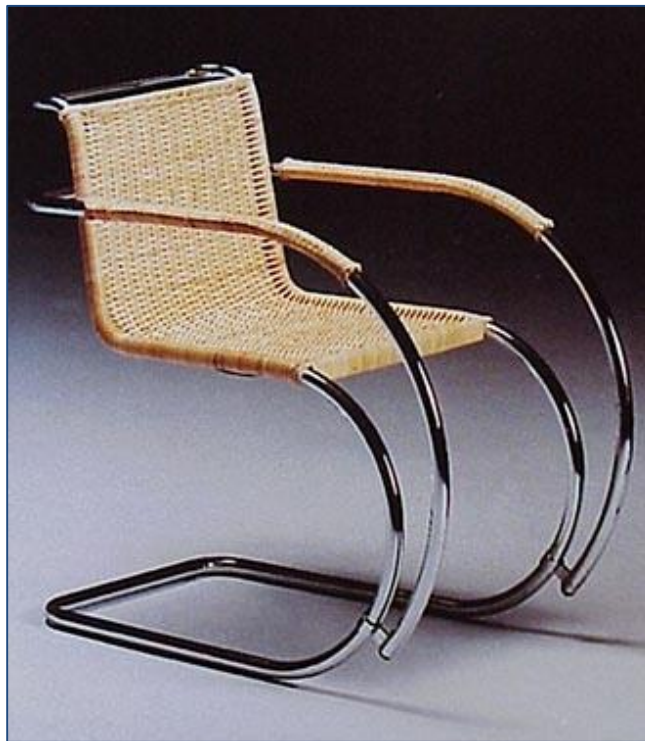
Some research questions are put forward here: *‘Form follows function’ (Modernism); ‘Form swallows function’ (Postmodernism)*. Which of these statements corresponds to the view of current practice? Which statement best restates the main idea of both ideologies? Discuss, offering evidence for arguments, finding answers to these would help provide a deeper understanding of the roles of form and functions in overarching movement and designed objects.

### 4. RESEARCH FINDINGS AND DISCUSSION

*Less Is More*, Can ‘form follows function’ apply in any situation? Designs cannot be defended with this maxim unless it has only one function. A product may have a series of functions, but what form can contain all these functions? Whittled down and settling on one function is possible, but numerous forms are equally able to handle the same task. One designer challenged this notion and proved the veracity of the populist headline, ‘Less is More’ (Time Magazine, 1954). Mies Van der Rohe developed an

International Style based on contemplative, neutral spaces, using conceptual techniques described as ‘skin and bone’ minimalist design philosophy and his belief in “material honesty and structural integrity” (Schulze and Windhorst, 2012). As relevant to the industrial age as Gothic cathedrals were to ecclesiasticism (*Mies Society*, n.d.), Rohe declared,

*“The old way was to look at architecture as a display of forms. [Today, we] concentrate on the simple, basic structure, and we believe the structural way gives more freedom and variety [...]. We are not trying to please people [but] driving to the essence of things.”*  
(Time Magazine, 1954)



**Figure 2:** The Cantilever Armchair, 1927

One conspicuously understated work accredited to Mies is the *Cantilever Armchair* (Figure 2). Mies’ legacy of elegance in restraint expresses the essence of beauty in the

form and structure. Amidst cluttered visual spaces, the tubular-shaped steel-and-cane chair still upholds the key function it is meant for – sitting.

#### 4.1 IKEA – A Living Example of Contemporary Modernism

As the machine culture stripped away aesthetics, Bauhaus' legacy invaded industrial design, none as obvious as the factory-manufactured IKEA retail furniture range. The Bauhaus concept is central in its design goals, which is to present functional solutions while adding consumer value (Greenwood, 2010). A Bauhaus axiom, 'truth to materials' is reflected in its presentation of affordable and sleek stylishness. Decorative back panels on a bookcase is deemed redundant if a less expensive alternative does a fine job - as long as the bookshelf is used for the purpose it was intended for (IKEA, n.d.). The quality of finish may be concealed, however, in the use of unrefined materials, masked under polymers, to tweak the physical outcome of the product (Figure 3).

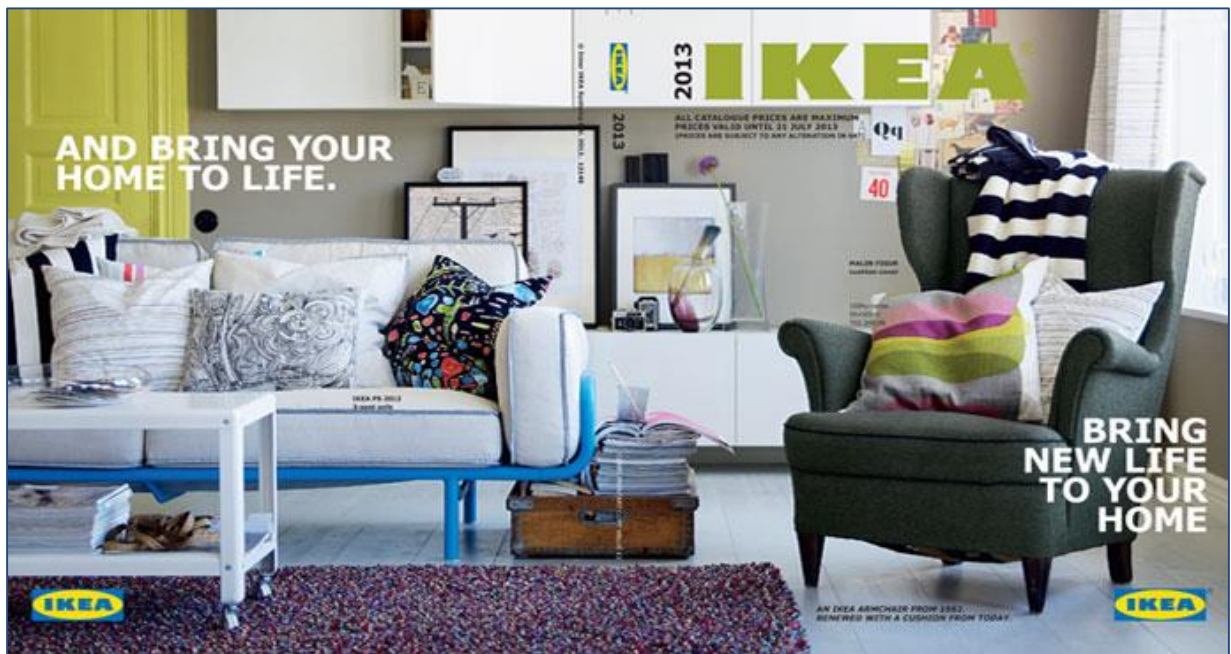


Figure 3: IKEA portrays simplicity and functionality in contemporary environments

## 4.2 Could Form and Function Follow Vision?

Architectural historian and educator Peter Collins notes the role of ideals in modernism's heart:

*"The form is mechanic, when on any given material we impress a pre-determined form, as when to a mass of wet clay we give whatever shape we wish to retain when hardened. The organic form, on the other hand, is innate, it shapes as it develops itself from within, and the fullness of its development is one and the same with the perfection of its outward form."*

(Collins, 1998)

Returning to Louis Sullivan's (1896) modernist dictum, if native instincts and natural law dictates artistic representation as '*form ever follows function*', what then characterises form? We question the relevance of rigorous approaches to functionality, which loses footing when other ideas of form and function emerge. Perhaps form and function should coalesce and allow *vision* as the new function which guides form; in return, form requires a bind with function to become usable.

Sullivan expressed this relationship by conceiving the luminous Chicago Auditorium Theatre (Figure 4), a 4,200-seat orchestral and operatic hall that served as a 19<sup>th</sup>-century cultural institution. Built on marshland in 1889, Sullivan and engineer Dankmar Adler envisioned the concept for what was then, at 270 feet, "the tallest building in Chicago" (Henning, 2013). Unconventionality coursed through its inspiration (Romanesque), shape (speaking trumpet), deco (ivory paint, with three-karat gold leaf overlay), finishing (mosaic marble floor tiles). Spatially, it boasted stunning sound acoustics and showcased incandescent, 3,500-arched light bulbs avoiding heavy central chandeliers hanging over the balcony and gallery seats, thus improving audience's viewing and

aural enjoyment (Henning, 2013). The result – a grandeur that spoke elegantly yet intimately – became a flourishing space for the Chicago Symphony Orchestra and Opera Company during their heydays in 1890's to early 1900's. Clearly, in architecture, this is how 'vision' should be defined. Form and function is manipulated and consummated within a certain range to fit the criteria of the vision, producing architectural facades that sustain distinct characteristics beyond stifling formalities.

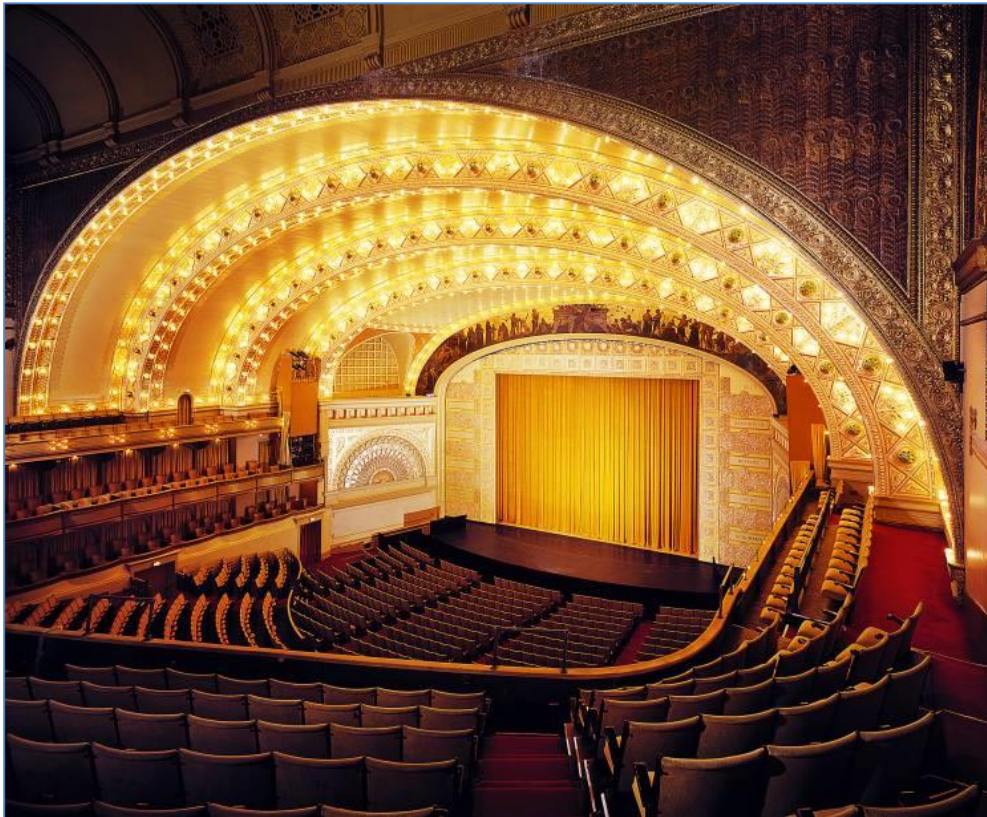


Figure 4: Chicago Auditorium Theatre, Louis Sullivan's architectural coup

### 4.3 Form + Function, a Hybridisation

The cooperation of form and function produces brilliant results. The hybrid of form and function allows designers to manipulate these two siblings fluidly, fully and masterfully. The *Pentimento House* is an example of hybridisation in architectural collaboration (Figure 5). Stacked prefabricated concrete allows for in-between spaces,

ventilating the surroundings freely while still maintaining a feeling of separation between indoors and outdoors. Spaces are functional in another way – wood slats can be inserted in the narrow openings to create tables, benches, or stair treads that integrate flawlessly into the design of the home (Chen, 2009). Thus, by deconstructing modernist ideas, postmodernists are reconstructing them to embody “historical allusion, whimsy, structural variety and ambiguities” (*Architecture*, 2012), bringing certain basics of visual appeal and mainstream culture into design today.



Figure 5: Pentimento House is a great example of the integration of form and function

## 5. CONCLUSION

Much scholarly reflection has occurred over the last three decades of post-Fordism about the ‘architecture of socialisation’ (Billaudot and Gauron, 1985: 22, cited in Morley and Robins, 1995: 28) where issues revolve around systems of productivity, capital accumulation and global market competition. As ‘form vs. function’ is still being

deliberated, design and architectural arts produces few ultimate verdicts, and this no-win situation is evident, as both contribute equally. The perpetual clash of aphorisms could be reconstructed by analysing the more critical portion of Louis Sullivan's ethos when he proclaimed:

*"All things in nature have a shape, [...] a form, an outward semblance, that tells us what they are, [distinguishing] them from us and from each other. Unfailingly in nature these shapes express the inner life [...] they are so characteristic, so recognisable, that we say ... it is 'natural' it should be so. [...] It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, [...] of all true manifestations of the head, of the heart, of the soul, that life is recognizable in its expression, that form ever follows function. This is the law. Shall we ... violate this law in art? Are we [...] so imbecile, so utterly weak of eyesight, that we cannot perceive this truth so simple, so very simple?" (Sullivan, 1896)*

### **5.1 Ending the Dispute: An Equilibrium**

'Form follows function' as understood today, is a literal meaning of a form following a function (design is shaped by its purpose or usefulness); form, in short, is relegated to secondary. With the various schools of thoughts as documented by architectural design research and real-life modernist approaches today, this paper has afforded us the opportunity to also conjecture that the authentic 'shape' expression of our inner life indicates the means whereby form enhances functionality. It is preposterous to allude to the purity of aesthetics by letting the function determine the form; rather, function is determinant upon its embodiment, that is, its form.

Industry altercates over 'form follows function' or 'form swallows function', and the dispute never ceases to enlighten and bring architects, artisans and designers of many



contrarian disciplines together. Arguably, the applied study of function exert greater influence in engineering, architecture and industrial design, while the study of form is about shape, resemblance, and that which differentiates (Sullivan, 1896: 407). This seems fitting as form applies in greater measure to branches of the arts and humanities characteristic of aesthetic approaches, i.e. painting, sculpting and design, whereas functional processes are critical considerations for the construction of buildings and industrial products. In the latter, the inspiration of socio-political, historical and regional development and a crucial understanding of semiotics can reveal nature in its depth, clarity, mystery and wonder.

Finally, this paper acknowledges the equilibrium in the nature of form and function, and calls for hybridisation approaches and collaborative relationships to be channelled into rethinking the beauty of architectural design and in the mass production of lifestyle designs and artefacts of the new era. Unresolved though the original conundrum is, the towering truth is that good design does not ignore function, but redefines it proportionately to form, categorisation of products, social usefulness, and is vision-led throughout the designing process to fit the needs of its users.

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