

**Community-Based Centre for Incubation and Research in  
Lifestyle Product-Based Entrepreneurship in Kochi. Kerala,  
India**

*Thesis submitted in partial fulfilment of the requirements for*

*The award of the degree of*

**BACHELOR OF ARCHITECTURE**

By

**VYSHNAV**

**2019BARC039**

**10<sup>TH</sup> SEMESTER**

**YEAR: 2023-24**



**DEPARTMENT OF ARCHITECTURE**

**SCHOOL OF PLANNING AND ARCHITECTURE,**

**BHOPAL.**

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Under the guidance of

**Ar. Kiranjith C.S.**

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**DEPARTMENT OF ARCHITECTURE**

**SCHOOL OF PLANNING AND ARCHITECTURE,**

**BHOPAL.**

## **Declaration**

I **Vyshnav**, Scholar No. **2019BARC039** hereby declare that, the thesis titled **Community-Based Centre for Incubation and Research in Lifestyle Product-Based Entrepreneurship in Kochi. Kerala, India**, submitted by me in partial fulfilment for the award of degree of **Bachelor of Architecture at School of Planning and Architecture, Bhopal, India**, is a record of bonafide work carried out by me. The design work presented and submitted herewith is my original work and I take sole responsibility for its authenticity. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

**Vyshnav**

Date: May 2024

**2019BARC039**

## **Statement Of Originality**

I, **Vyshnav**, bearing scholar number **2019BARC039** do hereby declare that this thesis entitled "**Community-Based Centre for Incubation and Research in Lifestyle Product-Based Entrepreneurship in Kochi. Kerala, India.**" contains literature survey and original research work done by the undersigned candidate as part of my Architectural Thesis in the curriculum of the Bachelor of Architecture degree course of the School of Planning and Architecture, Bhopal.

All information in this thesis has been obtained and presented in accordance with existing academic rules and ethical conduct. I declare that, as required by these rules and conduct, I have fully cited and referred to all materials and results that are not original to this work.

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# Certificate

This is to certify that the student Mr **Vyshnav**, Scholar No. **2019BARC039** has worked under my guidance in preparing this thesis titled "**Community-Based Centre for Incubation and Research in Lifestyle Product-Based Entrepreneurship in Kochi. Kerala, India.**"

RECOMMENDED

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**Ar. Kiranjith C S**

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## Acknowledgement

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---

## **Abstract**

This project abstract outlines the proposed Community-Based Centre for Incubation and Research in Lifestyle Product-Based Entrepreneurship located in Kochi, Kerala, India. The centre is envisioned as a dynamic hub that integrates the concept of architecture as fashion, fostering a creative and innovative environment for emerging entrepreneurs. Focused on lifestyle products, the centre aims to support start-ups through various phases of development, from ideation to execution. Key facilities will include incubation spaces, research labs, and collaborative areas designed to enhance community integration and skill development.

The centre will not only serve as a breeding ground for new enterprises but will also act as a bridge connecting local artisans and the broader entrepreneurial community, facilitating knowledge exchange and commercial opportunities. By emphasizing the integration of sustainable practices and local cultural elements, the project seeks to create a unique identity that resonates with both traditional and contemporary aspects of Kerala's rich heritage. Keywords such as Lifestyle Products, Incubation, Research, Community Integration, Entrepreneurs, Start-up, and Skill Development encapsulate the core objectives and anticipated impact of this pioneering initiative.

**Keywords:** Lifestyle Products, Incubation, Research, Community Integration, Entrepreneurs, Start-up, Skill Development.

# Table of Contents

<b>DECLARATION .....</b>	<b>I</b>
<b>STATEMENT OF ORIGINALITY .....</b>	<b>II</b>
<b>CERTIFICATE .....</b>	<b>III</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>IV</b>
<b>ABSTRACT .....</b>	<b>V</b>
<b>TABLE OF CONTENTS .....</b>	<b>VI</b>
<b>LIST OF FIGURES.....</b>	<b>VIII</b>
<b>LIST OF TABLES.....</b>	<b>X</b>
<b>CHAPTER 1 INTRODUCTION.....</b>	<b>1</b>
1.1. PROJECT BACKGROUND.....	1
1.2. PROJECT BRIEF .....	2
1.3. PROJECT RELEVANCE .....	3
1.4. NATURE OF THE PROJECT .....	3
1.5. AIM.....	3
1.6. OBJECTIVES .....	4
1.7. SCOPE AND LIMITATIONS.....	4
<b>CHAPTER 2 LITERATURE STUDY.....</b>	<b>5</b>
2.1. INCUBATION HUB .....	5
2.2. COMMUNITY INTEGRATION .....	5
2.3. ENTREPRENEURS AND START-UP .....	6
2.4. LIFESTYLE PRODUCT BASED ENTREPRENEURS .....	6
2.5. CRAFT AND CULTURE .....	8
2.6. INTEGRATED MOBILITY SYSTEM .....	8
2.7. PUZZLE CAR PARKING SYSTEM .....	9
<b>CHAPTER 3 RESEARCH COMPONENT .....</b>	<b>10</b>
ARCHITECTURE AS FASHION.....	10
3.1. INTRODUCTION .....	10
3.2. ARCHITECTURE AND FASHION .....	10
3.3. MATERIAL CHARACTERISTICS SIMILARITIES IN ARCHITECTURE AND FASHION .....	11
3.4. INFLUENCE OF SCIENCES ON ARCHITECTURE AND FASHION .....	12
3.5. INFLUENCE OF TECHNOLOGY ON ARCHITECTURE AND FASHION .....	12
3.6. HUMAN ASPECTS OF ARCHITECTURE AND FASHION .....	13
3.7. ARCHITECTURAL FASHION AND FASHIONABLE ARCHITECTURE .....	14

3.8.	ARCHITECTURE AS FASHION .....	15
3.9.	CONCLUSION .....	15
3.10.	FUTURE SCOPE.....	16
<b>CHAPTER 4</b>	<b>SITE STUDY AND ANALYSIS .....</b>	<b>17</b>
4.1.	LOCATION.....	17
4.2.	SITE DETAILS AND CONTEXT.....	18
4.3.	ACCESSIBILITY AND CONNECTIVITY.....	19
4.4.	PROXIMITY STUDY.....	20
4.5.	LEGAL.....	22
4.6.	INTEGRATED MOBILITY POINTS.....	22
4.7.	SENSORY.....	23
4.8.	SITE OVERVIEW AND SERVICE LAYOUT.....	25
4.9.	FLORA AND FAUNA.....	27
4.10.	WATER TABLE.....	28
4.11.	CONTOUR AND HYDROLOGY .....	28
4.12.	SOIL TYPE AND BEARING CAPACITY .....	29
4.13.	SITE EVOLUTION.....	29
4.14.	CLIMATE.....	29
<b>CHAPTER 5</b>	<b>CASE STUDY .....</b>	<b>32</b>
5.1.	USER-FUNCTION ANALYSIS .....	32
5.2.	CASE STUDY 1: KERALA STATE INSTITUTE OF DESIGN (KSID), KOLLAM, KERALA.....	35
5.3.	CASE STUDY 2: SUPER FAB LAB, KOCHI, KERALA .....	40
5.4.	CASE STUDY 3: KUDUMBASHREE APPAREL PARK, NEDUMPANA, KOLLAM, KERALA .....	45
5.5.	CASE STUDY 4: KARNATAKA SILK INDUSTRY CORPORATION (KSIC), MYSORE, KARNATAKA.....	48
5.6.	CASE STUDY 5: STATION F, PARIS, FRANCE .....	51
<b>CHAPTER 6</b>	<b>DESIGN CONCEPTION AND PROPOSAL .....</b>	<b>61</b>
6.1.	AREA PROGRAMMING.....	61
6.2.	CONCEPT .....	63
6.3.	CONCEPTUAL FRAMEWORK .....	64
6.4.	CONCEPT DEVELOPMENT.....	66
6.5.	DESIGN PROPOSAL .....	69
<b>CHAPTER 7</b>	<b>BIBLIOGRAPHY .....</b>	<b>74</b>
<b>ANNEXURE I.....</b>		<b>76</b>

## List of Figures

Figure 1 : Project Outline (Author).....	2
Figure 2 : Incubation Hub Inference Diagram (Author) .....	6
Figure 3 : Puzzle Car Parking System (KLAUS, Multiparking, .) .....	9
Figure 4 : (a) Architectural Fashion (midjourney, n.d.) (b) Fashionable Architecture (blarrow.tech, n.d.).....	14
Figure 5 : Location Map (Author) .....	17
Figure 6 : QR Code for Project Site Location (Author).....	17
Figure 7 : Site Context Map (Author).....	18
Figure 8 : Project Site Map (Author) .....	19
Figure 9: Integrated Mobility Points Map (Author).....	22
Figure 10 : Key Map for Views (Author) .....	24
Figure 11 : (a) View 1 (b) View 2 (Author).....	24
Figure 12 : (a) View 3 (b) View 4 (Author).....	24
Figure 13 : (a) View 5 (b) View 6 (Author).....	24
Figure 14 : Noise and View Map (Author).....	25
Figure 15 : Site Services Map (Author).....	26
Figure 16 : Services Layout Map (Author).....	26
Figure 17 : Flora on Site (Author) .....	27
Figure 18 : Fauna on Site (Author).....	27
Figure 19 : Conceptual Section for Water Table (Author) .....	28
Figure 20 : Contour Map (Author) .....	28
Figure 21 : Hydrology Map (Author) .....	28
Figure 22 : Foundation Type with Ground Section (Geology, 2016) .....	29
Figure 23 : Temperature Chart (Weather and Climare, n.d.) .....	30
Figure 24 : Precipitation Chart (Weather and Climare, n.d.) .....	30
Figure 25 : Humidity Chart (Weather and Climare, n.d.) .....	30
Figure 26 : Sun Path and Solistices (Weather and Climare, n.d.) .....	31
Figure 27 : Wind Rose for Kochi (Weather and Climare, n.d.) .....	31
Figure 28 : KSID Campus (KSID, 2018) .....	35
Figure 29: QR Code for KSID Location (Author).....	35
Figure 30 : QR Code for KSID Website (Author) .....	35
Figure 31 : KSID Site Plan (Author) .....	36
Figure 32 : KSID Interiors (a) Apparel Atelier (Author) (b) Textile Studio (KSID, 2018).....	37
Figure 33 : KSID Interiors (a) and (b) Fabric Lab (Author) .....	37
Figure 34 : KSID Interiors (a) and (b) Product Design Workshop (Author) .....	38
Figure 35 : KSID Interiors (a) and (b) Product Design Workshop (KSID, 2018) .....	38
Figure 36 : KSID Interiors (a) Digital Lab (KSID, 2018) (b) Media Lab (KSID, 2018).....	39
Figure 37 : (a) Mezzanine floor in apparel atelier (Author) (b) Conceptual Section (Author) .....	39
Figure 38 : Overhanging Design Strategy (Climate) .....	40
Figure 39 : Schematic Plan (Author) .....	40

Figure 40 : Super Fab Lab Kochi (FabLab, .)	41
Figure 41 : QR Code for Super Fab Lab Location (Author)	41
Figure 42 : QR Code for Fab Lab Kerala Website (Author)	41
Figure 43 : Floor Plan of Super Fab Lab Kochi (Author)	42
Figure 44 : (a) -(j) Major Machineries of Super Fab Lab Kochi (Author)	44
Figure 45 : (a)-(c) Kudumbashree Apparel Park, Nedumpana, Kollam, Kerala (Author)	45
Figure 46 : QR Code for Kudumbashree Apparel Park Location (Author)	45
Figure 47 : QR Code for Kudumbashree Website (Author)	45
Figure 48 : Working Pattern of Kudumbashree Apparel Park, Nedumpana (Author)	47
Figure 49 : Inference Flowchart of Kudumbashree Apparel Park, Nedumpana (Author)	47
Figure 50 : (a) - (f) KSIC (Author)	48
Figure 51 : QR Code for KSIC Location (Author)	48
Figure 52 : QR Code for KSIC Website (Author)	49
Figure 53 : Work Process Flowchart of KSIC (Author)	50
Figure 54 : (a) - (c) Station F, Paris (Station F, .)	51
Figure 55 : Site Location Map of Station F (Author)	51
Figure 56 : QR Code for Station F Location (Author)	51
Figure 57 : QR Code for Station F Website (Author)	52
Figure 58 :Station F Connectivity Map (ArchDaily)	52
Figure 59 : Conceptual Diagram of Station F ( Wilmette & Associates)	53
Figure 60 : Conceptual Model of Station F ( Wilmette & Associates)	53
Figure 61 : Conceptual Plan of Station F (ArchDaily)	53
Figure 62 : Functional Analysis Diagram of Station F (Author)	54
Figure 63 : Station F -Floor Plans (ArchDaily) (Author)	55
Figure 64 : (a) Typical Village Plan (ArchDaily) (b) Conceptual Analysis (Author)	55
Figure 65 : Station F - Building Composition Plan (ArchDaily)	56
Figure 66 : Station F - Floor Plan	56
Figure 67 : Vertical Division (a) Conceptual Diagram( Wilmette & Associates) (b) Overlay on Build Structure (Author)	57
Figure 68 : Isometric View of Zone Division (ArchDaily)	57
Figure 69 : Conceptual Plan of Multifunctional Space (Author)	58
Figure 70 : (a)-(d) Station F Share Zones (Station F, .)	58
Figure 71 : (a) and (b) Station F - Create Zones (Station F, .)	59
Figure 72 : Cross Section of Create Zone (ArchDaily)	59
Figure 73 : Conceptual Arrangement of Create Zone (Author)	59
Figure 74 : Conceptual Section of Create Zone (Author)	59
Figure 75 : Station F- Chill Zone (Station F, .)	60
Figure 76 : Conceptual Diagrams (a) Visual Connectivity (b) Natural Lighting (Station F, .)	60
Figure 77 : Conceptual Diagrams of Circulation in Plan and Section (Station F, .)	60
Figure 78 : Architecture + Community + Fashion (Author)	63
Figure 79 : Fashion as a Concept (Author)	64

Figure 80 : Axis Concept Representation (Author) .....	64
Figure 81 : Light and Space Concept Representation (Author).....	64
Figure 82 : Seaming of Materials Concept Representation (Author) .....	64
Figure 83 : Solids and Voids Concept Representation (Author).....	65
Figure 84 : Interconnectivity Concept Representation (Author).....	65
Figure 85 : Datum Concept Representation (Author).....	65
Figure 86 : Axial Organisation Concept Representation (Author) .....	65
Figure 87 : Large Fenestration Concept Representation (Author).....	65
Figure 88 : Transitional Space Concept Representation (Author) .....	66
Figure 89 : Clustered Concept Representation (Author) .....	66
Figure 90 : Spatial Transition Concept Representation (Author) .....	66
Figure 91 : Relativity Diagram (Author) .....	66
Figure 92 : Site Vegetation (Author) .....	67
Figure 93 : Site Analytical (Author).....	67
Figure 94 : Concept of Fashion in Site .....	68
Figure 95 : Axial Concept of Fashion + Architecture in Site (Author).....	68
Figure 96 : Site Plan and Site Section AA' .....	69
Figure 97 : Column Layout and Basement Plan .....	70
Figure 98 :Ground Floor Plan and Library Details .....	71
Figure 99 : First and Second Floor Plans.....	72
Figure 100 : Sections, Elevations, Views and Details .....	73

## List of Tables

Table 1 : Connectivity to Site (Author) .....	20
Table 2 : Proximity Study (Author).....	21
Table 3 : Integrated Mobility Points – Parking Locations (Author) .....	23
Table 4 : Integrated Mobility Points – Public Transit Points (Author).....	23
Table 5 : Current Occupancy of KSID (Author) .....	36
Table 6 : Current Occupancy of Super Fab Lab Kochi (Author).....	41
Table 7 : Major Machineries of Super Fab Lab Kochi (Author) .....	44
Table 8 : Current Occupancy of Kudumbashree Apparel Park, Nedumpana (Author).....	46
Table 9 : Current Occupancy of KSIC (Author).....	49
Table 10 : Machinery Details of KSIC (Author) .....	49
Table 11 : Area Programming (Author) .....	63

# CHAPTER 1 INTRODUCTION

## 1.1. Project Background

Kochi, a vibrant city in Kerala, India, has historically been a melting pot of cultures, with influences from the Portuguese to the Dutch significantly shaping its crafts and design ethos. This rich historical context has created a diverse tapestry of design elements and techniques that modern designers can draw upon. Known for its rich heritage and abundant resources, the city has long been a hub of cultural and economic activity, consistently fostering the development and nurturing of vibrant ideas for innovative outcomes. Kochi is renowned for its traditional industries such as textiles, furniture making, and various forms of artisan crafts, which are rich with potential yet often lack the modern infrastructure and support needed to innovate and compete on a global scale.

In contemporary times, there is an increasing global demand for products that are unique and culturally resonant, presenting substantial opportunities for local artisans and designers. Additionally, Kochi's growing community of digital designers and entrepreneurs could maximize their potential through targeted support and resources. However, many artisans struggle with scaling their operations and tapping into broader markets due to a lack of modern design integration and business acumen. The proposed centre could bridge this gap by introducing contemporary design and business strategies into traditional practices, enhancing both the appeal and reach of these products.

Lifestyle-based products are closely linked to the cultural, aesthetic, and functional preferences of individuals. In Kochi, this might include items like handwoven textiles, customized furniture, and artisanal home décor. These products not only meet basic needs but also enhance the quality of life and reflect personal or cultural identities, featuring a high degree of variation and customization tailored to individual preferences. Particularly in Kochi, people often have specific demands based on their unique needs and ideas, usually derived from extensive personal research and references.

Incubation in this context refers to the support and nurturing of budding entrepreneurs and start-ups, particularly those in the lifestyle product sector. This involves providing them with essential services such as mentorship, networking opportunities, access to investors, and critical research resources to help them develop their ideas into viable products and businesses.

Research here is focused on the systematic investigation into the materials, methods, and market dynamics associated with lifestyle-based products. This research aims to generate new knowledge that can lead to the innovation of products and services that are culturally relevant and commercially viable. It encompasses both market and product research, incorporating traditional crafts into modern design to meet contemporary needs.

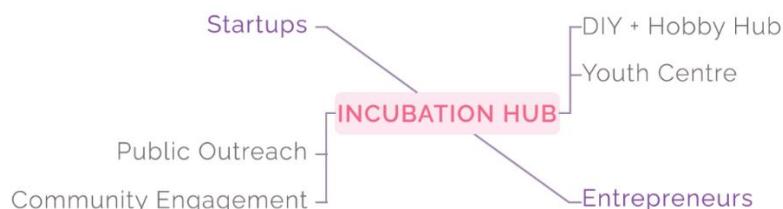
The term 'community-based' in the context of the proposed centre signifies a focus on involving local populations in the development process. It implies that the facility is not just physically located within the community but is integrally linked to the community. The approach is rooted in the principle of using local resources, knowledge, and talent to promote sustainable economic and social development.

A critical analysis of past architectural practices and the current market scenario reveals a gap in incorporating high-tech methodologies into traditional crafts. There's an opportunity to address this by creating a hybrid incubation centre in Kochi. This centre will not only focus on design innovation but also integrate advanced research methodologies and technological advancements to enhance traditional materials. The envisioned Community-based Centre for Incubation and Research of Lifestyle-Based Products will serve as a transformative hub, merging traditional Keralite crafts with modern design and research approaches. It aims to catalyse the evolution of local heritage crafts into globally competitive products, fostering sustainable community development and cultural preservation through innovation.

## 1.2. Project Brief

The project is to design and develop a "Community-based Centre for Incubation and Research of lifestyle-based products in Kochi, Kerala, India." This project is structured majorly around four primary domains, which include:

- Fashion Design
- Fashion Apparel
- Furniture Design
- UI/UX



*Figure 1 : Project Outline (Author)*

This project would benefit from adverse range of spaces tailored to the specific needs of these creative domains. The design of these spaces should prioritize functionality, creativity, and collaboration, fostering an environment that supports innovation and collective development in the fields of fashion, furniture, and UI/UX design. Additionally, the project aims to incorporate the local community by offering membership-based access for skill development and hobbies, along with providing commercial options for various brands, entrepreneurs and local community members.

### **1.3. Project Relevance**

The study of architectural spaces within the fashion discipline is crucial, envisioning functional spaces that inherently express their purpose, minimizing the need for traditional signage. This concept transforms architecture into a dynamic fashion display, characterized by transparency, industrial aesthetics, and exposed mechanical aspects. However, in India's creative landscape, there's a noticeable void in publicly sponsored research spaces, particularly for smaller design-based courses or those outside major institutions like IIT, NID, and NIFT. This highlights the need for inclusive incubation facilities that go beyond elite educational institutions, fostering collaborative innovation and engaging the next generation in technology-oriented ecosystems. Designing a Community-based Centre for Incubation and Research in Lifestyle Product-based Entrepreneurship in Kochi is vital. It addresses local talent, promotes technology-oriented innovation, and bridges the gap for individuals without access to elite institution facilities. This approach aligns with Kochi's evolving infrastructure, contributing to both aesthetic and functional development. Such a center would not only meet local needs but also contribute to broader socio-economic and cultural development, enriching the city and its community.

### **1.4. Nature of the project**

Incubation centres are a hybrid project. It is a style that incorporates educational, commercial, and office buildings. In India, incubation hubs are a relatively new location for businesses. Currently, all Incubation centres are in early development and increasing. As a result, there is no ideal design requirement for incubators. As a consequence, the complete design will highlight the Incubation centre's original ideas and design.

### **1.5. Aim**

To design a centre to foster innovation and growth among entrepreneurs by providing them with resources, guidance, and an environment conducive to develop innovative and advanced lifestyle products that reflect local culture and global trends. Additionally, the centre will be designed to actively involve the local community by offering opportunities for skill enhancement, hobby engagement, and the cultivation of a vibrant community of creative and skilled individuals. Additionally, the project will incorporate commercial platforms that allow brands, entrepreneurs, and local artisans to showcase and market their products, thereby increasing their visibility within the community.

## 1.6.Objectives

- To create a facility that provides entrepreneurs with the necessary resources and guidance to design and develop lifestyle products that seamlessly integrate local cultural elements with global design trends, thereby fostering innovation in product creation, hence enhancing entrepreneurial innovations.
- To design spaces within the centre that facilitate community involvement through skill enhancement workshops, hobby classes, and other activities that promote the acquisition of new skills and the improvement of existing ones, contributing to the development of a community of creative and skilled individuals.
- To establish platforms within the centre that allow local artisans, brands, and entrepreneurs to showcase and commercialize their products, thus promoting local culture and talent while providing them with the opportunity for greater market exposure and economic benefit.
- To develop a collaborative environment that encourages the sharing of ideas and resources among different domains such as fashion design, fashion apparel, furniture design, and UI/UX, which supports cross-disciplinary learning and innovation.

## 1.7.Scope and Limitations

- The community-based centre in Kochi aims to foster innovation and collaboration among lifestyle product entrepreneurs, despite potential limitations such as resource constraints. While providing access to resources and support for creativity, the project acknowledges the need to adapt and navigate challenges arising from financial limitations and limited access to specialized equipment and technology.
- The project aims to promote sustainable development within the lifestyle product industry by encouraging entrepreneurs to adopt environmentally friendly practices. While the centre facilitates research and innovation to support this goal, it also recognizes the limitation posed by challenging market dynamics, including fluctuating demand and competitive pricing. Navigating these market challenges effectively may require continuous adaptation and strategic planning by the centre and its participants to ensure the long-term viability of sustainable practices.

## CHAPTER 2 LITERATURE STUDY

### **2.1. Incubation Hub**

Various workplaces, including innovation centres, maker spaces, co-working spaces, incubators, start-up spaces, and research institutions, promote innovation. As their effect spreads throughout cities and villages, it raises questions about the boundaries between different workspaces. Although this research highlights some significant distinctions, innovation spaces are increasingly blurring the borders between them, offering help and activities that were previously available in different settings. An incubation hub serves as a nurturing ground designed to support start-ups and entrepreneurs, providing essential resources, mentorship, and networking opportunities to foster innovation and growth. By offering a collaborative environment, these hubs accelerate business development, transforming nascent ideas into viable, market-ready enterprises.

#### **2.1.1. Social Impact of an Incubation Hub**

Incubation is a recognized strategy to achieve economic and social policy goals such as job and wealth creation. It involves creating a supportive entrepreneurial environment, facilitating technology commercialization, and diversifying local economies. Incubators also aim to develop industrial clusters, retain businesses, support women and minority entrepreneurs, identify spin-in and spin-out opportunities, and revitalize communities.

#### **2.1.2. Role of Incubators in Small Business Success and Regional Growth**

Incubators play a vital role in reducing the risk of failure for small businesses and driving regional economic growth. They provide resources, mentorship, and networking opportunities, establishing a helpful atmosphere for entrepreneurs to explore their ideas with less risk. This ecosystem fosters experimentation and innovation, leading to new products, services, and market opportunities. Additionally, the success of these small businesses contributes to employment generation, attracting investment, and stimulating local economies.

### **2.2. Community Integration**

Community integration plays a vital part in fostering collaboration, inclusivity, and sustainable development. By actively involving the local community in the incubation process, these initiatives create a supportive ecosystem where entrepreneurs, artisans, and residents can come together to share knowledge, resources, and ideas. Community awareness and participation are key, ensuring that the incubator's activities align with the needs and aspirations of the community. By aligning with community values and needs, lifestyle incubators can establish a strong foundation for sustainable growth, environmental stewardship, and the empowerment of local talent, ultimately contributing to the overall well-being and prosperity of the community.

### 2.3. Entrepreneurs and Start-up

Entrepreneurs and Start-ups play a crucial role in the ecosystem of lifestyle incubators. These incubators provide a supportive environment for aspiring entrepreneurs to transform their innovative ideas into viable businesses. By offering access to resources, mentorship, and networking opportunities, lifestyle incubators empower entrepreneurs to develop and refine their products, services, and business models.

Start-ups, in particular, benefit from the incubator's focus on lifestyle-based entrepreneurship, as they can leverage the growing demand for unique, sustainable, and community-driven products and services. The incubator's emphasis on design, creativity, and cultural relevance helps start-ups differentiate themselves in the market and connect with conscious consumers. Through the incubation process, entrepreneurs gain valuable insights, skills, and connections to navigate the challenges of launching and scaling their lifestyle-oriented ventures. This symbiotic relationship between entrepreneurs, start-ups, and the incubator's resources and expertise is crucial for fostering a thriving ecosystem of innovative, community-driven businesses in the lifestyle sector.

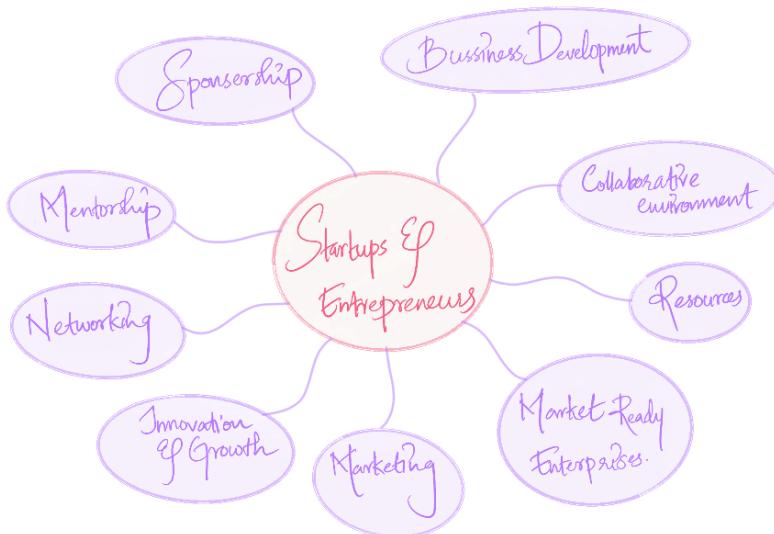


Figure 2 : Incubation Hub Inference Diagram (Author)

### 2.4. Lifestyle Product Based Entrepreneurs

Lifestyle product-based entrepreneurs focus on developing products that enhance quality of life by embracing the values and interests of users. Their range includes fashion, interior and decor related products. These entrepreneurs excel blending in functionality with personal and cultural storytelling, often fostering strong customer loyalty and community engagement through their unique brand narratives.

### 2.4.1. Lifestyle Product-Based Entrepreneurs in Kochi, Kerala, India

Lifestyle Product-Based Entrepreneurs in Kochi, Kerala, India is incorporating the natural resources and rich legacy of the area into their products and services. They create unique products like hand-woven fabrics and handcrafted décor by fusing modern design with traditional materials and regional crafts. These businesspeople support the regional economy in addition to being essential in maintaining and advancing Kochi's cultural identity internationally.

### 2.4.2. Fashion Design and Fashion Apparel

Fashion Design and Fashion Apparel are two distinct yet interconnected fields within the fashion industry. Fashion Design involves the creative process of conceptualizing, designing, and producing original clothing and accessories that reflect trends, aesthetics, and consumer preferences. Fashion designers are responsible for creating innovative designs, sketching patterns, selecting fabrics, and overseeing the production process to bring their creations to life. On the other hand, Fashion Apparel focuses more on the technical aspects of clothing production, such as pattern-making, garment construction, and quality control.

Apparel designers ensure that garments are well-made, functional, and meet the needs of consumers, emphasizing technical skills and attention to detail. While Fashion Designers focus on creativity and aesthetics, Apparel Designers prioritize the technical execution and quality of clothing items. This distinction highlights the complementary roles of creativity and technical expertise in the fashion industry, with Fashion Designers driving innovation and trends, and Apparel Designers ensuring the practicality and quality of the final products.

### 2.4.3. Furniture Design

Furniture design involves the creation of functional and aesthetically pleasing furniture pieces for various spaces like homes, offices, and outdoor areas. Furniture designers consider factors such as ergonomics, materials, style, and practicality when developing new designs. They may work with different materials like wood, metal, glass, and fabric to create innovative and stylish furniture pieces that cater to different needs and preferences. The field of furniture design encompasses a wide range of styles, from traditional to modern and minimalist, reflecting trends, cultural influences, and individual tastes.

### 2.4.4. UI/UX

#### 2.4.4.1. UI Design (User Interface)

UI design concentrates on the visual component's users engage with directly, including screens, buttons, icons, and menus. The role of UI designers is to craft interfaces that are visually attractive and user-friendly, focusing on the aesthetic aspects and elements like buttons and icons.

#### 2.4.4.2. UX Design (User Experience)

UX design is centred on developing an extensive user journey within a product or service, aiming to create experiences that resonate deeply with users through branding, usability, functionality, and design. UX designers focus on grasping users' emotions and facilitating a smooth interaction that results in user satisfaction.

Both UI and UX design are essential for creating successful and user-friendly products. UI design is more about the visual aspects and elements of a product that users interact with directly, while UX design is focused on creating a holistic and enjoyable user experience by understanding user needs, behaviours, and emotions throughout the design process. These layers in the project help in online marketing and sales of the developed products and thus construct a successful way of establishing a strong customer base in the market.

### 2.5.Craft and Culture

Craft and culture are integral components of the Centre. This initiative recognizes the deep-rooted connection between traditional crafts and cultural heritage, especially in a diverse country like India. The centre not only supports local artisans and entrepreneurs but also preserves and promotes traditional crafts that are deeply intertwined with India's cultural identity. Through this incubation program, artisans and entrepreneurs are empowered to leverage their craft skills within a contemporary entrepreneurial framework, blending cultural richness with modern business practices. This fusion of craft and culture not only fosters economic opportunities but also ensures the preservation and celebration of India's artistic traditions, creating a sustainable platform for innovation, creativity, and community development.

### 2.6.Integrated Mobility System

The integrated mobility system implemented by the Centre, showcases a unique approach to sustainable transportation. The system utilizes electric bikes as a primary mode of immediate transportation, connecting various public parking locations and public transport points across the city. By leveraging these eco-friendly vehicles, commuters can easily travel between designated hubs, reducing reliance on private motorized transport and contributing to a cleaner environment. This innovative solution not only addresses the need for efficient and accessible transportation but also aligns with the centre's focus on promoting sustainable lifestyle products and practices. The integration of electric bikes into the mobility system not only enhances the overall commuting experience but also supports the centre's mission to foster a culture of environmental stewardship and community engagement.

## 2.7.Puzzle Car Parking System

Puzzle car parking systems are a cutting-edge solution to optimize parking space in urban environments where land is limited. These systems utilize a combination of horizontal and vertical platforms that move vehicles into designated parking slots, maximizing the number of cars that can be accommodated in a compact area. By efficiently stacking vehicles in a puzzle-like configuration, this innovative parking system offers a space-saving and convenient solution for parking challenges in crowded cities. The automated nature of puzzle car parking systems ensures quick and efficient parking and retrieval of vehicles, making them ideal for busy locations where parking space is at a premium.

Implementing a puzzle car parking system in the basement of the centre, would be a strategic move to optimize parking space for visitors, employees, and entrepreneurs. By utilizing the basement area for this innovative parking solution, the centre can efficiently manage parking needs while maximizing the use of available space. This modern approach not only enhances the parking experience for stakeholders but also aligns with the centre's commitment to sustainability, innovation, and smart urban planning.



Figure 3 : Puzzle Car Parking System (KLAUS, Multiparking, .)

## CHAPTER 3 RESEARCH COMPONENT

### ARCHITECTURE AS FASHION

#### **3.1. Introduction**

*“Architecture is how the person places herself in the space, whereas fashion is about how you place the object on the person.”* (Hadid & Koolhaas, 2012). Fashion and Architecture are two disciplines that may not seem to be connected with each other but these two disciplines are highly correlated to each other and serve a similar purpose. The key factors affecting both fields are cultural, environmental, and economic. The needs of human civilization, the social environment, and the phenomena of weather and climatic change have all been mirrored in their respective evolutionary histories. The primary relationship is that both the fashion and the architecture provide shelter for individuals in various social dimensions, alter the spatial volume, follow the process, and transform the design from a two-dimensional notion into a three-dimensional reality. They have evolved in response to the concurrent needs of human culture and the social environment, as well as the phenomenon of weather and climate change. Both disciplines are set to create ever-more creative methods of adapting and adopting one another's forms and methods to modify the basic elements of fashion and buildings.

#### **3.2. Architecture and Fashion**

*“Fashion and architecture are both based on basic life necessities — clothing and shelter. However they are also forms of self-expression — for both the creators and consumers. Both fashion and architecture affect our emotional being...On a deep level, fashion and architecture have less to do with luxury and design, but everything to do with feeling comfortable in your own skin and in your habitat.”* - Karen Moon of Style Musée (Moon, 2012). Architecture and fashion is something that has the power to change its users. Both of them have a comparable role of enclosing space that is based on the form of a human. Each of the two has constraints and limitations that they give to the human figure, as well as the innovative study of volume, movement, and space. It can impact an individual's qualities, confidence, and societal standards on a personal level. Incorporating architectural elements into their clothing and accessories allows individuals to express their personal style boldly and artistically, blurring the lines between fashion and architecture. This fusion of two creative disciplines allows for the creation of visually striking and thought-provoking pieces that push the boundaries of traditional fashion and create new and trending fashion elements. The connection between these two disciplines can be traced back to the earliest man's usage of the same materials for shelter and covering his body. The term fashion is derived from the Latin word facia, which means "to make" or "a particular make or shape." Although fashion is usually used to express clothing trends, it also refers to the rapid changes in trends and innovations in manufacturing new fashion rapidly and reasonably. Architecture, on the other hand, is more than just building or moulding a structure; it is an experienced, interpretative, and

critical result. In contrast to fashion's visual components, architecture is a monumental conceptual, ideological, and philosophical process that generates vision.

### **3.3. Material Characteristics Similarities In Architecture and Fashion**

Material characteristics have an important role in both architecture and fashion, influencing both professions profoundly. Architects and fashion designers both rely on materials to communicate aesthetic and practical purposes. The texture of a building facade or the fabric of a garment, for example, directs sensory sensations. Considerations of durability, flexibility, and sustainability reveal parallels. Both disciplines explore new materials, pushing design boundaries. As architects and fashion designers explore a similar landscape of imagination, craftsmanship, and the dynamic interplay between materiality and form, the expressive potential of materials unifies both disciplines. Architects are re-evaluating the use of conventional building materials, employing innovative materials and methods to construct buildings that are more flexible, adaptable, and sustainable, addressing humanitarian demands. Similarly, the fashion industry continually investigates new materials.

#### **3.3.1. Glossiness**

The glossiness of materials serves as a unifying aesthetic element in both fashion and architecture. Whether enhancing the sleek surface of a modern building or adorning a high-fashion garment, gloss imparts a sense of luxury and visual appeal. In both disciplines, the manipulation of glossiness becomes a delicate tool for crafting distinct atmospheres and sensory experiences. This glossiness seen in architectural finishing materials provides an aesthetic touch to buildings.

#### **3.3.2. Transparency**

Transparency serves as a captivating design element shared by both fashion and architecture. In fashion, sheer fabrics create layers and intrigue, while in architecture, transparent materials offer a play of light and openness, this can be found in the building skin and allows vision into the building, which typically exists in public buildings. The intentional use of transparency in both disciplines enhances visual dynamics, fostering a connection between the wearer and the built environment.

#### **3.3.3. Solid and Void**

The predominance of visual among the senses has led to a visually-oriented culture, where architecture caters predominantly to visual demands, neglecting a more holistic sensory experience. Lace is distinguished by open holes present between the lacework in textiles, while buildings do here is, of course, is to explore open spaces. Some fashion and art in contemporary architecture have examined how interior spatial designs might attract attention and subtle textures into the building's shadowlands. New digital technologies, such as laser cutting digitally to create identical design patterns adopted from other disciplines, provide similarities between architecture and design.

### 3.3.4. Massive and Rigid

Designers are no further constrained to the limited space directly surrounding a individuals' body, and architects may develop structures which is not massive, by virtue of new technology. Technological advancements enable architects to operate on much smaller scales with fabric-like materials. Designers, on the other-hand, can make clothing with larger proportions using more durable and solid fabrics.

## 3.4. Influence of Sciences on Architecture and Fashion

The strength and inspiration of science in the domains of fashion and architecture have resulted in the creation of many exceptional creations. *“Both science and art value creativity which proposes innovation, improvement and change over what exist through the use of abstract models to comprehend the world.”* (Vidal, 2005, 158). The combination of architecture and science can lead to new breakthroughs in human life. Rather than employing science to architects' ideas alone to give them a modern appearance, architecture and science can collaborate closely to produce new ideas and appearance. The combination of science and fashion has resulted in the emergence of diverse thought processes that are fundamentally altering fashion's relevance while also significantly improving its scientific objectives.

## 3.5. Influence of Technology on Architecture and Fashion

*“The relationship between art and technology is quite dependent on the factor of time. Technology and art are both moving targets. A piece of art in an emerging area of technology can lose its value in a few years. It takes an act of artistic vision and bravery to decide to work with techniques, tools, and concepts from a still raw area of technology not yet accepted as a valid area for the arts”* (Wilson, 2002). Nowadays, technology has an impact on every field that exists. These technological crossings made people's lives simpler in some areas, but in many situations, technology produced issues that people were unable to adjust to. Technical crossover has an impact on fashion and architecture as well. It encouraged designers to be even more inventive and creative. Designers working in these professions used technology to create remarkable garments and buildings that raised the bar for design all over the world. The use of new and advanced technologies, and unique materials in fashion design introduced a new era by making electrical equipment a part of clothes. Technology has a direct impact on architecture by allowing the development of new building materials. The main objective of architectural technology is to serve the evolving requirements of humans through the use of new techniques and skills. Zaha Hadid is an architect who incorporates technology and its effect into her creations in all disciplines. Technology plays a major part of her designs and it is a key component of her buildings. She creates futuristic and complicated designs using technology and new materials. Zaha Hadid has an impact on fashion design as well, and she designs apparel in the same way that she builds buildings, of the various ways in which it has become more popular, a majority is because of technological advancements.

### **3.6.Human Aspects of Architecture and Fashion**

The interaction between architecture and fashion begins by showcasing individual identity and crafting an ideal spatial surface and structure. Both disciplines converge on the concepts of the human body, space, volume, and movement, acting as communicative layers between the body and the environment. They possess the capacity to convey identity on personal, political, cultural, and various societal levels. In linguistic terms, fashion serves as the visual representation of the identity users wish to project to society, not necessarily reflecting their true selves. Conversely, architecture, viewed as a language, is a contemporary visualisation of our genuine identities, which remain more enduring than the transient nature of fashion trends. Fashion and architecture can enhance an individual's well-being in two primary ways: firstly, by providing comfort and instilling self-confidence, and secondly, by influencing how others and society perceive the individual, aligning with societal standards. These aspects can be analysed from two broad viewpoints: the designer and the user.

#### **3.6.1. Designer's view**

Each and every design is an expression of the designer's understanding, knowledge and how they want to project their idea of architecture/fashion, aesthetics, function and experience to the users and viewers of their design. In designers' eyes, fashion is a canvas for personal storytelling, intricately intertwining with the human experience. Through garments, designers capture individual expression, identity, and interaction, forming the essence of their creative vision. Designers consider human aspects in architecture, shaping spaces for interaction, expression, and well-being. The built environment becomes a canvas reflecting the human experience. It becomes a medium for crafting spaces that enhance well-being, encourage meaningful interaction, and reflect the intricate tapestry of embodying the fusion of functionality and emotional resonance.

#### **3.6.2. User's view**

It is the view in which we can find how the inhabitant or the user feels inside the building/fashion apparel and as a society or community, how that space/object is designed, bought or made by them will give status and identity in the society which is a part of the user's experience. For users, fashion is an intimate expression of identity and emotion. Garments become a personal language, reflecting individual style, emotions, and the dynamic interplay of self-presentation in daily life. While architecture becomes a backdrop for daily life, influencing mood and well-being. Spaces are not just physical structures but environments that shape human experience and interactions.

##### **3.6.2.1. Societal Perception of User**

The design can create another perspective of the individual to the viewers. They will gain prestige and identity in society by designing, purchasing, or creating space/objects that showcase certain standards and flow towards the culture and trends. Individuals can use design's

altering potential to create a visual narrative to the dynamic tapestry of cultural expression and social standards.

### 3.6.2.2. Inside the Space Perspectives of User

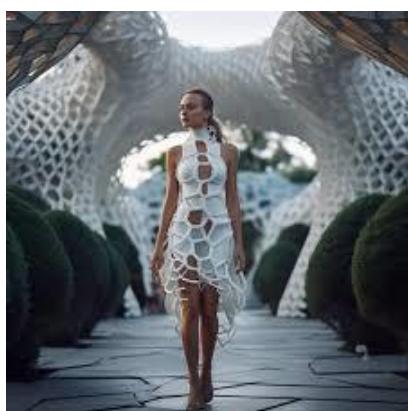
The User's sense of space, usage of space, colour pallet, clothing etc. will be influenced by a design. Each space has its mannerisms based on the design of the space. Even the idea of privacy can be affected by the design. In essence, design becomes an influential orchestrator, shaping not just the physical environment but also influencing the nuanced facets of individual behaviour and perception within the designed spaces.

### 3.6.3. Contrast of one's effect on another: Designer and User

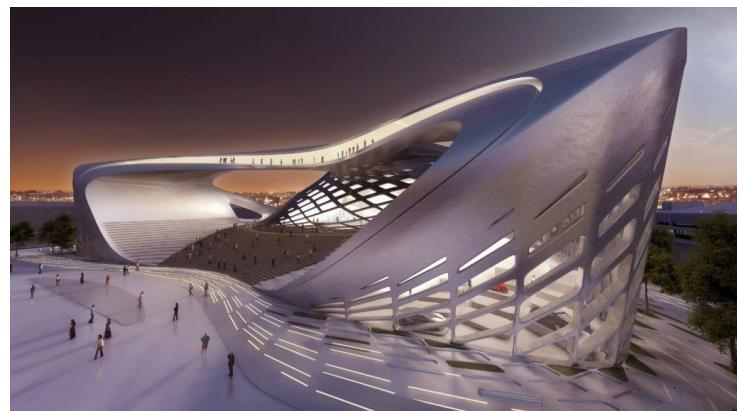
There is always a connection between the design and the user. In general, before the process of design is started, the user is studied as primary data for the design. For common products in fashion, in which the user is not specific but the public, any category in the public or public as a whole is studied as the user and designs are generated accordingly. But for user-customised designs, target users are studied and designs are made, thus we conclude that the design is connected to the user and is generated for the user. Now when a user starts interacting with the design, the user's mannerisms, lifestyle and behaviour can be affected by the design. Clothing, fashion accessories and buildings intervene with the user and make huge impacts on the individual.

## 3.7. Architectural Fashion and Fashionable Architecture

*"Fashion should be a form of escapism, and not a form. of imprisonment"- Alexander McQueen.* Much like clothing serves as a medium for personal expression, architecture has historically functioned as a tool for expressing collective identity, values, and societal status. In the 19th century, banks exemplified this by consistently employing stone construction, classical columns, and pediments. These enduring architectural elements and the use of robust materials conveyed a sense of permanence and security, reassuring clients about the stability of the institution. Both dress and architecture, in their respective domains, convey not only personal or institutional aesthetics but also broader societal narratives and cultural values



(a)



(b)

Figure 4 : (a) Architectural Fashion (midjourney, n.d.) (b) Fashionable Architecture (blarrow.tech, n.d.)

### **3.8. Architecture as Fashion**

Architectural Fashion Architecture as fashion can become one of the main domains under which people identify themselves and refer to be a part of it. Each architecture has some kind of expression in fashion and vice versa. Architecture as fashion might not be just like fashion, which has that extent of experience towards the public through clothing and apparel but it has something more big. Architecture from basic views of giving shelter evolved to determine societal value, standards, personal experience, enjoyment of life satisfaction, and sense of security. It is not only a way of self-presenting and self-confidence, but it can give you a lot of other things. When multiple people live in the same space, each individual has their own identity and individuality within one idea of space of living, which can be collective in nature. Architecture has its own fashion that people or groups of people in society might admire or frown upon. Architecture can become the fashion of an individual or a group of people, showcasing their standards, views and life of them just as much as fashion functions.

### **3.9. Conclusion**

Fashion exists in everything and everyone, instilling the concept of fashionability in humans throughout time and space. Thus, architecture has its sense of fashion, and it may be called a discipline with a highly fashionable way of thinking. In certain instances, architecture may be defined as the fashion of the built and unbuilt environments around us, imparting aesthetics and identity over and beyond its primary function. As a result, everything above its primate form cultivates a feeling of fashion in it. This notion of identity developed can be considered to have originated from the field of fashion into architecture, as fashion has an intrinsic sense of becoming the identity of everything. As a result, we could conclude that architecture and fashion are two disciplines that are inextricably linked. Architecture has a high amount of fashion and Fashion has a majority of inspirations and ideas from architecture. Exploring the interplay of fashion and architecture offers the framework for developing a space dedicated to fashion and related products to be developed while also improving the community's architecture. This innovative environment, inspired by the dynamic interplay between architectural design and fashion trends, becomes a collaborative space where creative minds converge to build the future of fashion. The envisioned place may intend to establish a vibrant environment for study, experimentation, and the sustainable development of fashion goods that can improve the quality of both disciplines by seamlessly merging architectural aesthetics and functional design principles. The architectural framework, created as a canvas, represents the evolving storylines and expressions inside the fashion industry's ever-changing landscape. This study exposes a subconscious link between the two disciplines, highlighting the ability of architectural principles to stimulate innovation, foster collaboration, and advance the evolution of fashion within a community-driven framework. The built environment has the potential to emerge as a dynamic manifestation of interconnection, allowing a platform for both architecture and fashion to thrive in a symbiotic form of relationship

### 3.10. Future Scope

The study looking at architecture as fashion becomes critical to analyse and understand the phenomena, cultural shifts and current changes happening in both disciplines in terms of other disciplines in the upcoming years. Understanding society and how it changes along with the people, places and selves and understanding it in day-to-day life is necessary for the contemporary view of development in both the disciplines: Architecture and Fashion.

## CHAPTER 4 SITE STUDY AND ANALYSIS

### 4.1.Location

Kochi, a vibrant city on the Malabar Coast of Kerala, India, boasts a rich cultural and historical heritage that dates back centuries. Formerly known as Cochin, Kochi has been a major port city that played a significant role in the spice trade and maritime history of India. The city's diverse cultural landscape is a blend of various ethnic and religious communities, including Hindus, Muslims, Syrian Christians, and Jews, each contributing to its unique tapestry of traditions and customs. Kochi's historical significance is evident in its well-preserved Portuguese, Dutch, and British colonial architecture, along with landmarks like St. Francis Church and the historic synagogue at Mattancherry. Today, Kochi is a bustling urban centre with a thriving economy driven by industries such as trade, tourism, and maritime activities. The city's strategic location, modern infrastructure, and vibrant cultural scene make it a key hub for commerce, tourism, and cultural exchange in South India.

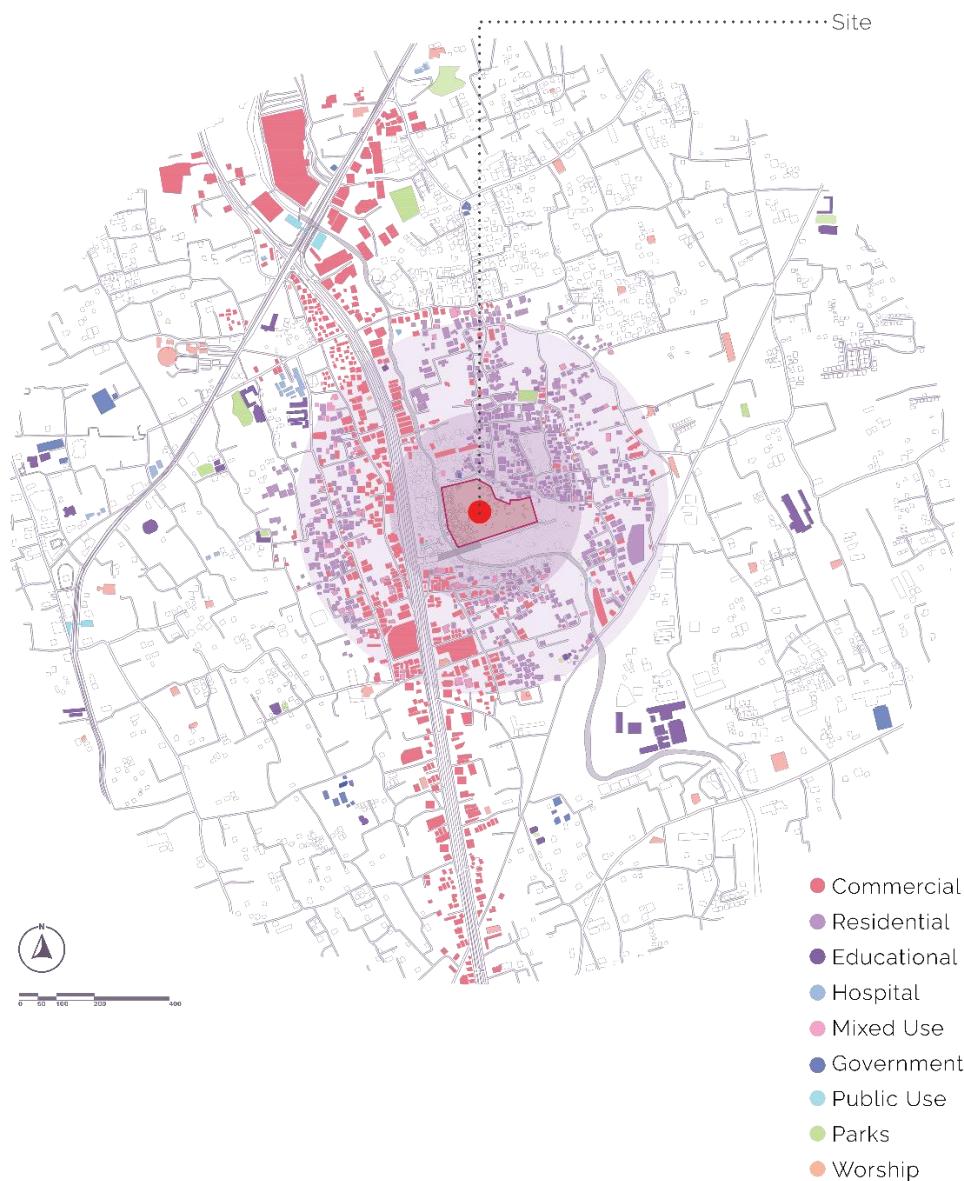


Figure 5 : Location Map (Author)

Figure 6 : QR Code for Project Site Location (Author)

## 4.2. Site Details and Context

Edappally, nestled in the vibrant city of Kochi in the district of Ernakulam, Kerala, India, is a bustling suburban hub where tradition meets modernity. Known for its historical significance, including attractions such as the Museum of Kerala History and Edappally Church, as well as contemporary development, Edappally offers a kaleidoscope of experiences. From ancient churches and markets to modern shopping complexes, it embodies a captivating blend of the old and the new, contributing to Kochi's vibrant cultural scene and serving as a testament to Kerala's rich artistic and historical legacy.



*Figure 7 : Site Context Map (Author)*

Situated in an urban setting, the site is conveniently located just 1 km away from Edappally city centre, beside the bustling NH 66. The area transitions from commercial zones near the highway to residential neighbourhoods further in. Within this 1 km radius, there are educational institutions, banks, hospitals, parks, places of worship, government buildings, and public spaces.

Co-ordinates: 10°01'03.9"N, 76°18'48.2"E

Address: Near NH 66, Marottichuvadu, Edappally, Kochi, Ernakulam, Kerala. 682024

Site Area: 8 Acres



Figure 8 : Project Site Map (Author)

The project benefits from a vibrant community, including younger generations, and is surrounded by a well-equipped commercial neighbourhood and essential services. This makes the site an ideal location for an incubation centre.

### 4.3. Accessibility and Connectivity

The site is accessible through road, air, rail and water modes of transportation. The site is connected through a service road to NH 66 (4 lanes), which runs from Mumbai to Kanyakumari via Kochi

Mode of Transport	Location	Distance from Site
Public Bus Stop	Oberon Mall Bus Stop	250 M
	Edappally Junction Bus Stop	1 Km
	Pipeline Junction Bus Stop	2 Kms
Railway	Edappally Railway Station	3 Kms
	Ernakulam Town Railway Station	6 Kms
	Ernakulam Junction Railway Station	8 Kms

<b>Mode of Transport</b>	<b>Location</b>	<b>Distance from Site</b>
Metro Rail	Edappally Metro Station	1 Km
	Vyttila Metro Station	6.5 Kms
Ferry	Ernakulam Boat Jetty	8 Kms
Water Metro	Marine Drive Water Metro Station	7 Kms
	Vyttila Water Metro Station	6.5 Kms
Airport	Cochin International Airport	24 Kms
Shipyard	Cochin Shipyard	11 Kms

Table 1 : Connectivity to Site (Author)

#### 4.4.Proximity Study

The local setting and community are analysed by marking and studying the available facilities and amenities, such as markets, schools, colleges, places of worship, and entertainment zones. This research is crucial for understanding community integration and assessing user flow and the availability of nearby resources.

<b>Typology</b>	<b>Name and Location</b>	<b>Distance From Site</b>
Schools	Mary Matha School	2 Kms
	Cochin Public School	3 Kms
	Campion School Ponekkara	4 Kms
	Toc-H Public School	7 Kms
	Bhartiya Vidya Bhavan	10 Kms
	Choice School	10 Kms
Collages	School of Technology and Applied Science	3 Kms
	KMM College of Arts & Science	3 Kms
	Model Engineering College	3.5 Kms
	CUSAT	4 Kms
	Bharata Mata Institute of Management	4 Kms
	AISAT Engineering College	5 Kms
	KMEA Engineering College	10 Kms
Entertainment Zones	Lulu International Shopping Mall	1 Km
	Oberon Mall	300 M
	Grand Mall	1 Km
	Changampuzha Park	2 Kms
	Jawaharlal Nehru Stadium	4 Kms
	Soccer Pitch Cochin	500 M

<b>Typology</b>	<b>Name and Location</b>	<b>Distance From Site</b>
Corporates	Reliance Corporate IT Park	2 Kms
	CITTIC Kalamassery	4 Kms
	Kerala Technology Innovation Zone	8 Kms
	Kerala Technology Innovation Zone	3 Kms
Hospitals	MAJ Hospital	1 Km
	The Insta Speciality Hospital	2 Kms
	Renai Medicity Hospital	3 Kms
	Amritha Hospital	6 Kms
	Lisie Hospital	5 Kms
	Aster Medicity	9 Kms
Worship Places	Edappally Church	1 Km
	Thrikkakara Temple	3 Kms
	Anchumana Devi Temple	750 M
	Edapally Toll Salafi Juma Masjid	2.5 Kms
Timber Industries	Shihab Timber Industries	1.5 Kms
	Brilliant Wood Industries	4 Kms
	National Sawmill & Wood Industries	3 Kms
Furniture Shop	Oriental Timbers	750 M
	Wooden Street - Furniture Shop	750 M
	GRID Furniture World	1 Km
	Furni Mart Furniture	1.5 Km
	Pengadan Furniture and Interiors	2.5 Kms
Fashion Markets	Lulu Fashion	1 Km
	H&M	1 Km
	Max Fashion	1 Km
	West Side Fashion	1.5 Kms
	Broad Way Fashion Market	7.5 Kms
	Fashion Street near Bus Stand	6 Kms
Fashion Raw Materials	Broad Way Fashion Market	7.5 Kms
	Goodwill Collections	1 Km
	Weave from Thangka	2.5 Kms
Metal Industry	Metcon TMT	2 Kms
	Metal Hub	4.5 Kms
	Indalium	3 Kms

Table 2 : Proximity Study (Author)

## 4.5.Legal

- Kerala Municipal Building Rules - 2019 (KMBR 2019)
- Site area - 8 acres (32374.9 M2)
- Maximum permissible F.S.I.- 3 -4 (with additional fee of Rs 5000/ M2 for the additional area)
- Maximum permissible Coverage - 60%
- Minimum access width - 10m
- Parking- 1 parking space for every 60 M2 built area
- Land use- Mixed - Residential and Commercial
- Front Setback - 3 M
- Rear and Side Setback - 2 M

## 4.6.Integrated Mobility Points

The project endeavours to encourage public transport and electric commuting alternatives by identifying nearby points of interest and public transit points. It involves strategically placing public rented electric commuting options at specific locations to facilitate accessibility and sustainable transportation

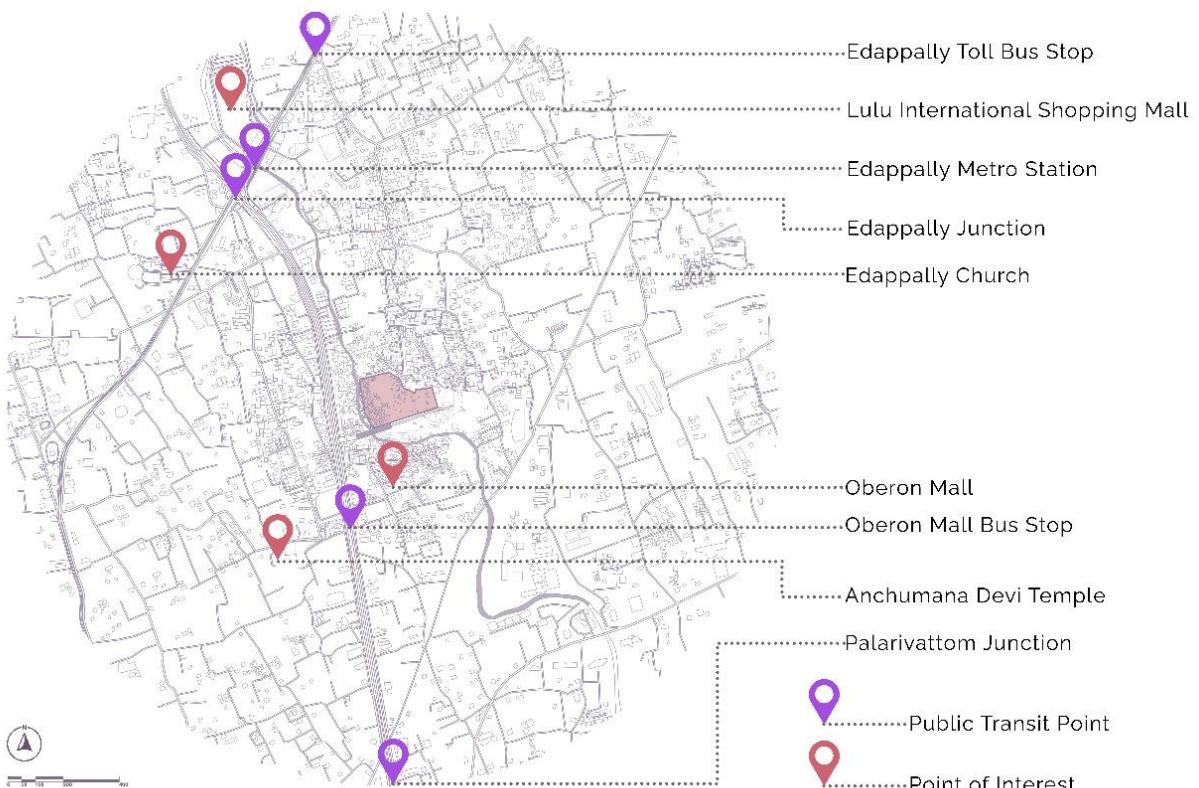


Figure 9: Integrated Mobility Points Map (Author)

#### 4.6.1. Point of Interest - Parking Locations

The identified strategic locations serve as ideal spots for private vehicle parking, facilitating easy access to integrated mobility options for further transportation. By strategically placing these points for private vehicular parking, users can seamlessly transition to integrated modes of transport, enabling them to efficiently explore the surrounding vicinity with minimal traffic congestion. This innovative approach for connectivity not only saves time but also enriches the overall user experience, providing a convenient and engaging method of navigating the city.

Location	Distance From Site
Oberon Mall	600 M
Anchumana Devi Temple	750 M
Edapally Church	1.5 Kms
Lulu International Shopping Mall	1.5 Kms

Table 3 : Integrated Mobility Points – Parking Locations (Author)

#### 4.6.2. Public Transit Points

Designated locations for public transport interchanges are identified and equipped with integrated mobility systems to streamline the commute for passengers. This approach aims to facilitate the use of public transportation and promote environmentally friendly practices.

Location	Distance From Site
Oberon Mall Bus Stop	250 M
Edapally Junction	1 Km
Edapally Metro Station	1 Km
Edapally Toll Bus Stop	1.5 Km

Table 4 : Integrated Mobility Points – Public Transit Points (Author)

In the 1.5 Kms site context area, specific points of interest and public transit points have been identified. From these, suitable locations for public rented electric commuting options can be selected. By evaluating nearby points collectively, optimal locations within the immediate surroundings can be determined, prioritizing user convenience from both locations.

### 4.7.Sensory

The site offers scenic views of a water body and open land along the approach road, with residential areas visible on the other sides. Noise levels are primarily influenced by highways and followed by surrounding residential areas. The in-site views cater to a rich variety of flora and fauna, embedding a natural feel within the layout. The vegetation not only enhances aesthetic appeal but also organically directs the design and zoning of pathways and areas, highlighting the site's naturally buildable spaces.

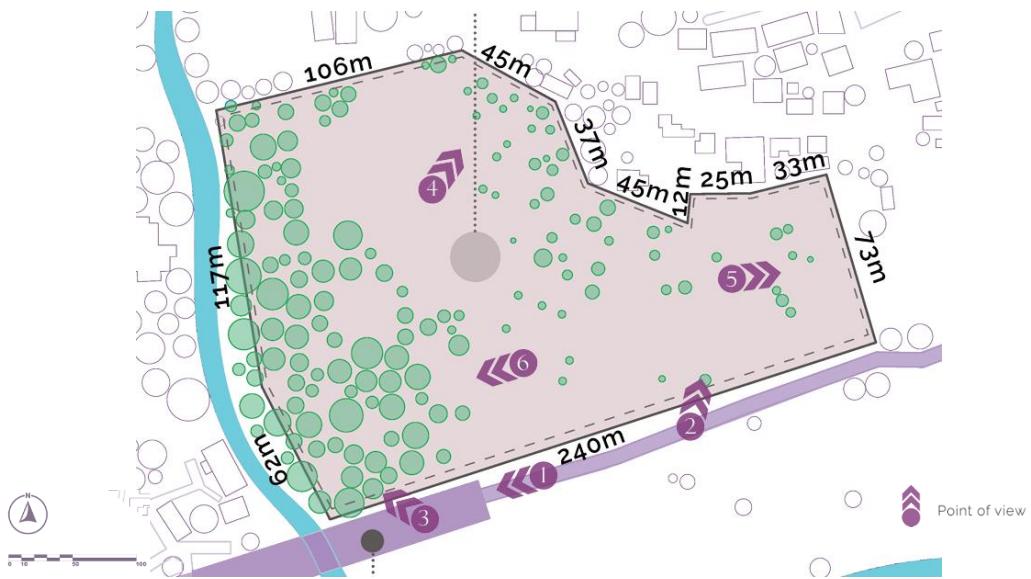


Figure 10 : Key Map for Views (Author)



Figure 11 : (a) View 1 (b) View 2 (Author)



Figure 12 : (a) View 3 (b) View 4 (Author)



Figure 13 : (a) View 5 (b) View 6 (Author)



*Figure 14 : Noise and View Map (Author)*

The nature-oriented visual axis directs attention toward the canal and vegetation, while the remaining edges remain uncovered, fostering an expansive visual perspective. Taking into account views and noise analysis, it is advisable to centralize built areas, leaving space on all sides for versatile activities. Directing building views toward water bodies and open spaces, and efficiently landscaping the edges can mitigate noise disturbance within the site.

#### **4.8. Site Overview and Service Layout**

The map provides a detailed overview of the site's immediate environment, illustrating various building types ranging from residential to commercial structures, as well as the layout of roads, canals, and bridges that facilitate access and connectivity. It also highlights the surrounding vegetation, offering insights into the local green spaces and natural barriers. Additionally, the map shows the distribution of essential services such as water, sewage, and electrical layouts, giving a comprehensive view of the infrastructure that supports the area. This detailed mapping ensures a thorough understanding of the site's context, aiding in informed planning and development decisions.

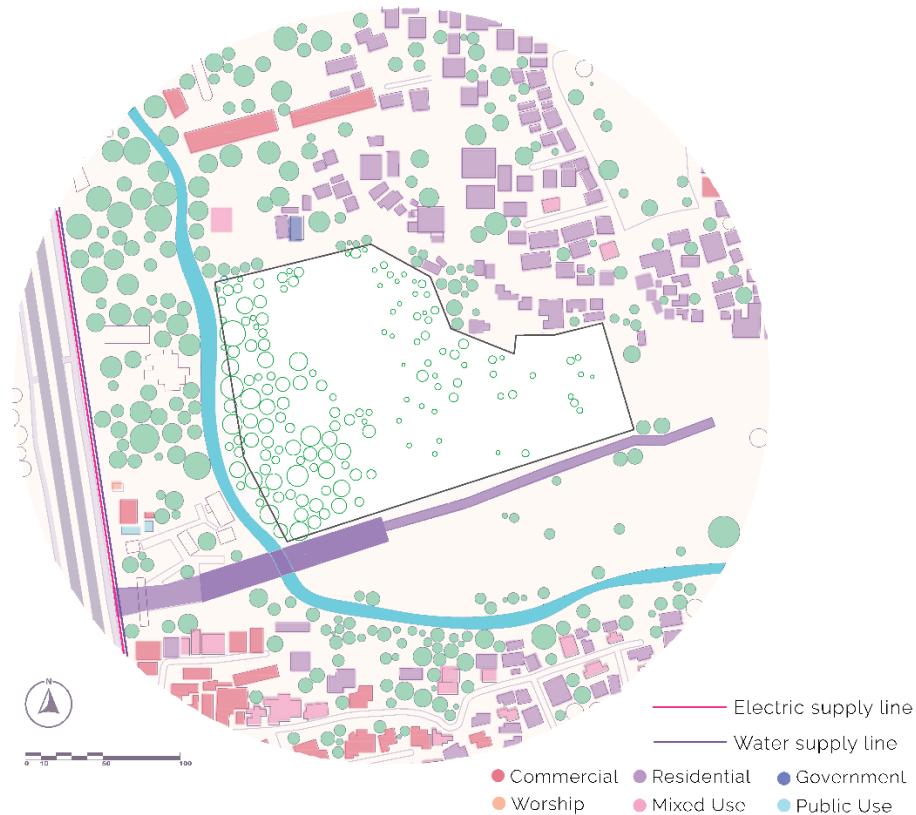


Figure 15 : Site Services Map (Author)

#### 4.8.1. Services

The site is situated near a main electric supply line that runs along the main road, with an electric transformer located close to the site's approach road entry. Additionally, a public water supply line runs parallel to this setup.

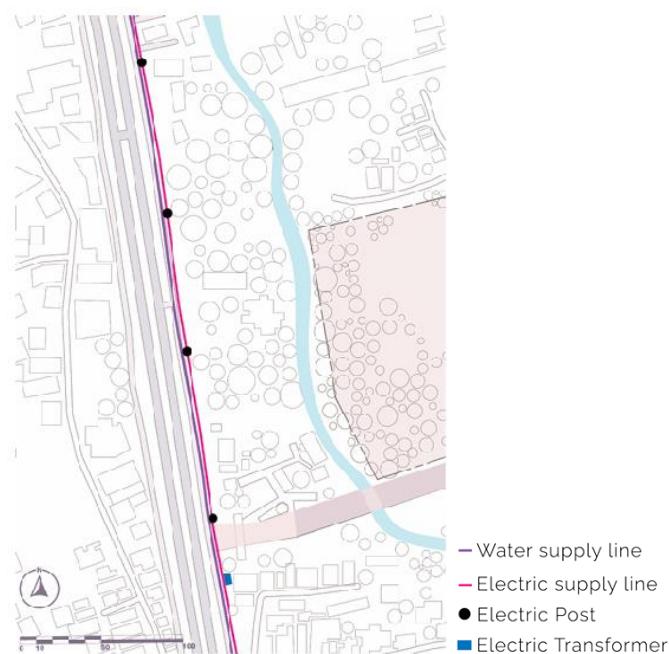


Figure 16 : Services Layout Map (Author)

Electricity and water supplies can be connected to public lines, and options for a well within the site can be explored for additional water needs. Solar panels can be installed to establish a sustainable electricity source. Given the absence of gas connections in the vicinity, reliance on gas cylinders is preferable. Proper methods and the construction of necessary tanks are employed to maintain sewage and drainage within the site.

## 4.9. Flora and Fauna

### 4.9.1. Flora

The canal adjacent to the site results in a gradient of vegetation, starting with wet soil plants along the edge, progressing to denser vegetation, and finally leading to clearer land predominantly covered with grass across the majority of the site.



Figure 17 : Flora on Site (Author)

### 4.9.2. Fauna

The trees in the vegetative area of the site serve as homes for numerous birds and a source of food for fauna. Stray dogs and a few cats were observed on the site, relying on nearby areas for shelter. The presence of a water body and vegetative shading attracts various fauna to the area.

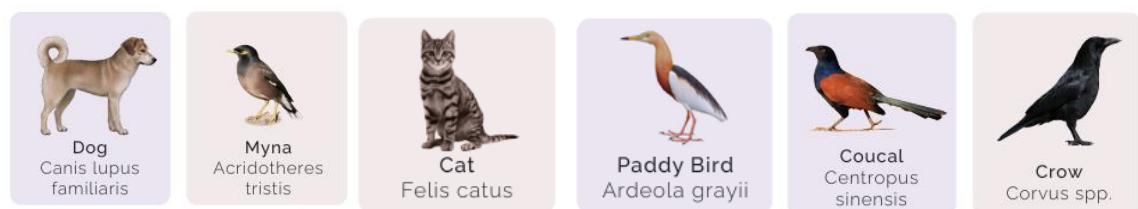


Figure 18 : Fauna on Site (Author)

Preserving the significant trees with abundant foliage in the vegetative area of the site offers natural shading and contributes to maintaining the site's ecological balance. The presence of a nearby water body enhances the potential for a prominent nature-oriented design option in the area.

Trees such as Coconut and Areca nut can be strategically placed along the other edges, imparting a pillared appearance. This not only creates a natural fence but also preserves the light and scenic sky-oriented views along these edges.

## 4.10.Water Table

The pre-monsoon water level in Edapally ranges from 0.02–8 meters below ground level (MBGL), with a seasonal Fluctuation of water level varying from 0.10–10.0 MBGL (Geology, 2016)

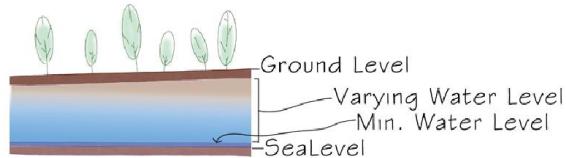


Figure 19 : Conceptual Section for Water Table (Author)

## 4.11.Contour and Hydrology

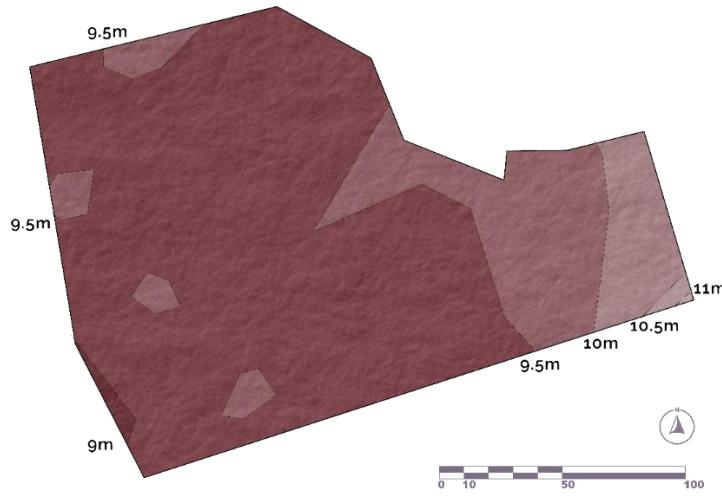


Figure 20 : Contour Map (Author)

Elevation mapping was conducted to analyse the landscape's gradation. The process revealed the site's gentle slope, the mapping process allowed for the identification of elevation ranges as well as main and secondary contours based on the range. Site has a constant, less than 5% sloping slope. Therefore, the majority of this site's space is buildable. Site has a downward slope that leads to a water body. Water can flow into the canal naturally according to the geography

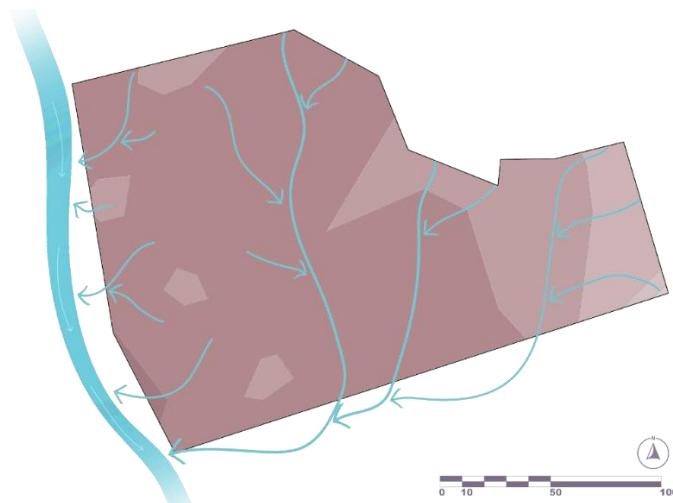


Figure 21 : Hydrology Map (Author)

## 4.12. Soil Type And Bearing Capacity

The site predominantly features two soil types: alluvium and Teri soil. The area of site near the water body comprises Alluvium soil, characterized by high water content, while the majority of the site consists of Teri soil. The soil tends to exhibit an acidic saline nature, typically with light lateritic features in this region. The bearing capacity of the soil in the site is significantly influenced by the lesser depth of water table level below ground level (MBGL). It is known to have a low to medium (50-500 Kg/Cm<sup>2</sup>) bearing capacity in the site's location

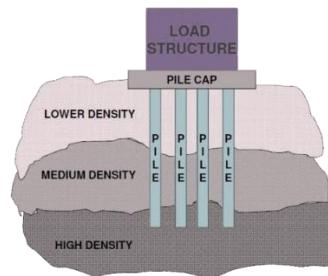


Figure 22 : Foundation Type with Ground Section (Geology, 2016)

The fertile soil on the site, coupled with sufficient water content, is well-suited for landscaping. Therefore, opting for the same soil is a suitable choice for the primary landscape design.

Given the site's conditions, including low bearing capacity, higher water content, and a shallow water table level below ground (MBGL), Pile Foundations are the preferred choice. They allow for deeper penetration into high-density soil, ensuring enhanced stability for the structure.

## 4.13. Site Evolution

The site is situated at a lower elevation than its surroundings, featuring a gradual slope toward the canal. Over the years, the site surroundings have gradually elevated, and additional ground level uplifting was carried out after the 2018 Kerala floods, which submerged the site and its vicinity.

To prevent submergence during the monsoon season, it is recommended to elevate the site level.

## 4.14. Climate

Edappally, Kochi has a tropical and humid climate, typical of the southwestern coastal state of Kerala.



March - May  
35° - 20°



June - Sept  
3014 mm  
124 days



Oct - Feb  
32.3° - 20°

#### 4.14.1. Temperature

Site experiences the maximum temperature of 33°C in March and April and lowest temperature of 23°C in December and January (Weather and Climare, n.d.)

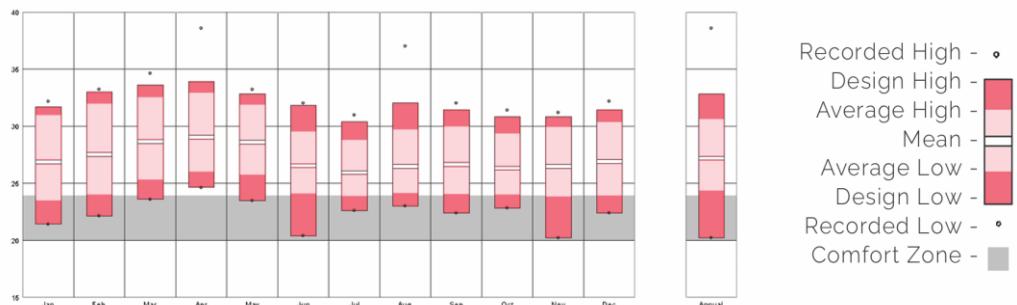


Figure 23 : Temperature Chart (Weather and Climare, n.d.)

Design strategies should focus on thermal comfort through ventilation, insulation, and shading for better comfort of users.

#### 4.14.2. Rainfall

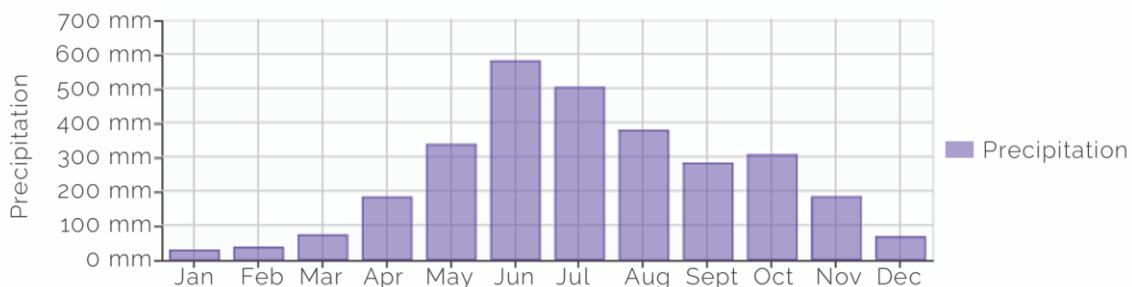


Figure 24 : Precipitation Chart (Weather and Climare, n.d.)

Implementing Rain Water Harvesting and suitable chajja projections could aid in water storage and wall protection. Sloped roofs can also be applied on suitable areas of design.

#### 4.14.3. Humidity



Figure 25 : Humidity Chart (Weather and Climare, n.d.)

Kochi's average relative humidity is approximately 83%, ranging from 71% in the winter (February) to 90% during the monsoon (June). The most humid month of the year is June, with humidity levels ranging from 76.9% to 98.1%. (Weather and Climare, n.d.)

#### 4.14.4. Sun Path

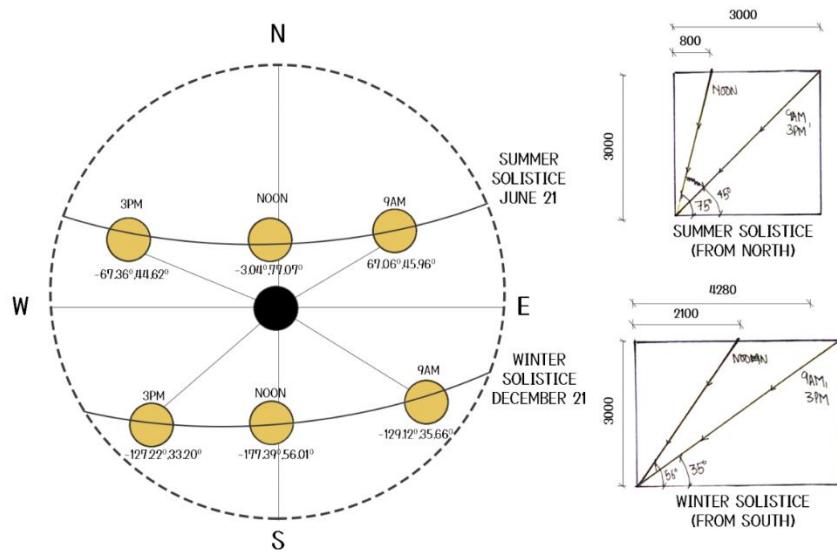


Figure 26 : Sun Path and Solstices (Weather and Climare, n.d.)

Given the consistently high temperatures, air conditioning is essential, but strategic architectural design and natural shading can significantly reduce its necessity. High-efficiency AC units or heat pumps, along with natural shading methods, ventilation, and fans, can all help decrease heat absorption. On the building's west side, plantings such as shrubs, trees, and ivy can offer shade, particularly if the area's summer rainfall supports these native species. Employing light-coloured construction materials and roofs designed to emit heat efficiently can further reduce heat conduction. The prevailing winds in the region typically blow from the east.

#### 4.14.5. Wind Direction

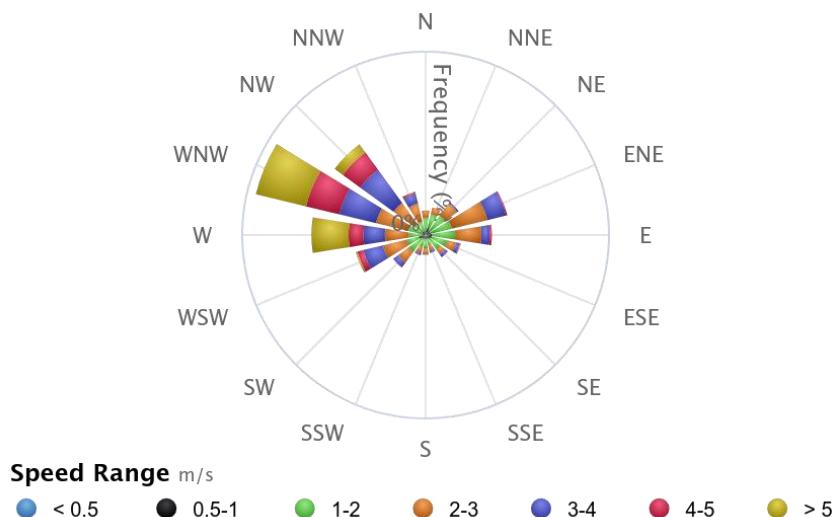


Figure 27 : Wind Rose for Kochi (Weather and Climare, n.d.)

Wind patterns are usually light to moderate, intensifying during the monsoon season. Throughout the monsoon, winds predominantly come from the west or southwest. In contrast, during non-monsoon periods, morning winds typically blow from the northeast to east, shifting to come from the southwest to northwest in the afternoons.

## CHAPTER 5 CASE STUDY

### **5.1. User-Function Analysis**

The building's functions have been determined and subdivided into detailed sections for a comprehensive overview. Based on this functional breakdown, the building's users have been identified and categorized by their relationship type and duration of engagement with the institution over an extended period.

#### **5.1.1. Incubation Centre**

The incubation centre is meticulously designed to support a wide range of activities crucial for nurturing emerging enterprises and fostering innovation. Multi-purpose spaces and event areas provide versatile environments for hosting a variety of functions, from workshops to product launches. Interactive studios and open studios, alongside lecture halls, facilitate active learning and collaborative engagement, essential for creative exploration. The facility also includes a comprehensive library and resource centre, offering access to essential knowledge and research tools. Further supporting the developmental needs of start-ups, the centre features dedicated mentorship and consultation rooms, prototyping labs for product development, collaborative workspaces for team projects, and ample storage rooms to house materials and prototypes. Each space is tailored to facilitate the growth and success of new ventures.

#### **5.1.2. Fashion Design and Fashion Apparel**

The incubation centre encourages fashion design start-ups and short-term membership-based skilled individuals from the community to innovate within the fashion industry. It provides a comprehensive suite of facilities including a Digital Fabrication Lab, Apparel Atelier, Sewing & Stitching Studio, Fabric Labs, Textile Studio, Fashion Design Studio, and Apparel Design Studio. These specialized spaces support the creation of new apparel designs and the production process, focusing on testing, enhancing user-friendliness, and marketing.

#### **5.1.3. Furniture Design**

The incubation centre anticipates the creation of innovative and appealing furniture designs, prioritizing a human-friendly approach. To support this vision, the centre provides workshops and a dedicated Product Design Studio equipped with heavy machinery labs. These facilities empower designers to explore new concepts, refine their ideas, and develop furniture solutions that prioritize both aesthetics and user comfort. Through collaboration and hands-on experimentation, designers are encouraged to push the boundaries of traditional furniture design and create functional yet visually captivating pieces.

#### 5.1.4. UI/UX

The incubation centre formulates media, advertising, and various marketing strategies to bolster the growth of start-ups within its premises. It provides dedicated spaces such as Media Labs, Digital Labs, Computer Labs, and a Tech Hub to support these efforts. Through these facilities, entrepreneurs have access to cutting-edge technology and resources to develop and implement effective marketing campaigns. By leveraging digital tools and media platforms, start-ups can enhance their visibility, attract customers, and accelerate their growth trajectory in the competitive marketplace.

#### 5.1.5. Community Engagement

The incubation centre prioritizes community integration through versatile spaces designed to foster interaction, creativity, and learning. These include a flexible exhibition space, presentation area, and showcase/display zone where entrepreneurs can share their innovations with the community. A community lounge provides a casual setting for networking and collaboration, while interactive spaces and training areas encourage hands-on learning and skill development. Learning zones offer opportunities for ongoing education and growth, while hobby hubs cater to diverse interests within the community, promoting a vibrant and inclusive environment for all.

#### 5.1.6. Full Time Employees

The incubation centre employs a team of permanent staff responsible for running and administering start-ups throughout the incubation period. This includes administrative staff who manage day-to-day operations, as well as start-up company staff members who volunteer their time to support emerging ventures. Visiting staff provide expertise and guidance, while housekeeping, maintenance, store room, and security personnel ensure the smooth functioning and security of the facility. Together, these dedicated individuals contribute to creating a supportive and conducive environment for the success of start-ups within the centre.

#### 5.1.7. Membership Based Team

Staff from start-up companies and other short-term, membership-based individuals developing lifestyle-based products within the centre have access to various membership options tailored to their needs. These include short-term/project-based memberships, ideal for individuals working on specific projects or initiatives within a limited timeframe. Long-term/establishment-based memberships cater to those seeking more permanent residency within the centre, providing stability and ongoing support. Additionally, monthly memberships offer flexibility for those requiring access to the centre's resources on a temporary basis. These membership options ensure that individuals from diverse backgrounds and with varying project durations can benefit from the incubation centre's facilities and support services.

#### **5.1.7.1. Short Term/Project Based Membership**

The Short Term/Project Based Membership option accommodates companies, groups, or individuals seeking membership for a defined duration based on specific projects. This arrangement operates on a contract basis, structured around the timeframe or completion of particular projects. The aim of these projects can vary widely, from designing and producing a product to establishing and determining the market rate of the product. The terms are established through assertive discussions and outcomes involving both the proposing party and the incubator. This membership model offers flexibility and tailored support, allowing project-based initiatives to leverage the resources and expertise of the incubator to achieve their goals efficiently and effectively..

#### **5.1.7.2. Long Term/ Establishment Based Membership**

The Long Term/Establishment Based Membership option caters to companies, groups, or individuals seeking membership based on the establishment and growth of their ventures to a certain level. Typically chosen by start-up companies aiming for success and stability within a defined timeframe, this option offers various arrangements. It may involve contracts outlining ownership percentages, profit-sharing agreements, or fixed payments to the incubation centre. These terms are structured to align with the progress and achievements of the member, reflecting the collaborative effort between the start-up and the incubator. This membership model provides a pathway for start-ups to evolve and thrive, while also ensuring the continued support and sustainability of the incubation centre's ecosystem.

#### **5.1.7.3. Monthly Membership**

Monthly membership users, typically utilized by individuals from the local community, provide access to facilities for pursuing hobbies or engaging in do-it-yourself (DIY) activities. Additionally, educational institutions, researchers, scholars, and other professionals may also opt for this option to access resources and facilities offered by the centre for their respective projects and initiatives.

### **5.1.8. Visiting Users**

Visitors, including members of the general public, who come to the centre for tours, exhibitions, hobby centres, and workshops, among other activities, form an integral part of the facility's ecosystem. This stage serves as an encouraging opportunity for individuals to explore the facility and its offerings, potentially leading them to consider monthly or other membership options in the future. These users, initially drawn to the centre for various engagements, have the potential to transition into users of other membership categories, such as artists, educational institutions, students, community users, tourists/visitors, researchers, scholars, and other professionals.

## 5.2. Case Study 1: Kerala State Institute of Design (KSID), Kollam, Kerala

### Live Case Study

#### Brief

Located on the scenic outskirts of Kollam, the Kerala State Institute of Design (KSID) serves as a hub where cutting-edge technology blends with creative design against a backdrop of natural beauty. The institute was founded with the goal of fostering a dynamic design ecosystem in Kerala by facilitating collaborations among artisans, professional designers, and the broader community. KSID operates with support from the National Institute of Design, Ahmedabad.

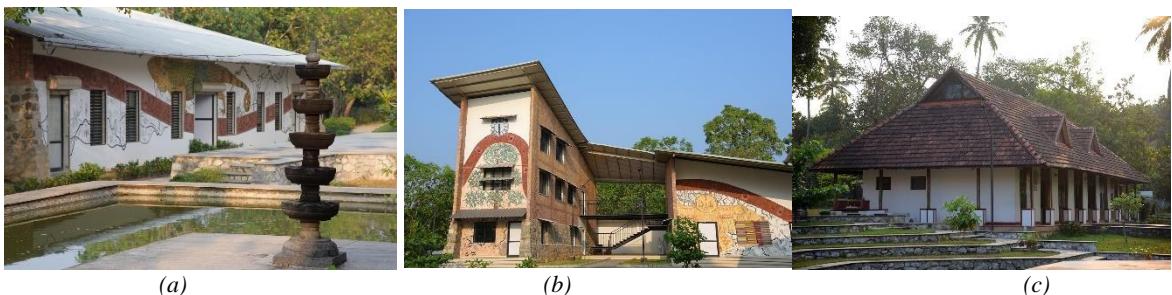


Figure 28 : KSID Campus (KSID, 2018)

#### Location

KSID Campus, Chandanathope Kollam Kerala, India.



Scan for Location

Figure 29: QR Code for KSID Location (Author)

#### Website:

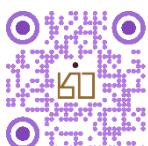


Figure 30 : QR Code for KSID Website (Author)

#### General Information

Established on 13 June 2008, the institution operates under the auspices of the Department of Labour and Skills, Government of Kerala, with affiliations to the APJ Abdul Kalam Technological University and approval from the All India Council for Technical Education (AICTE). Spanning a site area of 4 acres, the institution underwent a significant development milestone on 1 April 2014 when it merged with the Kerala Academy for Skills Excellence (KASE), enhancing its scope and capabilities. The architectural design of the facility was entrusted to Inspiration Architects, based in Ernakulam, while construction was carried out by Kerala State Nirmithi Kendra. Together, these factors contribute to the institution's stature as a hub of learning and skills development in the region, fostering innovation and excellence in education and vocational training.

## Current Occupancy

Category	Number of Individuals
Administration Staff	6
Permanent Faculties	9
Visiting Faculties	20
Technical Staff	7
Students	205
Other Staff	4

Table 5 : Current Occupancy of KSID (Author)

## Institutional Objectives

The institution's objectives encompass education, training, services, research, documentation & publication, collaboration, and awareness. It aims to provide comprehensive design education, training professionals for various sectors nationwide. Additionally, it offers outreach programs to promote local crafts and heritage. The institution also provides design consultancy services and conducts research in design and allied fields, publishing findings to build a knowledge repository. Collaboration efforts extend to government and indigenous industries, fostering design exchange programs. Finally, the institution promotes design sensitivity and awareness through seminars, workshops, and outreach to schools and colleges.

## Site Plan

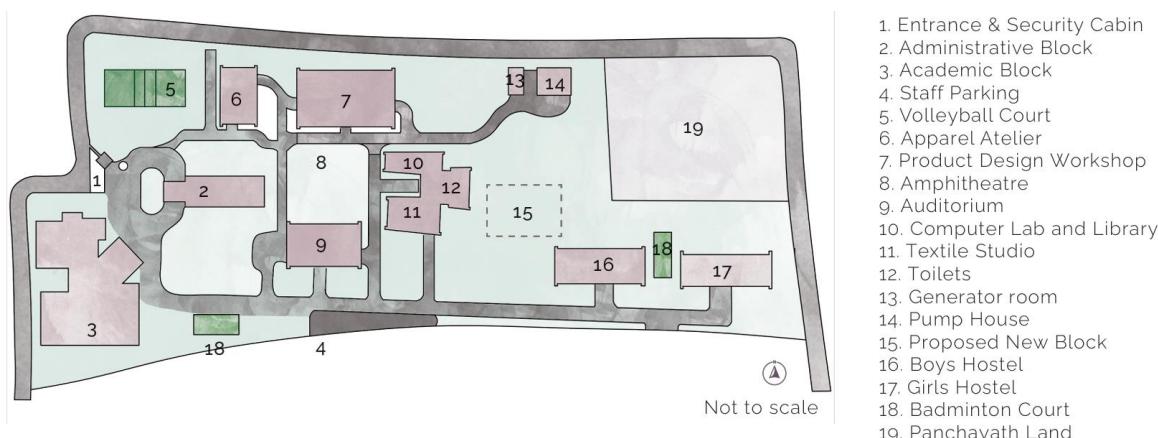


Figure 31 : KSID Site Plan (Author)

## Work Structure

KSID primarily focuses on three core domains:

- Fashion Design
- Product Design
- Media Design

These domains are interconnected, allowing for collaboration and shared resources throughout the institute. Various spaces and functions within the institute serve all three domains, facilitating cross-disciplinary learning and innovation. Additionally, KSID boasts a team of skilled staff and technicians dedicated to supporting student education and growth across these domains

## Fashion Design

The integrated textile and apparel design studios and infrastructure within the institute provide abundant resources for students to learn and develop their skills. The School of Textile and Apparel Design goes beyond training aspiring designers in textile, apparel, coir, and natural fibres. It also empowers individuals involved in traditional crafts, handloom, MSME, and cottage industries in the state. Through short-term training programs and workshops, the school imparts crucial skills in quality awareness, designing, dyeing, and marketing. This initiative not only enhances the capabilities of artisans and craftsmen but also contributes to the preservation and growth of traditional industries in the region.



(a)



(b)

*Figure 32 : KSID Interiors (a) Apparel Atelier (Author) (b) Textile Studio (KSID, 2018)*

The domains are divided into textile design and apparel design, each supported by three main spaces: the textile studio, fabric lab, and apparel atelier. These spaces serve as essential hubs for students to engage in hands-on learning, experimentation, and innovation within their respective domains. In the textile studio, students explore various techniques and processes related to textile design, while the fabric lab provides facilities for experimenting with different materials and treatments. The apparel atelier serves as a workshop for garment construction and prototyping, allowing students to bring their design concepts to life. Together, these spaces form the backbone of the textile and apparel design program, fostering creativity and skill development among students.



(a)

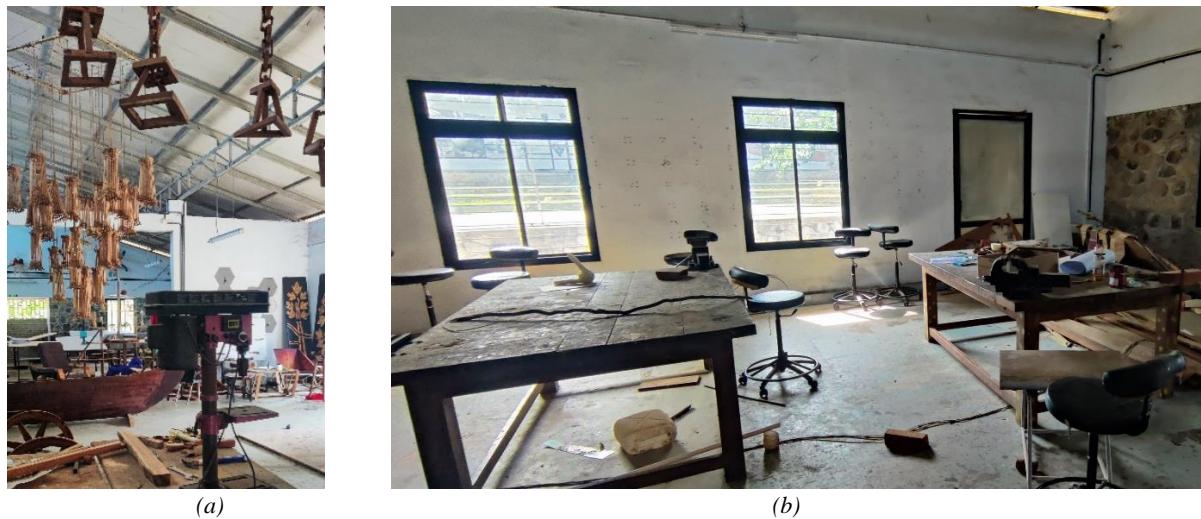


(b)

*Figure 33 : KSID Interiors (a) and (b) Fabric Lab (Author)*

## Product Design

The integration of lifestyle product design with furniture design is a key focus of the School of Product Design. Its design programs are strategically conceptualized to cater to the lifestyle product market and industry in Kerala and India. The emphasis is on creating delightful lifestyle and utility products, furniture, and living spaces to enhance the overall living experience. These programs are carefully tailored to meet the needs of local industries and users, informed by extensive local research and an understanding of cultural and social relevance in the Indian context.



*Figure 34 : KSID Interiors (a) and (b) Product Design Workshop (Author)*

The School of Product Design offers a range of specialized workshops and labs to support hands-on learning and advanced training for students. The Woodworking and Bamboo Workshop is equipped with advanced machinery for prototyping various products and furniture designs, allowing students to explore the potential of these materials in their creations. Similarly, the Plastic and Metal Prototyping Workshop provides access to cutting-edge machinery for prototyping diverse products and mastering production engineering techniques.



*Figure 35 : KSID Interiors (a) and (b) Product Design Workshop (KSID, 2018)*

In addition, the Computer-Aided Industrial Design Lab offers high-end graphic workstations for training in advanced representation techniques, virtual prototyping, and product engineering. These facilities complement the hands-on experience gained in the apparel atelier and product design workshop, providing students with comprehensive resources and infrastructure to bring their design concepts to life. Through these spaces, students are encouraged to unleash their creativity, innovate, and develop practical skills essential for success in the field of product design.

### Media Design

The School of Interactive Communication focuses on exploring the dynamics of interactive communication to address challenges encountered by diverse and emerging user groups. Through scholarly research and professional expertise, the school aims to generate knowledge and practical solutions. It endeavours to disseminate this knowledge to the wider community, including professional bodies and industry organizations, through publications and consultancy services.

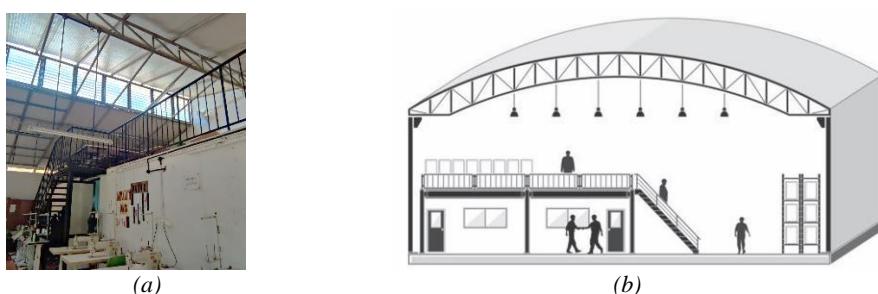


*Figure 36 : KSID Interiors (a) Digital Lab (KSID, 2018) (b) Media Lab (KSID, 2018)*

The core areas of focus within this domain include interaction design and communication design, which are supported by specialized facilities such as computer labs, media labs, and digital labs. These spaces provide students with the tools and resources needed to explore innovative approaches to communication and interaction, enabling them to develop solutions that are responsive to the needs of contemporary society.

### Mezzanine Floor

Mezzanine floors were observed as a crucial design method in the case study. The lower section served as storage rooms for the convenient handling of hand tools and heavy utilities, while the upper part was effectively utilized by raising the roof height, considering the entire structure was single-storied.



*Figure 37 : (a) Mezzanine floor in apparel atelier (Author) (b) Conceptual Section (Author)*

## Design Strategies

- Efficient overhanging designs in workshops guarantee consistent natural lighting throughout the year. Additionally, thoughtful placement of windows enhances daylight penetration, creating a well-lit and conducive working environment. Strategic use of skylights further contributes to optimal illumination in the workspace.

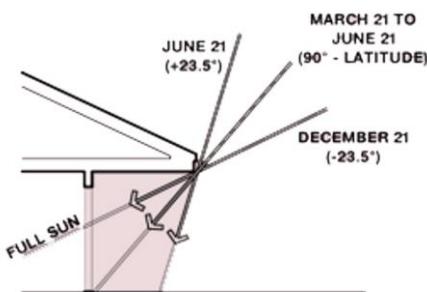


Figure 38 : Overhanging Design Strategy (Climate)

- Major workspaces feature a secondary, wide-opening entrance equipped with a roller shutter and ramp, facilitating the efficient movement of large-sized and bulk raw materials in and out of the area.

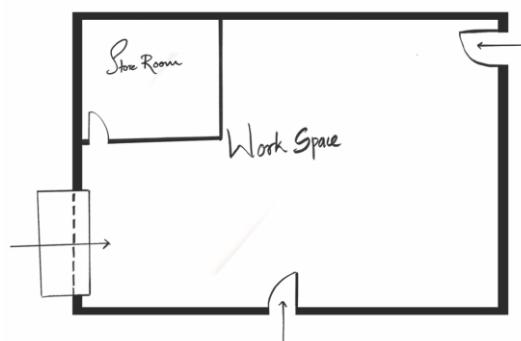


Figure 39 : Schematic Plan (Author)

## 5.3.Case Study 2: Super Fab Lab, Kochi, Kerala

### Live Case Study

#### Brief

A Fabrication Laboratory, or FabLab, serves as a dynamic prototyping space where individuals have the opportunity to design and create their own technological innovations. This FabLab is equipped with advanced digital fabrication equipment, including 3D printers, laser cutters, CNC routers, and more, enabling creators to bring their technological ideas to life. Supported by the Government of Kerala and in collaboration with MIT's Centre for Bits & Atoms, the Kerala Start-up Mission has established these labs within the Kerala Technology Innovation Zone in Kochi.



Figure 40 : Super Fab Lab Kochi (FabLab, .)

## Location

Super Fab Lab Kintra Hi-Tech Park Kalamassery, Kochi Kerala, India



Figure 41 : QR Code for Super Fab Lab Location (Author)

## Website



Figure 42 : QR Code for Fab Lab Kerala Website (Author)

## General Information

The Super Fab Lab, situated within the KINFRA Integrated Start-up Complex in Kochi, serves as a pioneering initiative in India's innovation landscape. Established in 2020, it stands as the country's first Fab Lab, fostering collaboration and creativity in the realms of fabrication and technology. Under the administration of the Super Fab Lab, coordination partners including the Kerala Start-up Mission, Fabrication Laboratory International, Massachusetts Institute of Technology, KINFRA, Government of Kerala, and Make in India collectively contribute to its operation and success. This collaborative effort aims to provide a dynamic platform for start-ups, entrepreneurs, and innovators to explore and develop cutting-edge solutions, leveraging state-of-the-art facilities and expertise.

## Current Occupancy

Category	Number of Individuals
Permanent Staff	7
Visiting Staffs	13
Incubation Members	31
Start-up Companies	6
Students	12
Other Staff	4

Table 6 : Current Occupancy of Super Fab Lab Kochi (Author)

## Floor Plan

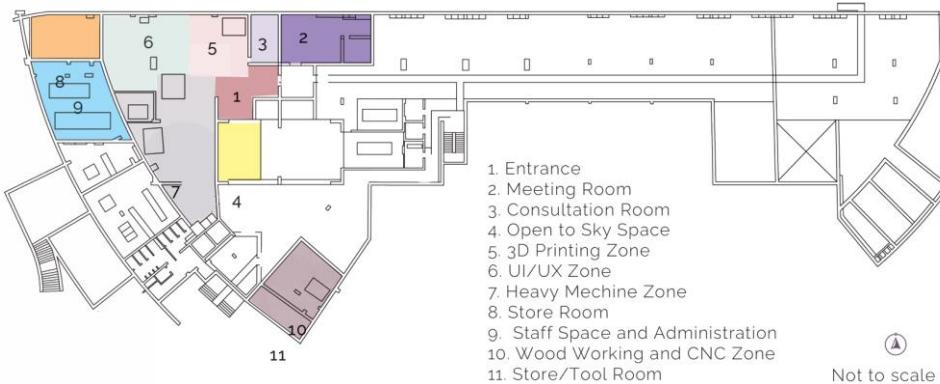


Figure 43 : Floor Plan of Super Fab Lab Kochi (Author)

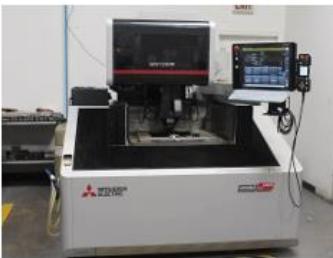
## Functions

The Super Fab Lab Kochi serves multiple functions, ranging from prototyping with materials like metal, wood, 3D printing, and plastic to hosting the Fab Academy, offering diploma courses and weekend programs. Acting as an incubation centre, it provides support for start-ups, offering promotional assistance and practical guidance. Workshops are conducted both in hands-on formats and online, catering to different learning preferences. Lectures are delivered through both offline and online modes, ensuring accessibility for a wider audience. Additionally, the facility serves as a hub for research and development activities, fostering innovation and technological advancement within its premises.

## Major Machineries

Various types of machinery are utilized within the facility to fulfill diverse functions. The table below provides a comprehensive study of each machine, including its specific area requirements:

 (a)	<b>Name</b> : Digital Flatbed Cutter <b>Model</b> : ZUND G3 L-2500 <b>Working Area</b> : 1800 mm x 2500 mm <b>Materials</b> : Card Board, Vinyl, Paper, Fabric, Glass Fiber, Acrylic, Aluminium etc. <b>Required File Format</b> : CAD Drawing
 (b)	<b>Name</b> : Water Jet Cutter <b>Model</b> : OMAX 5555 <b>Cutting Envelope</b> : 1400 mm x 1400 mm <b>Foorprint Area</b> : 3480 mm x 2670 mm <b>Speed</b> : 4572 mm/min <b>Accuracy</b> : +/- 0.0254 mm <b>Materials</b> : Metal, Marble, Granite, Aluminium, titanium, plastic, glass, ceramics etc.

	<p><b>Name</b> : EDM Wire Cutter  <b>Model</b> : Mitsubishi MV1200-S Advance Type M800  <b>Working Area</b> : 1800mm x 2500 mm  <b>Machine Travel</b> : 640mm x 450 mm  <b>Table Dimensions:</b> 400mm x 300mm x 220 mm  <b>Materials</b> : Conductive Metal, Polycrystalline, Carbides, Diamond etc.</p>
	<p><b>Name</b> : Laser Cutter  <b>Model</b> : Trotec Speedy 400 Flexx  <b>Working Area</b> : 1016mm x 610 mm  <b>Laser Type</b> : CO<sub>2</sub>, Fiber Laser  <b>Laser Power</b> : 10 Watts - 120 Watts  <b>Materials</b> : Acrylic, Glass, Wood, Plastics, Glass etc</p>
	<p><b>Name</b> : CNC Lathe  <b>Model</b> : Tormach 15L Slant PRO  <b>Machine footprint</b> : 1828 mm x 1070 mm  <b>Spindle Speed</b> : 100 to 3500 RPM  <b>Max Feed Rate</b> : 1520 mm/min  <b>Materials</b> : Aluminum, Titanium, Brass, Copper, Stainless steel, Plastic etc.</p>
	<p><b>Name</b> : Injection Molding Machine  <b>Model</b> : TY-7003  <b>Working Area</b> : 1200mm x 380 mm  <b>Max Injection Speed</b> : 10 mm/s  <b>Injection pressure</b> : 1900 bar  <b>Materials</b> : Thermoplastics like ABS, PP, PE, PS, PC etc</p>
	<p><b>Name</b> : 3D Printer  <b>Model</b> : Formlabs Form 3  <b>Technology</b> : Low Force Stereolithography  <b>Build Volume</b> : 145mm x 145mm x 185 mm  <b>Laser Power</b> : 250mW  <b>Materials</b> : Photo-polymer Resins( Clear, Tough, Castable, Flexible, Dental, Color resins etc)</p>

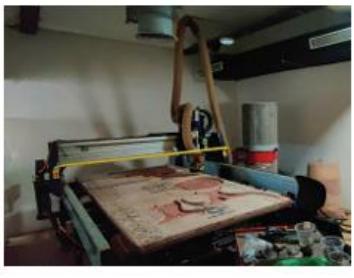
 (h)	<b>Name</b> : 3D Printer <b>Model</b> : Prusa i3 MK3S <b>Technology</b> : Fused Filament Fabrication (FFF) <b>Build Volume</b> : 250mm x 210mm x 200 mm <b>Print Speed</b> : 200 mm/s <b>Materials</b> : 1.75mm Dia Filaments( PLA, ABS, PETG etc)
 (i)	<b>Name</b> : 3D Printer <b>Model</b> : Sindoh 3DWOX 1 <b>Technology</b> : Fused Filament Fabrication (FFF) <b>Build Volume</b> : 200mm x 200mm x 195 mm <b>Print Speed</b> : 200 mm/s <b>Materials</b> : 1.75mm Dia Filaments( PLA, ABS, ASA, PETG etc)
 (j)	<b>Name</b> : CNC Router <b>Model</b> : Shopbot PRS Alpha <b>Mechine Volume</b> : 2440mm x 1210mm x 200 mm <b>Technology</b> : 3 axis CNC milling <b>Materials</b> : Foam board, wax, wood, MDF, soft materials etc. <b>File Type</b> : DXF, STL, GC, SBP

Table 7 : Major Machineries of Super Fab Lab Kochi (Author)  
 Figure 44 : (a) -(j) Major Machineries of Super Fab Lab Kochi (Author)

### Types of Prototyping

The Super Fab Lab in Kochi primarily focuses on prototyping, serving as a hub for innovation and product development. Within its facilities, three distinct types of prototyping methods are utilized to bring ideas to life.

- Subtraction
- Addition
- Auxiliary

Subtraction prototyping involves precision cutting machines that carve out intricate shapes and designs from raw materials. Addition prototyping, on the other hand, harnesses the power of 3D printers to construct objects layer by layer, based on digital designs. Additionally, auxiliary prototyping is facilitated through the integration of user interface (UI), and user experience (UX) elements, emphasizing the design and functionality aspects of the product.

## 5.4. Case Study 3: Kudumbashree Apparel Park, Nedumpana, Kollam, Kerala

### Live Case Study

#### Brief

The Apparel Park in Nedumpana, Kollam district, is a government-backed initiative for women's empowerment under the Kudumbashree Mission. Specializing in manufacturing readymade garments, kids' wear, uniforms, and textile carpets, the cluster centre supports approximately 50 skilled entrepreneurs. Equipped with modern automatic electric sewing, cutting, and packing machinery, the facility also offers entrepreneurship and skill development workshops in collaboration with SIRD Kottiyam, KINFRA Thiruvananthapuram, ISHA Learning Systems Pvt. Ltd. Bangalore, and local sewing machine operators.



Figure 45 : (a)-(c) Kudumbashree Apparel Park, Nedumpana, Kollam, Kerala (Author)

#### Location

Apparel Block Nedumpana Kollam Kerala, India



Figure 46 : QR Code for Kudumbashree Apparel Park Location (Author)

#### Website



Figure 47 : QR Code for Kudumbashree Website (Author)

#### General Information

The Kudumbashree Apparel Park in Nedumpana, Kollam, Kerala, is administered by the Nedumpana Kudumashree Wing 1, in collaboration with various coordination partners including the Nedumpana Grama Panchayath, Ithikkara Block Panchayath, Kollam District Panchayath, Directorate of Industries & Commerce Department, and Kerala Kudumbashree. Established in 2010, the park occupies a site area of 600 square meters and operates under the clothing brand NAP STAR. Among its major clients are the Kochi Metro, Cochin Shipyard, Directorate of Kerala State Lotteries, Women & Child Development Department of Kerala (Anganwadis), Civil Supplies Department of Kerala, and other Kudumbashree units.

## Current Occupancy

Category	Number of Individuals
In-house workers	42
Out-Sourcing workers	750
Sewing machine	35
Button Hole Machine	6
Heavy Duty Sewing Machine	2
Straight knife Cutting Machine	3
Ironing Units	2

Table 8 : Current Occupancy of Kudumbashree Apparel Park, Nedumpana (Author)

## Staff Allocation

The staff allocation at the facility primarily consists of three categories. In the government sector, there are administrative staff members responsible for various administrative tasks. The local community also plays a significant role, contributing administrative staff members who are familiar with the needs and dynamics of the community. This includes in-house staff, daily wage workers, and outsourcing workers who are hired on a contractual basis. Additionally, the private sector contributes staff members such as training staff, marketing staff, and technical assistants, who bring specialized skills and expertise to support the facility's operations and objectives.

## Working Pattern

The Kudumbashree Apparel Park in Nedumpana is a model of collaborative effort, where the government sector provides financial support and infrastructure, fostering an environment conducive to efficient production. At the heart of the park's operations is the local community workforce, which manages both in-house production and outsourced tasks. This symbiotic relationship is further strengthened by a training program that enhances skills to meet the private sector's demand. The park's output is directed towards regular clients and various government departments, with a focus on expanding sales through export and branding initiatives. The comprehensive marketing strategy ensures the park's presence in the competitive global market, making it a cornerstone of the local economy and a beacon of the community's craftsmanship.

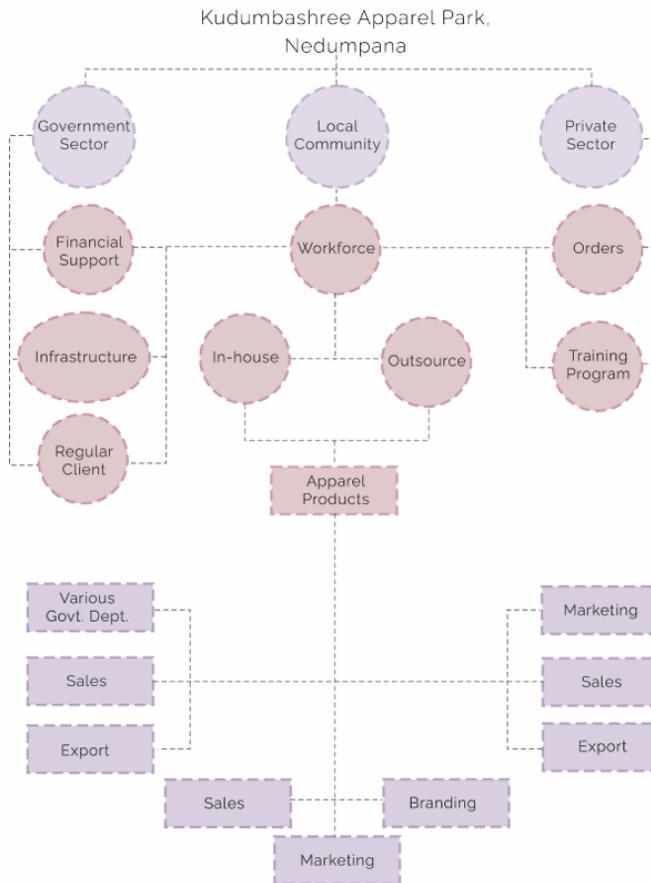


Figure 48 : Working Pattern of Kudumbashree Apparel Park, Nedumpana (Author)

### Inference

- Empowering women through entrepreneurial opportunities not only boosts employment, particularly in community but also elevates the overall standard of living.
- Providing training facilities to every worker within the unit contributes to the production of higher-quality products.
- Future challenges involve securing financial support for the expansion of the unit.
- Discovering innovative ideas and exploring alternative marketing sources is crucial for the entrepreneurial development and growth of a start-ups

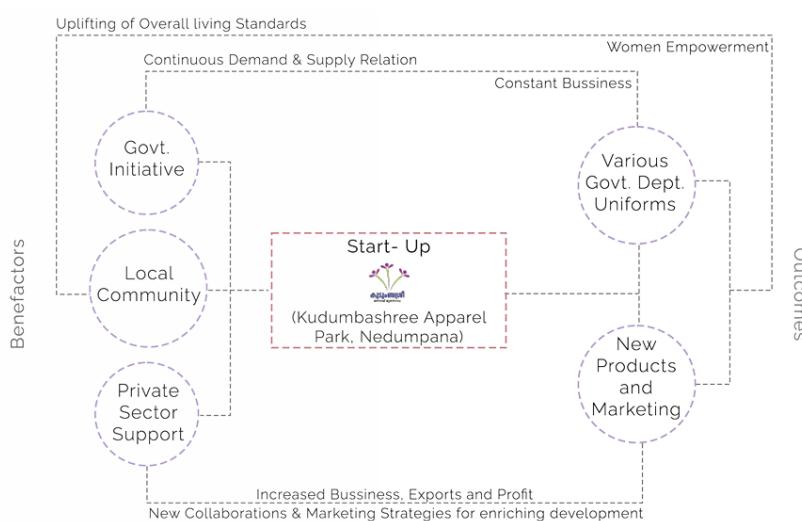


Figure 49 : Inference Flowchart of Kudumbashree Apparel Park, Nedumpana (Author)

## 5.5. Case Study 4: Karnataka Silk Industry Corporation (KSIC), Mysore, Karnataka

### Live Case Study

#### Brief

The Karnataka Silk Industry Corporation (KSIC) operates a comprehensive silk weaving facility and a retail outlet located on Mananthavady Road in Mysore, a prime example of large-scale silk production in India. KSIC stands unique as the only entity in the nation that manages the full spectrum of silk production activities under one roof—from cocoon reeling to the crafting of pure silk fabrics in various colors and patterns. Committed to quality, KSIC exclusively uses premium natural silk and 100% pure gold zari in its products. The corporation's product line includes silk sarees, salwar kameez, shirts, kurtas, silk dhotis, and men's ties, all celebrated for their high quality and craftsmanship.



Figure 50 : (a) - (f) KSIC (Author)

#### Location

Silk Weaving Factory Manandavadi Road Mysuru Karnataka, India



Scan for Location

Figure 51 : QR Code for KSIC Location (Author)

#### Website



Figure 52 : QR Code for KSIC Website (Author)

## General Information

The Karnataka Silk Industries Corporation (KSIC), established in 1912, is a testament to the rich silk heritage of Karnataka. Administered by a consortium that includes the Mysore State Sericulture Department, Department of Horticulture, and Department of Textiles & Handlooms, KSIC is synonymous with the luxurious “Mysore Silk” brand, which proudly holds the GI registration number GI-11. The corporation’s commitment to excellence is reflected in its receipt of the Chief Minister’s Ratna Award for 2016-17 for outstanding product marketing. With an impressive average production of 6,000 sarees per year, KSIC stands as a beacon of traditional craftsmanship, blending time-honoured methods with modern marketing strategies to uphold the legacy of Mysore Silk on the global stage.

## Current Occupancy

Category	Number of Individuals
Total Employees	845
Executive Staffs	9
Middle Level Executive Staffs	17
Other Office Staffs	212
Workers	607

Table 9 : Current Occupancy of KSIC (Author)

## Machinery Details

Category	Number of Units
Looms	159
Twisting	4
Re-Winding	4
Prin Windings	12
Prins	6
Cone Windings	12
Semi-Automatic Wrapping	34 Sections (438 bobbins each)
Roller	5 Sections (9 Protrusions)
Degumming	4 Tanks
Contrast Colouring Clamps	1
Packaging Unit	1

Table 10 : Machinery Details of KSIC (Author)

Various other machineries complement the operations at the facility, each serving specific purposes in the production and processing of materials. These include boiler aluminium tubs and plastic containers for heating and storing materials, boilers and GI pipes for steam generation and distribution, as well as water containers, tanks, and barrels for water storage. Additionally, rubber rollers and vacuum heat

containers aid in the processing of materials, while double winders and single winders facilitate the winding of textiles. The facility also houses specialized equipment such as jacquard looms and dobby looms for intricate weaving patterns, winches for lifting heavy loads, and clip Stentering machines for stretching and finishing textiles. Together, these machineries form a comprehensive infrastructure that supports various manufacturing and production processes.

## Work Process

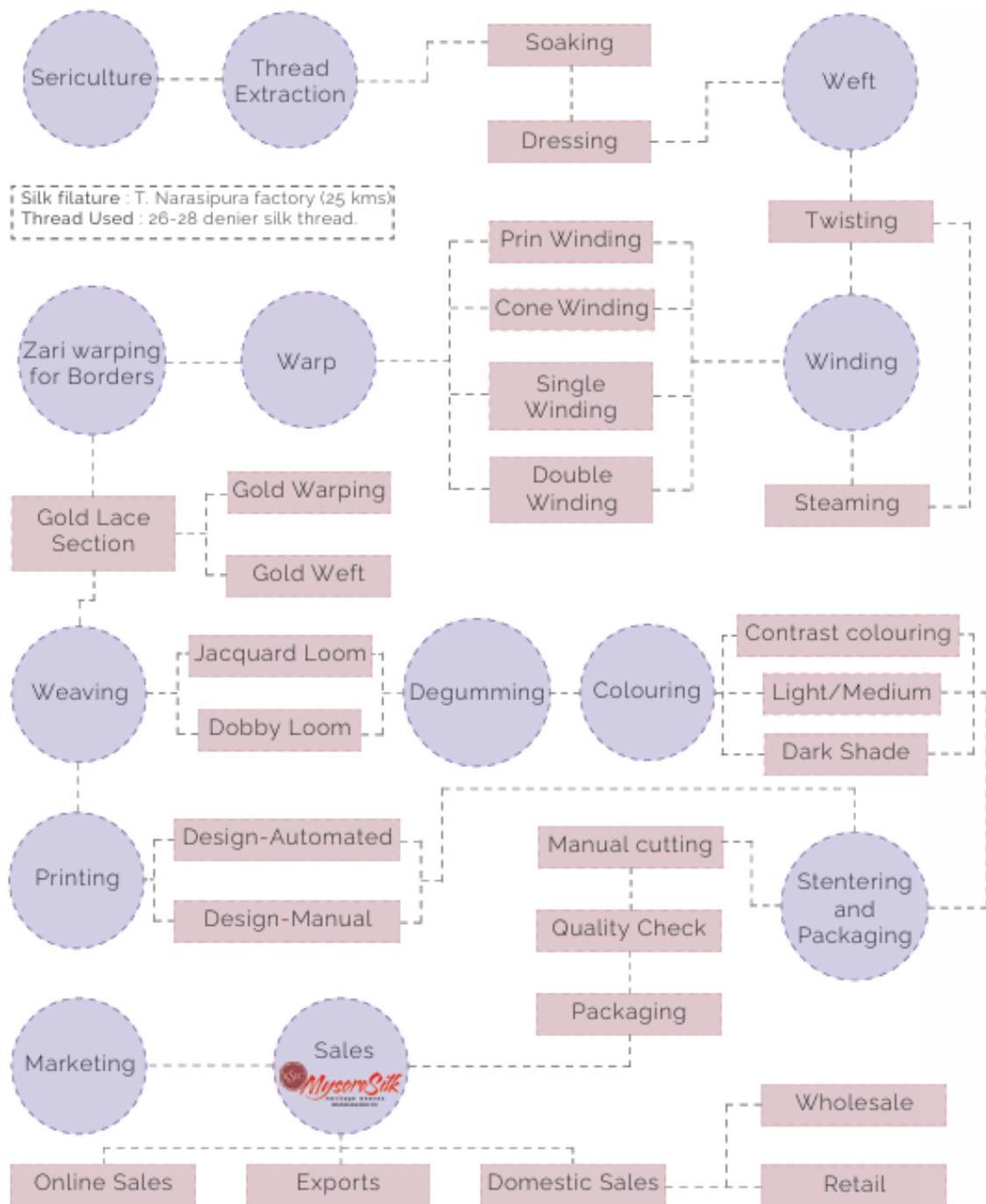


Figure 53 : Work Process Flowchart of KSIC (Author)

## 5.6. Case Study 5: Station F, Paris, France

### Literature Case Study

#### Brief

Station F, an adaptive reuse venture by Wilmotte and Associates, converted an erstwhile transhipment hub for trucks and trains into the world's largest technology incubator. Situated in the urban renewal zone of the Paris Rive Gauche Mixed Development Area, this impressive structure in prestressed reinforced concrete utilizes an innovative technique, ensuring an exceptionally slender load-bearing structure, some areas measuring less than 5 cm thick at the roof ridge. Station F is divided into three distinct zones: the 'Share Zone' - forum for digital interaction, the central 'Create Zone' - zone dedicated to start-up workspaces, and the 'Chill Zone' - area housing a 3,500 m<sup>2</sup> restaurant.



Figure 54 : (a) - (c) Station F, Paris (Station F, .)

#### Location

Station F Parvis Alan Turing Paris France

Located in the old train freight terminal known as la Halle Freyssinet.

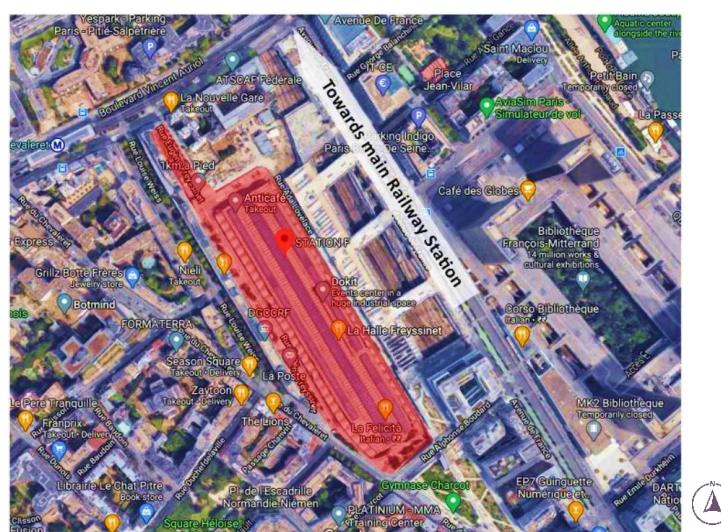


Figure 55 : Site Location Map of Station F (Author)



Figure 56 : QR Code for Station F Location (Author)

## Website

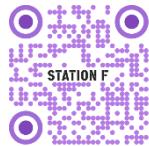


Figure 57 : QR Code for Station F Website (Author)

## General Information

Station F in Paris, established in 2018 and designed by Wilmotte & Associates, stands as a beacon of innovation under the ownership of Xavier Niel. Directed by Roxanne Varza, this entrepreneurial haven spans 21000 m<sup>2</sup> with a built-up area of 34000 m<sup>2</sup>, and its dimensions are a striking 310m x 58m x 9m. It is equipped to host up to 1000 start-ups and can accommodate around 9,000 people, making it one of the largest start-up campuses in the world. The facility includes over 3000 start-up workstations, a 1370-seat auditorium, eight event spaces, and two cafes-bars, creating a vibrant ecosystem for start-ups to thrive, network, and innovate.

## Spaces

Station F at its core are state-of-the-art labs where groundbreaking ideas come to life, alongside offices and administration spaces that support the daily operations of the entrepreneurial community. The campus features an impressive auditorium for hosting events and gatherings, as well as versatile multi-purpose spaces that adapt to various needs. Crossing public walkways encourage serendipitous encounters and connections, while co-working spaces and shared meeting rooms provide opportunities for collaboration and networking. Within Station F, you'll find classrooms for learning and skill development, as well as a bustling central mall where occupants can socialize and unwind. The campus also boasts unique amenities like a wagon restaurant and kitchen serving up delicious fare, all set against the backdrop of a beautifully landscaped forecourt, offering a tranquil outdoor retreat amidst the hustle and bustle of entrepreneurial activity.

## Connectivity



Figure 58 :Station F Connectivity Map (ArchDaily)

The facility, having served as a previous transport hub, exhibits robust connectivity to both rail and road transportation. The map also reveals the urban insertion pattern of the building

## Climate

Paris has a cool and humid climate, with some months being extremely humid and others being comfortably humid. April has the lowest relative humidity (50.8%), while November has the highest (76.6%). The wind in Paris is normally calm. The windiest month is March, followed by December and February.



## Concept

Wilmette & Associés designed the building's transformation, considering both the evolving neighborhood and the outdoor spaces. Inside and outside, the floor coverings match, creating continuity between the esplanade and tiered garden. Pedestrian-focused side roads, lined with shops, aim to attract locals and foster interactions with the 3,000 young startup workers at the digital incubator, seamlessly integrating Station F into the urban fabric. Additionally, two covered urban passages serve as digital showcases for innovations, connecting districts separated by railway lines and breaking the building's isolation. These passages also divide the building into three parts—Share, Create, and Chill—each with its own distinct identity.

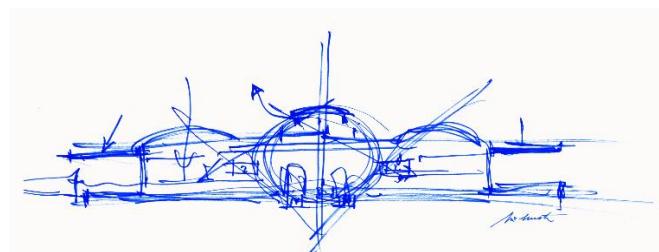


Figure 59 : Conceptual Diagram of Station F ( Wilmette & Associates)

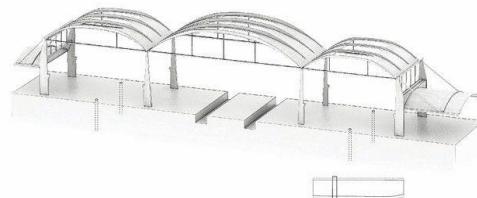


Figure 60 : Conceptual Model of Station F ( Wilmette & Associates)



Figure 61 : Conceptual Plan of Station F (ArchDaily)

## Functional Analysis

Station F's functional layout is a testament to its commitment to fostering innovation and collaboration. Dominating the space is the FabLab, which occupies a substantial 42% of the facility, providing start-ups with the tools and technology needed to prototype and develop their ideas. Co-working Spaces make up another 20%, offering flexible work areas that encourage networking and co-creation. Villages (services) and Meeting Rooms each claim 10% of the space, facilitating specialized services and private discussions. The Auditorium and Multipurpose Spaces, each at 4%, are designed for larger gatherings and diverse events. Offices & Administration take a modest 2.5%, ensuring the smooth operation of the hub, while Crossing passages and Restaurants account for 2% and 1.5% respectively, blending transit and leisure. Lastly, Circulation & Other elements occupy the remaining 0.6%, rounding out the ecosystem of this entrepreneurial microcosm.

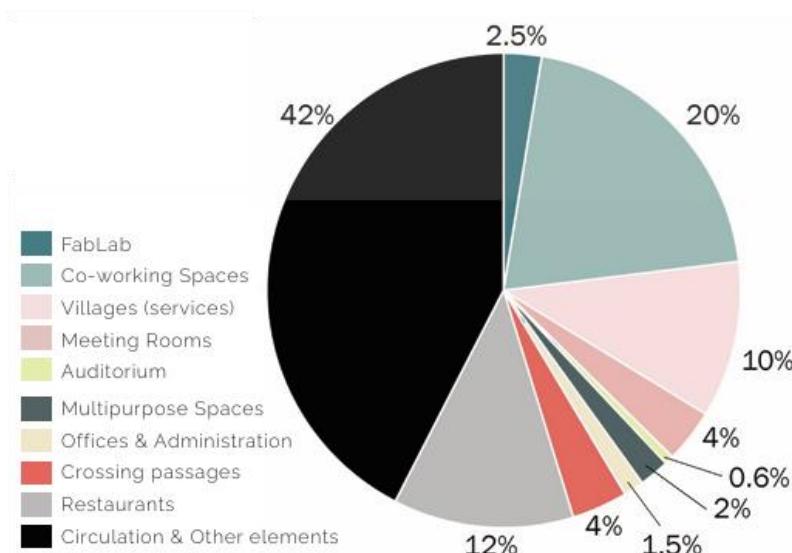


Figure 62 : Functional Analysis Diagram of Station F (Author)

## Building Components

The building's principal structure consists of three parallel naves with slender pre-stressed concrete arches, some thinner than 5cm along the roofline, and overhangs draped over the sides as counterweights, which contribute to its structural finesse. Wilmotte & Associés' refurbishment plan focuses on simplicity and effectiveness, eliminating excess decoration to highlight the structure's elegance and refined proportions. New window frames made of flat iron complement the original style while creating a comfortable environment. Retaining many original elements, including the pre-stressed concrete structure and repurposed shipping containers as meeting rooms, maintains the building's industrial authenticity. Inside, the central space under a vast barrel vault features a large skylight, with individual start-up boxes along either side, separate from the original walls. Glass-fronted rooms on the ground and first floors overlook the shared central space, while the top floor houses cantilevered container boxes reminiscent of the depot's original purpose. The result is a light, open space with an authentic industrial ambiance, honouring the building's history while catering to modern needs.

## Plans

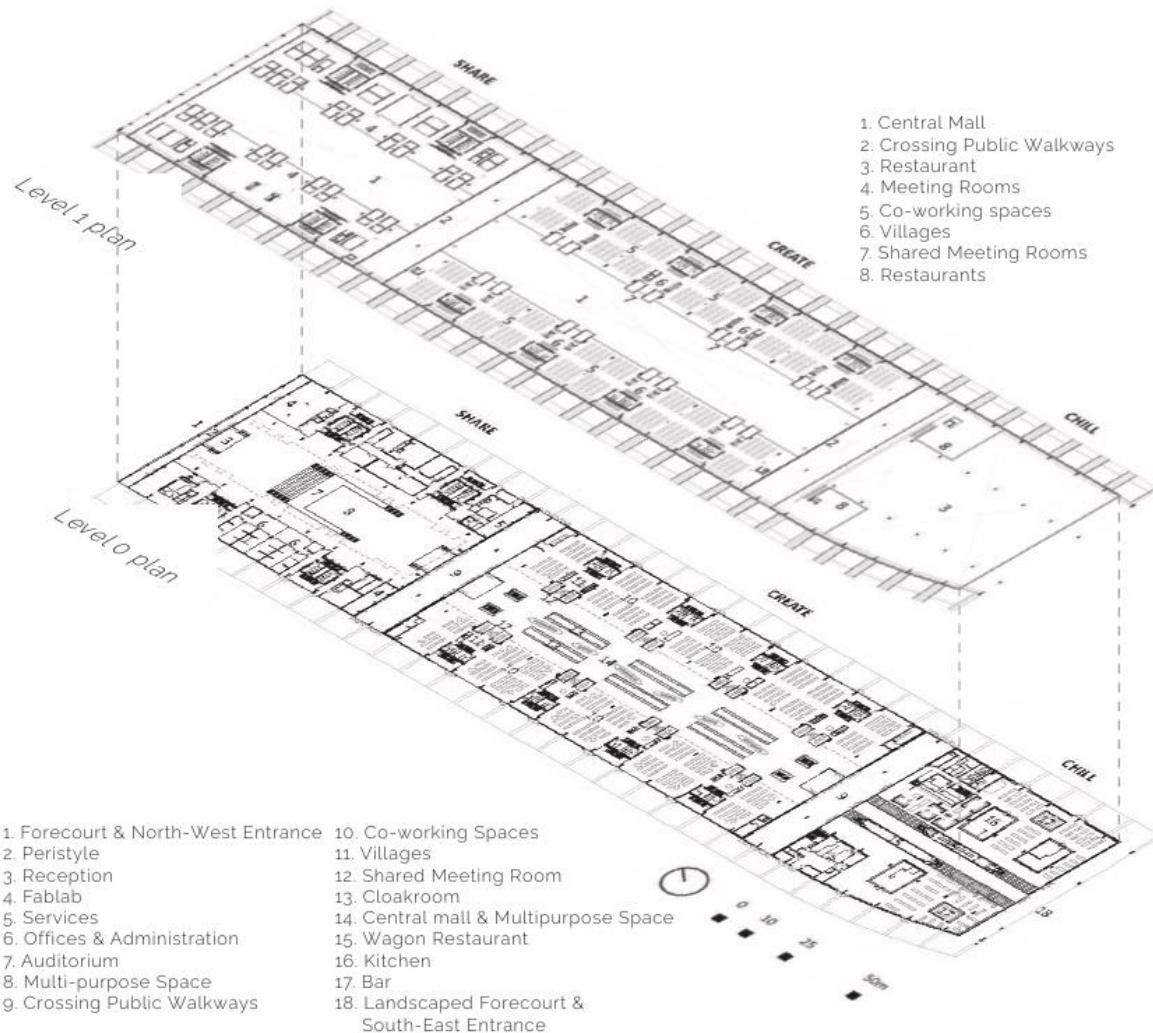


Figure 63 : Station F -Floor Plans (ArchDaily) (Author)

## Workplace Design

In the Create Zone, each facility's core comes equipped with a kitchen pantry, Skype box, and meeting rooms, ensuring easy accessibility from all directions

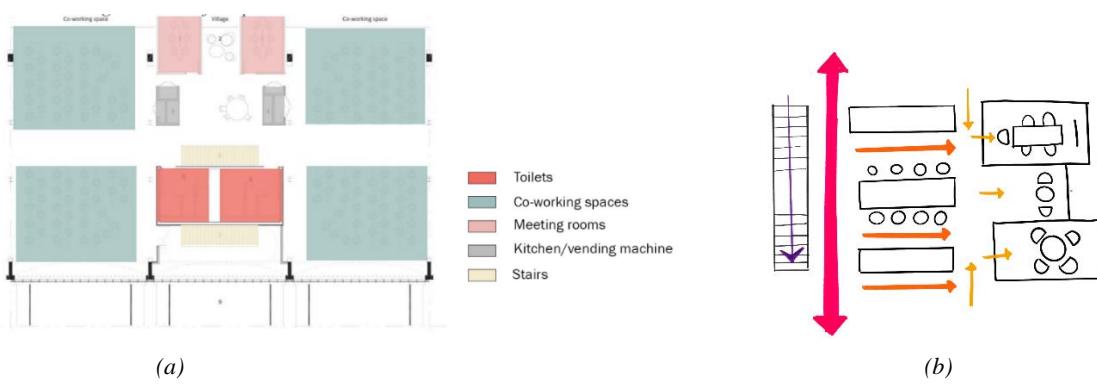


Figure 64 : (a) Typical Village Plan (ArchDaily) (b) Conceptual Analysis (Author)

## Building Composition

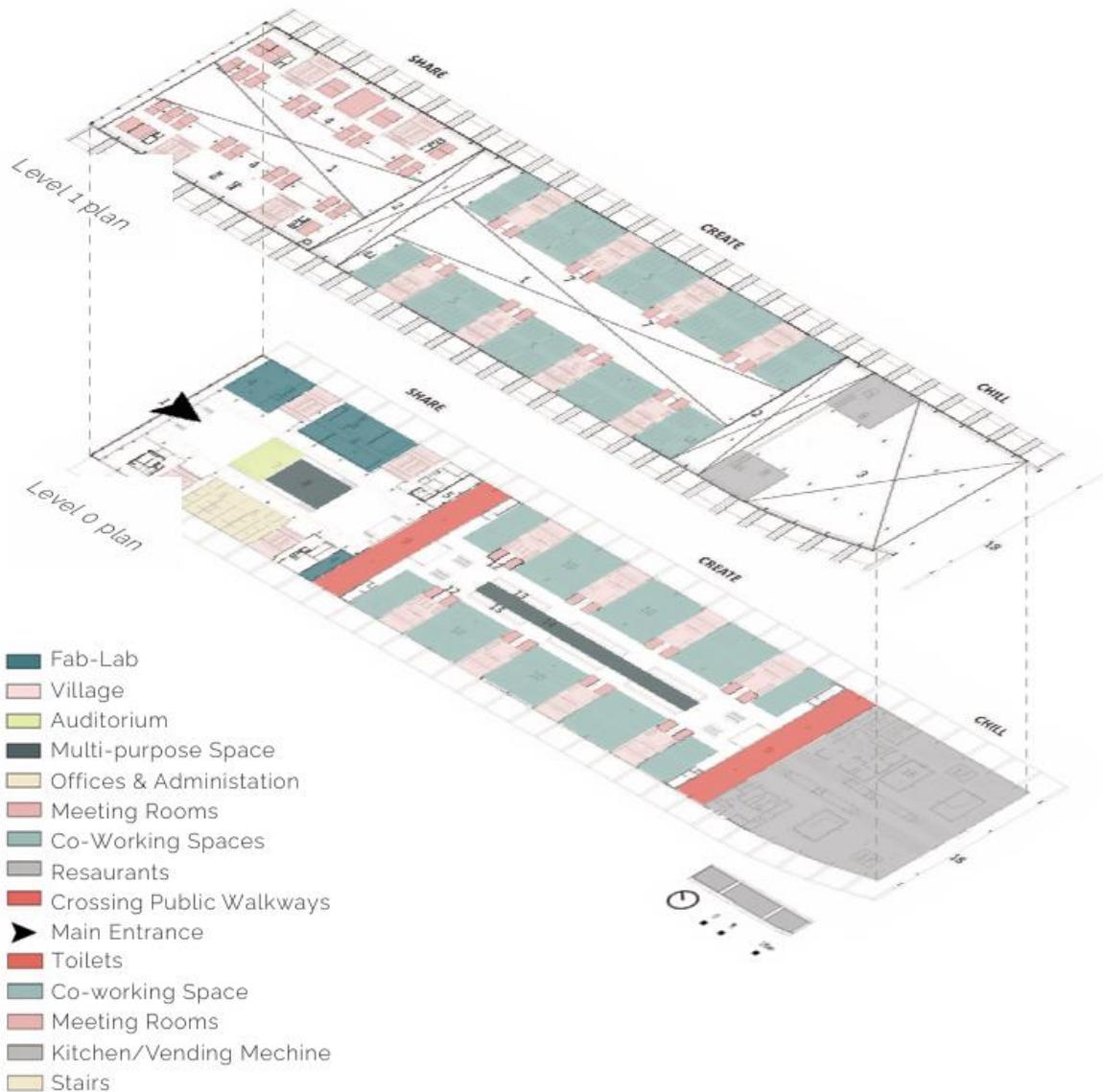


Figure 65 : Station F - Building Composition Plan (ArchDaily)

## Accessibility

Integrated into the urban environment, Station F in Paris features two transverse covered urban passages, serving as digital windows displays to showcase new digital innovations. These passageways aim to strengthen the urban link between two districts separated by railway lines, breaking the building's isolation.

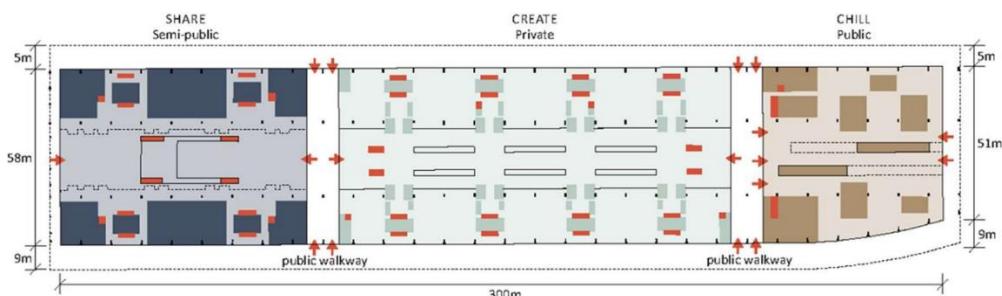


Figure 66 : Station F - Floor Plan

## Zoning

Station F is divided into three distinct zones, each serving specific primary functions within the area:

- Share
- Create
- Chill.



Figure 67 : Vertical Division (a) Conceptual Diagram( Wilmette & Associates) (b) Overlay on Build Structure (Author)

The facility consists of a shared zone, encouraging public engagement and conversations, while the chill zone at the building's end promotes public integration with a 24-hour accessible restaurant. The core, Create Zone, accommodates over 3000 co-workers, organized into three vertical sections with pre-stressed concrete arches in the central hub. Each zone is further divided into three vertical sections based on three parallel naves, with the central nave dedicated to activities requiring a higher level of collaboration

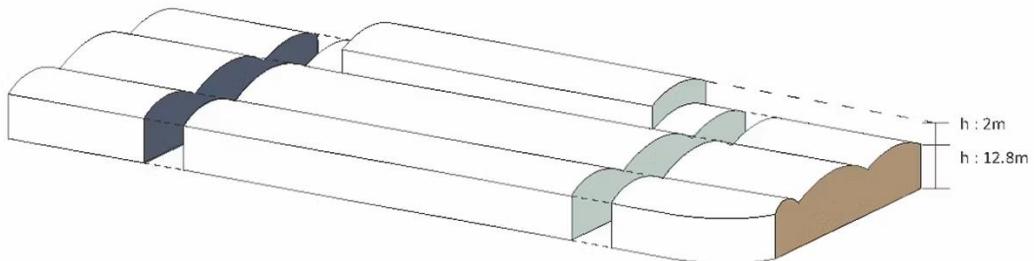
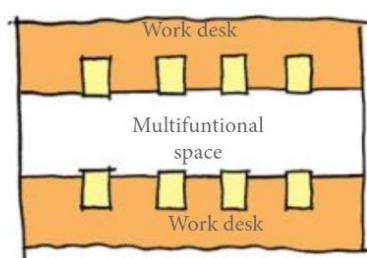


Figure 68 : Isometric View of Zone Division (ArchDaily)

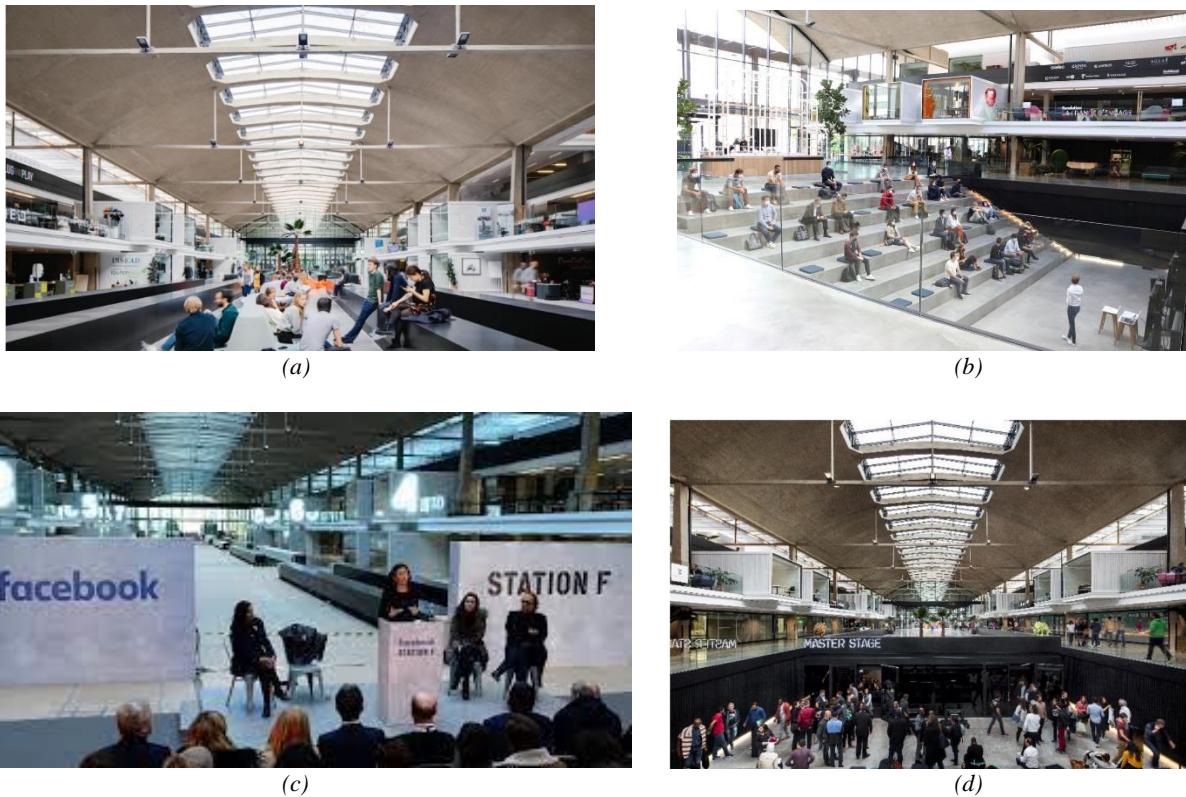
The building is vertically segmented by function, with the central stretch dedicated to multipurpose activities, while the lateral sections emphasize the building's operational cores, focusing on workspaces.

The central multi-functional nave is a community space suitable for smaller events. The side naves function as homes for all start-ups, highlighted in orange. These open plan workspaces are subdivided into 4 villages and are supported by 4 bundles of facilities, highlighted in yellow



*Figure 69 : Conceptual Plan of Multifunctional Space (Author)*

**Share Zone:** The Share Zone, extending from the expansive paved esplanade, serves as a forum for meetings, digital skill-sharing, and technology collaboration. It incorporates a “Fab Lab” equipped with freely accessible 3D printers, a 370-seat auditorium, and meeting rooms for interactions between young digital entrepreneurs and external partners like lawyers, bankers, investors, and advisors. The zone facilitates events, social activities, and features a brainstorming room, a co-working coffee shop, and an innovation space-all open to the public. The Share Zone at Station F fosters the highest level of interaction and collaboration.



*Figure 70 : (a)-(d) Station F Share Zones (Station F, .)*

**Create Zone:** The Create Zone, positioned at the building’s core, is tailored for start-up workspaces. It encompasses a multifunctional and communal central nave, with the adjacent naves housing the start-ups operational needs across 24 “villages” (eight per level). Each village offers distinct services such as kitchens, Skype boxes, and meeting rooms. The shared workspaces are designed as open-plan areas, featuring modular and connected tables for flexibility and collaboration



(a)

Figure 71 : (a) and (b) Station F - Create Zones (Station F, .)

(b)

- 1. Cloakroom
- 2. Central mail & Multi-purpose space
- 3. Shared Meeting Rooms
- 4. Kitchen
- 5. Co-working Spaces
- 6. Toilets
- 7. Services
- 8. Service Gallery

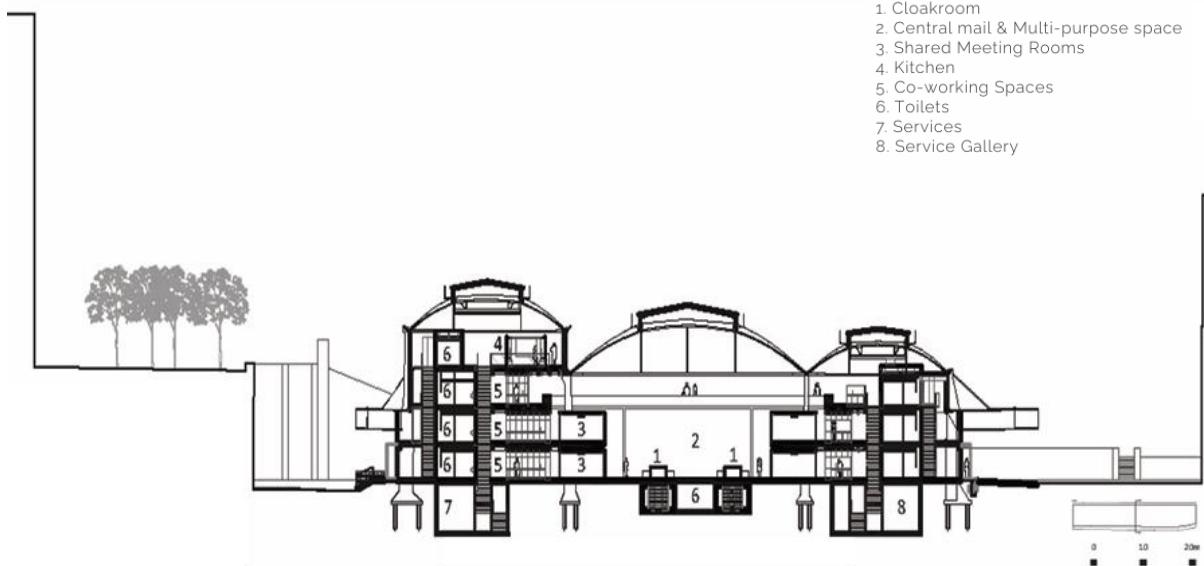


Figure 72 : Cross Section of Create Zone (ArchDaily)

On the first floor, entrepreneurs have access to temporary workstations and meeting rooms for interactions with external partners and clients. Additionally, a smaller event space, known as the junior stage, equipped with powerful tools, facilitates demo pitches for start-ups. Adjacent to this stage, a game area featuring a soccer table engages both co-workers and guests.

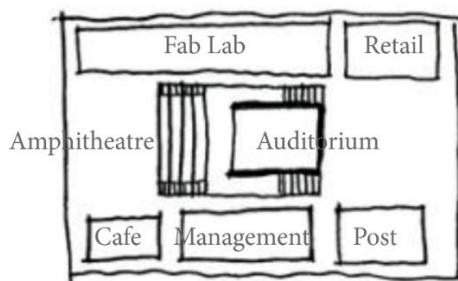


Figure 73 : Conceptual Arrangement of Create Zone (Author)

Often, these expansive event spaces remain vacant, offering flexibility for transformation to accommodate both daytime and night-time events involving the public and external partners



Figure 74 : Conceptual Section of Create Zone (Author)

**Chill Zone:** The Chill Zone is a relaxation space featuring a 24-hour multifunctional restaurant and a south-facing gallery with views of a multi-level garden. Open to both outsiders and Station F workers, this area connects to the neighbourhood through a south-facing terrace overlooking a tiered garden.



Figure 75 : Station F- Chill Zone (Station F, .)

### Visual Connectivity And Natural Lighting

The central vista ensures visual connectivity, accessible through a offset layered floor pattern. Transparent roof areas strategically allow sunlight to permeate, enhancing both visual connectivity and natural light in the building

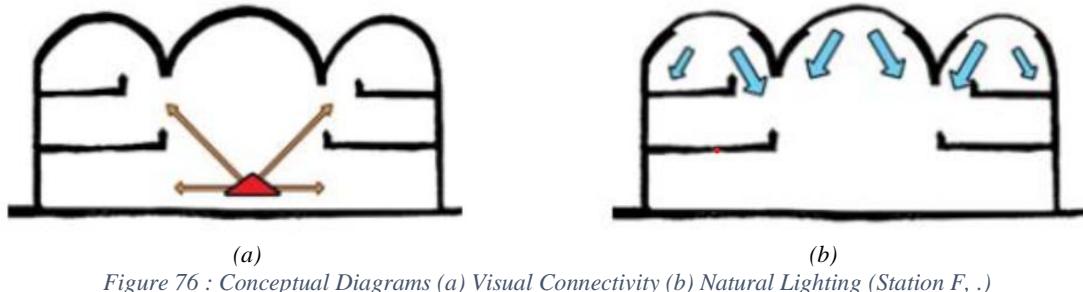


Figure 76 : Conceptual Diagrams (a) Visual Connectivity (b) Natural Lighting (Station F, .)

### Circulation

The extended, rectangular layout promotes straightforward navigation for start-ups. A central corridor acts as the main thoroughfare, connecting all areas within this zone, with staircases positioned behind each cluster of facilities. In this open floor plan, secondary pathways interlink all staircases, facility pods, and workstations, ensuring cohesive movement throughout the space.

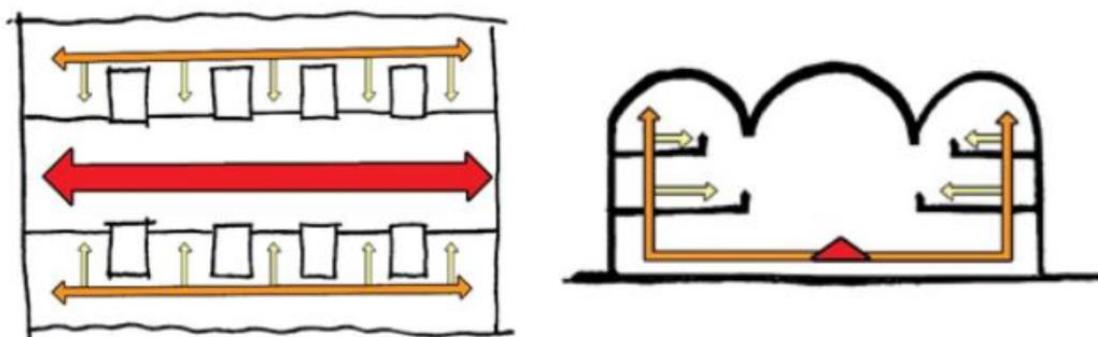


Figure 77 : Conceptual Diagrams of Circulation in Plan and Section (Station F, .)

# CHAPTER 6 DESIGN CONCEPTION AND PROPOSAL

## 6.1. Area Programming

S.NO.	SPACE	STANDARDS	CASE STUDY	PROPOSED AREA	UNIT	Length	Width	FINAL
		Sq. M	Sq. M	Sq. M	Sq. M	Sq. M	Sq. M	Sq. M
<b>I Basement Floor</b>								
1	E Scooter	0.1 ECU	-	1	16	1.5	2	48
2	2 Wheeler	0.2 ECU	20 ECU	1	100	1.5	2.8	420
3	4 Wheeler	1 ECU	25 ECU	2	60	3.5	5.5	1155
<b>II Ground Floor</b>								
1	Store Room	19	16	20	1	7.5	7	52.5
2	Ramp	-	-	-	1	5.6	6.2	34.72
3	Ramp	-	-	-	1	1	10	10
4	Wood working	-	-	-	1	16	19	304
5	Community Lounge	45	17	40	1	10.5	19	199.5
6	Discussion Room	-	-	-	1	16	15.5	248
7	Entertainment Room	-	-	-	1	12	7	84
8	Toilet	20	15	7.5	4	4	3.5	56
9	Service	-	-	10	1	5	5	25
10	Lift	-	-	-	1	2	2	4
11	Material Storage	-	-	-	1	11	10	110
12	Material Store	-	-	-	1	11	6	66
13	Storage Space	19	20	25	1	11	11	121
14	Loading/Unloading	-	-	-	1	10.5	11	115.5
15	Store and Purchase Of	-	-	-	1	6	11	66
16	Store Room	19	16	20	1	4.5	4	18
17	House Keeping Storage	5	7	10	1	4.5	4	18
18	Tool Storage	19	-	10	1	5	8	40
19	Corridor	-	-	-	1	11.5	3	34.5
20	Toilet	9.2	7	10	1	3	2.5	7.5
21	Tool Maintenance	-	-	-	1	5	4	20
22	Tool Cleaning	-	-	-	1	5	4	20
23	Office	-	15	20	1	5	6	30
24	Tool Store	40	45	175	1	5.5	11	60.5
25	Toilet	20	15	7.5	1	3	3	9
26	Lift	-	-	-	1	2.5	2.5	6.25
27	Surface Parking	-	-	-	15	3.5	6.5	341.25
28	Store Room	19	20	25	2	8	4	64
29	Display Area	-	-	100	6	5	3	90
30	Heavy Machinery	-	457	450	1	20.5	18	369
31	Loading/Unloading	-	-	-	1	10	11	110
32	Storage Space	19	-	15	1	10	10	100
33	Wash Area	-	-	-	1	3.5	4	14
34	Toilet	20	-	7.5	1	3	5	15
35	Lift	-	-	-	1	2.5	2.5	6.25
36	Work Station	40	45	175	1	20.5	15	307.5
37	Toilet	20	7	10	2	3.5	7	49
38	Display Area	-	-	100	1	3	3	9
39	Display Area	-	-	100	1	3.5	7	24.5
40	3D Printing Lab	-	-	-	1	14	7	98
41	Outdoor Seating	-	-	-	1	10	21	210
42	Store Room	19	20	25	2	4	5	40
43	Kitchen	-	-	-	1	8	5	40
44	House Keeping Storage	15	7	10	1	3	3.5	10.5
45	3D Designing	-	-	-	1	11	7	77
46	Canteen	-	-	-	1	11	10.5	115.5
47	Toilet	20	7	10	2	7	3.5	49
48	Workshop Space	40	45	175	1	15	13.5	202.5
49	Training Room	-	-	125	1	11	13.5	148.5
50	Server Room	45	9	25	1	5	3.5	17.5
51	Store Room	19	20	25	1	5	3.5	17.5
52	Display Area	-	-	100	1	5.5	3.5	19.25
53	Store Room	19	20	25	2	5	3.5	35
54	Display Area	-	-	100	6	10	3.5	210
55	Commercial Space	-	-	-	1	22	18	396
56	Furniture Store	-	-	-	1	22	10.5	231
57	Fashion Store	-	-	-	1	21.5	11	236.5
58	Display Area	-	-	100	2	10.5	3.5	73.5
59	Seating Space	-	-	-	1	7	7	49
60	Kitchen	-	-	-	1	7	10.5	73.5
61	Cafeteria	75	-	120	1	3	7	21
62	Seating Space	-	-	-	1	7	7	49

S.NO.	SPACE	STANDARDS	CASE STUDY	PROPOSED AREA	UNIT	Length	Width	FINAL
		Sq. M	Sq. M	Sq. M	Sq. M	Sq. M	Sq. M	Sq. M
63	Waiting Lobby	45	25	25	1	4	7.5	30
64	Store Room	19	20	25	1	4	3.5	14
65	Toilet	20	7	10	1	7	3.5	24.5
67	Admin Office	10	25	20	1	4	11	44
68	Reception	13.4(6 Seat)	32	30	1	4	9.5	38
69	Surveillance Room	-	-	15	1	7	4	28
70	Security Office	-	-	-	1	7	6	42
71	Book Store	2.5/person	110	125	1	4.5	5.5	24.75
72	E - Readers Self District	-	-	-	1	5.5	4	22
73	Reception	13.4(6 Seat)	32	30	1	4.5	7	31.5
74	Store Room	19	-	15	1	6.5	3.5	22.75
75	Stair Seating	-	-	-	1	5.5	2.5	13.75
76	Server Room	45	9	25	1	6	5.5	33
77	E- Readers	-	-	-	1	3.5	3.5	12.25
78	Library Shelf Space	-	-	-	1	21	10	210
79	Lobby	-	-	-	1	5.5	10	55
80	Lift	-	-	-	1	5	5	25
<b>III First Floor</b>								
1	Fabric Winding	-	-	200	1	11	16	176
2	Balcony	-	-	-	1	11	5.5	60.5
3	Drying Area	-	-	-	1	20.5	5	102.5
4	Fabric Testing	-	-	200	1	4.5	10.5	47.25
5	Washing Area	-	-	-	1	5	4	20
6	Toilet	20	-	7.5	2	3	3	18
7	Office	10	25	20	1	10	4	40
8	Weaving Room	-	-	-	1	11	10.5	115.5
9	Work Space	-	-	-	1	18	11	198
10	Lift	-	-	-	1	2	2	4
11	Toilet	20	-	7.5	4	4	3.5	56
12	Store Room	19	-	15	1	7	4.5	31.5
13	Lift	-	-	-	1	2.5	2.5	6.25
14	VR Library	-	-	-	1	10.6	10	106
15	Hologram Room	-	-	-	1	17.5	20	350
16	Weft Area	-	-	-	1	11	12.5	137.5
17	Fashion Design Lab	-	-	120	1	16	7	112
18	Fashion Apparel Lab	-	-	350	1	16	7	112
19	General Stitching	-	-	200	1	13	12	156
20	Stair Seating	-	-	-	1	5.5	6	33
21	Drying Space	-	-	-	1	13	7	91
22	Ironing Room	-	-	-	1	10.5	7	73.5
23	R&D Lab Fashion	31/module	-	450	1	15.5	11	170.5
24	Lift	-	-	-	1	2.5	2.5	6.25
25	Wash Area	-	-	-	1	3.5	4	14
26	Toilet	20	-	7.5	1	3	5	15
27	Store Room	19	5	10	1	7	9	63
28	Furniture Design Lab	-	-	-	1	11	10.5	115.5
29	Product Design Lab	-	-	250	1	11	10.5	115.5
30	Balcony	-	-	-	1	14	4	56
31	Toilet	20	-	7.5	1	7	3.5	24.5
32	R&D Lab Furniture	31/module	-	450	1	20	9.5	190
33	Fitting Room	-	4	5	1	13.5	14.5	195.75
34	Collaborative Work Sp	58/module	20/module	500	1	10.5	18	189
35	Fashion Design Studio	-	-	120	1	11	20	220
36	Toilet	20	7	10	4	4	4	64
37	Photography Studio	-	-	-	1	10.5	10.5	110.25
38	Toilet	20	7	10	1	7	3.5	24.5
39	Green Room	-	-	-	1	11	15	165
40	Toilet	20	7	10	1	5	4	20
41	Back Stage	-	-	-	1	16.5	12.5	206.25
42	Green Room	-	-	-	1	4.5	3.5	15.75
43	Control Room	-	-	-	1	7	3	21
44	Fashion Show Hall	-	-	-	1	27.5	11	302.5
45	Lobby	-	-	-	1	8	11	88
46	Disussion Room	-	-	-	1	14	11	154
47	Evaluation Office	-	-	-	1	5	11	55
48	Incubation Office	13	-	20	1	5.5	7.5	41.25

S.NO.	SPACE	STANDARDS	CASE STUDY	PROPOSED AREA	UNIT	Length	Width	FINAL
		Sq. M	Sq. M	Sq. M	Sq. M	Sq. M	Sq. M	Sq. M
49	HR Office	-	15	20	1	10	7.5	75
50	Balcony	-	-	-	1	7	3.5	24.5
51	Meeting Room	2.5/Person	40	50	1	7	11	77
52	Office Manager	13	20	20	1	5	5	25
53	Store Room	19	-	10	1	4	4	16
54	Toilet	9.2	7	10	1	2.5	4	10
55	Balcony	-	-	-	1	10	3.5	35
56	Lobby	45	25	25	1	6	6	36
57	Finance Manager	14	25	20	1	4.5	4	18
58	Finance Office	14	25	20	1	6	7	42
59	Balcony	-	-	-	1	4.5	4	18
60	Store Room	19	-	10	2	4	4	32
61	Marketing Manager	13	20	20	1	6.5	7	45.5
<b>IV Second Floor</b>								
1	CEO Private Room	-	-	50	1	10	6.5	65
2	PA Office	-	-	-	1	8.5	4	34
3	Lobby	-	-	-	1	9	5.5	49.5
4	CEO Office	-	-	50	1	10.5	11	115.5
5	Pantry	-	-	-	1	5	5	25
6	Balcony	-	-	-	1	7	7.5	52.5
7	Toilet	20	7	10	1	7.5	3	22.5
8	Terrace	-	-	-	1	16.5	8	132
9	Balcony	-	-	-	1	7	20	140
10	Co-Working Space	58/module	20/module	500	1	10	12.5	125
11	Media Lab	15	45	125	1	7	10	70
12	Lobby	-	-	-	1	10	10	100
13	Toilet	20	20	7.5	1	5	5	25
14	Digital Lab	-	350	400	1	10	10	100
15	Meeting Room	2.5/Person	40	50	1	6	7.5	45
16	Computer Lab	2.5/Person	30	75	1	12	7.5	90

Table 11 : Area Programming (Author)

## 6.2. Concept

### Architecture as Fashion

Architecture + Community + Fashion

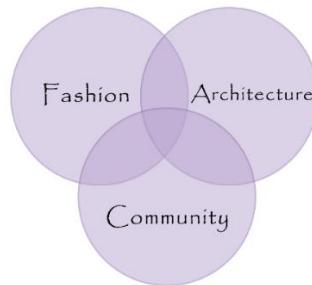


Figure 78 : Architecture + Community + Fashion (Author)

Blending aesthetics, trends, functionality, and principles, fashion influences not only personal style but also architectural design. When integrated with spatial concepts, fashion ideologies infuse architectural environments with dynamism and engagement. This fusion creates rejuvenating and modern spaces that resonate with contemporary sensibilities. Moreover, community integration plays a pivotal role in this synergy, fostering unity, inclusivity, and collaboration within the local community. By embracing fashion's innovative spirit and architectural principles, communities can coalesce around shared spaces that inspire creativity, connection, and cultural exchange, enriching the fabric of urban life.



Figure 79 : Fashion as a Concept (Author)

### 6.3. Conceptual Framework

**Axis:** Design incorporates conceptual principles drawn from fashion through axes

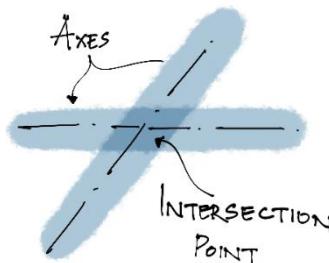


Figure 80 : Axis Concept Representation (Author)

**Light and Space:** Building forms and openings placed to create lighting and shading in spaces.

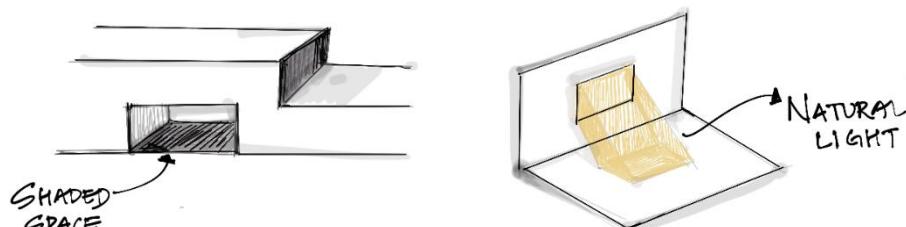


Figure 81 : Light and Space Concept Representation (Author)

**Seaming of Materials:** Integrating Different Materials seamlessly to create smooth transition over textures.

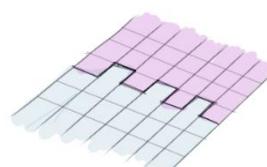
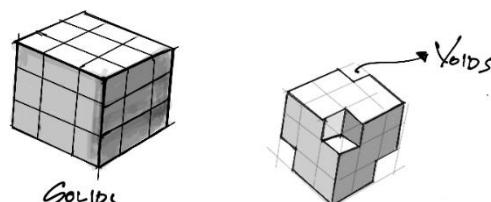


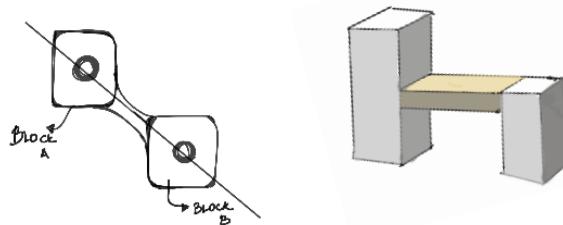
Figure 82 : Seaming of Materials Concept Representation (Author)

**Solids in Voids:** Creating voids in solids making innovative design expressions.



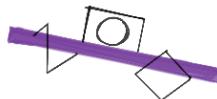
*Figure 83 : Solids and Voids Concept Representation (Author)*

**Interconnectivity:** Buildings connected only certain levels in various spaces.



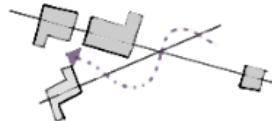
*Figure 84 : Interconnectivity Concept Representation (Author)*

**Datum:** Circulation paths that seamlessly links separate building volumes.



*Figure 85 : Datum Concept Representation (Author)*

**Axial Organisation:** Building masses organised over axes creating nodes and circulation through them.



*Figure 86 : Axial Organisation Concept Representation (Author)*

**Large fenestration:** Big Openings and Glass Walls incorporated in design elements in buildings.



*Figure 87 : Large Fenestration Concept Representation (Author)*

**Transitional Spaces:** Build forms opening into nature through pathways leading to seating spaces and waterbodies.

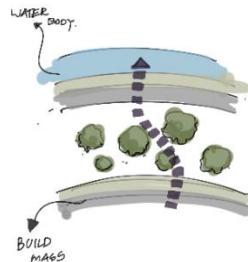


Figure 88 : Transitional Space Concept Representation (Author)

**Clustered:** Build masses clustered over open spaces creating abstract courtyards.

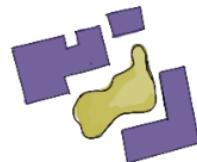


Figure 89 : Clustered Concept Representation (Author)

**Spatial Transition:** Circulation paths transits closed and open spaces.

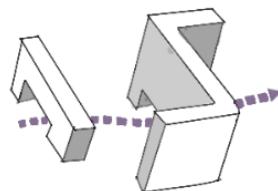


Figure 90 : Spatial Transition Concept Representation (Author)

## 6.4. Concept Development

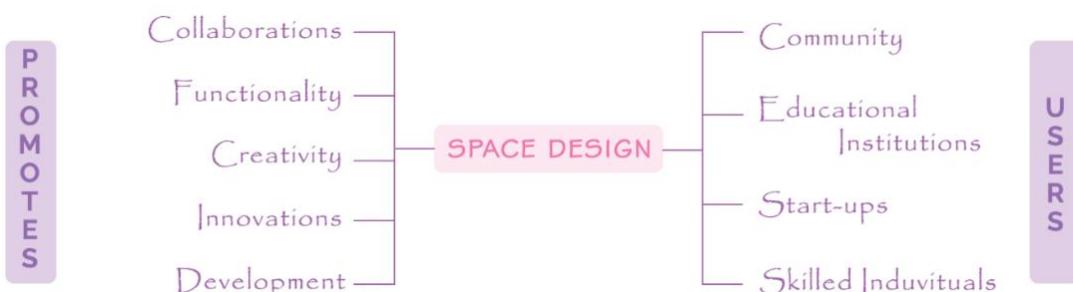


Figure 91 : Relativity Diagram (Author)



Figure 92 : Site Vegetation (Author)

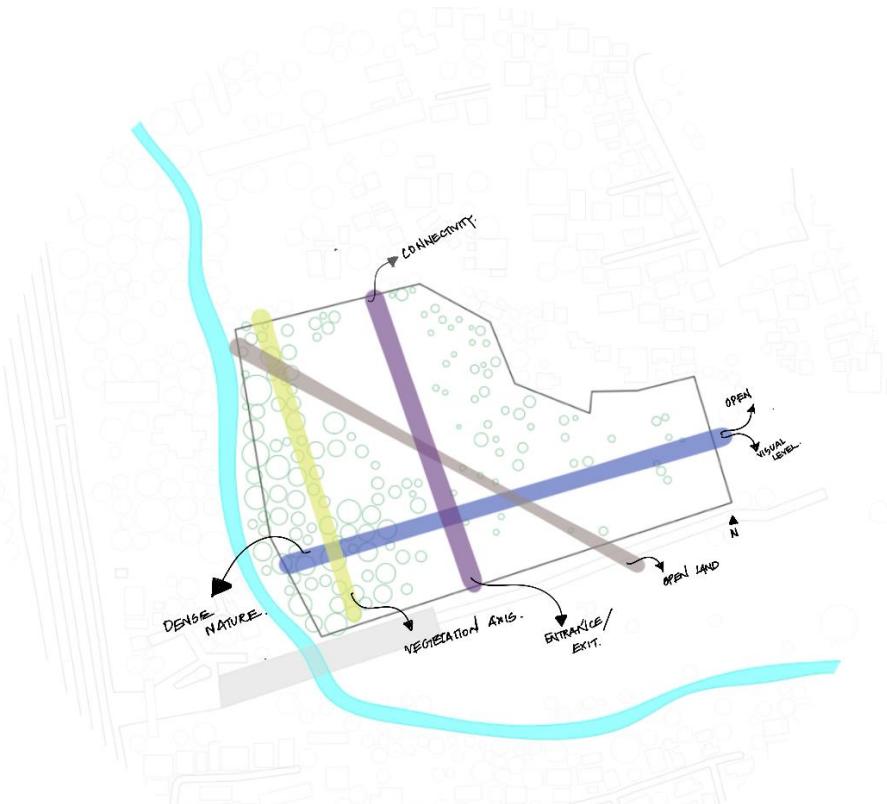


Figure 93 : Site Analytical (Author)

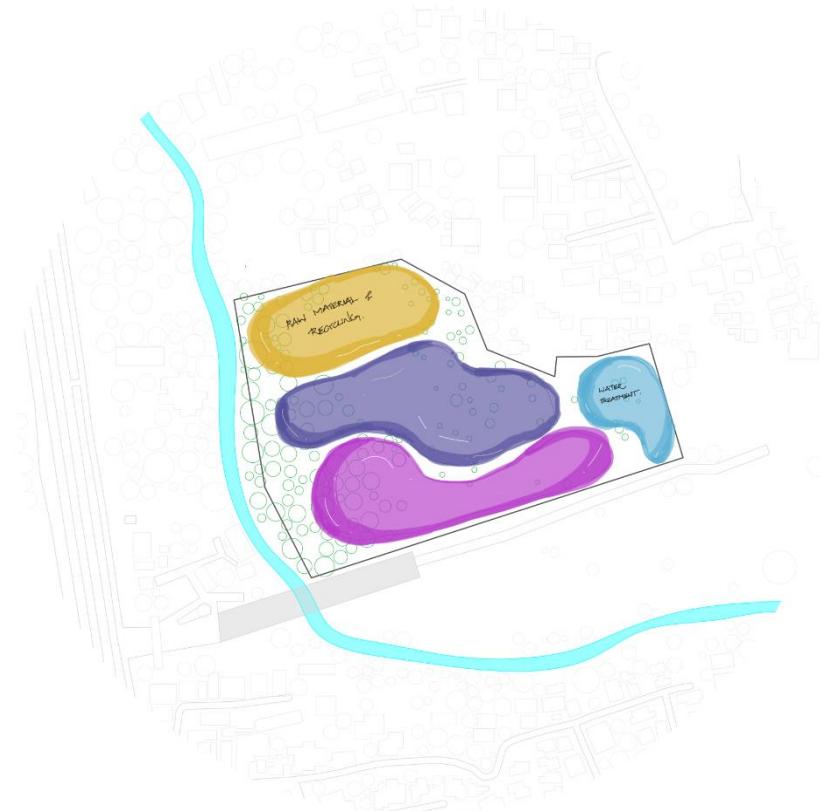


Figure 94 : Concept of Fashion in Site



Figure 95 : Axial Concept of Fashion + Architecture in Site (Author)

## 6.5.Design Proposal

(Please find the attached drawings)

SITE PLAN



SITE SECTION AA'

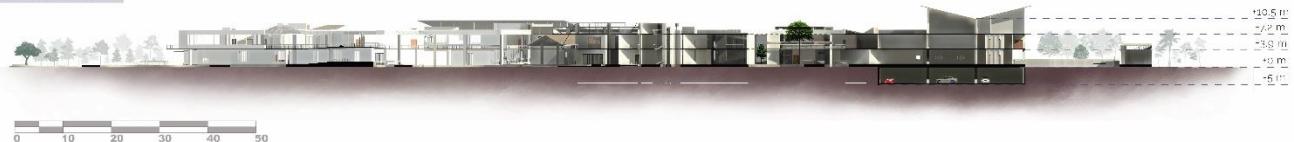


Figure 96 : Site Plan and Site Section AA'



Figure 97 : Column Layout and Basement Plan



*Figure 98 :Ground Floor Plan and Library Details*

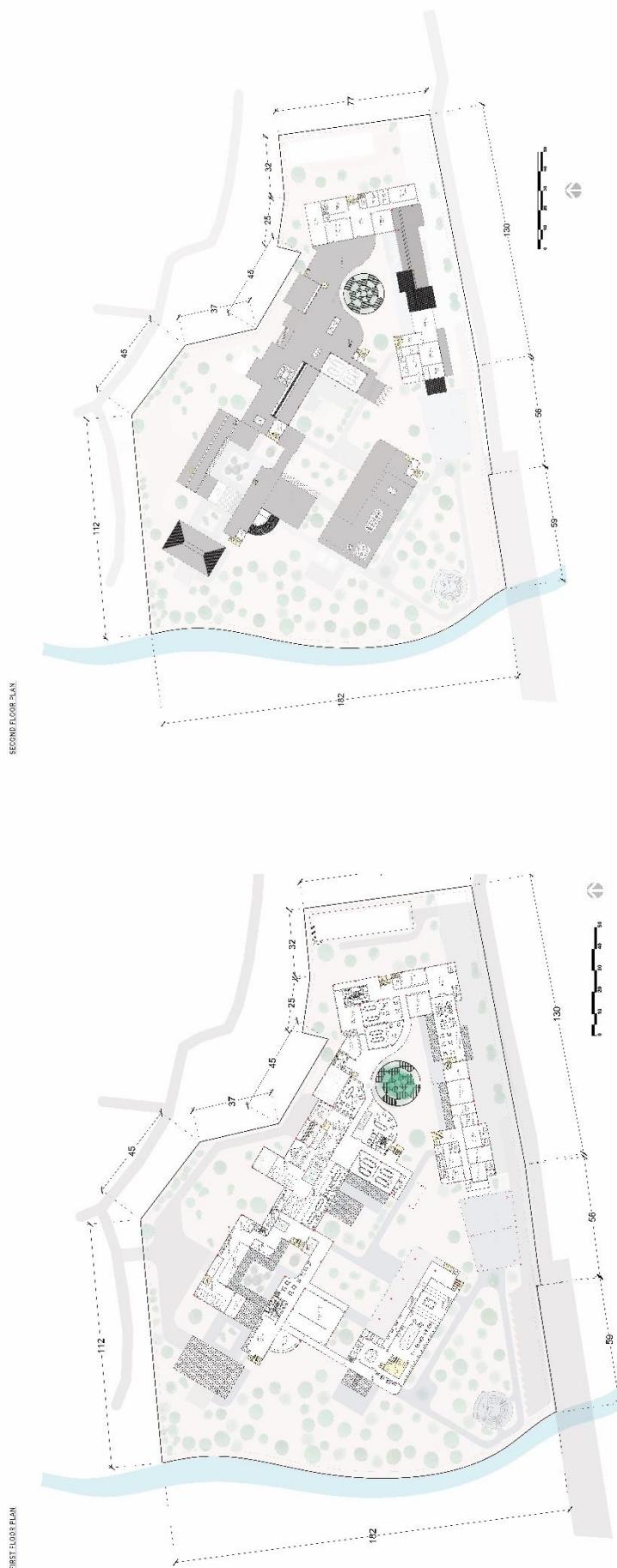


Figure 99 : First and Second Floor Plans

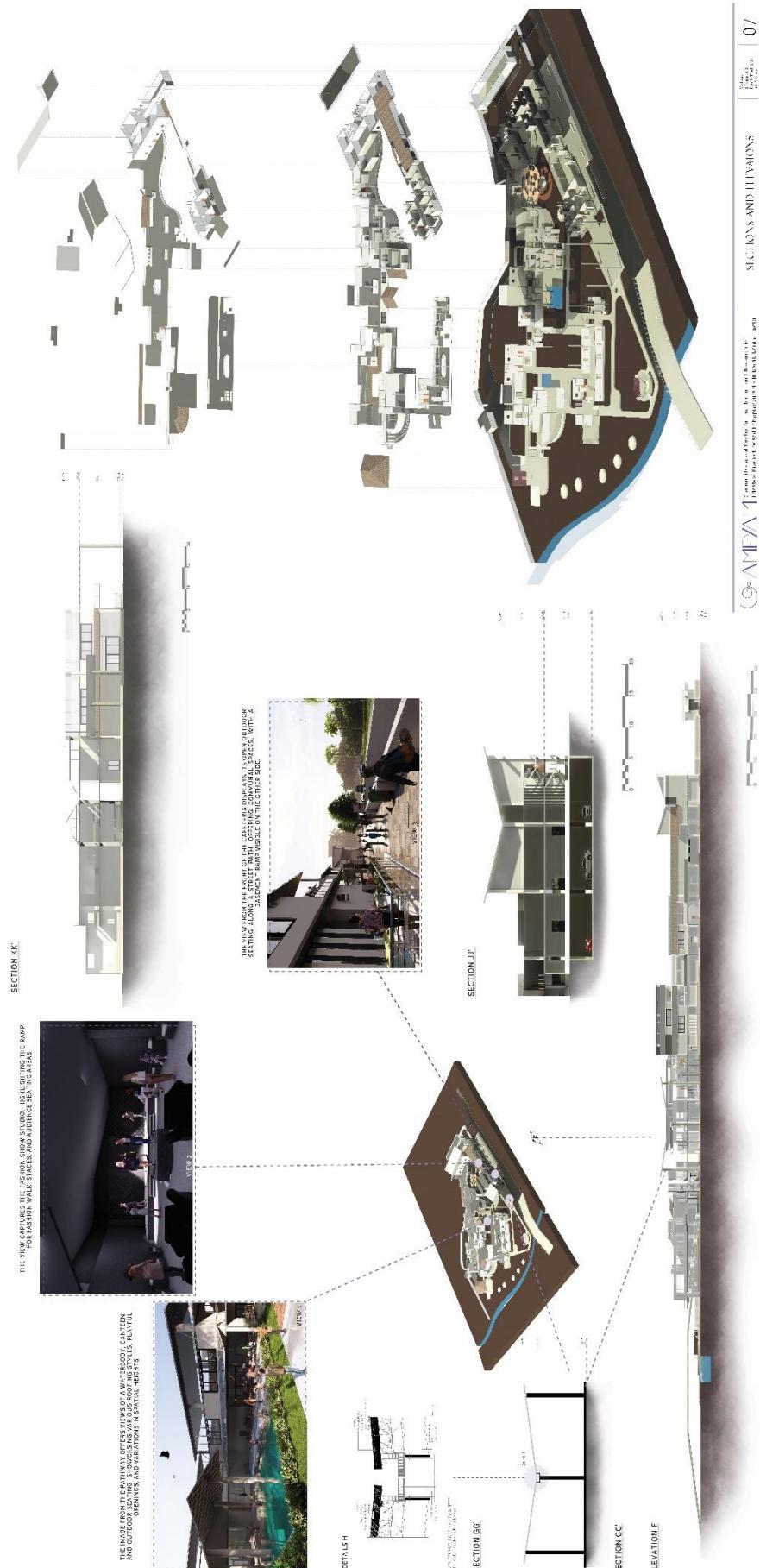


Figure 100 : Sections, Elevations, Views and Details

## CHAPTER 7 BIBLIOGRAPHY

- Wilmotte & Associates. (n.d.). Wilmotte & Associates. [www.wilmotte.com](http://www.wilmotte.com).
- ArchDaily. (n.d.). [www.archdaily.com](http://www.archdaily.com). Retrieved from [www.archdaily.com](http://www.archdaily.com)
- Author. (n.d.). Vyshnav. *Community-based Center for Incubation and Research in*. India: Vyshnav.
- blarrow.tech. (n.d.). *blarrow.tech*. Retrieved from [www.blarrow.tech/parametric-design-in-architecture](http://www.blarrow.tech/parametric-design-in-architecture)
- Climate, C. (n.d.). Climate Consultant. THE SOCIETY OF BUILDING SCIENCE EDUCATORS.
- FabLab. (.). *Super Fab Lab Kerala*. Retrieved from <https://fablabkerala.in/>
- Geology, D. o. (2016). *District Resource Maps and Survey Report, Ernakulam District*. Kochi: Government of Kerala.
- KLAUS, Multiparking. (., . .). *KLAUS India*. Retrieved from KLAUS: [www.klausindia.com](http://www.klausindia.com)
- KSID. (2018). *Kerala State Institute of Design*. Retrieved from <https://ksid.ac.in/>
- midjourney, a. (n.d.). *reddit*. Retrieved from [www.reddit.com/midjourney/ai\\_architecture\\_and\\_fashion\\_design](https://www.reddit.com/midjourney/ai_architecture_and_fashion_design)
- Station F. (.). *Station F Paris*. Retrieved from [www.stationf.co](http://www.stationf.co)
- Weather and Climare. (n.d.). Retrieved from [www.weather-and-climate.com](http://www.weather-and-climate.com)
- Black, S. (Ed.). (2006). *Fashioning Fabrics: Contemporary Textiles in Fashion*. Black Dog.
- Chawla, S. (2016). *Indian International Fashion Centre* [Design Thesis - B.Arch]. School of Planning and Architecture, Bhopal.
- Chinwendu, A. U. (2014). *Architecture + Fashion: A study of the connection between both worlds* [Dissertation - M.Arch]. Nottingham Trent University.
- Farahat, B. I. (2014). The Interrelationship between Fashion and Architecture. *Al-Azhar University Engineering Journal*, 9(6), 17.
- Fausch, D. (Ed.). (1994). *Architecture, in Fashion*. Princeton Architectural Press.
- Foster, N. (2023, January). *Striving for Simplicity*. Dezeen. <https://www.dezeen.com/2023/01/19/norman-foster-sustainability-interview/>
- Hadid, Z., & Koolhaas, R. D. (2012, August 30). *Zaha Hadid and Rem D. Koolhaas On Designing A Shoe For The 21st Century* [Interview]. [www.fastcodesign.com](http://www.fastcodesign.com/1670683/hadid-koolhaasconversation). <http://www.fastcodesign.com/1670683/hadid-koolhaasconversation>

- Haolongan, M. S., & Lukito, Y. N. (2021, November 21). The Interrelationship of Architecture and Fashion. *Advances in Social Science, Education and Humanities Research*, 593, 184-187. 10.2991/assehr.k.211110.027
- Hodge, B., Mears, P., Museum of Contemporary Art (Los Angeles, Calif.), & Kokuritsu Shin Bijutsukan (Tokyo, Japan). (2006). *Skin + Bones: parallel practices in fashion and architecture*. Museum of Contemporary Art.
- Leach, N. (1999). *The anaesthetics of architecture*. MIT Press.
- Leung, Q. W.S. (2010, Fall). Architecture + Fashion. *School of Architecture University of Hawai'i*, S/S(11), 168.
- Lobo, T. B. (2012). The Fashion of Architecture. In *Conferencia Internacional de Moda*. UNIDCOM/IADE.
- Miller, M. (2016). *Fashion & Architecture* [Master's thesis, University of Cincinnati]. OhioLINK Electronic Theses and Dissertations Center. [http://rave.ohiolink.edu/etdc/view?acc\\_num=ucin1459439271](http://rave.ohiolink.edu/etdc/view?acc_num=ucin1459439271)
- Moon, K. (2012, April). *Finding Architecture in Fashion* [Interview]. Architizer. <http://architizer.com/blog/stylemusee-interview>
- OpenAI. (2023). *ChatGPT* [Large language model]. <https://chat.openai.com>
- Prada, M. (2023, May). *30 Years of Miu Miu* [Interview]. W MAGAZINE. <https://www.wmagazine.com/fashion/miuccia-prada-profile-interview-miu-miu-kendall-Jenner>
- Quinn, B. (2002). *Techno Fashion* (B. Quinn, Ed.). Berg Publishers.
- Quinn, B. (2003). *The Fashion of Architecture*. Bloomsbury Academic.
- Riegelman, N. (2012). *9 Heads: A Guide to Drawing Fashion*. 9 Heads Media.
- Sullivan, L. H. (1896, March). The Tall Office Building Artistically Considered. *Lippincott's Magazine*, 57(57), 403-09. 80260278
- Tolstoy, L. (1960). *What is Art?* Liberal Arts Press.
- Vidal, R. V. V. (2005). The art and science of problem-solving. *Investigacao Operacional*, 25, 157-178. 0874-5161
- Vysivoti, & Sophia. (2008). *Folding Architecture* (9th ed.). Turnhout: Bis Publishers.
- Wilson, R. (2002, July). Architecture of Power Markets. *Econometrica*, 70(4), 1299-1340. <https://www.jstor.org/stable/3082000>

## ANNEXURE I

Originality Report – Turnitin

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