International Convention Centre

Warangal, Telangana, India

BACHELOR OF ARCHITECTURE

BY

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DEPARTMENT OF ARCHITECTURE AND PLANNING

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL

DEC 2025

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International Convention Centre

Warangal, Telangana, India

Dec, 2025

ARC 511 – Thesis Project

International Convention Centre

Warangal, Telangana, India

Submitted by:

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9th Semester, 5th Year

UNDER THE GUIDANCE OF

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DEPARTMENT OF ARCHITECTURE AND PLANNING

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL

CANDIDATE DECLARATION

The Thesis Project in the subject ARC 511, entitled "**International Convention Centre, Warangal, Telangana, India"**, is being submitted in partial fulfilment of the requirement for the award of degree of Bachelor of Architecture by the undersigned for evaluation.
The matter embodied in this project is a record of my own work. If, in future, it is found that the above statement is false, then I have no objection in withdrawal of Bachelor of Architecture Degree awarded to me by the Institute.

Date: 1st – 2nd Dec, 2025

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RECOMMENDATION

Based on the above declaration of the student, the undersigned recommends that the work submitted by the candidate may be considered for the final end term examination of the subject ARC-511, Thesis Project.

Date: 1st – 2nd Dec, 2025

Dr. Arshi Parashar
Thesis Guide

CERTIFICATION OF EXAMINATION

The Bachelor of Architecture Thesis Viva-Voce examination of Ms.Amna T Scholar No.211110032, was held on 1/12/2025 to 2/12/25.

Dr. Nakul Dhagat
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Thesis Coordinator

ABSTRACT

This thesis presents the architectural design of the Warangal International Convention Centre (WICC), envisioned as a key socio-economic catalyst within the developing IT Park at Madikonda, Warangal. Planned on a 10-acre site under a Public–Private Partnership (PPP) framework, the project integrates four major components—Convention Centre Block, Exhibition Block, F&B and Entertainment Block, and a 3-Star Hotel—of which this thesis focuses on the design of the first three. The report encompasses detailed site analysis, literature review, development norms, standards, and case studies that collectively inform the spatial, functional, and environmental strategies of the proposal.

The design approach draws inspiration from the experiential idea of *compression and release*, using calibrated transitions, courts, and volumetric sequencing to enhance user experience while subtly referencing the sculptural depth and spatial drama of Kakatiya architecture. Sustainability and climate responsiveness guide planning decisions through passive cooling techniques, contextual materials, orientation-based zoning, and integrated landscape systems. Flexibility, accessibility, circulation efficiency, and service logic are prioritized to support large-scale conventions, exhibitions, and cultural events.

Through this synthesis of cultural identity, environmental sensitivity, and functional clarity, the project aims to establish a contemporary, inclusive, and future-ready convention facility that strengthens Warangal's position as an emerging regional hub for business, tourism, and public engagement.

ACKNOWLEDGMENT

The completion of this thesis has been one of the most meaningful milestones of my architectural education. I would like to express my sincere gratitude to all those who supported, guided, and encouraged me throughout this journey.

First and foremost, I extend my heartfelt thanks to my thesis guide, ***Dr. Arshi Parashar****, for her constant support, insightful guidance, and thoughtful feedback that helped shape the direction of my work. Her encouragement and patience motivated me to refine my ideas and push my creative boundaries. I am equally grateful to my thesis co-coordinator,* ***Ar. Vicky Lalramsangi****, for her valuable suggestions, clarity-driven inputs, and steady support throughout the process.*

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I am deeply thankful to my family for their unconditional love, emotional strength, and constant encouragement, which have been my anchor during this journey.

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TABLE OF CONTENTS

..... 1



..... III

CANDIDATE DECLARATION III

ABSTRACT IV

ACKNOWLEDGMENT V

CHAPTER I 1

DESIGN BRIEF 1

1.1 INTRODUCTION 1
1.2 AIM 1
1.3 OBJECTIVE 1
1.4 PROPOSING AGENCY 1
1.5 DETAILS OF SPACES 2
1.6 SITE DETAILS 2
1.7 LOCATION 3
1.8 PROXIMITY 3
1.9 SITE SURROUNDING 3
1.10 LANDMARK 4
1.11 PROPOSED LAND USE ZONE 5
1.12 DEVELOPMENT PARAMETERS 5
1.13 PARKING DETAILS 5
1.14 PROJECT COST ESTIMATE 6
1.15 SITE LAYOUT 7
1.16 SITE PLAN 8
1.17 TENDER DOCUMENT 9

CHAPTER II 10

LITERATURE SURVEY 10

2.1 CONVENTION CENTRE 10
2.1.1 Key Features of a Convention Centre: 10
2.2 CONVENTION CENTRE HOTEL 10
2.3 TYPES OF CONVENTION CENTRES 10
2.3.1Convention Centers (without lodging) 10
2.3.2 Convention Hotels (with lodging) 10
2.3.3 Conference Centers 11
2.3.4 Exhibition Halls/Trade Show Venues 11
2.3.5 Venues with Convention Capabilities 11
2.3.6 Unique and Special Venues: 11
2.4 IMPORTANCE OF CONVENTION CENTRE 11

2.5 EVOLUTION AND HISTORY OF CONVENTION CENTRE 11
2.5.1 Early Forms of Gathering Spaces: 12
2.5.2 The Birth of Purpose-Built Exhibition Halls (19th Century): 12
2.5.3 20th Century: Modern Convention Centers Emerge: 12
2.5.4 21st Century: Technology, Flexibility, and Sustainability: 12
2.6 GUIDELINES FOR APPROVAL OF CONVENTION CENTRES BY GOVERNMENT OF INDIA 13
2.6.1 General Features: 13
2.6.2 Norms 14
2.7 URDPFI 17
2.8 STANDARDS- NEUFERT 17
2.8.1 Escalators 17
2.8.2 Kitchen 18
2.8.3 Dinning 19
2.8.4 Hotel 19
..... 20
2.8.5 Parking 21
2.8.6 Acoustics 22
2.9 NATIONAL BUILDING CODE 23
2.9.1 socio-cultural facilities 23
2.9.2 staircase/exit requirements 23
2.9.3 RAMPS 24
2.9.4 Ventilation shaft 25
2.9.5 Projection into open spaces 26
2.9.6 Sanitation requirements for assembly buildings 27
2.9.7 Norms for differently abled within segregated toilets 28
2.9.8 water requirement and facilities 28
2.9.9 Provisions for differently-abled, elderly and children 28
2.9.10 Site development 29
2.9.11 Harvesting provisions in various building categories: 31
GREEN BUILDINGS AND SUSTAINABILITY PROVISIONS 32
Provisions and Applicability 32
Installation of Solar Assisted Water Heating System in Buildings 32
Installation of Solar Water Heating System 33
Sustainable Waste Management 33
Sustainability of Building Materials 34
FIRE ESCAPES OR EXTERNAL STAIRS 34
Spiral Stairs 34
Staircase Enclosures 35
Ramps 35
SERVICE DUCTS/REFUGE CHUTE 35
ELECTRICAL SERVICES 35
AIR-CONDITIONING 36
Air-Conditioning should conform to the following: 36
Fire Dampers 36
Static water storage tank 37

Automatic sprinklers 37
EXHIBITION GALLERIES 37
Space Standards 38
MEANS OF ESCAPE 39
Travel distance: 39
Exits: 39
Stairs: 39
Ramps: 39
FIRE SAFETY 39
General Exit Requirements 39
Capacity of exits 39
Doorways 40
Stairways and ramps 40
Horizontal exits 40
VERTICAL CIRCULATION 40
Escalators 40
Elevators 41
Ramps 42
Internal staircase 43
PARKING 43
Surface parking: 43
Basement parking 45

CHAPTER III 46

SITE INVENTORY 46
3.1 Site Details 46
3.2 Connectivity 46
3.3 Accessibility 47
3.4 Site Dimensions 47
3.5 Existing Land Use 48
3.6 UTILITIES & INFRASTRUCTURE 49
3.6.1 Electricity 49
3.6.2 Drainage 49
3.6.3 Watter Supply 50
3.7 SITE SURROUNDINGS 50
3.8 NOISES TOWARDS THE SITE 52
3.9 STREET VIEW 52
3.10 TYPOGRAPHY 53
3.11 VEGETATION 54
3.12 SOIL TYPE 55
3.12.1 Type of Foundation can be Used: 55
3.12.2 Considerations for Foundation in Sandy Loam: 55
3.13 VIEWS OF SITE 56
3.14 CLIMATE 57
3.15 DATA 57

3.15.1 Sun path 57
3.15.2 Average temperature in Warangal 57
3.15.3 Average hourly temperature in Warangal 58
3.15.4 Cloud 59
3.15.5 Precipitation 59
3.15.6 Rainfall 60
3.15.7 Humidity 60
3.15.8 Wind 61
3.15.9 Wind direction in Warangal 61
3.16 MAHONEYS TABLE 62

CHAPTER IV 64

LIVE CASE STUDY/ DESK APPRAISAL 64

BASE ELEVEN CONVENTION CENTRE 64
INTRODUCTION 65
ACCESSIBILITY AND PROXIMITY 65
CONCEPT AND APPROACH 66
PLAN AND DETAILS 67
HALL 1 68
HALL 2 68
HALL 3 69
BANQUET HALLS 69
COURTYARD 69
PAVILION 71
LANDSCAPING 72
SERVICES 73
LULU BOLGATTY INTERNATIONAL CONVENTION CENTRE (LBICC) 74
INTRODUCTION 74
CONCEPT AND APPROACH 74
Site plan 75
Floor plan 76
SPACES 76
VEMBANAD- BALLROOM 76
GRAND BALLROOM 77
THE LIWA BALLROOM 77
LIVING ROOM 78
ATELIER I 78
ATELIER II AND ATELIER III 79
GRAND SALON I AND GRAND SALON II 79
Residences 80
Vembanad and Liwa 80
EXTERIOR SPACES AND LANDSCAPING 81
ENTRY AND EXITS 82
SERVICES 82
HYDERABAD INTERNATIONAL CONVENTION CENTRE 83

INTRODUCTION....84
ACCESSIBILITY AND PROXIMITY....84
CONCEPT....84
FACILITIES H.I.C.C....85
Area Analysis....85
PLAN AND DETAILS....85
AREA STATEMENT....85
COMBINED HALLS (1–6)....88
CAPACITY AND DETAILS....90
AMENITIES....90
KEY FEATURES....91
BARRIER ENVIORNMENT....92
HONG KONG CONVENTION AND EXHIBITION CENTRE (HKCEC)....92
INTRODUCTION....93
ACCESSIBILITY AND PROXIMITY....93
CONCEPT AND APPROACH....94
AREA STATEMENT AND CAPACITY....94
EXHIBITION HALL....94
MEETING ROOM....97
THEATRE....99
MULTIPURPOSE HALL....99
CONVENTION HALL....101
MULTI-FUNCTIONAL ROOM....102
PLAN AND DETAILS....104
FACILITIES....106
STRUCTURAL AND CONSTRUCTION....106
Case Study Comparitive Analysis....107
REFERENCE....110

TABLE OF TABLES

Table 1 minimum build-up area....
Table 2 site attributes....
Table 3 proximity....
Table 4 parameters....5
Table 5 parking details....5
Table 6 ....
Table 7 project cost....
Table 8 Abutting Road width....
Table 9 :Staircase measurements....
Table 10 Occupants per unit Exit width....24

Table 11 24
Table 12 Ramp guidelines .....
Table 13 Size of Ventilation Shaft .....
Table 14 Sanitation Requirement Table 1 .....
Table 15 Sanitation Requirement Table 2 .....
Table 16 Provisions for Rainwater harvesting by building types .....
Table 17 Definitions .....
Table 18 Exit widths 39
Table 19 Step Width .....
Table 20 Elevator Size 42
Table 21 Staircase Size 43
Table 22 Surface Parking .....
Table 23 Ramp Design .....
Table 24 site details 46
Table 25 connectivity 46
Table 26 vegitation 55
Table 27 average temperature 58
Table 28 cloud .....
Table 29 cloud data 59
Table 30 precipitation 60
Table 31 rainfall 60
Table 32 humidity 61
Table 33 wind data 61
Table 34 Mahoney's table 63
Table 35 area and capacity 75
Table 36 convention centre capacity 90
Table 37 Hall 1 capacity 95
Table 38 Hall 3B-3E capacity 95
Table 39 Hall 3F-3G capacity 95
Table 40 hall 5d and 5E 96
Table 41 meeting room capacity 98
Table 42 Theatre capacity 99
Table 43 capacity of multipurpose hall 100
Table 44 convention hall capacity 101
Table 45 chancellor room capacity 103
Table 46 Bauhinia rooms capacity 104
Table 48 structural details and materials 106
Table 47 section showing truss details .....
Table 49 Comparative Analysis 109

TABLE OF FIGURES

Figure 1 project site .....
Figure 2 site location .....
Figure 3 TGIIC flatted factory complex 4

Figure 4 zoning map 5
Figure 5 site layout.....
Figure 6 site.....
Figure 7 site dimensions .....
Figure 8 tender document .....
Figure 9 MOS and ground coverage .....
Figure 10 parking.....
Figure 11 .....
Figure 12 high rise .....
Figure 13 central courtyard.....
Figure 14 electrical line .....
Figure 15 Requirments for High rise buildings .....
Figure 16 F.A.R .....
Figure 17 Development Control for Socio-Cultural Facilities.....
Figure 18 Requirements for Galleries, Libraries and Museums 38
Figure 19 Cross Section.....
Figure 20 Types .....
Figure 21 Elevator size .....
Figure 22 site visit Madikonda Warangal..... 46
Figure 23 site location..... 47
Figure 24 site accessibility.....
Figure 25 site plan with dimention .....
Figure 26 existing land use .....
Figure 27 electricity line .....
Figure 28 drainage .....
Figure 29 Daramsagar canal .....
Figure 30 site landmarks..... 50
Figure 31 Textile park.....
Figure 32 Agricultural land on north side of site .....
Figure 33 NH road in front of the site.....
Figure 34Agricultural land on south side of site.....
Figure 35 IT Park under construction .....
Figure 36 surrounding noise 52
Figure 37 Road view..... 52
Figure 38 Road section 53
Figure 39 topography..... 53
Figure 40 contour.....
Figure 41 slope analysis.....
Figure 42 soil .....
Figure 43 view in the site.....
Figure 44 views from the site..... 56
Figure 45 sunpath diagram.....
Figure 46 average temperature.....
Figure 47 hourly temperature.....
Figure 48 cloud .....
Figure 49 precipitation..... 59
Figure 50 rainfall.....
Figure 51 humidity graph.....

Figure 52 wind analysis .....
Figure 53 wind direction .....
Figure 54 Base eleven convention centre .....
Figure 55 the base (Tharavadu) .....
Figure 56 zoning .....
Figure 57 eleven spaces in Base eleven .....
Figure 58 ground floor plan visualization .....
Figure 59 hall 1 .....
Figure 60 lighting .....
Figure 61 hall 2 .....
Figure 62 hall 3 .....
Figure 63 partition panel .....
Figure 64 banquet hall .....
Figure 65 courtyard showing seating .....
Figure 66 dancing area featuring sealing designed by cloth .....
Figure 67 Tharavadu with open space for event .....
Figure 68 pavilion and open space for events .....
Figure 69 jathikka garden showing open event spaces .....
Figure 70 artificial mounts .....
Figure 71 45 years old Jathikka field and preserved well with modern landscaping .....
Figure 72 200-year bamboo with stage setting under .....
Figure 73 parking area .....
Figure 74 OAT .....
Figure 75 landscaping in front of hall 2 .....
Figure 76 courtyard landscaping with ferns given in less interactive area. .....
Figure 77 Fire and safety .....
Figure 78 Kitchen .....
Figure 79 Washroom Plumbing shaft .....
Figure 80 Electric substation .....
Figure 81 LULU Bolgatty Convention Centre .....
Figure 82 Site plan .....
Figure 83 Floor plan .....
Figure 84 vembanad hall .....
Figure 85 large foyer of vembanad ballroom .....
Figure 86 grand ballroom .....
Figure 87 Liwa hall view from front .....
Figure 88 Liwa hall view from back .....
Figure 89 Large living room .....
Figure 90 Atelier I .....
Figure 91 Atelier III .....
Figure 92 Atelier II .....
Figure 93 grand saloon .....
Figure 94 Residences 80
Figure 95 Vembanad and Liwa floor plan .....
Figure 96 Pool and garden facing Vembanad Lake .....
Figure 97 HVAC Plant .....
Figure 98 Fire and safety .....
Figure 99 Electrical control room .....

Figure 100 Main hub for goods loading.....
Figure 101 Diesel Yard.....
Figure 102 Hyderabad International convention centre.....
Figure 103 HICC view.....
Figure 104 area statement.....87
Figure 105 ground floor layout.....
Figure 106 second floor layout.....
Figure 107 first floor layout.....
Figure 108 arrangement in theatre style.....
Figure 109 arrangement in banquet style.....
Figure 110 different exhibition arrangements.....
Figure 111 reception lobby.....
Figure 112 meeting room.....
Figure 113 different arrangements inside the convention hall.....
Figure 114 Barrier Free environment.....
Figure 115 HKCEC front view.....
Figure 116 zoning.....
Figure 117 Hall 1.....94
Figure 118 Hall 3B-3E.....
Figure 119 Hall 3F-3G.....
Figure 120 Hall 5BC.....
Figure 121 Hall 5DE.....96
Figure 122 Hall 5F.....97
Figure 123 Hall 5G.....
Figure 124 grand hall with round table arrangement.....
Figure 125 grand foyer with view to Victorian harbour.....
Figure 126 plan of multipurpose hall.....100
Figure 127 convention hall view.....
Figure 128convention hall plan.....102
Figure 129 chancellor room.....102
Figure 130 Bauhinia room with a view on Victorian harbour.....103
Figure 131 second floor plan.....
Figure 132 first floor plan.....
Figure 133 third floor plan.....
Figure 134 fourth floor plan.....
Figure 135 section through halls.....
Figure 136 division of halls in section.....

CHAPTER I

DESIGN BRIEF

1.1 INTRODUCTION

The Telangana State Industrial Infrastructure Corporation (TSIIC), under its objective of providing integrated industrial infrastructure development, envisages the need to undertake the development of the Warangal International Convention Centre (WICC) cum 3-Star Hotel at IT Park Madikonda, Warangal, Telangana on Public Private Partnership (PPP) mode under IALA Warangal. The project is proposed on approximately 10 acres (40,468 sq.m.) of land and includes a convention centre, a business hotel, entertainment and F&B facilities, and surface parking. The total built-up area is approximately 250,000 sq.ft. The project aims to provide comprehensive facilities for conventions, exhibitions, meetings, and hospitality in an integrated manner.

1.2 AIM

To design a comprehensive, inclusive, and culturally responsive convention centre and business hotel complex in Warangal that caters to diverse professional, cultural, and social needs, while harmonizing contemporary architecture with regional identity.

1.3 OBJECTIVE

- To analyze the spatial and functional requirements of a modern convention centre integrated with hospitality, including convention halls, breakout spaces, business hubs, and supporting infrastructure.
- To design a flexible and sustainable built environment that facilitates large-scale gatherings, exhibitions, and conferences without compromising user comfort, accessibility, or environmental responsiveness.
- To establish a meaningful architectural language that draws inspiration from Warangal's cultural and historic context, especially the Kakatiya heritage, while addressing present and future urban dynamics.
- To explore efficient circulation, security, and service strategies within the complex to ensure a smooth user experience for varied stakeholder groups—organizers, delegates, staff, and the public.
- To assess and apply smart urban infrastructure models, energy-efficient design strategies, and environmentally responsive technologies suited for Telangana's climatic and urban context.
- To respond to the PPP framework of development by proposing a design that is not only architecturally significant but also financially viable and adaptable for phased implementation.

1.4 PROPOSING AGENCY

The Telangana State Industrial Infrastructure Corporation Limited, envisages the need to undertake development of Warangal International Convention Centre (WICC) cum 3-Star Hotel @ IT Park Madikonda, Warangal, Telangana on Public Private Partnership (PPP) Mode Under IALA Warangal.

1.5 DETAILS OF SPACES

The Minimum Development Obligations (Build-Up) for the Project:

Sl. No.	Description	Area In sq.ft	
A	**Convention Centre cum Exhibition Centre (2,500 Pax)**	**50,000**	sq. ft.
I	Convention Centre	30,000	sq. ft.
II	Small Meeting rooms	2,000	sq. ft.
III	Large Meeting rooms	5,000	sq. ft.
IV	Business Centre	5,000	sq. ft.
V	Pre-function and Circulation Spaces	8,000	sq. ft.
B	**Business Hotel (150 Keys)**	**150,000**	sq.ft
C	**Entertainment and F&B**	**50,000**	sq. ft.
	Total	**250,000**	sq. ft.
D	**Parking**	As per GO 168	Surface Parking

Table 1 minimum build-up area

1.6 SITE DETAILS

Project Site Attributes	
Location	Sy. No. 1791/ 1 of Madikonda (V) Warangal (U) District
Site Area	~ 10 acres (40,468 sq. m.)
Primary Access	NH 163
Visibility & Frontage	Excellent Visibility and Frontage along abutting roads ; contiguous site
Shape, Terrain	Regular and mostly flat
Project Site Boundary	
North	Vacant land
South	Vacant land
East	NH 163 Access road
West	Dharmasagar Canal

Table 2 site attributes

1.7 LOCATION

The Project Site is located in Sy. No. 1791/ 1 of Madikonda (V) in Warangal, Telangana, India. The site is located opposite to the Textile Park. Following map shows the location of the Project Site with respect to Warangal.

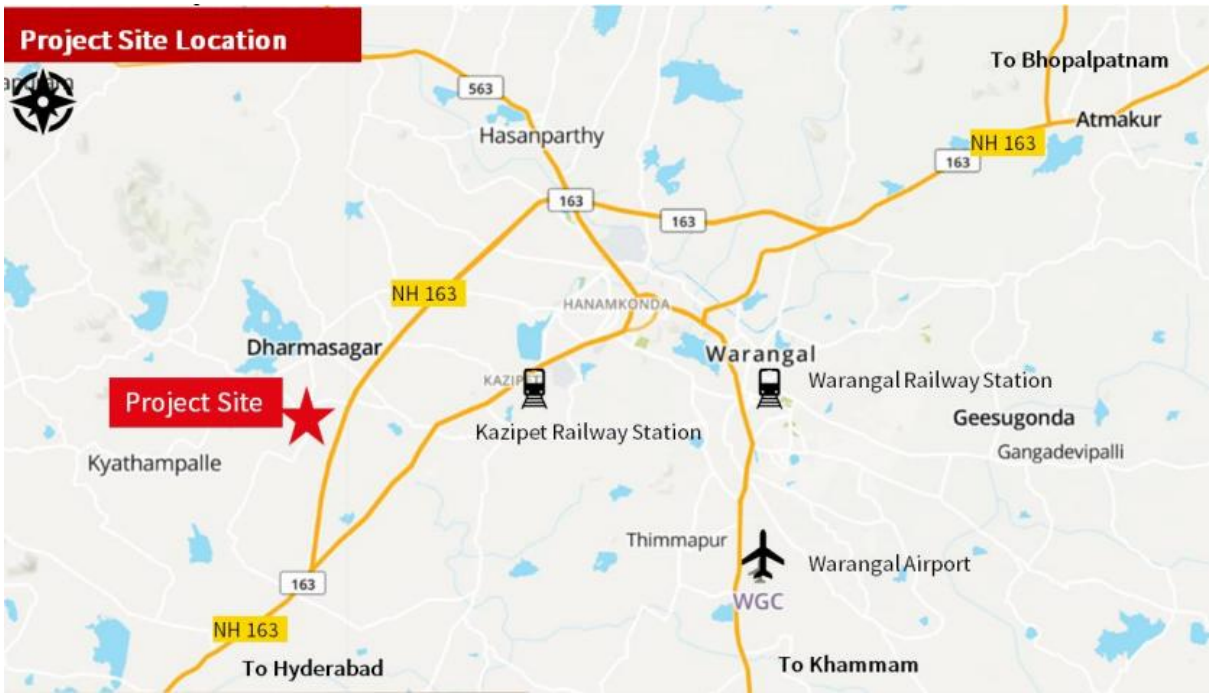


Figure 1 project site

1.8 PROXIMITY

The table below provides distance of the Project Site with respect to few key landmarks.

Details of Landmark Distances from project Site.

Location / Landmark	Approximate Distance from the Project Site
Textile Park	Opposite (Immediate Neighborhood)
V City Madikonda	~3.7 Km
Kazipet Junction	~9 Km
Warangal Railway Station	~20 Km
Hyderabad City	~140 Km
Hyderabad International Airport	~ 161 Km

Table 3 proximity

1.9 SITE SURROUNDING

The East side of the site is with large area of Textile Park and having NH 163 Infront of site for access towards site.

The West side and South side of the site is vacant land.

The North side of the site is allocated for IT park development.



Figure 2 site location

1.10 LANDMARK

Infront of Site there is TGIIC (Telangana Government Industrial Infrastructure Corporation Limited) Flatted factory complex.



Figure 3 TGIIC flatted factory complex

1.11 PROPOSED LAND USE ZONE

Land is zoned to the category of Industrial Zone (I)

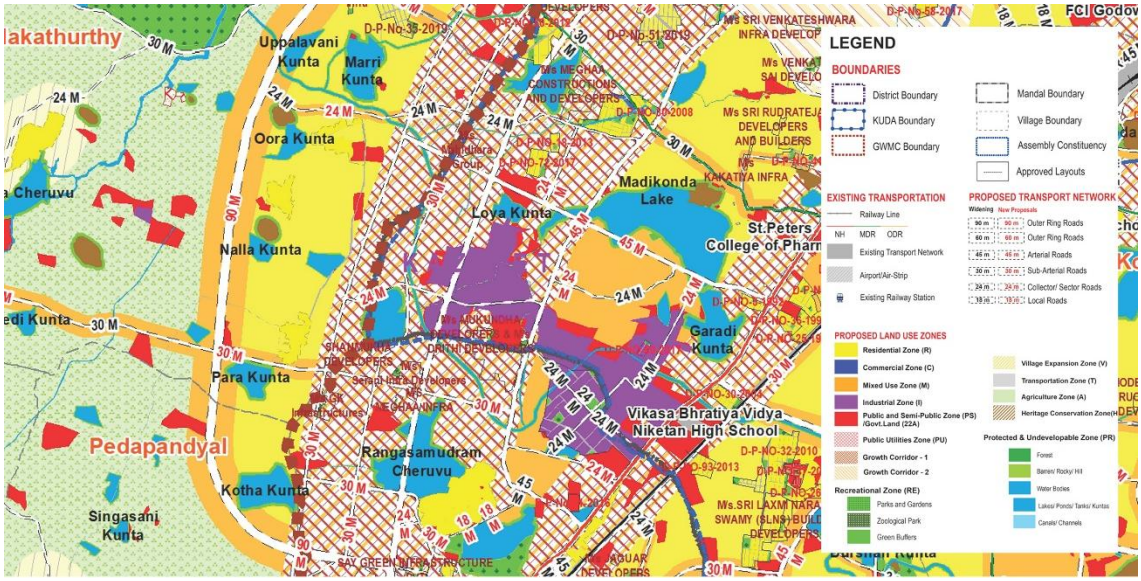


Figure 4 zoning map

1.12 DEVELOPMENT PARAMETERS

According to G.O. Ms. No. 423 (Government of Andhra Pradesh)

Site Area	10 acres (40,468 sq.m.)
Total Build up Area	250,000 sq.ft
F.A. R	2
Ground Coverage	40%
Front Setback	9m
Side Setback	6m
Rear Setback	6m
Minimum Frontage	9m
Internal Road	Varies

Table 4 parameters

1.13 PARKING DETAILS

Category	Build up Area	ECS Per 100 Sq.m	Total ECS Required
Convention Center	50,000 Sq.ft	2.0 ECS/100 sq,m	46
Hotel	150,000 Sq.ft	3.0 ECS/100 sq,m	139
Entertainment and F&B	50,000 Sq.ft	2.0 ECS/100 sq,m	46
Total	250,000 Sq.ft		**231**

Table 5 parking details

According to G.O. Ms. No. 168 (Government of Andhra Pradesh), Table- V below:

2	Shopping Malls (above 4000 sq.m), Information Technology Enabling Services Complexes	60	50	50	40	40	30
3	Hotels, Restaurants, Lodges, Cinema halls, Business buildings, Other Commercial buildings, Kalyana Mandapams, Offices, & High-Rise Buildings / Complexes of Non Residential Category	40	30	30	25	25	25
4	Residential Apartment Complexes, Hospitals, Institutional buildings, Industrial buildings, Schools, Colleges, Other Educational Buildings & Godowns & Others	30	20	20	20	20	20

Table 6

1.14 PROJECT COST ESTIMATE

The project cost (excluding upfront development premium and annual rent during construction payable to TSIIC) is estimated to be ~ Rs. 175 Crores. The table below provides indicative break-up of the estimated Project Cost:

Estimated Project Cost

Particulars	Unit Cost (Rs. per sq. ft.)	Total Project Cost (Rs. Crores)
MICE (International Standard Convention Centre)	~ 6,430	~ 32.15
Business Hotel (150 Keys)	~ 6,607	~ 99.10
Entertainment and F&B	~ 4,620	~ 23.10
Total Development Cost		**~ 154.35**
Interest Cost		~ 20.65
Total Project Cost		**~175.00**

Table 7 project cost

1.15 SITE LAYOUT

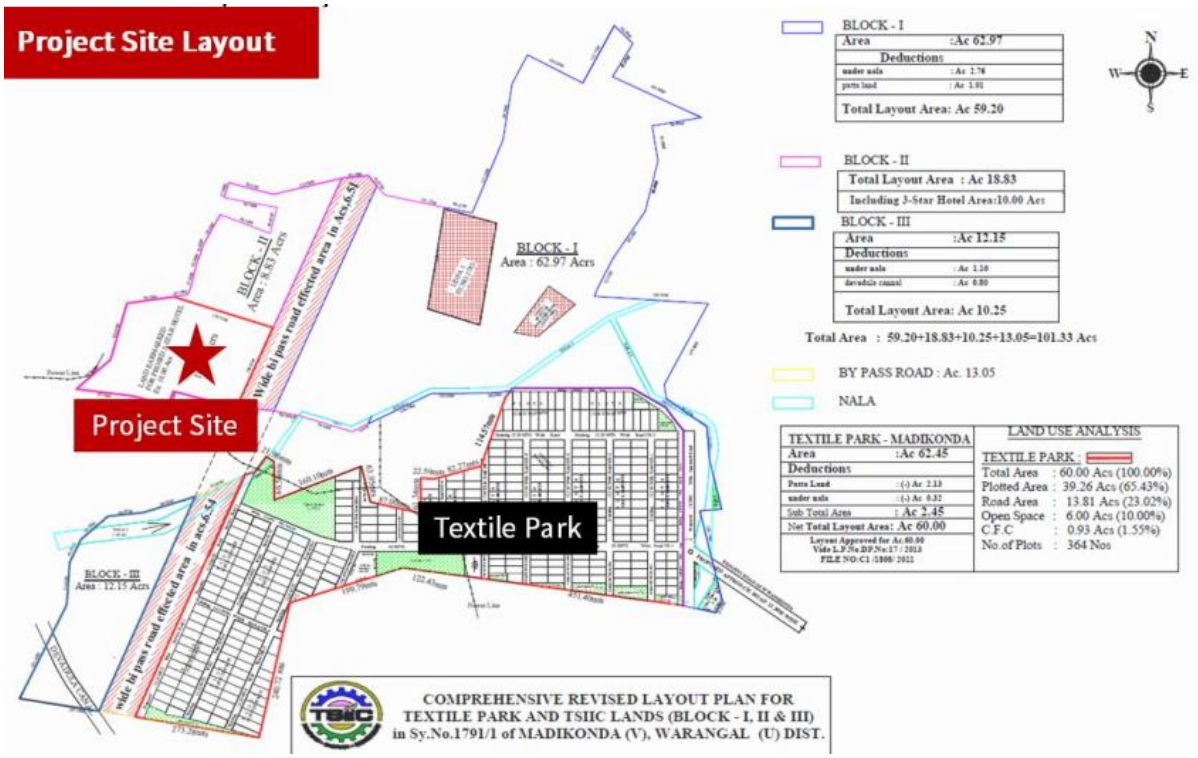


Figure 5 site layout

1.16 SITE PLAN

Latitude: 17.957690 N

Longitude: 79.447151 E



Figure 6 site

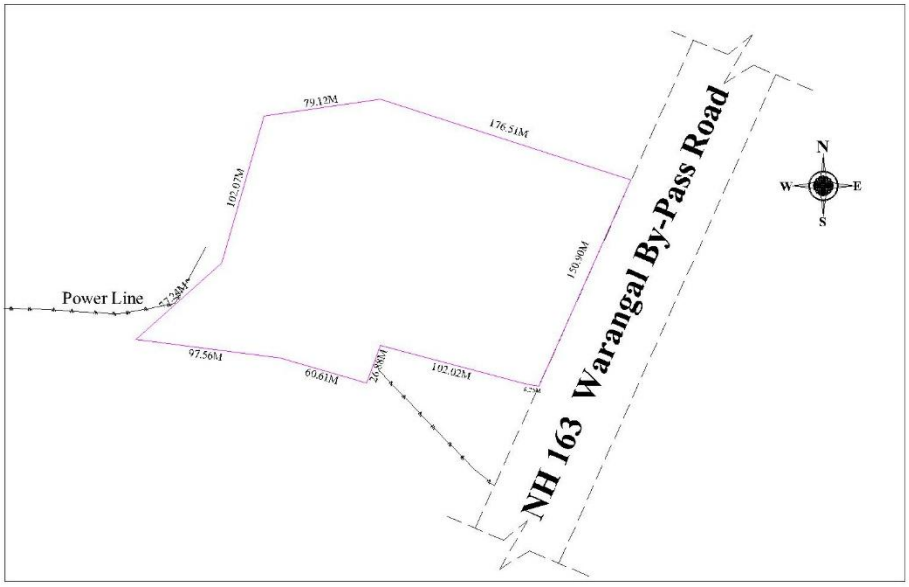


Figure 7 site dimensions

1.17 TENDER DOCUMENT

LETTER OF INVITATION

To:

<Name and Address of the Purchaser of the Request for Proposal Document>

Subject: **Invitation for Submission of Bid for 'Warangal International Convention Centre (WICC) cum 3-Star Hotel @ IT Park Madikonda, Warangal, Telangana on Public Private Partnership (PPP) Mode Under IALA Warangal'.**

Dear Madam / Sir,

We, the Telangana State Industrial Infrastructure Corporation Limited under our core objective of providing integrated infrastructure development for the state of Telangana, envisage the need to undertake development of Warangal International Convention Centre (WICC) on approximately 10 acres (40,468 sq. m.) of land located at Madikonda, Warangal, Telangana, India, on PPP Mode.

The Project is envisaged to be a Warangal International Convention Centre (WICC) cum 3-Star Hotel @ IT Park Madikonda, which is proposed to be developed at Madikonda, Warangal, Telangana, involving private developers.

We have earmarked about 10 acres (40,468 sq. m.)of land for the Project, which is envisaged to be an Warangal International Convention Centre (WICC) cum 3-Star Hotel @ IT Park Madikonda along with other support facilities. This Request for Proposal (the "RFP") document is for the Project, which is being proposed on approximately 10 acres (40,468 sq. m.) of land with about 200,000 sq. ft. of built-up area and corresponding car parking area.

We are pleased to invite you to participate in the bidding process and partner with the Government of Telangana in developing the proposed Warangal International Convention Centre (WICC) cum 3-Star Hotel @ IT Park Madikonda, Warangal, Telangana on Public Private Partnership (PPP) Mode Under IALA Warangal and contribute to the growth of the State of Telangana. This RFP document comprises of three volumes:

1. Volume 1: Instruction to the Bidders
2. Volume 2: Development Agreement
3. Volume 3: Project Information Memorandum

Please feel free to contact us if you need any clarifications and/or additional information.

Yours faithfully,
for Telangana State Industrial Infrastructure Corporation Limited

Vice Chairman & Managing Director

Figure 8 tender document

CHAPTER II

LITERATURE SURVEY

2.1 CONVENTION CENTRE

A convention centre (also known as a conference centre or exhibition hall) is a large public building or complex specifically designed to host events, such as: Conferences, Conventions, Seminars, Exhibitions, Trade shows, Cultural programs, Business meetings.

2.1.1 Key Features of a Convention Centre:

1. Large Halls or Auditoriums – For keynote speeches, performances, or big gatherings.
2. Breakout Rooms/Meeting Rooms – Smaller spaces for workshops or group discussions.
3. Exhibition Areas – Open or partitioned spaces for displaying products or stalls.
4. Pre-function Areas – For registration, refreshments, networking, etc.
5. Back-of-House Facilities – Service corridors, green rooms, kitchens, storage.
6. Resorts or Hotels – for accommodation for attendees.
7. Technical Infrastructure – Audio-visual systems, internet, lighting, air-conditioning.
8. Parking and Accessibility – Ample vehicle parking and easy access for attendees.

2.2 CONVENTION CENTRE HOTEL

Convention Hotel means a hotel with 50 rooms or greater that provides facilities and services designed to host meetings or gatherings within or upon the same premises of the hotel or within a facility (for example: convention centres, auditoriums, outdoor venues, etc.) that is in close proximity of the hotel.

2.3 TYPES OF CONVENTION CENTRES

2.3.1Convention Centers (without lodging)

These are dedicated large buildings primarily designed for conventions, trade shows, exhibitions, and conferences. They typically offer extensive floor areas, often accommodating thousands of attendees. They usually contain:

1. Exhibit Halls: Large open spaces for trade shows and exhibitions.
2. Auditoriums/Plenary Halls: For large keynote speeches, presentations, or performances.
3. Meeting Rooms & Conference Rooms: Smaller, flexible spaces for breakout sessions, workshops, and business meetings.

Support Facilities**:** Registration areas, food and beverage services, business centers, press lounges, VIP lounges, and parking. These centers are often located adjacent to or near hotels to provide accommodation for attendees.

2.3.2 Convention Hotels (with lodging)

These are hotels that integrate significant convention and meeting spaces within their own facilities, in addition to providing accommodation and other hotel amenities (restaurants, fitness centers, etc.). They offer the convenience of having everything under one roof, making them popular for events where attendees also need lodging.

2.3.3 Conference Centers

Similar to convention centres, but often smaller in scale and with a stronger focus on meetings and educational programs rather than large-scale exhibitions. They tend to offer higher levels of service and specialized amenities for focused discussions and learning.

2.3.4 Exhibition Halls/Trade Show Venues

While often part of larger convention centers, some venues are primarily designed as standalone exhibition halls, focusing specifically on hosting trade shows and large product displays.

2.3.5 Venues with Convention Capabilities

Other types of venues can host conventions or events with similar characteristics, though they may not be purpose-built convention centres:

Business Centers: Offer amenities like cutting-edge technology, multimedia facilities, and specialized rooms for business meetings and smaller conferences.

2.3.6 Unique and Special Venues:

i. Museums and Art Galleries: Provide a distinct and often culturally rich backdrop for events.
ii. Historical Buildings: Offer a unique ambiance and charm.
iii. Educational Venues:
iv. Universities and Colleges: Often have lecture halls, auditoriums, classrooms, and sometimes even residential halls that can be rented for corporate gatherings, academic conferences, and workshops, often at a lower cost.
v. Sports Venues (Stadiums/Arenas): Can accommodate very large numbers of people for major events, concerts, or large-scale product launches.
vi. Banquet Halls: Primarily used for formal events like weddings and proms, but can also host smaller conferences or corporate dinners.
vii. Community Centers: Offer low-cost multi-purpose rooms for various gatherings.
viii. Theatres and Auditoriums: Ideal for events requiring a stage and audience setup, such as presentations, performances, or large lectures.

2.4 IMPORTANCE OF CONVENTION CENTRE

Convention centres are crucial for economic development and city branding. They attract business travellers who spend on hotels, restaurants, and local services, creating jobs and generating tax revenue. Beyond direct economic impact, they foster knowledge exchange, promote innovation, and enhance a city's international reputation by hosting major events. They also serve as important community gathering places for local events, enriching social and cultural life.

2.5 EVOLUTION AND HISTORY OF CONVENTION CENTRE

The evolution of convention centers reflects a fascinating journey from rudimentary gathering spaces to the sophisticated, technologically advanced, and often sustainable hubs we see today.

2.5.1 Early Forms of Gathering Spaces:

- Ancient Times: The concept of large gatherings for trade, political discourse, or religious ceremonies dates back to ancient marketplaces (like Greek Agoras and Roman Forums), castles, and palaces. Halls in castles, for instance, were designed to accommodate large groups for important meetings with the king, serving as early "convention halls." A notable historical example is the "Tennis Court Oath" during the French Revolution in 1789, where a makeshift meeting in an indoor tennis court became a pivotal moment in history.
- Medieval Fairs: In the Middle Ages, fairs were common across Europe, primarily for promoting agricultural products, arts, crafts, and other handmade goods. These can be seen as precursors to modern trade shows.

2.5.2 The Birth of Purpose-Built Exhibition Halls (19th Century):

- Industrial Revolution: The Industrial Revolution, with its mass production and advancements in transportation and communication, spurred the need for dedicated spaces to showcase new technologies and products.
- The Crystal Palace (1851, London): This iconic structure, built specifically for the Great Exhibition, is often cited as a landmark in the history of exhibition halls. It provided an unprecedented amount of exhibition space and showcased the world's industrial and cultural achievements.
- Bingley Hall (1850, Birmingham, England): Considered one of the first purpose-built exhibition halls in Great Britain, it was constructed from surplus materials and hosted a variety of public gatherings.
- Other 19th-Century Halls: Throughout the latter half of the 19th century, many cities around the world began building dedicated halls for large meetings and exhibitions, such as Memorial Hall in Philadelphia (1876) and Exhibition Place in Toronto (1878).

2.5.3 20th Century: Modern Convention Centers Emerge:

- Post-WWI Growth: As industries and trades grew and sought more suitable venues, cities began investing in modern facilities to attract business, development, and tourism. These often took the form of new municipal halls that could host both professional conventions and popular entertainment.
- Increased Size and Scope: The late 1920s saw the appearance of modern, multipurpose convention centers that grew in size and scope. Examples include Atlantic City's Boardwalk Hall (1929), known for its massive clear-span space.
- Post-WWII Boom and Specialization: The mid-20th century witnessed a significant boom in convention center construction, especially in the U.S. Places like McCormick Place in Chicago (1955) and the Las Vegas Convention Center (1959) emphasized abundant exhibition space, becoming anchors for local economies. These facilities began to offer more than just exhibition space, incorporating auditoriums, concert halls, lecture halls, and meeting rooms.
- Rise of the MICE Industry: The growth of the Meetings, Incentives, Conferences, and Exhibitions (MICE) industry further fueled the development of dedicated convention centers, recognizing the economic significance of business tourism.

2.5.4 21st Century: Technology, Flexibility, and Sustainability:

- Multifaceted and Technology-Driven: Today's convention centers are far from simple utilitarian halls. They are multifaceted, technology-driven spaces designed to accommodate a diverse array of events, blurring the lines between physical and virtual interaction.
- Hybrid Events: The rise of hybrid events (combining in-person and digital attendees) has redefined the role of convention centers, leading to increased focus on robust Wi-Fi, seamless

streaming capabilities, and interactive setups.

- Flexible and Adaptive Spaces: Modern designs prioritize flexibility and adaptability, with modular layouts, airwall configurations, and customizable spaces to suit various event sizes and themes.
- Enhanced Networking: Convention centers are incorporating dedicated networking zones, often with technology to facilitate connections and digital information exchange.
- Sustainability: Environmental consciousness is a major driver, with venues adopting green building materials, renewable energy sources, waste reduction programs, and eco-friendly event setups.
- Experiential Design: There's a growing emphasis on creating dynamic and engaging experiences for attendees, moving beyond mere content delivery to foster human connection and a sense of place. This includes incorporating natural light, outdoor meeting spaces (like rooftop gardens), and integration with the surrounding urban environment.
- Economic Drivers: Convention centers continue to be crucial for attracting business, driving tourism, and spearheading urban revitalization projects.

2.6 GUIDELINES FOR APPROVAL OF CONVENTION CENTRES BY GOVERNMENT OF INDIA

2.6.1 General Features:

It is very essential that the proposed convention centre should contain at least one convention hall, two mini convention halls, one exhibition hall, one restaurant and parking facilities as per details given below: -

1. Convention Hall-Convention Hall as the name suggests should have audio Visual conferencing equipment, facility for high fidelity recording, video projection/ video graphs etc. and skilled manpower at various levels.

The seating capacity in the hall may be in a classroom style in the following category: - Above 1500pax or 1200-1500 pax or 800-1200 pax or 300-800 pax

2. Mini Convention Halls: Mini Convention halls are equally important in Convention Centers as these halls are required for various seminars, committees, meetings etc. the seating capacity therefore, may be in a theatrical or classroom style to seat as follows: -. 200-300 pax or 100-200 pax or 50-100 pax or 20-50 pax

3. Exhibition Hall: Exhibition Hall is another important feature in convention centre. Delegates to the convention as well as trade relative promoters take part in trade shows to promote their products during conventions. As such, it is essential that such exhibition hall should have a capacity to accommodate at least 20 booths of 3 mts by 3 mts in size excluding passages in between the booths.

4. Restaurants: Restaurants in the convention centers should confirm to the existing guidelines of HRACC laid down by the Ministry.

5. Parking: Parking facility for not less than 50 cars and five coaches.

6. Residential Accommodation for Delegates/ Participants**:** applicable only if, promoters, desire to have residential accommodation in the convention complex and the guidelines laid down by the Ministry in respect of star category hotels will apply.

7. Infrastructural Facilities: -

1. Landscaped forefront

2. Exhibition Management Centre
3. Administrative facilities for corporate office including IITTM/ Internet etc.
4. Trade Show/ Fair Facilities such as Tourist Office, Bank and Money Changing facilities, Travel Desk, STD/ISD, Press Lounge, VIP Lounges etc.
5. Technical facilities such as plant room, electric substation, stores, electric power back-up-system, fire hydrant etc.
6. Gate complex for stipulating entry and exit.
7. Information booths.
8. Public Convenience.
9. Stationary Shops and Kiosks.
10. Public Address System.
11. First aid with doctor on call facilities.
12. Security office and booths for security arrangements.
13. Storage complex for custom storage and handling etc.
14. Fire safety arrangements.
15. Locker facilities.
16. Handicraft shops, souvenir shop.
17. Facility for the physically disabled person.
18. Other facility for enhancing customer satisfaction.

2.6.2 Norms

4. SITE AND BUILDINGS REQUIREMENTS:

4.1 MAXIMUM PERMISSIBLE FLOOR AREA RATIO (F.A.R.)

For Residential, Commercial, Institutional and other non-industrial buildings, and for different areas are as follows:
TABLE FOR F.A.R.

Statement	**Plot Size Sq.mts**	**Proposed Road Width as per Notified Master Plan Plan/Zonal Development Plan**			
		Below 12 mts.	**12 to 18 mts.**	**18 mts. and above**	**Max.height in mts.**
For Hyd,VSP Mpl.Corp. & Gaddiannaram G.P.	Below 200	1.00	1.25	1.25	10 (no stilt)
	200 to below 1000	1.00	1.25	1.33	15 *
	1000 to below 2000	1.25	1.33	1.50	**
	2000 & above	1.25	1.50	1.75	**
Statement	**Plot Size Sq.mts**	**Proposed Road Width as per Notified Master Plan Plan/Zonal Development Plan**			
		Below 12 mts.	**12 to 18 mts.**	**18 mts. and above**	**Max.height in mts.**
For Municipalities within UDA areas of HUDA, TUDA,KUDA,VUDA, VGTUDA, SSUDA	200 to below 1000	1.25	1.33	1.50	15 *
	1000 to below 2000	1.33	1.40	1.60	**
	2000 & above	1.40	1.50	1.75	**
For Gram Panchayats falling within UDA areas of HUDA, TUDA,KUDA,VUDA, VGTUDA, SSSUDA	Below 200	1.25	1.25	1.33	10 (no stilt)
	200 to below 1000	1.40	1.50	1.60	15 *
	1000 to below 2000	1.50	1.60	1.70	**
	2000 & above	1.75	1.85	2.00	**

Figure 9 MOS and ground coverage

6. INSTITUTIONAL (medical), ASSEMBLY PUBLIC BUILDINGS AND PUBLIC OFFICE COMPLEXES:

1. Maximum permissible FAR : Refer relevant statement.
2. Building Requirements and setbacks upto 10 mtrs. building height.

Plot area (Sq.mts.)	Max. Cov	Setbacks for Office buildings		Setbacks for Other buildings	
		Front	Remaining sides	Front	Remaining sides
a) Below 500	As per min.building setbacks	6.00	4.50	9.00	6.00
b) 500 – 2000	50%	6.00	4.50	9.00	6.00
c) 2000 & above	1000 sq.mts. or 40% whichever is higher	6.00	4.50	9.00	6.00

(3) for above category of buildings above 10 mtrs. height:
In addition to the setbacks prescribed above there shall be an increase of 1.0 mtrs. on all sides for every increase of 3.0 mtrs. height of building above 10 mtrs.

4. PARKING:

Type of Building	One vehicular parking space of 20 sq.mts. area for every
a) Institutional (Medical)	20 beds
b) Government or semi-public buildings	100 sq.mts. builtup area or fraction thereof

Figure 11

(x) The minimum abutting road width and all round open space / setback for High Rise Building / Complex shall be as follows:

TABLE – IV

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**	**4**
-	21	12	7
21	24	12	8
24	27	18	9
27	30	18	10
30	35	24	11
35	40	24	12
40	45	24	13
45	50	30	14
50	55	30	16
After 55m 0.5m additional setback for every 5m of height shall be insisted			

Table 8 Abutting Road width

13. PARKING REQUIREMENTS:

(a) In all Buildings provision shall be made for parking spaces as per the following requirements:

TABLE – V

Sl. No	Category of building/ activity	Parking area to be provided as percentage of total built up area					
		HMDA Area		All Municipal Corporations & UDA Areas		Municipalities/ N.Ps/ G.Ps. other than UDA Areas	
		GHMC	Municipalities/ N.Ps/ G.Ps. in HMDA Area	All Municipal Corporations	Municipalities/ N.Ps/ G.Ps. in UDA Areas	Selection & Special Grade Municipalities	Other Municipalities/ N.Ps/ G.Ps.
1	2	3	4	5	6	7	8
1	Multiplexes	60	50	60	50	60	50
2	Shopping Malls (above 4000 sq.m), Information Technology Enabling Services Complexes	60	50	50	40	40	30
3	Hotels, Restaurants, Lodges, Cinema halls, Business buildings, Other Commercial buildings, Kalyana Mandapams, Offices, & High-	40	30	30	25	25	25

Figure 10 parking

(c) **Electrical Lines**

(i) In case of sites in the vicinity of High Tension Electricity Transmission Lines besides taking other safety precautions, a minimum safety distance (both vertical and horizontal) of 3m shall be maintained between the building and the High Tension Electricity Lines and 1.5m shall be maintained between the building and the Low Tension Electricity Lines.

(ii) In case of Electricity Tower lines, the land all along below the tower line shall be developed as green belt to an extent of the width of tower base and on either side of green belt there shall be a minimum of 10m wide roads or as defined in the Master Plan.

Figure 14 electrical line

12. BUILDINGS WITH CENTRAL COURTYARD FOR COMMERCIAL USE:

(a) 'U' type commercial buildings with central courtyard are allowed with a minimum plot area of 2000sq.m with the following conditions:

(b) The Front setback shall be as per Table-III of rule-5 & Table-IV of rule-7 for Non High Rise & High Rise buildings respectively.

(c) The minimum open space / setback on sides and rear except front, shall be

(i) 2m for building height up to 15m;

(ii) 3m for building height up to 18m;

(iii) 7m in case of high rise buildings up to 30m height and buildings coming under purview of Andhra Pradesh Fire Services Act-1999.

(d) The area so saved is transferred to the central area / space or court yard;

(e) The depth of such courtyard shall be at least 50% of the average building depth and the minimum width shall be 10m.

Figure 13 central courtyard

7. REQUIREMENTS FOR HIGH RISE BUILDINGS:

(a) **High Rise Buildings / Complexes**

(i) High Rise Buildings / Complexes shall be permissible only in areas other than those given in Annexure - I & II.

(ii) The minimum size of plot for High Rise building shall be 2000sq.m.

(iii) In respect of sites proposed for high rise buildings and affected in road widening where there is shortfall of the net plot size, up to 10% of such shortfall in net plot area would be considered with the proposed height and corresponding minimum all round setbacks.

(vii) In every high rise building site, an organized open space shall be utilized as greenery, tot lot or soft landscaping, etc. shall be provided over and above the mandatory setbacks to be left in and around the building. This space shall be at least 10% of total site area at ground level open to sky and shall be a minimum width of 3m. This may be in one or more pockets with minimum area of 50sq.m at each location.

(viii) In addition to the above, a minimum of 2m wide green planting strip in the periphery on all sides within the setbacks are required to be developed and maintained.

(ix) Buildings abutting major road of 30m and above width shall be permitted only after providing black-topped service roads of minimum 7m width with minimum 2 Lane carriageway with in the defined right of way. It will be the responsibility of the developer / builder / owner to provide the above service road of the standards fixed by the Sanctioning Authority at his own cost. The Sanctioning Authority may consider sanctioning building permission if the developer / builder / owner deposits the full cost for laying such service road to the Sanctioning Authority. The amount so levied and collected shall be maintained in a separate exclusive account by the Sanctioning Authority and utilized only for this purpose.

Figure 12 high rise

In the case of Commercial / Institutional buildings the gross F.A.R. shall be calculated by adding 35% of the prescribed F.A.R.

Common areas shall include:

(a) Air-conditioning plant room, electrical transformer cabin, pump house.

(b) Watchman booth, garbage shaft

(c) Corridors, Staircase, lift blocks

(d) Balconies

The width of Balcony shall not be more than 1.2 mtrs if the building set back is 4 mtrs. If building set back is 5 mtrs. and above the maximum width can be 1.5 metres.

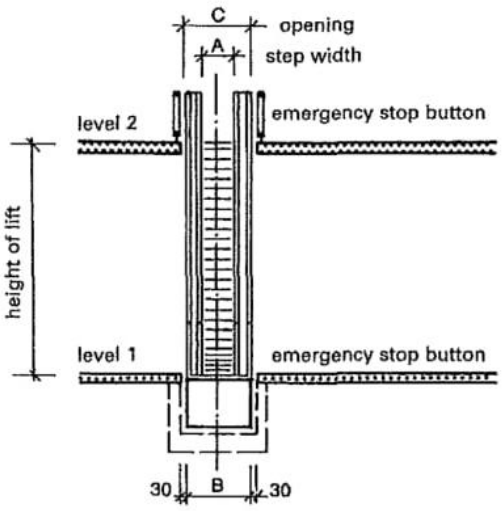
Figure 16 F.A.R

2.7 URDPFI

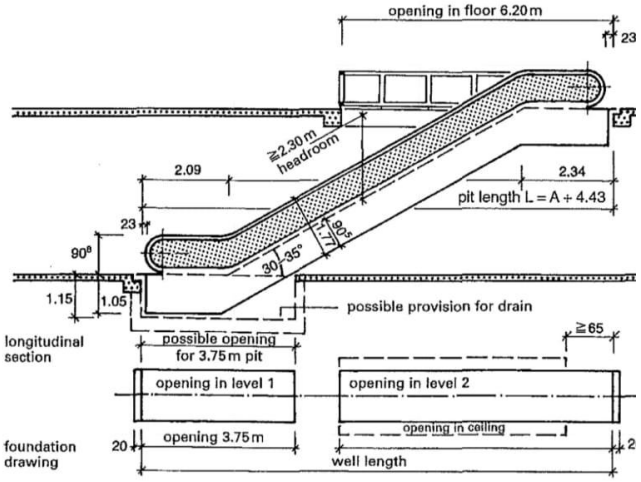
Socio-Cultural Facilities	
Community Hall	Parking standard @ 3.0 ECS /100 sq.m.
Recreational Club	Parking standard @ 2.0 ECS /100 sq.m. of floor area
Auditorium, music, dance & drama center	Parking standard @ 2.0 ECS /100 sq.m. of floor area
Science Center	Parking standard @ 2.0 ECS /100 sq.m.
International Convention Center	Parking standard @ 2.0 ECS /100 sq.m.
Old Age Home / Care Center for physically / Mentally challenged / Working Women / Men Hostel	Parking standard @ 1.8 ECS /100 sq.m. floor area
Sport Facility for international Sports Event	2 ECS / 100 sq.m. of floor area

2.8 STANDARDS- NEUFERT

2.8.1 Escalators



2 Width of steps



1 Section through escalator / foundation plan

transportation capacity

$$Q = 3600 \times \frac{G_p \times v}{t} \times f \text{ (people/h)}$$

where
G_p = people per step (1, 1.5, 2)
v = conveyor speed (m/s)
t = tread (m)
f = 0.5–0.8 escalator utilisation factor

3 General calculation formula for transport capacity

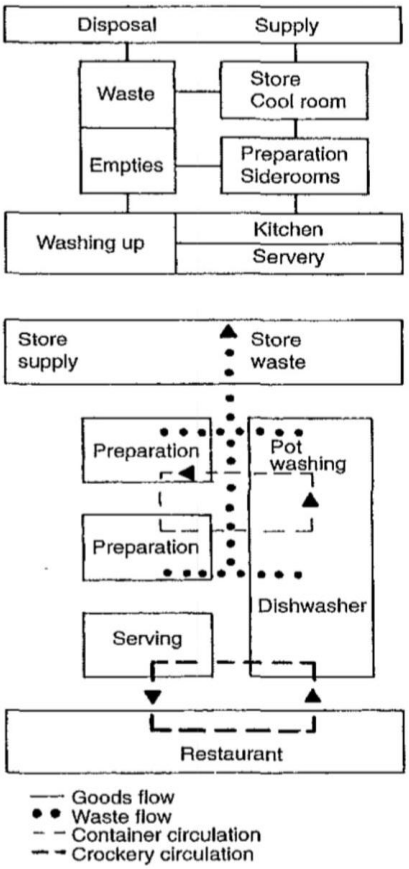
step width	800	1000
A	80–820	1005–1020
B	1320–1420	1570–1620
C	1480	1680
capacity/h	7000–8000 people	8000–10000 people

4 Dimensions and capacities of escalators with 30° and 35° (27°; 18°) pitch. Step width → **2**

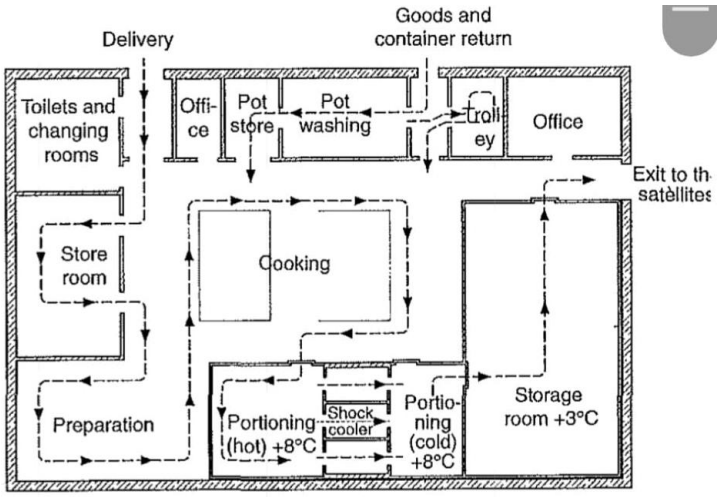
speed	travel time for one person	with a width sufficient for	
		1 person	2 people next to each other
0.5 m/sec	~18 sec	4000	8000
0.65 m/sec	~14 sec	5000	1000
		people/h transported	

5 Capacity data

2.8.2 Kitchen

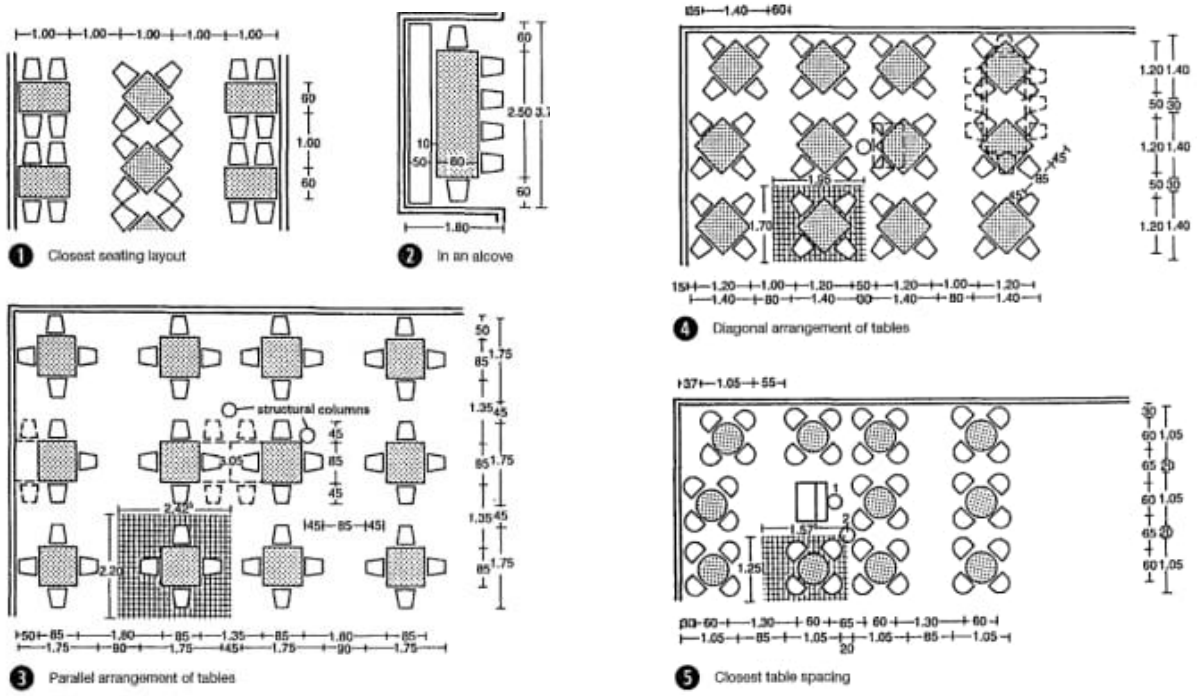


1 Restaurant kitchen: functions

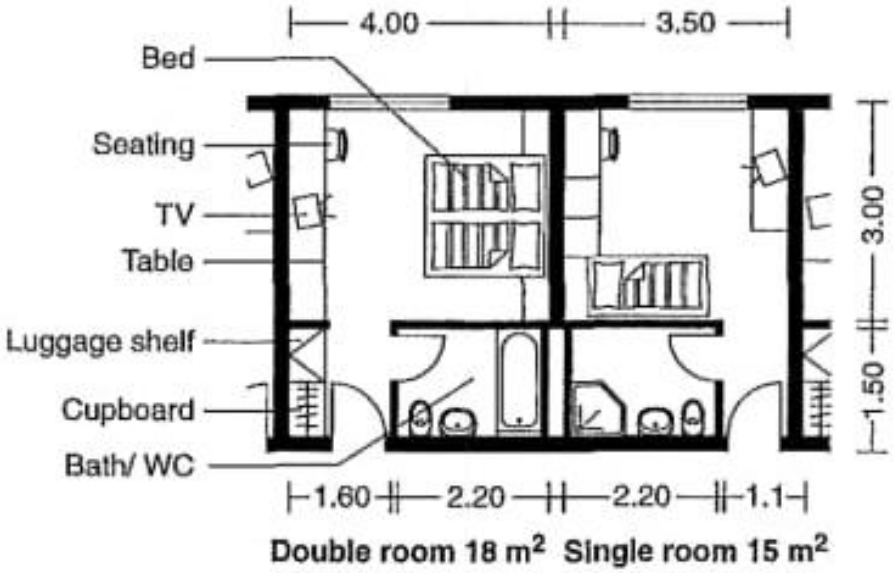


3 Schematic plan of cook chill kitchen with the product routes

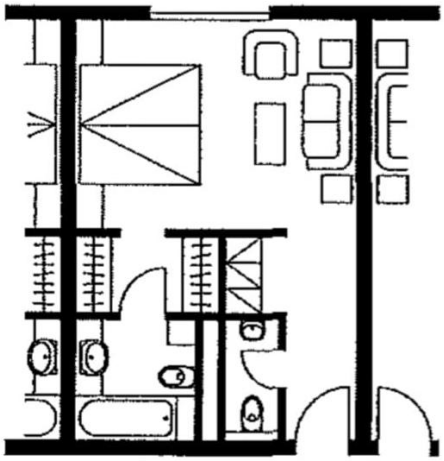
2.8.3 Dinning



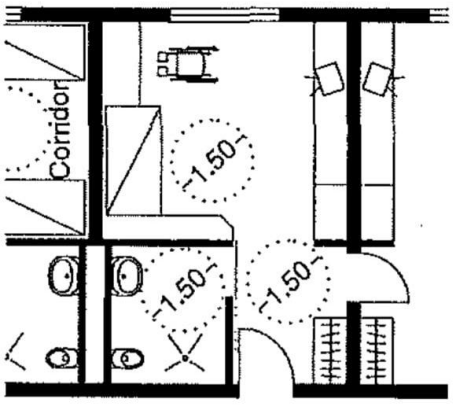
2.8.4 Hotel



1 3-star hotel rooms showing features and main dimensions (according to DEHOGA classification, single room slightly enlarged)



4 Hotel room with extra WC



6 Hotel room accessible for a disabled person with space for accompanying person → p. 21

3 Laws, guidelines, provisions and regulations for the design of businesses offering accommodation and catering (excerpt)

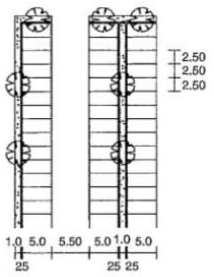
1.	guest rooms, bathrooms, corridors, room service	50–60%
2.	public areas, lobby, reception etc.	4–7%
3.	catering	4–8%
4.	events, ballroom, seminar rooms	4–12%
5.	wellness/ fitness area	5–10%
6.	other areas, cosmetics, hairdresser	1–2%
7.	management, administration	1–2%
8.	service area, kitchen, staff rooms, stores	9–14%
9.	building services	5–10%

Parking and garage areas and special areas (e.g. wellness and bathing area) are also to be taken into account (and can vary widely according to the range of services)

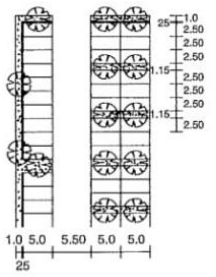
	Hotel type	m^2/room
1.	luxury	90–110
2.	first class	60–70
3.	comfort	50–60
4.	standard (holiday hotel, motel)	40–60
5.	tourist (low-budget)	15–20

4 Guideline values for (above) shares of hotel surface area taken by each function and (below) gross areas per room in various categories of hotel

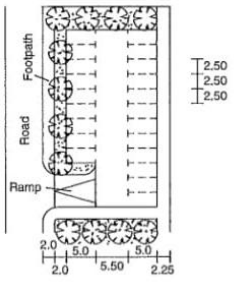
2.8.5 Parking



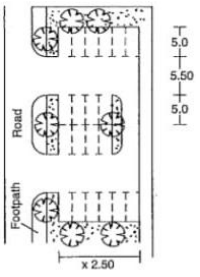
9 Car park with planting



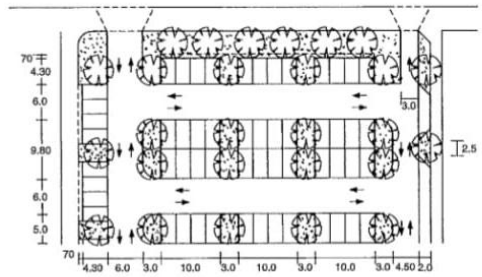
10 Planting at right angles to the access passage



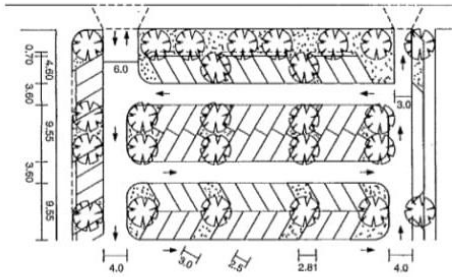
11 Lowered parking area → 5 – 6



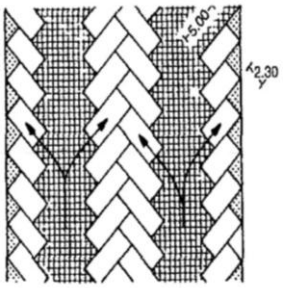
12 Parking next to the road



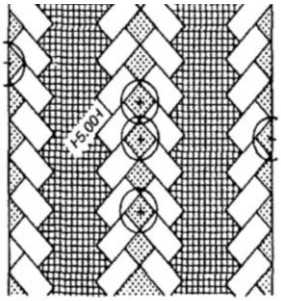
13 Example: car park



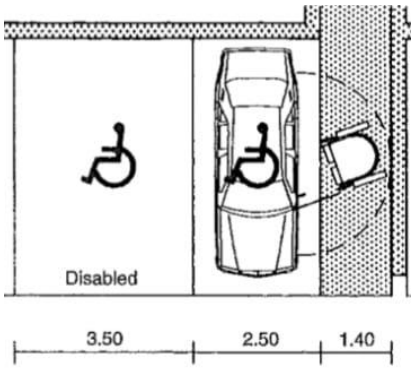
14 Variant: oblique layout in car park

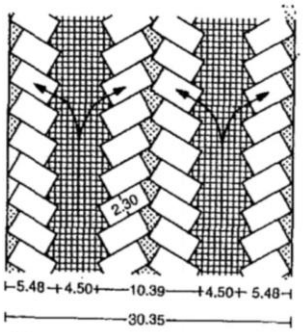


8 45° parking, one way traffic only

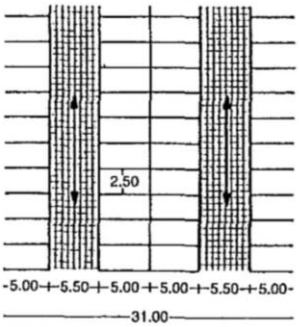


9 Parking, one way traffic only (leaves space for planting)





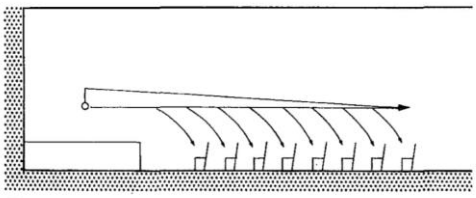
10 60° parking, one way traffic only



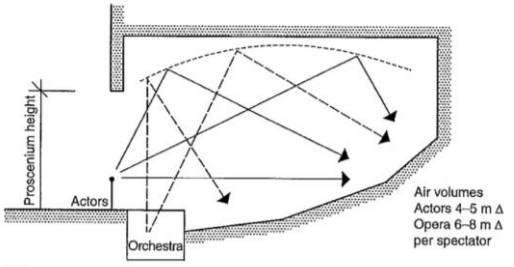
11 90° parking, access 5.50 m wide, parking space 2.50 m wide

2.8.6 Acoustics

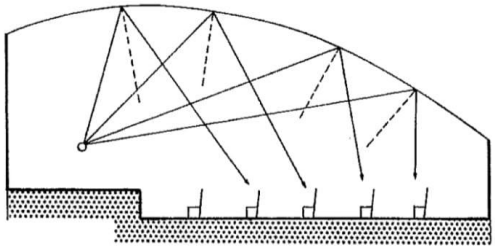
Banking of the seats is also acoustically advantageous (uniform direct sound to all seats). The rise of the curve should follow a logarithmic spiral → ❼.



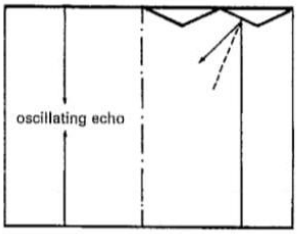
❾ Drop in sound level over absorbing surfaces



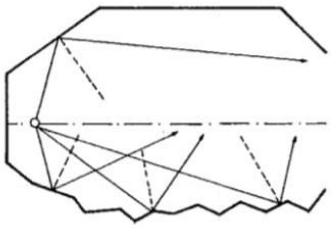
❼ Acoustics must be adapted through appropriate measures like ceiling shape or acoustic 'sails' → p. 220



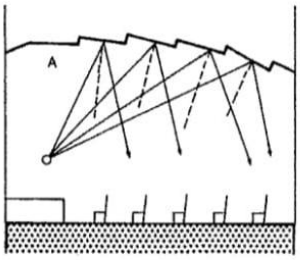
❽ Good sound-guiding through adapted curve



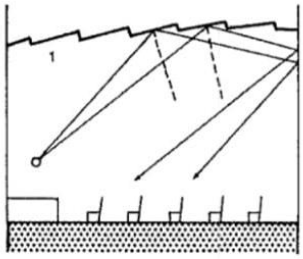
❸ Flutter echo from parallel unstructured walls



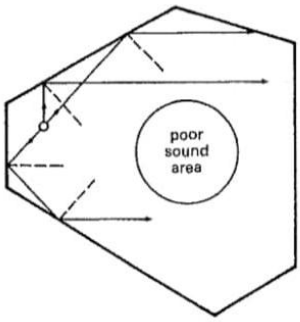
❹ Diffused reflections created through folds in the wall surface



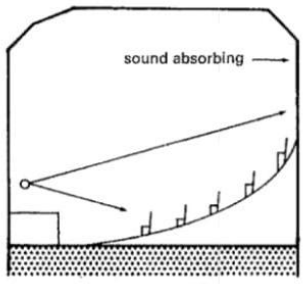
❺ Ceiling shape flat for music, sloping to the back for speech



❻ Unfavourable ceiling shapes



❼ Folding of the wall surface



❽ Uniform direct sound to all places through banking the rows of seats. The curve should follow a logarithmic spiral

2.9 NATIONAL BUILDING CODE

2.9.1 socio-cultural facilities

Sl.No	Category	Maximum			Other Controls
		Ground Coverage	FAR	Height	
1.	a. Multipurpose Community Hall. b. Banquet hall	30% 30%	1.20 1.20	26m 26m	1. Parking standard @3.0ECS/100sq m of floor area. 2. Other controls related to basements etc. are given at end of this chapter.
2.	a. Community Recreational Club. b. Recreational Club	30% 25%	1.20	26m	Parking standard @2ECS/100sq.m of floor area.
3.	Socio- cultural activities such as auditorium, music, dance & drama centre/mediation & spiritual centre etc.	35%	1.20	26m	1. Parking standard @ 2ECS/100sq.m of floor area. 2. A proper scheme for visitors parking and parking adequacy statement shall be prepared taking into consideration large number of visitors.
4.	Exhibition cum Fair Ground	20%	0.20	26m	Subject to statutory clearances.
5.	Science centre	30%	1.20	NR,	Parking standard @2ECS.
6.	International Convention Centre	30%	1.20	Subject to approval of AAI, Fire Department and other statutory bodies	Parking standard @2ECS.

Notes:

i.In case of community recreational clubs, 0.50 FAR shall be admissible on the area beyond 2000 sqm.

ii.In the open area apart from outdoor games/sport facilities, swimming pool would be permissible upto an area of 300sqm. Free from ground coverage.

iii.Basement within the ground envelope shall be allowed for parking, stilt floor for parking is permissible.

iv.30% of basement area for services, storage shall not be counted in FAR.

2.9.2 staircase/exit requirements

The minimum clear width, minimum tread width and maximum riser of staircases for buildings shall be as given as below (see also Part 4 Fire and Life Safety of NBC 2005)

The minimum width of staircase shall be as follows:

A	Residential buildings (dwellings) NOTE — For row housing with 2 storeys, the min. width of shall be 0.75	1.0 m
B	Residential hotel buildings	1.5 m
C	Assembly buildings like auditoria, theatres and cinemas	2.0 m
D	Educational building	1.5 m
E	Institutional buildings	2.0 m
F	All other buildings	1.5 m

Table 9 :Staircase measurements

Capacity for Exits

The capacity of exits (staircase, ramps and doorways) indicating the number of persons could be safety evacuated through a unit exit width of 50 cm shall be as given below:

Sl. No.	Group of Occupancy	Number of Occupants		
		Stairways	Ramps	Doors
1	Residential	25	50	75
2	Educational	25	50	75
3	Institutional	25	50	75
4	Assembly	40	50	60
5	Business	50	60	75
6	Mercantile	50	60	75
7	Industrial	50	60	75
8	Storage	50	60	75
9	Hazardous	25	30	40

Table 10 Occupants per unit Exit width

Minimum Width Provisions for Passageway Corridors

The following minimum width provisions shall be made way corridor for each passage.

a.	Residential buildings, dwelling unit type.	1.00 m.
b.	Residential buildings, eg, hostels, etc.	1.25 m.
c.	Assembly buildings like auditorium theatres and cinemas.	2.00 m.
d.	All other buildings including hotels e) Hospital. Nursing Homes, etc.	1.50 m.

Table 11

2.9.3 RAMPS

Ramps with Gradients

1. Where ramps with gradients are necessary or desired, they shall conform to the following requirements.

2. A ramp when provided should not have a slope greater than 1 in 20 or maximum of 1 in 12 for a short distance up to 9000mm.
3. A ramp shall have handrails on at least one side, and preferably two sides, that are 900 mm high, measured from the surface of the ramp, that are smooth, and that extend 300 mm beyond the top and bottom of the ramp. Where major traffic is predominantly children, the handrails should be placed 760 mm high.

Sl. No.	Height of the Building (m.)	Exterior open spaces to be left on all sides in m. (front rear and sides in each plot) As per prescribed set backs
1	10	3
2	15	5
3	18	6
4	21	7
5	24	8
6	27	9
7	30	10
8	35	11
9	40	12
10	45	13
11	50	14
12	55 and above	16

Note: *On sides where no habitable rooms face, a minimum space of 9.0 m. shall be left for heights above 27.0 m.*

Table 12 Ramp guidelines

2.9.4 Ventilation shaft

For ventilating the spaces for water closets and bathrooms, if not opening on the front side, rear and interior open spaces, shall open on the ventilation shaft, the size, of which shall not be less than the values given below:

Height of Building (m)	Size of ventilation shaft (sq m)	Minimum size of shaft (m)
Upto 10.0	1.2	0.9
Upto 12.0	2.8	1.2
Upto 18.0	4.0	1.5
Upto 24.0	5.4	1.8
Upto 30.0	8.0	2.4
Above 30.0	9.0	3.0

Table 13 Size of Ventilation Shaft

For buildings above 30.0 m. height, mechanical ventilation system shall be hustled besides the provision of minimum ventilation shaft

For fully air-conditioned residential buildings for lodging purposes, the ventilation shaft need not be insisted upon, provided the air-conditioning system works in an uninterrupted manner also, provided there is an alternative source of power supply. However, it is not mandatory in case of buildings where ventilation is mechanized.

Interior Open Space for Light and Ventilation

i. The whole or part of one side of one or more rooms intended for human habitation and not abutting on either the front, rear or side open spaces shall abut on an interior open space whose minimum width in all directions shall be 3.0 m in case of buildings not more than 15 m 17.5 m (with stilts) in height, and in case of buildings above 15 m/ 17.5 m (with stilts) it shall have mandatory mechanical ventilation in addition.
ii. Sunken Courtyard: Sunken courtyard up to 3mt in depth from the ground level as 'light well within building envelop shall be permitted for light and ventilation for basement area.
iii. Skylight: Skylight in interior open space (courtyard) shall be permitted subject to the fact that it may not act as a covered space on the ground floor and does not violate the maximum minimum ground coverage rules.

Joint Open-Air Space

i. Every interior or exterior or air space, unless the latter is a street, shall be maintained for the benefit of such building exclusively and shall be entirely within the owner's own premises.
ii. If such interior or exterior open-air space is intended to be used for the benefit of more than one building belonging to the same owner, then the width of such open-air space shall be the one specified for the tallest building as specified in clause 4.10.3 and 4.10.4 abutting on such open-a i r space.
iii. Provision of Podium for parking and landscaping In case the buildings are to be constructed with stilt floor on individual plot for providing parking space and where basement could not be approached for parking, in such cases a podium may be constructed on ground floor in continuation of the stilt floor having access from the front for the parking after leaving minimum 3m setback from the plot line. The terrace of podium may be used for plantation & landscaping. For low rise development, the maximum height permitted is 15mnts. However, where the stilt floor is to be constructed for parking the height may be increased to 17.5 mt

2.9.5 Projection into open spaces

i. Every interior or exterior open space shall be kept, free from any erection thereon and shall be open to the sky. Nothing except comice, chajja or weather shade (not more than 0.75 m. wide) shall overhang or project over the said open spaces so as to reduce the width to less than the minimum required.
ii. Note: Such projections shall not be allowed at a height less than 20 m from the corresponding shed floor level
iii. A canopy or canopies each not exceeding 4.50 m. in length and 2.40 m in width in the form of cantilever or cantilevers, over the main entrance entrances, providing a minimum clear height of 2.2 m. below the canopy in single storied residential building, only one such canopy shall be permitted for each individual detached block. In more than one storied residential building, two canopies shall be permitted over ground floor higher floor entrances. In buildings of other occupancies, the permissibility of canopy, canopies shall be as decided by the Authority on its merits.
iv. In case of residential building only, a balcony or balconies at roof level of a width of 120 m overhanging in set-backs within one's own land and courtyards provided the minimum area required shall not be reduced by more than 30% of such open space
v. The projections (cantilever) of cupboards and shelves shall be permitted and are exempted from covered area calculations in case of residential buildings only.Such projection shall be up to 0.75 m. depth provided.
vi. That no cupboard shall project in the side set back on the ground floor

vii. That outer length of cupboard overhanging in the set-backs shall not exceed 2.0 m. per habitable room. In addition to this, cupboard under the above and windows can be provided.

viii. Only one pergola on each floor shall be permitted in a residential building if constructed in the exterior open spaces or terrace. Such pergola shall not exceed 3.50 sq. m in area on which 40% shall be void and shall have a cleat height 2.20 m

2.9.6 Sanitation requirements for assembly buildings

Sl. No.	Sanitary Unit	For Public		For Staff	
		Male	Female	Male	Female
1	Water Closet (W.C.)	One for 200 persons upto 400 persons. For over 400 persons, add at the rate of 1 per 250 persons or part thereof	Four for 100 persons upto 200 persons. For over 200 persons, add at the rate of 1 per 50 persons or part thereof	One for 1-15 persons. Two for 16-35 persons.	Two for 1-12 persons. Four for 13-25 persons, add at the rate of 1 per 6 persons.
2	Ablution Taps	One in each W.C.	One in each W.C.	One in each W.C	One in each W.C
3	Urinals	One for 50 persons or part thereof	--	Nil upto 6 persons One for 7-20 persons Two for 21-45 persons	--
4	Wash Basins	One for every 200 persons or part thereof. For over 400 persons, add at the rate of 1 per 250 persons or part thereof.	One for every 200 persons or part thereof. For over 200 persons, add at the rate of 1 per 150 persons or part thereof	One for 1-15 persons Two for 16-35	One for 1-12 persons Two for 13-25 persons
5	Cleaner's Sink	One per floor, minimum			
6	Drinking Water Fountain	One per 100 persons or part thereof			
7	Shower/Bath	As per trade requirements			

Table 14 Sanitation Requirement Table 1

Sl. No.	Sanitary Unit	For Public		For Staff	
		Male	Female	Male	Female
1.	Water Closet (W.C.)	One per 50 seats upto 200 seats. For over 200 seats, add at the rate of 1 per 100 seats or part thereof	One per 25 seats upto 200 seats. For over 200 seats, add at the rate of 1 per 50 seats or part thereof	1 for 15 persons. 2 for 16-35 persons. 3 for 36-65 persons. 4 for 66-100 persons.	2 per 1-12 persons. 4 for 13-25 persons. 6 for 26-40 persons. 8 for 41-57 persons. 10 for 58-77 persons. 12 for 78-100 persons.
2.	Ablution Taps	One in each W.C.	One in each W.C.	One in each W.C.	One in each W.C.
3.	Urinals	One for 50 persons or part thereof	--	Nil upto 6 persons. 1 for 7-20 persons. 2 for 21-45 persons. 3 for 46-70 persons. 4 for 71-100 persons.	--
4.	Wash Basins	One for every water closet			
5.	Kitchen Sinks & Dish Washer	One per each Kitchen			
6.	Service Sink	One in the restaurant			

Table 15 Sanitation Requirement Table 2

2.9.7 Norms for differently abled within segregated toilets

i. One special W.C. in a set of toilet shall be provided for the use of differently abled persons, with essential provision of wash basin near the entrance.
ii. Minimum clear opening of the door shall be 900 mm and the door shall swing out
iii. Suitable arrangement of vertical/horizontal handrails with 50 mm clearance from wall shall be made in the toilet.
iv. The W.C. seat shall be 500 mm from the floor.

2.9.8 water requirement and facilities

Water requirement for the facility may be worked out and enough storage for ½ day operation is to be kept in storage. If municipal water supply is reliable, the toilet blocks may have underground sump that can store half a day's requirement and overhead tanks for another half. If municipal water supply is not available, toilet block may have its own bore well and pump with no underground sump. Alternatively, a hand tube well can be used for storing water in an elevated (not overhead) tank. To minimize the wastage of water, self-closing water taps should be used.

The pans must be of Pour Flush (PF) design i.e. with a steep slope. Traps should be of a 20 mm water seal. (Use of 50 mm water seal traps will require more water for flushing.) If toilet is to be linked to city sewer, a master trap has to be provided at the sewer connection. Urinals may not be fitted with urinal pots as their replacement is expensive.

General guidance for water supply arrangements

1. For new construction: Provision shall be made for underground tank for the storage of water, having capacity at 200 one. Per person with adequate pumping arrangements to supply water to upper floors. Filtered water connection will be allowed only for use of drinking and bathing needs. For other purposes i.e. flushing and gardening etc., the individual shall be required to have own arrangements of tube well water within the premises. While according sanction to Layout Plan, the Authority shall make a special mention that provision for space shall be kept for the construction of underground reservoir of adequate capacity along with booster pumping station.
2. Arrangements as given in I above shall also be provided in Group Housing Societies.
3. The plumbing arrangement in case of new constructions shall be made in a way that the potable water shall be used for drinking, cooking & bathing only and for rest of the uses, provision for ground water can be made with dual piping system.
4. Low-capacity system should preferably be provided instead of normal 12.5 L capacity.
5. Provisions for sustainable methods of Water and Wastewater management and Water harvesting may be referred from section 9.2 in the Byelaws.

2.9.9 Provisions for differently-abled, elderly and children

Types of buildings to adopt barrier-free guidelines as notified by the State Government

1. Buildings to be designed for Ambulant Disabled People
2. Higher Secondary School. Conference Hall, Dance Halls, Youth Centres. Youth Clubs. Sports Centres. Sports Pavilions, Boat Club Houses, Ice Rinks, Bowling Centres. Swimming Pools, Police Stations. Law Courts. Courts Houses. Sports Stadiums, Theatres, Concert Halls, Cinemas, Auditoria, Small Offices (the maximum plinth area 1400 sq. Mt) Snack Bars, Cafes,

and banqueting rooms (for capacity above 50 dinners).

Note:

a. In sports stadiums, provisions shall be made for non-ambulant spectators (small wheelchair)
b. @1:1000 up to 10,000 spectators and @ 1:2000 for spectators above 10,000.
c. In Theatres, Concert Halls, Cinemas and Auditoria provisions shall be made for non-ambulant spectators (Small Wheel Chairs) @ 1/250 up to 1000 spectators and 1/500 for spectators above 1000.

2.9.10 Site development

Level of the roads, access paths and parking areas shall be described in the plan along with specification of the materials.

Access Path/Walk Way

Access path from plot entry and surface parking to building entrance shall be minimum of 1800 mm wide having even surface without any steps. Slope, if any, shall not have gradient greater than 5%. Selection of floor material shall be made suitably to attract or to guide visually impaired persons (limited to coloured floor material whose colour and brightness is conspicuously different from that of the surrounding floor material or the material that emits different sound to guide visually impaired persons: hereinafter referred "o as "guiding floor material". Finishes shall have a non- slip surface with a texture traversable by a wheel chair. Kerbs wherever provided should blend to a common level.

Parking

1. For parking of vehicles of differently-abled people, the following provisions shall apply:
2. Surface parking for two car spaces shall be provided near entrance for the physically differently-abled persons with maximum travel distance of 30.0 m. from building entrance.
3. The width of parking bay shall be minimum 3.6 meter.
4. The information stating that the space is reserved for wheel chair users shall be conspicuously displayed.
5. Guiding floor materials shall be provided or a device, which guides visually impaired persons with audible signals, or other devices, which serves the same purpose, shall be provided.

Building requirements

The specified facilities in buildings for differently abled persons shall be as follows:

Approach to plinth level

Every building should have at least one entrance accessible to the differently abled and shall be indicated by proper signage. This entrance shall be approached through a ramp together with the stepped entry.

a. Ramped Approach: Ramp shall be finished with non-slip material to enter the building. Minimum width of ramp shall be 1800mm with maximum gradient 1:12. Length of ramp shall not exceed 9.0 meter having 800mm high hand rail on both sides extending 300mm beyond top and bottom of the ramp. Minimum gap from the adjacent wall to the hand rail shall be 50mm
b. Stepped Approach: For stepped approach size of tread shall not be less than 300mm and

maximum riser shall be 150mm. Provision of 800mm high hand rail on both sides of the stepped approach similar to the ramped approach.

c. Exit/Entrance Door: Minimum & clear opening of the entrance door shall be 900mm and it shall not be provided with a step that obstructs the passage of a wheel chair user. Threshold shall not be raised more than 12mm
d. Entrance Landing: Entrance landing shall be provided adjacent to ramp with the minimum dimension 1800mm x 2000mm. The entrance landing that adjoins the top end of a slope shall be provided with floor materials to attract the attention of visually impaired person's (limited to coloured floor material whose colour and brightness is conspicuously different from that of the surrounding floor material or the material that emits different sound to guide visually impaired persons. Finishes shall have a non-slip surface with a texture traversable by a wheel chair. Kerbs wherever provided should blend to a common level.

Corridor connecting the entrance/ exit for the differently abled

The corridor connecting the entrance/exit for differently abled leading directly outdoors to a place where information concerning the overall use of the specified building can be provided to visually impaired persons either by a person or by signs, shall be provided as follows:

a) Guiding floor materials' shall be provided or device that emits sound to guide visually impaired persons.
b) The minimum width shall be 1500mm.
c) In case there is a difference of level, slope ways shall be provided with a slope of 1:12.
d) Handrails shall be provided for ramps/slope ways.

Stairways

a) One of the stair-ways near the entrance/exit for the differently abled shall have the following provisions:
b) The minimum width shall be 1350 mm.
c) Height of the riser shall not be more than 150 mm and width of the tread 300mum. The steps shall not have abrupt (square) nosing.
d) Maximum number of risers on a flight shall be limited to 12.
e) Handrails shall be provided on both sides and shall extend 300 mm on the top and bottom of each flight of steps.

Lifts

Wherever lift is required as per bye-laws. Provision of at least one lift shall be made for the wheel chair user with the following cage dimensions of lift recommended for passenger lift of 13 person's capacity of NBC 2005. BIS. Section 4.9.3 Table no.

Desirable Lift size

i. Clear internal width 1100 mm
ii. Clear internal depth 2000 mm
iii. Entrance door width 900 mm

a) A hand rail not less than 600mm long at 1000mm above floor level shall be fixed adjacent to the control panel.

b) The lift lobby shall be of an inside measurement of 1800 mm x 2000 mm or more.

c) The time of an automatically closing door should be minimum 5 seconds and the closing speed should not exceed 0.25 m/ sec.

d) The interior of the cage shall be provided with a device that audibly indicates the floor, the cage has reached indicates that the door of the cage of entrance/exit is either open or closed.

e) Graphic Braille signage, as per the Harmonized Guidelines, shall be provided in the lift lobby.

Toilets

One special W.C. in a set of toilets shall be provided for the use of differently abled with essential provision of washbasin near the entrance for the differently abled.

a) The minimum size shall be 1500 mm x 1750 mm.

b) Minimum clear opening of the door shall be 900mm and the door shall swing out.

c) Suitable arrangement of vertical horizontal handrails with 50mm clearance from wall shall be made in the toilet.

d) The W.C. seat shall be 500mm from the floor.

2.9.11 Harvesting provisions in various building categories:

Rain Water Harvesting Provisions for Open spaces in cities

The open spaces for recreational land use generally constitute regional parks, district parks, playgrounds, and stadiums, sports complex, monument zones, public parking. Plaza and other public open spaces. This may be as high as 30% to 50% of the city's geographic area. All such public open spaces above the size of 500 sq.m shall have arrangements for complete utilization and capture of storm water with scientific rainwater harvesting arrangements.

The following ideas may also be included:

i. Well cum Channel cum Percolation pits.
ii. Use of al abandoned bore wells for recharging of groundwater
iii. Artificial or natural Storage of storm water runoff from larger sites.

Category / Use	Area of Plot (sq.m.)	Provisions to be made	Other conditions
Residential Plotted Houses			
New Proposals	100 and above	Construction of Rain Water Harvesting Structure.	Shall have emphasis on both storage and reuse.
Group Housing			
New Proposals	All plot sizes	i. Construction of Rain Water Harvesting Structure. ii. Concrete paving to be avoided and permeable materials are to be used for all open parking spaces.	Should indicate the system of Strom Water Drainage, Rain Water Harvesting Structure and Recharging Well
Public and semi public buildings			
All Proposals	All plot sizes	i. Shall have Rain Water Harvesting Structure and storage ii. Shall have Recharge pits	Shall have emphasis on both storage and reuse.
Commercial / Mixed use			
All Proposals	All plot sizes	i. Construction of Rain Water Harvesting Structure. ii. Soft landscape provisions and open spaces with Percolation pits. iii. Common treatment plant to be made part of the integrated development, funded by sale of commercial space.	Should indicate the system of Strom Water Drainage, Rain Water Harvesting Structure and Recharging Well Shall have emphasis on both storage and reuse.
Industrial			
All proposals	All plot sizes	i. Construction of Rain Water Harvesting Structure. ii. Soft landscape provisions and open spaces with Percolation pits. iii. Use of abandoned bore wells for recharging of ground water. iv. Common treatment plant to be made part of the integrated development funded by sale of commercial space.	Should indicate the system of Strom Water Drainage, Rain Water Harvesting Structure and Recharging Well. Provision should be made not to inject contaminated water into recharge structures in industrial areas and care is to be taken to keep such structures away from sewer lines, septic tanks, soak pits, landfill and other sources of contamination.
Other proposals	All plot sizes	Similar as above	Similar as above

Table 16 Provisions for Rainwater harvesting by building types

GREEN BUILDINGS AND SUSTAINABILITY PROVISIONS

Provisions and Applicability

The green building provisions on various plot sizes are indicated in the table below:

Provisions for Sanction

Water Conservation and Management

i. Rain Water Harvesting
ii. Low Water Consumption Plumbing Fixtures
iii. Waste Water Recycle and Reuse
iv. Reduction of Hardscape

Solar Energy Utilization

v. Installation of Solar Photovoltaic Panels (detailed at section 10.2.3 below)
vi. Installation of Solar Assisted Water Heating Systems

Energy Efficiency (Concept of passive solar design of buildings)

vii. Low Energy Consumption Lighting Fixtures (Electrical Appliances - BEE Star and Energy Efficient Appliances)
viii. Energy Efficiency in HVAC systems.
ix. Lighting of Common areas by solar energy LED devices.

Waste Management

x. Segregation of Waste
xi. Organic Waste Management

In case owners of properties desire to procure green building ratings from one or more rating bodies, they may suitably incorporate any other provisions if required and additional incentive FAR as per Master Plan may be availed.

Roof Top Solar Energy Installations

Rooftop photovoltaic power station or rooftop PV system, is a photovoltaic system that has its electricity-generating solar panels mounted on the rooftop of residential or commercial buildings. The various components of such a system include photovoltaic modules, mounting systems, cables, solar inverters and other

Installation of Solar Assisted Water Heating System in Buildings

I. No new building in the following categories in which there is a system of installation for supplying hot water shall be built unless the system of the installation is also having an auxiliary solar-assisted water heating system

a) Hospitals and Nursing homes.
b) Hotels, Lodges, Guest Houses, and Group Housing with a plot area of 4000 sq m.
c) Hostels of Schools, Colleges, and Training Centres with more than 100 Students.
d) Barracks of armed forces, paramilitary forces, and police.
e) Individual residential buildings having more than 150 sq m. plinth area.
f) Functional Buildings of Railway Stations and Air Ports like waiting rooms retiring rooms, restrooms, inspection bungalows, and catering units.
g) Community Centres. Banquet Halls. Barat Ghars. Mangal Karyalayas and buildings for similar use.

i)	"Solar Assisted Water Heating System"	A device to heat water using solar energy as heat source.
ii)	"Auxiliary back-up"	Electricity operated or fuel fired boilers/systems to heat water coming out from solar water heating system to meet continuous requirement of hot water.
iii)	"New Building"	Such buildings of above said categories for which construction plans have been submitted to the Authority for clearance.
iv)	"Existing building"	Such buildings, which are licensed to perform their respective business.

Table 17 Definitions

Installation of Solar Water Heating System

a) New Buildings: Clearance of plan for the construction of new buildings of the aforesaid categories shall only be given if they have a provision in the building design itself for an insulated pipeline from the rooftop in the building to various distribution points where hot water is required. The building must have a provision for continuous water supply to the solar water heating system. The building should also have open space on the rooftop. which receives direct sunlight. The load bearing capacity of the roof should at least be 50 kg. per sq m. All new buildings of above said categories must complete installation of solar water heating systems before obtaining necessary license to commence their business.
b) Existing Buildings: Installation of Solar Assisted Water Heating Systems in the existing building shall be made mandatory at the time of change of use to above said category provided there is a system or installation for supplying hot water.

Capacity:

The capacity of solar water heating system to be installed on the building of different categories shall be decided in consultation with the local bodies. The recommended minimum capacity shall not be less than 25 litres per day for each bathroom and kitchen subject to the condition that maximum of 50% of the total roof area is provided with the system

Specifications:

Installation of Solar Assisted Water Heating Systems shall conform to BIS specification IS 12933. The solar collectors used in the system shall have the BIS certification mark

Auxiliary System:

Wherever either hot water requirement is continuous, auxiliary heating arrangement with electric elements or oil of adequate capacity can be provided.'

Sustainable Waste Management

Zero Waste is a concept of waste management and planning approaches that emphasize waste prevention as opposed to end waste management. This means restructuring production and distribution systems, designing and managing products and processes to systematically follow the 3R rule of Reduce. Re-use and Re-cycle the volume of waste, to conserve and recover all used resources, and therefore eliminating all discharges to landfills, and prevent air, water and land pollution.

Zero Waste/ land-fill can be achieved by adopting systematic approach of segregation at source by planning, by collection facilitation and most importantly by creating public awareness.

The green waste can be converted into fuel cakes, and kitchen waste into manure construction

& demolition waste into bricks, plastic waste into oil paper glass and steel back into the same and all residual inert materials can also be converted into bricks. Achieving zero land-fill is more conveniently possible if

i. The collection is made from house to house and some segregation is done at the household level and
ii. Separate wet and dry bins must be provided at the ground level.
iii. The recycling is done at decentralized, say, ward or even lower levels.

Sustainability of Building Materials

Sustainability of natural resources for building materials shall be ensured through conservation of available natural resources and use of supplementary materials such as industrial agricultural by- products, renewable resources, factory made building components and recycled construction and demolition waste.

Supplementary building materials (derived or processed waste) shall be suitably used in combination with conventional resources offers dual advantages in purview of health & environmental benefits.

a) Use of Factory made pre-fab/pre-cast and recycled components with Green benefits:
b) Panels, hollow slabs, hollow blocks, etc. conservation of materials, less water requirement.
c) Fly Ash bricks, Portland Pozzolana cement, Fly ash concrete, phosphor-gypsum- based walling
& Roofing panels, particle wood recycled use of industrial/ agricultural by-products. (Ref. Table 14)
d) Fly ash/ AAC (Autoclaved aerated light weight concrete) panels/ CLC (Cellular lightweight concrete) panels- ensures thermal comfort (significant reduction in air conditioning requirement)
e) Use of bamboo & rapidly growing plantation timbers- environmental benefits.
f) Local materials are generally suitable for prevailing geo-climatic conditions & have the advantage of low transportation cost & time. Sustainable use of building materials shall be encouraged which may combine certain mandatory provisions and incentives.

FIRE ESCAPES OR EXTERNAL STAIRS

a) Fire escape shall not be taken into account while calculating the number of staircases for a building.
b) All fire escapes shall be directly connected to the ground.
c) Entrance to the fire escape shall be separate and remote from internal staircase.
d) The route to fire escape shall be free of obstructions at all times except the doorway leading to the fire escape which shall have the required fire resistance.
e) Fire escape shall be constructed of non-combustible materials.
f) Fire escape stairs shall have straight flight not less than 125 cm wide with 25 cm treads and risers not more than 19 cm.
g) Handrails shall be at a height not less than 100 cm.
h) Fire escape staircase in the mercantile, business, assembly, hotel buildings above 24 m. height shall be a fire toder and in such a case width of the same shall not be less than the width of the main staircase. No combustible material shall be allowed in the fire tower.

Spiral Stairs

i. The use of spiral staircase shall be limited to low occupant load and to a building height 9 m.
ii. A spiral stair shall not be less than 150 cm in diameter and shall be designed to give the adequate headroom

Staircase Enclosures

i. The external enclosing walls of the staircase shall be of the brick or the R.C.C. construction having fire resistance of not less than two hours. All enclosed staircases shall have access through self-closing door of one-hour fire resistance. These shall be single swing doors opening in the direction of the escape. The door shall be fitted with the check action door closers.
ii. The staircase enclosures on the external wall of the building shall be ventilated to the atmosphere at each landing
iii. Permanent vent at the top equal to the 5% of the cross sectional area of the enclosure and openable sashes at each floor level with area equal to 1 to 15% of the cross sectional area of the enclosure on external shall be provided. The roof of the shaft shall be at least I m. above the surrounding roof. There shall be no glazing the glass bricks in any internal closing wall of staircase. If the staircase is in the core of the building and cannot be ventilated at each landing, a positive of 5-mm. e.g. by electrically operated blower/blowers shall be maintained.
iv. The mechanism for pressurizing the staircase shaft shall be so installed that the same shall operate automatically on fire alarm system/sprinkler system and be provided with manual operation facilities.

Ramps

i. Ramps of slope of not more than 1 in 10 may be substituted for and shall comply with all the applicable requirements of all required stairways as to enclosure capacity and limiting dimensions. Larger slopes shall be provided for special uses but in no case greater than 1 in 8. For all slopes exceeding 1 in 10 and where the use is such as to involve danger of slipping, the ramp shall be surfaced with approved non-slipping material
ii. The minimum width of the ramps in the Hospitals shall be 2.4 m. and in the basement using car parking shall be 6.0 m
iii. Handrails shall be provided on both sides of the ramp.
iv. Ramp shall lead directly to outside open space at ground level or courtyards of safe place.
v. For building above 24.0 m in height, access to ramps from any floor of the building shall be through smoke fire check door.
vi. In case of nursing homes, hospitals, etc. area exceeding 300 sq m at each floor one of the exit facility shall be a ramp of not less than 2.4 m. in width.

SERVICE DUCTS/REFUGE CHUTE

Service duct shall be enclosed by walls and door, if any, of 2 hours fire rating. If ducts are larger than 10 sq m. the floor should seal them, but provide suitable opening for the pipes to pass through, with the gaps sealed.

A vent opening at the top of the service shaft shall be provided between one- fourth and one-half of the area of the shaft. Refuge chutes shall have an outlet at least of wall of non-combustible material with fire resistance of not less than two hours. They shall not be located within the staircase enclosure or service shafts or air- conditioning shafts. Inspection panel and door shall be tight fitting with 1 hour fire resistance, the chutes should be as far away as possible form exits.

Refuge chutes shall not be provided in staircase walls and A/C shafts etc.

ELECTRICAL SERVICES

Electrical Services shall conform to the following:

a) The electric distribution cables/wiring shall be laid in a separate duct shall be sealed at every

floor with non-combustible material having the same fire resistance as that of the duct. Low and medium voltage wiring running in shaft and in false ceiling shall run in separate conduits.

b) Water mains, telephone wires, inter-com lines, gas pipes or any other service lines shall not be laid in ducts for electric cables.

c) Separate conduits for water pumps, lifts, staircases and corridor lighting and blowers for pressuring system shall be directly from the main switch panel and these circuits shall be laid in separate conduit pipes, so that fire in one circuit will not affect the others. Master switches controlling essential service circuits shall be clearly labeled.

d) The inspection panel doors and any other opening in the shaft shall be provided with airtight fire doors having fire resistance of not less than 1 hour.

e) Medium and low voltage wiring running in shafts, and within false ceiling shall run in metal conduits. Any 230-voltage wiring for lighting or other services, above false ceiling should have 660V grade insulation. The false ceiling including all fixtures used for its suspension shall be of non-combustible material.

An independent and well-ventilated service room shall be provided on the ground floor with direct access from outside or from the corridor for the purpose of termination of electrical supply from the licenses service and alternative supply cables. The doors provided for the service room shall have fire resistance of not less than I hour.

f) Miniature circuit breakers (MCB) and Earth leakage circuit breaker (ELCB) shall be provided for electrical circuit.

AIR-CONDITIONING

a. Air-conditioning system should be installed and maintained so as to minimize the danger of spread of fire, smoke or fumes thereby from one floor of fire area to another or from outside into any occupied building or structure

b. Air Conditioning systems circulating air to more than one floor area should be provided with dampers designed to close automatically in case of fire and thereby prevent spread of fire or smoke. Such a system should also be provided with automatic controls to stop fans in case of fire, unless arranged to remove smoke from a fire, in which case these should be designed to remain in operation.

c. Air- conditioning system serving large places of assembly (over one thousand persons), large departmental stores, or hostels with over 100 rooms in a single block should be provided with effective means for preventing circulation of smoke through the system in the case of fire in air filters or from other sources drawn into the system even though there is insufficient heat to actuate heat smoke sensitive devices controlling fans or dampers. Such means shall consist of approved effective smoke sensitive controls.

Air-Conditioning should conform to the following:

i. Escape routes like staircase, common corridors, lift lobbies: etc. should not be used as return air passage.
ii. The ducting should be constructed of metal in accordance with BIS 655:196
iii. Wherever the ducts pass through fire walls or floor, the opening around the ducts should be sealed with fire resisting material of same rating as of walls/floors.
iv. Metallic ducts should be used even for the return air instead of space above the false ceiling.
v. The material used for insulating the duct system (inside outside) should be of flame resistant (IS 4355: 1977) and non-conductor of heat.
vi. Area more than 750 sq m. on individual floor should be segregated by a firewall and automatic fire dampers for isolation should be provided.

Fire Dampers

These shall be located in air ducts and retum air ducts passages at the following points:

i. At the fire separation wall
ii. Where ducts/passages enter the central vertical shaft

iii. Where the ducts pass through floors
iv. At the inlet of supply air duct and the return air duct of each compartment on every floor.

The dampers shall operate automatically and shall simultaneously switch off the air- handling fans. Manual operation facilities shall also be provided.

Note: For blowers, where extraction system and dust accumulators are used, dampers shall be provided

a) Fire smoke dampers (for smoke extraction shafts) for building more than 24 m in height.
b) For apartment houses in non-ventilated lobbies corridor operated by detection system and manual control sprinkler system
c) For other buildings on operation of smoke heat detection system and manual control sprinkler system.
d) Automatic fire dampers shall be so arranged so as to close by gravity in the direction of air movement and to remain tightly closed on operation of a fusible link.

Static water storage tank

a) A satisfactory supply of water exclusively for the purpose of firefighting shall always be available in the form of underground static storage tank with capacity specified in Annexure- A' with arrangements of replenishment b town's main or alternative source of supply@ 1000 litres per minute. The static storage water supply required for the above mentioned purpose should entirely be accessible to the fire tenders of the local fire service Provision of suitable number of manholes shall be made available for inspection repairs and insertion of suction hose etc. The covering slab shall be able to withstand the vehicular load of 45 tonnes in case of high rise and 22 tonnes in case of low rise buildings. A draw off connection shall be provided. The slab need not strengthened if the static tank is not located in mandatory set- back area.
b) To prevent stagnation of water in the static water tank the suction tank of the domestic water supply shall be fed only through an over flow arrangement to maintain the level therein at the minimum specified capacity.
c) The static water storage tank shall be provided with a fire brigade collecting branching with 4 Nos. 63mm dia instantaneous male inlets arranged in a valve box with a suitable fixed pipe not less than 15 cm dia to discharge water into the tank. This arrangement is not required where down comer is provided.

Automatic sprinklers

An automatic sprinkler system shall be installed in the following buildings

a) All buildings of 24 m. and above in height, except group housing and 45 m and above in case of apartment group housing society building.
b) Hotels below 15 m. in height and above 1000 sq m. built up area at each floor and or if basement is existing.
c) All hotels, mercantile, and institutional buildings of 15 m. and above.
d) Mercantile buildings having basements more than one floor but below 15 m (floor area not exceeding 750 sq m.)
e) Underground Shopping Complex.
f) Underground car/scooter parking /enclosed car parking.
g) Basement area 200 sq m. and above.

EXHIBITION GALLERIES

An Exhibition is an organized presentation and display of a selection of items. In practice, exhibitions usually occur within museums, galleries and exhibition halls, and World's Fairs. Exhibitions can include many things such as art in both major museums and smaller galleries, interpretive exhibitions, natural

history museums and history museums, and also varieties such as more commercially focused exhibitions and trade fairs.

Table 4 Art Galleries, Libraries and Museums
(*Clause* 4.2.5.1)

Sl No.	Fixtures	Public		Staff	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
i)	Water closets	1 per 200 up to 400 Over 400 add at 1 per 250 or part thereof	1 per 100 up to 200 Over 200 add at 1 per 150 or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals			
iii)	Urinals	1 per 50	—	Nil up to 6 1 per 7 to 20 2 per 21 to 45	—
iv)	Wash basins	1 for every 200 or part thereof. For over 400, add at 1 per 250 persons or part thereof	1 for every 200 or part thereof. For over 200, add at 1 per 150 persons or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
v)	Drinking water fountain	1 per 100 persons or part thereof			
vi)	Cleaner's sink	1 per floor (Minimum)			
vii)	Showers/bathing rooms	As per requirements			

NOTES
1 Some WCs may be Indian style, if desired.
2 Male population may be assumed as two-third and female population as one-third.

Figure 18 Requirements for Galleries, Libraries and Museums

Space Standards

a. Aisles:

Must be a minimum width of 3 meters. Must equal total width of existing exits. Must have 2 exits. Must have no dead ends.

b. Fire exits/Clearways:

Designated fire exits and clear ways cannot be encroached upon under any circumstance.

Storage of materials or equipment in these areas is not permitted. It is the responsibility of the event organizer to ensure that stand holders comply with this requirement.

MEANS OF ESCAPE

Travel distance:

The maximum travel distance from seat to exit within the auditorium is determined by the need to evacuate from each level of the auditorium within 2% minutes. For traditional seating the maximum travel distance is 18 m meo sured from the gangway, for continental seating 15 m from any seat.

Exits:

From each level of the auditorium two separate exits must be provided for the first 500 seats with an additional exit for each further 250 seats.

Stairs:

Staircase fights should have at past two risers and not more than 16. Al treads should be 275 mm and risers 180 mm.

Ramps:

Wheelchair users should be provided with flat or ramped escape routes which may be separate from other routes. Ramps should not be longer than 4.5 m or steeper than 8.5%

Number of people	Minimum total exit widths (m)
upto 200	2.2
201-300	2.4
301-400	2.8
401-500	3.2
751-1000	6.4
1001-2000	14.4

Table 18 Exit widths

FIRE SAFETY

Every building shall be so constructed, equipped, maintained and operated as to avoid undue danger to the life and safety of the occupants from fire, smoke, fumes, or panic during the time period necessary for escape.

General Exit Requirements

An exit may be a doorway; to an internal staircase, or external staircase, or terrace(s), which have access to the street, or to the roof of a building or a refuge area.

All exits shall provide continuous means of egress to the exterior of a building or to an exterior open space leading to a street.

Exits shall be so arranged that they may be reached without passing through another occupied unit.

Capacity of exits

The unit of exit width, used to measure the capacity of any exit, shall be 500 mm. A clear width of 250 mm shall be counted as an additional half unit. Clear widths less than 250 mm shall not be counted for exit width.

In an assembly building (convention center), the capacity per storey per unit width of exit of stairways, ramps and doors is 40,50 and 60 respectively.

The travel distance to an exit from the dead end of a corridor shall not ex ceed 30m in case of assembly buildings.

Doorways

No exit doorway shall be less than 1000 mm in width except assembly build ings where door width shall be not less than 2000 mm. Doorways shall be not less than 2000 mm in height.

Stairways and ramps

The minimum width of tread shall be 300 mm and the maximum height of riser shall be 150 mm for assembly buildings.

The minimum width for a staircase shall be 2m.

The minimum headroom in a passage under the landing of a staircase and under the staircase shall be 2.2m.

The slope of a ramp shall not exceed 1 in 10. In certain cases steeper slopes maybe permitted but in no case greater than 1 in 8.

Horizontal exits

For buildings more than 24 m in height, refuge area of 15 m² or an area equivalent to 0.3 m² per person to accommodate the occupants of two consecutive floors.

VERTICAL CIRCULATION

Escalators

Escalators are required for continuous mass transportation of people. The standard dimensions for various depths of an escalator are prescribed in the adjoining table.

Step width	600	800	1000
A	605-620	805-820	1005-1020
B	1170-1220	1320-1420	1570-1620
C	1280	1480	1680
Transportation capacity/hr	5000-6000	7000-8000	8000-10000

Table 19 Step Width

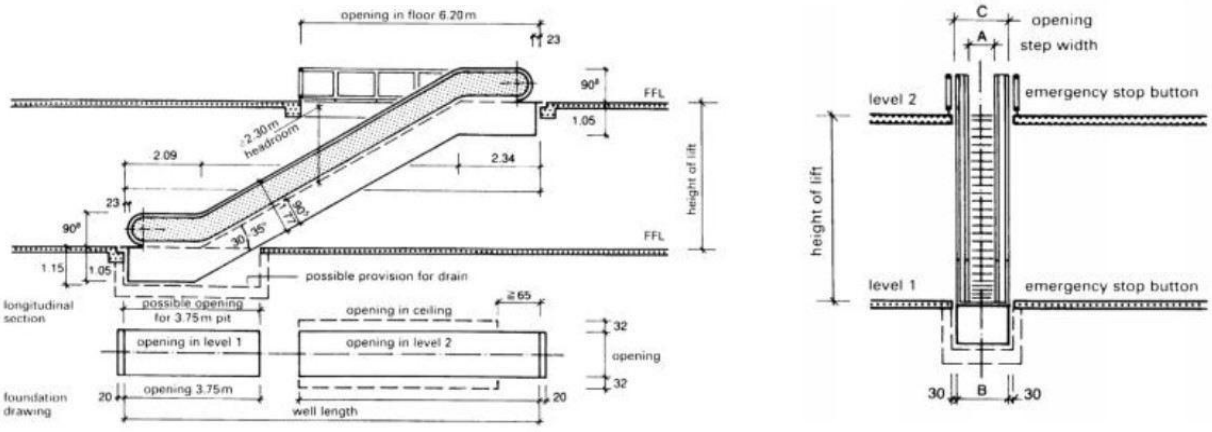


Figure 19 Cross Section

i. Angle of inclination of an escalator from the horizontal shall not exceed 30°. but for rises not exceeding 6 m the angle of inclination is permitted to be increased up to 35
ii. In accordance with a worldwide standard, the width of the step to be used is 60cm (for one person), 80cm (for one-to-two people width) and 100cm (for two people width). A 100cm step provides ample space for camuing goods.
iii. Calculation of length in plan for an escalator:
    a) with 30deg, escalator 1.732 storey height
    b) with 35deg, escalator = 1.428 storey height
iv. The landing area of escalators shall have a surface that provides a secure foot hold for a minimum distance of 0.85 m measured from the root of the comb teeth.

Elevators

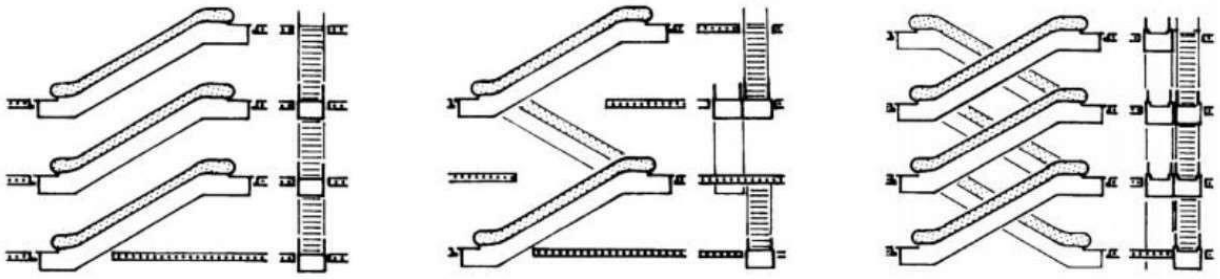


Figure 20 Types

Location:

Passenger lifts should be within a reasonable walking distance from the furthest part of the floor areas served (say, 70 m maximum) and, where they are the only or main lifts near an entrance. The location of goods and service lifts will depend on their function, but they should not open into passenger lift lobbies or public areas.

Planning a passenger lift:

Cul-de-sac or recessed lobbies, are essential to get the maximum performance from lift groups. Clearly, having called for lift service the waiting passengers should not have to walk further than necessary to the responding lift car, and should not be obstructed by passers-by.

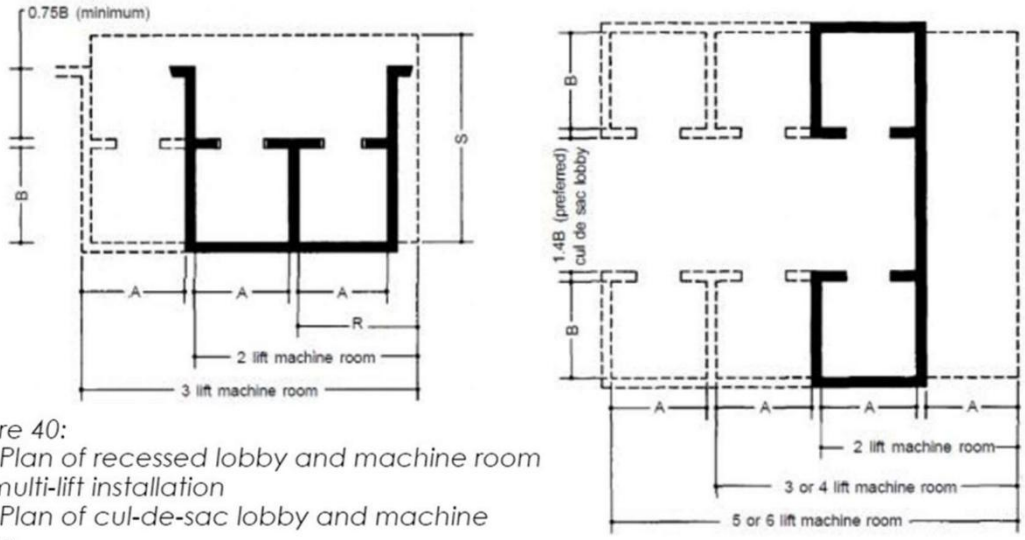


Figure 40:
(a.) Plan of recessed lobby and machine room for multi-lift installation
(b.) Plan of cul-de-sac lobby and machine room

Figure 21 Elevator size

- **Selecting the size of an elevator:**

Type	Capacity/ load	Shaft size	Car size	Door	Pit
	persons/kg	mm	mm	mm	mm
General purpose passenger traffic (speed : 1m/s)	13/1000	2400*2300	1600*1400	1100	1800
	16/1250	2600*2300	1950*1400	1100	1900
	21/1600	2600*2600	1950*1750	1100	1900
Intensive passenger electric traction (speed : 2.5 m/s)	13/1000	2400*2300	1600*1400	1100	2800
	16/1250	2600*2300	1950*1400	1100	2800
	21/1600	2600*2600	1950*1750	1100	2800
General-purpose goods lifts, electric traction (speed : 0.5/0.63/1 m/s)	13/1000	2100*2100	1400*1800	1400	1500
Heavy-duty goods, electric traction	26/2000	2600*2900	1700*2000	1700	1500-1800
	26/2000	2900*2500	2000*2100	1800	1500-1800

Table 20 Elevator Size

Ramps

These are used to allow wheeled vehicles such as trolleys, wheelchairs and buggies to change levels.

a) A ramp when provided should not have a slope greater than 1 in 20 or maximum af I in 12 for short distance up to 9000 mm.
b) Each ramp shall have at least 1800 mm of straight clearance at the bottom
c) At least one entrance usable by individuals in wheelchairs shall be on a level that would make the elevators accessible.

d) Width of a ramp: It is determined according to type and intensity of use. One-way travel requires a minimum width of 900 mm clear, whereas two-way travel needs 1500 mm. Where turns occur at landings adequate space for manoeuvring wheel chairs must be provided.

Internal staircase

All assembly buildings having area more than 500 m on each floor shall have a minimum of two staircases.

a) The minimum width for a staircase in an assembly building shall be 1500mm. The formula for most staircases of twice the rise plus the going lies between 600 and 630mm will give a suitable relationship.
b) The rise should not exceed 190 mm, and the going should not be less than 250 mm.
c) The top of the handrail should be between 900 and 1000 mm above the pitch line.
d) The minimum headroom in a passage under the landing of a staircase and under the staircase shall be 2.2 m.

Maximum Pitch	Rise		Going		Maximum risers per flight
32.7degrees	Minimum	135	Minimum	280	16 risers
	Maximum	180	Maximum	340	

Table 21 Staircase Size

PARKING

Surface parking:

Parking stalls should be built to accommodate the larger cars frequently used, although not necessarily the very largest. Parking spaces may be parallel, perpendicular, or angled (30, 45, or 60 degree) to the driving lane, or aisle as per ECS for surface car parking as per DDA is 23 m².

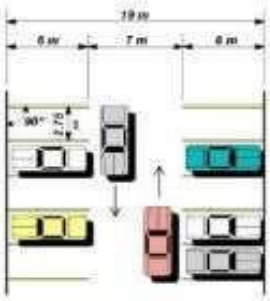
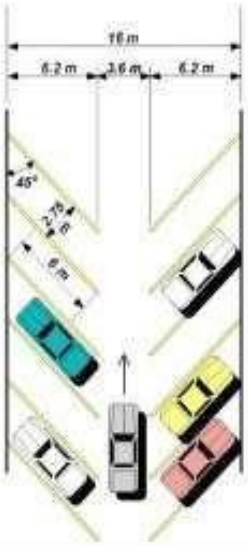
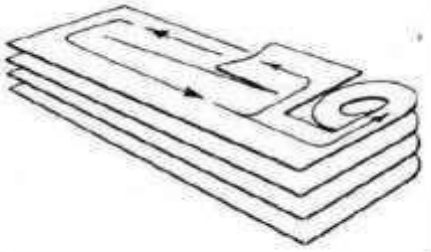
Type	Description	Layout	Advantage/Disadvantages
Perpendicular	• Effective in low turnover rate or long term parking areas. • Most efficient and economical since it accommodates the most vehicles per linear meter.		**Advantages:** • Works well with either one- or two-way aisles • Handles the most vehicles per square meter of pavement **Disadvantages:** • Requires widest area • Two-way traffic can create visibility problems
Angled - 60 degree	• This parking area configuration is ideal for a fast turnover rate or predominantly short term use. • This is often offset by difficulties of inefficient circulation patterns and one-way aisles.		**Advantages:** • Easy maneuvering in and out of parking spaces • Good visibility • Lends itself to either one-or two-way aisles **Disadvantages:** • Requires more pavement per vehicle than perpendicular configuration
Angled - 45 degree	• The 45 degree angled parking configuration displays similar benefits and limitations as the 60 degree.		**Advantages:** • Reduced width requirements for layout. • Easy maneuvering in and out of parking spaces. • Good visibility to the rear **Disadvantages:** • Doesn't work well with two-way aisles • Requires more pavement per vehicle than perpendicular parking configuration.

Table 22 Surface Parking

Basement parking

a) Every basement shall be in every part at least 2.4 m in height from the floor to the underside of the roof slab or ceiling.
b) Adequate ventilation shall be provided for the basement.
c) The access to the basement shall be separate from the main and alternative staircase providing access and exit from higher floors.
d) Area per ECS for basement car parking as per DDA is 32 m².

Ramp systems:

Type	Description	Layout
Clearway ramp systems	• Interfloor travel path completely separated from potentially conflicting parking–unparking movements. • Provide safest movement with least delay • Preferred for self park design	
Adjacent ramp systems	• Part or all of ramp travel is performed on access aisles • Requires less area per parking stall • Twofold use of travel paths • More susceptible to traffic movement delays	

Ramp Design:

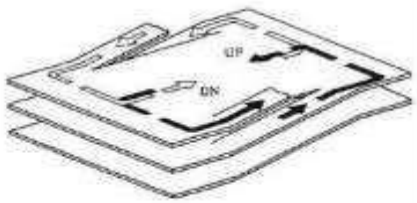
Type	Description	Layout
Opposed ramp design	• Vehicles rotate in the same direction • Up and down ramps in opposite direction • Required ramp surfaces to be opposed	
Parallel ramp design	• Up and down ramp slope in the same direction • Ramp surfaces are parallel • Vehicles must rotate in opposite direction • Cheaper to construct	

Table 23 Ramp Design

CHAPTER III

SITE INVENTORY



Figure 22 site visit Madikonda Warangal

3.1 Site Details

Location	Madikonda - Warangal, Telangana
Site Area	10 Acres
Ground Coverage	40%
FAR	2
Land Use Zone	Industrial Zone (I)
Height restriction	No limits
Land Ownership	Telangana Government Industrial Infrastructure Corporation Limited (TGIIC)
Access to Site	From East of site (NH 163)

Table 24 site details

3.2 Connectivity

Nearest Railway station	Kazipet railway station - 14 km
Nearest Airport	Warangal International Airport - 31 km
Nearest Bus station	Kazipet railway station - 14 km
Nearest Town	Kazipet - 14 km
Nearest City	Warangal - 27 km

Table 25 connectivity

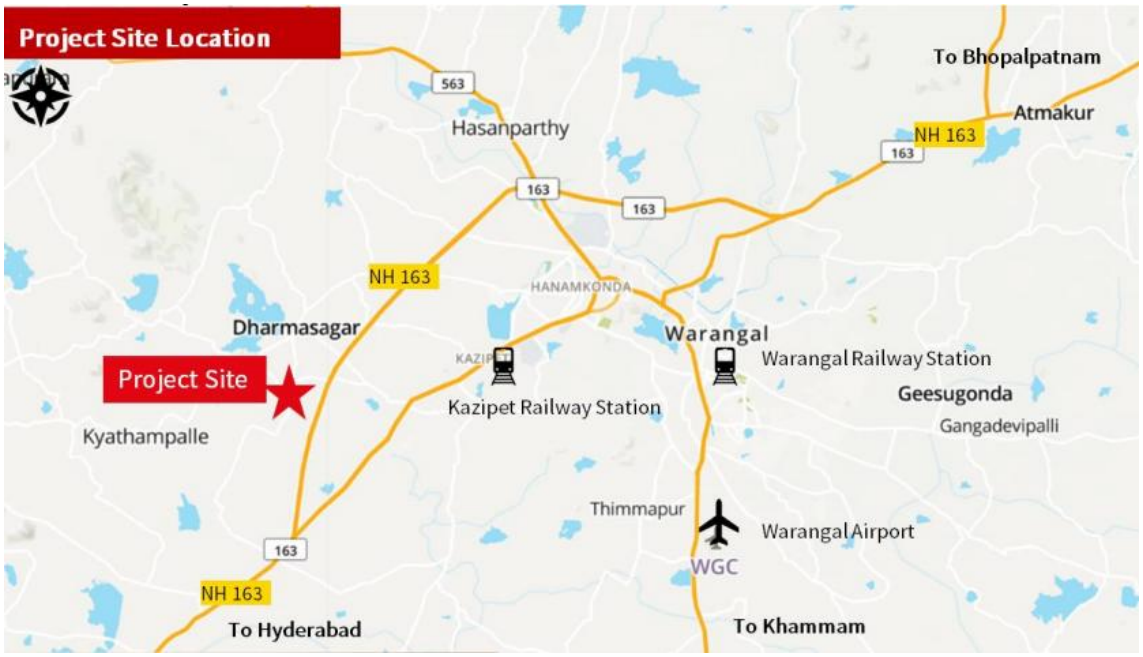


Figure 23 site location

3.3 Accessibility

Primary access to the site is from east side of site from national highway NH 163(Warangal Byp Road) with width of 45m.



Figure 24 site accessibility

3.4 Site Dimensions

SITE AREA= 10 Acre = 40495.80 m.Sq

SITE PERIMETER = 881.16 m

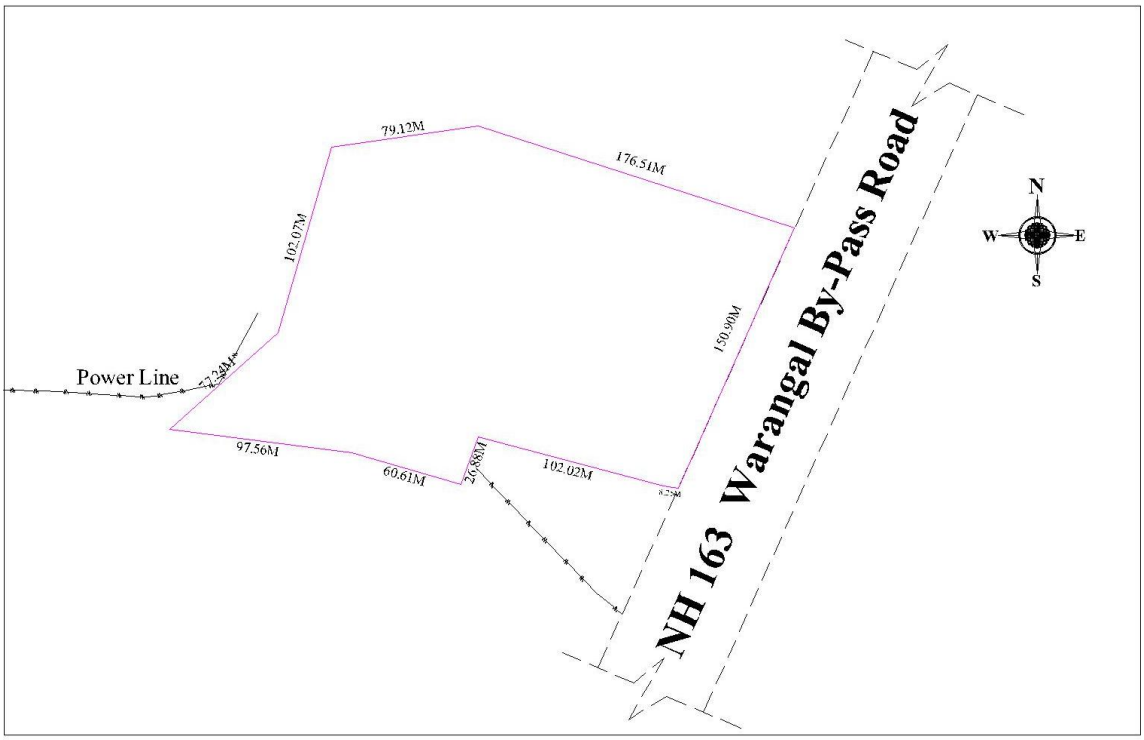


Figure 25 site plan with dimention

3.5 Existing Land Use

The land area has zoned into the category of Industrial Zone (I) by TGIIC.

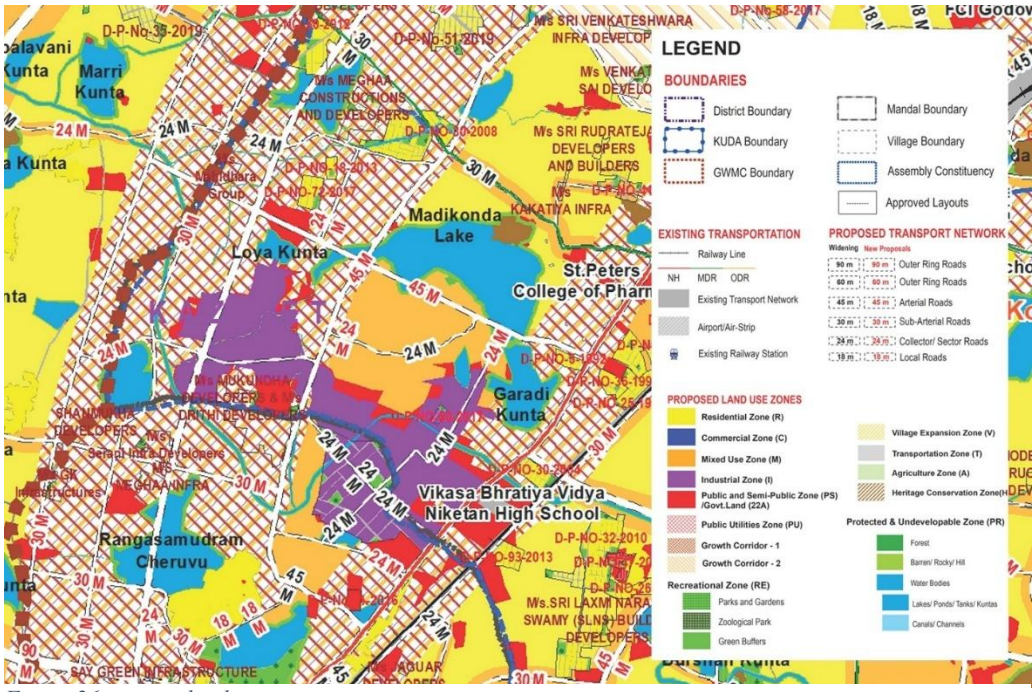


Figure 26 existing land use

3.6 UTILITIES & INFRASTRUCTURE

3.6.1 Electricity

The site has a low-tension electric line passing at west and south corner of the site which help to take electricity to the site.



Figure 27 electricity line

3.6.2 Drainage

The site has a drainage pathway in front of the site near to NH. and beneficially the site has slope towards the east which means towards the entrance of the site where drainage pathway is located.



Figure 28 drainage

3.6.3 Watter Supply

The site has a canal named Daramsagar canal which come from Darsmsagar lake which is 14 km away from the site passing through the back side of the site at distance of 150m which can be utilised for water supply to the site.



Figure 29 Daramsagar canal

3.7 SITE SURROUNDINGS

The immediate surroundings of the site are shown within a 500 m radial distance in the images below.at the front side of site NH road is passing through which give a easy accessibility towards the site. and behind the site at northwest direction of site the IT park construction is going on. And all other side of the site are full of agricultural land. The10 Acres of land is filled with greenery landscape of plants, trees and shrubs, mostly with neem trees and some of the local palm trees. A canal named Daramsagar canal from Daramsagar Lake is passed through behind the site.

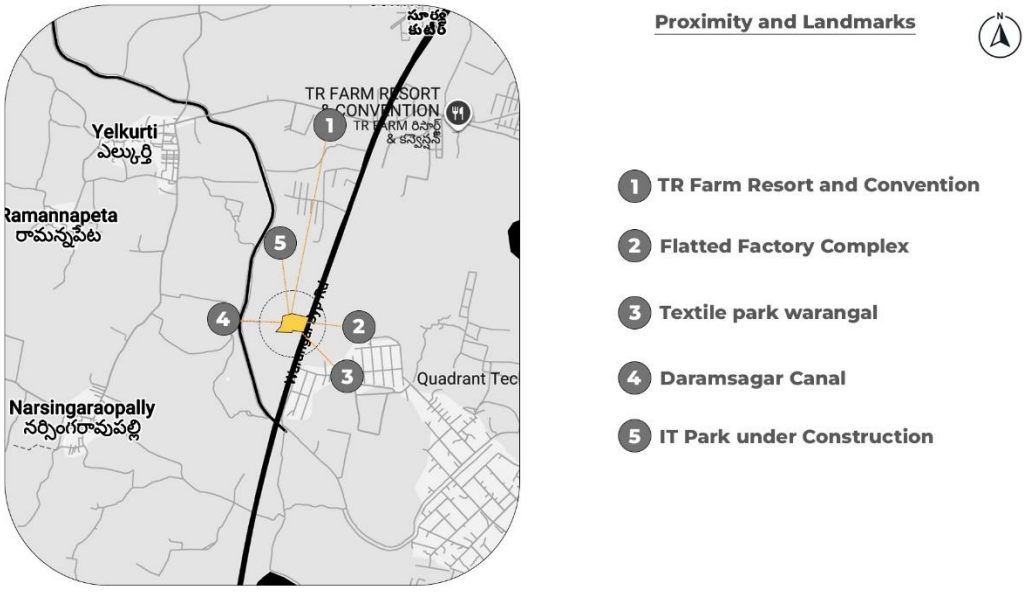


Figure 30 site landmarks



Figure 34Agricultural land on south side of site



Figure 33 NH road in front of the site



Figure 31 Textile park



Figure 32 Agricultural land on north side of site



Figure 35 IT Park under construction

3.8 NOISES TOWARDS THE SITE

The have Noise disturbance chances which may come from near construction site, textile industry, and the NH road passing in front of the site

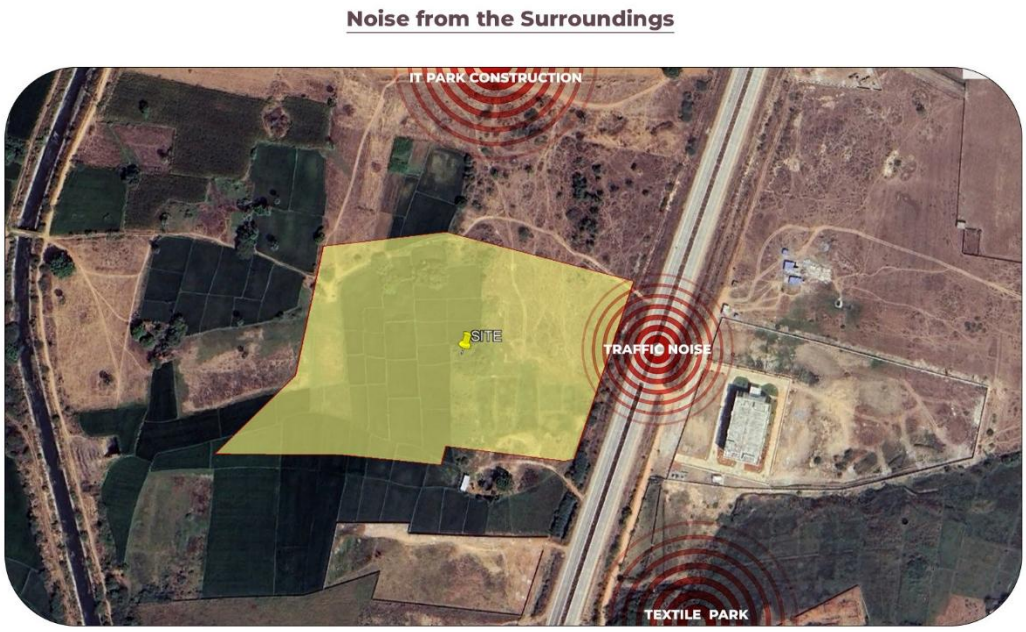


Figure 36 surrounding noise

3.9 STREET VIEW



Figure 37 Road view

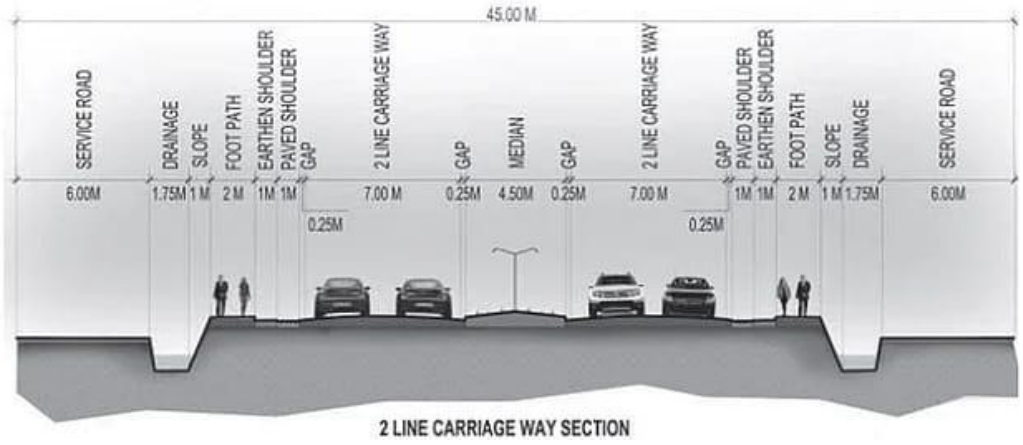


Figure 38 Road section

3.10 TYPOGRAPHY

Mostly flat land and Slopes towards east side of the site



Figure 39 topography

Highest point: 305 m, Lowest point: 301 m

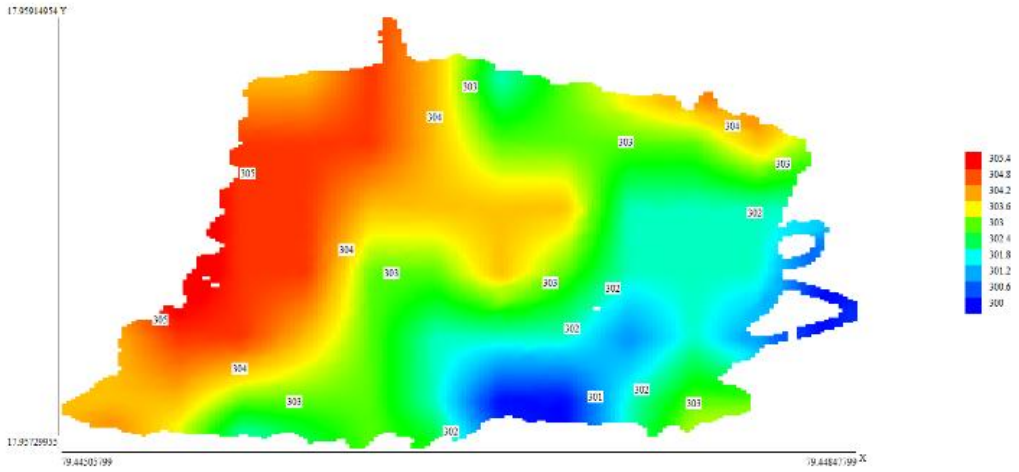


Figure 40 contour

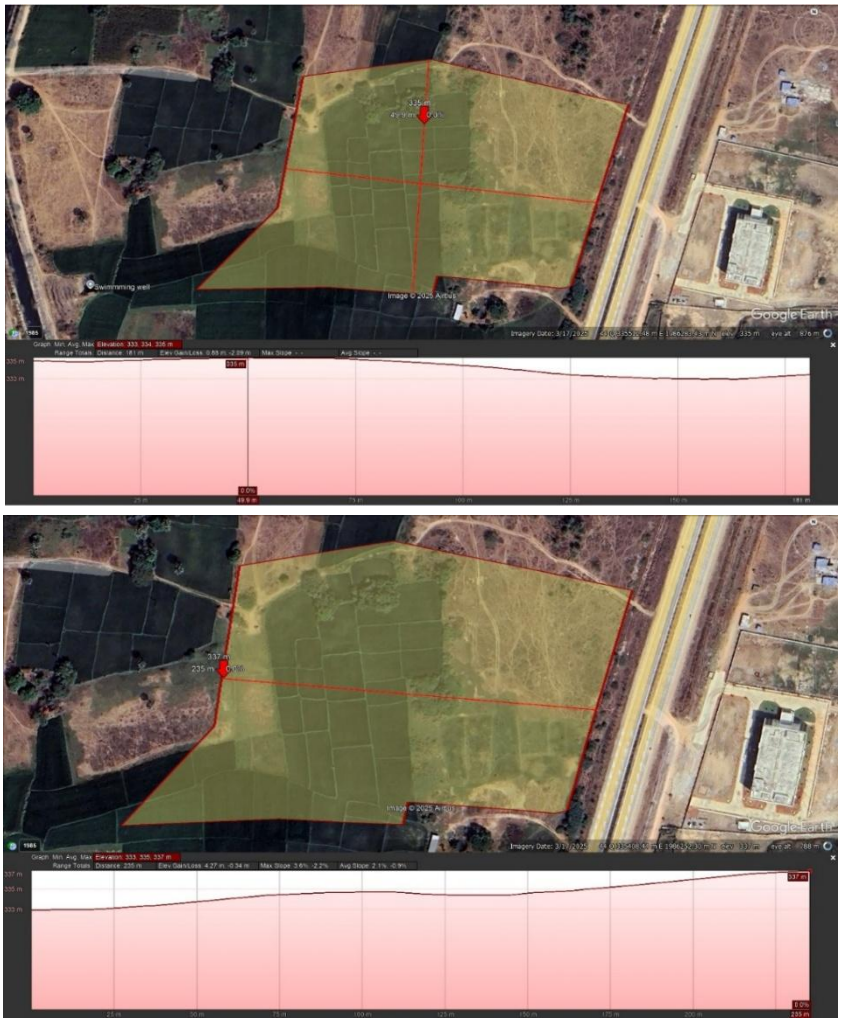


Figure 41 slope analysis

3.11 VEGETATION

	**Common Name:** Asian Palmyra Palm / Toddy Palm / Ice Apple Tree **Scientific Name:** *B*orassus flabellifer	**Average Height:** **Typical Range:** 20–30 meters **Mature Height:** Up to 30 meters in ideal conditions **Foliage Type:** **Type:** Evergreen **Leaf Shape:** Fan-shaped

	**Common Name:** Neem Tree **Scientific Name:** *Azadirachta indica*	**Trunk Radius**: ~30 to 45 cm (diameter ~60–90 cm) **Height**: Around 15–20 m in mature local specimens **Foliage**: Evergreen compound leaves, occasionally shedding in severe drought **Crown Spread**: Dense, rounded canopy 10–15 m wide under open growth

Table 26 vegitation

3.12 SOIL TYPE

The Soil Condition of the Site is Sandy Loam Soil. Sandy loam soil, the most suitable type of foundation depends on several factors like the load of the structure, water table level, and depth of the stable strata. Sandy loam soils are moderately stable and drain well.



Figure 42 soil

3.12.1 Type of Foundation can be Used:

Pile Foundation

When used: If the sandy loam is shallow and underlain by weak strata or high-water table.

Why: Transfers the load to deeper, stable soil layers.

Type: Driven or bored piles (depending on equipment and depth).

3.12.2 Considerations for Foundation in Sandy Loam:

Compaction is essential to reduce settlement. Water table must be checked — high water can weaken soil strength. Proper drainage around the foundation is crucial to avoid erosion.

3.13 VIEWS OF SITE



Figure 43 view in the site

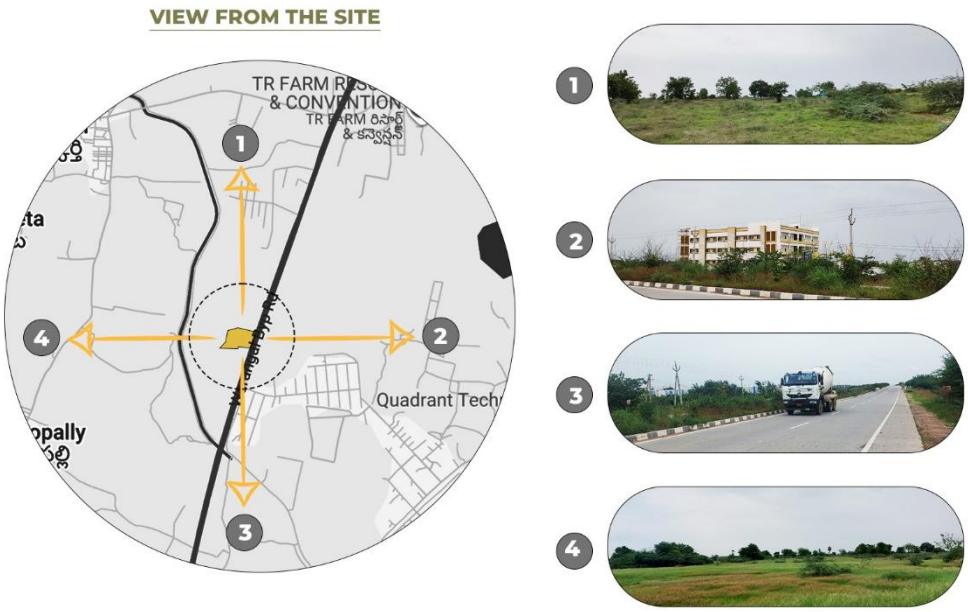


Figure 44 views from the site

3.14 CLIMATE

Warangal, located in the state of Telangana, India, experiences a tropical climate characterized by hot summers, moderate monsoons, and mild winters. The city falls under the semi-arid climatic zone according to the Köppen climate classification. Climatic data plays a crucial role in urban planning, architecture, agriculture, and infrastructure development in Warangal, as it helps design systems and structures that are environmentally responsive and sustainable.

Warangal experiences a tropical climate with distinct seasonal variations in temperature, rainfall, humidity, and wind patterns. Summers are extremely hot, with temperatures often exceeding 40°C, particularly in April and May. In contrast, winters are relatively mild, with average minimum temperatures ranging between 15°C and 20°C during December and January. The region receives the majority of its annual rainfall during the southwest monsoon season, from June to September, with an average annual precipitation of about 900 to 1,100 mm. Humidity levels are generally high during the monsoon months, while the summer and winter seasons remain relatively dry. The wind direction varies seasonally, and moderate breezes are commonly experienced during both the summer and monsoon periods.

3.15 DATA

3.15.1 Sun path

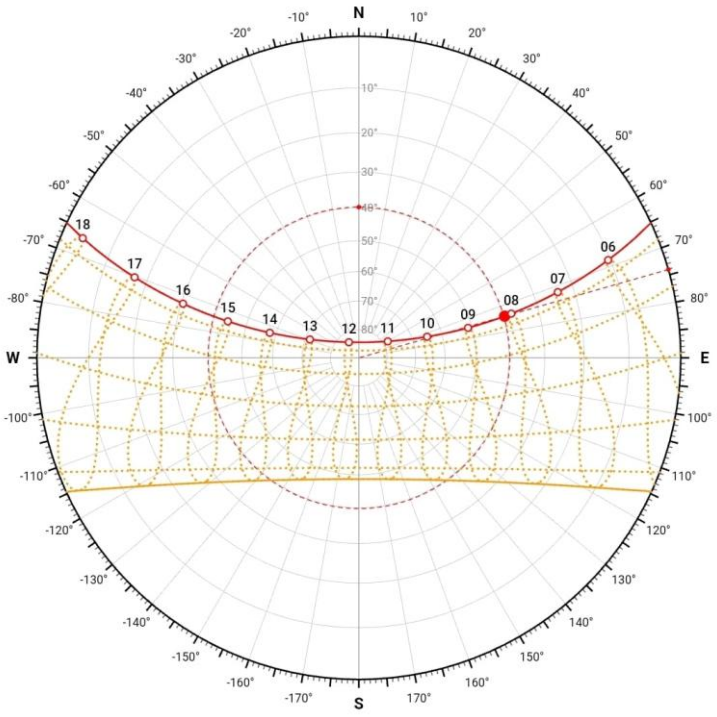


Figure 45 sunpath diagram

3.15.2 Average temperature in Warangal

The hot season lasts for 2.1 months, from April 2 to June 5, with an average daily high temperature above 101°F. The hottest month of the year in Warangal is May, with an average high of 105°F and low of 84°F.

The cool season lasts for 3.4 months, from October 18 to February 1, with an average daily high temperature below 88°F. The coldest month of the year in Warangal is December, with an average low of 62°F and high of 84°F.

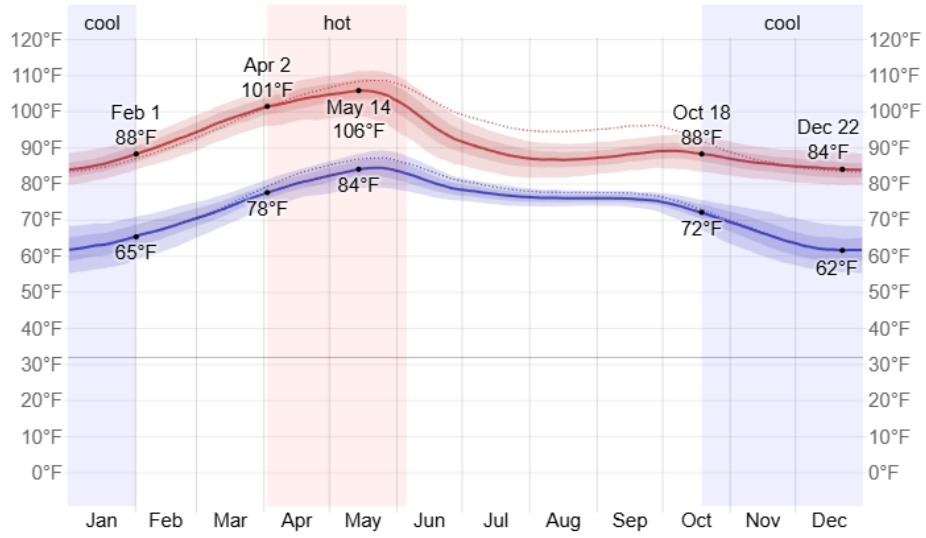


Figure 46 average temperature

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	86°F	91°F	98°F	103°F	105°F	97°F	89°F	87°F	88°F	88°F	86°F	84°F
Temp.	75°F	80°F	87°F	92°F	95°F	88°F	83°F	81°F	82°F	81°F	77°F	74°F
Low	63°F	68°F	74°F	80°F	84°F	81°F	77°F	76°F	76°F	72°F	66°F	62°F

Table 27 average temperature

3.15.3 Average hourly temperature in Warangal

The figure below shows you a compact characterization of the entire year of hourly average temperatures. The horizontal axis is the day of the year, the vertical axis is the hour of the day, and the color is the average temperature for that hour and day.

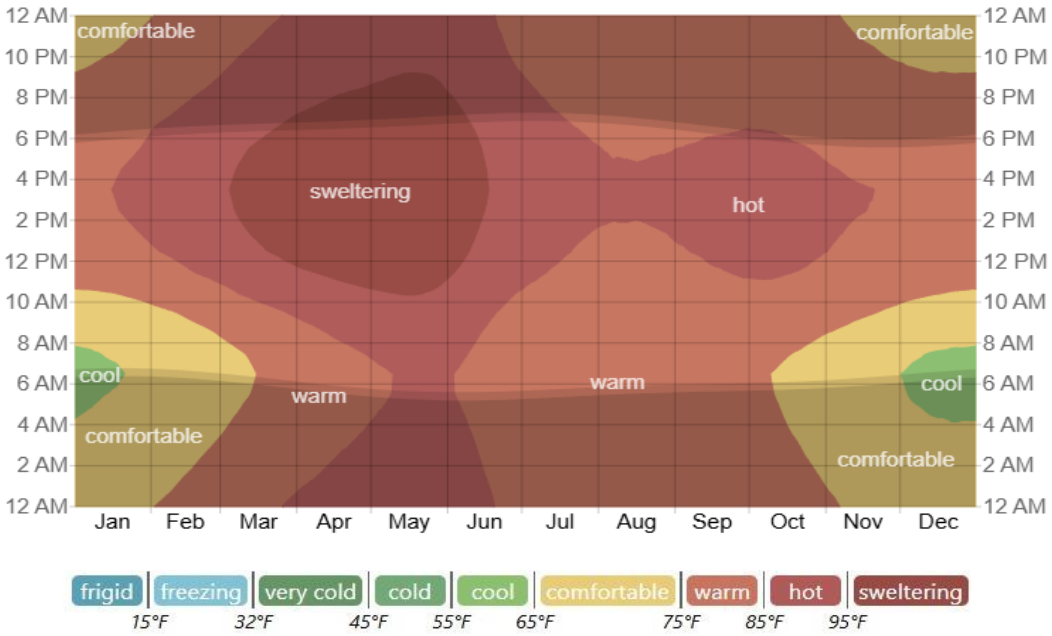


Figure 47 hourly temperature

3.15.4 Cloud

The clearer part of the year in Warangal begins around October 11 and lasts for 7.1 months, ending around May 15. The clearest month of the year in Warangal is February, during which on average the sky is clear, mostly clear, or partly cloudy 78% of the time. The cloudier part of the year begins around May 15 and lasts for 4.9 months, ending around October 11.The cloudiest month of the year in Warangal is July, during which on average the sky is overcast or mostly cloudy 92% of the time.

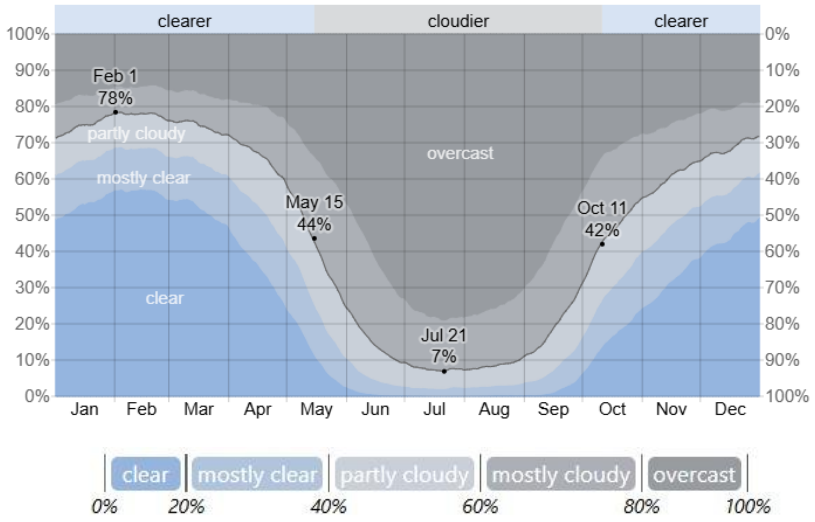


Figure 48 cloud

Fraction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cloudier	25%	22%	26%	34%	60%	85%	92%	91%	80%	54%	39%	31%
Clearer	75%	78%	74%	66%	40%	15%	8%	9%	20%	46%	61%	69%

Table 29 cloud data

3.15.5 Precipitation

The wetter season lasts 3.8 months, from June 8 to October 2, with a greater than 29% chance of a given day being a wet day. The month with the most wet days in Warangal is July, with an average of 16.2 days with at least 0.04 inches of precipitation.

The drier season lasts 8.2 months, from October 2 to June 8. The month with the fewest wet days in Warangal is December, with an average of 0.7 days with at least 0.04 inches of precipitation.

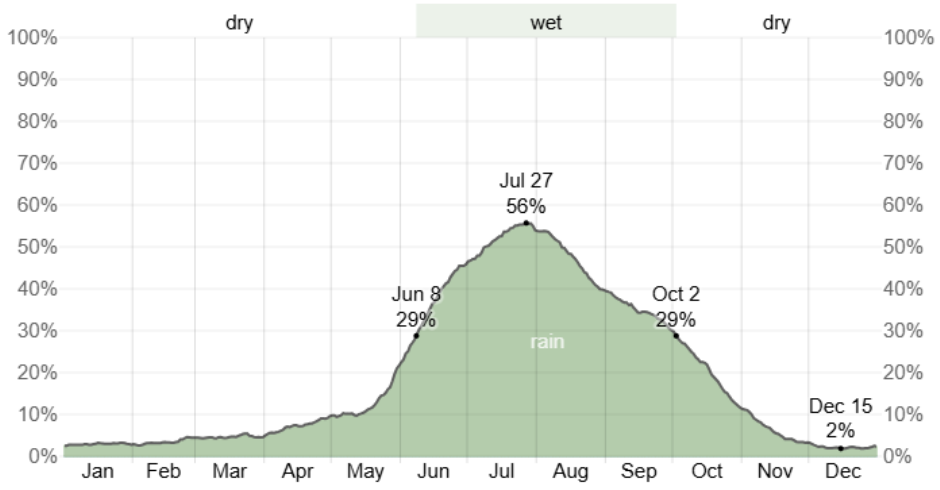


Figure 49 precipitation

Days of	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rain	0.9d	1.0d	1.4d	2.2d	4.0d	11.0d	16.2d	14.6d	10.4d	6.2d	1.8d	0.7d

Table 30 precipitation

3.15.6 Rainfall

The rainy period of the year lasts for 7.4 months, from April 9 to November 21, with a sliding 31-day rainfall of at least 0.5 inches. The month with the most rain in Warangal is July, with an average rainfall of 7.4 inches.

The rainless period of the year lasts for 4.6 months, from November 21 to April 9. The month with the least rain in Warangal is December, with an average rainfall of 0.1 inches.

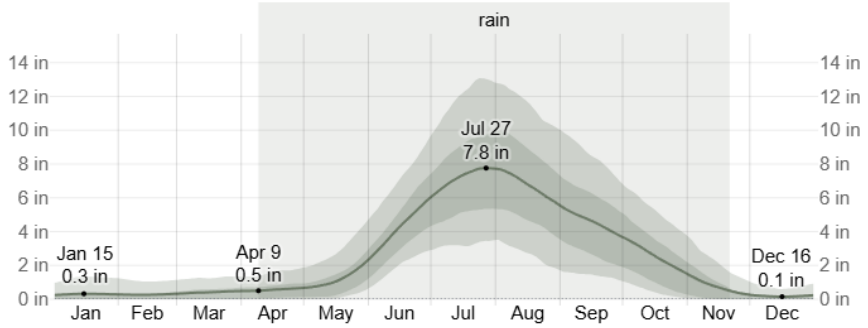


Figure 50 rainfall

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall	0.3″	0.3″	0.4″	0.6″	1.1″	4.2″	7.4″	6.8″	4.7″	2.6″	0.7″	0.1″

Table 31 rainfall

3.15.7 Humidity

Warangal experiences extreme seasonal variation in the perceived humidity.The muggier period of the year lasts for 7.8 months, from March 25 to November 17, during which time the comfort level is muggy, oppressive, or miserable at least 34% of the time. The month with the most muggy days in Warangal is August, with 30.8 days that are muggy or worse.The month with the fewest muggy days in Warangal is December, with 4.2 days that are muggy or worse.

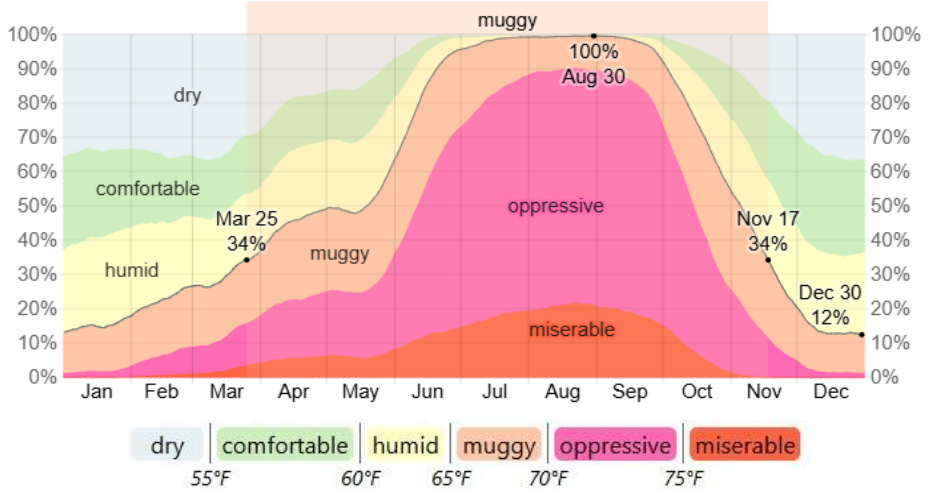


Figure 51 humidity graph

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Muggy days	4.7d	6.3d	9.5d	13.6d	16.1d	25.3d	30.4d	30.8d	29.3d	22.5d	10.7d	4.2d

Table 32 humidity

3.15.8 Wind

The windier part of the year lasts for 4.4 months, from April 19 to August 31, with average wind speeds of more than 8.0 miles per hour. The windiest month of the year in Warangal is June, with an average hourly wind speed of 10.4 miles per hour. The calmer time of year lasts for 7.6 months, from August 31 to April 19. The calmest month of the year in Warangal is December, with an average hourly wind speed of 5.3 miles per hour.

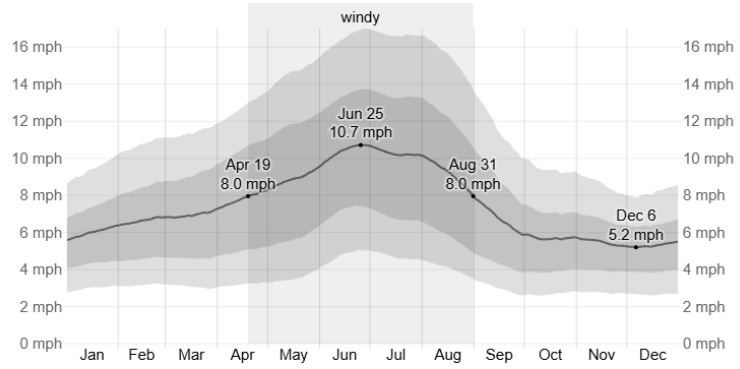


Figure 52 wind analysis

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Windspeed (mph)	6.0	6.6	7.0	7.8	8.9	10.4	10.3	9.1	6.7	5.7	5.5	5.3

Table 33 wind data

3.15.9 Wind direction in Warangal

The wind is most often from the west for 4.0 months, from May 25 to September 26, with a peak percentage of 86% on August 1. The wind is most often from the east for 1.8 months, from November 2 to December 28, with a peak percentage of 48% on November 21. The wind is most often from the south for 4.9 months, from December 28 to May 25, with a peak percentage of 43% on January 1.

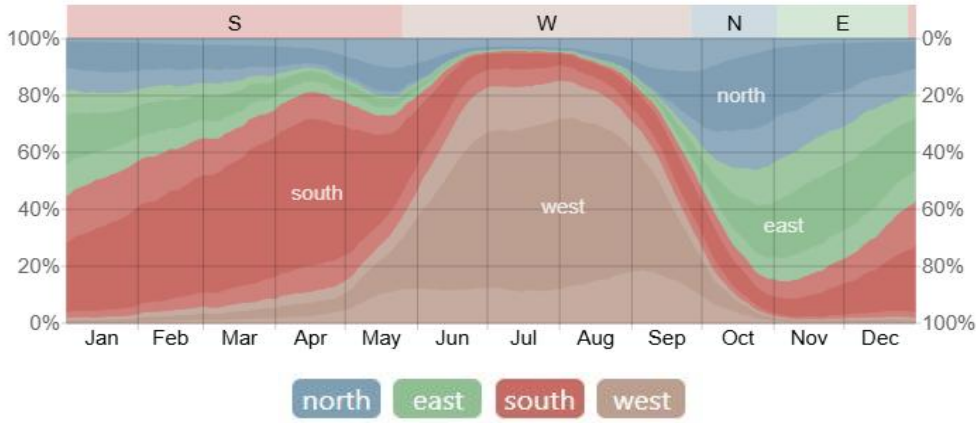


Figure 53 wind direction

3.16 MAHONEYS TABLE

HI	H2	H3	A1	A2	A3
4		1	8		

Layout								
			0-10			X	1	Orientation north and south (long axis east-west)
					5 to 12			
			11,12		0-4		2	Compact courtyard planning
Spacing								
11,12							3	Open spacing for breeze penetration
2 to 10						X	4	As 3, but protection from hot and cold wind
0,1							5	Compact layout of estates
Air movement								
3 to 12						X	6	Rooms single banked, permanent provision for air movement
			0 to 5					
1,2			6 to 12				7	Double banked room
	2 to 12							
0	0,1						8	No air movement requirement
Openings								
			0,1		0		9	Large openings 40-80%
							10	Very small openings 10-20%
Any other condition						X	11	Medium openings 20-40%
Walls								
			0,2				12	Light walls, short time lag
			3 to 12			X	13	Heavy external amd internal wall
Roofs								
			0 to 5				14	Light insulated roofs
			6 to 12			X	15	Heavy roofs, over 8 h time lag
Outdoor sleeping								
				2 to 12			16	Space for outdoor sleeping required
Rain protection								
		3 to 12					17	Protection from heavy rain necessary
Size of opening								
					0		1	Large 40 to 80%
			0,1		1 to 12		2	Medium 25 to 40%
			2 to 5					
			6 to 10			X	3	Small 15 to 25%
					0 to 3		4	Very small 10 to 20%
			11,12		4 to 12		5	Medium 25 to 40%
Position of openings								

3 to 12							6	In north and south walls at body height on windward side
1 to 2			0 to 5					
0	2 to 12		6 to 12			X	7	As above, openings also in internal wall
Protection of openings								
					0 to 2	X	8	Exclude direct sunlight
		2 to 12					9	Provide protection from rain
Walls and floors								
			0 to 2				10	Light, low thermal capacity
			3 to 12			X	11	Heavy over 8 h time-lag
Roofs								
10 to 12			0 to 2				12	Light, reflective surface, cavity
			3 to 12				13	Light, wall insulated
0 to 9			0 to 5					
			6 to 12			X	14	Heavy over 8 h time-lag
External feature								
				1 to 12			15	Space for outdoor sleeping
		1 to 12				X	16	Adequate rainwater drainage

Table 34 Mahoney's table

BASE ELEVEN CONVENTION CENTRE

Location: Pala, Kottayam

Architect: M.M Jose (Mindspace architects)

Site area: 10 acres

Architectural Style: Modern contemporary

Seating Capacity: 2500

Built up Area: 75,00 sqft

Parking capcity:1000

Year :2024



Figure 54 Base eleven convention centre

INTRODUCTION

Base Eleven Convention Centre in Pala, Kottayam, is not merely built—it is composed. Designed by Ar. M.M. Jose of Mindscape Architects, this 75,000 sq. ft. structure redefines the typology of convention spaces in India, offering an architectural language that speaks in curves, context, and crafted spatial experiences.

The convention centre offers 11 main event spaces, including seven AC halls and 4 gardens. One of the most distinctive aspects of the project is the integration of an ancestral home, the "Tharavadu."

ACCESSIBILITY AND PROXIMITY

- Cochin International Airport - 72 kms
- Kottayam Railway Station - 25 Kms
- Ernakulam - 62Kms
- Fort Kochi - 70Kms
- Kumarakom Back Waters - 38Kms
- Alleppey – 60Kms



Figure 55 the base (Tharavadu)

CONCEPT AND APPROACH

The Base Eleven Convention Centre is rooted in two distinct concepts: heritage and fluidity. "Base Eleven" is inspired by the revered 200-year-old Kerala tradition of "Tharavadu," symbolizing the 11 spaces within the centre.

The fluidic design concept is a nod to the flowing waters of Kerala's backwaters, manifesting in curved edges and lines throughout the building, including furniture, to create a seamless and organic experience. This harmonious blend of tradition and innovative design philosophy makes the Base Eleven Convention Centre a unique and captivating destination.

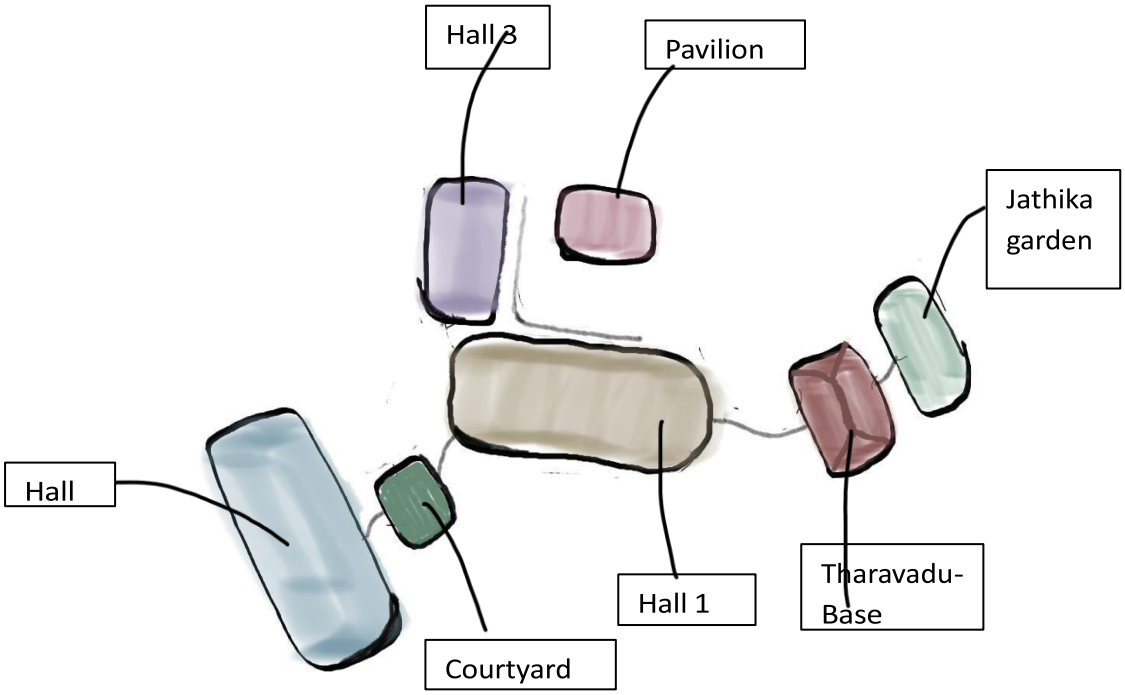


Figure 56 zoning

The Base Eleven Convention Centre's approach is characterized by a thoughtful blend with its surroundings, achieved through the strategic use of local materials and landscaping.

- Notably, yellow rocks sourced from the cow shelter of a 200-year-old Tharavadu have been repurposed as steps for artificial mounts and landscaping elements, creating a unique and contextual connection to the heritage site.
- The fluidic design concept, inspired by Kerala's serene backwaters, is intricately woven into the Centre's aesthetic, with curvaceous motifs evident in lobby furniture and ceiling designs.
- Furthermore, the Centre prioritizes universal accessibility, with major halls situated at ground level to minimize steps and facilitate effortless movement, thereby ensuring a barrier-free environment that welcomes all visitors.
- The interior’s feature pillar free halls and neutral color palettes that created serene.

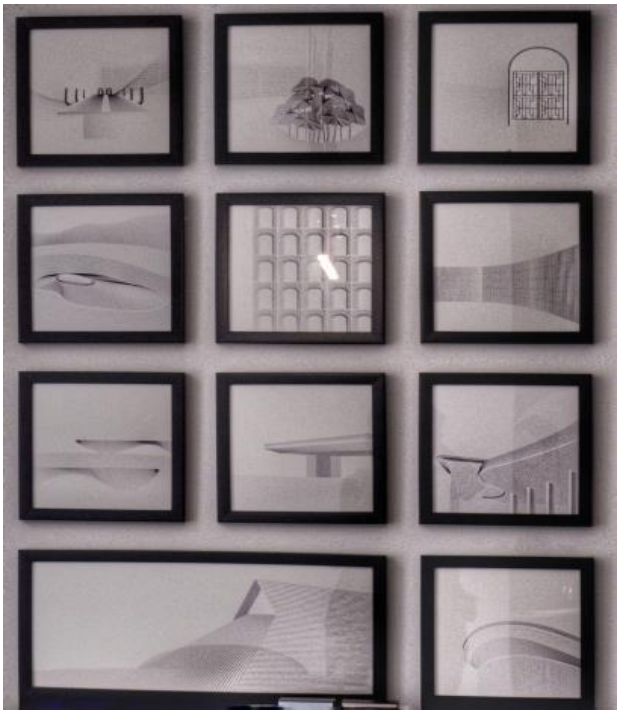


Figure 57 eleven spaces in Base eleven

PLAN AND DETAILS

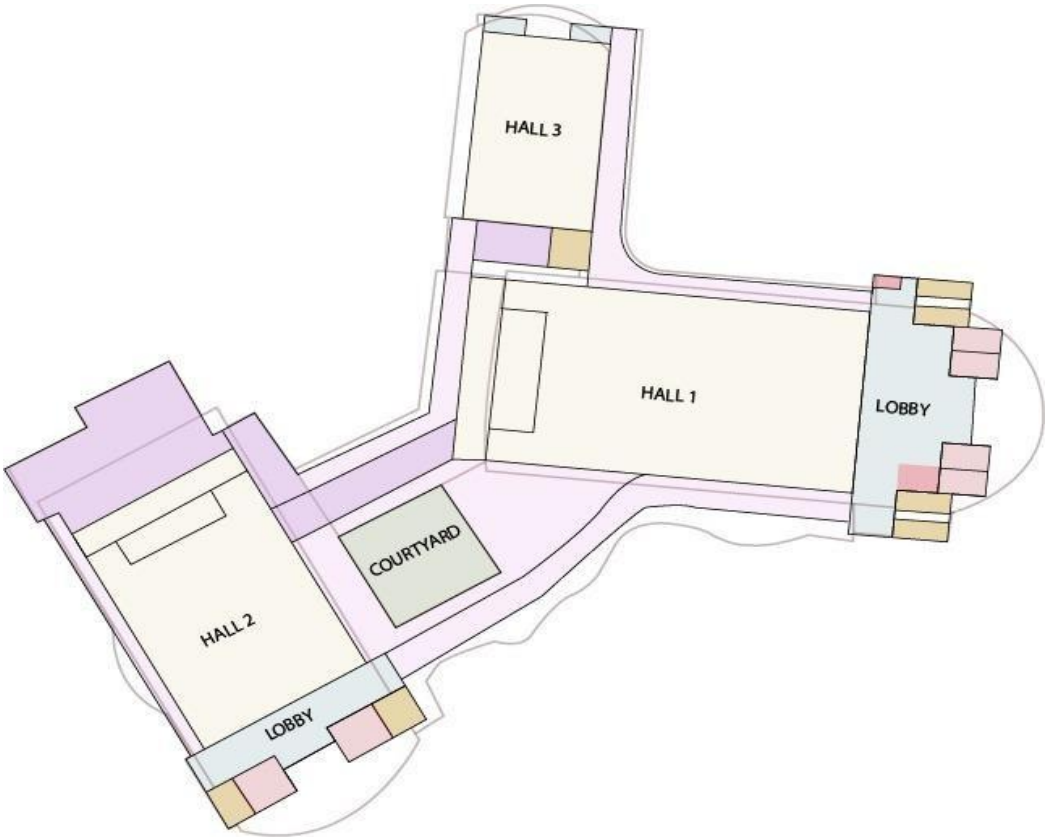


Figure 58 ground floor plan visualization

HALL 1

Hall 1 is an expansive and sophisticated event space, boasting a substantial seating capacity of 1,300 guests. The hall's design embodies a fluidic concept, with a wave-inspired theme that elegantly extends to its entrance, creating a visually striking first impression. To ensure a consistently comfortable environment, the hall is equipped with strategically positioned jet blowers throughout, maintaining a perfectly balanced temperature.

The wave design motif is thoughtfully carried through to the hall's interior, with the undulating patterns on the roof beautifully mirrored in the carpet, creating a harmonious and immersive experience for occupants.



Figure 59 hall 1

The seating arrangement is highly flexible, allowing clients to customize the layout according to their specific needs and preferences Additionally, the hall's acoustic design incorporates PET panels to optimize sound quality, ensuring exceptional auditory experiences for events and performances.

HALL 2

Hall 2 has a seating capacity of 700 pax and boasts an elegant arch design concept, which is consistently reflected in its entrance. The hall is equipped with strategically placed jet blowers throughout to maintain a balanced temperature. Additionally, Hall 2 features a dual-level lighting system on its ceiling, providing optimal illumination. The hall is also fully equipped with acoustic panels to ensure superior sound quality. Furthermore, Hall 2 has five conveniently located exits.



Figure 61 hall 2

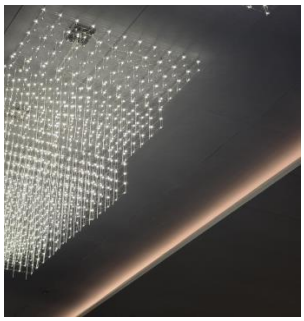


Figure 60 lighting

HALL 3

Hall 3 has a seating capacity of 350 pax and features a distinctive capsule design concept, which is also reflected in its entrance. The overall design theme is oval in nature, creating a unique ambiance. The ceiling is designed in a capsule shape, adding to the hall's aesthetic appeal. Hall 3 is fully equipped with acoustic panels to ensure superior sound quality. The furniture in the hall is flexible and can be rearranged according to specific needs. Additionally, Hall 3 has three conveniently located exits.



Figure 62 hall 3

BANQUET HALLS

There is a large banquet hall that can be divided into three different event spaces using partition panels, with a total capacity of 300 pax. Despite its L-shaped layout, each of the three halls has its own entrance. The hall offers a scenic view of the base of the Convention Centre, which is the 200-year-old tharavadu.



Figure 64 banquet hall



Figure 63 partition panel

COURTYARD

The courtyard is the heart of the Convention Centre. The three main halls are connected to the courtyard in a seamless manner. It is a fully open space where visitors can enjoy the experience of rain. A dance hall is located just behind the courtyard, featuring a ceiling beautifully decorated with cloth, with embedded lighting that creates a soft, ambient glow.

Seating in the courtyard is designed in the form of natural rock formations. Although it is an open space, rainwater is effectively absorbed by the pebbles placed at the center of the courtyard.



Figure 65 courtyard showing seating



Figure 66 dancing area featuring sealing designed by cloth

THARAVADU-BASE

The tharavadu serves as the foundation of the convention centre, which is why it is referred to as the "base." It is a 200-year-old traditional ancestral home. The entire area has been designed with the tharavadu as its central inspiration. The Tharavadu's presence infuses the convention centre with a rich heritage element, making it an ideal venue for events that seek to incorporate a traditional touch.

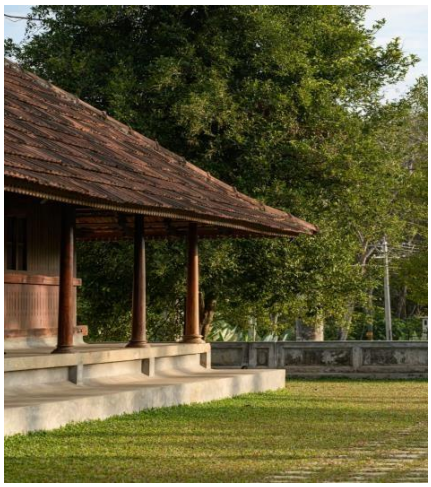




Figure 67 Tharavadu with open space for event

PAVILION

The pavilion is located in the garden area and is designed to appear as if it stands on two pillars. One of the walls is finished with textured paint. Although it is an outdoor event space, it includes a washroom for convenience. The roof is V-shaped, allowing rainwater to flow through the two pillars, which are connected to the ground for proper drainage. Natural stones are placed around the pavilion, adding to its aesthetic appeal.





Figure 68 pavilion and open space for events

JATHIKA GARDEN

Jathikka thottam is a 45-year-old garden in the tharavadu. It is often used for taking aesthetic photographs.





Figure 69 jathikka garden showing open event spaces

LANDSCAPING

- The areas prone to waterlogging have been beautifully constructed as parking spaces
- Stones from the old cow shelter have been used to enhance the beauty of the landscape
- The existing trees were not cut for the landscape design, and a 200-year-old bamboo tree near the pavilion has been beautifully preserved and highlighted.
- Artificial mound was created in the pavilion area to enhance the beauty of the space.



Figure 73 parking area



Figure 74 OAT

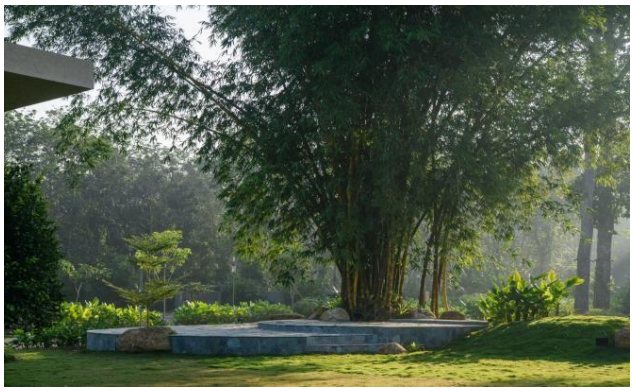


Figure 72 200-year bamboo with stage setting under



Figure 70 artificial mounts



Figure 71 45 years old Jathikka field and preserved well with modern landscaping



Figure 75 landscaping in front of hall 2



Figure 76 courtyard landscaping with ferns given in less interactive area.

SERVICES



Figure 80 Electric substation

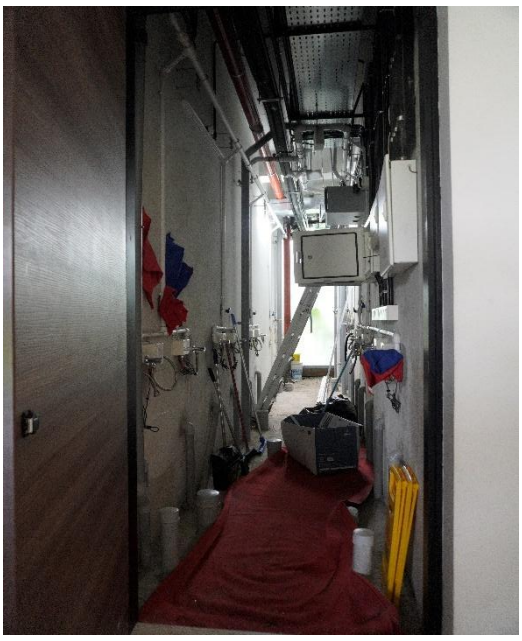


Figure 79 Washroom Plumbing shaft



Figure 77 Fire and safety



Figure 78 Kitchen

LULU BOLGATTY INTERNATIONAL CONVENTION CENTRE (LBICC)

Location: Bolgatty Island, Kochi, Ernakulam, Kerala

Architect: Sanjay Puri (Sanjay Puri Architects)

Site area: 24 Acres

Architecture style: Modern architecture

Seating Capacity:3000

Area of convention centre:1,00,000 sq. ft of indoor and outdoor meetings spaces.



Figure 81 LULU Bolgatty Convention Centre

INTRODUCTION

LBICC - Lulu Bolgatty International Convention Centre, adjacent to Grand Hyatt Kochi Bolgatty is located on the historic Bolgatty Island and offers 1,00,000 sqft of indoor and outdoor meetings spaces. Events can be spread across 30 flexible event venues. The building has a modern architecture style, with a unique blend of functionality and aesthetics. it has world-class facility that can accommodate over 3,000 guests at a time. The building's design is characterized by a massive, pillar-less structure with a total area of 10 lakh square feet, making it one of the largest convention centers in India. The convention Centre is located on the waterfront of Bolgatty Island, offering stunning views of the backwaters and the city skyline.

CONCEPT AND APPROACH

Lulu Convention Centre is a part of hotel Grand Hyatt which offers lake and city views. Grand Hyatt Kochi Bolgatty features 264 luxurious rooms, including 38 suites and four villas with plunge pools and

private access. Also, spa (santata spa) (1000 sq. m), fitness centre, laundry room, restaurants, dining spaces and bar, outdoor and indoor pools.

	Spaces of Convention Centre	Area (sqm)	Seating capacity
1	Vembanad-Ballroom	1800	2000
2	Grand Ballroom	700	800
3	The Liwa Ballroom	2419	3000
4	Living room	60	50
5	Atelier I	74	60
6	Atelier II	40	<30
7	Atelier III	60	50
8	Grand Salon I and Grand Salon II	110	120
9	Library	50	50

Table 35 area and capacity

Site plan



Figure 82 Site plan

Floor plan

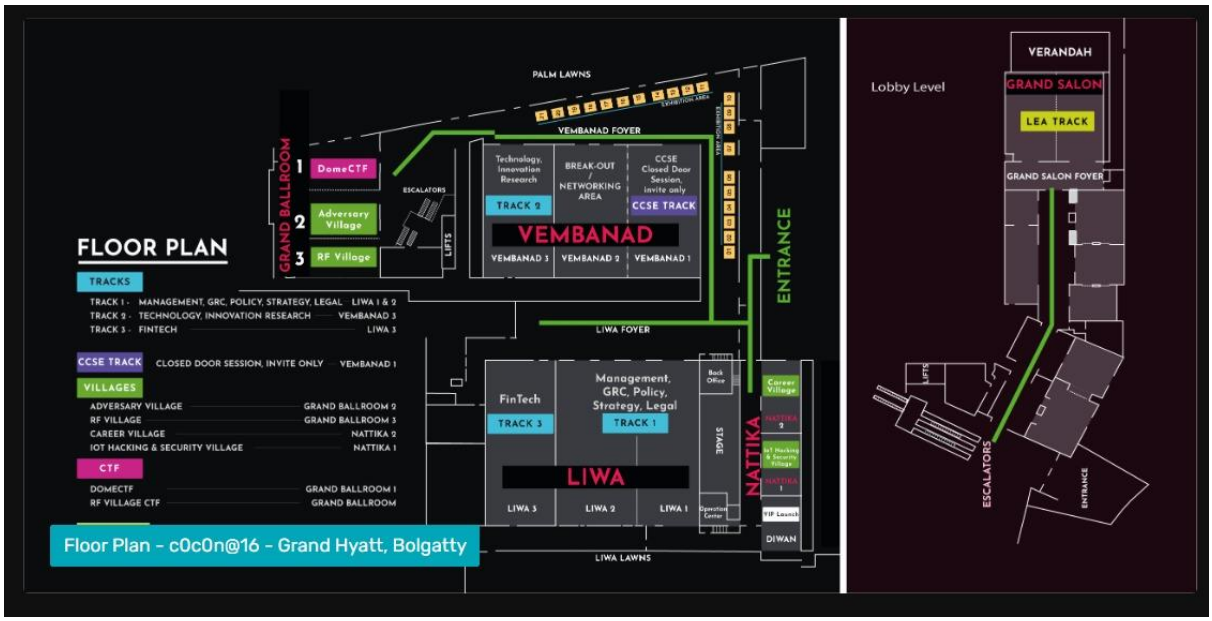


Figure 83 Floor plan

SPACES

VEMBANAD- BALLROOM



Figure 85 large foyer of vembanad ballroom



Figure 84 vembanad hall

The pillar-less Vembanad Ballroom measures 1,800 Sq.m, with a pre-function area of 1,110 Sq.m and can accommodate around 2,000 guests. It can be divided into three separate banquet spaces, and has wash areas comfortable placed at one side. The large foyer space is perfect for live stations and elevated buffets.

GRAND BALLROOM



Figure 86 grand ballroom

The Grand Ballroom measures 700 sq.m, with a pre-function area of 500 sq.m. The ballroom's luxurious setting is the perfect place for awe-inspiring events and get-togethers.

Grand Salon, which is the largest of the 8 meeting rooms in The Residence, offers two flexible spaces each featuring 110 sq.m. of space

The customizable settings can be used for working sessions, intimate cocktail receptions, small trunk shows or conferences of up to 120 people. Bold and compelling works of art, architectural elements inspired by the Tantrasamuchaya temples and traditional houseboats of Kerala.

THE LIWA BALLROOM

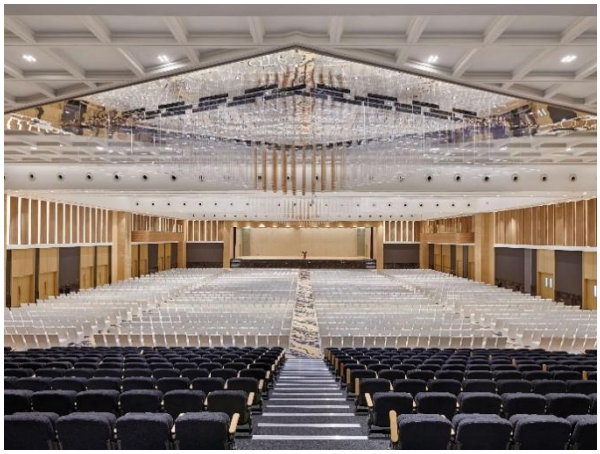


Figure 88 Liwa hall view from back

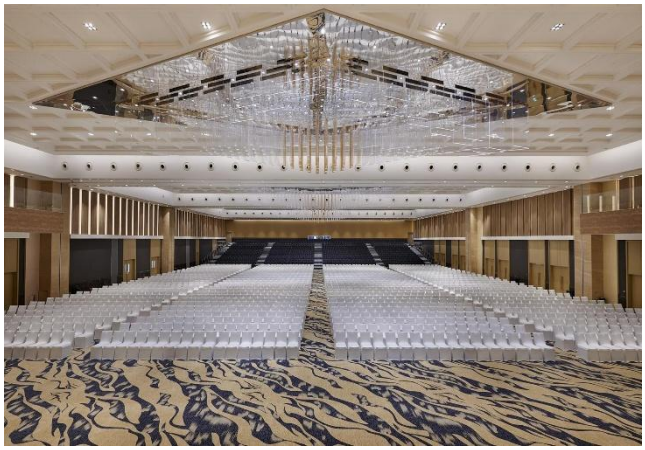


Figure 87 Liwa hall view from front

The Liwa ballroom features 2,419 sq m of flexible space, with a pre-function area of 875 sq m. The venue also offers a separate green room, a bridal room and VIP meeting rooms Liwa is the largest space

among all the spaces. it has retractable chairs. The stage height is 150 cm. green room is at the backside and a space called diwan for guests.

The venue also offers a separate green room, a bridal suite and VIP meeting rooms. Liwa is the perfect choice for opulent weddings, theatre-style presentations and classy cocktail receptions. The 219-square-foot large Nattika and the smaller Diwan are ideal as accompanying venues or for small meetings.

LIVING ROOM



Figure 89 Large living room

A relaxed residential-style space, Living Room offers 60 Sq m of space that can accommodate around 50 guests. The Living Room is perfect for working lunches, coffee breaks or breakout sessions from larger events.

ATELIER I



Figure 90 Atelier I

The residential-style Atelier I offers 74 Sq m of space that can host up to 60 attendees in theatre style seating. The space is perfect for intimate meetings, small celebrations or breakout sessions from larger events.

ATELIER II AND ATELIER III



Figure 92 Atelier II



Figure 91 Atelier III

For private parties and dinner events.

GRAND SALON I AND GRAND SALON II

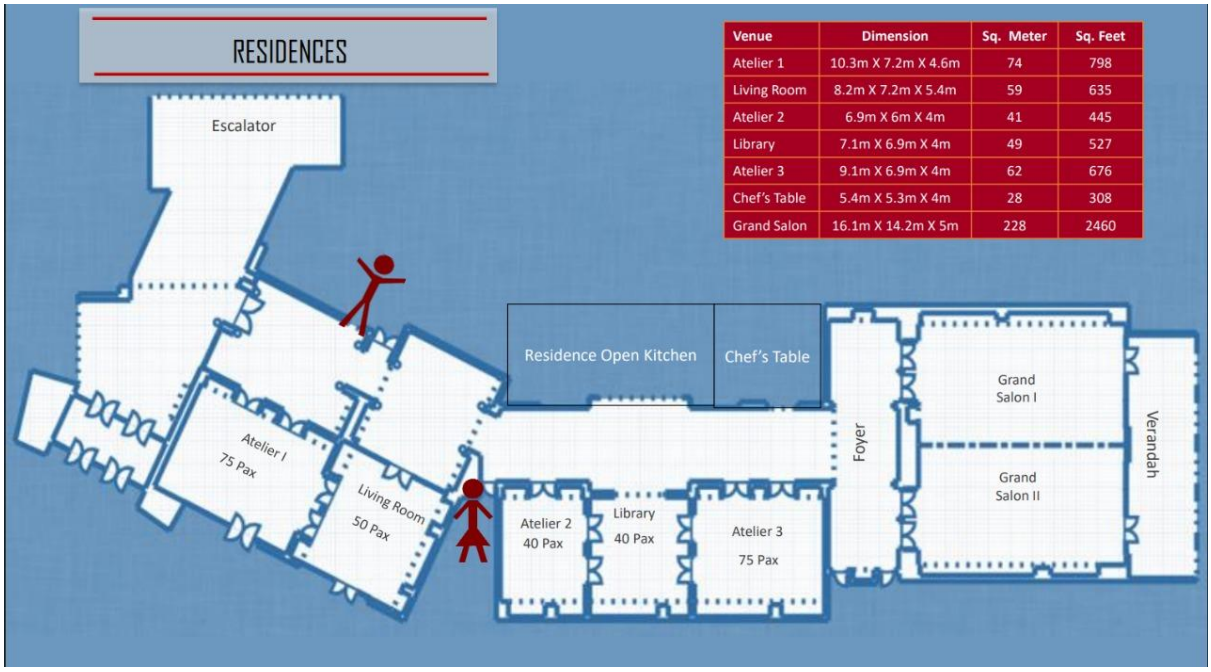
These two flexible spaces each feature 110 Sq m of space, offering customizable settings that can be used for working sessions, intimate cocktail receptions, small trunk shows or small conferences of up to 120 people.



Figure 93 grand saloon

This 50 Sq m space residential style, is perfect for intimate cocktail gatherings, private business meetings or brainstorming sessions for up to 50 guests.

Residences



Venue	Dimension	Sq. Meter	Sq. Feet
Atelier 1	10.3m X 7.2m X 4.6m	74	798
Living Room	8.2m X 7.2m X 5.4m	59	635
Atelier 2	6.9m X 6m X 4m	41	445
Library	7.1m X 6.9m X 4m	49	527
Atelier 3	9.1m X 6.9m X 4m	62	676
Chef's Table	5.4m X 5.3m X 4m	28	308
Grand Salon	16.1m X 14.2m X 5m	228	2460

Figure 94 Residences

Vembanad and Liwa

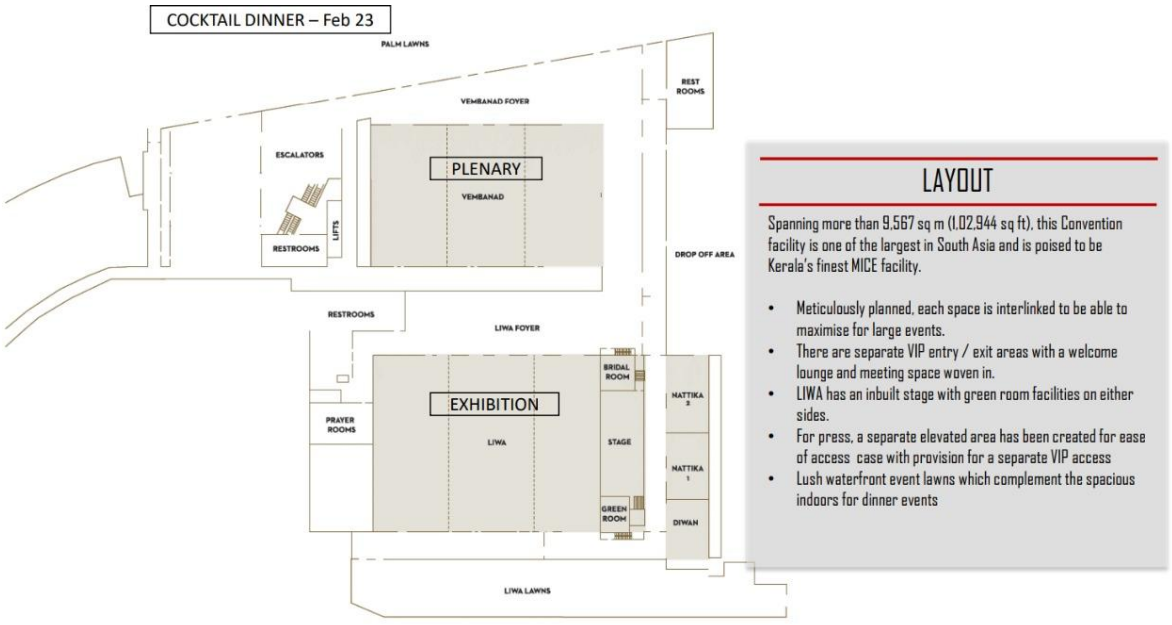


Figure 95 Vembanad and Liwa floor plan

EXTERIOR SPACES AND LANDSCAPING

Elegant landscaping with green lawns, garden, seating areas, gazebo and outdoor pools. Adjacent to the Convention Centre, the expansive palm lawns set the mood for tropical celebrations. The beautifully manicured lawns, set against Kochi's backwaters transform in to a dreamy wedding venue.



Figure 96 Pool and garden facing Vembanad Lake

ACCESSIBILITY AND PROXIMITIES

The Lulu Bolgatty International Convention Centre is well-connected and easily accessible by various modes of transportation, making it a convenient venue for events and conferences in Kochi. It is,

- 4.5 Kms from Kochi metro station
- 5-6 Kms from Ernakulam railway station
- 32 Kms from Cochin International Airport
- Bus services are available within 1km distance. Also, regular bus services connect the convention Centre to major parts of the city.
- Taxi and auto-rickshaw services are available from the airport, railway stations etc.
- The convention Centre is also accessible by boat, with a private jetty and ferry services available.
- The convention Centre is wheelchair-friendly, with ramps, elevators, and accessible restrooms.
- Designated areas for drop-off and pick-up of attendees, including taxi and ride-hailing services.

PARKING

- Total parking capacity: approx.1500 cars
- It has multi-level parking
- valet parking services for attendees, providing a convenient and hassle-free parking experience.
- There are designated parking areas for different types of vehicles, including cars, buses, and taxis.
- The convention centre has reserved parking spaces for people with disabilities, located near the entrance of the building.
- Also, there is parking guidance system, electrical vehicle charging stations.

KEY FEATURES AND SPECIALITIES

The convention Centre incorporates a comprehensive vertical circulation and service infrastructure designed to support operational efficiency and user convenience. A total of six service lifts are strategically placed to manage logistics and back-of-house functions, while eight guest lifts, primarily located at the building's core, ensure smooth vertical movement for visitors. Additionally, two express lifts provide direct access to high-end facilities such as the rooftop bar and restaurant, enhancing the experience for premium guests. Dedicated staff areas are supported by two elevators, and two machine room lifts further contribute to the technical and maintenance operations of the facility. All building systems are centrally controlled and monitored through an advanced Building Management System (BMS), which streamlines the management of energy use, security, and mechanical operations. The facility has achieved IGBC certification, reflecting its adherence to sustainable design and construction principles. Furthermore, the inclusion of retractable seating within the Liwa Ballroom, along with flexible partition systems, allows for dynamic spatial reconfiguration to accommodate diverse event requirements. To support high-level accessibility and emergency response readiness, the site is also equipped with three helipads, catering to VIP arrivals and critical operations when necessary.

ENTRY AND EXITS

There are 7 entries to the site.

Gate-1- for water tankers and other heavy vehicles

Gate- 2- service gate, also visitor enquiries

Gate 3- entry to big car parking

Gate 4 –Centre gate-to the lobby

Gate 5-at corner, for fire brigade. It runs all around the building

Gate 6- VIP entry

Gate 7- entry for the guests coming by helicopter.

SERVICES

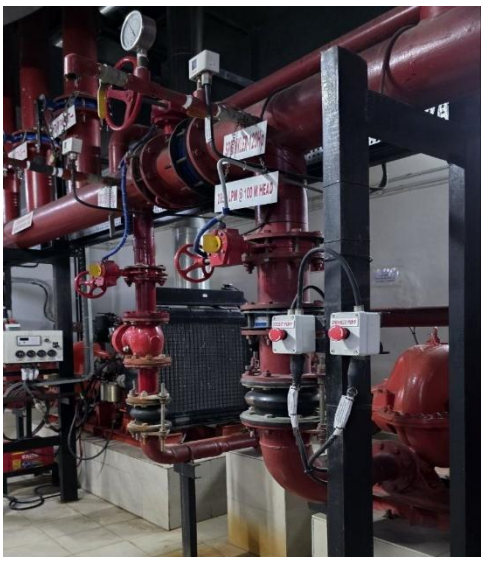


Figure 98 Fire and safety



Figure 97 HVAC Plant



Figure 101 Diesel Yard



Figure 100 Main hub for goods loading



Figure 99 Electrical control room

HYDERABAD INTERNATIONAL CONVENTION CENTRE

Location: Izzat Nagar, Kothaguda, Hyderabad

Architect: Emaar Group

Site Area: 15 acres

Architecture style: Modern architecture

Seating Capacity:6500

Built up Area: 344038 sqm

Year:2006



Figure 102 Hyderabad International convention centre

INTRODUCTION

An award-winning Centre for outstanding events. Managed by Accor, the Hyderabad International Convention Centre is the first of its kind in India. Offering state-of-the-art facilities, it features a vast main hall that can be divided into six smaller venues.

This impressive facility in Hyderabad's IT district was designed to easily accommodate up to 6,000 guests in its pillarless internal hall. A spacious pre-function foyer area and 37 breakout rooms allow for endless possibilities. VIP rooms, conference halls, press rooms, prep rooms… all equipped with cutting-edge technology.

Novotel Hyderabad Convention Centre, adjacent to HICC, is a 5-star 287 room hotel.

ACCESSIBILITY AND PROXIMITY

- Hyderabad International Airport- 20 Kms
- Secunderabad Railway Station-35Kms
- Miyapur Bust stand NH-9-7.1 Kms
- Rajiv Gandhi International Airport-35 Kms
- Madhapur Metro Station-15Kms

CONCEPT

The HICC is built around the idea of providing a flexible and functional space for various events, with a focus on comfort, security, and cutting-edge technology. Its design incorporates modern aesthetics and expansive spaces, making it an ideal choice for business professionals and tourists alike.

FACILITIES H.I.C.C



Figure 103 HICC view

- Custom built to handle versatile events - be it an international conference for 5000 delegates, a cocktail dinner for 4000 guests, a corporate party for 2000 people or even a board meeting for just 15.
- 32 breakout rooms, including specialized. meeting rooms, speaker preparatory rooms, boardrooms and VIP lounge. 16-seater registration area.
- Pillar-free internal hall of net 6,480 sqm that can hold a 5,000-delegate plenary and can be partitioned into 6 halls.
- A spacious pre-function foyer area of over 6,000 sq. meters of lobby space
- In house Event Management and Audio-Visual team.
- Cutting edge design features including environmentally sustainable practices.
- 12.5 meters free ceiling height with catwalks and truss to withhold heavy suspension and mobile operable walls.
- Service pits every 6 meters, with power, water and internet.
- Private workspace for organizers and their guests.
- In-built 100% power back-up generation capability.
- 1000+ car parking base
- Automated telescopic tiered seating for 2600.
- Connected to 287-room Novotel Hyderabad, a 5-star hotel.

Area Analysis

HICC Ground Coverage 15922.3 MSQ

Builtu Area: 344038.1 MSQ

Convention Hall: 6864.46 MSQ

AC Room: 421.28 MSQ

Substation: 174.92 MSQ

Total Builtup Area: 34634.3 MSQ

Total Site Area: 128901.01 MSQ

Total Builtup Area Navotel and HICC : 52640.29 MSQ

PLAN AND DETAILS

AREA STATEMENT

VENUE	AREA IN SQM	CEILING HEIGHT IN METERS	LXB IN METERS

GROUND FLOOR			
Registration centre	429	3.2	33x13
Convention Hall 1	442	12.5	15x29.5
Hall 2	442	12.5	15x29.5
Hall 3	1914	12.5	33x58
Hall 4	1914	12.5	33x58
Hall 5	442	12.5	15x29.5
Hall 6	442	12.5	15x29.5
Corridor A/B	283	12.5	4.8X59
Organizers suite 1	56	2.9	
Organizers suite 2	62	2.9	
Convention hall 1-6	6177	12.5	106.5x58
Meeting room G01	125	2.9	8.75x13.1
Meeting room G02	127	2.9	8.9x13.1
Meeting room G03	125	2.9	8.9x13.1
Meeting room G04	125	2.9	8.9x13.1
Meeting room G05	125	2.9	8.9x13.1
Meeting room G06	125	2.9	8.9x13.1
Meeting room G07	75	2.9	12.2x6.2
FIRST FLOOR			
Meeting room 1.01	127	2.3	8.7x13.1
Meeting room 1.02	125	2.3	8.9x13.1
Meeting room 1.03	127	2.3	8.9x13.1
Meeting room 1.04	125	2.3	8.9x13.1
Meeting room 1.05	127	2.3	8.9x13.1
Meeting room 1.06	125	2.3	8.75x13.1

Meeting room 1.07	46	2.3	5.8x8
Meeting room 1.05	88	2.3	9.2x9.6
Meeting room 1.09	88	2.3	9.2x9.6
Meeting room 1.10	46	2.3	5.8
SECOND FLOOR			
Meeting room 2.01	125	2.3	8.75X13.1
Meeting room 2.02	127	2.3	8.9X13.3
Meeting room 2.03&2.04	274	2.3	17.9X15.3
Meeting room 2.05	125	2.3	8.9X13.1
Meeting room 2.06	127	2.3	8.75X13.1
VIP lounge	115.8	2	
Speaker preparation booth 1,2,3 or 4	23.7	2.3	4.1x5.8

Figure 104 area statement

COMBINED HALLS (1–6)

The event infrastructure features elegant, sound-proof mobile partition walls crafted from teak and silk, along with service pits spaced every 6 meters to support utilities. Complementing this is a vast pre-function foyer spanning approximately 6,500 square meters—ideal for registrations, networking, and catering activities.

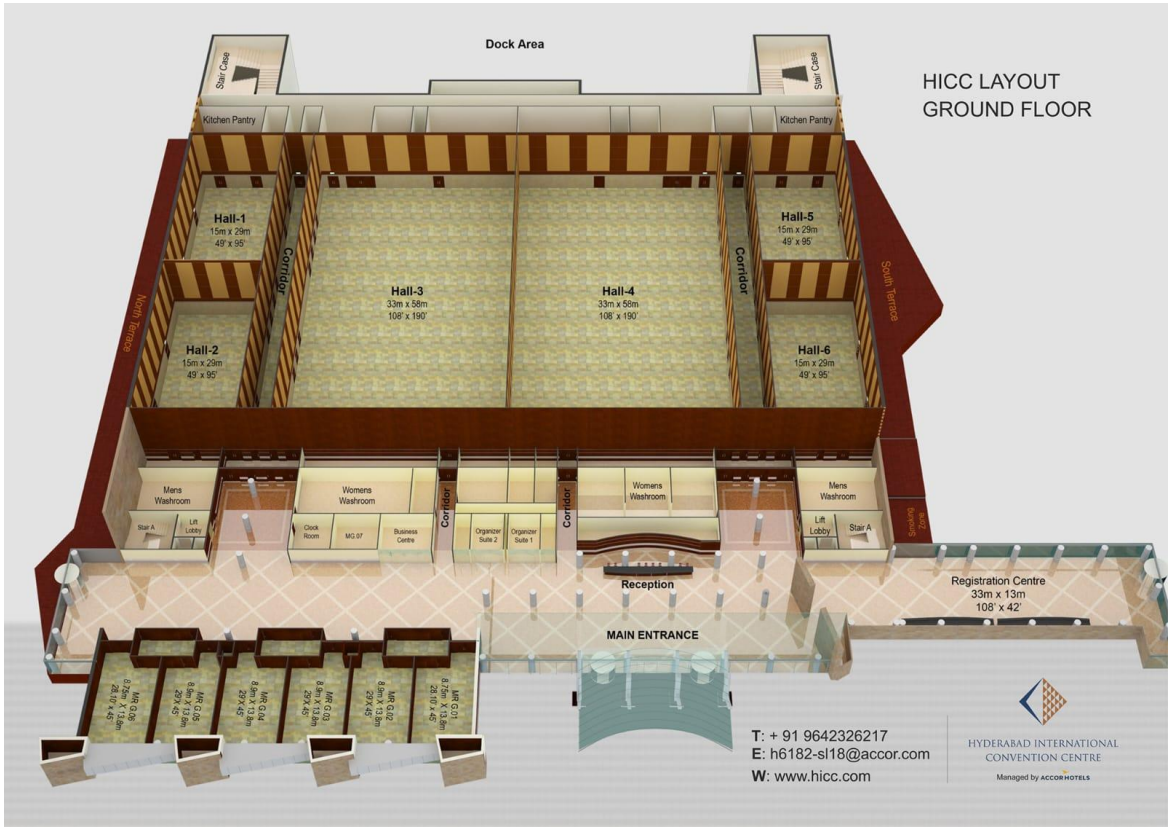


Figure 105 ground floor layout



Figure 107 first floor layout

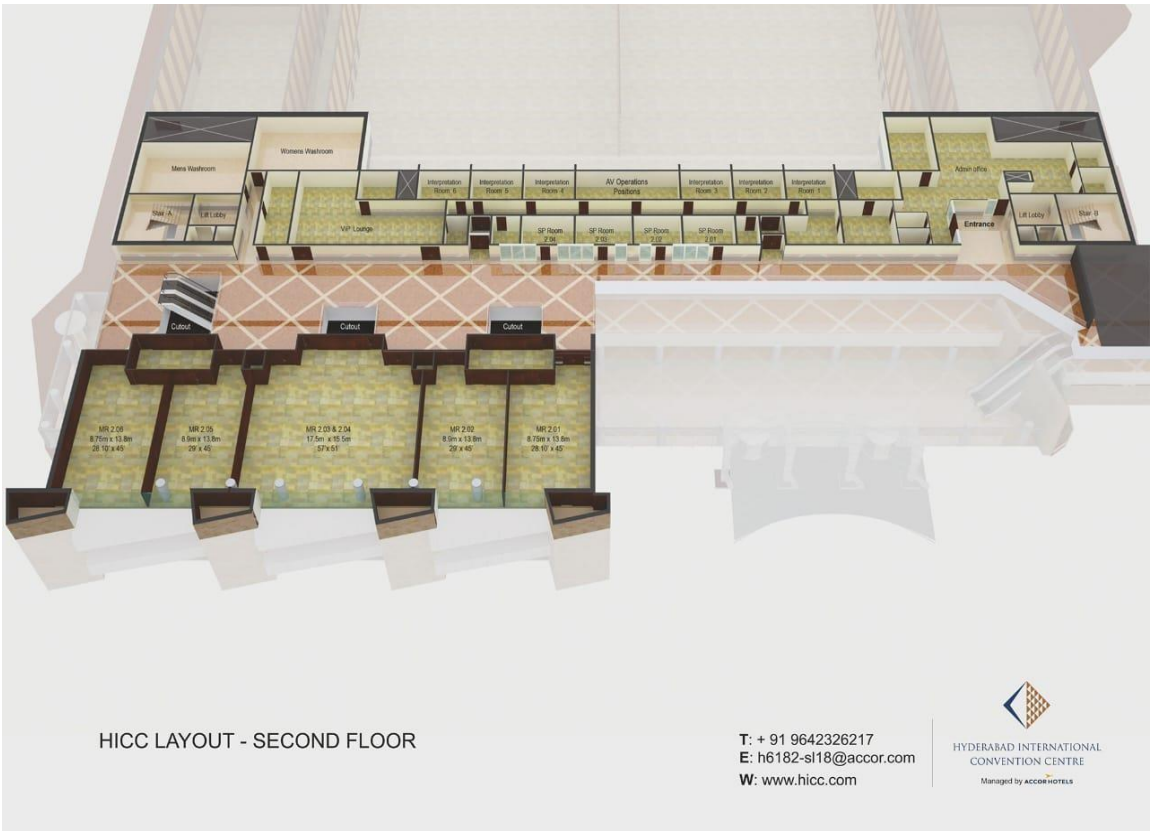


Figure 106 second floor layout

CAPACITY AND DETAILS

VENUE	STAGE SIZE IN FT	CAPCITY				IDEAL USE
		ROUND TABLE	THEATRE	CLASSROOM	CABARET	
Hall 1	20X16	120	240	105	96	Breakouts, mid-level sessions
Hall 2	20x16	120	240	105	96	Workshops, small seminars
Hall 3	40x24	560	1056	534	448	Large plenaries, exhibitions
Hall 4	40x24	560	1056	534	448	Classroom-style large meetings
Hall 5	20x16	120	240	105	96	Breakouts, mid-level sessions
Hall 6	20x16	120	240	105	96	Workshops, small seminars

Table 36 convention centre capacity

AMENITIES

- Business Centre with Internet facility, dual plasma screens for easy venue viewing
- 38 CCTVs for easy security – convenient for event organizers and operations team
- Stunning glass board room overlooking a lake
- Exhibition center with indoor and outdoor options
- private access to the meeting space within Novotel Hotel
- Six additional boardrooms and meeting rooms
- Four separate speaker preparation rooms and breakout rooms on level-2
- Equipment Private Limited – a leading service provider for conventions, conferences, social events, live shows and trade shows at HICC & Novotel Hyderabad Convention Centre



Figure 109 arrangement in banquet style



Figure 108 arrangement in theatre style



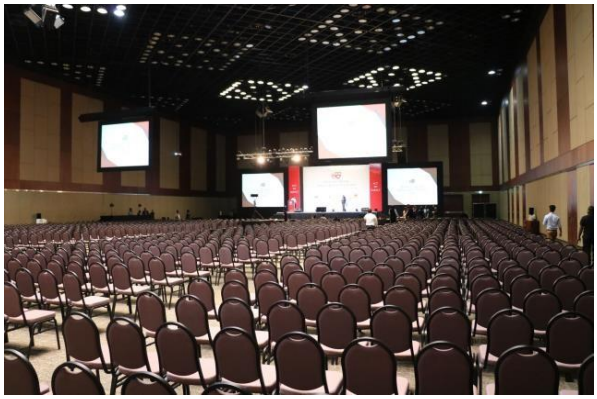


Figure 113 different arrangements inside the convention hall



Figure 112 meeting room



Figure 111 reception lobby





Figure 110 different exhibition arrangements

KEY FEATURES

- Rigging Beam-Each beam has a suspension capacity of one tone.
- Service Pits & Power Supply-Service pits at every six meters with power, water, and internet supply. 100% power back-up.
- Breakout venues and registration area-37 breakout venues come with 16-seater registration area.
- Loading Dock-Secure and managed loading dock with tailor-made capacities.
- VIP Lounge and Organizer Suite-Separate lounge for VIP delegates and suites with private workspace for event organizers.

- Ceiling Height-Clear ceiling height of 12.5m with rooftop catwalk and truss to withhold heavy suspension.

BARRIER ENVIORNMENT

The Hyderabad International Convention Centre (HICC) is equipped to accommodate visitors with disabilities, ensuring a smoother experience for everyone. Obstacle-free ramps are installed at the rear of the convention center, offering barrier-free access to the main hall. The adjacent Novotel has level-ground lobby access (no ramp needed), with a ramp installed near the swimming pool area. Manual wheelchairs are available for use at both the Novotel lobby and the main entry to the convention Centre. While general parking is ample and open-air, there are designated parking bays closer to the venue for better drop-off access.



Figure 114 Barrier Free environment

HONG KONG CONVENTION AND EXHIBITION CENTRE (HKCEC)

Location: 1 Expo Drive, Wan Chai North, Hong Kong Island, Hong Kong

Architect: Skidmore, Owings & Merrill (SOM) with Wong & Ouyang (HK) Ltd.

Site Area: Approximately 157,000 m²

Architecture style: Modern / High-tech

Seating Capacity: 7,100

Built up Area: 306,000 m²

Parking capacity: Approximately 1,300 vehicles

Year 1988 (Phase I), 1997 (Phase II), 2009 (Atrium Link Expansion)



Figure 115 HKCEC front view

INTRODUCTION

The Hong Kong Convention and Exhibition Centre (HKCEC) is a large-scale, multifunctional venue strategically located in Wan Chai North, designed to accommodate high visitor volumes with exceptional spatial flexibility. With a total built-up area exceeding 306,000 m², the centre offers over 91,500 m² of rentable space, including exhibition halls, convention theatres, meeting rooms, and a grand ballroom. Its main Grand Hall seats approximately 3,800 people, while the overall venue can host up to 140,000 visitors per day. The facility includes six exhibition halls, two large theatres, 52 meeting rooms, and extensive back-of-house support areas, all arranged to support concurrent large-scale events. This architectural layout emphasizes efficient crowd circulation, functional zoning, and the ability to adapt to diverse event formats ranging from trade shows to international summits.

ACCESSIBILITY AND PROXIMITY

- Exhibition Centre Station (MTR East Rail Line)- Directly beneath the HKCEC
- Wan Chai Station (MTR Island Line)- ~650 meters
- Wan Chai Ferry Pier - ~400 meters, Route: Ferry connection to Tsim Sha Tsui (Kowloon side)
- Bus Stops (Harbor Road / Convention Avenue)- Within 100–300 meters
- Hong Kong International Airport (HKG)- ~40 km
- Cross-Harbor Tunnel – ~1.2 km

CONCEPT AND APPROACH

- The hallmark Phase II roof, clad in roughly 40,000 m² of sculpted aluminum panels, is designed to evoke a seabird in flight—a dynamic, aerodynamic form that contributes to a strong visual identity against the waterfront skyline.

- The undulating roof is more than symbolic—it allows for a 75-foot-high vaulted convention hall with column-free spans up to 80 m. This form maximizes flexible interior use while creating dramatic spatial and visual effect

- The urban strategy used is the concept of City within City-The Phase I design, led by Dennis Lau & Ng Chun Man (DLN), aimed to create a self-sustaining urban center—integrating exhibition facilities, hotels, serviced apartments, and office buildings. This mixed-use composition allows HKCEC to function as its own urban ecosystem, bolstering synergy with the surrounding community and business context.

- The 2006–2009 expansion introduced the Atrium Link, which connects Phase I and Phase II without occupying the seabed beneath. Utilizing five mega-trusses spanning over 90 m, the entire exhibition space is suspended—allowing for expansion without interfering with harbor reclamation and future transport development.

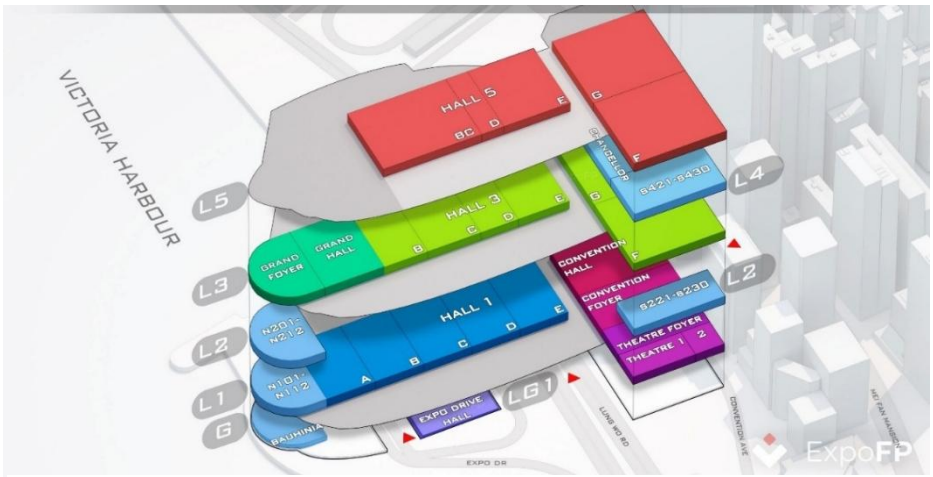


Figure 116 zoning

AREA STATEMENT AND CAPACITY

EXHIBITION HALL

1. HALL 1



Figure 117 Hall 1

Dimension :255m (L) X 78m (W) X 10.5m (H)
Gross Floor Area: 19,890 sqm
Divisions: divisible into 5 independent halls (Hall 1A, 1B, 1C, 1D & 1E)
Capacity:

Venue/ Hall	Capacity
Hall 1A-E	1312
Hall 1A-C	770
Hall 1AB/1BC	515
Hall 1DE	415
Hall 1A	255
Hall 1B	260
Hall 1C	255
Hall 1D	166
Hall 1E	245

Table 37 Hall 1 capacity

2. HALL 3B-3E

Dimension: 192m (L) X 78m (W) X 10.5m (H)
Gross Floor Area: 14,982 sqm
Divisions: divisible into 4 independent halls (Hall 3B, 3C, 3D & 3E)
Capacity

Venue/ Hall	Capacity
Hall 3B - E	983
Hall 3BC	464
Hall 3DE	396
Hall 3B	212
Hall 3C	252
Hall 3D	166
Hall 3E	229

Table 38 Hall 3B-3E capacity



Figure 118 Hall 3B-3E

3. HALL 3F-3G

Dimension: 120m (L) X 72.6m (W) X 8.25m (H)
Gross Floor Area: 8,917 sqm
Divisions: divisible into 2 independent halls (Hall 3F & 3G)

Venue/ Hall	Capacity
Hall 3FG	542
Hall 3F	250
Hall 3G	264

Table 39 Hall 3F-3G capacity



Figure 119 Hall 3F-3G

4. HALL 5BC



Figure 120 Hall 5BC

Dimension: 104m (L) X 78m (W) X 10.5m (H)
Gross Floor Area: 8410 sqm
Capacity:498

5. HALL 5DE

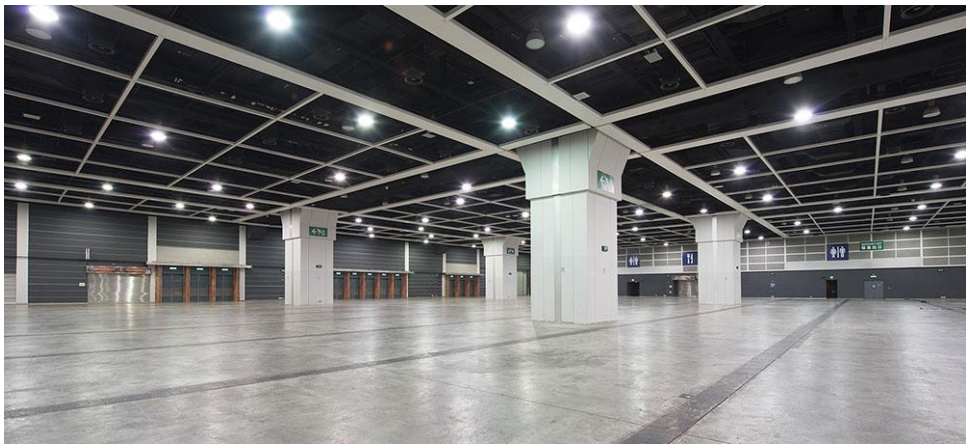


Figure 121 Hall 5DE

Hall 5D is a concourse between Hall 5BC and Hall 5E

Venue	Gross Floor Area	Dimension (L X W X H)	Capacity
Hall 5D	1185	47 x 24 x 5	30
Hall 5E	5070	65 x 78 x 8.25	294

Table 40 hall 5d and 5E

6. HALL 5F

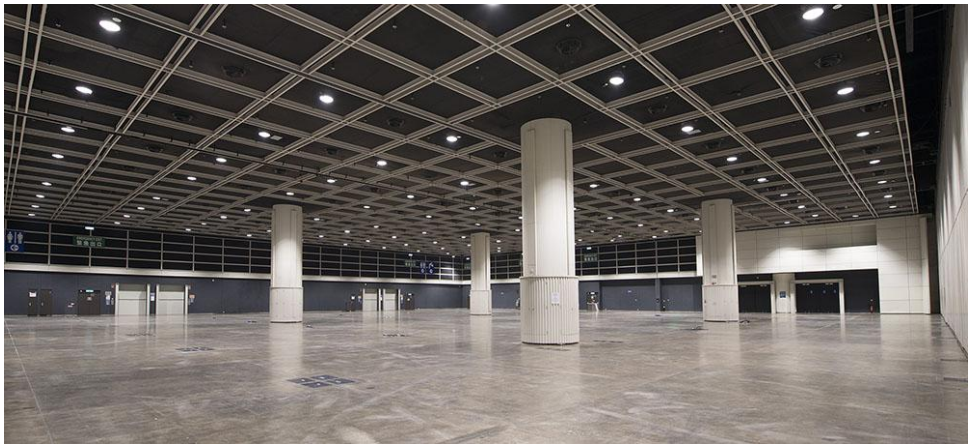


Figure 122 Hall 5F

Dimension: 60 (L) x 72.6 (W) x 8.25 (H)
Gross Floor Area: 4,456 sqm
Capacity: 250

7. HALL 5G

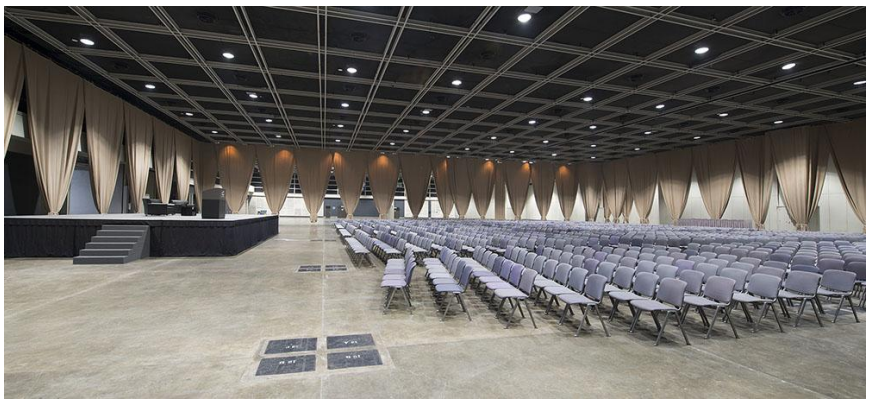


Figure 123 Hall 5G

Dimension: 60 (L) x 72.6 (W) x 8.25 (H)
Gross Floor Area: 4,456 sqm
Capacity: 264

MEETING ROOM

Venue	Details	**Gross Floor Area**	**Theatre (max. capacity)**	**Classroom (max. capacity)**	**Banquet (max. capacity)**	**Cocktail (max. capacity)**

Meeting Rooms S421 - S430 	10 meeting rooms accommodating 28 to 380 people. S421 is equipped with permanent stage with 9m(W) x 2.5m(H) built-in LED Wall	42-433 sqm	28-380 persons	18-198 persons	12-240 persons, 1-20 tables	25-285 persons
Meeting Rooms S221 - S230 	10 meeting rooms accommodating 28 to 506 people. S221 is equipped with 7m(W) x 3m(H) built-in LED Wall. 7sqm is reserved for built-in LED Wall if S221 is licensed for meetings or banquets	42-581 sqm	28-506 persons	18-284 persons	12-264 persons, 1-22 tables	25-375 persons
Meeting Rooms N201 - N212 	13 meeting rooms accommodating 28 to 600 people. N201 is equipped with 12m(W) x 3m(H) built-in LED Wall. 12sqm is reserved for built-in LED Wall if N201 is licensed for meetings or banquets	38-740	28-600 persons	11-296 persons	12-384 persons/1 - 32 tables	25-508 persons
Meeting Rooms N101 - N112 	13 meeting rooms accommodating 28 to 600 people. N101 is equipped with 12m(W) x 3m(H) built-in LED Wall. 12sqm is reserved for built-in LED Wall if N101 is licensed for meetings or banquets	38-740	28 - 600 persons	11-296 persons	12-384 persons/1 - 32 tables	25-508 persons

Table 41 meeting room capacity

THEATRE

Venue / Details	Gross Floor Area sqm.	Maximum Capacity
Theatre 1 	507	637 persons
Theatre Foyer 	457	300 persons for cocktail
Theatre 2 	293	336 persons

Table 42 Theatre capacity

MULTIPURPOSE HALL

1. **Grand Hall**



Figure 124 grand hall with round table arrangement

Area: 3,880sqm

ceiling height: 27m

A premier ballroom style venue, with a permanent stage of 408sqm with 20m(W) x 5.5m(H) built-in LED Wall

32sqm stage area is reserved for built-in LED Wall.

2. Grand Foyer

Area: 2,094sqm

ceiling height: 33m

Pre-function area with a panoramic view of Victoria Harbor



Figure 125 grand foyer with view to Victorian harbour

Venue / Details	Gross Floor Area sqm.	Theatre (max. capacity)	Classroom (max. capacity)	Banquet	Cocktail (max. capacity)
Grand Hall	3,880	3,800 persons	1,890 persons	2,160 persons/ 180 tables	3,800 persons
Grand Foyer	2,094	-	-	-	1,400 persons

Table 43 capacity of multipurpose hall

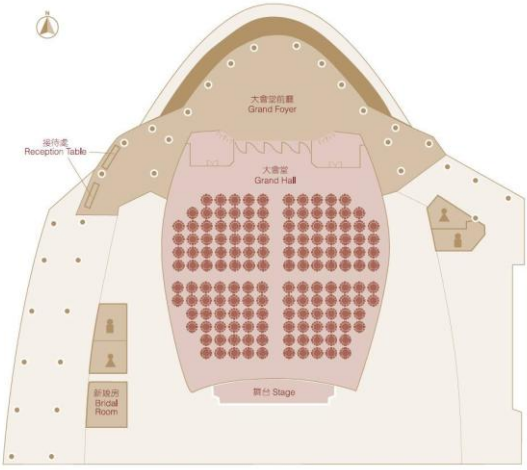


Figure 126 plan of multipurpose hall

CONVENTION HALL



Figure 127 convention hall view

Dimension: 56.5m (L) x 32.5m(W) x 7.7m(H)

Area:1,819sqm

A ballroom style venue, divisible into 3 halls (A, B & C)

18sqm is reserved for built-in LED Wall if Convention Hall is licensed for meetings or banquets

Convention Foyer: Pre-function area supporting the Convention Hall

Venue / Details	Gross Floor Area sqm.	Theatre (max. capacity)	Classroom (max. capacity)	Banquet (max. capacity)	Cocktail (max. capacity)
Convention Hall A-C	1,819	1,700 persons	891 persons	960 persons/80 tables	1,480 persons
Convention Hall AB/BC	1,289	1,046 persons	603 persons	636 persons/53 tables	1,030 persons
Convention Hall B	764	611 persons	315 persons	396 persons/33 tables	480 persons
Convention Hall A/C	525	344 persons	183 persons	204 persons/17 tables	350 persons
Convention Foyer	1,740	-	-	-	1,150 persons

Table 44 convention hall capacity

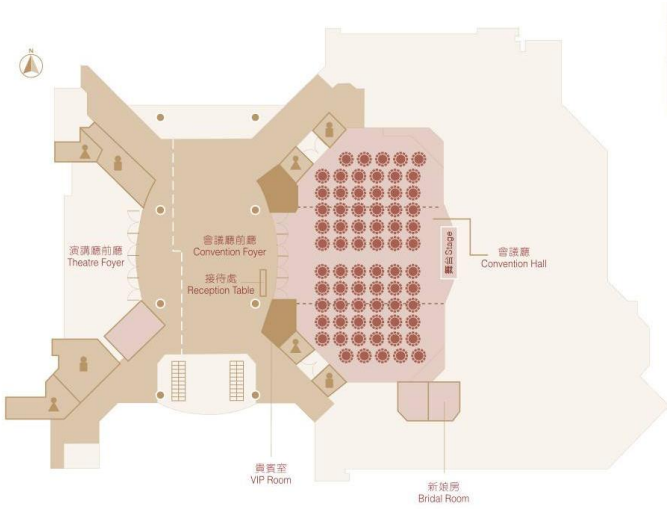


Figure 128convention hall plan

MULTI-FUNCTIONAL ROOM

1. **Chancellor room**



Figure 129 chancellor room

Dimension: 47.3m(L) X 16.9m(W) X 3.6(H)

Area: 818sqm

Capacity: 442 people

Equipped with 12m(W) x 3m(H) built-in LED Wall
12 sqm is reserved for built-in LED Wall if licensed for meetings or banquets

Venue / Details	**Gross Floor Area sqm**	**Banquet (max. capacity)**	**Cocktail (max. capacity)**
Chancellor Room	818	432 persons/36 tables	556 persons

Venue / Details	Gross Floor Area sqm	Banquet (max. capacity)	Cocktail (max. capacity)
Chancellor Room 1	164	72 persons/6 tables	-
Chancellor Room 2	410	192 persons/16 tables	-
Chancellor Room 3	244	84 persons/7 tables	-
Chancellor Room Foyer	322	-	-

Table 45 chancellor room capacity

2. Bauhinia room



Figure 130 Bauhinia room with a view on Victorian harbour

The Bauhinia Room sits just beside the Victoria Harbor and the Golden Bauhinia Square, offers a dazzling night view along the coasts of the Victoria Harbor.

Area: 699 m^2

Capacity: 300 guests.

Venue / Details	Gross Floor Area sqm	Banquet (max. capacity)	Cocktail (max. capacity)
Bauhinia Room (1+2+3)	699	300 persons/ 25 tables	500 persons
Bauhinia Room 1	217	84 persons/ 7 tables	-

Venue / Details	Gross Floor Area sqm	Banquet (max. capacity)	Cocktail (max. capacity)
Bauhinia Room 2	262	120 persons/ 10 tables	-
Bauhinia Room 3	220	84 persons/ 7 tables	-

Table 46 Bauhinia rooms capacity

PLAN AND DETAILS

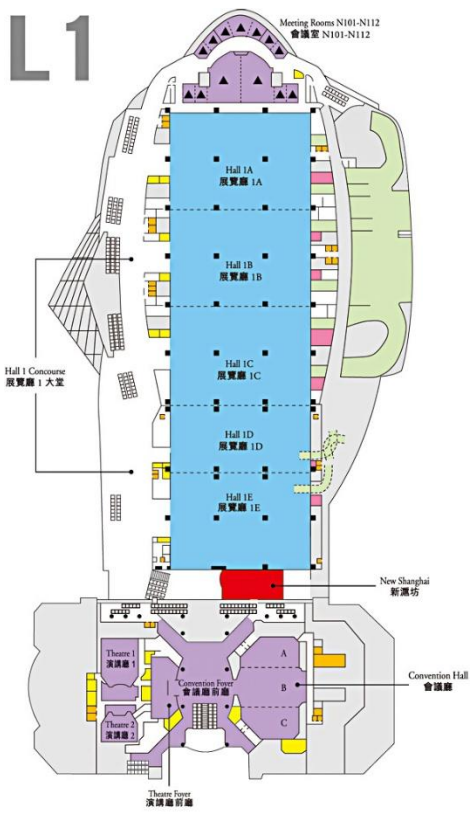


Figure 132 first floor plan



Figure 131 second floor plan

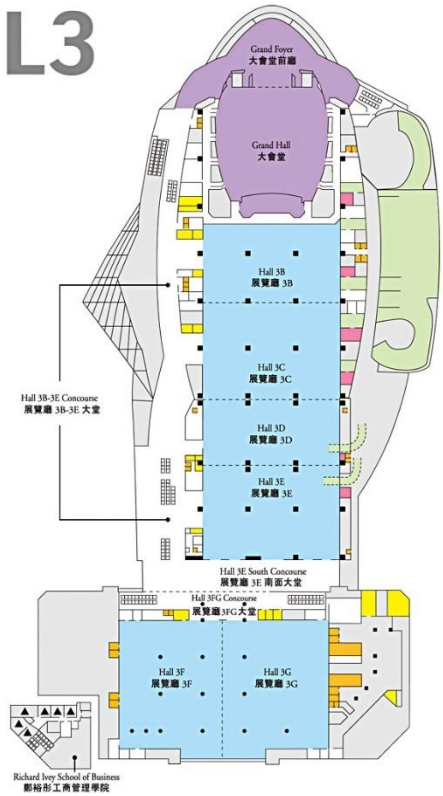


Figure 133 third floor plan

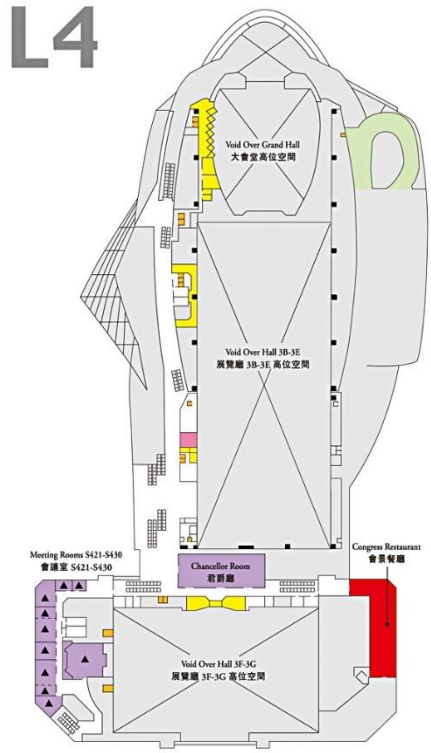


Figure 134 fourth floor plan

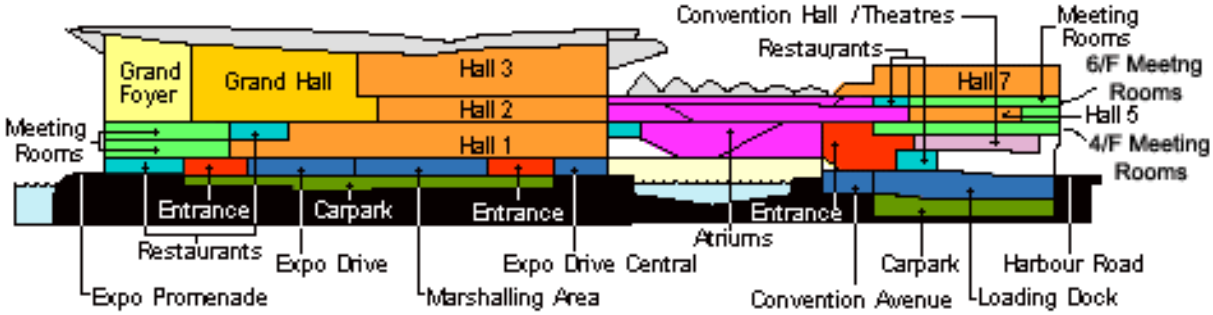


Figure 136 division of halls in section

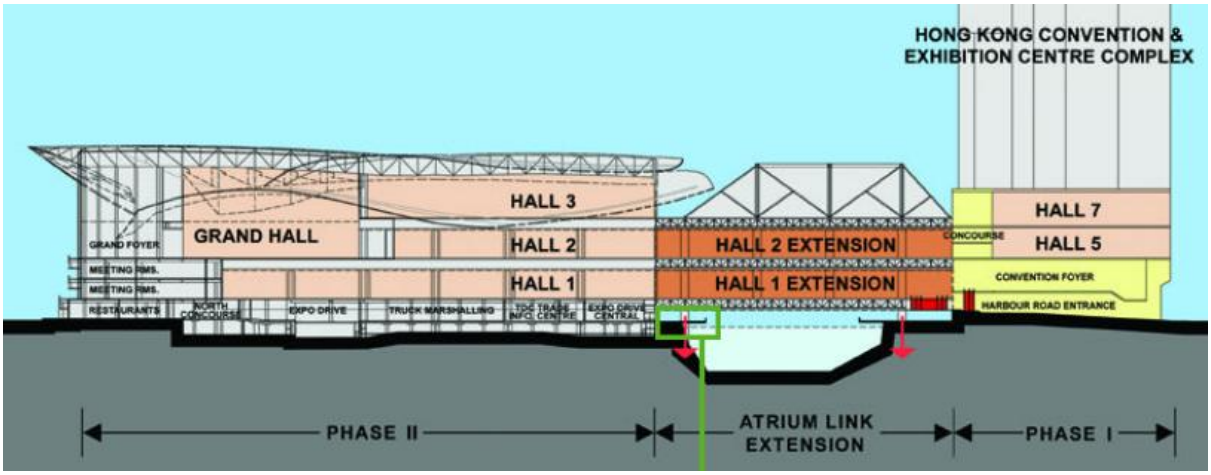


Figure 135 section through halls

FACILITIES

- 3 floors of Exhibition Halls (6 exhibition halls), 66,000 sqm in total
- 2 Multi-Purpose Halls, 5,700 sqm in total, with seating for 5,600
- 2 world-class Podiums
- 2 Theatres, 800 sqm with seating for 1,000
- 52 Meeting Rooms, 6,000 sqm
- 2 Banquets Halls, including Chancellor Room and Bauhinia Room
- 7 restaurants with seating for 1,340, including Congress Plus, Golden Bauhinia, Harbour Kitchen, Harbour Road Café, New Shanghai, Port Café, and Traders
- Related Facilities including shopping arcade, banks, and business centers.
- 4-Star Renaissance Hong Kong Harbor View Hotel, with 800 rooms in total
- 5-Star Grand Hyatt Hong Kong, with 542 rooms in total
- Grade A Convention Plaza Office Tower
- Serviced apartment tower Convention Plaza Apartments
- Over 1,300 parking bays

STRUCTURAL AND CONSTRUCTION

Structural Type	Steel-frame with reinforced concrete cores
Roof	Curved, wave-like roof supported by steel trusses (spanning up to 80–90 meters)
Atrium Link Structure	Suspended steel mega-trusses (over 90 meters span) without seabed foundation
Materials	Structural steel, reinforced concrete, aluminum panels (roof), glass curtain walls
Clear Spans	Up to 80 meters, allowing column-free exhibition halls
Foundation	Deep pile and caisson foundations, especially over reclaimed land
Roof Cladding	40,000 m² of aluminum cladding over arched steel trusses
Construction Techniques	Pre-fabrication, strand-jacking for trusses, aerial construction for bridge over existing roads
Wind Resistance	Designed to withstand typhoon-force winds using tied-down trusses and reinforced connections
Construction Challenges	Built over harbor, tight schedules, maintaining operations during expansion

Table 48 structural details and materials

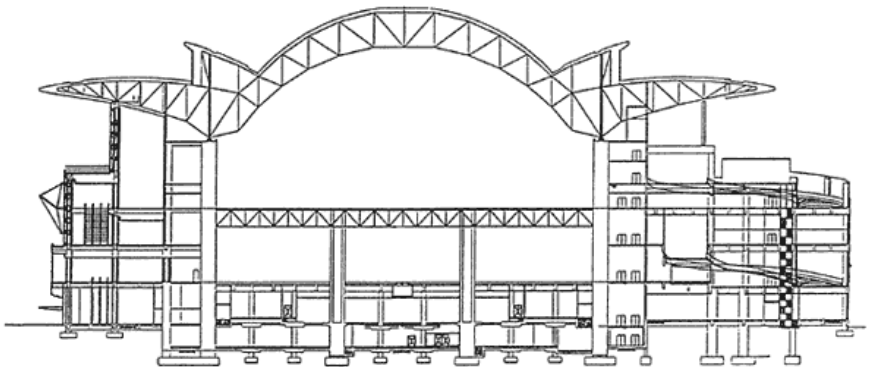


Table 47 section showing truss details

Case Study Comparitive Analysis

Sl no	Parameters	Base Eleven Convention centre	LULU Bolgaty International convention centre	HICC (Hyderabad)	Hong Kong Convention and exhibition centre
					
1	Location	Pala, Kottayam, Kerala	Bolgatty Island, Kochi, Kerala	HITEC City, Hyderabad	Victoria Harbour, Hong Kong
2	Design Concept	Rooted in *Tharavadu* tradition, emphasizes open courtyards	Grand, luxury resort-style with views of Vembanad Lake	Modern, functional, business-focused	Iconic waterfront structure with urban integration
3	Climate Analysis	Tropical Monsoon (Humid) Central Courtyard Acts as a thermal buffer and facilitates cross-ventilation	Hot and humid, water front allows passive cooling	Hot semi arid. Halls and main spaces are oriented to minimize direct solar exposure	Humid Subtropical
4	Site analysis	serene semi-urban area of Pala, surrounded by natural greenery, the site leverages traditional architecture and landscaping to create a culturally rooted and climate-responsive environment.	Set on Bolgatty Island facing Vembanad Lake, the site offers a picturesque waterfront setting with resort-like ambience and strong connectivity by road and water.	The site enjoys excellent urban connectivity, surrounded by commercial infrastructure, and is designed for high-capacity, tech-driven events.	Prominently located on the Victoria Harbour waterfront in a dense urban core, the site demands advanced engineering to handle high winds, salt-laden air, and space constraints.
5	Architectural style	Vernacular-modern hybrid, eco-sensitive	Contemporary luxury architecture	Sleek modernist with modular planning	High-tech futuristic architecture
6	Site Area	10 Acres	24 Acres	15 Acres	38 Acres
7	Accessibility	Good regional access, local scale	Easily accessible by road & water	Excellent metro, road, and airport connectivity	Excellent global access, metro connectivity, and ferry services
8	Spaces Available	3 Main Halls, Pavilion, Courtyard, Banquet, Outdoor stages	Multiple Ballrooms, Salons, Ateliers, Living Room, Outdoor lawns	Combined halls (1–6), VIP rooms, Banquet, Pre-function space	6 Halls, Theatres, Ballrooms, Meeting Rooms, Multi-purpose rooms

9	Main hall capacity	1200	3000	6000	1700
10	Landscape integration	Strong landscape with Jathikka garden, preserved trees	Emphasis on lake views, water features, and greenery	Functional outdoor design	Minimal natural integration, urban skyline view
11	Technological infrastructure	Basic sound, lighting, AV, Acoustic treatment	Advanced AV, lighting, climate control	Fully integrated AV, acoustic treatment, ICT	High-end AV, translation booths
12	Services	Basic sound and lighting systems, Washroom facilities, Green room provision, Parking area, Service access and circulation routes, Rainwater harvesting via roof drainage into pillars, Electrical and plumbing services, Barrier free environment	Central air-conditioning with climate control, Advanced audio-visual and lighting systems, Power backup systems, Kitchen and banquet service areas, Ample parking for guests and VIPs, Elevator and service lift access, Security systems and surveillance, Dedicated service corridors	Fully centralized HVAC systems, High-speed internet and ICT infrastructure, Advanced AV systems (video conferencing, live translation, etc.), Fire safety systems (sprinklers, alarms, extinguishers), Multiple service corridors and service entries, Waste management and utility rooms, Backup power systems, Escalators, elevators, and ramps for accessibility	Advanced HVAC and humidity control systems, Multilingual AV and simultaneous translation systems, High-capacity electrical and lighting infrastructure, Storm water drainage and coastal flood resistance, Structural fire safety systems, Press rooms and media broadcasting infrastructure, Dedicated service elevators and loading docks, Rigorous security systems and access control
13	Amenities	Landscaped courtyard and pavilion for events, Jathikka garden with seating areas, Outdoor amphitheater (OAT), Traditional Tharavadu structure for hosting functions, Natural event spaces integrated with preserved vegetation, Cloth-covered dance area and informal gathering zones	Multiple ballrooms and salons (Vembanad, Liwa, Atelier I–III), Poolside lounge and garden decks facing Vembanad Lake, Breakout rooms and pre-function areas, Luxury lounges and VIP rooms, Multi-cuisine restaurants and bar areas, Outdoor event lawns and waterfront views, Attached luxury hotel facility	Combined halls (Halls 1–6) with modular flexibility, Business centre and breakout meeting rooms, Reception and information counters, Barrier-free environment with accessibility features, Catering zones and F&B outlets, On-site hotel and parking for over 1000 vehicles, Exhibition space and banquet-style arrangements	Multiple exhibition halls, theatres, and meeting rooms, Grand foyer with harbor view, VIP lounges and Chancellor Room, Cafeterias, restaurants, and retail kiosks, Business service centers (banks, postal, courier), Connection to hotels and ferry terminal, Tourist support services (currency exchange, tour desks)

14	Flexibility & Modularity	Limited, fixed halls mostly	High flexibility through partition walls in ballrooms	Operable walls, multiple configurations	Advanced modularity, reconfigurable walls and lighting
15	Materials used	Natural Stone & Laterite Blocks, Timber/Wood, Clay Tiles, Fabrics, Local Vegetation, Exposed concrete	Glass Curtain Walls, Steel structures, Aluminum Composite Panels, Marble and Polished Stone Flooring, Acoustic Panels & Wood Veneers, Concrete & RCC,	RCC and Steel Frame Construction, Double-Glazed Units, Aluminum Louvers & Cladding, Granite/Stone Flooring, Acoustic Ceiling Tiles and Panels, Drywall & Modular Partitions, Tensile Fabric or Metal Roofing	Steel Space Frame Structure, Glass and Aluminum Curtain Walls, Marine-Grade Steel and Coatings, Stone and Composite Flooring, Fire-Rated Cladding and Internal Panels, Concrete Core and Podiums, Acoustic Glass & Insulation Materials

Table 49 Comparative Analysis

REFERENCE

Neufert, E. *Architects' Data*. Springer-Verlag.

National Building Code of India (NBC 2016), Bureau of Indian Standards.

Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Ministry of Urban Development, Government of India.

Guidelines for Approval of Convention Centres, Ministry of Tourism, Government of India.

Hyderabad International Convention Centre (HICC) – Spatial analysis and programmatic reference.

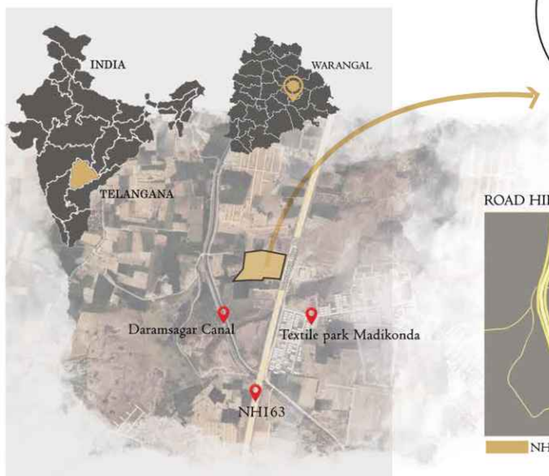
SITE ANALYSIS

WARANGAL INTERNATIONAL CONVENTION CENTRE

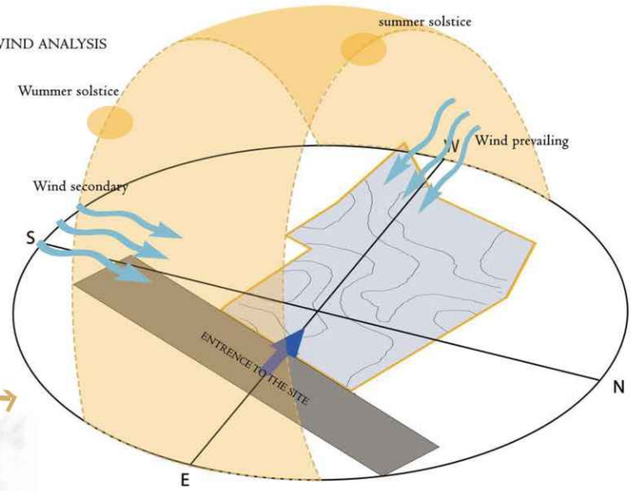
PROJECT BRIEF

Authority:Telangana Government Industrial Infrastructure Corporation Limited (TGIIC)

Objective: Warangal International Convention Centre (WICC) cum 3-Star Hotel @ IT Park Madikonda, Warangal, Telangana on Public Private Partnership
(PPP) Mode Under IALA Warangal.



SUNPATH AND WIND ANALYSIS



CLIMATE ANALYSIS

TEMPERATURE



Hot Season : Apr 2 – Jun 5
Cool Season : Oct 18 – Feb 1

WIND



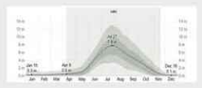
from West: May 25- Sept 26
from South: Dec 28- May 25

HUMIDITY



Muggier Period: Mar 25 – Nov 17
Less Muggy Period: Nov – Mar

RAINFALL



Rainy Period: Apr 9 – Nov 21
Rainless Period: Nov 21 – Apr 9

HISTORIC TIMELINE



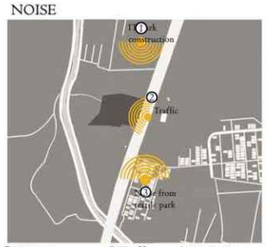
ROAD HIERARCHY



SURROUNDING BUILDINGS



NOISE



WATER BODY



ELEVATION AA'



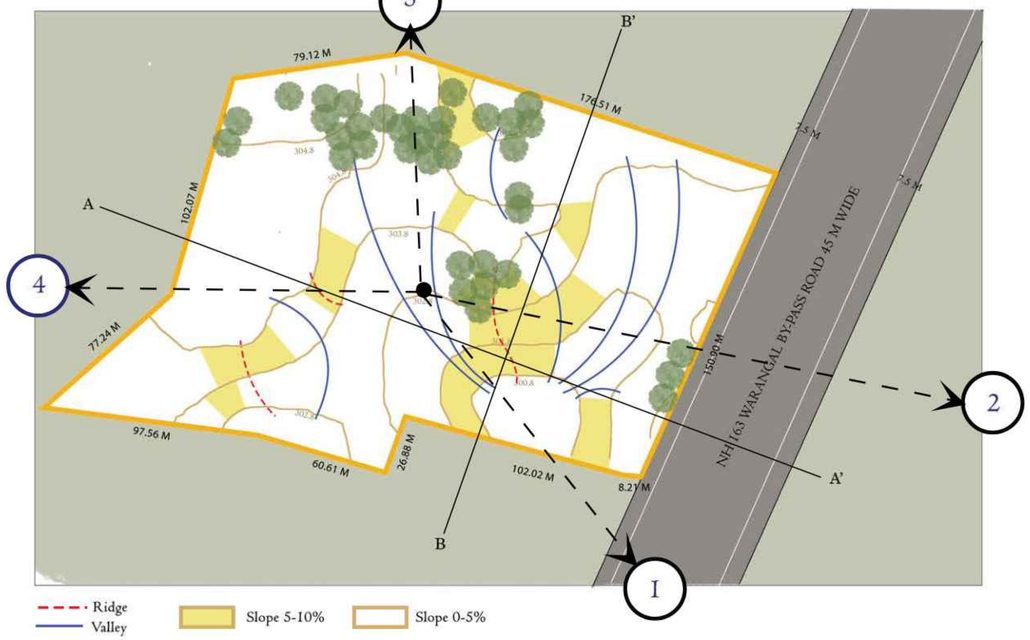
ELEVATION BB'



Highest 304.8 m and Lowest 300.8 m

VIEW FROM THE SITE





PROJECT SITE ATTRIBUTES

Location: Madikonda - Warangal, Telangana
Site Area: ~10 acres (40,468 sq.m.)
Primary Access: NH 163
Visibility & Frontage: Excellent Visibility and Frontage along abutting road; contiguous site

LANDMARK AND CONNECTIVITY

Textile Park	Opposite (Immediate Neighborhood)
V City Madikonda	~3.7 Km
Kazipet Junction	~9 Km
Warangal Railway Station	~20 Km
Hyderabad City	~140 Km
Hyderabad International Airport	~161 Km

According to G.O.Ms.No.423(Government of Andhra Pradesh

Total Build up Area	250000 sq.ft
F.A.R	2
Ground Coverage	40%
Front Setback	9m
Side Setback	6m
Rear Setback	6m
Minimum Frontage	9m
Internal Road	varies

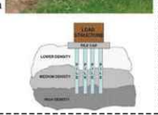
PROJECT SITE BOUNDARY

North : Vacant land
South : Vacant land
East : NH 163 Access road
West : Dharamsagar Canal

SOIL TYPE

Sandy Loam Soil
Type of Foundation: Pile foundation
used when the sandy loam is shallow and underlain by weak strata or high-water table.
It transfers the load to deeper, stable soil layers.
Type that can be used- Driven or bored piles (depending on equipment and depth).





EXISTING VEGITATION

Common Name:
Asian Palmyra Palm / Toddy Palm / Ice Apple Tree
Scientific Name:
Borassus flabellifer



Common Name:
Neem Tree
Scientific Name:
Azadirachta indica



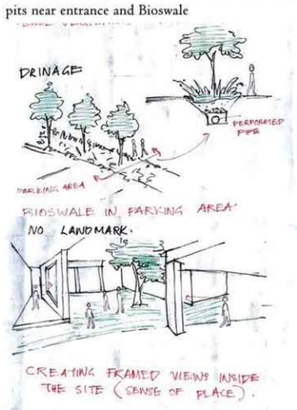
Common Name:
mesquite,Babul
Scientific Name:
Prosopis juliflora



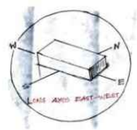
DESIGN RESPONCE OF THE SITE ANALYSIS

Access and circulation
The main entry is from NH163 East, but direct entry is unsafe due to high-speed traffic.
Providing a service road buffer / controlled entry plaza.
Topography & Drainage

Site slope is towards the front,causing waterlogging in betwen site and road.
providing drainage channels + rainwater harvesting pits near entrance and Bioswale



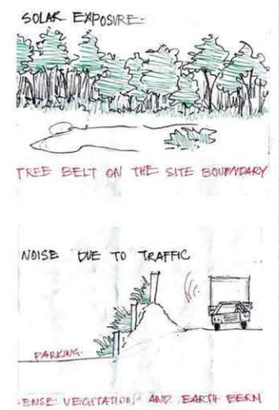
Climate & Orientation



Orientation East-West



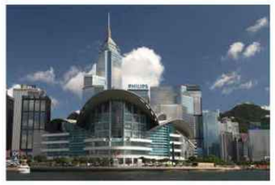
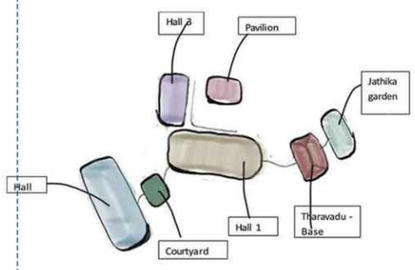
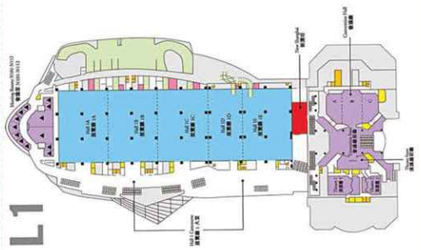
Breze penetration in plan



Amna T | 211110032
9th sem sec A
Thesis guide: Dr. Arshi Parashar

COMPARITIVE CASE STUDY

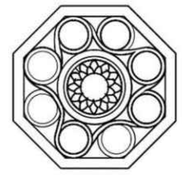
WARANGAL INTERNATIONAL CONVENTION CENTRE

PARAMETERS	BASE ELEVEN CONVENTION CENTRE	LULU BOLGATY INTERNATIONAL CONVENTION CENTRE	HYDERABAD INTERNATIONAL CONVENTION CENTRE	HONG KONG CONVENTION AND EXHIBITION CENTRE
				
GENERAL INFORMATION				
Location	Pala, Kottayam, Kerala	Bolgatty Island, Kochi, Kerala	Izzat Nagar, Hyderabad	Wan Chai North, Hong Kong
Architect	M.M. Jose (Mindspace Architects)	WATG	Emar Group	SOM + Wong & Ouyang
Site area	10 acres	24 acres	15 acres	175000 sqm
Buildup area	75,000 sqft	1,00,000 sqft indoor and outdoor	34,038 sqm	306,000 sqm
Architecture style	Modern Condemporary	Modern	Modern	Modern / Hightech
Seating capacity	2500	3000	6500	7100
CONTEXTUAL ANALYSIS				
Context	Semi-urban Kerala town; rooted in heritage and local culture	Waterfront site on Bolgatty Island; linked to luxury hospitality	Located in Hyderabad's IT hub; India's first global-standard convention facility	Urban waterfront landmark; central to Hong Kong's global business identity
Design Intent	Blend of tradition (Tharavadu) and fluidity (Kerala backwaters)	Modern, international hub with luxury integration	Flexible, tech-driven space for global conferences	High-tech, iconic architecture (roof like seabird in flight)
Site context	Integration of 200-year-old Tharavadu; landscaped with natural stones, bamboo, and preserved gardens	Adjacent to Grand Hyatt hotel; lawns and pools with views of Kochi backwaters	Site in Hyderabad's IT hub; directly connected to 5-star Novotel; large open parking and service docks	Site on reclaimed land; waterfront in Wan Chai; integrated with hotels, offices, serviced apartments
Site plan				
BUILDING TYPOLOGIES				
Amneties	11 halls & gardens, banquet hall with partitions, open courtyard, pavilion, dance hall, preserved bamboo garden, universal accessibility,	30 event venues, multiple ballrooms (2000–3000 capacity), VIP suites, restaurants & bars, spa & fitness centre, landscaped lawns & pools, helipads.	Pillar-less hall divisible into 6, 37 breakout rooms, automated telescopic seating (2600), VIP lounges, press rooms, organizer suites, in-house AV team, directly linked to Novotel hotel.	6 exhibition halls, 2 theatres, 52 meeting rooms, 2 ballrooms, 7 restaurants, shopping arcade, banks, business centres, integrated 4-star & 5-star hotels, serviced apartments, mega-truss roof structures, harbourfront location.
Parking	parking for 1,000 cars.	1,500-car multi-level parking,	1,000+ car parking	1,300-car parking
ARCHITECTURAL FEATURES				
Material	Kota, Natural Stone & Laterite Blocks, Timber/Wood, Clay Tiles, Fabrics, Exposed concrete	Glass Curtain Walls, Steel structures, Aluminum Composite Panels, Marble and Polished Stone Flooring, Acoustic Panels	modular panels; sustainable finishes Double-Glazed Units, Aluminum Louvers, Acoustic Ceiling Tiles and Panels,Drywall	Structural steel, reinforced concrete, aluminum roof panels, glass curtain walls, Marine-Grade Steel and Coatings
Construction	RCC with pillar-free spans; landscaped integration with artificial mounds	RCC frame , large-span structures; retractable seating in halls	RCC with steel trusses; 12.5m free ceiling height; operable partitions	Steel-frame with reinforced concrete cores; mega-trusses (80–90m spans); deep pile foundations
Facade design	Fluidic curved forms; inspired by Kerala's backwaters; use of stone & textured finishes	Modern glass facade; sleek lines with large openings to lawns/backwaters	Modern corporate facade with glass & steel; functional, no ornamentation	Iconic wave-like aluminum roof (seabird in flight); full glass curtain walls facing harbor
Interior design	Neutral color palette; curved furniture; wave, arch & capsule design motifs in halls; PET acoustic panels	Luxury finishes; flexible ballrooms; art & motifs inspired by Kerala temples/houseboats	Functional modern interiors; automated tiered seating; AV-integrated halls; teak & silk panel partitions	Modern high-tech interiors; integrated LED walls in meeting rooms; large ballrooms with flexible partitions
Others	Integration of 200-yr-old Tharavadu; preserved bamboo & Jathikka garden; rain-absorbing courtyard	Integrated with 5-star hotel; advanced BMS	Connected to Novotel	Atrium Link suspended without seabed foundation; designed to resist typhoon winds; mixed-use integration.
SUSTAINABILITY ASPECTS				
Water management	Rainwater absorbed in courtyard via pebbles; natural stones for drainage; preservation of old wells	Landscaped lawns & pools for stormwater; efficient irrigation	Service pits with water supply every 6m; efficient plumbing	Advanced drainage systems; designed for harbor resilience
Waste management		Waste management integrated with hotel's systems	Event waste managed through service docks/loading bays	Integrated city waste management
Energy efficiency	Natural ventilation in open spaces; halls with jet blowers for efficient cooling	IGBC-certified; advanced BMS for energy monitoring; EV charging stations	100% power backup; sustainable practices in design; flexible use reduces energy waste	High-tech façade reduces energy; mega-trusses allow natural daylighting; designed to withstand typhoons
Services	Universal accessibility, barrier-free halls; landscaping uses existing trees	Multi-level parking with guidance system; helipads; HVAC plant; service lifts & logistics infrastructure	38 CCTV for security, automated tiered seating; catwalks for lighting rigging; AV & IT integration	Atrium Link expansion avoided seabed disruption; advanced HVAC & building systems; mixed-use integration reduces transport energy
HALLS				
Hall capacity	Hall I -1200 Hall 2- 700 Hall 3-350	800-3000	6,500, divisible into 6 smaller halls	Grand Hall seats 3,800

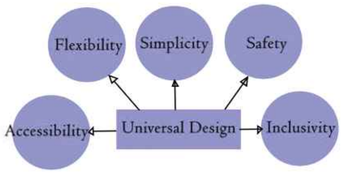
INFERENCES

A convention centre doesn't need to be purely modern grounding it in local identity makes it more memorable and culturally relevant.





Integrating Kakatiya motifs in the design to give local identity to the Warangal International Convention Centre.



Transport & Parking - ease of access.
Food & Hospitality - event comfort.
Accommodation & Leisure - extended stay experiences.

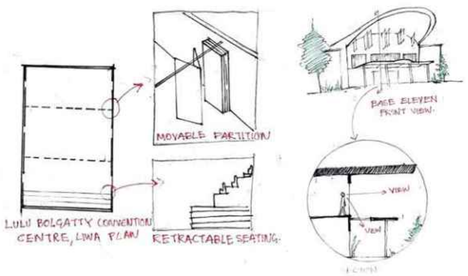
Site context should directly influence the Building.

Since there is no any contextual features near Warangal International convention centre scene is created inside the site for framed views and sense of place



Creating courtyard type of design all buildings facing that direction

Warangal International Convention Centres must integrate green building practices, water & waste management, and renewable energy systems.



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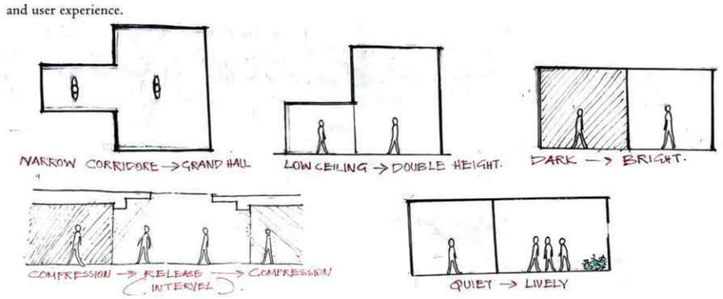
CONCEPT

WARANGAL INTERNATIONAL CONVENTION CENTRE

COMPRESSION AND RELEASE

A spatial strategy where confined, low, or narrow spaces lead into expansive, open, and light-filled areas. This idea was popularized by Frank Lloyd Wright, who used compressed entryways that unfolded into grand interiors, making users consciously feel the transition. Drawing inspiration from Wright's philosophy, this design translates this into the convention centre, guiding visitors through controlled thresholds that open into large courtyards and halls, enhancing both crowd flow and user experience.



SCANDAVIAN LIGHT MAXIMIZATION

light is life.

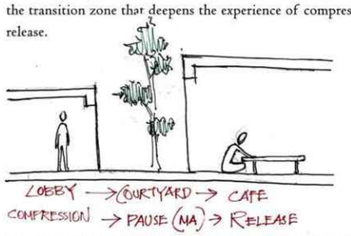
through skylights, big windows, and pale surfaces that bounce light around. In this design, I use this idea so that when people move from shaded, compressed corridors into bright halls, the natural light makes the release feel spectacular



JAPANESE MA

"Ma (間)- 'pause' or 'interval' between spaces.

a meaningful gap that creates anticipation. In this design, Ma acts as the transition zone that deepens the experience of compression and release.



Case studies

Oak Park Home - F L Wright



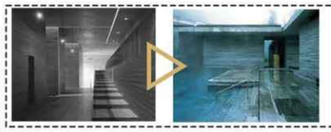
- Low reception room - two-story drafting hall.
- Ceiling-height contras,Controled entry

Salk Institute - Louis Kahn



- Enclosed labs, long coridor -vast ocean facing plaza
- Symetry, framed voids

Therme Vales - Peter Zumthor



- Dark, stony corridors- Luminous bathing halls
- Material, Light contrast

Falling Water- F L wright



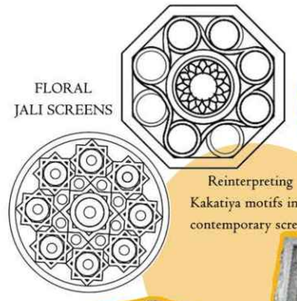
- compressed interiors - open terrace
- Landscape Integration
- Large Voids = Grandeur & Contemplation

Church of Light - Tadao Anto



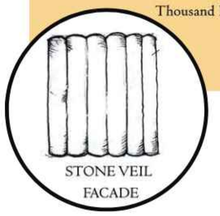
- Dim, concrete nave - Cruciform light
- Minimalism, Light as Material
- Intimate the space = Create refuge

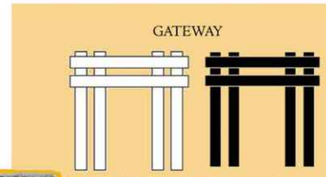
KAKATIYA ARCHITECTURE



Reinterpreting Kakatiya motifs into contemporary screen

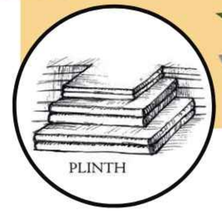
Inspired by the rhythmic stone screens of the Thousand Pillar Temple.

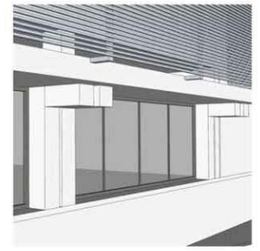




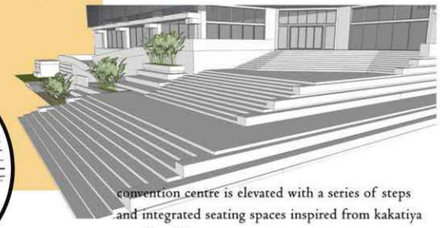
Kala Thoranam reintrepreted, a modern gateway marking the grand entrance

Inspired by the Elevated and Segmented Plinth of Ramapa Temple





Facade is made of double pillar inspired from kala thoranam



convention centre is elevated with a series of steps and integrated seating spaces inspired from kakatiya temple architecture

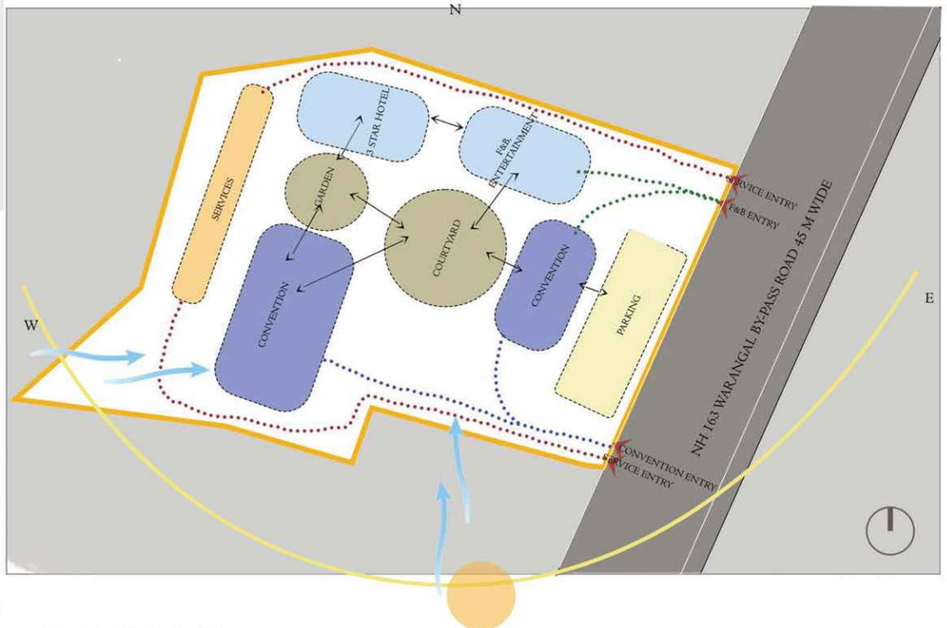
The iconic Kakatiya Kala Thoranam, or Warangal Gate, is the official emblem of Telangana and is reminiscent of the gateways found at the Sanchi Stupa, It highlighting the rich cultural legacy associated with Kakatiya architecture.



Water feature inspires from kakatiya floral jali

	AREA IN SQFT
Convention Centre cum Exhibition Centre (2500 pax)	50000
Convention centre	30,000 sqft
Small meating room	2000 sqft
Large meating room	5000 sqft
Bussiness Centre	5000 sqft
Pre-function and circulation space	8000 sqft
Business Hotel (150 keys)	150000
Entertainment and F&B	50000
Total	250000

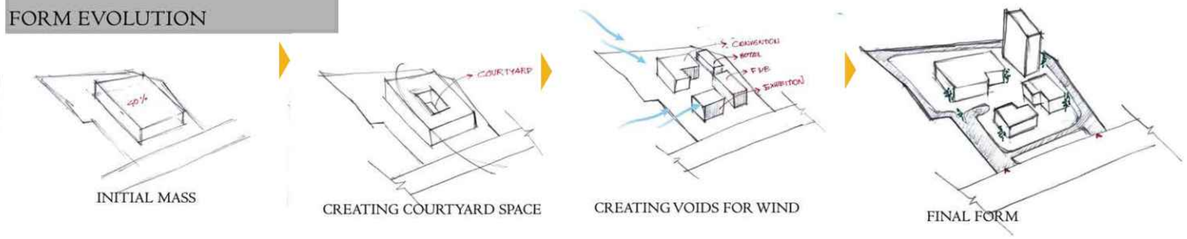
SITE ZONING



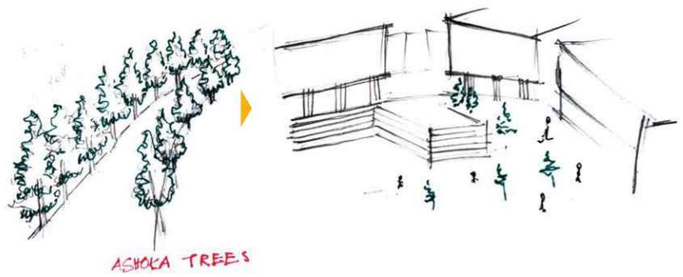
ACTIVITY DIAGRAM



FORM EVOLUTION







Ashoka tress and Neem trees throughout the road side leading to the intternal plazas of the convention centre to give an experience of compresion and release in the site.

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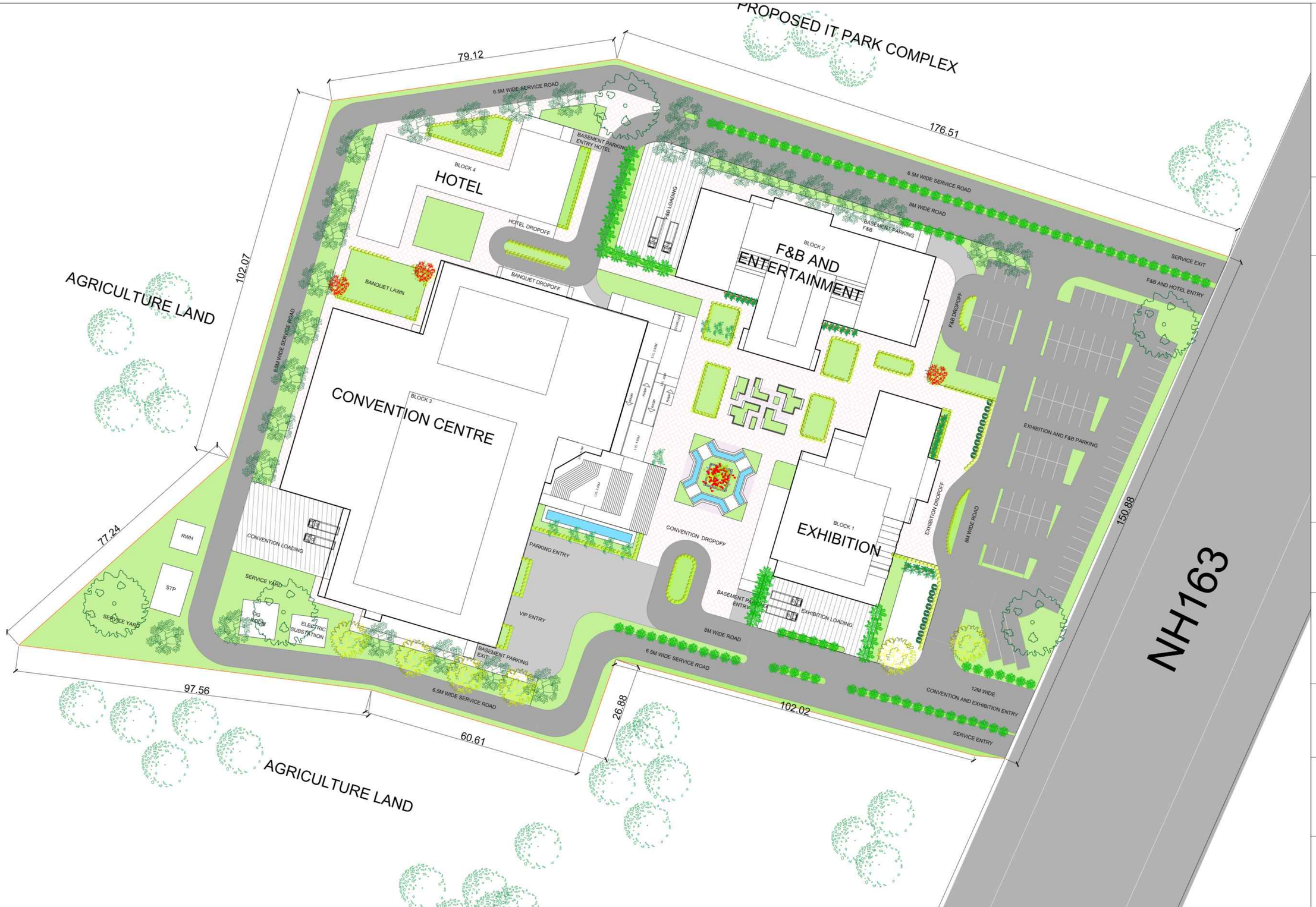
9th sem sec A
Thesis guide: Dr. Arshi Parashar



SITE AREA : 10 ACRES-40,468

ACHIEVED FAR : 1

ACHIEVED GROUND COVERAGE: 31%

BUILDUP AREA:
BLOCK 1 EXHIBITION AND ADMINSTRATION: 2494 SQM
BLOCK 2 F&B AND ENTERTAINMENT : 6406 SQM

BLOCK 3 CONVENTION CENTRE: 18435 SQM
BLOCK 4 3 STAR HOTEL: 13200 SQM

TOTAL BUILDUP AREA: 40468 SQM
TOTAL GROUND COVERAGE:12735

SURFACE CAR PARKING : 110
BUS PARKING : 3

PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

SITE PLAN

THESIS GUID:

DR. ARSHI PARASHAR

SUBMITTED BY
AMNA T
211110032

SCALE:

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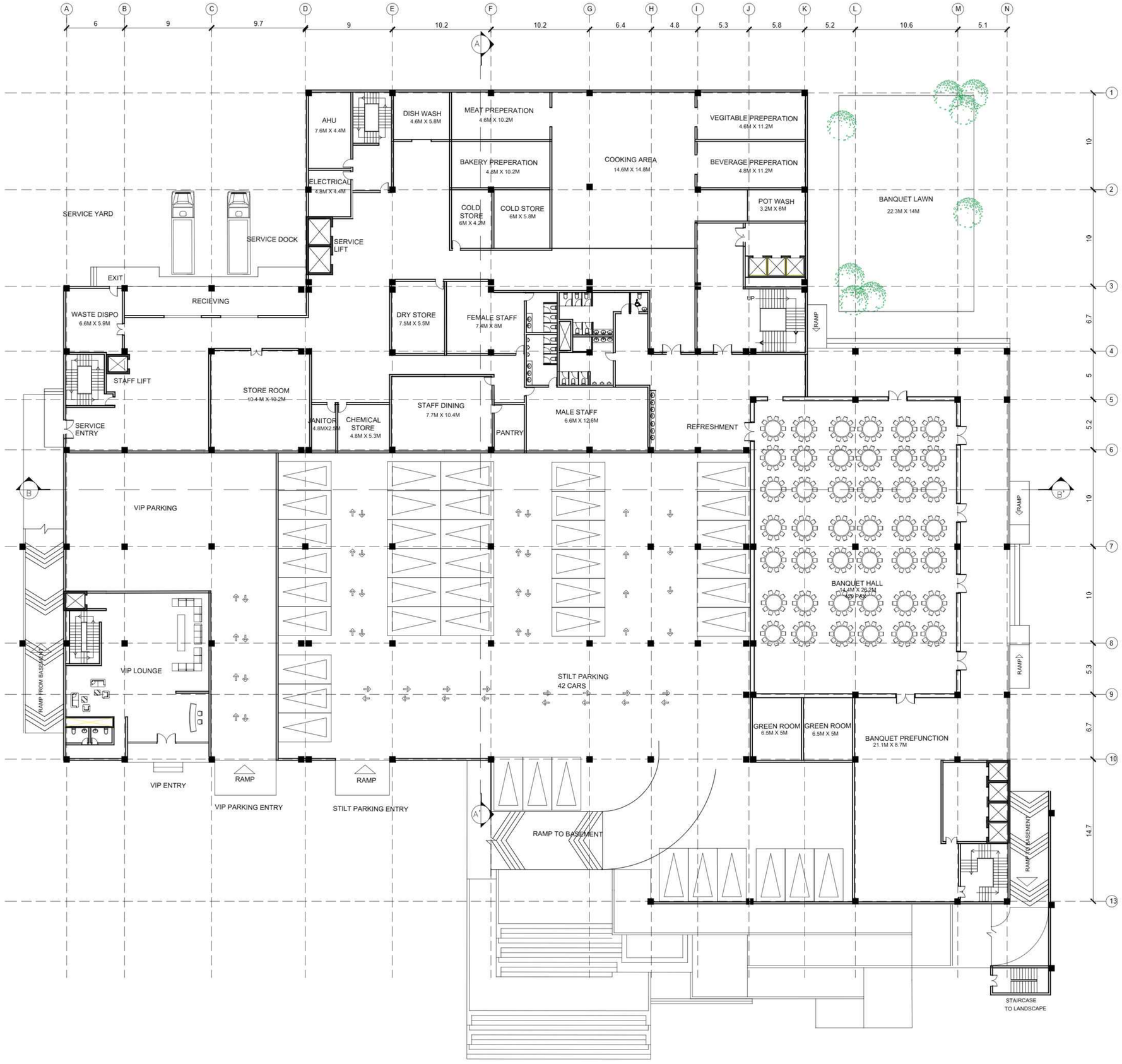


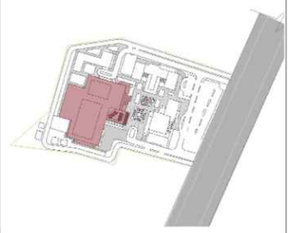
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

CONVENTION CENTRE
GROUND FLOOR PLAN

THESIS GUID:

DR. ARSHI PARASHAR

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211110032

SCALE:

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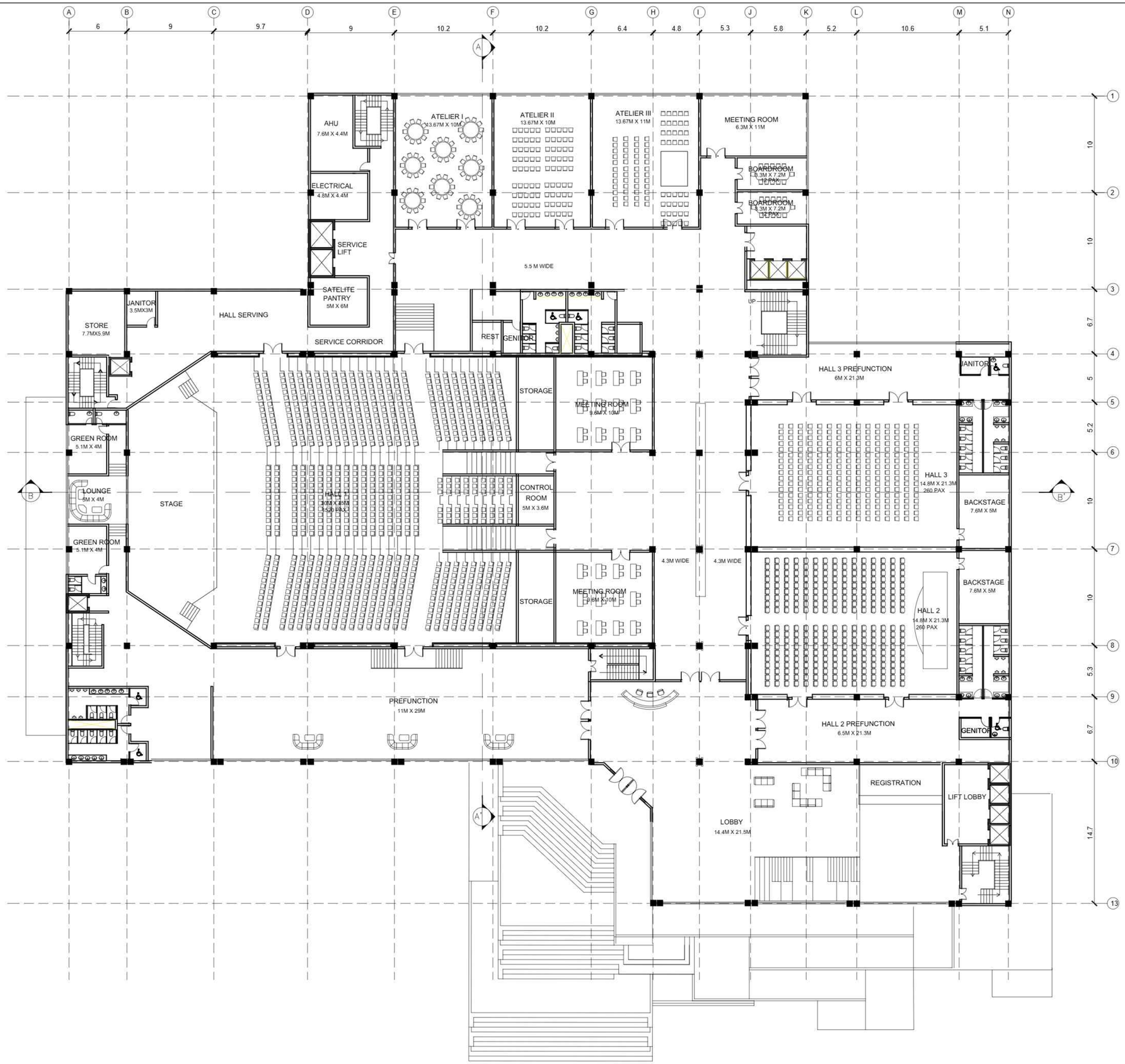


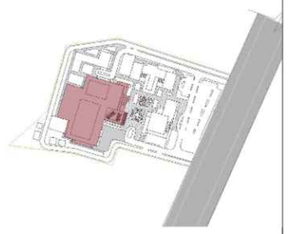
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

CONVENTION CENTER
FIRST FLOOR PLAN

THESIS GUID:

DR. ARSHI PARASHAR

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211110032

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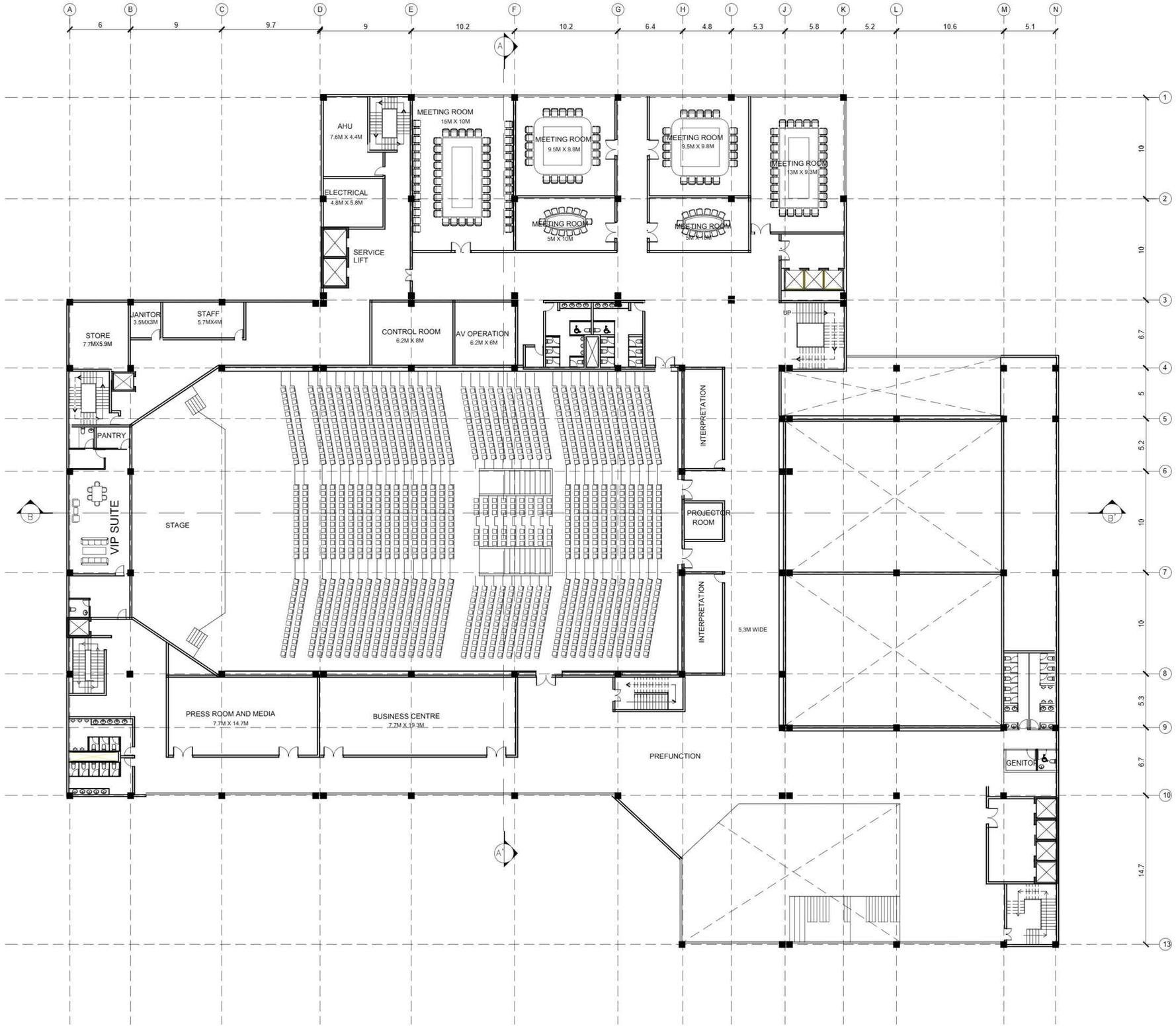


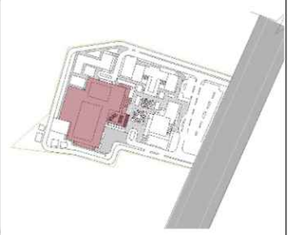
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

CONVENTION CENTER
SECOND FLOOR PLAN

THESIS GUID:

DR. ARSHI PARASHAR

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211110032

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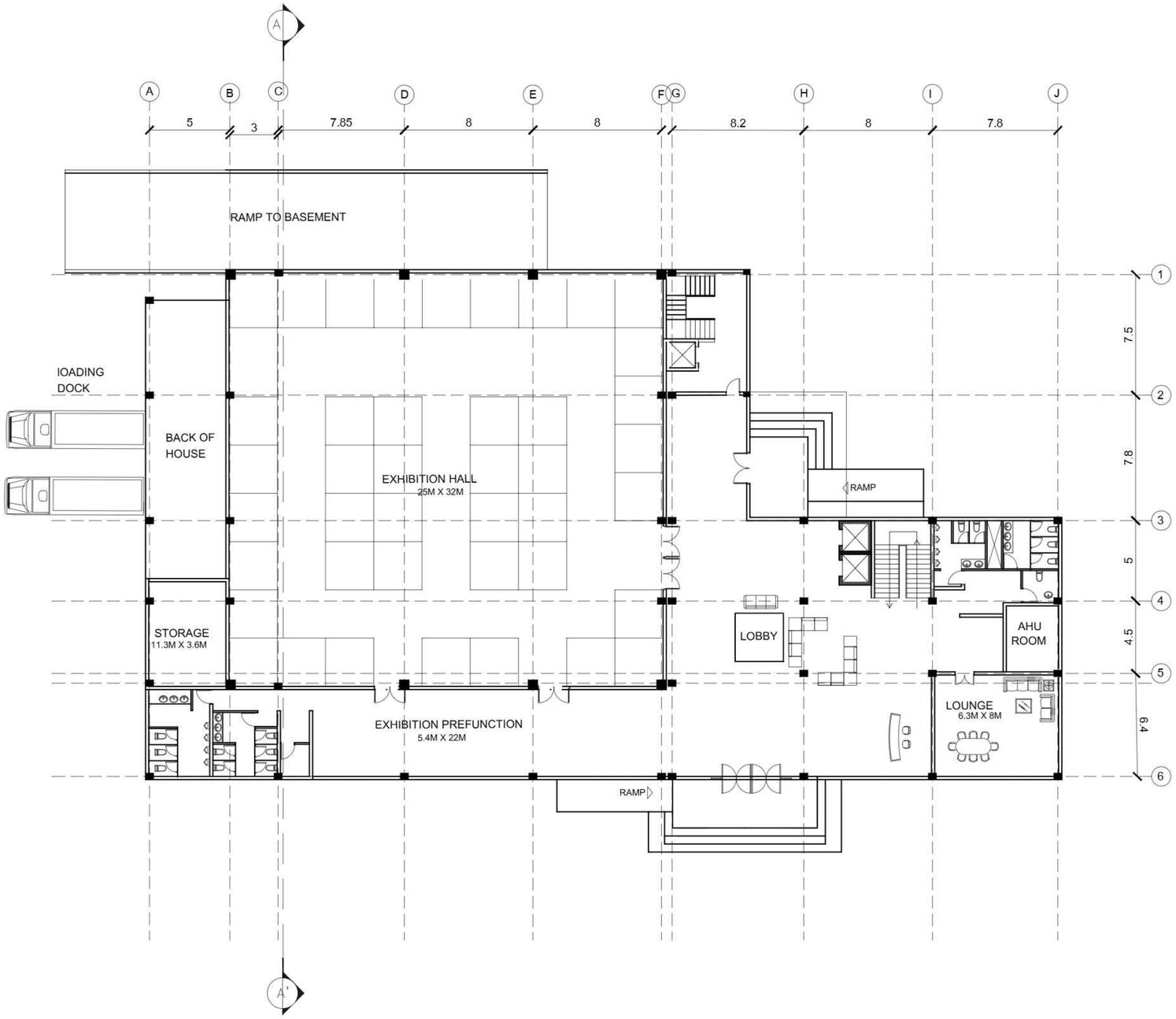

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WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

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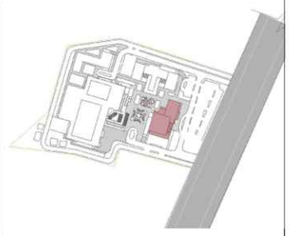

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EXHIBITION AND ADMINISTRATION GROUND FLOOR PLAN

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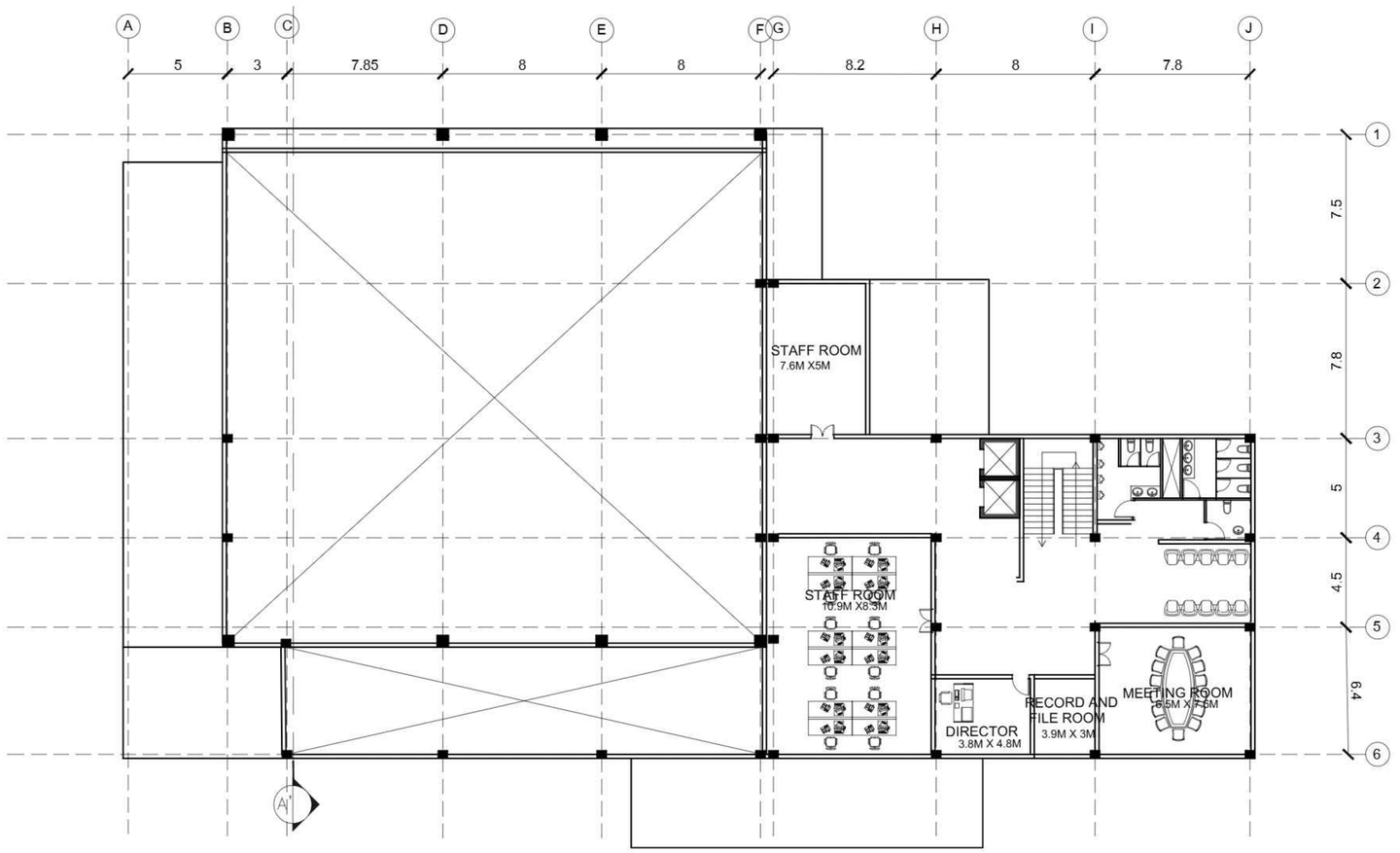
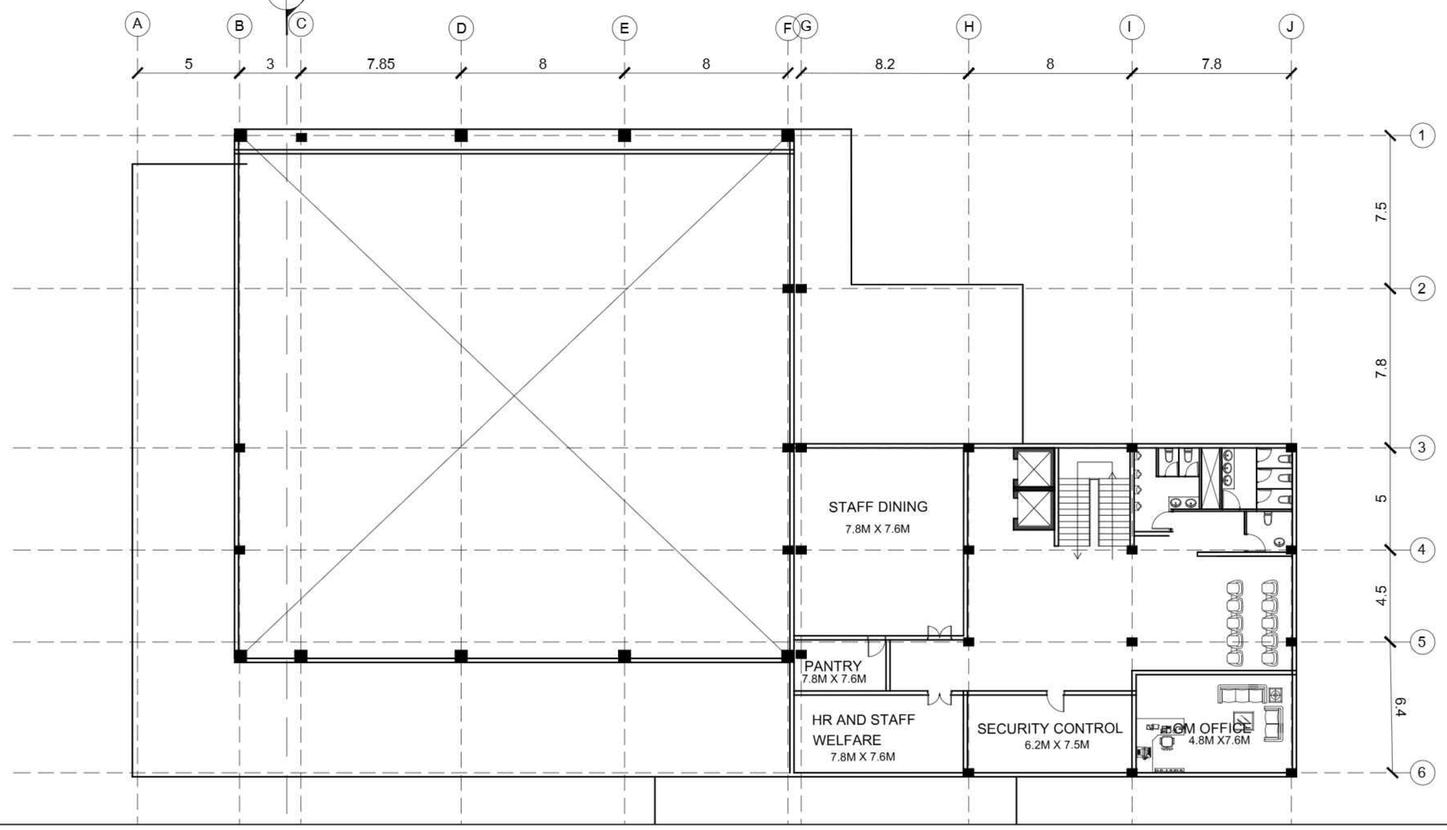




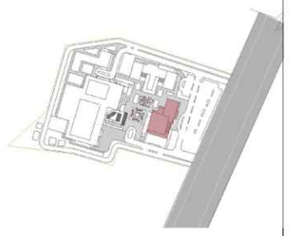
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



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EXHIBITION AND ADMINISTRATION FIRST AND SECOND FLOOR PLAN

THESIS GUID:

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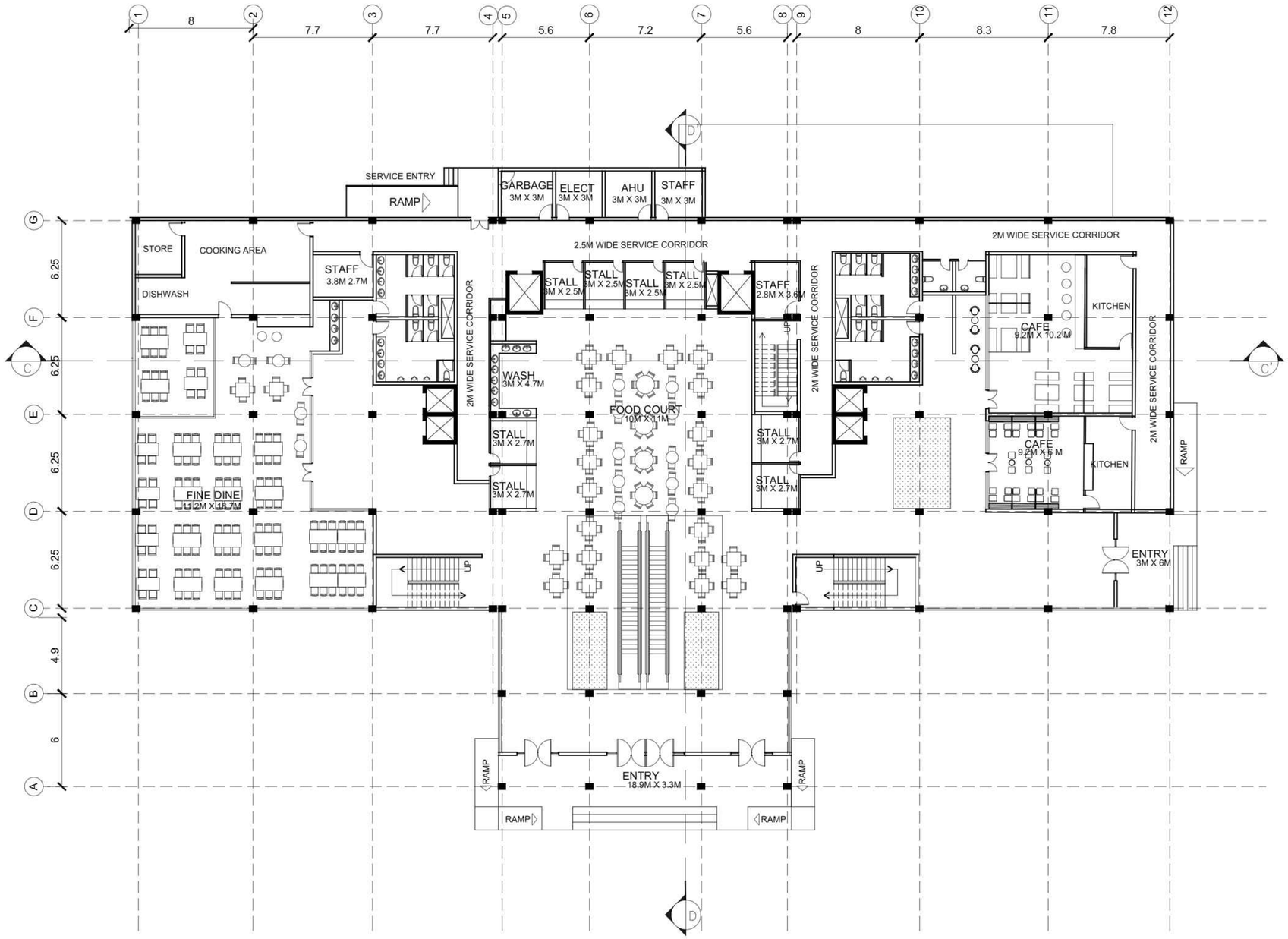

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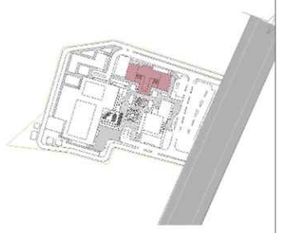

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F&B AND ENTERTAINMENT GROUND FLOOR PLAN

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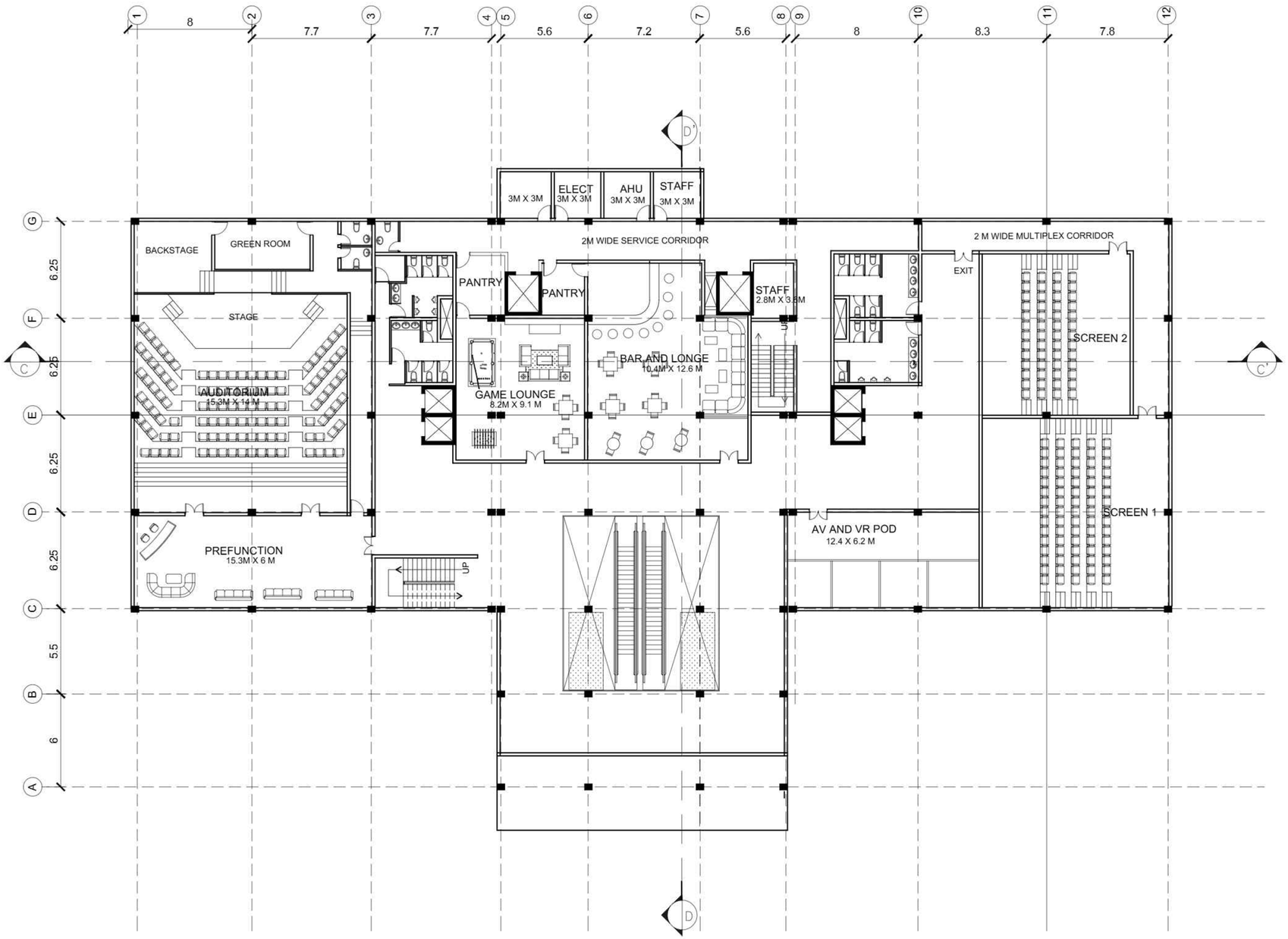

PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

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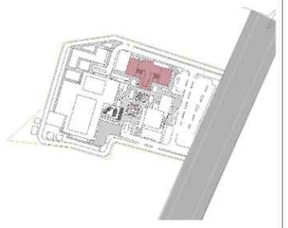

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F&B AND ENTERTAINMENT FIRST FLOOR PLAN

THESIS GUID:

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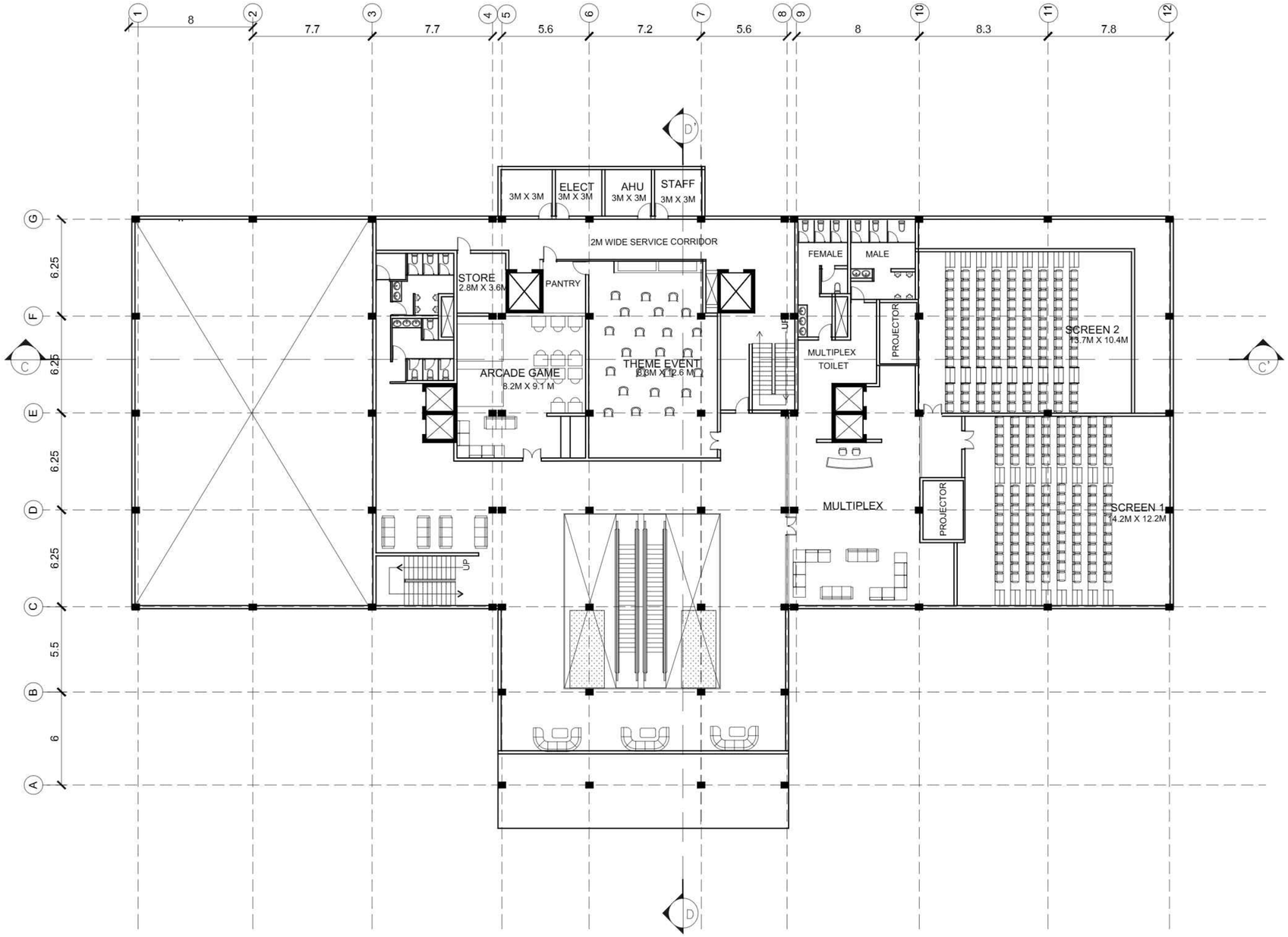

PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

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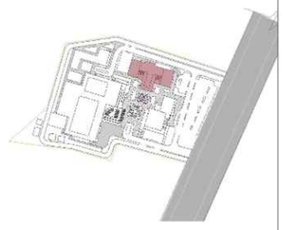
KEY PLAN



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F&B AND ENTERTAINMENT SECOND FLOOR PLAN

THESIS GUID:

DR. ARSHI PARASHAR

SUBMITTED BY
AMNA T
211110032

SCALE:

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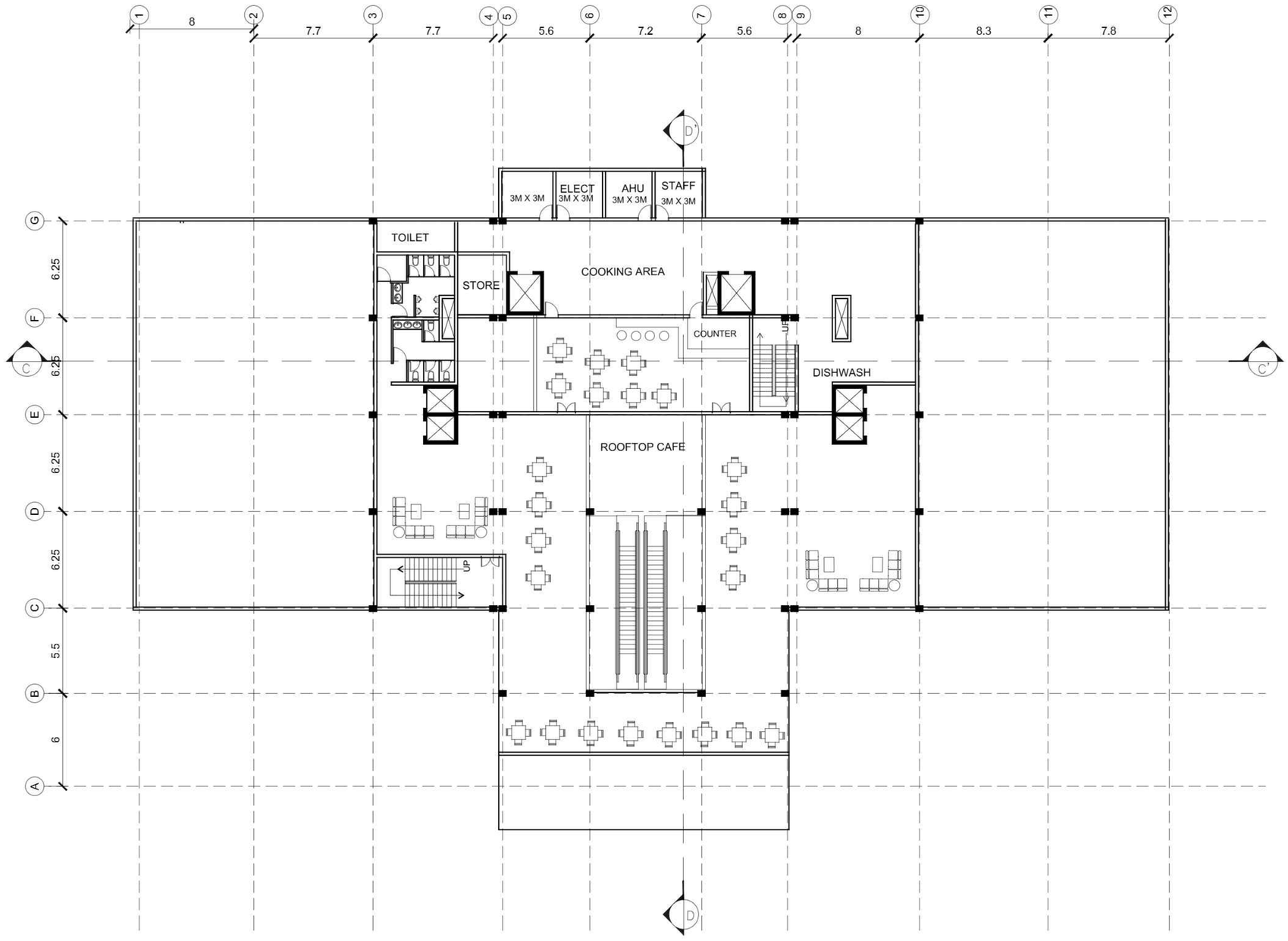


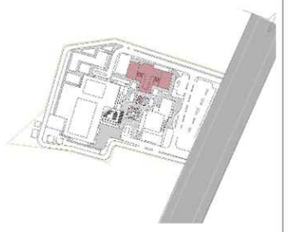
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



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THESIS GUID:

DR. ARSHI PARASHAR

SUBMITTED BY

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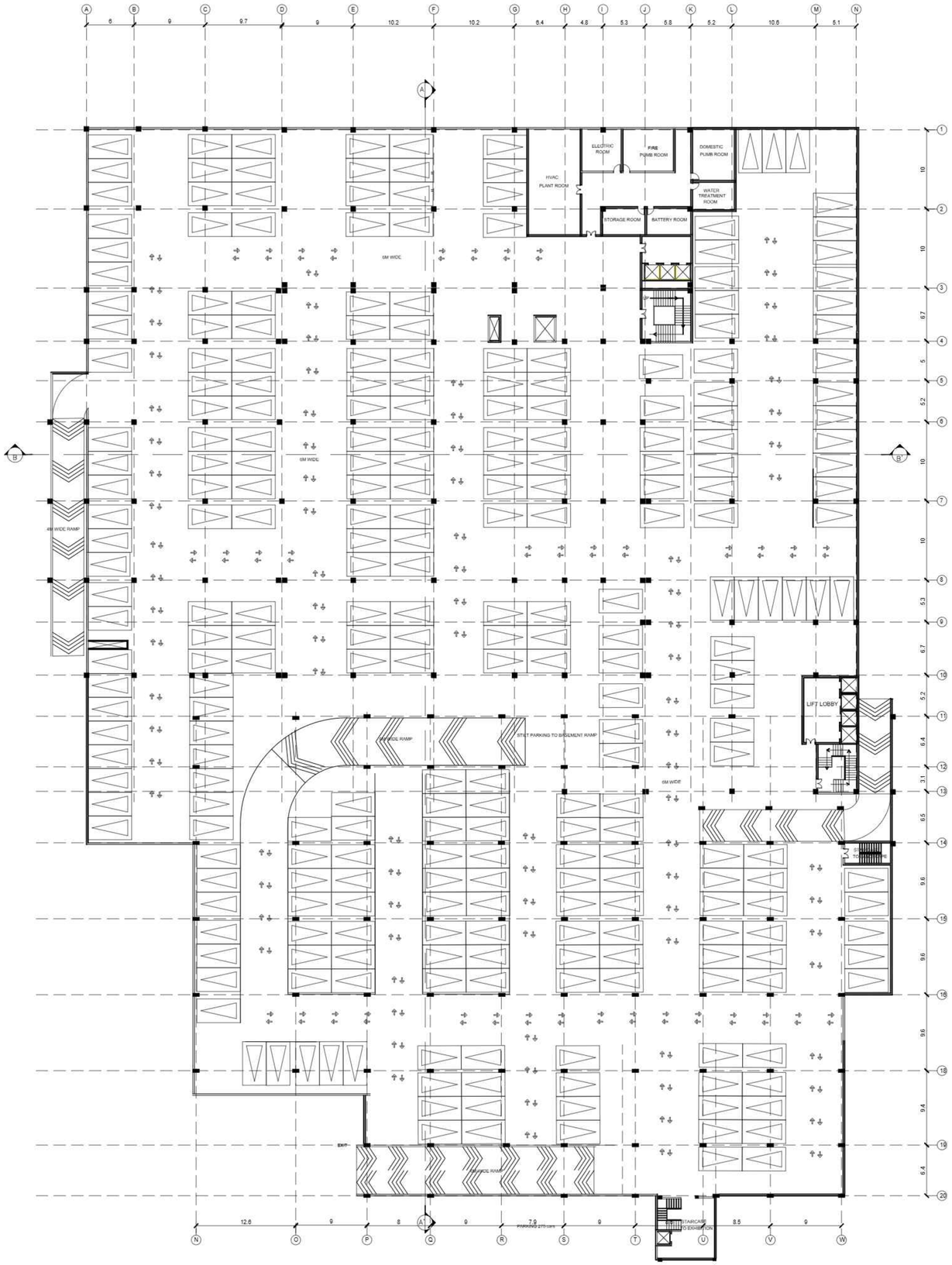
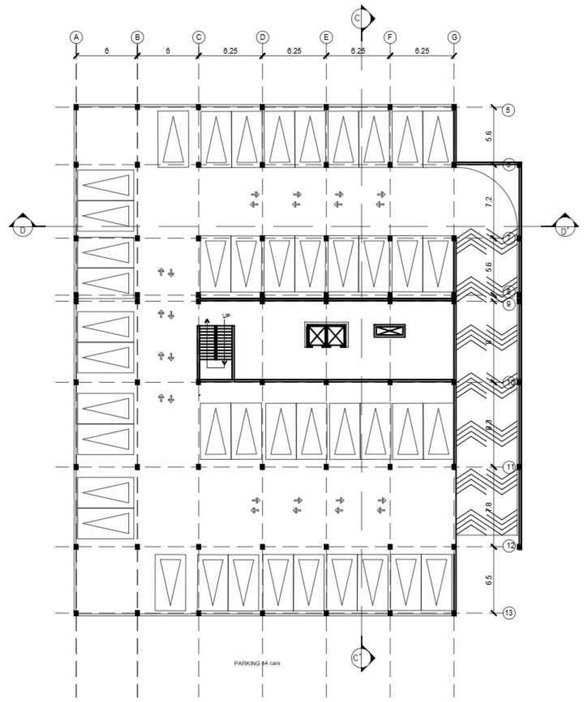


CONVENTION CENTER AND
EXHIBITION BASEMENT PLAN



F&B AND ENTERTAINMENT
BASEMENT PLAN

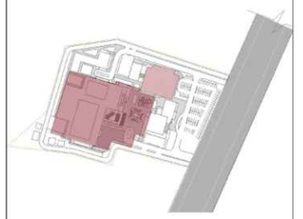
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

BASEMENT PLAN

THESIS GUID:

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211110032

SCALE:

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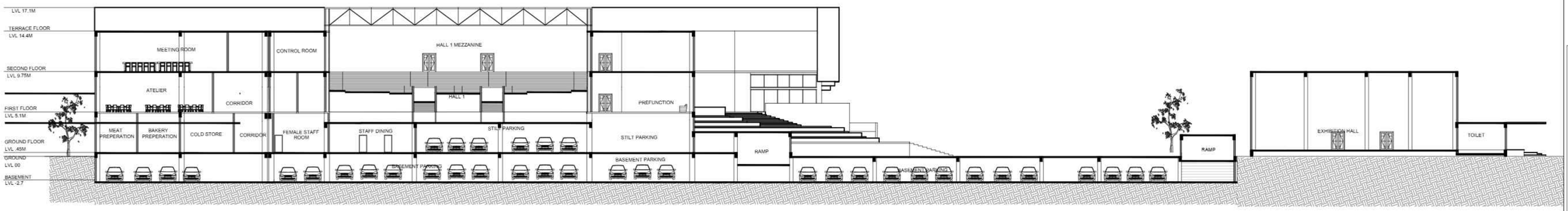

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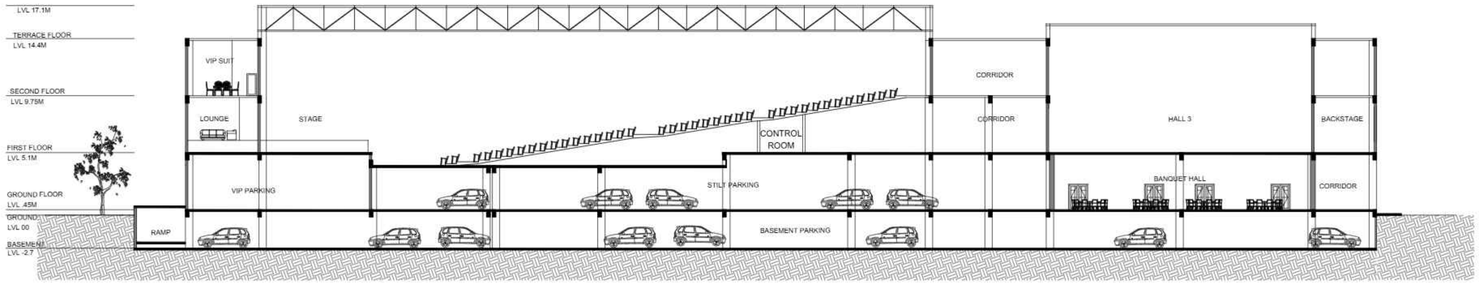


SECTIONBB'

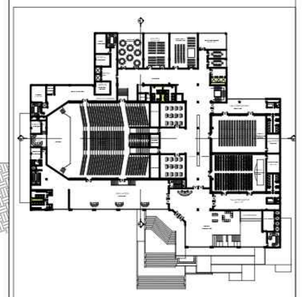
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



FIRST FLOOR PLAN

SHEET TITLE:

CONVENTION CENTRE AND EXHIBITION SECTIONS

THESIS GUID:

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SCALE:

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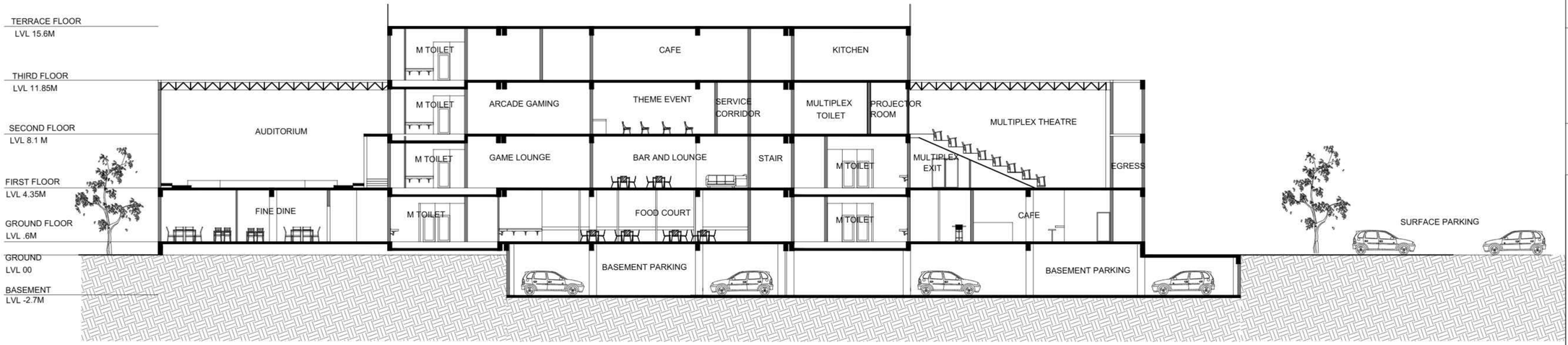

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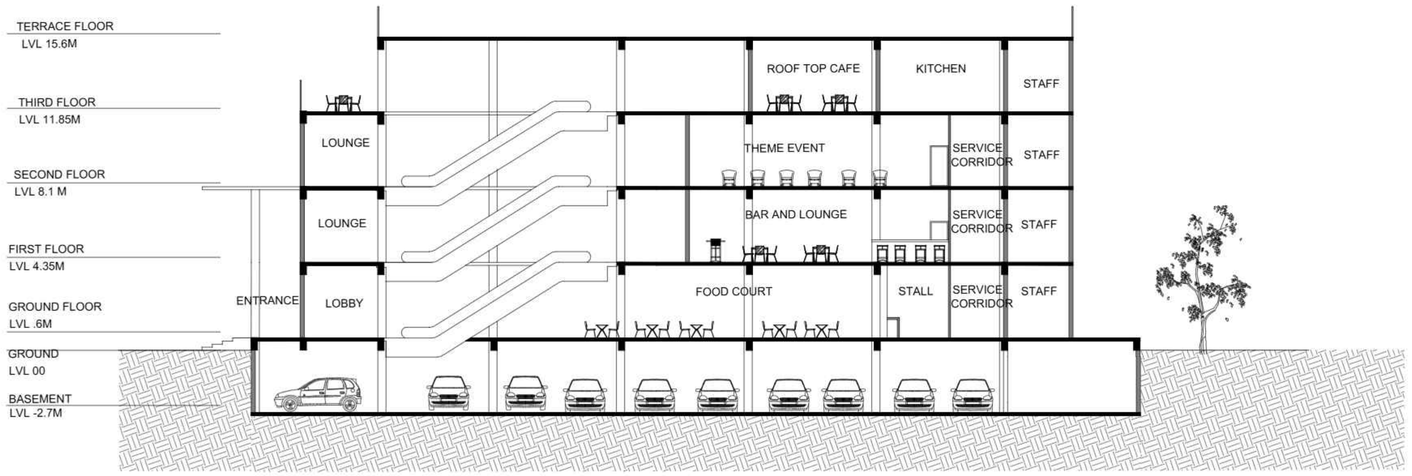

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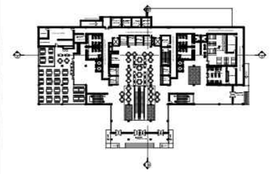
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

F&B AND ENTERTAINMENT SECTIONS

THESIS GUID:

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SCALE:

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SHEET NO:

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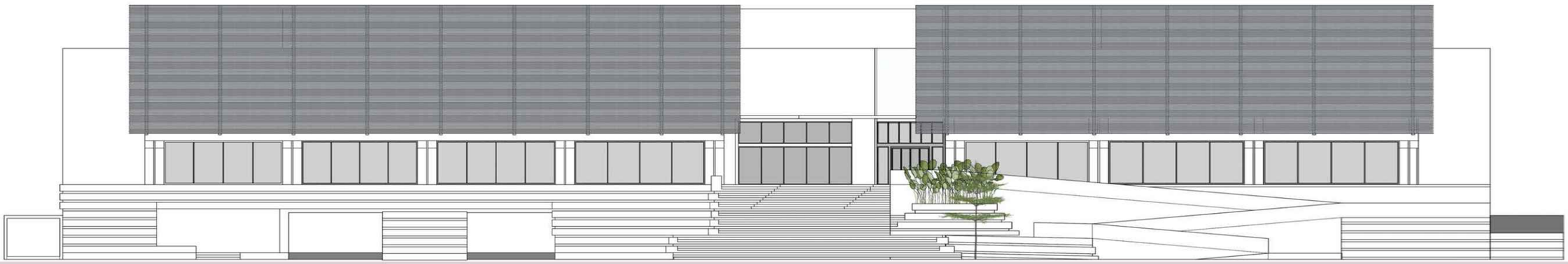
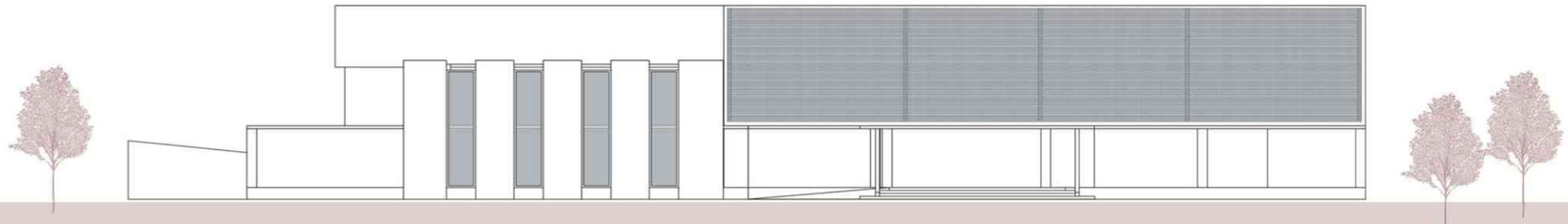


CONVENTION CENTRE ELEVATION



F&B AND ENTERTAINMENT ELEVATION



EXHIBITION AND ADMINISTRATION

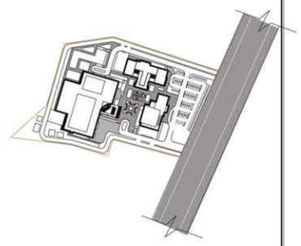
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

ELEVATIONS

THESIS GUIDE:

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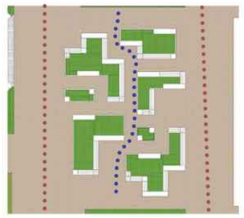
CONCEPT

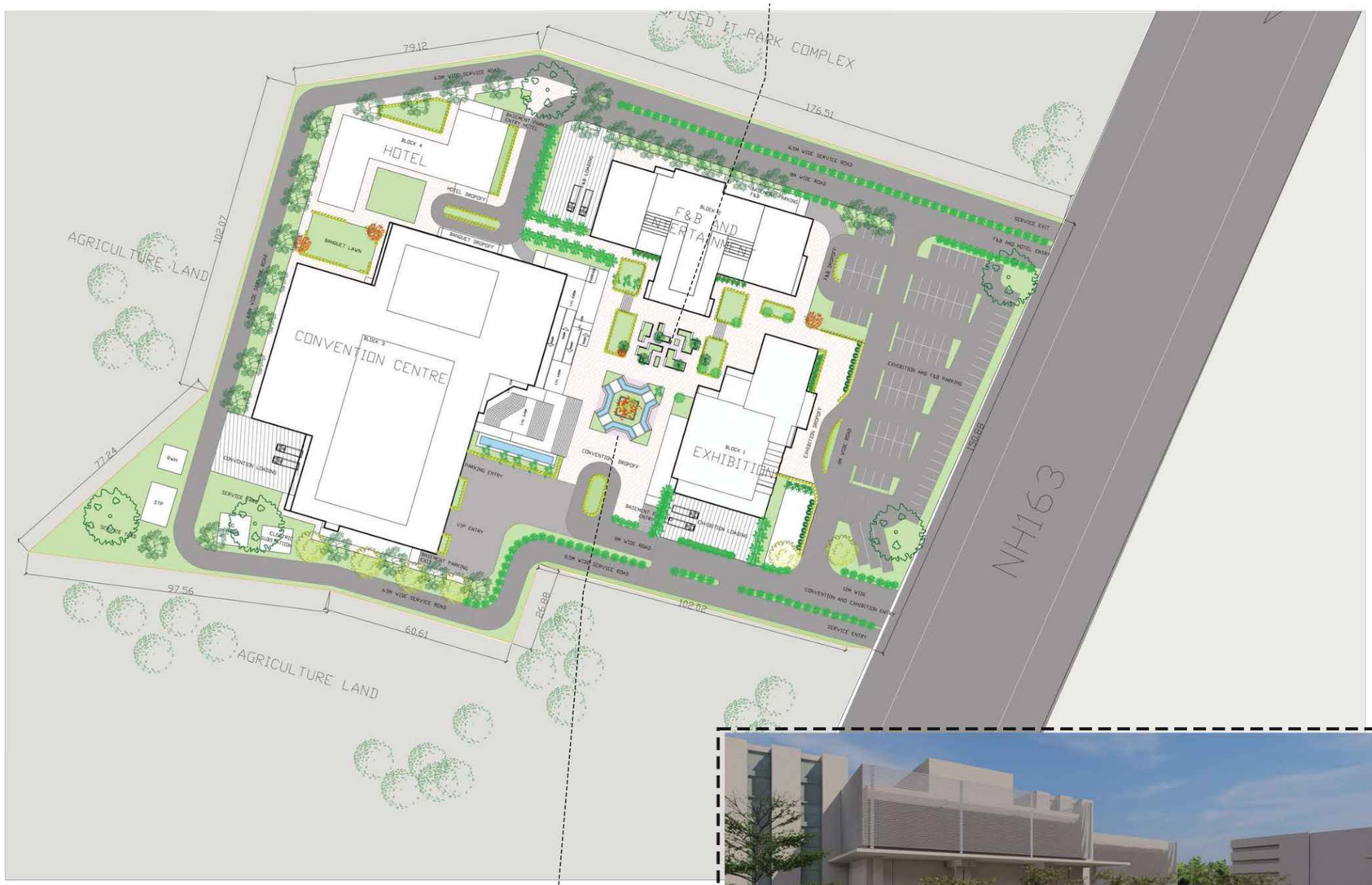
The landscape design uses compression and release, creating a sense of enclosure with Ashoka tree screens along the approach road, then opening into a shared central courtyard. Seating clusters further enhance this rhythm, guiding users through narrower, intimate paths that slow movement and wider routes that encourage free flow.



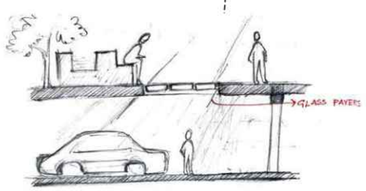
Slow and controlled movement

Fast movement









Glass bricks are integrated into the seating area to allow natural light and ventilation to reach the basement below



SOFT SCAPE

SHADE TREES

NAME	HIGHT X SPREAD (M)	LEGENT	PICTURE	
Rain Tree *Samanea saman*	15–25 m X 20–30 m			Shading areas
Gulmohar *Delonix regia*	5-10 m X 3.5-5 m			Event lawns, visual highlight near approach route
Neem *Azadirachta indica*	12–20 m X 10–12 m			Walkways, peripheral paths, sustainable shade
Copperpod *Peltophorum pterocarpum*	12–20 m X 10–15 m			Walkways, peripheral paths, sustainable shade

SCREENING TREES

NAME	HIGHT X SPREAD (M)	LEGENT	PICTURE	
Ashoka tree *Polyalthia longifolia*	10–15 m X 2–3 m			service road screening
Bamboo *Bambusa multiplex*	6–10 m X 4–6m			loading screening

FEATURE TREES

NAME	HIGHT X SPREAD (M)	LEGENT	PICTURE	
Champa *Plumeria alba*	4–8 m X 4–6 m			Near reflecting pool, entrance,
African Tulip *Spathodea campanulata*	10–12 m X 8–10 m			Landmark tree at the main view corridor

SENSORY / FRAGRANT PLANTS

NAME	HIGHT X SPREAD (M)	LEGENT	PICTURE	
Temple Flower *Michelia champaca*	10–18 m X 5–8 m			quiet seating
Parijaat *Nyctanthes arbor-tristis*	3–4 m X 2–3 m			Near pedestrian pathways

ORNAMENTAL SHRUBS

NAME	HIGHT X SPREAD (M)	LEGENT	PICTURE	
Hibiscus *Hibiscus rosa-sinensis*	1.5–2 m X 1–1.5 m			Exhibition entrance buffer
Croton *Codiaeum variegatum*	1–2 m X 1–1.5 m			Along pedestrian paths & planter edges
Duranta Gold *Duranta erecta 'Gold'*	0.8–1.2 m X 0.6–1 m			Low hedges, visual border
Rattlesnake Plant *Goeppertia insignis*	0.45–0.6 m X 0.6–0.9 m			In shaded areas

GROUND COVERS

NAME	HIGHT X SPREAD (M)	LEGENT	PICTURE	
Wedelia *Sphagneticola trilobata*	0.3 m X Spreading			In-between trees / around seating pods
Fountain Grass *Pennisetum setaceum*	0.6–1 m X Clumping			Near reflective pool, accent planting
Lantana Dwarf *Lantana camara*	0.3–0.5 m X 0.5–1 m			Along pedestrian paths & planter edges

HARD SCAPE



Concrete driveway pavers



paving stone



cut stone walkway



glass brick

PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELANGANA

KEY PLAN



SHEET TITLE:

LANDSCAPE

THESIS GUIDE:

DR. ARSHI PARASHAR

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CONVENTION CENTRE LOBBY INTERIOR DESIGN

CONCEPT

The design uses compression and release—introducing a low ceiling at the entry and reception to create intimacy, then expanding into a double-height seating and waiting area for a sense of openness and arrival.



LOBBY PLAN

COLOR PALLETE

MATERIAL PALLETE

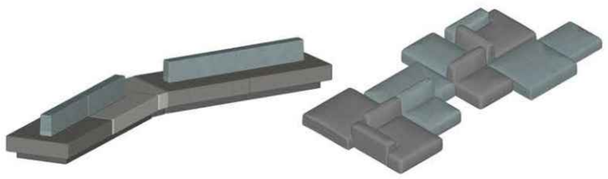
Slated Wood panels

Textured plaster

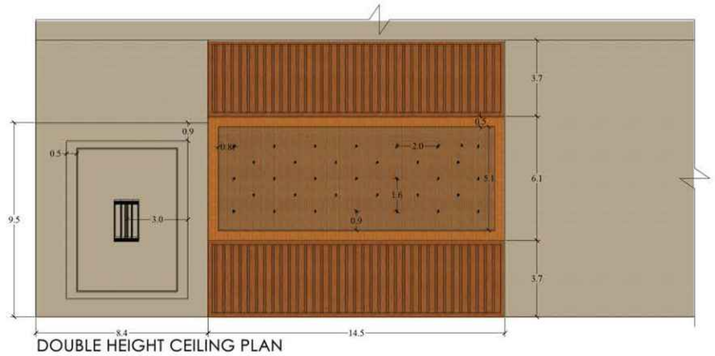
Textured stone cladding

Beige porcelin tiles

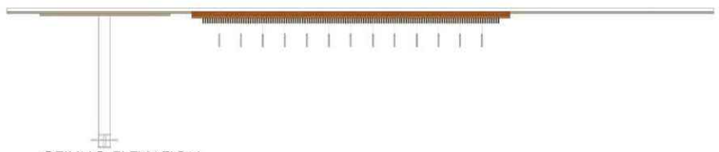
Textured rug

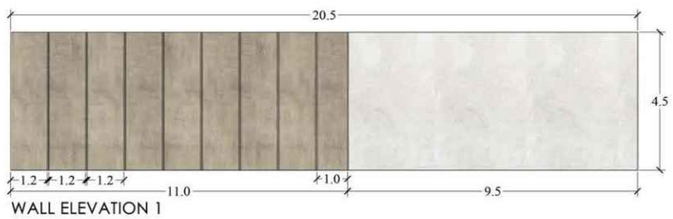


Incorporating Modular seating to allow flexible arrangements that adapt to varying user needs

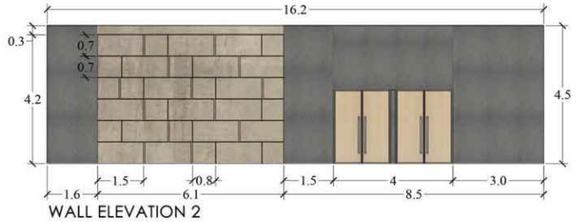


DOUBLE HEIGHT CEILING PLAN

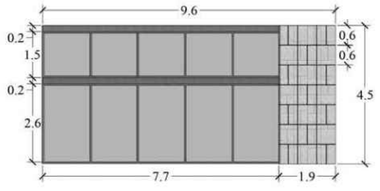

CEILING ELEVATION



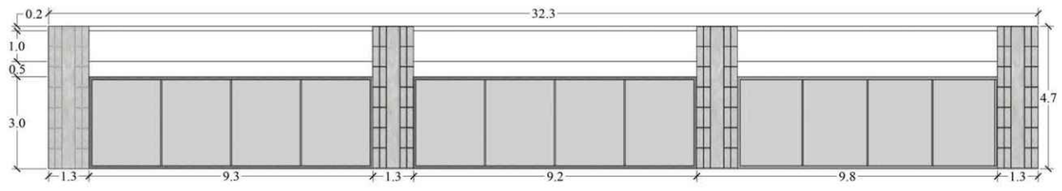
WALL ELEVATION 1



WALL ELEVATION 2



WALL ELEVATION 3



WALL ELEVATION 4

VIEWS









PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



SHEET TITLE:

INTERIOR DESIGN

THESIS GUID:

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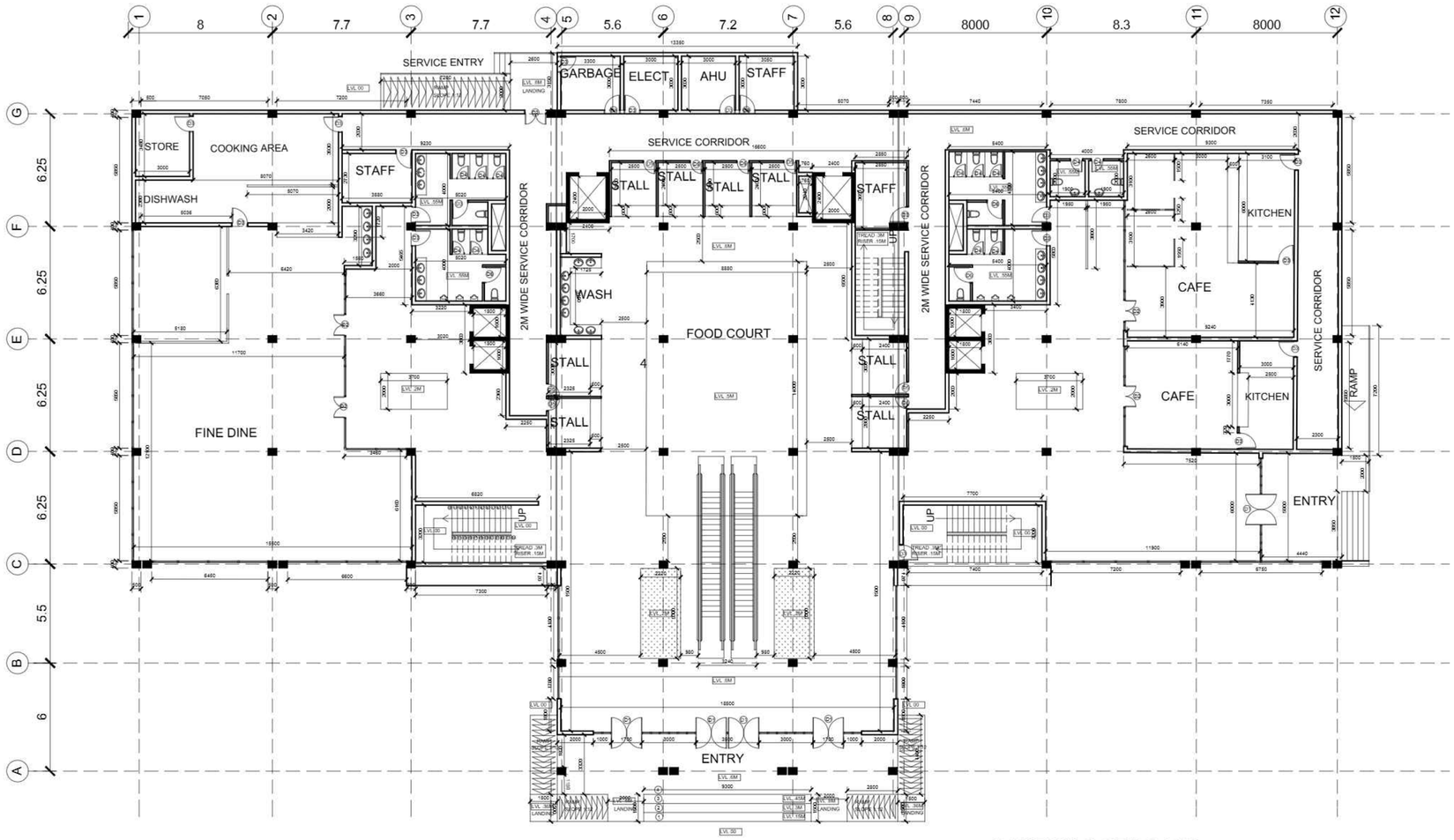
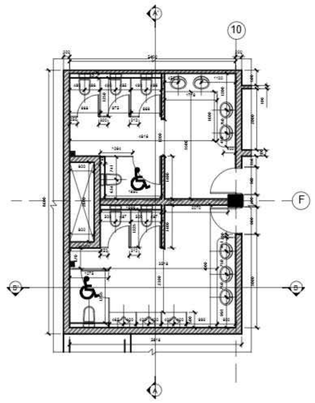


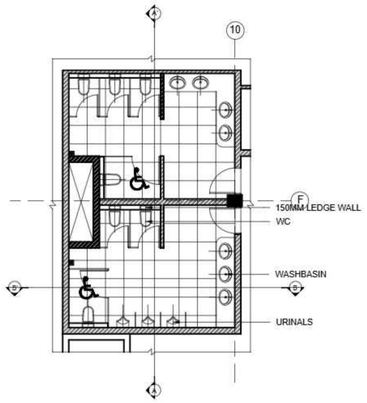
F&B AND ENTERTAINMENT GROUND FLOOR
BRICKWORK DETAILS

SCHEDULE OF DOORS

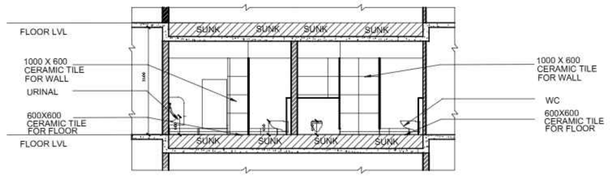
NAME	WIDTH (M)	SILL (M)	LINTEL (M)	HEIGHT (M)	REMARKS/ SPECIFICATION
D1	1.7	0	2.6	2.6	DOULE LEAF GLASS DOOR
D2	1.2	0	2.4	2.4	DOUBLE LEAF GLASS
D3	0.9	0	2.4	2.4	SINGLE LEAF WOODEN FLUSH
D4	0.7	0	2.4	2.1	PVC DOOR
D5	0.8	0	2.4	2.4	SINGLE LEAF WOODEN FLUSH
D6	0.8	0	2.4	2.1	PVC DOOR



BRICKWORK DETAIL PLAN



FLOORING AND FIXTURE DETAILS



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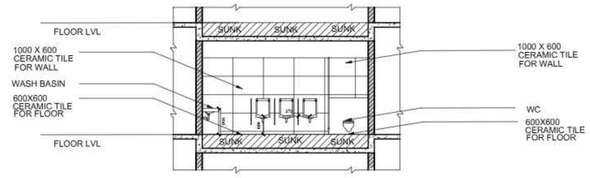


SECTION BB'

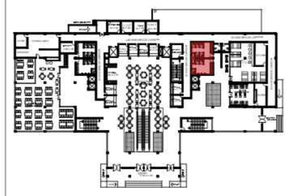
PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELENGANA

KEY PLAN



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PROJECT:

WARANGAL INTERNATIONAL CONVENTION CENTRE

LOCATION :

MADIKONDA
WARANGAL, TELANGANA

KEY PLAN

SHEET TITLE:

RENDERS

THESIS GUIDE:

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