C

Design informants

Nº 5

Theory

Figure 5.1 ~ Valley hands.jpg

Valley hands. Description: the dichotomy and balance between man's need of civilization and nature. Source: https://www.behance.net/gallery/13101275/Man-vs-Nature-Series

5.1 Between artifact and nature

The following serves as a brief outline for the purpose of contextualising the theoretical discussion and discourse of this chapter and document. In order to generate cogent arguments derived from and informed by the theoretical content of this chapter, it is important to define the basic concept of nature and its value, as perceived and referred to throughout this document.

Browning, Ryan & Clancy (2014:8) defines nature as: "…living organisms and non-living components of an ecosystem – inclusive of everything from the sun and [sic] moon and seasonal arroyos, to managed forests and urban raingardens…". It is important to acknowledge that "nature" in modern society is often designed, both for functional and aesthetic purposes, but designed "nature" also has to promote the functioning of natural systems, to be biodiverse and ecologically healthy to offer value and to be considered "nature" (Kellert, 2005:10; Browning, Ryan & Clancy, 2014:8).

Nature's living systems, as "natural capital", provide us with a variety of essential and significant services that include economical services in the form of resource provision, as a societal service by means of place-making qualities, as well as ecological services (RRC, 2014).

Ecological or natural services provide us with clean air and water, rainfall, fertile soil and a stable climate to name but a few of the vital services we rely on. These ecological services are generally referred to as ecosystem services and are provided by the natural environment or "nature" through healthy and bio-diverse eco-system functioning (Hawken, 2004:163). Technological solutions cannot provide adequate substitutes for these services as we are not able to manufacture fertile topsoil or pollinators or watersheds (Hawken, 2004:163). It is therefore imperative that we acknowledge the importance of natural systems and provide a platform for these processes and systems to thrive in our cities.

Nature's value should not only be limited to its utilitarian abilities – it is important to recognise nature's intangible qualities (Wolf & Housley, 2014:2). Research has found that life in our synthetic, strenuous and stressful manmade world drives our yearning for deeper connection with, and experiences of "nature" (Woods, 2012). Exposure to the natural environment and encounters with "nature" influence human well-being on numerous levels and even more so in urban environments (Kellert, 2005:1-3; McGinn, 2014). Contact with nature improves our physiological, psychological and spiritual well-being and it is therefore evident that our quality of life is undeniably linked to that of the larger ecosystem (Good, 2015; Wolf et al., 2014:3).

The revalorisation of "nature" in our cities is therefore vital. Green networks, rivers and ecological systems can provide invaluable ecological services as well as spiritual, recreational and aesthetic spaces where people could reconnect to "nature" and with each other (Freshwaterwatch; McGinn, 2014).

5.2 The Nature of Architecture

Man's cultural values, beliefs, ideas and collective psyche have always been expressed in the spatial and structural concepts of architecture. Architecture is thus a product and expression of the human condition and psyche (Hendrix, 2010:9). The current urban culture, specifically the design and development of the built environment, has increased human separation from the natural world and deprived people of the benefits that contact with the natural environment offers (Kellert, 2005:91).

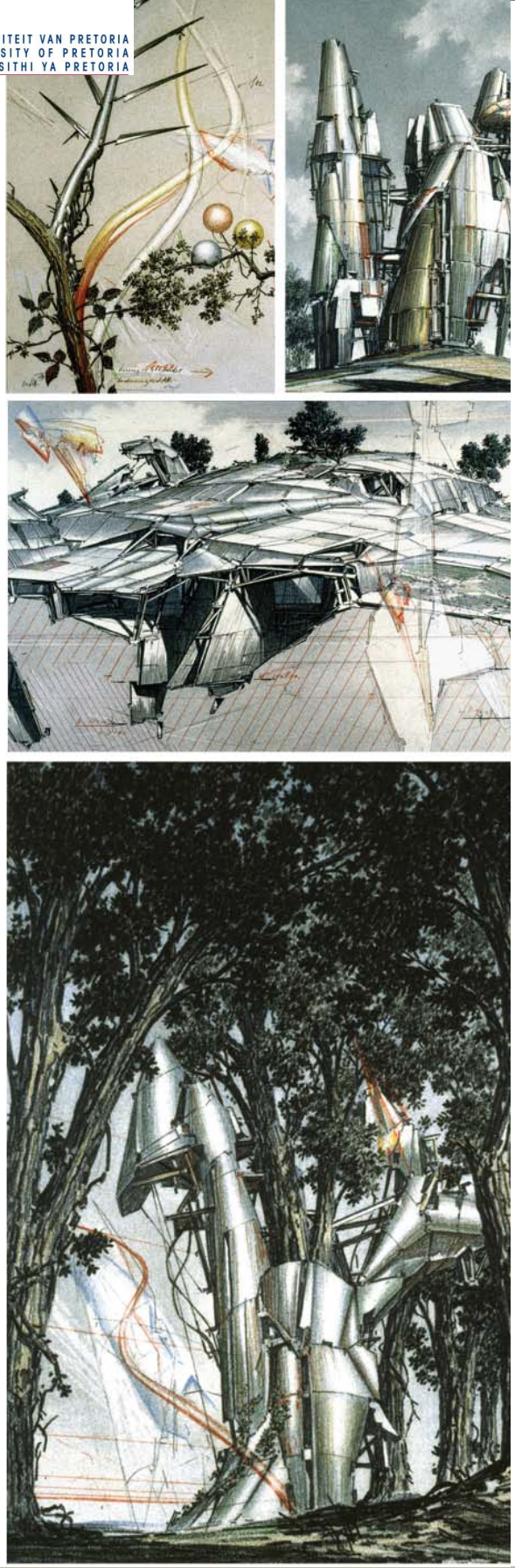
As a discipline, architecture primarily focuses on the design of buildings and the spatial experiences buildings facilitate, but as buildings are predominantly set within landscapes, whether natural or urban, the relationship between building, context and landscape has always confronted the designer (Woods, 2010; Rainey, 1988:4). The relationship between architecture and "nature", and building, context and landscape, is therefore directly related to man's cultural values and attitude towards the natural world.

Although the notion and concept of a relationship between architecture, building, "nature" and landscape has always existed, it is clear that the idea of a relationship does not automatically imply an interlinked and positive connection between these entities. As such Modernism is blamed for the production of buildings that are void of a relationship to earth, to sky and to the divinities, "objects hovering over the landscape". This in itself is a mode of expression and illustrates a selfish and subdued relationship between man, his constructed artifices and the complex web of natural, social and cultural networks (Buchanan, 2012:82-93). As man's quest to conquer "nature" has rendered a worldwide environmental and social crisis, a reconnection and harmonious relationship is imperative. Man has to strive to live as a part of "nature" instead of apart from it (Buchanan, 2012: 82-93; Wheeler, 2004).

Figure 5.2 ~ Ecological services.jpg

Diagrammatic explanation of the services nature provides. Source: http://www.freshwaterwatch.com

Appearances do not lie,
or nothing is true.
Beneath them, then, a layer,
unseen and out of reach,
mocks the idea of order.
Difference shifts. Free forces
become unexpected edges.
Still, difference defends each,
and the form cannot again
ever be the same.
The house that is
a fragment of itself,
becomes the world.
Shared by two orders,
It is inhabited only once.
Architecture's quality
might rightly be judged,
not by the problems it solves,
but by the problems
it creates.



Graphic poem by Leubbeus Woods. Source: https://lebbeuswoods.wordpress.com/2010/03/31/of-a-human-nature/
Figure 5.3 ~ Of a human nature.jpg

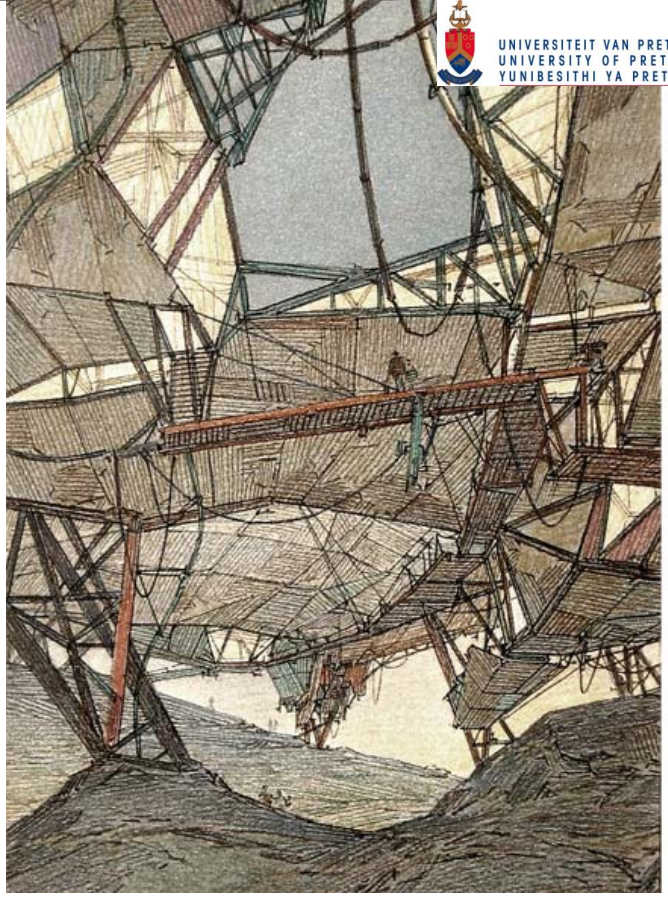


Figure 5.4 ~ Terranova - Leubbeus Woods.jpg

Terranova, Leubbeus Woods. Source: https://lebbeuswoods.wordpress.com/2010/03/31/of-a-human-nature/ https://lebbeuswoods.files.wordpress.com/2010/09/terranova-2.jpg

5.3 Interfaces

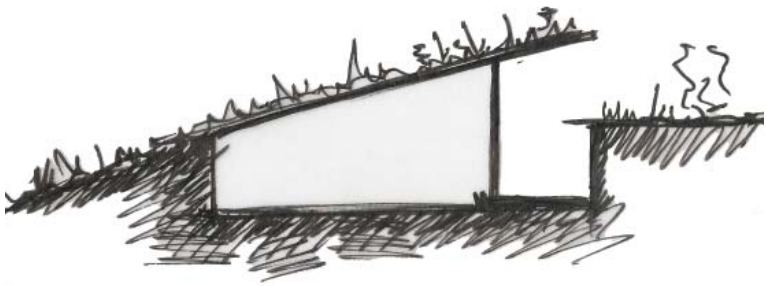
Architecture, identified as the manifestation of the collective psyche and man's cultural values, involves the design of both indoor and outdoor spatial experiences. The design of a building includes all interfaces and thresholds between the buildings and surrounding spaces such as plazas, parks and pathways. It therefore undoubtedly determines the connection between human activity, experiences and the surrounding environment. The relationship between building, context and landscape is thus also identified as a key concept in defining architectural intentions aimed at bridging the divide between man and "nature" and re-establishing social cohesion. Architecture is thus recognised as a potential mediator between human culture and "nature" capable of facilitating a reconnection when designed with this intention (Kellert, 2005:1).

The relationship between building and landscape is identified as a driver in the architectural approach, thus an understanding of the typical relationships between building and landscape is required. Reuben Rainey, landscape architect and professor at the University of Virginia, outlines three principal modes of expression that categorise the possible relationships between building and landscape. Rainey (1988:4-6) also asserts that the manifestation of any selected type of expression largely results from basic convictions regarding the relationship between humans and "nature". Depending on an architect's ethos, a building could therefore be designed to respond to its surrounding landscape and fit seamlessly into its context or it could also juxtapose and contrast its natural context (Woods, 2010; Rainey, 1988:4).

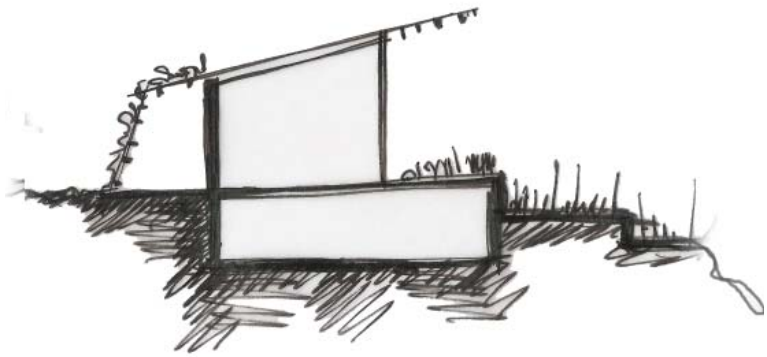
Rainey (1988:4-6) defines his modes of expression as contrast, merger and reciprocity and although a building may distinctly showcase a single or specific mode of expression, in most instances buildings consist of a combination of these expressions with one usually being more prominent than others. The tensions that evolve from the combinations of expression modes also contribute to creating deeper complexity and richness within a project (Rainey, 1988:4).

Contrast

Merge



Reciprocate



Source: Author
Figure 5.5 ~ Modes of expression.jpg

Figure 5.6 ~ Farnsworth house.jpg
Contrast: Fransworth House by Mies van der Rohe
Source: https://planyourcity.files.wordpress.com/2013/10/p1010579_1.png

5.3.1 Contrast

Architecture that juxtaposes its natural or cultural landscape by accentuating the contrast between building and landscape is defined as architecture utilising the contrast mode expression. In this mode of expression buildings are objects or works of art in the landscape. They serve as counterpoints and visual contrasts to their settings and transitional spaces, and thresholds that provide a connection between the building and landscape are often deliberately omitted. When contrast is used as the primary and dominating mode of expression, buildings as manmade artifices are often viewed as superior to, or detached from the natural realm (Rainey, 1988:4). The majority of the modern urban environment is expressed as a contrast to "nature", which has contributed to man's isolation from "nature". The use of this mode of expression as a primary relationship generator between building and landscape is therefore not representative of the intentions of this dissertation project. The design should therefore limit accentuating contrasts between the architecture and the landscape by employing transitional spaces and thresholds to integrate the building with its landscape.

5.3.2 Merger

Merger as a mode of expression and its underlying philosophy is rooted in the concept of "design with nature" and humanity's capacity for harmonious adjustment (Rainey, 1988:4). When merger is used as a mode of expression the opposite is true, as buildings that are expressed in this manner are designed to form an integral part of the natural or cultural landscape. In the urban environment, merger also refers to a building's ability to respond to or interpret the architectural and urban fabric of its surroundings in an associated manner (Rainey, 1988:4). Refer to Fig. 5.7. Frank Lloyd Wright's, Falling water, as it is a characteristic example of merger combined with elements of contrast. Fig 5.8 of Fay Jones and associates Thorncrown Chapel, nestled in its woodland setting, is another example of merger (Rainey, 1988:5) and is often referred to in discussions about biophilic design, a design philosophy and movement aimed at integrating nature in the making of architecture and space (Kellert, 2005). The chapel's design is a reinterpretation and expression of the qualities of the surrounding forest. Through its vertical structure, which mimics the forest trees and the light filtering canopy, the space is reminiscent of being in the forest.

For the building to merge with its context and landscape it may be submerged to reduce its visual impact or its form could mimic the natural topography. Pure merger can, however, not be achieved, as the mere act of building involving a transformation of the environment, introduces an element of contrast (Rainey, 1988:4). Merger as expression, however, aims to integrate and fuse building and landscape and is therefore identified as a possible mode of expression to create new links between the built and natural environment.

Figure 5.7 ~ Falling water.jpg
Merger: Fallingwater designed by Frank Lloyd Wright
Source: http://www.urbansplatter.com/2012/07/the-national-historic-landmark-falling-water-by-frank-lloyd-wright/

Figure 5.8 ~ Thorn crown chapel.jpg
Merger: Thorncrown Chapel by E. Fay Jones
Source: http://hyperallergic.com/70168/thorncrown-chapel-ozarks-landmark-under-threat/

5.3.3 Reciprocity

"Reciprocity" as defined by the Oxford Online Dictionary (2016) is "the practice of exchanging things with others for mutual benefit, especially privileges..." As a mode of expression it entails the transformation, adaptation and modification of building and landscape by one another and it is the most commonly used form of expression (Rainey, 1988:6). The underpinning values of this mode of expression are vast, but in many cases nature is valued and admired for its unique qualities and therefore utilised and adjusted in conjunction with the building product (Rainey, 1988:6). Buildings and projects featuring this strategy often create transitional zones and thresholds in the form of arcades, gardens, pools, terraces, pergolas, fountains, planting that penetrates the building, or the spatial arrangement and organisation principles employed in the building spaces are extended into the landscape creating subtle transitions between indoor to outdoor spaces (Rainey, 1988:6).

Many of these principles also relate to biophilic and regenerative design philosophies, as this approach considers building and landscape to be equally valuable and ultimately aims to generate a symbiotic relationship between the two. For this reason, especially in an urban context, reciprocity as primary expression between building and landscape, combined with elements of merger, is considered an appropriate and viable design methodology to achieve the dissertation's outlined intentions.

Figure 5.10 ~ Alhambra-garden a.jpg

Figure 5.9 ~ Alhambra-garden b.jpg

Reciprocate: Alhambra Granada Spain, built under the Nazari Dynasty in the 14th century
Description: The Almambra palace and gardens illustrates a reciprocate relationship between landscape and building through the similar organisation of indoor and outdoor space, the use of threshold's open walkways, terraces and abundance of water and planting elements.
Source:
a: https://www.youtube.com/watch?v=0zHkAowMKrU
b:https://www.travelmoodz.com/en/destination/spain/andalusia/alhambra

5.4 Patterns of Biophilic Design

As discussed under architectural modes of expression, both merger and reciprocity as design strategies also relate to concepts of biophilic design, a design approach that is broadly classified as a part restorative design. Biophilic design has a strong environmental emphasis and is aimed at promoting positive interactions between people and nature in the built environment, while restoring and mitigating the adverse effects of modern design (Kellert, 2005:93, 123). Biophilic design principles can therefore provide further insight and design guidance.

Browning et al. (2014:9-10) distinguish between three primary themes and categories of biophilic design which are: nature in space, natural analogues and nature of the space.

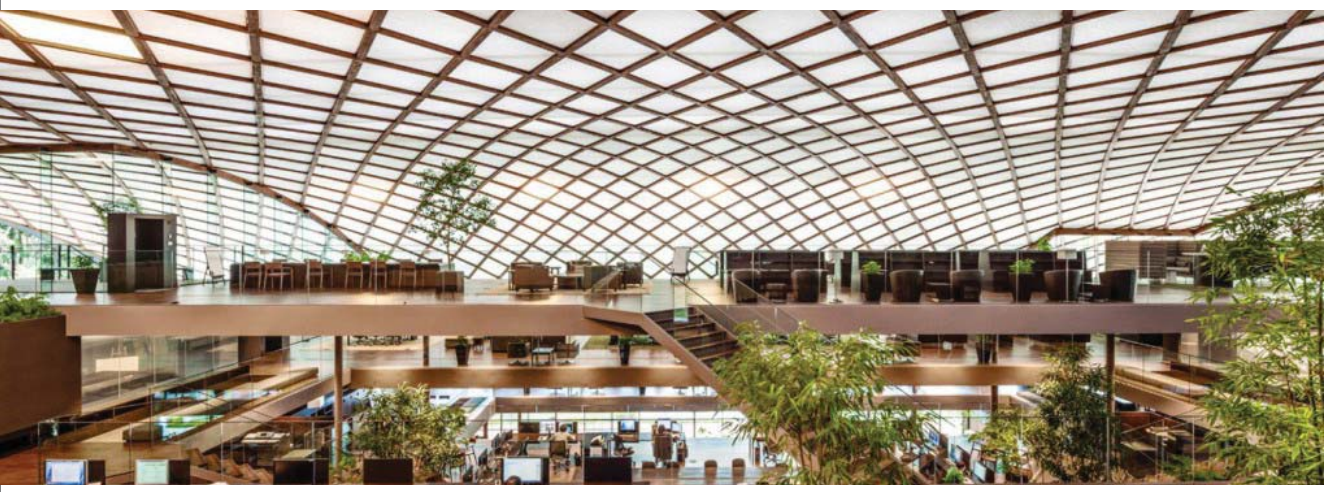


Figure 5.12 ~ ROKI Global Innovation Center a.jpg

Figure 5.11 ~ <Multiple intersecting links>

Figure 5.13 ~ ROKI Global Innovation Center c.jpg

Nature of the space, ROKI Global Innovation Center, Hamamatsu in Japan by Tetsuo Kobori Architects
Source: http://inhabitat.com

Figure 5.14 ~ Tadao Ando - Hansol museum.jpg

Nature in the space, the use of by water Tadao Ando in the Hansol museum, Wonju South Korea.
Source: http://weburbanist.com/2016/06/27/reflecting-on-a-master-architect-10-water-centric-works-by-tadao-ando/2/

Figure 5.17 ~ Tadao Ando - Hansol museum b.jpg

Figure 5.15 ~ HOK design's London office.jpg

Nature in the space, green boulevard incorporated at HOK design's London office
Source: https://www.reminetwork.com/articles/the-importance-of-biophilic-design/

Figure 5.18 ~ Sagrada familia .jpg

Natural Analogues, Sagrada familia by Antoni Gaudi. Source: Author

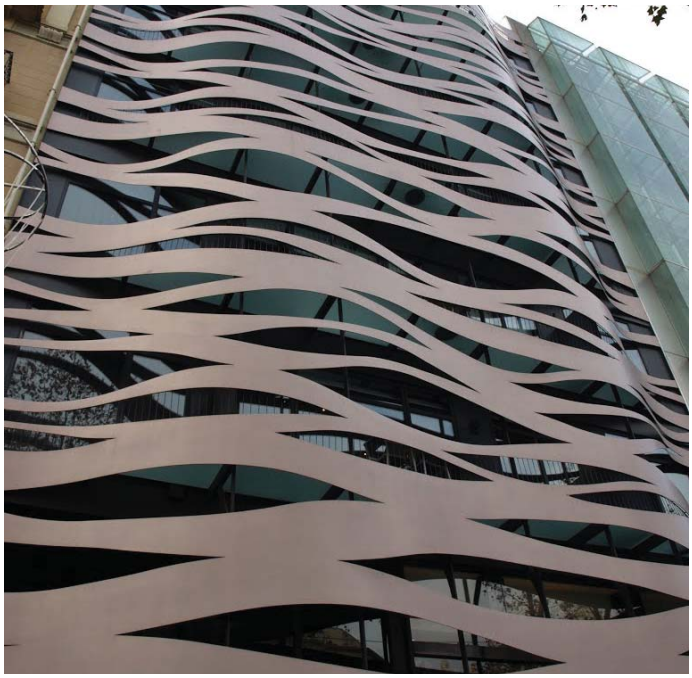


Figure 5.16 ~ Aparthotel facade Barcelona Spain.jpg

Natural Analogues, Aparthotel facade Barcelona Spain
Source: Hans R. van der Woude, http://www.panaramio.com

Figure 5.19 ~ Fort worth water garden.jpg

Nature of the space, Fort Worth Water gardens
Source: Eric Hunt, https://en.wikipedia.org/wiki/Fort_Worth_Water_Gardens#/media/File:Fort_Worth_Water_Garden.jpg

5.4.1 Nature in space

This approach implies the physical and ephemeral presence of nature within a place. Under this nature-design relationship, direct interaction and experiences with nature are promoted through the use of spatial experiences. Vegetated roofs, bird feeders, water features, green walls and courtyard gardens are design elements incorporated to include nature in spaces. Visual connections, non-visual connections, natural lighting, airflow, sensory stimulation, natural systems and the presence of water are identified as patterns of nature in space.

5.4.2 Natural analogues

Natural analogues utilise a metaphoric approach in which non-living elements and processes reference or mimic nature. This method utilises patterns such as biomorphic forms and organic shapes, natural patterns such as wood grain, natural material palettes minimally processed to create a material connection with nature. Artificial elements become abstracts of nature.

5.4.3 Nature of the space

This method consists of spatial configurations and patterns that evoke experiential qualities associated with nature. Spatial organisation and configuration create built spaces that offer the intangible qualities often found in natural settings. Examples are spaces that allow unimpeded views, referred to as prospect falls, or create tranquil pause areas, spaces of refuge, where individuals can withdraw from a main activity zone. This generates mystery and spatial clues to entice exploration of other areas and even creating identifiable threats (with a reliable safeguard) as would be present in natural landscapes and spaces.

These patterns and unique combinations thereof create a rich diversity of approaches to consider and incorporate in the designing process and build on the modes of expression to illustrate how architecture can establish a new relationship with nature and both include and become a part of “nature”.

5.5 Hybridisation: Building as an Infrastructural Landscape

As the urban realm, considered as an endless aggregate of buildings and infrastructure systems, requires architectural approaches that could yield new forms of co-existence and make cities liveable (Woods, 2010), architecture has an important and presumably altered role to play in shaping spaces in which urban nature connections and social experiences are possible.

As explored in the above discussions, conventional and typical architectural typologies are to be challenged as these (in conjunction with mono-functional infrastructures) have contributed to the multiple conditions of disconnection observed in the built environment. Similarly, infrastructure in its current form, bridges, waterways, highways and roads, are essential to urban functioning in a practical sense, but generally void of social and ecological value (Weis & Manfredi, 2015:8-15). Considering that a variety of urban components have to be addressed, the concept of hybridisation and the fusion of building, landscape and infrastructure are proposed and explored (Allen, 2011:34-37; Weis & Manfredi, 2015:8-15).

Allan (1999:54) asserts that "Architecture is uniquely capable of structuring the city ...". Architecture's capacity to actualise social and cultural concepts also separates it from purely technical

Figure 5.20 ~ High line - New York.jpg

Source: http://www.solaripedia.com/images/large/5801.jpg

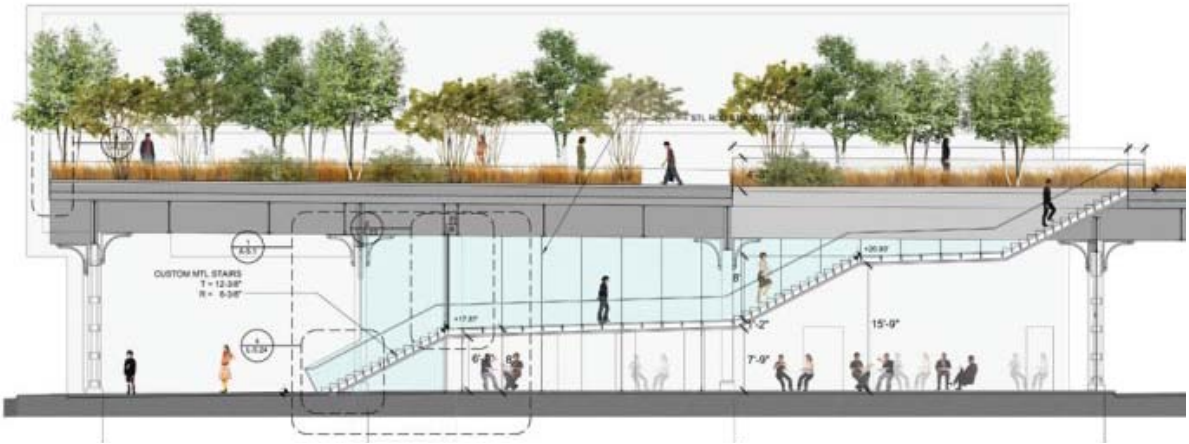


Figure 5.21 ~ High line - New York b.jpg

The Highline New York integrates architecture and natural utilities as a hybrid urban infrastructure
Source: http://www.thehighline.org

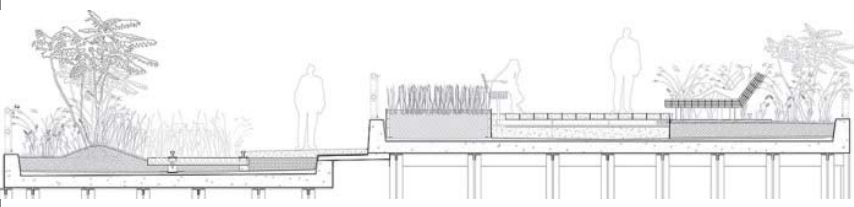


Figure 5.24 ~ High line - New York c.jpg

Figure 5.22 ~ High line - New York d.jpg

The Highline New York integrates architecture and natural utilities as a hybrid urban infrastructure. Source: http://www.thehighline.org

Figure 5.23 ~ High line - New York e.jpg
The Highline New York integrates architecture and natural utilities as a hybrid urban infrastructure. Source: http://www.thehighline.org

approaches to urban structure employed by other disciplines, such as engineering. It is this ability that equips architecture to function as infrastructure. It is capable of creating future conditions and structuring an urban terrain that could render services and manage complex systems (Allan, 1999:54). Weiss and Manfredi (2015:8-15) argue that architecture must evolve to generate better and more productive connections between landscape, infrastructure and urban territories. The firm's design of the Seattle Olympic Sculpture Park attempted to do exactly that, as the project resolved a series of urban, architecture, infrastructure and landscape challenges in an integrated architecture, landscape and infrastructure fusion. This approach operates at the intersection of a variety of disciplines ranging from landscape urbanism, engineering, architecture, landscape architecture and ecology and therefore requires highly collaborative practices (Allan, 2011:24).

Several projects exploring the idea of a hybrid architecture are coming to the fore. (Selected precedents are discussed in Chapter 6 of this document.) The evolution of these projects is arguably attributed to a current movement in architecture aspiring to create buildings that are able to adapt and respond to their environmental conditions, consequently producing architecture that would be more "life-like" and even biological in nature, as the building becomes a functioning part of the surrounding landscape and ecological urban network (Allan, 2011:20).

To understand the full potential of hybridisation, the concept of merging building and landscape is to be extended beyond form and biophilic patterns. These are important and, depending on the context, will vary in magnitude and application, but hybridisation is even broader. Buildings are able to embody functional and spatial qualities of landscapes and architectural reconstructions of nature could manifest in either form, scale, process, atmosphere or a combination of these interpretations, which present an array of conditions, processes and experiences typically associated with landscape conditions, rather than architecture (Allan, 2011). Refer to Fig 5.25-5.26 of Giant Group Campus, Shanghai, China, by Thom Mayne, Morphosis and Fig 5.27 of the City of Culture project by Peter Eisenman Architects in Santiago de Compostela, Spain.

Hybridisation also utilises the performative and organisational potential of landscape and infrastructure in the architectural

realisation (Allan, 2011:24). The use of landscape techniques, such as site ecology, surface preparation, habitable surfaces, surface manipulation, planting regimes and the design of public space, allows the concept of "building" to push past the conventional limitations of the vertical façade and mono-functional surfaces. It links exterior and interior experiences and becomes more permeable and connected. This challenges conventional approaches and typologies in architecture, which often understood architecture as a static entity and as an object isolated from the landscape and its context.

Hybridisation therefore allows innovative configurations, boundaries and surfaces that allow new urban connections and programmatic flexibility with a pronounced focus on the public realm (Allan, 2011:21-22). The architecture itself becomes a constructed landscape, not purely in metaphor or form, but by establishing a condition that allows numerous programmatic possibilities and connectivity that render the site/ building capable of evolving overtime and thus behaving like a landscape (Allan, 2011:22). Buildings are thus able to function as urban parks, social spaces, bridges, thresholds and interfaces between people, urban culture, "nature" and the city.

Figure 5.25 ~ Giant campus a.jpg

Figure 5.26 ~ Giant campus b.jpg

Giant Group Campus, Shanghai, China, by Thom Mayne, Morphosis, design
Source: https://lebbeuswoods.wordpress.com/

Figure 5.27 ~ City of culture.jpg

City of Culture of Gallicia, Santiago de Compostela, Spain, competition model, 1999, by Peter Eisenman, Eisenman Architects. Source: https://lebbeuswoods.wordpress.com/

5.6 Conclusion

This new synthesis between landscape, architecture and infrastructure as a typology provides a multifaceted strategy and opportunity to address urban fragmentation, the lack of social cohesion and the re-introduction of "nature" to the urban realm. It uniquely enables architecture to address the contextual challenges observed and identified in Chapter 1 of this document. Hybridisation, as the combined approaches of merged and reciprocate modes of architectural expression, the incorporation of patterns of biophilic design and developing the building as an infrastructural landscape product, is therefore supported. Such a synthesis may prove to be vital in rekindling a connection between man and nature and shaping the new public domain in a current defunct urban realm (Weis & Manfredi, 2015:9).