

#### **FASHION INSTITUTE WITH MERCHANDISING**



#### THESIS ON

#### **FASHION INSTITUTE WITH MERCHANDISING**

Submitted
For the partial fulfillment of the requirement
For the award of the Degree of

#### **BACHELOR OF ARCHITECTURE**

#### By Sakshi Agarwal

Under the Supervision/Guidance of

Ar. Keshav Kumar

**May 2020** 



Babu Banarasi Das University, School of Architecture, Lucknow, 226028 

#### SUSTAINABLE FASHION IS NOT A TREND BUT THE FUTURE.

ANTONIA BÖHLKE

#### **CERTIFICATE**

In the fulfilment of B.Arch. degree program, this is to certify that thesis entitled "Fashion
Institute with Merchandising" is the bonafide work of the student "Sakshi Agarwal" is
correct to the best of our knowledge and belief.

Ar. Keshav Kumar **Thesis Guide** 

Ar. Mohit Kumar Agarwal **Dean** 

Accepted

Not accepted

External Examiner

**External Examiner** 

#### **ACKNOWLEDGEMENT**

Behind every success there is certainly an unseen power of almighty, but an aim is eternal condition of success which is attainable at perfection in things by those who perverse with the association of their predecessors, teachers, family members and friends.

With great sense of gratitude I would like to pour down my owe and whole hearted gratefulness to my esteemed guide **Ar. Keshav Kumar** for his precious constructive guidance, constant encouragement, continuous inspiration, sincere criticism, his enthusiasm, valuable suggestions, authentic ideas and generous efforts in making this work a success. From beginning to end, she always gave necessary direction and most useful suggestion at every stage which could accomplish the desired results.

I am grateful to thesis coordinators AR. URVASHI TIWARI and AR. SHAILESH SINGH for providing their useful comments at the various stage submissions.

It is a great pleasure for me to acknowledge and express my gratitude to my batchmates Pranav, Janhvi, Rishabh for their support and timely providing information during the work.

Great Thanks to my colleagues for keeping good interest in embodying this work.

In the last but not the least I would like to thank GOD who gave me encouragement and strength to accomplish the work.

#### **Abstract**

We need houses as we need clothes, architecture stimulates fashion, it's like hunger and thirst -you need them both.

--Karl Lagerfeld

How may pleating, folding and layering techniques often used in fashion design to create 'structural' garments, be used as an approach to both ----structure and façade in a largescale, architectural intervention?

This research project develops a design for a fashion institute, in a manner which acknowledges the everchanging nature of clothing fashion, the façade of fashion design and how it can not only be linked to architecture as an aesthetic principle, but with a functional and spatial aspect of design.

The project aims not only to successfully resolve the functional, formal and technological issues of this particular brief, but to also propose an urban and architectural design strategy that can be applied to similar sites around India.

This approach goes beyond the aesthetic side of architecture and engages also the functional and structural aspect of architectural design.

#### Content

#### Chapter one- Introduction

- 1.1 General Overview
- 1.2 Project Brief
- 1.3 Aim & Objectives
- 1.4 Scope and Limitations
- 1.5 Methodology

#### Chapter Two- Design Guidelines and bye Laws 2.1 Design Brief

2.2 Authority Bye Laws

#### Chapter Three- Case Studies

- 3.1 Nift Delhi
- 3.2 Pearl Jaipur

#### Chapter Four- Literarture Study

- 4.1 Nanyang School of arts(Singapore)
- 4.2 Zero Enery Media Wall- greenPIX(Beijing)

#### Chapter Five Correlation of Fashion and Architecture

- 5.1 Fashion and Architecture
- 5.2 Impact of Fashion
- 5.3 Indian Fashion Industry
- 5.4 Fashion Terminologies
- 5.5 Inferences
- 5.6 Anthropometrics and Required Standards

#### Content

#### Chapter Six- Site Analysis

- 6.1 About Delhi
- 6.2 About Climate
- 6.3 The Site
- 6.4 Culture and Fashion of Delhi
- 6.5 Handloom
- 6.6 Justification of

Site

- 6.7 Floor Plans
- 6.8 Elevations
- 6.9 Sections

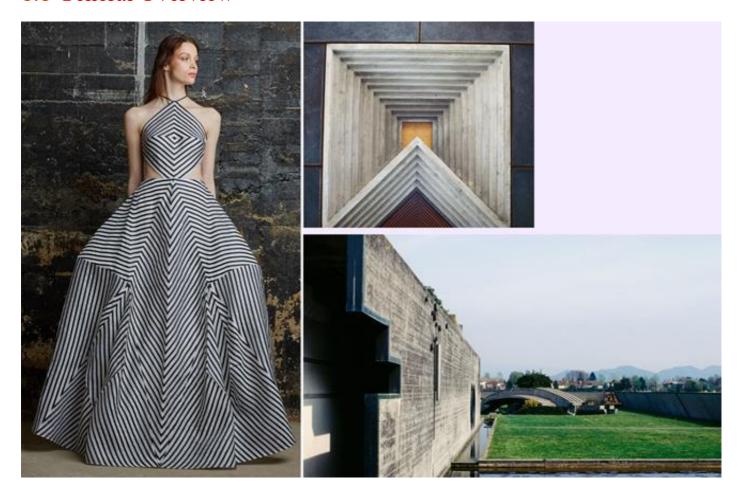
. Bibliography



#### **CHAPTER ONE**

#### **INTRODUCTION**

#### 1.1 General Overview



The relationship between fashion and arhitecture is not as far fetched as one would imagine. Both are based on structure, shape and aesthetics. Both industries can also be susceptible to frequent changes in taste and styles. These parallel relationships are the starting point of my research.

According to an article in EGO Magazine en-titled 'Fashion and Architecture', considering the dialogue between modern architecture and contemporary fashion is a popular subject in this day and age.

Contemporary fashion designers and architects are creating incredibly innovative designs that are influenced by the tools, tricks, theory and philosophy of each other's trade.

Regardless of differences that may arise in fashion and architecture in size, scale and materials, the point of origin for both fashion design and architecture is the human body. Both practices protect and shelter us, whether it is at a small or larger scale.

I propose to explore the influence of fashion on architecture through the principles of fashion such as pleating, folding and layering, and to translate this into an architectural language.

#### 1.2 Project Brief

#### The Vision

"To emerge as a centre of excellence and innovation proactively catalyzing growth of fash-ion business through leadership in professional education with concern for social and human values".

#### The Mission

"To establish NIFT as a centre of excellence in fashion business education, a nodal agency for benchmarking fashion education in India and apex body for training of trainees in fashion business education".

National Institute of Fashion Technology (NIFT) is a fashion institute in India. It was set up in 1986 under the aegis of the Ministry of Textiles, Government of India and is an institution of design, management and technology for the international fashion business. National Institute of Fashion Technology plays a distinct role in bridging the young talent with the thriving fashion and textile industry. NIFT offer a varied range of programs for interested students and individuals who are looking to make a break in the fashion industry. The programs in fashion designing are designed to train students with the advanced skills, language and process of fashion design. NIFT's programs are designed to provide students a complete skill-set right from drawing, draping, pattern making, sewing, and haute couture along with training in production. The institution boosts of a unique culmination of both the worlds of academia and industry training. National Institute of Fashion Design has been equipping students for success at every level, from haut couture to ready-to-wear to mass market.



Fig 1.0 Nift Institutes all over India

With growing demand for specialized manpower from the fashion business industry across the country, the Institute expanded its operations by establishing six additional Campuses at Bangalore, Chennai, Gandhinagar, Hyderabad, Kolkata and Mumbai in collaboration with the respective State Governments during 1995-98. Later during 2007 to 2010, eight more Campuses were established in Bhopal, Bhubaneswar, Jodhpur, Kangra, Kannur, Patna, Raebareli and Shillong.



#### 1.3 Aim and Objectives

To create a world class institution building for the students of fashion technology and providing them with creative, interactive and learning built-up forms and spaces that intimidate the uniqueness of fashion.

#### Objective

- -- To create built-up forms and spaces with respect to planning and design standards.
- -- To co-relate the built-forms and its natural surroundings.
- -- To maintain the balance and create a har-mony between formal and informal functions.
- -- To provide with drawing plans of entire complex, along with site plan, all building plans, their respective sections along with three dimensional views.

### 1.4 Scope and Limitation Scope

- -- Design studios
- -- Workshops& development centre
- -- Fashion laboratories
- -- Fashion classrooms
- -- Fashion library & resource centre
- -- Computer and photography lab. -
- Seminar and conference rooms
- -- Ramps for fashion shows
- -- Retail outlets
- -- Exhibition halls
- -- Party halls
- -- Oat
- -- Material sourcing centre
- -- Administration
- -- Space for food courts and restaurants
- -- Space for recreation spaces like cafeterias
- -- Space for residential complexes
- -- Parking
- -- Space for hostels

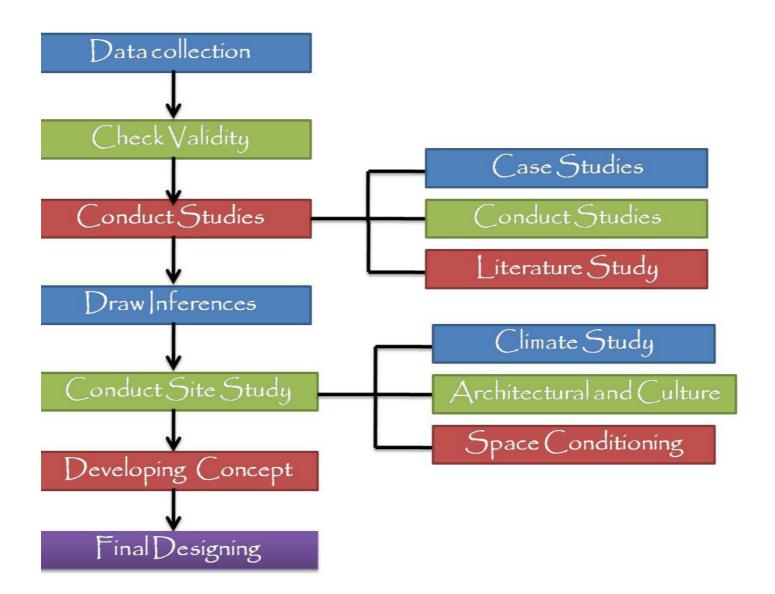
#### Limitation

--To design accordingly to the underling guidelines of by-laws of huda --My design is limited to academic and admin block only and aprox. Area of

other blocks will be provided.

--The area block of the other building blocks will be included in site plan and view but there designs will not be provided in my thesis.

#### 1.5 Methodology



# Chapter Two Design Guidelines And Bye Laws

#### 2.2 Bye Laws

#### For Institution

Max. Permissible ground coverage above 10000 sq. M = 25%
Permissible basement for the same =upto four levels Permissible far = 150%Max. Permissible height = unrestricted Boundary wall = upto 2.4 metres

#### Staircase

Provided must be accessible from =30 m -45 m (if fire fighting mesures are taken) Permissible staircase width = 1.5 - 2.0 in Permissible width of tread = 0.30 mPermissible height of riser = 0.15 mMax. No. Of risers in single flight = 14Ramps Buildings more than 15 m in height should be provided with lift and ramps with inclination of 1:10.

To basement min ramp width = 7.2 m

#### Lifts

Min. Size of lift lobby = 1.8x2.0 mEnterence door = 0.9m Capacity = 13 person Passages and corridors Min. Width of passages and corridors = 2.0Min. Clear headroom height = 2.15m

#### Exit

At least one primary enterance and exit to each building shall be usable by individuals in wheel chair. Max travel distance on the floor = 22.50 mMin. Width of exit doors = 2 mOrganised park Atleast 15% of total area of site

#### Parking

Covered parking height = 4.75 m

## Chapter Three Case Study





#### 3.2 NIFT Delhi



#### General Overview

National Institute of Fashion Technology (NIFT) is a fashion institute in India. It was set up in 1986 under the aegis of the Ministry of Textiles, Government of India and is an institution of design, management and technology for the international fashion business.



#### Client

Ministry Of Textle, Government Of India

Stakeholders:

Faculty, Students

Area:

11,650 sq.m Architect:

B.V Doshi

#### Location

The NIFT Campus Is Located At Gulmohar park Near Green park metro station In New Delhi's Hauz Khas institutional area.it is eas-ily associated with the Aurobindo Marg Or Balbir Saxena Marg.

Access is from north east and south west side of the campus.

The main access is from the Mehrauli Road which goes from AIIMS to Qutab Minar. it can also be accessed from the Khel Gaon Marg which goes to the Asian Games Village. surrounded by Hauz Khas Apartments, Spas-tic Society building and the Classical Dance Institute.



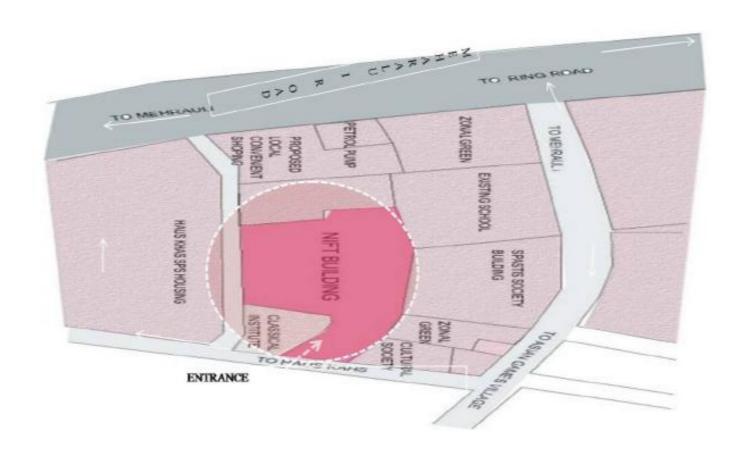


#### About The Building

- -The building covers almost the entire site leaving very less green area.
  -The plan follows the site boundary with
- a setback of 6m maintaining its character.
- -The opening are designed such that they maintain a visual unity in their form and proportion.
- -Academic clusters have been grouped together to form units comprising class rooms, labs, common lobby, and service spaces.

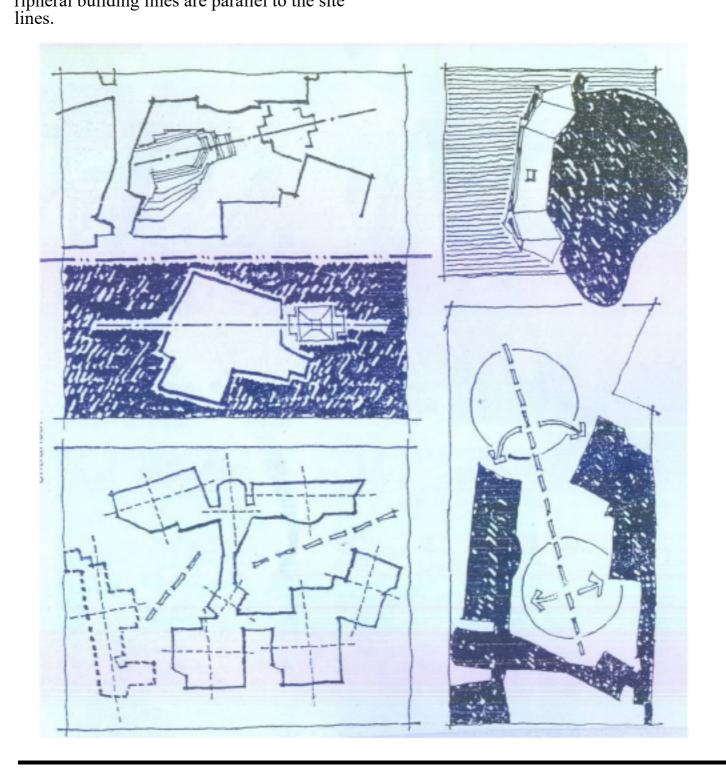
#### Concept

-Doshi's concept of the building revolve around form-imagery perception thus provid-ing the building with roots, life and history. The NIFT campus becomes a village square growing organically over time to become a theatre, the scene for unfolding drama of day to day life. For the central kund like court, wide casually aligned steps, water-channels, green areas, over looking terraces and bridges emerge as elements of space making to recreate for fashion and design activities.



#### Orientation

- -Building is aligned with its long sides along NW and SE axis, facilitating good exposure to the sun and breeze, at times causing glare.
  -Different blocks of building complex are placed according to the site lines. All the peripheral building lines are parallel to the site
- -Openings for light and ventilation have been sacrificed for aesthetic considerations than climatic comfort.



#### Site Planning

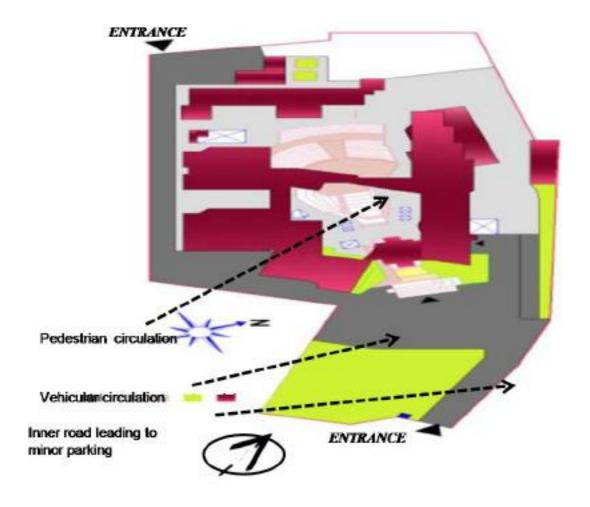
-Flat land with artificial contours. Proper segregation of functions as build-ing blocks are places in certain set of zones which is determined by the function character of the building block.

-The planning revolves around the two courtsthe sunken cover with a stepped kund and the

amphitheatre.

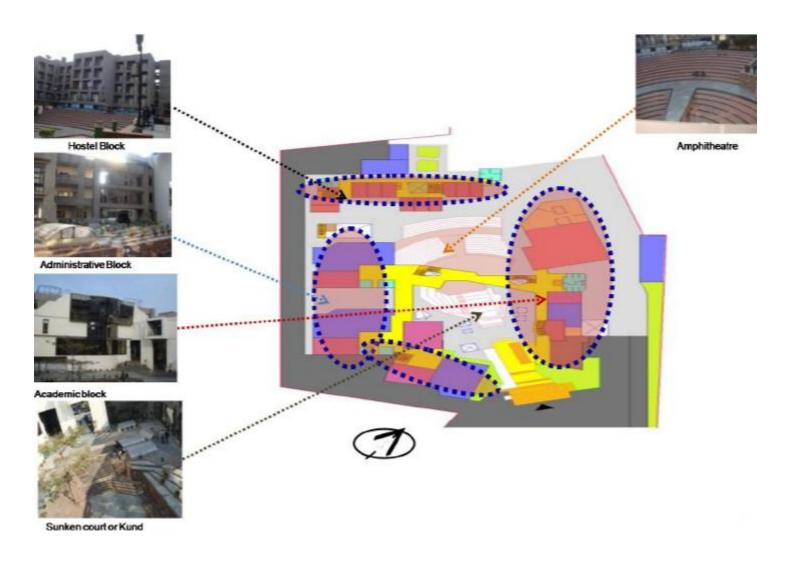
-Although apart from the zonal green there is not any substantial green area to be land-scaped, the institute gives a feeling of richly landscaped environment.

- -Two types of circulation pedestrian and vehicular.
- -An inner road leads to the main car park just outside the main entrance.
- -The entry to the campus is from two sides. Front and back.



#### Zoning

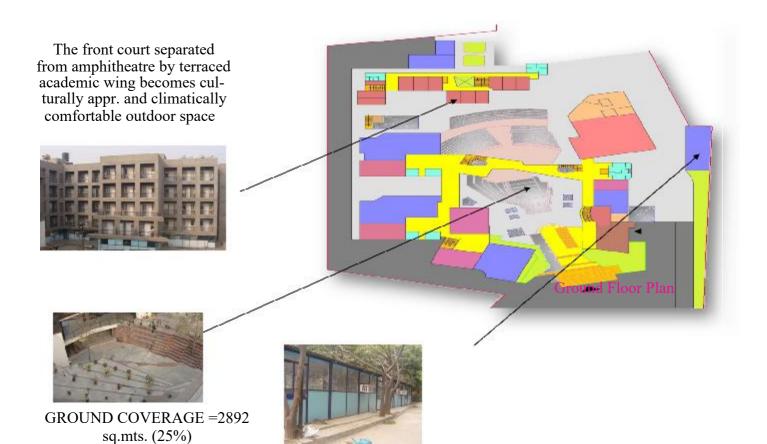
- -The site is basically divided in to three basic zones.
  -Academic block are similar in plan and in function also, occupies the left portion of the site.
  -Administrative block along with canteen and library is in right hand side.
  -The Hostel block is placed right at the back of the site.



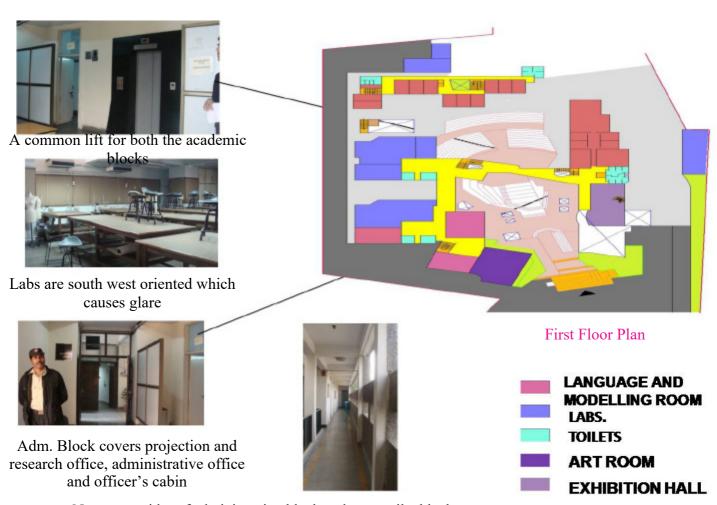
#### **Building Layout**

- -Different blocks acquire different shapes and forms depending upon the functions they are accommodating.
  -Permeability of the blocks, due to accessibil-
- ity from all the sides.
- -The building blocks are concentrated around the sunken court thus generating activity and creating lively environment





Labs in the way due to insufficient space



Narrow corridor of administration block end up at toilet blocks on both sides



View of display board in class room



Sitting area/projector in class room



Second Floor Plan

-Library is used by all the students and outside people from the industry and profession, for research and reference work -Resource centre consists of valuable audio-

-Resource centre consists of valuable audiovisual collection of videotapes, slides, CDs and photographs.

-Resource centre also comprises of material collection of textile, costumes, jewellery and other related reference material.



LABS

TOILETS

ART ROOM

EXB. HALL — UPPER LEVEL

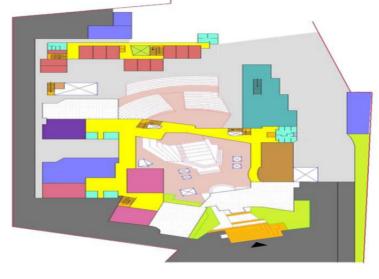
LIBRARY

**RESOURCE CENTRE** 

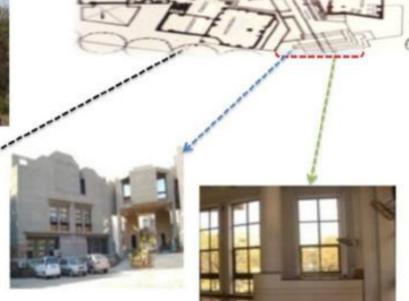
#### Entrance Plaza and Foyer

It is a series of steps with seating at various levels from the entrance plaza giving an informal atmosphere to the area.

The foyer leads to the reception & also opens out of the sunken courtyard





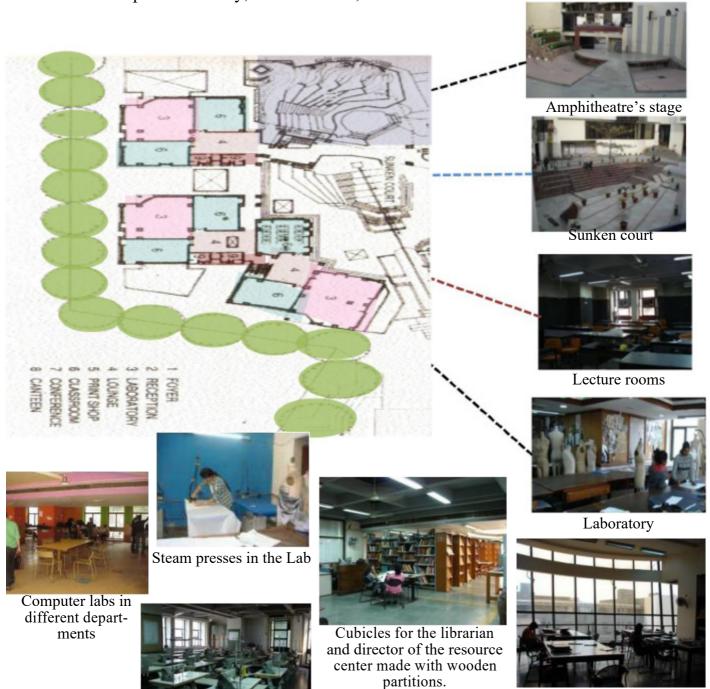


#### Academic Block

Swing machines in

Laboratory

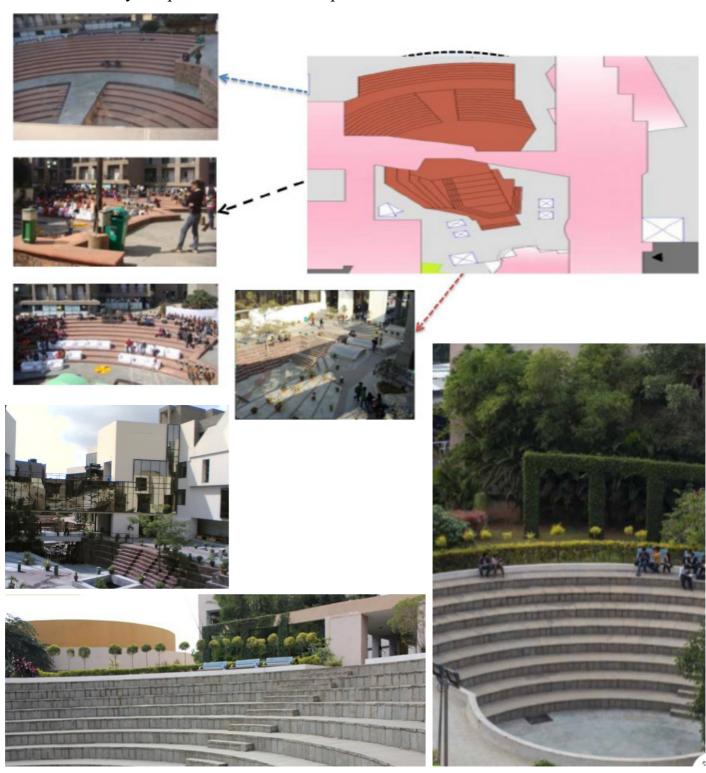
- -The whole complex forms a vibrant composition.
  -The academic blocks are connected through different systems of circulation overlooking the
- -Academic facilities have been provided in the areas joined together in the form of a cluster.
- -The cluster comprises of lobby, lecture rooms, labs and toilets.



Glass for the day lighting in the

Library area

- Amphitheatre
  -Total seating capacity is for 300 students.
  -Area covered by Amphitheater = 319.35 sq.mts.



#### Material Used

-Structure - R.C.C and brick walls.

-Cladding—Random rubble stone masonry on some part of the plinth, walls in some places, imported float glass used as a special mate-rial as a non reflecting glass used as a com-plete wall, steel frame screened with reflected glass, and use of vibrant colors in the interi-ors spaces.

-Windows: Jharokhas of traditional architec-ture and new materials and expression creat-ing an interesting blend.

-Floor Finish: Block granite and white marble check flooring in reception hall, Kota green and Jaisalmer yellow in corridors, Plain cement floor finish in classrooms and laboratories, chip flooring in exhibition hall, stone in open spaces.

-Façade Treatment: The exterior although uniformly finished in grey-colored grit, the interiors come as a surprises, with composi-tion in white, grey and greens of the court reflected in the glass wall.











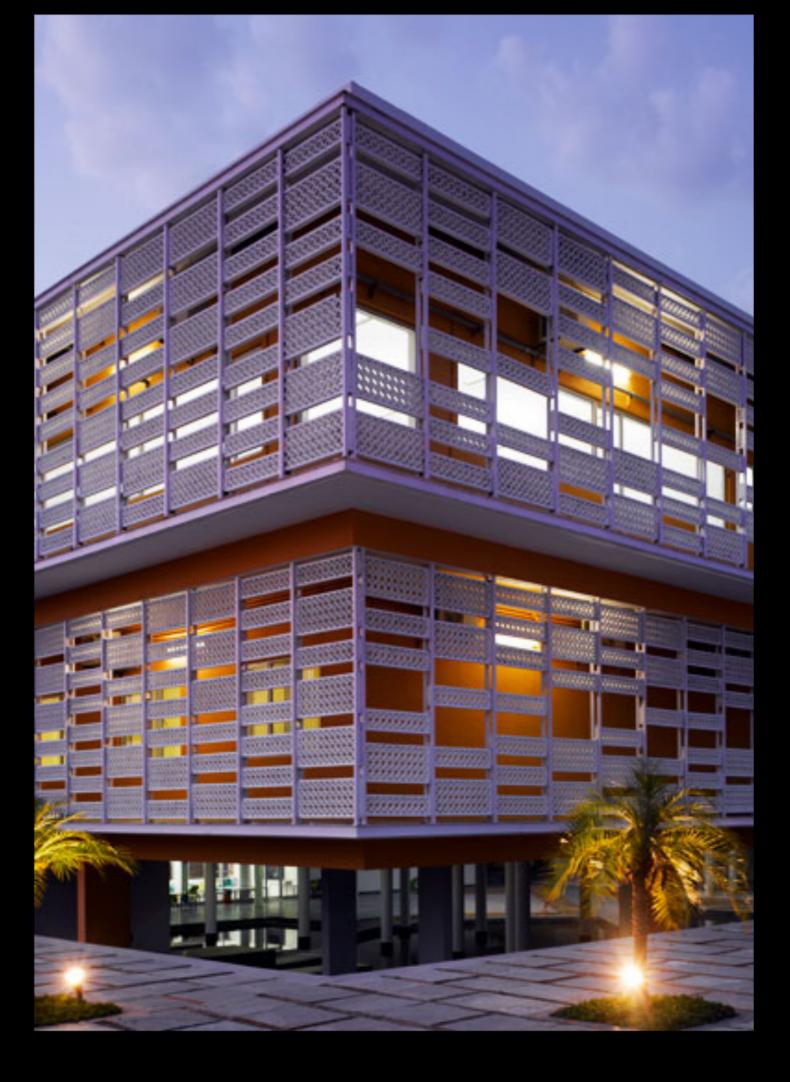
#### Landscaping

- -The institute gives a feeling of richly landscaped environment.
- -Site boundary is lined with deciduous and evergreen trees.
- -A series of high and low platforms, soft and hard landscaping have been used in the amphitheatre court.
- -In surrounding areas of kund soft landscaping is done and it is paved with cutouts for basement lighting.









#### 3.3 Pearl Academy of Fashion Jaipur



General Overview

The Pearl Academy of Fashion is a campus which by virtue of its design id geared towards creating an environmentally responsive passive habitat. The institution creates interactive space for a highly creative student body to work in multifunctional zones which blend the indoor with the outdoors seamlessly. The radical architecture of the institution emerges from a fusion of the rick traditional building knowledge bank and cutting edage contemporary architecture.



#### Client

Pearl Academy of Fashion Stakeholders:

Faculty, Students

Area:

12,250 sq.m

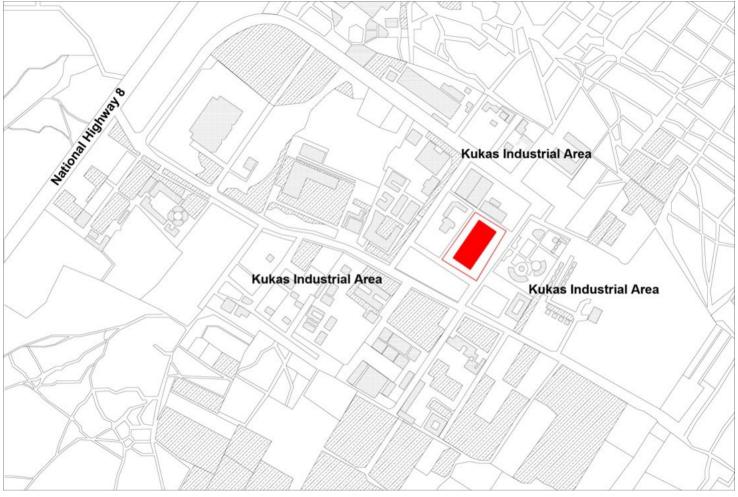
Architect:

Morphogenesis

#### Location

-The Pearl Academy Jaipur campus is nestled amongst the majestic Aravali hills on the Jaipur Delhi Highway. -The campus is less than 6 kms away from the historic fort of Amber and 15kms from the Jaipur city center. -25kms from Jaipur International Airport. -14kms from Jaipur Bus Stand and Railway Station.



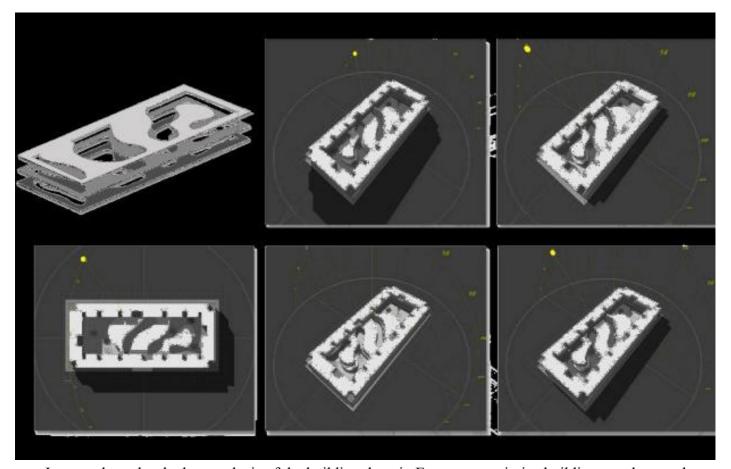


#### Concept

Due to the project location within an industrial site context and the impact of form optimization on built form, a rectangular volume was formulated that would provide with minimum exposed surface area. The entire building is raised above the ground and 4 meters were excavated to create an underbelly. The underbelly forms a natural thermal sink which is cooled by water bodies through evaporative cooling. Floating above the underbelly is a teaching block raised on pilotis, two stories high with footprint of 111 by 50 meters. The mass is broken into several courts creating alternative solids and voids which respond to solar geometry as shown. The solids become studios and classrooms, whilst the voids are visual breaks that allow daylight and air through.

Throughout most of the year these incisions offer shade, limiting solar ingress into the underbelly. Cool air as it warms up rises vertically through these courts creating cross ventilation.

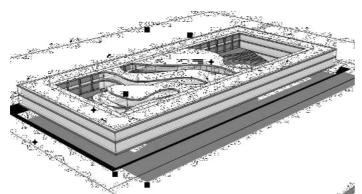
The courtyards plan is a simple form where the floor plate is no more than 9 meters wide at any point, at no point is an occupant more than 4.5 meters from a window or openingthis eliminates daytime reliance on electrical lighting, 90% of the gross space area relies on natural daylight. Green spaces and water bodies are designed as per orientation to be in shaded areas in order to lower the water evaporation and aid evaporative cooling. During the night, when the desert temperature drops, this floor slowly dissipates the heat to the surroundings, keeping the area in thermal comfort.



Images show the shadow analysis of the building done in Ecotect to optimize building envelope and deter-mine the fluid shape of the internal blocks to suit solar geometry

Learning was derived from the built heritage of Rajasthan, replete with havelis3, inward-looking blocks with rooms along corridors and in enfilade, surrounding a single or multiple courtyards. The haveli3 typology epitomizes the idea of the building as a device for environment control, where the solid-void balance is calibrated for maximum daylight penetration, minimum heat ingress and the accommodation of multiple

functions. Hence, The Design response was an introverted building, given the setting which was largely industrial. A long low-lying two-floored perimeter block pushes the building enve-lope to the mandatory setbacks, optimizing the exposed surface area to volume ratio of the form and almost seems to float above the land.



Perspective view showing the optimised building envelope floating over the sunken court.

### The Site

The underbelly provides functional spaces that operate in a passive environment, elimi-nating the need for additional built volume in the form of a floor without jeopardizing the program. Steps on the perimeter of the underbelly double up as seats, making this an ad-hoc performance venue. The institute creates interactive spaces for a highly cre-ative student body to work in multifunctional zones that blend the indoors with the out-doors seamlessly. The underbelly is thermal-ly banked on all sides serving a large student recreation and exhibition zone. It also houses the cafeteria and spill out area thus forming the anchor for the entire project (figure 4). The ramp is multi functional as a runway during fashion shows. The spatial flexibility allows ample room for growth. An additional floor will be built in the future to accom-modate students' residences, thereby becom-ing a mixture of residence and workspace that will take the building even closer to the archetypal haveli3. The multifunctional programming allows for the elimination of a complete storey which would otherwise use artificial techniques of cooling hence making the building extremely efficient in its energy consumption.

The Classrooms, Labs, and Offices have been designed around an internal courtyard, which is further broken down to fluid forms housing the flexible requirements of Studios.



View of the site showing multi-functional programming in the sunken underbelly space.

# **Building Layout**

# Classification of area

Gross Floor Area: 12,250 sqm

Building Height: 21m Capacity: 600 students & 100 staff Operational Hours: 1100hrs/year Programme: 4 classrooms,

24 studios, offices, library Auditorium (195 occupancy)







### FORMAL STUDENT AREA

Workshops Computer Use Material Labs Short projects Advanced Tools Material Labs Crit Sessions

Discussions

### SECOND FLOOR PLAN

ADMINISTRATION AREA

Principal office Reception area Management Outreach dept. offices Head offices Accounts offices

CLASSROOMS Individual batch classrooms

INFORMAL STUDENT AREA

Workshops computer use Thinking Long term Canteen projects Material Labs

Faculty offices

Discussions Display gallery

### **FACULTY AREA**

Faculty entry Faculty working Meeting spaces studios Paper corrections Canteen

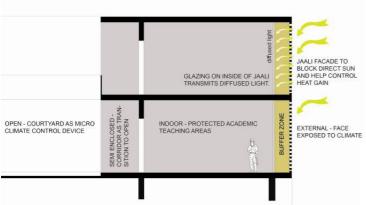
### **INSTITUTE AREA**

Library Prototyping Convention centre Exhibition area centre Auditorium Start-up centre



# **Elevation Strategy**

Jaali acts as a second skin to the building, servicing the functions of 3 filters, air, light and privacy, a 1.2 m wide sliver of space be-tween the two building skins along the outer perimeter of the teaching block cuts down solar heat gain without curtailing air flow or daylight entry. The porosity of the jaali panels varies with orientation of façade; the greater the solar exposure the more opaque it comes.



Section showing positioning of the jaali with respect to the internal habitable space

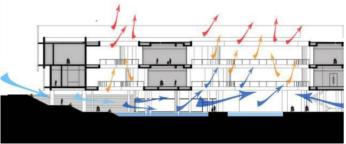
The building is wrapped in a double skin consisting of Fritted screens set 1.2 meters away from inner walls and windows. The jaali moderates incoming natural light, which can be harsh much of the time. The double skin acts as a thermal buffer between the building and surrounding, thereby reducing direct heat gain through fenestrations, yet allowing for diffused daylight.

The façade is entirely composed of two detached horizontal planes formed by perforated panels, creating a ventilated buffer space to protect the outer walls and a service corridor through which the horizontal pipes, cables and ducts are supplied around the building.

The wall section is inspired by the Hawa Mahal, an 18th century building with a tapered block with finely screened windows that provide shade and admit cool air. However, the primary purpose of these grilles was to allow women of the court to observe life in the street without exposing themselves to view.

# Courtyard/Stepped Well

Self shading courts keep the solar ingress out and control the temperature of internal spaces, whilst allowing for sufficient day lighting inside studios and classrooms. The lowest floor of the building, the underbelly is able to moderate ambient temperatures with water, shade and vegetation. The underbelly is sunken 4 meters below street datum so that the cool humidified air which is heavier than warm dry air might be contained. The sinking of this space also provides privacy for inner sanctum where students gather. A matrix of water and greenery creates a microclimate via evaporative cooling and transpiration that is substantially cooler than outside. Dur-ing the night when the desert temperature drops the



Section showing the effect of pas-sive evaporative cooling through the courtyard over the water body.

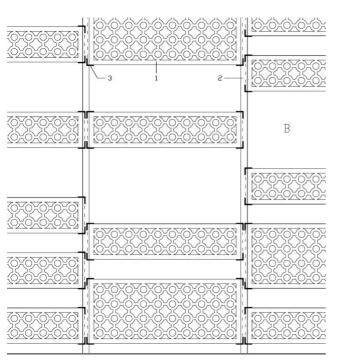
The building is wrapped in a double skin consisting of Fritted screens set 1.2 meters away from inner walls and windows. The jaali moderates incoming natural light, which can be harsh much of the time. The double skin acts as a thermal buffer between the building and surrounding, thereby reducing direct heat gain through fenestrations, yet al-lowing for diffused daylight.

The façade is entirely composed of two detached horizontal planes formed by perforated panels, creating a ventilated buffer space to protect the outer walls and a service corridor through which the horizontal pipes, cables and ducts are supplied around the building.

street without exposing themselves to view.

### Walls and Fenestration

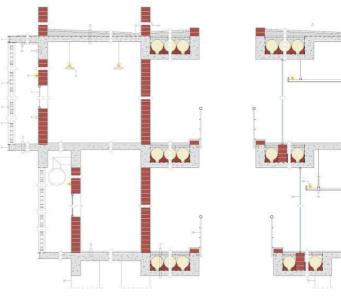
-The building is protected from environment by a double skin which is derived from a traditional building element called the jaali which is prevalent in rajasthani architecture. -The double skin act as a thermal buffer between the building and the surroundings. The density of the perforated outer skin has been derived using computational shadow analysis based on orientation of the facades. -The outer skin sits 4 feet away from the building and reduse the direct heat gain through fenestration, yet allowing for diffused daylight. The jaali thus, aerves the function of 3 filtersair, fight and privacy. - The adverse climate makes it a challenge to control the micro climate within the project thus incorpora-tive various passive climate control methods become a necessity and also reduce the dependence on mechanical environment control measure which are resource hungry. -The architecture of the academy needed to be a confluence of modern adaptation of traditional indo-islamic architectural elements and cooling strategies prevatent in the hot-dry desert climate of Rajasthan such as open courtyard, water body, a step-well or baoli and jaalis.



Drawing showing the arrangement of the jaali panels on the elevation.

### Material Used

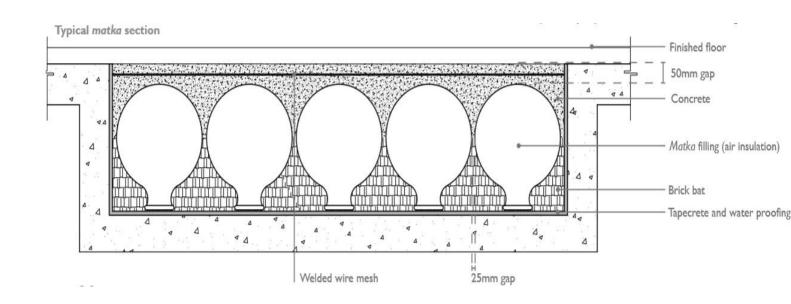
The pallet of materials includes stone, glass and concrete, all of which are locally sourced. Jaisalmer stone, kota stone, granite and slate are quarried from within Rajasthan. All materials used are from under 300 km distance. Aluminum, concrete come from Jaipur city limits. Concrete jaalis cast on site by employing the local craftsmen of the region. Matkas bought in the markets of Jaipur. Traditionally matkas are handmade mud vessels that are used to carry water. Hundreds of 35cm wide matkas were placed 2.5 cm apart, the gap was filled with sand and bro-ken bricks, and then cast over with binding layer of concrete. The sandwich of trapped air is applied to horizontal surfaces that are exposed to the sun, becoming a barrier that limits solar heat transmission. The fill and the air within the mutkas provide insulation. Matka's (earthen pots)were inverted and placed along the terrace creating an air cavity that thermally insulates the roof. The exterior is painted orange to set off the jaalis, but the interior surfaces are white, to reduce heat absorption and create a cool backdrop for the bustle of activity and the brilliant colors of women's saris.



Section showing the use of matkas (earthen pots) in the roof for the purpose of insulation.



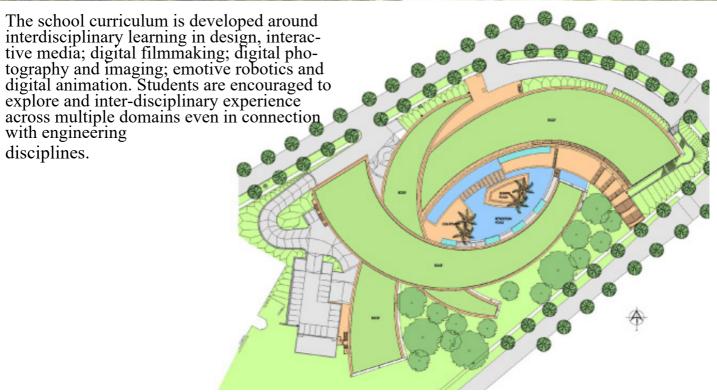
Image showing the use of matkas in the roof slab of Pearl Academy of Fashion during the actual construction.



# Chapter Four Literature Study

# 4.1 Nanyang School of Arts(Singapore)

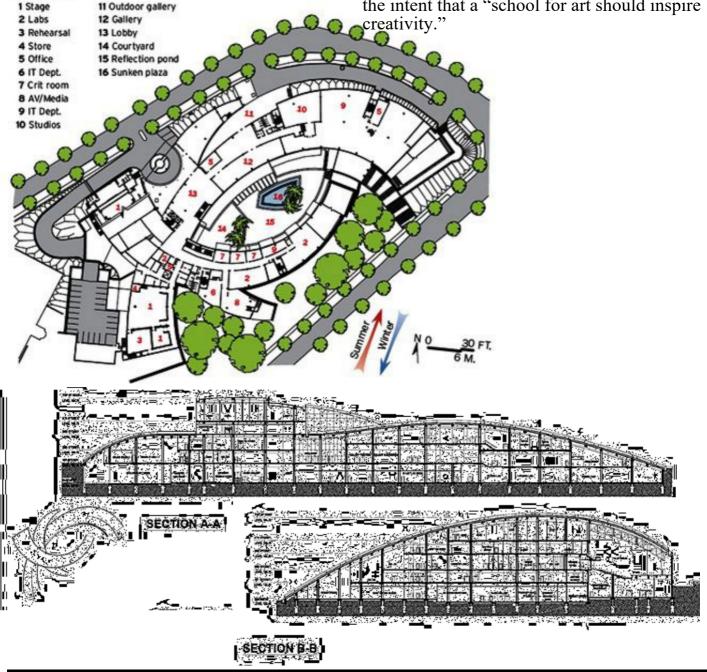




- -The 5 story facility sweeps a wooded corner of the campus with an organic, vegetated from that blends landscape and structure, nature and high-tech and symbolizes the creativity it houses.
- -The curving green roofs distinguish the building from among the other structures; the line between landscape and building is blurred.

SITE PLAN

- -The roofs serve as informal gathering spaces challenging linear ideas and stirring perception.
- -The roofs create open space, insulate the building, cool the surrounding air and harvest rainwater for landscaping irrigation.
- -Planted grasses mix with native greenery to colonize the building and bind it to the setting.
- -This design seems to offer a new experience of every elevation or perspective fulfilling the intent that a "school for art should inspire





### Glass facade:

-High performance building envelope Reduces solar gain and heat load

Allows the benefits of natural views and day-

light into creative spaces.

-The glass walls provide a visual exchange between indoors and out allowing students and teachers to experience the building, the surrounding landscape and the interior plaza as fluid spaces.

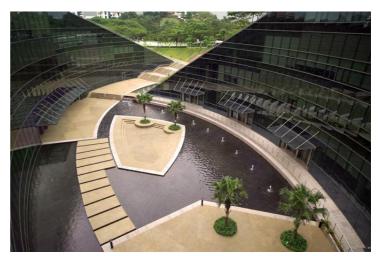
-Diffused natural daylight is abundant throughout studios and classrooms, filtered

through the surrounding foliage.

-Finishes are internationally raw to act as a backdrop for the art, media and design projects. Concrete walls and columns, cement-sand screeded floors, timber railings and a neutral palette define the interior spaces which vary in shape and size.

which vary in shape and size.

-The vision of the school 'to change rigid perception' has been translated directly into a form with ever changing perspectives. The form becomes the metaphor of change as it to facilitate the flow of creative ideas.





# 4.2 Zero Energy Media Wall-greenPIX (Beijing)

GreenPix - Zero Energy Media Wall - is a groundbreaking project applying sustainable and digital media technology to the curtain wall of Xicui entertainment complex in Beijing, near the site of the 2008 Olympics. Featuring the largest color LED display worldwide and the first photovoltaic system integrated into a glass curtain wall in China, the building performs as a self-suffi-cient organic system, harvesting solar energy by day and using it to illuminate the screen after dark, mirroring a day's climatic cycle.

GreenPIX the zero energy media wall, uses architecture and technology to absorb, store, amplify, translate, and display data both natural and manmade, in an organic system that responds dynamically to the local environment.

-Creative programming adds even more layers to the already rich stream of data being presented and

allows passes by to experience the site in terms of space and time through both their own eyes or the

minds of the selected artists.

-Media is displayed on a gigantic screen which uses 2292 pixels of

LED lights and translucent glass. The entire presentation comes

with the zero net consuming energy footprint thanks to glazing

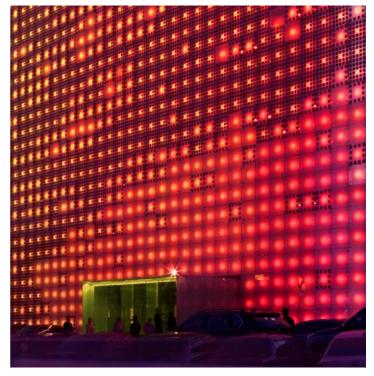
integrated system of perforated photo boltaic cells and a battery

storage system. The result is public at installation that creates

awareness of the local environment in both appearance and

functionality. Sustainbility is more than façade deo.





### **Facts**

-Desing by Brooklyn based simoneglostra and partners.

-Architects in collaboration with arup.

-Location xicul entertainment complex Bei-

-Largest LED display in the world building façade

integrated PV system.

-Design Brief -enliven the building's opaque, boxilikeprecense and connect it to its environs all using

only one façade.

-Média displayed on the large format low -res

can be presented in both fellow and still image formats.

-Desingners develop a special software for artists to

test their creation on a virtual façade before loading

it into the media wall. The software made it possible to

give the wall from many angles and distances to test

the resolution.

-The entire façade display is rougly 24000 sq.ft.Each of the 2292 glass panels has a colour changing LED fiction mounted behind it and is pixel in the last format low-res display.

-INTEGRATED photovoltaic cells mean that the panels both aemmit and absorb

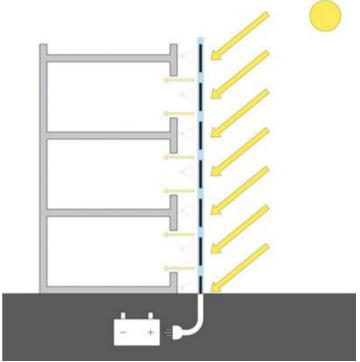
energy in the form of LED and sunlight thus reinforcing giostros vision of techno legible self sufficiency.

-DURING the day time however when sun obscures the LED light, giostra had to make the passive elements

of the façade appeared dynamic. He accomplished this by varying opacity and mounting angle 5\* of the

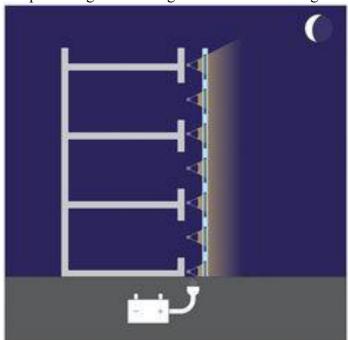
glass panels as well as by carefully arranging the integrated PV cells to form a dynamic pattern. The result

is a façade that appears to undulate with the rhythm of the environment day and night.



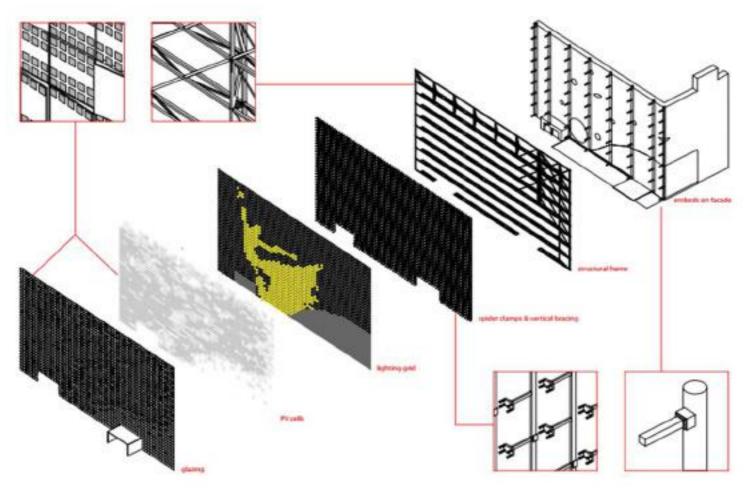
Day Cycle: Energy Production.

The photovoltaic solar cells store the solar energy that is not required to the activities in the building during the day, while acting as an affective shading device and protecting the building from excessive heat gain.



Night Cycle: Energy Consumption.

The media envelope releases the energy accumulated during the day, in form of bursting light, transforming the facade in a glowing beacon, and the building in an overwhelming visual experience within the nightscape of Beijing.



Layering of Facade





# Chapter Five Correlation of Fashion and Architecture

### 5.1 Fashion and Architecture

Fashion refers to the styles and customs prevalent at a given time. Fashion designing is all about creativity. And when its designing for fashion designer's use, it definitely should reflect their passion and our creativity. It is like a mirror that reflects the present. It is the way of refection of life that responds too many things; an area, feeling events. It is a time dependent scenario. "Fashion is the style that is popular at a given time". A designer may produce thousands of designs, beautiful, elaborateand exotic elegant but they might not be right for some particular memento history, they would not have been acceptable. The term implies 3 components. -Style

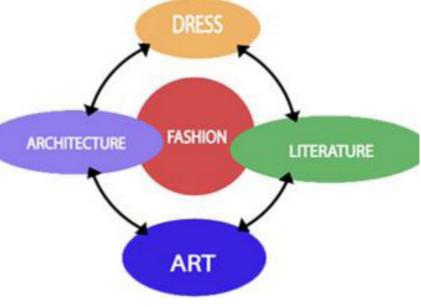
-Acceptance -Timelines

Fashion as we understand it today, as professional endeavor owes its solution to the institute of fashion technology. I.F.T is making efforts to evolve a unique fashion identity,, for a global audience. It's developing a pool of trained professionals- specializing in conventional and emerging segments of fashion. From Indus valley to I.F.T. play the Indian fashion industry has come a long way. The future will see I.F.T. play a more proactive role in partnership with industry in articulating and meeting the challenges of the new millennium.

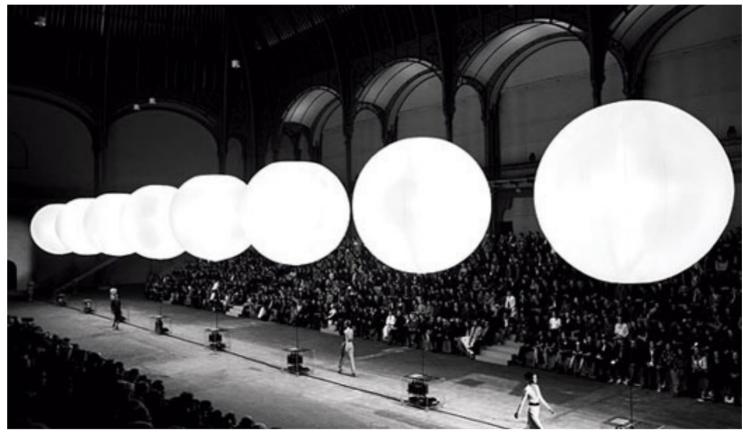
**Symbolic Expression** 

Fashion is, basically, a state of anything with regard to is external appearance, shape, style. Or pattern. Fashion is the state of mind also which exists at all levels of society. Fashion sometimes becomes trendy and in that sense it is the prevailing mode or customary stile. Fashion design demands continuous innovation. It is more of a designer's state of mind which wants to present that to a large group of people. For this a changing environment, highly visible display and show areas are essential. Fashion shows become very important, which are live and are supported in the background by other media to create a total effect. Fashion shows are indeed theatrical acts with an emphasis on the dramatic effect, an art of producing and presenting. The rapidly changing trends of fashion also imposed 'time' as the fourth dimension. All this implies a continuous movement in the space and time that must be modulated. As beauty relates quite obviously to human figure and aesthetic extremities, architecture too, is about form and aesthetics, besides being functional and need specified. The idea of forms and aesthetics in fashion and architecture can be spiritually relate. The aspect of fashion can be reflected in the architecture of the campus designed for a discipline of art and design as Fashion Technology





# 5.2 Impact of Fashion



Fashion is the most common denominator in the modern world. Non western cultures are bounded by dress codes that have their own system of fashion communication. Fashion communication to an individual emotional life. As few other things can, cause conflict or approved between husbands and wives, parents and children & arouse feeling of jealousy between friends. Fashion is integrated to everyday life. Often we are unaware of its Impacts on our lives, as we are of the air we breathe. With the wind of adventure and innovation sweeting the fashion industry. Indian design is not opening. The Indian industry has made inroads to the fash-ion industry already. The exports of the garments between 1982-1988 increased by over 200% to a level exceeding two thousand crores.



# 5.3 Indian Fashion Industry

# India in Global Fashion Industry

For the global fashion industry, India is a very big exporter of fabrics and accesso-ries. India's strengths not only depend on its tradition, but also in its raw materials. World over, India is the third largest producer of cotton, the second largest producer of silk and the fifth largest producer of man-made fibres, apart from having cheaper skilled work force. India provides these fabrics to the international fashion houses at competitive prices with shorter lead time and an effective monopoly in designs which covers elaborated hand embroidery. Indian garments embellishment with bead work is another area which is in demand in the international market.



# The Business of Fashion Designing

Fashion designing is a dynamic, fast paced field with unbelievable career possibilities. Students from the fashion designing institutes have various options like working in export houses or working for other designers. But having a label of one's own is the dream of anyone aspiring to make one's career in this field. Fashion designing business has everything one can wish for. Famous fashion designers of today have fame & money and there is a lot of personal satisfaction in expressing one's creativity. But to achieve all this, one has to address a lot of issues like sourcing of raw materials, targeting the right consumer & market, the financial side of the business etc. So, in order to make it big in this industry, a solid foundation is a must.

### **Historical Perspective**

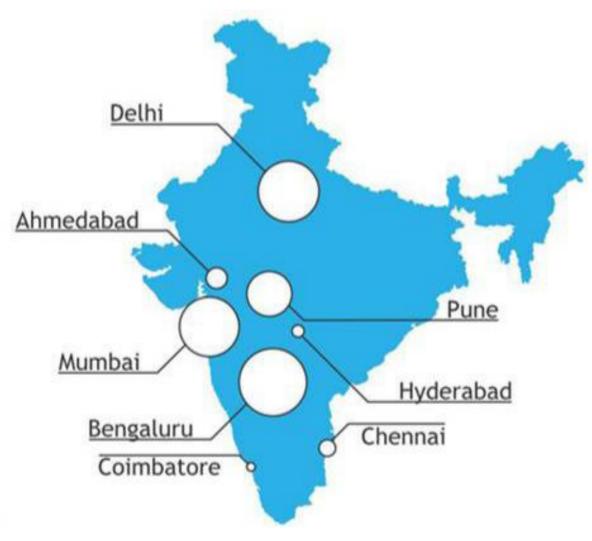
In the 1960s, tight "kurtas" and "churidars" were a trend among ladies. In the 1970s international fashion arrived in India much before the MTV culture with the bold colors, flower prints and bell-bottoms. Synthetics turned trendy and the disco culture affected the fashion scenario. It was in the early 1980s when the first fashion store "Ravissant" opened in Mumbai. With the evolution of designer stores in Mumbai, clients immediately transformed into the high fashion fold where they were convinced that that the word ,,fashion design" means, it had to have a higher price tag. In the 1990"s, the price tags, which had reached a peak, began their downside jour-ney. In those times the downturn was not only experienced in the prices of the garments, but also in the business of fashion shows. More models, Choreographers, make-up men, hairstylists and designers streamed down into this business. The fun and party time in the Indian fashion scenario did not end with this, but continued. It was a point, where it reached a certain steady level and from there, in the beginning of the 21st century, with new designers and models and some sensible designing, the fashion hype accelerated.

# Distribution of Design Practices over India

Mumbai, Delhi, Bangalore and Pune are industrially active and are home to the majority of well known Indian companies. Mumbai and Delhi are natural destinations for fashion industries purely for the reason that these two cities host the topmost Indian corporations from diverse segments. These two cities offer the best market for fashion services. Bangalore and Pune offer a very good standard of living, good weather and an experimental, culturally active society. Architectural and associated design practices have not been correctly represented. If included their sheer number and scale would overshadow practices from other streams across all cities.

### **Evolution of Education**

Educational institutions are indicators of the direction in which a culture intends to be headed in. built in anticipation of market trends; they represent the value that a community attaches to learning. Education, as a process, can be affective only if it constantly evolves with the society and mirrors its aspirators. This fact is of vital significance in india, which is fast catching up with the world as technological advancement is revolutionizing the content and process of its education. The challenge for educational facilities is to keep up with this evolution. In an interconnected and multi-ethnic environment like that of india, the challenge extends beyond technological integration/upgradation of the education system into addressing the innate contradictions that arise within it.



The fashion industry is identified as one of five key industries contributing to the prevalence of modern slavery



# 5.4 Fashion Terminologies

# **Fashion Designing**

Fashion design is the art of application of design and aesthetics or natural beauty to clothing and accessories. Fashion design is influenced by cultural and social attitudes, and has varied over time and place.

Fashion Technology

Fashion Technology is the applied art dedicated to clothing and lifestyle accessories created within the cultural and social influences of a specific time. Fashion Technology differs from costume design due to its core product having a built in Obsolescence usually of one to two seasons. Fashion Technology is generally considered to have started in the 19th century with Charles Frederick Worth who was the first designer to have his label sewn into the garments that he created. Some fash-ion designers are self-employed and design for individual clients. Other high-fashion designers cater to specialty stores or high-fashion department stores.

# Apparel merchandising and marketing

The apparel merchandising and marketing course covers the practical aspect of the fashion / apparel industry. The curriculum includes subject on buying merchandising retail operations, fashion coordination, advertising and publicity styling fashion /color forecasting international marketing etc. the creative approach to merchandising /marketing and the direction of fashion trends will be reinforced by field trips, organization of fashion shows and presentation.

# Knitwear design and technology

The knitwear design and technology department has assisted reputed fashion designer to develop fabrics structure and garment with placed lace design. The structure has been developed using Scottish yarn – a blend of wool and skim fiber which has given garments a soft and warm feel.

# Textile Design

Textile design is essentially the process of creating designs for woven, knitted or printed fabrics or surface ornamented fabrics. Textile designers are involved with the production of these designs, which are used, sometimes repetitively, in clothing and interior decor items. In other words, textile design is a process from the raw material into finished product. Fiber, yarn and finishes are the key elements to be considered during the textile design procedure.

# **Design Space**

the set of possible designs and design param-eters that meet a specific product require-ment. Exploring design space means evalu-ating the various design options possible with a given technology and optimizing with respect to specific constraints such as power or cost.

# **Fashion Management**

Fashion management is the promotion of apparel sales and involves all of the tasks necessary to deliver the clothing requests and meet the needs of potential customers and designers. Developing campaigns, displays and advertisements, directing manufacturing and marketing, and creating sales strategies are the various parts of Fashion management.



# 5.5 Inferences

Various case studies and prototype studies were carried out for--Contemporary approach

-Response to environment

-Architectural response (aesthetic and functional)

-Success in creation of ground breaking 'creativity fostering' environment - Understanding creativity and how it was achieved -Listing out the functional components required

-Studying architectural conditions needed to create stimulating environments -Laying a comparitive area analysis between the institutes

### Creativity

# **Understanding Creativity**

Meaning of creativity: essentially an 'assumptions breaking process'.

# Aspects of creativity

-fluency

-the total number of interpretable, meaningful, and relevant ideas generated response to the situation.

### Measures of Creativity

Social personality approach -independence of judgment

-self-confidence

-attraction to complexity

-aesthetic orientation

-risk taking

-openness to experience

# Role of Mood in Creativity

'Positive emotions such as joy broadens a person's available repertoire of cognitions and actions thus enhancing creativity' proven by Broaden and build model of Fredrickson.

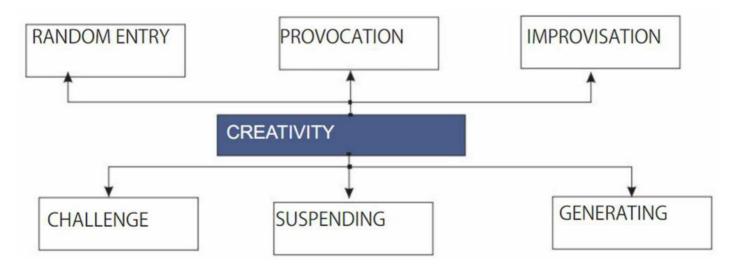
'Particularly strong links have been identified between creativity and mood disorders, par-ticularly manic-depressive disorder' proven by Arnold Ludwig of the university of Ken-tucky

### Four Patterns between Effects and Creativity

-Antecedent to creativity

-direct consequences of creativity

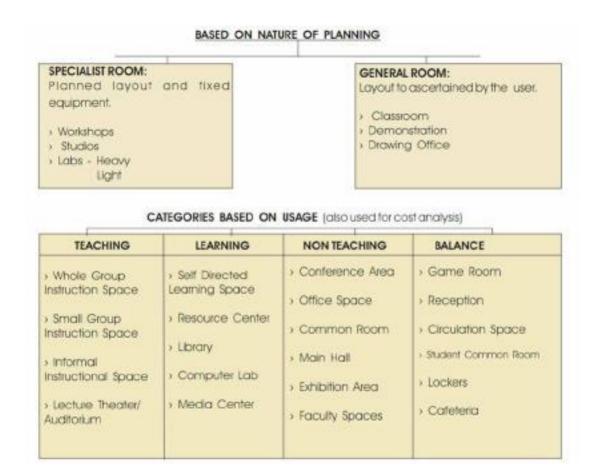
As an indirect consequence of creativity simultaneously with creative activity



**Functional Components** 

Architectural progress of educational buildings does not imply quantitative massificiation. It implies more robust, flexible, adaptable buildings for a diversified range of courses. The success of such a setup depends on the balance between the managerial and physical combinations.

the building should provide and limit the activities that are to be performed in it. Thus ,it becomes vital to determine what the building doesn't do. Functionally, the building should provide room for change.



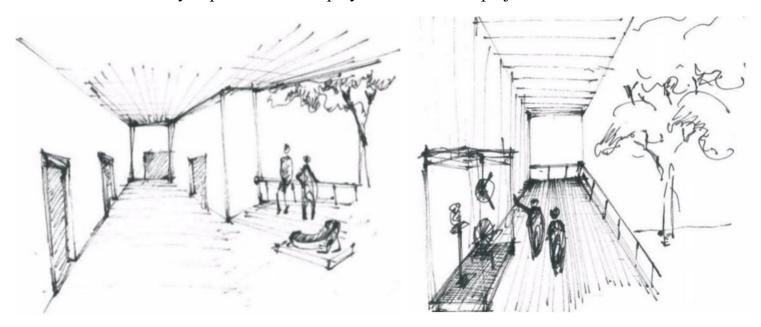
# Architectural Conditions needed to creatte Stimulating Environments

### Corridor

-Doubly loaded corridors- will force students to 'hang out' in undefined spaces-

conversation will be rarely about work.
-Singly loaded wide corridor with formal display space-will encourage individual students (whose work is on display) and adds 'pride' or value to the product. But adds the sense of looking 'down' upon something that has been 'encased' and conversation will tend to be opinionated.

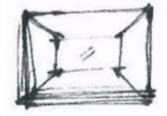
-Singly loaded corridor connected with informal display- will encourage more and more students to display it, it is more democratic, sets the tone of the conversation. And allows the observer to really experience the display without mental prejudice.

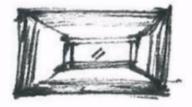


### Classroom

For an unstructured teaching method, the classroom has to be 'an envelop' ready to serve, be customized as needed and cannot be laid out formally.

The light in the classroom effects state of material alertness and should allow for all kinds of permutations and combinations.







### Studio

A customizable den/nest for every student creates sense of belonging and encourages students to work.

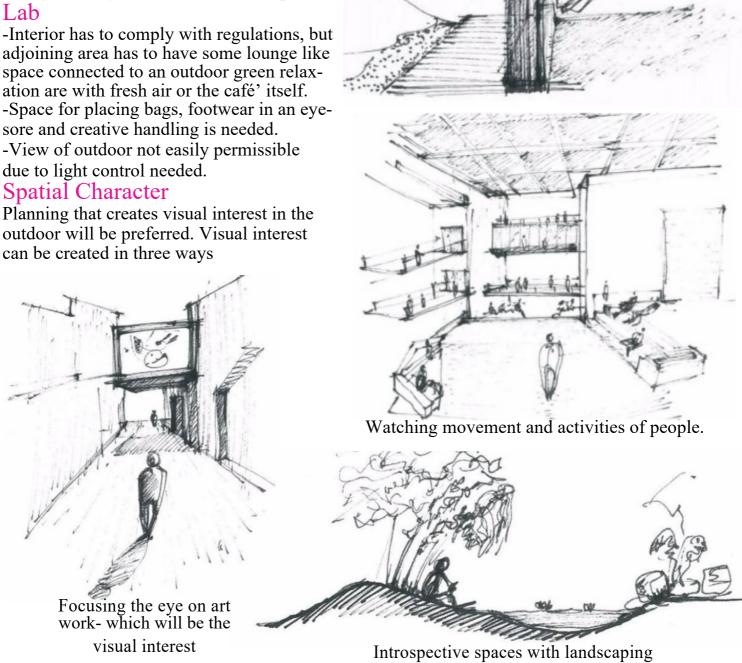
Visual connectivity to the landscaped/re-laxed environment is indicative of freedom of thought.

Desired- customizable light fixture. Ample storage, strategically located electric points.

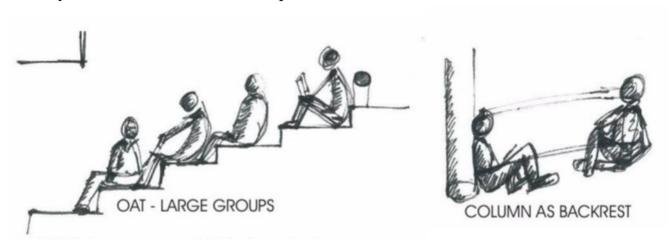
### Lab

- adjoining area has to have some lounge like space connected to an outdoor green relax-
- sore and creative handling is needed.
- -View of outdoor not easily permissible

Planning that creates visual interest in the outdoor will be preferred. Visual interest can be created in three ways

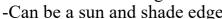


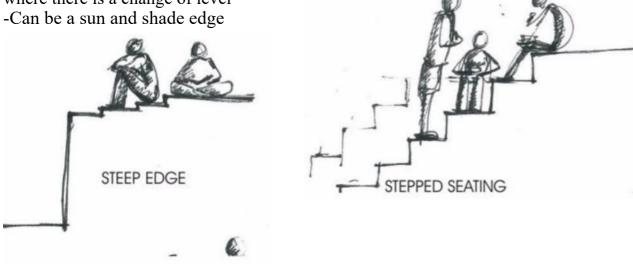
- Informal Spaces
  Essentials of informal spaces
  -suitable for physical/postural improvisation -
- -view-people watching-lookout point with less probability of being noticed distanced from passerby-undisturbed, away from earshot
- -usually in a 4 dia for interaction-steps.



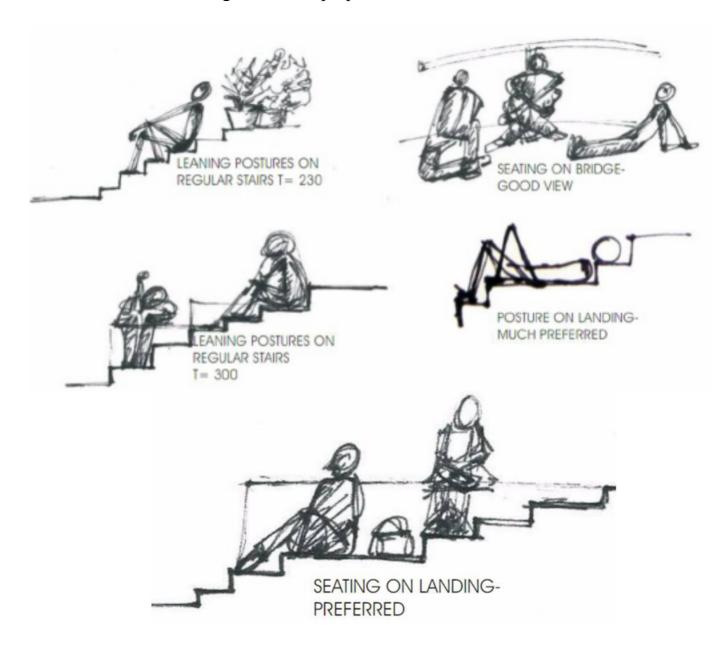
# Junction

-Can be a physical edge like the 'cliff edge' where there is a change of level





Occupacy of Doorways, Steps, Porch, Edges
Seems random because these are not really meant to be used/occupied.
Students prefer to occupy 'unofficial' places, where 'faculty' is not expected to interrupt. These areas have to be designed for this purpose as well.



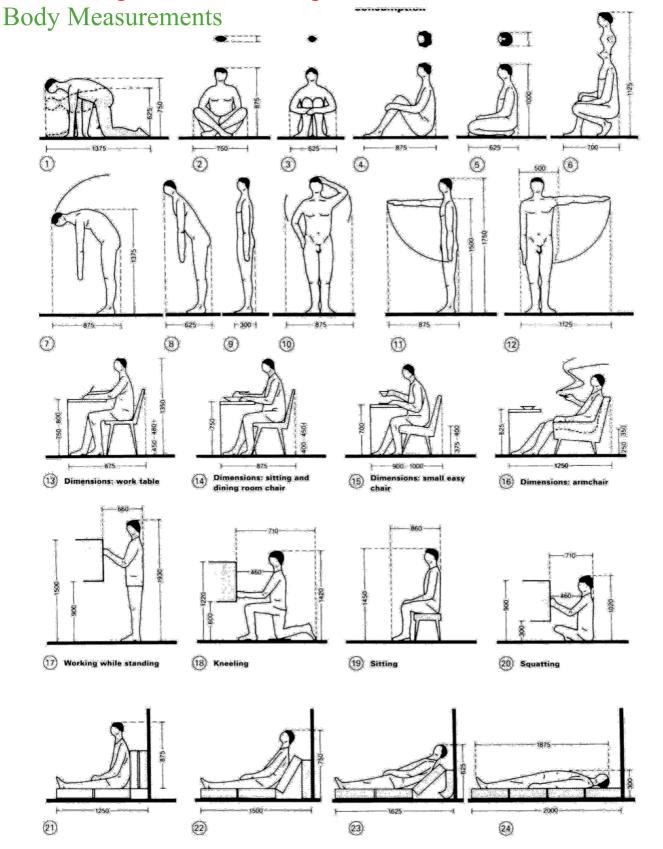


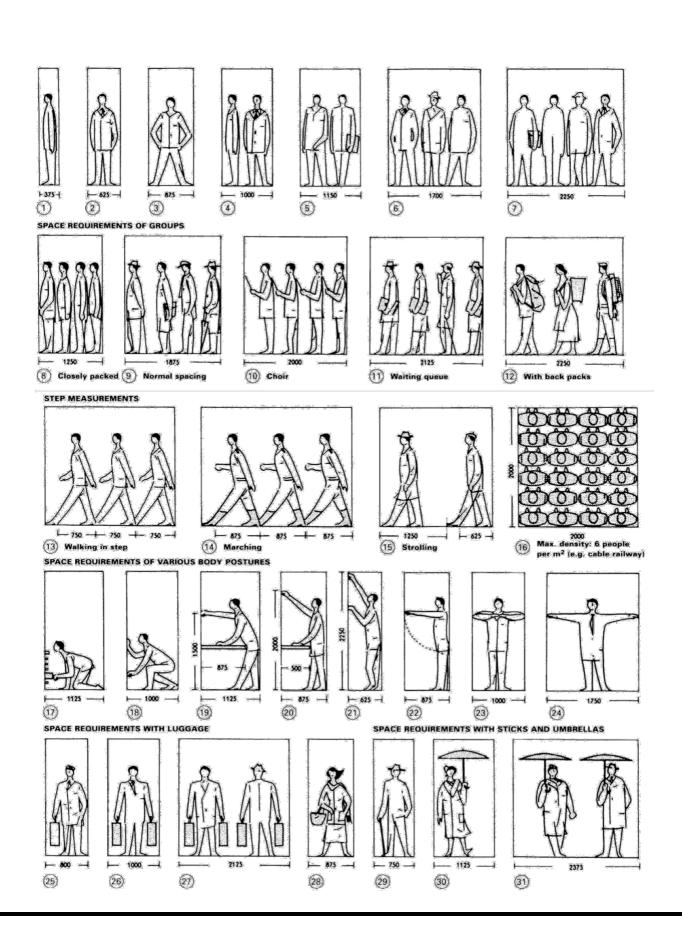
We need houses as we need clothes, architecture stimulates fashion. It's like hunger and thirst — you need them both.

— Karl Lagerfeld —

AZ QUOTES

# 5.6 Anthropometrics and Required Standards





# 5.7 Some points to remember while designing about projection

A projection system is desirable in the class room as teaching is aid with visuals. And over-head projection requires as electric socket near lecture tables and a screen is mounted prop-erly to assure good visibility with minimum distortion.

Storage

Space should be provided for the storage where the students can keep their belong-ings i.e books needles, threads etc. cupboards should also be provided, so as to hang the gar-ments in its different stage of progression

### Acoustic:

Though a small classroom may be reverberate if all surfaces are reflected. This is unsuitable for speech and creates a very noisy environment. But to convey wanted sound; a hard reflective surfaces behind the main speaker is desirable.

Ceiling and rear wall should be made absorbent to stop should from bouncing back once it had been delivered.

Perforated acoustics tiles are suitable for ceiling and walls.

Absorbent material should be introduced to reduce reverberation to <sup>3</sup>/<sub>4</sub> seconds.

Air conditioning

If humidity content is too high, it promotes microorganisms to grow on the material causing it to designate.

Material also gets deteriote in the presence of moisture, salt, dust particals etc. thus constant humidity has to be maintained. Airconditioning provides an atmosphere conductive to preservation of object by the control of relative humidity and also provides comfort to the user by controlling of temperature. It is required to provide homogenous air, a low temperature of about 18 c and average relative humidity of 60%

Lighting

Light accelerates deterisisation of museum objects effected by the intensity of radiation. Time of exposure

Special character of radiation Capacity of objects and the affected by radiation energy. Object insensitive to light such as stone, glass etc. should be used. Maximum intensity of illuminationis unlim-ited but it is good to keep it below 3001ux. For damaged peone objects like water col-ors, fine textiles, tungsten lamps of intensity not more than 50ux should be used.

Acoustic Consederation for an Open Theatre

The basic shape, size and capacity of the searing area should be determined to insure satisfactory speech intelligibility through out the entire audience area.

The distance of seat from sound source should be kept at reasonable minimum with strict economy in the layout of aisles and gangways. All acting surfaces should be of wood construction to provide maximum resonance because resonance gives richness of tone to music and speech. The platform should be elevated and the seating area steeply banked with increase rake towards the rear, to provide max amount of sound for the entire audience.

# Chapter Six Site Analysis

### 6.1 About DELHI



Delhi, India's capital territory, is a massive metropolitan area in the country's north. In Old Delhi, a neighbourhood dating to the 1600s, stands the imposing Mughal-era Red Fort, a symbol of India, and the sprawling Jama Masjid mosque, whose courtyard accommodates 25,000 people. Nearby is Chandni Chowk, a vibrant bazaar filled with food carts, sweets shops and spice stalls.

# **DEMOGRAPHICS OF DELHI**



Current Population of Delhi in 2020 20,188,648 (2.01 Crore)

Population of Delhi in 2019 19,861,488 (1.98 Crore)

Population of Delhi in 2018 19,483,678 (1.94 Crore)

Population in 2017 19,072,564 (1.90 Crore)

Total Male Population 8,976,410 (2011)

Total Female Population 7,776,825 (2011)

Sex Ratio in Delhi 866 females per 1000 males Literacy Rate in Delhi 86%

### Location of Delhi



LOCATION: Near Qutub Minar Metro Station, South Delhi.

<u>CLIMATE</u>: Summer (Jun-Aug) is very hot. Monsoon season is Jun-Sep. Winter (Dec-Feb) is cool. Oct-Mar is the peak travel time

**TYPE: Mix-Land Use** 

AREA: 4 Hectares; 40,000SQM DIMENSIONS: (230\*170)SQM

STATE: DELHI

**POPULATION: 2.01 Crore** 

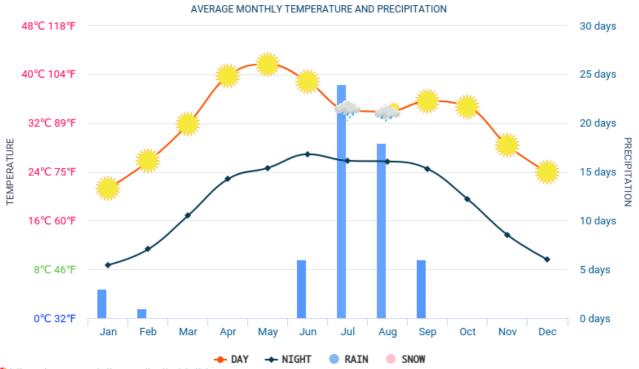
<u>LANGUAGE</u>: Hindi, English, Punjabi <u>COORDINATE</u>: 28.7041° N, 77.1025° E <u>AVERAGE RAINFALL</u>: 31.5 inches <u>WIND DIRECTION</u>: South-West to

**North-East** 

<u>LITERACY RATE</u>: 82.50% ANNUAL RAINFALL:

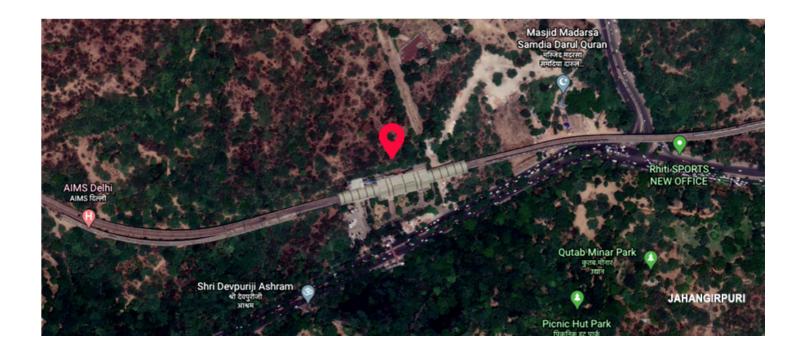


### Delhi India Weather



hikersbay.com/climate/india/delhi

# 6.3 The Site



Total Site Area:24200 sq. mt.

**Achieved Ground Coverage :25%** 

Ground Coverage: 6050 sq. mt.

Setback Front: 10mt.

Setback Side: 7mt.

# Site Images







# 6.7 Handloom and Cottage Industries

Haryana has diverse crafts and arts such as pottery, paintings, sculpture, embroidery and weaving. Phulkari, bagh, chope, durries etc. are many on which the state prides itself on. Haryana arts and crafts are one of the sources of income for the rural people and thus play an important role in contributing to the economy of its people. The state organises an annual Surajkund Crafts Mela, where it portrays its arts and crafts.

Pottery

While pottery making is commonly found across the country, the uniqueness that differentiates this craft of Haryana is the kick operated turn of the potter's wheel while hands are traditionally used to spin the potter's wheel. The clay items are made on wheels that are "legged" to spin. Being a state that is predominantly driven by the rural economy, pottery finds a place of paramount importance. The pots are very colour-ful, brightly done by the women folk of the household, while the pot making is done by the male members of the family.



Embroidery and Weaving

Some of the very popular woven products are the shawls, durries and the lungis. Karnal is popular for bright robes and "lungis" which is a common garment worn by inhabitants of rural India.

# Phulkari

The shawl or dupatta known as the phulkari, meaning flowered work, are wonderful pieces of art and is an offshoot of the Kashmiri shawl. Essentially a winter wear; it is worn over a tight-fitting 'choli' (blouse) and 'gh-aghra' (long skirt). The phulkaris are intri-cately woven in a magnificent and colourful piece of clothing. The warmth and richness of colours, the bold patterning and the patient hard work which go into the embroidery work of phulkari make it symbolic of the women of Haryana. A very coarse homespun texture, the "Khaddar", is used as a base ground cloth in "phulkari" a simple stitch done entirely from the back in silken threads is applied to work out the patterns.

The patterns used are the art motifs of birds, flowers and human figures using darning needles. In some cases, the phulkari takes many years to make.

The making commences during the birth of the girl child and continues till the age of her marriage and is presented to her as a wedding gift as a part of her trousseau.



# Bagh

Another type of shawl is the Bagh, meaning Garden. Geometric patterns of design are almost always followed in the making of the Bagh essentially with green colour. This craft is practiced mostly by Muslims and has interesting designs varying from elephants, houses, crops, the sun, the moon, kites and gardens. This embroidery is also done on khaddar. Bagh differs from "phulkari" basically in the manner the motifs are spread all over in an integrated pattern without leaving any space in between. "Bagh" is also known by the name of "Sar-pallu" in Haryana.





### **Durries**

The durries are rather coarse and have spectacular geometric patterns adorning the entire rug. Often set against a blue background, the durries have white triangles filling up the rug. This art is mostly practiced by the Jats of Haryana and are concentrated in and around the Panipat region of the state.



Chope

is a kind of shawl, which is simple in its look as compared to phulkari and bagh. Rather a simple affair in comparison to the "phulkari" and "bagh", it is presented to a new bride by her maternal grandmother. The "darshan dwar" shawl is gifted to a temple, by a devotee whose wish has been fulfilled.



### ACCESSIBILITY TO THE SITE



The site is well connected through following ways:

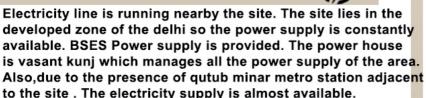
- 1.AIRPORT (8.2 kms)
- 2.RAILWAY STATION (13.2 kms)
- 3.QUTUB MINAR METRO STATION yellow line just five minutes walking.
- 4.BUS CONNECTIVITY (route nos. 34,516,534,536,539,715,717, SJ Terminal.
- 5.Well connected from AUTO.

# WATER SUPPLY TO THE SITE



The site has water supply due to the developed area in which the site lies. Also the delhi jail board sewage treatment plant and overhead tank is just 300 meter away.

### **ELECTRICITY SUPPLY TO THE SITE**



### **SERVICES NEAR THE SITE**



HUDA CITY CENTRE

MARKET: Sarojini nagar market, Hauz Khas, Select City Walk

COLLEGES: IIT Delhi, NIFT Delhi, Qutub Institutional area, IGNOU

HOSPITALS : MAX, Fortis, Rockland FIRE STATION : Mehrauli Fire Station

**POLICE STATION: Qutub Minar Police Station** 

# VEGETATION 🤼

Delhi has varied vegetation cover due to its fertile alluvial soil. Cactus plants and Acacia are few ones which are available in new varieties and grow during the dry seasons. Shisham trees are another category of tree that are found in the plains of delhi.

### CLIMATE



Delhi is located in the central of India and has extreme climate situation with very hot in summers and very cold in winters. Most of the months, you can experience hot and humid temperature in the capital city. Summers are very hot in the month of mid May to July following with rainy season in the month of September.

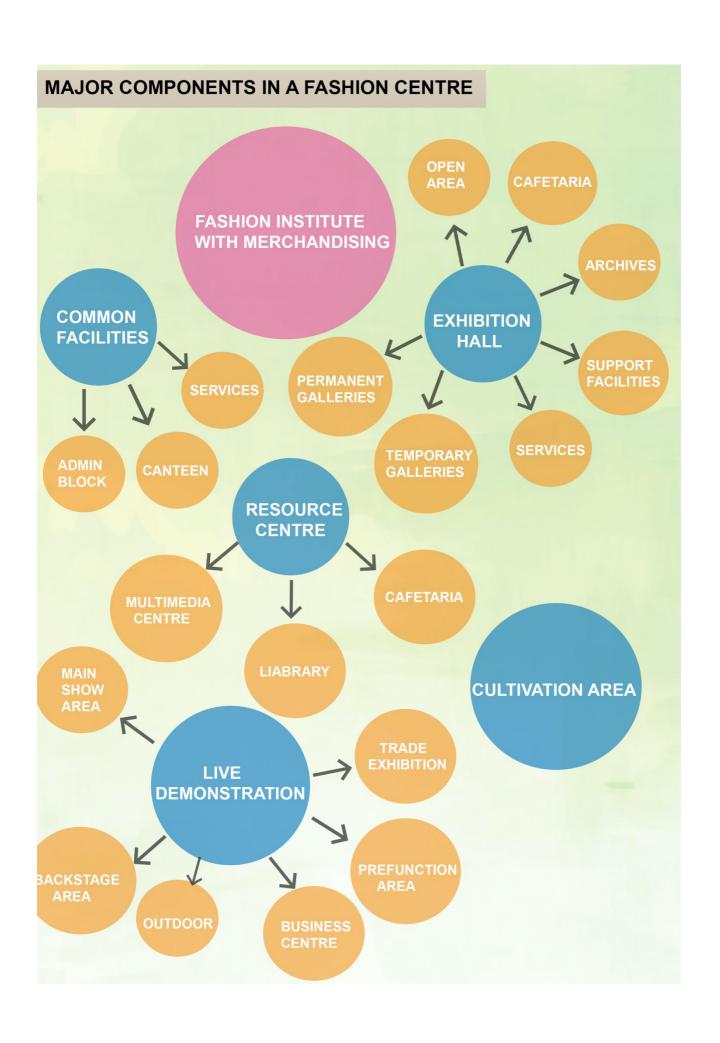


SAKET

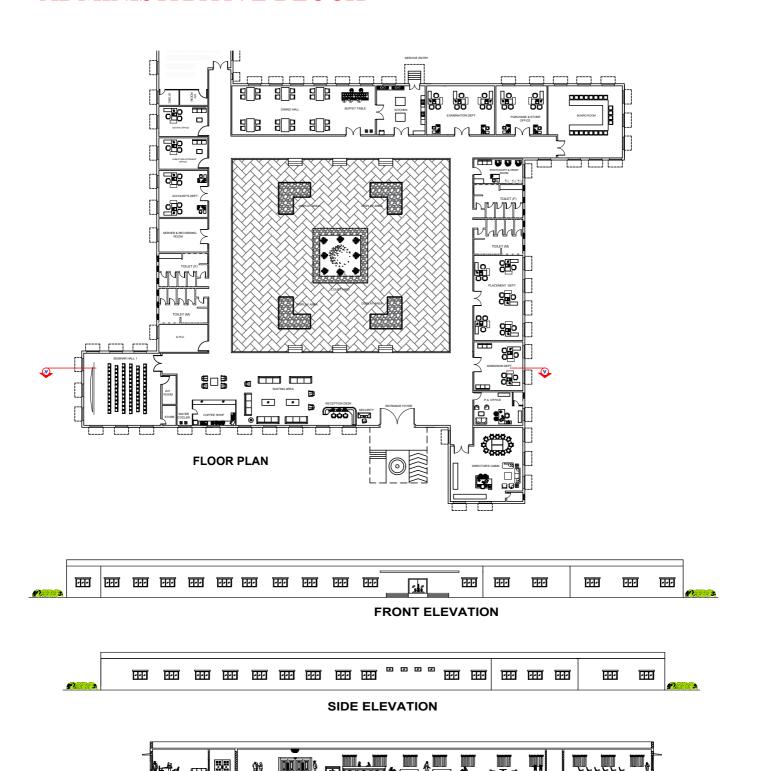


QUTUB MINAR



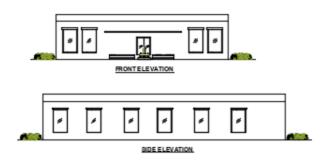


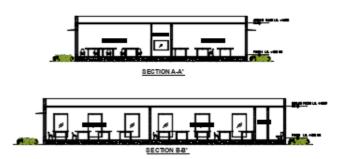
# PLANS ADMINISTRATIVE BLOCK

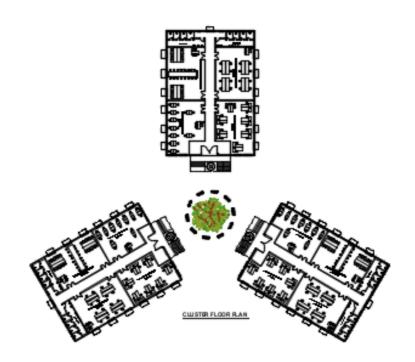


**SECTION AA'** 

# WORKSHOP PLANS

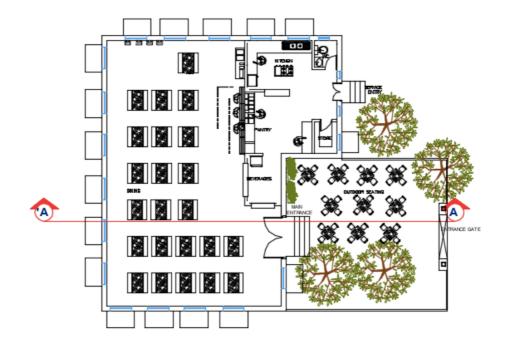








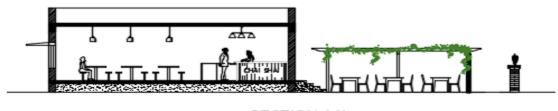
# CANTEEN BLOCK



FLOOR PLAN



FRONT ELEVATION



SECTION AA'



ENTRANCE GATE ELEVATION

# Bibliography

Referred Books and Journals

Internet Study

Natgeo.org

Mapsofindia.com

Wikipedia.org

Haryana.gov.in

Discoverindia.com

Scribd.com

Issuu.com

Academia.edu

Arch.design.edu

Google maps

Archdaily.com

Archinomy.com

Adambrown.net