

# **360 Living: Optimizing Space and Views in Low-Rise Collective Housing on a Slope in Daegu, South Korea**

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## **PREFACE**

This report is submitted in partial fulfillment of the requirements for the degree of Bachelor of Interior Design at Petra Christian University. The project titled "*360 Living: Optimizing Space and Views in Low-Rise Collective Housing on a Slope in Daegu, South Korea*" was carried out during a student exchange program at Keimyung University, Daegu, South Korea. I would like to express my gratitude to both Petra Christian University and Keimyung University for providing the opportunity and resources to complete this project.

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## **ACKNOWLEDGMENTS**

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## **ABSTRACT**

Based on the national statistics of Korea, the population of South Korea are expected to drop by 14 million in 50 years [1]. The population structure itself has also changed dramatically since the 1970s, with constant increase of distribution towards the aging society [1]. This means that the way people live in South Korea will change dramatically over the next years. Collective housing—one or more buildings used communally by a variety of users—becomes a great tool for this adaptation, as it can be modeled for both young and old people, and families in communities. After decades of growth, South Korea is now a land full of high-rise apartments, packed in every space of the country [2]. Therefore, it is also a good idea to decrease the height of the buildings by creating low-rise collective housings, which prioritizes space optimization and views for its residents.

# **1. INTRODUCTION**

## **1.1 Project Overview**

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The project centers on designing residential spaces tailored for urban living and environments. The primary theme is "Collective Housing," which refers to one or more buildings shared by diverse users, including the elderly and disabled, who are not related. The project highlights the importance of community and creative interactions within collective housing, where architecture and interior serves as a mediator and connector to the surrounding environment and neighborhood.

## **1.2 Methodology**

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### **1. Precedent Research**

The first step involved conducting precedent research by referencing similar residential projects to understand how buildings are constructed on sloped terrain.

### **2. Site Visit**

In the next phase, a site visit was conducted to observe its surroundings and assess areas for improvement. It was noted that the site appeared lifeless, lacking entertainment options, and experiencing infrequent visitor traffic.

### **3. Ideation of Mass Model**

During this phase, a 3D model was initiated to better understand the site and determine the mass model shape. Considerations included the desired unit size with three bedrooms per unit, the optimal location of the core, and the circulation routes for residents entering and exiting the building.

### **4. Detailing**

Once the mass model and unit shape were finalized, the floor plan for the apartment's interior was developed, ensuring that each unit offered optimal views of its surroundings. Emphasis was placed on maximizing views for the living room and master bedroom areas.

### **5. Façade Creation**

After finalizing the mass model and unit configurations, alternative designs for the facade were explored. It was decided to incorporate a built-in balcony planter and thin glass balustrades into the design.

### **6. Final Output**

Once all components were finalized, the design panel was meticulously prepared, and the 3D model and final report were completed.

## **2. RESEARCH AND INSPIRATION**

### **2.1 Site Analysis**

#### **2.1.1 Geographical Context:**

The project site is located on a sloping terrain in Daegu, South Korea. The geographical features include an incline, which presents both unique architectural challenges and opportunities. The slope offers panoramic views of both the urban landscape and the adjacent forest, making it ideal for the "360 Living" concept, where every unit can enjoy unobstructed views.

#### **2.1.2 Cultural Context:**

Daegu, a city with a rich cultural heritage, blends traditional Korean architecture with modern urban developments. This project aims to incorporate the modern aesthetic Korean style that is popular on platforms like Instagram or Pinterest. This style is characterized by clean lines, minimalistic design, and the use of natural materials and colors like wood and stone. The intention is to create a contemporary look that still respects and reflects the local architectural traditions. This modern aesthetic emphasizes simplicity, functionality, and a strong connection to nature, aligning well with the overall goals of the "360 Living" project.

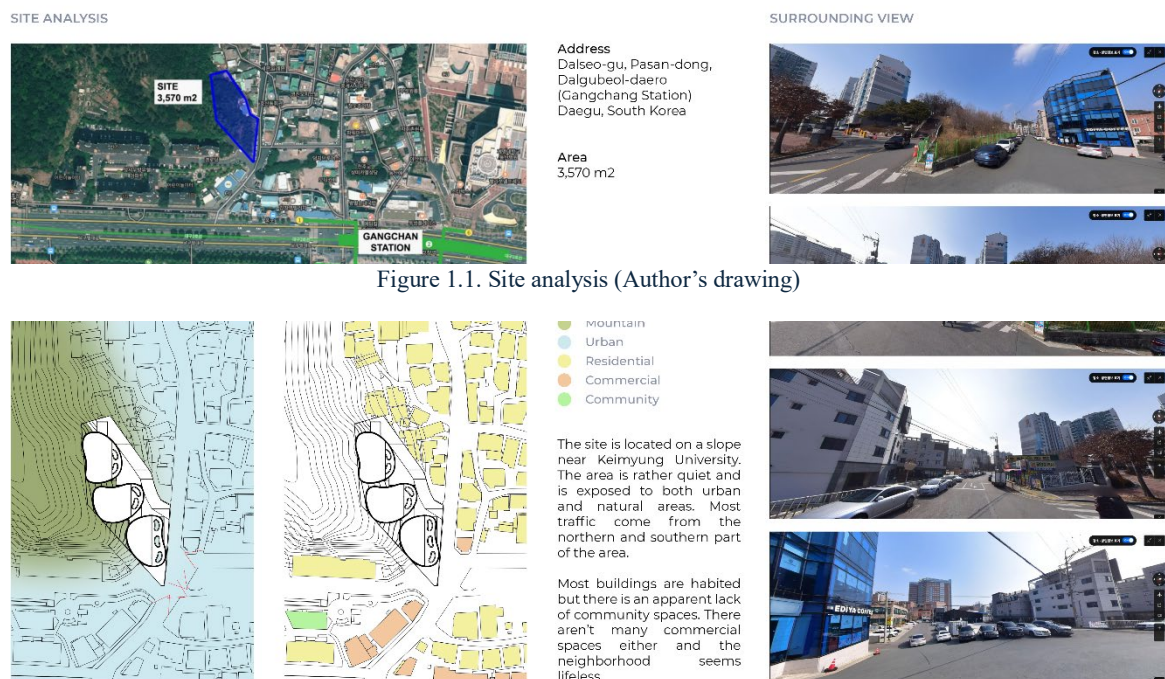


Figure 1.1. Site analysis (Author's drawing)

#### **2.1.3 Historical Context:**

Historically, Daegu has been a significant cultural and economic hub in South Korea. The area surrounding the site has evolved over centuries, with a history of community gatherings and trade. This historical context inspires the creation of communal spaces within the housing complex, promoting interaction and a sense of community among residents.

## 2.2 Case Studies

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Figure 1.2. Habitat 67 by Moshe Safdie.  
Source: ArchDaily, 2024

### Habitat 67, Montreal:

Habitat 67, designed by Moshe Safdie, is recognized as a pioneering example of modular housing that prioritizes individuality and views for each unit. "360 Living" drew significant inspiration from this project, especially in its approach to providing unique vistas and maximizing natural light in each unit. The layout and design principles of the project were influenced by the modular design and integration of communal spaces within the Habitat 67 structure.

### Archiborescence, Lille:

Archiborescence by Vincent Callebaut Architectures is a significant precedent for our project, particularly in its community-centric design and sustainability. It emphasizes vibrant, engaging spaces that foster community interaction, aligning with our goals for collective housing in Daegu. Key features include organic shapes and natural materials, promoting environmental sustainability and influencing our design choices toward a harmonious and eco-sensitive solution.



Figure 1.3. Archiborescence by Vincent Callebaut Architectures. Source: AAs Architecture, 2021

## 2.3 Concept Development

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The concept for "360 Living" emerged from the desire to create a residential space that optimizes and creates connection for both interior living areas and exterior views. The initial design phase involved creating sketches and models that explored various configurations of tiered units on the sloping site. The primary goal was to ensure that each unit had access to panoramic views while maintaining privacy and optimizing space.

## **3. DESIGN PROCESS**

### **3.1 Design Evolution**

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1. **Initial Sketches and Models:** During the design evolution, the process began with determining the average size of a three-bedroom apartment unit. After several sketches, the most comfortable yet optimal space needed for an average unit is around 100-150m<sup>2</sup>. A 4x4 meter grid was then utilized to ensure precise placement of columns. Subsequently, the site layout was optimized to maximize the number of units accommodated. The building shape was then reassessed after roads and sidewalks were added. After several feedback sessions, the most optimal shape was finalised and then used as the final shape.



Figure 1.4. Rough estimate of unit size (Author's drawing)

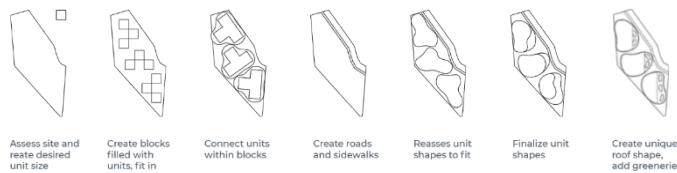


Figure 1.5. Mass model process (Author's drawing)

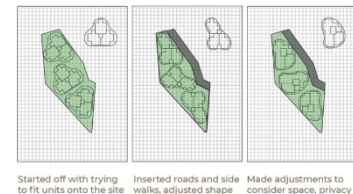


Figure 1.6. Grid guide used to create and modify mass model shape (Author's drawing)

2. **Prioritizing Space and Views:** After finalising the mass model based on the desired interior zoning, every living room and master bedroom was made sure to get the best views (either city view or forest view). Then every space was optimised to facilitate its activities, prioritising comfort for its residents (see Figure 1.7).
3. **Sustainability Considerations:** The design incorporates sustainable practices, such as the use of natural materials and greeneries. These features reduce the environmental impact of the building and promote sustainable living.

### 3.2 Final Design

The final design of "360 Living" features a series of tiered units, each with large windows that frame the views of the city and forest (see Figure 1.8). The living rooms and master bedrooms are strategically placed to capture the best views (see Figure 1.7), while the overall layout promotes natural light and ventilation. Communal spaces, such as gardens and terraces, are placed between towers, encouraging interaction and creating a strong sense of community

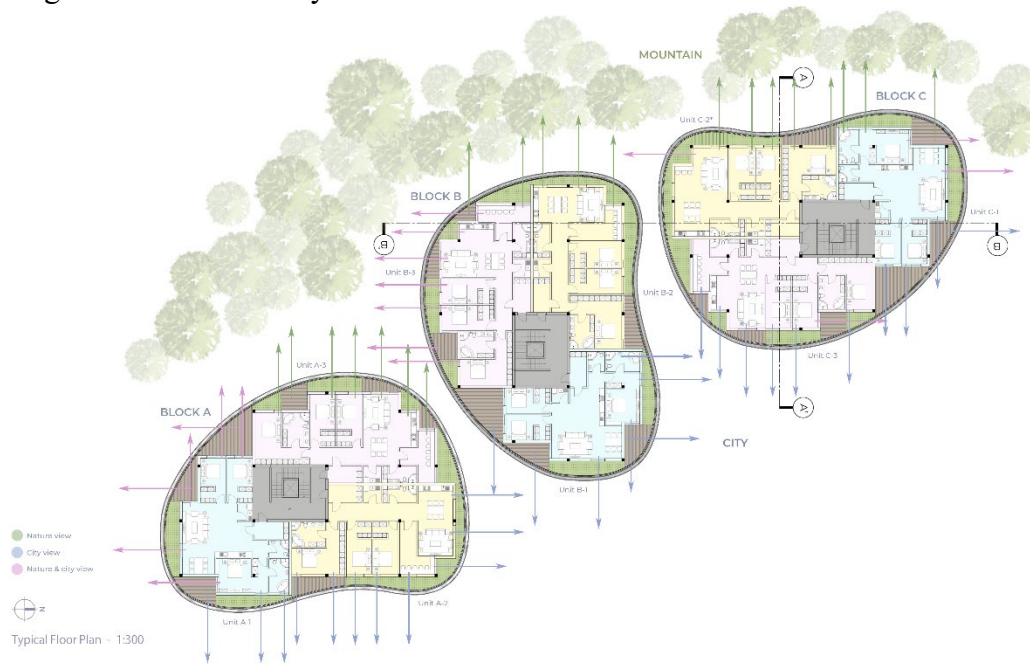


Figure 1.7. Scenic View Diagram (green – nature view, blue – city view, pink – nature and city view) (Author's drawing, not to scale)



Figure 1.8. Final typical floor plan design (Author's drawing, not to scale)

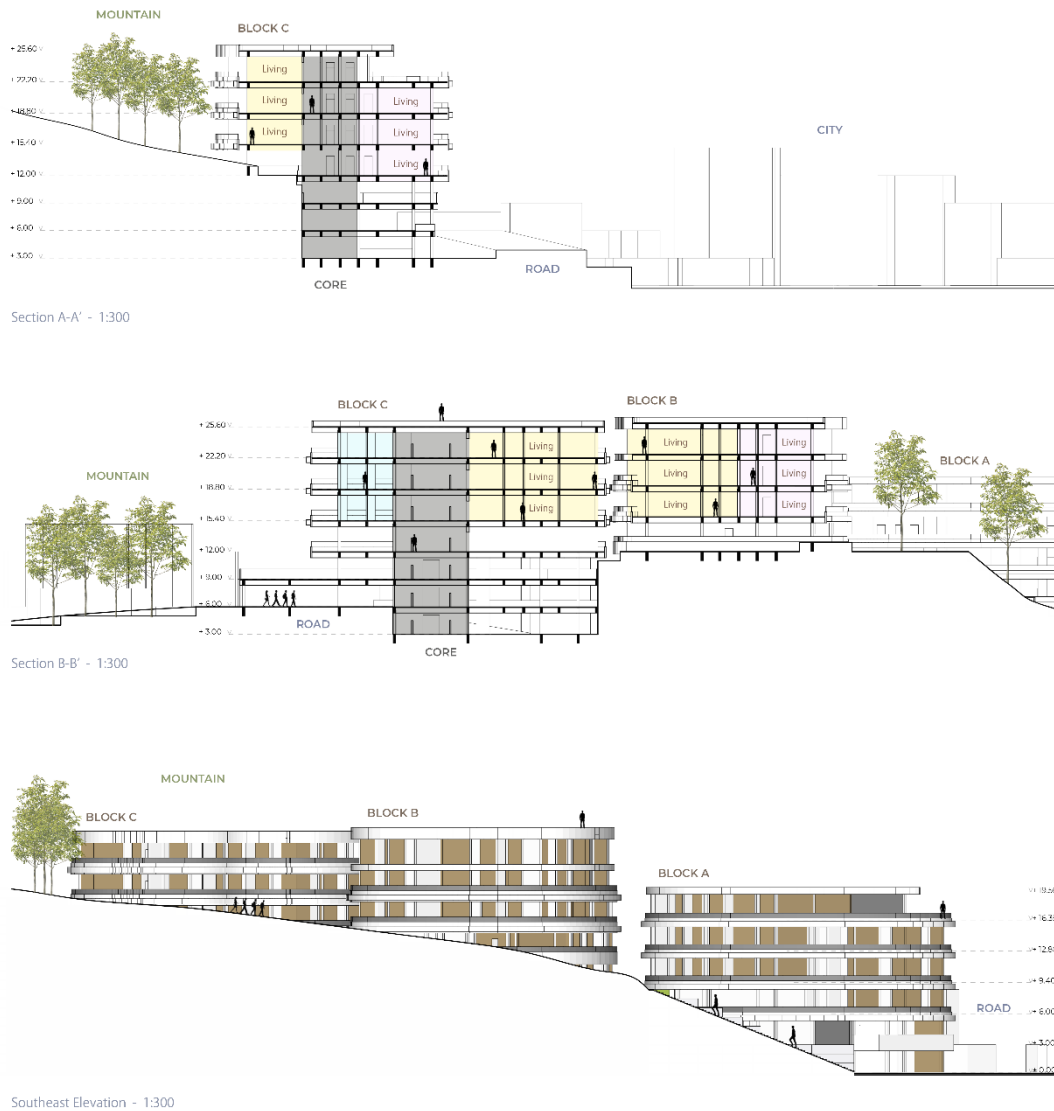


Figure 1.9. Section drawings (Author's drawings, not to scale)

## **4. CHALLENGES AND SOLUTIONS**

The greatest architectural challenge encountered was the slope, as initially, there was uncertainty about how to effectively work with it. Ensuring that every unit maintained a good view was particularly difficult, given that some parts were obstructed by the hill or adjacent buildings.

The solution involved working the slope from the inside out rather than the outside in when carving it out. This approach ensured that only parts with proper structural support were altered. To maintain good views, the building height was increased, with parking and community spaces placed on the lower floors. Units were intentionally removed from certain floors where the view might be obstructed, ensuring that only units with unobscured views were created.

## **5. REFERENCES**

- [1] Statistics Korea. (2021). *Population prospects of the world and South Korea* (based on the 2021 population projections). Retrieved from [https://kostat.go.kr/board.es?mid=a20108010000&bid=11748&tag=&act=view&list\\_no=420706&ref\\_bid=11742,11743,11744,11745,11746,11747,11748,11749,11773,11774,11750](https://kostat.go.kr/board.es?mid=a20108010000&bid=11748&tag=&act=view&list_no=420706&ref_bid=11742,11743,11744,11745,11746,11747,11748,11749,11773,11774,11750)
- [2] Fifield, A. (2013, September 15). After decades of economic growth, South Korea is the land of apartments. *The Washington Post*. Retrieved from [https://www.washingtonpost.com/world/after-decades-of-economic-growth-south-korea-is-the-land-of-apartments/2013/09/15/9bd841f8-1c55-11e3-8685-5021e0c41964\\_story.html](https://www.washingtonpost.com/world/after-decades-of-economic-growth-south-korea-is-the-land-of-apartments/2013/09/15/9bd841f8-1c55-11e3-8685-5021e0c41964_story.html)