

# Face Of the **N**orth **E**ast **W**est & **S**outh

Naureen Sultana Feroz  
UG190918



Oikopolis IV  
M2022

**Let's start with an Analogy...**

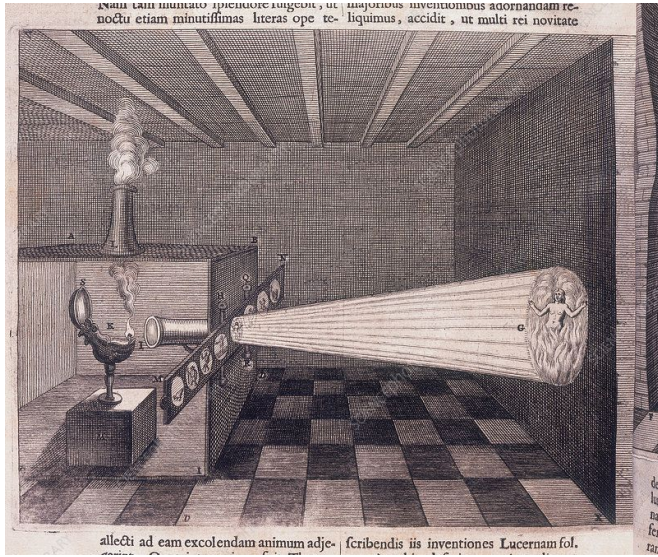


**Mona Lisa**

Leonardo da Vinci (1503-06)

Oil on Canvas

77cm x 53cm



**Camera Obscura**  
Nicephore Niepce (1816)



**Robert Cornelius**  
Nicephore Niepce (1816)



**Caoutchouc**

Francis Picabia (1909)  
Watercolor on Canvas  
First Abstract Painting

**Keeping that aside...**



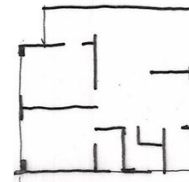
## What is the “Facade”

A façade is generally the front part or exterior of a building. It is a loan word from the French façade, which means 'frontage' or 'face'. In architecture, the façade of a building is often the most engaged with at first glance and the element that defines an impression of the building

## Raising a Concern

A unit is designed and mirrored and repeated in the floor plate, the edge condition is being repeated on all the sides, creating a similar facade around the project. This in turn doesn't respond to the climate on all directions

- ▶ Shivam Heights  
Lambha, Ahmedabad  
Typical floor Plan

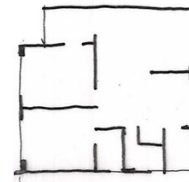




## Raising a Concern

A unit is designed and mirrored and repeated in the floor plate, the edge condition is being repeated on all the sides, creating a similar facade around the project. This in turn doesn't respond to the climate on all directions

- ▶ Shivam Heights  
Lambha, Ahmedabad  
Typical floor Plan



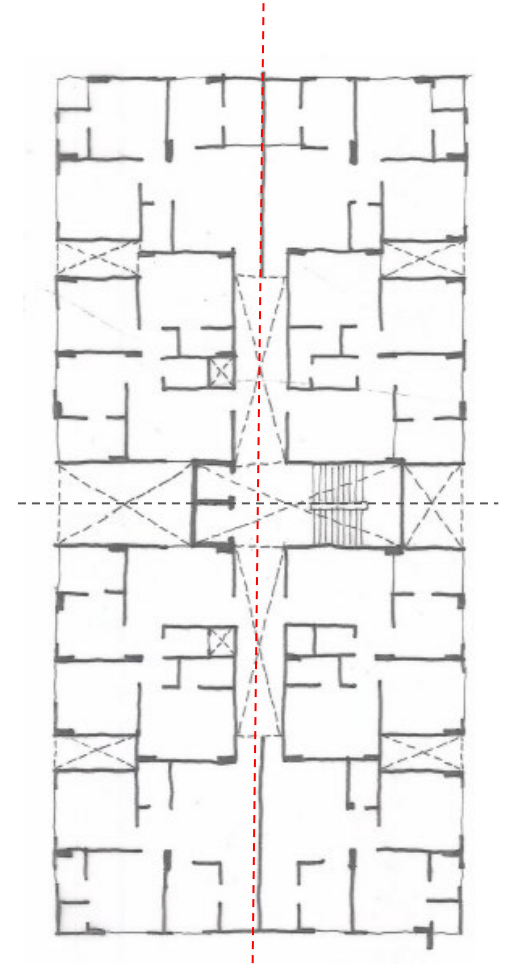
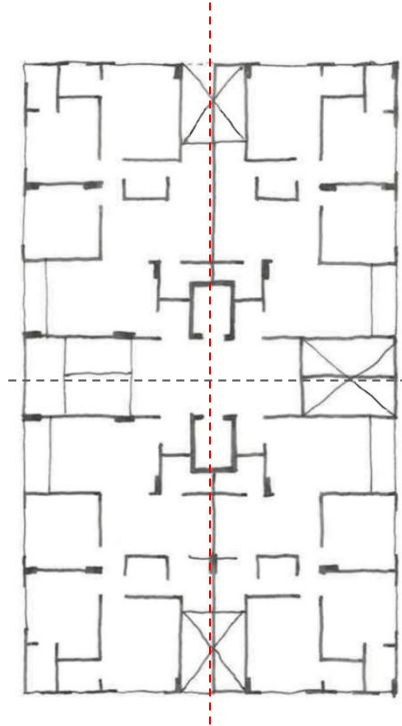
# Repetition and Symmetry

## Standardising

The repetition occurs as similar BHK units have same area, having same cost creating standard units. Designing all units separately is not feasible and to attain a given FSI, the typical floor plate created and repeated.

But,

Symmetry doesn't work for climate

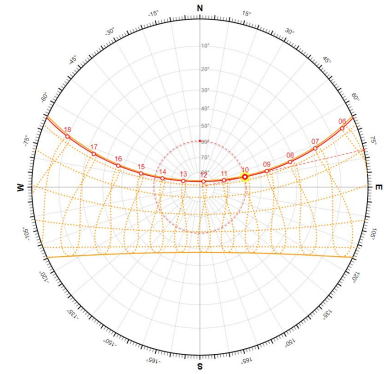




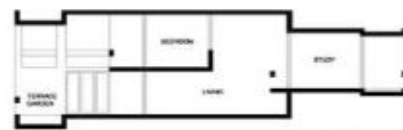
# Kanchanjunga Apartments

1983

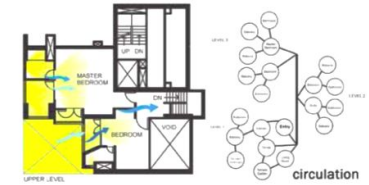
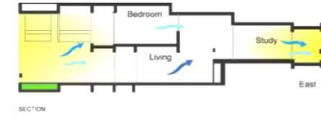
Carles Correa  
 Mumbai  
 4 Different types of units being interlocked and creating a balcony at each corner



type A lower



section A



## In a Climate like Ahmedabad

### Hot and Dry

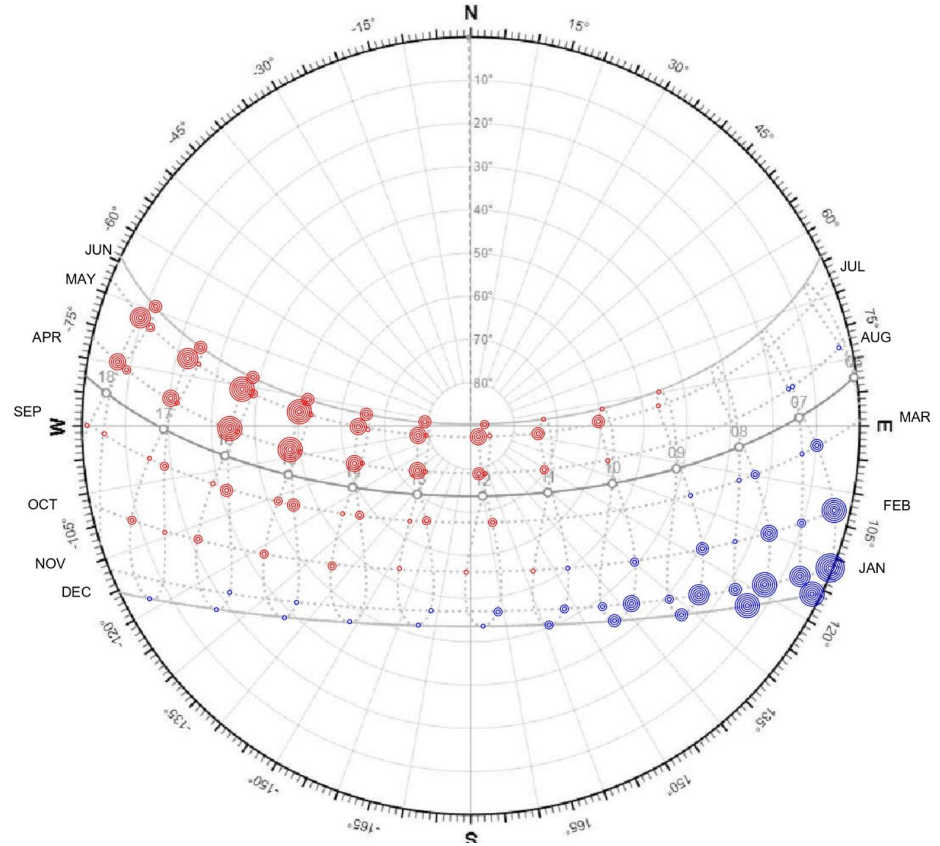
Sun is the most important factor

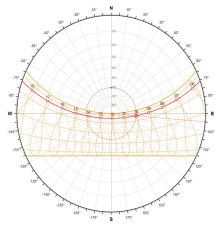
**West-** Harshesht sun  
Maximum protection

**South-** Harsh sun  
Comfortable winters  
Summers too hot

**East-** Hot mornings  
Low angle sun  
Not too harsh  
Take winter sun

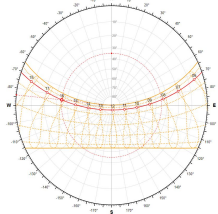
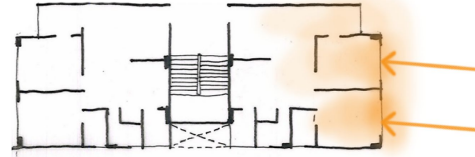
**North-** Summer sun  
Soft light





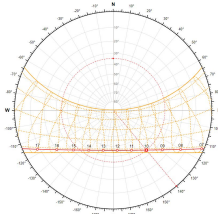
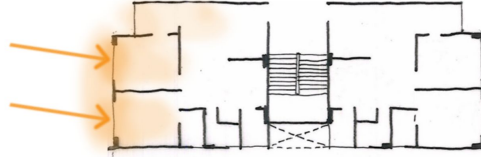
Azi / Alt: 92.27° / 60.77°

MAY 15  
10:00 IST



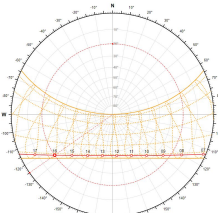
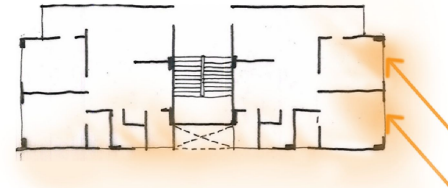
Azi / Alt: 42.50° / 35.16°

MAY 15  
16:00 IST



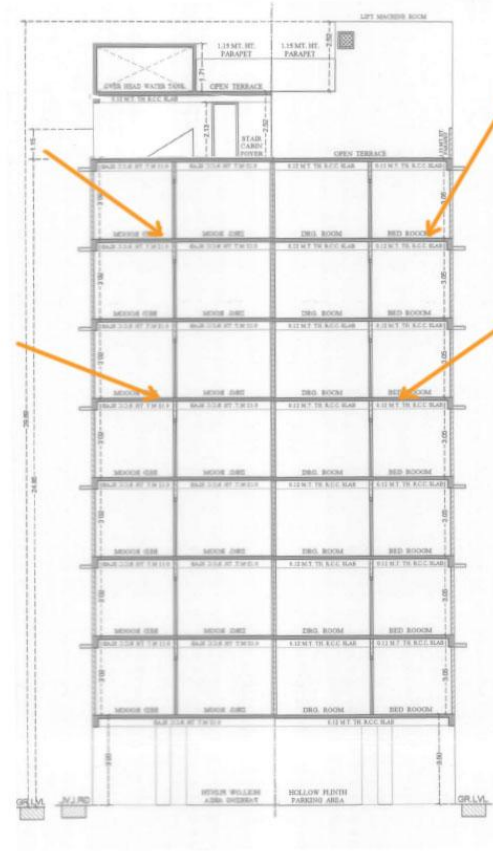
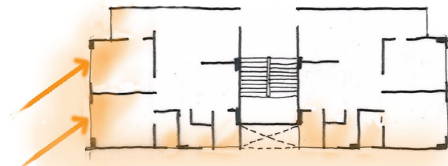
Azi / Alt: 140.17° / 34.58°

JAN 15  
10:00 IST



Azi / Alt: -124.96° / 20.21°

JAN 15  
16:00 IST



Summer sun

Winter sun



Force to make use of active cooling systems like air conditioning, increasing the expense

## Buffer Spaces

Spaces like verandah, services, balcony, or maybe the common lobby space around the periphery will create buffer space to block harsh sun and rain



## Sonmarg Apartments

1966

Carles Correa  
Mumbai  
Two lines of defence against rain and sun with a belt of auxiliary spaces like verandahs, studies dressing rooms. Forms protection around main living areas



# Shree Sharan

2021

Lambha, Ahmedabad  
Shreem Design





## Internal Reorganisation

Finding which parts of the house is used more in the day and more in the night and finding which space fits better on which face of the building

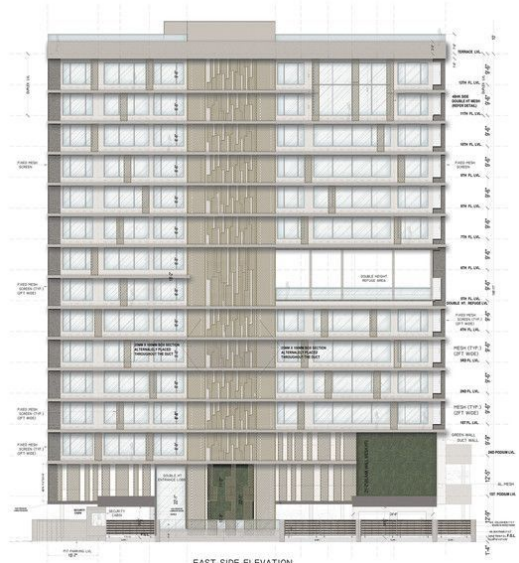


# Pali Palms

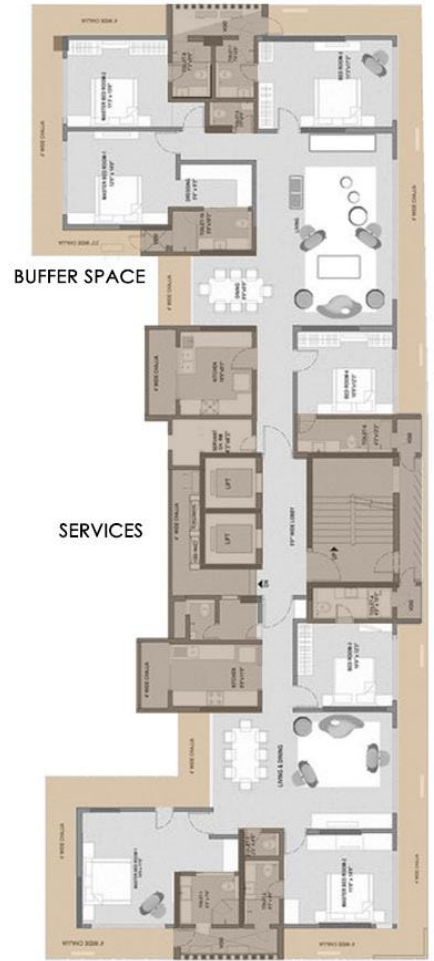
1966

SEZA  
 Mumbai  
 Typical masonry façade mechanism is replaced with screens and continuous operable glazing for giving freedom of planning

Living areas to the preferred east side  
 Services like kitchen, toilet, in the west side



EAST-SIDE ELEVATION



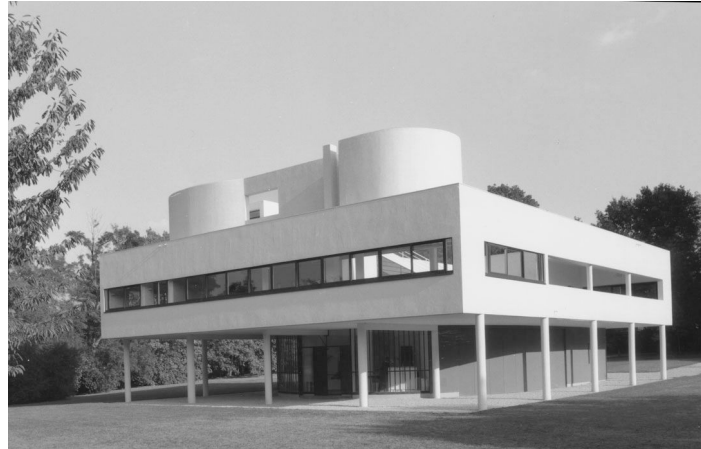


**Let's Get Back...**



**The Pyramids of Giza**  
26th century BC





Le Corbusier talks about the free facade  
and pilotis freeing the wall

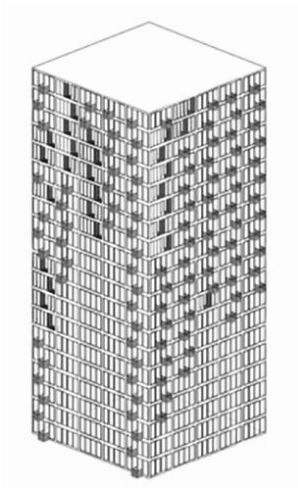
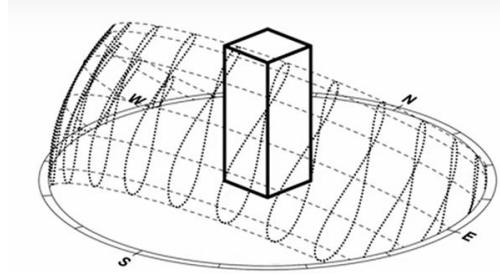
## **Facade as a System**

Facade system is a set of elements working together as parts of a mechanism or an interconnecting network; a complex whole to form a homogeneous system.

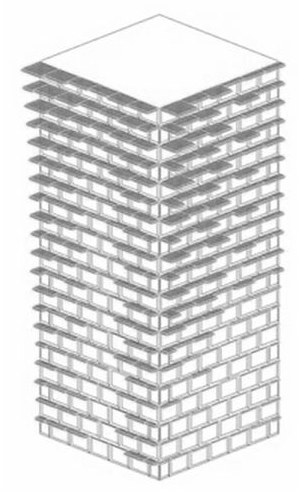
# Facade as...

## Part of the wall

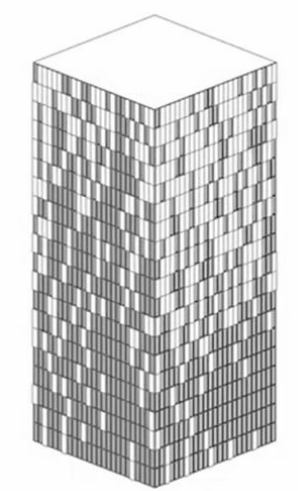
The facade is a subset of the wall, responding to climate



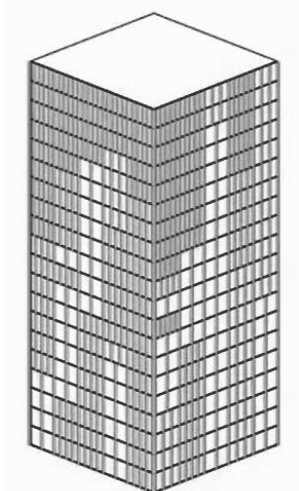
Form



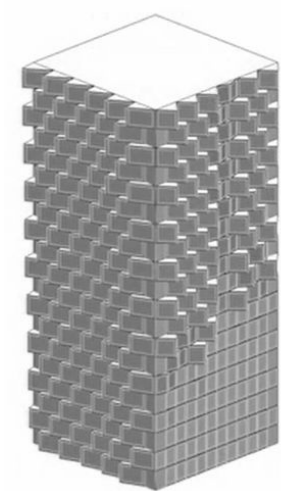
Size



Ratio



Division



Orientation



# Facade as..

## Systems

### A Separate Entity

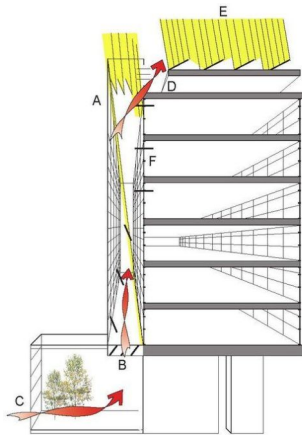
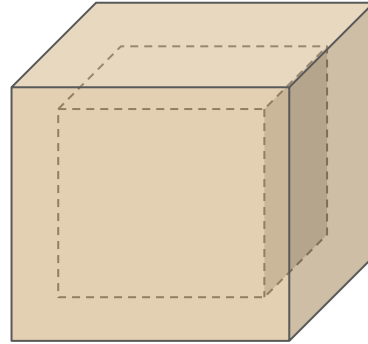
The facade is a skin to the building outside the structure

### Protective Enclosure

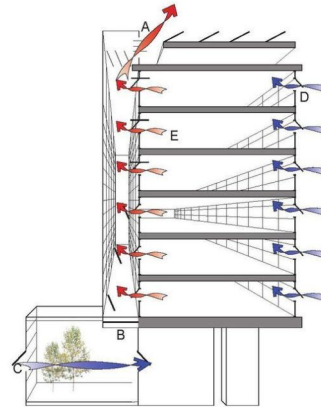
Creates a protective cover that can allow the structure and experience inside to be flexible with no worries about climate.

### Flexibility

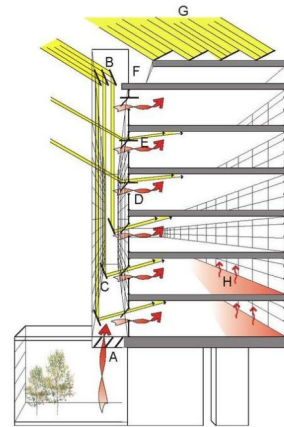
Structure and experience inside can be flexible with facade taking care of climate



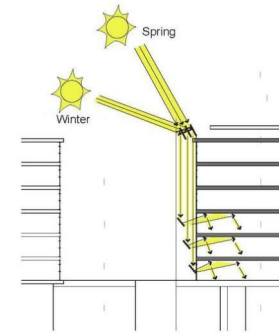
Summer



Spring



Winter



Reflector Diagram

Winter/Spring

# Fixed and Non-structural

## Systems

Mill Owners Association

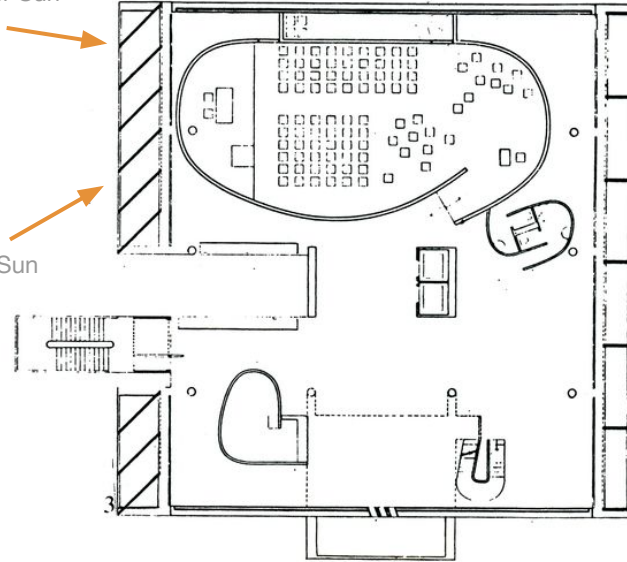
Fixed louvers form an outer non structural skin of the building



Summer Sun



Winter Sun



# Vertical Shading

## Systems

### Lilavati Lalbhai Library

Movable louvers for wrap around the building and can be adjusted according to the light needed inside

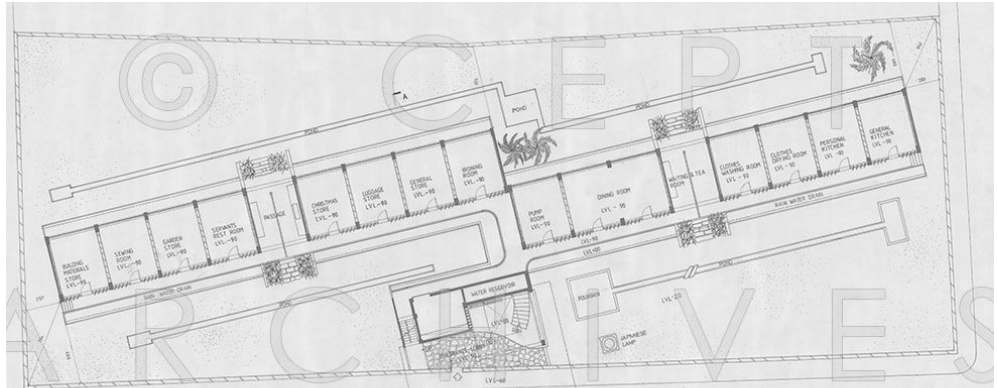


# Horizontal Shading

Systems

Golconde, Pondicherry

The facade is a subset of the wall, responding to climate



## Or to get more Ambitious

Skin of the facade can be kinetic, responding to the sun angle. There can be adaptations of such methods in the context of ahmedabad



## Kinetic Blind System

system

The vertical shades can be adjusted and also fully opened to transform into chajjas. System works on pulleys inside the spaces





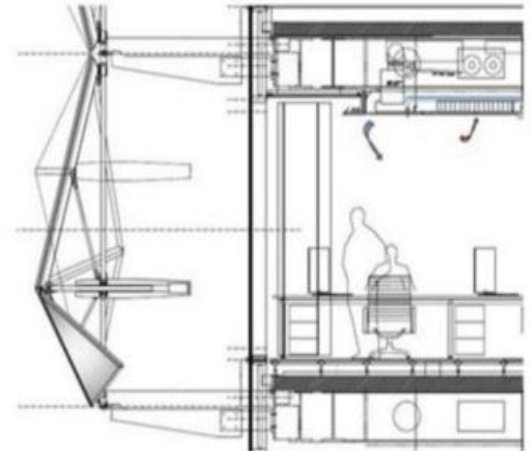
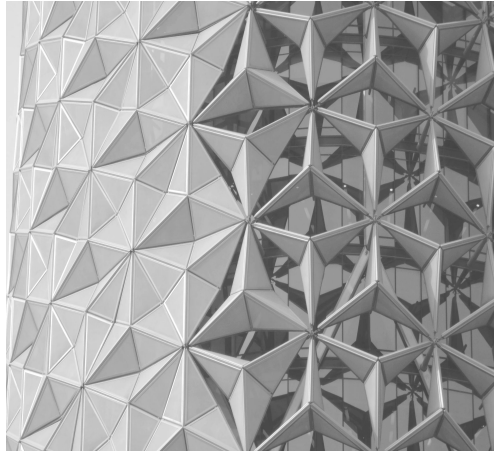
## Smart Screens

### systems

#### Al Bahar Tower

Screens lines with fiberglass, moves according to sun angle and reduce solar gain by more than 50 percent, and reduce the building's need for energy-draining air conditioning. North side has no screens

Each unit comprises a series of stretched PTFE (polytetrafluoroethylene) panels

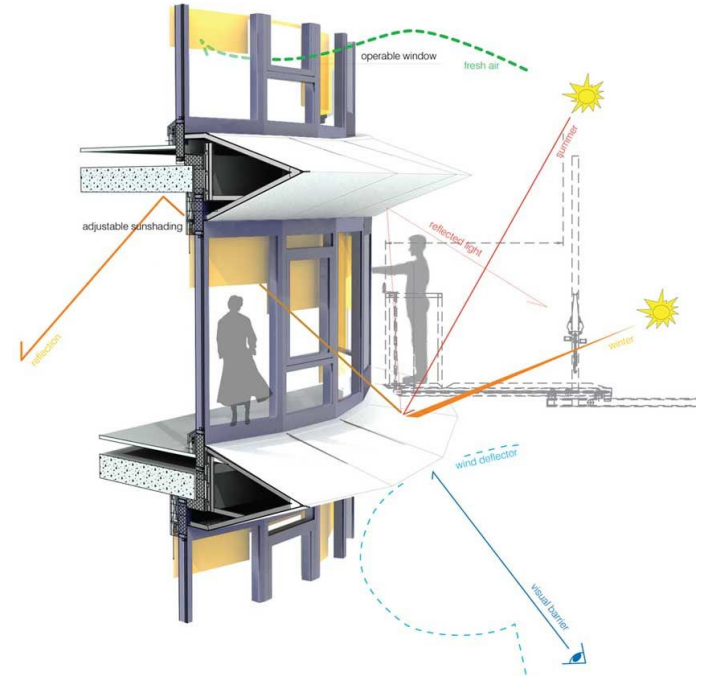


# Window Shields

systems

## Kiefer Technic Showroom

The sun screen operates on electronic shutters of aluminum panels, controls amount of sunlight and the angle of incidence. Privacy also maintained in closed and open condition





# So why not?

## Cost

### **Profitability**

Mass housing is a very developer and profitability driven sector and plays the most important role here. In recent times, developers are investing more on facades and using materials prefabricated will cut costs to a great extent

### **Just a Box**

Issues of monotony may come into picture if a system is perfected and everyone starts using it.

### **Heat Gain**

When roofs are the main source of heat gain in india, there is no concept of roof in a mass housing, how much is facade responsible. Choice of material will reduce heat gains by 50%.

## Priorities and Compromises

## Trade offs

Generally one thing or the other gets compromised in order to attain something larger. It depends on what is given priority leading to different designs.

**Sellability = Views > Climate ?**