

URBAN FOOD HUB

A THESIS

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Architecture degree

By

KAMESH

(37210019)



**DEPARTMENT OF ARCHITECTURE
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
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CHENNAI - 600 119**

NOVEMBER 2021



DEPARTMENT OF ARCHITECTURE

BONAFIDE CERTIFICATE

This is to certify that this Thesis Report is the bonafide work of Kamesh .J (37210019) who carried out the Thesis entitled “Urban Food Hub” under our supervision from July 2021 to November 2021.

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Submitted for Viva voce Examination held on _____08-12-2021_____

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DECLARATION

I, **Kamesh. J** hereby declare that the Thesis Report entitled "**Urban Food Hub** " done by me under the guidance of **Ar.Vijendranath.R** (Internal Guide), **Ar. Shankar.V**(Internal Review Member) and **Ar. Lavanya Shankar** (External Guide) Sathyabama Institute of Science and Technology is submitted in partial fulfilment of the requirements for the award of Bachelor of Architecture Degree.

DATE: 6.12.2021

PLACE: Chennai



SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to the Board of Management of **Sathyabama Institute of Science and Technology** for their kind encouragement in doing this Thesis and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. Devayani Gangopadhyay**, Dean and Head of the Department, School of Building and Environment, Our Design Chair **Dr. Suresh Kuppuswamy**, Thesis Coordinator **Ar.SuryaRajkumar** for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Thesis Internal guide **Ar.Vijendranath.R**, Internal Review member **Ar.Shankar.V** and External Guide **Ar. Lavanya Shankar** their guidance, suggestions and constant encouragement which paved the way for the successful completion of my Thesis work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Architecture** who were helpful in many ways for the completion of the Thesis.

Kamesh. J

THESIS SYNOPSIS

Thesis topic with thrust area and location	URBAN FOOD HUB (EXPERIENTIAL FOOD HUB) at Thoraipakkam
Thesis (Mention is it live proposal/hypothetical)	Hypothetical
Sponsoring Institute/agency for the proposed project	Private
The design intent (Thrust Area) in Thesis	To give different experiential dining spaces and integrate spaces related to food. To create a permeable urban space that is versatile and Inclusive in nature A space to incubate small food businesses and cultivate both culinary and cultural happenings To operate not just as a space for everyday urban life but also have temporal programming to accommodate special events or festivals! Augment an experience centered on food
Challenges in Design	Combining the different Commercial, Social, Public spaces Linear site

Broad Design Program	It includes different Restaurants, Market, Incubation kitchen, Culinary school, Vertical farming, Hotel, Gastro gallery.
Site location, Site area, Site Context	Subbarayan Nagar, Thoraipakkam, Tamil Nadu 89,000 sq.m. (22 acre) Suburb, IT corridor
Identification of Case studies / Literature studies	City Centre, Kolkata Panaji Municipal Market, Goa Nehru Place, Delhi

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Urban food hub (An Experiential Hub centered around food.)

A Food Hub is a one-stop-shop destination for everything related to Food. It is important to understand that it is not a place that just deals with the food as an end product but its entire life cycle.

The aim of a food hub is as follows-

1. To spread knowledge about food growing and related activities
2. To act as a one-stop-shop to buy/ eat food.
3. To provide a holistic and inclusive space for the same.
4. To promote Informal activities and events such as weekly Farmers Market in order to connect the end-user with the producer

Food has always had the largest cultural impact. India having been an Agro-based economy, the lives of entire generations have revolved around growing, preparing, and eating food. However, with the current paradigm shift in our cultures as well as a major shift to the urban lifestyle-We have lost the connection with what we eat.

It is the food and the architecture of that place that most often have a large cultural impact on the people who experience a city. Sense of engagement, social interaction, ownership can be bought through our contemporary food system as well as the structure of modern cities

A unique mix of food-related activities is to be explored such as incubation kitchens, Culinary Schools, Restaurants, Markets, Farmers' markets, Gastro Gallery, Food forest. This mix is proposed in an effort to rekindle the awareness of a city dweller towards food in its diverse aspects.

The purpose of the project

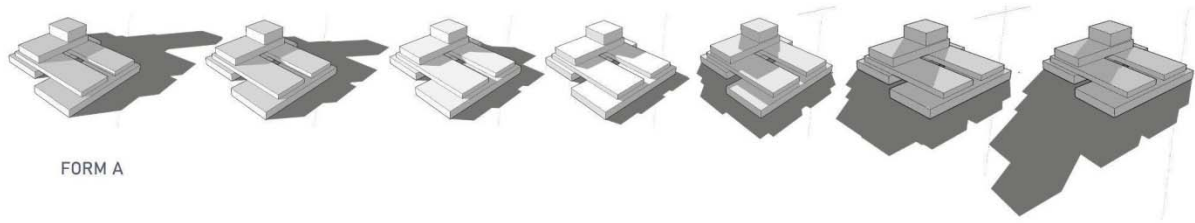
To create a permeable urban space that acts as an oasis among the concrete jungle that is versatile and Inclusive in nature

A unique space that helps to incubate small food businesses and cultivate both culinary and cultural happenings

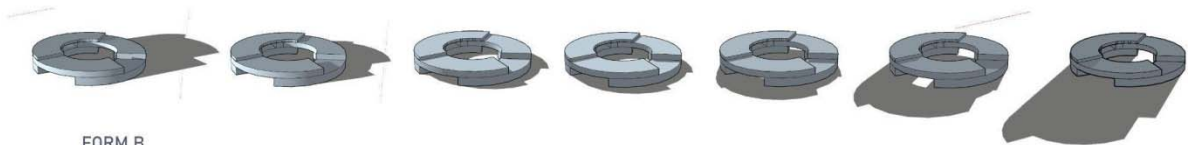
To operate not just as a space for everyday urban life but also have temporal programming to accommodate special events or festivals!

Augment an experience center for food

FORM EVOLUTION



FORM A



FORM B

Fig: Forms

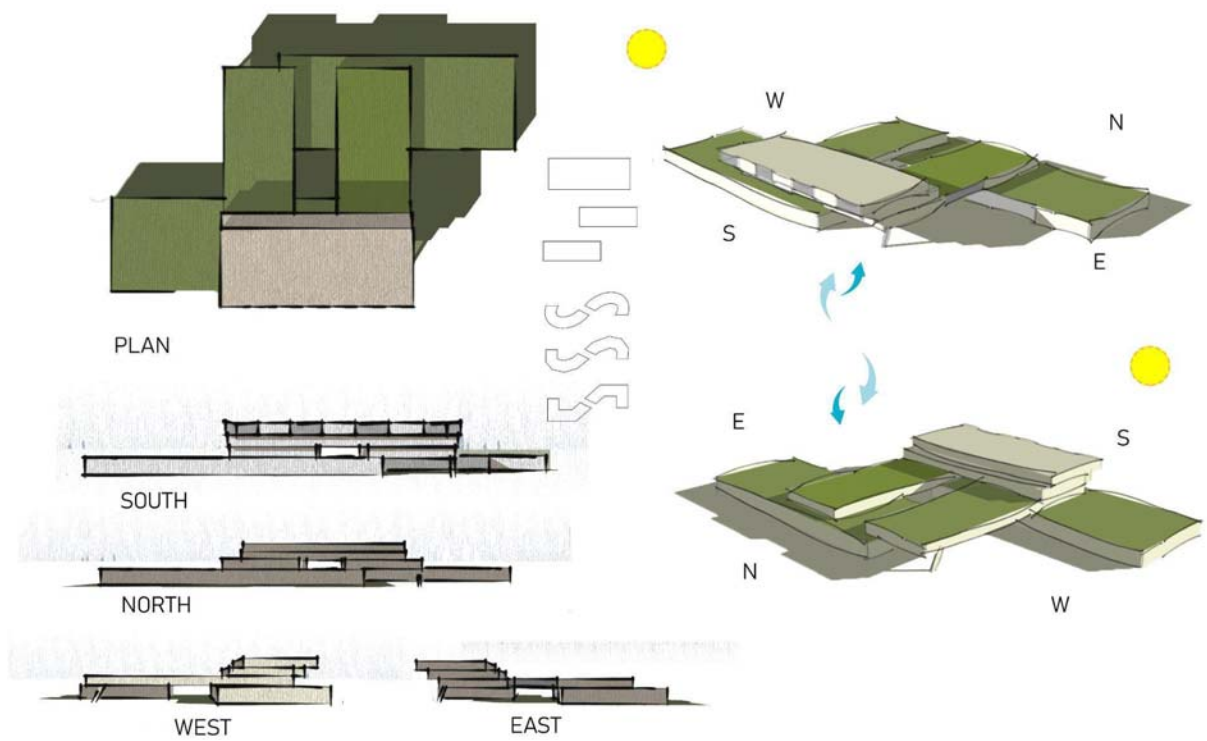


Fig : Final form

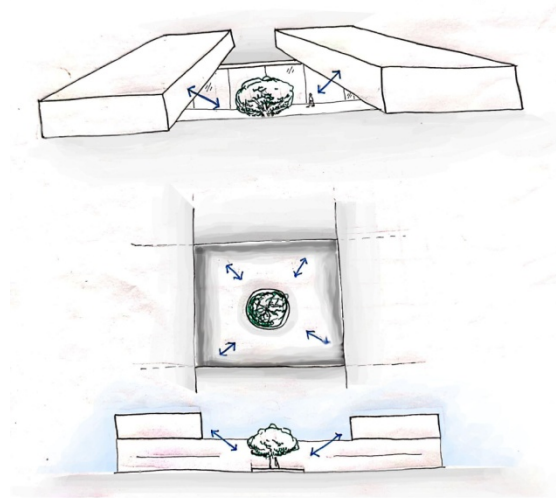


Fig: concept

The form was developed by arranging each block which has different functions Which were connected through cores and also based on the site conditions. The main aim was to orient the longest sides facing north, south and the shortest sides facing east, west to avoid direct sun radiation entering the building.

To take in the air flow into the building and the spaces in between the blocks , the blocks were places in such a way that it creates a path for the air flow by pushing the front block towards the west and the block behind was pushed towards east and the blocks were arranged one on the other in such a way it creates a self shading and creating a good visual connect between the blocks.

DESIGN CONCEPTS

Tyndall effect and architecture

By providing openings through which light beams can enter from the top which gives the Tyndall effect, which gives a forest feel similar to the food forest on the site which may create a connection between nature and the built environment.



Fig : Tyndall effect in building

WALL DESIGN

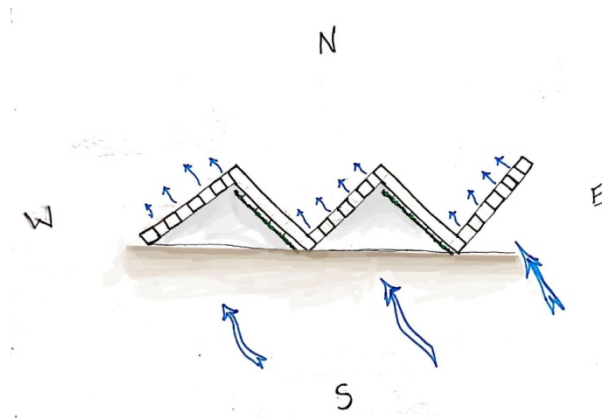


Fig: Wall design

By these angular walls, harsh sun rays can be cut down ventilation can be archived properly from the predominant wind direction by introducing green walls harsh sun rays can be defused.

LIVE FISHING EXPERIENCE

It can be done by introducing a water body with fishes and fish tanks which has fishes which can be sold freshly to customers



The reason behind the characteristic "fishy" odor is that when fish are killed, bacteria and fish enzymes convert TMAO into trimethylamine (TMA) to avoid the odor fishes can be left alive through those huge tanks.

AREA STATEMENT

MARKET			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Poultry	80	3	240
Fish	30	16	480
Vegetable	30	14	420
Fruits	30	14	420
Departmental	240	2	480
Spice / dry fruits	40	6	240
Kitchenware	80	2	160
	Total	57	2440
10 % other retail shops	15	12	180
		Total	2620
RESTAURANTS			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Fast food (1.5 sqm/ person)	60	14	840
Restaurants	100	4	400
Coffee shop, ice cream parlours, bakeries	10	16	160
Restaurants with kitchen (1.8 sqm/ person)	120	4	480
Food court (1.5 sqm / person)	260	4	1040
Back of house - loading unloading	20	4	80
		Total	3000
services (14 % of carpet area)			420
		Total	3420
INCUBATION KITCHEN			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Kitchen Type A	120	1	120
Kitchen Type B	150	1	150
Office Space	90	1	90
Meeting room	110	1	110
Change room	160	1	160
Reception	25	1	25
Storage	75	1	75
Back of house - Loading unloading	20	1	20
		Total	750
services (14 % of carpet area)			105
		Total	855

HOTELS			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Lobby , reception counter ,toilets , office, guest seating,reservation counter, security.	840	1	840
Staff offices and facilities with toilet (5 Sqm / person)	340	1	340
Gym and spa	580	1	580
Laundry	180	1	180
Rooms	40	28	1120
Restaurant with Dining and Kitchen	500	1	500
Back of house	150	1	150
		Total	3710
Services (14% of carpet area)			519.4
		Total	4229.4
GASTRO GALLERY			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Lobby and reception	40	1	40
Cafe and souvineer shop	100	1	100
Library	140	1	140
Gallery Space	1000	2	2000
office	110	1	110
storage	90	1	90
		Total	2480
Services (14% of carpet area)			347.2
		Total	2827.2
CULINARY SCHOOL			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Lobby, Reception and Office	220	1	220
Bakery	60	1	60
Demonstration area and kitchen	130	1	130
Ingredient room	150	1	150
Dry storage	140	1	140
Lab	150	1	150
Training Kitchen	110	1	110
Storage	65	2	130
		Total	1090
Services (14% of carpet area)			152.6
		Total	1242.6

VERTICAL FARMING			
SPACES	AREA (Sq.m)	NO.	TOTAL AREA (sq.m)
Research lab	290	1	290
Seminar room with demonstration area	250	1	250
Storage	250	1	250
Preperation areas for planting	500	1	500
Greenhouse area	1000	1	1000
Harvesting area	400	1	400
packaging	200	1	200
Reading room	160	1	160
Staff room	110	1	110
		Total	3160
services (14 % of carpet area)			442.4
		Total	3602.4
TOTALAREA (Sq.m)	18796.6		
SITE AREA	89,000 sq.m. (22 acre)		
FSI	2		
GROUND COVERAGE	40 %		
BUILT UP AREA	178,000		
HEIGHT RESTRICTIONS	45m		
HEIGHT OF SINGLE FLOOR	3.5 - 4.25 m		
NON BUILT UP AREA			
OUTDOOR DINING	500	3	1500

PROGRAM

Food and Beverage - Include Food stall and restaurants and higher end restaurant as well cafe.

Budget Hotel- For the three types of people expected on site.

- The tourists who have come to participate in on site activities.
- The large no. of people from institutions and it companies
- Visitors during food festivals.

Incubation Kitchen -These kitchens will be on lease for aspiring chefs to start a business more effectively,plug directly into public market and culinary school on site

Gastro Gallery -Flexible gallery and event space for showcasing chennai cuisine and the work of the culinary school and incubator kitchens

Culinary school - Will support functions like the incubator kitchens, this will have a public and a private component in order to spread knowledge related to food as well as courses for those interested in a culinary career

Hotels/Serviced Apartments serve the long time stay families going to the on-site culinary school and fest

Exhibition Spaces - These spaces will form an important part during festivals and events. However,this space mostly consists of large open air theatre spaces with the possibility of setting temporary structures during fest

Vertical Farming - This aims to look at the basic level of the food consumption cycle that is produced. It aims to sensitize people about the different types of vertical farming possible.

Culinary school - Will support functions like the incubator kitchens, this will have a public and a private component in order to spread knowledge related to food as well as courses for those interested in a culinary career

Institute for the Culinary Arts

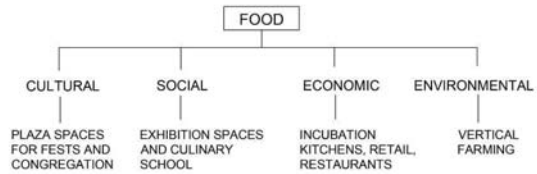
Demonstration lab - A theatre style classroom space with tiered seating and a full kitchen setup. The space was designed with wood-look laminate, a green tile backsplash, and minimal stainless steel to give the appearance of a home kitchen. The space is used for teaching, cooking lectures, and may be used to provide cooking demonstrations on local TV stations.

The Sage Student Bistro in JoJo's Dining Room - A modern and casual dining space open to the public. The space features a fireplace clad in white and linear textural tiles, an end-grain wood floor that mirrors a butcher's block, walls of glass and brick, and intimate lighting and seating. Attached to the bistro is a private dining space designed as a spinoff of a chef's table.

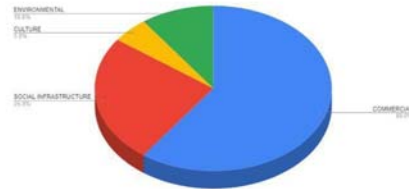


Theory Labs - Two theory labs act as the main teaching tools used for demonstrating and applying cooking techniques. These two identical kitchen spaces were designed to be classrooms, with abundant space and television monitors in all four corners. Between the two labs is a breakout space where students and professors can gather to discuss lessons.

Production Kitchen - The production kitchen is attached to the bistro and acts as the heart of the facility. Including everything you'd find in a high-end restaurant kitchen, the space lets students put their knowledge to the test by preparing food for Bistro guests.



A Food Forest is a sustainable gardening system based on woodland ecosystems, comprised of seven main layers of vegetation from canopy trees down to ground covers. Food forests are organized into mutually beneficial plant communities plant "guilds" that perform tasks such as nutrient accumulation, nitrogen fixation, increasing pollination, attracting a variety of beneficial wildlife, decreasing the need for weeding and watering, and more!



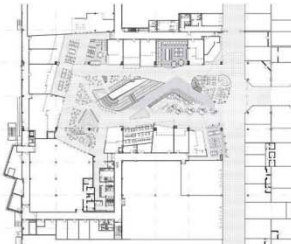
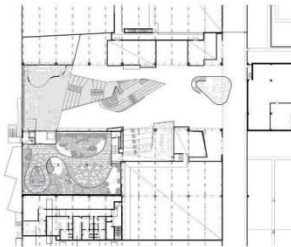
Gastro Passage Foodcourt

Architects: Suchánek, Architectural Office
Area: 5950 m²
Year: 2018

Great attention was focused on bringing in natural vegetation and materials into the space. A careful balance between durability, serviceability, warmth and acoustic properties was found. Primary floor material is ceramic tile however the stands and elevated interior floor uses oak wood, which is also used as a cladding material on number of F&B units. To improve acoustic comfort soft or perforated materials were used wherever possible, i.e. felt baffle ceiling, perforated gypsum boards, three-dimensional wooden batten cladding.

The main objective was to create an experiential and unconventional space where people can explore and discover. It offers variety yet a sense of place. Gastro Passage offer reaches beyond lunch hours and beyond eating. It creates an event space, convivial area, and place for mixed activities. A true meeting place.

F&B units on each side of the central sculptural stand are designed as volumes that vary in size and materials and create a rhythm, similar to a street frontage. Ceiling that tops the clerestory windows is shaped as a spherical segment and together with the form of the stand help to optically shorten the great depth of the space. It's made of acoustic fabric and steel grooves where technical equipment such as sprinkles, vents, lights and speakers are tucked away. Seating is split into eight different zones with different ambience, decor and proportions which was a principle deviation from a traditional notion of a shopping mall food court.



Kitchen Incubator

A Kitchen Incubator is a time-shared access to a commercial kitchen, benefiting the community with:

Licensing and certification necessary to produce food products;
Provides technical support and business assistance; and
Can provide packaging, product line expansion and marketing resources.

The Training Station is a multi-purpose incubator facility, dedicated to creating sustainable businesses in the food

kitchen spaces furnished with medium scale, semi-automated equipment alongside a broad range of technical and business services required to support start-up and expanded business.

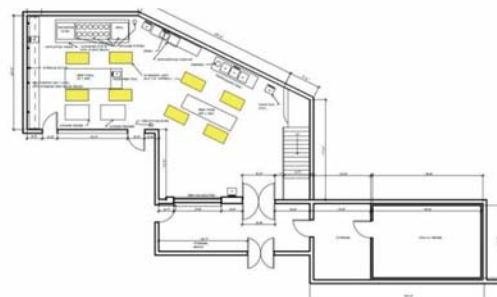


Photo courtesy of Pilotworks

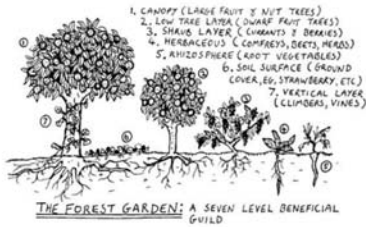
Detroit Kitchen Connect's Kitchen Partner

Facility: St. Peter & Paul Orthodox Church (East/West)

St. Peter & Paul is a 650 square foot, shared-use commercial kitchen. There are four stainless steel workstations (1 at 7'6" x 9' & 1 at 7'6" x 9'), a double-stack convection oven, a 6 burner stove, a 3-door side-by-side refrigerator, along with a full range of commercial kitchen equipment. Other amenities include a 20g Hobart, commercial grade dishwasher, dry storage cases, lockable wire cages, and rolling pan racks. Tenants will have access to hourly rental of the facility and the equipment once accepted into the program.



A **Food Forest** is a sustainable gardening system based on woodland ecosystems, comprised of seven main layers of vegetation from canopy trees down to ground covers. Food forests are organized into mutually beneficial plant communities plant "guilds" that perform tasks such as nutrient accumulation, nitrogen fixation, increasing pollination, attracting a variety of beneficial wildlife, decreasing the need for weeding and watering, and more!



Benefits of food forests

Food forest systems provide multiple benefits compared to traditional forms of agriculture based on monoculture systems. Food forest pioneer Eric Toensmeijer has noted the main benefits that can be fulfilled by multistrata agroforestry systems such as food forests. (Jacke & Toensmeijer, 2005). These benefits include:

- Resilient and self-maintaining ecosystems
- Diverse production of high-nutritious foods and other useful products
- Ecosystem protection- and restoration
- Improving mental health
- Contributing to economical sustainability



Main focus

The systems that will be developed should be commercially profitable besides of taking the other criteria into account. The environmental aspect however still plays an important role, since it is the main objective of the Farm LIFE project to develop climate-adaptive farm plans. The main challenge thus will be to create a system that combines both



Vertical farming is the practice of producing food in vertically stacked layers, vertically inclined surfaces and/or integrated in other structures.

This aims to look at the basic level of the food consumption cycle that is produced. It aims to sensitize people about the different types of vertical farming possible.

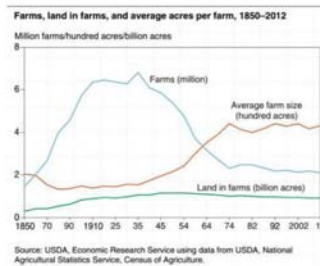
- It offers a plan to handle future food demands
- It allows crops to grow year-round
- It uses significantly less water
- Weather doesn't affect the crops
- More organic crops can be grown
- There is less exposure to chemicals and disease



Global Market Drivers for Vertical Farming

	USA (California)	USA (North East)	Central Europe	Northern Europe	MENA	Russia	India	East Asia	Australia
Water Scarcity	✓				✓		✓	✓	✓
Transparency/Cleanliness	✓	✓		✓	✓		✓	✓	✓
Limited Arable Land		✓	✓		✓		✓	✓	✓
Unfavorable Weather for Agriculture		✓	✓	✓	✓	✓			✓
Demand for Local		✓		✓	✓				✓
Market penetration	✓		✓		✓	✓			?
Agricultural Independence		✓		✓	✓	✓	✓		✓

The Future of Young Farmers is Vertical



Hotels/Service Apartments serve the long time stay families going to the on-site culinary school and fest

HOTEL PROVÍNCIA (3 Stars / 50 Rooms) - ANGOLA

Provided for small cities and out of the urban centre

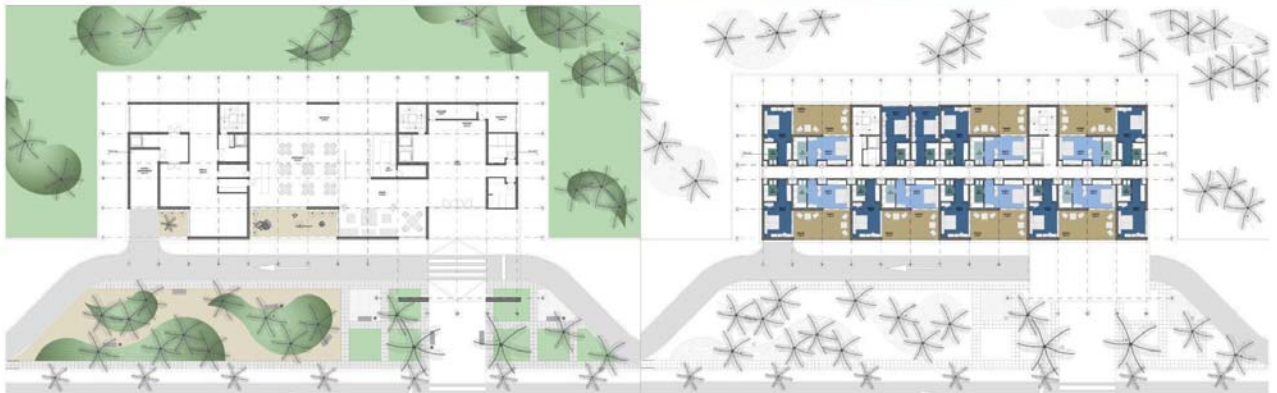
This hotel was designed to be presented as a business opportunity for interested developers. Due to its modular character it can be adapted to most sites, its construction system enables quick building time, lower operational costs and easy deployment. It is designed to be self-sufficient should there be any shortage of services.

TECHNICAL DATA

Gross Floor Area 4224,00 m²

3 414 m² Hotel-use areas (includes Rooms, public areas and Lobby)

810 m² Technical areas



CASE STUDY

CITY CENTRE , KOLKATA
ARCHITECT : CHARLES CORREA

SITE SPECIFICATIONS :

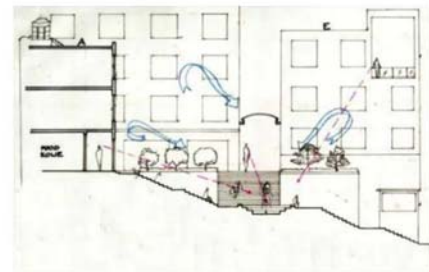
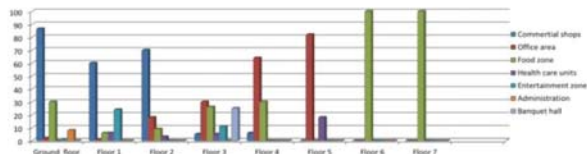
CLIENT - KOLKATA MUNICIPAL CORPORATION
LOCATION - DC BLOCK , SECTOR - 1 , SALT LAKE CITY
AREA - 10700M
VEGETATION - SHRUB COVER + TROPICAL TREES
TOPOGRAPHY - 45 mASL / NO CONTOURS
CLIMATE - HOT AND HUMID / 45°-12°/ PPT 154 CM
BUILT UP AREA: 50,400 Sq.Mt

AIM : To Create a space which can form the node for holding and experiencing commercial, cultural and social activities. . It is a way a hybrid between a Convention centre or a Cultural hub and a Commercial centres at a much reduced scale. . As a City Centre requires to incorporate the demands the present demography asks for commercial and Cultural Hub.

LOCATION : KOLKATA , SALT LAKE CITY SALT LAKE CITY : Bidhannagar as it is popularly called, is a planned satellite town in the Indian state of West Bengal. It was developed between 1958 and 1965 to accommodate the burgeoning population of Kolkata, the state capital.

POPULATION : At the 2011 census, Bidhannagar had a population of 218,323 (Males 111,363 ; Females 106,960). Bidhannagar has an average literacy rate of 90.44% (higher than the national average of 74%), [with male literacy of 93.08% and female literacy of 87.69%.

INFERNCES :



POSITIVE .

The activities linked together by means of linking elements, which not only satisfies the function of activity ,but also provides visual connectivity creates harmony. .

Concept of conventional Indian marketplace in replicated. . The space, volume and form should be designed considering the types of enclosures and the circulation pattern. . Nature of integration between built and open spaces , with the surrounding environment . . Consideration of Orientation of the building, as it creates shades and shadows on the external surfaces.

NEGATIVE .

Obstructed servicing in staggered blocking planning. . Not much scope for informal activities.

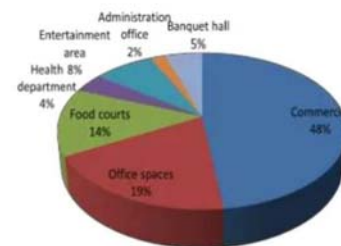
KEY OBSERVATIONS:

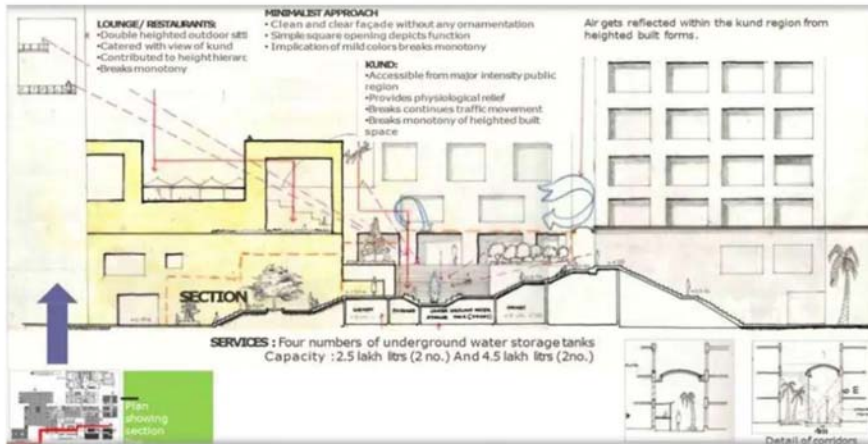
- Openings on Southwest and Southeast direction to facilitate tunnel effect between blocks.
- Kund in southeast direction to have pleasing sun in daytime.
- The interlinking corridors facilitate constant air circulation and end at the Kund space.
- The Kund space is provided on the longer axis of the site to have maximum exposure to the roadside.
- Segregation of activities through levels ,define uninterrupted user specific moment.



WHY KOLKATA ??

- Mixed use
- Essence of conventional Indian shopping markets
- Open, clustered planning
- Commercial + cultural + social aura
- Builtform
- Public spaces and interrelationship of diverse activities.





SPATIAL DISTRIBUTION OF HIERARCHY

The connection between court to aside activities,

Informal nodes in between corridors creating interest in junction Spaces.

. The corridor is covered with a pergola with polycarbonated sheet to provide diffuse light inside

CIRCULATION PATTERN

• Parametric vehicular movement for parking and movement through

• Parking is distributed throughout the site to enhance all utility areas of the site.

• Pedestrian movement at random natural the movement inside the project.

SITE PLAN AND ITS ORGANIZATION

Clustered organization relies on physical proximity to relate its spaces to one another.

Often consists of repetitive, cellular spaces having similar functions and share a common visual trait such as shape or orientation

CLUBBING OF VARIOUS ACTIVITIES.

The close proximity of forms.

Various Activities are club by means of corridors, plazas.

LINKAGE ELEMENTS / SPACES/ BREAKOUT AREAS

Connecting corridors specially hidden line between outer streets towards inside

Is inclusiveness for one. With no boundaries to separate it from the street, it is open to everyone all income and age groups,

Material used for pavement of mall resembles the street. tree placement in pathways and light arrangement.

STUDY OF OPEN SPACES

Open spaces are merged with the whole composition,

• Activities surrounding focused with the open space in between with Kundat entrance



Groun floor plan

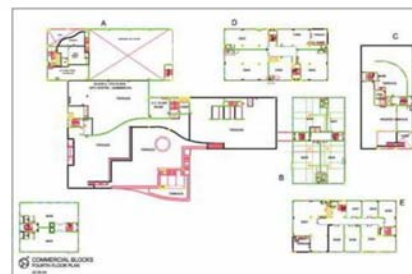


First floor plan



second floor plan

Fouth floor plan



ENTRY - Main entries are provided through North and South. Secondary entries are provided in east and west side.

- Basement parking entry is through south side. - Each side are having 2M wide narrow entry
- Each wing is having security at 2 -3 points.



TOTAL AREA : 13778SQM
 PLINTH AREA : 7286SQM
 TOTAL BUILT UP AREA : 21830SQM
 COVERAGE : 5296
 FAR : 1



CENTRAL COURTYARD The Central portion is completely lighted by the roof light provided. Have tried to use natural lighting. But there are also some narrow passages where the natural light can't reach and the have provided the artificial lighting facilities. Two 2.5 m wide stairs are provided from the central covered courtyard to the first floor.

LOADING UNLOADING The Plinth Level increased to cater to direct unloading and loading of commodities

ELECTRICAL ROOM

3 Cubicles of varied temperature in Cold storage. Municipality office (15sqm room for manager who checks the laborer's entry) Generator room, Electrical rooms & Telephone department PARKING

COMPOSTING The waste is collected and segregated and it is converted to manure which is collected by the agricultural department. About 20 tons of waste is collected each week

PANAJI MUNICIPAL MARKET GOA

CONNECTIVITY

Panaji is the travel and transit hub of Goa. The city is well connected by roadways, airways, waterways and railway network to the urban centers in the state, national capital and important cities in the neighboring states. | Kadamba bus terminal 3 KMs Carambolim Railway station 14 KMs

DESIGN

The plot area of existed market was 8665sqm which was increased to 13778sqm for providing additional facilities about 1377 vendors were accommodated in the project perishable and non-perishable items segregated to two different floors and basement provided for parking

MICRO CLIMATE : Warm and Humid climate

TOPOGRAPHY : Comparatively flat with gradual slope towards north

SKYLINE : The area is mostly dominated by two storied buildings matching the height of the market building thus maintaining the skyline.

CONTEXT : The Adjacent Buildings in the vicinity have a mixed architectural character. (Goan contemporary)

CIRCULATION

Efficient one way vehicular path has been provided on the three sides of the market thus minimizing vehicular conflicts.

The Loading/ Unloading area has been made on the rear side so that these vehicle use the Brazil road. This access is also used by customers who park their car at the basement Customer Service Vehicle



NEHRU PLACE , DELHI

Nehru place is a large commercial, financial, and business centre in Delhi.

- Nehru place is a prominent commercial area in south delhi and houses the headquarters of several indian firms. • Its earlier name was kalkaji complex. • It was the biggest of all the 15 district centres proposed in the 1962 master plan of Delhi. • Planned by Delhi development authority, the 38- hectare site was built atop the aravalli mountain range



Hawkers

Core office complex

Tower



Surface parking plan

Basement parking plan

Multilevel parking



Surface Parking

Basement parking

Multilevel parking

• STRENGTH

- Nehru place is located on the Outer Ring Road so it can be easily accessible by the other parts of the Delhi. • As the market is just opposite to Kalkaji Colony and CR Park so it makes the market secure. • Moreover police patrolling is also there when the market shut downs. Being an IT Hub, the market caters more to the people of age group 25-35 years because of there shops or job or shopping, etc. • Nehru Place is designed in such a way that large open spaces are there between the towers, in form of courtyards and parking. Due to long courtyard connectivity fresh air enter these corridors with a thrust. • Parking are designed near to the Towers which makes it easy for the crowd and the employees and also to the transporters. • Office blocks are on the second floor which are totally segregated from the loud and the crowd.

WEAKNESS

- Since it was not planned to accommodate these numbers, the result is congestion, lack of sanitation, and a degenerating infrastructure in and around the areas surrounding Nehru Place. • The market is not so User Friendly, i.e. can't be easily accessed by handicaps and senior citizens find it difficult to climb the stairs

THREATS

- The United States has named New Delhi's popular Nehru Place as among the world's notorious markets for pirated and counterfeited products including software. • The ever growing number of hawkers also cause a threat to the placemaking of nehru place causing congestion in movement. • There have been many bomb scares in nehru place in last decade. • The security is less as compared to the footfall.

OPPOURTUNITIES

- There can be green spaces or recreational spaces which socialise the office employees and the shopkeepers. • The hawkers can be assigned a more specific corners/blocks or square rather than the central open courtyards.



COMPARISON :

CITYCENTRE KOLKATA	NEHRU PLACE DELHI AREA:
50,400 Sq.Mt AREA	3.23 LAKH Sq. Mt
• Mixeduse • Essence of conventional Indian shopping markets • Open, clusteredplanning • Commercial+cultural+social aura • Builtform • Public spaces and interrelationship of diverse activities.	• Mixeduse • Commercial +social +cultural aura. • Connected streets and courtyard with publicrealm. • Scope for informalactivities.



SITE & SURROUNDING

The site is surrounded by IT parks , Institutions , Mall and Residences

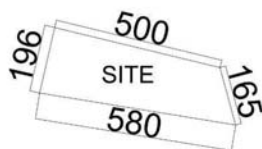
Site can be accessed mainly through OMR and secondary access is also available around the site

According to recent survey, Chennai city will have a population of 15 million people by 2030(current population in 2019 is 11 million).

TOTAL PLOT EXTENT: 89,000 sq.m. (22 acre)

WHY OMR??

- Mixed use
- Essence of conventional Indian shopping markets
- Open planning
- Commercial + cultural + social aura
- Builtform
- Public spaces and interrelationship of diverse activities.



Bahwan Cyber Tek



Radiance Mandarin Apartment



Akshaya Smart Tango



Chennai One IT SEZ



TCS Chennai-Two Magnum campus



FUTURE PROPOSAL OF METRO



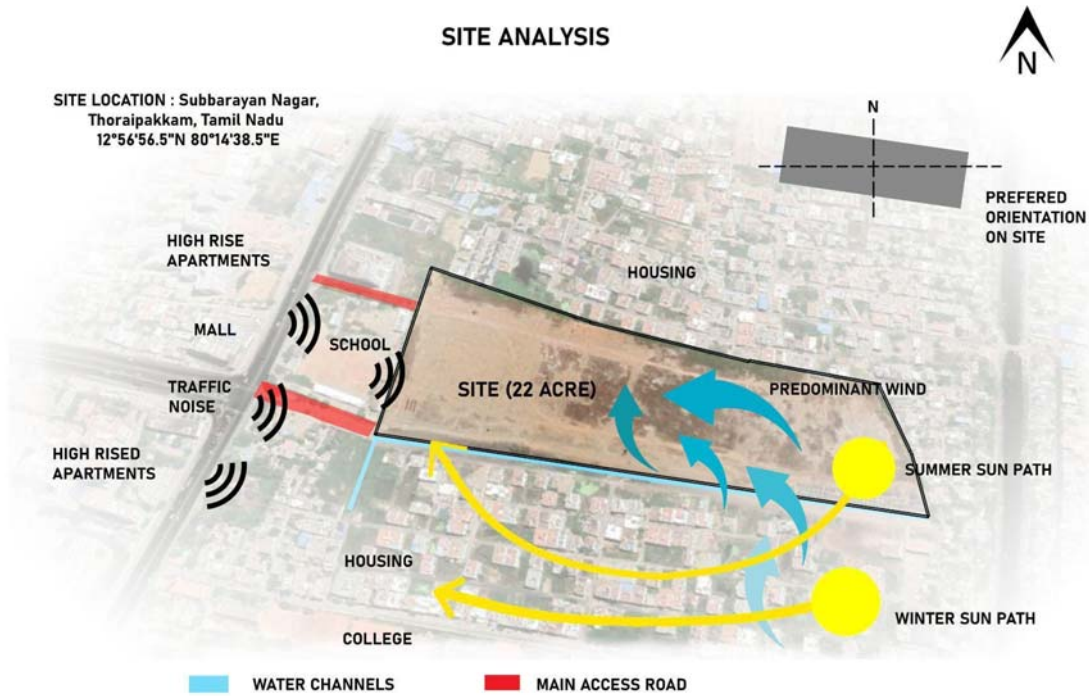
Site is located in sub urban area with a bussy movement of young croud



SITE LOCATION : Subbarayan Nagar,
Thoraipakkam, Tamil Nadu
12°56'56.5"N 80°14'38.5"E

SITE ANALYSIS

SITE LOCATION : Subbarayan Nagar,
Thoraipakkam, Tamil Nadu
12°56'56.5"N 80°14'38.5"E



SWOT ANALYSIS

STRENGTH	WEAKNESS	OPPORTUNITY	THREAT
Prime loction	Leaner site	Well connect amongst the locals and city level visitors, Moreover brings varies types and class of people	Makes the place more of human and vehicular traffic
Away from the OMR Less noise pollution	Lack of unity of type and category of activites held	Food hub will be a good addition and A New typology	Multiple activites within the place may create issue
Urban level connect	Struggle to create something unique		
Large frontage			

CLIMATE ANALYSIS



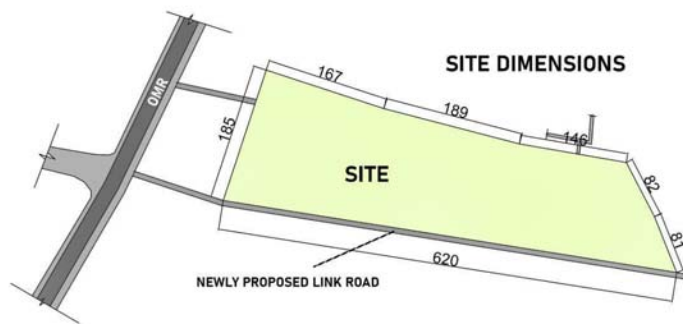
Design direction

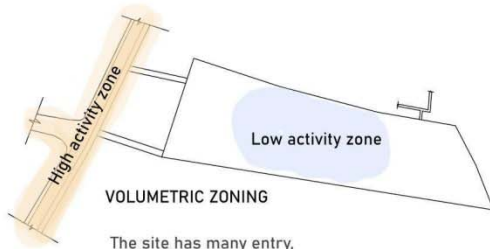
As the west and south part of the site has the connection to the main road, the entry and exit must be solved through that and also a buffer must be created so that noise pollution can be controlled

More no. of opening must be provided in the south-east so that the max ventilation can be achieved

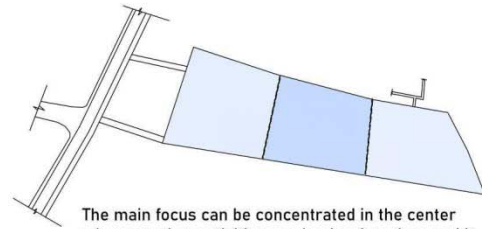
The high radiation from the south, southwest, and west can be reduced by different strategies like thick wall or double-wall, and by adding more vegetations

As the site has the longer side on the north and south, the building can be oriented parallel to the site, and also max radiation can be cut down

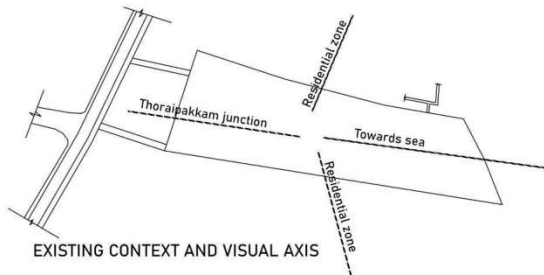




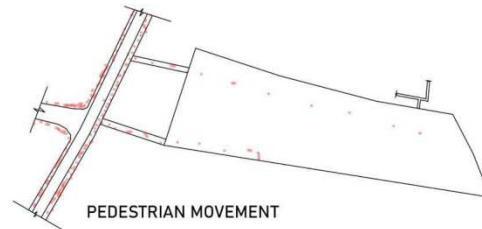
The site has many entry, the volumetric zoning should be determined by the volume of people coming in. The volume can be played or handled with activity and use



The main focus can be concentrated in the center whereas other activities can be developed around it so that it can help in the circulation and also a buffer from the neighborhood

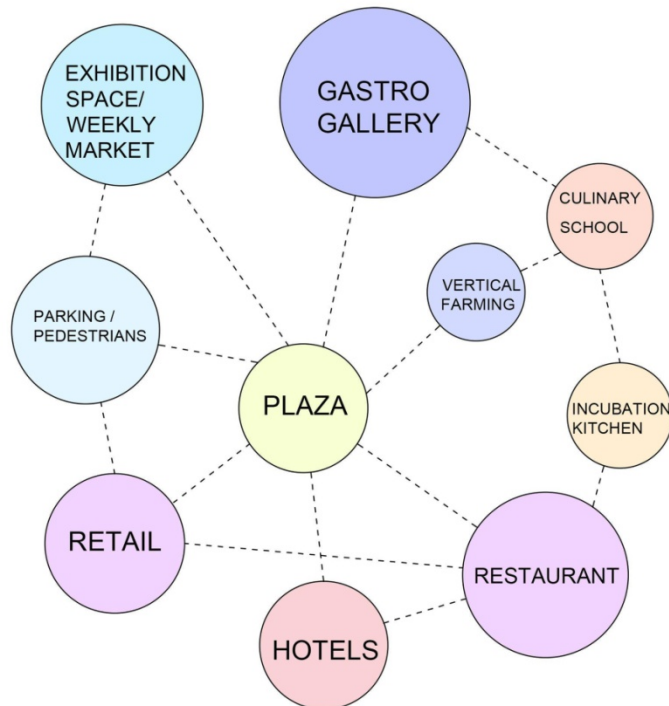


There maybe a great visual axis towards the sea which is at the east

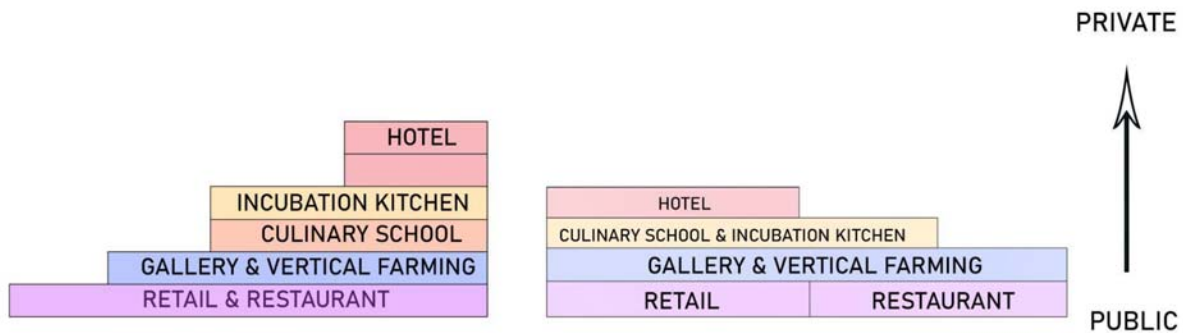


On the main road the pedestrian footfall is heavy they can be retraced by forming newer development.

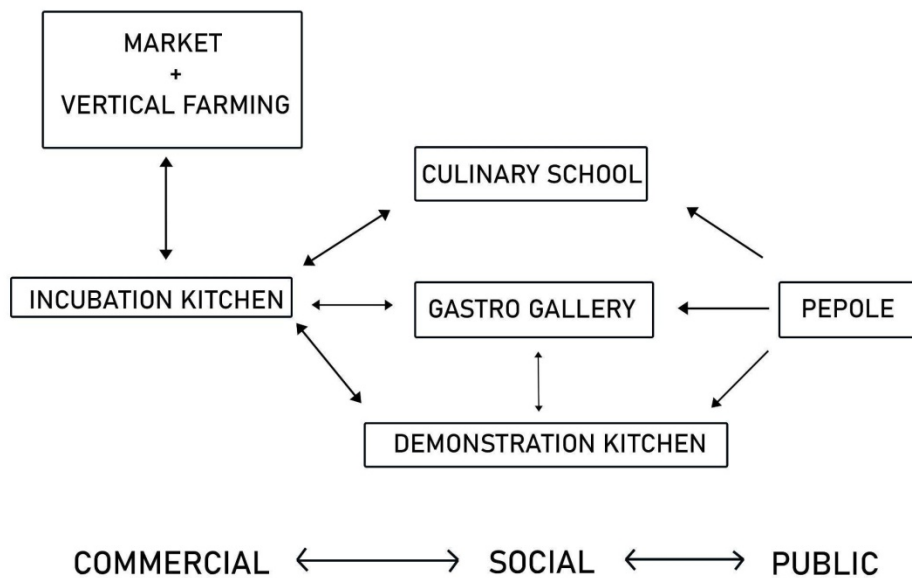
ZONING



FUNCTIONAL ZONING



VERTICAL ZONING

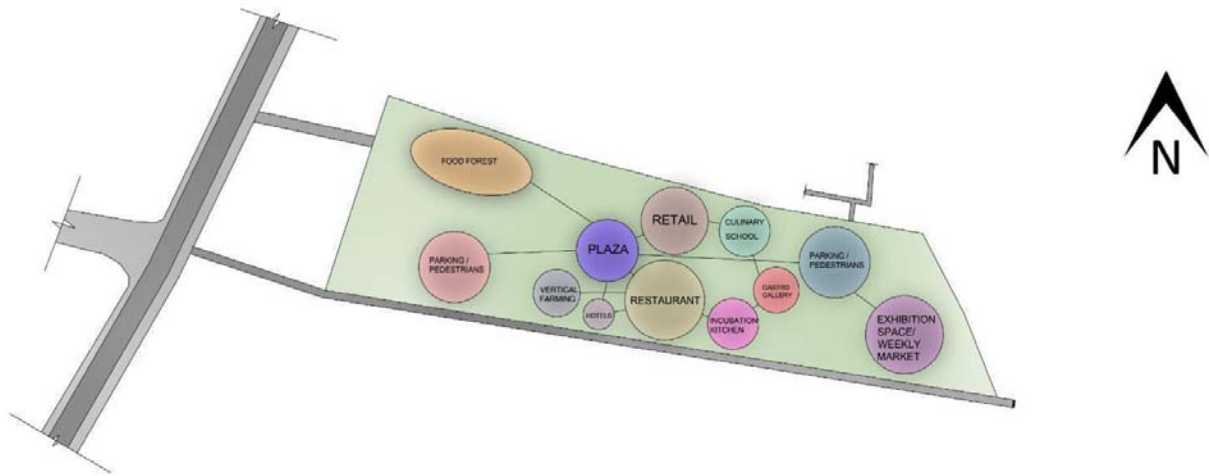


FUNCTIONAL RELATIONSHIP

The main focal and connecting of the site should be the Plaza

The majority of the public spaces will be formed by connecting the spaces like market , incubation kitchen, culinary school and gallery.

Restaurants and retail spaces should be easily accessible to the common public.



STANDARDS

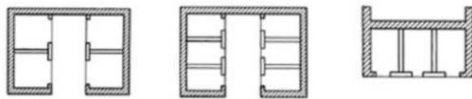
COLUMN SPACING Significant dimension is along the mall as this involves the widths, i.e., frontages, of stores. Often used spaces are 20, 25 and 30 ft., with the last the most flexible.

STORE DEPTHS Buildings are usually 120 to 140 ft deep, sometimes more to accommodate larger stores. If there are basements or mezzanines, the depth dimension usually can be reduced 20 to 25 percent

CLEAR HEIGHTS These vary from 10 to 14 ft. or more, with 12 Ft. a good average. Above this clear height, there must be adequate space for air conditioning ducts, recessed lights, structural e system, etc.

PARKING AND TRAFFIC A ratio of between 5 and 6 car spaces per 1,000 sq. ft. of leasable store area is mandatory. In the matter of parking layout, car stalls can be set at angles (say, 70' to the lanes, which then requires one-way traffic; or stalls can be at 90' to the lanes, permitting two-way traffic.

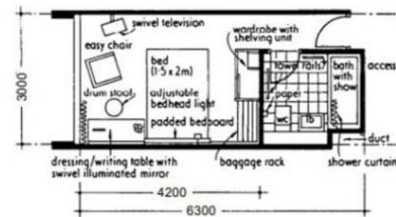
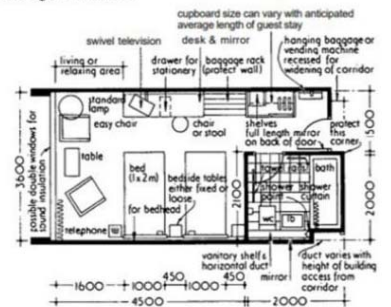
LIFE SAFETY RULES:

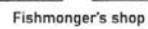


An exit may be a doorway, corridor passageway to an internal staircase, or external staircase or horizontal landing. Lifts and escalators shall not be considered as exits. Every exit, exit access or exit discharge shall be continuously maintained free of all obstructions. Exits shall be clearly visible and the route to reach the exits shall be clearly marked and signs posted to guide the occupants of the floor concerned.

BEDROOMS (HOTELS)

Bedrooms are the core of the hotel industry. For flexibility most rooms have a double bed or twin beds. Bedrooms normally have en-suite bathrooms. Corridors in bedroom areas should be minimised. Widths vary from 1.3 m wide for 2-star to 1.8 to 2.0 m wide for 5-star. Costs usually dictate bedrooms both sides of corridors. Though a number

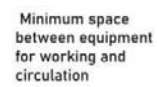
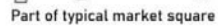




Alternative preparation area arrangements



Baker's shop



Occupancy	Area per person (m ²)
Restaurants (dining areas)	.90 to 1.1
Retail shops and showrooms	4.6 to 7.0
Department stores, bazaars	0.9 (including counters, etc.)
bargain sales areas	0.46 (gangway areas only)
Offices	9.3 (excluding stairs and lavatories)

Minimum area per person in various types of buildings

Occupancy	Area per person (m ²)
Overall allowance for public areas in public-handling buildings	2.3 to 2.8
Waiting areas, 100 per cent standing, no cross-flows (e.g. lift lobby)	0.5 to 0.65
Circulating people in corridors, reduced to halt by Obstruction.	0.2

Area per person to be allowed in various circulation areas

Occupancy	Area per person (m ²)
General design purposes	0.8
People moving at good walking pace (1.3 m/s)	3.7
People moving at a shuffle (0.4 to 0.9 m/s).	0.27 - 0.37
People at a standstill due to obstruction	0.2

Flow capacities of corridors and staircases

The ratio of fittings in male and female toilets shall be 3:5, for example, 1 WC and 2Urinals for male: 5 WC.s for female which is in accordance to the NEA's COPEH.

URINALS

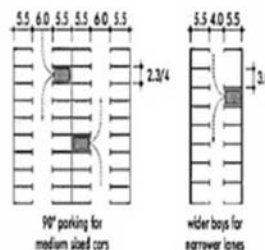
A urinal should not be set closer than 450mm from its centre to any side wall, partition, vanity or other obstruction, or closer than 900mm centre-to-centre between adjacent fixtures. There should be at least a 900mm clearance in front of the urinal to any wall, fixture or door.

SECOND MASTER PLAN FOR CHENNAI METROPOLITAN AREA, 2026

The Chennai Metropolitan Development Authority will also allow 'premium FSI', over and above the normally allowable FSI subject to a maximum of 1.62. "Now, the maximum FSI for a multistoried building will be 3.62 using premium FSI," said an official.

For a road width of 18 metres, the premium FSI allowable will be 50%. For roads with a width of 12-18 metres, the premium FSI allowable will be 40% and for roads with a width of 9-12 metres, it will be 30%.

- 1.DRIVEWAY WIDTH : MIN 7.2M
- 2.BASEMENT PARKING HEIGHT MIN :MIN 3M
- 3.ENTRY AND EXIT GATES : MIN 4.5M WIDTH
- 4.CORRIDOR WIDTH :
SINGLE LOADED = 3M
DOUBLE LOADED = 3M MIN
SERVICE CONCOURSE = 2.5 MIN



Recreational hub
Corporation Limit, Municipalities,
IT Corridor
1 car space for every 75sqm of floor area
or part thereof
Panchayat Areas
1 car space for every 100sqm of floor area
or part thereof

Starred Hotels, Major Hotels and Lodges with more than 50 rooms in CMA
1 car space for every 4-guest rooms and for the non-room area, 1 car space for every 100sqm of floor area or part thereof and 1 two wheeler space for every 50sqm of floor area or part thereof. For restaurants in these hotels – same as that specified for restaurants specified above.

National Building Code- 2005 CORRIDORS AND PASSAGEWAYS

The height of corridors and passageways shall not be less than 2.4 m and well ventilated.

Minimum width for internal staircase 2.0m.

Protected Escape Routes shall be adopted for high rise buildings and buildings having mixed occupancy/ multiplexes having covered an area of more than 500 m².

ARRANGEMENT OF EXITS:

Exits shall be so located that the travel, distance on the floor shall not exceed the distance of 30m. In the case of all commercial buildings.

NOTE:- For fully sprinkled buildings, the travel distance may be increased by 50 percent of the values Specified.

EXTERNAL STAIRCASE:

External stairs shall always be kept in sound operable conditions.

All external stairs shall be directly connected to the ground. No external staircase shall be inclined at an angle greater than 45° from the horizontal.

External stairs shall have straight flight (min) 1250 mm wide with 250 mm treads and risers not more than 190 mm.

The number of risers shall be limited to 15 per flight. Handrails shall be of a height not less than 1000 mm and not exceeding 1200 mm.

HORIZONTAL EXITS:

For buildings more than 24 m in height, a refuge area of 15 m² or an area equivalent to 0.3 m² per person.

For floors above 24 m and Up to 39 m – One refuge area on The floor immediately above 24 m.

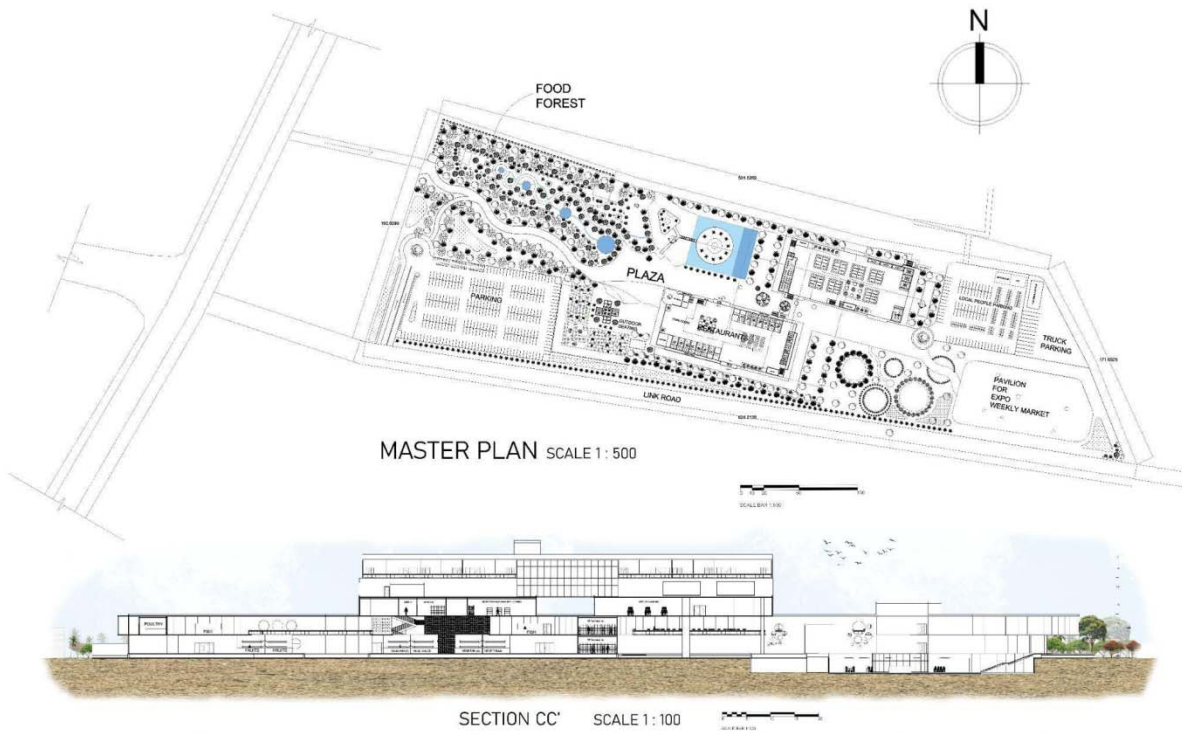
Height of the Building (in m.)	Minimum front open space (in m.)	Minimum open space on remaining sides (in m.)
(1)	(2)	(3)
Up to 15		6
Above 15 & Up to 21 mt.		7
Above 21 mt. & upto 24 mt	12	8
Above 24 m & up to 27 m		9
Above 27 m & upto 30 m		10
Above 30 m & up to 35 m		11
Above 35 m & upto 40 m		12
Above 40 m & up to 45 m	13	13
Above 45 m & upto 50 m	14	14
Above 50 m	15	16

Set back rules:

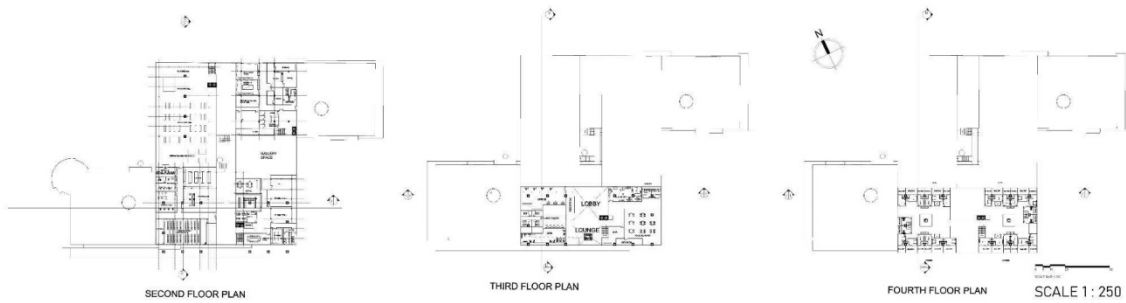
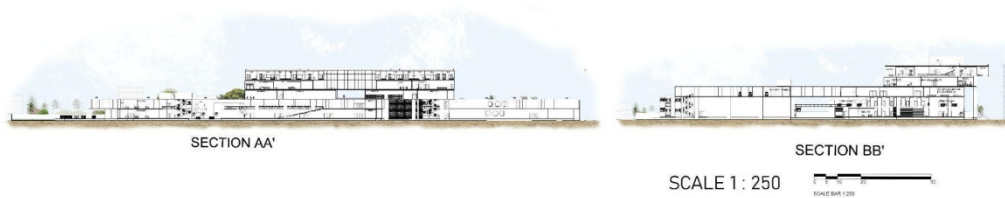
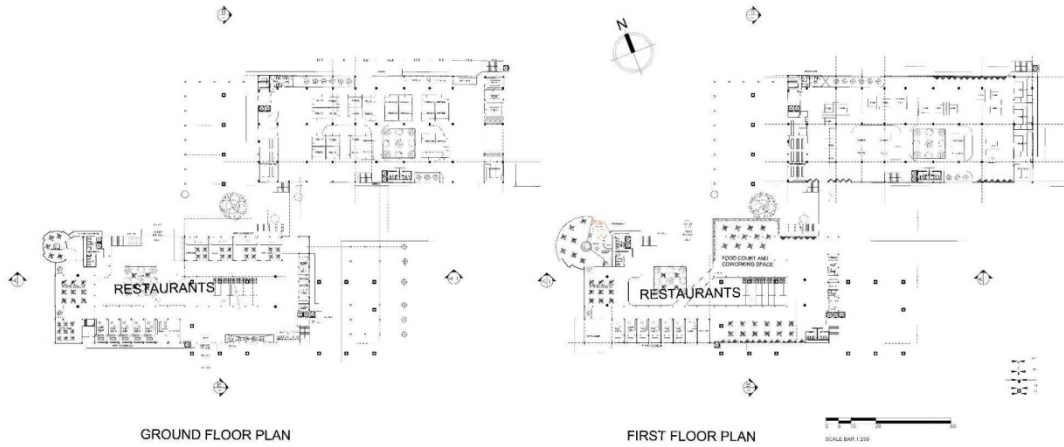
Height of building (in meters)	Minimum abutting road width required (in meters)	Minimum all-round open space on remaining sides (in meters) *
above	Up to	
1	2	3
21	24	7
24	27	8
27	30	9
30	35	10
35	40	11
40	45	12
45	50	13
50	55	14
55	60	16

After 55m 0.5m additional setback for every 5m of height shall be insisted

SITE PLAN



PLANS AND SECTIONS





VIEW FROM SOUTH



JAPANESE BAMBOO BATH



VIEW FROM FLOATING DINING



VIEW FROM INDOOR DINING



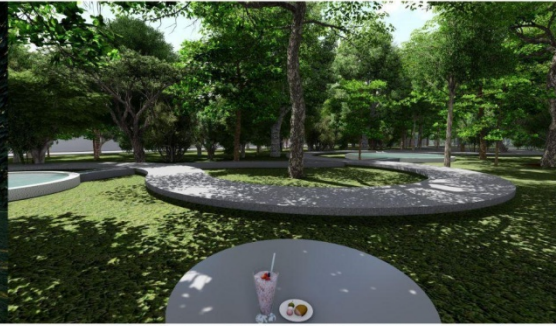
VIEW FROM FOOD COURT



VIEW FROM VERTICAL FARMING AREA



VIEW FROM OUTDOOR DINING



VIEW FROM FOREST DINING



VIEW FROM UNDER WATER DINING



3D VIEW



VIEW FORM THE FOOD FOREST



BIRD VIEW FORM THE FOOD FOREST



VIEW FORM HOTEL BALCONY



VIEW