

Design of the Al-Amin Living Lab and Industrial Park Mixed-Use Building in Sampe Cita Village, Kutalimbaru District

Dara Wisdianti, Peranita Sagala, Ramayana, Ivan Noor Akbar
Pancabudi Development University, Indonesia

Corresponding author: darawisdianti@dosen.pancabudi.ac.id

Abstract. A Mixed-Use Building combines structures with different functions, such as residential, commercial, and cultural buildings, planned within a city. This research focuses on the design of a Mixed-Use Building, referring to the process of planning, illustrating, and developing a concept or idea for a building or physical structure. The study aims to understand the design of the Al-Amin Living Lab and Industrial Park Mixed-Use Building in Sampe Cita Village, Kutalimbaru District. The research material includes the site location in Sampe Cita Village, Kutalimbaru District, Deli Serdang Regency, the needs of the academic community of Panca Budi Development University for research land, and the potential for area development as a tourism facility, such as a mall and other buildings that will support the activities of the area and the surrounding community. The results of this study indicate that the facilities and infrastructure of the Al-Amin Living Lab and Industrial Park Mixed-Use Building consist of a cafe, coffee shop, meeting room, viewing area, and toilets and that the design guidelines for the Al-Amin Living Lab and Industrial Park Mixed-Use Building meet the criteria.

Keywords: Design, Facilities and Infrastructure, Mixed-Use Building.

INTRODUCTION

Kutalimbaru District is located within Deli Serdang Regency, North Sumatra Province. The natural environment of Kutalimbaru District generally has two seasons: the dry season and the rainy season, both influenced by sea and mountain winds. Administratively, Kutalimbaru District borders several areas: to the north, it borders Sunggal and Pancur Batu Districts; to the south, it borders Sibolangit District; to the east, it borders Pancur Batu District; and to the west, it borders Langkat Regency. (BPS Deli Serdang, 2021).

Located in the Glugur Rimbun area, specifically in Sampe Cita Village, Kutalimbaru District, this site is projected to become a center for Mixed-Use Buildings that provide facilities for all study programs at UNPAB. The area, which is also planned to become a Mixed-Use Building, will be named the Al-Amin Living Lab and Industrial Park Mixed-Use Building. One of the functions to be developed in this area includes a restaurant, café, and meeting room.

A Mixed-Use Building is a combination of structures with different functions, such as residential, commercial, and cultural buildings, planned within a city

Received on February 7th, 2024; Revised on March 2nd, 2024; June 30nd, 2024

*Corresponding author, darawisdianti@dosen.pancabudi.ac.id

(Rabianski, 2013). Compared to single-use buildings, the implementation of Mixed-Use can enhance the efficiency of each function (spatial value), improve all subsystem functions (financial value), and increase the city's attractiveness (urban value). (Wang & Wang, 2015).

LITERATURE REVIEW

Mixed-Use Building Theory

An integrated automotive service building serves as an example of a mixed-use building, as it combines functions such as a workshop and a gallery. The workshop is intended for vehicle repair and maintenance, while the gallery serves as a venue for vehicle exhibitions. Visitors to the gallery do not necessarily need to use the workshop services, and vice versa. Architecturally, the building is designed using mixed-use building theory, combined with space organization theory, to ensure that each functional area is well-connected without interfering with one another (Nuraini et al., 2022).

Characteristics of Mixed-Use Buildings

Characteristics of Mixed-Use Buildings (Aharonian et al., 2004)

1. Including 2 or more building functions with different purposes within the related area, such as apartments, hotels, schools, hospitals, malls, and others.
2. There is physical and functional integration of the functions within.
3. The buildings are connected by a close distance to each other, interconnected through the relationships among the buildings within.
4. Pedestrians play an important role in connecting the buildings.

Principles of Mixed-Use Areas

In the guidebook by the Adelaide City Council, several supporting factors for the success of a mixed-use design concept are explained (Council & Council, 2002). In this guidebook, the Adelaide City Council divides various precedents of mixed-use buildings in the city of Adelaide (Council & Council, 2002). The basic principles of mixed-use area development in the guidebook are:

- a. **Compact Development:** Development focuses not only on building mass but also includes public spaces (Council & Council, 2002). Public spaces can support circulation access, reduce dependence on motor vehicles, land consumption, energy use, and air pollution (Council & Council, 2002).
- b. **Accessibility for Pedestrians:** This includes factors of safety and comfort (Council & Council, 2002). Membangun sistem sirkulasi di dalam kawasan perancangan untuk memberikan akses pejalan kaki yang aman dan nyaman (Council & Council, 2002).
- c. **Street Connections.** In the planning area, the external part connected to the area consists of roads that serve transportation (Council, 2002). Therefore, improvement of road networks both externally (outside the area) and internally (within the area) must be accessible (Council & Council, 2002). This accessibility also includes access to public facilities and other nearby functions (Council & Council, 2002).

- d. Crime Prevention and Security with planning and design solutions that enhance public safety (Council & Council, 2002). Considerations in planning include the increase in crime rate with the development of population density in an area (Council & Council, 2002). Therefore, the design should develop aspects such as territoriality of the area, surveillance, access control, supportive activities, and maintenance.
- e. Creating and Securing Public Space (Council & Council, 2002). Constructing and maintaining public spaces such as sidewalks, plazas, parks, public buildings, and gathering places can facilitate community interaction in the area (Council & Council, 2002).
- f. Parking and Efficient Land Use (Council & Council, 2002). Designing and managing parking areas efficiently (Council & Council, 2002). Implementing mixed-use development will limit parking, especially in densely populated areas (Council & Council, 2002).
- g. Human Scaled Building Design (Council & Council, 2002). Designing buildings that are aesthetically appealing, pedestrian-friendly, and compatible with other land uses (Council & Council, 2002). Key elements to consider include building size, architectural continuity between horizontal and vertical structures, roof shape, window and door rhythm, and the relationship between buildings and public spaces such as streets, plazas, other open spaces, and public parking (Council & Council, 2002).

Configuration of Mixed-Use Building Layouts

A mixed-use tower consists of building masses that successfully connect with each other. There are four configurations for building layouts in mixed-use areas (Sumargo, 2003) :

1. Single-Structured High Rise: A mixed-use tower with a single structure that reaches high-rise classification, accommodating various functions across its layers. Generally, a mixed-use tower is considered a high-rise building.
2. Multitowered Megastructure: A mixed-use building where all towers are integrated with an atrium located at the base of the structure. This atrium serves as a mall or shopping center. In multitowered megastructures, the components of the podium are crucial as they serve as meeting areas or transitions for building users.
3. Freestanding Structure with Pedestrian Connection: A planning concept in mixed-use areas consisting of several standalone structures connected through pedestrian pathways. This ensures that the functions of each building do not overlap.
4. Combination: A concept that combines three forms of building masses within a mixed-use area.

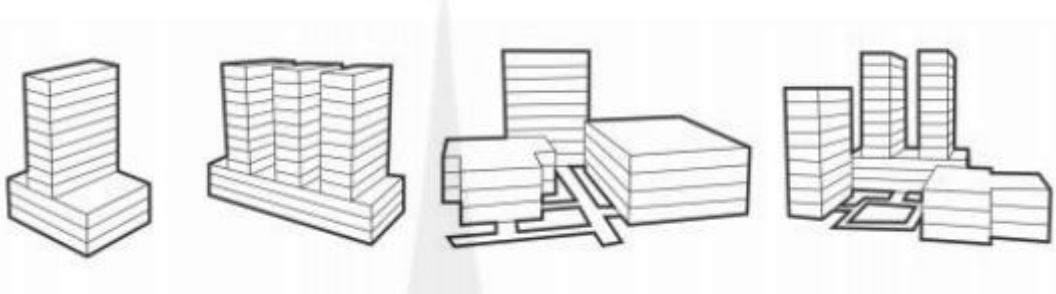


Figure 1. Mixed-Use Building Layout Configuration

Commercial

Commercial, descriptively, is a place with activities for the exchange of goods and services. Commercial can also be defined as a trading space that meets the needs of users in that space. According to a study by Peter Coleman titled "Shopping Environments: Evolution, Planning and Design," commercial refers to a space that provides for the needs of users (Coleman, 2006). Peter Coleman elaborates on commercial by looking at the history of commercial spaces and user trading facilities (Coleman, 2006).

Restaurant and Café

A restaurant is a place or building organized commercially, providing services to all consumers in the form of food and drinks. Usually, a restaurant is part of a hotel that offers food and drink services to both staying guests and non-staying visitors. The arrangement and service of food in a hotel are known as F&B Service, under the Food and Beverage Department.

Meanwhile, a café is a small restaurant that serves as a relaxed place to hang out or chat with friends, family, or colleagues while enjoying drinks and food listed on the menu. A café is usually designed to be very attractive and Instagrammable, making guests feel comfortable staying there for a long time. To attract young people, cafés often provide entertainment such as live music on weekends or certain days to accompany visitors as they chat and relax with musical accompaniment. The terms Café (English) and Kafe (Indonesian) are essentially the same; the choice of spelling is made to attract visitors or to be more contemporary. According to Building Planning & Design Standards, in general, a café is a place that provides food and drinks similar to a restaurant in its service system, with the addition of musical entertainment, making it a relaxed place for chatting (Baraban & Durocher, 2010). What sets a café apart from other dining places is its emphasis on entertainment and the comfort of visitors (Ongkohadi, 2014).

Meeting Room

Meeting is an English term that means gathering, assembly, or conference. According to Kesrul (2004:8), a meeting is a gathering or assembly organized by a group of people who are part of an association, society, or organization with the aim of

developing professionalism, improving human resources, fostering cooperation among members and leaders, disseminating the latest information, publication, and public relations.

A meeting room is a space used for a meeting of two or more people. The term meeting room has a different meaning from conference hall or banquet hall, although these terms are sometimes used interchangeably because they all refer to meeting spaces. However, there is a distinction between a meeting room and a conference hall. The term meeting implies a smaller scope, with fewer participants, simpler rooms and equipment, and shorter duration.

Architectural Design

The activity of design in architecture essentially involves three main aspects that should be undertaken/implemented/provided both academically by students of the Architecture Department in the campus environment, and practically by professional architects in the field. Udjiyanto Pawitro, in his journal "Understanding the Relationship Between Architectural Theory - Design Activities and Work Critique" (2009), states that in Architecture, the three main aspects (which should normatively be undertaken/provided) in architectural design activities are:

- a) Steps or stages or procedures that should be followed in architectural design activities to achieve good preparation, process, and design outcomes.
- b) Basic and advanced knowledge of the guidelines/principles/references on how 'good' and 'correct' design activities should be conducted in the field of architecture.
- c) Advanced insight/knowledge in imparting character/flavor to the architectural design activities carried out so that the design results can provide 'added value'.

RESEARCH METHOD(S)

This research is a qualitative descriptive study using the literature review method through library studies based on previous research journals (Kurniawan, 2014) related to the title, as well as through accessing data obtained from websites as sources of information publication. Qualitative descriptive research can be interpreted as the researcher being the key instrument, where data collection techniques are carried out through data compilation and inductive data analysis (Sugiyono, 2012), thus resulting in processing and presenting descriptive data such as narrating interview results and/or observations.

FINDINGS AND DUSCUSSION

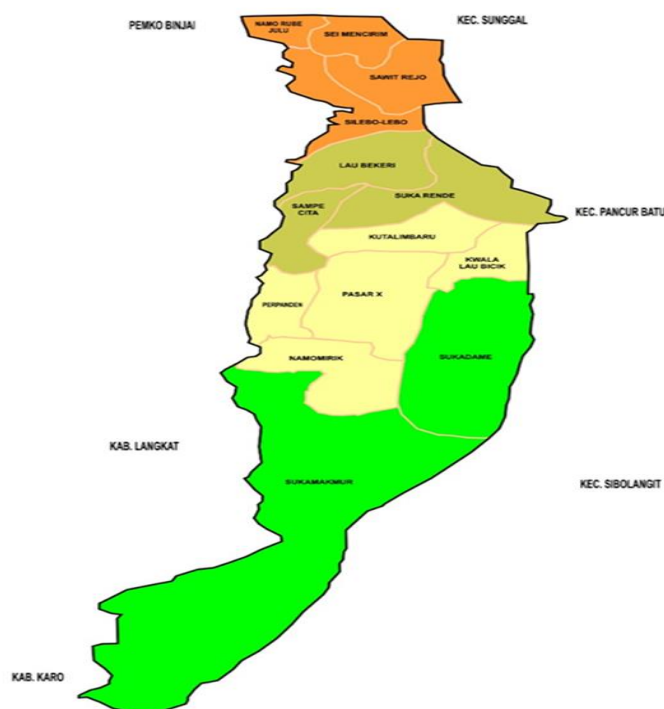
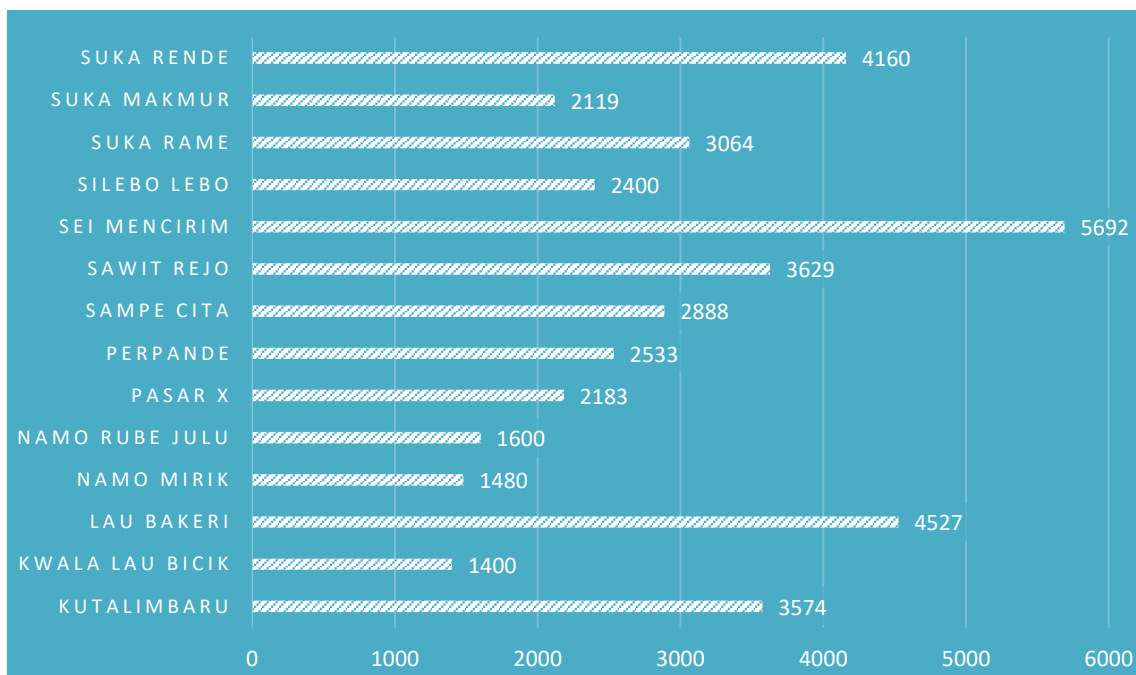


Figure 2. Map of the Kotalimbaru District, Deli Serdang Regency

The community in Kotalimbaru District is composed of diverse ethnic cultures, such as Batak, Karo, Javanese, Mandailing, etc. The area of Kotalimbaru District is 174.92 km², consisting of 14 villages. The villages in Kotalimbaru District are as follows:



Sumber: Data, Kantor Kepala Desa Se-Kecamatan Kotalimbaru

Figure 3. Names of Villages and Population Numbers in Kutalimbaru District, Deli Serdang Regency

The Kutalimbaru District is an area where the majority of the population works as farmers and livestock breeders. Agriculture and livestock in this region have significant potential to be developed to meet basic needs and enhance the economy of the community, particularly in Deli Serdang Regency. The agricultural land in this area is predominantly used for cultivating secondary crops and oil palm plantations. The livestock includes goats, cattle, broilers, layers, and pigs. Agriculture and livestock management in Kutalimbaru District still use traditional methods (Siregar et al., 2023).

Universitas Pembangunan Panca Budi plans to develop an area located in Glugur Rimbun, precisely in Sampe Cita Village, Kutalimbaru District. This area is projected to become a mixed-use development that accommodates all study programs at UNPAB. The mixed-use development, named Al-Amin Living Lab and Industrial Park, will include facilities such as a restaurant, café, and meeting room.

The purpose of this development is to create a more diverse and sustainable environment within the region. This concept involves land or building use that mixes various types of usage such as restaurants, cafés, meeting rooms, and recreational spaces within one area or project (Rangkuty & Hidayat, 2021).

The design and construction of this development are crucial practices for creating flexible spaces, achieving the desired forms, enhancing building efficiency, and facilitating the implementation of the Al-Amin Living Lab and Industrial Park in Sampe Cita Village, Kutalimbaru District.

CONCLUSION AND RECOMMENDATION

Conclusion

The facilities and infrastructure of the Al Amin Living Lab and Industrial Park Mixed-Use Building consist of:

1. Café
2. Cofee Shop
3. Meeting Room.
4. Viewing Area
5. Toilet

The design guidelines for the Al Amin Living Lab and Industrial Park Mixed-Use Building meet the following criteria:

1. Aligned with the overarching concept of the Al Amin Living Lab and Industrial Park area design.
2. Synergistic with the landscape design of the surrounding area, considering the site is surrounded by agricultural zones.

3. Adheres to intensity, building codes, and applicable regulations.
4. Innovative and practical in both construction and financing.
5. Serves as a central gathering and activity point for the area.

Recommendation

The Al Amin Living Lab Mixed-Use Building can be utilized by the academic community of Universitas Panca Budi and the surrounding population as a facility for discussion and teaching, not only in agriculture and livestock but also as a center for various activities. Therefore, it should be developed at the outset to serve as an activity generator and to encourage other activities within the Al Amin Living Lab and Industrial Park area.

REFERENCES

- Aharonian, F., Akhperjanian, A. G., Aye, K.-M., Bazer-Bachi, A. R., Beilicke, M., Benbow, W., Berge, D., Berghaus, P., Bernlöhr, K., & Bolz, O. (2004). Calibration Of Cameras Of The HESS Detector. *Astroparticle Physics*, 22(2), 109–125.
- Bachtiar, R. (2018, October). Analysis a policies and praxis of land Acquisition, use, and development in north sumatera. In *International Conference of ASEAN Prespective and Policy (ICAP)* (Vol. 1, No. 1, pp. 344-352).
- Baraban, R. S., & Durocher, J. F. (2010). *Successful Restaurant Design*. John Wiley & Sons.
- BPS Deli Serdang. (2021). *Kecamatan Sunggal Dalam Angka*.
- Coleman, S. R. (2006). *Structural Fat Grafting: More Than A Permanent Filler*.
- Council, F. F., & Council, N. R. (2002). *Learning From Our Buildings: A State-Of-The-Practice Summary Of Post-Occupancy Evaluation* (Vol. 145). National Academies Press.
- Fitri, R., & Siregar, H. F. (2023). Pelatihan Pembuatan Kursi Taman Ecobrick Sebagai Material Hardscape Berbahan Dasar Plastik. *Amaliah: Jurnal Pengabdian Kepada Masyarakat*, 7(2), 301-306.
- Husna, A., & Satria, I. (2019). Effects Of Return On Asset, Debt To Asset Ratio, Current Ratio, Firm Size, And Dividend Payout Ratio On Firm Value. *International Journal Of Economics And Financial Issues*, 9(5), 50–54.
- Lubis, R. P. (2024). Analisis Persepsi Dan Pengaruh Kondisi Sosial Ekonomi Terhadap Pemanfaatan Air Isi Ulang Masyarakat Sebagai Perencanaan Di Wilayah Klambir Kecamatan Hamparak Perak, Deli Serdang. *Jurnal Teknovasi*, 11(01), 1-13.
- Novalinda, N. (2023). Kajian Prinsip Arsitektur Hijau Pada Pasar Baru Di Pangkalan Kerinci. *Innovative: Journal Of Social Science Research*, 3(2), 13562-13574.

- Nuraini, C., Alamsyah, B., & Negoro, S. A. (2022, August). Spatial Concept Of Housing Environment Based-On Sabb Principle As Indigenous Knowledge On Covid-19 Disaster Mitigation In Mandailing Natal. In *Proceeding International Conference Keputeraan Prof. H. Kadirun Yahya* (Vol. 1, No. 1, Pp. 72-84).
- Ongkohadi, Y. (2014). Perancangan Interior Magnum Kafe Di Surabaya. *Jurnal Intra*, 2(2), 421–425.
- Setiawan, S. A., & Woyanti, N. (2010). Pengaruh Umur, Pendidikan, Pendapatan, Pengalaman Kerja Dan Jenis Kelamin Terhadap Lama Mencari Kerja Bagi Tenaga Kerja Terdidik Di Kota Magelang. *Universitas Diponegoro*.
- Siregar, H. F., Fitri, R., & Andiani, R. (2023). Sosialisasi Status Mutu Air Babar Sari Dalam Perencanaan Eco-Tech-Edu Wisata Al-Amin Living Lab Dan Industrial Park. *Jurnal Pengabdian Kepada Masyarakat*, 90-93.
- Sumargo, P. S. (2003). Penerapan Konsep Mixed-Use Dalam Pengembangan Kawasan Kota. Depok: *KILAS Jurnal Arsitektur FTUI*. Hal, 58.
- Wang, Z., & Wang, Y. (2015). Research On Vertical Space System Of Mixed-Use Complex. *Int. J. High-Rise Build*, 4, 153–160.
- Wisdianti, D., Rangkuty, D. M., & Prasetya, M. R. (2023). Pemanfaatan Ruang Terbuka Bawah Fly Over Kota Medan Sebagai Taman Kota. *Jurnal Pengabdian Kepada Masyarakat*, 86-89.