

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This study aimed to assess the residential satisfaction of government-provided four-storey apartment buildings at civil servant housings in Naypyitaw, the new capital city of Myanmar. The first objective of this study was to identify the dominant factors that could improve residential satisfaction in the government-provided four-storey apartment units in civil servant housings of Naypyitaw City using Importance-Performance Analysis and Gap Analysis. The second objective was to provide recommendations that could help improve the residential satisfaction level for new buildings to be constructed in the future in Naypyitaw city.

This chapter presents an overall conclusion based on the results obtained in this research. The study found that most of the residents living in four-storey apartment buildings at civil servant housings of Naypyitaw City were satisfied with their housing conditions, according to the targeted attributes of this study. Therefore, Section 5.1 discusses the key findings, followed by the research recommendations of Section 5.2.

5.1 Conclusions

This section presents the key findings and conclusions based on the results of the Importance-Performance Analysis, Gap Analysis, and Hypothesis test.

5.1.1 Importance-Performance Analysis

Based on the Importance-Performance Analysis, the following attributes within the second quadrant were identified as the top priorities:

1. Layout plan of apartment
2. Size of rooms and corridor
3. Numbers of rooms
4. Ceiling height
5. Staircase design

6. Satisfaction with neighborhood relations
7. Proximity to school for children
8. Proximity of house to market/ Grocery store/shopping locations
9. Proximity to place of worship,
10. Proximity of house to police station, and
11. Proximity of house to fire station that can also be considered as important attribute or low priority due to its location on x-axis between Quadrant II and Quadrant III.

It is defined that those attributes are vital in increasing competitiveness and should be improved by means of continually make improvements.

5.1.2 Gap Analysis

In the Gap Analysis, all attributes in this study had higher performance values than importance. The seven attributes with the smallest positive gaps, close to zero, were selected as priorities for improvement:

1. Ceiling height (0.11)
2. Satisfaction with neighborhood relations (0.18)
3. Layout plan of apartment (0.19)
4. Size of rooms and corridor (0.28)
5. Numbers of rooms (0.29)
6. Staircase design (0.47)
7. The proximity of the house to the police station (0.47)

These attributes were chosen as priorities for this study due to their smallest positive gaps close to zero.

5.1.3 Key Findings and Recommendations

Consequently, the dominant attributes that can improve residential satisfaction of four-storey apartment buildings in Naypyitaw according to the results of Importance-Performance Analysis and Gap Analysis are identified as follows:

1. Ceiling height
2. Satisfaction with neighborhood relations
3. Layout plan of apartment
4. Size of rooms and corridor, and
5. Numbers of rooms

6. Staircase design, and
7. The proximity of the house to the police station.

Therefore, this study suggests the following improvements that are necessary to enhance residents' satisfaction with four-storey apartment buildings in Naypyitaw:

- 1) **Review Ceiling Height:** According to Myanmar National Building Code (2020), it stated that “The minimum clear height of room (head room) in residential buildings excluding shop houses shall be: For living rooms, bedrooms and kitchens, not less than 8 feet (2.44 feet); For bathrooms, water-closets, latrines, balconies, verandas, and like, not less than 6.5 feet (1.98 meter)”. The ceiling heights in government-provided four-storey apartment buildings were found to meet the standard requirements according to Myanmar's regulations. However, considering the hot climate in Naypyitaw, residents living on the top floors expressed dissatisfaction with the heat transfer through the ceiling. Designing apartment buildings with higher ceilings or incorporating insulation in the roof space to prevent heat transfer should be considered during the early design stage in coordination with architects.
- 2) **Review Satisfaction with Neighborhood Relations:** According to the study of Hur and Morrow-Jones (2008), safety and social problems were much more significant influences than physical factors in neighborhood satisfaction in unsatisfactory areas. Therefore, based on the influence of safety and social problems on neighborhood satisfaction, it is important to consider residents' satisfaction with neighborhood relations in future housing projects. This can be achieved by addressing safety issues and fostering a sense of community.
- 3) **Review the Layout Plan of Apartment:** The layout plan of the apartments can be improved by considering factors such as optimal space utilization, functional room arrangement, efficient traffic flow, and incorporating design elements that enhance comfort and aesthetics. And, it should be reviewed to align with the needs and preferences of the residents, as well as standard design guidelines.

- 4) Improve Size of Rooms and Corridor According to Myanmar National Building Code (2020) , it is identified that “The floor area, not including public stair of smallest residential unit, for one family in the urban areas is 500 square feet (46.45 square meter) or at least 100 square feet (9.29 square meter) per person, allowable to take the lesser figure. Thus, the room sizes in the apartment buildings were found to meet the standard requirements. In a different way, size of rooms and corridors can be improved with clever design tips and tricks from the experts that prove size is not everything.
- 5) Depending on the report of MC Gill University Services (2015), it recognized that “Hallways and Corridors shall be laid out and dimensioned to minimize potential traffic related damages (width, stairs and elevators located to prevent bottleneck forming, minimizing change in direction to ease carts maneuvering, etc.). Potential abuse-prone areas shall be carefully analyzed”. Therefore, considering traffic flow and potential abuse-prone areas, careful analysis and design of hallways and corridors should be conducted to optimize space utilization and prevent bottlenecks.
- 6) Increase Numbers of Rooms: Depending on the needs of the targeted residents, increasing the number of rooms should be considered in future apartment buildings in Naypyitaw to enhance residents' satisfaction and attract more people to live there.
- 7) Engage Staircase Design: According to Myanmar National Building Code (2020),
 - a) All staircases shall be properly lighted and ventilated.
 - b) All stairs shall be not more than 16 risers between each such landing.
 - c) All stairs shall have non-slip surface.
 - d) In cases where stairs or steps begin after the doors and other openings, the distance between such openings and the beginning of stairs/ steps shall normally be the same as the width of the respective stairs, but minimum of 3 feet shall be required.

- 8) Therefore, staircase design should adhere to the design standards outlined in the Myanmar National Building Code, including proper lighting and ventilation, non-slip surfaces, and appropriate distances between stairs and door openings. Engaging staircase design based on the standards and residents' needs is crucial for safe and comfortable access.
- 9) Proximity of House to Police Stations: To create a livable city, housing locations should be carefully planned to ensure convenient proximity to police stations. This can contribute to a sense of security and residents' satisfaction with the overall living environment.

Another suggestion is that the government and public housing developers should consider the policy implications and actively involve residents and home buyers in the development of dwelling units. Incremental construction and housing delivery strategies that align with residents' needs can further enhance satisfaction in future housing projects.

Moreover, the study emphasizes the importance of involving current residents and homebuyers in the development process of their dwelling units. By actively engaging them and promoting incremental construction, housing delivery strategies can be more responsive to the needs and preferences of the residents. While the study reveals that civil servants residing in four-story apartment buildings generally express satisfaction with their housing conditions, it is crucial for the government and public housing developers to continuously improve the design and location of future housing projects. This ongoing commitment to enhancing livability will contribute to the overall well-being and satisfaction of the residents in the long term.

5.1.4 Hypothesis z-test

The hypothesis testing results indicate that all questions, except for question number (4) on ceiling height, reject the null hypothesis with statistical significance. When the null hypothesis is rejected, it means that the test is significant at the chosen level of significance and the test statistic value is significant to reject the null hypothesis. Therefore, the results of the twenty-nine attributes that reject the null hypothesis can be interpreted as significant and the alternative hypothesis is accepted.

Based on the z-test and p-value methods, it can be concluded that the difference in mean values between the importance and satisfaction of ceiling height is not significant, whereas the difference in mean values between the importance and satisfaction of the other 29 attributes is highly significant.

5.2 Future Study

In this research, the residential satisfaction of residents living in four-storey apartment buildings in civil-servant housing in Naypyitaw City was studied based on common attributes selected from empirical studies and suggestions from local authorities. Based on the findings of this research, the following suggestions can be made for future studies:

- Surveys can be conducted on all types of buildings in civil-servant housing in Naypyitaw.
- Studies can be conducted on civil-servant housing and low-cost housing provided by the government in different parts of Myanmar.
- Depending on the location and building types, studies can be conducted with different variables/attributes that may be required.

