

PUBLIC LIBRARY DESIGN WITH THE APPLICATION OF INCLUSIVE ARCHITECTURE IN TARUTUNG

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Abstract (English)

The library is a place that is in charge and responsible for the availability of complete information and the provision of fast services according to information needs, so that when accessed users can be satisfied in searching for information. Currently, libraries are starting to be displaced by modern times. Instead of being a place to get information to broaden your knowledge, now they are starting to be displaced by digital technology, such as cellphones, laptops, TV, and other technology, which are more interesting, informative and can be accessed by people. anyone, including people with disabilities. This is clearly illustrated in the regional library of North Tapanuli district, specifically the one in Tarutung, which is not well organized, uncomfortable, unable to facilitate the large number of users and still uses print media as a source of information which results in a lack of interest in reading, especially for children and teenagers. , and is not accessible to everyone, including individuals with disabilities. Therefore, it is necessary to relocate and redevelop the public library in the city of Tarutung through values in architecture with inclusive design as a process to make the public library a public area accessible to everyone and capable of transforming a multi-purpose space that integrates with the environment so that it will support increasing public literacy with good public library planning.

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Key Words

Inclusive Design, Public library, Tarutung City.

1. Introduction

Indonesia based on a study conducted by Cetrul Connenticut State University in March 2016 with the title World's Most Literate Nations Ranked, was declared to be ranked 60th out of 61 countries with an interest in reading only 0.001%. This means that out of 1,000 Indonesians, only 1 person is diligent in reading[1]. Especially in Tarutung City, this city is the center of government and economy of North Tapanuli Regency. Despite having a limited area of only 107.68 KM², Tarutung has the highest population density in the district. . According to data from the Ministry of Education and Culture [2]. There are a total of 775 educational institutions from elementary school to tertiary level in. North Tapanuli Regency, with 57 of them located in Tarutung district.[3]

Table 1 Number of North Tapanuli Educational Institutions

Institution	Negeri	Private
Kindergarten	13	28
Play Groups	0	220
Al-Qur'an Education Park	0	1

Primary school	376	9
Junior High School	72	8
High School	19	6
Junior High School	10	13
TOTAL	490	285

Source: kemdikbud.go.id [3].

Currently, the development of reading interest in Tarutung City is still relatively low due to the lack of facilities and infrastructure to accommodate these activities. Therefore, it is necessary to provide a Public Library provided by the local government. After making observations, the library building did not meet the standards usually owned by public libraries. Observations at the North Tapanuli Regional Library revealed several shortcomings, such as facilities that are not optimal in terms of completeness and technological advancement, incomplete book collections, lighting that is not suitable for reading rooms, poor air circulation, unattractive space design, lack of design innovations that can attract the interest of the public, especially those with special needs, and insufficient reading room capacity.

Due to the condition of the Library that does not meet the standards that can be owned by the General Library. Therefore, it is necessary to build a new public library that can meet the needs of the entire community regardless of ethnicity, religion, race, background, social status, age, gender, and education level, as well as support learning activities. By relocating and designing a new public library in Tarutung City with an inclusive design approach that will support all activities and ensure that the environment and services can be reached and used by everyone, including those with diverse needs and abilities, so that the Tarutung Public Library can become a library that attracts consumers from all groups including people with disabilities who can increase their interest in reading in the city Tarutung can increase.

2. Literature Study

2.1 Library

A library is defined as an institution that professionally manages a collection of various types of written works, printed works, and/or recorded works with a standardized system to meet the needs of education, research, preservation, information, and entertainment for its visitors. and supporting the improvement of the quality of education in schools by providing wide access to various information for educational purposes [4]. Library can also be interpreted as a collection of various printed and non-printed materials and/or information sources in the form of computers that are structured for the needs of users and the Library can be interpreted as a place that provides access to various types of reading and information sources such as books, digital media, journals, and other resources, with the aim of Education, research, entertainment, and personal development [5].

Meanwhile, according to. The role of libraries is to encourage the growth of interest in reading and writing, introduce information technology to users, teach

independent access to information, and support the development of talents and interests. In building libraries, there are national standards that must be complied with [6].

- a. Collection Percentage: Paying attention to the per capita collection of the Library The number of collections per capita of the Regency/City Library type C is at least 5,000 titles, type B is at least 6,000 titles, and type A is at least 7,000 titles. the addition of the number of titles of the Regency/City library collection is 0.025 titles per capita per year in the Regency/City library collection [7].
- b. Facilities and Infrastructure: The layout of the Library is in a strategic location and is easily accessible to the public, and the Building, the building has a minimum area of 0.008m² per capita and is fixed and the library building is equipped with a parking area and existing facilities [7].

Table 2 Types of Library Servers

Kind	Ratio	Description
Occupational Furniture	1 set/user	It consists of visitor chairs and reading tables, librarians' chairs and desks, circulation tables, and multimedia tables.
Storage Furniture	1 set/library	Consists of bookshelves, magazine shelves, newspaper shelves, catalog cabinets/drawers, and lockable cabinets
Multimedia Equipment	1 set/library	Consists of 1 set of computers equipped with information and communication technology.
Other Equipment	1 set/library	Consists of an inventory book to record library collections, a processing handbook for cataloging library materials, namely classification charts, a list of subject titles and cataloguing regulations, and a bulletin board

Source : Regulation of the Head of the National Library of the Republic of Indonesia Number 9 of 2017 [8]

- c. general, special facilities, library service room facilities
- d. Library Services: Number of Service Hours, Library Membership, Library Visits, Circulation (Loans) Per Capita.

2.2 Inclusive design

Inclusive design is a concept similar to universal design, which involves planning a design so that it can be used by different groups of people with diverse backgrounds, including children, adults, pregnant women, people with disabilities, and others.

According to Ronald Mace, in this inclusive design approach, there are 7 principles that are the basis of this approach, namely Equitable Use where useful design can be marketed to people with various abilities, Flexibility in Use means that the

design accommodates various individual preferences and abilities, Simple and Intuitive Use The use of design is easy to understand, regardless of user experience, knowledge, language ability, or current level of concentration, Perceptible Information Design communicates the necessary information effectively to the user, regardless of the user's ambient conditions or sensory abilities, Tolerance for Error The design minimizes harm and adverse consequences of intentional or unintentional actions, Low Physical Effort 29 The design can be used efficiently and comfortably and minimize fatigue, Size and Space for Approach and Use Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility [9].

Inclusive design is a design that prioritizes accessibility for its users, including people with disabilities. So that the building criteria used consist of [10]:

- Functional
- Usable
- Derisable
- Viable

The selection of the theme of Inclusive Architecture is of course to make the library accessible and used comfortably by everyone, including people with disabilities so that later they can carry out activities independently. So that libraries can create a friendly and inclusive environment for every individual.

3. Methodology

The method used in compiling this design report is descriptive, which refers to the decomposition and analysis of data, both primary and secondary data based on existing facts, to develop the concepts contained in the design. This method aims to explain and provide an in-depth explanation of the information present in the design. namely data collection that includes primary and secondary sources. The data collection stage includes information regarding the background, objectives, and issues related to the project. Furthermore, a design analysis was carried out that produced research results based on direct observations in the field. The final step in this process is the formulation of the design concept. This conceptualization comes from examining the needs of users, the surrounding environment, the analysis carried out, the findings from the research, the problems identified, and the solutions produced [11].

4. Results and Discussion

4.1 Project Description

The title of this project is Designing a public library with the application of inclusive architecture in Tarutung. The library can be accessed and used comfortably by everyone, including people with disabilities, so that later they can carry out their activities independently. Starting to improve the design that makes the public more interested in visiting the library. This initial study began with mapping the potential location for the development of the North Tapanuli library. Surveys and interviews were conducted to identify the shortcomings in the library. An analysis was also carried out

on potential locations, more attractive buildings, and providing facilities, especially for people with disabilities, and this design was also built to support academic facilities for all groups of society. The project location is Jl. Ferdinan Lumbantobing 35-5, Hutatoruan VI, Tarutung District, North Tapanuli Regency, North Sumatra 22411 (figure).

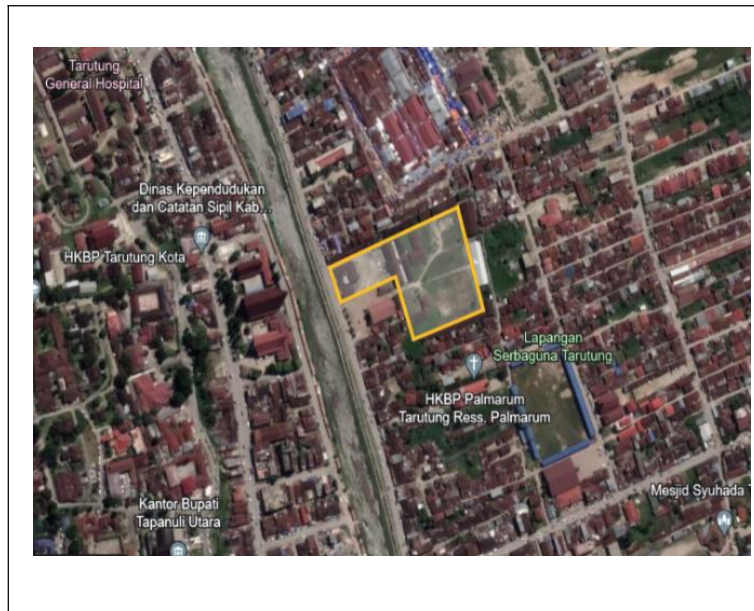


Figure 1 Location map of Jl. Ferdinan Lumbantobing 35-5, Tarutung District

Source : Googleearth [12]

4.2 Territory Boundary

The following are the boundaries of the design site (Figure 2)



Figure 2 Footprint Limitations

Source : Personal (2023)

Figure 2 shows that the boundaries on the land location, namely on the North side of this location has a footprint boundary with the Traditional Market, on the South

side of this location has a footprint boundary with Residents' Houses, on the west side of this location the site boundary is Jl. Ferdinan Lumbantobing & Sungai Aek Sigeon, and on the east side of this location has a footprint boundary with Settlement.

4.3 Shape/Mass Concept

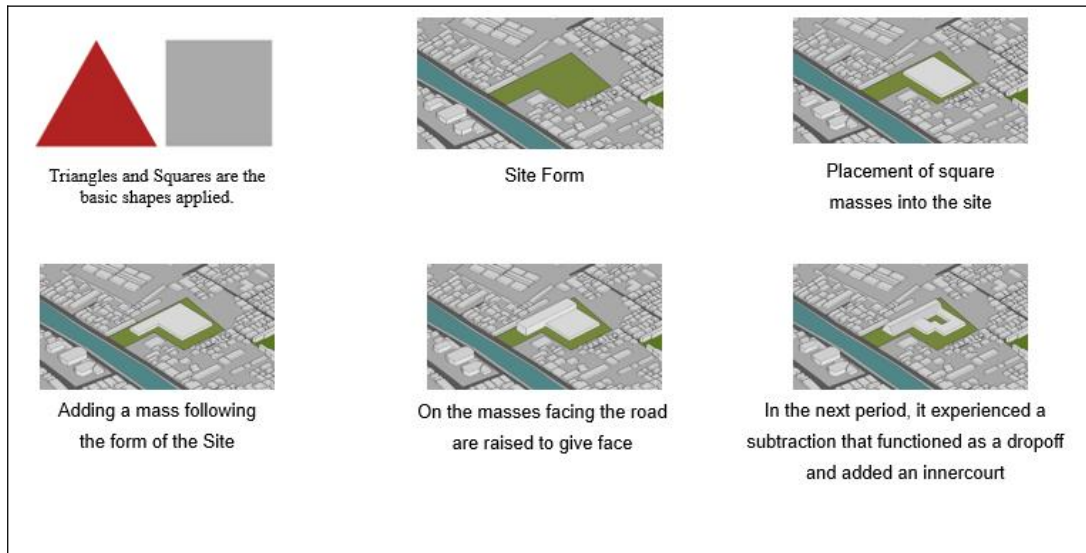


Figure 3 Massing

Source: (Author, 2023)

4.4 Zoning

This section discusses the zoning division of public library design with the application of inclusive architecture in Tarutung (figure 4).

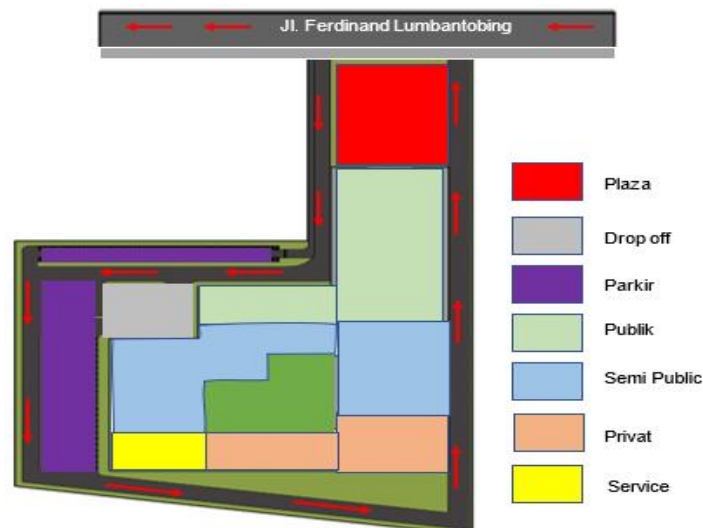


Figure 4. Zoning

Source: (Author, 2023)

4.5 Space Program

From the analysis that has been carried out, the room needs for libraries in Tarutung are as follows (table 3).

Tabel 3. Space Requirements

Main Room			
Activity Category	User	Room Requirements	Nature
Services and Administration	Visitors, Managers.	Lobby, Information Center, Waiting Room, Book Lending Unit, Book Return Unit, Reading and Reference Service Unit, Luggage Storage and ATM Center	Public
Education	Visitors, Lecturers.	Children's Collection Room, General Collection, Special Collection, Discussion, Learning, Workshop, Audiovisual, Computer, Children's Reading Area, General Reading, Special Reading.	Semi-Public
Community Activities Performances and Exhibitions	Managers, visitors, Organizers, Community Members.	Amphitheater, Multipurpose Room, Community Space	Semi-Public
Recreation	Visitors	Park Playground	Public
Support Room			
Activity Category	User	Room Requirements	Nature
Commercial	Visitors, Managers	Food Court, Minimarket, Fotocopy/ATK, Toko Perlengkapan, Alat Tulis.	Publik
Ibadah	Visitors, Managers	Musholla Ruang Wudhu	Publik
Building Manager	Chief Manager, Managing Secretary, Employees and staff	Manager Head Room, Secretary Room, Employee and Staff Room, Meeting Room, Material Procurement and Processing Unit, Pantry	Private
Management and Service Room			
Activity Category	User	Room Requirements	Nature
Building Technical Services	Staff, Technicians	Ruang Operator CCTV, Ruang Arsip Dokumen, Ruang Pompa, Ruang Genset, Ruang Panel, Gudang, Janitor	Service
Toilet	Visitors, Managers	Public Toilets, Management Toilets	Service
Security Guard	Satpam	Post Satpam	Service

Source: (Author, 2023)

4.5.1 Room Size

From the analysis that has been carried out, the area of space in the design of public libraries with the application of inclusive architecture in Tarutung (table 4).

Table 4 Room Size

Room Name	Large
Ruang Utama	
Lobby	240,0 m ²
Information Center	80,0 m ²
Lounge	60,0 m ²
Book Lending Unit	14,0 m ²
Book Purchase Unit	14,0 m ²
Reading and Reference Services Unit	17,84 m ²
Luggage Storage	360,0 m ²
ATM Center	15,0 m ²
R. Children's Collection	300,0 m ²
R. General Collections	600,0 m ²
R. Special Collections	180,0 m ²
Children's Reading Area	150,0 m ²
General Reading Area	240,0 m ²
Special Reading Area	120,0 m ²
Study Room	300,0 m ²
Discussion Rooms	30,0 m ²
Workshop Room	300,0 m ²
Audiovisual Room	24,0 m ²
Computer Room	90,0 m ²
Amphitheater	600,0 m ²
Multipurpose Room	210,0 m ²
Community Space	90,0 m ²
SME Room	24,0 m ²
Total = 4058.84 m²	
Support Room	
Garden	-
Play Area	400,0 m ²
Food court: Dining room, kitchen	255,0 m ²
Minimarket	120,0 m ²
Photocopy/ATK	60,0 m ²
Stationery stores	60,0 m ²
Musholla	24,0 m ²
Ruang Wudhu	6.40 m ²
Total 925.4 m²	
Management and Service Room	
Manager's Headroom	15,0 m ²
Secretary's Room	4,0 m ²
Karyawan Room and staff	64,0 m ²
Meeting Room	40,0 m ²
Materials Procurement and Management Unit	17.84 m ²

Pantry	10,0 m ²
CCTV Operator Room	12,0 m ²
Document Archive Room	24,0 m ²
Pump Room	8,0 m ²
Generator Room	25,0 m ²
Panel Room	24,0 m ²
Warehouse	24,0 m ²
Book Collection Warehouse	24,0 m ²
Janitor	10,0 m ²
Public Toilet : Men's Toilet, Women's Toilet	66,0 m ²
Disabled Toilets: Men's Toilets, Women's Toilets	44,0 m ²
Toilet Manager : Men's Toilet, Women's Toilet	17,0 m ²
Post Satpam	24,0 m ²

Total 452.84 m²

Source: (Author, 2023)

4.6 Theme Implementation

4.6.1 Precise lighting

The design of the public library takes care to consider visitors with special sensory needs. For example, taking into account adequate and not too bright lighting, and using lighting systems that are not blinding for those with vision problems or sensitivity to light.

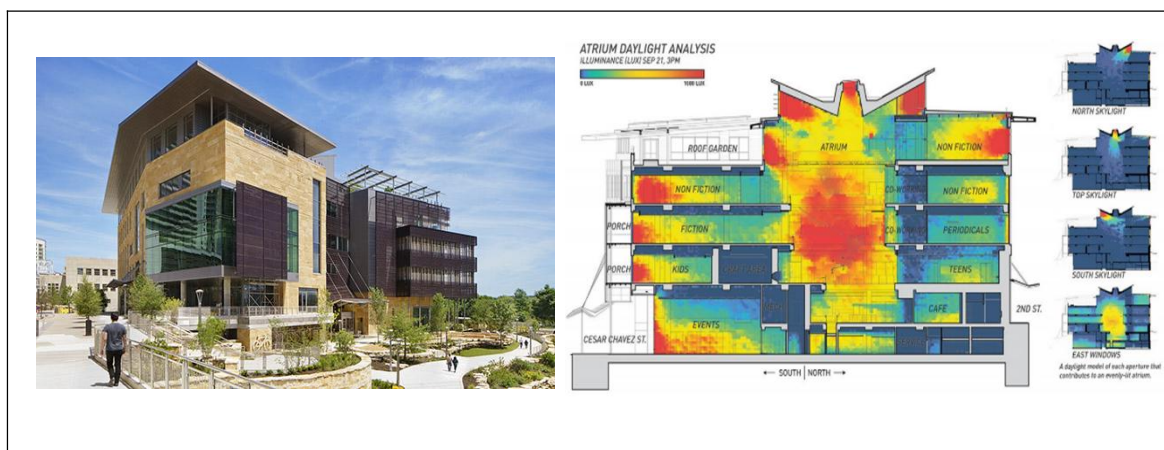


Figure 5. Light Scheme
Sumber : lakeflato.com [13]

4.6.2 Friendly Accessibility

The design of public libraries must take into account accessibility for all, including for those who use wheelchairs or experience other mobility constraints. In the form of the construction of friendly stairs, the existence of ramps, easily accessible elevators, and corridors that are wide enough to allow easy access for all visitors.

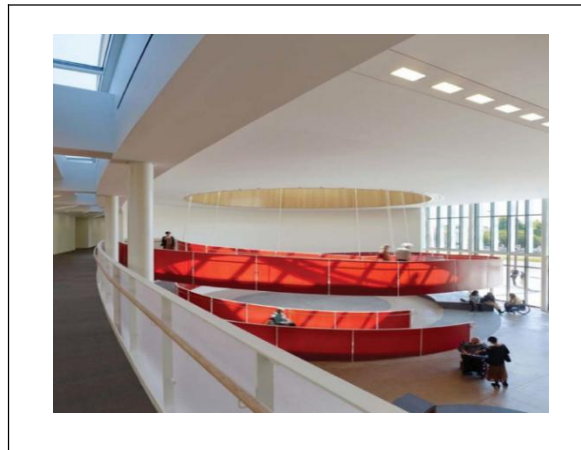


Figure 6. Disability-only elevators
Sumber : archdaily[14]

4.6.3 Flexible Rooms

Interior design in public libraries must consider the flexibility of the space to be able to adapt to the needs of different users. This can include the use of furniture that can be changed, such as tables and chairs that can be adjusted in height, as well as spaces that can be rearranged to accommodate different types of events or activities.

4.6.4 Easily Accessible Information

The design of information in libraries should take into account different types of users, including those who may have difficulty reading or understanding written information. This could include the use of braille signs, voice markers, or other technologies that help users with special needs access information more easily.

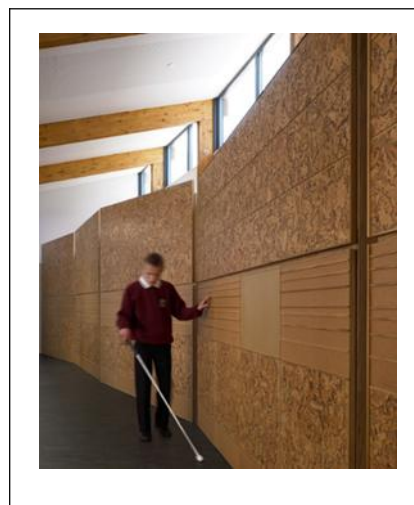


Figure 7. Walls for children with cognitive impairment
Sumber : Architizer [15]

4.6.5 Area Santai yang Ramah:

The design of the library should include a relaxing area that is welcoming to everyone, including those who may need a quiet place to rest or relax. This could include the construction of a comfortable seating area, 123 uses of greenery to create a calming environment, and noise reduction in these areas. For example, the design of the amphitheater, sky view, and innercourt.

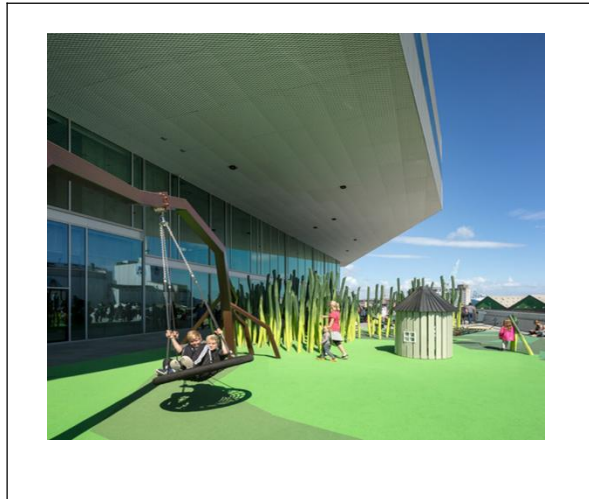


Figure 8. Children's Area
Sumber : archdaily.com [16]

5. Conclusion

The design of the public library in Tarutung focuses on the application of Inclusive design, which has a significant positive impact in increasing comfort, especially for people with disabilities, and the attraction of people to visit the library. In overcoming the shortage of Tarutung library facilities, designing a library with the application of inclusive design is an effective solution to create a comfortable and sustainable library. The application of this inclusive design such as friendly accessibility, proper lighting, flexible rooms, easily accessible information, friendly relaxation areas. An in-depth analysis of flexible rooms which in this case focuses more on how to adapt to the needs of different users.

Thus, the results of this study provide valuable guidance for the design of public libraries with the application of inclusive architecture in Tarutung. So that the application of this inductive architectural principle can be used as a reference in library design. This conclusion provides a solid basis for developing library facilities in Tarutung in order to increase the comfort and attraction of the public to visit the library in Tarutung

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