

PART ONE _ Argument

Theory

The focus of this section will be on establishing some common ground between theories of adaptation and theories of heritage conservation. The aim is to develop a theoretical framework and vocabulary for the adaptation of existing structures within an understanding of heritage conservation practices. Modernism acts as an extra layer of interaction to the main theoretical premise of adaptation. While many theoretical frameworks exist for adaptation as well as heritage, only a couple will be focused on here.

It is a well-meaning act to conceive of buildings as essentially unchanging, stable, permanent, invariant, an historical record, but we must acknowledge that in reality buildings have to be understood in terms of several different timescales over which they change, in terms of moving images and ideas in flux (Groak, 2002:15).

Buildings cannot be viewed as static objects; they are forever changing. In *The idea of building – thought and action in the design and production of buildings*, Groak (2002:17) makes a distinction between adaptability and flexibility. He describes adaptability as the ability of a building to accommodate different social uses, and flexibility as its ability to assume different physical arrangements. Adaptability and flexibility define a building's capacity for change. Adaptability and flexibility are then qualities of an existing building that are needed for remodelling.

Machado (1976:46) argues that remodelling is as old as the practice of architecture itself, defining it as formal intervention upon existing form. He rejects terms like adaptive reuse, retrofitting and architectural recycling and suggests that we should simply use the term 'remodelling'. The use of metaphors, such as palimpsest, can be a valuable aid in building a theory of remodelling, which means a building can be viewed as a piece of parchment with a narrative already inscribed on it. Extending this argument of an old building as palimpsest, one can view remodelling as rewriting, writing over, underlining, erasing, paraphrasing, quoting and even as punctuation (Machado, 1976:47). In this way many possibilities are opened up for the type of formal intervention on existing fabric.

Formal intervention on existing fabric is best described by two existing frameworks that each help to provide a meaningful

Philippe Robert's seven principles for formal intervention, and the second is Stewart Brand's shearing layers of change.

Robert's seven principles are:

- *The building within*, where the formal intervention is built inside the existing building.
- *The building over*, where the formal intervention occurs on top of the existing form.
- *The building around*, where new space is defined between the existing form and a new intervention.
- *The building alongside*, where the existing building is extended by means of a new architecture.
- *Recycling materials and vestiges*, where existing materials are reused in the new intervention and existing spaces are re-appropriated.
- *Adapting to a new function*, where the existing building is changed to accommodate a new function.
- *Building in the style of*, where the style of the existing building is simulated in the new intervention (Robert, 1989:6-8).

These seven principles almost organise themselves into two categories. The first four each have a unique spatial identifier, while the last three refer to a practice of some kind.

Stewart Brand's framework focuses on a building's cycles of change over time after it has been built, which he refers to as the shearing layers of change. The building is separated into six layers, or the six S's: Site, Skin, Structure, Services, Space plan and Stuff (Figure 1). The site is the plot of land that is allowed to be occupied, including its topography and building lines. The site is the component that will last the longest, outliving the building that is constructed on

it. The structure includes the loadbearing elements and foundations; these bones should be able to last 300 years. The skin is the exterior surface of the building and changes approximately every 20 years. The services are the inner workings of the building, including plumbing, electrical components and air-conditioning; these need to be replaced every 7 to 15 years. The space plan refers to interior walls, doors, ceilings and floors. The space plan changes as often as every 3 years. Finally, stuff is that which is not fixed, like furniture (Brand, 1994:13).

It is important to note that Brand's framework

focuses on the physical fabric of a building and does not consider intangible elements. For the site, for example, the changes to the immediate or greater context that occur over time are not taken into consideration. These kinds of changes can have huge spatial implications for the site, especially if adjacent buildings are removed or replaced.

The International Style had its own manifestation of how to deal with changes to a building over time, most notably in the Dom-in-o House, where Le Corbusier took advantage of reinforced concrete technology to create a column and slab structure that brought a certain freedom to the floor plan and façade, allowing them to be replaceable over time (Nuttgens, 1983:268).

In South Africa the modernist ideal of a free floor plan and façade was further explored by Hellmut Stauch (1910-1970) in the Meat Board Building. It was the first civic building in South Africa to be built in the International Style, relying heavily on Brazilian influences and showcasing adjustable *brise-soleil*, in situ concrete and colourful glass mosaic tiles (Gerneke, 1998:216). Stauch aimed to provide sub-divisible office space in the building, and achieved this by incorporating slender steel columns in the façade that disappear behind vertical fins that prevent early and late sun from entering the building. In this way the office spaces could be successfully sub-divided again and again in any form and there would be no pesky free-standing columns in the space (Stauch, 1951:13). It meant however that the structure

was again incorporated with the façade but allowed a greater freedom for the floor plan.

Buildings are constantly changing and it is the responsibility of the designer to understand the forces that drive this change and how the process can be managed and designed. Brand's framework offers a comprehensive starting point for the development of a framework for remodelling within the understanding of old buildings as palimpsest. The understanding of formal intervention can be further expanded with the principles that Robert offers, in conjunction with Brand's shearing layers of change. Furthermore, remodelling forms an intrinsic part of the DNA of modernist column and slab structures, regardless of the designer's future remodelling intentions.

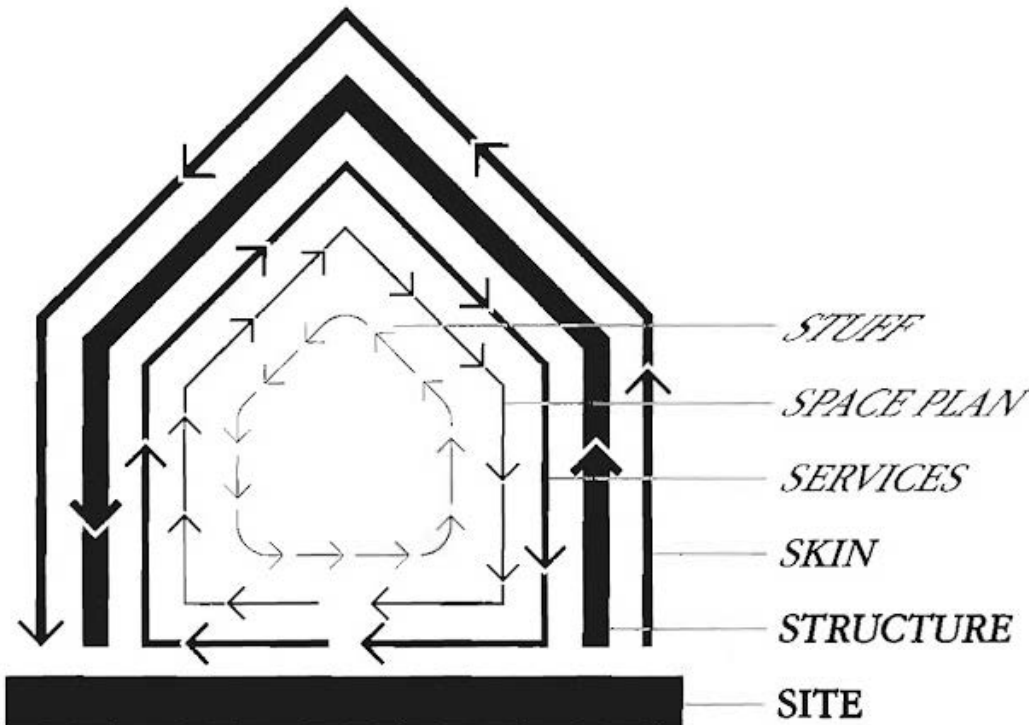


Figure 1: Shearing layers of change. (Brand 1994: 13)

In this section an attempt will be made to set the current paradigm of heritage practice in South Africa, in order to establish a platform from which to build a framework for the conservation of modernist buildings. The National Heritage Resources Act and the *Burra Charter* will be explored as tools for the formal intervention on existing form.

In 1994 apartheid was abolished and Nelson Mandela became South Africa's first democratically elected president, ushering in a new age for the country that was applauded by the world as a human rights victory. The resultant cultural and political paradigm shift raised problematic questions: what is to be done with objects and places that invoke a contested and no longer prevalent paradigm? The following years saw an iconoclastic reaction to the previous paradigm, involving the removal of statues from public spaces and art from public buildings, and the renaming of places and streets in order to restore the old African names or to erase colonial, settler or apartheid appropriations (Bakker, 2010:48).

Most heritage practice in South Africa has a central theme of exclusion. Places of heritage often only focus on a singular social memory and deny the existence of other social narratives that exist in the same space and time. This practice of exclusion should be overturned and a practice that embraces inclusion and multivalence be undertaken (Bakker, 2011).

The Voortrekker Monument, dedicated to the Dutch pioneers, is an example of a singular narrative, as it only transmits the social memory of the Voortrekkers and excludes, for instance, the social memory of Mzilagazi's people who lived here before the Voortrekkers. South Africa's understanding of heritage should change to that of a shared and inclusive one. This is to say that South Africa's heritage should include the narratives and social memory of Mzilagazi, Kruger and Mandela alike, and should explore the complex interrelationships between in a critical yet non-biased way. It is of great importance to avoid the homogenisation of social identity and memory. Some attempts have been made to create a more inclusive narrative in projects like Freedom Park, the Boipatong Memorial and Youth Centre and the Hector Pietersen Museum.

Bakker's attitude towards a multivalent and inclusive heritage is strongly rooted in post-colonialism. According to Hosagrahar a post-colonial attitude towards architecture and urbanism offers a way of thinking about heritage and cultural landscapes that is simultaneously globally interconnected and situated in time and space (Hosagrahar, 2008:70). This means that there should be an understanding of all the historical narratives that play a role in the cultural significance of a place regardless of its qualitative expression; the good and the bad should be embraced and transmitted.

The new attitude towards heritage practice is best described as:

[...] an increased emphasis on intangible heritage as an agent in the production of places of commemoration, and for open-ended heritage places where the emphasis is not necessarily on achieving consensus, but where contradictions, complexity and conflicts, due to inevitable differences in interpretation, may be continuously explored and debated, and seen as an opportunity for an increase in cultural vibrancy and cultural tolerance (Bakker, 2010:54)

What does a multivalent and inclusive heritage practice look like?

Heritage practice in South Africa is largely driven by the National Heritage Resources Act as well as the *Burra Charter*.

The National Heritage Resources Act (Act No. 25 of 1999) describes the types of resources that are considered part of the national estate and continues to define the cultural significance that has to accompany the resource. These resources may include buildings, places, settlements, landscapes, archaeological sites, graves and movable objects. The National Heritage Resources Act lists nine possible values that a resource may possess for it to be considered culturally significant (1999:14):

- The perceived importance of the resource to a community or to the pattern of South Africa's history.
- Resources that are uncommon, rare or endangered, whether they are natural or cultural resources.
- The resource may possess the ability to contribute to an understanding of South Africa's heritage.
- The resource may demonstrate the principal characteristics of a certain class of heritage place or object.
- The resource could exhibit an aesthetic characteristic valued by a community or culture.
- The resource may have the ability to demonstrate technical or artistic achievements of its time period.
- The resource may be considered special to a community or cultural group for social, cultural or spiritual reasons.
- The resource could be associated with the life and work of a person, group or organisation that played an important role in the history of South Africa.
- The resource is considered significant if it relates to the history of slavery in South Africa (1999:14).

The Act also defines a grading system to distinguish the importance of places or objects. A Grade I resource possesses qualities that are exceptional, rendering it as nationally significant. A Grade II resource has special qualities that lead towards its provincial or regional importance. The final grade of resources, Grade III, simply entails other resources that are worthy of conservation (1999:18).

It is important to note that the National Heritage Resources Act defines 'cultural significance' as aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance, without assigning it to a specific culture (1999:8). It implies that all cultures are to be considered and are equally important and valuable, but it fails to be explicit in addressing multivalent and inclusive heritage practice.

While the National Heritage Resources Act provides us with an understanding of what is worth conserving as well as a legal framework, it does not truly describe the act of heritage conservation; for this we turn to *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*. The *Burra Charter* provides a comprehensive list of terminology as well as a variety of principles, processes and practices that can aid in the production of a framework and vocabulary of remodelling.

The *Burra Charter* outlines 34 articles that drive conservation practice. The following

definitions that will serve as a basis for the investigation of adaptation. It is important to note that all of the articles expressed in the *Burra Charter* are extremely valuable, but only the most relevant articles can be discussed here (The *Burra Charter* 1999:2-7).

Maintenance, preservation, restoration, reconstruction and adaptation are all physical acts of conservation. These practices are extremely valuable for the development of a remodelling framework. At the core of these practices lies the idea of conservation with the aim to save or reveal cultural significance.

Maintenance is the fundamental conservation act of protective care. It is performed to retain the cultural significance inherent in the fabric and setting of a place. Regular maintenance can reduce the need for restoration and reconstruction and should be an integrated process of site management (Marquis-Kyle & Walker, 2004:56).

Preservation is the act of maintaining the existing state of a place in order to reduce the deterioration of its fabric or setting, in an attempt to slow the passage of time. It can be the most appropriate conservation strategy in cases where insufficient evidence is available to perform restoration or reconstruction, or in cases where the existing state constitutes evidence of cultural significance (Marquis-Kyle & Walker, 2004:58).

Restoration is the act of reinstating a previously known state of a place by reassembling existing components or

removing accretions. This strategy does not introduce new material to the fabric and is performed if enough evidence of an earlier state of the place is available. The process focuses on the removal of layers in order to reveal cultural significance (Marquis-Kyle & Walker, 2004:62).

Reconstruction is similar to restoration; however, this strategy allows for the introduction of new material to aid in the endeavour to reinstate a previously known state of the place. Many places periodically require the reconstruction or renewal of fabric in order to maintain significance, as is often necessary when a place is incomplete as a result of damage, alteration or natural deterioration (Marquis-Kyle & Walker, 2004:63).

Adaptation allows for the modification of a place to suit an existing or proposed use. This strategy is only acceptable when it has very little impact on the cultural significance of the place. Adaptation is sometimes necessary when a small loss or change in significant fabric can have a positive effect on the rest of the place. The Charter aims for absolutely no loss of significance, but recognises that it can be beneficial in some cases (Marquis-Kyle & Walker, 2004:64).

The *Burra Charter* also outlines several principles that are valuable for the development of a remodelling framework. The most notable principle is expressed in the Charter's third article, the cautious approach. It advocates 'changing as much

as necessary but as little as possible'. This article promotes a responsible practice that respects the history of the place, its fabric, the historical and current use, its setting, and all associated meanings (Marquis-Kyle & Walker, 2004:20).

Often the cultural significance of a place is connected to its use, adding value and meaning to the community, and this memory of use should be respected. All past and present uses may be of value, and an attempt to retain the original use should be made (Marquis-Kyle & Walker, 2004:34).

Places can sometimes have a variety of meanings to and associations for different groups, especially places that are associated with political, cultural or spiritual events. This spectrum of meaning should be addressed and emphasised without favouring one over the other (Marquis-Kyle & Walker, 2004:50). This article reflects a post-colonial attitude towards heritage conservation practices and supports Bakker and Müller's quest for a multivalent and inclusive heritage practice.

A clear distinction between new work and existing form aids in the endeavour not to obscure the cultural significance of a place. New work should never dominate, as it will draw attention away from the existing place. Methods of distinguishing new work should be carefully considered (Marquis-Kyle & Walker, 2004:66) – a principle that also applies to reconstruction strategies, where new material should be identifiable upon closer inspection.

The *Burra Charter* gives a comprehensive understanding of heritage practices and all the various forms that these can embody. The *Burra Charter* explicitly encourages multivalent and inclusive heritage practice in its articles, while the National Heritage Resources Act allows for the opportunity to be inclusive without explicitly demanding it. It remains the heritage practitioner's responsibility to be multivalent and inclusionary in their investigation and engagement of a place.

Theoretical framework

“Lieux de mémoire [places of memory] only exist because of their capacity for metamorphosis, an endless recycling of their meaning” (Nora, 1989:19). This transformation is an important component in the continued preservation of places of cultural significance.

Theories of adaptation and theories of heritage practice often work in isolation. Even though they have very similar intentions, these arise from different points of view, one intending to save cultural significance and the other intending to save ecological value. It is intended in this theoretical framework to amalgamate them in order to create a rich and flexible tool for understanding the act of remodelling old buildings.

A series of diagrams were developed with Brand’s diagram serving as a base. The first four diagrams incorporate definitions from the *Burra Charter* that describe the physical act of conservation: maintenance, preservation, restoration and reconstruction. Four additional diagrams focus on remodelling, incorporating Robert’s four principles: the building within, the building over, the building around and the building alongside.

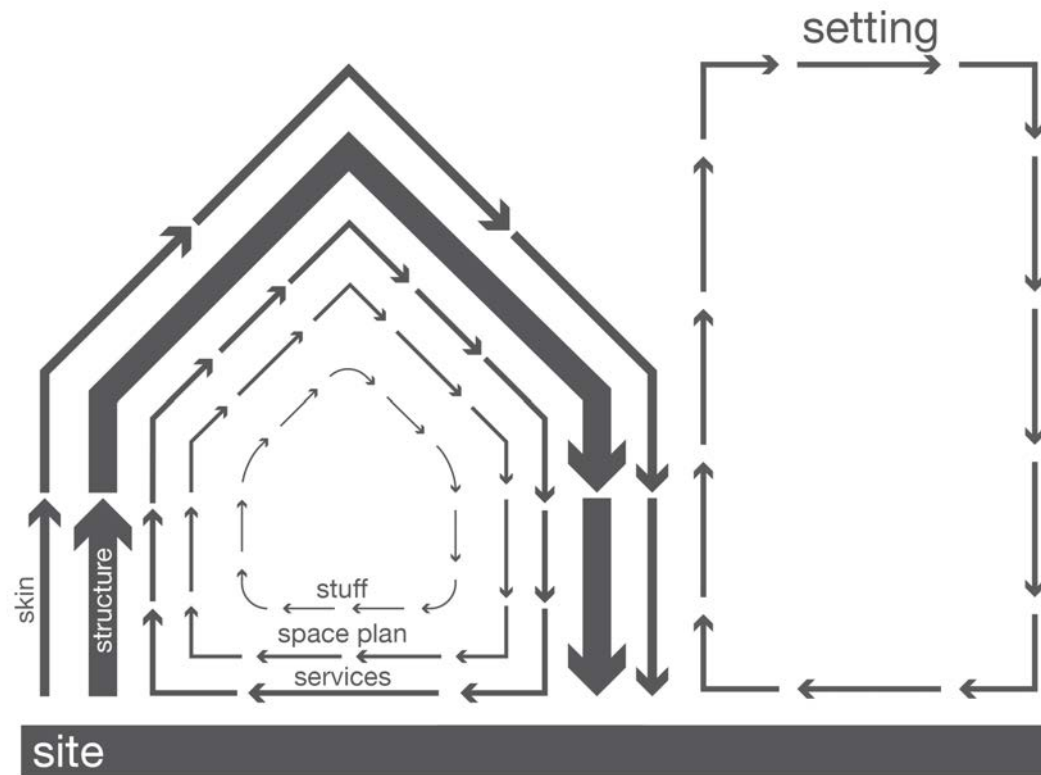


Figure 2: Conservation diagram - Maintenance.

Maintenance is almost a pure representation of Brand's six S's. There are two changes to the original diagram: the first is that all the processes now flow in a clockwise direction to indicate the natural passage of time. A seventh S is added that sits outside the building and represents Setting, defined by the *Burra Charter* as the area around a place, which may include the visual catchment. The setting adds a contextual dimension omitted by site. It broadens the understanding of how a place changes over time and includes changes to streetscapes, vistas, landscapes and surrounding buildings.

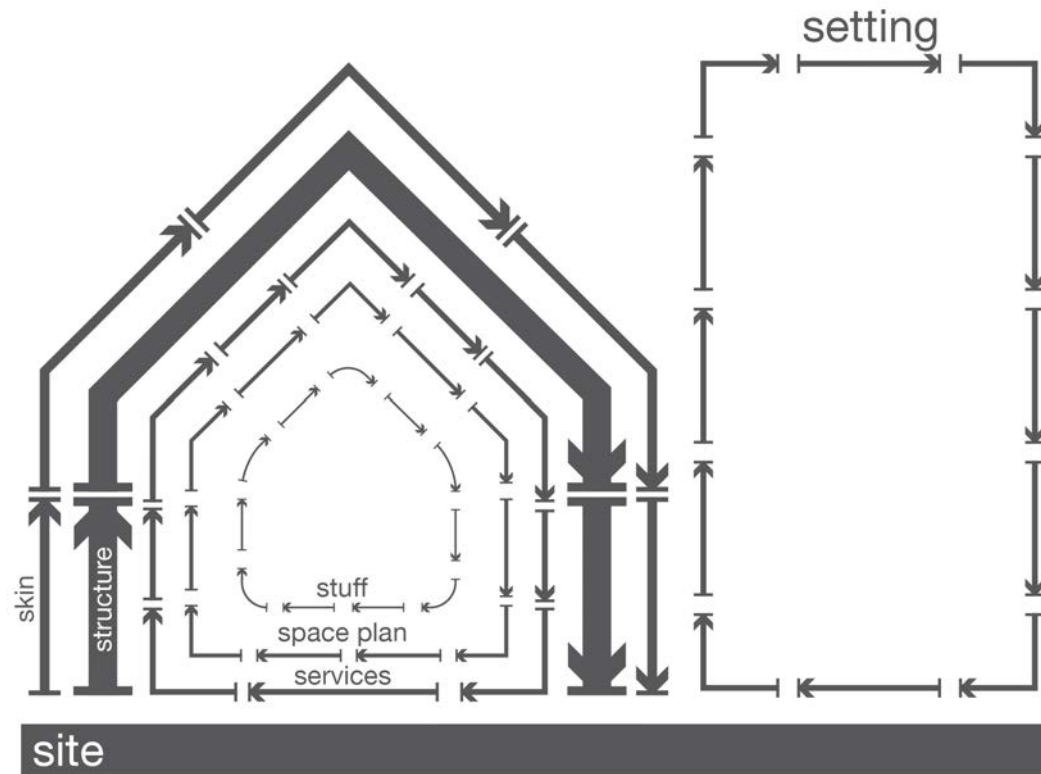


Figure 3: Conservation diagram - Preservation.

Preservation sees the flow in Brand's diagram come to a complete standstill. It is the main focus of preservation practice, i.e. to attempt to stop the passage of time and preserve a building in its current state, and is also applied to the setting in some cases, especially where cultural landscapes are concerned.

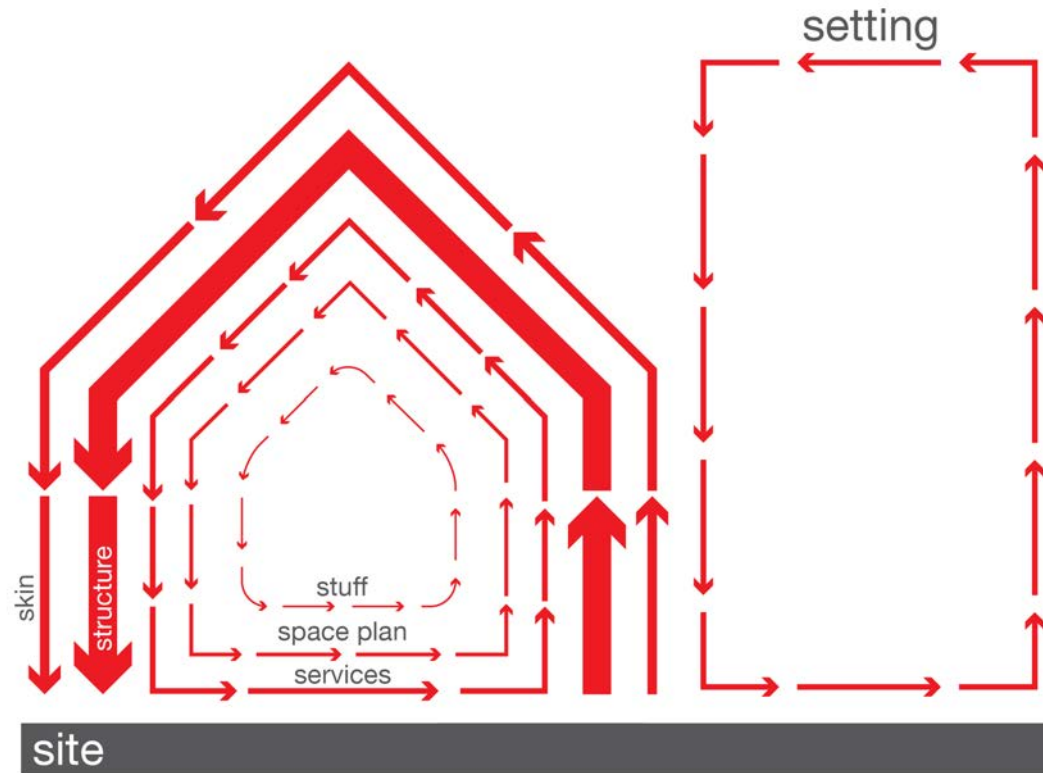


Figure 4: Conservation diagram - Restoration.

Restoration sees the flow of Brand's diagram reversed completely, in what is effectively an attempt to reverse time. Again, this reversal of time could also be applied to the setting.

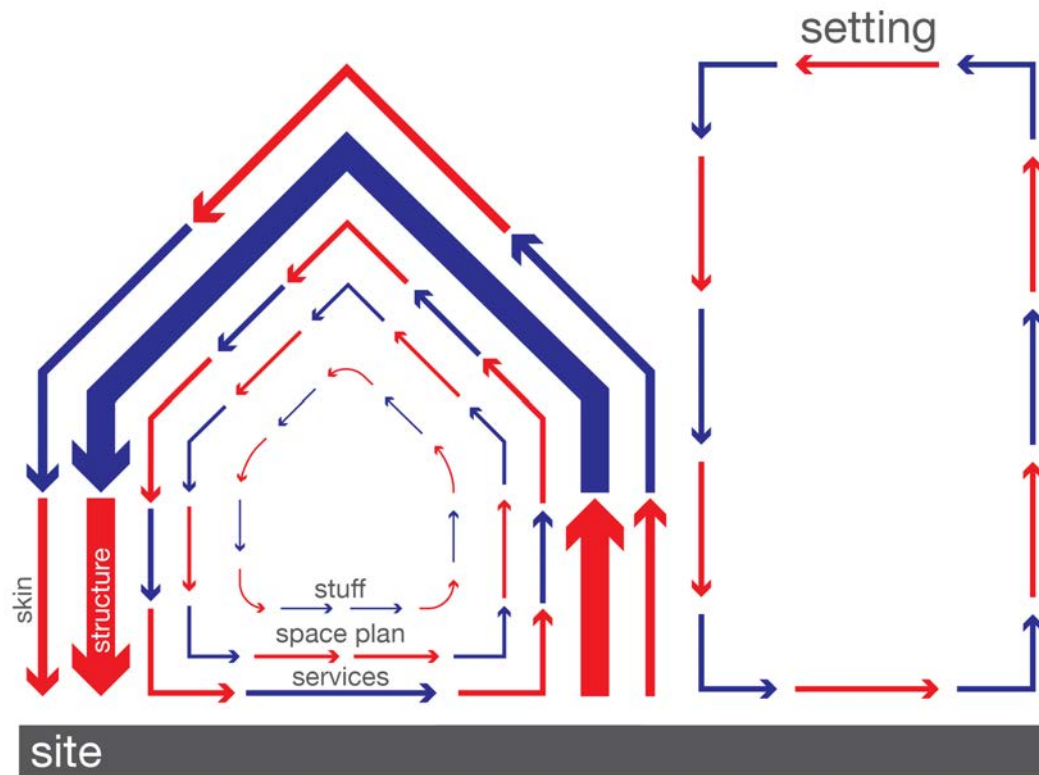


Figure 5: Conservation diagram - Reconstruction.

Reconstruction once again sees the flow of Brand's diagram reversed, this time however including blue lines to indicate the introduction of new material.

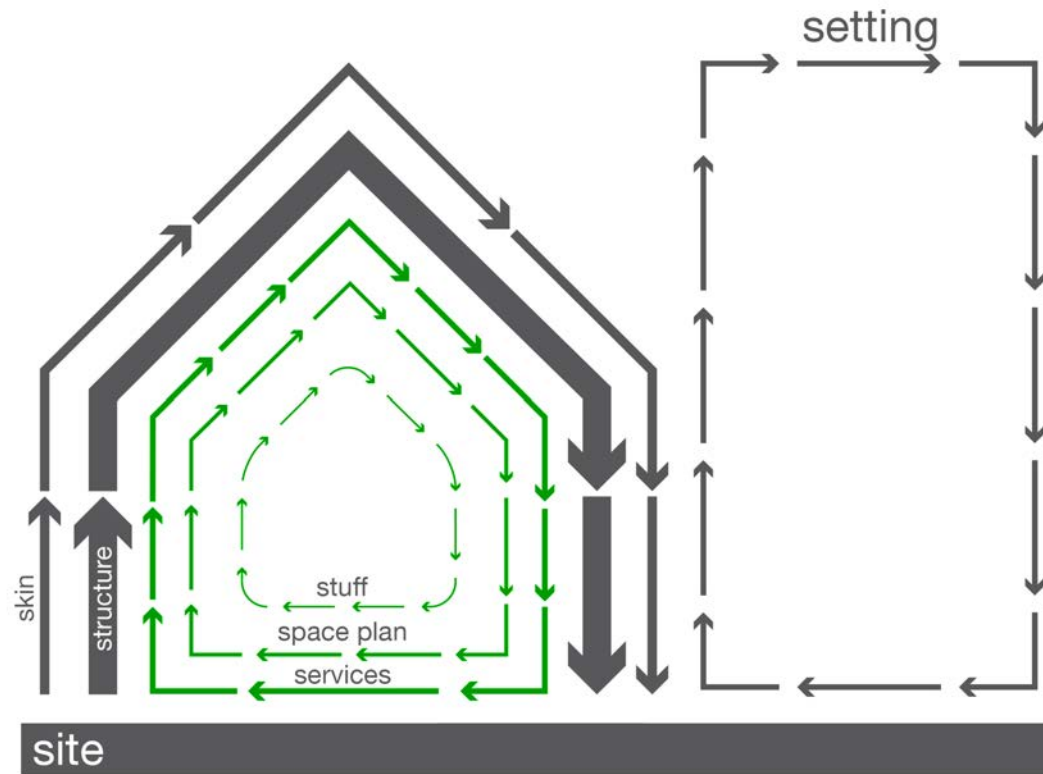


Figure 6: Remodelling diagram - the building within.

The first remodelling diagram superimposes Robert's idea of 'the building within' onto Brand's diagram. This practice only engages with the inner layers and leaves the structure and skin in its original form, and has no effect on the setting.

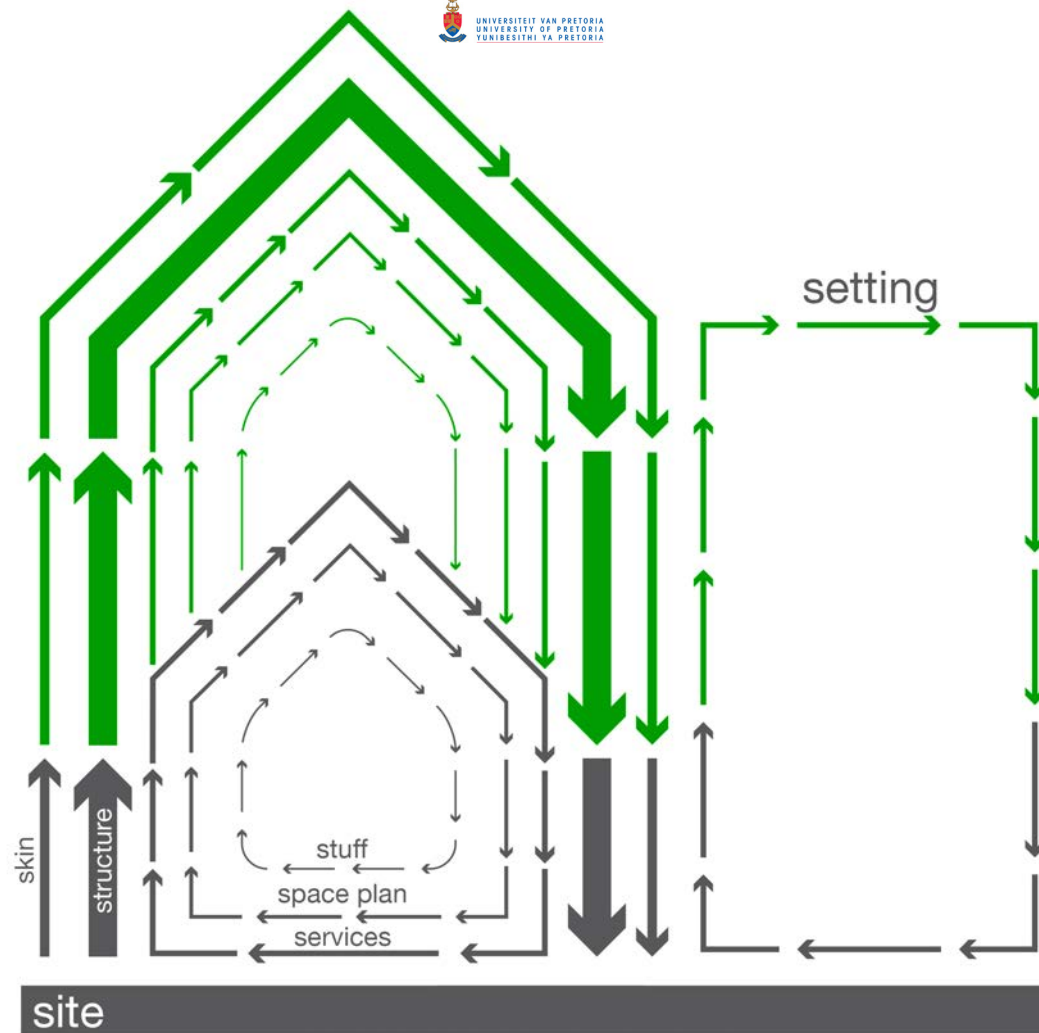


Figure 7: Remodelling diagram - the building over.

The second remodelling diagram superimposes Robert's idea of 'the building over' onto Brand's diagram. This practice aims to extend the structure and skin without affecting the site. The practice adds a new set of layers that can interact with the existing building, but largely leaves the existing building unaffected. The setting is visually altered in a minimal way because of the additional height that is added to the building.

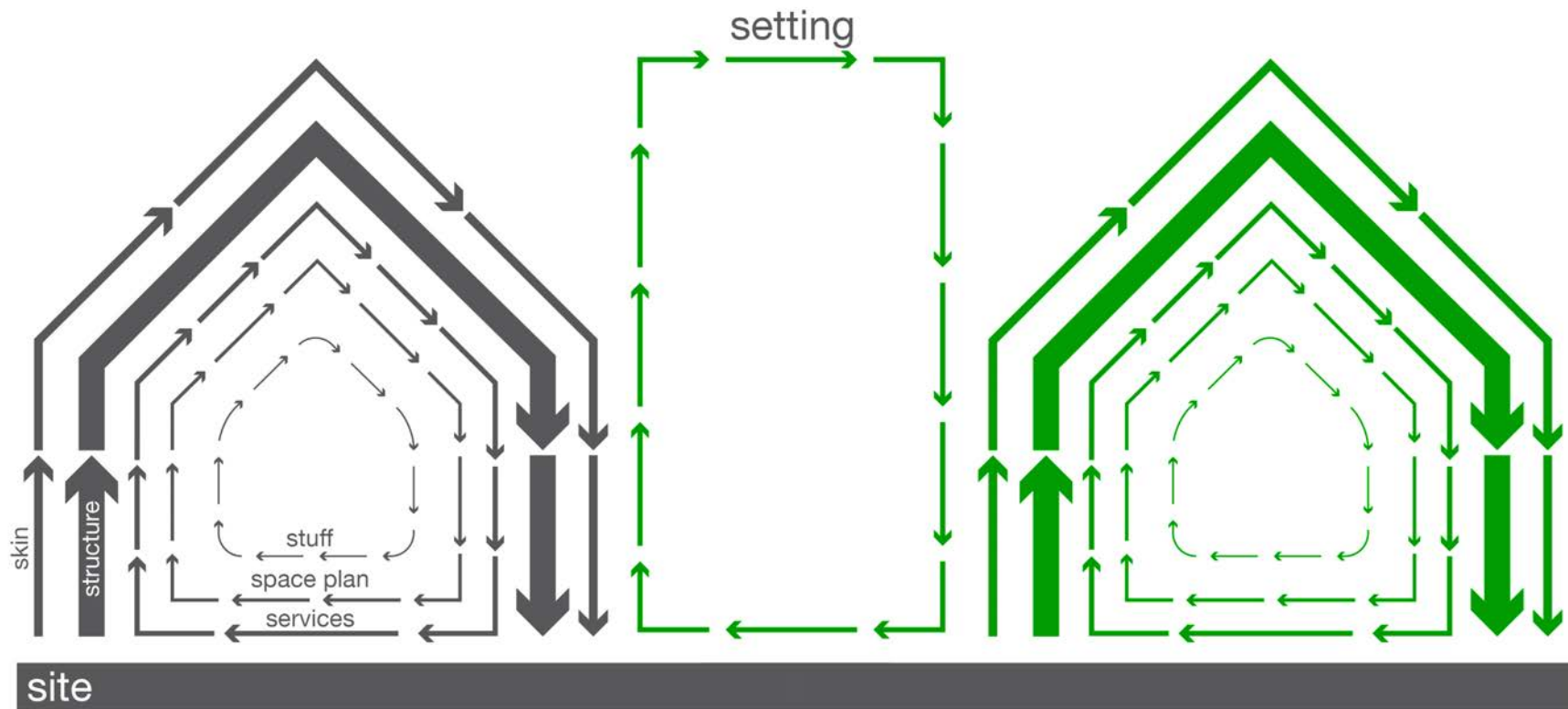


Figure 8: Remodelling diagram - the building around.

The third remodelling diagram superimposes Robert's idea of 'the building around' onto Brand's diagram. This practice focuses on adding a new intervention that does not affect any of the existing building's layers, but does redefine the setting to a large degree.

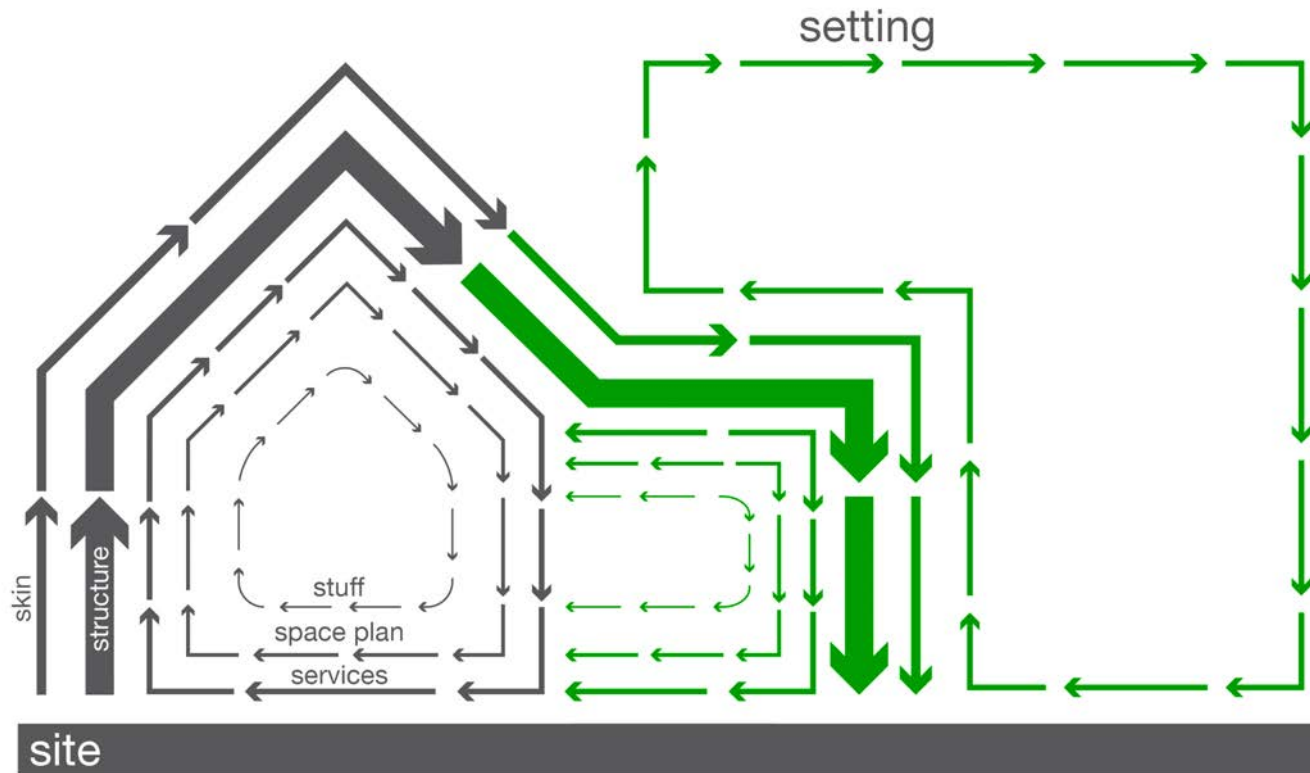


Figure 9: Remodelling diagram - the building alongside.

The fourth and final remodelling diagram superimposes Robert's idea of 'the building alongside' onto Brand's diagram. This practice aims to formally extend the existing with a new addition. It partially interacts with all the existing layers, and again redefines the setting to a large degree. Thought was given to add an additional diagram to illustrate the idea of 'the building through'; however, this would just have been a larger scale of interaction as illustrated in the building alongside, one that simply protrudes from more than one side of the building, effectively only combining 'the building alongside' and 'the building within'.

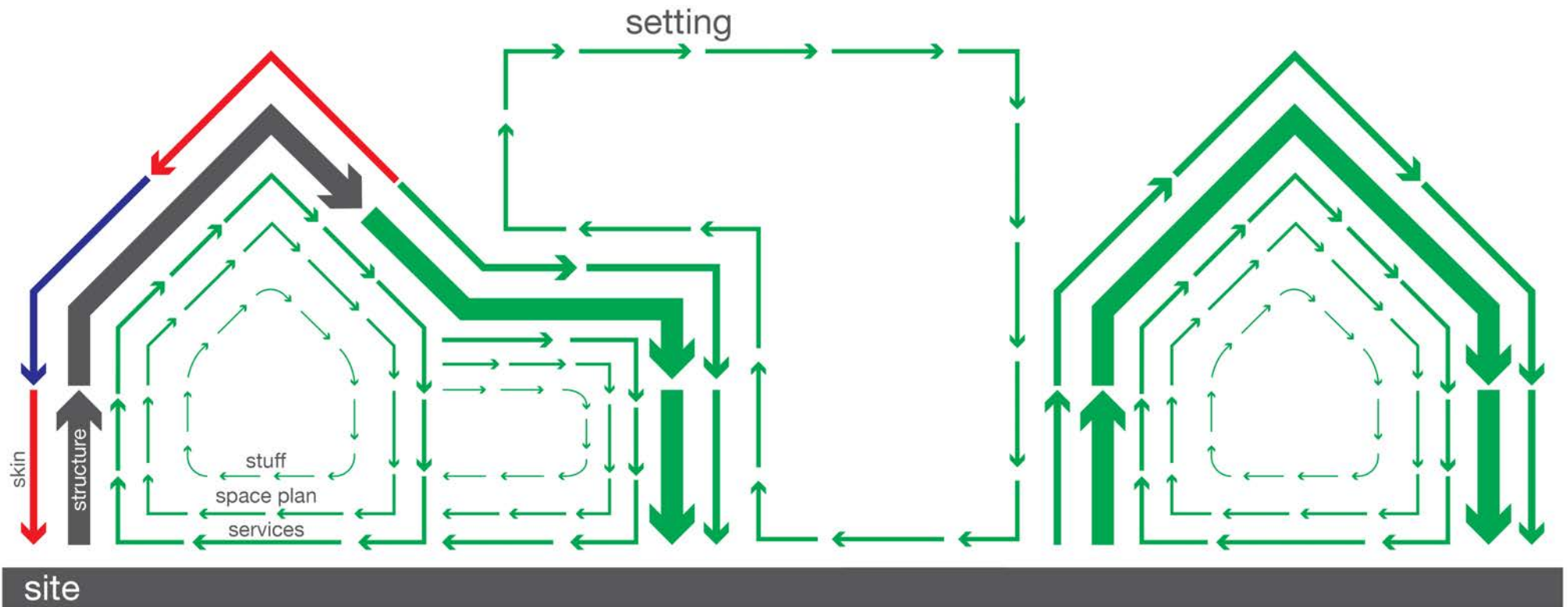


Figure 10: A comprehensive strategy for the conservation of a place.

These diagrams represent the active practices of conservation, which are seldom seen in isolation and often work together as a strategy for the conservation of a place. The ninth diagram illustrates how some of these practices can interact and together form a comprehensive strategy for the conservation of a place. This diagram sees the combination of 'the building within', 'the building around', 'the building alongside', 'restoration', 'reconstruction' and 'maintenance' to form a strategy for formal intervention upon existing form, simultaneously embracing ideas of heritage conservation and ideas of remodelling.

The theoretical framework discussed here will be further explored and applied to the Extramural Building in the design development.

For Machado “the past pervades the building and the building itself becomes the primary level of the context of intervention” (1976:49); therefore the act of remodelling is an act of engaging in the history of a place, unifying the theories of adaptation and heritage practice. Machado’s conceptions are the glue that binds adaptation and heritage under a single term, ‘remodelling’. Palimpsest becomes an inherent component of the DNA of remodelling.

Brand, Robert, the National Heritage Resources Act and the *Burra Charter* are all valuable resources that contribute a great deal to their respective fields. From these resources a framework of practices emerged that is useful for the understanding and development of old buildings. These practices were expressed in a series

of diagrams that represent a spectrum of possibilities that should allow for an appropriate formal engagement with existing form. The framework also developed a vocabulary of remodelling that includes the definitions of Brand’s six S’s, Machado’s definition of remodelling, Robert’s four principles, and some definitions from the *Burra Charter*. These definitions are very precise in what they mean and help to avoid confusion. The framework also includes some guiding principles from the *Burra Charter* that will aid in decision-making.

In conclusion, the theoretical framework consists of a series of practices illustrated by diagrams, a vocabulary of definitions, and a set of principles to guide the process of remodelling.



"shattered - but not broken ... " - old turbine hall - westgate - job dt

Theoretical Precedent

Architect

TPSP Architects

Project

Turbine Square

Program

AngloGold Ashanti Head Office

Location

Newtown, Johannesburg

Gauteng, South Africa

Year

1991

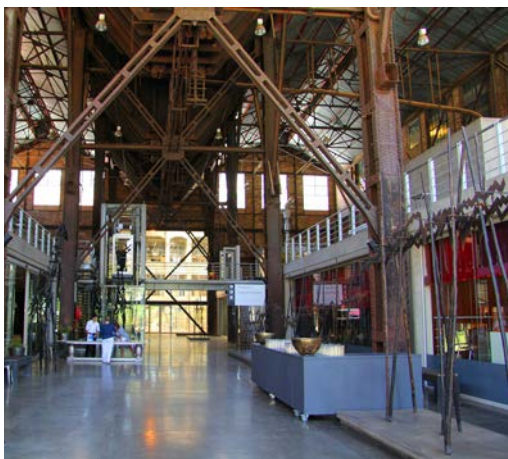


Figure 12: South Boiler House interior



Figure 13: link to Turbine Hall

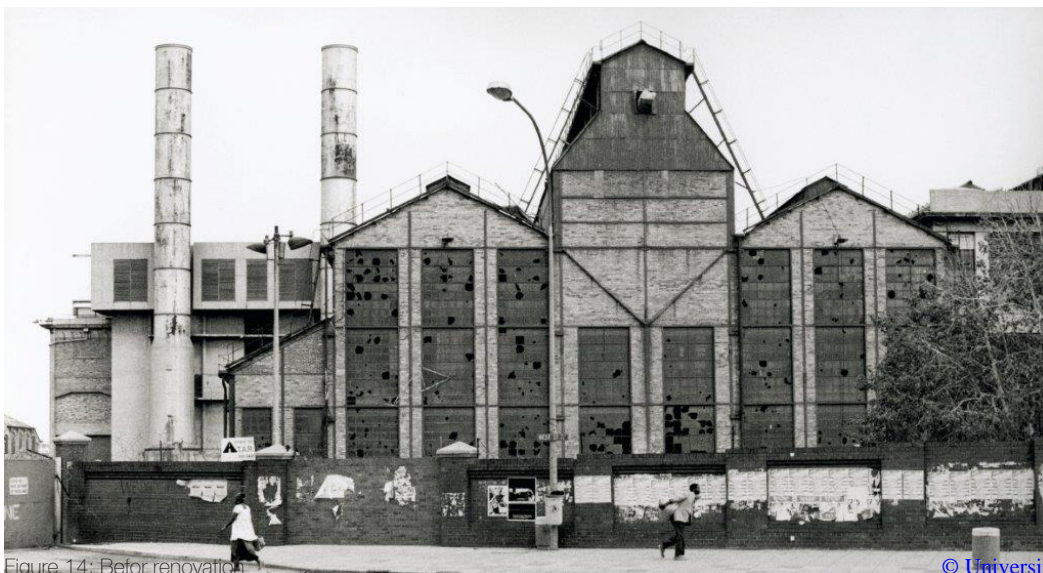


Figure 14: Before renovation

Newtown’s Turbine Hall and North Boiler House were built in 1927, with a South Boiler House added in 1934. The buildings fell into disuse in 1942 when the Orlando Power Station started to supply the city with electricity. In 1991, in an attempt to promote urban renewal, the Johannesburg City Council called for proposals to engage with the site as a means to reinvigorate the precinct that included the Reserve Bank, the Stock Exchange and a variety of small traders. This task was taken up by Guy Steenekamp of TPSP Architects (Nutall, 2009:41).

Ultimately, the North Boiler House was demolished to make way for the new AngloGold Ashanti Building that linked to both the remaining buildings. The South Boiler House was cleared out and two structures were inserted along the bays that flank its lofty central space. The Turbine

Hall needed some reconstruction work to its structure and skin, while patches of the patina that had built up over the years were left intact. A glass box sits at an angle to the existing structure of the Turbine Hall, allowing the original form of the building to be clearly visible, while providing the necessary multi-level office space (Nutall, 2009:41-43).

The Turbine Square project serves as a prime example of the variety of conservation and remodelling practices that are required to form a comprehensive strategy to engage with old buildings. These conservation practices include maintenance, restoration and reconstruction, and make use of Philippe Robert’s ‘the building within’, ‘the building around’ as well as ‘the building alongside’ (Robert, 1989) as remodelling strategies.



Figure 15: After renovation