2014

Reconsidering Firmitas: Durability as an Integral Function of the Sustainably Built Environment

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RECONSIDERING FIRMITAS:

DURABILITY AS AN INTEGRAL FUNCTION OF THE SUSTAINABLY BUILT ENVIRONMENT

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THESIS COMPLETED IN PARTIAL FULFILLMENT OF A BACHELOR OF ARTS IN ENVIRONMENTAL ANALYSIS AT POMONA COLLEGE
FALL 2013

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ACKNOWLEDGEMENTS

My sincerest gratitude goes to Professors George Gorse and Lance Neckar for their continued support and guidance. I could not have written this thesis without the immense amount of knowledge, experience, and encouragement they contributed to this process.

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INTRODUCTION

Architecture is an inherently functional art – buildings have functions, some more vital than others, beyond the objective of sheer aesthetic appeal. Yet at the same time, aesthetic appeal is an integral part of the human experience, and many agree that it is vital to sustainability objectives, including those of the built environment. Ideally, a building would be able to embody and honor both principles, both form and function, but some contend that in the current architectural climate, the emphasis on beauty has surpassed the importance placed on functionality. This discussion is particularly relevant to sustainability in the built environment: sustainability as a function, some argue, is often compromised or sacrificed for the sake of the vision of the architect, and faddish concepts of beauty. This, many contend, results in the commodification of our buildings, and quite possibly of sustainability as well. In our consumer society, it is always "out with the old and in with the new," and this concept is entirely antithetical to one of the most important concepts in environmentalism – the need to reduce, reuse, and recycle.

Thus, we must ask ourselves – what if we were to view architecture as a resource and not just another disposable good? How could our priorities be reorganized to accommodate both form and function in architecture? I would argue that a functionalism redefined to emphasize durability, and the elements that contribute to it, could be the solution.

PART 1

1.1 FUNCTIONALISM IN ARCHITECTURAL DISCOURSE

Perhaps the most obvious utilitarian functions of a building are to provide shelter and comfort to the inhabitant[1], yet the built environment by necessity serves a vast number of functions beyond material utility. Architecture has served social, political, moral, religious, economic, and myriad other purposes throughout the centuries, and while at face value the various purposes of a building might seem obvious, they often mean different things to different people, and can change throughout a building's lifetime. A museum's practical purpose of storing and displaying works of art, for instance, might seem beyond question, yet the extent to which certain museums serve this purpose, and whether the artistic endeavors of the architect compromise said purpose, are two subjects of hot debate, particularly in recent years.[2] Where must an architect's priorities lie in terms of the ease of navigability of a building, for example, versus the visual, economic, and cultural impact a more complex design might serve in the city in which said building is placed?

While a building's specific functions, primary and otherwise, are difficult to pin down definitively, all seem to nestle within a flexible interpretation of the Roman architect Vitruvius's three broad categories of *firmitas, utilitas,* and

[1] Lang and Moleski 111

[2] Frank Gehry's Guggenheim in Bilbao, for instance, is sometimes admonished for being more a work of art itself than accommodating the function of exhibiting art in its interior ("On Aesthetics" 1). The museum's varied functions in its community are also much discussed – it is a place of community gathering, a town square (Parsons 22), and as art historian Carol Duncan argues, a site of secular worship (Duncan 478). Just as the gothic cathedral served as the literal and figurative implement for religious edification in the 12th and 13th centuries (Hill 30), the museum is designed to psychologically facilitate the experience of absorbing art, to inspire awe and admiration on a level similar to the religious worship of God.

venustas, meaning firmness, commodity[3], and delight, established in his *De Architectura* (approx. 25BC).[4] Beauty, for instance, is in many ways a social and cultural function of a building, as it is both determined by and has an effect on cultural values. Shelter, on the other hand, would fall under commodity, as it provides a physical benefit to the user. While Vitruvius did not posit a functionalist aesthetic, his insistence on a strongly pragmatic foundation for the practice of architecture set a precedent for later theories relating to functionalism.[5]

The term "functionalism" has taken on a number of interpretations, but it remains at its core the concept that a building's form must be congruent with its function or purpose. The primary constraint that a functionalist doctrine imposes is that ornamentation must justify its presence through some concrete or pragmatic function. A building's form must communicate its structure, signify or describe its function, or serve some pragmatic purpose.[6] The architect credited with coining this idea of a building expressing its purpose is Louis Sullivan's dictum "Form Follows Function", from his famous 1896 article "The Tall Office Building Artistically Considered."[7] Sullivan wrote in his manifesto that "when native instinct and sensibility shall govern the exercise of our beloved art; when the known law, the respected law, shall be that form ever follows function; then it may be proclaimed that we are on the high-road to a natural and satisfying art, an architecture that will soon become a fine art in the true, best sense of the word, an art that will live

[3] "Commodity" in this context means that a building must fulfill its purpose, from the word's earliest meaning as being something that provides convenience or benefit.
[4] Bell and Stathaki 6
[5] De Zurko 28
[6] Ibid. 4
[7] Leslie 83

because it will be of the people, for the people, and by the people."[8] Sullivan's aim was to overcome the prevalence of a form-driven approach to architectural design, which he saw as being superficial, as exemplified in the multi-century reign of Classicism. However, though many architects took his dictum to mean that a structure should efficiently accommodate certain activities, and that their structural and construction methods should be efficient,[9] Sullivan actually saw ornament as essential to architecture[10], an idea that will be of exceeding importance in the following section.

In analyzing the roots of functionalism, it is vital to recognize the dominance of Classical architecture, the very exemplification of the form-driven approach that Sullivan criticized. While establishing his firmness, commodity, and delight, setting in motion their continued thematic separation (and interconnectedness) throughout architectural discourse and up to today, Vitruvius also described the tenets of Classical building, an architectural style that has been equated with beauty intermittently for over a thousand collective years since its birth in Greco-Roman antiquity. Classicism, characterized by the quintessential temple front, recurrent ratios, embellished columns, and symmetrical façade, was imitated and further developed by the Romans, and after a thousand years, rediscovered by the educated classes of Renaissance Italy. From there, it spread north and west, and while it adopted local nuances in different settings, a basic stylistic unity remained at its core, indicating a somewhat universal certainty about what defined an

[8] Parsons and Carlson 43
[9] Lang and Moleski 3-4
[10] De Zurko 4

aesthetically pleasing construction.[11] The cities that grew with this construction in turn achieved regularity of style. In contrast to current thinking, architects felt no impulse to be highly original, contributing to the proliferation and consistency of the Classical built environment.[12]

During the second half of the 18th and most of the 19th century, architecture went through a series of revivals, "a partial liberation from that classical urge for universal canons of beauty."[13] As preeminent architectural historian Spiro Kostof indicates in his *History of Architecture*, "The attraction of alien traditions was inevitable after the world was opened up through the voyages and colonization of the sixteenth and seventeenth centuries." This raised doubts about the validity of "the old arguments of universality," and non-European architectural styles were increasingly explored.[14] The Egyptian style, for example, became especially popular in the US, and with the absorption of colonies by European empires, the cataloguing of global styles led to the publishing of non-European building styles.[15] As a result, many architects became learned about a number of design types: "Versatility, a sign of superior learning and talent, was nothing to be shy about."[16] The primary challenge of all this experimenting with foreign and historical styles was to question the legitimacy of classical design principles. While "Universal acceptance of certain general rules had ensured a truly astonishing unity of architectural thinking during three centuries," in the middle of the eighteenth century, "this

[11] De Botton 28
[12] Ibid. 32
[13] Kostof 553
[14] Ibid. 554
[15] Ibid. 572
[16] Ibid 573

confident sway of classicism no longer went unquestioned. It seemed that the Classical tradition should be considered at best the most worthy of a number of permissible sources for contemporary architecture."[17]

By the early nineteenth century, as writer and philosopher Alain de Botton establishes, "in most Western countries, anyone contemplating putting up a house was faced with an unprecedented array of choices regarding its appearance." Architects touted their range of stylistic abilities in home design, from Indian to Islamic to Egyptian styles. Pattern books like John Loudon's *The Encyclopaedia of Cottage, Farm and Villa Architecture* (1833) were published, allowing self-builders to construct homes from any part of the globe, and quickly eradicating regional architectural styles.[18] As distinct styles became increasingly disseminated, a certain stylistic anarchy ensued. The first and oft-cited example of this chaos is Castle Ward in Northern Ireland, whose front and rear elevations feature a Classical and Gothic style, respectively, in order to resolve the distinct stylistic preferences of the husband and wife commissioning the building (see figs. 1 and 2).[19]

[17] Ibid. 558
[18] De Botton 39
[19] Ibid. 45

Figs. 1 and 2: Castle Ward front (top) and rear (bottom) elevations, displaying the respective Classical and Gothic designs; Credit: ARTstor.

This building in particular is indicative not only of stylistic chaos, but also the contention between the Classical and Gothic styles, which were by and large still the two primary schools of architectural thought in the first half of the 1800s. The Classical style remained dominant in the European scene during the first three decades of the 19th century, while "the latter mounted its challenge during the next

two."[20] One of the chief examples of the early portion of the Gothic Revival, prior to the nineteenth century, is Sir Horace Walpole's Strawberry Hill in Twickenham, near London (1750-92) (see fig. 3).[21]

Fig. 3: Sir Horace Walpole's Strawberry Hill (1750-1792); Credit: ARTstor.

The Gothic Revival merits mention in discussions of functionalism because, particularly beginning the 19th century, we can see in its proponents' beliefs the emerging foundations of later functionalist approaches. The Gothic Revival weakened the dominance of the classical school, and "kept alive a sense of craftsmanship at a time when mass production was beginning to alter the age-old habits of the building industry."[22] Augustus Welby Northmore Pugin (1812-1852) was a major figure in this movement, as well as fitness for function in architecture. In his *Origins of Functionalist Theory,* scholar Edward Robert De Zurko discusses how for Pugin, "'the great test of architectural beauty' was the fitness of the design

[20] Kostof 573
[21] De Botton 36
[22] Kostof 593-4

for the purpose intended," and one of the central rules of architectural design was "that there should be no features about a building which are not necessary for convenience, construction, or propriety."[23] He also held the opinion that a building's form should follow its function, proclaiming that "the style of a building should so correspond with use that the spectator may at once perceive the purpose for which it was erected."[24] He contended that the architecture of his time was "entirely ruled by whim and caprice, and that "the vanity of architects was responsible for the unfortunate state of architecture." In his view, the experimentation with global styles was evidence that "Private judgment runs riot," and referred to the eclecticism of style as "the carnival of architecture".[25]

Similarly to Pugin, John Ruskin (1819-1900), another prominent figure of the Gothic Revival and "perhaps the most influential critic of the century in the English-speaking world,"[26] according to Kostof, advocated the idea that form should follow function, but he also expanded the definition of function to encompass religious, moral, and ethical features.[27] He was a proponent of the idea of architecture making people happy, but in making the occupant happy, the ornaments had to be an expression of man's delight in the work of God.[28] He also viewed machine-made ornament as being deceitful and degrading to the laborer.[29] De Zurko points out that while "Ruskin was by no means a functionalist in the modern sense of the word," as he did not write of machine beauty, nor did he make an analogy between beauty in

[23] De Zurko 129
[24] Ibid. 127
[25] Ibid. 130
[26] Kostof 635
[27] De Zurko 131
[28] Ibid. 133
[29] Ibid. 135

the mechanical and architectural, yet his insistence on a new architecture that would be "moral, especially truthful, and minister to the health, practical needs, and moral happiness of the great masses of people, was an inspiration for later functionalists."[30]

The Gothic Revival thus provided serious fodder for the Modern Movement. While on the one hand, the Gothic Revival was a nostalgic ideology, it also signaled a break from the norm – breaking tradition with its resistance to Classical architecture. More importantly, the Modernists would come to embody the idea of form following function, expressed by Pugin and later coined by Sullivan, to the absolute, and would also take on the moral ideals expressed by Ruskin in his thoughts on the social function of architecture. The primary contrast between these two periods, however, was the use and view of the machine. While the Gothic Revival "revived" a traditional, historical style, Modern architecture was both antihistoricist and antimonumental.[31] Rather than discuss beauty, the engineers of the Industrial Revolution used concrete, glass, iron, and steel to construct bridges and railway stations with light, efficient, low-cost designs, and the Modernists took

[30] Ibid. 139; Ruskin's idea of the immorality of machine-made goods was also espoused in the Arts and Crafts movement, spearheaded by William Morris (1834-1896), Ruskin's disciple. This movement called for the return to craftsmanship in architecture, and rejected machine-made materials (Kostof 639). Similar to the Arts and Crafts approach, the Free Style in England would also value honesty in materials and design, as well as what English architect C. F. A. Voysey (1857-1941) called "fitness for purpose", a clearly functionalist approach that would later have an influence on the prominent American architect Frank Lloyd Wright (1867-1959) (Kostof 682). Wright would later share the Arts and Crafts philosophy of the Free Style, but without the rejection of machine manufacture (Kostof 683). The moral element has a strong presence in his writings, throughout which he used the expressions "'integrity,' 'honesty,' and 'truth to self'" (De Zurko 14).
[31] Kostof 702

inspiration from these concepts of structural innovation and efficiency, signaling a sharp stylistic turn that would completely revolutionize the field.[32]

Throughout the nineteen-twenties and thirties, a functionalism based on the practicality of the machine served as the base for and developed into the Early Modernist movement, called the "International Style".[33] The early Modernist architects promoted sheer functionalism, a style that championed modern technology, industrialization, and the universalization of building forms.[34] This style of architecture rejected ornamentation in favor of an "honest" or "true" style.[35] While the Western world was modernizing in industry and lifestyle, the early Modernists mirrored this transition in their desire to produce an architecture congruent with their image of what modern life should be. Among the most influential Early Modernist architects were those of the Bauhaus, Walter Gropius (1883-1969) and Ludwig Mies van der Rohe (1886-1969) in particular, and those associated with the French architect Le Corbusier (1887-1965).[36] Walter Gropius, founder of the German Bauhaus (1919-33), felt that a building's structure should accommodate the most efficient manner of carrying out tasks and activities.[37] The Bauhaus school resisted academic training in the arts. Instead, students were trained both as designers and craftsmen. Use, rather than cultural content or

[32] De Botton 47
[33] Parsons and Carlson 44
[34] Lang and Moleski 4
[35] Parsons and Carlson 44
[36] Lang and Moleski 4
[37] Ibid 4-5

significance, was their guide, and design forms were "derived from what the program and the industrial methods of production dictated."[38]

Another enthusiastic proponent of the industrially inspired functionalist aesthetic, Le Corbusier would proclaim in his famous manifesto, "Towards a New Architecture" (1923):

> "Our engineers are healthy and virile, active and useful, balanced and happy in their work," while "our architects are disillusioned and unemployed, boastful or peevish. This is because there will soon be nothing more for them to do. We no longer have the money to erect historical souvenirs. At the same time, everyone needs to wash! Our engineers provide for these things and so they will be our builders."

He advocated that the houses of the future be "ascetic and clean, disciplined and frugal." [39] A house's function was to provide: "1. A shelter against heat, cold, rain, thieves and the inquisitive. 2. A receptacle for light and sun. 3. A certain number of cells appropriated to cooking, work, and personal life." Anything beyond these requirements was "romantic cobwebs".[40] In the mind of Le Corbusier, these essentials were not only necessary for each inhabitant, they were also universal for all humans: "All men have the same organism, the same functions. All men have the same needs. The social contract which has evolved through the ages fixes

[38] Kostof 702
[39] De Botton 55
[40] Ibid 57

standardized classes, functions, and needs producing standardized products… I propose a single building for all nations and all climates."[41]

Le Corbusier's designs between WWI and WWII, in his rejection of decorative facades, emphasized minimalism, reducing "building forms to the basic geometric shapes of rectilinear, plane surfaces, cubes, and sometimes, cylinders. His architecture frequently featured glass walls, flat roofs, and windows arranged in strips.[42] The most famous example of Le Corbusier's architectural ideals is his 1931 Villa Savoye in France (see fig. 4), whose "technical and astringent" aesthetic causes it to look "like a piece of finely tooled precision machinery, some industrial object of unknown purpose, with flawless white surfaces." It appears as though "the house may be no more than a temporary visitor and that its roof-top equipment could at any point receive a signal that would lead it to fire its concealed engines and rise slowly over the surrounding trees and historically styled villas on the beginning of a long journey home to a remote galaxy."[43] Ironically, for all its ideological moorings in technicality, the structure turned out to be uninhabitable. The flat roof, upon which Le Corbusier had insisted despite protests from the Savoyes, leaked horribly and gave the family rheumatism. It was thanks only to the start of WWII and the Savoye family's subsequent flight from Paris that Le Corbusier was not coerced into litigation.[44]

[41] Lang and Moleski 34
[42] Ibid. 5
[43] De Botton 58
[44] Ibid. 66

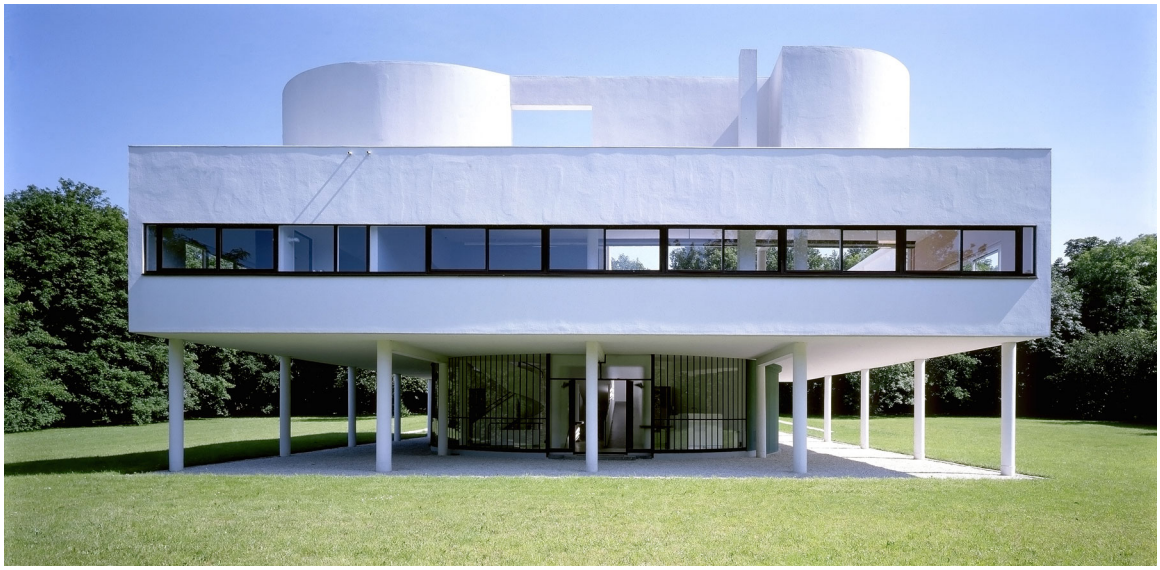

Fig. 4: Villa Savoye (1928-1931), Le Corbusier; Credit: Poissy.

Le Corbusier would later be a prominent figure in New Brutalism, a functionalist movement "concerned with the value of the quotidian and with its role in anchoring architecture to human needs and sensibilities." In fact, Le Corbusier had written in 1923 that "The business of Architecture is to establish emotional relationships by means of brutal materials,"[45] and thus we can see the incipience of this style in his thinking from the beginning of his influence in architecture. In *Architecture: from Prehistory to Postmodernity,* architectural historians Marvin Trachtenberg and Isabelle Human explain that "the wide acceptance of the International Style had raised the threshold of what was considered 'brutal'." In light of the economic consequences of WWII, between the years of 1933 and 1945 Le Corbusier had built almost nothing, and thus we see a stark contrast between his pre- and post-war works of around 1950, in which "he displayed his new

[45] De Zurko 7

antitechnological, antirationalist ideas in a reassertion of primal feelings, sensual shapes, and raw textures."[46]

The term "Brutalist" was coined by a group of progressive British architects led by Alison and Peter Smithson in the 1950s, after Le Corbusier's initial works, and is characterized by "rough-sided, asymmetrical buildings, with… bunker-like facades and austere, heavy-handed detailing," New Brutalism quickly gained a negative association, however, its first exponents "believed they were stripping back the Modernist aesthetic to reveal honesty and integrity, rather than purity and simplicity," much like the first functionalist architects had rejected ornate facades in favor of honesty. In its use as a stylistic basis for social service projects in Britain, such as large-scale housing and art projects, the movement became intimately tied to ethics.[47] The "inevitable anti-aesthetic" of New Brutalist architecture was in direct opposition to the Modernists' "carefully staged and structured vignettes"[48]. Thus, the form of architecture had shifted from following the mechanical function to expressing its function as "a Brutalist revindication of the human spirit in a brutal new world."[49]

As Modernist architecture progressed, building facades became livelier as the patterns of built form increasingly became considered an important manner of artistic expression, and the definition of function expanded to include the expression of ideas via symbolism in the built form.[50] Robert Venturi and Denise

[46] Trachtenberg and Hyman 514
[47] Bell and Stathaki 9
[48] Ibid 10
[49] Trachtenberg and Hyman 514
[50] Lang and Moleski 5

Scott Brown "playfully appropriated Modernist teaching, adding plurality and experience, setting the first stones of the Post-Modern era in place." Venturi's *Complexity and Contradiction in Architecture* (1966) explicitly references the "richness and ambiguity of modern experience, including that experience which is inherent in art."[51] He argues "for richness in meaning rather than clarity of meaning; for the implicit function as well as the explicit function."[52] Venturi contends that we should not ignore historical precedent in architecture and start fresh, as the architects of the International Style had. In fact, he argues, by choosing simplicity, an architect is able to select which problems he wants to solve. Mies van der Rohe's "less is more" is an example of this contradiction. "Mies exquisite pavilions have had valuable implications for architecture," Venturi writes, "but their selectiveness of content and language is their limitation as well as their strength." For Venturi, overly simplified architecture sucks away the rich complexity and contradiction inherent to architecture, hence the title of his book. He writes that "Where simplification cannot work, simpleness results. Blatant simplification means bland architecture. Less is a bore."[53]

A central argument that Venturi makes is to acknowledge "the growing complexities of our functional problems." He references "those programs, unique in our time, which are complex because of their scope… even the house, simple in scope, is complex in purpose if the ambiguities of contemporary experience are expressed… although the means involved in the program and structure of buildings

[51] Bell and Stathaki 14
[52] "Complexity" 16
[53] Ibid. 17

are far simpler and less sophisticated technologically than almost any engineering project, the purpose is more complex and often inherently ambiguous."[54] In his writing, Venturi gets at the heart of the functionalist problem, which is that the functions of a building are complex and myriad, and this is something we must acknowledge: we cannot tout utilitarian function at the expense of the other, perhaps less concretely identifiable functions of a building.

In his later work, *Learning from Las Vegas,* Venturi would call for the production of "decorated sheds", rather than ducks. Ducks were structures "Where the architectural systems of space, structure, and program are submerged and distorted by an overall symbolic form." The decorated shed, on the other hand, is a structure in which "systems of space and structure are directly at the service of the program, and ornament is applied independently of them."[55] Thus, he differentiates between sheer ornament and the structural layout of the buildings, which must necessarily service a certain set of physical functions. He essentially acknowledges that ornament on a building might not be expressive of function, but that the two can still work together to create a successful work of architecture.

[54] Ibid. 19
[55] "Las Vegas" 64

Fig. 5: Venturi's original "duck"; Credit: Wikimedia Commons.

As time went on, Venturi's reemphasis on artistic expression through built form would result in "various strands of both writing and paper architecture – that is to say the speculative and the unbuilt – … exploring the avenues opened up by chaos and disorder." Modernism splintered into different factions, and today, the field can be divided into Neo-Modernist, Post-Modernist, Deconstruction, Neo-Traditionalist, and Ecological design.[56] Architects and environmentalists Jon Lang and Walter Moleski point out in their *Functionalism Revisited: Architectural Theory and Practice and the Behavioral Sciences* that "the concern for the functionality of buildings has not disappeared but rather architects today emphasize different functions than their predecessors."[57] Some contend that the functions emphasized are centered around the ego of the architect, or that the primary function of many contemporary, famous buildings is beauty rather than function. Indeed, just as

[56] Lang and Moleski 13
[57] Ibid. 3

architecture has expanded into a number of diverse styles, so has architectural criticism proliferated throughout Modernism and subsequent movements.

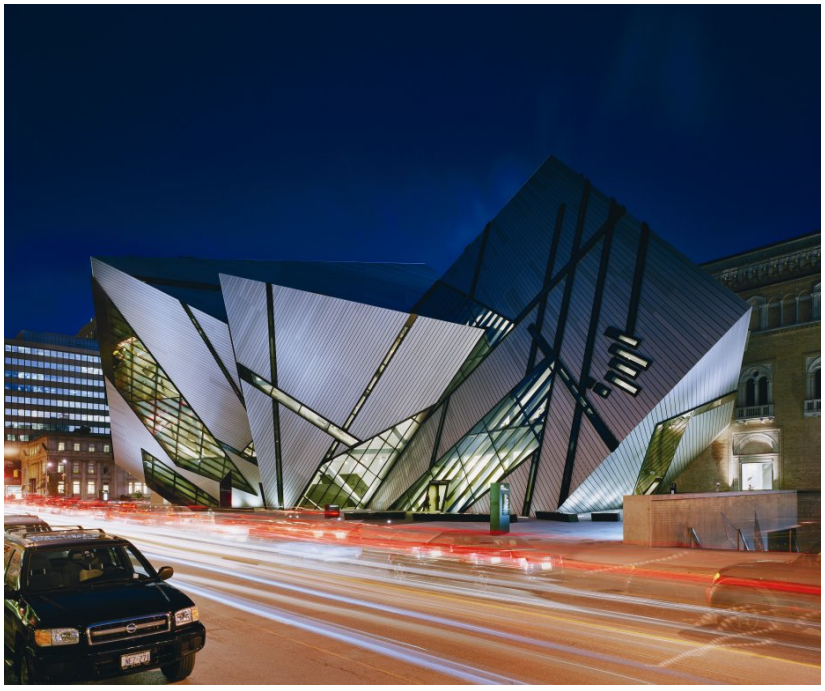

Fig. 6: Daniel Libeskind's extension to the Royal Ontario Museum, an example of deconstructivist architecture; Credit: Studio Daniel Libeskind.

A major critique of the International Style, as Lang and Moleski discuss, was its excessive simplicity and the facility with which it could be copied: "Functionalism became 'vulgarized' to mean a set of stylistic markers: flat roofs, plain unadorned box-buildings, and lots of glass… Every architect could do it."[58] This simplicity, of course, was a goal of the Early Modernists. Mies van der Rohe (1886-1969) sought to "subtract and distill until he reached an architecture that was, as he said, 'almost nothing,' and then to perfect and polish the essence that was left." He claimed not to seek variety in his designs because he always applied the same principles, in contrast to the demands of a consumer society.[59] Those of the International Style

[58] Ibid. 34
[59] Kostof 729

also sought a uniform design strategy to fit all human needs, which they thought could be "reduced to a few universal, primarily physiological, requirements." [60]If everyone needed the same things, what need was there for a huge amount of diversity in design? Many critics have criticized this universalist approach as "naïve and deterministic".[61]

It is true that throughout much of the 20th century, the generic design proposals of many Modernists were intended to erase status differences in the built environment.[62] Despite these claims, however, critics claim that the Modernist style was actually geared towards a certain idealized set of people: those that aspired to a way of life characterized by the "futuristic combination of art, sport and hygiene."[63] For all their claims to an approach based on science and reason, the relationship between Modernist architects and their designs "remained at base a romantic one: they looked to architecture to support a way of life that appealed to them. Their domestic buildings were conceived as stage sets for actors in an idealised drama about contemporary existence."[64] Indeed, the idea of perfection is still "held as the central obsession of the Modern movement."[65] Tim Benton, an architectural historian, suggested that "the key to understanding the Modernist house is that it was not designed for just anyone. This was an art movement, characterized by absolutism, rarely accompanied by modesty and even less by adaptability."[66] Late twentieth and early-twentieth century discourse continues the critique that designs

[60] Lang and Moleski 12
[61] Ibid. 10
[62] Ibid. 237
[63] Bell and Stathaki 13
[64] De Botton 63
[65] Bell and Stathaki 10
[66] Ibid. 13

still assume universal human tendencies, and that culturally specific behaviors are ignored in favor of reflecting the architect's personal image.[67]

Thus, we arrive at a central issue of modern architecture, particularly in relation to environmentalists' critiques: "Contemporary architecture has emerged as perpetually dualistic. Ethics and aesthetics. Modern and traditional. Minimal and maximal. Deconstructed and constructivist."[68] Architectural discourse has become polarized, particularly in the discussion of form and utility. Rather than viewing each as equally important and interconnected, as Vitruvius described in his Ten Books, much discussion has focused on the ways in which contemporary aesthetics and sustainable functionality are irreconcilable. However, as the preceding discussion has shown, the value of function has been central to and persistent in architecture, in different strains and strengths, since the beginning of architectural discourse up to modern times. Even when functionalism has prevailed in architectural discourse, aesthetic objectives have seeped through, and this has been considered by many to be one of the major failings of Modern architecture and subsequent movements. However, the glass-half-full perspective might hold that the reemergence of aesthetics actually speaks to the inevitability of a certain kind of beauty in functional objects. De Zurko highlights the fact that "What is unnecessary is not necessarily unfunctional; it can have value and purpose, and add to the practical utility of an object by making it more comprehensible in form and use, or help to establish in the mind of the user appropriate ideas and emotions to

[67] Lang and Moleski 12
[68] Bell and Stathaki 6

complement the function of the object or celebrate and facilitate its use."[69] The potential for function to be viewed as beautiful, particularly in architecture, will be discussed in the following section.

1.2 FUNCTION AND BEAUTY IN AESTHETIC THEORY

If function has consistently remained central to architectural discourse since the time of Vitruvius, what role has it played in the history of aesthetic theory? Do we consider functionality in judging the beauty of the built environment? If so, what implications does this have for the role of function in design strategies? In their argument for the aesthetic precedence of what they call "Functional Beauty"[70], prominent philosophers Glenn Parsons and Allen Carlson[71] argue for the position that fitness for function should be equal to beauty in an object. In doing so, they describe the historical precedent and space in contemporary theory for finding aesthetic pleasure in an object's fitness for its function. As we will later see, their particular brand of functionalism is likely too heavy-handed; however, their

[69] De Zurko 238

[70] Parsons and Carlson claim they chose "beauty" rather than "aesthetics" in their term "Functional Beauty" because the word "aesthetics" is so "unlovely" (Shiner 342). In reality, their "central concept is, really, aesthetic appreciation involving knowledge that concerns function" (Shiner 342). For such a fundamental tenet of the book, this is a fairly contradictory, and resultantly confusing term, as "it sometimes refers to a particular kind of beauty, sometimes to the general theme of function in aesthetics, and sometimes to one or another theory of function, including their own" (Shiner 342). It is important to note that while in their argument, Parsons and Carlson claim historical precedence specifically for Functional Beauty, a broader place for function in aesthetic theory is simultaneously established. In other words, we may reject their position of Functional Beauty, while still supporting the place they describe for finding beauty or aesthetic pleasure in function. The historical basis they set out is, after all, supported by historical fact and real movements that took place in the development of aesthetic theory – not opinion. This is the aspect of their argument that receives no criticism from critics.

[71] In the field of contemporary aesthetics, "Allen Carlson is unquestionably the most prominent, most published philosopher" (Moore 380).

description of function's journey through the history of aesthetic theory is highly valuable when considering whether form and function truly are at odds.

The first accounts of beauty found in fitness are present in classical Greek philosophy, particularly in the writings of Socrates. In the Greek historian Xenophon's *Memorabilia* (370 BCE), Socrates argues that "all things are good and beautiful in relation to those purposes for which they are well adapted, bad and ugly in relation to those for which they are ill adapted."[72] Similarly, in the Platonic dialogue, *The Great Hippias* (390 BCE), Socrates states that "whatever is useful we call beautiful, and beautiful in that respect in which useful and for the purpose for which and at the time at which it is useful; and we call ugly that which is useless in all these respects." In these passages, Socrates clearly holds the position that an object being fit for its purpose is not only sufficient but also necessary for it be considered beautiful. Thus, fitness for function is what defines beauty.[73]

Parsons and Carlson categorize opinions like that of Socrates as the "strong version" of the theory that beauty is equal to function. Alternatively, the "weak version", which is also present in classical thought, posits that fitness constitutes a kind of beauty, but is not necessary for an object to be beautiful.[74] While beauty means many different things for many different people and contexts, in aesthetic theory, beauty can broadly be defined as the capacity of an object to provide a pleasant perceptual experience.[75] Here arises one of many contradictions that Parsons and Carlson highlight, and it is one that continues to perplex many

[72] Parsons and Carlson 2
[73] Ibid. 3
[74] Ibid. 3
[75] Ibid. 4

architects attempting to imbue the aesthetics of a design with the concept of its function: while we may know that an object is fit for its function, it may not possess a look that imparts the knowledge that it is indeed well adapted to its function. Unlike its color or shape, an object's function is sometimes not immediately apparent. This contradiction has become central to theoretical concepts concerning form and function.[76]

While the strong theory has not been central in Western discourse on beauty, one philosophical arena amenable to an idea of function as beauty is seventeenth-century Continental Rationalism.[77] This tradition equates judgments of beauty as judgments of perfection, without explicitly being able to identify what makes something capable of bringing about the strong feelings caused by the presence of a beautiful object.[78] In 18th century writers, the weak theory is more commonly found than the strong. 18th century philosopher Bishop Berkeley was unique in this respect. His theoretical dialogue *Alciphron* sets forth the argument that while beauty is determined by proportion, this proportion is dependent upon the fitness of an object for its purpose. However, in a more commonly found viewpoint, David Hume supports the weak theory in his *Treatise on Human Nature* (1739-40), arguing that a feeling of beauty can come from the perception of an object we know to serve a functional purpose.[79] He excludes objects that do not serve human happiness, for example torture devices, from his range of what might be considered beautiful.[80] We

[76] Ibid. 5
[77] Ibid. 6
[78] Ibid. 6
[79] Ibid. 8
[80] Ibid. 9

can find things useful specifically not only to us but also others because we possess sympathy, which allows us to perceive beauty in all functional objects that serve human happiness, even if that happiness is not our own. Hume does, however, contend that objects need not be functional to be beautiful.[81]

Other 18th-century theorists to support some notion of beauty in fitness for function include William Hogarth in his *Analysis of Beauty* (1753), Alexander Gerard's *Essay on Taste* (1759), and Adam Smith in his *Theory of Moral Sentiments* (1759).[82] In fact, Archibald Alison expressed the opinion that the idea that objects receive beauty from their fitness was "too obvious to require any illustration." Thus, the "tradition of analyzing 'beauty', in its aesthetic sense, in terms of fitness, utility, and related concepts, was in fact thriving well into the eighteenth century's 'golden age' of aesthetic theory."[83]

However, the strong opinion that function could lend beauty to an object also saw its decline in the 18th century.[84] The best known example is found in Edmund Burke's *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* (1757), in which he refutes both the strong and the weak theory. Burke contends first of all that one need not see a peacock fly to regard it as being beautiful, thus eliminating the idea that an object must look fit for its function to be aesthetically appealing. As for the weak theory, Burke offers the example that though a pig's snout is immediately useful for digging, the animal is far from beautiful. Therefore, simply looking fit is not sufficient for something to be

[81] Ibid. 10
[82] Ibid. 11
[83] Ibid. 12
[84] Ibid. 12

beautiful.[85] Though Burke's opinions were not commonly held, as we saw earlier, they were echoed in Francis Hutcheson's writings.[86] In response to this argument, Archibald Alison contended that despite initial repulsion, upon understanding the functionality of the pig's snout, one would inevitably find it beautiful.[87] This argument becomes more convincing once the idea of beauty and aesthetics becomes more fully developed. Burke's theory defining the "sublime" as a distinct category from the "beautiful" was influential in widening the concept of what could be aesthetically stimulating. Under this new definition, a pig's snout, while perhaps not beautiful, could certainly provide aesthetic appeal.[88]

It is important to note here that for empiricists, reason and perception were different processes in that reason required thought while perception was automatic. Therefore, in the minds of Burke and Hutcheson, even if it were possible to find aesthetic pleasure having known the function of a pig's snout, this would be a result of reasoning and not perception. Thus the pleasure found would not be equivalent to the kind that strikes the viewer upon perceiving the beautiful.[89] Parsons and Carlson counter this by suggesting that if we know an object's function prior to viewing it, we can be "struck at the first" in a similar way. While Burke and Hutcheson in particular would argue that this still constitutes a form of reasoning, contemporary theory supports the idea that perception does not take place independent of thought.[90]

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[85] Ibid. 13
[86] Ibid. 14
[87] Ibid. 16
[88] Ibid. 17
[89] Ibid. 19
[90] Ibid. 20

Hutcheson's and Burke's arguments, of course, posit that cognitive elements cannot factor into sensory perception. This idea is further developed in the late 18th century, transforming into the idea that these cognitive factors, rather than being divorced from sensory perception inherently, are instead simply unnecessary for sensory perception, and that cognitive elements should be excluded from perception. Perhaps the most influential development of this thought is found in the concept of "pure judgment of taste", developed by Kant in his *Critique of the Power of Judgement* (1790).[91]

In contrast to Burke, who excludes functionality from "the sphere of beauty proper" but still argues for a certain delight in utility, Kant argues that the ideal state to appreciate beauty lies in ignoring any idea of an object's use. Kant does, however, leave room for function by defining beauty found in the concept of utility as an "adherent" or "dependent" beauty.[92] Thus, Kant shifts the connection between function and beauty, arguing that function acts as an external constraint on beauty, as the object in this kind of beauty must be about to serve its purpose in order to be beautiful. The function itself is not a source of beauty, but a determinant of whether or not the object can be beautiful. Thus, the judgment of adherent beauty is "no longer a free and pure judgment of taste."[93] Kant's influential ideas signal a turn away from Functional Beauty. From ancient theory to the 18th century, function was

[91] Ibid. 21
[92] Ibid. 22
[93] Ibid. 23

conceived as being integral to beauty, while Kant posits that it is an external constraint.[94]

Kant's views had a significant impact on aesthetic theory. Their influence can be found in Edward Bullough's early 20th century "psychical distance" view and the popular mid-20th century "Aesthetic Attitude" theories. Jerome Stolnitz's influential theory defines the aesthetic attitude as a "disinterested and sympathetic attention to and contemplation of any object of awareness whatever, for its own sake alone." This mode of perception requires detaching oneself from all utilitarian activities and manners of interacting with the object. [95]As Parsons and Carlson point out, this view is ill-matched with carrying out daily activities, and thus necessitates entering a separate sphere of experience, such as an art museum.[96]

In 18th century thinking, the fine arts had become separated into an independent set of practices, and in later aesthetic thought, particularly in 20th century formalism, the "autonomous realm" would become the natural setting for the experience of aesthetic appreciation. Formalists would come to argue that attention should be directed upon an object's "pure form".[97] According to English art critic Clive Bell, art must be separated even from its cultural and representational significance and approached "apart from concepts". He famously claimed that art "transports us from the world of man's activity to a world of aesthetic exaltation. For a moment we are shut off from human interests… we are lifted above the stream of

[94] Ibid. 24
[95] Ibid. 24
[96] Ibid. 25
[97] Ibid. 26

life."[98] At this point in aesthetic theory, all semblance of an aesthetic connection to function is lost.[99] Two realms, non-functional art and daily life, appear in opposition to each other.[100]

In contrast to the Formalists, the Expressionists contended that the aesthetic permeated all objects, and associations between utilitarian concepts and aesthetic appreciation can be found explicitly in Expressionist writings. In fact, the strong version of Functional Beauty appears in Expressionist Benedetto Croce's (1866-1952) writings, in which he explicitly states that if an object is "perfectly adapted to its practical purpose" it will be "the instrument of aesthetic intuitions."[101] However, though Expressionism did attempt to be friendlier to quotidian, functional objects, ultimately, Croce's view was somewhat of an exception to the rule. Expressionist thinking still focused on "art proper", in the words of English philosopher R. G. Collingwood, which they disassociated from craft, thus preserving the idea that aesthetic experience remained in a realm separate from daily tasks. Indeed, despite a functional aesthetic having found its niche throughout aesthetic theory, "the idea of art as a separate sphere that provides the paradigmatic setting for aesthetic experience is one of the most deeply entrenched ideas in aesthetics."[102] Fortunately, contemporary aesthetic theory has been friendlier to function in aesthetic appreciation.

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[98] This opinion would later be criticized as elitist. Jon Berger pointed out in his 1972 book "Ways of Seeing" that those with secondary or higher education are significantly more likely to attend art museums. (Berger 24). Bell's generalization of the experience imparted by entering the realm of art can thus be seen as exclusionary, and not indicative of how the entire population sees art.
[99] Parsons and Carlson 27
[100] Ibid. 28
[101] Ibid. 28
[102] Ibid. 30

The Kantian disinterestedness theory has been very much challenged in recent aesthetic debate. George Dickie argued that the "Aesthetic Attitude" concept is illogical because a state unaffected by past memory is impossible to attain.[103] Other philosophers, such as Nelson Goodman, Arthur Danto, and Kendall Walton argued that aesthetic perceptions of artworks are based on both sensory perception and prior knowledge, and that in order to appreciate a work of art, one must by necessity employ past knowledge. Feminist and Marxist theorists held that theories of Disinterestedness ignored the moral and material implications of the making and appreciation of art. The central reason for criticism was that Disinterestedness imposed "a unitary and rather rigid model of appreciation," rather than acknowledging "the arts as evolving, diverse, and historically and socially informed practices."[104] Religious art, for example, requires background experience or education for appropriate appreciation.[105]

The critical response to the Disinterestedness approach is what Noël Carroll calls "cultural" theories.[106] The best known of these theories is Dickie's Institutional Theory of art, which argues that an object becomes a work of art by obtaining status within the "artworld", not by some sort of innate aesthetic quality. Marcel Duchamp (1887-1968) would explore this concept by signing a urinal and dubbing it art. Parsons and Carlson characterize Dickie's and other cultural theories, in contrast to the concept of Disinterestedness, as "cognitively rich" theories. They argue that these cultural approaches leave ample room for their proposal of Functional Beauty,

[103] Ibid. 32
[104] Ibid. 33
[105] Ibid. 34
[106] Ibid. 34

as culturally informed beliefs, cognitively supplied, are central to aesthetic appreciation.[107] Nature, for instance, not having been manipulated like works of art, was largely regarded in the late 20th century as being fundamentally different from art. However, majority opinion held that it could be regarded aesthetically through a cognitive approach.[108] Parsons and Carlson suggest that while art is informed by historical reference, our knowledge of nature is informed by scientific knowledge, and thus function might enter into aesthetic appreciation.[109] Unfortunately, a separation of the artworld from everyday life has persisted[110] and thus theory has remained focused on the "non-functional paradigms of 'pure' art and 'purely mechanical' nature."[111]

While we can now say that space exists in aesthetic theory for a type of functionalism, we must address what criticism still remains for functionalism in aesthetic theory as it relates to architecture. In fact, typical critiques of traditional functionalism appear to center around one basic fault: inflexibility. More specifically, functionalism has traditionally been inflexible in addressing the vagueness of its ideology, which is its Achilles' heel. A classic critique of architectural functionalism can be found in renowned English philosopher Roger Scruton's *Aesthetics of Architecture* (1979). As Scruton explains, the strong theory has left out other considerations in aesthetic appreciation, while simultaneously failing to fully define its own ideology. The vagueness of architectural functionalism

[107] Ibid. 35
[108] Ibid. 38
[109] Ibid. 39-40
[110] Ibid. 36
[111] Ibid. 42

arises in two ways: 1) what exactly is the function of a building; and 2) how is a building supposed to "express" said function(s)?

First of all, as Scruton explains, if expressing function is supposedly accomplished simply by displaying the internal functions of the building, then we may as well do away with aesthetics altogether. If, on the other hand, we consider the function we wish to express as being more holistic, for example that an Opera House is intended to house opera shows, this is again far too simplistic, for according to Scruton, the primary function of a building with a prolonged lifetime will necessarily change over the generations.[112] The second main issue arises when we consider how a building is supposed to "express" its function. Would we contend that a strainer arch expresses its function more perfectly than a stretch of scaffolding and is therefore by necessity more beautiful?[113]

Fortunately, as Scruton indicates, a weak theory, which is inherently more flexible, can respond to the vagueness presented by the strong theory. It is out of the failings of a strong functionalism that Scruton argues that weaker theories of functionalism emerge.[114] Scruton points out that the "mark of a critical doctrine, as opposed to a principle of aesthetics, is that it cannot be established *a priori.* If it lays claim to universal validity, then inevitably it must appear arbitrary and uncompelling." He asserts that "a critical doctrine must be established case by case,

[112] Scruton 40
[113] Ibid. 41
[114] Ibid. 41

by detailed exploration of the individual experience and the individual building. It will therefore be at best a generalization, at worst an unrepeatable observation."[115]

Scruton thus gets at a very important aspect of architectural theory, which is that no one solution or ideology can possibly be expected to remediate all problems. "More than one problem might 'follow' a single structure… the questions of style – and therefore of meaning – might still arise, even when structural 'honesty' is not in doubt."[116] In this respect, it seems that Scruton manages to refute the ultimate argument of Parsons and Carlson, which is that "wherever an object can be held to have an identifiable function, the beauty it has through its fitness to execute that function should predominate over all other modes of beauty – it should be 'central and primary.'"[117]

Critics' arguments consistently gravitate back to the idea that a strong position like that of Parsons and Carlson has no logical place in aesthetic theory. As Moore puts it, "[f]ew critics will object to a claim that functional beauty is one species of aesthetic value. Many, however, will take issue with a claim that it is a dominant species, or the master value."[118] Stecker goes further than this, refuting even a weak theory in his argument that "looking fit is simply insufficient for aesthetic value" by offering the example of a box of tissues, in perfect condition, with one tissue standing up, waiting to be pulled for use. This box of tissues "does indeed look fit to fulfill its proper function of dispensing tissues," but in this stage, "it is still aesthetically indifferent." When we ask what is missing, Stecker responds: "I suspect

[115] Ibid. 42
[116] Ibid. 43
[117] Moore 383
[118] Ibid. 383

that looking fit must be embodied in formally valuable design in order to realize a value-adding potential that may go beyond the value of the formal design itself."[119] Indeed, the "cheetah is not only well adapted to use speed to chase down prey, but it looks as if it is so, and the look enhances our aesthetic appreciation of it."[120] Yet, "compare the cheetah with the equally well adapted hippopotamus."[121] Do we see both as being equally beautiful? Do we see the latter as being beautiful at all? Stecker's contemplations bring us back to Burke's argument refuting the weak theory, which, it merits reminding, argues that fitness constitutes one type of beauty. It appears then that Stecker would support a weaker theory, one that argues that fitness *sometimes* constitutes a type of beauty, as in the case of the cheetah. Function may not be solely sufficient for beauty in all cases, but if it may aid the beauty of an object that must necessarily be functional, such as a building, is it not advisable to seek this type of beauty in our architecture?

In the case of architecture, at least, a weak theory seems to have a justified place. Opposing primarily the Disinterestedness theory, but also apparently supporting a weak theory, Scruton admits: "It is, indeed, impossible to abstract from our knowledge of a building's utility, and cast judgement on it in some pure 'aesthetic' void."[122] Architecture can be treated as neither solely craft nor as solely art, as according to Scruton, "the value of a building simply cannot be understood independently of its utility."[123] This is why the sculptural view of architecture is

[119] Stecker 440
[120] Ibid. 422
[121] Ibid. 441
[122] Scruton 38
[123] Ibid. 7

misguided, as it "involves the mistaken idea that one can somehow judge the beauty of a thing *in abstracto*, without knowing what *kind* of thing it is; as though I could present you with an object that might be a stone, a sculpture, a box, a fruit or even an animal, and expect you to tell me whether it is beautiful before knowing what it is."[124] Even monuments, perhaps the closest to sculpture that architecture gets, often serve the purpose of commemorating a person or event, marking important points in the city, or providing and reinforcing a city's identity. For these reasons, Scruton posits that in "its most influential form, functionalism purports not to deny the priority of aesthetic values in architecture so much as to provide a comprehensive theory of their nature."[125] In other words, while a strong theory is problematic, a weak theory of functionalism is not only appropriate but also inherent to architecture.

Lest we lose ourselves in theoretical ponderings, we must consider that from a purely practical point of view, seeing beauty or experiencing aesthetic pleasure from function just appears logical. Or, at the very least, the complete and utter exclusion of considering function appears illogical, as the aforementioned "cognitive" theories described. If we think back to our own conceptions of beauty related to functional objects, it is not difficult to become convinced of the validity of a certain kind of beauty possessed by functional objects. Do we not find those objects that serve our needs every day to be extremely beautiful? Do we not derive aesthetic pleasure from the divots of the chipped kettle that heats the water for our daily tea, its bottom scorched from years of stovetop abuse? Do we not gain some

[124] Ibid. 9
[125] Ibid. 38

form of contentment "in a run of old floorboards or in a wash of morning light over a plaster wall – in undramatic, frangible scenes of beauty that move us because we are aware of the darker backdrop against which they are set[?]"[126] If contemporary thought allows cognitive elements in the sphere of what is considered to be beautiful, an admittedly more practical standpoint given that most of the human experience involves daily tasks outside a sublime, contemplative mode, we can see how seeing beauty in function actually works today.

In summary, we can come to several conclusions. First of all, substantive and prolonged historical precedent exists for function's place in aesthetic appreciation. Furthermore, contemporary aesthetic theory, in that it is culturally geared, is disposed and open to the consideration of function as being beautiful or aesthetically pleasing. While the conclusion of many critics appears to be that function can indeed be found in beauty, they also contend that fitness for form does not automatically cause an object to be beautiful. Furthermore, even the weak doctrine has its exceptions, in that beauty found in form can indeed occur, but this subcategory of aesthetic appeal is not always appropriate to the object. That is to say, in many cases, function is not sufficient to cause an object to be beautiful. Some compromise must be found between what neural structures, culturally informed ideals, and personal preference deem beautiful in order to find beauty in function. Finally, as architecture is necessarily a functional art, it is safe to say that a nonfunctional building is not relevant to the discussion. Any argument positing that functionalism as it pertains to sustainable objectives is antithetical to current

[126] De Botton 25

architectural aesthetics should consider this historical and present theoretical discussion.

Indeed, finding beauty in the functionality of a structure, one might say, enriches the field and allows it to reclaim some of the ethical moorings it has evidently lost. Some argue today that the use of a revised and more moderate functionalism could be a solution to problems inherent to functionalism, as well as useful for a transition to more ecological design strategies. As functionalism's persistence throughout the history of Western architecture has proven, it is "a title that can be tailored for each generation that applies it."[127] Later on, we will establish the ways in which an informed aesthetic and spatial flexibility can be functional for human prosperity and environmental objectives.

[127] Ibid. 22

PART 2

2.1 ARCHITECTURE AND THE AESTHETIC ECONOMY

In the previous section, we saw how function has been central to architecture, reaching its peak emphasis in the Modernist period. We also saw the ways in which function has been related to judgments of beauty, and how a weak functionalist theory fits into current aesthetic theory. Now we must ask ourselves what a new functionalism might look like in considering how to make the built environment more sustainable. While resource efficiency is a necessary and integral part of building sustainably, what remains under debate is whether beauty is a necessary component of building in an environmentally preferable manner: does beauty stand in the way of sustainability objectives?

In considering this question, many environmentalists warn that, much like architecture itself and most other aspects of the global economy, a "sustainable" way of building might become commodified.[128] That is to say, the sustainable "look" and technologies implemented in the design of buildings, like many products in Western consumer society, might become passing fads, and thus could be phased out increasingly quickly before their lifetime reaches a point of zero impact. The trend of commodification has already been shown to an extent in the field of architecture, as Glen Hill, an associate professor of architecture at the University of Sydney and frequently published author, points out in his 2011 essay, "The Aesthetics of Architectural Consumption." He writes that with modernity came "the unprecedented and environmentally calamitous phenomenon of the mass

[128] Hill 27

consumption of architectural opulence." Indeed, the current impression is that buildings are not developed to last as long as they did in the pre-modern period.[129] This is due not only to their lack of physical solidity, but also to "the fact that architecture seems ready to become an ephemeral art, or in a more sinister light, one of the society's *consumables.*"[130] This impermanence is perhaps aided by the fact that in modernity, many people feel no commitment to specific geographic sites. "We are physically migratory," Hill writes, "readily relocating ourselves, our family, our home and our workplace. And we are socially migratory, changing our occupation, our level of education, our body, our friends, our spouse and with that even our children."[131]

Hill argues that buildings have become transitory due to the ego of the architect, as well as the importance placed on constantly coming out with something shiny and new. The "aesthetic experience in modernity could be said to be the noticing (as pleasure, repulsion, elation and so on) of the look, feel, sound, taste or smell of something, where *the look* has become hegemonic,"[132] he claims, yet "*noticing* architectural aesthetics is not our primary experience of architecture. On the contrary, architecture has a tendency to withdraw into the background of daily life." The renowned French cultural historian and critic Walter Benjamin observed that art is most commonly approached in a state of "'absorption' – a deliberate and thematized noticing of the art." This hearkens back to the Kantian theory of viewing art in a different mental state or level of consciousness, without the same

[129] Ibid. 27
[130] Pero 221
[131] Hill 27
[132] Ibid. 31

implications for cultural negation. Architecture, on the other hand, he posits as being most often approached in a state of "'distraction' – where the architecture is not the focus of thematic attention, but forms the background for other focal activities."[133] As it is inevitable that the everyday use of architecture will retreat into the background, Hill contends that "the most effective way for an architect to ensure their work remains noticed is to maintain the production of difference; that is, to keep producing fresh work. This opens a path toward an aesthetic economy of architecture in which the need for constant production of *the new* is matched with the need for its endless consumption."[134]

In essence, the consistent depreciation of the "old" in the movement of the aesthetic economy drives aesthetic consumption, and "the acquisition of *new stuff* that arrives with each new aesthetic accelerates resource consumption and ecosystem destruction. On the other hand, *older stuff* is forced to become waste long before its functional life is over."[135] One example of this would be the planned obsolescence of many modern electronics, programmed to break after a certain amount of time so that consumers will have to keep buying new products. If sustainable architecture is drawn into this system, Hill argues, it will be subject to the same "processes of endless aesthetic devaluing and aesthetic obsolescence."[136] In other words, if a building uses little net resources, but is torn down in 10 or even more like 50 years, the impact of its construction and demolition is likely to render its resource efficiency obsolete.

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[133] Ibid. 31
[134] Ibid. 32
[135] Ibid. 35
[136] Ibid. 38

In order to counter this, it becomes pertinent to reconsider the Vitruvian ideal of durability. In reality, the heart of the concept of sustainability is to reduce, reuse, and recycle, a concept espoused by authors Michael Braungart and William McDonough in their widely read *Cradle to Cradle*. Thus, the primary "function" of architecture should be the primary importance of those factors that contribute to its durability, a "cyclical system of production, use and re-production, as opposed to a linear, dead-end process of production, consumption and discard."[137] If we were to design buildings less from the perspective of the preferred taste of the architect, and also less faddish, and more from the desire to make buildings beautiful, comfortable, usable, and adaptable component of our daily lives, perhaps they would endure and lower the built environment's impact on the planet. The concept of sustainability necessitates the designing of buildings that meet current demands for programmatic adaptability, while simultaneously staying durable and resistant within not only an environmental but also a cultural context.[138] Our relationship to the built environment must be one of resilience, rather than endless consumption. In order to accomplish this, buildings must go beyond mere functionality: they must inspire us, root us, and allow us, eventually, to adapt to future conditions.

2.2 A FUNCTIONALISM OF FIRMITAS

In introducing his anthology of essays on the aesthetics of sustainability, *Sustainable Aesthetics*, author Sang Lee describes his own conclusions about what a

[137] Lee 9
[138] Pero 217

renewed, sustainable architectural aesthetic would entail, and given functionalism's precedence in the past century, it is not surprising that his description of how a sustainable aesthetic should be appears to call for the return to an architecture of form "following" function:

> *Aesthetics of architecture refers to the expressions in built form that closely relate to the way in which the form is not only conceived but also produced in relation to a certain purpose and its context. In regard to the relationship among form, function and context, a built form should inform and express the principles of its programmatic, structural, material and spatial qualities. And an aesthetic is supposed to emerge from, as well as be embodied in, the order that ties them together as an indivisible whole. Therefore, in short, if a building or an environment is designed and built to be sustainable, it should inform how it was conceived and situated, and what makes it be so under what kinds of conditions. And in the presence of such a work, it should be perceivable and/or understandable that it serves and fits such purpose.*[139]

In Lee's view, the form of a building should "express" its purpose, sustainability: form should "follow" the function of sustainability. Lee goes on to explain that sustainability "ideally, means that the structures and relations necessary to sustain the process will be available so that it does not exhaust itself or come to a halt due to degradation or some form of failure." More importantly for this discussion, the second complementary concept within his framework of environmental consciousness is durability, which "stands for a method of building that maximizes an object's span of usefulness."[140]

While Lee may have his own ideas about how a design should portray sustainable aims, his later point that durability, along with sustainability (or, in the context he describes, resource efficiency) is an integral and complementary component of environmentally preferable design. Indeed, many architectural

[139] Lee 11
[140] Ibid. 12

theorists agree that "a home that is able to change and adapt over time will lead to the formation of more stable communities. Although still an evolving field, the concept of 'super adaptability' in housing is recognized by regulatory authorities as a future driver for sustainable and low carbon developments."[141] A "loose-fit" building "foresees a building's use and re-use for generations, and hence, its structural and cultural durability."[142] In order to endure for many decades, a building must be spatially flexible.

In *The Agile* City, journalist and urban analyst James Russell argues for such spatial flexibility, explaining that historic preservationists and environmentalists alike argue that "preserving old buildings, by reusing the valuable materials and tremendous energy embodied in their construction, is an act of environmental stewardship." However, much of the building stock the population will be living in for the next one or two generations is both environmentally obsolete, and much (though not all) is also not readily adaptable, particularly not for environmental purposes.[143] "If we created buildings today that deserve a future," argues Russell, "they may actually have one." An environmental and economic era that might require continuous adaptation will treasure those buildings that elegantly accommodate shifting circumstances.[144]

The example that Russell offers as a building type that has not only gracefully adapted, but also come to be regarded as quite aesthetically pleasing, is the multistory industrial loft. Because lofts have daylight, good ventilation, durable

[141] Brennan 93
[142] Rostvik 178
[143] Russell 172
[144] Ibid. 174

construction, and adaptable spaces, they can be repeatedly adapted to new needs, and thus provide a quintessential example for what Russell calls "agile buildings". These spaces came into being in the nineteenth century, as industrialization required big, open spaces with high ceilings unhampered with interior walls and columns. As industrialized cities grew, these "massive masonry structures with timber columns and beams gave way to thin, cast-iron columns supporting fire-resistant, brick-vaulted floors." Before electric lighting and mechanical fans became commonplace, lofts required skylights and high windows to supply lighting and ventilation. They were ultimately phased out with the propagation of Ford's horizontal assembly lines, however, today they are popular targets for retrofitting because of their high ceilings, good ventilation, and flexible open spaces. As a result, "What once was a sweatshop is today a multimillion-dollar residence."[145]

Another prime example of an adapted building is the 2004 Quinta Monroy social housing project in Iquique, Chile, which the architects specifically designed to be adaptable for its inhabitants (see fig. 7). The unit's facades and walls were intentionally left plain, in the hopes of encouraging owners to paint their units themselves.[146] The architects also described their intent as having the building "be porous enough to allow each unit to expand within its structure. The initial building must therefore provide a supporting (rather than a constraining) framework in order to avoid any negative effects of self-construction on the urban environment over time, but also to facilitate the expansion process."[147] In other words, the

[145] Ibid. 175
[146] Ibid. 17
[147] Ibid. 17

architects were attempting to discourage inhabitants sprawling outward, and thus designed in such a way as to make expansion difficult, but adapting the built spaces easy.

Fig. 7: Quinta Monroy Social Housing, 2003-05, Iqique; Credit: Cristobal Palma

Another great example of the "long-life, loose-fit" sustainable design strategy is the Studiohouse by Degelo Architekten in Büsserach, Switzerland, which is a converted storage shed and workshop (see fig. 8). Directly referencing the surrounding agricultural buildings, "the roof is clad in untreated steel plates, which are being allowed to slowly acquire a patina of rust." Wherever possible, "the surfaces and finishes are left raw and exposed," while "frameless floor-to-ceiling windows… provide panoramic views of the surrounding landscape." The

Studiohouse serves as "a lesson in patination, a process seemingly at odds with the crisp newness that once defined modern architecture." As Bell and Stathaki point out, the idea that materials and objects possess intrinsic qualities that alter and improve with increasing age and use is not typical of contemporary architecture, "where the lasting impression of a building is invariably an image that is taken almost immediately after completion; the Modern building remains fixed and immutable, eternally new and unoccupied."[148]

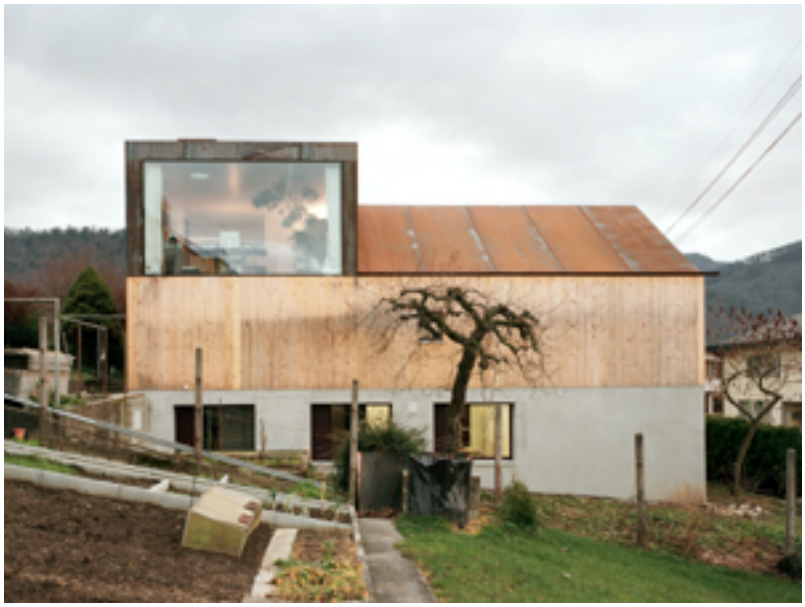

Fig 8: Studiohouse by Degelo Architekten in Büsserach, Switzerland; Credit: Degelo Architekten.

In her discussion of durability in architecture, cultural anthropologist and lecturer D.Phil. Marie Antoinette Glaser agrees with Russell that in general, "what guarantees a building's longevity is its dynamics and ability to change – the possibility for it to have more than one kind of use."[149] She argues that "strategies for sustainability must include the long-term use or reuse of existing buildings over

[148] Ibid. 161
[149] Glaser 198

the course of their life-cycles;"[150] however, her argument centers around delight in the quotidian. She proposes that, because architecture is made of "phenomena that we perceive consciously and unconsciously through habitual use over time," the resultant aesthetic position "defines the notion of beauty as a process of long-term habituation and use." In this sense, "Durability signifies a specific kind of beauty in architecture that stems from the intimate traces of long-term use: un-perturbed, un-exceptional and un-faddish."[151] This durable, quotidian beauty is found particularly in the domestic realm. "If a building is cherished," Glaser writes, "it will house many meaningful uses over the span of generations."[152] Because of this, "durable" and "sustainable" are seen by Glaser as synonymous terms: they are both "things that are continued and maintained over a long period of time, ideally spanning generations." In this case, sustainability also contains a cultural dimension, which includes "social values, norms and ideas." A house is considered by Glaser to be sustainable "when it is appreciated and loved for a long period of time by successive residents, or when it is handed down to posterity until it enters the cultural memory of a society." Similarly, a "house is durable if it supports existing values and ideals, while at the same time, being integrated into those of subsequent generations."[153]

Glaser offers as evidence a case study on the Zurlinden Communal Housing Estate in Zürich. In contrast to Russell, who focuses on structural adaptability, Glaser contends that the Zurlinden housing complex has remained through the decades because both social and spatial issues are taken into account. For example,

[150] Ibid. 212
[151] Ibid. 198
[152] Ibid. 200
[153] Ibid. 201

a consistent maintenance strategy has kept rent low through the years by avoiding the need for major repairs. Residents also have a say in renewals and stand up for their building, and as a result, they personally identify with it.[154] Due to spatial layout, they are allowed the opportunity to become intimately involved with the design of their living space, and they have the ability to complete their own adaptations should they so desire.[155] The spatial layout of the kitchen, for example, allows the inhabitants to furnish the area in a number of ways. The room dimensions and arrangements are equally flexible, as "the living room and bedroom have the same approximate area of 16 m2, and both look over the quiet inner courtyard."[156]

Given this evidence, Glaser lays out a set of recommendations for construction, management, and the social aspect of housing units. In construction, for instance, she suggests an architectural concept sensitive to the urban setting, use of high quality, durable materials, building to simple but exact standards, a spatial layout that allows for flexibility in use, and "access to clearly defined private, semi-public and public space in the immediate outdoor environment that are available for multiple uses." As for management, Glaser recommends social diversity among the tenants, long-term organizational strategies for restoration and renovation that include tenants as key partners, client-oriented communication with tenants, and personally contacting tenants to solve immediate problems. On the social end, she suggests ensuring tenant participation in housing renewal process, giving

[154] Ibid. 203
[155] Ibid. 205
[156] Ibid. 208

inhabitants the possibility to personalize their home interiors, and "enhancing social adaptation strategies to overcome the defects of older buildings by encouraging communication among neighbors and creativity, flexibility and negotiation in the use of living space."[157] Thus, Glaser integrates a discussion of social as well as spatial factors in planning for the long-term lifecycle of a building. While her discussion is relevant and vital to the search for a sustainable way of designing, many argue that aesthetics should also play a role in increasing building lifecycles. Glaser's argument for delight in the quotidian is certainly valid, yet many are asking how one might employ empirical studies to enrich the experience of architecture, and make it that much more difficult to part with.

2.3 EMOTIONAL ATTACHMENT FOR DURABLE ARCHITECTURE

While some fight against the prioritization of aesthetics over what they perceive to be the most important function of a building, be it sustainable or otherwise, many others have come to the conclusion that multisensory aesthetic experience is actually an integral component of the durability of a building, and thus the sustainability movement as well. De Botton explains that though "we may at first glance associate the word 'function' with the efficient provision of physical sanctuary, we are in the end unlikely to respect a structure which does no more than keep us dry and warm."[158] The well-known author, journalist, activist, and professor Michael Pollan shows in *The Botany of Desire* that "domesticated plants

[157] Ibid. 211
[158] De Botton 62

and animals have thrived because they have an important survival advantage over their competitors in the wild: *we like them."* Wolves, for example, might appear tougher than most dogs, however, there are 50 million dogs on the planet while wolves constitute a population of only ten thousand. In the end, the "fate of many things depends on whether they please people." Though this is an ethical problem of grand proportions in the discussion of biodiversity and its environmental implications, as a design principle, this concept is of the utmost importance. "If you want something to last," claims architect and author Lance Hosey in his *Green Aesthetics,* "make it as lovable as a Labrador."[159]

In Hosey's view, the visual portion of aesthetics, beauty, is not a superficial interest but rather an environmental necessity. "Beauty," he proclaims, "could save the planet." He explains that "long-term value is impossible without sensory appeal, because if design doesn't inspire, it's destined to be discarded… We don't love something because it's nontoxic and biodegradable – we love it because it moves the head and the heart."[160] Indeed, conservation movements have used beauty to further their efforts for decades. The Keep America Beautiful campaign emphasizes visual attraction as the foundation of conservation. On their website, the organization claims that "Beauty is a silent but powerful force that makes communities safer, healthier and more livable" and that "America's cities and towns are being transformed by visionary community leaders who recognize the value of

[159] Hosey 7
[160] Ibid. 7

beautification to attract residents, draw tourism, sustain economies, and repel the elements of blight and decay."[161]

Beauty is not mere pleasurable visual perception – seeing beauty is a portion of our emotional experience of our surroundings. Cognitive scientist Don Norman explains that emotions are an inextricable and essential component of cognition, the mental process that allows us to perceive the built environment: "Everything we do, everything we think is tinged with emotion, much of it subconscious. In turn, our emotions change the way we think, and serve as constant guides to appropriate behavior, steering us away from the bad, guiding us toward the good."[162] Yes, utility and ease of use are important, "but without fun and pleasure, joy and excitement, and yes, anxiety and anger, fear and rage, our lives would be incomplete."[163] When neuroscientist Antonio Damasio analyzed people who were completely normal in every aspect except for brain injuries that impeded their emotional processes, he found that although they appeared normal, they were nevertheless unable to make decisions or properly function in their environment.[164]

Emotion is not only necessary to proper functioning, it is also central to productivity. Psychologist Alice Isen and her colleagues have demonstrated that "happiness" expands thought processes and promotes creative thinking. Isen found that when her subjects were asked to work out complex problems that required unusual, "out of the box" thinking, their outcomes were better when they were given a small gift beforehand that was not too valuable, but was enough to make them feel

[161] Ibid. 27
[162] Norman 7
[163] Ibid. 8
[164] Ibid. 12

good. Isen found that, when you feel good, your brainstorming skills improve, and you become better at assessing several alternatives. Moreover, the threshold for making people feel good was not very high. All it took was asking people to watch a funny movie for a few minutes or giving them a small amount of candy.[165]

As might be expected, the sheer attractiveness of people's surroundings influences their happiness. American studies urban theorist Richard Florida demonstrates in *Who's Your City?* that "where you live, more than any other single factor, determines whether you're happy." He polled nearly thirty thousand people and found that "the higher people rate the appearance of their community, the higher their overall level of satisfaction."[166] If an attractive environment is correlated to happiness, and happiness to productivity, why not use this to the advantage of architectural design? In order to tap into the potential of these studies, and thus contribute to the development of a deep emotional connection between the user and their product, designers employ what has been deemed "design research."[167] Indeed, the list of studies like those described before is endless. Hosey argues, "For every study demonstrating the benefits hidden inside particular materials and production methods, there are studies showing how certain shapes, patterns, images, colors, or textures can create environmental, social, and economic value."[168] These methodologies do place importance on beauty, but also encompass the entire aesthetic experience, which is necessarily multisensory.

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[165] Ibid. 19
[166] Hosey 25
[167] Mitchell 35
[168] Hosey 6

In his discussion of emotionally relevant design, Norman promotes a design methodology that plays to the "three different levels of the brain: the automatic, prewired layer, called the visceral level; the part that contains the brain processes that control everyday behavior, known as the behavioral level; and the contemplative part of the brain, or the reflective level."[169] An object's physical features, its appearance, feel, and sound, dominate at the visceral level,[170] and therefore at this level, people are mostly the same throughout the world. Because the visceral level is incapable of reasoning, it responds to what humans are genetically programmed to react to at the most basic level. "Those situations and objects that, throughout evolutionary history, offer food, warmth, or protection give rise to positive affect," or positive emotional response, explains Norman. Some of these conditions include "warm, comfortably lit places, temperate climate, sweet tastes and smells, bright, highly saturated hues, 'soothing' sounds and simple melodies and rhythms, harmonious music and sounds, caresses, smiling faces, rhythmic beats, 'attractive' people, symmetrical objects, rounded, smooth objects, [and] 'sensuous' feelings, sounds, and shapes."[171] Both "Psychologically and physiologically, all of us to some degree are drawn consistently to certain shapes, patterns, proportions, and spaces we find deeply satisfying." The prominent neuroscientists V.S. Ramachandran and Diane Rogers-Ramachandran have outlined a "neurology of aesthetics" in which they name six "universal laws" that "may cut across not only cultural boundaries but across species boundaries as well. Can it be

[169] Norman 21
[170] Ibid. 67
[171] Ibid. 29

a coincidence that we find birds and butterflies attractive even though they evolved to appeal to other birds and butterflies, not to us?"[172]

The behavioral and reflective levels, on the other hand, are very much influenced by "experiences, training, and education. Cultural views have huge impact here: what one culture finds appealing, another may not."[173] Effective behavioral design must include "function, understandability, usability, and physical feel,"[174] while reflective design is tied to the perception of the self, personal satisfaction, and memories.[175] Obviously, it is impossible to predict the correct way to manipulate responses at each level in such a way as to create the "perfect" product. Indeed, each human responds differently to different things: "Such individual differences are the basic components of personality, the distinctions among people that make each of us unique."[176] With the wide "range of individual, cultural, and physical differences among the people of the world, it is impossible for a single product to satisfy everyone."[177]

However, ultimately, "Attractive things do work better—their attractiveness produces positive emotions, causing mental processes to be more creative, more tolerant of minor difficulties."[178] For example, brain scan studies conducted at Caltech demonstrated that seeing a well-designed product, for instance an iPod or an Aeron chair, set off a spontaneous surge of the synapses in the brain that control hand movement. Products that are sufficiently attractive can cause the involuntary

[172] Hosey 45
[173] Norman 33
[174] Ibid. 70
[175] Ibid. 39
[176] Ibid. 40
[177] Ibid. 40-41
[178] Ibid. 60

desire in us to reach out and touch them.[179] So then why is it that so many designs fail? "Mainly because designers and engineers are often self-centered," says Norman.[180] Many designers fail to create successful products because they are too fond of the "sophisticated use of images, metaphors, and semantics that win prizes in design competitions but create products that are inaccessible to users."[181] Indeed, we have seen that elitist ideals underpin many of the more heroic projects in architecture, propagating the idea that "great artists and designers have some special or privileged viewpoint that goes beyond thorough training and hard work, as if angels whisper secrets in their ears that other can't hear." Biologist E. O. Wilson wrote: "The arts are not solely shaped by errant genius out of historical circumstances and idiosyncratic personal experience. The roots of their inspiration date back in deep history to the genetic origins of the human brain, and are permanent."[182]

What would happen if architects were more informed, beyond their basic intuition and personal preference, of the patterns, sounds, shapes, and so on that were pleasant to all human beings? If at the visceral level, we are all similarly connected to those things that indicate survival, and buildings in their most basic form protect us from the elements, we must by virtue already form connections to our dwellings. What if design were to be informed by interdisciplinary study to enhance and develop that connection, tailoring itself not only to the visceral level

[179] Hosey 63
[180] Norman 80
[181] Ibid. 81
[182] Hosey 32

but also to behavioral and culturally informed aesthetic ideals, to the point that we would feel heartbroken to let our buildings go?

These aesthetic imperatives might go beyond simply creating connections and enhancing the lifetime of buildings for sustainability purposes. Prominent German architects Matthias Sauerbruch and Louisa Hutton suggest that the careful manipulation of aesthetic experience can lead to behavioral changes. They agree that those buildings that are "maintained, kept and cherished by people," are not simply the most solid, but "those that are loved for what they are: buildings that are practical, spacious, that surprise and delight; buildings that form a positive part of people's lives; buildings that are more than mere scientific constructions." They extend the imperative to personal happiness to the issue of sustainability, maintaining that in the end, "our general aim in the preservation of the environment is about wellbeing for this and future generations… Wellbeing is largely judged subjectively by every individual according to his or her sensual perception."[183]

With this in mind, their position is to utilize intentionally volume and color with the aim of stimulating "a condition of bodily response," thus also serving to "influence the behavioral aspect of sustainability," encouraging behaviors that reduce individual environmental impact.[184] They argue that if an object "can really be shown to be consuming less, after considering the whole life-cycle, while being highly attractive at the same time, people would accept it." In this way, "Architecture can literally be an advertisement for these alternative lifestyles and show that

[183] Sauerbruch and Hutton 42
[184] Ibid. 42

reduction in consumption does not necessarily mean a reduction in quality."[185] In order to invoke a personal connection, we must construct "spaces where material quality, lighting and color stimulate the senses; spaces on a scale that evoke feelings of shelter and security, as well as astonishment and surprise." Moreover, a building must "be able to react intelligently to the needs of its occupants, but also, the occupants ought to learn to understand the building." As the foremost function in this is "bodily perception, which also opens the way to an intellectual understanding of ecological concepts," we must not only ask ourselves how sustainability looks, "but also what it feels, sounds and smells like."[186] In this way, the inhabitant can learn about sustainable living through the aesthetic experience of the architecture surrounding them.

Architect and urban planner Dr. Matthew Skjonsberg agrees with the whole experience approach, as well as the idea that the manipulation of architectural aesthetics might influence human behavior. He highlights how the recent common usage of the term "aesthetics" conveys "the connotation of being *superficial* or for appearance only." However, its Greek root, "*aesthesis*, means the cumulative effects of sensory perception and intuition, along with the intellectual or logical cognition gained from that which is sensed."[187] Skjonsberg, like Norman, highlights the fact that the senses are informed by cultural experience. The "ambiguity between seeing and reality", he argues, "is directly mediated by a history of conscious experience." Even the experience of something as basic as color "does not exist outside of our

[185] Ibid. 43
[186] Ibid. 46
[187] Skjonsberg 227

ability to perceive it – color is a subjective experience, governed by the context in which it is perceived."[188] Indeed, human senses are not only influenced by experience, but are interconnected and inseparable from each other. We all experience synesthesia, the relationship of separate senses, to some degree,[189] and "our sense of taste becomes severely limited if we lose the sense of smell, or the hearing is sharpened with the loss of sight."[190]

Skjonsberg points out that "the intermodality of the senses indicates that the so-called perception of *sight* is in fact not purely of vision but a combination of other sensorial influences that we may as well consider *illusions.*"[191] These illusions, he says, "are a powerful and necessary shortcut found at the heart of *Homo sapiens*' most sophisticated perceptual abilities". He contends that "even without taking various modes of subterfuge and secrecy into account, what we *perceive* does not point directly to what it *is…* reality is subject to interpretation."[192] The intentional use of these illusions in specific scenarios, he suggests, may be the ideal manner of establishing what distinguishes their potentials for appropriate functions and those that would result in exploitative manipulation.[193] "In forwarding our objective to reframe the city," he asks, "what if intentional emphasis were placed on such processes of cause and effect, highlighting the interplay between our senses and the artificial environment of the city in a manner that actually reveals the hidden nature of the city itself?" This could become the goal of architectural research and urban

[188] Skjonsberg 230
[189] Hosey 60
[190] Skjonsberg 230
[191] Ibid. 230
[192] Ibid. 231
[193] Ibid. 230

design: "By defining aesthetics as an interpretive act that encompasses the totality of human perception and cognitive empowerment – our holistic internalized 'sense' of the world around us – the relationship between aesthetics and the projective qualities that architecture assumes for the future is transformed. The strategic correlation of actuality and affectation can provide an antidote to a clichéd and commercially exploitative architectural repertoire."[194] This need not entail "mysticism or pseudoscience; we can look to everyday technologies that have recently opened communications between large segments of society."[195]

Ultimately, in Skjonsberg's mind, "developing a comprehensive system of sustainable aesthetics would encompass a deep understanding of how the built environment – over which architects have control – impacts the physical and social lives of others, and would involve informing our senses about our relationship with the natural environment in broad and direct ways." Luckily, aesthetic perception is uniquely suited to this challenge, as its directness gives it power: "It is one thing to feel the wind, to smell it… it is another thing altogether to know values for annual wind speed or precipitation."[196] The era in which we live has witnessed a flourishing of "both the psychological and physiological sciences," and thus, Skjonsberg contends, "any aesthetic theory that is relevant to our age will champion the very health of the human organism."[197] Architecture as a profession should prosper in the scientific paradigm of the modern era, "the ethics and aesthetics of sustainability

[194] Ibid. 232
[195] Ibid. 231
[196] Ibid. 240
[197] Ibid. 241

being nothing less than the ethics and aesthetics of justice, made material through the art of architecture."[198]

The idea that the whole experience of architecture might influence and improve human behavior echoes Modernist principles, particularly Le Corbusier's claims that human desires can be reduced to a universal set of needs. Lang and Moleski take issue with the modern manifestation of this ideal, as exemplified by both Skjonsberg's and Sauerbruch and Hutton's work, claiming that this type of "architectural discourse still assumes that changing the shape of the physical world will make 'better' people." However, many of the relationships that exist between built form and human behavior are "based on the situational opportunities that people perceive. A design may afford an opportunity for a child to play or for criminal behavior to take place. It does not mean that they will occur."[199]

2.4 CULTURAL/SITE SPECIFICITY TO PROMOTE A CONNECTION

An argument less centered on the psychological aspect of design, yet still connected to rooting us to our buildings through aesthetics, is the concept of reflecting cultural and site context in buildings design. Indeed, one way in which we have become disconnected from the local landscape, and less devoted to our built environment, is through the loss of site and culturally specific architecture. With increasing globalization, local architectural identity has been lost to the commercial strip mall and the stylistic preferences of globally renowned architects. Yet,

[198] Ibid. 242
[199] Lang and Moleski 13

philosopher Simone Weil claimed that the feeling of being "rooted is perhaps the most important and least recognized need of the human soul."[200] While the canonical history of architecture has placed importance on monuments that "emulate yesterday's temples and churches as artificial Edens," the "indigenous and vernacular traditions in which building and land unite to become *a part of place,* embodying the unique geographic essence of locale," have been lost.[201]

One way in which we can reconnect people to their architecture, and perhaps lessen the tendency to move from one climate-controlled box to another, is to promote a manner of building "rooted in an intimate understanding of the given site context and its climate." Local landscape and climate are necessarily a component of not only a place's geographic, but its cultural landscape as well. "In the climatically exposed northwest corner of Scotland," for example, "the making of protective environments is embedded in the vernacular."[202] In his essay on the architecture of Scotland, architect John Brennan describes the ways in which reflecting the climate is essential to a sustainable aesthetic. He, like many contemporary architects, suggests the use of passive buildings. Russell, too, claims that "one of the most environmentally responsible things we can do is live pleasurably in closer cognizance to climate, weather, daylight, and breezes."[203]

Russell explains that much of a locale's individuality "is formed out of culture, history, and habit, but its built form – like that of the Long Island village – can enhance its specialness or erase it." While the northern Atlantic coast is completely

[200] Hosey 50
[201] Ibid. 51-52
[202] Brennan 91
[203] Russell 154

unique, "because of the light, the color of the water… the shingled houses hunkered down to survive storms," much of Florida's coastline is not recognizable, "since its unique flora and even the configuration of the beach itself have been so altered – if not obliterated – that the ingredients of 'beach' have been degraded merely to water, sand, asphalt, concrete, and condos."[204] One could say that the latter situation demonstrates the ways in which "Technology has hijacked sustainability."[205]

Buildings used to be designed for the local climate, by necessity. Shotgun buildings, for example, featured a design that "strung one room in back of the other in a long, skinny line from porched, street-facing parlor to back garden." Because of their linear design, one could potentially "shoot a bullet from one end to the other," hence the name. This building type has "long served as a cheap means to funnel fresh air,"[206] and it is merely one example of the ways in which people "have lived for centuries without cheap fossil-fuel energy." They would never have "plopped the same boxy buildings you'd find in damp, dim climates in the middle of sun-seared, heat-capturing parking lots."[207] Another humble example of an architectural device that we discarded when we decided we could engineer our way out of anything is the shutter, which has existed for centuries.[208]

This device is hugely important to architect, professor, and author Ralph Knowles' argument for a "solar aesthetic". Knowles recognizes that the increasingly advanced building technology of today allows for greater freedom in shape, which

[204] Ibid. 154
[205] Hosey 14
[206] Russell 158
[207] Ibid. 161
[208] Ibid. 155

leads to "an unprecedented ability to respond with subtlety to the sun's energy through form."[209] Through the use of devices such as the shutter, we make adjustments for comfort in response to temperate and solar changes, and these connect us to the building we inhabit: "Through repetition, simple adaptive actions like moving to a shady porch or adjusting a sunscreen rhythmically connect and reconnect our experience of architectural elements in a dwelling. Ritual acts of sheltering do not permanently alter the formal order of a building. Instead, they constitute a second and less explicit order of architecture, what Professor Leonard Bachman has called 'performal'."[210]

For example, a traditional courtyard house in India has three courtyards that fill with light during the day in the summertime, while the interior rooms are shielded by blinds. In the winter, the midday sun is lower in the sky, and thus while it does not enter the courtyards, it does hit the upper spaces of the house, providing heat and light.[211] This leads to a both a daily and seasonal migration. In the summer, the family occupies the lower parts of the building, which are cooler, and then moves to the courtyards and roofs in the evening. Seasonally, the family will stay in the lower area of the house during the summer, and the upper area in the winter, following the comfortable temperature in each area.[212] Heating and cooling provided by centralized energy delivery and use have caused people to disconnect from their local environment. Buildings, as a result, look much the same, as they do

[209] Knowles 55
[210] Ibid. 58
[211] Ibid. 58
[212] Ibid. 59

not adapt to solar orientation.[213] Relying on passive design would also reduce the amount of maintenance necessary for a building, and would thus be a much more resilient structure than one that relies on centralized energy. This is just one example of the ways in which architecture can root us to our locale, and make it that much harder for us to throw away the built forms that contribute to and reflect it.

[213] Ibid. 60

CONCLUSION

By employing site-specific and culturally informed design principles, knowledge of sensory perception shaped by the social sciences, and spatially flexible design principles, we can create architecture that inspires us, roots us, and lasts for multiple generations. Ultimately, this is the core function of a sustainable approach to design – taking into account the entire lifecycle of a product. A new, loose functionalist approach that stresses durability, and is informed by a multidisciplinary approach involving both the humanities and social sciences, could be the key to overcoming the quick obsolescence of styles in a consumptive, aesthetically driven society.

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