OPPORTUNITIES FOR TRANSFORMATION THROUGH ADAPTIVE DESIGN: EMERGENT STUDENT WORK

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Abstract

The Design Research Studio, Studio Adapt! in the post-graduate architecture programme at the University of Cape Town, engaged with transformation through the adaptive redesign of existing structures. This paper will look at activities undertaken by students in the studio environment during the 2017 and 2018 academic years.

Starting with the premise that a building could be understood as standing in for abstract thought, the studio introduced the students to a range of theories. Seminars on the found object in art, significance in heritage studies, gentrification, the right to the city, conflicting rationalities, social transformation through spatial transformation and sustainability, encouraged the students to address the problem from multiple angles.

More specific concepts were identified by each individual student through field work, including mappings and conversations with the various stakeholders of their selected sites. The students were required to identify the specific characteristics, challenges and potentials of their sites of study and to allow the found potentials to guide their investigations and design moves. Students were encouraged to treat their design interventions as a means through which to instigate dialogue between various conflicting positions surrounding their sites and areas of investigation, and they were required to consider the social and material implications of interventions on a site.

Projects by students, both theoretical and practical, are used in this paper to illustrate concepts that hold potential for transformative design practices in adaptive reuse. The research reveals issues of interest embedded in the selected sites and presents possible approaches towards the transformation of the city through a series of design propositions presented by students. These include issues such as the right to the city and social justice, typological disruptions, programmatic adaptations, memory and archaeology, and the adaptation of ways of making.

In all cases, the students built on the theoretical framework offered by the studio seminars through a careful reading of the specific character of the existing building, following the narratives provided by the tension between the found form and the new demands brought about by a changed context. In every case the existing was evaluated for what it might offer. Through a series of imaginative explorations, interventions involving various combinations of preservation, erasure and addition, were tested for how they might unlock the hidden potential of these found buildings to contribute to social transformation through their spatial and material transformation.

Key words: Adaptive reuse, specificity, socio-spatial transformation, student work.

Word Count: 6073

Introduction

Studio Adapt! has been one of four Design Research Studios in the Honours and Masters architectural programmes at the University of Cape Town since 2016. The Design Research Studio model aimed to improve the depth of design investigation of Masters' dissertations in architecture. This model allowed for Honours and Masters

students to work side-by-side within a studio whose focus was narrowed and defined by two studio teachers. A seminar-based theory course was embedded within the studio that gave students the opportunity to develop ideas through staff and peer presentations and discussions, and to research and write up a focus of interest that would improve the depth of their design investigations.

In Studio Adapt! the students were challenged to design interventions for existing structures in response to change. Adaptive design relies on the potential of old structures to be reimagined for new use, the selective erasure of parts required to unlock that potential, and the insertion of new elements to complete the design.

The position of this studio has been to explore transformation through adaptive design, treating the found building as the "crystallisation of abstract thought" (Bhabha, 2007). Students were required to research through walking and mapping, to engage with the built fabric and the people who inhabit it. They were challenged to identify the specific characteristics, challenges and potentials of their building sites and to allow the found potentials to guide their design moves. They were encouraged to treat their design interventions as a means through which to instigate dialogue between the various conflicting positions surrounding their sites and areas of investigation. Writings by Vanessa Watson (2003) offer an awareness of the conflicting rationalities that exist between communities and the governing structures intended to serve them. The students were required to interpret conflicting information and to use it to generate ideas for designs that aim to transform the environment in response to needs revealed through dialogues with stakeholders. They considered the existing city as made up of "strategies", ways in which the city is controlled or governed, and how these may conflict with the needs of the people living in it (de Certeau, 1984). The students were challenged to design a "counter-strategy" (Low, 2005) that will either accommodate the needs of its users or new emerging demands on the environment or building.

The adaptation of the old buildings begins, in the studio, with an interpretation of their meanings and, through imagination, transforms them into structures that can stand for new meanings relevant to current conditions (Low, 2003). Social transformation requires spatial transformation that is more than just a material or superficial improvement of space. It implies a corresponding change in the way of seeing, understanding and representing space (Allen, 2000). The term 'transformation' refers to changes in the theoretical and practical approach within the discipline that can lead to meaningful dialogue with changing realities. These realities can be social, but they might equally refer to the global scarcity of resources, the global disparity between rich and poor, and changes effected by on-going innovation in transportation and information technologies (Tschumi and Berman 2003: 285).

The embedded seminar series, presented by studio lecturers, invited guests and students themselves, provided a wide range of approaches towards adaptive reuse as a platform on which students could then add further readings guided by their individual investigations and design explorations. Presentations included global trends in the emerging field of adaptive reuse, learning from the 'found object' in art, the 'right to the city' by social activists, concepts of 'significance' and 'authenticity' from heritage studies, issues around 'gentrification' and developerdriven interventions, and concerns around 'environmental sustainability'.

The idea of the right to the city is presented both as a theoretical framework (Lefebvre, 1995) and in its practical lived reality in the city of Cape Town through Reclaim the City, an activist movement supported by the NGO *Ndifuna Ukwazi*, that challenges the city to provide centrally located temporary public housing for citizens evicted from private properties. These properties are typically destined for large lucrative developments with tax rebates offered by the city to stimulate development, but they can have devastating implications for tenants who have lived for generations in these neighbourhoods. This activist group has identified abandoned or underutilised municipal buildings such as schools, hospitals and hostels for nursing staff, that could be adapted for housing in the city without falling prey to gentrification. Gentrification is a condition discussed in the seminars, through which value systems are emphasised as key to adaptive design.

To emphasise the importance of imagination, adaptive reuse is likened to the found object or the 'ready-made' in art, through which several principles are explored that open the scope for design possibilities. The students are challenged to identify the specific characteristics, challenges and potentials of their sites of study and to allow the building, as found object, to guide their design moves.

During the design process in the studio, several exercises are introduced to stimulate imagination for the transformation of the found. These are: working with partners to brainstorm multiple design possibilities; the physical transformation of a found object, exploring its potential to become something else; the use of a threedimensional photogrammetry app to generate a point-cloud model of the found through which interventions can be tested; the quick production of diagrams, to test possibilities; the use of collage to explore the qualitative characteristics of spaces in the found building juxtaposed with the possible qualities of the new; design through section to establish the scale relationship of the body to the found structure and the surrounding context; and the building of material models through which the found building can be thoroughly understood and analysed.

The work of students, both theoretical and practical, has been used here to illustrate concepts that hold potential for transformative design practices in adaptive reuse. The research reveals issues of interest embedded in the selected sites and presents possible approaches towards the transformation of the city through a series of design propositions presented by students. These include issues such as the right to the city and social justice, typological disruptions, programmatic adaptations, memory and archaeology, and the adaptation of ways of making.



Figure 1. "The Found Object" project where students are required to physically transform random household projects into something new (Authors, 2018).

The Right to the City and adapting for social justice

The Right to the City, as proposed by Henry Lefebvre in his book *Le Droit à la Ville* in 1968, has found a strong resonance in contemporary South Africa, and particularly in the City of Cape Town. This city's persisting sociospatial marginalisation is due to many factors, including the net results of pre-democracy *Apartheid* spatial planning practices, urbanisation, population growth, poverty, unemployment, and a high inequality rate. Spatial marginalisation and displacement are restricting access to the City and its potential employment opportunities: Transport is expensive and travel times to and from Cape Town's peripheral neighbourhoods are long. At the same time, there is underutilised and surplus building stock in the City which can be adapted from its current use to a mixed-use model with a high percentage of residential stock, specifically, social housing, affordable housing and transitional housing.



Figure 2. A section and a diagram of the adapted Helen Bowden Nurses Home showing the process of subtraction that allows for more social engagement on and across levels (Bezuidenhout 2017).

As noted by Harvey (2012: 22), there are many urban social movements in existence, but he argues that they

should focus on gaining control of the surplus in the City. While this implies financial surplus, it can also be regarded as spatial surplus. An organisation in Cape Town called *Ndifuna Ukwazi* is actively promoting the supply of transitional housing and it argues that "It is possible and cheaper to use existing public buildings for transitional housing or purchase suitable affordable office, commercial and industrial buildings that are structurally sound and do not require significant repairs." (Pillay, Russell, Sendin, Sithole, Budlender, & Knoetze, 2017: 50) It describes the disused Ahmed Kathrada House (formerly the Helen Bowden Nurses Home) in Greenpoint as an ideal opportunity for such an adaptation. This Brutalist building has been occupied by activists who are demanding that the City releases it for housing. The thesis project *Adapting to Transformation* (Bezuidenhout, 2017) explores the adaptive potential of this building, and it aims to show how adaptive design can contribute to social, economic and environmental sustainability. It proposes a mixed-use programme where commercial activities and additions to the building crosssubsidise the social housing component, which is accommodated in the former apartments' framework that has been modified to allow for social engagement and the integration of residents from different income groups.

As opposed to adapting an underutilised building, *Architectural Space in Marginalised Communities* (Zuma, 2018) explores the spatial characteristics and adaptive potential of the oversubscribed *Old Flat Hostels* in Langa, Cape Town. These buildings were originally built by the *Apartheid* government to house male African migrant labourers who predominantly came from rural areas in the Eastern Cape. The rooms were small and there was a severe lack of social space for the labourers; this condition was exacerbated due to an increase in migrant populations in the 1970s, driven by rural unemployment, to such an extent that the hostel buildings in Langa and Gugulethu housed an average of four people per bed in the 1980s. The *Old Flat Hostels* in Langa are currently occupied by families and single people who are sharing accommodation, with an average of 1.8 people per bed (the best ratio of all the old hostel buildings) and a staggering ratio of 31 people per toilet (Ramphele, 1993: 26).

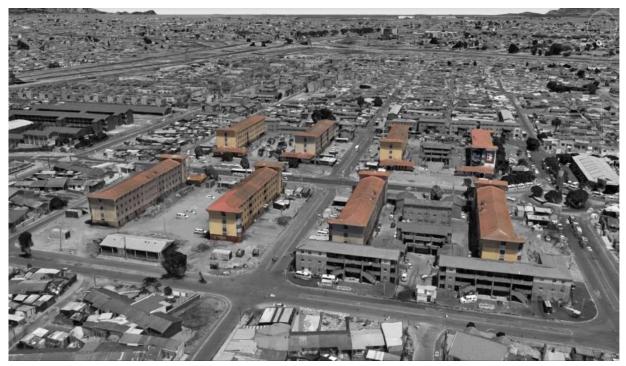


Figure 3. The Old Flat Hostels highlighted within the wider context of Langa, showing the lack of thresholds and the undefined public space between the hostel buildings. (Google Earth image adapted by Zuma, 2018).

In her book *A Bed Called Home*, Ramphele uses the bed as the common spatial denominator in the hostels. She argues that space is multi-dimensional, and she describes these dimensions as "physical, political-economic, ideological-intellectual and psycho-social" (1993: 2). The adaptation project used this as a starting point to expand the existing building, to allow more dignified living spaces and public spaces, commercial and educational opportunities, and a healthier social environment. By combining a few former two-bed rooms, incorporating the former central passage, and expanding outwards, a series of comfortable family apartments were created to provide dignified dwelling spaces. Combined with educational facilities and commercial opportunities on ground level and a youth hostel in the top level (which consists of bedroom pods that are a tongue-in-cheek reference to *A Bed Called Home*), the adaptation allows for a variety of occupants. The expanded buildings provide a series of thresholds between the commercially active sidewalks and new semi-private internal courtyards, thereby combatting the sense of alienation and placelessness that can be seen in Figure 3. In both examples, adaptation holds the key to unlocking the potential of existing buildings to engage with the issues of social justice and the Right to the City, and through that, to allow for the possibility of social transformation.

The Modern Project and typological disruption

Güney (1992: 8) describes the theory of type in terms of modernist ideology as being focused on the production process where standardisation and typification were used as a basis for projects: "Type in the processes of mass-production required repetition, type had become prototype. The discussion on types by the various protagonists resulted in a conformation with the rules of industrial capitalism and lead [sic] to the idea of prototypes mechanically and serially produced ad infinitum." This practice is also evident in Cape Town where the foreshore precinct in the Central Business District (CBD) was designed in accordance with modernist principles and was followed by the design of numerous tall buildings based on the modernist type. These buildings in the previous section, they present an opportunity to investigate the potential of adapting them for other uses, specifically, inner-city housing for the poor. The adaptation, particularly of the tower block, is however generally less about the new programme, and more about the challenges associated with the type itself and how to imagine new ways of inhabiting it and making it climatically suitable to its environment.

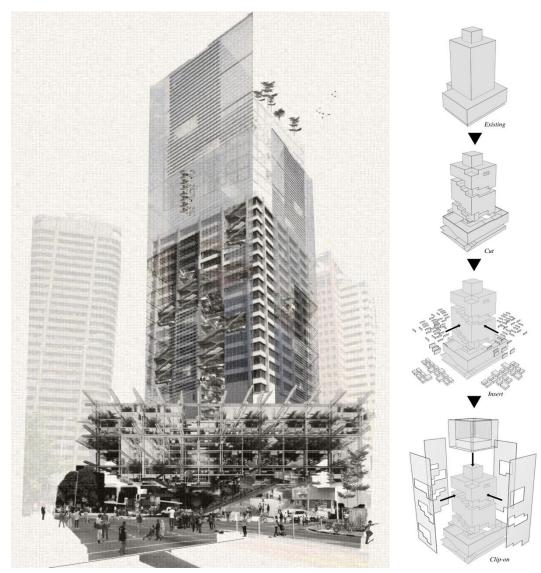


Figure 4. A collage showing the adaptation of *Mobil House*, a modernist skyscraper in Cape Town, and the key adaptation moves employed to facilitate the transformation. (Bischof, 2018).

In (*Re*)Imagining an Underused Mono-Functional Office Tower in the Cape Town CBD: The Case of Mobil House, Bischof (2018) investigated the Downtown Athletics Club in New York, designed by Starrett and Van Vleck in 1931. Rem Koolhaas describes it in his book *Delirious New York* as a "constructivist social condenser: a machine to generate and intensify desirable forms of human intercourse" (Koolhaas, 1978: 152). This building, which housed a range of sporting activities throughout its height, was criticised as being artificial and having a lack of connection across floors. By investigating Alison Smithson's "mat-building" theory, the aim was to address this criticism by improving connectivity across floors, facilitating easier access, and allowing for a mix of programmes. Candilis, Josic, Woods and Schiedhelm's *Free Berlin University* has been identified as a mat-building, and it has also been referred to as a "ground-scraper" that offered improved social connectivity on a horizontal plane. Applying the ground-scraper's

principles to a skyscraper provided a lens through which to challenge various preconceptions of the tower block type.

The value of the tower block, according to Bischof, lies in its robustness, its potential flexibility and the high embodied energy embedded within it. The adaptation of Mobil House challenges the lack of access to the City, and offers access to all levels of the tower, by providing an intricate weaving of public programme and private programme (which consists of a mix of housing types for different incomes). This programmatic weaving required the disruption of the tower's podium, basements, circulation systems, roof, and skin, amongst others. The most visible disruptions include the excavated podium, a spiralling promenade along the building's perimeter that alternates between public and private use, a new façade treatment, and the additional floors at the top of the building which house a public sports facility; the mixed-use cross-programming envisages a combination of both public and private uses along the entire height of the tower block, in what could be regarded as facilitating the general public's Right to the City's skyline.

A similarly difficult mono-functional type is the sports stadium. This building type is often constructed specifically for a mega-event, after which it can sometimes fall into disuse, or be demolished, or if it is still used regularly, it is often economically unsustainable. The Cape Town Stadium, which was built for the 2010 FIFA World Cup is a case in point, and its commercialisation is currently being investigated. The project *The Afterlife of Megastructures: In the Aftermath of Mega-Events, the Case of Cape Town Stadium* by Mwedzi (2017) tested the potential of turning the stadium-type into a multi-functional civic, educational and commercial entity which is programmatically tied to its surrounding context. In a similar way to Bischof, Mwedzi valued the robustness of the existing structure, and he used Metabolist theory as an approach to differentiate between permanent structural elements and transient programme-specific elements. The deep floor plates represented a particular challenge environmentally, as did the building's size; approaches like Rayner Banham's "Megastructures", Kenneth Frampton's "Megaform", Rem Koolhaas' "Big", and David Gissen's "Big and Green" were investigated to find ways to engage with the building's scale.

The key to disrupting type seems to be the clear identification of what the found building's inherent values are, and which adjustments need to be made to make it socially, economically, and environmentally sustainable, while being more rooted in its context. Mwedzi (2017: 59) notes that Cape Town Stadium and its surrounding urban context is alienating and inaccessible in many ways and that the Stadium's public role should be re-acknowledged. He argues that adaptation of this type can provide "the prospect of changing the legacy of the Stadium from one of underutilisation and public financial burden to one of nurturing self-sustaining talent and to public service, recreation, engagement and education."

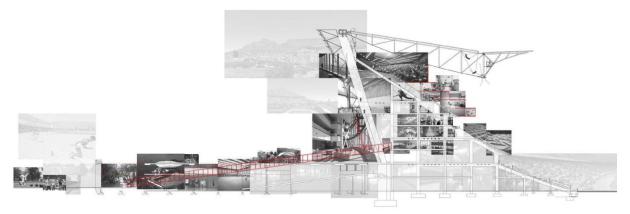


Figure 5. A sectional collage showing the stadium's existing structure overlaid with photographs of the proposed new activities and conceptual interventions in red. (Mwedzi, 2017).

Programmatic adaptations

While programmatic adaptation has some similarities to typological disruption, it usually retains the primary existing programme (sometimes in conjunction with additional new programme) and it aims to optimise the existing programme or to adjust it for changing conditions. This type of adaptation often occurs in light-industrial manufacturing areas that are situated in good locations close to the city centre: Property values in these areas are prone to increase and sprawling single-storey factories or production facilities operated by a single entity generally must make way for other commercial uses or high-end residential development. This often results in gentrification, and it can result in job losses if the production facilities have to relocate beyond the reach of their employees.

Saville (2017) investigated the potential of verticalizing a former single-storey leather factory to democratise the ground plane and to activate the building as a social condenser in a predominantly industrial area with limited public space. Using Rappaport's concept of *Industrial Urbanism* (2015) as a reference model, space was created for smaller local retailers on the now accessible ground plane, while the singular horizontal productive model was changed to a

multi-tenant model with productive linkages in an adaptable tower. The aim was that the adaptation would become an enabler for small-scale local craft industries to access global markets within a networked productive condition that is referred to as a Community Workshop Model, and that the accessible nature of the building will improve social interaction in the area without displacement of the community.

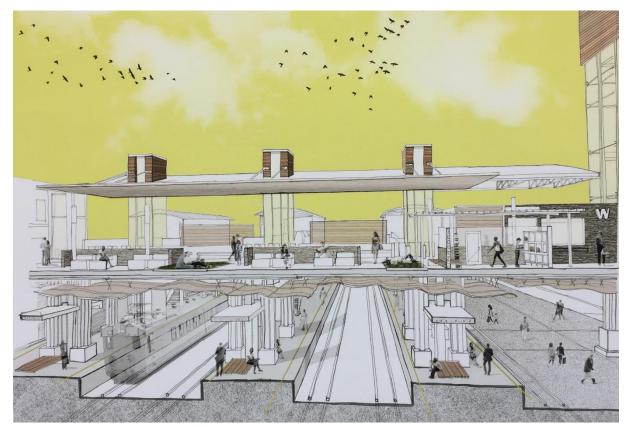


Figure 6. The new public plaza over the platforms at Woodstock Station, Cape Town. (Komane, 2018).

In Architecture + Intimacy: A Place for Pause, Komane (2018) programmatically adapted Woodstock station, which is an important transport interchange linking Cape Town's rail, bus and minibus transport systems. The movement flow of both rail commuters and pedestrians wishing to cross the railway tracks was combined into a raised public plaza with controlled access to the platforms. This was done to increase the efficiency of movement, to improve public safety, and to allow for commercial opportunities and homework space for learners. The aim was to counter the sense of alienation that can be experienced in areas of rapid movement by designing spaces for pause, intimacy, and refuge – both in terms of planning and programmatic terms, but also in terms of sensory experience. In both programmatic adaptation projects, a wider urban contextual analysis and a clear understanding of programme were required to be able to adapt both productive flows and social opportunities optimally. While the programmatic adaptation improve efficiencies, it was primarily aimed at improving social conditions and a person's experience in the building and its surrounding urban fabric. Speaking about a very personal experience, Komane (2018: 5) writes:

"The quick pace of my movement has been temporarily paused... This sudden change in my movement and the atmosphere begins to change my mood. The densely packed information clouding my brain begins to weigh less as I sit and contemplate this space. The now. The present. At this moment, it is in this atmosphere, this moment of pause that I am most at peace."

The lack of refuge in an often-frenetic urban environment can be detrimental to a person's physical, mental and emotional wellbeing but if an inclusive space of pause can be created through adaptation, it can transform an existing place and the wellbeing of its inhabitants without the negative effects of displacement or by replacing a sense of alienation with an alien object after demolition.

Memory and archaeology

Pierre Nora wrote extensively about sites of memory and he argues that while places can easily have embedded memory, they can also become symbolic and have deeper meaning for a specific society by becoming part of its identity. Writing about remnants of the past he notes that "We no longer inhabit that past, we only commune with it through vestiges – vestiges, moreover, which have become mysterious to us, and which [we] would do well to question, since they hold the key to our 'identity', to who we are." (Nora, 2002: 6) Wren-Sargent used this link between memory and identity to adapt Cape Town's former Non-White Main Line Concourse in his thesis

Engaging Vestiges of Negative Social Memory: From an Order of Segregation to Linkage (2017). He argues that this building was a tool of the *Apartheid* government and, like the buildings in Johannesburg's Constitution Hill, is a symbol of former oppression and segregation. His project aimed not to erase this negative social memory, but to adapt it into a site of learning where visitors can reflect on the past; the adaptation was approached so that "stigmatised historical buildings may be interacted with architecturally to benefit society." (Wren-Sargent, 2017: 8) The intentional spatial domination of the building is countered through the juxtaposition with newly inserted elements that are in dialogue with the existing. Improved spatial connectivity, visual linkages, the incisions that allow light deep into the oppressive platform spaces, and the removal of spatial hierarchies transform it into a democratic social gathering space that invites commuters to pause (similar to Komane's intervention) and interact with each other and the building.



Figure 7. A section through the adapted "Non-White Main Line Concourse" showing some of the adaptation strategies, including juxtaposition, incision, spatial connectivity and the intentional atmospheric manipulation of light. (Wren-Sargent, 2017).

A strong sense of negative social memory also persists in the area known as District Six in Cape Town. The community that formerly lived in District Six was forcibly removed by the *Apartheid* government under the Group Areas Act and almost all the buildings were demolished. Lehabe, in her project *In Service, On Common Ground: Finding Commonality Between User, Architecture and Landscape through the Ritual of Dining* (2017), engages directly with the complex issues surrounding this contested space. She uses the terms of transference, translation and ambiguity to frame her investigation, and while she admits that ambiguity is often perceived as negative, she searches for multiple meanings within ambiguity to generate a stronger connection between a person and his or her environment. Her programme of a Service Dining Room that provides food for marginalised people adds further layers of complexity to the project.

"District Six is a site of ruin and decay, a ruin that not only speaks of the past but continues to breathe into the present and into the future. It is a living ruin. The ruin seen as void, becomes the absence of what was there before. What makes this absence so powerful, is that it is not a void of silence but one that speaks. It speaks, in the language of translation, thus, the spoken word remains alive. The fact that the ruin is alive, alludes to a temporal quality. The void represents perplexity and complexity, therefore becoming ambiguous in nature." (Lehabe, 2017: 27)

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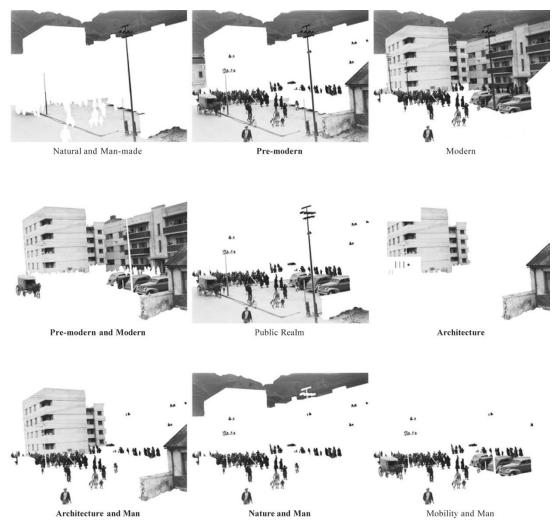


Figure 8. An analysis of the Bloemhof Flats, which were built in 1938 following slums clearance in Wells Square (which was renamed Canterbury Square), identifies multiple meanings or readings of the space to emphasise relationships between specific elements by creating a void between and around them. (Original photographer unknown, The National Library of South Africa, adapted by Lehabe, 2017).

In another project called *Biotic Machine* (Austin, 2018), beauty is found in the ruin of the former Collier's Jetty in Cape Town's harbour. Austin set out to preserve its weathered character and its economic importance to the local fishing community in the context of the rapidly gentrifying Victoria and Alfred Waterfront. It is a liminal site that separates the touristic Waterfront (which includes the new Zeitz MOCAA) and a working fishing harbour. His project explores ways of combining these two aspects to provide benefit to both, but by purposefully privileging the fishing community by inserting a range of additional commercial opportunities that build on their existing skill base. He cites Douet (2012: 8) who stated that "To advocate preservation of a redundant industrial site, basing the arguments on traditional heritage values, does not always look attractive to a community afflicted by economic collapse or high levels of unemployment."

Something that all three of these projects have in common is their thorough analysis of the found building: They all involved "excavations" or "biopsies" of the found building or space that allowed a clear identification or taxonomy to be made of its constituent parts. This was done spatially, structurally and materially to relate its physical elements to its socio-cultural meaning which is more than the sum of its parts. They aimed to retain, and in some instances, emphasise the embedded memory and symbolism, despite the fact that these memories are often painful. The commonality between Lehabe's and Austin's work, however, is that both projects engage with the ruin in such a way that it serves the vulnerable communities in a contested space by uncovering the value inherent in the ruin.



Figure 9. An initial collage that attempted to capture the industrial character of the site and a rendering of the final project that shows the inclusive nature of the final intervention. (Austin, 2018).

Adapting ways of making

The process of adapting existing buildings for social transformation can be augmented by adaptations of local construction technologies which will provide a platform for local involvement in the transformation of the existing buildings. All three projects described here touched on the idea of architecture as having agency for social and material transformation. This can take the form of adapting locally available craft skills, as was done in *Re_Skill* by Siebert (2018) by analysing boat-building methods in Hout Bay Harbour, and designing methods of adapting these for use in building construction. The process of adapting the production of the building was combined with the adaptation of the building itself and of its context to allow improved connectivity for the marginalised community of Hangberg, and by designing for potential future adaptability of the spaces and programme by using Herman Hertzberger's concept of polyvalence (1991: 146).

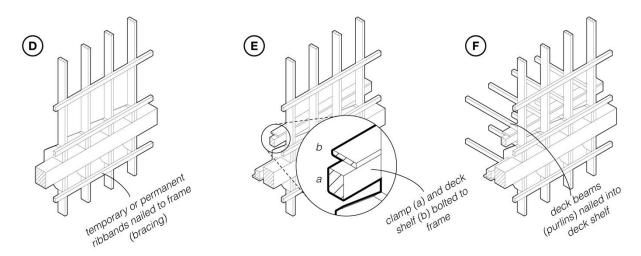


Figure 10. An extract from a building manual created by Siebert that demonstrates the processes of adapting boat building technologies for building construction. (Siebert, 2018).

Madolo (2017) investigated the material sustainability of indigenous timber and the socio-economic benefits that can be designed in by specifying locally grown and sustainably harvested timber, the use of local craft skills in its processing and the upskilling of local labourers for its use in construction. Malan (2017) on the other hand used material normally regarded as waste to construct her adaptation of an existing waste handling facility in the Western Cape town of Kleinmond. She describes the commonality between both site and material as being regarded as residual. She argues that the "relationship between waste materials, waste infrastructure, society, and the urban and natural landscape needs critical evaluation." (2017: np) The project's aim was to contribute to

the creation of a circular economy, to use waste as an employment generator, and to design the building to be a mechanism that can address the divided spatial legacy of the town. This was done through improved connectivity, access, and designing the recycling depot as a commercial and touristic drawcard, through a re-valuing of discarded materials and the re-valuing of a discarded community.



Figure 11. A perspective through a communal space demonstrates how an existing concrete frame office building can be transformed by inserting sustainably sourced timber elements (Madolo, 2017).

Conclusion

These student projects mostly grappled with multiple issues simultaneously, and despite being grouped into specific themes, they all aimed to address social transformation through adaptative design. This was done either by improving the public's experience of a building, by improving its potential for social interaction, by disrupting monolithic mono-functional structures, by addressing the very real need of access to the city and its inherent opportunities, or by preserving traditions or memories of the past.

In all cases, the students built on the theoretical framework offered by the studio seminars through a careful reading of the specific character of the existing building, following the narratives provided by the tension between the found form and the new demands brought about by a changed context. In every case the existing was evaluated for what it might offer. Through a series of imaginative explorations, interventions involving various combinations of preservation, erasure and addition, were tested for how they might unlock the hidden potential of these found buildings to contribute to social transformation through their spatial and material adaptation.

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