Warangal International Convention Centre (WICC)

THESIS

for the partial fulfilment of the requirements for the award of the degree of

BACHELOR OF ARCHITECTURE

By

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CANDIDATE DECLARATION

The Thesis Project in the subject ARC 511, entitled "Warangal International Convention Centre, Warangal, Telangana", 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 **Nikita Patil**
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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.NavneetMunoth**
Thesis Guide

CERTIFICATION OF EXAMINATION

The Bachelor of Architecture Thesis Viva-Voce examination of Mr/Ms Student Name Scholar No.211110---, was held on 1/12/2025 to 2/12/25.

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ABSTRACT

Thesis presents a comprehensive architectural proposal for the Warangal International Convention Centre (WICC) cum 3-Star Hotel, envisioned as a pivotal development for Warangal, Telangana. Situated strategically within the IT Park, Madikonda, the project is conceived under a Public-Private Partnership (PPP) model and encompasses an expansive 10-acre site, equivalent to approximately 40,468 square meters. Its core components include a state-of-the-art Convention Centre, a versatile Exhibition Hall, a luxurious 3-Star Business Hotel, and diverse entertainment and Food & Beverage (F&B) zones, alongside essential parking facilities, all adhering to Government Order (GO) 168 regulations.

The overarching objective of the WICC is to establish a world-class cultural and business infrastructure hub, designed to significantly catalyze regional economic development and invigorate the hospitality and tourism sectors. By providing a landmark destination capable of hosting large-scale public gatherings, corporate functions, and cultural programs, the centre aims to position Warangal as a prominent MICE (Meetings, Incentives, Conferences, and Exhibitions) destination.

A central tenet of this architectural endeavor is the seamless integration of Telangana's rich socio-cultural environment, with a particular focus on its renowned handloom heritage. The design actively seeks to foster cultural revitalization, reinforce local identity, and serve as an urban catalyst that transcends mere functionality. It promotes inclusivity, enhances public spaces, and is engineered to act as a potent economic multiplier by creating new employment opportunities and supporting local communities and traditional crafts This.

Furthermore, the WICC project is firmly aligned with the principles of sustainable urban growth and Warangal's ambitious smart city vision. The design incorporates robust green building norms, ensuring environmental responsibility through features such as rainwater harvesting systems and energy-efficient lighting and air conditioning. Emphasis is also placed on universal design standards to ensure accessibility for all users. The facility will be equipped with advanced acoustics, flexible seating arrangements, and cutting-edge audio-visual technology, offering diverse catering options. This forward-thinking approach ensures the WICC will not only be a functional and aesthetically significant structure but also a resilient, community-focused hub that contributes positively to the city's identity, cultural exchange, and socio-economic landscape for generations to come.

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Date**: 02/11/2025** **Nikita Patil**

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Chapter 01

INTRODUCTION

1.1 INTRODUCTION

The Warangal International Convention Centre (WICC) is a proposed development located at IT Park, Madikonda, Warangal, Telangana. It is being developed under the Public-Private Partnership (PPP) mode under the jurisdiction of the IALA Warangal. The project is planned on a total land area of approximately 10 acres (40,468 sq. m), which has been earmarked by the authority for this development. The key components of the project include mandatory facilities such as a Convention Centre cum Exhibition Hall, a Business Hotel, Entertainment and Food & Beverage (F&B) areas, along with a minimum provision for car parking as per the development control regulations detailed in Government Order (GO) 168. Prohibited activities on site include any residential, hospital, warehousing, industrial, or automobile repair-related uses, along with any activity that is hazardous, inflammable, or environmentally incompatible.

The estimated cost of the project is ₹175 crores, which includes interest incurred during the construction period but excludes both the upfront development premium and the annual rent payable during the same phase. The development is proposed in a DFBOMT format—Design, Finance, Build, Operate, Maintain, and Transfer—under which the selected private developer will handle every aspect of implementation under the terms set in the Development Agreement. Institutional participation is open to both single entities and consortiums of up to three members. In case of a consortium, the members whose experience is being evaluated must hold a minimum of 26% of the equity in the Special Purpose Company (SPC), and the consortium must hold at least 51% collectively for a lock-in period of three years from either the date of signing or the completion date of the development agreement. The lead member must maintain a minimum 26% equity share throughout this period. For single entities, a minimum of 51% equity must be maintained for the same lock-in period.

The minimum upfront premium (reserve price) quoted by the bidder must be ₹6.80 crores plus applicable GST, and bids below this threshold will be deemed non-responsive. The final bid parameter is the highest premium quoted above this reserve. The lease tenure for the selected developer will be 33 years as per the agreement with the authority. An annual rental of ₹67.00 per sq. m. of land plus GST is applicable and must be paid in advance every year, with a 5% annual escalation. The project's construction phase is divided into two key stages: the first includes a 4-month period for securing all approvals and completing pre-construction formalities; the second is a 32-month period for the construction of all mandatory components.

Eligibility criteria allow participation by single entities or consortiums. The technical eligibility requires a minimum of five years of experience as demonstrated through audited financial statements. The developer must have either executed a single project of at least 250,000 sq. ft. or a combination of up to three projects totaling at least that area, with no individual project being less than 85,000 sq. ft. Financial

eligibility is based on a formula: 2*A*n - B ≥ Project Cost, where A is the highest annual turnover in the last five years, n is the project period (3 years), and B is the volume of ongoing work. The minimum net worth required is ₹43.75 crores, which can be the aggregate net worth in the case of a consortium. Bid submission must include three envelopes: Envelope 1 for key submissions, Envelope 2 for technical proposals, and Envelope 3 for financial bids. The cost of the RFP document is ₹29,500 including GST. A bid security of ₹1.75 crores and a performance security of ₹8.75 crores are mandatory, both payable via demand draft or bank guarantee from a nationalized bank in India. The impleme

1.2 PROPOSING AUTHORITY

The proposing and nodal authority for the Warangal International Convention Centre (WICC) cum 3-Star Hotel is the Telangana State Industrial Infrastructure Corporation Limited (TSIIC). Functioning as the primary agency overseeing industrial and infrastructural development across the state, TSIIC plays a critical role in facilitating Public-Private Partnership (PPP) projects by offering institutional support, land allocation, regulatory approvals, and implementation oversight. The project is being carried out under the jurisdiction of IALA Warangal and reflects TSIIC's broader mandate to enhance regional economic growth through high-quality urban infrastructure. The corporation ensures adherence to state policies, development norms, and transparent bidding practices while also safeguarding public interest through structured agreements with private sector partners.

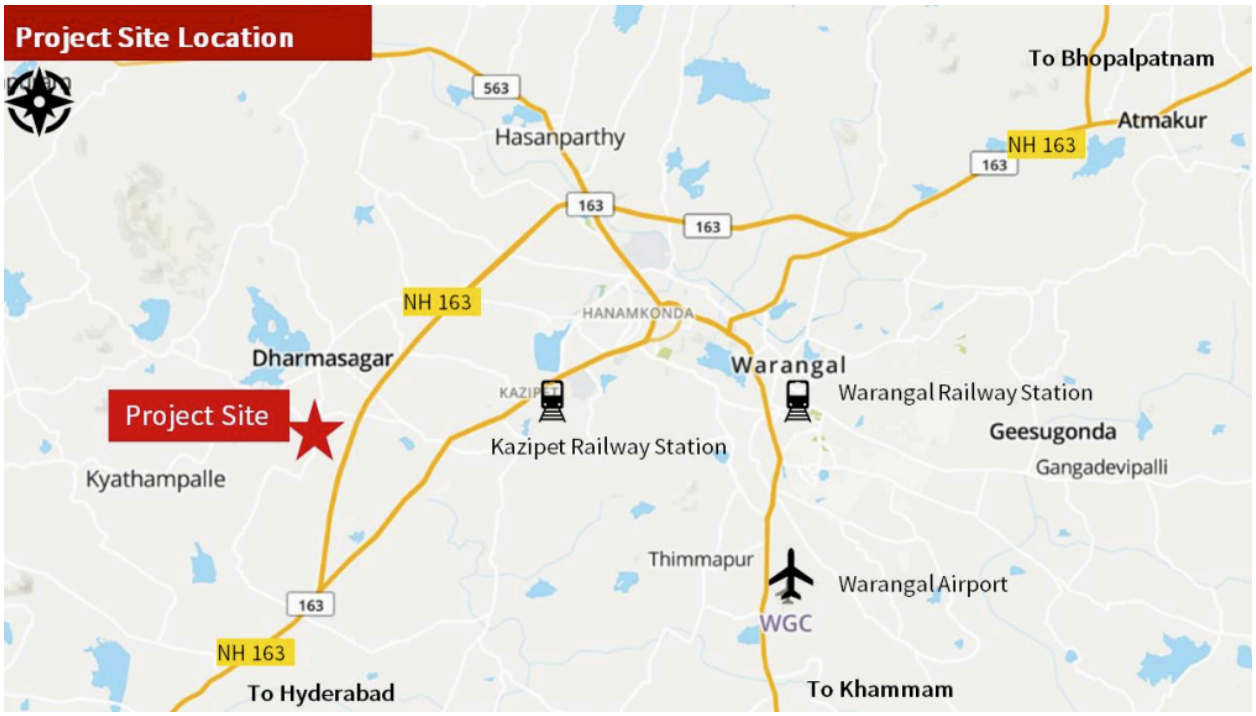
1.3 PROJECT OBJECTIVE

The primary objective of the Warangal International Convention Centre (WICC) cum 3-Star Hotel project is to create a world-class cultural and business infrastructure hub in Warangal, Telangana, under the Public-Private Partnership (PPP) framework. The project aims to catalyze regional economic development by providing a state-of-the-art convention centre equipped to host exhibitions, business events, and cultural programs, while simultaneously boosting hospitality and tourism through the inclusion of a 3-star business hotel and entertainment zones. Strategically located in the IT Park at Madikonda, the development is intended to serve as a landmark destination that supports public gatherings, corporate functions, and tourism activities. The integration of commercial, hospitality, and cultural functions within the project ensures a multifunctional environment that supports both the city's heritage and its modern aspirations. Additionally, the project is structured to attract private investment, ensure long-term operational efficiency, and promote sustainable urban growth aligned with Warangal's smart city development vision.

1.4 SITE INFORMATION

1.4.1 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.



Location map

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

1.4.2 Project Site Details

The Project Site admeasures approximately 10 acres (40,468 sq. m.) and has good connectivity to the city. The Project site has excellent frontage along the abutting road. Some of the salient features of the Project Site are summarized in the table below

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

1.4.3 Site Surroundings

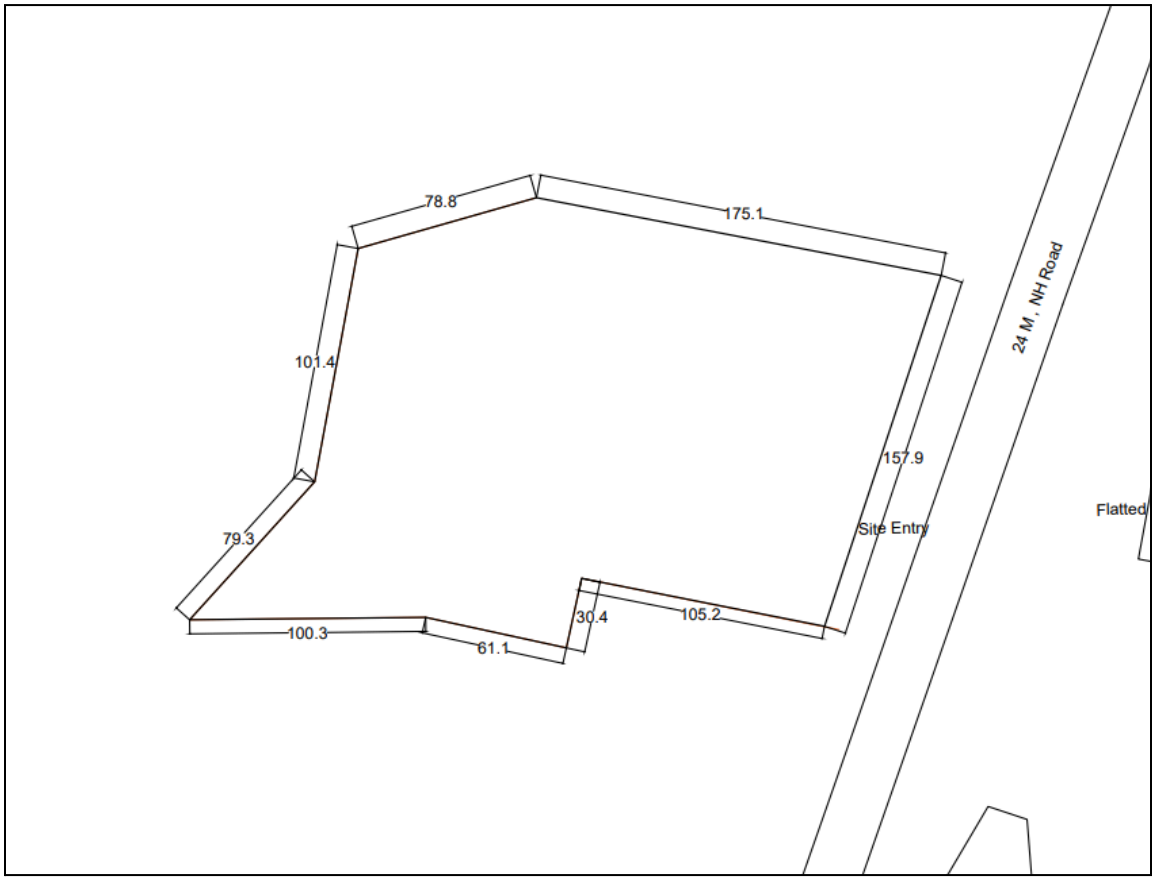




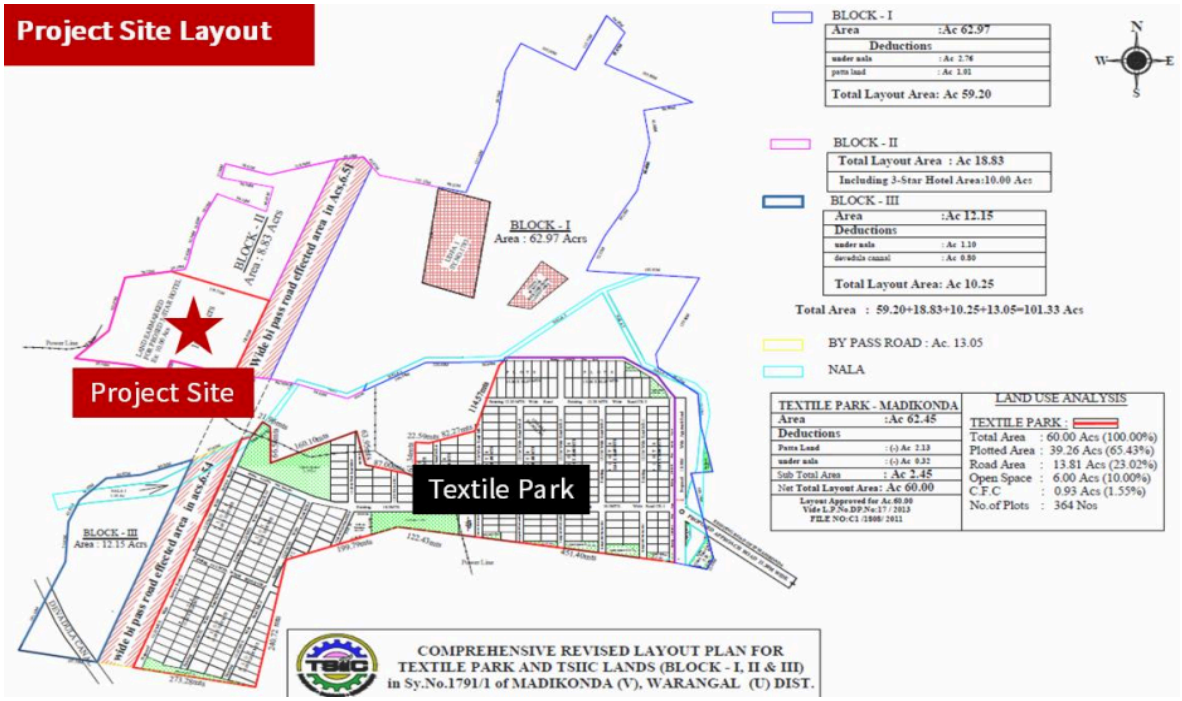




1.4.4 Site Plan



1.4.5 Site Surroundings



Chapter 02

LITERATURE SURVEY

2.1 CONVENTION CENTRE TYPOLOGY

Convention centres are architectural typologies uniquely designed to accommodate a variety of events, from cultural exhibitions and international conferences to academic symposia and trade fairs. These centres have evolved as crucial nodes in global and regional urban networks, offering both spatial and institutional infrastructure to host planned gatherings of people around shared goals—cultural, economic, educational, or political.

Typologically, convention centres can be categorized into four broad types: single-purpose convention centres, multi-purpose event complexes, hotel-integrated convention centres, and cultural-business hybrids. Each of these responds to specific contextual, economic, and functional needs and varies greatly in spatial organization, scale, and programmatic emphasis.

Single-purpose convention centres are large, standalone facilities often used for government or international summits, corporate meets, trade expos, or annual conventions. They typically feature a large plenary hall that may seat thousands of attendees, a series of smaller breakout rooms, press and media lounges, exhibitor zones, and auxiliary spaces like lounges, cafés, or business centres. The architecture of such centres is primarily functional and highly engineered, focusing on optimal acoustics, lighting, crowd management, safety standards, and modular configurations. These centres are often located within capital cities, central business districts, or near transport nodes like airports or railway stations.

Multi-purpose event complexes, by contrast, are designed with flexibility at their core. These are capable of hosting a wide range of events—from wedding receptions and sports expos to product launches and performing arts festivals. The design of such centres relies heavily on reconfigurable interiors using movable partitions, retractable seating, lighting grids, and dynamic acoustical treatments. These centres are increasingly popular in second-tier cities or regional capitals like Warangal, where a single venue must serve diverse community and commercial needs.

Hotel-integrated convention centres combine accommodation and conferencing facilities within the same complex. These are prevalent in urban settings, often targeting business travellers, MICE tourism (Meetings, Incentives, Conferences, Exhibitions), and high-profile guests. Their convenience and economic logic lie in reducing the logistical barriers between venue and lodging, enhancing the efficiency of large-scale events. Such centres are often developed through PPP (Public Private Partnership) models, ensuring infrastructure investment while supporting regional development.

Hybrid cultural-business convention centres represent a more contemporary typology emerging in response to the growing awareness of cultural sustainability and the need for inclusive urban infrastructure. These centres blend formal meeting spaces with exhibition galleries, artisanal markets, amphitheatres, open-air performance zones, and public parks. They serve not only as economic platforms but also as cultural custodians, reinforcing local identities and community participation. In a region like Telangana, a cultural-convention centre of this kind may include live handloom weaving areas, Bathukamma festival pavilions, and storytelling arenas, bridging local tradition with modern institutional frameworks.

In architectural planning, typological variations also relate to scale and accessibility. Small convention centres may be localized and serve specific community needs, such as town halls or rural exhibition facilities. Medium-scale venues usually serve district or state-level programs, while large-scale or "mega" convention centres—such as Bharat Mandapam in New Delhi or HICC in Hyderabad—are internationally focused and feature complex spatial programs, sustainability certifications, and digital infrastructure.

Moreover, the typology is influenced by technological and environmental factors. Smart buildings equipped with IoT-enabled systems, energy-efficient HVAC, solar panels, and adaptive lighting now define the 21st-century convention centre. Accessibility, inclusivity (as mandated by the Harmonized Guidelines), and modularity are becoming essential design criteria across all types.

In the context of Warangal and Telangana, the convention centre typology must respond not only to regional infrastructure and economic demands but also to the rich socio-cultural environment. A convention centre here cannot be merely a venue; it must become a space that facilitates dialogue between past and future, between heritage and innovation—housing cultural displays, empowering local communities, and advancing Telangana's growing urban footprint.

2.2 History and Evolution of Convention/ Cultural Centres

The history of convention centres is intricately tied to the broader evolution of public gathering spaces and the human desire to convene, deliberate, celebrate, and exchange knowledge or goods. From ancient forums and royal durbars to modern exhibition halls and international convention complexes, the architectural evolution of such spaces reflects shifting socio-political structures, economic imperatives, and technological advancements.

2.2.1 Ancient and Medieval Precedents

In antiquity, spaces like the **Agora in Ancient Greece** and the **Roman Forum** served as early prototypes of civic gathering spaces. These open-air venues were centers of public life, where citizens assembled for trade, governance, philosophy, and festivals. Though not convention centres in the modern sense, their multifunctional nature and spatial organization influenced later typologies. Similarly, in ancient India, **sabha mandapas** (assembly halls in temples) and **maha sabhas** (royal courts) were designed for large public discussions, religious discourses, and administrative purposes. Structures like the Virupaksha Temple's hall in Hampi or the Kakatiyan court in Warangal echo this tradition.

During the medieval period, with the rise of feudal systems and religious dominance, public assembly spaces moved into the domain of religious or royal institutions. **Darbars** in Islamic and Hindu kingdoms functioned as proto-convention spaces—symbolic, hierarchical, and often richly decorated. These were not merely political but also cultural venues, hosting musicians, poets, and artisans.

2.2.2 Colonial and Industrial-Era Developments

The modern convention centre began to emerge in the **19th century**, driven by two major developments: industrialization and colonial expansion. The rise of **world fairs and exhibitions**, such as the **Crystal Palace Exhibition (London, 1851)** and **Exposition Universelle (Paris, 1889)**, required vast pavilions and exhibition halls that could host displays of innovation, industry, and empire. These buildings emphasized **modular, iron-and-glass construction**, paving the way for flexible interiors and large spans without obstructive columns.

In colonial India, **town halls**, **museums**, and **clubs** served as the earliest forms of institutional convention spaces. The Bombay Town Hall (now Asiatic Society), Madras University Senate House, and GPO buildings hosted academic, bureaucratic, and elite events. These buildings were hybrids—part colonial administration, part cultural showcase.

As cities grew under colonial rule, the need for **public exhibition and trade spaces** became more apparent. Large auditoriums and assembly halls were integrated into municipal planning. Their design followed Western neoclassical or Indo-Saracenic styles, with prominent domes, arches, and high ceilings for thermal comfort.

2.2.3 Post-Independence Modernism (1947–1990)

Following independence in 1947, India's nation-building project brought with it a new architectural expression—modernism. With the Nehruvian emphasis on scientific temper, planning, and democracy, a wave of **modernist convention buildings** emerged across major Indian cities.

Structures such as **Vigyan Bhavan (New Delhi, 1956)** and **NCPA (Mumbai, 1969)** were not merely architectural achievements but also **cultural statements**. Vigyan Bhavan, designed by architect R.I. Gehlote, served as a prestigious venue for international conferences, national awards, and parliamentary meetings, blending a modernist aesthetic with contextual detailing. The Pragati Maidan complex in Delhi, built in the 1970s, exemplified India's ambition to showcase its industrial and cultural potential through **expos and trade fairs**, becoming one of Asia's largest exhibition spaces.

This period saw the growth of **auditoriums, stadia, cultural halls**, and **scientific convention spaces**, often supported by public funding and rooted in state-driven development.

2.2.4 Liberalization and Private Sector Participation (1991–2010)

The economic liberalization of the 1990s radically reshaped India's urban landscape. With increasing globalization, cities like Delhi, Mumbai, Hyderabad, Bengaluru, and Chennai became hubs of corporate activity and international trade. This triggered the demand for **state-of-the-art convention centres** that could host **international summits, business meets, and cultural festivals** at par with global standards.

The **Hyderabad International Convention Centre (HICC)**, established in 2006, was one of India's first large-scale, private-public hybrid facilities, setting benchmarks for capacity, technology, and management. It was closely followed by venues like **Bombay Exhibition Centre**, **India Expo Mart (Noida)**, and **BIEC (Bangalore)**. These centres offered not just space but comprehensive hospitality, logistics, and digital services—supporting MICE tourism.

During this period, **private hotel chains** also entered the space, offering integrated conferencing facilities. Brands like Taj, Marriott, and ITC began designing hotel-convention hybrids aimed at the global business traveler. Architecture during this era emphasized **glass-and-steel façades**, digital connectivity, and climate control systems, often detached from the regional context.

2.2.5 21st Century: Sustainability, Identity, and Inclusivity (2010–Present)

The most recent phase in convention centre evolution is shaped by three defining concerns: sustainability, local identity, and public access.

Architects and planners today are rethinking the convention centre as not just a revenue-generating space but a civic institution embedded within its community. This is particularly relevant in India's tier-2 and tier-3 cities like Warangal, where such centres can be cultural anchors and economic catalysts.

Designs now prioritize:

- Green building norms (GRIHA, ECBC)
- Universal design standards for accessibility
- Mixed-use programming with cultural, social, and entrepreneurial zones
- Architectural language rooted in local materiality and aesthetics

Internationally, centres like Marina Bay Sands Expo Centre (Singapore) and Convention Centre Dublin (Ireland) reflect these values, combining cutting-edge infrastructure with environmental stewardship and public space design.

In India, the recent Bharat Mandapam at Pragati Maidan (2023), which hosted the G20 Summit, embodies this hybrid ideology: a national showcase, a diplomatic node, and a cultural landmark. Its design weaves in Indian motifs, handloom-inspired walls, and sustainable materials while incorporating global technological benchmarks.

The evolution of convention centres is thus a story of shifting social needs, architectural ideologies, and governance models. From sacred halls and royal durbars to glass towers and green campuses, these buildings have always served a public function, often blurring the lines between spectacle, dialogue, and diplomacy.

In Warangal—a city steeped in the legacy of the Kakatiyas, handloom craft, and now IT-driven development—a convention centre must be contextually grounded yet future-ready. It should not only reflect technological advancement but also embody the ethos of Telangana's cultural narrative, promoting inclusivity, resilience, and place-based innovation.

2.3 Role of Convention Centres in Cultural and Urban Development

Convention centres today are not just infrastructure projects but urban catalysts—places where culture, commerce, identity, and innovation intersect. In the context of evolving urban India, especially in emerging cities like Warangal, the cultural-convention centre takes on a larger civic responsibility: to shape public life, preserve heritage, stimulate local economies, and define the aesthetic and social rhythm of the city.

2.3.1 Cultural Revitalization and Identity-Building

At their core, convention centres have the power to nurture cultural expression. By integrating galleries, performance spaces, artisan workshops, and storytelling zones, they allow local communities to document, preserve, and reinvent traditional practices. In a region like Telangana—where Bathukamma festivals, Perini dance, and handloom weaving form the cultural DNA—a convention centre can become a living museum, hosting not only exhibitions but seasonal festivals, processions, and regional cuisine showcases.

Such spaces help re-anchor culture in the public consciousness, particularly among urban youth. They also serve as platforms to promote marginalized narratives—be it the crafts of tribal communities, the voices of rural artisans, or women-led cooperatives. Architecture plays a key role here: integrating motifs from Bathukamma, spatial storytelling inspired by temple mandapas, and the use of local materials like granite, dolerite, or handloom textiles in interior finishes—all establish the building as a cultural artifact in itself.

Furthermore, the presence of GI-tagged crafts and local design vocabularies creates emotional ownership among the public, drawing them not as consumers but as co-creators of culture.

2.3.2 Enhancing Public Space and Urban Vibrancy

Convention centres increasingly act as public urban nodes, especially when designed with permeable boundaries, open greens, shaded walkways, and civic plazas. They offer a counter-narrative to privatized urban development by remaining accessible, democratic, and socially inclusive.

In Telangana, the typology can incorporate public chowks inspired by markets like Laad Bazaar, shaded pavilions akin to temple courtyards, or interactive water features referencing Ramappa Lake and agrarian tanks. These are not just aesthetic gestures—they're placemaking tools that enhance quality of life.

By activating surrounding areas with vendors, performers, street art, and workshops, convention centres encourage place attachment and community participation. Evening light shows, weekly haats, or festival parades can transform the space into an urban theatre—bridging daily life and spectacle, informal culture and formal performance.

In rapidly expanding cities, such centres decentralize urban culture, relieving pressure from core city areas and distributing opportunities to peripheral zones like Madikonda in Warangal.

2.3.3 Economic Multipliers and Local Empowerment

From an urban economics perspective, convention centres stimulate both direct and indirect employment, especially through:

- Event hosting and logistics
- Food and beverage vendors
- Technical and creative services
- Local crafts and textile sales
- Hospitality and tourism spillovers

A cultural-convention hybrid allows handloom cooperatives, local tour guides, weavers, and artisans to earn livelihoods through exhibitions, direct sales, and interactive demos. Instead of acting as mere rental venues for elite users, such centres can build inclusive micro-economies by:

- Offering fair-trade retail stores
- Hosting skill-training programs (e.g., weaving, design innovation)
- Providing e-commerce facilitation points
- Establishing craft clusters and design incubation spaces

The model here shifts from extractive tourism to participatory development, where local culture is not commodified but curated through collective agency.

2.3.4 Knowledge Exchange and Innovation Platforms

Convention centres also serve as knowledge ecosystems. They bring together designers, policy-makers, educators, entrepreneurs, students, and rural creators into one collaborative space.In Telangana, the potential lies in enabling dialogue between:

- Traditional handloom weavers and urban fashion designers
- Agricultural researchers and sustainable material innovators
- Tribal artists and contemporary curators

Workshops, hackathons, fellowships, and design challenges can be organized within the cultural centre's studio spaces, generating innovation rooted in cultural context. For instance, imagine a workshop where architects work with loom-makers to develop fabric-based shading devices or interior partitions for climate-responsive design.

These knowledge flows can fuel startups in textiles, heritage tourism, and craft-tech, turning the cultural centre into a hub of indigenous entrepreneurship.

2.3.5 Role in Inclusive and Participatory Urbanism

An often-overlooked role of cultural convention centres is their ability to democratize public discourse. Unlike galleries or high-ticket auditoriums, well-designed centres can be venues for:

- Public lectures and town halls
- Youth debates and poetry slams
- NGO meetings and gender-awareness workshops
- Rural-urban cultural exchange events

By encouraging public participation, these centres embed democratic culture into the city's spatial fabric. They become symbolic of a new kind of citizenship, where every person—irrespective of class or background—can access, share, and shape culture.

In Telangana's context, this is particularly significant for bringing women (as seen in Bathukamma), artisans, farmers, and urban professionals into shared cultural processes.

2.3.6 Sustainable Urban Growth and Smart City Synergy

Convention centres also align with sustainable and smart city goals, particularly when planned as eco-sensitive, mixed-use zones. Features may include:

- GRIHA/LEED-compliant construction
- Rainwater harvesting and greywater recycling
- Solar roofs and passive cooling systems
- Non-motorized transport access and e-vehicle charging
- Digital display systems for cultural data visualization

In Warangal, the convention centre planned under the PPP model within IT Park, Madikonda, can become a prototype for green cultural infrastructure—ensuring climate resilience while showcasing best practices in public-private cultural partnerships.

2.4 Integrating Telangana's Handloom Heritage into Cultural Center Design

The handloom industry of Telangana, deeply rooted in the region's cultural and economic identity, offers an essential framework for the design of a contemporary cultural center. The challenges faced by the industry—ranging from competition with power looms, declining demand, limited market access, raw material fluctuations, financial constraints, lack of technological advancement, skill shortages, and health hazards—highlight the urgent need for architectural interventions that support and revive traditional weaving practices. A well-designed cultural center can directly respond to these concerns by creating spaces that not only exhibit the richness of handloom crafts but also empower the communities behind them.

Functionally, the cultural center should be conceived as a multi-dimensional space—comprising ventilated and ergonomically designed studios for weaving, dedicated areas for raw material processing and storage, and open workspaces to accommodate traditional processes. To address economic constraints, the inclusion of a fair-trade retail hub or market that eliminates middlemen and enables weavers to sell directly is vital. Spaces for skill-building workshops and training centers will support generational knowledge transfer and technological upgradation, ensuring the industry's sustainability.

Aesthetically, the design must celebrate the authenticity and visual language of Telangana's weaving heritage. Incorporating motifs, textures, and color palettes from signature handloom styles such as Pochampally Ikat, Gadwal, Narayanpet, and Gollabama sarees within the architecture, interiors, and landscapes can create a layered and symbolic experience. Materials like local stone, wood, and natural fibers should be prioritized, supporting eco-conscious construction while resonating with the sustainable ethos of handloom itself.

Programmatically, the center should include educational galleries, live demonstration zones, archival documentation facilities, and interactive exhibits that narrate the craft's history, evolution, and cultural significance. Community spaces—such as shared courtyards, health support areas, and informal gathering spots—should foster interaction among weavers, designers, and visitors, making the center not just a display of culture, but a living ecosystem.

Ultimately, this integration of handloom into spatial design not only aids cultural preservation and economic empowerment but also fosters community engagement, educational outreach, and regional development. The center becomes a dynamic node of cultural expression—bridging tradition with innovation—and playing a significant role in reviving Telangana's treasured handloom heritage.

The wellness real estate sector is growing rapidly, with the global wellness economy projected to be worth USD 4.5 trillion in 2017, according to the Global Wellness Institute. The Asia Pacific region contributes 25% of this market, amounting to USD 1.2 trillion, while India's wellness economy was valued at USD 0.1 trillion during the same period. This signifies a growing interest in spaces that support wellness, including residential, commercial, and recreational spaces designed with health and well-being in mind.

2.6 NBC Bye Laws for Cultural Centre

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.

Developement controls for Socio Culutral Facilities

3	Socio-Cultural Facilities		
	Community Hall	3.0 ECS / 100 sqm of floor area	--
	Recreational Club	2 ECS / 100 sqm of floor area	--
	Socio-cultural activities such as auditorium, music, dance & drama, centre / meditation, spiritual centre etc.	2 ECS / 100 sqm of floor area	--
	Science Centre	2 ECS / 100 sqm of floor area	--
	International Convention centre	2 ECS / 100 sqm of floor area	--

Parking Requirements for Socio-Cultural Facilities

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			

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 9.1 Provisions for Rainwater harvesting by building types

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

*Note: The number of recharge bores to be provided in different plot sizes shall be accordance to Sl No 2 of Table Nos. 14.1 - 14.3 of **Chapter 14**.*

2.7 BYE LAWS (ANDHRA PRADESH BUILDING RULES – G.O.MS.NO.168 (2012))

2.7.1 Zoning and Applicability:

- These rules apply to **Urban Development Authorities, Municipal Corporations, Municipalities, Nagar Panchayats**, and **Gram Panchayats** covered under Master Plans.

- Ensure the **land use/zoning** permits construction of public/institutional/commercial assembly buildings like convention centres.

2.7.2 Location and Site Restrictions:

- Water Bodies: Maintain minimum distances (buffer zones):

- 50m from the rivers inside municipal limits.
- 30m from lakes ≥10 ha, 9m for smaller tanks/streams.
- Railways: Maintain 30m from the railway property.
- Airports: Follow Airport Authority of India (AAI) norms for building height clearance.
- Heritage Sites: If within 200m of any protected monument, obtain permissions from the National Monument Authority.
- Power lines: Maintain 3m from High Tension (HT) lines, 1.5m from Low Tension (LT) lines.
- Environmental Clearance (EIA): Mandatory if built-up area is >20,000 sqm.
- Fire NOC: Required for all assembly buildings >6m or >500 sq.m site area.

2.7.3 Plot and Road Width Requirements:

Building Type	Minimum Plot Area	Minimum Abutting Road Width
Convention/Assembly Hall	~4000+ sq.m	18m (if up to 30m height), 30m (if above 30m height)

2.7.4 Height and Setbacks for High-Rise Buildings:

For **buildings above 18m**:

- Minimum setbacks: Ranges from 7m (≤21m high) to 16m (up to 55m high).
- Add 0.5m additional setback for every 5m above 55m.
- A minimum of 10% of the site area must be dedicated to open green space at ground level.
- Maintain 2m green strips along the periphery within setbacks.
- Must abide by fire safety, earthquake resistance, and ventilation standards.

NOTE: There is no blanket height restriction for convention centres, but design must conform to road width, setbacks, fire safety, and environmental rules. Can build taller structures, even above 30m, if:

- The road width, setbacks, and safety regulations are satisfied.
  You obtain clearances from required authorities (Fire, AAI, SEIAA, etc.).

2.7.5 Parking Requirements:

- For convention centres/assembly halls:
- Provide 40%–30% of the total built-up area as parking (depending on jurisdiction).
- Use basement, stilt, or upper floors for parking; also allowed in open areas (excluding setbacks).
- Visitors' parking: 10% of the total parking area, outside the front setback.
- Follow proper driveway widths, ramp gradients, and turning radii.

2.7.6. Amenities and Services:

- Rainwater harvesting structures are mandatory.
- Disabled-friendly access (ramps, toilets, tactile surfaces) per National Building Code (NBC).
- Solar lighting and water heating for buildings like convention centres are encouraged.
- Provide separate entry/exit, service access, and utility zones (electrical rooms, generators, STPs).

2.7.7. Fire and Structural Safety Compliance:

- Obtain fire NOC from the AP State Disaster & Fire Services Department.
- Include fire escape staircases, sprinklers, smoke detectors, and fire lifts.
- Structural designs must be certified by licensed engineers, considering soil test reports.

2.7.8. Transferable Development Rights (TDR)

If you surrender land (e.g., for road widening), you're eligible for:

- 200% built-up TDR for road surrender.
- 100% TDR for recreational buffer zone or green belt development.
- Can use TDR to increase floor area elsewhere or in future phases

2.7.9. Group Development / Large Projects

- Convention centres within Group Development Schemes (≥4000 sq.m) must:
- Have black-topped 12m access roads.
- Submit plans for internal circulation, landscaping, water/sewer systems.
- Maintain 10% open space (separate from setbacks)

2.8 COMPONENTS OF THE PROJECT:

2.8.1 Exhibition Spaces

In its broadest sense, an exhibition is a display, show or demonstration ofsomething of beauty, value or particular interest to a targeted audience.Exhibition halls should have the space, freedom and flexibility to create an exhibition environment. In any exhibition halls, proper considerations should be given to the movement of people and also to the moving pattern.On the other hand, outdoor exhibition spaces are usually located to immediate vicinity of the exhibition halls. Outdoor exhibition areas can be developed as a flat ground or as an amphitheatre.

2.8.2 Conference Spaces or Auditorium Halls

Conference halls or Auditoriums are mainly allocated in the exhibition spaces to hold conferences and/or seminar during the exhibition period. Proper attention must be provided in designing entry and exit routes.

2.8.3 Multipurpose Halls

Multipurpose Halls can be used for conferences, exhibitions, meetings, symposiums and several other events. Multipurpose Halls can also be used as Banquet and/or Event Halls and sometimes also as Galleries.Other Important spaces of a Convention Center include: Recreational Spaces, Gallery, restaurants, administrative spaces, parking spaces, landscaped areas.

2.9 MAJOR DESIGN CONSIDERATIONS:

2.9.1 Access and Entrance:

i.Separate access is required for visitors, staff, goods and service vehicles and emergency
ii.requirements. It is usually desirable to provide alternative entry for public which is independent from that used by conference visitors. This not only facilitates management And security, but also enables two or congress events or exhibitions to be run independently in parallel.
iii.Easily identifiable entrance and exit, and clear external signage, which may need to be illuminated.
iv.Sufficient unloading/loading space to accommodate multiple events.
v.Level ground floor with loading docks of sufficient size for all services including client vehicles. Large coach drops off and collection points adjacent to main entrance, with sufficient turning space and height, accessible under cover.
vi.Doors of sufficient width and height or demountable/retractable walls to permit truck access (trucks delivering exhibit and staging equipment pose particular problems).
vii.Floor loadings to permit truck access.
viii.Easily identifiable and weather protected entrance and reception area for attendees. Clearly identified disabled access.ix.In larger venues, security systems and monitoring at loading docks. Separate entry for venue staff.
x.Storage space (for several days) for pre-congress consignments including exhibitors' displays materials.

2.9.2 Access for the disabled

Specific provisions include allocation of parking spaces, identification of routes, provision of ramps, toilets and facilities designed for wheelchair and other disabled users in each main area

2.9.3 Parking

i.Coach parking bays off street.
ii.Sufficient undercover parking for attendees.
iii.All parking, including venue staff parking, should be secure. Direct access to venue lobby.
iv.Clear directions for exiting car park.
v.Parking requirements for cars and other vehicles will depend on some extent on the proximity and conditions for use of alternative facilities, such as municipal car parks, as well as on the availability of public transport.

2.9.4 Service Vehicles

i.Plenty of space for parking while unloading/loading goods and equipment with a dedicated car park for vehicles delivering goods or equipment.
ii.Parking for trucks with sufficient height and turning space where staging, audio visual or other equipment needs to be packed in or out within short period of time.
iii.Long-term parking for trucks used for transporting production equipment and exhibitors' displays.

2.9.5 Horizontal and Vertical Arrangements

The single floor organization provides easy access among the rooms and between the conference areas and other functional elements. This plan imposes few structural or mechanical constraints, permits total freedom in the planning of the rooms, allows for access from the refreshment break areas to outdoor terraces and patios.Vertical stacking of auditoria and/or main halls is more economical in the use of land, and enables space below tiered floors to be more efficiently used. Unit costs of construction are higher and vertical transportation of people and goods may present difficulties.

2.9.6 Circulation

i.Linear arrangement of spaces with beginning, middle and end.
ii.A loop where the essentially linear storyline leads naturally back to the beginning.
iii.An arrangement of core and satellites where each theme or detailed treatment of a subject leads back to a central introductory or orientational areas.
iv.A more complex scheme combining linear, loop and core-satellite arrangement of spaces.
v.Comb which refers to a circulation pattern in which there is a main circulation path and optional alcoves which a visitor may enter or bypass.

2.9.7 Public movement pattern for the convention centres

Communication and functionality can be improved by implementing efficient circulation patterns in a convention centre. People visiting or working in a convention centre can be divided into 5 broad user categories:

Public flow

nified personalities are invited depending on the nature of the conference. It can also have relatives and public guests invited by the organization. The public guests also have access to the exhibition areas and hence these areas shall separate access to manage the public flow during peak hours efficiently

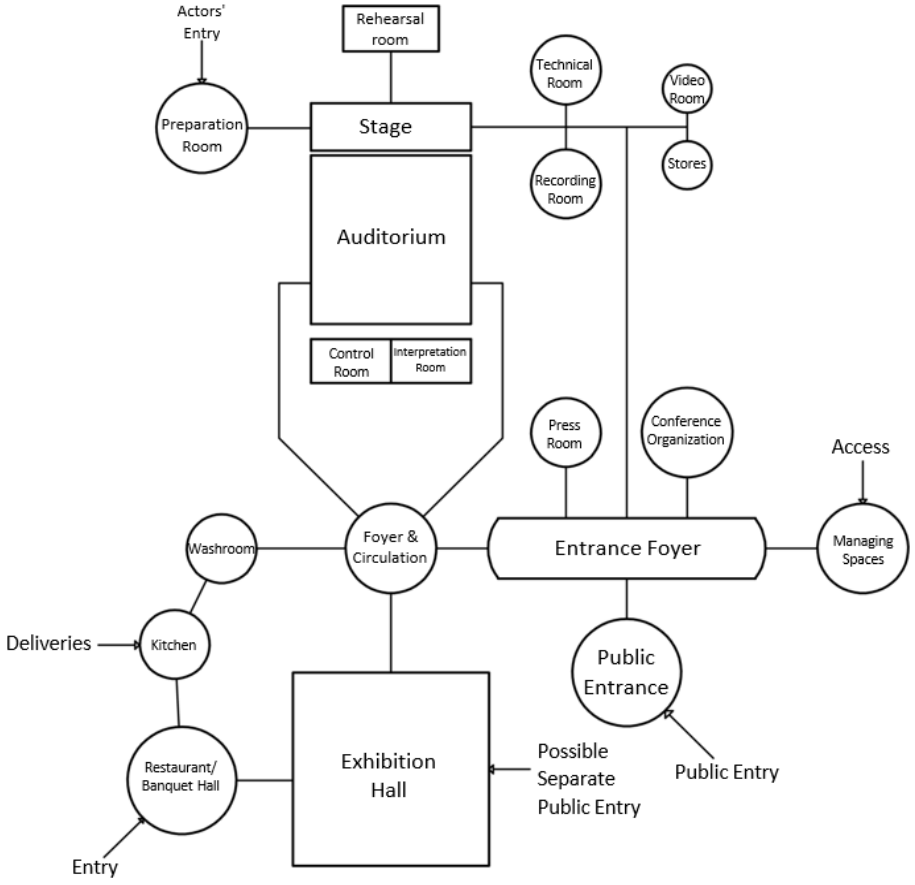
Delegate flow

Delegates form the most important group of users for a convention centre the parking shall lead them to the main entrance foyer which further directs them to their destination. An unobstructed delegate movement is very important.

VIP flow
They shall either directly lead to the dais of the main hall or shall enter through the VIP entrance which is connected to a VIP lounge.

Journalist flow
It includes press people. Cameraman and diplomats. They shall have direct access to the documentation centre and the TV audio of the convention centre.

Staff flow
The staff can be divided into two categories namely the technical staff who are responsible for the efficient working of the convention centre while the others are the administrative staff who are exposed to the people coming to the centre. The paths are of the technical and administrative staff diverse at the staff



2.9.8 AUDITORIUM DESIGN

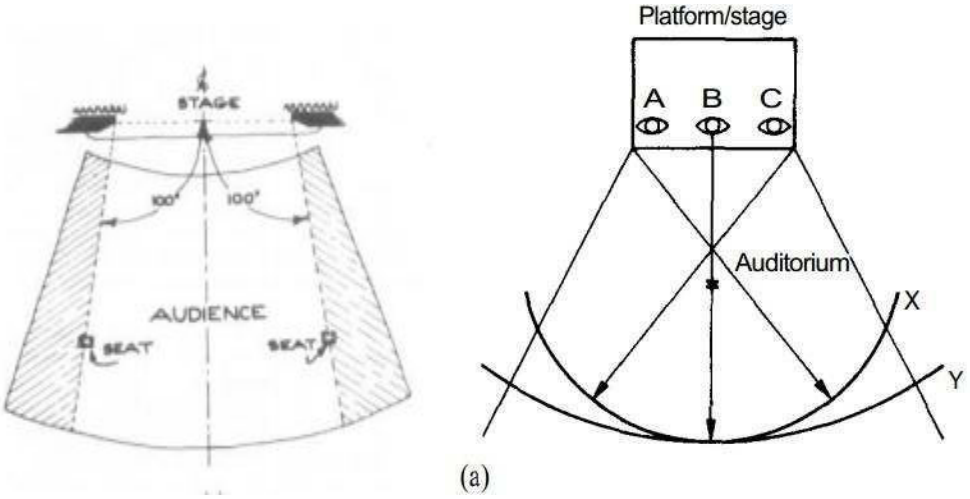
lead movements and light eye movements of approxThe auditorium is the heart of building, where the primary activity of experiencing and presenting performances take place. Audience seating is arranged to view the stage and the stage is a platform from which the performer can be communicate to the audience. The relationship between the two is very crucial for the success of convention centers. Mostly auditorium is designed to fulfil no of purposes. The objective of designer will be to use 100% usage of space. Auditorium should be designed in such a way that every member should be able to see and hear the performance of stage.The three-dimensional volume of an auditorium is conditioned by the need for all members of the audience to be able to see the whole of the platform or stage: and to hear the actor, singer, musician or speaker. Seating density, floor rake and seating layout are partly determined by this, partly to give the audience an appropriate level of comfort and essentially to ensure a means of escape in an emergency. Fire, within the time required by safety considerations and by legislation.Every member of the audience should be able to see and hear clearly whatever is happening on every part of the stage or platform. The greater the encirclement of the audience of the platform or stage, the more people can be accommodated within the aural and visual limitations up to 180° encirclement. With a full encirclement, the distance from the platform or stage is restricted to six rows.

Proportions of the auditorium these are derived from the psychological awareness and angle of view of the spectator, or the requirement for a good view from all seats. Options are:

1. Good view, without moving head, but light eye movements of approx. 30°.

2. Good view with slight h. 60°.

3. Max. Awareness angle without head movement approx. 110°, i.e., all actions in the field are 'in view'. Outside this field, there is uncertainty, because 'something' is out of view.



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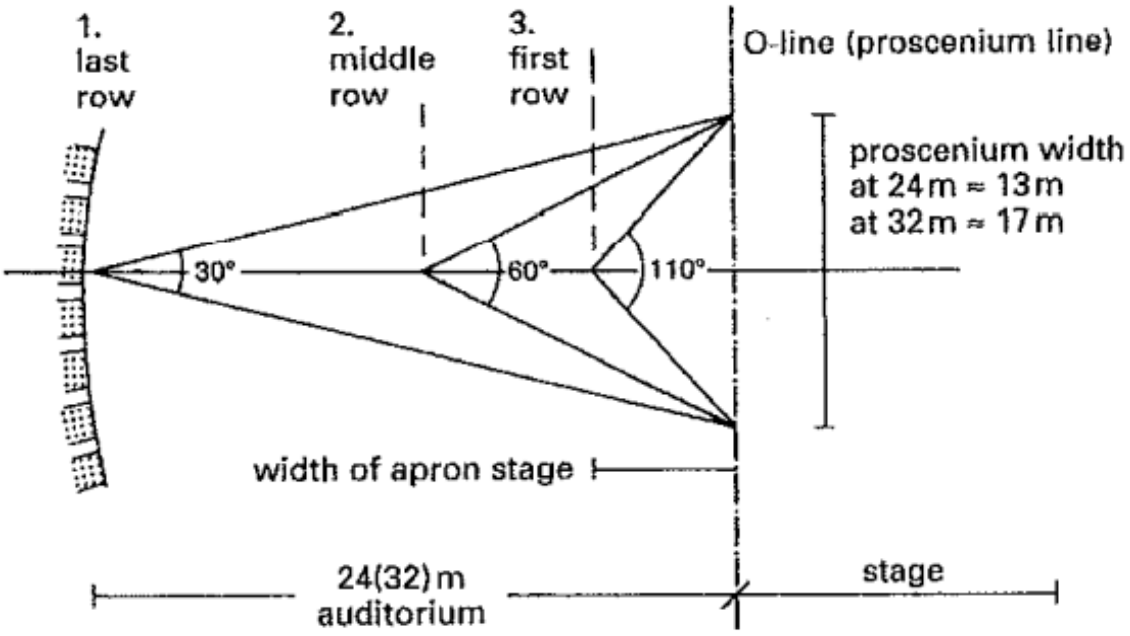
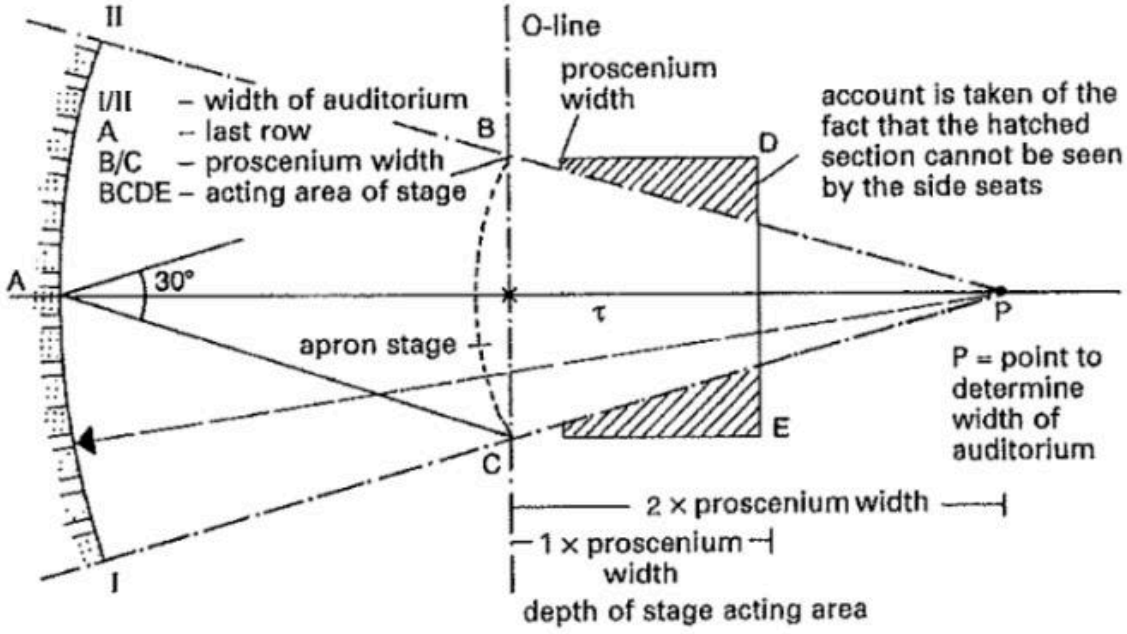


7 Proportions of traditional auditorium plan



8 Auditorium width

4. Full head and shoulder movement allows an angle of view of 360°.

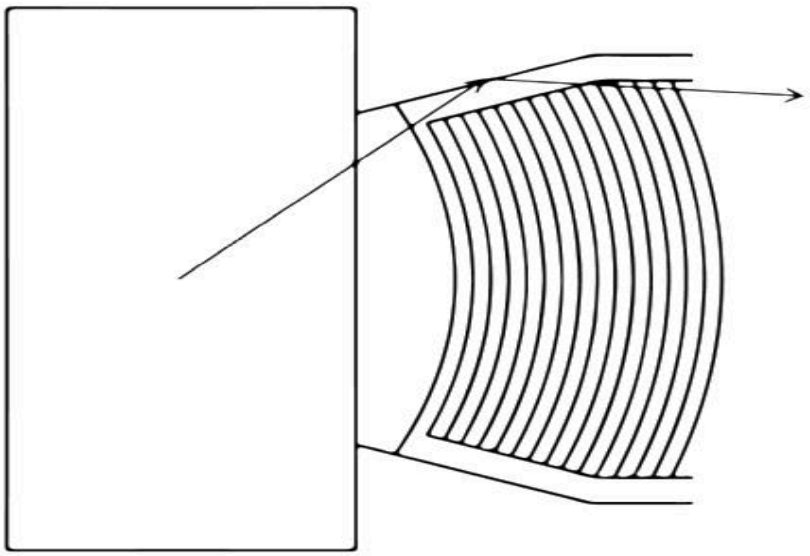
Proportions of the classic auditorium Opera, multi-purpose theatre, and traditional playhouse -7 0: distance of the furthest row from the start of the stage should not exceed: -

Playhouse, max. 24 m (max. distance for the recognition of facial expressions);

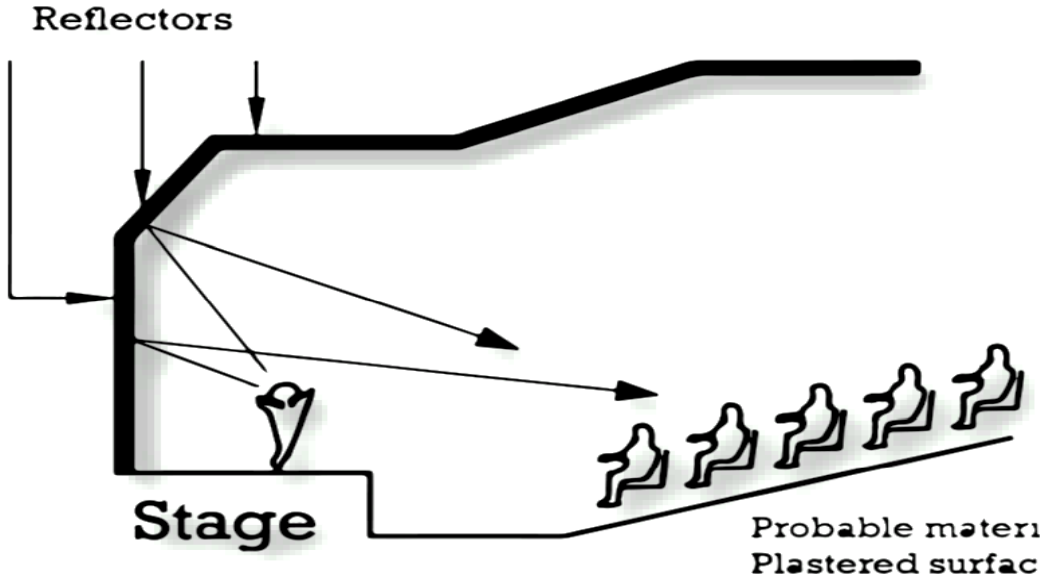
Opera, 32 m (large movements are still recognisable).

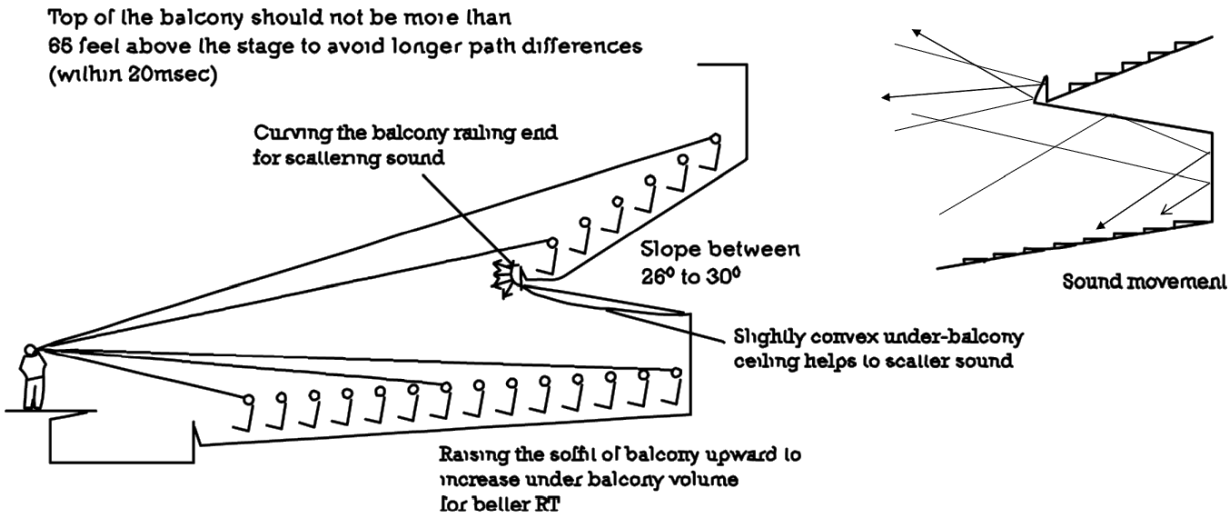
Auditorium width is determined by the spectators at the side being able to see the stage adequately -8.

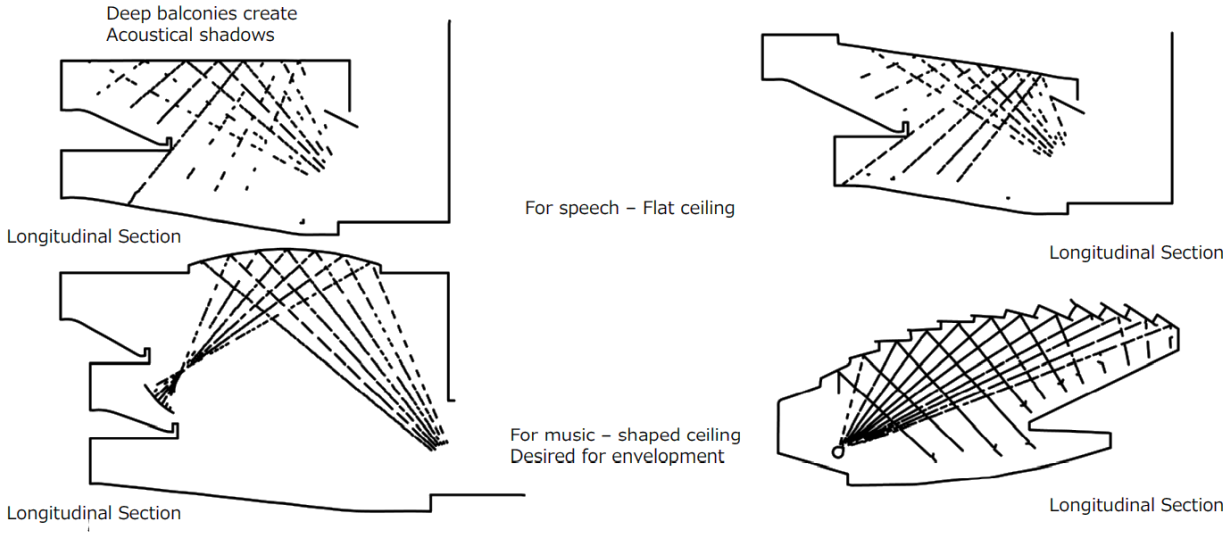
The theatre situation is fundamentally one of the relationships between the performers and the audience. The audience wants to hear and see the show without distraction and in comfort and safety, as stated, but its ultimate objective in attending the show is to receive the utmost sensory stimulation toward the maximum emotional and intellectual experience.

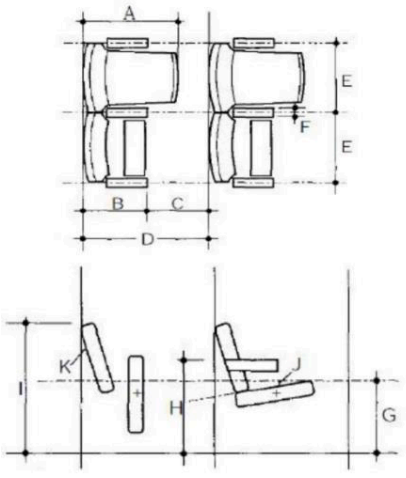


Angled side wall allows better side wall reflection







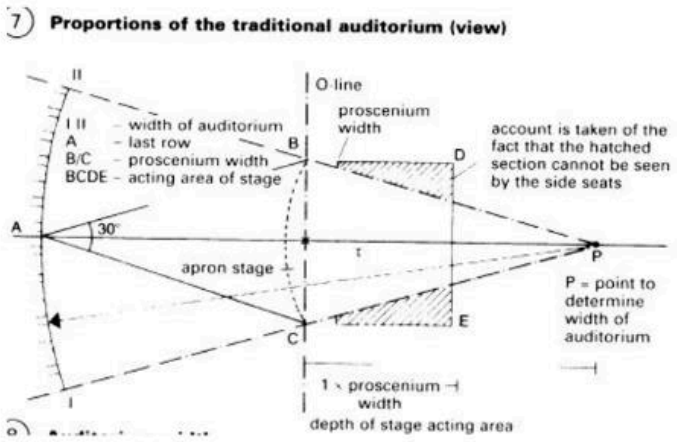


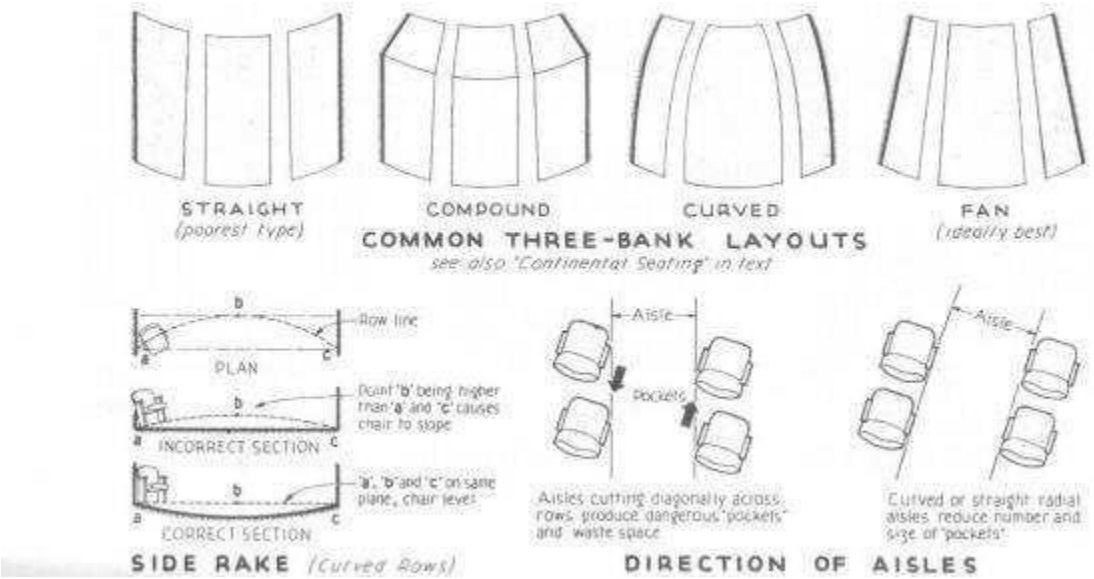
Dimension	Description	Minimum(mm)	Maximum(mm)	Drawnn as
A	Overall seat depth	600	720	650
B	Tipped seat depth	425	500	450
C	Seatway	305	-	400
D	Back to back seat spacing	760	-	850
E	Seat width for seat with arms	500	750	525
F	Annrest height	50	-	50
G	Seat height	430	450	440
H	Armrest height	600		600
I	Seatback height	800	850	800
J	Seat inclination	17	9	7
K	Back inclination	15	20	15

Table 1 : Dimension of auditorium seats

Visual Limitations

- For drama= 20m
- For Opera= 30m
- For dance= 20m
- For conference = 20m





2.9.9 Seating

With traditional seating, the maximum number is 22 if there are gangways at both ends of the row, and 11 for gangways at one end. Rows with more than 22 seats are permitted if the audience is not thereby imperilled.

i.Minimum Dimension of seating with arms =500mm Without arms =450mm

ii.Seat height = 430-450 mm

iii.Angle of inclination= 7-9 degree with horizontal Back Height = 800-850mm

iv.Angle of inclination = 15-20 degree

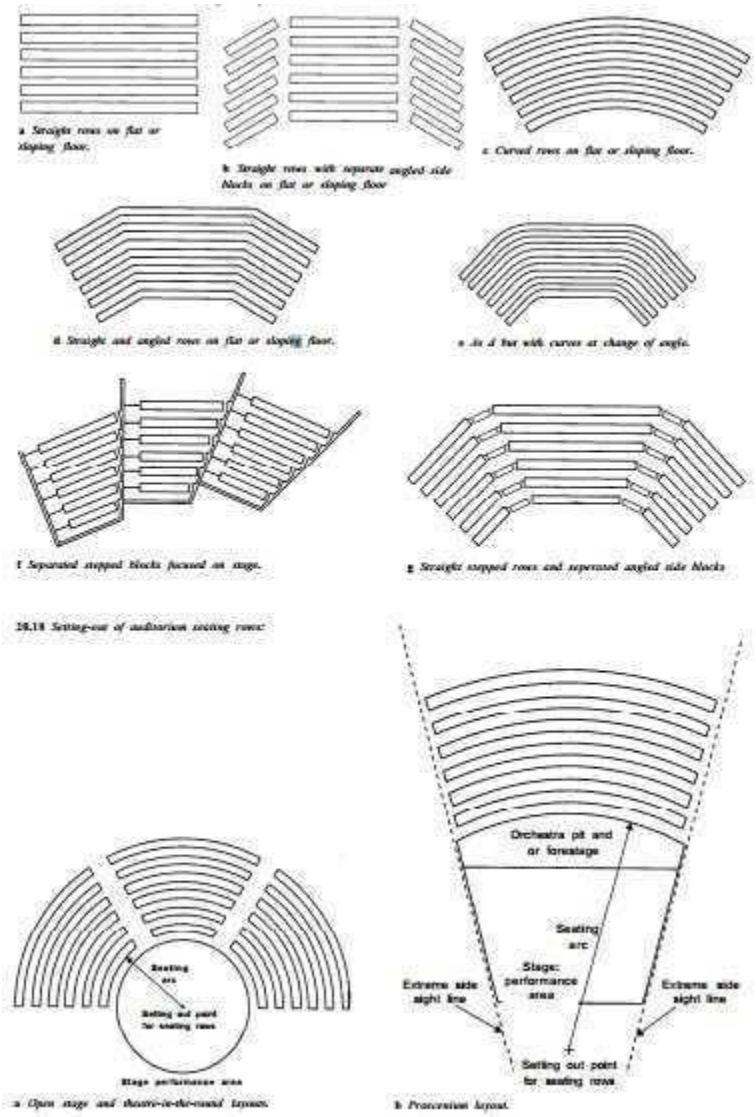
v.Seat Depth= 600-720 mm, reduced to 425-500mm when the seat is tipped Other Factors affecting seating is,

vi.Acoustics: Upholstery to satisfy the acoustic requirements, usually the level of absorbency when unoccupied

vii.Ventilation & heating: Air supply or extract under a seat

viii.Upholstery: Thickness of padding should provide comfort & avoid fatigue, material of

ix.padding and finish must satisfy fire regulations



2.9.10 Seating geometry

Seating is usually laid out in straight or curved rows focused toward the platform or stage. Further forms are the angled row, straight row with the curved change of direction, and straight rows within emphasised blocks of seats.

Seating density

Seats with arms and tippable seat can occupy a space as small as 500 mm wide with a how-to-row dimension of 760 mm: but can be as large as 750 mm wide by 1400 mm. The area per seat therefore varies between 0.38 m² and 3.05 m².

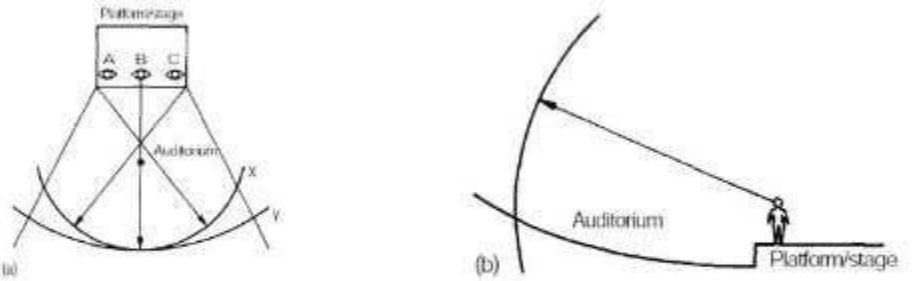


Figure 5: Visual and aural limitations: (a) Plan: for a performer at centre stage B there is an arc Y beyond which visual and aural perceptions are impaired. However, for performers nearer the sides of the stage at A and C produce more restrictive curves X. (b) Section: Similarly, visual and aural limits in section also set an arc centred on the performer.

Row to row spacing

Spacing is controlled by the clearway between the leading edge of the seat and the rear of the back of the seat in front. For traditional seating, the minimum clearway for people to pass along the row is 300 mm and this dimension increases with the number of seats in a row. For continental seating the clearway is not less than 400 mm and not more than 500 mm

Gangways

As gangways are essential to escape routes, their widths are determined by the number of seats served. The minimum is 1100 mm. They can be ramped up to 10%. If the seating rake is steeper, gangways must-have steps extending the full width and these must have consistent treads and risers in each run.

2.10 SIGHTLINES

2.10.1Horizontal sightlines

It is obtained from spectator's psychological perception & viewing angle.

Good view without head movement= 30 degree

Good view with head movement = 60 degree

Maximum perception angle = 110 degree

With full head & shoulder movement= 360 degree

So, fan shape less than 100 degree is preferable due to Sightlines & Acoustic reason in Auditorium.

Vertical sightlines

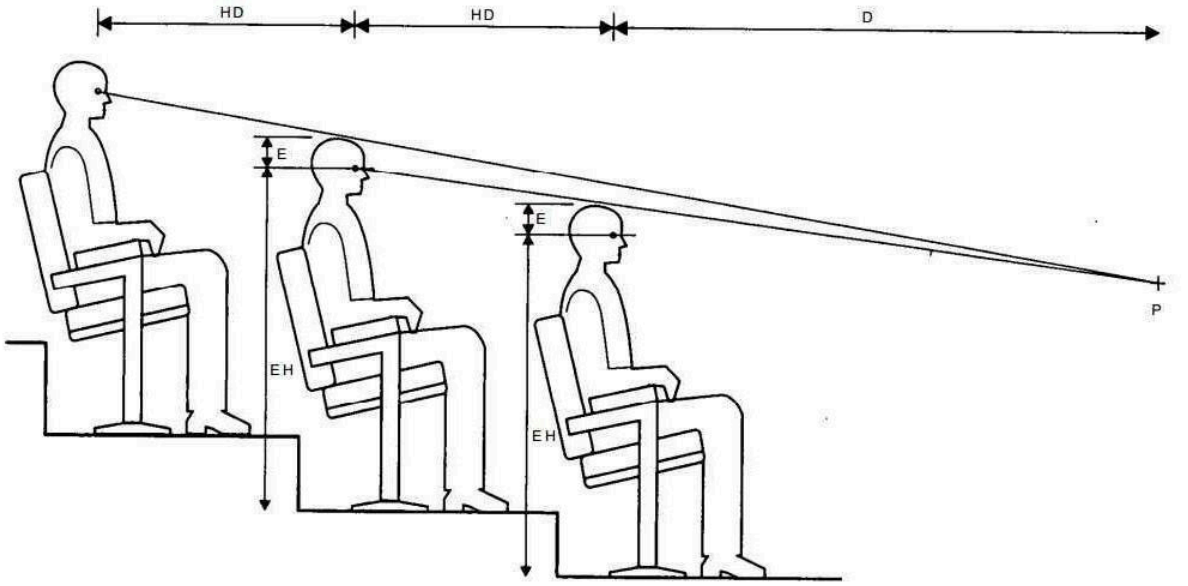
The longitudinal section is a parabolic stepped floor as a theoretical rake produced by the sightline calculation. This gives every member of the audience similar viewing conditions. This may be reduced to a single angle or series of angles when applied as described the rake will also

26

be steep. This is satisfactory for a single tier of seating with no balconies and is especially appropriate for open-stage formats.

Writing surface

Conference use may require a writing surface for note-taking



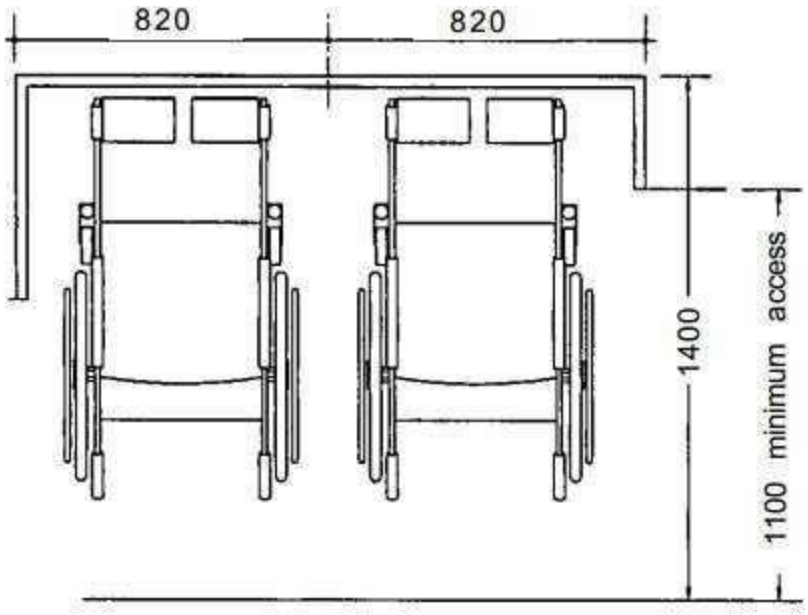
20.21 *Graphic representation of vertical sightlines, P lowest and nearest point on stage clearly visible by audience, HD horizontal distance between eyes in successive audience rows, EH average audience eye height above floor, E height between eye and top of head, D distance from eye of person in front row to P*

2.10.2Writing surface

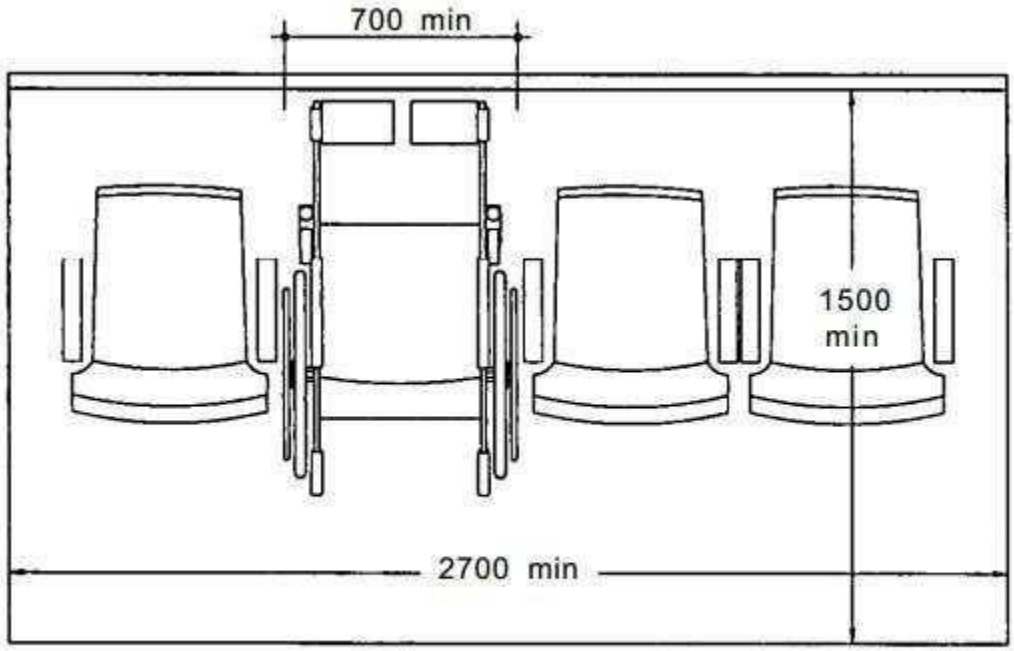
Conference use may require a writing surface for note-taking. The writing surface may be: A tablet fixed to each seat, 20.10 A fixed table with fixed pivoting or sliding seat, 20.13.

Wheelchair location

Regulations require a minimum of six places for wheelchair users, or 1/100th of the audience capacity, whichever if the greater. Their location as discrete areas can be at the rear, front, side or within the seating; Wheelchairs can be centrally positioned by forming a bay off a cross-gangway.



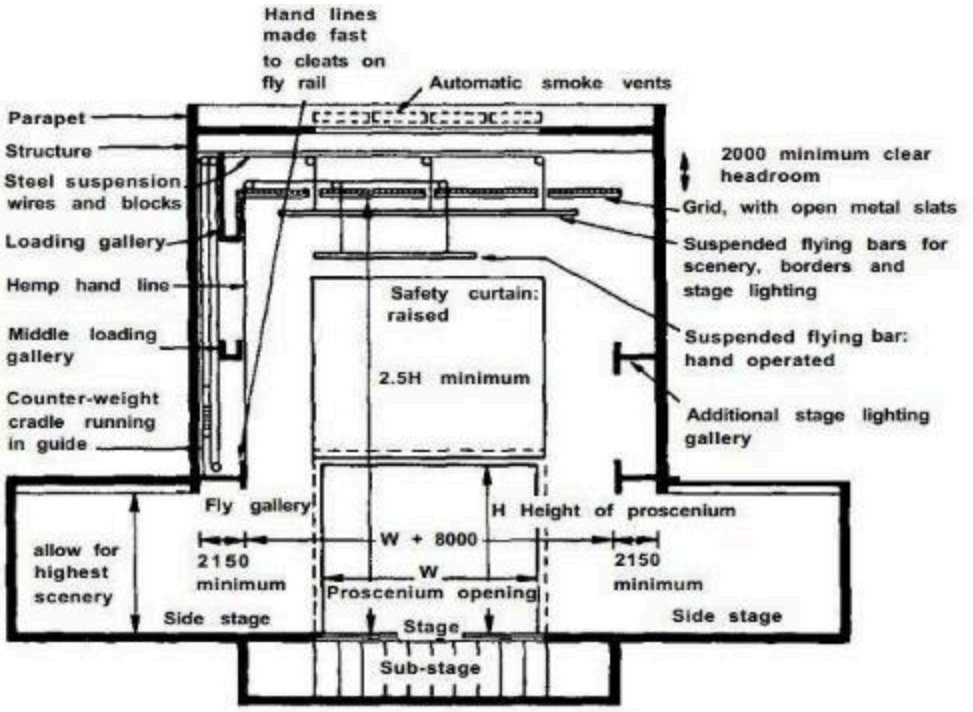
20.27 *Designated wheelchair area, required dimensions*



20.28 *Plan of a box designed for a wheelchair plus loose chairs*

Fly tower

Where there is a space dedicated for use as a stage, then it is essential to provide this with means of suspension overhead. This suspension to be used for both scenic and lighting instruments. The grid above the stage from where the suspensions come should provide clear walking space above the personnel to move about over the floor area. The received wisdom is to place the pulleys supporting the suspension bridge at high points



20.50 *Section showing double-purchase flying system and side stages*

.

Other Spaces

Changing Room requirements

•It should have discrete access

•Be equipped with secure hanging space

•Have mirrors with good lighting over vanity tables Have separate toilets & showers

•Have audio/video feed from performance areas Be equipped with phones and power outlets

Rehearsal Rooms

•Enclosed space without natural light close to the dressing room

•Sound system, Lighting

•There should be at least one stage for the rehearsal of performances

Storage room

•20-25% of playing area
Workshops for making scenery

•Should be exclude from main hall due to fire & limited space options

•4-5 times the area of main stage
Technical utilities

•Transformer room

•Medium & low voltage switch room Power batteries

•HVAC plants

•Fire sprinkler system

Cloakrooms

•Minimum 4m2 per 100 people

2.11 FREQUENCY AND FLEXIBILITY OF CHANGE

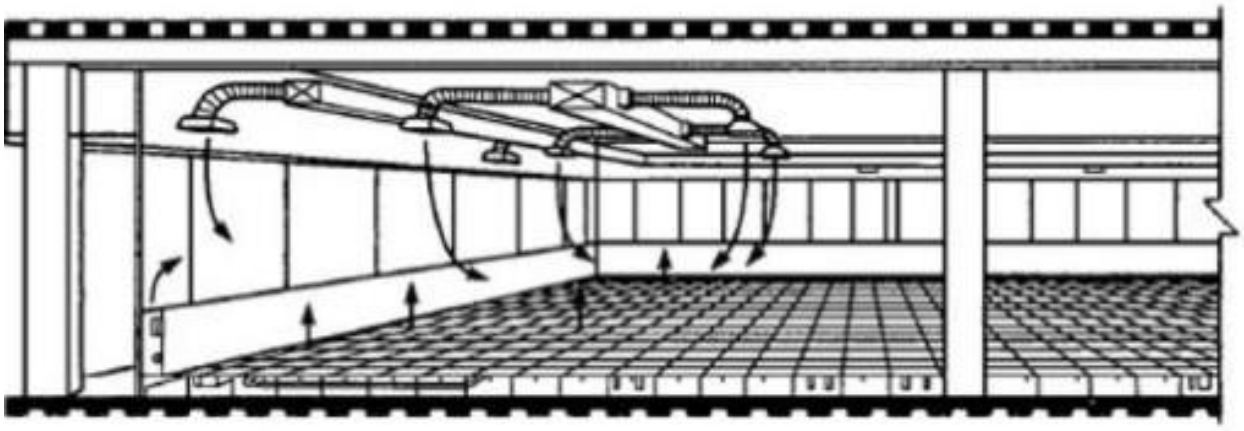
Another key feature of sustainability is recycling. Buildings are relatively permanent, while the organisations and activities within them are continuously changing. Flexibility is hence very important for a building to be used to its maximum potential Frequency of change depicts the flexibility expected. To allow for maximum flexibility, different time scales of building briefing and design can be distinguished into separate functions off.

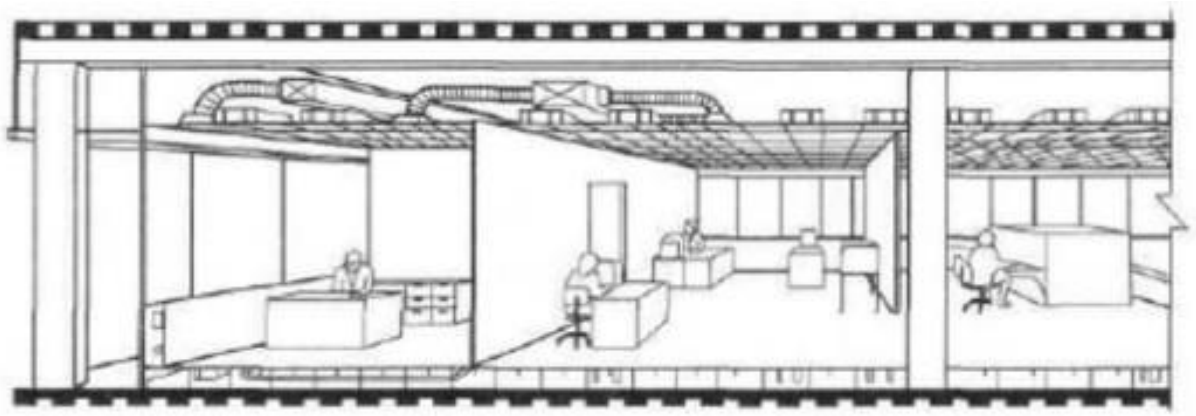
Building shell: The structure and enclosure of the building lasting 50- 75 years, while the functions within change many times over. The ability of the shell to allow for change 1s reflected in the depth of space, location of cores, floor-to-floor height to allow capacity for services, and the floor plate configuration.

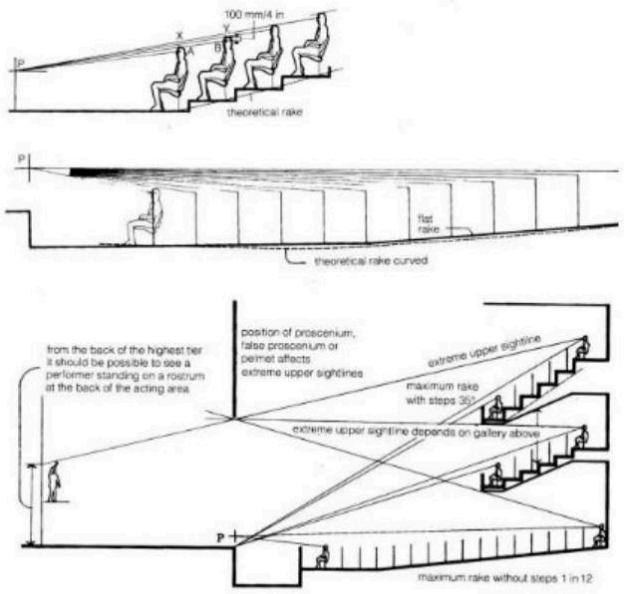
Building services: The heating, ventilation, and cabling infrastructure of a building, which have a life span of 15 years or less before the technology, becomes obsolescent.

Scenery: The fitting- out components of a building, such as ceilings, lighting, finishes which adapt a building to a specific organisation's requirements. The life span of a fit-out is between 5 and 7 years.

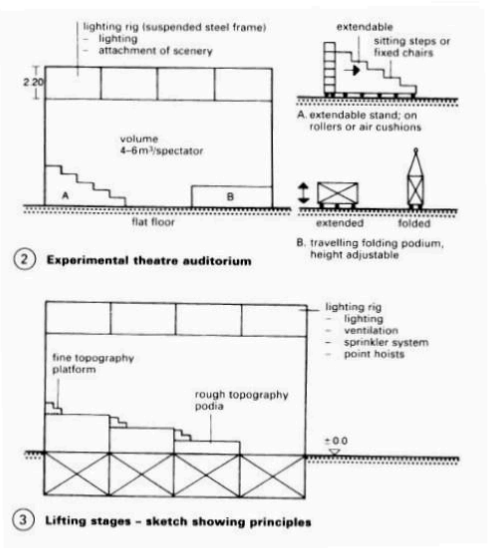
Setting: The day-to- day re-arrangement of the furniture and equipment to meet changing needs.



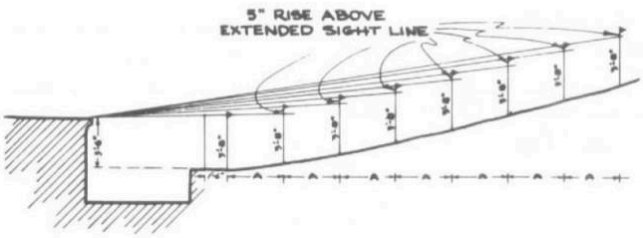




Seating angle is not uniform. It is determined by the viewing angle of audience members. [Source: Neufert]



Flexible seating in a blackbox theatre. Either the levels can module to become seating or it can remain flat, employing removable seats and chairs - arranged specific to the event. [Source: Neufert]



The viewing angle determines the auditorium width and wings division on the stage. [Source: Neufert]

Outdoor performing area

•

Slope of seating should not be less than 12 Degrees.

•

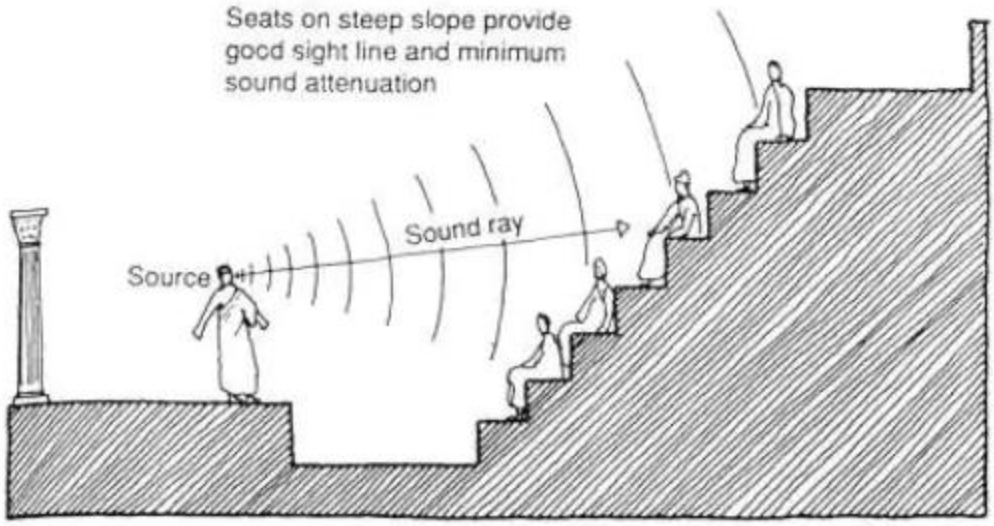
Wind direction is towards the audience from the stage.

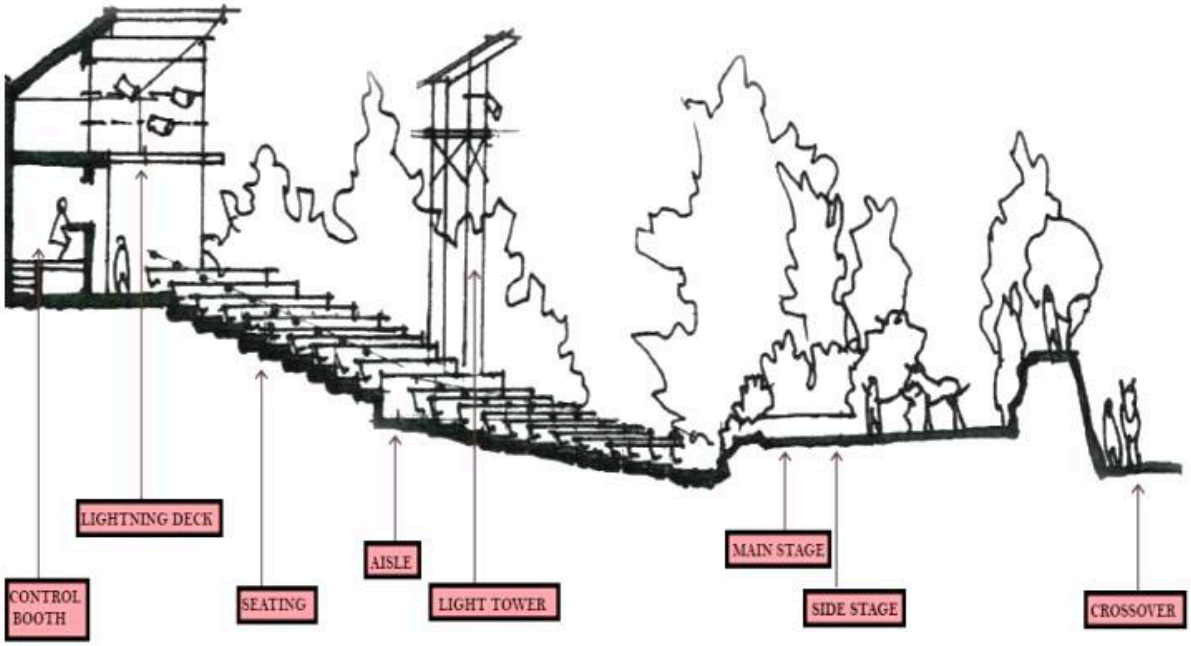
•

Backstage wall should be made reflective and broken into convex shaped surface.

•

Depending on the ambient noise level of the site, orientation, layout and structural design should be arranged to provide necessary noise reduction so that the background noise level of not more than 40 to 45 dB



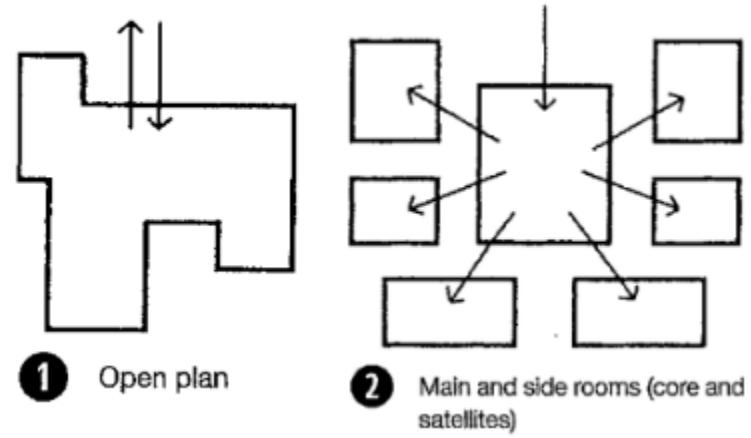


SECTION

When the cavea of the theatre is modelled as sloped surfaces the theatre will resemble the shape of an inverse cone. This shape will tend to direct most of the reflections towards the open sky and therefore the energy will dissipate quickly leaving few late reflections. Curved or bowl-shaped, both behind the stage and behind the audience, creating an area which echoes or amplifies sound, making the amphitheatre ideal for musical or theatrical performances. Overall shape should be flat in plan; however, if it is desired to be concave. In order to begin planning a new facility one must have some general idea of potential audience size. It should be broken into convex surfaces which in either case should be of at least 90 to 180 m width.

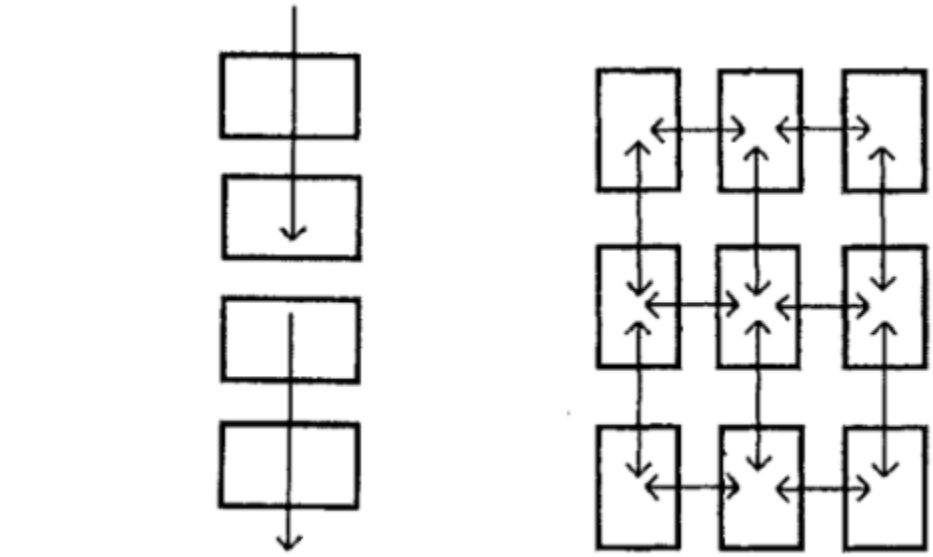
EXHIBITION GALLERIES:

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 varieties such as more commercially focused exhibitions and trade fairs.



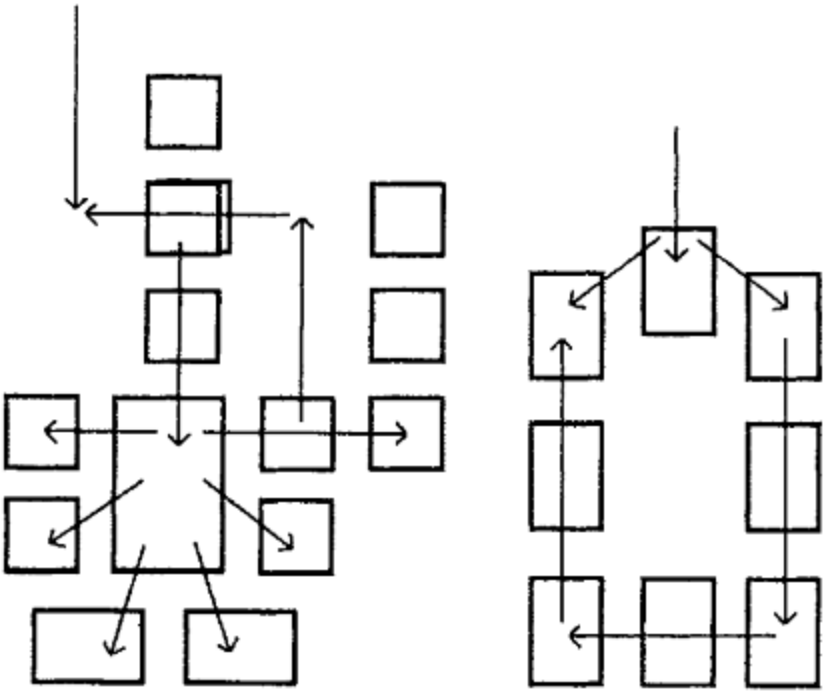
1 Open plan

2 Main and side rooms (core and satellites)



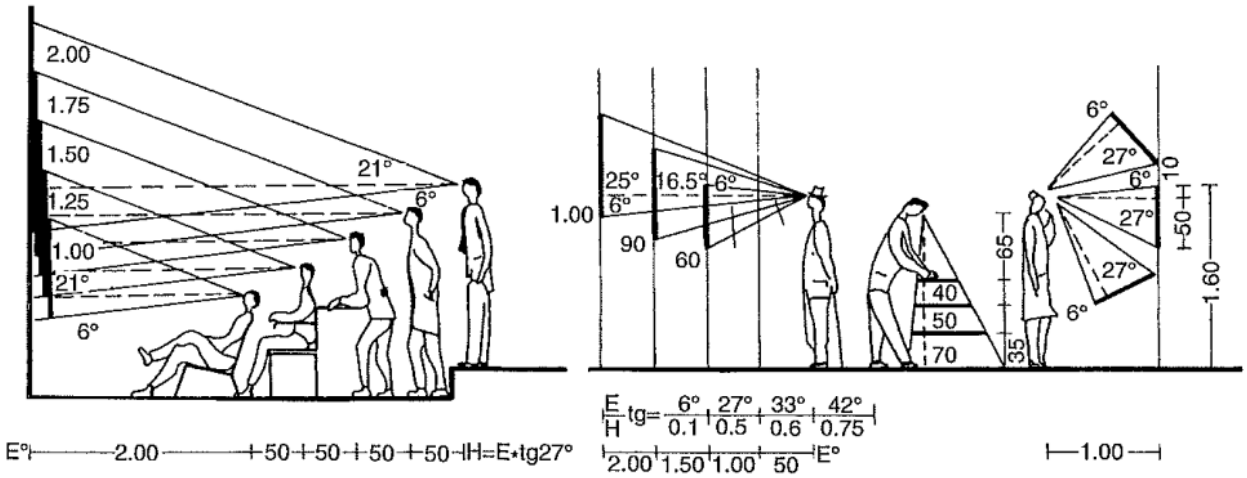
3 Linear chaining

4 Labyrinth



5 Complex

6 Round tour (loop)



11 Field of view: height, size and distance

2.13 TOILETS

Table 4 Art Galleries, Libraries and Museums

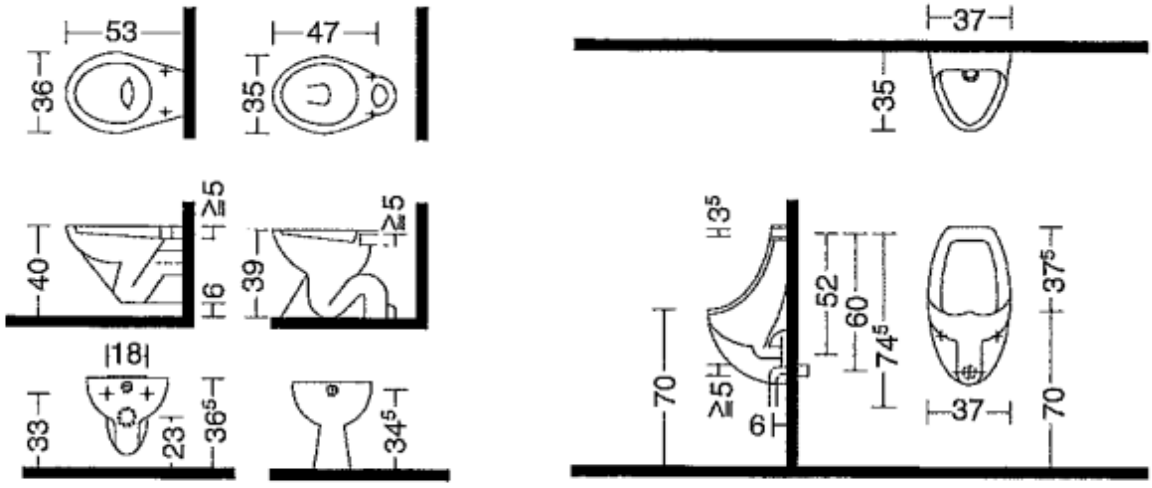
(*Clause* 4.2.5.1)

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

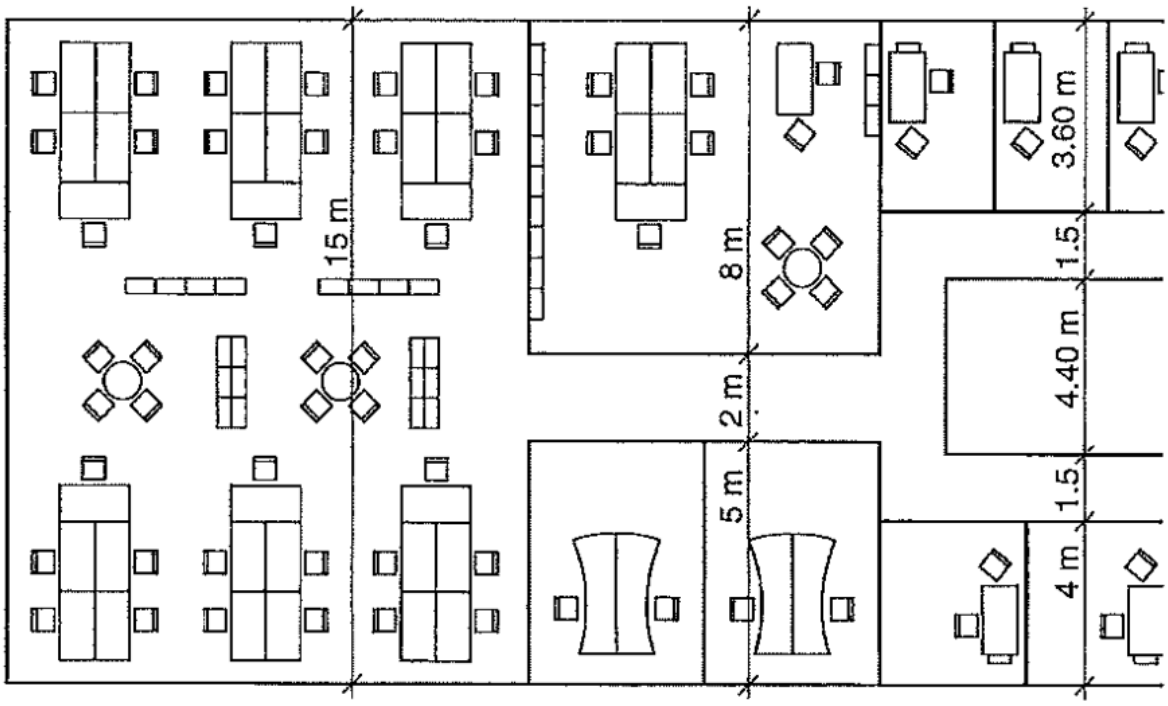
1 Some WCs may be Indian style, if desired.

2 Male population may be assumed as two-third and female population as one-third.



11 WC: wall-mounted – floor-mounted

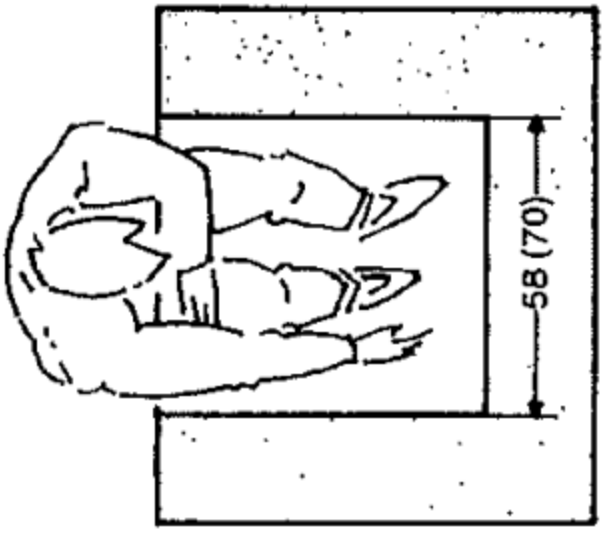
Urinal



6 Possible arrangements of various office depths in a 15 m wide plan



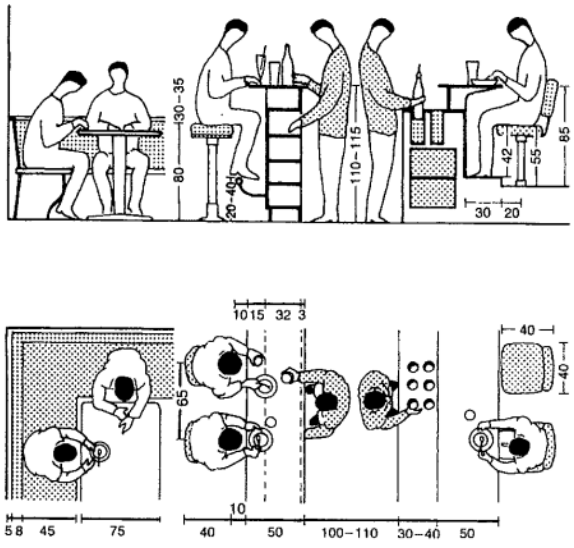
4 Ergonomically correct basic posture at computer workstation



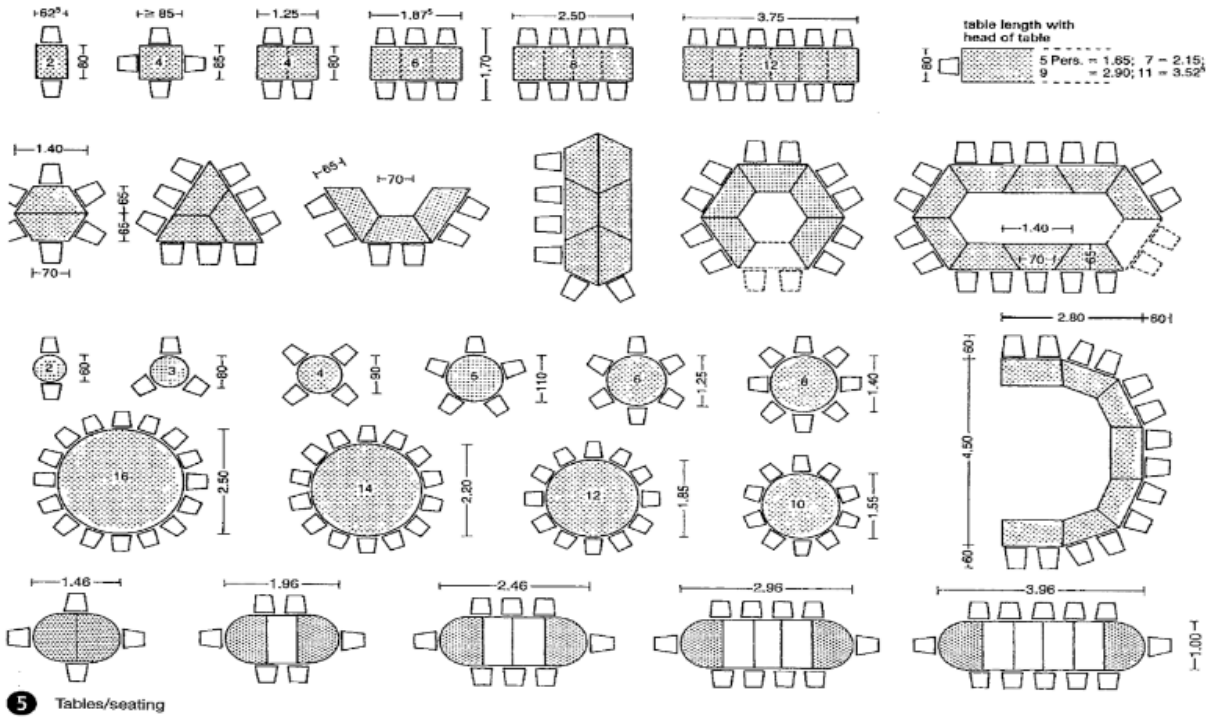
6 Legroom

2.14 RESTAURANT

Different space standards required for waiter and diner are:

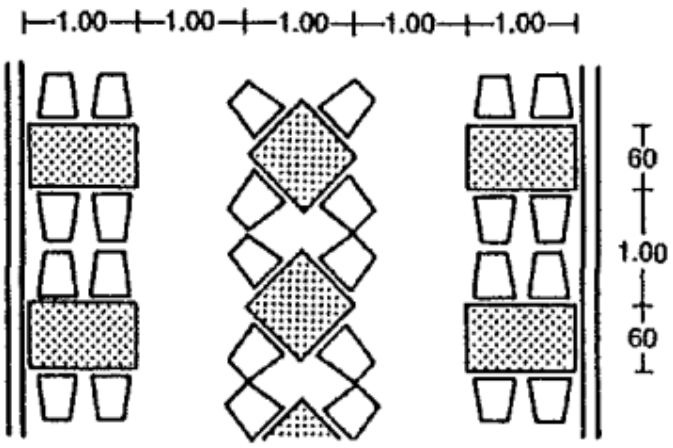


Seating layout

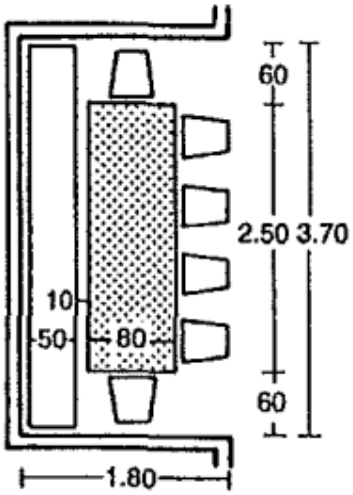


5 Tables/seating

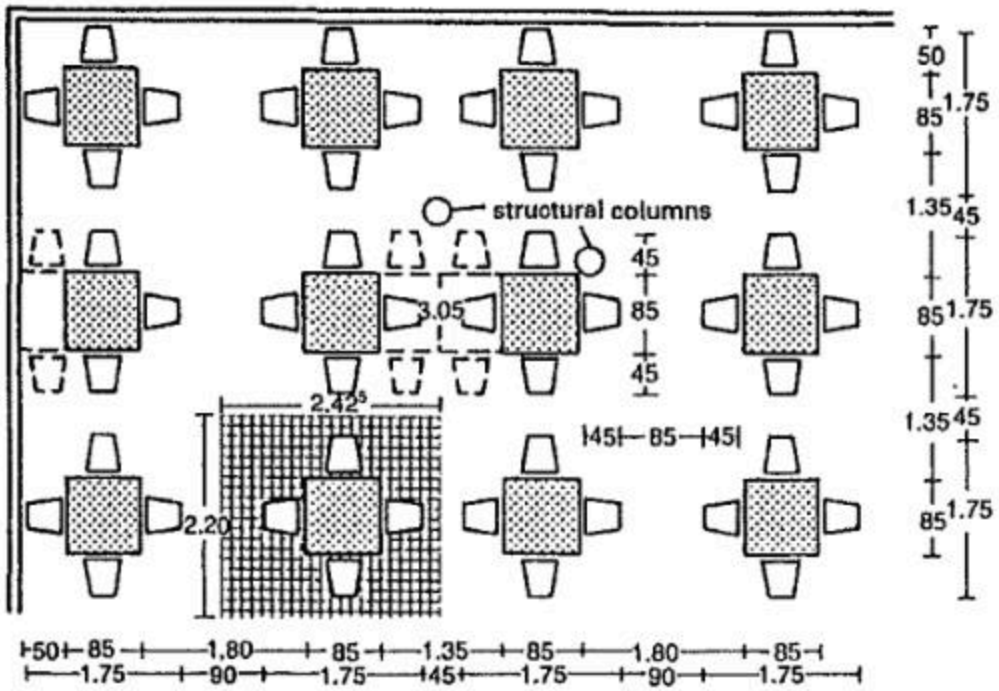
Restaurant layout



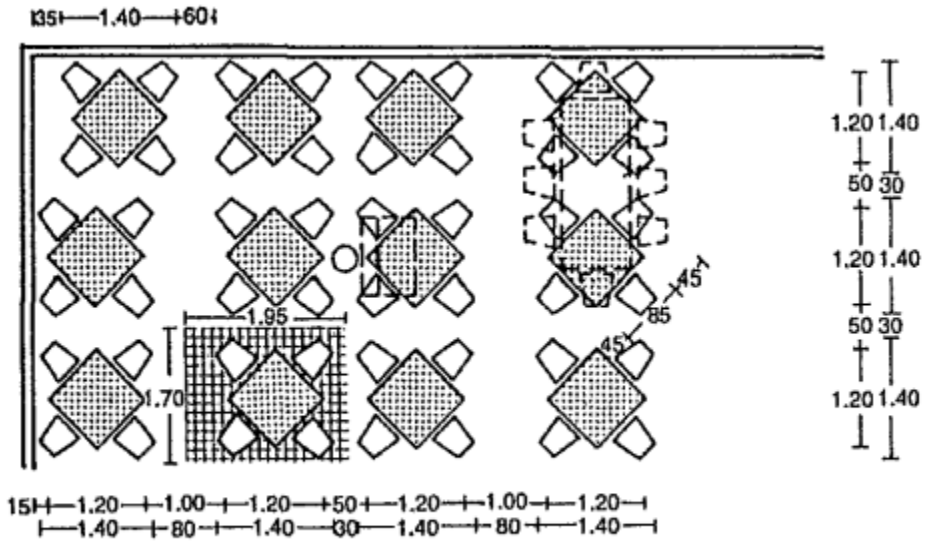
1 Closest seating layout



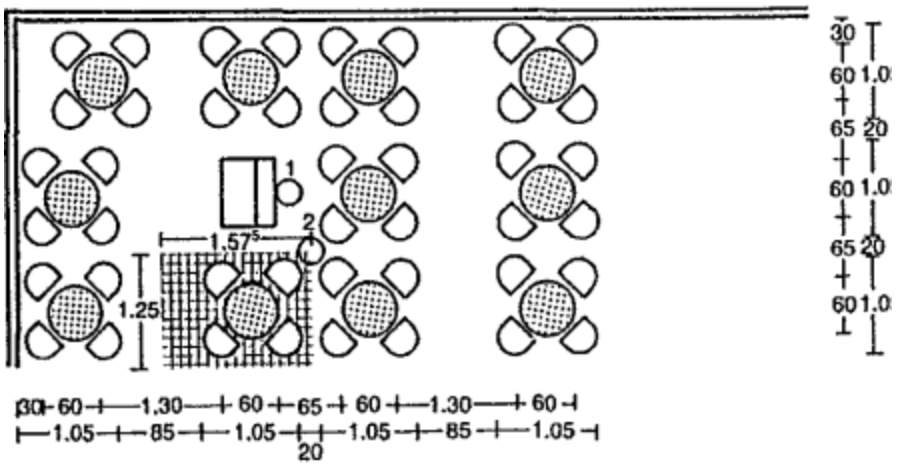
2 In an alcove



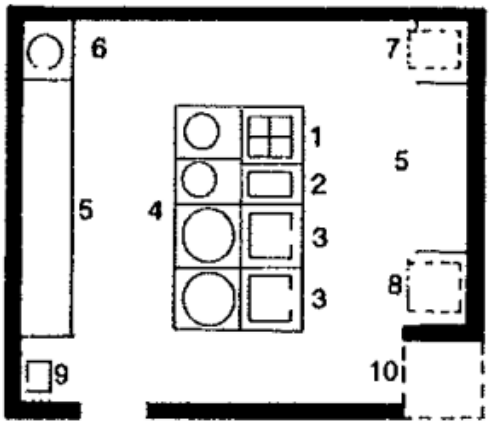
3 Parallel arrangement of tables



4 Diagonal arrangement of tables

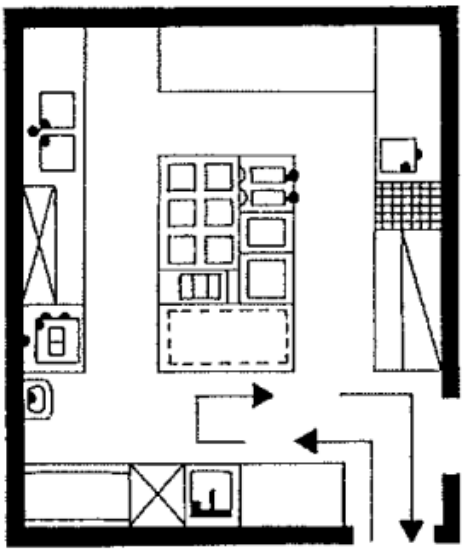


5 Closest table spacing



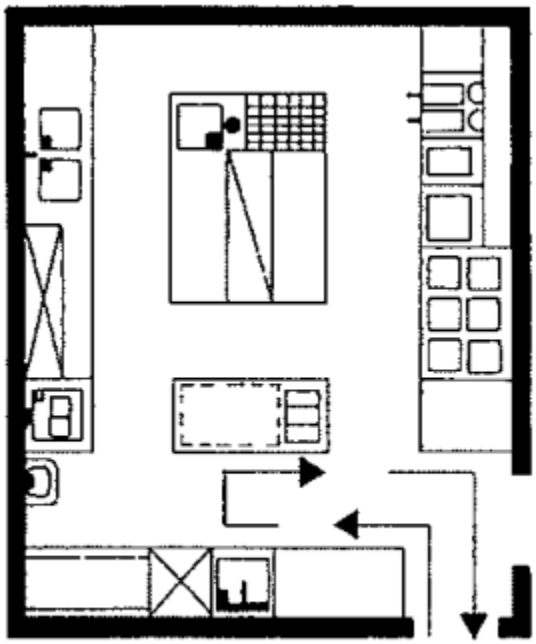
1 cooker
2 deep fat fryer
3 griddle
4 water boiler
5 work surface
6 cooker
7 double-deck oven
8 convectomat
9 hand basin
10 storage area

1 Basic organisation of the hot kitchen → **2** –**3**



1. production in block

2 Kitchen for restaurant with 60–100 places



2. production in line

2.13.1 Reception and waiting area

In convention centers, reception and waiting areas should ensure efficient flow, comfort, and accessibility. Standards typically include:

•Space Allocation: Sufficient space for queuing and seating to avoid congestion.

•Accessibility: Compliance with ADA (or local equivalent) for barrier-free access.

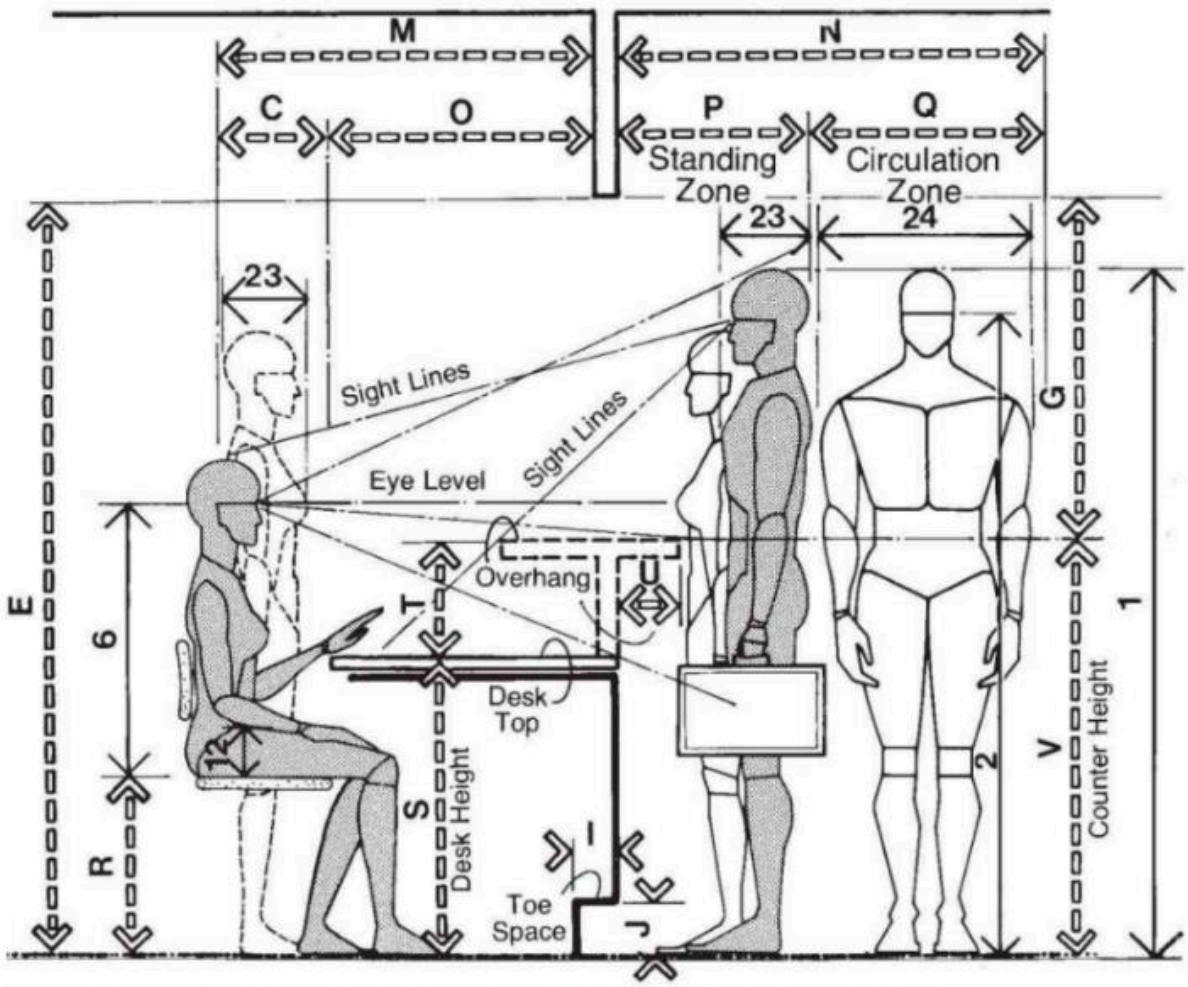
•Lighting: Adequate natural and artificial lighting for comfort and ambiance.

•Acoustics: Sound-absorbing materials to reduce noise.

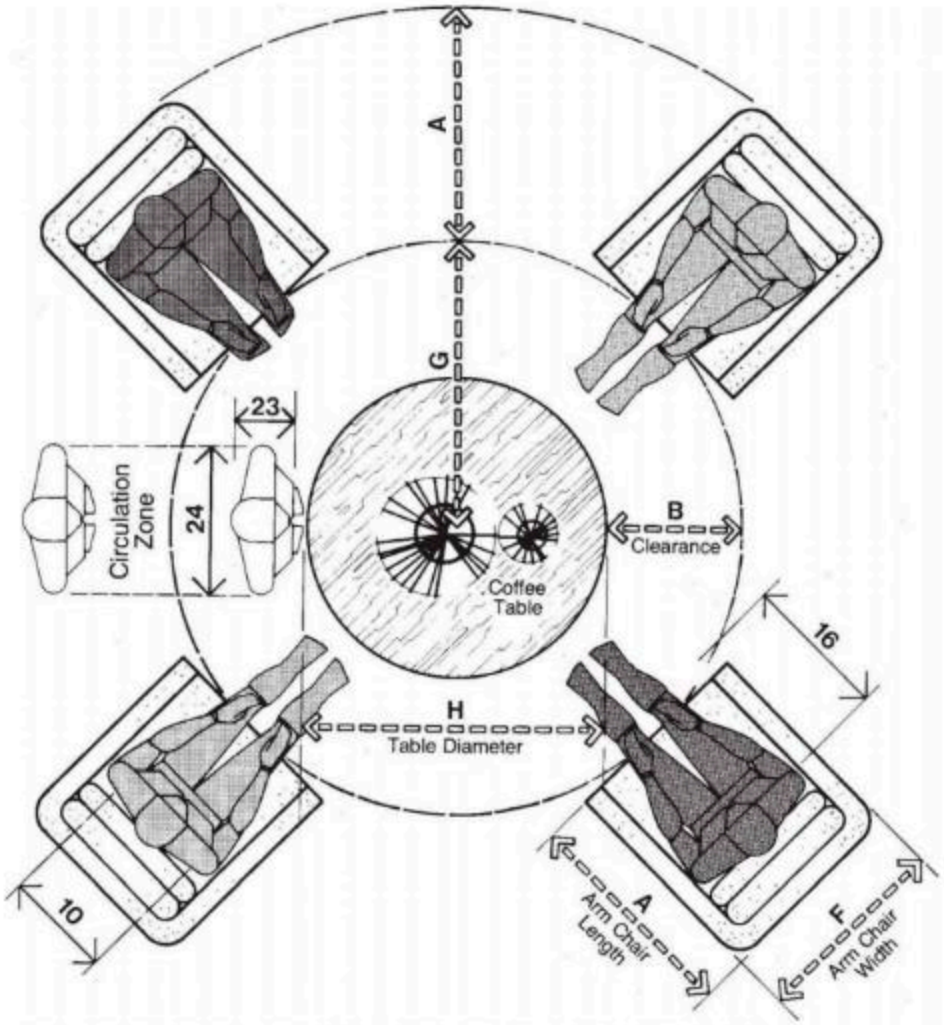
•Signage: Clear, visible signs for navigation.

•Furniture: Ergonomic and durable seating.

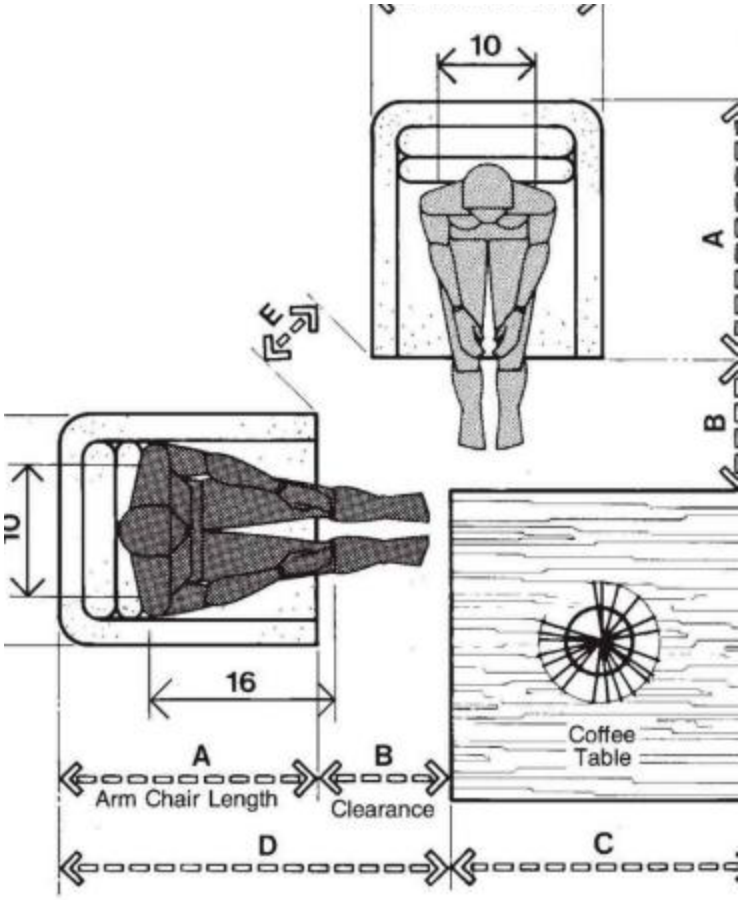
•Technology: Integration of digital screens for information and entertainment.



RECEPTIONIST'S WORKSTATION / DESK HEIGHT



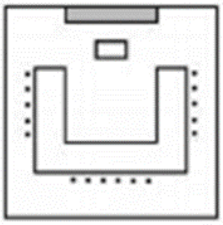
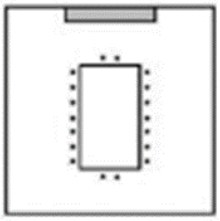
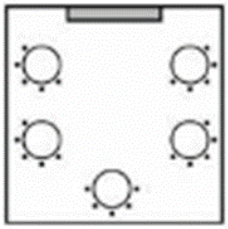
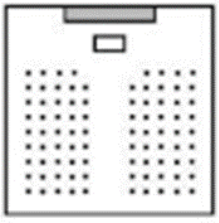
RECEPTION SEATING/CIRCULAR CONFIGURATION



EPTION ROOM SEATING

2.14 CONFERENCE ROOM

A conference hall or conference room is a room provided for singular events such as business conferences and meetings. Sometimes other rooms are modified for large conferences such as arenas or concert halls. Conference rooms can be winning dowels for security purposes.

	Type	Description	Layout
1.	U shaped	• Seating around three sides of the room. • It is good for presentations from front. • Presentation space in the middle of the room. • Can be used for up to 50 persons. • Per seat area is 3.25m².	
2.	Boardroom style	• Centrally located table. • Classic layout ideal for debate and discussion. • Seating capacity 5-30 persons. • Per seat area is 3.71m².	
3.	Cabaret style	• All delegates facing front-center on round tables. • Large space in the middle of the room. • Ideal for small-group work. • Per seat area is 1.57m².	
4.	Theater style	• Used for product launches, presentations, displays. • Used to present to large numbers of delegates. • Can be used for 100-250 persons. • Per seat area is 0.83 m².	

Type	Dimension
A	1210-1520
B	100-150
C	510-610
D	150-255
E	460-610
F	790-910

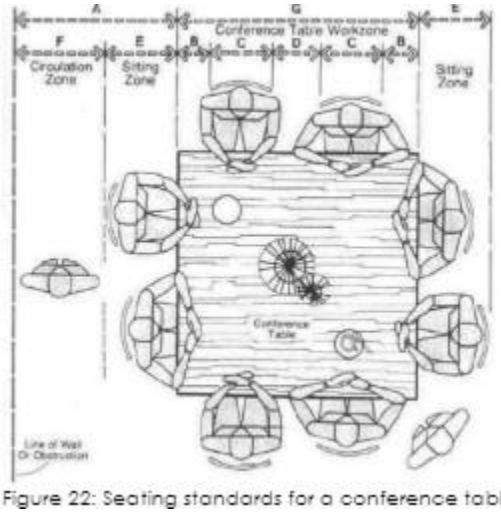
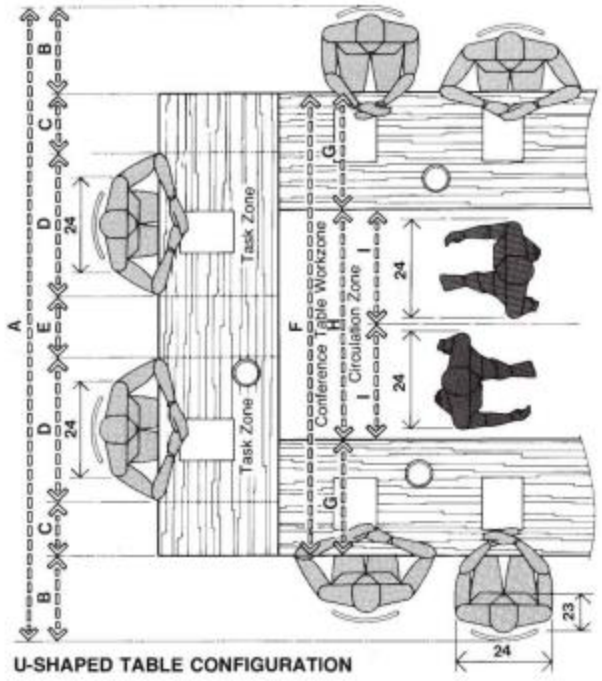


Figure 22: Seating standards for a conference table



2.15 BARRIER-FREE NORMS

A wheelchair user's movement pivots around his or her shoulders. Therefore, the range of reach is limited, approximately 630 mm for an adult male. While sitting in a wheelchair, the height of the eyes from the floor is about 1190 mm for an adult male.

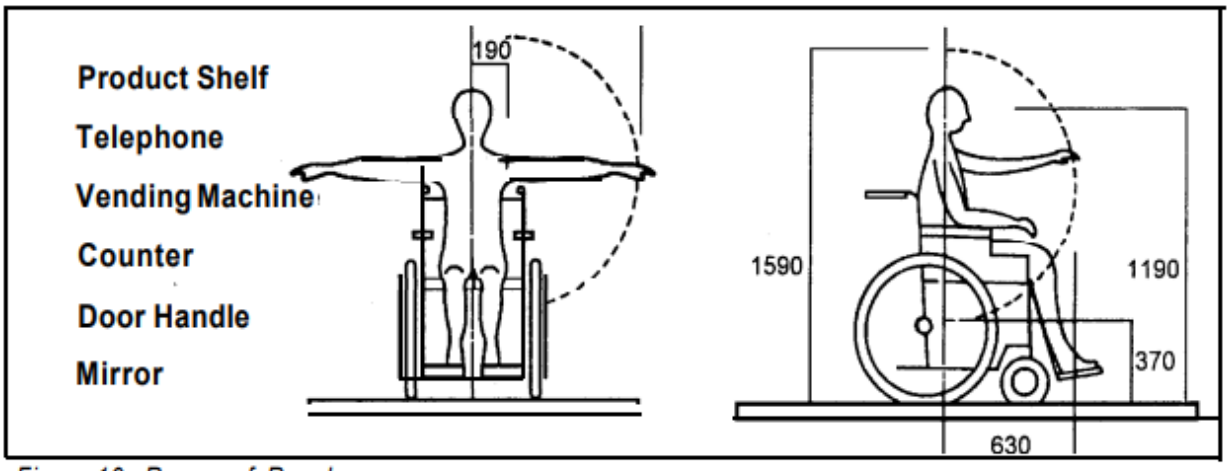


Fig. - 10. Range of Reach

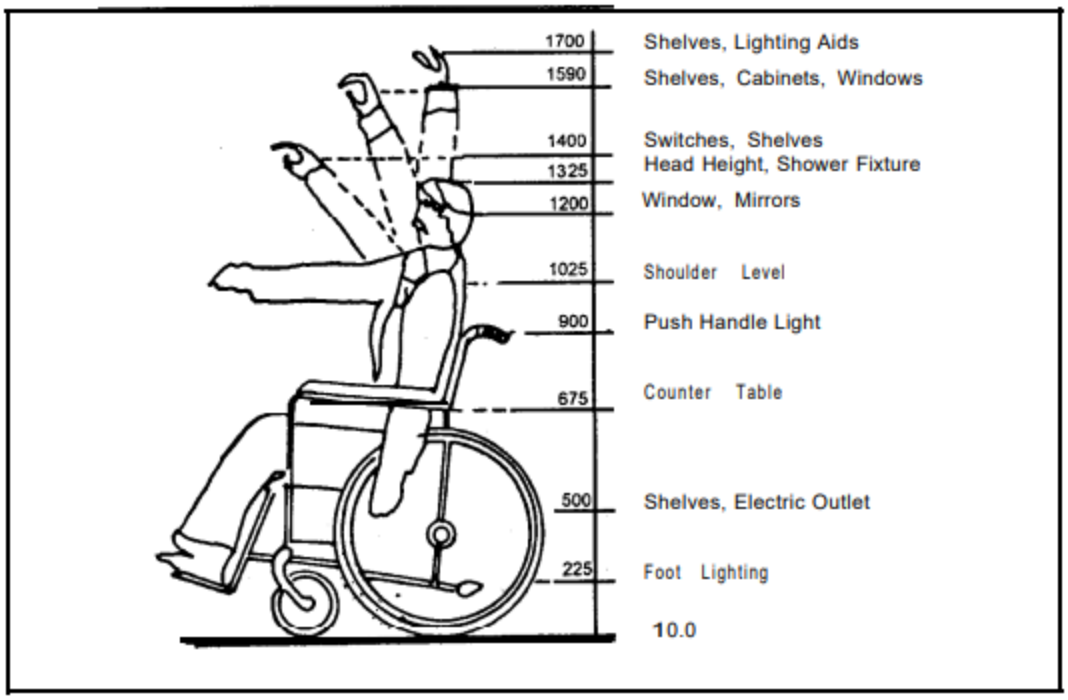
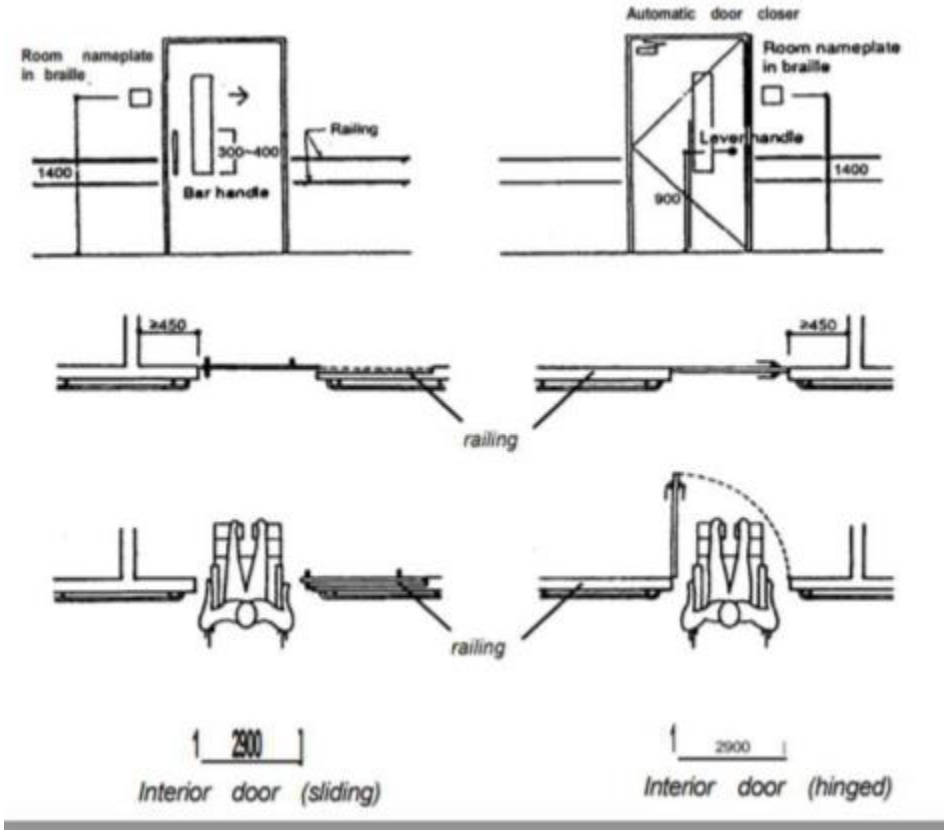
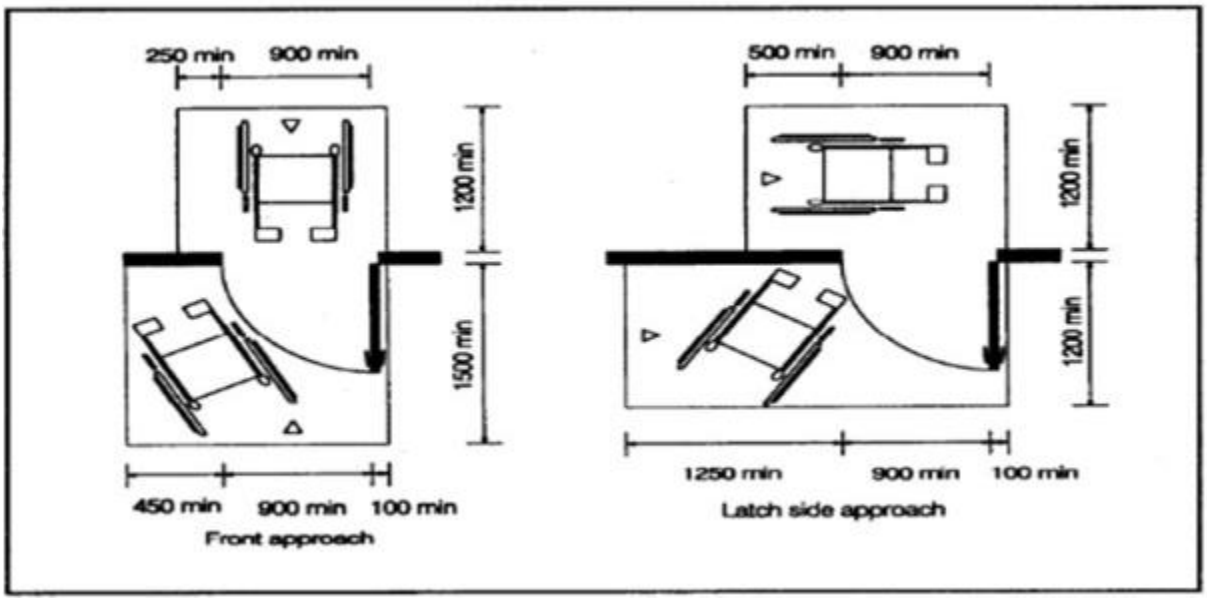


Fig.-9. Typical Dimensions for Essential uses with in easy reach

2.15.1 Entrance/Exit Doors





2.15.2 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.

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 camping 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:

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.

i.Provision of the lifts shall be made for all multi-storeyed building having a height of 15.0 m. and above.

ii.All the floors shall be accessible for 24 hrs. by the lift. The lift provided in the buildings shall not be considered as a means of escape in case of emergency.

iii.Grounding switch at ground floor level to enable the fire service to ground the lift car in case of emergency shall also be provided.

iv.The lift machine room shall be separate and no other machinery be installed in it.

Lift Enclosure/Lift:

General requirements shall be as follows:

i.Walls of lift enclosures shall have a fire rating of two hours. Lift shafts shall have a vent at the top of area not less than 0.2 2 sq. m

ii.Lift motor room shall be located preferably on top of the shaft and separated from the shaft by the floor of the room.

iii.Landing door in lift enclosures shall have a fire resistance of not less than one hour.

iv.The number of lifts in one lift bank shall not exceed four. A wall of two hours fire rating shall separate individual shafts in a bank

v.Lift car door shall have a fire resistance rating of 1 hour

vi.For buildings 15.0 m and above in height, collapsible gates shall not be permitted for lifts and solid doors with fire resistance of at least one hour shall be provided.

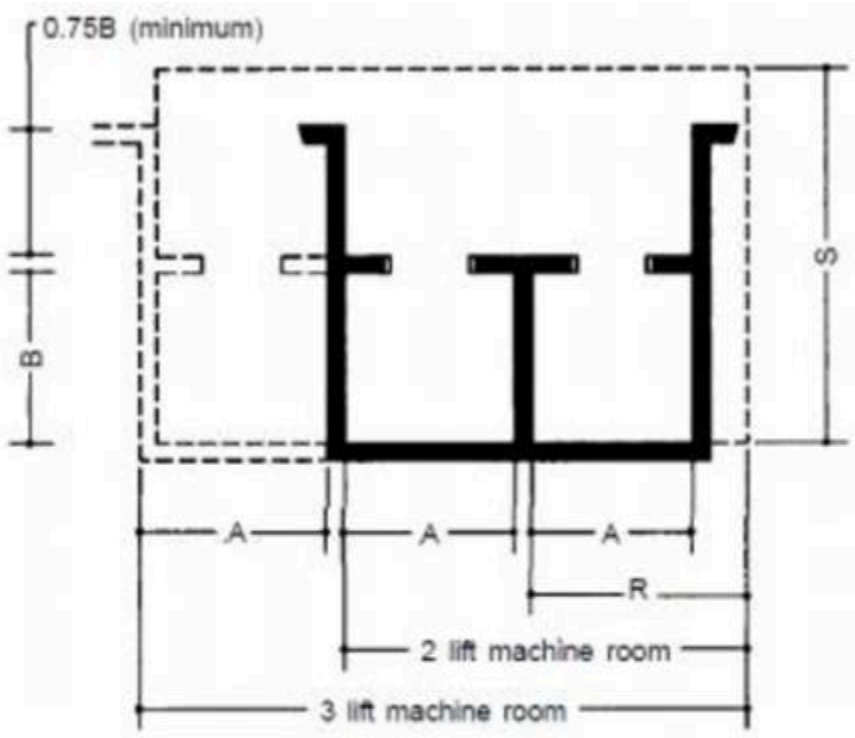
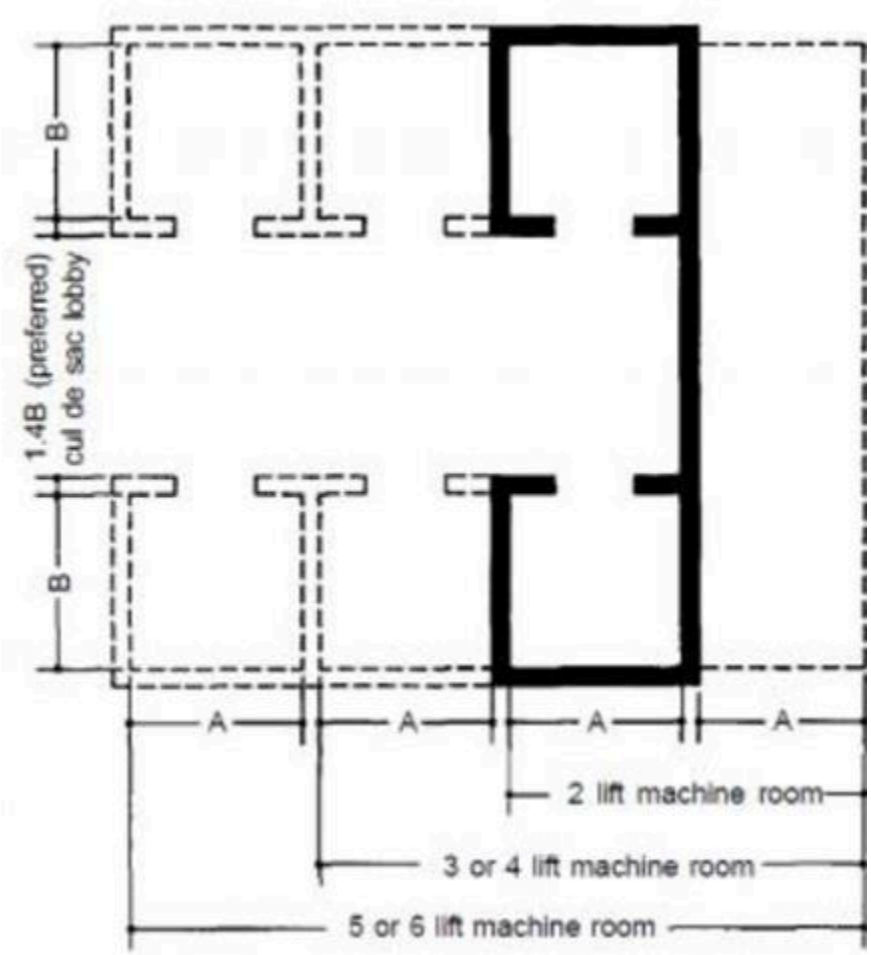


Figure 40:
(a.) Plan of recessed lobby and machine r
for multi-lift installation
(b.) Plan of cul-de-sac lobby and machine



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

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 of 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 43

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.

Staircase

Spiral Stairs

•The use of spiral staircase shall be limited to low occupant load and to a building height 9 m.

•A spiral stair shall not be less than 150 cm in diameter and shall be designed to give the adequate headroom

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:

Table 4.3 Occupants per unit Exit width

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

Minimum Width Provisions for Passageway Corridors:

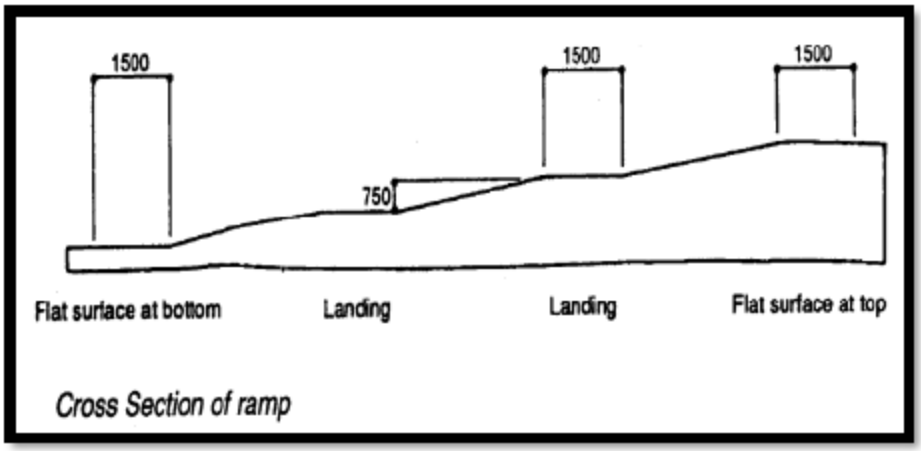
The following minimum width provisions shall be made way corridor for each passage.

c) Assembly buildings like auditorium theatres and cinemas. 2.00 m

Vehicular Ramps

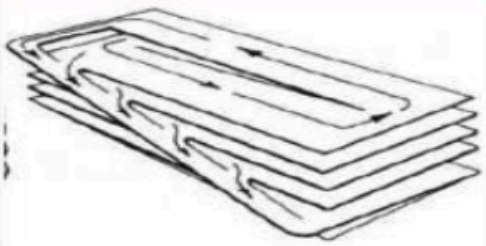
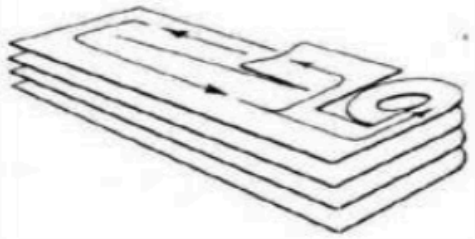
•Ramps of slope of not more than 1 in 10 may be substituted for and shall comply with all the applicable requirements of all required stairways as to enclosure capacity and limiting dimensions. Larger slopes shall be provided for special uses but in no case greater than 1 in 8. For all slopes exceeding 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

•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
•Handrails shall be provided on both sides of the ramp.
•Ramp shall lead directly to outside open space at ground level or courtyards of safe place.
•For building above 24.0 m in height, access to ramps from any floor of the building shall be through smoke fire check door.
•In case of nursing homes, hospitals, etc. area exceeding 300 sq. m at each floor one of the exit facilities shall be a ramp of not less than 2.4 m. in width.
•Prevent the installation of steep ramps.
•Prevent the installation of steep ramps.
•Make sure the grade of a ramp is a moderate rise of 10 mm to each 120 mm of travel.

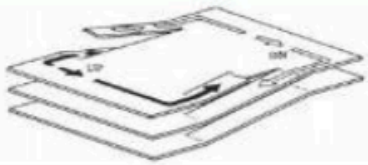
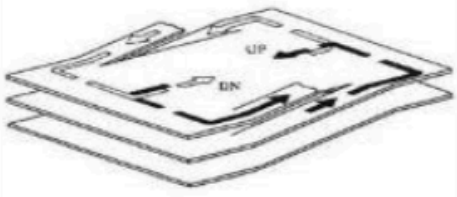


Cross Section of ramp

Ramp systems:

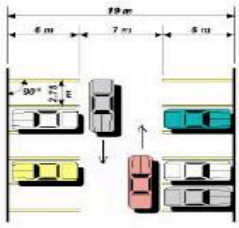
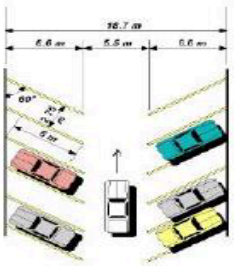
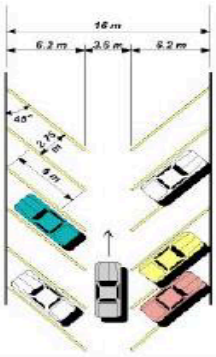
Type	Description	Layout
Clearway ramp systems	• Interfloor travel path completely separated from potentially conflicting parking–unparking movements. • Provide safest movement with least delay • Preferred for self park design	
Adjacent ramp systems	• Part or all of ramp travel is performed on access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

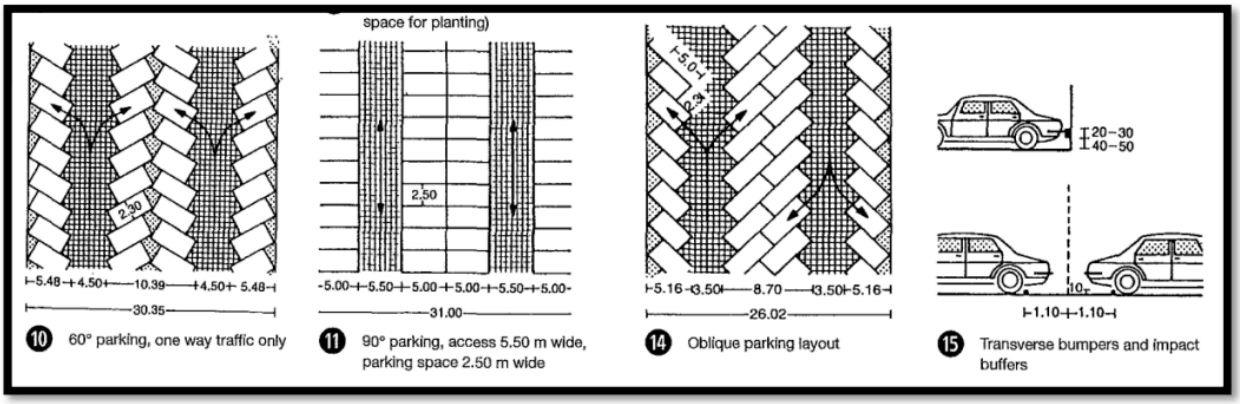
Ramp Design:

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	

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. 46 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. For car, minimum parking space to be 3m x 6m when individual parking space is required and 2.75m x 5m when common parking space is required Space for two-wheeler and bicycle to not be less than 1.25 m2 and 1.00 m2 , respectively.

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.

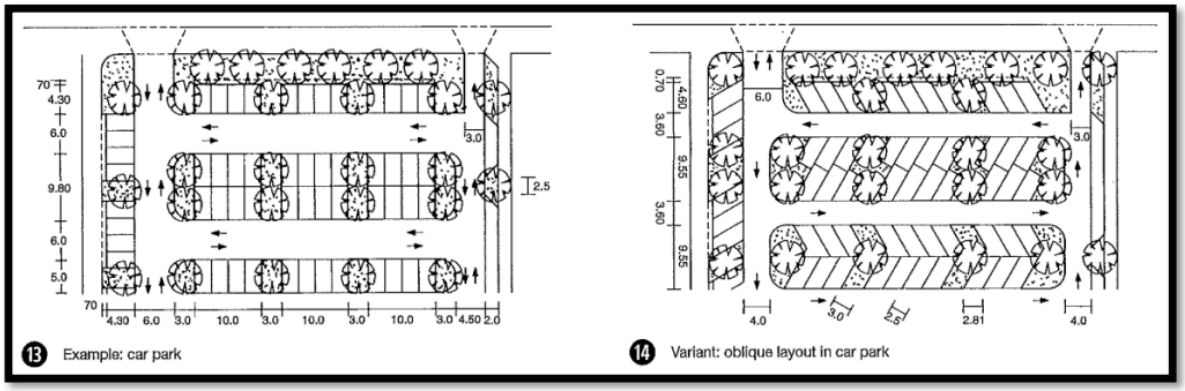


10 60° parking, one way traffic only

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

14 Oblique parking layout

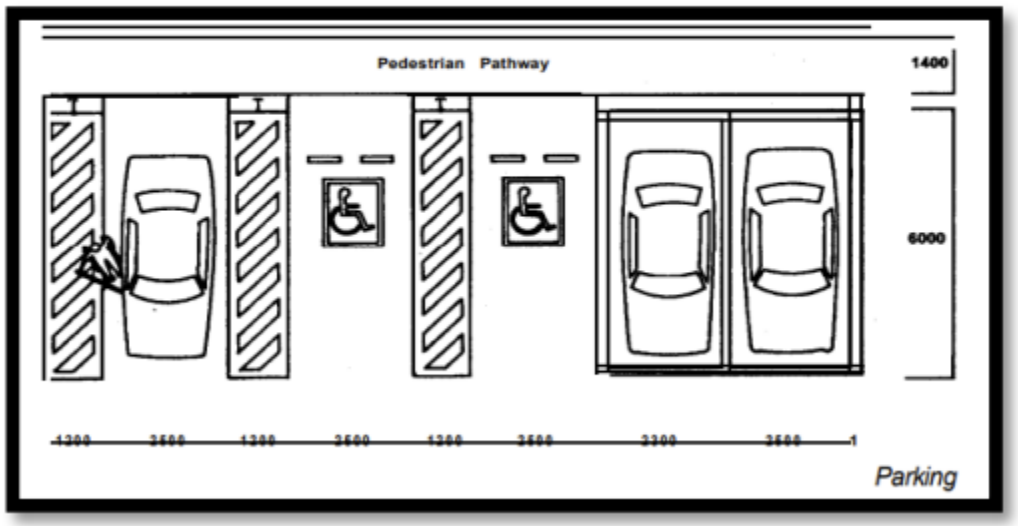
15 Transverse bumpers and impact buffers

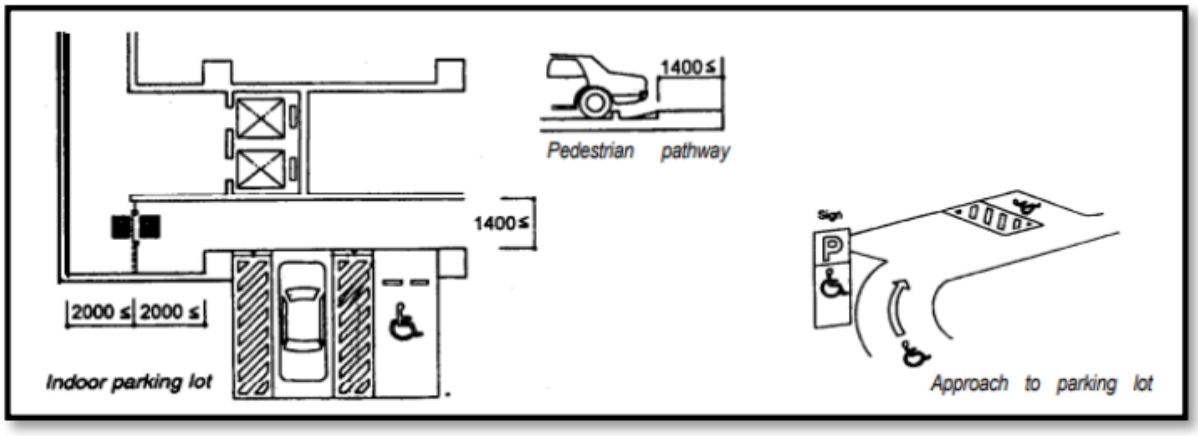


13 Example: car park

14 Variant: oblique layout in car park

Parking for handicapped people





SIGNAGE



2.16 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 1. Water Conservation and Management • Rain Water Harvesting • Low

Water Consumption Plumbing Fixtures • Waste Water Recycle and Reuse • Reduction of Hardscape 2. Solar Energy Utilization • Installation of Solar Photovoltaic Panels (detailed at section 10.2.3 below) 56 • Installation of Solar Assisted Water Heating Systems 3. Energy Efficiency (Concept of passive solar design of buildings) • Low Energy Consumption Lighting Fixtures (Electrical Appliances - BEE Star and Energy Efficient Appliances) • Energy Efficiency in HVAC systems. • Lighting of Common areas by solar energy LED devices. 4. Waste Management • Segregation of Waste • Organic Waste Management 5. Roof Top Solar Energy Installations • Installation of Solar Assisted Water Heating System in Buildings • 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

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.

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 57 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 hot water requirement is continuous, auxiliary heating arrangement either 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. 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 Sustainability of Building Materials Use of Factory made pre-fab/pre-cast and recycled components with green benefits:
i. Panels, hollow slabs, hollow blocks, etc. conservation of materials, less water requirement.

ii. Fly Ash bricks, Portland Pozzolana cement, fly ash concrete, phosphor-gypsum- based walling & roofing panels, particle wood recycled use of industrial/ agricultural byproducts. (Ref. Table 14)
iii. Fly ash/ AAC (Autoclaved aerated light weight concrete) panels/ CLC (Cellular lightweight concrete) panels- ensures thermal comfort (significant reduction in air conditioning requirement)
iv. Use of bamboo & rapidly growing plantation timbers- environmental benefits.

2.17 SERVICES

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:

Table 4.5 Size of Ventilation Shaft

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

• 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
• 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.
• Sunken Courtyard
• Skylight Fire Escapes or External Stairs
i. Fire escape shall not be taken into account while calculating the number of staircases for a building.
ii. All fire escapes shall be directly connected to the ground.
iii. Entrance to the fire escape shall be separate and remote from internal staircase.
iv. 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.
v. Fire escape shall be constructed of non-combustible materials.
vi. Fire escape stairs shall have straight flight not less than 125 cm wide with 25 cm treads and risers not more than 19 cm. 59
vii. Handrails shall be at a height not less than 100 cm.
viii. Fire escape staircase in the mercantile, business, assembly, hotel buildings above 24 m. height shall be a fire tower 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.

Fire Lift Following details shall apply for a fire lift in addition to above requirements:

To enable fire service personnel to reach the upper floors with the minimum delay, one or more of the lifts shall be so designed so as to be available for the exclusive use of the fireman in an emergency and be directly accessible to every dwelling/lettable floor space on each floor. The lift shall have a floor area of not less than 1.4 sq.mt. It shall have a loading capacity of not less than 545 kg. (8 persons lift) with automatic closing doors. The electric supply shall be on a separate service from electric supply mains in a building and the cables run in a route safe from fire, that is within a lift shaft. Lights and fans in the elevator having wooden panelling or sheet steel construction shall be operated on 24-volt supply In case of failure of normal electric supply, it shall automatically switch over to the alternate supply. For apartment houses, this changeover of supply could be done through manually operated changeover switch. Alliteratively, the lift should be so wired that in case of power failure, it comes down at the ground level and comes to stand still with door open. Basement As provided in Chapter-4 and Building Bye-Laws. The access to the basement shall be either from the main or alternate staircase providing access and exit from higher floors. Where the staircase is continuing the same shall be enclosed type serving as a fire separation from the basement floor and higher floors. Open ramps shall be permitted if they are constructed within the building line subject to the provision of the (iv). In case of basement for office enough exit ways and access shall be provided with a travel distance not more than 15.0 m. The travel distance in case of dead-end shall be 7.5 m. The basement shall be partitioned and in no case, compartment shall be more than 500 sq. m and less than 50 sq. m area except parking. Each compartment shall have ventilation standards as laid down in Bye-Laws separately and independently. The partition shall be made in consultation with Chief Fire Officer The first basement (immediately below ground level) can be used services/parking/other permissible services. Lower basement, if provided, shall exclusively be used for car parking 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. 60 Electrical services Electrical Services shall conform to the following:

• 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.

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

• 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 labelled.

Air-conditioning

Air-Conditioning should conform to the following:

• Escape routes like staircase, common corridors, lift lobbies: etc. should not be used as return air passage.

• The ducting should be constructed of metal in accordance with BIS 655:196

• 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.

• Metallic ducts should be used even for the return air instead of space above the false ceiling.

• The material used for insulating the duct system (inside outside) should be of flame resistant (IS 4355: 1977) and non-conductor of heat.

• 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 return air ducts passages at the following points:

• At the fire separation wall

• Where ducts/passages enter the central vertical shaft

• Where the ducts pass through floors

• 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
• Fire smoke dampers (for smoke extraction shafts) for building more than 24 m in height.
• For apartment houses in non-ventilated lobbies corridor operated by detection system and manual control sprinkler system 61
• For other buildings on operation of smoke heat detection system and manual control sprinkler system.
• 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. 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 measured 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% Conference Rooms Fire safety norms by the National Building Code of India Every building

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

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 62 continuous means of egress to the exterior of a building or to an exterior open space leading to a street. Capacity of exits 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. Doorways No exit doorway shall be less than 1000 mm in width except assembly buildings 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 2.2 m. 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.

Chapter 03

SITE INVENTORY



3.1 CLIMATE ANALYSIS

3.1.1 Climate of Warangal

- Climate Type: Tropical wet and dry (savanna); pronounced summer, monsoon, and moderate winter.
- Average Highs (May): 40–45°C (hottest month)
- Average Lows (Dec-Jan): 13–17°C (coolest months)
- Rainfall: Main monsoon (June–September), annual average ~900–1000mm.
- Humidity: High during rainy season; moderate rest of the year.
- Wind: Peak winds in late summer and monsoon; generally from southwest in monsoon, east/northeast in dry season.

Warangal, located on the **eastern Deccan Plateau**, has a **semi-arid, hot-dry climate**, with summer peaks in May (average highs around 40–43 °C) and mild winters (December–January highs ~22–26 °C / lows ~13–17 °C).

3.1.2 Average Monthly Temperature

Month	Max Temp (°C)	Min Temp (°C)
January	28	15
February	32	17
March	36	21
April	39	25
May	42	28
June	38	26
July	33	24
August	31	24
September	32	23
October	32	21
November	30	18
December	29	15

3.1.3 Average Monthly Rainfall

Month	Rainfall (mm)
January	3
February	6
March	10
April	12
May	24
June	122
July	305
August	335
September	167
October	69
November	15
December	6

3.1.4 Average Monthly Relative Humidity

Month	8:30 AM	5:30 PM
January	73	44
February	68	37
March	59	31
April	52	28
May	49	29
June	66	49
July	80	69
August	84	74
September	82	70
October	76	59
November	74	51
December	75	46

3.1.5 Cloud Cover and Sunshine

Month	Cloud Cover (Oktas)	Sunshine (Hours/Day)
January	1	9
April	2	9
July	6–7	4
October	2	8

3.1.6 Wind Direction & Speed

Season	Prevailing Wind Direction	Average Speed (km/h)	Site Relevance / Inference
Summer	Southeast (SE), East (E)	10–15	Hot winds, potential for dust; cross-ventilation design should utilize E-SE flow
Monsoon	Southwest (SW), South (S)	15–25	Strong, humid winds; larger apertures/openings on SW-S can maximize cooling
Winter	Northeast (NE), East (E)	5–10	Cool, dry breezes; lesser wind speeds, minimal cooling effect

3.1.7 Sunpath Analysis

(A) Sunpath Observations:

Sunrise and Sunset Range:

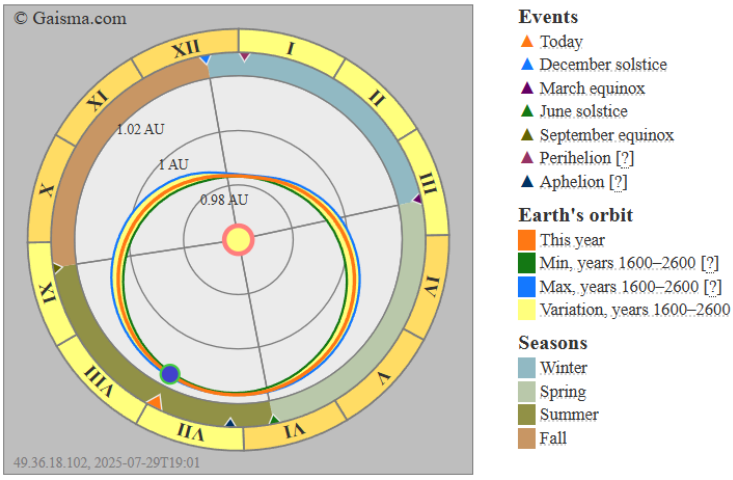
1. Earliest Sunrise: ~5:27 AM (around June)
2. Latest Sunrise: ~6:38 AM (around December)
3. Earliest Sunset: ~5:49 PM (December)
4. Latest Sunset: ~6:50 PM (June)

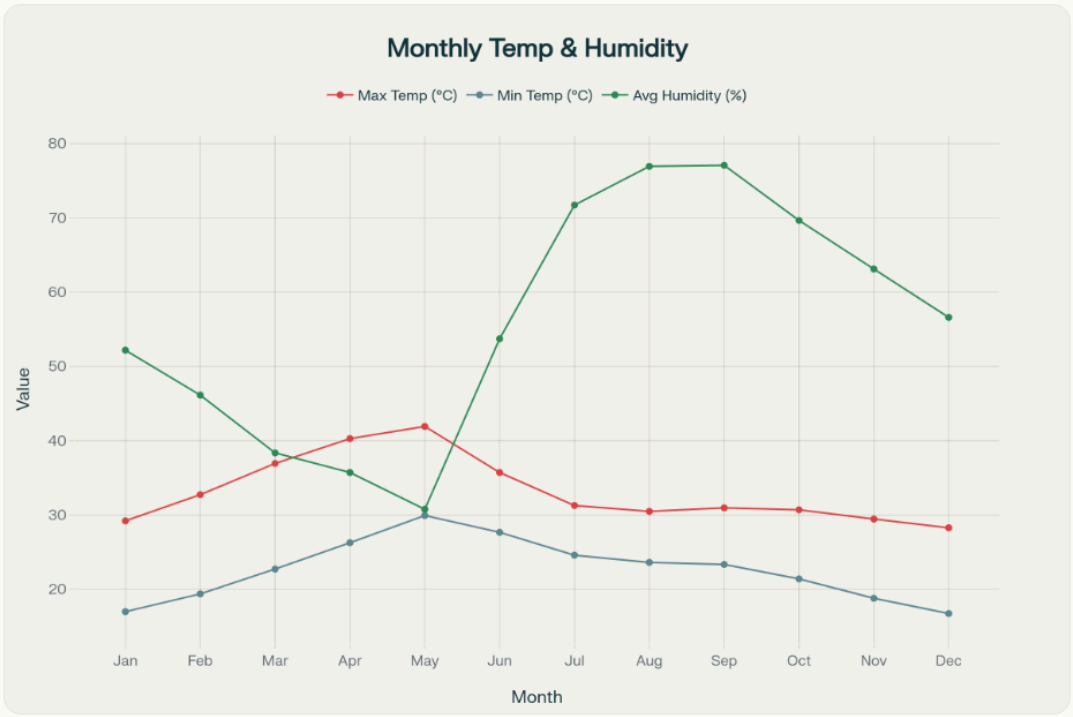
Solar Altitude:

1. **Max Altitude** (summer noon): ~80°
2. **Min Altitude** (winter noon): ~45°

Daylight Duration:

1. **Longest day**: ~13 hours (June)
2. **Shortest day**: ~11 hours (December)





3.1.8 Inferences from the Climatic Data

Orientation and Shading

1. South and Southwest Shading: These façades receive the most intense summer sun (solar altitudes up to ~80°). Design prominent overhangs, louvres, green screens, and vegetation shielding to minimise solar gain.

Ventilation & Cooling Strategies

1. Cross-Ventilation: Prevailing summer breezes (SE/E) and strong monsoon winds (SW/S) can be harnessed with window/opening placements for natural cooling, especially in lobbies and public areas.

2. Evaporative Cooling/Pergolas: During hot and dry months (March–May, humidity <40%), passive cooling with water bodies, shaded courtyards, ventilated roof spaces, and landscape misting becomes highly effective.

Rainfall and Site Management

1. Monsoon Drainage: Peak rainfall (June–September; up to 335mm/month) demands engineered drainage, flood-proofing, and strategic site grading.

2. Covered Entrance/Drop-Offs: Design entry zones to stay dry during monsoon downpours.

3. Rainwater Harvesting: Seasonal rainfall patterns favour sustainable harvesting and reuse—integrate large tankage and permeable landscape zones.

Renewable Energy & Sunlight

1. Rooftop Solar PV: With 8–10 sunlight hours most months, optimise roof orientation/tilt (17° south) for effective solar energy generation.

Wind, Dust, and Microclimate

1. Windbreaks: Summer brings moderate, dusty winds; use green belts and screens on SE flanks to filter air and reduce dust ingress.

2. Landscape Microclimates: Leverage adjacency to the Dharmasagar canal—plan water features and shaded outdoor environments for enhanced comfort.

4.1 ICE KRAKOW CONGRESS CENTRE, KRAKOW, POLAND



ICE Krakow Congress Center is located in Krakow. It is modern conference and cultural centre. Taking almost 5 years to construct and was a key investment in the Malopolska Region. Three main meeting/ICE can accommodate up to 3200 people, and since opening in October 2014 became the site of numerous congresses, concerts, shows and exhibitions. The functional building has innovative architecture and a prestigious location with a view of the Wawel Castle.

Location - Kraków, Polska, Poland

Area - 36720 m²

Architect - Krzysztof Ingarden

Built in - 2014

Budget – $100M +

4.1.1 Introduction

ICE Kraków Congress Centre, the modern, top-class congress and concert center, was designed by Ingarden and Ewý Architects in cooperation with the Japanese architect Arata Isozaki and Associates — the result of an open international competition won by the team in 2007.

The building is dedicated to cultural events — music, ballet, and theatre performances as well as congresses — and comprises three main halls with 1,791–1,915, 600, and 300 seats, respectively, and a multifunctional conference area with a floor space of 1,800 square feet that benefits from a system of

mobile partitions allowing the free arrangement of this space plus ancillary rooms and areas including offices, artists' dressing rooms, and a commercial area.

4.1.2 Concept

Commenting on the 2007 verdict announcing the winning design, the president of the jury in the international architectural competition, Luxemburg architect Bohdan Paczowski, admitted that the choice between the works selected for the final round reflected the traditional division into the partisans of the romantic and classicist tendencies in art, and that it was finally the champions of the romantic current who determined the selection of the best design.

I believe that Bohdan Paczowski very truthfully and precisely grasped and emphasised one of the most significant and distinctive features of our project, as what we included in our bid – besides the accurately designed functional and technological planes – was precisely the dream of developing free and open spaces, defined with curved lines and surfaces, with unconventional flows and divisions, fluently forming the interior and the external form of the Congress Centre building.

4.1.3 Spaces

The ICE Krakow Congress Centre offers a variety of spaces designed to accommodate different types and sizes of events.

1. Auditorium Hall | S1

A multi-functional half-vineyard-type Auditorium Hall, with seating partially surrounding the stage, is ideally suited to conferences, concerts and congresses. Perfect for hosting events of a varying scale: concerts with seating for 1915 viewers congresses and conferences with an audience of up to 1915 viewers, symphonic concerts with seating for 1791 viewers.

The technology of the multi-segment stage with seven independently adjustable modules allows organisers to arrange the space of the hall according to their expectations and needs.

4.1.3 Hall Arrangement

1. Big stage layout (without additional rows)



2. Small stage layout (with additional rows)



2. Theatre Hall | S2

A multi-functional rectangular hall (shoebox) equipped with a box-type (or proscenium) stage (stage portal, adjustable proscenium, a curtain and backstage). The number of seats can be modified, and the maximum capacity of the hall is 600 seats. The foldable stand on the lowest level means the space can be opened for exhibitions and banquets. The Theatre Hall has excellent acoustics with customisable parameters; the extensive technical facilities allow organisers to install additional elements of sound and lighting systems, as well as scenography.

4.1.5 Hall Arrangement

1. With proscenium



2. Without proscenium



3. Stand with 2 first rows



3. Chamber Hall | S3

The Chamber Hall, located on the 3rd level of the ICE Kraków Congress Centre, is a hall with a flat floor and 400 seats. The space can be divided into two independent parts with an acoustic wall. The hall is equipped with two independent director booths and booths for simultaneous interpretation; as a result, two independent seminars can be held at the same time.

4.1. Theatre flat



2. Classroom



3. Sitting banquet arrangement



4. Conference Hall Complex | S4

The Conference Hall Complex, adjacent to the Chamber Hall, is filled with natural daylight and command's beautiful view over the Royal Castle on Wawel Hill. It has a conference space of approx. 500 m2, which can be divided on demand into up to 10 smaller rooms with a system of acoustic walls. The

Conference Hall Complex includes rooms for organisers, restrooms and a hall with buffet. A sound system is available on request.

4.1.7 Hall arrangement

1. Theatre



Hybrid Studio | S5

The S5 Hybrid Studio is an excellent space for the professional production of any marketing, advertising, publicity and training materials. A multifunctional and ultramodern recording studio is available in the ICE Krakow Congress Centre. The latest technological solutions and a professional team guarantee the success of the materials created. We will help you organise your events, presenting you with a new dimension of events. Together, we will push the boundaries of standard possibilities and combine the offline and online worlds with the best technological solutions.

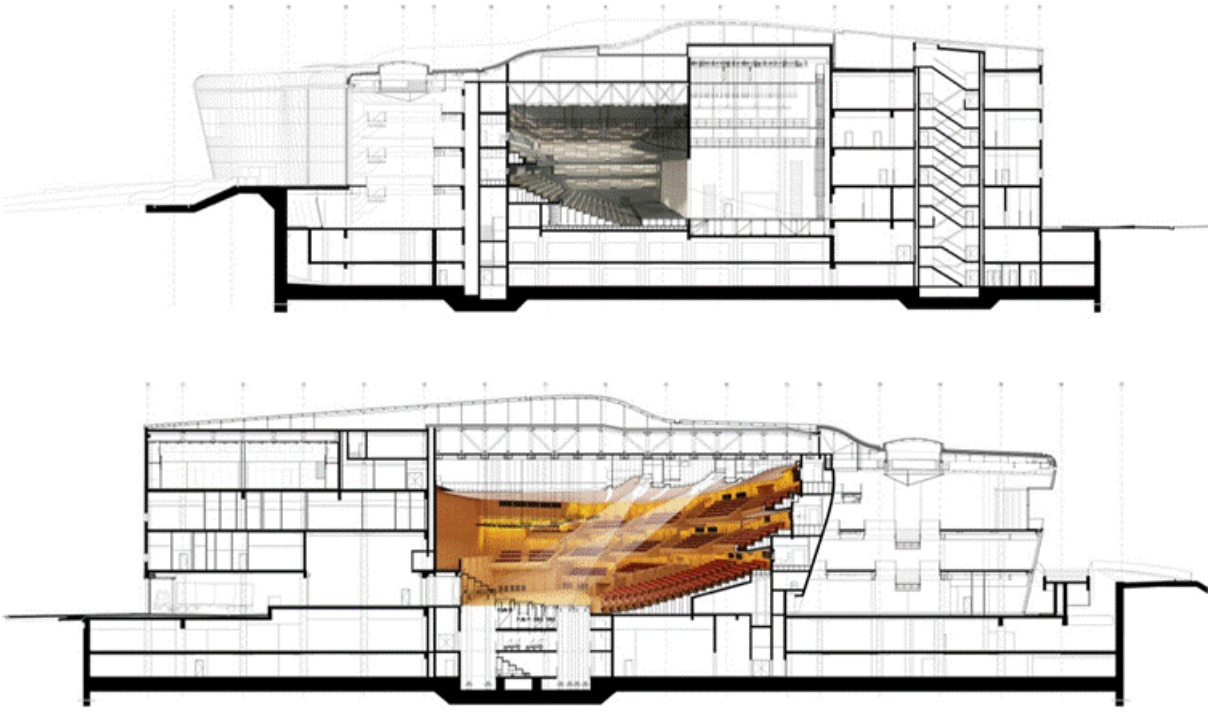


6. Foyer

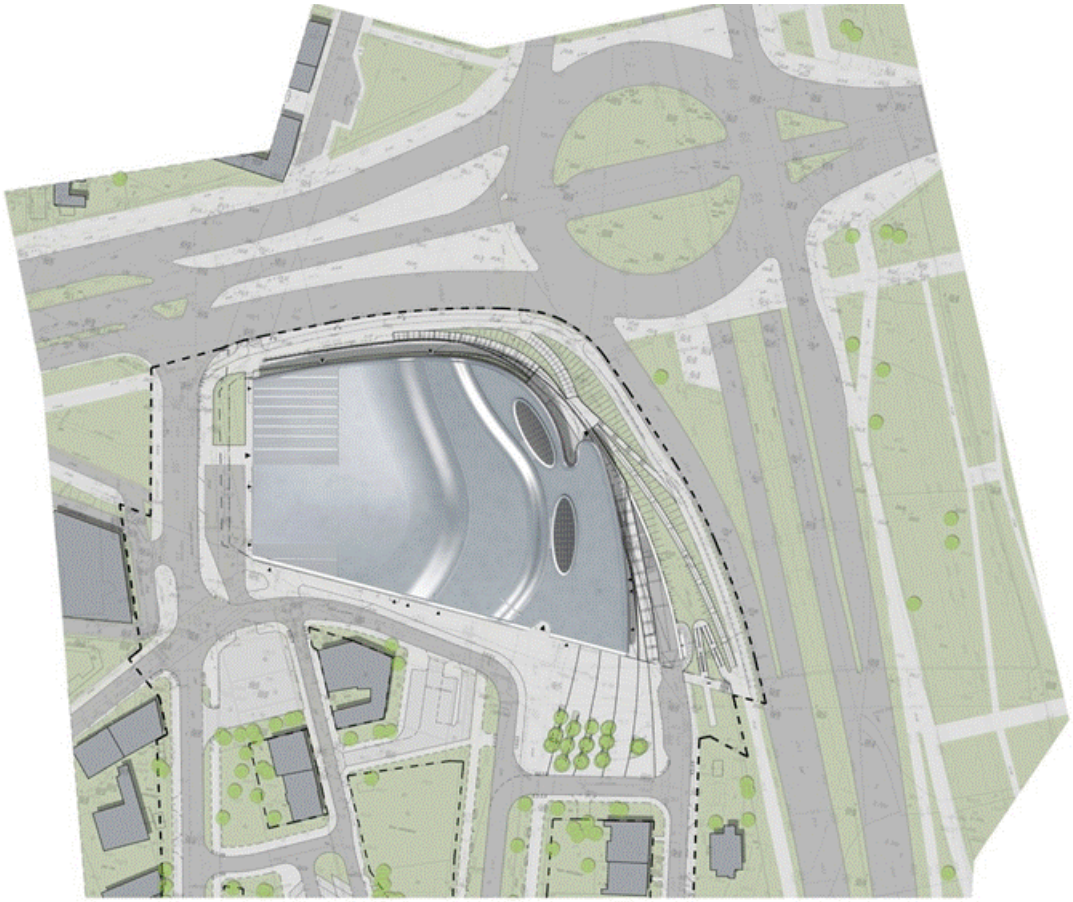
The bright and spacious foyer is located on the eastern side of the building (with view over Wawel Castle and the Kazimierz district), occupying three levels: F0 – 1000 m², F1 – 1000 m² and F2 – 650 m². It can be used as a representative public space for venue's guests, as well as an exhibition space with the option of arranging sponsor and exhibition stands during congresses. The entire space has extensive access to utilities. The foyer can be adapted in various ways, and it provides multiple branding opportunities (e.g., lighting, stairs and railings wrapping, hanging banners etc.).



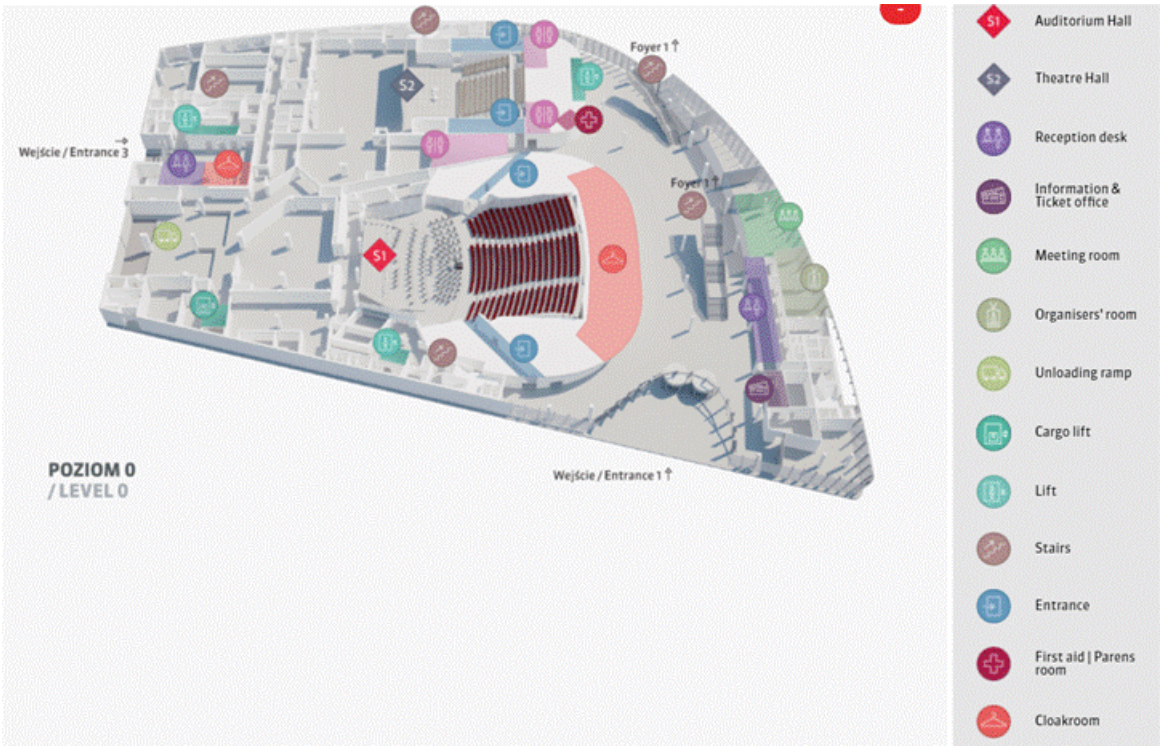
Sections

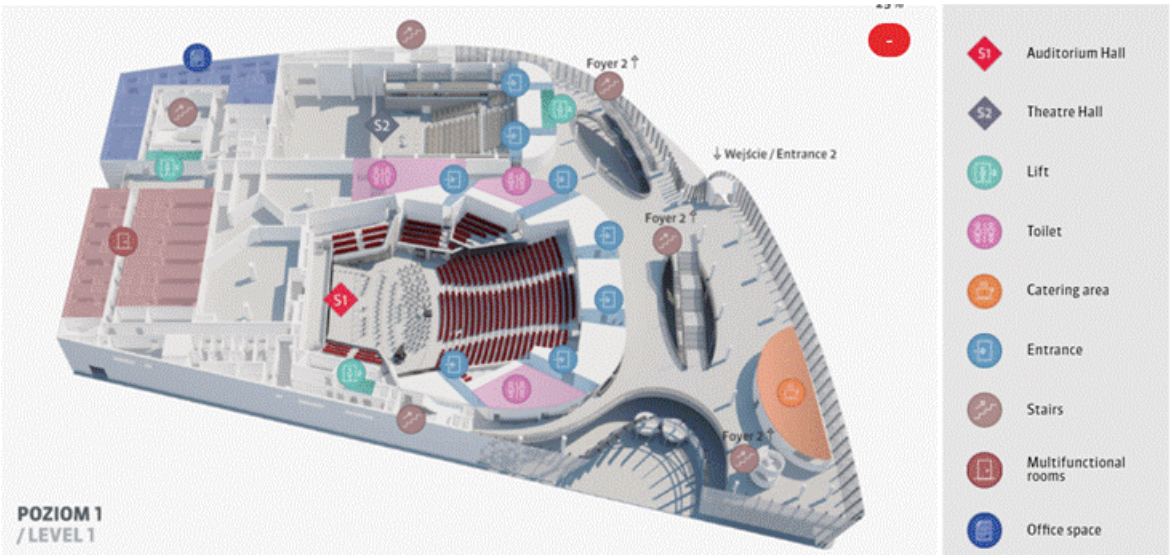


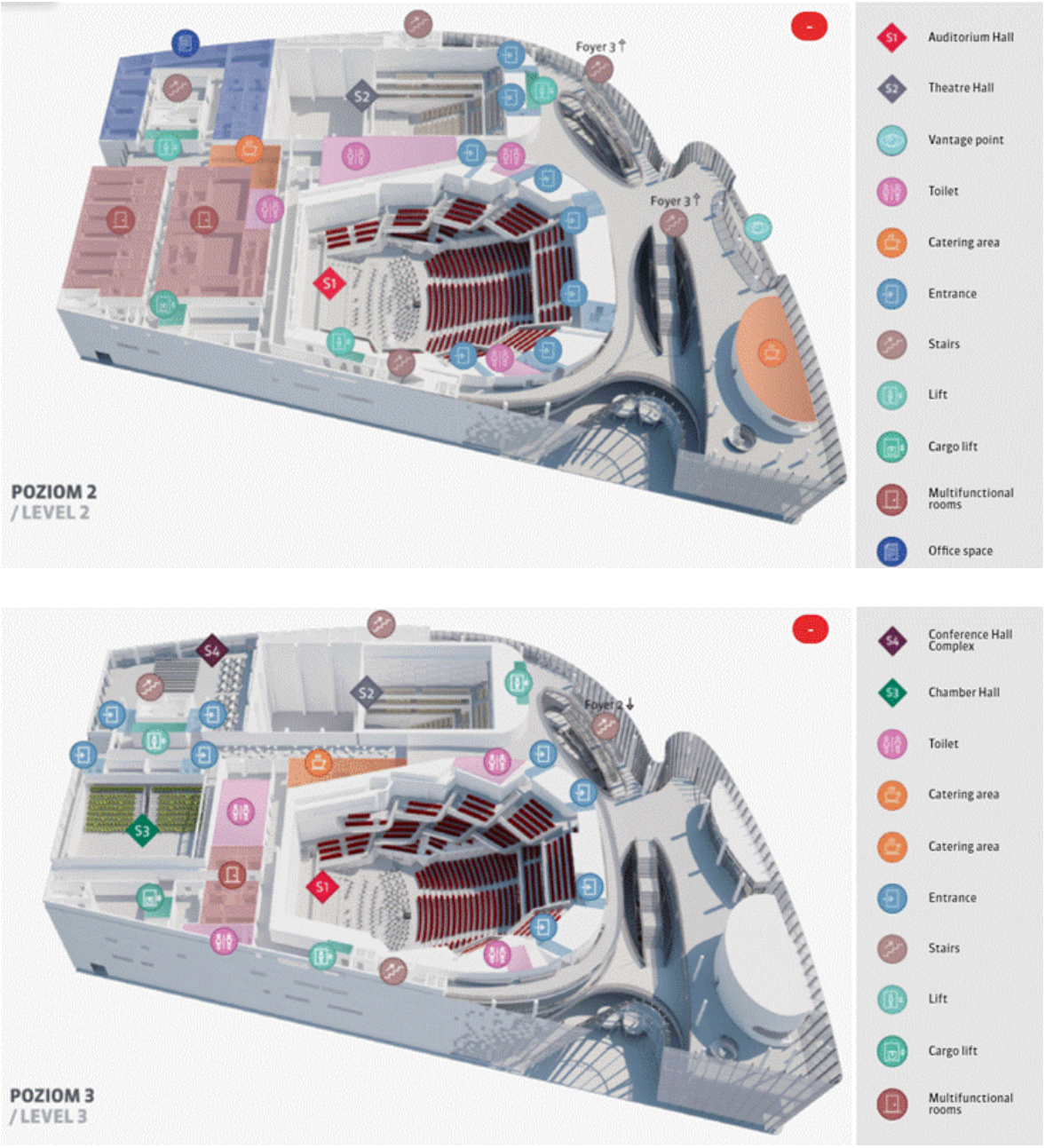
Site Plan



Plans


Foyer 1
Wejście / Entrance 3
Foyer 1
Wejście / Entrance 1
POZIOM 0
/ LEVEL 0
Auditorium Hall
Theatre Hall
Reception desk
Information & Ticket office
Meeting room
Organisers' room
Unloading ramp
Cargo lift
Lift
Stairs
Entrance
First aid | Parens room
Cloakroom

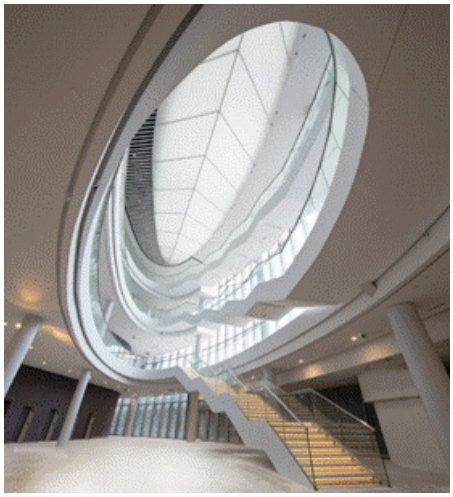

Foyer 2
Wejście / Entrance 2
Foyer 2
Foyer 2
POZIOM 1
/ LEVEL 1
Auditorium Hall
Theatre Hall
Lift
Toilet
Catering area
Entrance
Stairs
Multifunctional rooms
Office space



4.1.8 Structure

The aluminium roof, visible in its entirety from the Wawel Terrace, was formed into cascades flowing down towards the Vistula which visually diminishes the scale of the building from the side of the river and City Centre. The walls of the building are a composition of glass, ceramics, and aluminium. To open the building to a view of the city, its eastern side is glazed, while the sides and back of the building are covered with an array of ceramic tiles in colours corresponding to the colour-scheme applied to the interior, with red being a reference to the colour of the main hall, graphite to the colour of the second hall, white as the colour of the foyer, and silvery aluminium which is used for the roof finish.

In the architect’s conception, such a multi-element and colourful composition is to reflect the movements and dynamics of the Dębniki district developing on the right bank of the Vistula and which only found itself within the Kraków city limits in 1909. The size of the building is thus a proposed means of defining the scale of development in this part of the city, along Konopnickiej Street, south of the Congress Centre.





4.1.9 Materials

Glass and titanium–zinc sheets are the fundamental materials used for the exterior shell and are complemented with individually designed ceramic tiles and stone slabs such as granite, limestone, and sandstone, whose selection makes reference to the original materials-components that evolved the history of Wawel Hill architecture.

Inferences

The ICE Krakow Congress Centre's architecture adopts an organic shape with flowing lines and curved surfaces. The architecture evokes a sense of harmony with the surrounding nature and makes reference to the neighboring Vistula River's natural flow.

Large glass panels are used to create a sense of transparency and let natural light illuminate the internal spaces of the building. Transparency is used to connect the internal and exterior environments, resulting in a welcoming and open setting.

A variety of events can be held at the ICE Krakow Congress Centre. Conferences, concerts, exhibitions, or theatrical performances can all be held there thanks to its adaptable interior areas. This promotes adaptability and guarantees that the venue can accommodate various needs.

The surrounding environment was thoughtfully planned to enhance the convention center's architectural form. Opportunities for engagement and relaxation are provided by landscaped areas, green spaces, and outdoor gathering places.

The addition of vegetation improves the aesthetic appeal overall and fosters a relaxing atmosphere.

The convention center has a distinctive and dynamic roof structure that resembles the motion of waves or folding cloth, adding aesthetic interest and forming a compelling focal point. By providing shade and weather protection, the roof structure also serves a practical purpose.

The ICE Krakow Congress Centre's interior areas are planned to maintain a steady stream of visitors. Clear circulation routes and strategically arranged entrances and exits make it simple to move around the structure.

Acoustic issues play a significant role in the construction of the convention center because of its emphasis on hosting concerts and shows. To ensure high-quality audio experiences, the interior areas are acoustically designed using sound-absorbing materials, appropriate sound diffusion, and tunable acoustics.

Modern technology infrastructure is available at the ICE Krakow Congress Centre to support the needs of contemporary events. To improve event experiences, cutting-edge lighting, sound systems, audiovisual equipment, and communication technology are seamlessly included into the design.

To reduce its environmental impact, the congress center's design includes sustainable elements. In keeping with modern design techniques, energy-efficient technologies, the utilization of natural light, and environmentally friendly construction materials all help to lower energy use and promote sustainability.

The ICE Krakow Congress Centre's architecture takes Krakow's unique culture into account. The structure perfectly combines contemporary design with the surrounding area's historical environment to reflect the city's rich heritage and modern aspirations.The ICE Krakow Congress Centre contributes to the venue's usability, appeal, and integration with the surroundings, making it both aesthetically pleasing and practical.

4.2 JIO WORLD CONVENTION CENTRE, MUMBAI, INDIA



Location - Mumbai

Site area – 103012 sq. m.

Architect - TVS Design, Hafeez Contractor

Client - Reliance Industries Limited

Completion date - 2023

Area and Attributes - 18.5 Acres

- 8,500,000 sf. of Entire Complex
- Three Exhibit Halls Spanning 162,000 sf (16,500 Guests)
- Two Convention Halls Totaling 108,000 sf (10,640 Guests)
- 32,300 sf Ballroom (3,200 Guests)
- 140,000 sf Prefunction - Kitchen (18,000 Meals A Day)
- 5,000 Space On-Site Parking
- 2,000 Seat Theater

This Multi utility project is situated at Bandra Kurla Complex on a large 75,000 m2 plot. The Jio World Centre in Mumbai is the largest in India. Designed by TVS studio, it has an international style, albeit with a solid Indian cultural and spiritual imprint. SICIS has contributed to creating this extraordinary space dedicated to business and entertainment with a series of high-quality artistic mosaic coverings. Starting from the Art House, an exhibition space of 1500 square meters part of the Cultural Centre, we find a decorative area made with our artistic mosaics from the OrienTale collection, with golden tesserae and metallic reflections. For the theatre hosted inside the Cultural Centre, we have created the coverings of the balconies in #artisticmosaic, with a pattern created specifically with gold and red tesserae. At the centre of Dhirubhai Ambani Square is the spectacular Fountain of Joy. A lotus-shaped structure of 34 meters in diameter, with water jets up to 13 meters and 664 coloured LEDs for incredible plays of light. The fountain is decorated in various shades of blue mosaic from the Iridium collection and has a gold mosaic border.

4.2.1Exhibition Halls

Business events are key players and drivers of economic transformation. Perfect for trade shows, exhibitions, seminars, and conventions, this space will help develop a platform for global business opportunities.



Figure 125 Exhibition Hall

Starting from the Art House, an exhibition space of 1500 square meters part of the Cultural Centre, we find a decorative area made with our artistic mosaics from the OrienTale collection, with golden tesserae and metallic reflections

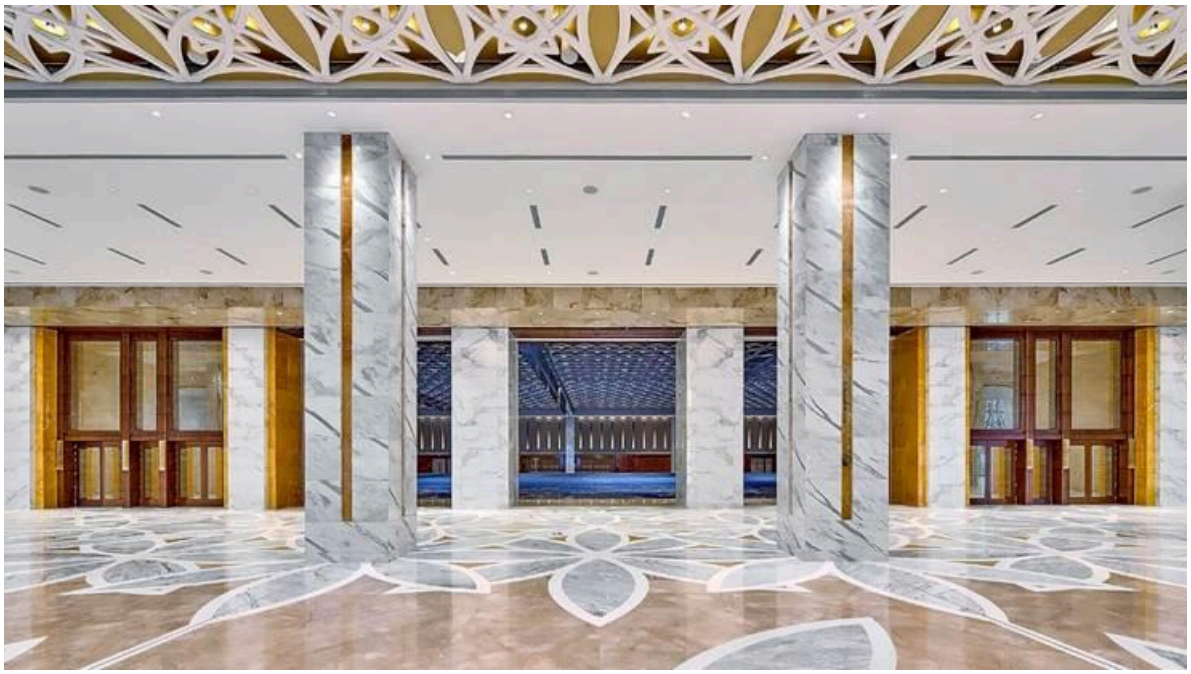


Figure 126 Exhibition lobby

4.2.2 Space

15,000 sq. m. | 1,61,400 sq. ft. total area on the ground floor

Space divisible by operable walls into three halls -

Pavilion 1

Pavilion 2

Pavilion 3

Technical Specifications

· 12 m ceiling height

· 5 tonnes per sqm. floor loading capacity, 1 tonne capacity hanging points at 4.5 m x 4.5 m grid

· Floor utility boxes on a 9 m x 9 m grid for power, IT / AV, water, compressed air and drainage

· Dedicated service driveway with 28 loading bays on the same level as the exhibition hall, with provision to allow trucks to enter the exhibition hall

· Dock levellers on service driveway for ease of unloading large and heavy cargo

· 2 large storage vaults in the basement accessible by vehicles

· Dimmable ceiling lighting

· Fibre-enabled multi-layered resiliency to endure uninterrupted data / video / voice services

· Gigabit framework offering 'Bandwidth-On-Demand' for any modern day and future applications over wired or wireless network with flexibility to stream dynamic content

· IP streaming capability to support high-bandwidth broadcast requirements

· Show director's cabin with public address system adjoining the exhibition halls

· Dedicated registration hall for exhibition visitors admeasuring 1500 sq. m.

· Daylight filled triple height concourse areas appointed with ample public conveniences

· Large LED screens in the concourse for exhibitor branding, for live feed / advertisements

· Baggage room for exhibition visitors

· On-premises car parking facility for up to 5000 cars (shared spaces across Jio World Centre precinct)

4.2.3Floor Plan

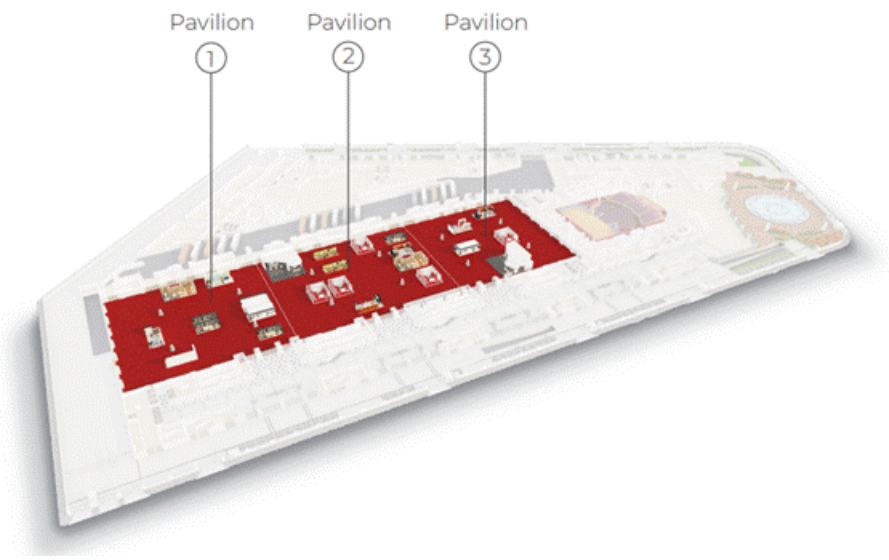


Figure 127 Floor plan 1

Capacity Chart

SPACE	AREA		L X B	SEATING				
	sq. m.	sq. ft.	metres	Theatre	Classroom	Round-table	U-shape	Reception
PAVILION (1+2+3)	15,000	1,61,400		–	–	–	–	16,500
PAVILION 1	4,891	52,627	63 X 68	–	–	–	–	5,200
PAVILION 2	5,514	59,331	90 X 68	–	–	–	–	5,900
PAVILION 3	4,595	49,442	68 X 68	–	–	–	–	4,900

Table 24 Capacity chart 1

4.2.4 Convention Halls



Figure 128 Covention Hall

Uninterrupted by pillars and designed according to the highest standards in terms of functionality the main objective of this hall is to offer an exceptional space that can be customized to host seminars social celebrations and large-scale conferences.

Space

· 10,000 sq. m - 1,07,600 sq ft total area on the third floor

· Space divisible by operable walls into two halls in a 50:50 or 6040 ratio depending on the requirement- Jasmine Hall 1 & Jasmine Hall 2

Technical Specifications

· 11 m ceiling height

· 0.75 tonnes per sq m floor loading capacity

· 1 tonne capacity hanging points

· Floor utility boxes on a 6 m x 6 m grid for power and IT/ AV

· Two 14 5 tonne capacity freight elevators for movement of material

· Audiovisual and event lighting cabling hard wired into the floor and ceiling with options of having the stage and console at different locations

· Fire exit in case of any emergency with 10 separate staircases coming directly from the third floor concourse to the ground floor driveway

· Dimmable ceiling lighting

· Fibre-enabled multi-layered resiliency to endure uninterrupted data/video/voice services

· Gigabit Framework offering Bandwidth On Demand for any modern day and future applications over wired or wireless network with flexibility to stream dynamic content

· IP streaming capability to support high bandwidth broadcast requirements

· Special lounges for key note speakers and bridal requirements

· Show director's cabin with public address system adjoining the convention halls

· Day light filled shared concourse admeasuring 5.333 sqm for Ballroom and Convention Halls with well-appointed public conveniences

· Well planned vertical transportation with 13 elevators, 2 escalators and a 100 passenger quest elevator

· On premises car parking facility for upto 5000 cars (shared spaces across Jio World precinct)

Floor Plan

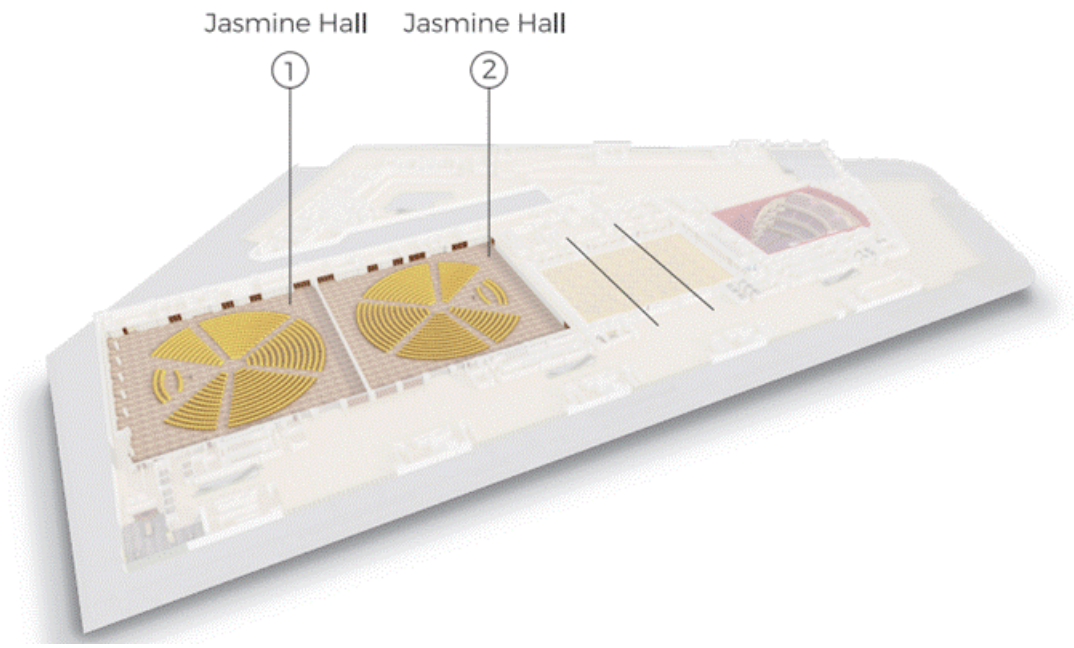


Figure 129 Floor plan 2

Capacity Chart

SPACE	AREA		L X B	SEATING				
	sq. m.	sq. ft.	metres	Theatre	Classroom	Round-table	U-shape	Reception
JASMINE HALLS (1+2)	10,000	1,07,600		8,200	4,500	3,900	–	10,640
JASMINE HALL 1	5,118	55,070	83 X 68	4,100	2,304	1,950	–	5,400
JASMINE HALL 2	4,882	52,530	65 X 68	4,100	2,163	1,820	–	5,200

Table 25 Capacity chart 2

4.2.5 Ballroom

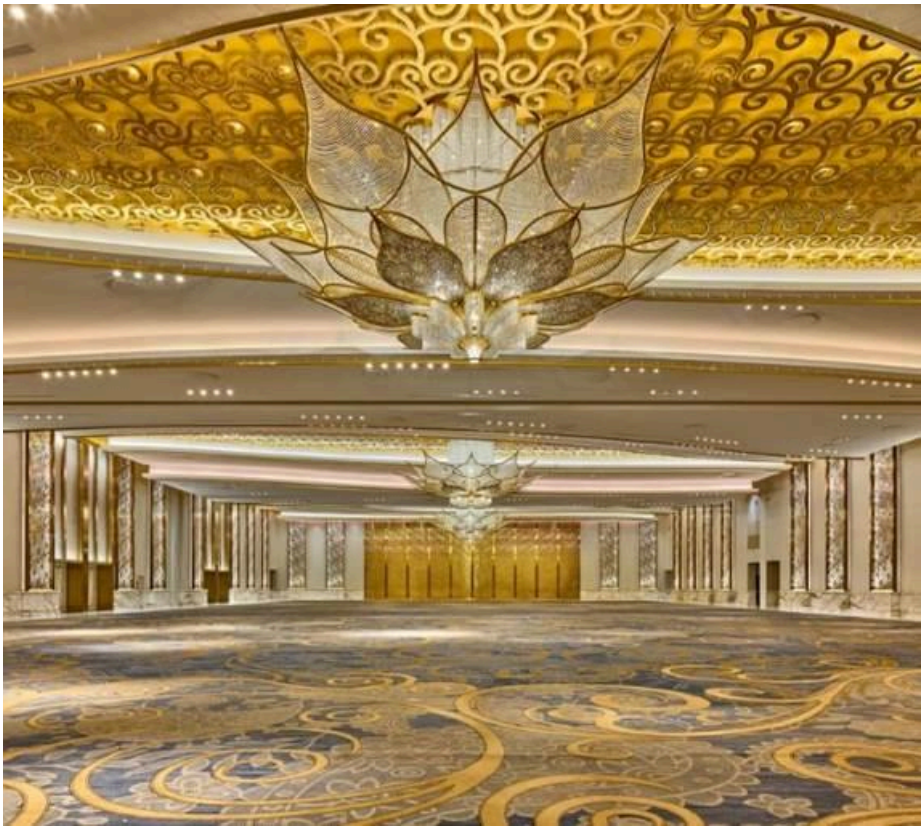


Figure 130 The Ballroom

The majestic ballroom can set the stage for a variety of social events including glamorous red carpet functions and grand weddings.

Space

- 3,000 sq. m. - 32.280 sq. ft. total area on the third floor
- 1 hall divisible into three by operable walls
- Lotus Ballroom 1 Lotus Ballroom 2 Lotus Ballroom 3

Technical Specifications

- 10 m ceiling height
- 0.75 tonnes per sq m floor loading capacity

· 1 tonne capacity hanging points

· 20 m x 9m x 2 m permanent stage as part of Lotus Ballroom 3, with the option of a retractable partition in case it does not need to be used for the event

· Floor utility boxes on a 6 mx6 m grid for power and IT/AV

· Two 14.5 tonne capacity freight elevators for movement of material - Audiovisual and event lighting cabling hardwired into the floor and ceiling with options of having the stage and console at different locations

· Fire exit in case of any emergency with 10 separate staircases coming directly from the third floor concourse to the ground floor driveway

· Dimmable ceiling lighting

· Fibre-enabled multi-layered resiliency to endure uninterrupted data/video/voice services

· Gigabit framework offering Bandwidth-On-Demand for any modern day and future applications over wired or wireless network with flexibility to stream dynamic content

· IP streaming capability to support high-bandwidth broadcast requirements

· Special lounges for key note speakers and bridal requirements

· Daylight filled shared concourse admeasuring 5335 sq m for Ballroom and Convention Halls with well-appointed public conveniences

· Well-planned vertical transportation with 13 elevators 2 escalators, and a 100-passenger quest elevator

· On-premises car parking facility for up to 5000 cars (shared spaces across JoWorld Centre precinct)

Floor Plan

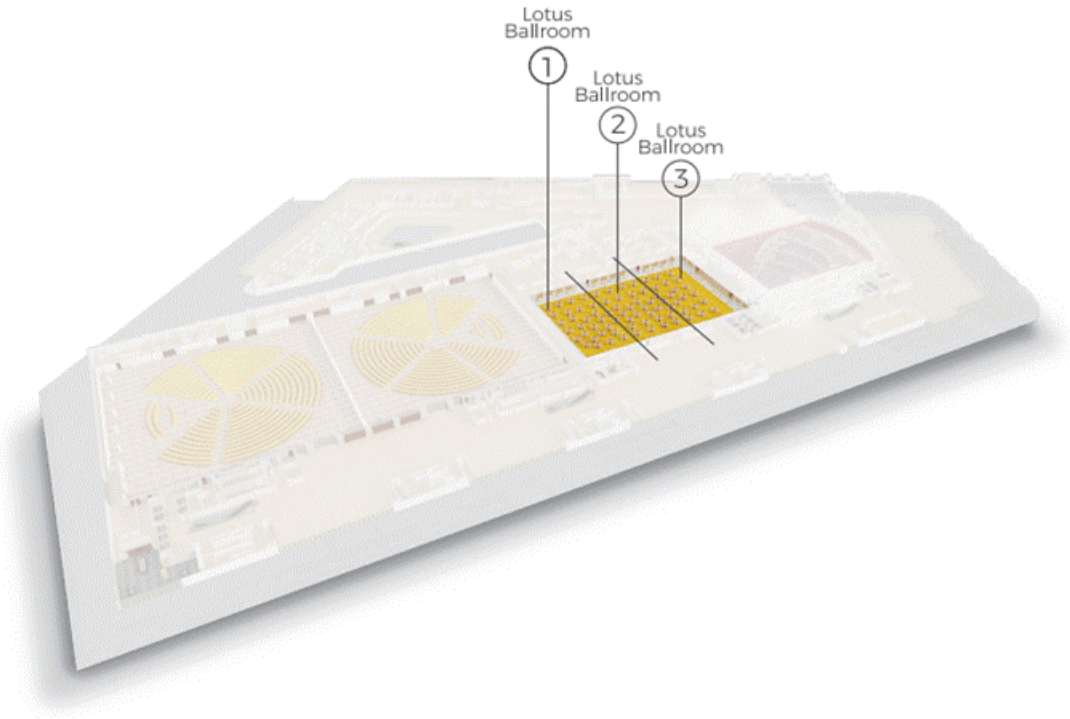


Figure 131 Floor plan 3

Capacity Chart

SPACE	AREA		L X B	SEATING				
	sq. m.	sq. ft.	metres	Theatre	Classroom	Round-table	U-shape	Reception
LOTUS BALLROOM (1+2+3)	3,000	32,280		3,009	1,536	1,280	–	3,200
LOTUS BALLROOM 1	1,000	10,760	23 X 42	930	486	400	132	1,050
LOTUS BALLROOM 2	1,000	10,760	23 X 42	930	486	400	132	1,050
LOTUS BALLROOM 3	1,000	10,760	23 X 42	930	486	400	132	1,050

Table 26 Capacity chart 3

4.2.7 Meeting Rooms



Figure 132 Meeting rooms

The meeting rooms allow for seamless execution from large-scale business convergences to small private meetings and feature the very latest in communications and audiovisual, technology.

Space

- 2,700 sq m 1 26810 sq ft total area across four floors
- 25 rooms-7 standalone and 15 flex rooms
- 2 business lounges - one each on first floor and second floor

Technical Specifications

- Flexi rooms can be combined with adjacent rooms
- 4.5m ceiling height
- Floor utility boxes with power and IT/AV
- In-built ceiling mounted ultra-short throw lens projector
- In-built sound system with smart podium
- Fibre-enabled multi-layered resiliency to endure uninterrupted data/video/voice services

· Gigabit framework, offering Bandwidth-On-Demand for any modern day and future applications over wired or wireless network with flexibility to stream dynamic content

· IP streaming capability to support high-bandwidth broadcast requirements

· State-of-the-art audio-visual facility in meeting rooms. The meeting rooms are equipped with high lumen projectors drop-down screens, touch panels with connectivity encoders to facilitate video conferencing

· Fire exit in case of any emergency with 10 separate staircases coming directly from the first floor and second floor concourse to the ground floor driveway

Floor Plan

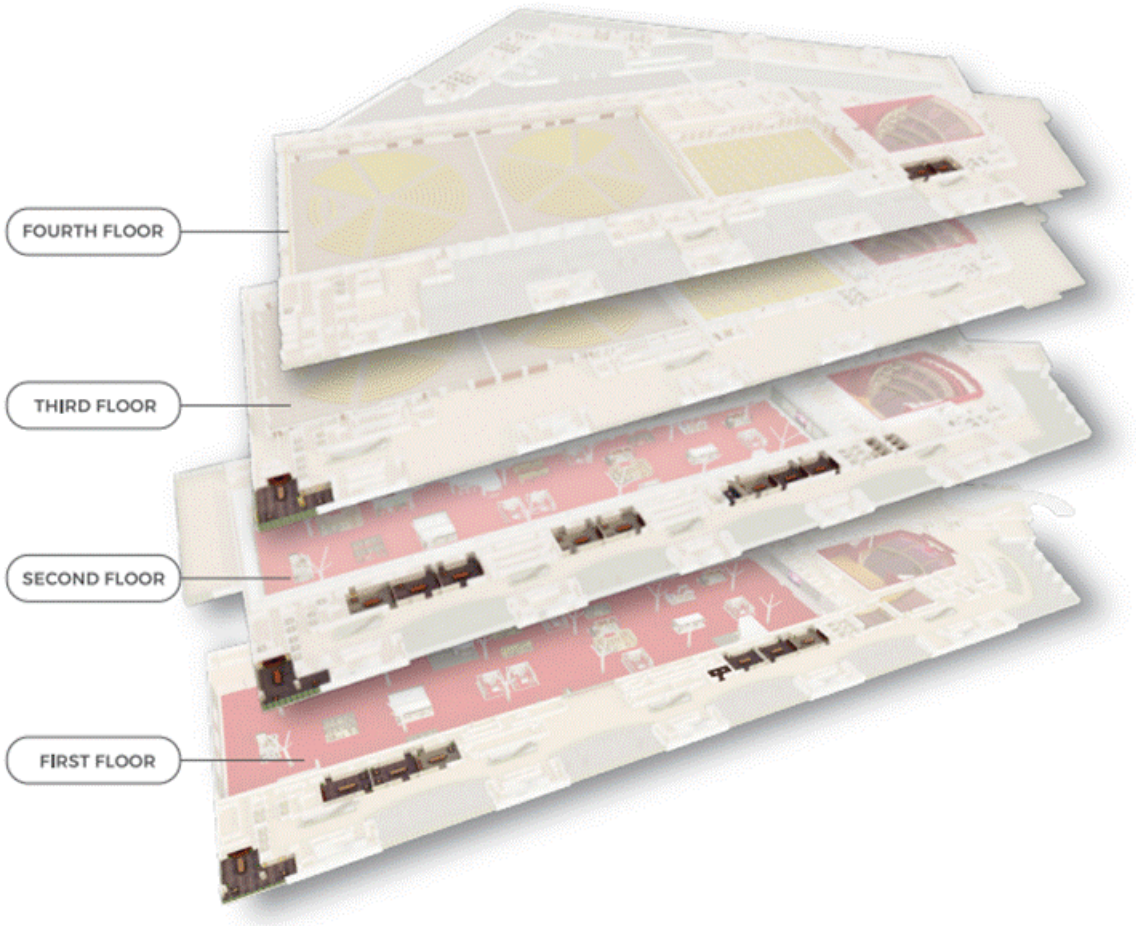


Figure 133 Floor plan 4

Capacity Chart

MEETING ROOMS - FIRST FLOOR						
SPACE	AREA		SEATING			
	sq. m.	sq. ft.	Theatre	Classroom	Round-table	U-shape
EXECUTIVE BOARDROOM SUITE 101	187	2012	132	42	48	36
MEETING SUITE 102	106	1135	108	45	40	36
MEETING SUITE 103	114	1229	120	54	48	36
MEETING SUITE 104 A	123	1324	120	54	48	36
MEETING SUITE 104 B	113	1211	120	54	48	36
MEETING SUITE 105 A	113	1219	120	54	48	36
MEETING SUITE 105 B	116	1245	120	54	48	36
BUSINESS LOUNGE 1	48	516	–	–	–	–

Table 27 Capacity chart 4

MEETING ROOMS - SECOND FLOOR						
SPACE	AREA		SEATING			
	sq. m.	sq. ft.	Theatre	Classroom	Round-table	U-shape
EXECUTIVE BOARDROOM SUITE 201	187	2012	132	42	48	36
MEETING SUITE 202	114	1227	120	54	48	36
MEETING SUITE 203	115	1232	120	54	48	36
MEETING SUITE 204 A	121	1301	120	54	48	36
MEETING SUITE 204 B	112	1208	120	54	48	36
MEETING SUITE 205 A	129	1388	144	63	48	42
MEETING SUITE 205 B	129	1385	144	63	48	42
MEETING SUITE 206 A	114	1222	120	54	48	36
MEETING SUITE 206 B	116	1246	120	54	48	36
MEETING SUITE 207 A	21	226	15	–	10	–
MEETING SUITE 207 B	18	196	15	–	10	–
MEETING SUITE 207 C	21	226	15	–	10	–
MEETING SUITE 208 A	16	167	15	–	10	–
MEETING SUITE 208 B	18	195	15	–	10	–
MEETING SUITE 208 C	19	205	15	–	10	–
BUSINESS LOUNGE 2	55	592	–	–	–	–

Table 28 Capacity chart 5

MEETING ROOMS - THIRD FLOOR						
SPACE	AREA		SEATING			
	sq. m.	sq. ft.	Theatre	Classroom	Round-table	U-shape
*EXECUTIVE BOARDROOM SUITE 301	187	2012	132	42	48	36

MEETING ROOMS - FOURTH FLOOR						
SPACE	AREA		SEATING			
	sq. m.	sq. ft.	Theatre	Classroom	Round-table	U-shape
MEETING SUITE 401 A	134	1439	132	54	48	36
M EETING SUITE 401 B	134	1439	132	54	48	36

Table 29 Capacity chart 6

4.2.8 The Grand Theatre

The spectacular 2,000-seat space brings the best works from the world of theatre to Indian audiences. Designed by Steve Clem and Nick Wolfcale of TVS Design, in collaboration with Brian Hall of Theatre Projects Consultants, it is equipped to host diverse world-renowned productions including shows, musicals, and plays.

To ensure visitors enjoy an experience that is truly immersive, the expansive space incorporates not only state-of-the-art stage technology but also a Dolby Atmos Surround Sound System and Virtual Acoustic System along with an ingenious flexible seating arrangement and special programmable lighting. Additionally, The Grand Theatre includes three levels, guaranteeing an unparalleled viewing experience for each guest. An extra layer of exclusivity is added by the 18 Diamond boxes that have dedicated food and beverage services.

Building on the centre's theme as an ode to India and its symbols, a silhouette of the lotus flower is seen dotting the auditorium from floor to ceiling. It is discreetly referenced in the jaali-work on the walls that surround the private seating boxes and finds its way to the plush carpeting. But most prominently, the lotus motif seamlessly integrates itself in the design aesthetic of the majestic chandelier on the ceiling.

Figure 134 The Grand Theatre



4.2.9 The Studio Theatre

Adjacent to The Grand Theatre, The Studio Theatre is a 250-seat space designed for intimate performances. Both its ground and mezzanine levels are masterfully made, ensuring each guest receives a riveting experience regardless of where they are seated. The telescoping seating system allow for quick transformations to accommodate the diverse needs of shows. This flexibility makes the space ideal for intimate experimental performances and cutting-edge productions.



Figure 135 The Studio Theatre

Their ability to flex between multiple setups is what makes them unique. They may look very simply but everything within them is made for flexibility. Portable platforms and flexible grids allow for a range of theatrical set ups. Most notably, the ceiling of The Studio Theatre has been fitted with a tension wire grid that makes it possible for technicians to rig and change lights even while the floor is being set up for production or used for rehearsal.

4.2.10 Art House

Overlooking the iconic Fountain of Joy through its glass facade, the Art House is a multi-story gallery space for visual arts that will house the best of Indian and global artworks. In addition to this, it is also equipped to host educational events, tech programmes, and workshops.

The adjoining Arts Cafe champions the same school of thought by providing a creative ambience for people with diverse interests. The 16,000 sq. ft. space is set to serve as one of the finest art addresses in Mumbai, making celebrated artworks from across the world accessible to all.



Figure 136 The Art House

The Cube

A performance space with an adjustable stage and seating, which can seat up to 125 audience members, this intimate area puts the audience nearer to the performer which allows a more interactive and immersive experience. It is perfect for events like workshops, small screenings, book readings and more! The Cube is fully equipped with world-class technology like the Panasonic Laser Projection System, LED theatrical lighting system, 5G internet, and amenities that include assistive listening devices and accessible theatre.

Public Art: For the People, by the People

From works by Yayoi Kusama and Jitish Kallat to those by one of India's best-known Pichwai artists, the public art on view at the NMACC will spotlight a host of acclaimed creators. It will celebrate the power of public art and make the experience more accessible for diverse segments of the Indian community.

4.3 Dhirubhai Ambani Square

Home to the enchanting Fountain of Joy, Dhirubhai Ambani Square is the new snazzy spot in Mumbai where people can hang out and soak up the city's vibrant energy. It is the perfect place to step back and take a breather from everyday life and enjoy some quality time with friends and family. And when dusk looms on the horizon, get ready to catch the mesmerising display of water, light, fire, and sound at the Fountain of Joy that'll surely leave you spellbound.

At the centre of Dhirubhai Ambani Square is the spectacular Fountain of Joy. A lotus-shaped structure of 34 meters in diameter, with water jets up to 13 meters and 664 coloured LEDs for incredible plays of light. The fountain is decorated in various shades of blue mosaic from the Iridium collection and has a gold mosaic border.



Figure 140 Immersive Grand Chandelier

4.3.1 Material

The design vocabulary is international with a strong Indian ethos. It honors the culture and spirit of India, and pays ode to all Mumbaikars and the people of India. Jio World Centre is a multifaceted development where people will get together to appreciate art, exchange ideas, celebrate culture and soak in the heritage and vibrancy of Mumbai. Unlike many buildings in the city that sport a sensuous, curvy shape just for artistic purposes, Jio World Centre combines its aesthetic appeal with maximum area functionality. But the most important story it tells is the story of India, its art, craft and the personalities of its people. The Indian inspiration took time and thought – understanding its characteristics, uniqueness, richness and sense of style and craft. Everything from the use of colors in India to its extraordinary textures remarkable found a place in the design.



Figure 141 Extensive sustainable material

The entire flex hall's ceiling is covered with a jaali, the modern silver metal of the CEC transitioning to a warmer gold. The CEC concourse design is scalloped, giving each three-story entry a unique element, yet a sense of repetition, movement and flow. A stand-out element is the striking, hand-crafted Lasvit chandeliers in the pre-function lobbies. The chandeliers lend each area their own identity. Earth, fire, air and water – sacred elements in Indian philosophy – provide the perfect design inspiration. The concourse ceilings also follow the same iconic lotus-petal theme and have sound absorptive materials that reduce the reflected sound and lets one take in and enjoy their impressive surroundings. The design with a river of gold on its dramatic ceiling layered with an intricate Jaali pattern; three one-of-a-kind lotus Swarovski chandeliers of almost 25-feet in diameter composed with 540,000 crystals ensures that this hall is the epitome of luxury to celebrate the importance of glorious Indian weddings.

4.3.2 Structure



Figure 142 Superstruture Development

Super Structure: Lateral System

The Lateral system to resist the EQ forces for this structural steel building is designed as braced frames in both the directions. The locations of these braced frames were decided as per the structural requirements and in coordination with the Architecture

The ladder frame cores were taken up first on priority to enable erection of 70 meter. Long Mega truss such that roof activities are taken up simultaneously.

Super Structure Construction

· The CEC was planned in Structural Steel to avail advantages of planning a suitable structure to cater to large spans as well as to plan an appropriate Construction sequence to enable fast pace of construction.

· This was possible by adopting ‘Ladder frame’ Construction.

Challenges

· The Structural Steel for the CEC and the Theatre combined was estimated at 32000 MT. It was a huge quantity to be procured, fabricated, and then erected at site and one of the toughest challenges of this fast-track project.

· The Mega Trusses and the Composite columns required sections in E450 and E350 grade, which are not readily available in India. And the huge quantity and the demanding Project Schedule meant that the procurement had to take place simultaneously from multiple sources across Europe and Asia.



Figure 143 Decorative Wedding Hall

4.3.3 Inferences

It was built with the goal of bringing the best of the world and India together. It is a part of Mumbai's brand-new landmark, the multipurpose Jio World Centre.

Here, cutting-edge technology and contemporary architecture are combined. This convention centre offers a variety of adaptable spaces for different events, the ability to host virtual, physical, and hybrid events, strict safety guidelines, and cutting-edge technology.

It combines performing and visual arts under one roof, NMACC has already been hailed as a first-of-its-kind in India.

The Jio Convention Centre uses a flexible space design that makes it simple to customise and adapt to the requirements of different events. This includes adaptable room layouts, modular furniture, and moveable partitions to accommodate both big-scale events and small-scale gatherings.

Given the monsoon season in Mumbai and the potential for extreme weather, the architecture incorporates features like weather-resistant exteriors, suitable drainage systems, and covered walkways to make sure that events go off without a hitch.

Accessibility and convenience for visitors are prioritised in the architectural design. There are several entrances to the convention centre, plenty of parking spaces, and quick access to public transportation.

The architectural design of the Jio Convention Centre combines indoor and outdoor areas, providing flexibility in hosting different kinds of events and gatherings.

Given that Mumbai is on the coast, the convention centre has been designed with features like big windows, glass facades, or open-air terraces that make the most of natural light and offer breathtaking views of the surroundings.

The convention center's interior decor is regarded as sleek and elegant, with high ceilings, elegant materials, and a focus on making the space comfortable and welcoming for visitors.

The Jio Convention Centre's architecture places a high priority on sustainability and energy efficiency, incorporating green technologies like water-saving irrigation systems, effective insulation, and renewable energy sources.

4.4 Hyderabad International Convention CentreHyderabad, India

Location – Hyderabad, India

Total project area – 60702 sq. m.

Architect - RMJM Architects

Type of structure - multi-purpose building

Completion date - 2019

Built up area – 27000 sq. m.

Hyderabad International Convention Centre (BICC) is managed by Accor hospitality and jointly owned by Emaar Properties PJSC Dubai and Andhra Pradesh Industrial Infrastructure Corporation Ltd. The Convention Centre is ideally located in Hyderabad's IT hub and business district offering state of the art exhibition, meeting, and convention services.

15 acres (6 ha). This air-conditioned center can be configured to increase seating capacity to about 6,500. It has an internal hall measuring 6,480 square meters, which can be partitioned into six smaller halls. The pre-function foyer area itself exceeds 6400 sq.m.

Hyderabad International Trade Expositions Limited (HITEX) is a state-of-the art venue for international exhibitions, conferences, trade shows, and corporate events in India. It was conceptualized by German

architects and inaugurated on 14 January 2003 by Commerce Minister Arun Shourie, and the Trade Fair Office Building by Andhra Pradesh former Chief Minister Chandrababu Naidu.

4.4.1 Facilities

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 sq. meters 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.

24*7 security with the latest surveillance technology. 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.

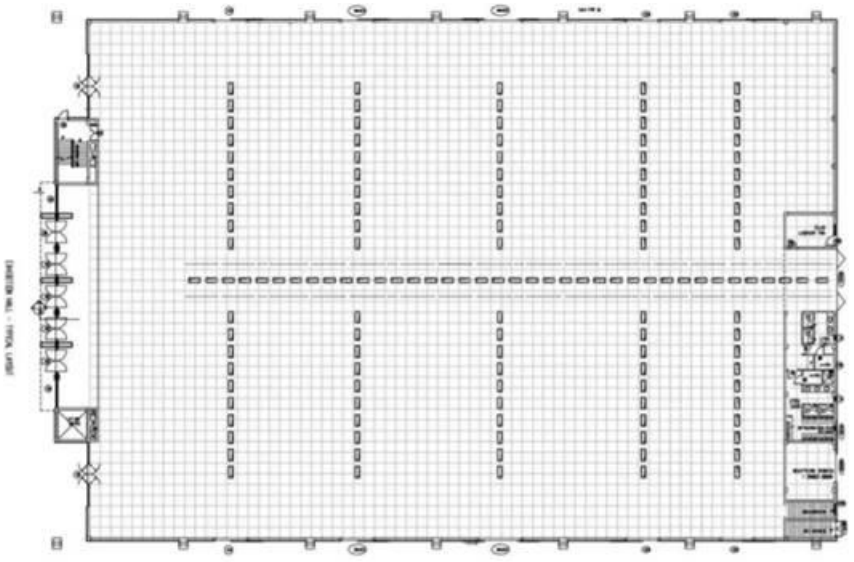
Automated telescopic tiered seating for 2600. Loading dock for tailor- made capacities.
Separate entry & exit points.

Connected to 287-room Novotel Hyderabad, a 5 – star hotel.

4.4.2 Exhibition Area

The indoor exhibit space comprises 3 Exhibition Halls of brilliant designs, which meet the highest discerning international standards and provide comprehensive and flexible layouts of space. The 3500 sq. m. seamless exhibition halls are ideal for huge commercial exhibits and trade shows.

Size: 3500 sq.m (37,660 sq. ft) Dimensions: Length -72m. Width - 48m. Ideal for: Exhibitions, Trade Shows, Commercial Expos.



4.4.3Outdoor Exhibition Areas

Understanding the growing need for functional and flexible outdoor spaces, HITEX offers five outdoor display areas providing ample scope for the organizers for outdoor exhibits. In addition to the concreted areas, HITEX offers two open grounds, which are used as exclusively for outdoor exhibitions. These grounds are ideal for exhibits that demand the flexibility of a large venue.

Salient Features:

Concreted exhibit grounds ranging from 2000 sqm to 15000 sqm

Total concreted exhibit area of 32825 sqm Open grounds of 40000 sqm and 12000 sqm respectively In a very close proximity to Exhibit Halls.

Outdoor Area I Area: 15,000 sq. m. Dimensions - 95m X 150m Ideal for: Heavy machinery exhibits, equipment exhibits etc.

Outdoor Area II- Area: 2,400 sq. m. Dimensions - 44m X 55m between Hall 1 and Hall 2

Ideal for: Outdoor Equipment Exhibits, Outdoor Branding etc.

OUTDOOR AREA III Area: 2,000 Sq. M. App. Dimensions -28m X 72m

Ideal For: Exhibits, Customized Food Courts Etc. Between Hall 2 And Trade Fair Office.

Location Has A Cafeteria Open For All Exhibition Halls.

Outdoor Area

Outdoor Area IV - Area: 4,000 sq. m. app. Dimensions -28m x 55m + 35m x 65m

Ideal for: Exhibits, Outdoor Display, 2 simultaneous small-scale events etc. Located between Hall 1 and Fair Park.

Outdoor Area V- Area: 2,000 sq. m. app. Dimensions -28m x 75m

Ideal for: Exhibits, can be customized as food court area etc. Located between Hall 1 and Hall 3. Open Ground I- Area: 12000 sq. m. Ideal for: Melas, Outdoor Exhibits etc.

Open Ground II- Area: 40000 sq. m. Ideal for: Concerts, Huge Events etc.

4.4.4 Conference Facilities

HITEX offers 5 conference rooms and a huge conference hall that provide a combination of world-class technology, flexible space and accessible tiered seating making them perfect for small meetings like boardroom discussions, presentations, lectures to large-scale international conferences.

The Conference Hall is designed to host large-scale global conferences and Iternational business conventions. Equipped with latest technologies, audiovisual gadgets and multimedia presentation devices, the acoustically treated hall offers an interactive platform, making your experience worthwhile.

Round Table Seating: 1500 People

Theater seating: 2500 People Round table cum theater seating: 1750 people (1000 theater seating + 750 round table seating)

Six Meeting rooms with flexible spaces ideal for Boardrooms Meetings, Business Discussions, small conferences, Business Meetings.

4.4.5Outdoor Event Area

Fair Park is a serene open area exclusively meant for high-profile corporate events and social gatherings. With beautifully landscaped gardens and picturesque surroundings, Fair Park makes a perfect stage for hosting banquet dinners and intimate meetings.

Size: 2300 sq. m

Seating Capacity: 500 people Ideal for: Banquet Dinners, corporate events, social gatherings.

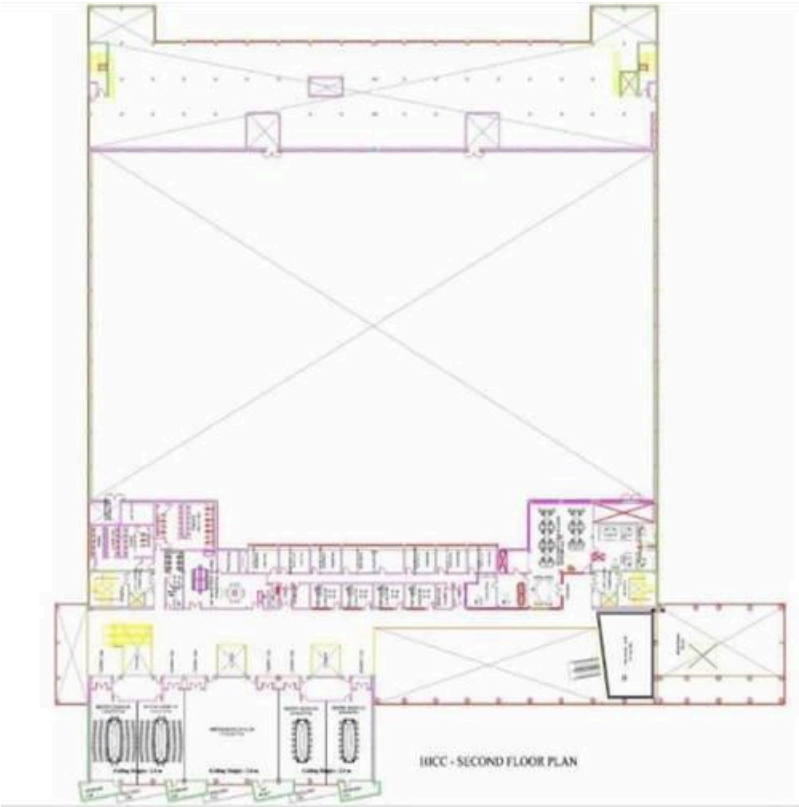
Salient Features: Separate dining area within the park Spectacular picturesque views.



Ground Floor

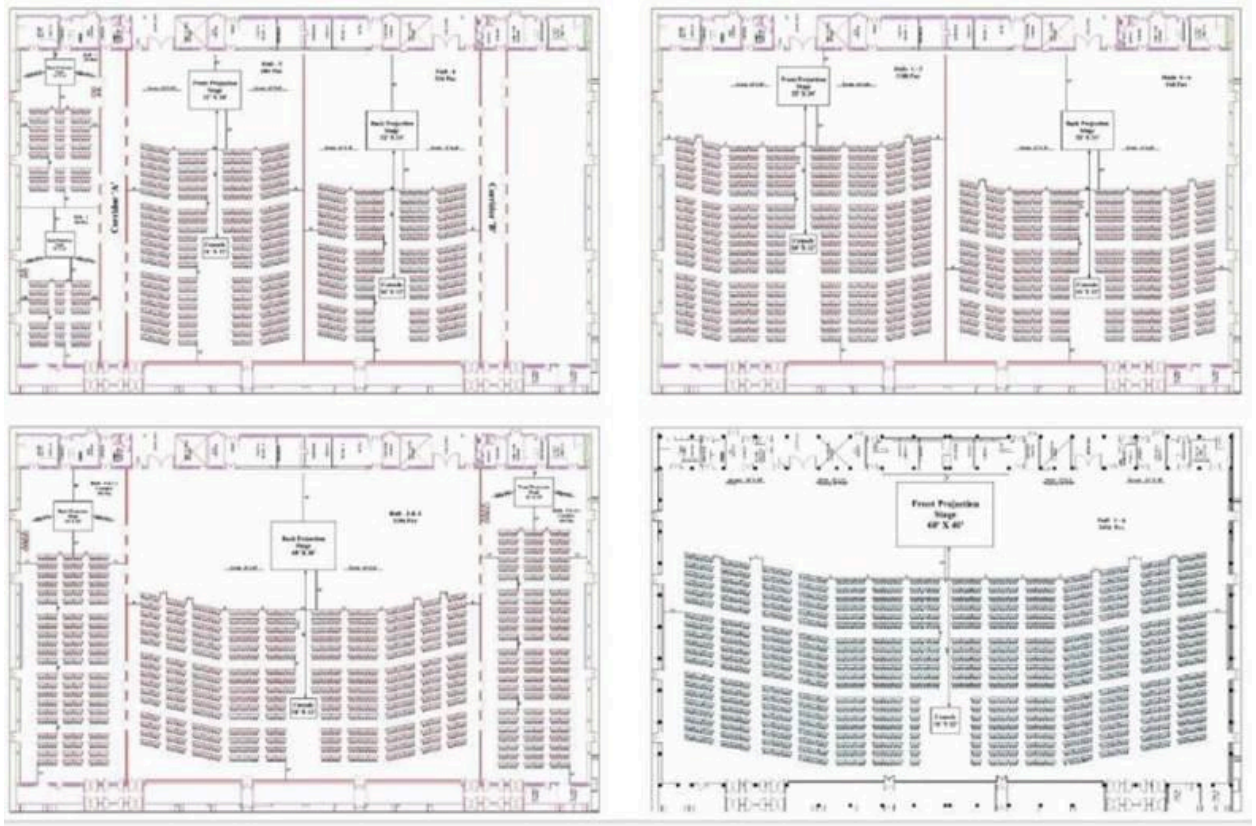


First Floor



Second Floor

Hall Arrangement



Sitting Arrangements

4.4.6 Sitting Arrangements

Capacity chart with standard specifications

4.5 FACILITY CASE STUDY

4.5.1 Metro Toronto Convention Centre (MTCC), Canada



Located in the heart of vibrant downtown Toronto, the Metro Toronto Convention Centre (MTCC) is Canada's leading multipurpose venue for conventions, public shows, trade shows, galas, meetings and theatre productions. The MTCC is located a few steps away from some of Canada's top restaurants, shops, hotels and attractions. Attendees can access the centre directly from Pearson International Airport with a 25-minute air-rail ride.

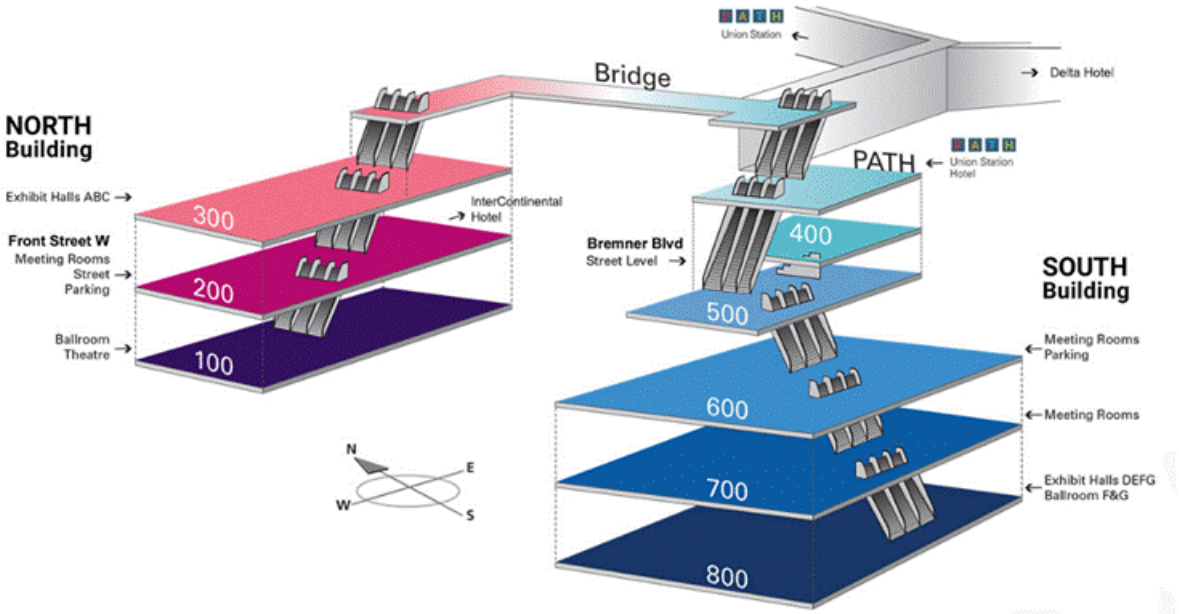
4.5.1 Overview

Independent / Other Brand: Independent

Built: 1984 Renovated: 2018

Total meeting space: 65,032 sq. m Venue type: Convention centre

"Our parking operations are multi-faceted as we deal with both our guests and guests to surrounding venues. The MTCC works to maintain the highest standards possible for parking operations, as we do with the entire convention centre. We offer the best customer service and most efficient and seamless parking operations," explains Mr. Vince Quattrociocchi, Vice President of Operations. Them, especially when it comes to visitor and patient parking."

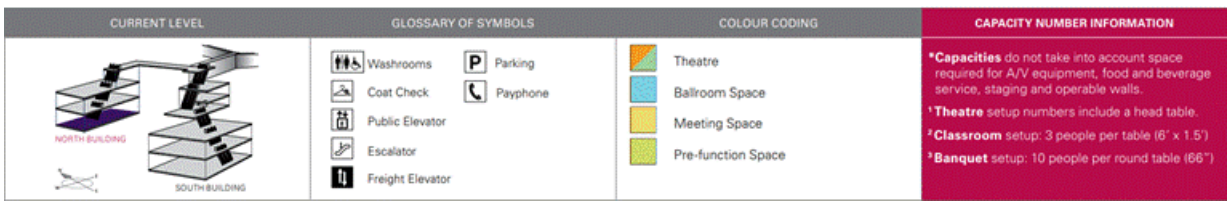


4.5.2 On-Site Services

- Experienced Event Managers are assigned to every event from start to finish to assure that every detail is executed successfully.
- Our renowned culinary team brings unmatched quality and customization to each event's food and beverage service.
- In-house decorating, electrical, audio visual, security, nursing, coat check, and customs contractors.
- Our fully accessible venue is equipped with First Aid offices and defibrillators. They are located in both North and South Buildings.
- Complimentary attendee wi-fi in pre-function spaces.
- Customs brokerage and transportation services are located in-house to eliminate clearance delays.
- Business Centres and Exhibitor Services are available in both North and South Buildings.
- 1,700 indoor parking spaces.
- Guest Services located in both North and South Buildings.

Plans

Level 100



Level 100



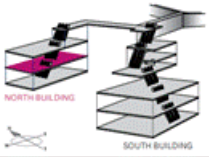
SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
JOHN W.H. BASSETT THEATRE	**102**								**1,232**			
MEETING ROOMS	**101**	**36 x 70**	**10.9 x 21.3**	**2,520**	**234.11**	**15**	**4.6**		**270**	**150**	**180**	**262**
	103A	41 x 28	12.5 x 8.5	1,148	106.3	12	3.7		105	55	90	115
	103B	41 x 28	12.5 x 8.5	1,148	106.3	12	3.7		90	45	90	115
	103	**41 x 56**	**12.5 x 17.0**	**2,296**	**212.6**	**12**	**3.7**		**188**	**98**	**180**	**230**
	104A	62 x 30	18.9 x 9.1	1,860	172.0	12	3.7		204	110	140	186
	104B	62 x 25	18.9 x 7.6	1,550	143.7	12	3.7		165	90	120	155
	104C	62 x 28	18.9 x 8.5	1,736	161.4	12	3.7		190	114	150	174
	104D	62 x 28	18.9 x 8.5	1,612	149.7	12	3.7		190	95	120	160
	104	**62 x 111**	**18.9 x 33.8**	**6,758**	**626.8**	**12**	**3.7**	**36**	**664**	**388**	**520**	**676**
CONSTITUTION HALL	**105**	100 x 84	30.5 x 26.6	8,400	780.8	18/21	5.5/6.4		790	495	640	840
	106	100 x 112	30.5 x 34.1	11,200	1,040.1	18/21	5.5/6.4		1,100	670	880	1,120
	107	100 x 84	30.5 x 25.6	8,400	780.8	18/21	5.5/6.4		790	495	640	840
	105-107	**100 x 280**	**30.5 x 85.3**	**28,000**	**2,601.7**	**18/21**	**5.5/6.4**	**141**	**2,700**	**1,710**	**2,080**	**2,800**







Level 200

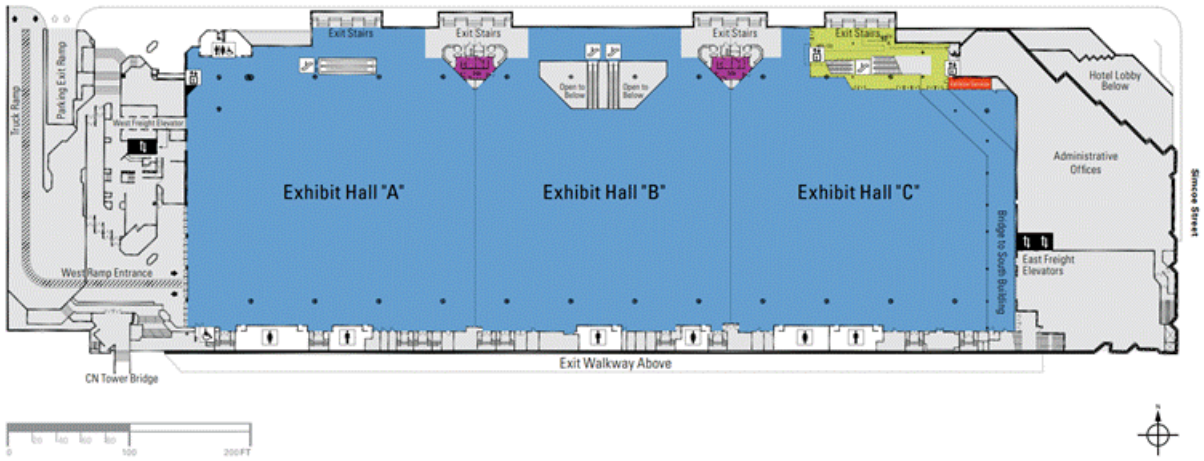
Current Level	Glossary of Symbols	Colour Coding	Capacity Number Information
	Washrooms Payphone Guest Services Escalator Freight Elevator Taxi pickup / drop Bus pickup / drop First Aid Parking	Meeting Space Pre-function Space	***Capacities** do not take into account space required for A/V equipment, food and beverage service, staging and operable walls. [1]**Theatre** setup numbers include a head table. [2]**Classroom** setup: 3 people per table (6' x 1.5') [3]**Banquet** setup: 10 people per round table (66")



SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
WEST MEETING ROOMS	201A	25 x 28	7.6 x 8.5	700	65.0	14	4.3		59	36	50	70
	201B	30 x 28	9.1 x 8.5	840	78.0	14	4.3		76	46	60	84
	201C	25 x 31	7.6 x 9.5	775	72.0	14	4.3		70	42	60	77
	201D	30 x 31	9.1 x 9.5	930	86.4	14	4.3		100	56	80	93
	201E	25 x 25	7.6 x 7.6	625	58.1	14	4.3		54	30	50	63
	201F	30 x 25	9.1 x 7.6	750	69.7	14	4.3		76	40	60	75
	201	**55 x 84**	**16.8 x 25.6**	**4,620**	**429.2**	**14**	**4.3**		**436**	**252**	**400**	**462**
	202A	26 x 30	7.9 x 9.1	780	72.5	14	4.3		66	39	60	78
	202B	34 x 30	10.4 x 9.1	1,020	94.7	14	4.3		93	59	90	102
	202C	26 x 27	7.9 x 8.2	702	65.2	14	4.3		60	33	50	70
	202D	34 x 27	10.4 x 8.2	918	85.3	14	4.3		84	52	80	92
	202	**60 x 57**	**18.3 x 17.4**	**3,420**	**317.7**	**14**	**4.3**		**343**	**187**	**250**	**342**
	203A	26 x 28	7.9 x 8.5	728	67.1	14	4.3		65	39	50	73
	203B	37 x 28	11.3 x 8.5	1,036	96.1	14	4.3		100	60	90	104
	203C	26 x 25	7.9 x 7.6	650	60.0	14	4.3		51	30	50	65
	203D	37 x 25	11.3 x 7.6	925	85.9	14	4.3		85	50	80	92
	203	**63 x 53**	**19.2 x 16.1**	**3,339**	**309.1**	**14**	**4.3**		**318**	**180**	**250**	**340**
	204	**43 x 50**	**13.1 x 15.2**	**2,150**	**203.7**	**14**	**4.3**		**160**	**93**	**160**	**215**
EAST MEETING ROOMS	205A	35 x 27	10.7 x 8.2	945	87.7	14	4.3		90	55	80	95
	205B	38 x 27	11.6 x 8.2	1,026	95.1	14	4.3		105	60	90	102
	205C	35 x 29	10.7 x 8.8	1,015	94.2	14	4.3		100	55	90	101
	205D	38 x 29	11.6 x 8.8	1,102	102.1	14	4.3		120	65	90	110
	205	**73 x 56**	**22.2 x 17.0**	**4,088**	**379.1**	**14**	**4.3**		**415**	**250**	**340**	**414**
	206A	36 x 27	11.0 x 8.2	972	90.2	14	4.3		85	50	80	97
	206B	40 x 27	12.2 x 8.2	1,080	100.0	14	4.3		95	60	90	108
	206C	36 x 32	11.0 x 9.8	1,152	107.8	14	4.3		112	65	90	115
	206D	40 x 32	12.2 x 9.8	1,280	119.7	14	4.3		128	65	90	128
	206E	36 x 27	11.0 x 8.2	972	90.2	14	4.3		91	52	80	97
	206F	40 x 27	12.2 x 8.2	1,080	100.0	14	4.3		102	62	90	108
	206	**76 x 86**	**23.1 x 26.1**	**6,536**	**607.9**	**14**	**4.3**		**615**	**366**	**520**	**646**
	205-206	**76 x 142**	**23.1 x 43.1**	**10,624**	**987.0**	**14**	**4.3**		**1,030**	**618**	**880**	**1,060**

Level 300





SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE†	CLASSROOM†	BANQUET†	RECEPTION
EXHIBIT HALLS	HALL A	252 x 266	76.8 x 81.1	67,032	6,228.5	35/48	10.6/14.6	316	5,160	2,890	3,700	6,240
	HALL B	224 x 266	68.3 x 81.1	59,584	5,539.1	35/48	10.6/14.6	283	1,830	1,830	1,830	1,830
	HALL C	252 x 218	76.8 x 66.4	54,936	5,099.5	35/48	10.6/14.6	282	2,500	2,500	2,500	2,500
	HALL ABC	728 x 250	221.9 x 76.2	182,000	16,908.4	35/48	10.6/14.6	900†	10,590	8,100	10,170	10,570
SHOW OFFICE	308/309	N/A	N/A	240	22.3	7.9	2.4		N/A	N/A	N/A	N/A

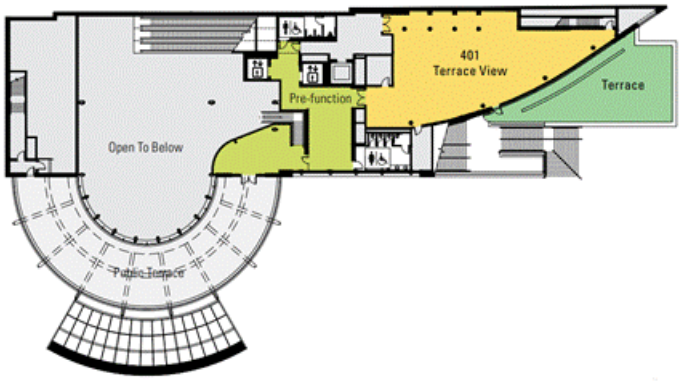
† When using Exhibit Halls A, B & C together without operable walls.

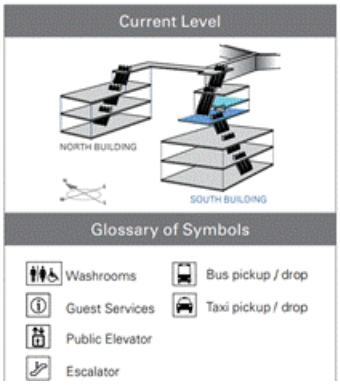






Level 400-500







Colour Coding

- Pre-function Space
- Meeting Space
- Terrace/Balcony

Capacity Number Information

***Capacities** do not take into account space required for A/V equipment, food and beverage service, staging and operable walls.

[1] **Theatre** setup numbers include a head table.

[2] **Classroom** setup: 3 people per table (6' x 1.5')

[3] **Banquet** setup: 10 people per round table (66")

Level 400

SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
PRE-FUNCTION SPACE		57 x 33	17.4 x 10.1	1,108	102.9	8	2.4		N/A	N/A	N/A	N/A
TERRACE VIEW	**401**	**61 x 43**	**18.6 x 13.1**	**2,900**	**269.4**	**11**	**3.4**		**225**	**120**	**180**	**225**
TERRACE		68 x 31	20.7 x 9.4	1,289	119.8	N/A	N/A		N/A	N/A	N/A	N/A

Level 500

SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
PRE-FUNCTION SPACE		63 x 16	19.2 x 4.9	982	91.2	10	3.0		N/A	N/A	N/A	N/A
PARK VIEW	**501A**	**76 x 35**	**23.2 x 10.7**	**2,760**	**256.4**	**10.5/11.5**	**3.2/3.5**		**209**	**138**	**190**	**209**
	501B	23 x 29	7.0 x 8.8	710	65.9	10.5	3.2		50	30	40	69

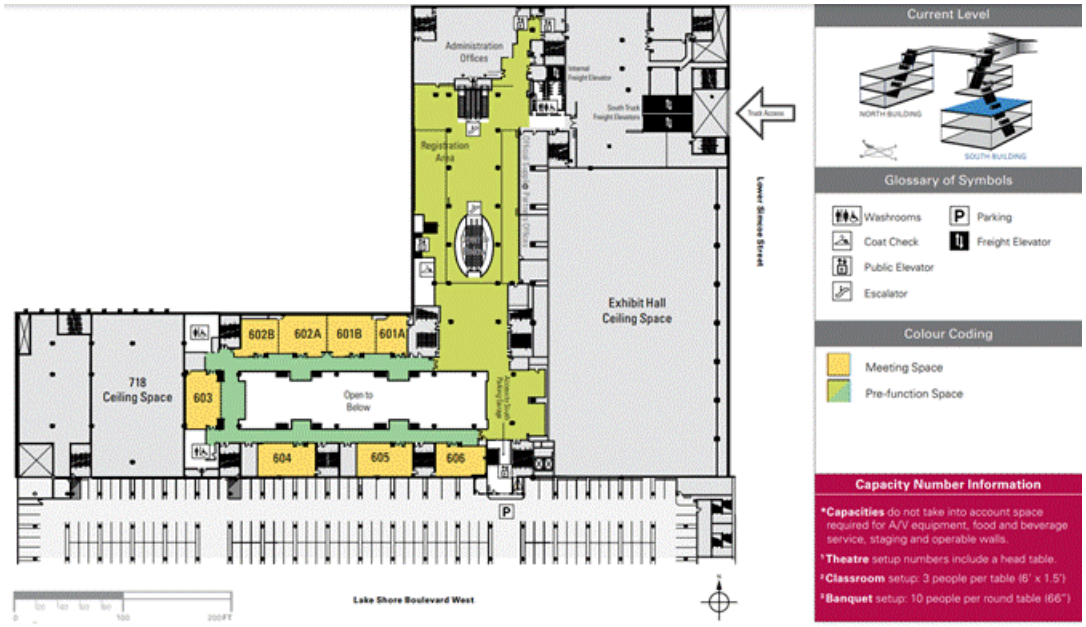






Level 600

SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
MEETING ROOMS	601A	35 x 29	10.7 x 8.8	1,005	93.4	10/11	3.0/3.2		76	54	70	98
	601B	38 x 44	11.6 x 13.4	1,608	149.4	10/11	3.0/3.4		140	90	120	158
	601	**38 x 73**	**11.6 x 22.3**	**2,613**	**242.8**	**10/11**	**3.0/3.4**		**235**	**150**	**200**	**256**
	602A	38 x 44	11.6 x 13.4	1,600	148.6	10/11	3.0/3.4		140	90	120	157
	602B	34 x 34	10.4 x 10.4	1,172	108.9	10/11	3.0/3.3		90	56	80	115
	602	**38 x 79**	**11.6 x 24.1**	**2,772**	**257.5**	**10/11**	**3.0/3.4**		**255**	**156**	**200**	**272**
	601-602	**38 x 152**	**11.6 x 46.3**	**5,385**	**500.3**	**10/11**	**3.0/3.4**		**446**	**290**	**410**	**528**
	603	**32 x 53**	**9.8 x 16.2**	**1,630**	**151.4**	**9/10**	**2.7/3.0**		**150**	**86**	**120**	**160**
	604	**30 x 53**	**9.1 x 16.2**	**1,561**	**145.0**	**9/11**	**2.7/3.4**		**144**	**84**	**120**	**152**
	605	**30 x 51**	**9.1 x 15.5**	**1,548**	**143.8**	**9/11**	**2.7/3.4**		**132**	**84**	**120**	**152**
	606	**30 x 46**	**9.1 x 14.0**	**1,310**	**121.7**	**9/11**	**2.7/3.3**		**110**	**66**	**80**	**128**


Administration Offices
Registration Area
Exhibit Hall Ceiling Space
718 Ceiling Space
602B
602A
601B
601A
603
Open to Below
604
605
606
Lake Shore Boulevard West
Lower Simcoe Street
Current Level
NORTH BUILDING
SOUTH BUILDING
Glossary of Symbols
Washrooms
Parking
Coat Check
Freight Elevator
Public Elevator
Escalator
Colour Coding
Meeting Space
Pre-function Space
Capacity Number Information
*Capacities do not take into account space required for A/V equipment, food and beverage service, staging and operable walls.
1 Theatre setup numbers include a head table.
2 Classroom setup: 3 people per table (6' x 1.5')
3 Banquet setup: 10 people per round table (66")

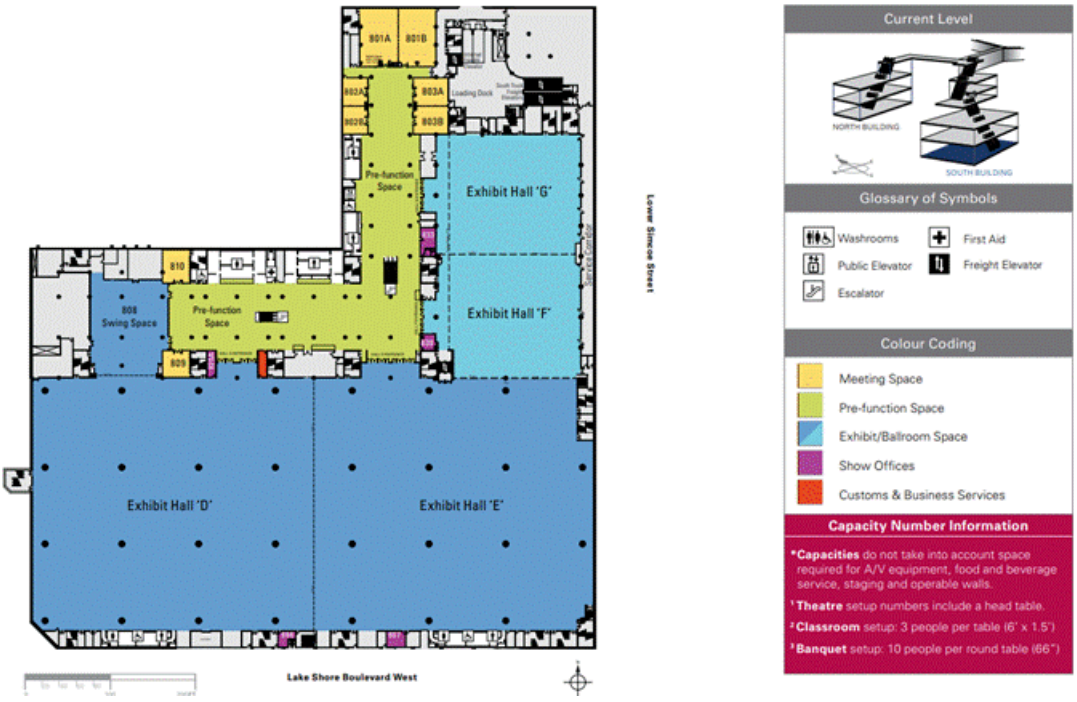


Level 700



SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
MEETING ROOMS	701A	87 x 45	26.5 x 13.7	3,906	362.9	14	4.3		415	224	300	390
	701B	87 x 45	26.5 x 13.7	3,915	363.7	12/14	3.7/4.3		415	226	300	390
	701	**87 x 90**	**26.5 x 27.4**	**7,821**	**726.6**	**14**	**4.3**		**840**	**504**	**600**	**780**
	702	**26 x 20**	**7.9 x 6.1**	**406**	**37.7**	**14**	**4.3**		N/A	N/A	N/A	N/A
	703	**41 x 32**	**12.5 x 9.8**	**1,219**	**113.2**	**14**	**4.3**		**120**	**74**	**90**	**120**
	704	**28 x 31**	**8.5 x 9.4**	**844**	**78.4**	**14**	**4.3**		**75**	**39**	**50**	**86**
	705	**41 x 35**	**12.5 x 10.7**	**1,392**	**129.3**	**14**	**4.3**		**120**	**75**	**90**	**140**
	706	**28 x 35**	**8.5 x 10.7**	**937**	**87.0**	**14**	**4.3**		**80**	**42**	**60**	**100**
	707	**41 x 35**	**12.5 x 10.7**	**1,392**	**129.3**	**14**	**4.3**		**120**	**75**	**90**	**140**
	709	**41 x 35**	**12.5 x 10.7**	**1,392**	**129.3**	**14**	**4.3**		**120**	**75**	**90**	**140**
	710	**28 x 24**	**8.5 x 7.3**	**649**	**60.3**	**14**	**4.3**		**50**	**27**	**30**	**67**
	711	**41 x 34**	**12.5 x 10.4**	**1,389**	**129.0**	**14**	**4.3**		**120**	**75**	**90**	**140**
	712	**28 x 34**	**8.5 x 10.4**	**930**	**86.4**	**14**	**4.3**		**80**	**42**	**60**	**95**
	713A	43 x 34	13.1 x 10.4	1,458	135.4	14	4.3		144	84	100	146
	713B	43 x 34	13.1 x 10.4	1,458	135.4	14	4.3		144	84	100	146
	713	**43 x 68**	**13.1 x 20.7**	**2,916**	**270.9**	**14**	**4.3**		**295**	**174**	**220**	**292**
	714A	50 x 40	15.2 x 12.2	1,962	182.3	14	4.3		198	125	140	196
	714B	50 x 39	15.2 x 11.9	1,939	180.1	14	4.3		198	125	140	196
	714	**50 x 79**	**15.2 x 24.1**	**3,901**	**362.4**	**14**	**4.3**		**425**	**252**	**280**	**392**
	716A	50 x 39	15.2 x 11.9	1,939	180.1	14	4.3		198	125	140	196
	716B	50 x 40	15.2 x 12.2	1,962	182.3	14	4.3		198	122	140	196
	716	**50 x 79**	**15.2 x 24.1**	**3,901**	**362.4**	**14**	**4.3**		**425**	**252**	**280**	**392**
	714/716	**50 x 158**	**15.2 x 48.2**	**7,802**	**724.8**	**14**	**4.3**		**805**	**462**	**600**	**784**
	715A	43 x 34	13.1 x 10.4	1,458	135.4	14	4.3		144	84	100	146
	715B	43 x 34	13.1 x 10.4	1,458	135.4	14	4.3		144	84	100	146
	715	**43 x 68**	**13.1 x 20.7**	**2,916**	**270.9**	**14**	**4.3**		**295**	**174**	**220**	**292**
	717A	43 x 34	13.1 x 10.4	1,458	135.4	14	4.3		144	84	100	146
	717B	43 x 34	13.1 x 10.4	1,458	135.4	14	4.3		144	84	100	146
	717	**43 x 68**	**13.1 x 20.7**	**2,916**	**270.9**	**14**	**4.3**		**295**	**174**	**220**	**292**
	718A	93 x 54	28.3 x 16.5	5,022	466.5	22	6.7		585	334	420	502
	718B	93 x 54	28.3 x 16.5	5,022	466.5	22	6.7		580	335	420	502
	718	**93 x 108**	**28.3 x 32.9**	**10,044**	**932.9**	**22**	**6.7**		**1,175**	**705**	**840**	**1,004**

Level 800



SPACE DESCRIPTION	ROOM NUMBER	DIMENSIONS (DXW)		USABLE AREA		CEILING HEIGHT		10×10 BOOTHS	CAPACITIES*			
		FEET	METRES	SQ FEET	SQ METRES	FEET	METRES		THEATRE[1]	CLASSROOM[2]	BANQUET[3]	RECEPTION
MEETING ROOMS	801A	67 x 44	20.4 x 13.4	2,912	270.5	14	4.3		325	190	240	294
	801B	67 x 44	20.4 x 13.4	2,936	272.5	14	4.3		320	190	240	294
	801	**67 x 88**	**20.4 x 26.8**	**5,848**	**543.3**	**14**	**4.3**		**660**	**390**	**470**	**588**
	802A	28 x 33	8.5 x 10.1	918	85.3	14	4.3		77	41	50	92
	802B	28 x 33	8.5 x 10.1	918	85.3	14	4.3		78	41	50	92
	802	**28 x 66**	**8.5 x 20.1**	**1,836**	**170.6**	**14**	**4.3**		**179**	**102**	**120**	**184**
	803A	41 x 33	12.5 x 10.1	1,335	124.0	14	4.3		120	73	90	134
	803B	41 x 33	12.5 x 10.1	1,335	124.0	14	4.3		120	72	90	134
	803	**41 x 66**	**12.5 x 20.1**	**2,670**	**248.0**	**14**	**4.3**		**273**	**168**	**180**	**268**
	809	**31 x 32**	**9.4 x 9.8**	**957**	**88.9**	**14**	**4.3**		**88**	**50**	**60**	**99**
	810	**38 x 32**	**11.6 x 9.8**	**1,185**	**110.1**	**14**	**4.3**		**116**	**64**	**70**	**121**
EXHIBIT HALLS	**Hall D**	304 x 329	90.5 x 100.3	100,000	9,300.0	34	10.4	479	3,282	3,282	3,282	3,282
	Hall E	304 x 329	90.5 x 100.3	100,000	9,300.0	34	10.4	470	3,282	3,282	3,282	3,282
	Hall DE	**304 x 658**	**90.5 x 200.6**	**200,00**	**18,600.0**	**34**	**10.4**	**949**	**6,564**	**6,564**	**6,564**	**6,564**
	Hall F	169 x 143	51.5 x 43.6	25,000	2,323.0	34	10.4	108	2,400	1,770	1,910	2,400
	Hall G	169 x 143	51.5 x 43.6	25,000	2,323.0	34	10.4	110	2,400	1,798	1,940	2,400
	Hall FG	**169 x 286**	**51.5 x 87.2**	**50,000**	**4,646.0**	**34**	**10.4**	**218**	**4,800**	**3,270**	**3,810**	**4,800**
	Hall DEFG			**250,000**	**23,246.0**	**34**	**10.4**	**1,283[3]**				
	808 Swing Space	92 x 101	28.0 x 30.7	9,325	866.3	14	4.3	44	N/A	N/A	N/A	N/A
	Hall DEFG & 808			**259,325**	**24,112.3**	**14/34**	**4.3/10.4**	**1,327[4]**	**N/A**	**N/A**	**N/A**	**N/A**
SHOW OFFICES	825A	28 x 9	8.5 x 2.7	252	23.0	12	3.7		N/A	N/A	N/A	N/A
	830	18 x 17	5.5 x 5.2	306	28.6	12	3.7		N/A	N/A	N/A	N/A
	833	18 x 24	5.5 x 7.3	432	40.2	12	3.7		N/A	N/A	N/A	N/A
	866	20 x 17	6.1 x 5.2	340	31.7	12	3.7		N/A	N/A	N/A	N/A
	867	17 x 21	5.2 x 6.4	357	33.3	12	3.7		N/A	N/A	N/A	N/A

4.5.3 Salient Features

4.5.3.1 Exhibit Halls

- 442,000 sq. ft. of state-of-the-art exhibit space divides into seven halls; three halls in the North Building and four halls in the South Building
- North Halls: A, B & C, total 182,000 sq. ft. (column free), divides into three sections. Hall A: 67,032 sq. ft., Hall B: 59,584 sq. ft. and Hall C: 54,936 sq. ft.

- South Halls: D, E, F & G, total 250,000 sq. ft. divides into four sections. Hall D: 100,000 sq. ft., Hall E: 100,000 sq. ft., each with columns on 90 ft. centres. Hall F: 25,000 sq. ft. and Hall G: 25,000 sq. ft., each column free and 10,000 sq. ft. of Swing Space.
- Show Manager Offices: two total for of Halls A, B & C combined, five total for Halls D, E, F & G combined, including a VIP Green Room.



4.5.3.2 Meeting Rooms

- 77 fully carpeted meeting rooms; 35 rooms in the North Building covering 65,000 sq. ft. and 42 rooms in the South Building covering 75,000 sq. ft.
- Soundproof, operable walls allow for versatile meeting room configurations from 400 sq. ft. to 10,000 sq. ft.
- The Summit Room is a VIP boardroom complete with ensuite washroom.
- The Terrace View and Park View meeting rooms are modern in design with east view scenery, floor to ceiling windows, and each containing ensuite washrooms.
- State-of-the-art built-in projectors and screens readily available in select meeting rooms.



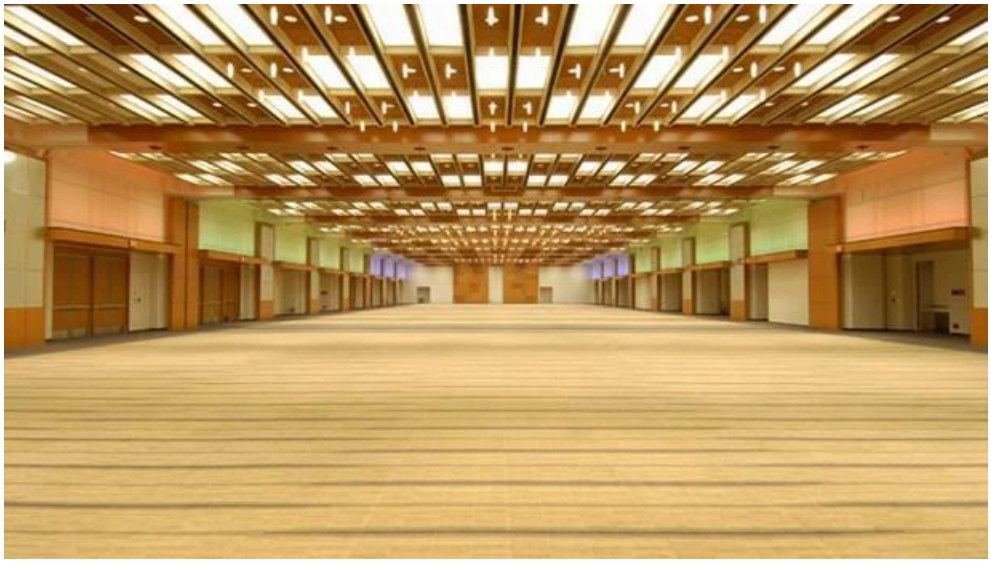







4.5.4 Ballroom Space

- 78,000 sq. ft. of fully carpeted ballroom space with upgraded finishes and flexible lighting to suit various function requirements. The North Building features the 28,000 sq. ft. Constitution Hall and the South Building contains the 50,000 sq. ft. Hall F & G.
- Soundproof, operable walls allow Constitution Hall to be divided into three smaller rooms and Halls F & G to be divided into smaller Hall F and Hall G.



John W. H. Bassett Theatre

- 1,232 seat multi-purpose auditorium with superior quality seats and acoustics, seven dressing rooms, green room, backstage facilities and full orchestra pit.

- Exclusive, experienced in-house staging contractors provide all services including lighting and sound.
- Featuring a large professional stage area and flexible lighting and sound. Designed to accommodate even the most elaborate of stage productions.
- The theatre offers excellent acoustics and unobstructed sightlines from every plush, high-backed seat in the house. Fully outfitted and flexible professional facility that is easily accessible to you and your guests.

4.5.5 Entrance, Registration and Pre-function Space

- Four entrances: Front Street, Skywalk (glass enclosed pathway connecting to mass transit), Internal Street (Convention Centre's weather protected walkway), and the 11,000 sq. ft. South Building entrance.
- Digital screens and walls located throughout the facility.
- 157,000 sq. ft. of carpeted pre-function space; 85,000 sq. ft. in the North Building and 72,000 sq. ft. in the South Building.





4.5.5.6 Show Offices

Two Show Offices on Level 300 of the North Building account for the seven in total featured within our facility. Here, they are located on the north side of the Exhibit Halls, they come equipped with ensuite washrooms, and they are in close proximity to the Exhibitor Services and Business Centre.

Terrace Room

The Terrace View is a modern designed meeting room all on its own private level. The room boasts floor to ceiling windows, which presents a beautiful east view scene. This highly demanded space has a dedicated pre-function area, and a private terrace. It is the perfect space for a social gathering or unique meeting.

Park View

The Park View room is an extremely flexible street level meeting space. This room may be divided into two by a partial operable wall. These two spaces will normally be utilized together, and provide a degree of privacy when needed. Features of room 501 include east view scenery, floor to ceiling windows, dedicated pre-function space, and its own set of washrooms.

4.5.6 Material and Lighting

Rockfon products use stone wool as raw material to create beautiful, comfortable, safe and healthy indoor environments, while making a constructive contribution toward a sustainable future. Rockfon Koral ceiling panels contain up to 34% recycled content. Rockfon ceiling panels are made of water-resistant stone wool, which provides no sustenance to harmful microorganisms.

Further supporting LEED criteria for energy efficiency, stone wool ceiling panels' smooth surface also is highly reflective and can play a significant role in enhancing energy efficiency through better distribution of light. On MTCC's South Building, the ceiling panels have a light reflectance (LR) of 0.86. This measurement indicates 86 percent of light, both daylight and light from the high-efficiency electronic fixtures, is reflected from the panel's surface.

Maximizing the use of natural light may allow the number of light fixtures to be reduced. Lowering electronic light loads may reduce cooling costs by 7%. Jaikaran elaborates, "Having a white ceiling tile with a smooth surface and high light reflectance brightens up the space, which could potentially mean energy savings, light reduction and a cooler space."

Inferences

a) The Metro Toronto Convention Centre (MTCC) in Canada is well-known for its beautiful architecture. The structure itself is modern and sleek, with contemporary design elements that add to its aesthetic appeal.

b) The MTCC's exterior is distinguished by a striking façade made of glass and steel. The glass panels allow plenty of natural light to enter the interior spaces, creating a bright and welcoming atmosphere.

c) The convention centre has multiple levels and a wide range of flexible spaces for various events. The interior design is both functional and visually appealing, with wide corridors and open spaces that allow for easy visitor navigation and flow.

d) The MTCC's exhibition halls are large and versatile, accommodating large-scale events like Fan Expo Canada. These halls have high ceilings, allowing for elaborate displays, stages, and booths.

e) The exhibition spaces at the MTCC are outfitted with cutting-edge lighting systems that can be customised to enhance various event themes and create immersive experiences. The lighting design enhances exhibits and creates an engaging atmosphere for Fan Expo attendees.

f) The convention centre also has a number of meeting rooms and conference facilities that can accommodate gatherings of various sizes and types. These rooms are outfitted with cutting-edge audiovisual technology to support presentations and discussions throughout the event.

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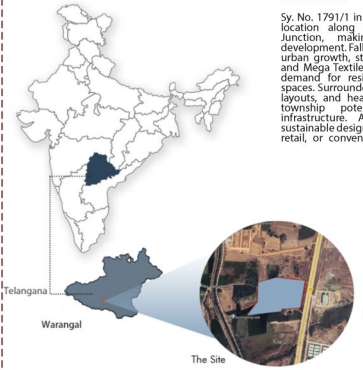
SITE ANALYSIS

CONVENTION CENTRE

INTRODUCTION



SITE CONTEXT

Sy. No. 1791/1 in Madikonda, Warangal, enjoys a prime location along NH-163 with proximity to Kazipet Junction, making it well-suited for mixed-use development. Falling under GWMC, it benefits from rapid urban growth, strong connectivity, and nearby IT SEZ and Mega Textile Park, driving economic vibrancy and demand for residential, commercial, and hospitality spaces. Surrounded by IT offices, institutions, residential layouts, and healthcare, the site supports integrated township potential with access to essential infrastructure. Architecturally, it offers scope for sustainable design and iconic developments like IT parks, retail, or convention centers aligned with Warangal's smart city vision.

Latitude, Longitude- 17.9891596, 79.5324180
Location- Hanamkonda Road, Hyderabad - Waran- gal Highway
Land type- Public Site orientation- North-South

PROJECT DETAILS
Site Area - 10 acres or 40,468 sq. metres
Proposing Agency - Telangana State Industrial Infrastructure Corporation Limited (TSIIC)

MANDATORY FACILITIES
i. a ~5000 seater state-of-the-art International Convention Centre
ii. a 500-room Convention Hotel
iii. a 4 screen, 800-seater Multiplex

The project will include the construction of (Majorly) -
i. an international convention centre
ii. a fan expo
iii. media and art public galleries

CONNECTIVITY AND PROXIMITY


Bus stand
distance: 15.9 KM


Railway
distance: 9.4 KM


Warangal Airport
distance: 25.3 KM

S

STRENGTHS

1.Large 10-acre flat land parcel suitable for large-span structures.
2.Wide road frontage for easy vehicular movement and grand entry.
3.Opposite Textile Park, giving contextual link to handloom heritage theme.

W

WEAKNESSES

1.Site lacks natural vegetation/landscape buffers ⊠ may need artificial green development.
2.Distance from Warangal city centre may reduce pedestrian accessibility.
3.Surrounding IT/industrial buildings create a non-cultural urban context (less scenic).

O

OPPORTUNITIES

1.Can integrate local materials (granite, stone, handloom textures) into architecture.
2.Large setbacks allow for public plazas, green edges, and water-sensitive landscaping.
3.Future growth of IT Park + Textile Park ,potential synergy for business & cultural events.

O

THREATS

1.Proximity to industrial sheds may limit aesthetic visibility if not designed iconically.
2.Risk of heat island effect due to barren land and surrounding hardscape.
3.Dependence on future urban infrastructure upgrades (roads, airport).

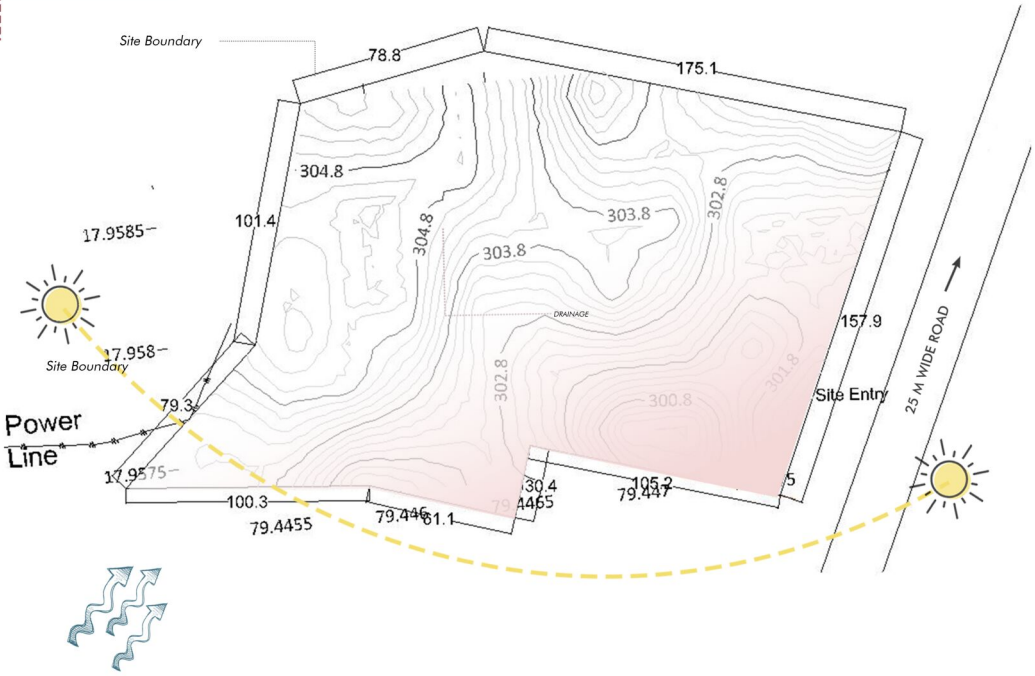

ACCESSIBILITY
ROAD:
The primary road (warangal-hyderabad national highway, is 25-m wide which functions as the main access road


CONTOURS AND DRAINAGE
HIGH LOW
Levels and buildings on site to be placed & designed to divert water majorly towards existing drains


ELECTRICITY
ELECTRICITY LINE
Presence of electrical line adjacent to site


DRAINAGE
RIDGES
VALLEYS
Red lines are indication ridges and blue lines are indication valleys

SITE ANALYSIS



SITE VIEWS











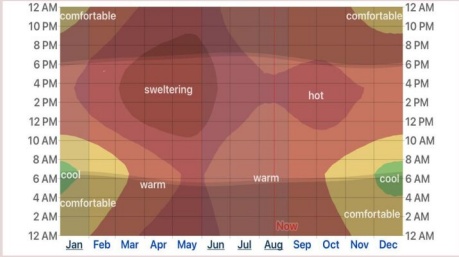
CLIMATIC ANALYSIS

PRECIPITATION CHART



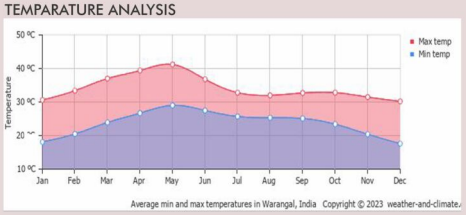
Warangal receives most of its rainfall during the monsoon months of **June to September**, peaking in **July and August** with over 250 mm. The rest of the year remains largely dry, requiring efficient **rainwater harvesting and drainage planning** in design.

DAY COMFORT CHART



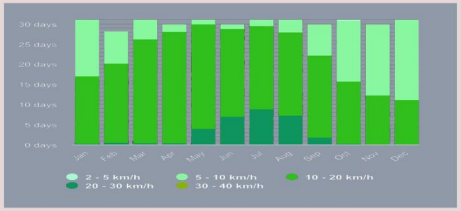
The diurnal comfort chart shows Warangal shifting from cool mornings in winter to sweltering afternoons in peak summer.

TEMPARATURE ANALYSIS



Warangal experiences high summer temperatures peaking around 42°C in May, with mild winters averaging 17–30°C.

WIND ANALYSIS



Warangal has calm to moderate winds for most of the year, with the strongest winds during the southwest monsoon (May–July).

AREA STATEMENT

Site Area	10 acres (40,468 sq.m.)
Total Built 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

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CASE STUDIES AND INFERNCES

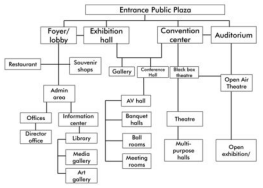
CONVENTION CENTRE

BYE LAWS INFERENCES

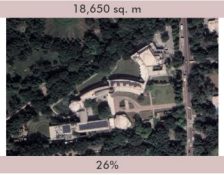
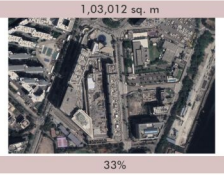
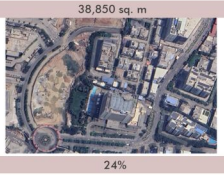
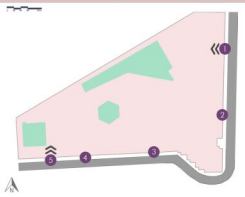
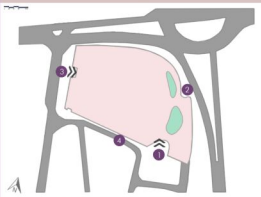
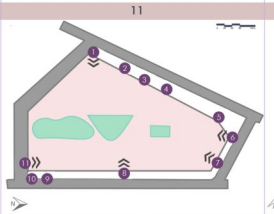
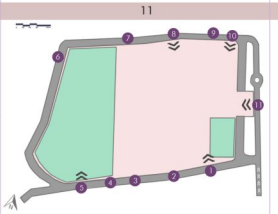
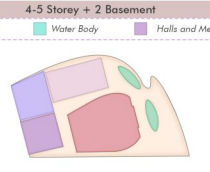
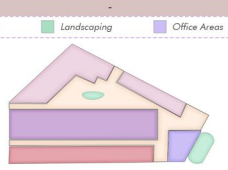
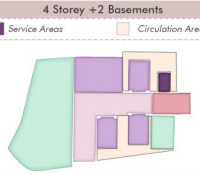
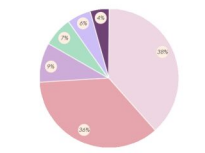
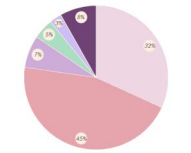
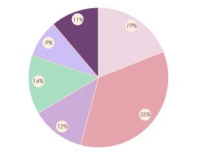
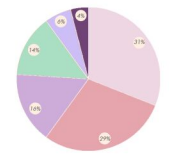
Type of Area under Development Plan 2028 Taleigao : Special Commercial 300 FAR				
S. No.	Attributes	Spaces	No. of units	Inferences
		SITE LEVEL		
1	Entrance	Main, Service and VIP		The entry or exit, to the plot situated at the intersection of the roads having a width of 10.00 mts. or more, shall be located at least 15.00 mts. away from the tangent point of such intersection
2	Guard Room		At every gate	For security it should be automated UVSS system installation at the gate and checking of four- wheelers
3	Porch	Pick- up and drop, Valet Desk and Baggage handling		
4	Landscape	Every plot of land shall have at least one tree for every 100 m2 or part thereof		15 %, out of which 10% is to be developed as recreational open space and 5 % as general pool parking which is open to sky and shall not be built upon.
5	Parking	In SPC two stilts for parking shall be allowed free of FAR and also free from calculation of building height	One space for floor area of 20 m2 or part thereof	
	on-site parking			The car parking area shall have two independent accesses leading to the street, if its capacity exceeds 19 parking spaces. However only one such access may be permitted if its minimum width is 5.00 meters and which shall be a no parking zone.
	Basement parking	In case of basement being used as car parking only, the travel distance shall be 45 m.		
6	Basement	Sufficient number of exit ways and access ways shall be provided with a travel distance not more than 15.0 m. The travel distance in case of dead-end shall be 7.5 m.		The basement shall be partitioned and in no case compartment shall be more than 500 sq. m. and less than 50 sq. m. area except parking.
7	Services			Buildings having 1000 m2 of floor area or above have to compulsorily provide built-up room of size 2 mts. x 3 mts. with fire barriers on the ground floor nearest to the public road
		CIRCULATION		
1	Lifts	If the vertical travel distance of the building exceeds 12 meters from the ground floor at least one lift shall be provided in the building.		
	Fire Lifts			The lift shall have a floor area of not less than 1.4 sq. mt. It shall have a loading capacity of not less than 545 kg. (8 persons lift) with automatic closing doors
2	Staircase			The staircase shall be completely enclosed in the case of multi storied buildings above 7 mts. in height.
3	Fire Exit	No exit doorway shall be less than 75 cm. in width in case of residential buildings, and 100 cm. in case of other buildings. Doorway shall be not less than 200 cm. in height.		
	Capacity of Exit	For Commercial- 50 (Stairways) 75 (No of occupant doors)		The unit of exit width used to measure capacity of any exit shall be 50 cm. A clear width of 25 cm. shall be counted as an additional half unit. Clear width less than 25 cm. Shall not be counted for exit width

LIST OF SPACES AND CONNECTIVITY - CONVENTION CENTRE

Public Spaces	Semi- public Spaces	Recreational Spaces	Private Spaces	Services
Reception & Waiting	Conference rooms	Landscaped areas	Administrative Offices	Storage Rooms
			President's / Director's	
Entrance Foyer	Meeting halls	Gardens / Lawns	Office	Recording rooms
Atriums	Breakout rooms	OAT	Suites	Rehearsal rooms
Auditorium	Lounges	Water bodies	VIP Lounges	Technical rooms
Multipurpose Hall	Offices	Outdoor Plazas	Green rooms	Control rooms
Multipurpose Arena	Foyers & Lobbies	Sitting Spaces	Changing rooms	Disposing rooms
Ball rooms	Dinning halls & spaces	Nursery	Press rooms	Electrical rooms
AV halls	Cloakrooms	Swimming pool	Staff Accommodation	AHU Unit rooms
Exhibition Spaces	Rest rooms	Assembly Points	Staff Cafeteria	Janitor rooms
Banquet halls	Stage	Memorial Space	Kitchen	Interpretation rooms
		Walkways / Pathways	Pantry	Security rooms
Galleries	Art Gallery			
Experience center	Media Gallery	Buffer areas / spaces	Management rooms	Preparation rooms
Restaurants	VIP Library	Observation Point /	Backstage	Audio-video rooms
Cafetarias	VIP expo space	Pavilion		Changing rooms
Bar		Open Expo Space		Management rooms
Library				Washrooms
Information Center				Guard Units
Ticket booth				Water Treatment Plant
Terraces				Electrical Substation
Patios				Power Back-up rooms
ATMs				BWH Plant
Souvenir shops				Air-Conditioning Plant
Retails units				Fire Station
Security Checkpoints				Pump rooms
Parking (On-site)				Laundry
Reserved Parking				Medical room
Staff Parking				Loading / Unloading



The convention centre focuses on seamless connectivity. Incorporating advanced technology, fluid spatial design, and intuitive wayfinding, it aims to foster interaction, accessibility, and efficient movement, enriching the overall event experience within the vibrant and interconnected spaces.

Parameters	Indian International Center	ICE Krakow Congress Centre	Jio Convention Center	Hyderabad Convention Centre	Inferences
	Delhi, India	Krakow, Poland	Mumbai, India	Hyderabad, India	
					
Year of Construction	1962	2014	2023	2006	
Site Area	18,650 sq. m	36,720 sq. m	1,03,012 sq. m	38,850 sq. m	Selected site area to be followed
Site Plan					
Ground Coverage	26%	39%	33%	24%	Building bye-laws to be followed
Footfall	1.5K-3K avg.	2.5K-3.5K avg.	15K-16K avg.		7K-8K avg.
Capacity	Conference Hall: 450 pax	Conference Hall: 4000 pax	Conference Hall: 10,640 pax	Conference Hall: 6000 pax	Conference Hall: 3000 pax (proposed)
Structure	RCC Framed Structure, Waffle Slab, Flat Slab	Glass, Ceramics, Aluminium, Steel Frame	Super Structure: Lateral System	Steel Framed Structure, Waffle Slab, Glass	Structure according to site's soil type and climate
Number of Entries	5	4	11	11	More the number of gates better the crowd management
Site Access					Avoiding overlapping of traffic should be considered as well. Vehicular movement shall be well planned within the site. Site can have more exposure to roads for better visibility. Seperate entry and exit to be given.
Number of Stories	4-5 Storey + 1 Basement	4-5 Storey + 2 Basement	-	4 Storey +2 Basements	Height to be followed as per the bye-laws
Horizontal Distribution					Meeting halls and recreational spaces to be strategically placed to manage public flow and movement. Plazas to be provided in the centre for uncongested spill out of public.
USP	Indoor-outdoor living, open plans and rectilinear massing creating statement facades along with open pockets acting as gathering spaces	Multi-segment stage with 7 independently adjustable modules and movable acoustic walls allowing to arrange the space acc. to needs	10,000 sq. m. halls uninterrupted by pillars with modular partition into 2 major halls, Helipad for emergency air evacuation	The main conference hall can be easily divided into 6 halls of different seating capacity with different seating arrangements	Design interventions such as flexible use of materials to be provided
Facilities	Staff gym, Pantry, Cafe, Bar, Lounge, Bakery Shop, Restaurant	Studios, Back Offices, Storage, Cafeteria	Catering Area, Multifunctional Rooms, First Aid Rooms, Vantage Point, Cloakroom	Lounges, Guest Rooms, Gym, Outdoor Swimming, Cafeterias, Loading Dock, Spa	Types of facilities provided in the convention center can vary as per context
Material Palette	Local Stone, Reinforced Concrete,Bricks,Plaster, Concrete, Steel Section and Burnt-Clay Screens	Glass, Ceramics, and Aluminium, Reinforced Concrete, Steel Section	Silver Metal Jaalis, Acoustic Materials on ceiling, Artisic Mosiac, Gold and Red Tesserae	Epoxy Flooring, Acoustic Panels made of Teak and Silk Fabric, Carpet Tiles	Material palette which respond to the design and environment will be adapted i.e. combination of contemporary and advance building material
Percentage of Spaces					Spatial distribution varries with respect to the context, requirements and developer's intent.
Services	1. The residential and catering services are open to members and their guests. 2. Additional outdoor facilities for hosting lunches, dinners, high teas, book launches, etc.	1. Advanced lighting systems provide adequate illumination in various spaces. 2. Robust communication and IT infrastructure, including high-speed internet connectivity and audiovisual equipment.	1. Advanced audiovisual equipment, lighting systems, high-speed internet connectivity. 2. Technical support to ensure seamless presentations, performances, and exhibitions.	1. Sprinkler systems, air conditioning, and CCTV facilities are installed throughout the complex. 2. 32 Fire Exists with one button threat alert system (Omnipolis) and fire alarm system	Services such as fire fighting and fire alarm system, sprinkler system, rain water harvesting, air conditioning, surveillance facilities, audiovisual equipment, technical support equipment etc to be provided.
Parking	1400 Cars	2800 Cars	5000 Cars (on-site)	1500 Cars + Loading Dock	4000 approx parking to be provided
Sustainability Strategies	Pre-cast vaulting, Green Courtyards, Operable lightweight Louvers, Jaali	-	Landscaping with over 700 native trees, Electric Charging Points for vehicles, STP, solar panels for hot water	O by Aria Life Water which generates water from air, and remineralised atmospheric water in glass bottles, Dual Solar Power and Water heater system	Passive strategies- open to sky spaces, native vegetation, local materials, green roofs, courtyards, atriums, solar power panels will be adopted in the design

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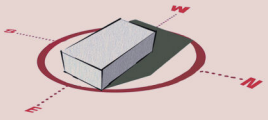
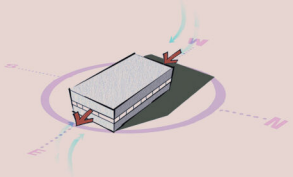
DESIGN CONCEPT

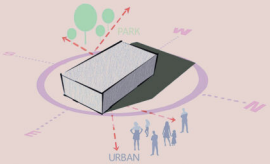
CLIMATE INFERENCES



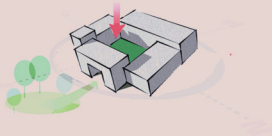
The long axis should be in east-west orientation and it should be north-south facing to protect from solar raditation.



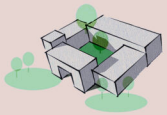
Rotate the building 30 degrees counter clockwise to allow cross-ventilation from winds between 30 and 120 degrees to the wall.



Place the open public areas on the North side providing shade to the spaces from the sun. Plant trees on the windward side for coolness.



Plant trees in the front to shade the east and west sides, protecting from the sun and obstructing the view from the main road.



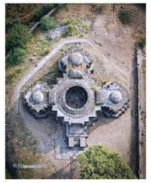
Enlarge internal openings and incorporate courtyards to enhance cross-ventilation in interior spaces.

- **Air movement:** Single banking, Permanent ventilation
- **Position of openings:** In North and South walls at body height
- **Rain protection:** Provide adequate rain water drainage
- Linear streetscapes are more advantageous for uninterrupted air movement
- Reduction of direct heat gain by radiation through openings and of the internal surface temperature

HISTORY OF WARANGAL

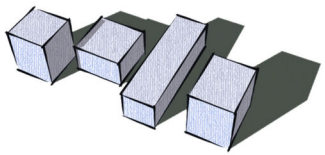




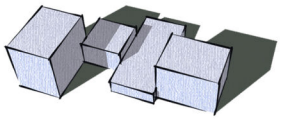




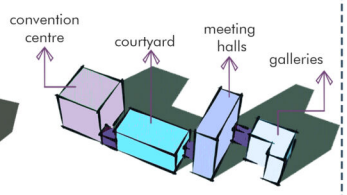
CONNECTING MAJOR SPACES WITH GREEN AND OPEN SPACES



Using major building blocks as natural shading covering the open spaces



Large spaces as seperate blocks to create element of engagement in between

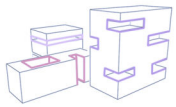


Connecting spaces through corridors, stairs, open spaces etc for openness.

CONCEPTUAL ELEMENTS

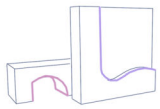


Continuous Spaces: Fluid design seeks to eliminate the strict segregation of rooms and encourages open floor plans that facilitate visual connections and easy transitions between areas. This continuous flow fosters a feeling of openness and promotes interaction between occupants.



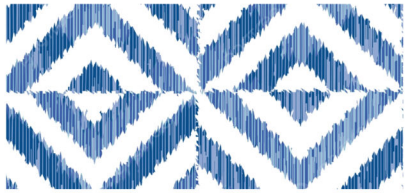
Voids to create transparency

Transparency: Incorporating transparent materials like glass or open partitions enhances the visual connectivity between different spaces and allows natural light to permeate. This transparency blurs the boundaries between inside and outside, fostering a strong connection with the surrounding environment.

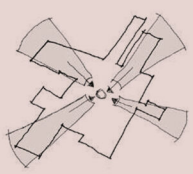


CONCEPT

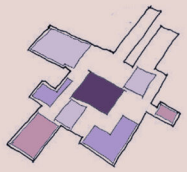
The form evolves from the traditional Ikat weaving patterns of Warangal, a craft characterized by its rhythmic geometry and interlocking motifs. Beginning with the abstraction of the diamond grid from Ikat textiles, the pattern is overlaid on the site to establish primary axes and spatial relationships. Functional zones—convention spaces, hospitality, exhibition areas—are arranged within this geometric framework, creating interlocking volumes and courtyards that echo the warp and weft of the weave. The result is a built form that not only responds to site conditions and circulation but also embodies the cultural memory of Warangal's textile heritage in its plan, massing, and facade expression.



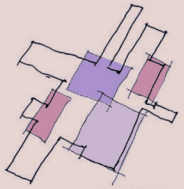
CONCEPTUAL ZONING



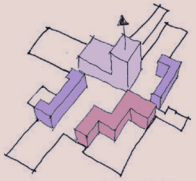
Central round about connecting all the spaces to one another



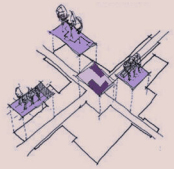
Zoning out all the spaces as different blocks



Merging out areas into major block to form spaces

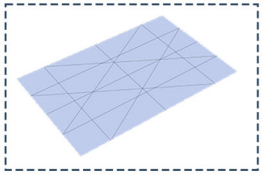


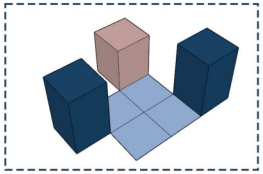
Finalising the zones into built-up spaces and green areas

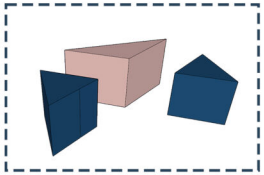


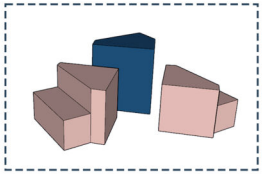
Using green spaces and corridors for connectivity

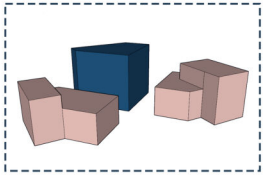
FORM VISUALIZATION

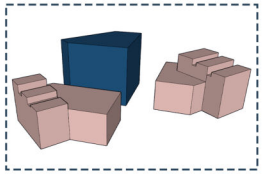












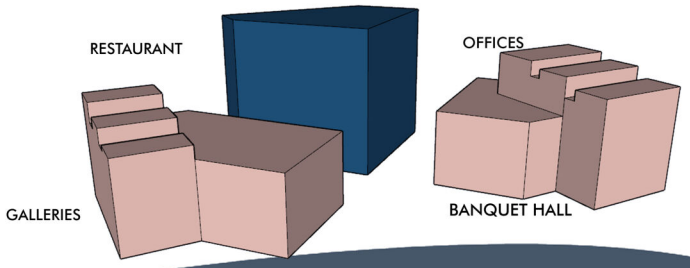
BUILDING BLOCK

OFFICES, LIBRARY, GALLERY
MEDIA GALLERIES, MEETING ROOM
CONVENTION CENTRE, LOBBY,WAITING
ENTRY, MEETING ROOMS,RETAIL

FINE DINING,RESTAURANTS, CAFES
EXPO ROOM, VIP ROOM,GAMEZONE

OFFICES, STAFF CUBICLES, WAITING
BANQUEST HALL, MULTIPURPOSE HALL,CONFERENCE

CONVENTION CENTRE



NAME: NIKITA PATIL
SCH. NO. :211110232 SEC: B
THESIS GUIDE: DR. NAVNEET MUNOTH SIR
TOPIC OF THESIS: CONVENTION CENTRE

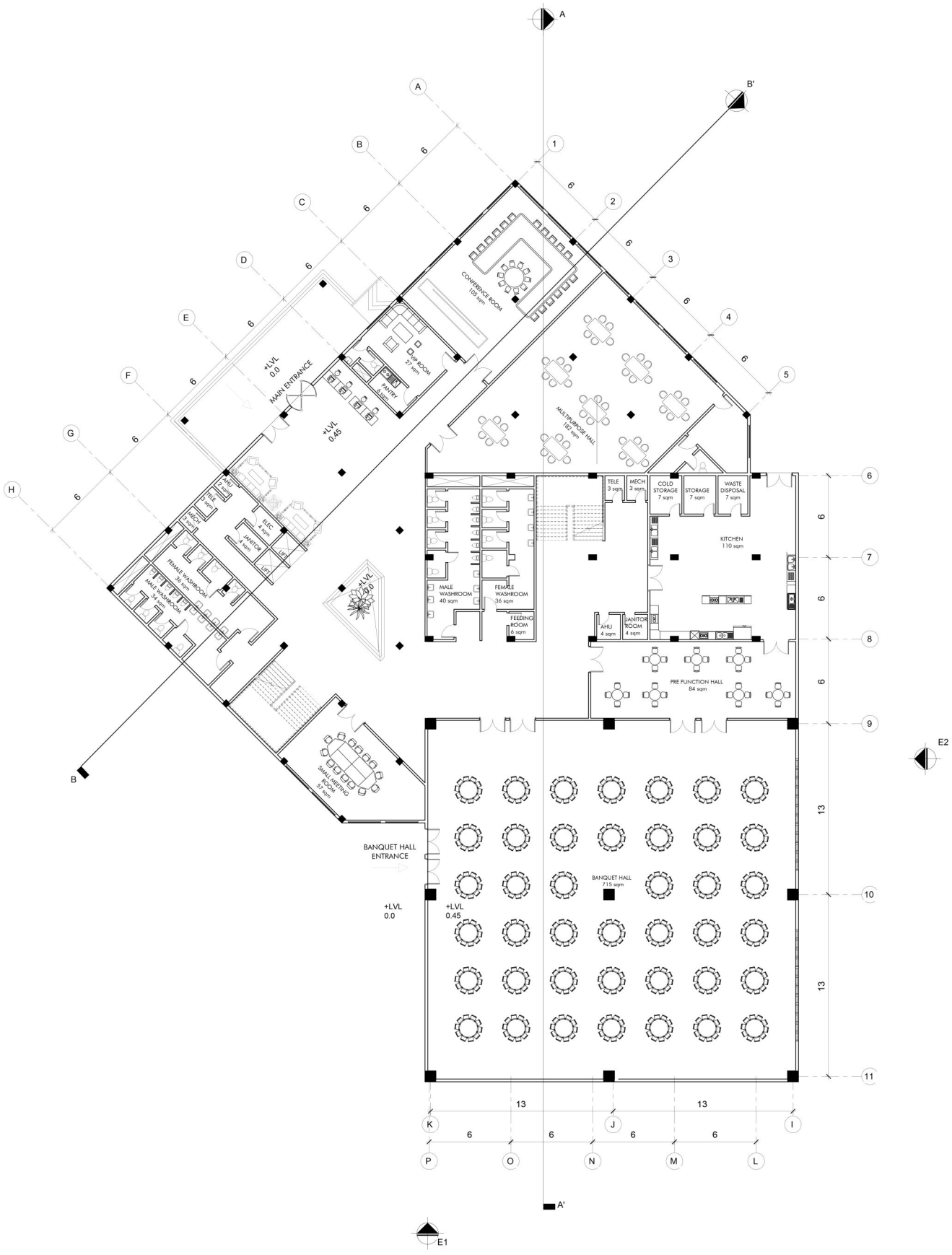
SITE PLAN SCALE 1:500

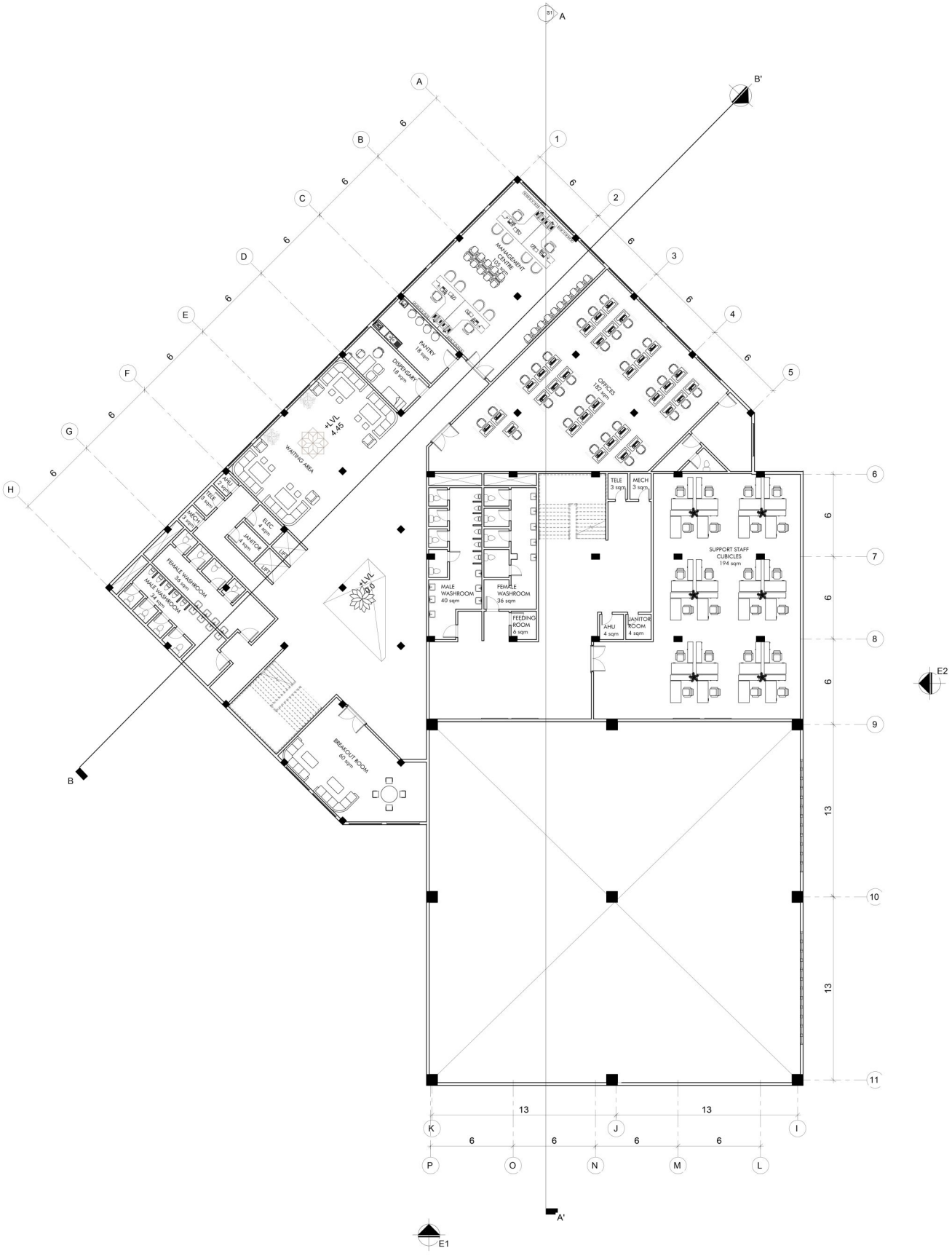
CONVENTION CENTRE

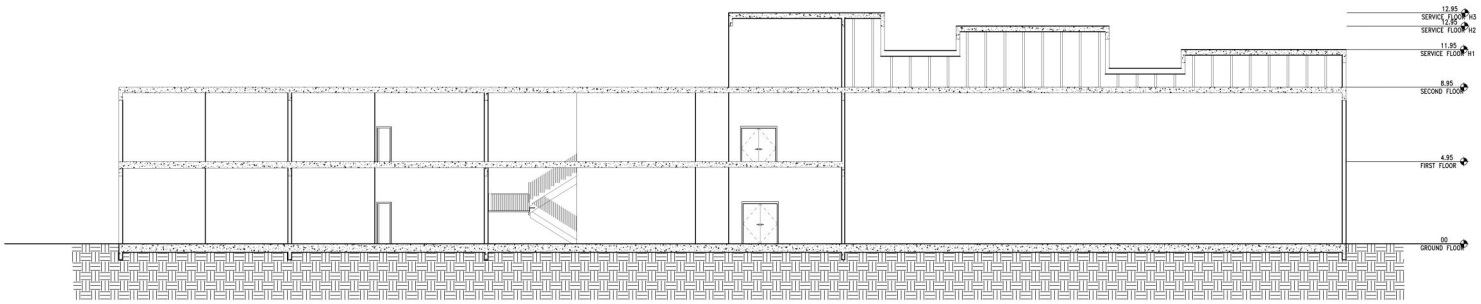


SITE AREA	40,468 SQM
GROUND COVERAGE	7151 SQM
BUILT UP AREA	26285 SQM
ON SITE PARKING	320 CARS

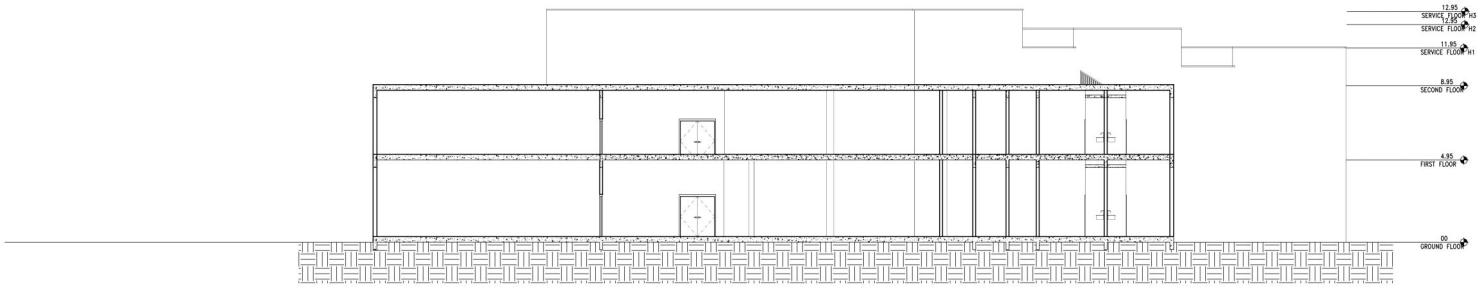
BANQUET BUILDING GROUND FLOOR CONVENTION CENTRE


A
B'
B
A'
E1
E2
CONFERENCE ROOM
105 sqm
VIP ROOM
27 sqm
PANTRY
8 sqm
+LVL
0.0
MAIN ENTRANCE
+LVL
0.45
MULTIPURPOSE HALL
182 sqm
ELEC.
4 sqm
JANITOR
4 sqm
LIFT
FEMALE WASHROOM
36 sqm
MALE WASHROOM
34 sqm
+LVL
0.0
SMALL MEETING ROOM
57 sqm
BANQUET HALL ENTRANCE
+LVL
0.0
+LVL
0.45
MALE WASHROOM
40 sqm
FEMALE WASHROOM
36 sqm
FEEDING ROOM
6 sqm
TELE
3 sqm
MECH
3 sqm
COLD STORAGE
7 sqm
STORAGE
7 sqm
WASTE DISPOSAL
7 sqm
KITCHEN
110 sqm
AHU
4 sqm
JANITOR ROOM
4 sqm
PRE FUNCTION HALL
84 sqm
BANQUET HALL
715 sqm
13
13
6
6
6


A
B'
B
A'
E1
E2
MANAGEMENT CENTRE 120 sqm
PANTRY 18 sqm
DISPENSARY 18 sqm
OFFICES 182 sqm
WAITING AREA
+LVL 4.45
+LVL 3.0
AHU 4 sqm
ELEC. 4 sqm
MECH 15 sqm
JANITOR 4 sqm
FEMALE WASHROOM 36 sqm
MALE WASHROOM 36 sqm
BREAKOUT ROOM 60 sqm
TELE 3 sqm
MECH 3 sqm
SUPPORT STAFF CUBICLES 194 sqm
MALE WASHROOM 40 sqm
FEMALE WASHROOM 36 sqm
FEEDING ROOM 6 sqm
AHU 4 sqm
JANITOR ROOM 4 sqm
6
13



SECTION AA'



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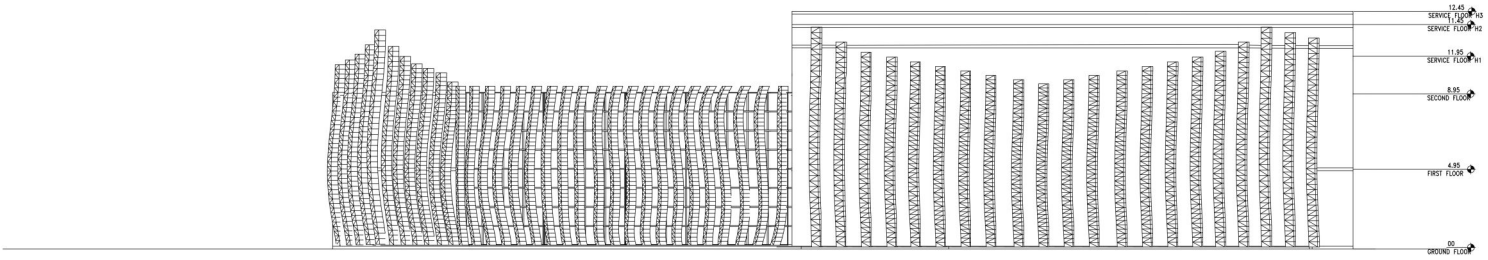
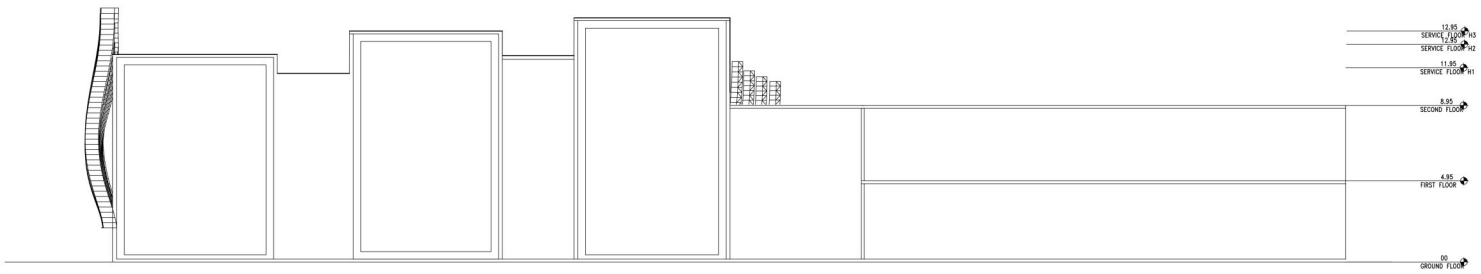
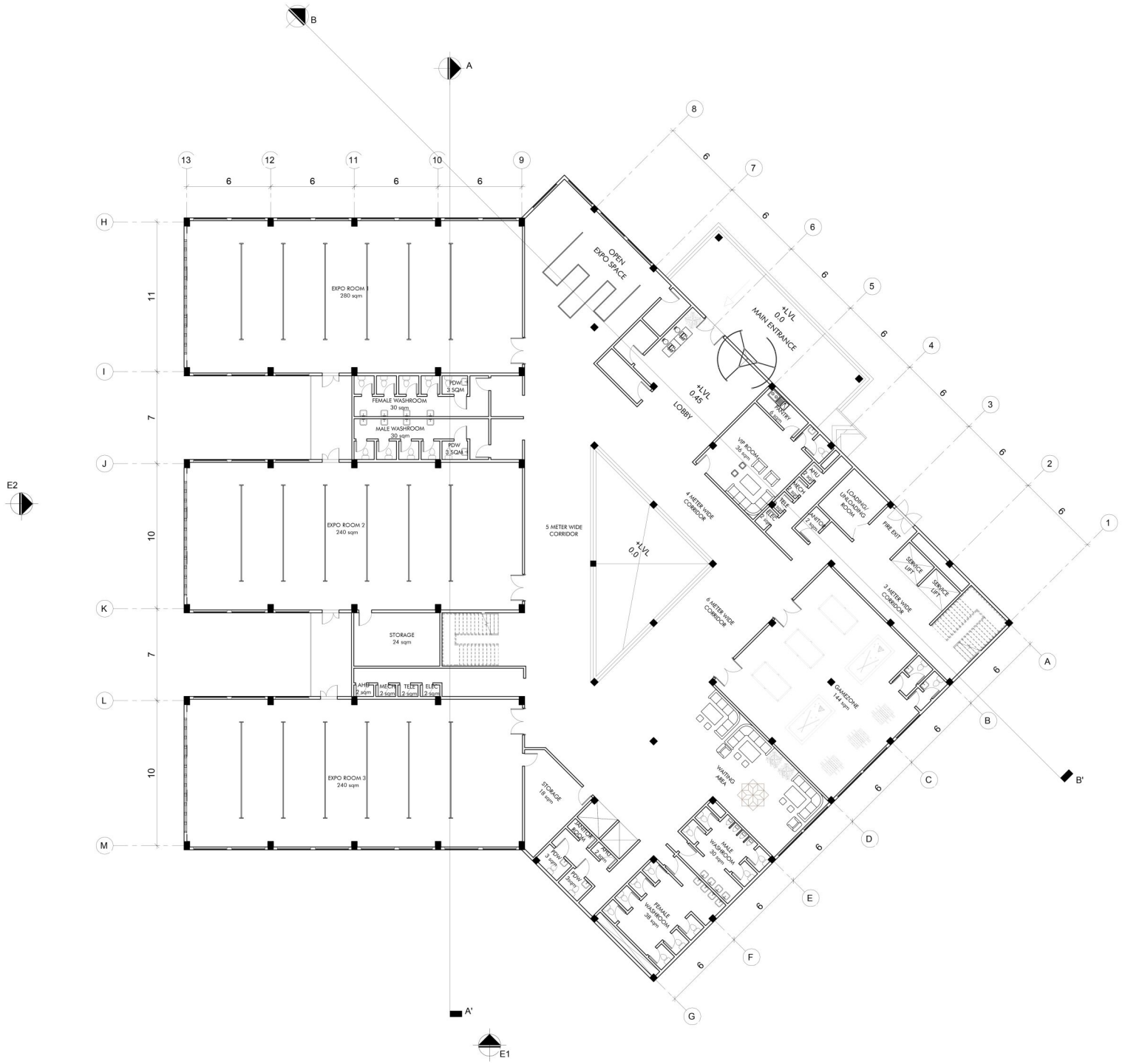


ELEVATION E1



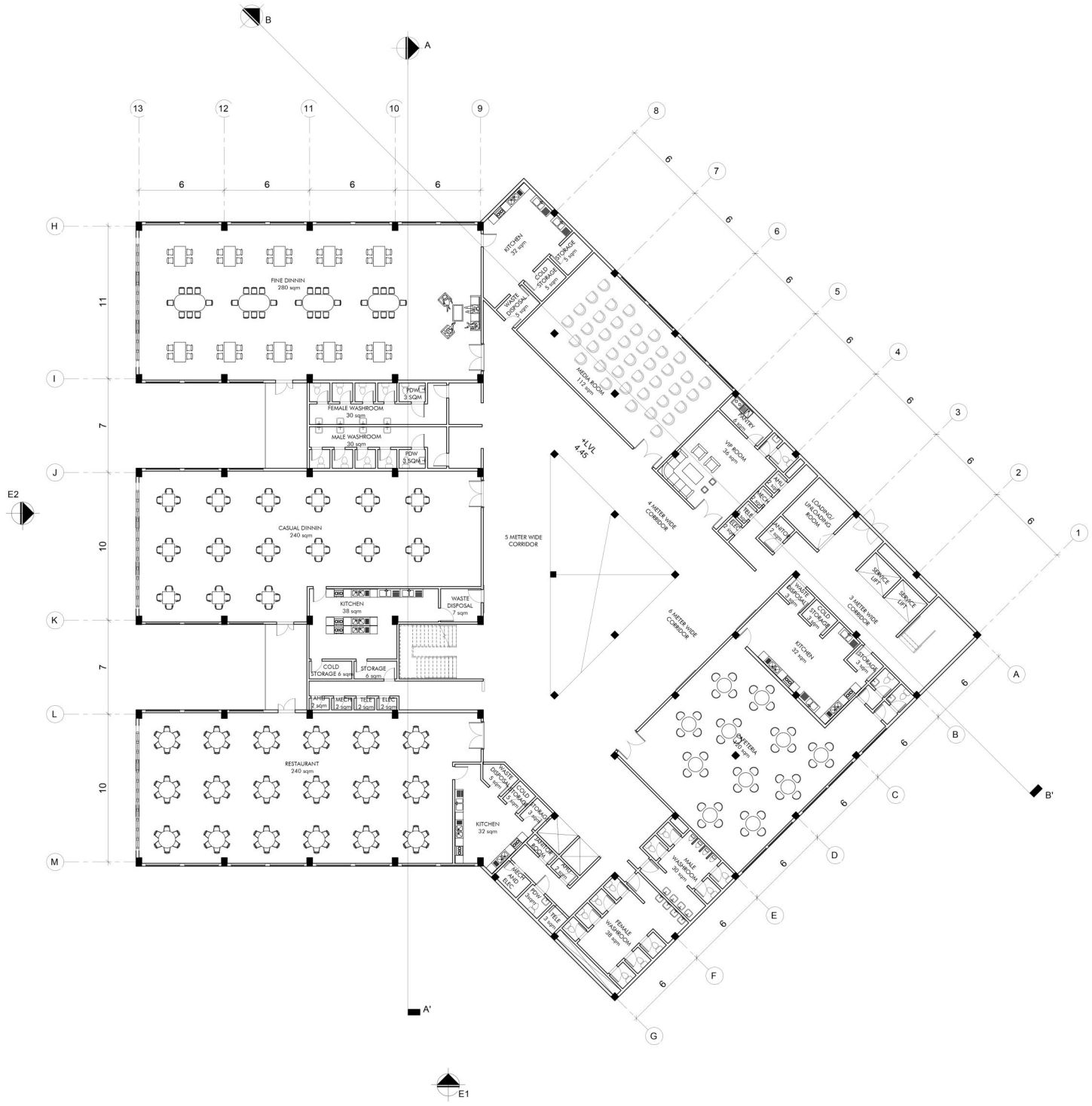
ELEVATION E2

EXPO BUILDING GROUND FLOOR CONVENTION CENTRE

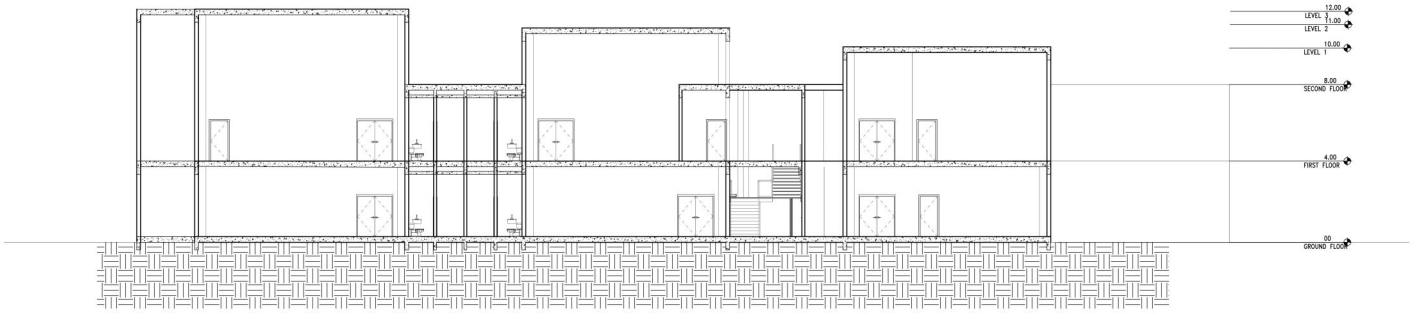


EXPO BUILDING FIRST FLOOR

CONVENTION CENTRE



NAME: NIKITA PATIL SCH. NO. :211110232 THESIS GUIDE: DR. NAVNEET MUNOTH SIR SCALE 1:100



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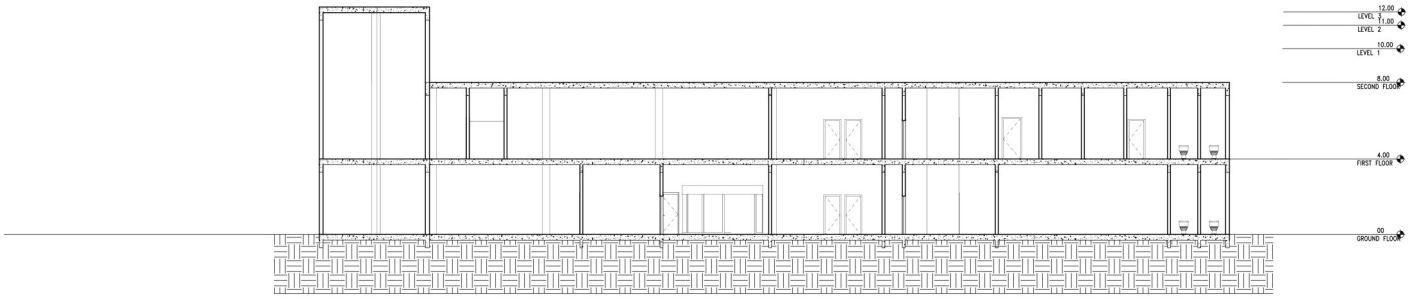

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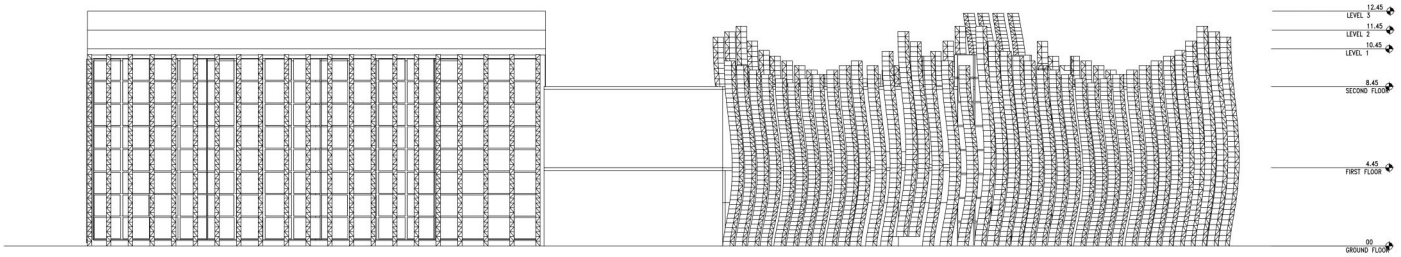
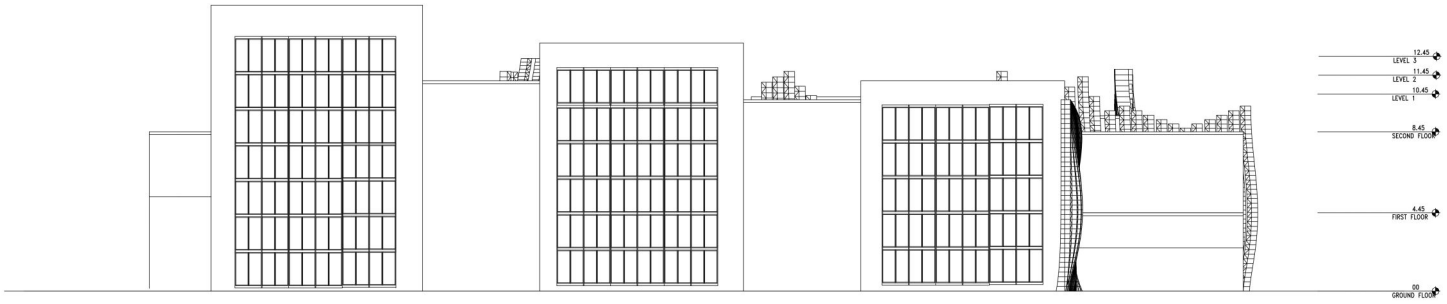


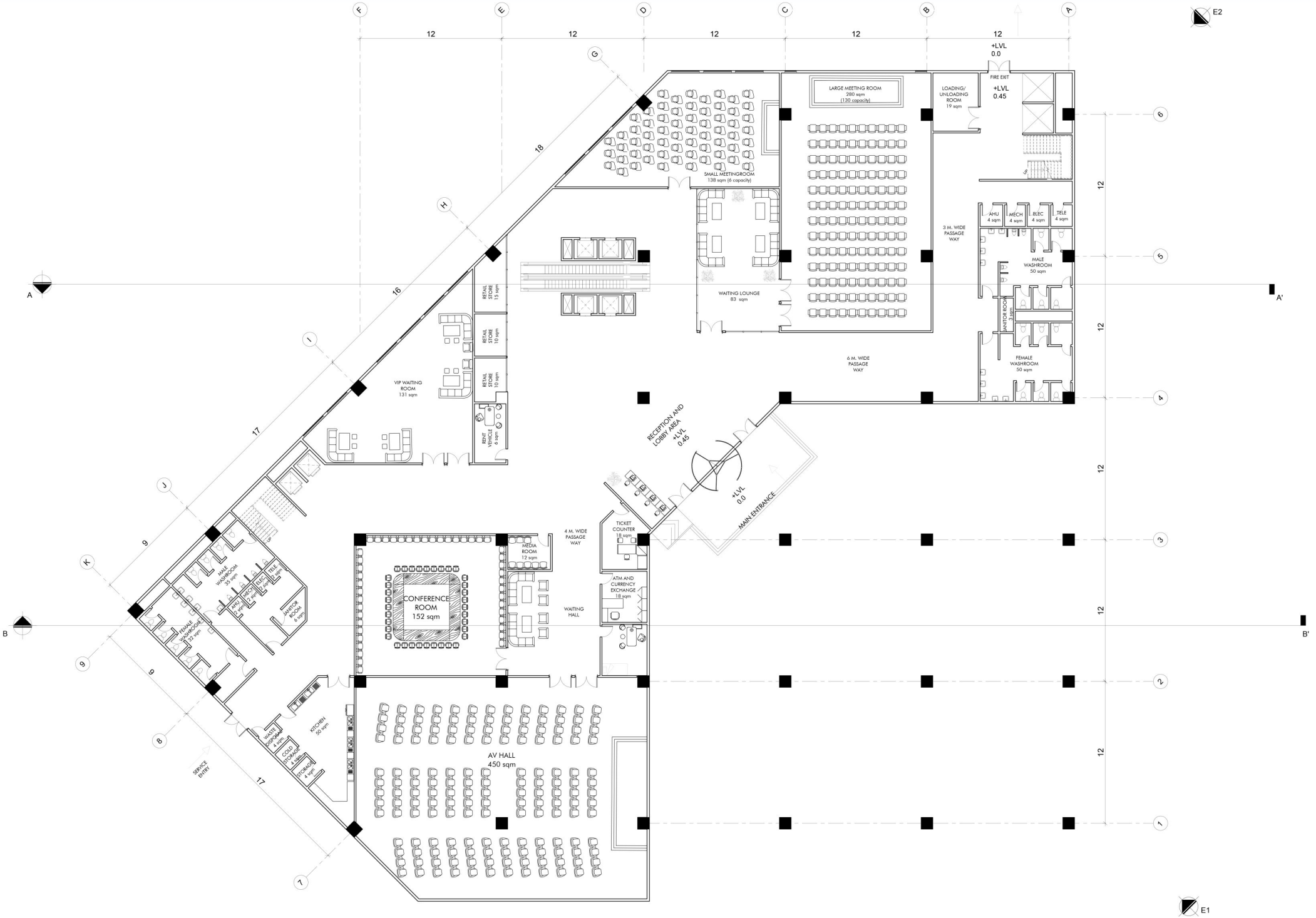
ELEVATION E1



ELEVATION E2

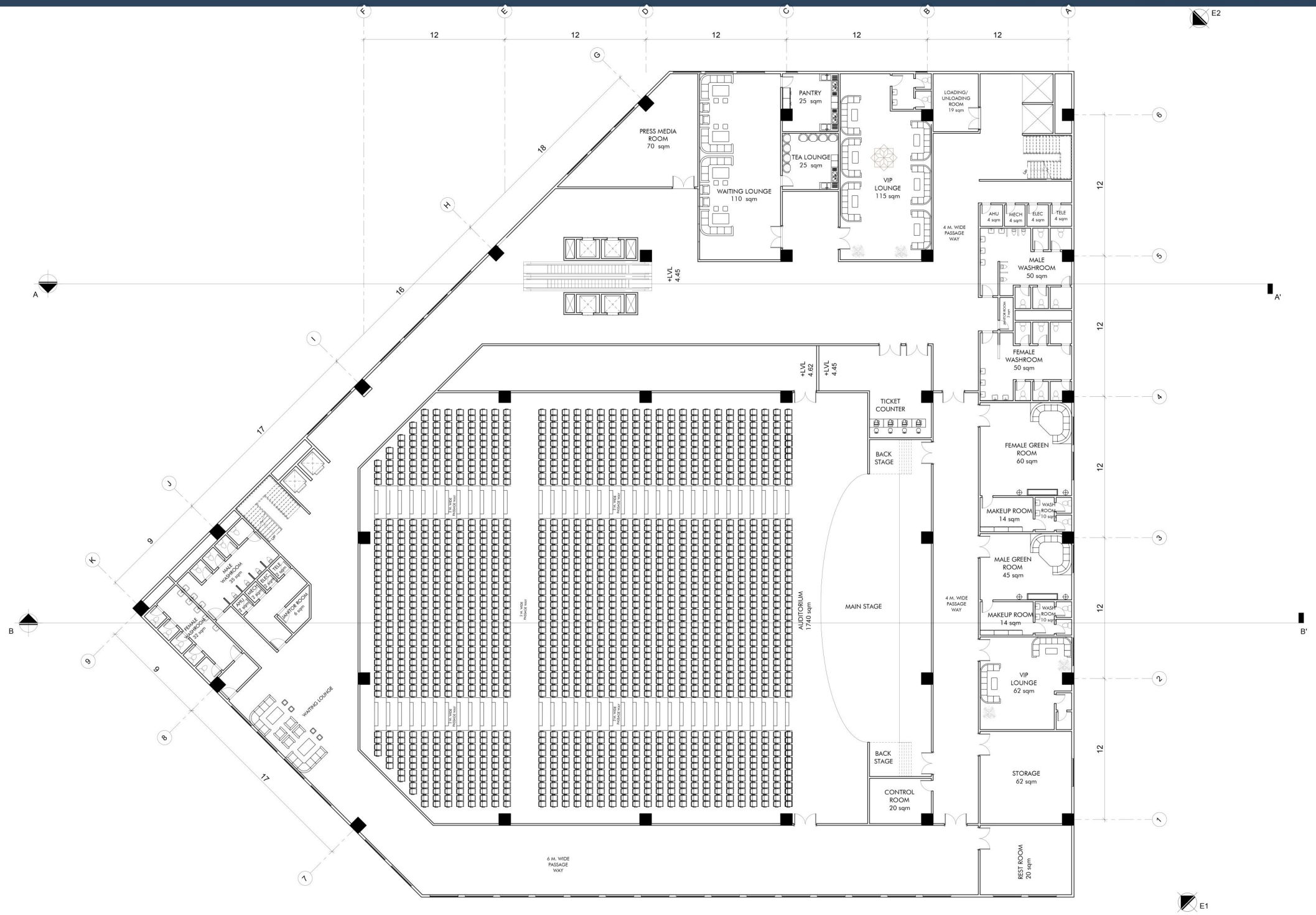
MAIN BUILDING GROUND FLOOR

CONVENTION CENTRE



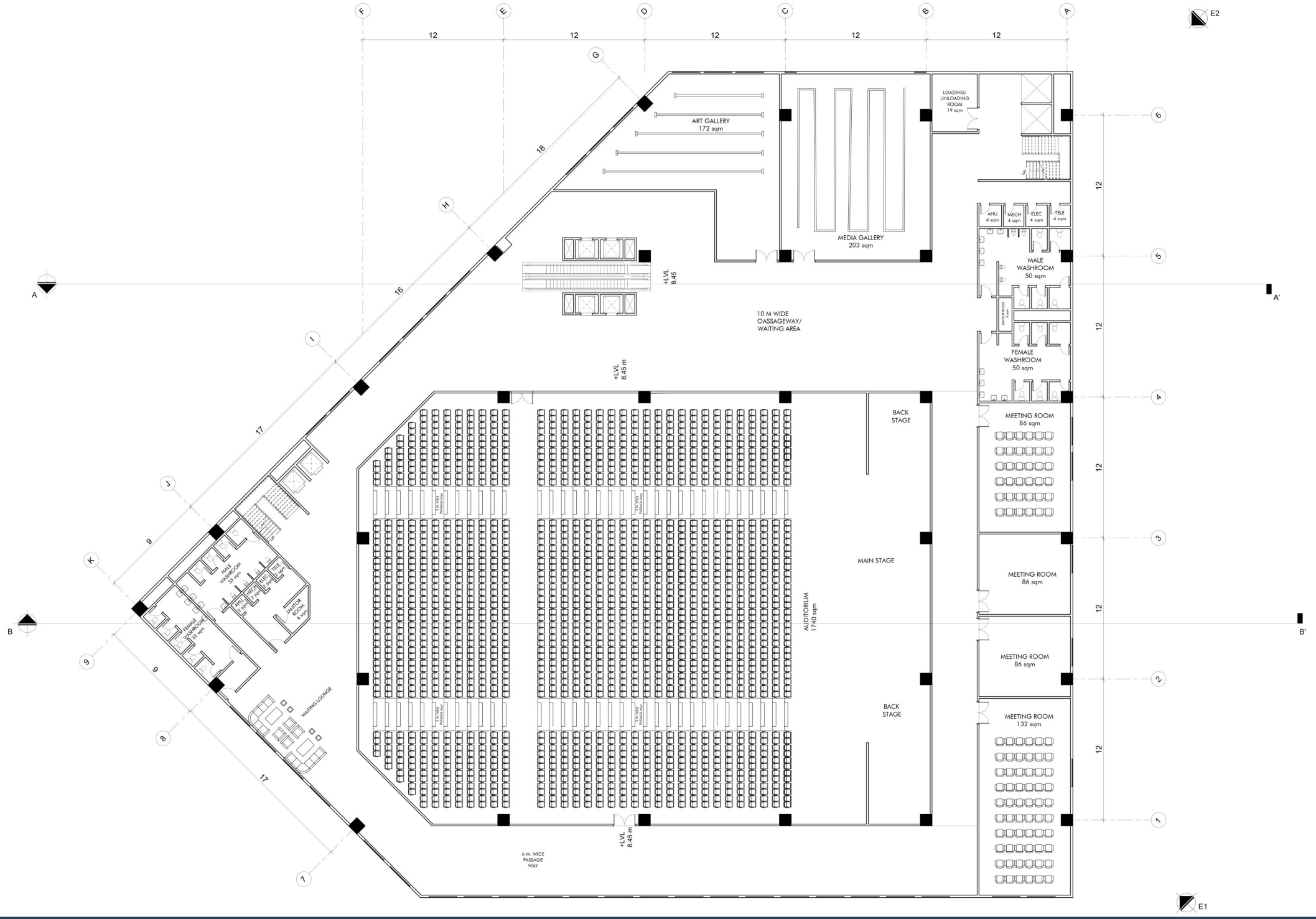
MAIN BUILDING FIRST FLOOR

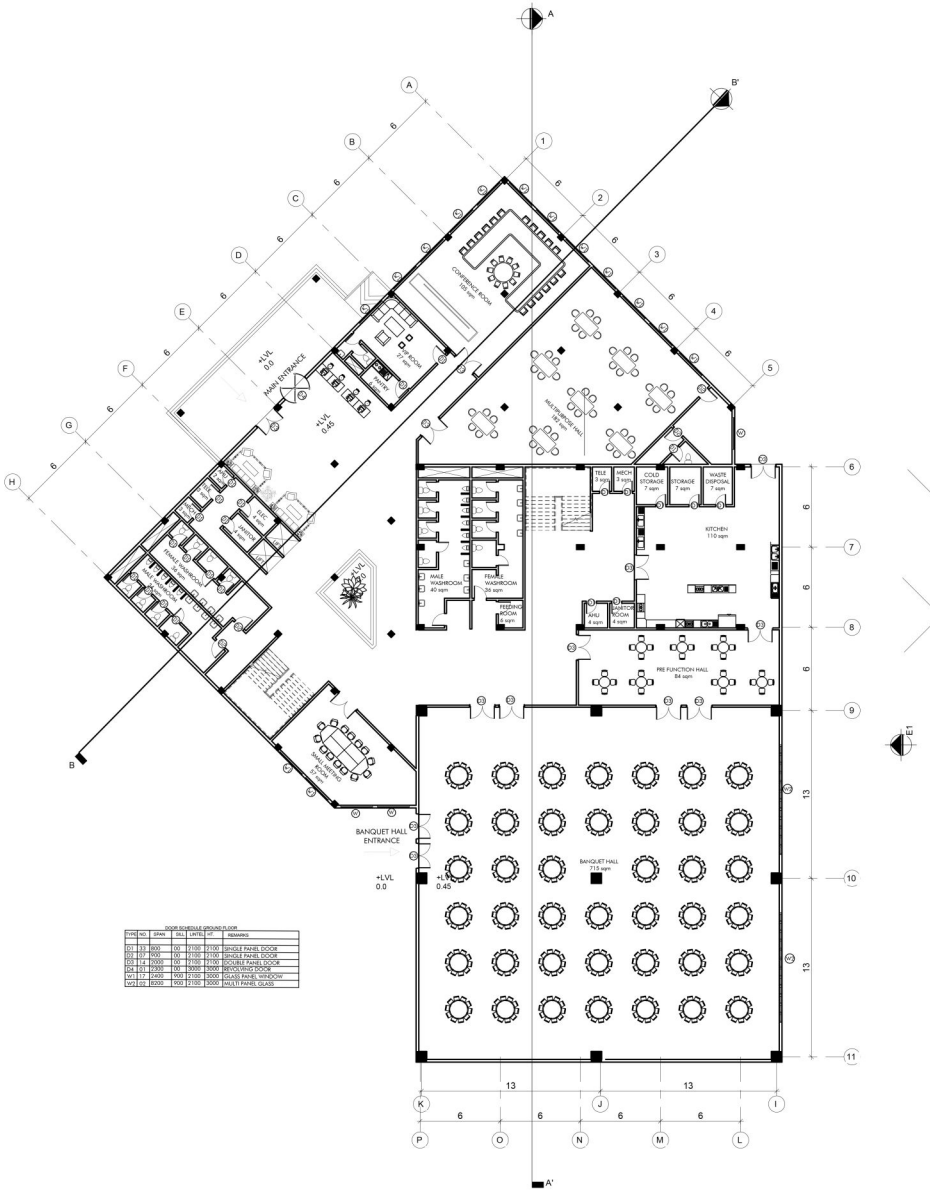
CONVENTION CENTRE



MAIN BUILDING SECOND FLOOR

CONVENTION CENTRE

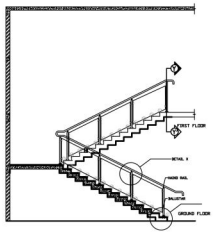




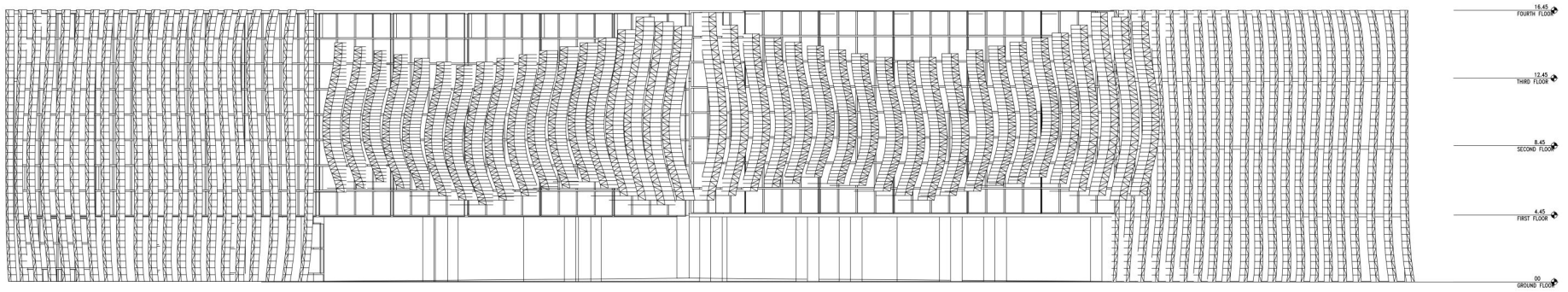
DOOR SCHEDULE GROUND FLOOR

TYPE	NO.	STARS	SILL	LINTEL HT.	REMARKS
D1	13	900	00	2100	SINGLE PANEL DOOR
D2	07	900	00	2100	SINGLE PANEL DOOR
D3	12	1500	00	2100	DOUBLE PANEL DOOR
D4	01	2300	00	3000	REVOLVING DOOR
W1	12	2400	900	2100	GLASS PANEL WINDOW
W2	01	8200	900	2100	3000 MULTI PANEL GLASS

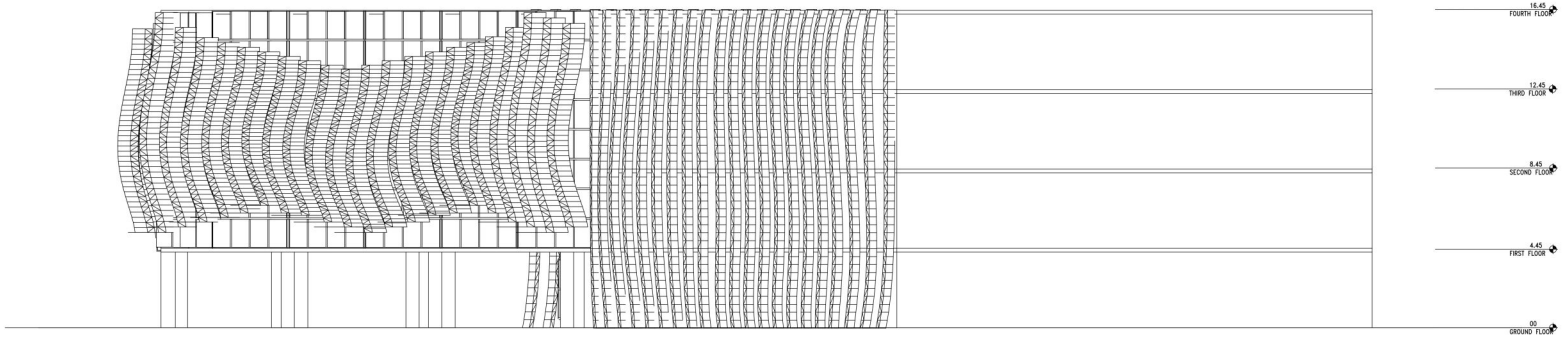




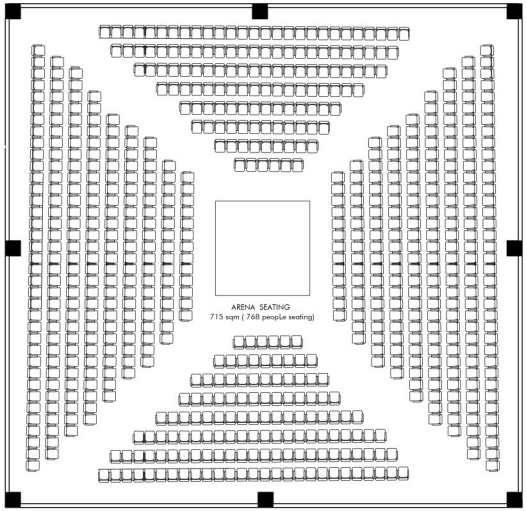
BALUSTUR DETAILS

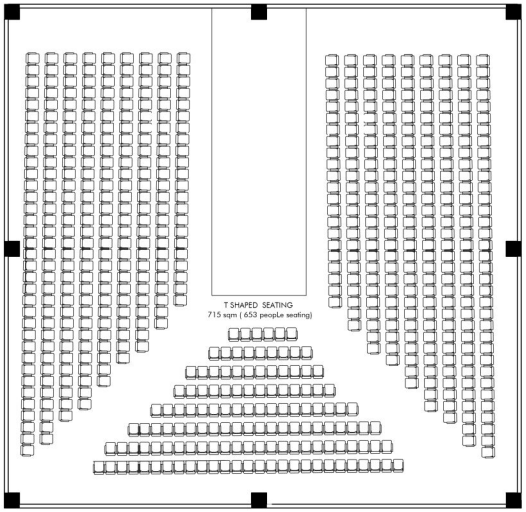


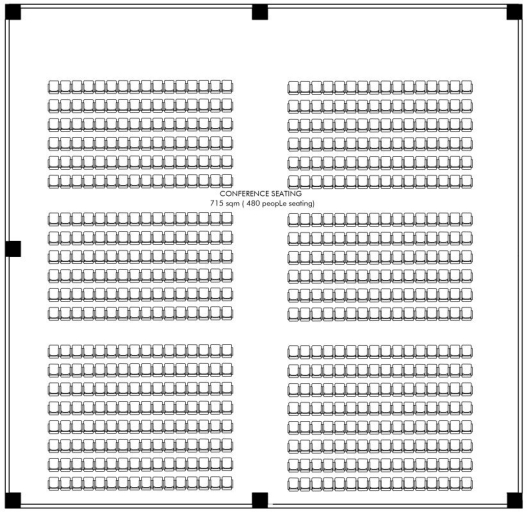
ELEVATION E1

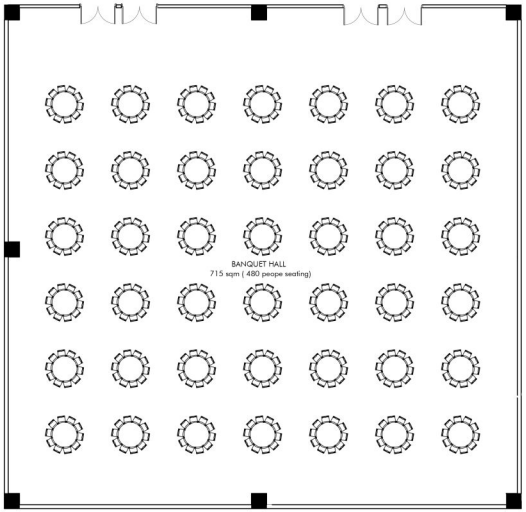


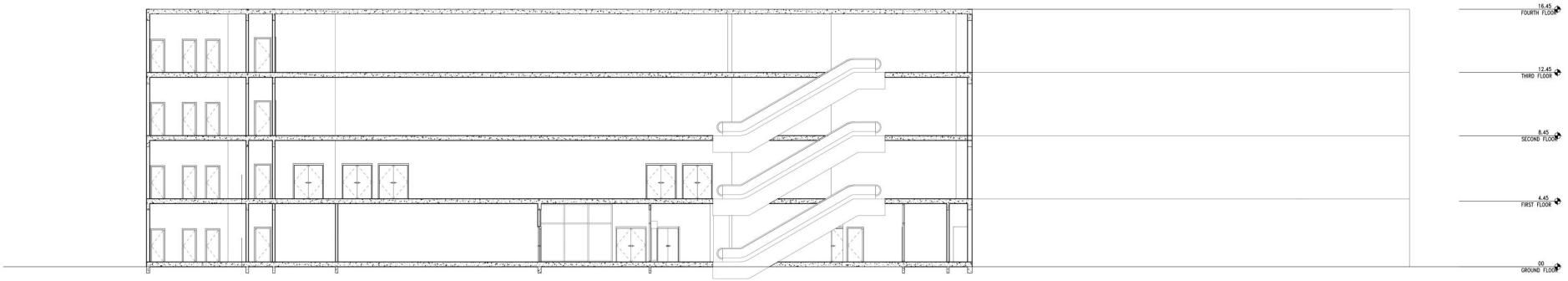
ELEVATION E2


ARENA SEATING
715 sqm (768 peopLe seating)

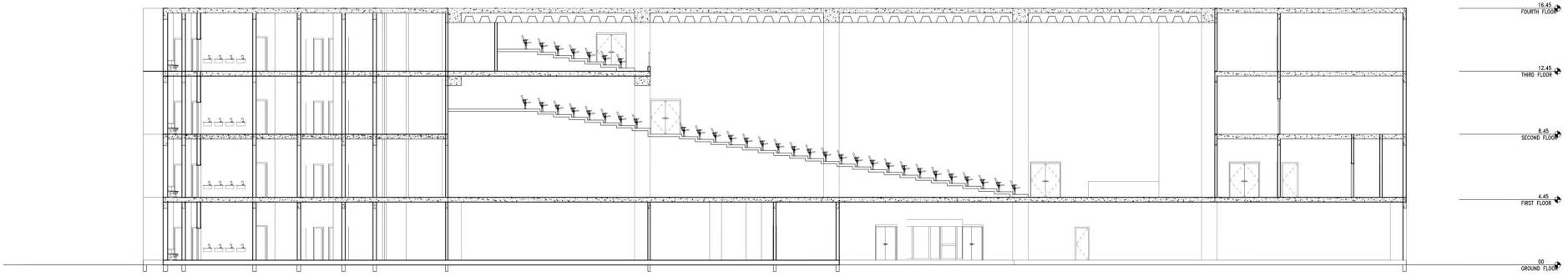

T SHAPED SEATING
715 sqm (653 peopLe seating)


CONFERENCE SEATING
715 sqm (480 peopLe seating)


BANQUET HALL
715 sqm (480 peope seating)



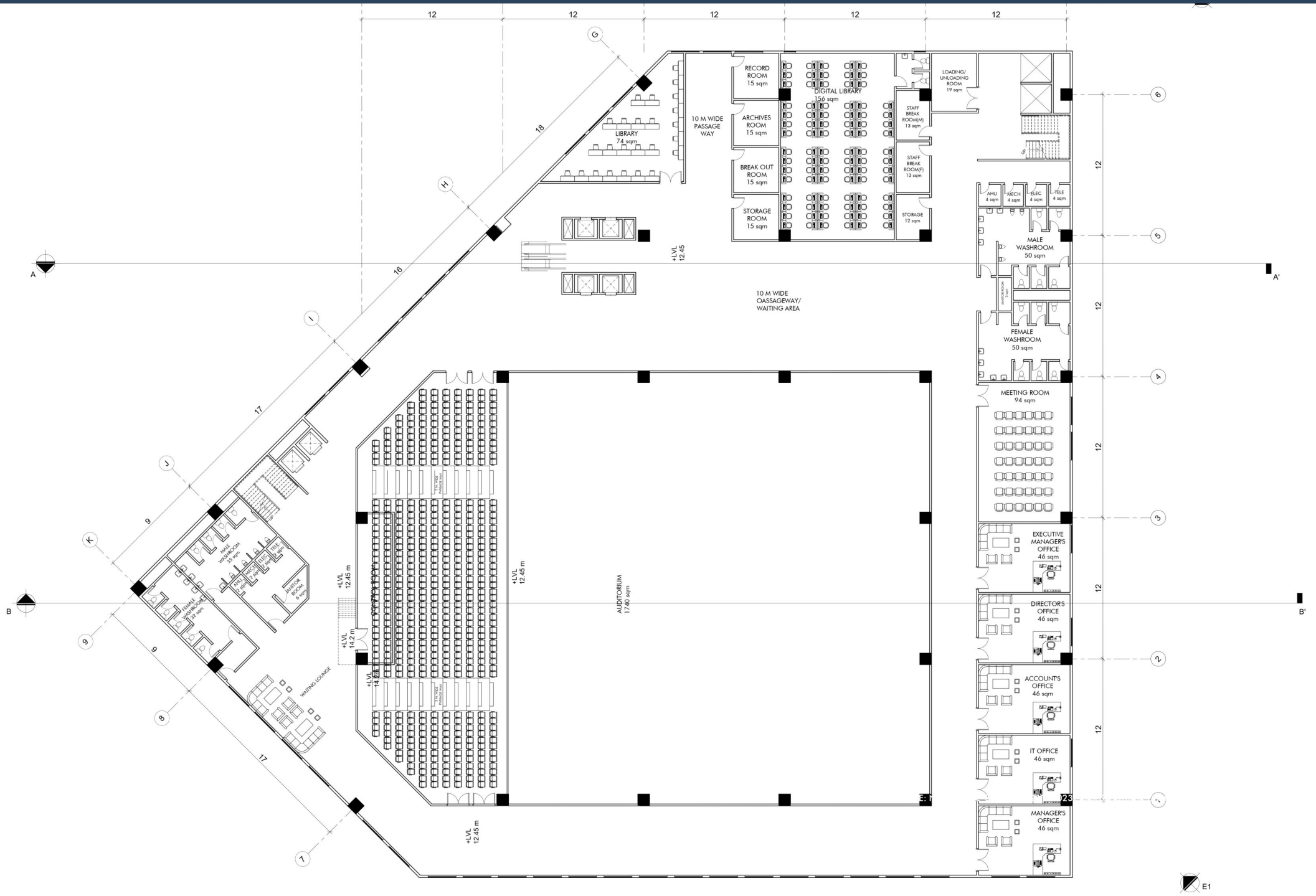
SECTION AA'



SECTION BB'

MAIN BUILDING THIRD FLOOR

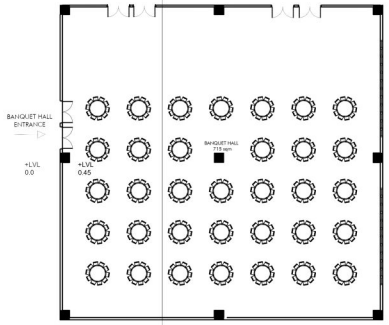
CONVENTION CENTRE



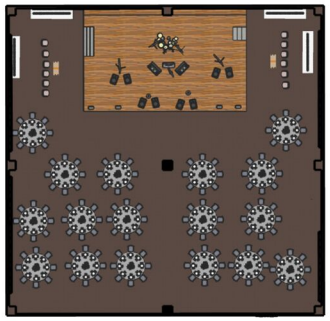
INTERIOR

CONVENTION CENTRE

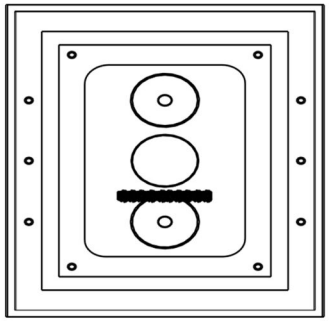
BANQUET HALL INTERIOR



PLAN



PLAN



CEILING PLAN

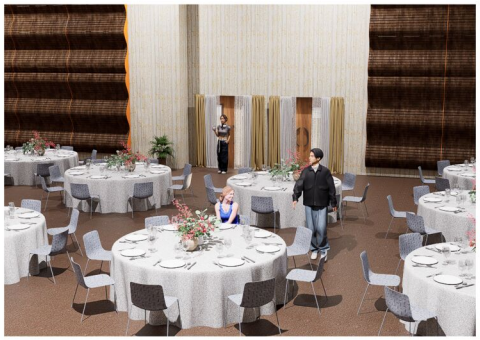
COLOUR PALLATE





SECTION















MATERIAL PALLATE

1.Decorative Textured Wall Panels (Light Beige-Gold)



Location: Central vertical wall behind the doors
Description:
Light beige base with subtle gold linear patterns
Gives a luxurious yet soft backdrop
Likely a fabric-wrapped panel, textured wallpaper, or acoustic panel finish
Adds warmth and reduces echo in banquet spaces

2. Ribbed Wooden Acoustic Panels (Dark Walnut Tone)



Location: Left and right walls
Description:
Deep walnut wood finish with curved, ribbed surface
Serves as a sound diffuser for the banquet hall
Adds contrast and richness
Vertical golden highlights accentuate rhythm and depth

3. Furniture + Fabrics



Round Banquet Tables with Tablecloth
Description:
Circular banquet tables covered in white patterned linen Light embossed texture adds elegance
Acts as a clean base for floral centrepieces and dinner settings

4.Grey Woven-Texture Plastic/Polymer Chairs



Description:
Modern lightweight chairs in matte grey tone
Woven-pattern backrest for style + comfort
Suitable for stacking and high-use events
Blends subtly with the overall palette

5. Accessories & Décor

F. Floral Centrepieces (Pink, White & Green Mix)



Description:
Fresh or artificial arrangements
Adds vibrancy + celebratory feel
Breaks the monotony of neutral interior palette

6. Glassware & Tableware (White Porcelain + Clear Glass)

Description:
White porcelain plates with stainless-steel cutlery
Clear crystal-style glassware
Enhances the formal banquet setup

7. Doors & Curtains



H. Wooden Panel Doors (Warm Oak Finish)
Description:
Warm oak/birch toned wood
Minimalist design with circular glazed detail
Adds softness against the textured walls

8. Layered Curtain Panels (Gold + White Sheer)

Description:
Combination of heavy gold curtain + white sheer drapes
Used as decorative framing around service doors
Adds verticality and a sense of prestige

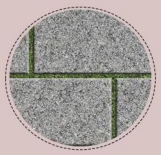
NAME: NIKITA PATIL
SCH. NO. :211110232
THESIS GUIDE: DR. NAVNEET MUNOTH SIR

LANDSCAPE

CONVENTION CENTRE

PROPOSED HARDSCAPE

STONE PAVING



It is a hardscape surface created using natural stones such as granite, sandstone, slate, laterite, limestone, or cobblestones. It provides durable, weather-resistant and garden circulation.

ROAD



Essential circulation elements in landscape design, providing smooth and accessible movement for vehicles and pedestrians. They are constructed using materials like concrete and ensure safe connectivity within and around the site.

EXTERIOR SEATING AREA



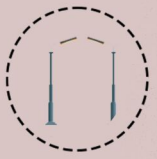
Essential The exterior seating area is designed as a relaxed, semi-open social zone that blends seamlessly with the landscape. Comfortable outdoor furniture is arranged to encourage conversation while maintaining clear circulation for guests. Natural materials and planters soften the space, creating a calm and inviting atmosphere. Ambient lighting

BENCHES



Seating elements placed within landscaped spaces to offer rest, comfort, and social interaction. Made from materials such as wood, metal, they enhance user experience and encourage longer engagement with outdoor environments.

SOLAR STREETLIGHTS



provide illumination for pathways, roads, and open areas, improving visibility and safety during nighttime. They contribute to the aesthetic character of the landscape while ensuring energy -efficient lighting using LED fixtures and well-planned spacing.

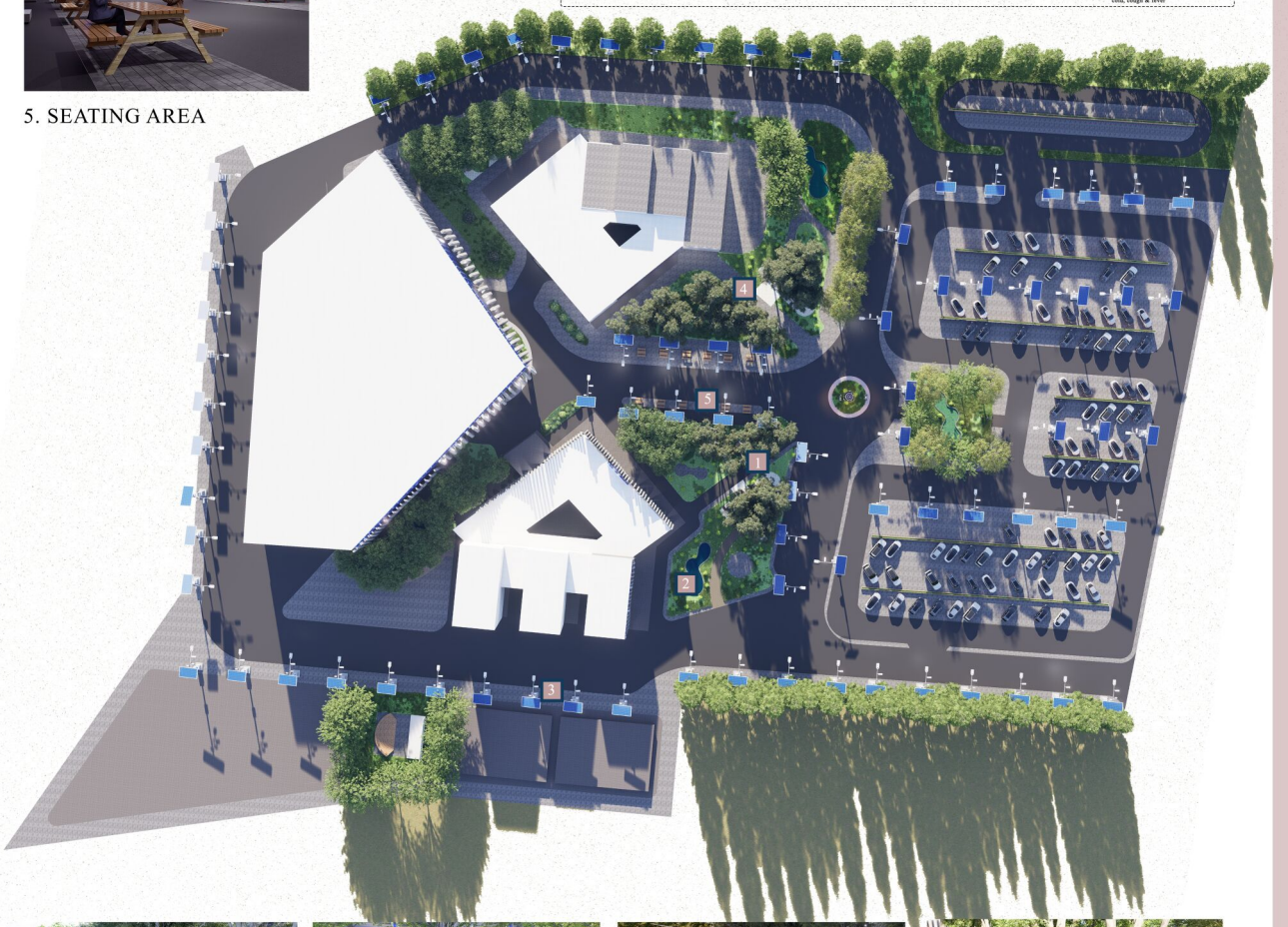
PONDS AND FOUNTAINS



Ponds and fountains introduce a sense of tranquility and elegance to the exterior landscape, creating a visually soothing focal point. The reflective water surface enhances natural light and adds depth to the outdoor environment. Moving water from fountains brings a dynamic quality, improving ambient sound and masking unwanted noise.



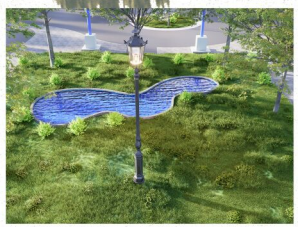
5. SEATING AREA







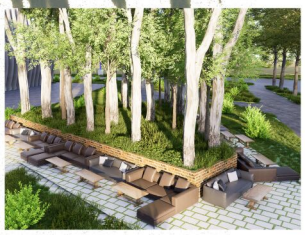
1.FOUNTAINS AND SHRUBS



2.WATERBODY



3.SOLAR LIGHTS



4.WATERBODY

PROPOSED SOFTSCAPE



ALBIZIA PROCERA
(White Siris)
10–18m Tall
-Bipinnate fern-like leaves
-Puffy white flower heads
-Fast-growing nitrogen–fixing tree



BUTEA MONOSPERMA (Flame of the Forest / Palash)
6–12m Tall.Trifoliate (3-leaf) leaves.Bright orange–red flowers during spring.



TECTONA GRANDIS (Teak)
10–20m Tall
Large broad leaves, rough texture
Small white clustered flowers
High–quality timber, deciduous tree



BOSWELLIA SERRATA (Salai / Indian Frankincense)
4–10m Tall
Compound leaves, smooth bark that peels
Small white flowers
Produces aromatic resin with medicinal use



TERMINALIA ARJUNA
(Arjuna)
12–20m Tall
Long glossy leaves
Cream–white flowers
Bark widely used in cardiac medicine



AZADIRACHTA INDICA
(Neem)
8–15m Tall
Serrated pinnate leaves
Small white fragrant flowers
Strong antibacterial and medicinal properties



LANNEA COROMANDELICA
(Indian Ash Tree)
8–15m Tall
Simple oval leaves
Tiny greenish–yellow flowers
Hardy species used as shade & avenue tree

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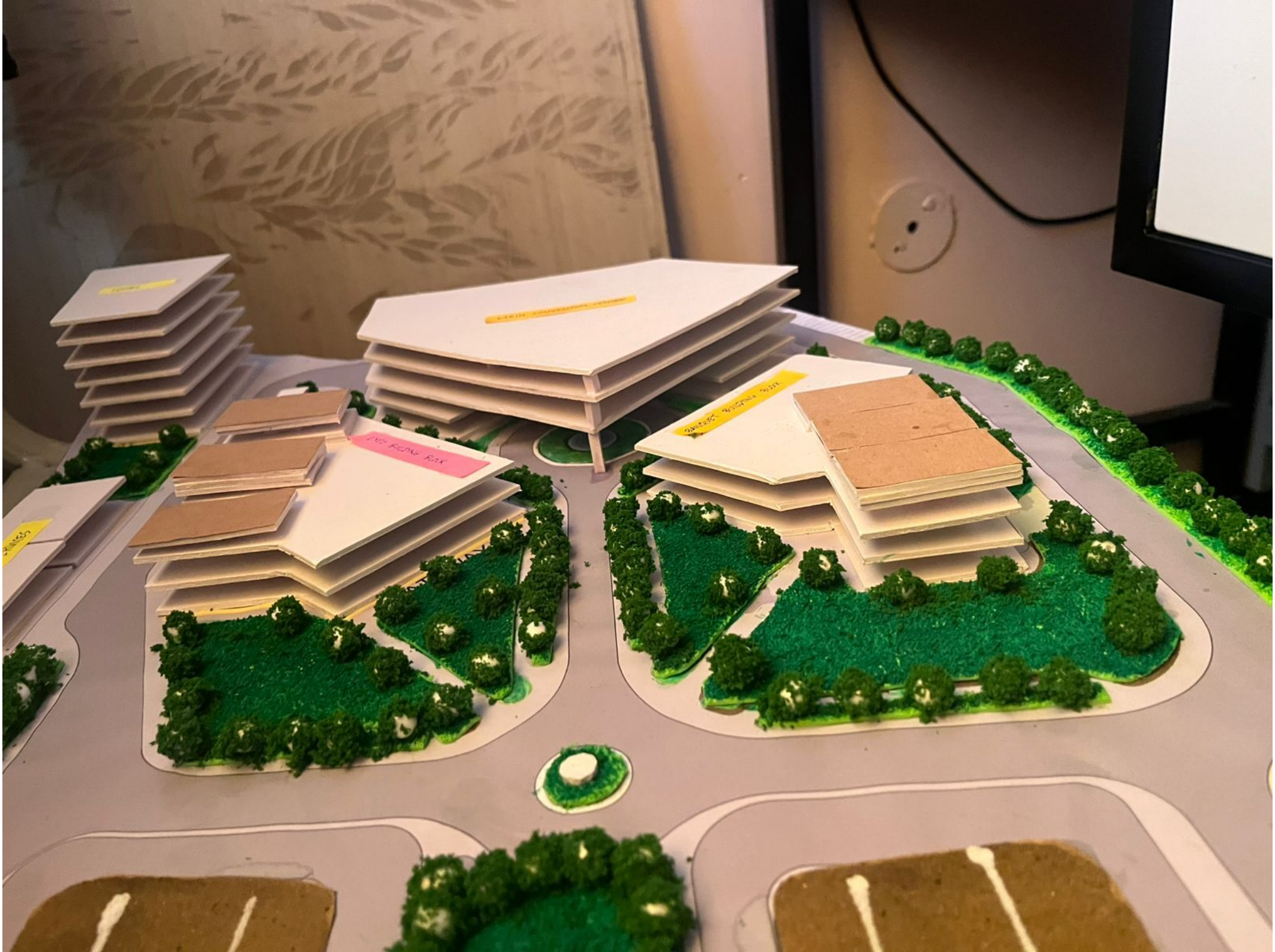
PARKING


MAIN CONVENTION CENTRE
SERVICES
EXT. DISPLAY BAY
BANQUET BUILDING BLOCK
PARKING
ENTRY
EXIT
25m WIDE NATIONAL HIGHWAY


HOTEL
MAIN CONVENTION CENTRE
SERVICES
EXPO BUILDING BLOCK
BANQUET BUILDING BLOCK
PATHWAY
PARKING
ENTRY
EXIT
25m WIDE NATIONAL HIGHWAY




PARKING