4

Precedents & Case Studies

4.1   Introduction

This chapter will investigate various precedent studies and case studies in an effort to develop a series of design informants. The precedents will be analysed in a qualitative manner, using visual analysis and using the guidelines developed in chapter 3 as background. The case studies will provide a quantitative background to the study, as they contain surveys with measurable data as outcome.

The precedents have been chosen to relate to various aspects of the project. Elements in each of the projects relate back to the design. Precedents were chosen because of their:

1. Programme

2. Focus on public spaces

3. Conceptual Approach

4. Approach to public and private

The case studies were chosen on the basis of their areas of focus, as it investigated the use of public spaces in similar housing developments and use of shared public spaces.
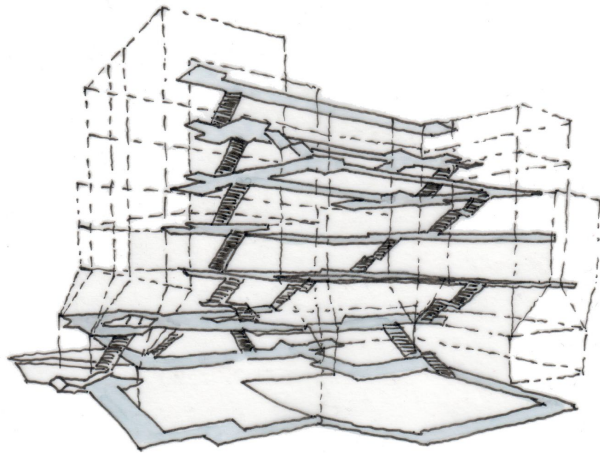
Figure 83 - Diagram of three-dimensional street

4.2 Precedent 1: Next 21

(1) Programme

(3) Conceptual Approach

(4) Approach to public and private

4.2.1 Project Data

Location	Osaka, Japan
Completed	1994
Architect	Yositika UTIDA, Shu-Koh-Sha Architectural and Urban Design Studio
Construction Method	Reinforced concrete skeleton, with newly developed façade system and experimental infill system
Dwellings	18
Context	Urban, City Centre

4.2.2 Project Background

The Next 21 project was initiated by the Osaka Gas Corporation to investigate a 21st century solution to urban living. The objectives of the project were to create a sustainable development through a systemised construction method, introducing natural greenery, creating a wildlife habitat throughout the building. The building created a variety of residential units to accommodate varying households (Bosma, Van Hoogstraaten, Vos 2001:343-344).

The structural system –the base building, was designed first. This led to a series of rules within which each of the individual units' architects had to fit in. The infill, such as services and separate unit fit-outs were all designed to function independently and can be replaced at separate times of the building's life cycle without influencing the daily functions of the other units (Next21 Film 2009).

The base building's design employed a three dimensional street (Figure 8), which aided the communications between the inhabitants of the building. The street uses a approach that provides graded privacy from the streets to maintain privacy but allow for informal interaction (Kendall 2006).

Figure 84 - View of building from adjacent buildings, indicating exposed and hidden walkways (Osaka Gas Company 1994)

Figure 85 - Exterior of building from street level. Different facades and layouts can be seen, with the skeleton structure remaining constant throughout (P_kan 2013)

Figure 86 - The skeleton structure of the building is shown, with the more transient infill levels visible (Hiroshi Shoji Architects 2013)

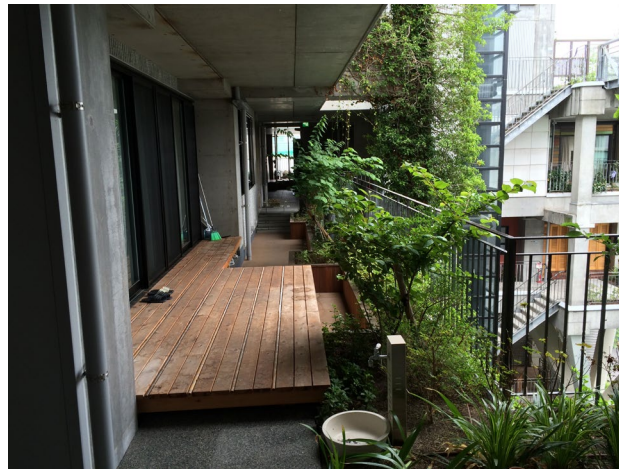Figure 87 - View from open walkway towards building (It's Late 2010)

Figure 88 - View of public outdoor space indicating appropriation in the form of decorative elements and own planting (Zuidema 2016)

4.2.3 Conclusion

This project provides an insight into how adaptable units can be created, while maintaining the same level of public space and integration for all users.

The three-dimensional street that connects the units and provides alternate views across the site is the main feature that stands out in this project. The visibility of the various entrances from one to another provides passive surveillance without the units infringing on one another's privacy. The design of the various shared elements are robust but give the building a cohesive look and feel. Figure 88 shows the appropriation of near-home space, which leads to an expression of identity and the demarcation of territory, an example of how a space that has been provided as standard for all users can be made to reflect individual owners' identity through appropriation, leading to their attachment to this area.

This project's users are of a higher income bracket than the proposed project. However, the design of the shared elements in the building have been implemented at relatively low cost.
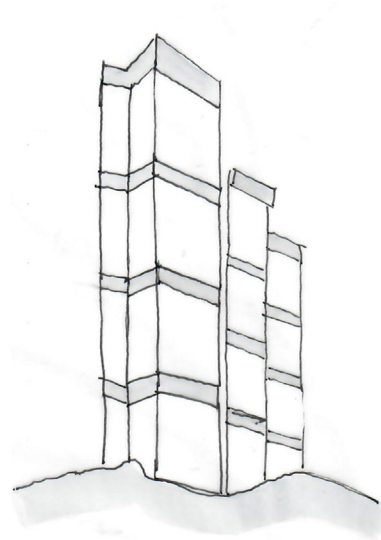
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4.3   Precedent 2: Skyville@Dawson

(1) Programme
(2) Public Space Focus
(4) Approach to public and private

4.3.1 Project Data

Location	Singapore, Singapore
Completed	2015
Architect	WOHA
Construction Method	Concrete slab floors, concrete columns
Dwellings	960
Context	Urban, City Centre

4.3.2 Project Background

The Skyterrace@Dawson project was developed by the Housing and Development Board of Singapore as a new application of their long-standing approach to public housing. The design is focused on three themes, community, variety and sustainability (Furuto 2012).

The building's 960 units are divided up into smaller "Sky Villages" (Figure 90), which share a naturally ventilated community terrace and garden (Figure 92). Larger shared public spaces include community living rooms, a landscaped park, play and fitness areas, courts and lawns, a rooftop park (Figure 94), and an Urban Plaza (Figure 93), which provides some retail opportunities and services to the residents (Furuto 2012).

The building has been designed to provide residents with flexible floor plans by using column and beam free bays which users could adapt into their main living spaces (Figure 95). This allows for adaptations such as home offices, lofts and future upgrades (Furuto 2012).

Considering and including design suggestions made by the public, ensured a sense of community and identity for the whole complex, which aimed to be a social space to enhance cohesiveness (Furuto 2012).

Figure 90 - Full building. Dark horizontal lines indicate seperation between "skywillages", smaller communities within the project (WOHA 2012)
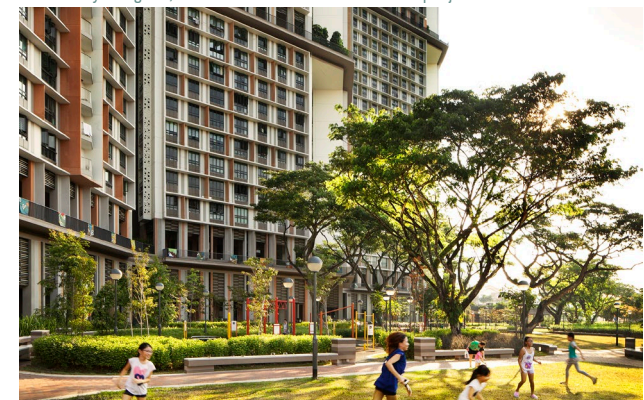

Figure 91 - Park area on the grounds of the development (WOHA 2016)

Figure 92 - View from unit to public and green spaces below, allowing for passive surveillance (WOHA 2016)

Figure 93 - Public space, allowing for a variety of uses and some privacy from other users (WOHA 2012)

Figure 95 - View of rendering of possible layout of main area of unit, note the lack of columns in the space (WOHA 2012)

Figure 94 - Rooftop public space (WOHA 2016)

4.3.3 Conclusion

This project was designed for a similar income bracket and user variety, although at a much higher density. However, the use of public spaces in a vertical arrangement is well-used and easily accessible to all users. The definition of the various "skyvillages", grouping some residents around a public space for their own use, allows for a certain extent of identity and mental ownership. The units' adaptability do not influence the design or use of the public spaces, which remain constant, whereas the units' interiors can change at will.
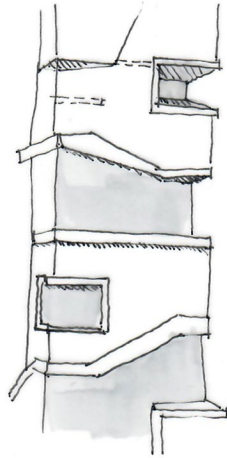
Figure 96 - The building's public and private spaces are clearly contrasted on the facade, making it an engaging project from the exterior (by Author)

4.4   Precedent 2: Roy and Diana Vagelos Education Center

② Public Space Focus   ③ Conceptual Approach   ④ Approach to public and private

4.4.1 Project Data

Location	New York, United States of America
Completed	2016
Architect	Diller Scofidio + Renfro
Construction Method	Concrete and steel structure with glass facade
Type	Medical Education Center
Context	Urban, City Centre

Figure 97 - View of large public space with views to exterior and circulation (Lehoux 2016).

4.4.2 Project Background

The 14-storey glass tower houses advanced classrooms, collaboration spaces, simulation centre, and other shared spaces (Archdaily 2016). The aim of the architects was to re-shape the educational and architectural perception of medical education. A variety of larger, shared spaces, as well as smaller study areas, as well as terraces and other outdoor spaces were created (Figure 98) (Archdaily 2016).

The interiors of the smaller spaces within the building, generally used for classrooms, can be reconfigured according to the needs and size of class. To encourage collaboration between students, vertically linked spaces have been created in various sizes, both open and more private, both indoors and outdoors (Figure 99, Figure 103) (Archdaily 2016).

Figure 98 - Close-up of exterior. Shared outdoor spaces are linked with interior spaces, in turn linked with smaller classrooms and intimate spaces (Baan 2016)

Figure 99 - The various types of spaces and uses are visible on the exterior of the building, creating an understanding of the building from the outside (Baan 2016)

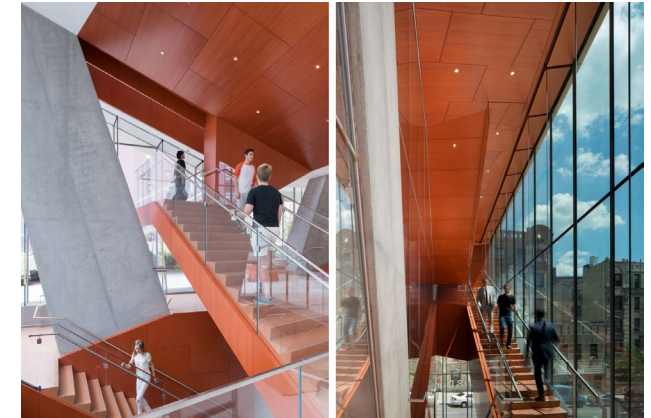Figure 101 - Large shared space with various activities and functions (Baan 2016).

Figure 103 - Various types of circulation and views within the building, with views into adjacent functions and activities (Baan 2016)

Figure 100 - Model of circulation in building, linking various types of functions easily and as a integrated unit (DS+R 2016)

Figure 102 - Smaller, more intimate spaces created with views and in relationship to shared spaces [Ref]

4.4.3 Conclusion

This project succeeds in creating well defined public and private spaces, and reflects these spaces on the exterior of the building. More intimate spaces were created within the larger spaces without compromising on security or accessibility by using different materials, levels, and circulation approaches to indicate the transitions between public and private spaces.

The reflection of the building's programme on the façade of the building provides an interest in the building itself and communicates the principles of the building to the passers-by on the street, "framing" the activity inside. The ability to see the various types of spaces from the street allows both the users and passers-by to understand the building and increases the ability of users to relate to and find the different spaces inside. The building clearly illustrates the alternative approach to medical education, as set out by the brief.
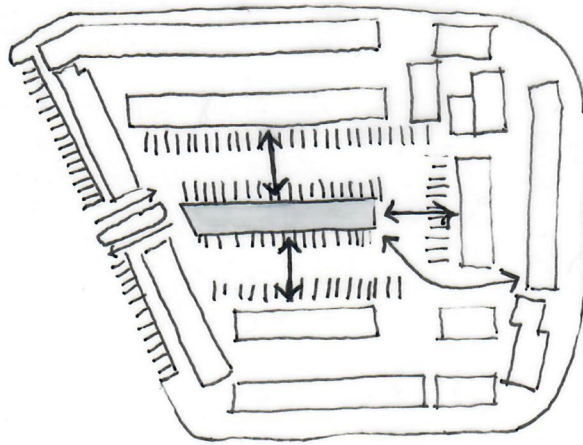
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Figure 107 - Distance between unit and amenities (by Author)

4.5   Precedent 3: Brickfields Housing

① Programme

② Public Space Focus

④ Approach to public and private

4.5.1 Project Data

Location	Johannesburg, South Africa
Completed	2005
Architect	Savage & Dodd Architects, Fee & Chalis Architecture, Makhene Architects and Associates
Construction Method	Concrete column and beam system with load bearing brick infill walls
Dwelling	345
Context	Urban, City Centre

4.5.2 Project Background

The Brickfields project was initiated by the Johannesburg Housing Company. Located in the Newtown cultural precinct in order to locate it close to existing activity. A variety of building types, ranging from 4-storey walk-ups and 9-storey apartment buildings. The apartment types range from studio apartments to 2 bedroom units.

The development is arranged around a central parking and play area, with the various housing types facing inward into this area. The development also has some units looking out onto the adjacent streets for passive surveillance of the street. The majority of the development is built from facebrick, with detail focal areas plastered and painted in bright colours.

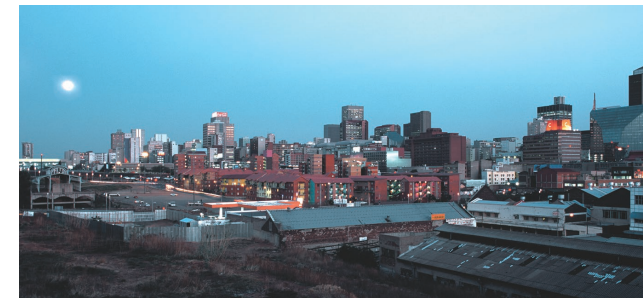Figure 104 - Aerial view of internal parking and play area (Savage & Dodd 2005)

Figure 105 - Night view of development (Savage & Dodd 2005)

Figure 106 - Street elevation of 4-storey walk-ups (Savage & Dodd 2005)

Figure 108 - Aerial view of development (Savage & Dodd 2005)

4.5.3 Conclusion

The main critique of the project is the shared park and recreational area is removed and segregated from the units by the (perhaps excessive) parking lot. Some units are not even within view of this shared facility. Although the different building types prevent the development from appearing overwhelming and solid, there is very limited private outdoor space for the users.

4.6   Comparison

The precedents identified have been compared below:

	Programme	Public to private	Conceptual Approach
Next 21	Similar programme, lower density and higher income bracket.	Gradual, well demarcated transition from public to private. Public spaces of consistent quality throughout and a shared resource for all users.	The conceptual approach for the public spaces, the three-dimensional street, appears to be successful and adaptable to the current project in terms of its accessibility, views, and efficacy for providing natural surveillance.
Skyville@Dawson	Very similar programme, albeit high density social housing, the focus on public spaces is clear.	The physical transition between these spaces is unclear. The use of semi-public walkways and shared spaces, contrasted to the more public spaces is an indication that this transition was considered and applied.	Concepts similar to "sky villages" have been used in other projects, by using sky-bridges and sky-decks within the high-rise buildings. Formalising this structure, however, could encourage stronger community connections and involvements by limiting the amount of users able to use each of these spaces – an important consideration in such large developments.
Education Centre	Unrelated programme.	The transition between public and private is clearly indicated, not only in the internal circulation and layout of the building, but also in the articulation of these functions on the façade. This provides the building with a strong transparency and legibility not found in many buildings. The language for each type of space, public and private, remains constant throughout, which makes the building easy to navigate and understand as a user. The demarcation of public and private areas are both subtle – in terms of material changes, and drastic – such severe ceiling height changes.	The programme's transparency and legibility is echoed in the design in the arrangement and connections between the various types of spaces. The spaces are easily read and understood for their specific purpose, and succeeds in its goal to provide a new approach to college buildings of its kind.
Brickfields	Very similar programme, income bracket and density	For the units accessed from the internal parking lot, the transition from the public street to their own home is graded and ensures a relatively smooth transition. However, for the units facing the street, there are smaller alleys that do not provide the same defined transition as that of the controlled access and defined barrier of the boom gate. The public space is still very car-centred and users must cross a parking area to reach the recreational space in the centre. Even though this makes the space equally accessible to all, it becomes a conscious effort to cross the open space to this area. Separating this area from the units prevents residents from taking ownership of this space.	The approach to the form and shape of the buildings in the development focused on minimising the visual impact of the structures by breaking the housing into the separate blocks and typologies. This has worked well, apart from the very straight and un-engaging street edge. By applying the same materials and colours throughout, the development does have a sense of identity, though the colours appear merely as decoration, and not a thought-out design decision, and did not consider what areas are emphasised by the colours or if it could enhance the landmark-qualities of the development.

Table 1 - Comparison of precedents

4. 7   Case Study - Landman & Du Toit

4.7.1   Analysis

A comprehensive survey was undertaken by Landman and du Toit in order to investigate the validity of developing medium-density mixed-housing in order to create more sustainable settlements. The medium-density approach often leads to users living closer to their neighbours as they might have wished, which might lead to a larger focus on the importance of the shared and private outdoor spaces. Landman and du Toit's survey investigated these elements, and focused on households where children, women and older residents were involved. Their findings indicate that shared public spaces should be considered and allowed for in order to promote neighbourliness and thus promote the social acceptability of a medium-density housing environment (2014:23).

The paper considers medium density to range between 40 and 125 dwelling units per hectare, and emphasize several factors which lead to a positive, or if unsuccessful, negative, perception of a medium-density development. Access to both private and communal outdoor spaces within the development, which are either linked or in close proximity to the unit, is of high importance – a finding supported by research indicating that a home is assessed by their neighbourhoods and homes by the standard of the amenities provided, and not by the densities they are built (Landman & du Toit 2014:24).

The research done for this case study concur with the research conducted by this author in Chapter 3, indicating that areas which allow for self-expression and territoriality ("identity" and "attachment" as referred to in Chapter 3) are as important as communal spaces available to a larger group (Landman & du Toit 2014:25).

Landman and du Toit's research also indicated that social networks play a key role to residential choice – the development of supportive relationships with neighbours is especially abundant and needed among working families with children (2014:25).

A graphic summary of the study's findings are illustrated in Chapter 2, Figure 17 to Figure 24.

4.7.2 Conclusion

The case study confirms the importance of outdoor spaces and shared spaces that allow for community interaction. These areas are most important to female-headed households with children, and become increasingly important where households consist of 2 or more people. Considering that the study was undertaken in similar housing developments to the proposed project, these findings should be applied as far as possible as a valuable guide to the user's needs.

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4.8   Case Study - Sebake

4.8.1 Analysis

Thandi Sebake investigated the quality of the shared public spaces provided by social housing institutions in Tshwane in her Master of Science in Architecture by research, titled "*An assessment of the quality of shared outdoor spaces in social housing projects in the City of Tshwane*". Sebake closely investigated both the regulations surrounding the housing developments (2015:11-25). The regulations as well as complementary resources provided a strong background from which a set of criteria was developed, against which existing housing developments' public spaces could be measured and analysed in an empirical manner.

All social housing developments in the CBD were measured against a set of key requirements, such as the availability of units for residents with special needs, have 3 to 4 storeys, have been operational for at least one year, have a medium density configuration, and be in close proximity to other Yeast City Housing projects. After analysis the available housing stock, three developments – Litakoemi, Hofmeyr, and Kopanong – were chosen for in depth studies.

Spatial elements such as play areas, clothing lines, dustbin areas, gardens, laundry areas, open spaces, seating spaces and walkways were investigated and analysed both from a spatial and resident experience. One element that frequently arose as a problem or less-than-ideal situation, is the prohibition of residents to use public spaces such as the lawn or courtyard, due to management trying to keep these spaces clean and minimise the maintenance required. Other elements such as limited play-areas, and little consideration of inclusive requirements are areas the residents have identified as problem areas, or areas that can be improved to better suit their lifestyles.

Safety is a large concern for both the residents and management, with Sebake finding that all the developments investigated showed a strong awareness and intervention into areas that created possible danger zones.

4.8.2 Conclusion

Sebake found, and is supported by the Author, that the Social Housing Policy must provide clearer and less ambiguous guidance regarding the design and development of quality shared outdoor spaces in social housing projects (Sebake 2015:105).

The study provided a thorough analysis of the existing housing stock and provides an insight into the problem areas which should be addressed in the proposal. Elements such as sight lines to public spaces are important and should minimise the risk of using these spaces at night or when there are few other residents in the area.

The lack of appropriation and the reflection of the residents' identities is worrying, and prevents the individual developments from developing their own character or identity. Some residents have taken some control over their

near-home space. However, as they are not allowed for and considered in the initial design or refurbishment, they create tripping hazards.

The final conclusion that can be drawn from Sebake's study is the consideration that each space is not always used purely used for its intended function. For example, residents indicated that they check their mail in the garden, open spaces and walkways (Sebake 2015:149). Activities such as greeting and talking to one another occur across the whole development (Sebake 2015:151), and should be considered and accommodated for in future developments.

4.9   Conclusion

The precedents identified have each focused on specific areas of importance within the proposal. The precedents were chosen mainly for their aesthetic appearance and influence on the forms and physical manifestation of the design, whereas the case studies provide an insight into the user and their sociological and spatial needs, as situated in a similar context.

For application in the design proposal, the Next21 development provided an insight into a successful intervention that allows users to interact with one another without compromising their privacy. The project also allows for resident appropriation within a specified area, which appears to be highly successful.

Skyville@Dawson enforced the applicability of using public spaces in a high-rise building in order to ensure equal access to these spaces for all residents. The division of the towers

into smaller communities creates an environment where residents can connect socially with other residents on a scale that is more considerate of the human needs.

The Education Centre is an example of a clear representation of the building's function and intention on the exterior of the building. The variety of different space types have been clearly defined and are easily recognised as separate from one another, where needed.

The Brickfields development is a local example of a similar density and user group. However, analysing the project with the theories discussed in Chapter 3, it is not as successful in creating legible public spaces, or creating areas where residents can appropriate their environment and reflect their identities.

The case studies provided empirical data and background to enforce the area of investigation and provide a more detailed background on the users' needs and requirements for social housing developments.

This concludes Chapter 4. The design and technical development will be discussed in Chapter 5.