

## **Examples of International collaboration activities**

- 1. Habitat studio in collaboration with Thomas Jefferson University, Philadelphia**
- 2. International Collaboration with Coop Himmelblau for a certificate course on Parametric Architecture**
- 3. Orientation session for higher studies in collaboration with Thomas Jefferson University, Philadelphia**
- 4. International conference on “Blurred Boundaries- In search of Identity”**
- 5. A career counselling session on higher studies options in international universities**



# Habitat Collaboration 2020-21



**Fourth year**

**Term 1**

**Academic year 2020-21**

**S.M.E.F'S Brick School of  
Architecture, Pune, India**

**Team: Ar.Vishwas Kulkarni,  
Ar.Harshal Kavdikar, Ar.Rohit  
Podar, Ar.Rohit Gadiya, Ar.Girija  
Indulkar, Ar.Ninad Rewatkar**

**Thomas Jefferson University  
Philadelphia, United States.**

**Team: Ar. Robert Fleming**



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## 1. Summary

2020 Fourth year B.Arch Habitat Design Studio from SMEF's Brick School of Architecture collaborated with the M.S. in Sustainable Design Studio from Jefferson University (Philadelphia University + Thomas Jefferson University). This collaboration studio was conducted for a semester starting from August to November 2020. The Evidence based design approach followed during this collaboration led to outstanding student outcomes for a Netzero Affordable Habitat design project.



## 2. Introduction and objectives

the net-zero 1<sup>st</sup> design studio  
**Guiding Principles**

- Guiding Principles are very helpful in a group
- They allow us to work together with a common set of goals
- Settle disputes

Welcoming a new era in architecture; an era where new forms of technology and new ideas of design changes the way we communicate with our environments, where sustainability is more crucial than ever before, an era, where creativity beckons and fortune favors the bold - this year our fourth year Habitat studio (2020) from SMEF's Brick school of Architecture collaborated with the award winning MS in Sustainable Design program studio at Jefferson University (Philadelphia University + Thomas Jefferson University). This collaboration has exposed the

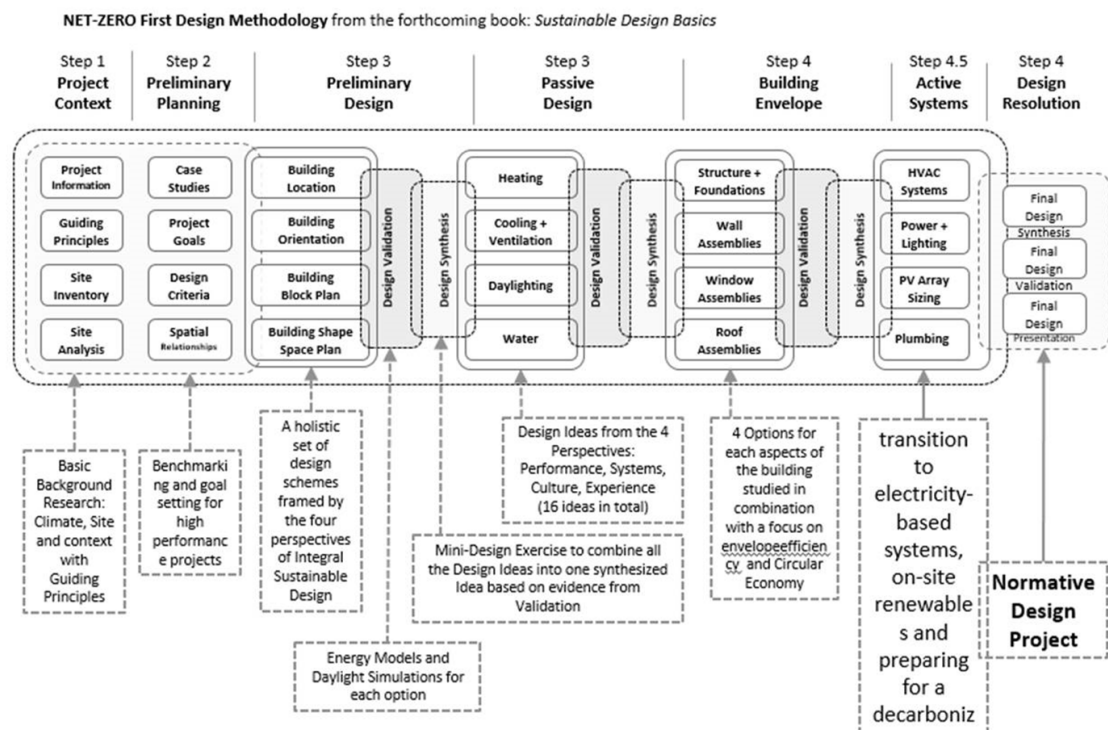
students to an “Evidence based Design” , a different and sensitive approach to housing. Prof. Robert Fleming, Director of MS in Sustainable Design Program at Jefferson University shares with the students his expert insights on the Guiding Principles to Sustainable Design and achieving benchmarks for a “Net zero Building”.

Joint reviews and validations by the studio faculty and students team from both Brick School of Architecture and Jefferson University at all stages encourages the students to a new approach of working towards the trade-off between the net-zero parameters and design strategies in achieving environmentally sustainable housing.

### 3. Methodology- By Thomas Jefferson University

Professor Fleming began teaching full time at Jefferson in 1996 where he developed the first undergraduate sustainable design studio which ran until 2007. In 2007, He co-founded the Master of Science in Sustainable Design and assumed the position of Program Director. The Program received the United States Green Building Council's Excellence in Education award. In 2012, the program received the National Institute for Building Science's award for "Best High Performance Building Initiative" in the USA. Professor Fleming received the University's President's Award for Teaching Excellence.

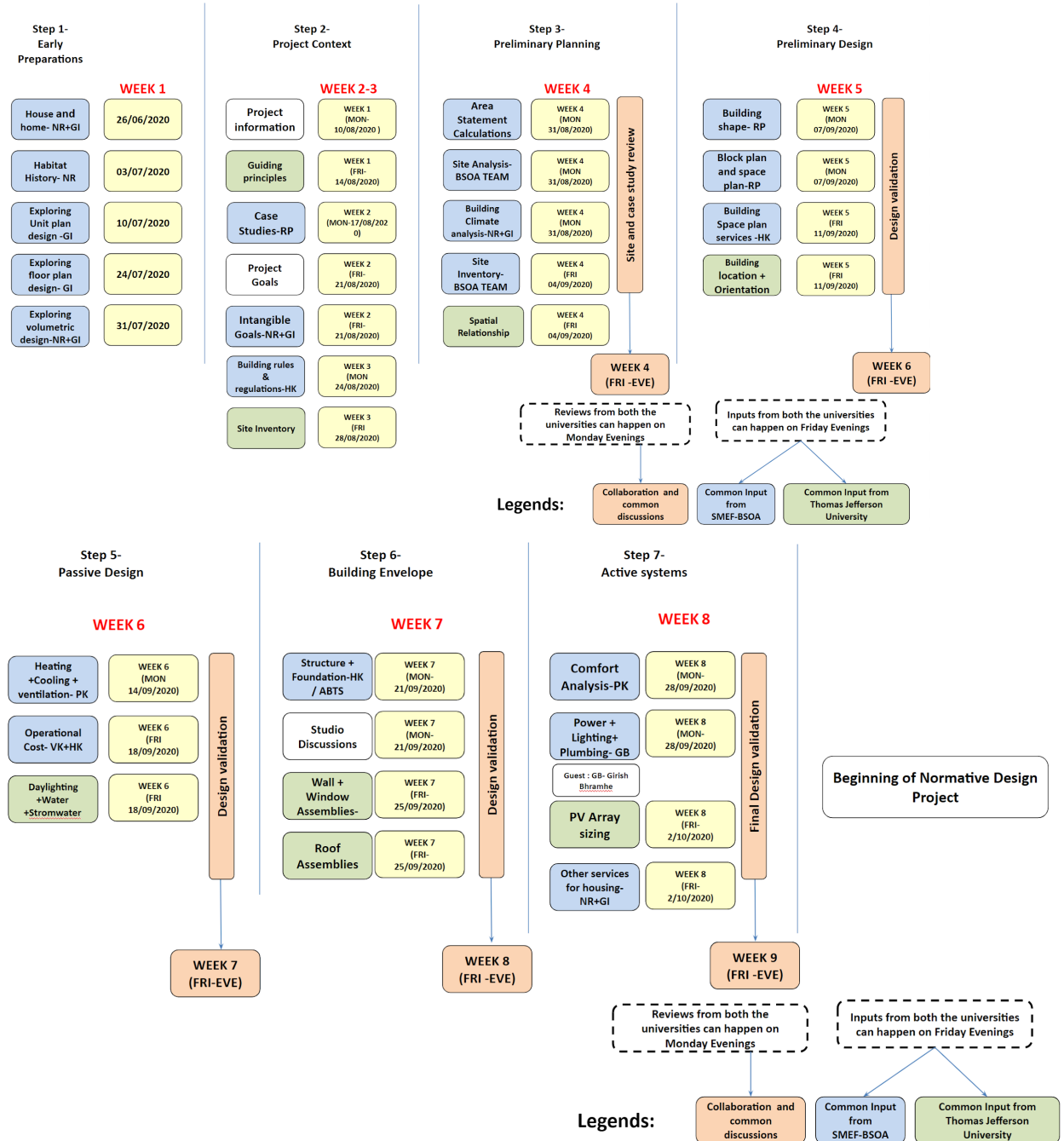
The methods adopted in the collaboration studio was based on his latest book *Sustainable Design Basics* which is published by Wiley.



The above diagram indicates the methods adopted at MS sustainable design studio in Thomas Jefferson University.

#### 4. Methodology for collaboration Studio - By SMEF's Brick school of Architecture

As the Studio was to be conducted for undergraduate students parallelly with Masters Students, our design team adopted a slightly different approach. Students were introduced to a primary induction course about Habitat design and Sustainability as a part of early preparations. There were few additional inputs taken by Ar. Robert Fleming.



The above diagrams indicate the collaborative methods adopted at 4th year B.Arch Habitat Design Studio in SMEF's Brick School of Architecture, Pune.

**a. Email Communication with Prof Rob (TJ)**

Robert Fleming -		Robert.Fleming@jeffers...	
<input type="checkbox"/>	★ Robert Fleming	Inbox	FW: Announcement of Professor Rob Fleming's Retirement from TJU - Dear Brick friends, This is my last semester at Jefferson. I ... 11/16/21
<input type="checkbox"/>	☆ Robert, me 2	Inbox	Update - Robert.Fleming@jefferson.edu wrote: Hi-- we are updating our sefaira accounts Are your students still using sefaira 5/27/21
<input type="checkbox"/>	★ Robert Fleming	Inbox	Free Net-Zer0-First Studio at Thomas Jefferson University - Good day everyone, You are receiving this email because you are part... 4/13/21
<input type="checkbox"/>	★ Robert, Manali 2	Inbox	how did your semester end up? - Robert.Fleming@jefferson.edu wrote: Life got so hectic - I just could not keep up... I hope all e... 12/18/20
<input type="checkbox"/>	☆ me		Collaborative Studio on Friday - Hello Rob, Good Evening to you! We haven't heard from you in the last 2 weeks, hope everything is 11/4/20
<input type="checkbox"/>	☆ Robert, Manali 2	Inbox	i can come in from 9:00 - 10:00 am - Robert.Fleming@jefferson.edu wrote: Let me know of this works or if you want me to come... 10/30/20
<input type="checkbox"/>	☆ me		Collaboration studio - Dear Rob, When will be the good time to take our next studio? Should we take any studio today that is 10/23/20
<input type="checkbox"/>	☆ Robert Fleming	Inbox	be there is one or two minutes - _____ Rob Fleming, AIA, LEED AP, NOMA Salaman ... 10/16/20
<input type="checkbox"/>	☆ me 2		Zoom meeting invitation - Collaboration studio_16th Oct 2020 - Hello Rob, You can Join in the studio by 8.30 am even though i have sch... 10/16/20
<input type="checkbox"/>	☆ Manali, me 3	Inbox	Fwd: I could get on-line tomorrow morning - Robert.Fleming@jefferson.edu Date: Fri, Oct 16, 2020 at 6:57 AM Subject: I could g... 10/16/20
<input type="checkbox"/>	☆ Manali, Robert 4	Inbox	tomorrows session to be confirmed : Input on Passive strategies related to Daylighting water and Storm water - Robert.Fleming@... 10/9/20
<input type="checkbox"/>	★ Robert, Steven, me 4	Inbox	Habitat 2020 RE: one agenda Item - Robert.Fleming@jefferson.edu wrote: >> Hi - >> Can you make Girija a admin person on o... 9/22/20
<input type="checkbox"/>	☆ Robert, Manali 2	Inbox	Habitat 2020 I just got the software working for our meeting tomorrow - Robert.Fleming@jefferson.edu wrote: Hi - I will be dem... 9/18/20
<input type="checkbox"/>	☆ Manali, Robert, me 5	Inbox	Tomorrows Friday 18th Sept collaborative studio @ 5:30 pm ist. - Robert.Fleming@jefferson.edu wrote: >> >>> >>> >>> >>> >>> 9/18/20
<input type="checkbox"/>	☆ me		Zoom meeting invitation - Collaboration studio 18th Sept 2020 - Hello all, Brick School is inviting you to a scheduled Zoom meeting. Topi... 9/18/20
<input type="checkbox"/>	★ Manali, Robert 4	Inbox	Habitat 2020 Confirming tomorrow's session - Robert.Fleming@jefferson.edu Date: Thu, 10 Sep 2020 at 11:44 PM Su... 9/18/20
<input type="checkbox"/>	☆ me		Zoom meeting invitation - Collaboration studio_11/09/20 - Dear all, Brick School is inviting you to a scheduled Zoom meeting. Topic: Co... 9/11/20
<input type="checkbox"/>	☆ me		Zoom meeting invitation - Collaborative studio_08/09/20 - Hello all, Brick School is inviting you to a scheduled Zoom meeting. Topic: Col... 9/8/20
<input type="checkbox"/>	☆ Manali, Robert 6	Inbox	Do we confirm tomorrow Tuesday 8th Sept @5:30pm ist - Robert.Fleming@jefferson.edu wrote: Yes we just have to figure out w... 9/8/20
<input type="checkbox"/>	☆ Manali, Ninad 2	Inbox	Habitat 2020 Fwd: this might help your students who are using the template - Robert.Fleming@jefferson.edu Date: Sat, Aug 29, ... 9/3/20
<input type="checkbox"/>	☆ Manali Deshmukh	Inbox	Could we meet tomorrow Friday 4h Sept 5:30pm ist - Hi Rob To continue with the collaboration, the students this week did work o... 9/3/20
<input type="checkbox"/>	☆ me 2		Zoom meeting invitation - Site inventory - Dear all, Brick School is inviting you to a scheduled Zoom meeting. Topic: Site inventory Time: ... 8/28/20
<input type="checkbox"/>	☆ Manali Deshmukh	Inbox	Habitat 2020 Fwd: Session on Site inventory - Robert.Fleming@jefferson.edu Date: Fri, 28 Aug 2020 at 6:10 AM Subject: RE: Ses... 8/28/20
<input type="checkbox"/>	☆ Manali Deshmukh	Inbox	Fwd: Meet with Brick Architecture - Robert.Fleming@jefferson.edu Date: Tue, Aug 25, 2020 at 8:28 AM Subject: Meet with Brick ... 8/25/20
<input type="checkbox"/>	☆ Manali Deshmukh 4	Inbox	Fwd: Meet with Brick Architecture - Robert.Fleming@jefferson.edu Date: Tue, Aug 25, 2020 at 7:16 AM Subject: Meet with Brick ... 8/25/20
<input type="checkbox"/>	☆ Manali, Robert 5	Inbox	Habitat 2020 Re: Discussion of studio collaboration - Robert.Fleming@jefferson.edu wrote: >> Hey there >> We just got throug... 8/25/20
<input type="checkbox"/>	☆ Manali Deshmukh	Inbox	Fwd: this is what we did last semester - a ecological masterplan - Robert.Fleming@jefferson.edu Date: Wed, Aug 19, 2020 at 9:4... 8/19/20
<input type="checkbox"/>	☆ manalideshmukh 2	Inbox	Invitation: Possible Collaboration for the Fall Semester @ Thu Jun 25, 2020 5:30pm - 6pm (IST) - You have been invited to t... 6/25/20
<input type="checkbox"/>	☆ manalideshmukh	Inbox	Invitation: Pissoble Collaboration for the Fall Semester @ Thu Jun 25, 2020 5:30pm - 6pm (IST) (null) - You have been invited to t... 6/24/20
<input type="checkbox"/>	☆ Manali Deshmukh 2	Inbox	Fwd: Pissoble Collaboration for the Fall Semester - Robert.Fleming@jefferson.edu Date: Tue, Jun 23, 2020 at 9:39 PM Subject: P... 6/24/20
<input type="checkbox"/>	☆ Manali Deshmukh 2	Inbox	Fwd: Looking forward to exploring new opportunities for Collaborative learning - Robert.Fleming@jefferson.edu wrote: Hi Manali... 6/24/20
<input type="checkbox"/>	☆ manalideshmukh	Inbox	Invitation: Demystifying online teaching by Prof Robert Fleming @ Wed May 20, 2020 5:30pm - 6:30pm (IST) (girijaindulkar@brick... 5/19/20

All the communications done between BSOA and TJ

## Following are few crucial correspondence between BSOA and TJ

**From:** Manali Deshmukh <[manalideshmukh@brick.edu.in](mailto:manalideshmukh@brick.edu.in)>  
**Sent:** Wednesday, June 17, 2020 3:32 PM  
**To:** Robert Fleming 2 <[Robert.Fleming@jefferson.edu](mailto:Robert.Fleming@jefferson.edu)>  
**Cc:** Pooja Misal <[poojamisal@brick.edu.in](mailto:poojamisal@brick.edu.in)>; Poorva Keskar <[poorvakeskar@brick.edu.in](mailto:poorvakeskar@brick.edu.in)>  
**Subject:** Looking forward to exploring new opportunities for Collaborative learning

**WARNING: External Email** - This email originated outside of Jefferson.  
**DO NOT CLICK** links or attachments unless you recognize the sender and are expecting the email.

Dear Prof Rob,  
Hope everything is well at your end !  
Moving forward in our journey of enhancing the quality of education at Brick we would like to collaborate with Jefferson University and explore a new perspective and experience of learning for the students at Brick.

To initiate collaboration between SMEF's Brick School of Architecture (BSOA) Pune and Jefferson University we propose a collaborative Second year Design studio or a Fourth year (housing) studio which could be a design Idea for a small urban insert. The faculties of both the universities could jointly initiate a design brief that could be introduced to the students of both the universities. The twinning model can then be adopted as a methodology in teaching and learning. The students could exchange their research and conceptual ideas through interactive digital media and peer learning could be encouraged.

This is just a thought and I am sure you would have more to share.

If the idea of collaborating seems workable, I could schedule a joint online meet with either the fourth year or the second year faculty of both the schools to discuss more and decide on a course of action

I am also aware that an interaction with our fourth years and final years students proposed by you to introduce the graduate programme at Jefferson is long scheduled. Do share with me a convenient date & time any Wednesday /Friday post 3 pm (IST) for the same.

Looking forward for a collaborative studio this term- beginning from July 2020 for our school .

Warm Regards  
**Manali Deshmukh**  
Academic Coordinator  
SMEF'S BRICK SCHOOL OF ARCHITECTURE

## Invitation to Thomas Jefferson for collaboration with Brick School of architecture

On Thu, Jun 18, 2020 at 1:20 AM Robert Fleming 2 <[Robert.Fleming@jefferson.edu](mailto:Robert.Fleming@jefferson.edu)> wrote:

Hi Manali – thanks for the kind email.  
I do think we should try and do something together...

My fall semester is already planned completely out as I am launching a brand new studio philosophy and curriculum. It is geared toward second year design students and first year graduate students. The goal is to reach net-zero energy performance among other goals through an authentic evidence based process...

I would not mind sharing the curriculum with you and discussing how it might be adoptable in your curriculum – or look for other ways to link up...

Let me send you something on what we have planned but also let me think of other ways to collaborate and get back to you.

Thanks,

Rob

Rob Fleming, AIA, LEED AP, NCMA  
Salomon Family Chair in Sustainable Design  
Professor and Director, MS in Sustainable Design Program  
Director of Education, AIA Philadelphia Chapter  
Board Member, Center for Architecture and Design  
(he, him, his)

Thomas Jefferson University  
T 215-951-2928 | [www.eastfalls.jefferson.edu/green](http://www.eastfalls.jefferson.edu/green)  
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## Acceptance to the invitation by Thomas Jefferson for collaboration with Brick School of architecture

**From:** Manali Deshmukh <[manalideshmukh@brick.edu.in](mailto:manalideshmukh@brick.edu.in)>  
**Sent:** Thursday, June 18, 2020 6:39 AM  
**To:** Robert Fleming 2 <[Robert.Fleming@jefferson.edu](mailto:Robert.Fleming@jefferson.edu)>  
**Cc:** Pooja Misal <[poojamisal@brick.edu.in](mailto:poojamisal@brick.edu.in)>; Poorva Keskar <[poorvakeskar@brick.edu.in](mailto:poorvakeskar@brick.edu.in)>  
**Subject:** Re: Looking forward to exploring new opportunities for Collaborative learning

Hi Rob  
Thank you for the prompt and positive response.  
It would be great if you could share your curriculum as mentioned -- a read before we discuss would always be good  
Also do tell me when you would like to schedule this discussion.

Warm Regards  
**Manali Deshmukh**  
Academic Coordinator  
SMEF'S BRICK SCHOOL OF ARCHITECTURE

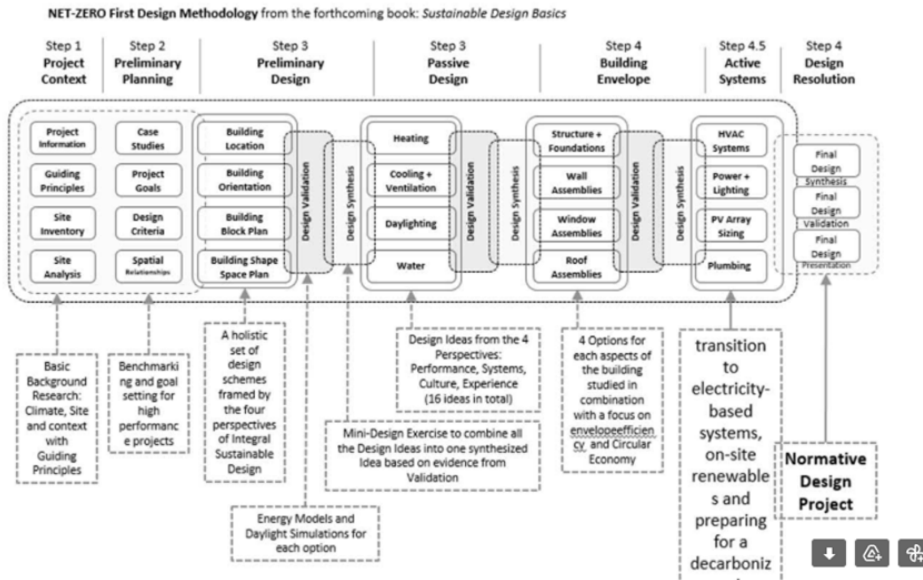
## Corresponding email from Brick school of architecture



I will circle back with a meeting request to discuss this process and to see if it might be a fit for you. I can also introduce all of you to some of the other studio professors who do housing ---

Here is a pre-view of the process and here is a link to the studio deliverables <https://drive.google.com/file/d/13Nrgvni34t4OupU5rrhGMmI5A1m5tkNG/view?usp=sharing>  
 For undergrads we would try and get the process below in about 8-9 weeks leaving the rest of the semester for normal design activities...

Over the next month, I am building a comprehensive Canvas site with all the materials including "how to" videos so that students can always get help on their studio assignments....

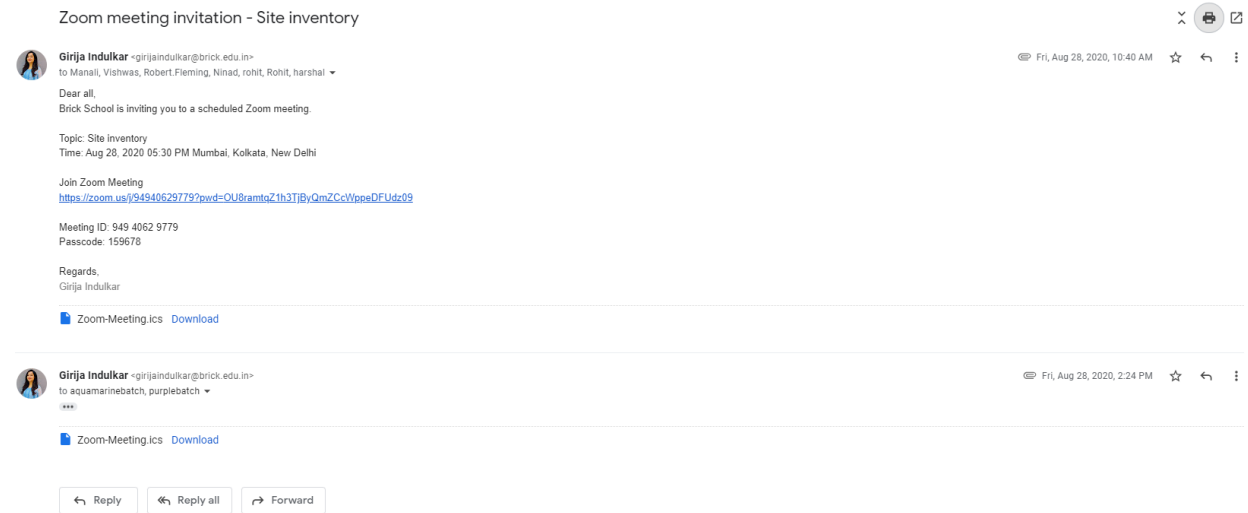


Here is a link to student work – This student was an interior design student completing here first building design – meets net-zero  
<https://drive.google.com/file/d/1G7g5062pDAjI0L31pEeBACA1FDZw2PpH/view?usp=sharing>

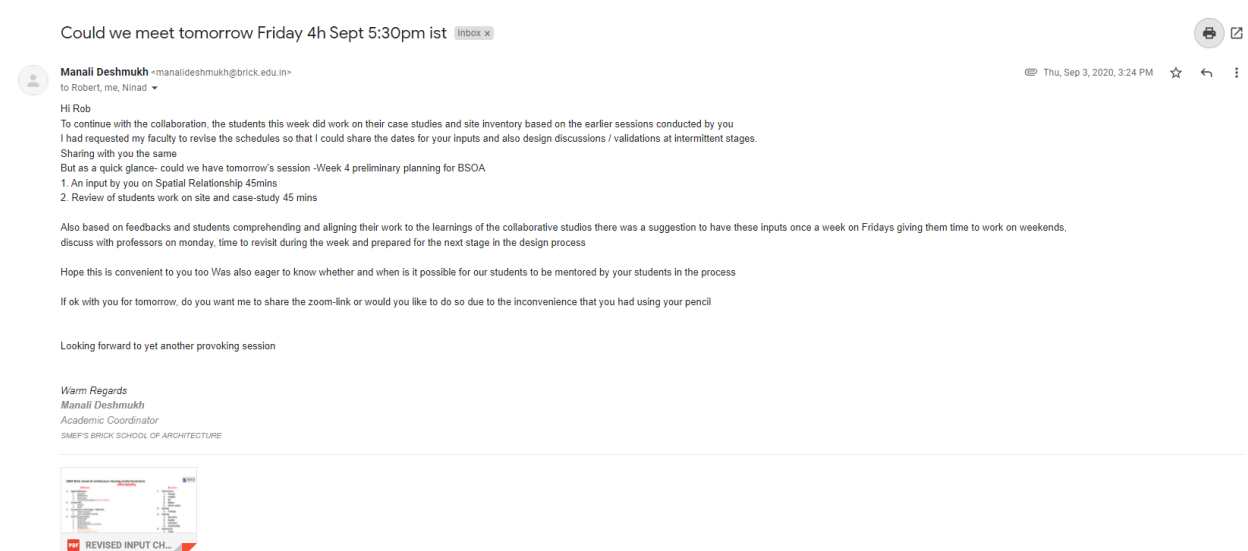
Rob Fleming, AIA, LEED AP, NOMA  
 Salaman Family Chair in Sustainable Design  
 Professor and Director, MS in Sustainable Design Program  
 Director of Education, AIA Philadelphia Chapter  
 Board Member, Center for Architecture and Design  
 (he, him, his)

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Sharing of documents and methodology with the links to students work as a reference by TJ.



### Invitation Zoom meeting to Prof. Rob by BSOA for Input on Site inventory.



### Correspondence for:

1. An input by on Spatial Relationship 45mins
2. Review of students work on site and case-study 45 mins by Prof. Rob

Tomorrows Friday 18th Sept collaborative studio @ 5:30 pm ist. Inbox x



**Manali Deshmukh** <manalideshmukh@brick.edu.in>  
to Robert, me, Ninad

Thu, Sep 17, 2020, 11:30 AM ☆ ↶ ⋮

Good morning Rob,  
Do we confirm tomorrow's collaborative studio at 5:30pm ist.  
It was scheduled for - a session by you on the use of Safaira and then your students presenting their work  
Is it also possible to have some exercise for the students from both universities to interact?

Can I share the link for the same

Warm Regards  
Manali Deshmukh  
Academic Coordinator  
SMEF'S BRICK SCHOOL OF ARCHITECTURE

**Robert Fleming** <Robert.Fleming@jefferson.edu>  
to Manali, me, Ninad

Fri, Sep 18, 2020, 2:46 AM ☆ ↶ ⋮

Hi - I am happy to talk about this - I am barely keeping up with my studio as we are using this new method...  
I will be on-line at 5:30ist on Friday and  
I will show safaira and how the tool works...  
I just finished class so let me think some more about your other questions

Rob

From: Manali Deshmukh <manalideshmukh@brick.edu.in>  
Sent: Thursday, September 17, 2020 2:00 AM  
To: Robert Fleming <Robert.Fleming@jefferson.edu>  
Cc: Girija Indulkar <girjaindulkar@brick.edu.in>; Ninad Rewatkar <ninadrewatkar@brick.edu.in>  
Subject: Tomorrows Friday 18th Sept collaborative studio @ 5:30 pm ist.

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## Input on How to use Sefaira by Prof. Rob.

**Manali Deshmukh** <manalideshmukh@brick.edu.in>  
to Robert, me

Fri, Dec 18, 2020, 4:41 PM ★ ↶ ⋮

Good evening Rob  
Hope all is well!  
Yes - this semester with all the uncertainties in schedule was certainly difficult to plan for all  
But I must truly thank you for your valuable inputs and passion in sharing your knowledge with the students inspite of all the hectic schedules you had.  
The students learnings definitely illustrated sensitivity towards sustainability, the approach was certainly remarkable and the final outcomes reflected all.  
Learnings through collaboration was a first experience for Brick school and we wish to collaborate more often with Jefferson University and you as a mentor.  
Currently we are working towards hosting an international conference in the coming year and would be glad to request you to please accept our invite for a talk on your area of expertise.  
The conference is yet in its planning stage and hence would share the details in a couple of weeks  
Girija who is also copied in this mail - will share some of the students work for the HABITAT studio - sem1\_2020-21  
Also if there is any research project or any documentation that you propose our students could work on - we would be more than happy to work with you  
Or if you would like an expert in the field of sustainability with reference to Indian context to share their knowledge through case-studies, I'm sure Poorva would be happy to do so  
Rob- Wish you a Merry Christmas and a wonderful new year !!  
Looking forward to even more collaborations in the years ahead.

Warm Regards  
Manali Deshmukh  
Academic Coordinator  
SMEF'S BRICK SCHOOL OF ARCHITECTURE

## Concluding email thanking Prof. Rob for his valuable contribution in the collaboration with BSOA

## b. Week Wise Input schedule as per lesson plan

### Week 1- Foundation week :Introduction to Affordable housing and Sustainability.

**Monday:** **Input:** Medium: Presentation on Introduction to affordable Housing by Girija and Ninad & **Output:** Quiz

**Friday:** **Preparation :** Movie/ Write up on Sustainability (over week)

**Input:** Presentation by Divya / Anagha P/ Chitra V Discussion on Economic Sustainability (in class)

**Output:** A3 preparation over weekend (graphical representation of "sustainability in habitat")

### Week 2- : Understanding various examples and its analysis

**Monday** **Input:** Case study presentation by Vishwas sir and Harshal sir. **Output:** students group presentation not more than 5 slides (to be submitted by Thursday 8AM)

**Friday:** **Input:** Presentation by selected students on case studies.

**Output:** Revisiting your individual case studies with suitable alteration (to be submitted by Monday 8 am)

### Week 3- : Understanding volumetric analysis

**Monday:** **Input + Output:** Pre-recorded lecture by Rohit P and Girija followed by **Game on SketchUp:** "volumetric analysis using parameters and understanding of scale using section" in on-going class (to be submitted in ppt by end of day.)

**Friday:** **Input:** Discussion selected student's presentation.

### Week 4- : Introduction to housing plans

**Monday:** **Input :** Definitions, concepts like FSI, ground coverage, carpet area etc. and bye laws by Harshal sir

**Output:** Assignment "to Draw and analyze your own home/ apartment". ( to be submitted A3)

**Friday:** **Input :**Demonstration on analyzing efficiency of sample unit plan by Harshal sir

**Output:** revisiting own plans for efficiency analysis submission on a3 by next Friday 8 am also read the theories or extracts given.)

### Week 5- :Efficiency Analysis of Unit plan

**Monday:** **Input:** Reflection on theories and doubt clearing session on efficiency analysis submission.

**Friday:** **Input:** Introduction to Site, Program and context

**output:** Site Analysis

### Week 6- :Design of Unit plan

**Monday:** **Input:** Presentation of selected students for site analysis. **Output:** Reflections on site analysis

**Friday:** **Input:** discussion on **Typical unit plans** in relation to climate, building technology and services

**output:** Preparation of Unit plans based on input.

### Week 7- :Design of Floor plans

**Monday:** **Input:** Demonstration floor plan efficiency of selective individual student's project:

**Output:** Reflections on floor plan A3.

**Friday:** **Input:** Overview Graphical, spatial and technological aspects in master plan using Case study / Samples

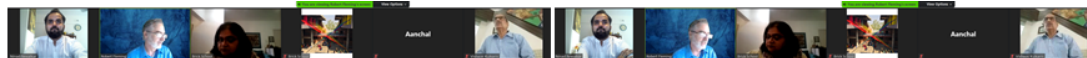
**Output:** preparation of floor plans and master plans on A1.

## 5. Summary of Inputs taken during Collaborations with Thomas Jefferson University:

### a. Introduction and Guiding Principles

This was the first interaction of the students with Prof. Robert Flemming. Since this input was organised to set the tone for the projects in both studios, the input was aimed to introduce the ideas of sustainable design with respect to the global context of Climate change. We conducted an input of around 45 min. followed by group discussions in groups of 5 students each..

The Guiding principles were introduced and a similar matrix was given to students for group discussion. At the culmination, the students were equipped with basic understanding of how to come up with their own guiding principles for their respective projects.



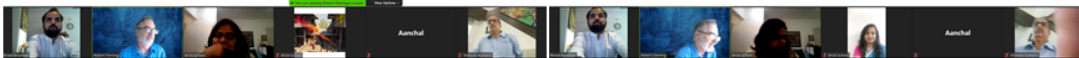
the net-zero 1<sup>st</sup> design studio  
Guiding Principles

- Guiding Principles help us to think across scale



the net-zero 1<sup>st</sup> design studio  
Guiding Principles

- The principles are focused on the long term impacts and benefits of the project



the net-zero 1<sup>st</sup> design studio  
Guiding Principles

- Guiding Principles are very helpful in a group
- They allow us to work together with a common set of goals
- Settle disputes

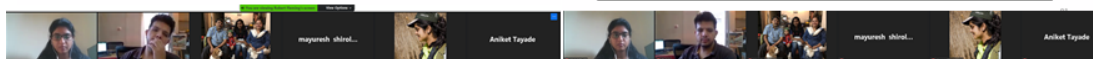


the net-zero 1<sup>st</sup> design studio  
Guiding Principles

Guiding Principles Matrix

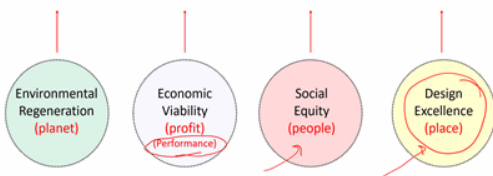
The Four Perspectives	Objective/Tangible Aspects		Subjective/Intangible Aspects		
	PERFORMANCE	SYSTEMS	CULTURE	EXPERIENCE	
Guiding Principles	Fight climate change by creating the highest energy performing project possible	Educate the public about sustainability by showcasing sustainable technologies	Become an integral part of a strong sustainable community	Celebrate Diversity	Infuse a sense of beauty in every design decision
Thoughts	Primary 1	2	4	4	3

Sustainable Design Basics: A methodology for the schematic design of sustainable buildings



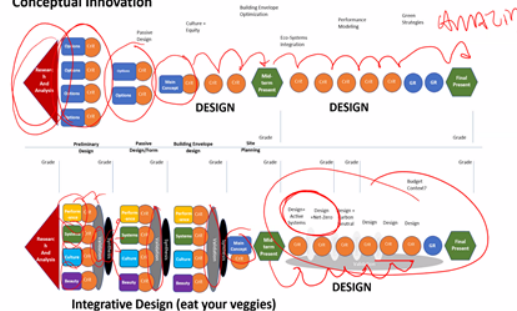
the net-zero 1<sup>st</sup> design studio  
Conceptual Foundation

## SUSTAINABLE DESIGN



Quadruple Bottom Line Sustainability

the net-zero 1<sup>st</sup> design studio  
Conceptual Innovation



**b. Project Context: Site Inventory & Analysis:**

This input was taken up by Prof. Rob for all the tutors. Intention of this input was to do a thorough site analysis where one has to discuss the project context at site level and at ward/ district level based on four Perspectives: 1) System, 2) Performance 3) Culture and 4) Experience. Based on this input a separate Site inventory template was generated for the students of Brick school, which would help them to do a site analysis. Since we were giving this presentation to fourth year students, we tried to make the parameters simpler for their own understanding. We also focused on the advanced skill set of Presentation tools. We also shared the common graphics which were used to make their group level presentations for site inventory, to make everyone's presentation standardised so that it's easier to understand and assimilate. Prof. Rob also shared the following pre recorded lecture so that it can be helpful for us to make our input session based on the same. <https://vimeo.com/452699309>

**c. Preliminary planning: Setting Up Goals**

During this Input, one of the M.S. student Ms. Kajal Patil from Thomas Jeferson University tried to explain her project and explained how she was able to set up Goals using various benchmarks.

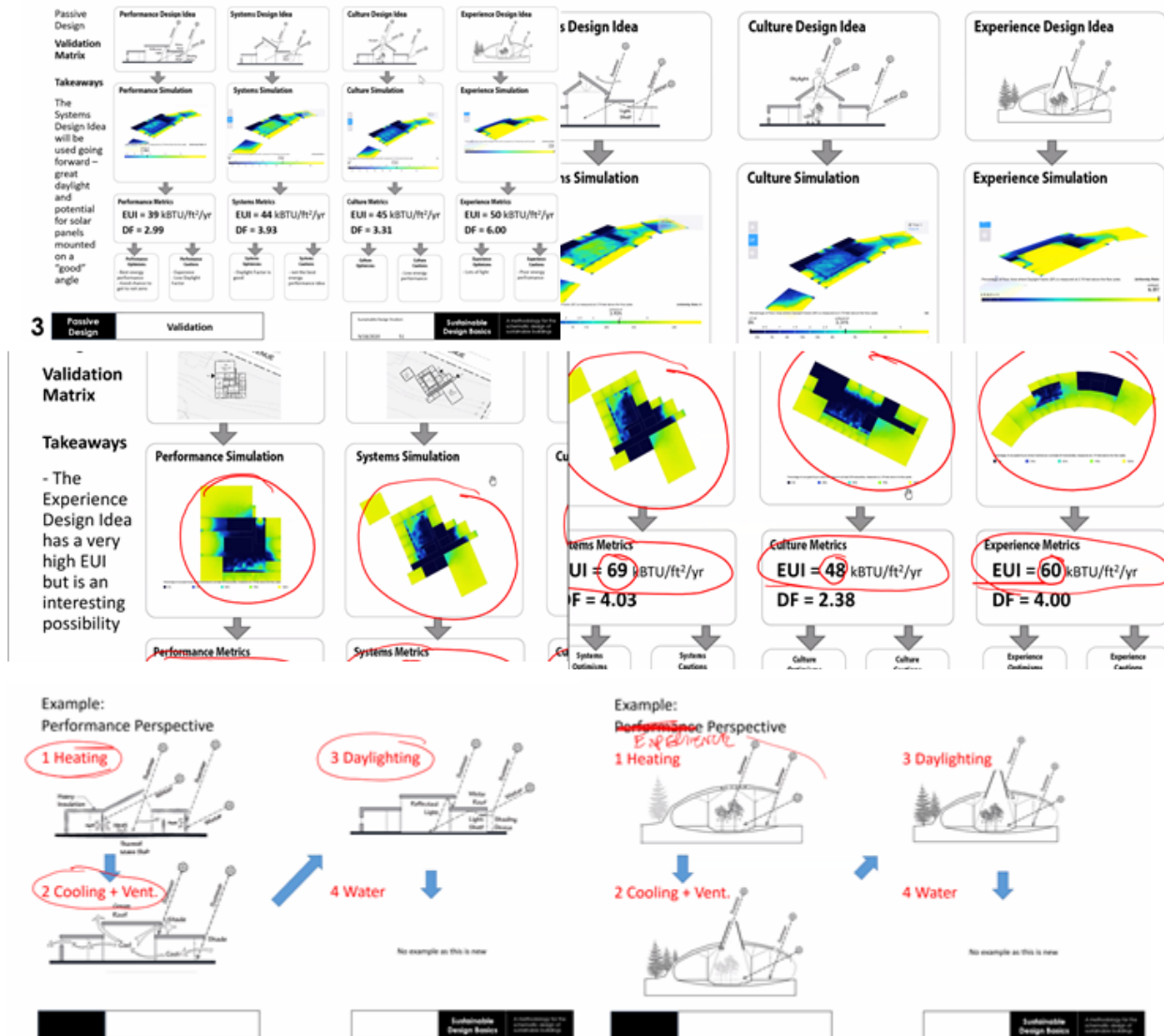
Since the climatic conditions and construction methods are different for both the sites, we discussed how we can do benchmarking for performances and energy efficiency for Indian Conditions. We also deliberated that for sake of analysing the design capabilities of fourth year students we added a new layer of spatial efficiency. Many real time standards were discussed amongst tutors and certain goals were set for students such that they don't exceed in common built up areas within housing projects.

<https://docs.google.com/spreadsheets/d/1WvVwXW6rJ1tlcRFwkp5-ztqGD-AIAob555qqyMa1mFo/edit#gid=1268238933>



### d. Preliminary Design and Passive Design: Building location, Orientation & Daylighting

Prior to this the Thomas Jefferson university arranged or free students subscription for Sketch up plug-in Safaira. This was an eye opener session as the students were asked to create a small 3D of their own individual unit plans and these were then tried to assess using the simulations of Safaira. Professor Robert showed students how different orientation , window sizing and shading arrangements can affect the Daylighting and thermal comfort in the different unit plans.



This session was followed up by a case study of a project done by Prof. Robert which showcases how energy performance of buildings can be made more and more efficient following each step . Since this was constructed with Indian materials and using Indian construction techniques, there was a fruitful session discussing the same aspects.

**Final Validation  
 Energy Goals**

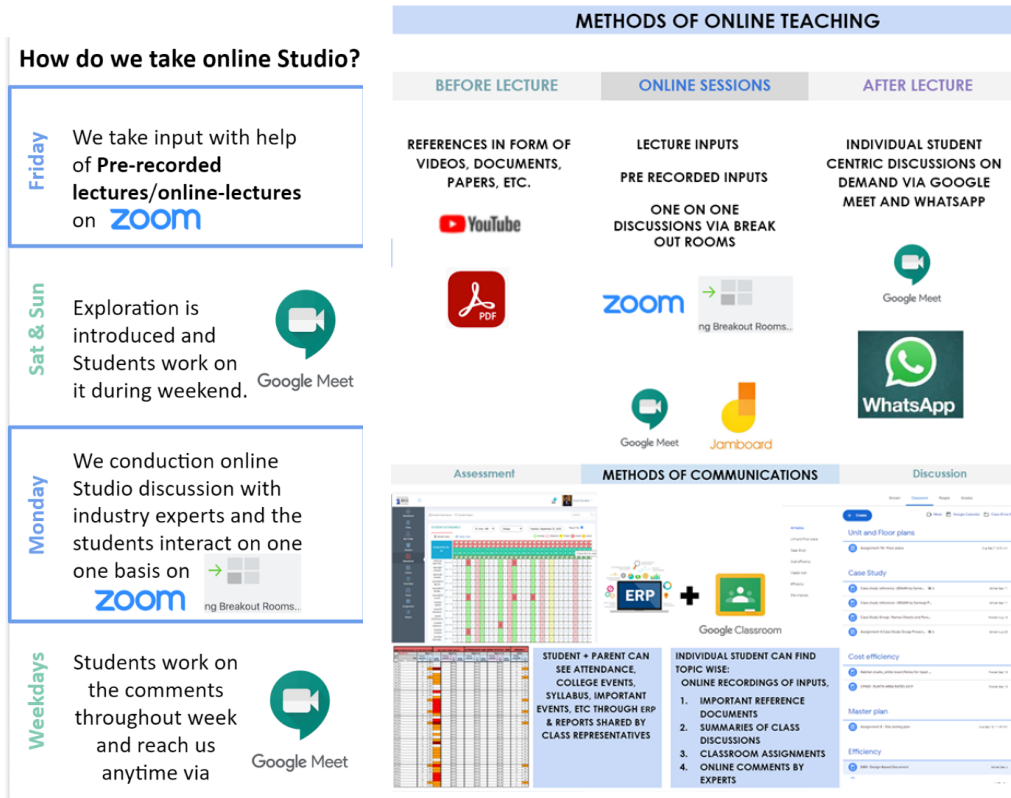


Final Validation Energy Validation

Sustainable Design Basics

**6. Tools used:**

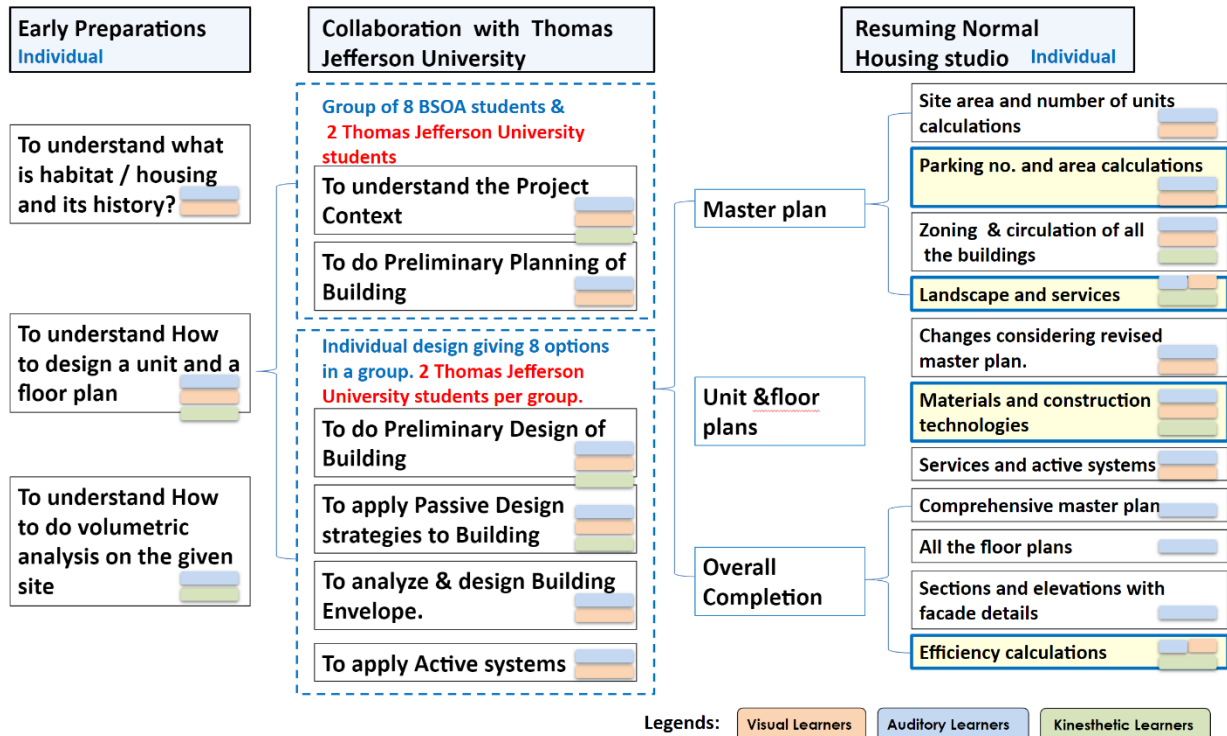
**a. Use of ICT (Information and Communication Technology) tools in teaching along with a input video recording by Prof. Robert Fleming**



Above diagram shows how we conduct our studios throughout the week and which tools are used for online teaching and communication with students. Following video show a small clip of our collaboration studio. [Please click here for watching online teaching demonstration video](#)

### b. Addressing student diversity

#### Over all Housing studio Methodology with Addressing student diversity



Prior to the semester we identified three types of learners in our students. based on their abilities we created various assignments focussing all types of learners.

## 7. Documentation of students' work

### Exploration 1: Zeroth Week

- Katha- Movie Review
- Know your Habitat
- Exploring Unit plan, floor plans & Volumetric understanding.
  - i. Aim of the exercise: Understanding **tangible and intangibles** in a habitat
  - ii. Method adopted and duration: to select one frame from the movie and express their observations. Total Duration: 3 weeks (Individual assignments :1/2 week (each))
  - iii. Expectations from Students: Write up in 250 words with selected frame (image) + Analysing your own home + Designing 3 options of unit, floor plan & its volumetric understanding.
  - iv. Format for Output: Google doc file + Google slide + Google slide (tools used: AutoCAD & sketch up)
  - v. Summary with basic observations: great work. Some students were observed to

have common observations.

vi. Example of a good work (considered as good work) –

Student name: Yash Challani

### A Pause For Togetherness



Hello there!! The image displayed above is surrounded by a group of men discussing everyday events and making fun of life. Who am I? In chawl people call me “KATTA” , I am the extension of the passage, which ends up into an unintentional balcony.

As the sun rises up, chawl wakes up into chaos and people run over me to begin a new day, I witness many cross over of these people throughout the day. People saying “namaskar” and this 2 min pause create a sensitive gesture of care and respect for each other.

Over a period of time I have evolved and encouraged the idea of living together as a family with neighbouring units. Every morning these people use me as a stage for their announcements to call out children or the vegetable vendor-” baji wala “or “doodhwala bhaiya” .

By the afternoon heat, my character is changed into a play corner for the senior citizens. Small vendors like pani puri wala or bhel wala use me as their food corner.

It's been more than 100 years , I have witnessed many grand welcome of the guests and on the other hand witness the break ups in nights & sometimes a long arguing fight . The events happen for a fraction of time but change the lifestyle and create space memory for me. These people always keep changing my character with time & adding emotional value to it.

Without them I would be just a left out extended passage having only one function. But they have adapted me but not just as adjustment but as an important member of the chawl. Here a new series of entertaining events starts and ends up at night.

From just a space , they have defined me as “KATTA”, a sense of togetherness.

Student name: Akshay Bafna

Name of student	Year of completion of const.	Name of Location	Urban/ Rural	House Typology	Total Area of House
AKSHAY BAFNA	2018	PUNE	URBAN	BUNGLOW	335 SQ M

AKSHAY	
SHUKRAWAR PETH, PUNE	
No. of Units	1
Size of each Unit (sq m)	335
Ground Cover of Building (sq m)	168
Plot Area (sq m)	395
No. of inhabitants	4



**Etymology**

**Living room**- Room where the entire family sits together, to watch T.V or play games.

**Kitchen**- Used to prepare meals for the family.

**Balcony**- A space for creating a small garden, interact and relax.



2ND FLOOR PLAN

**Legend**

- Living Room
- Bed Room
- Toilet
- Kitchen
- Balcony
- Dining
- Library



**KYH- Know Your Habitat**

Assignment 2- For Fourth Year. B. Arch.

Conducted by Ar.Ninad Rewatkar



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Student name: Dhairav Chedda

**Unit Plan options**

- 30 mtr.sq- 1RK Unit
- 45 mtr.sq- 1BHK Unit
- 60 mtr.sq- 2BHK Unit

Dimensions: 3.6m, 3.6m, 3.6m, 4.2m, 1.2m

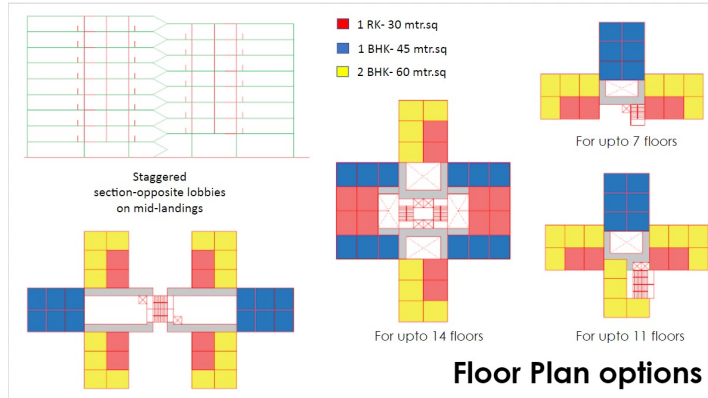
Service module: dry balcony with jali wall.

Private module, Service module, Public module

**Section through living area and kitchen**

3.2m





Student name: Aniket Tayade

**Floor Plans- A (30& 35sqm)**      **Floor Plans- B (45 sqm)**      **(45 + 60 sqm)**

**Condition 1:**  
 Area : 10,000 sqm    fsi : 1  
 Floor height : 3m  
 offsets : 9m

**Condition 2:**  
 Area : 10,000 sqm  
 fsi : 2  
 Floor height : 3m  
 offsets : 9m

**Condition 3:**  
 Area : 10,000 sqm    Floor  
 height : 3m  
 Ground coverage : 50%  
 fsi:2  
 Offset:6m

**Condition 4:**  
 Area : 10,000 sqm  
 fsi : 2  
 Floor height : 3m  
 offsets : 6m  
 Ground coverage : 1/3

**Condition 5:**  
 Area : 10,000 sqm  
 fsi : 2  
 Floor height : 3m    offsets  
 6m  
 Ground coverage : 1/3  
 Open space: 10%

**Condition 6: Climate/context based**  
 Area : 10,000 sqm  
 fsi : 2  
 Floor height : 3m  
 offsets : 9m  
 Ground coverage : 1/3

**Exploration-Floor plans & Volumetric analysis**    Name of Student: Aniket Tayade  
 Assignment 3 :for Fourth year B.Arch.    Conducted by: Habitat Studio Design Team    Copyrights @ SMEFS Brick School of Architecture

**Exploration 2: Esquee-**

- Eco-Niwas Samhita competition
  - i. Aim of the exercise: Understanding criteria explained ENS cell. To compete in a national competition.
  - ii. Method adopted and duration: Learning: Two-day training and awareness program on Eco Niwas Samhita” in association with BEE and GIZ on 18th & 19th December 2020.  
  
 Outcomes: To design one Residential Project Tower on a given site and showcase the calculation based on the two-day training workshop conducted by ENS cell  
 Total Duration: 1 weeks
  - iii. Expectations from Students: Group Presentation of 12 slides
  - iv. Format for Output: Google slide / PowerPoint presentation.



- v. Summary with basic observations: great work. Some student groups were shortlisted for national level competition
- vi. Example of a good work (considered as good work) – Group Assignment

### SITE PLAN

### ENS-DC-75

#### PROJECT INFORMATION

- **Location:** Mumbai
- **Plot Size:** 68 x 48 m
- **Front Setback:** 9m
- **Side Setback:** 7.5m
- **No of Units per floor:** 4
- **Total No of Units:** 56
- **No. of Floors:** 14
- **Carpet area for each unit:** 72 sq. m
- **Built-Up area for each unit:** 80 sq. m

Sr.no	F.S.I. calculations	In Sq m	Remarks
1	Area of Plot	3264.00	Basic plot area
2	Amenity Space	163.20	5% of (1) (public amenities)
3	Net Plot Area	3100.80	(1) - (2)
4	Open space (10%)	310.08	10% of net plot
5	Area in setback	786.00	
6	Max. Ground Coverage	2004.72	
7	Max. Building potential	4201.60	Considering FSI - 2
8	Unit Builtup area	80	
9	Floor Plate	406	
10	Total No of Floors	14.00	As per Design
11	Total Builtup area	5684.00	

### VLT (Visible Light Transmittance)

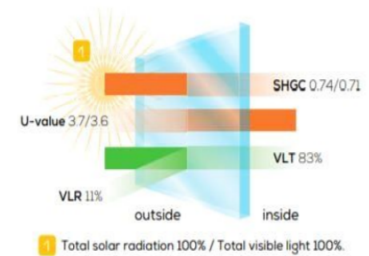
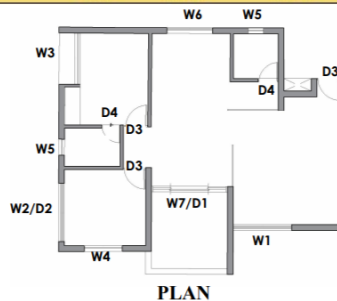
#### Calculation of Window-to-wall ratio for South-West Facade

There are two windows with one sliding door and sliding window on alternate floor for each dwelling unit. The windows and door are non-opaque with fully glazed panels.

Orientation	Opening Name	Opening Area (m <sup>2</sup> )	Non-opaque (glass) area in opening(m <sup>2</sup> )	No. of Openings	Total opening area (m <sup>2</sup> )	Total non-opaque (glass) area (m <sup>2</sup> )
South-west	D2	4.85	4.32	14	67.9	60.48
South-west	W2	2.76	2.31	14	38.64	32.34
South-west	W3	2.41	1.88	28	67.48	52.64
South-west	W5	0.54	0.4	28	15.12	11.2
<b>Total</b>					<b>189.14</b>	<b>156.66</b>

#### Calculation of window-to-wall ratio

$A_{envelope} = A_{gross\ wall\ 1}$   
 $A_{envelope} = 8.84\ m^3 \times 2$   
 $A_{envelope} = 17.68\ m^2$   
 Height of a floor = 3 m  
 Total height of the building = 14 x 3 = 42  
 $A_{of\ envelope\ facing\ west} = 17.68\ m^2 \times 42$   
 $= 750.96\ m^2$   
 $WWR = \frac{A_{non-opaque}}{A_{envelope}} = \frac{156.66\ m^2}{750.96\ m^2}$   
 $= 0.20$



**Low E-coated Glass:** Coated glass is designed to provide a higher level of energy efficiency and control over climate. Low-E coated glass provides both solar and thermal control in both single and double glazing.

As per Eco Niwas Samhita Compliance Code we have achieved WWR of 0.20 (range 0-0.3), the minimum required VLT is 27%. The Low E-coated glass used in this project has a VLT of 83% (as per certified specification for the product). Thus, this project complies with this requirement. Also, it complies with the recommended value.

<https://www.nationalglass.com.au/wp-content/uploads/2018/08/National-Glass-catalogue-v9.pdf>

### WFR (Window to Floor Ratio)

#### WFR CALCULATIONS FOR 'EVEN' FLOORS

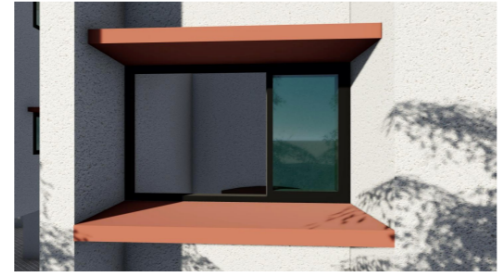
Openings window	Opening Area (m2)	Remarks
W1	2.76	65% Openable area= 16.85%
W2	2.76	
W3	2.41	
W4	1.8	
W5 (2 nos)	1.08	
D1	6.3	
W6	1.5	
<b>Total Area</b>	<b>18.61</b>	
flat carpet area (m2)		2011.8
Openable area for 28 flats (m2)		338.702

#### WFR CALCULATIONS FOR 'ODD' FLOORS

Openings window	Opening Area (m2)	Remarks
W1	2.76	65% Openable area= 17.09%
W3	2.41	
W4	1.8	
W5 (2 nos)	1.08	
W6	1.5	
D2	4.85	
W7	4.5	
<b>Total Area</b>	<b>18.9</b>	
flat carpet area (m2)		2011.8
Openable area for 56 flats (m2)		343.98

### ENS-DC-75

#### PROPOSED OPENING ACCORDING TO COMPLIANCE

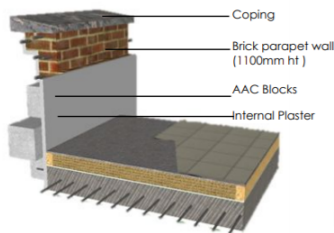


$$WFR_{op} = \frac{A_{openable}}{A_{carpet}}$$

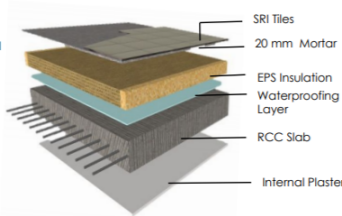
As the opening is 3 panelled sliding window, the openable area for exchange of air is 65% of total opening area.

- Terraces are placed on alternate floors.
- Terrace for the dining room is placed on even floors followed by a window to the same on odd floors.
- Terrace for the bedroom is placed on odd floors followed by a window to the same on even floors.
- Mumbai is in warm and humid climate.
- As per Given table, minimum  $WFR_{op}$  for this climate is 16.66%.
- Thus the project complies with the requirements.

### Thermal Resistance of Roof



WALL AND ROOF ASSEMBLY



ROOFING DETAILS

### ENS-DC-75

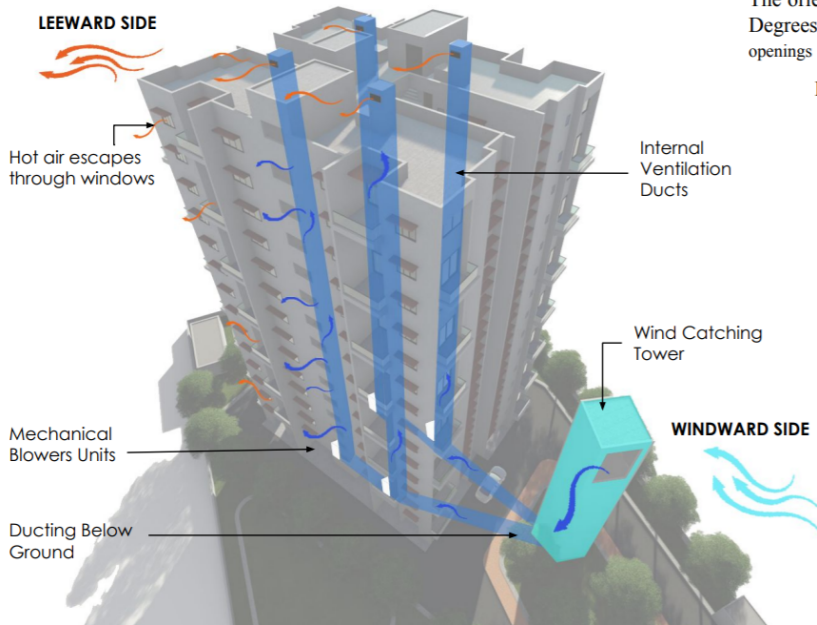
No	Material Layer	Thickness	Thermal Conductivity	Thermal Resistance
1	Internal Plaster	0.015	0.72	0.021
2	RCC Slab	0.15	1.58	0.095
3	Waterproofing	0.004	0.691	0.006
4	Expanded Polystyrene	0.08	0.036	2.222
5	Concrete	0.02	1.74	0.011
6	SRI Tile	0.007	0.177	0.04
			<b>Total =</b>	<b>2.395</b>
$R_{w} = 0.04; R_{s} = 0.17$				
<b>Formula =</b> $R_t = R_w + R_s + R_1 + R_2 + \dots + R_n$				
		Final $U_{wall}$ =	1/R <sub>t</sub>	
		Final $U_{roof}$ =	<b>0.384 W/m<sup>2</sup>K</b>	

Sr no	Material description	Size	Density (kg/m <sup>3</sup> )	Specific heat capacity (kJ)	Fire resistance (hr)	Brand/Company/Source
1	Brick wall (parapet)	0.23x0.11x0.65	1600	840	2	nil
2	AAC blocks	0.6x0.2x0.05	650	1.24	1.5	Godrej
3	Internal plaster-Gypsum	0.015	1762	0.84	1.5	nil
4	External plaster-Sand finished	0.02	1762	0.84	1	nil

Sr no	Material description	Size	Density (kg/m <sup>3</sup> )	Specific heat capacity (kJ)	Fire resistance (hr)	Brand/Company/Source
1	Internal plaster	0.015m thk	1762	0.84	1.5	nil
2	Concrete slab	0.15m thk	2288	0.88	3	BIS-Bureau of Indian Standards
3	Water proofing layer	0.004 m thk	0.16		nil	Dr. fixit
4	EPS (Expanded Polystyrene) insulation	0.08m thk	11.21	1.34	nil	BIS-Bureau of Indian Standards
5	SRI tiles- White colored tiles-fixed with white cement slurry on 20mm bed of cool mortar laid in-situ	0.3mx0.3mx0.007m			nil	Thermaxtek vitrified tiles

## Passive Design Strategies: Ventilation

ENS-DC-75



The orientation of the building has been rotated to **30 Degrees** from **North**. This is done to achieve more openings on the predominant west wind direction.

### PASSIVE DESIGN STRATEGIES DETAILS

- **Wind catcher tower** - 4 x 4 m.
- **Underground Ducting** - 0.9x0.9 Precast Box section.
- Mechanical Blowers placed at the bottom of ventilation shaft.
- The **Internal ventilation duct** is of size of **1x1** m with openings at all floors. The openings are of **0.9x 0.45** m.
- The Ducts have openings of **0.9x0.45** m. on the leeward side at top.
- The height of the wind tower should be decided as per surrounding context.

### ADVANTAGES

- Improves Indoor air quality.
- Requires less Mechanical Support.
- Improves Fresh air Circulation.
- Suitable for Warm and Humid Climate.

### Exploration 3: Habitat Design

- Site Analysis,
- Case Study Analysis,
- DBD,
- Spatial Efficiency Calculation
- Net Zero Strategies & Safaira Simulations
- Master plan
- Floor plans

- Unit plans
- Site Sections and End Wall Sections
- Site Elevations
- Services and Landscape Plans
- Details
- 3D Model and Renderings

**Note:** Group Assignments marked in **Blue**.

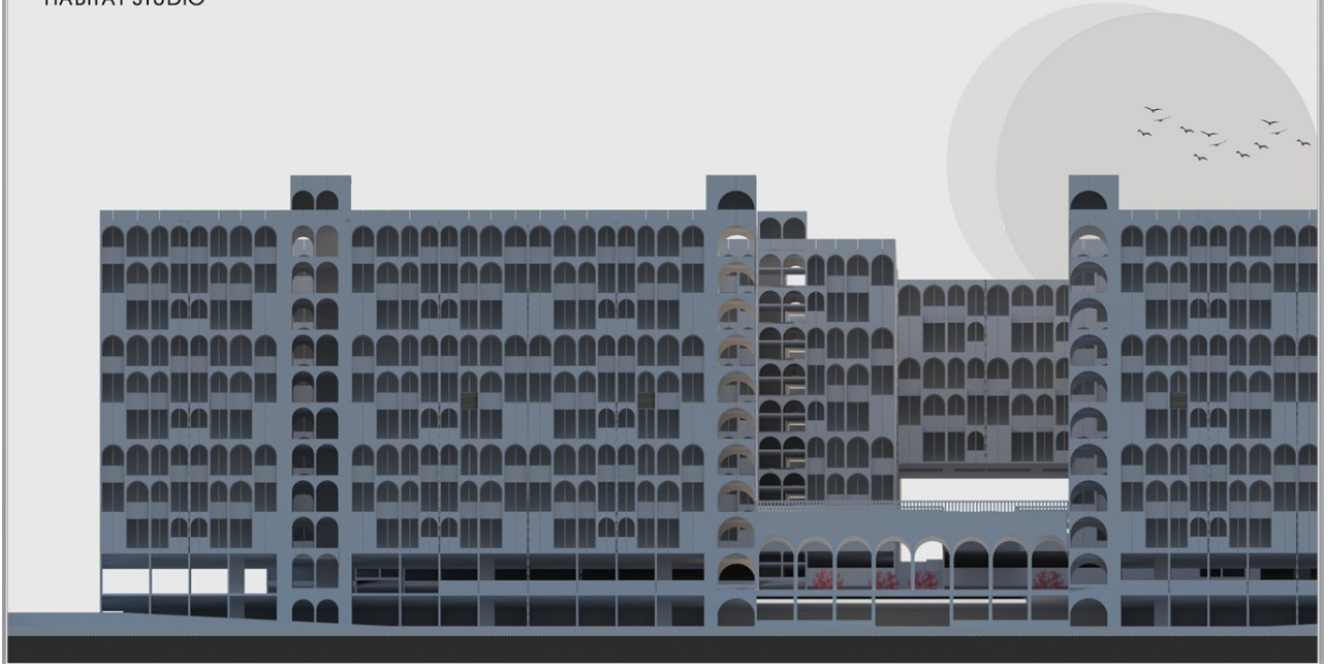
- Expectations from Students: One individual presentation of 30 slides
- Format for Output: Google slide / PowerPoint presentation.
- Summary with basic observations: Great work. Some students work was displayed to the students of Thomas Jefferson University

- Example of a good work (considered as excellent work) – Atharva Ghawllakar

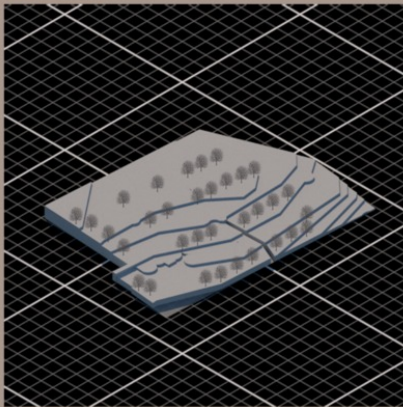




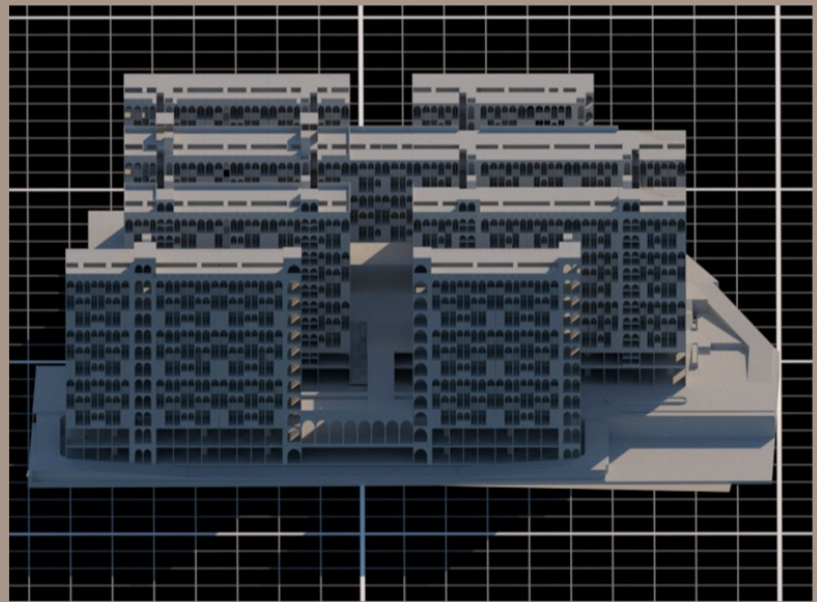
## AFFORDABLE HOUSING HABITAT STUDIO



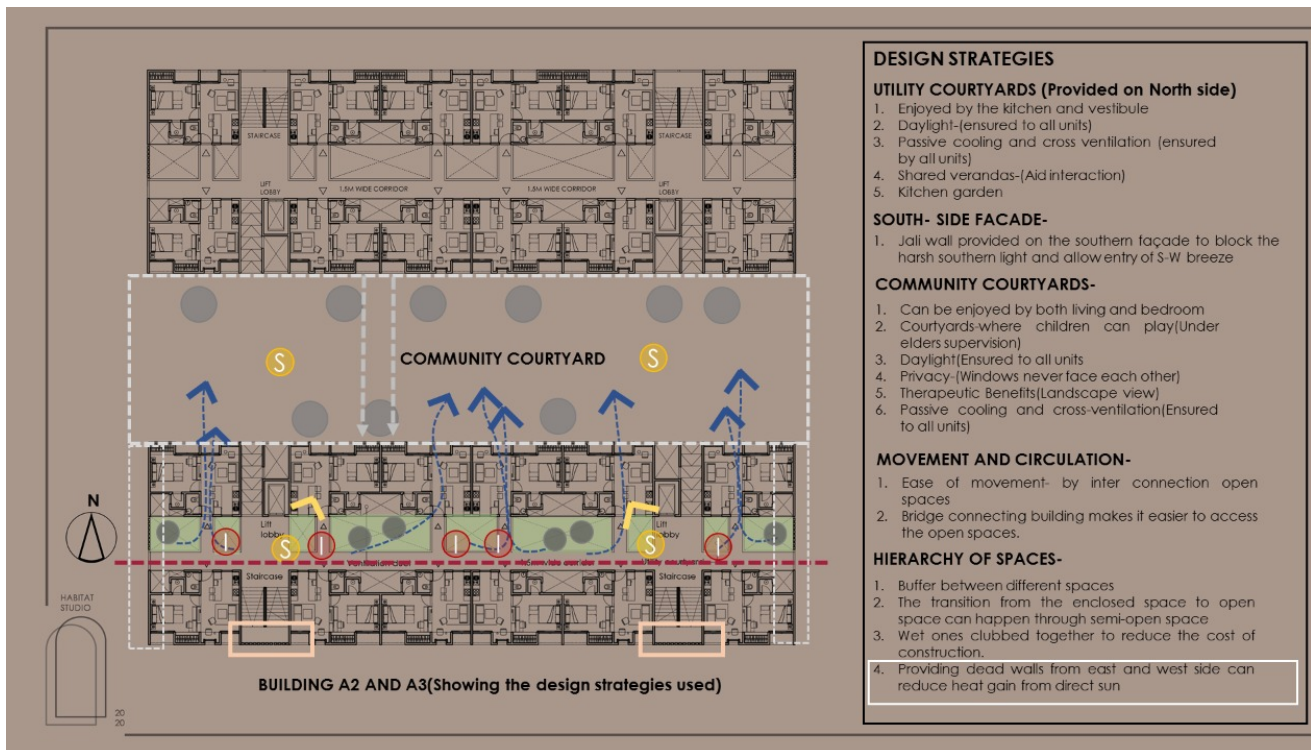
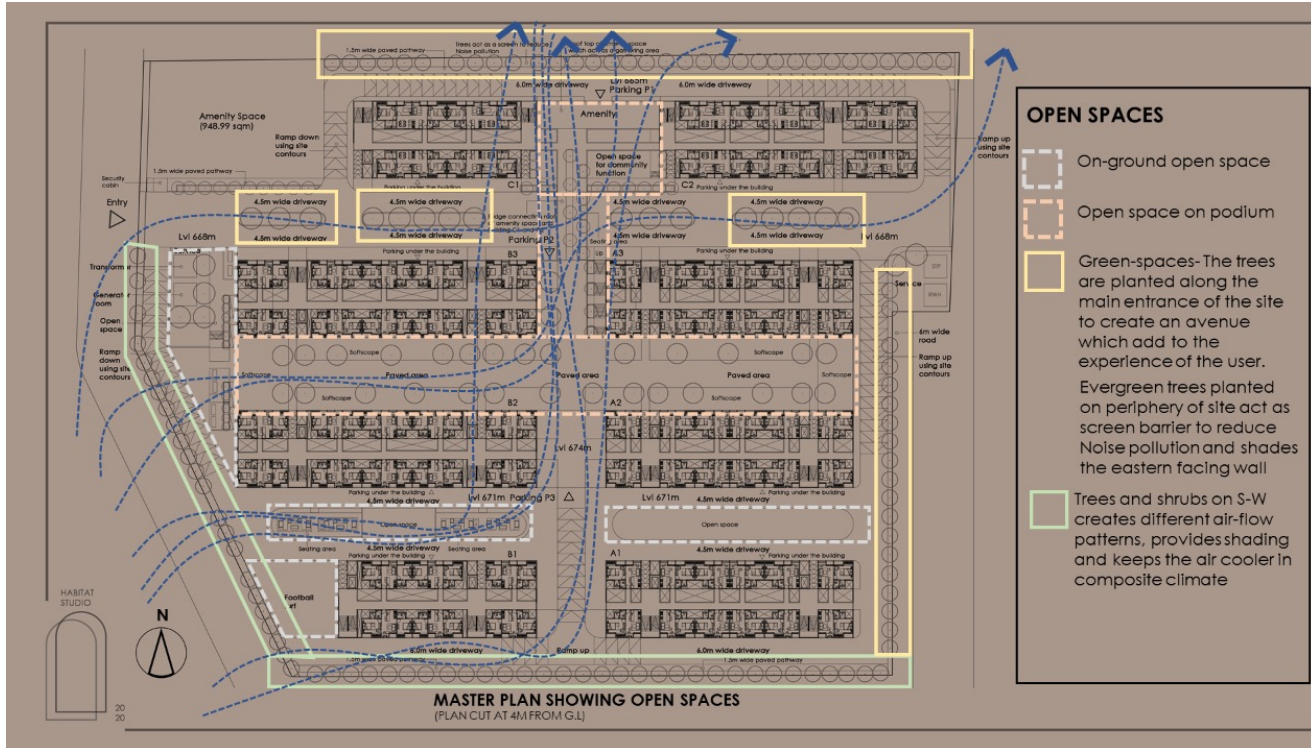
### PROCESS



Process-  
1.Site, 2.Site offset, 3.Area under the road and amenity space, 4.Contours on site, 5.Plantation on site, 6.Relocation of plantation on site, 7. massing model showing orientation of the buildings(N-S orientation gives an opportunity to provide dead walls on west and east side, thus decreasing the heat gain of the building),8. Joining of building to decrease the number of floors, 9. Final model



FINAL MODEL





### DESIGN STRATEGIES

Children can play Under adult supervision

Daylight entry

### SECTION CUTTING THROUGH BUILDING A2 AND A3

### ISOMETRIC SECTION CUTTING THROUGH BUILDING

Stack - ventilation

Cross ventilation

Community courtyard

**Preliminary target energy potential index (EPI)**

Reference for Table no 1- EPI benchmark considered for residential building in composite Climate- 45 Kwh/m<sup>2</sup>/ year .All the benchmarks are according to BEE guidelines.

For 35 sqm (Building A1 and A3)		TOTAL	UNIT
DESCRIPTION			
No of floors	8		
Total Build up of Building	4766 Sqm		
EPI benchmark	45 Kwh/m <sup>2</sup> /year		
Peak energy consumption	191970 KWH/year		
Per day energy consumption	525.9452053 KWH/day		

**Table 1:** Reference-All benchmarks are considered according to BEE guidelines

**On-site renewable energy generation**

With a very good geographical location, Pune is blessed with abundant sunlight throughout the year with around 7-8 hours of sunlight in a day. Considering this the primary energy source for on-site energy generation is solar energy. Using "On-grid Photovoltaic system with Battery Back-up" the shelter can work off-grid in times of emergency. For generating 1KWh of energy through solar power, 10m<sup>2</sup> of area is required.

For 35 sqm (Building A1 and A3)		Total	Unit
Sr. no	Site information		
1	Site Area	19183 sqm	
2	Roof area	543 sqm	
3	No of buildings	1	
4	Total area	543 sqm	
5	75 Percent of total available roof area	407.25 sqm	
6	Area for generating 1 Kwh	10 sqm	
7	This 1246.5 sqm will produce	40.725 kw	
8	Available sun hours in Pune	7hr	
9	Total energy generated	285.075 kw/yr/day	
10	Energy generated per year	290 days	82671.75 kw/yr/year

**Table 2:** Preliminary estimation of on-site renewable energy generation Potential; Reference-As per Indian meteorological department survey

**Division of space is done with the help of partitions for flexibility of use in future**

**The utility courtyards helps in entry of daylight, passive cooling and also serves as kitchen garden enhancing the experience of space**

### SECTION (35sqm)

### DAYLIGHT ANALYSIS (Revit insight)

### TYPICAL FLOOR PLAN (35 Sqm units)

### UNIT PLAN (35 sqm)

Units are designed to be naturally ventilated

Division of space is done with the help of partitions for flexibility of use in future

The units are designed to have a greater connect with the immediate corridor and utility courtyard through kitchen window

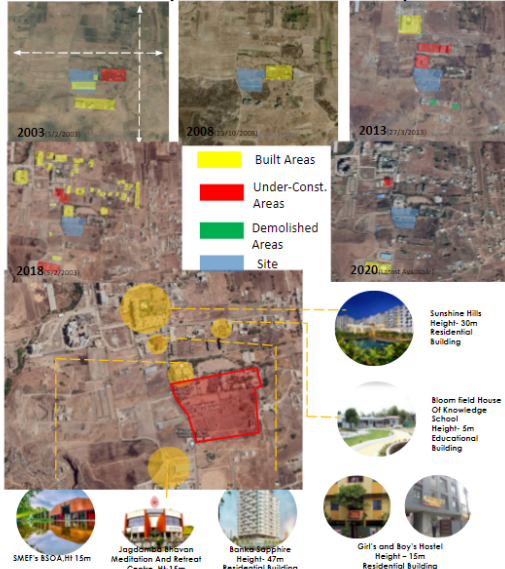
2 separate toilets provided so that it could be used by 2 people simultaneously



v. Example of a good work (considered as excellent work) – Aniket Tayade

- **LOCATION:** Pisoli , Undri, Pune
- **SITE AREA:** 19,185 sqm
- **CLIMATE:** Moderate

**Comparison of Yearwise Maps**



**Potential Magnets of Site**

- Flyash blocks manufacturing factory near site- local materials.
- Educational institutes act as a source of teaching, learning & employment.
- Once the site comes under PMC, it will gain a larger demand as it is a developing zone.



- Heat island effect on open spaces due to moderate climate.
- Need to design covered spaces to reduce heat in summers and plant more native trees on open spaces.



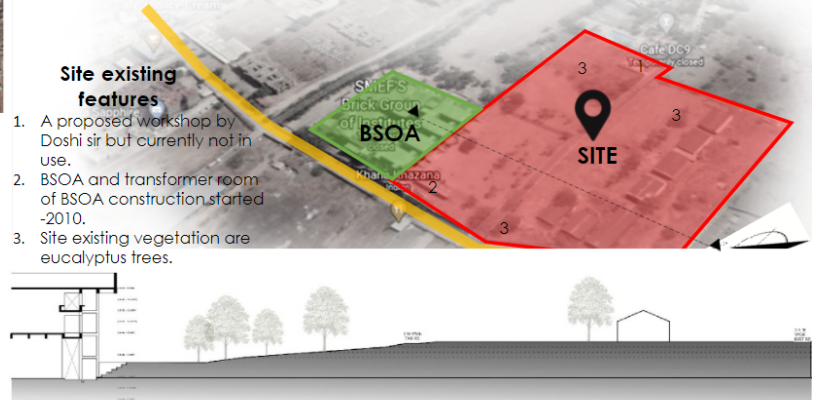
- The site topography indicates a slope, where the collection of rainwater can be done at the lowest part of the site.
- To reduce surface runoff coefficient of water, we can add pervious areas.



- As the site comes under hilly region, there would be cold conditions in winter, so there is a need to design openings accordingly.

**Site existing features**

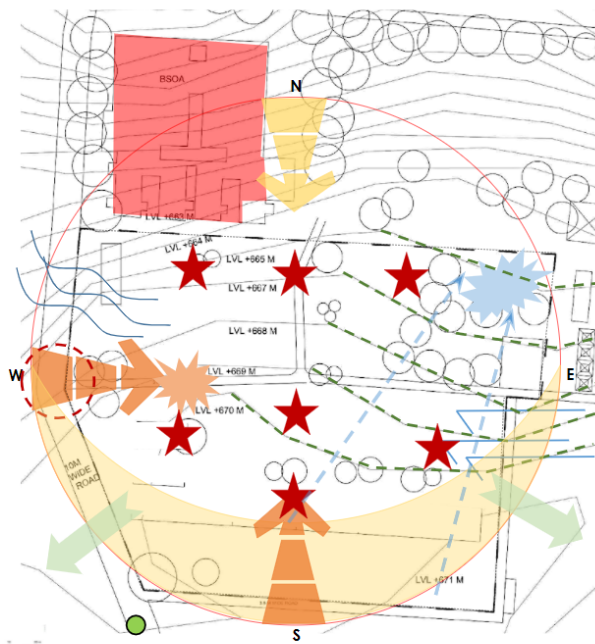
1. A proposed workshop by Doshi sir but currently not in use.
2. BSOA and transformer room of BSOA construction started -2010.
3. Site existing vegetation are eucalyptus trees.



**Site Location & Context Analysis**  
 Fourth year B.Arch.

Name of Student: Aniket Tayade  
 Conducted by: Habitat Studio Design Team

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**Legend**

- Transit Stop
- Congestion points
- Valley line
- ☽ Sun Path
- ↑↑ Desirable/non-desirable sun angles
- Direction of slope and topography
- Summer Breezes
- Winter Breezes
- Desirable view from site
- ☀ Rainwater collection point
- ★ Potential conflict point
- ★ Possible areas To build

**Takeaways from Analysis:**

**Performance perspectives:**

- Use of rainwater harvesting on site.
- Can make recharge pits.
- Creating focal points with linear internal roads.
- Impervious pavers – surface runoff water may go to recharge pits.
- Plantation of native species.
- Mutual shading of buildings through appropriate orientation.
- Orientation of buildings for funneling the wind breezes

**Community perspective**

- Educational institutions are important point of potential near the site.

**Experience perspectives:**

- Feeling of surprise until user reaches the center junction to enter site.
- Central road to a focal point leading to walkways.
- Primary areas of units to be facing the desirable views from site.
- Vegetation/vertical gardens could be installed in order to avoid noise disturbance.

**Site Analysis**  
 Fourth year B.Arch.

Name of Student: Aniket Tayade  
 Conducted by: Habitat Studio Design Team

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**Site Zoning**  
Fourth year B.Arch.

**Form Development**

1) Mass Placement  
2) Mutually shading  
3) Staggering of heights

Name of Student: Aniket Tayade  
 Conducted by: HabitatStudio Design Team  
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EPI Calculation						
Sr. no	Bldg. Type	Built up Of 1 bldg. (sqm)	No. of bldgs.	Total Builtup(sqm)	EPI considered (KWh/m2/yr)	Per day consumption (KWh/day)
1	A(1BHK)	2661.23	4	10644.92	45	479021.4
2	B(2BHK)	4107	3	12321	45	554445
3	C(3BHK)	10438.5	1	9731	45	437895
<b>TOTAL</b>						<b>1199.712329</b>
<b>CONSUMPTION (24hrs)</b>						<b>4031.127123</b>
						<b>For 12 hrs</b>
						<b>4031.12/2=2,015.56</b>

SOLAR PV CALCULATIONS							
Sr. no.	Bldg. Type	Roof area of 1 bldg.(sqm)	No. of bldgs.	Total roof area	75% of roof area	Additional area for Solar Pvs on ground iv open spaces(sqm)	Energy produced by PV panels in 1m2(kw)
1	A(1BHK)	427	4	1708	1281	656	1
2	B(2BHK)	506	3	1518	1138.5		1
3	C(3BHK)	740	1	740	555		1
							<b>Total</b>
							<b>1665.72</b>
							<b>Additional</b>
							<b>367.38</b>
							<b>TOTAL</b>
							<b>2033.08</b>

- The total energy generation is 2033 kWh/day
- Therefore the energy generation is almost equal to consumption and is compliance with Net Zero criteria.

**Solar PV Specification**

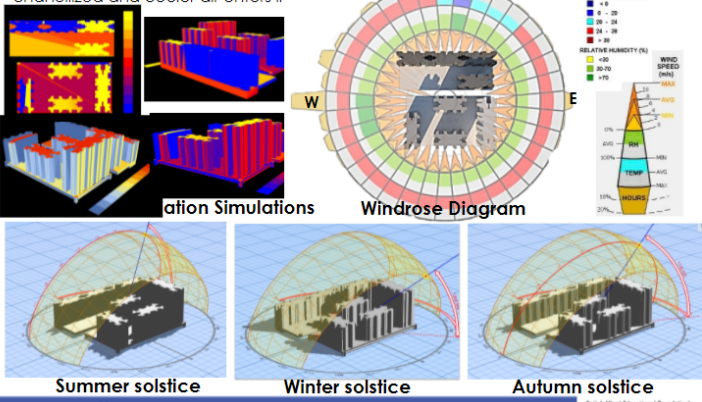
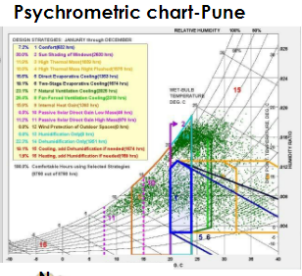
- Brand: Honeywell IN BLACK
- Solar Cells: Monocrystalline 156\*156mm.
- Cell Orientation: 60 cells (6\*10)
- Module Dimension: 1650\*992\*35mm
- Weight: 18.6kg
- 265-275 W
- 16.8% Max efficient.

**Roof wall assembly**

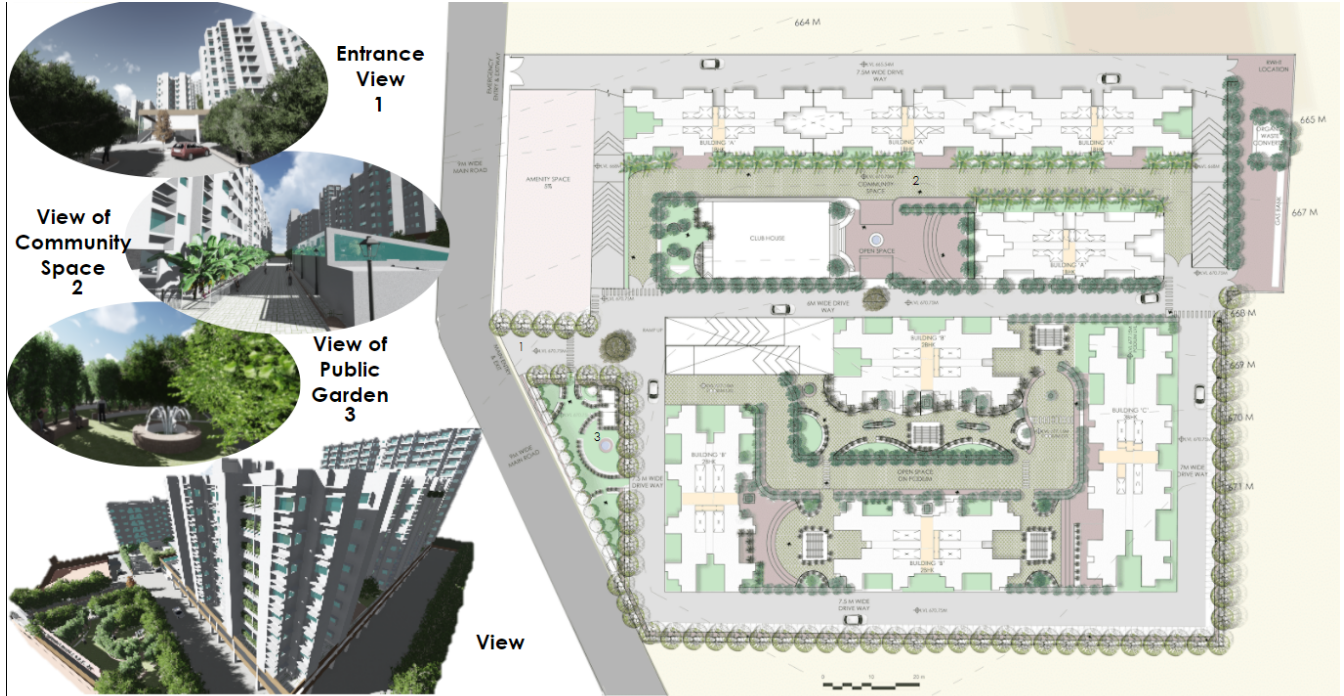
**Roof detail**

**U-value of Roof**

- From the above data, 36% of dehumidification (3162 hrs) is suggested, as the indoors in Pisol are humid, so we will require more natural ventilation / exhausts to dehumidify the air.
- 28.8% of sun shading (2522 hrs) is suggested data, from throughout the year, we'll have to provide proper fenestrations according to orientations in order to tackle glare and let in indirect light inside building.
- 16.6% of cooling (1469 hrs) is suggested data, so we'll have to provide necessary vegetation so that the wind is channelized and cooler air enters in







**Site Plan** Name of Student: Aniket Tayade  
 Assignment 5- For fourth year B.Arch. Conducted by: HabitatStudio Design Team  
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Interior View Showing Furniture

Exterior View

Sefaira Simulation Results After adding Fenestrations

Sefaira Simulation Results After adding Fenestrations

Footcandle levels on March 20 at 8AM measured at 0.85 meters above the floor plate. Time does not take into account daylight savings time.

0 19 37 56 74+

1 BHK Unit Plan Scale 1:50

- OPEN TERRACE (3x 1.85m)
- LIVING AREA (2.87x4.8m)
- TOILET (0.95x1m) BATH (1.35x1m)
- BED/PRIVATE SPACE (2.85 x 2.7m)
- COOKING AREA (3.15 x 2.92m)

Keyplan Showing All Polylines

1 BHK Floor Plan Scale 1:100

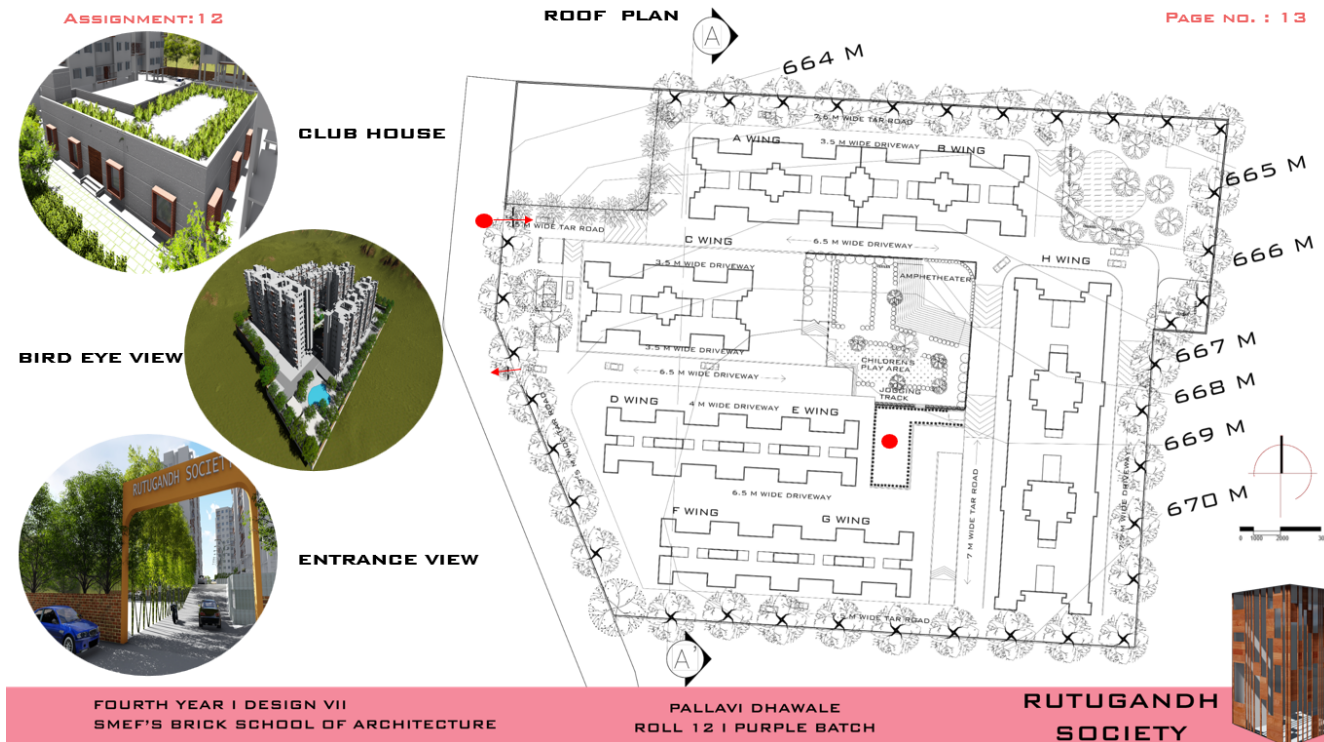
- GARBAGE CHUTE
- VERTICAL CIRCULATION
- PASSAGE AREA

**F.S.I. Statement of Typical building (35.64 sqm P+7)**

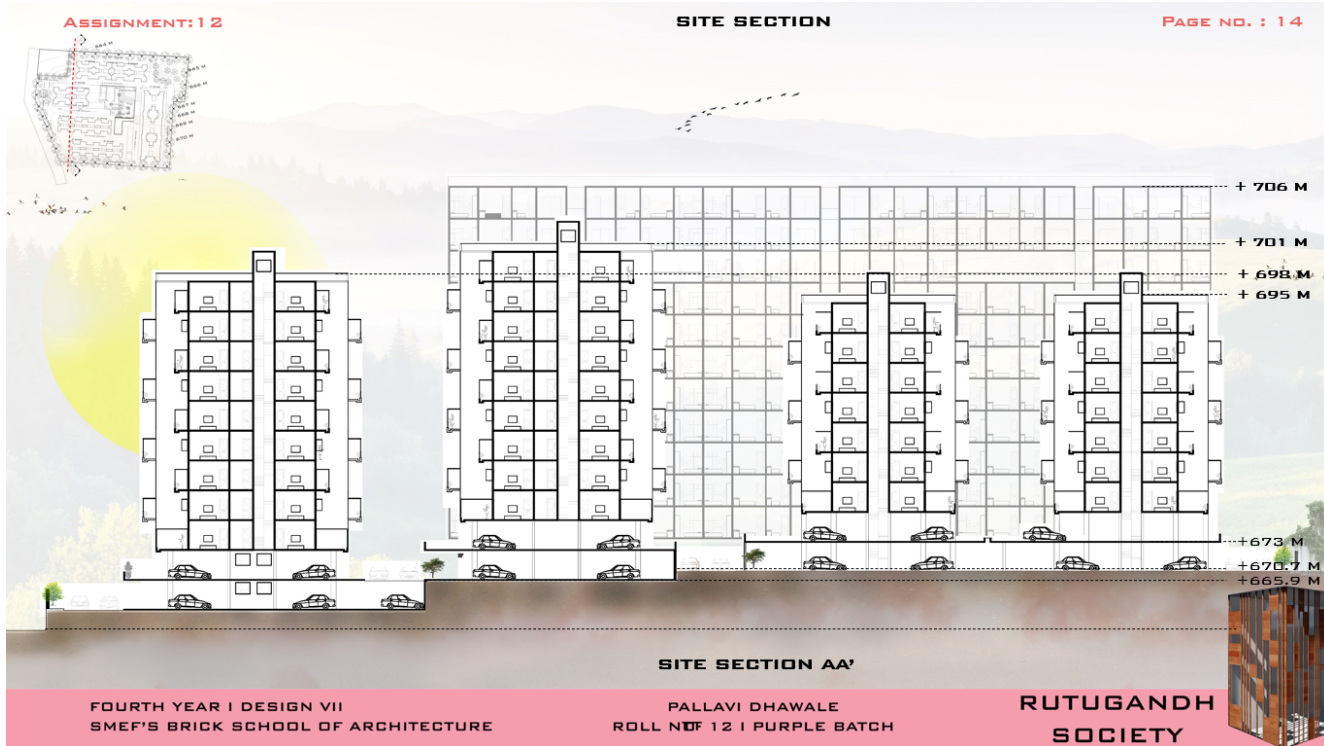
Floor	Block	Normal	Balcony	Stair	Passage	Lift	CD	Stair	SH	Carpet
(sqm)										
FIRST	427	49	47.36	15.23	31.6	4.5	358.27/8=44.0	378	8	285.12
SECOND	427	49	47.36	15.23	31.6	4.5	358.27/8=44.9	378	8	285.12
THIRD	427	49	47.36	15.23	31.6	4.5	358.27/8=44.10	378	8	285.12
FOURTH	427	49	47.36	15.23	31.6	4.5	358.27/8=44.11	378	8	285.12
FIFTH	427	49	47.36	15.23	31.6	4.5	358.27/8=44.12	378	8	285.12
SIXTH	427	49	47.36	15.23	31.6	4.5	358.27/8=44.13	378	8	285.12
SEVENTH	427	49	47.36	15.23	31.6	4.5	358.27/8=44.14	378	8	285.12
TERRACE	427	0	0	15.23	0	4.5	358.27/8=44.15	15.23	0	0
TOTAL	3416	343	331.52	106.61	221.2	31.5	0	2661.23	56	1995.54

**Floor Plans** Name of Student: Aniket Tayade  
 Fourth year B.Arch. Conducted by: HabitatStudio Design Team  
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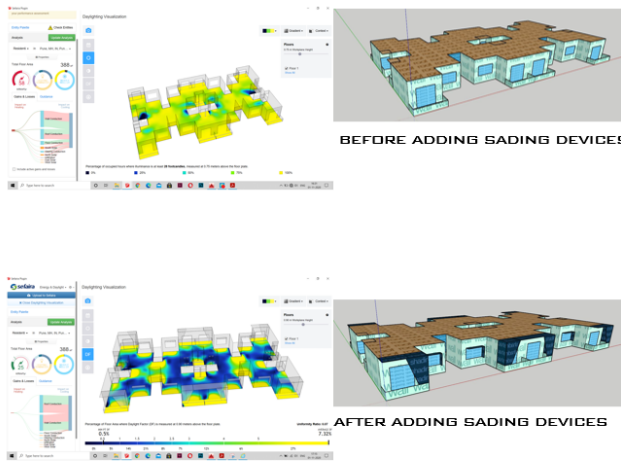
vi. Example of a good work (considered as excellent work) – Pallavi Dhawale





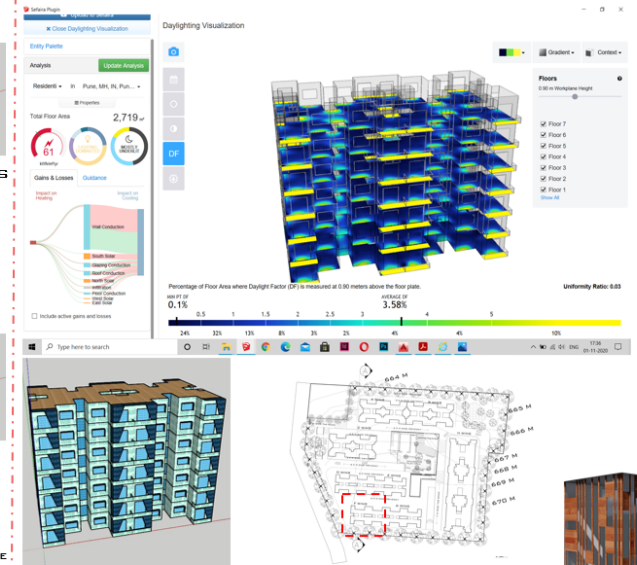


**ENERGY AND DAULIGHTING SIMULATIONS  
FOR 35 SQM BUILDING AT FLOOR PLAN LEVEL**



RESOURCE: SAFFERIA SOFTWARE

**ENERGY AND DAULIGHTING SIMULATIONS  
FOR 35 SQM BUILDING AT BUILDING LEVEL**



FOURTH YEAR I DESIGN VII  
SMEF'S BRICK SCHOOL OF ARCHITECTURE

PALLAVI DHAWALE  
ROLL 12 | PURPLE BATCH

**RUTUGANDH  
SOCIETY**



**WATER TANK CALCULATION**

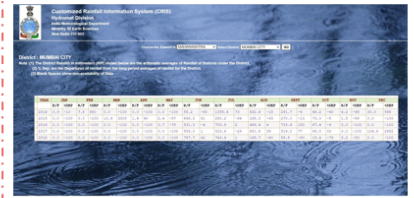
WATER DEMAND 35 SQM BUILDING		WATER DEMAND 75 SQM BUILDING		WATER DEMAND 45 SQM BUILDING	
1 Total no. of Tenements	216	1 Total no. of Tenements	92	1 Total no. of Tenements	210
2 Population @ 5/floor	1080	2 Population @ 5/floor	460	2 Population @ 5/floor	1050
3 Standard Water Consumption for Residential Building (pc/d)	135	3 Standard Water Consumption for Residential Building (pc/d)	135	3 Standard Water Consumption for Residential Building (pc/d)	135
4 Domestic Water Requirement (liters)	145800	4 Domestic Water Requirement (liters)	74520	4 Domestic Water Requirement (liters)	141750
5 Fresh Water Requirement 90 Lit/day (liters)	97200	5 Fresh Water Requirement 90 Lit/day (liters)	49680	5 Fresh Water Requirement 90 Lit/day (liters)	94500
6 Flushing Water Requirement 45 Lit/ day (liters)	37800	6 Flushing Water Requirement 45 Lit/ day (liters)	19320	6 Flushing Water Requirement 45 Lit/ day (liters)	36750
<b>OHWT CAPACITY (8 tanks)</b>		<b>OHWT CAPACITY (8 tanks)</b>		<b>OHWT CAPACITY (8 tanks)</b>	
a	3.5	a	2	a	2
b	2	b	5.7	b	5.5
c	2.6	c	2.2	c	2.2
<b>UGWT TANK (4 Tanks)</b>		<b>UGWT TANK (3 tanks)</b>		<b>UGWT TANK (3 tanks)</b>	
a	3	a	3	a	4
b	3.5	b	3	b	4
c	3	c	2.5	c	3
<b>FFTI (4 tanks)</b>		<b>FFTI (3 tanks)</b>		<b>FFTI (3 tanks)</b>	
a	218700	a	111780	a	212625
b	6	b	4.5	b	6
c	3	c	2.5	c	3

DETAILS OF GENERATION AND DISPOSAL OF WASTE		CALCULATION FOR STP	
<b>Solid Waste Generation And Disposal</b>		1 Fresh Water Requirement	241380
1 Population of Project	2682	2 90% Of Fresh Water (consider 10% loss)	24138
2 Biodegradable Waste Generation (kg/capita/day)	0.285	3 Flushing Water Requirement (KL) (45 Lit/Day)	93870
3 Total Biodegradable Waste Generation (kg/May)	764.37	4 Expected Sewage Generation (KLD)(8% of total population)	214.56
4 Non-Biodegradable Waste Generation (kg/capita/day)	0.175	5 STP Capacity (KLD)	300
5 Total Non-bio degradable Waste Generation (kg/day)	469.35	6 STP Capacity (CUM/DAY)	300
6 Disposal Biodegradable Waste	Vermicomposting Through Authorised Vendors		
7 Disposal NonBiodegradable Waste			

SURFACE TYPE	AREA (A)	RUNOFF COEFFICIENT (B)	IMPERVIOUS AREA C = A*B
CEMENTED ROAD (20%)	3130	0.95	2973.5
OPEN GRID GRASS PAVEMENT (20%)	3130	0.5	1565
WATER BODIES- HARVESTING POND (5%)	782.5	0.95	743.37
MIX VEGETATION (30%)	4695	0.3	1408.5
CONCRETE PAVEMENT (25%)	3912.5	0.95	3716.87
<b>TOTAL IMPERVIOUS AREA</b>			<b>10407.24 SQ.M</b>



**CITY PUNE:**

- AVERAGE PEAK MONTH RAINFALL = 365.5 + 142.1 + 445.8 + 512.5 + 486.6 = 1952.5/5 MM = 390.5 MM = 0.39 M

- CRITERIA FOR ONE DAY RAINFALL FOR UP TO 251-350 MM = 7.5 %
- ONE-DAY RAINFALL @ 7.5 % = 0.39 M (7.5/100) = 0.0293 M

**RAINWATER HARVESTING, ROOF AND NON-ROOF**

- TOTAL SITE AREA = 19,185 SQ.M; ROOF AREA = 3185 + 350 = 3535 SQ.M (0.95); ROOF IMPERVIOUS AREA = 3358.25 SQ.M
- NON-ROOF AREA = 15,650 SQ.M

**TOTAL RAINWATER HARVESTING:**

- TOTAL ROOF IMPERVIOUS AREA = 3358.25 X 0.02293 = 77.00 CU.M
- THEREFORE TOTAL RAINWATER COLLECTED IN 6 MONTHS WILL BE 14091 CUL.

**ENERGY PERFORMANCE INDEX CALCULATION**

ENERGY CONSUMPTION AND GENERATION CALCULATION FOR 35 SQM BUILDING			
Total Carpet And Passage Area(sq.m)	Total 4 building built up area(m <sup>2</sup> )	Total Floor area(sq.m)	
265.96	1271.04	7446.88	
Standard EPI of Residential Building	39 kWh/m <sup>2</sup> /year	Resources: Energy Efficiency Label for Residential Building	
Total Energy consumption of 1 floor area	40372.44 kWh/year		
Total Energy consumption of 28 floor area	795.896274 kWh/day		
Roof top area for pv panels	1271.04 25% circulation space	Total Area(sq.m)	Generated by hour (kw)
	317.76	953.28	95.328
Energy generated in 1 day from available roof area by 6 hours of solar radiation)	571.968 kWh/day	Therefore solar pv generated 571.96 kWh/day in a day out of 795.69 kWh/day, which is total consumption	
EPI	208766.32 kWh/year		
EPI Ratio	0.718639073	As per ECBC 2017	

ENERGY CONSUMPTION AND GENERATION CALCULATION FOR 45 SQM BUILDING			
Total Carpet And Passage Area(sq.m)	Total 3 building built up area	Total Floor area(sq.m)	
314.8	1467.15	10110.96	
Standard EPI of Residential Building	39 kWh/m <sup>2</sup> /year	Resources: Energy Efficiency Label for Residential Building	
Total Energy consumption of 1 floor area	14604.72 kWh/year		
Total Energy consumption of 27 floor area	394327.44 kWh/day		
Roof top area for pv panels	1467.15 20% circulation space	Total Area(sq.m)	Generated by hour(kw)
	293.43	1173.72	117.372
Energy generated in 1 day from available roof area by 6 hours of solar radiation)	257048.88 kWh/year	Therefore solar pv generated 702.23 kWh/day in a day out of 1080.34 kWh/day, which is total consumption	
EPI	23.42 kWh/m <sup>2</sup> /year		
EPI Ratio	0.576631836	As per ECBC 2017	

ENERGY CONSUMPTION AND GENERATION CALCULATION FOR 75 SQM BUILDING			
Total Carpet And Passage Area(sq.m)	Total Floor area(sq.m)	Total Floor area	
823.2	1180.93	8052.2	
Standard EPI of Residential Building	39 kWh/m <sup>2</sup> /year	Resources: Energy Efficiency Label for Residential Building	
Total Energy consumption of 1 floor area	32104.8 kWh/year		
Total Energy consumption of 13 floor area	907.541878 kWh/day		
Roof top area for pv panels	1180.93 20% circulation space	Total Area(sq.m)	Generated by hour(kw)
	236.186	944.744	94.4744
Energy generated in 1 day from available roof area by 6 hours of solar radiation)	566.8464 kWh/day	Therefore solar pv generated 566.84 kWh/day in a day out of 947.54 kWh/day, which is total consumption	
EPI	204695.956 kWh/year		
EPI Ratio	0.558562369	As per ECBC 2017	

RESOURCE: <https://reindia.gov.in/sites/default/files/labeling%20flyer.pdf> SOLAR PV CATALOGUE PV CALCULATOR

**SOLAR PV CATALOGUE**

STC Characteristics	SF145-S	SF150-S	SF155-S	SF160-S	SF165-S	SF170-S
Nominal power	145W	150W	155W	160W	165W	170W

**Thermal Characteristics**

- NOCT: 47°C
- Temperature coefficient of Isc: -0.01 %/K
- Temperature coefficient of Voc: -0.26 %/K
- Temperature coefficient of Pmax: -0.31 %/K

**Characteristics for System Design**

- Maximum system voltage: 1000 V DC
- Limiting reverse current: 7 A
- Temperature range: -40°C to +85°C
- Application class (IEC 61730): Class A
- Fire rating (IEC 61730): Class C
- Safety class (IEC 61748): II

**Dimensions (L x W x H)**

- 1271 x 977 x 35 mm
- 1467 x 1173 x 35 mm
- 1652 x 1368 x 35 mm
- 1837 x 1563 x 35 mm
- 2022 x 1758 x 35 mm

**Materials and Components**

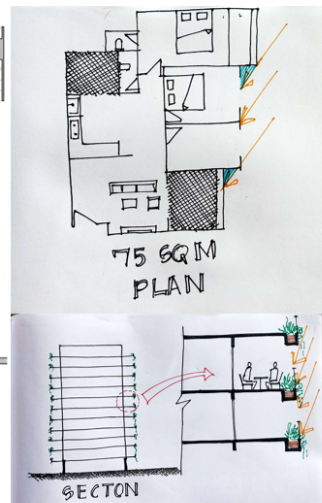
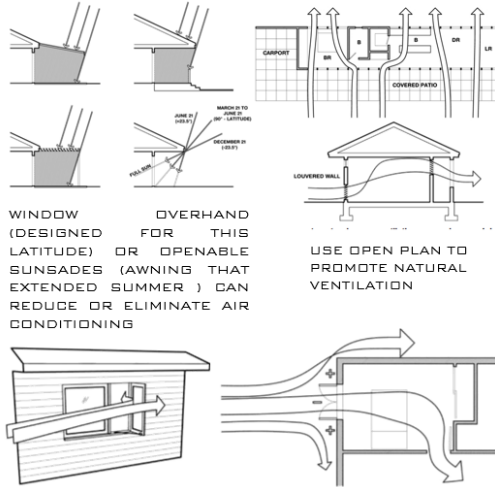
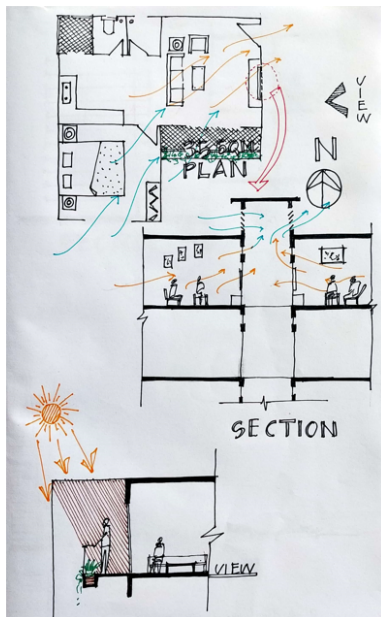
- Cell type: CIS loadium free on glass substrate
- Front cover: 3.2 mm clear tempered glass
- Encapsulation: EVA
- Back sheet: Weatherproof plastic film
- Frame: Black anodized aluminum alloy
- Edge sealant: Butyl rubber
- Junction box: Protection rating IP67 bypass diode
- Adhesive: Silicone
- Cables (length/cross section): 2 x 1.280 mm<sup>2</sup>/2.5mm<sup>2</sup> 14.6AWG (ethanol free)
- Connectors: MC4 compatible weatherproof, locking type

Standard Energy Consumption (kWh/day)	Energy Consumption (kWh)	Energy Usage for 12 (kWh/day)
791.1	31.11	317.65
1081.14	43.25	448.17
1271.18	51.11	531.71
1461.22	58.97	605.25
1651.26	66.83	688.79

Building Name	Solar Panel Size Of one Panel (mm)	Solar Panel Area (in SQM)	Energy Generated by one Solar Panel (kw)	Total Roof Top Area	Total PV Panel	Energy Generation by Solar Panel (kwh)
For 35 Sq. Building	1271 x 977 x 35	1.184	0.17	935.28	1088.67	183.072084
For 45 Sq. Building				1247.08	1461.80122	246.7721084
For 75 Sq. Building				2009.8	2368.4232	398.633244

Performance at High Temperatures | Low-Light Behavior | The Light-Soaking Effect | Shadow Tolerance

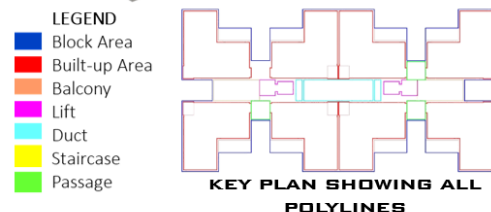
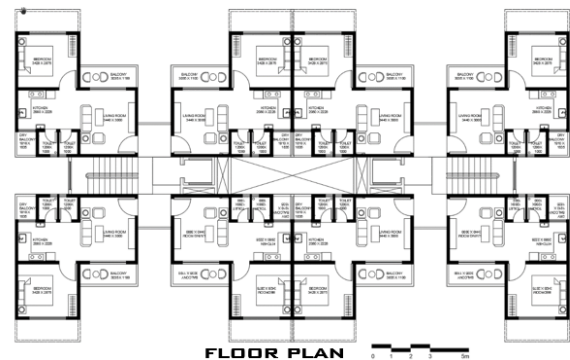
Product Technical Data



WINDOW OVERHAND (DESIGNED FOR THIS LATITUDE) OR OPENABLE SUNSHADES (AWNING THAT EXTENDED SUMMER ) CAN REDUCE OR ELIMINATE AIR CONDITIONING

USE OPEN PLAN TO PROMOTE NATURAL VENTILATION

- PROVIDED UPPER LEVEL OPENING FOR CROSS VENTILATION.
- THE VENTILATION SHAFT HELP TO MOVE HOTTER AIR OUTSIDE THE BUILDING.
- L - SHAPE ROOM PLANNING HELP US TO CREATE MUTUAL SHADING TO THE BALCONY AREA ITSELF.
- EXTENDED BALCONY WITH FLOWERBED AT EDGE WILL CUT THE HARSH SUNLIGHT GLARE WHICH IS COMING FROM EAST AND WEST AND ALSO GIVE PLEASANT ARCHITECTURAL LOOK.



- LEGEND**
- LIVING ROOM
  - BEDROOM
  - KITCHEN
  - TOILET
  - BALCONY

- LEGEND**
- Block Area
  - Built-up Area
  - Balcony
  - Lift
  - Duct
  - Staircase
  - Passage

- 8 UNITS ON EACH FLOOR
- 7 FLOOR BUILDING- HEIGHT - 21 M EXCEPT PARKING FLOOR

FSI STATEMENT FOR A BUILDING

1 BHK Flats										
Sr. No.	Floor	Unit Area(Carpet A.)	Total Block	Normal	Passage Area	Elevator	Staircase	F.S.I.	Carpet Area	Balcony
1	Ground Floor									
2	1st Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
3	2nd Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
4	3rd Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
5	4th Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
6	5th Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
7	6th Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
8	7th Floor	31.66 sq.m.	340.38	14.16	12.68	8.46	15.84	301.92	253.28	12
				0.04199788			Total	2113.44	1772.96	0.037764
				Achieved	4.2 % of 301.92			1 Flat Achieved	317.74	33.8 %
				Passage Area	= 12.68			1 Flat Carpet area	31.66	317.74
								1 Flat Ideal Built-Up	37.96	12.07

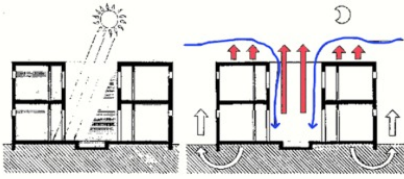


vii. Example of a good work (considered as average work) – Rujuta Killedar



### CONCEPT : COURTYARD SPACES

Press Esc to exit full screen



- TAKING INSPIRATION FROM THE CHAWLS OF MUMBAI , THE PLACEMENT OF THE UNIT IS SUCH THAT AN OPEN SPACE IS CREATED AT THE CENTRE.
- THE CENTRAL OPEN SPACE APART FROM ACTING AS A PASSIVE DESIGN STRATEGY ALSO CAN BE USED BY DIFFERENT AGE GROUPS AND GENDERS AT DIFFERENT TIMES OF THE DAY.
- COURTYARD SPACES CREATED INSIDE AS WELL AS OUTSIDE THE BUILDING THROUGH THE ARRANGEMENT OF THE SPACES.
- THE UNITS ARRANGEMENT AROUND THE COURTYARD HAVE COOL AIR ENTERING THE HOUSES, BUT ALSO IT HELPS IN INTERACTION AND GIVES A SENSE OF COMMUNITY LIVING.



### EVOLUTION OF MASTER PLAN



-BUILDING BLOCK HAVING MINIMAL OPENINGS FOR LIGHT AND VENTILATION IN THE PASSAGE

- CENTRAL COURTYARD PROVIDES LIGHT AND VENTILATION NOT ONLY TO THE PASSAGES BUT TO THE UNITS AS WELL.

- THIS ARRANGEMENT GIVES LINEAR DRIVEWAYS AND ACCESS ROADS , BUT THE BUILDINGS ARE LOCATED TOO CLOSE TO EACH OTHER DISTURBING THE PRIVACY.

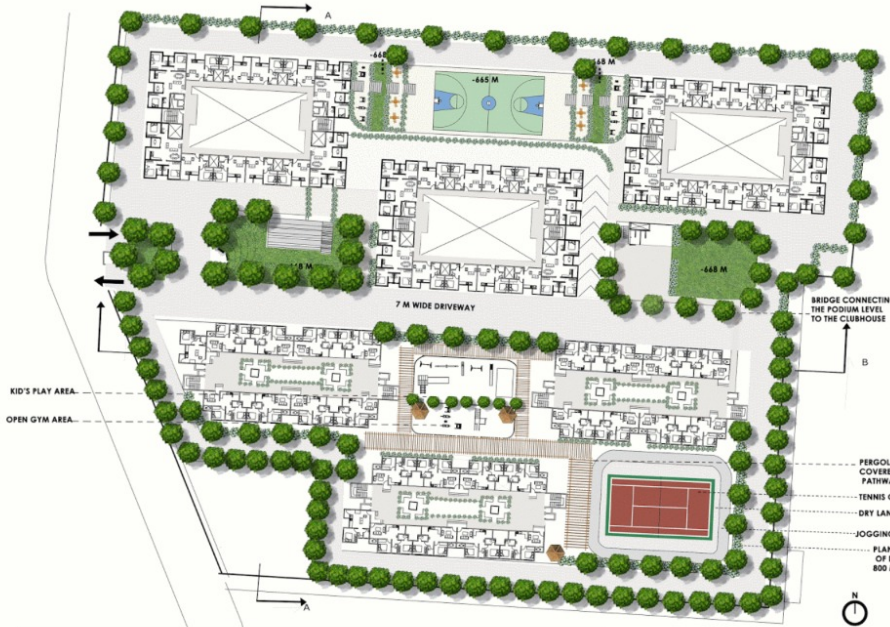
-IN THIS ARRANGEMENT, THE BUILDINGS LOOK INTO OPEN SPACES AND THE BUILDINGS ARE ARRANGED SUCH THAT THEY CREATE A COURTYARD SPACE BETWEEN THEM

### CONSTRUCTION TECHNOLOGY: ALU FORM TECHNIQUE

- SAVINGS ON OVERHEAD EXPENSES DUE TO SPEEDY CONSTRUCTION ( 4 DAYS PER FLOOR).
- CUSTOM-DESIGNED TO SUIT THE PROJECT REQUIREMENTS. THE PANELS MOULDED CAN BE REUSED UPTO 280 TIMES. SINCE THE DESIGN OF FEW BUILDINGS IS REPETITIVE, IT IS AFFORDABLE AS THE PANELS ARE REUSED.

...LY DURABLE AND THIS ENSURES THAT THE EXPENDITURE

NAME : RUJUTA KILLEDAR  
 SMEF'S BRICK SCHOOL OF ARCHITECTURE  
 SUBJECT: DESIGN VII  
 AQUAMARINE BATCH ROLL NO:25



KID'S PLAY AREA ON THE PODIUM LEVEL



OPEN GYM AREA ON THE PODIUM LEVEL

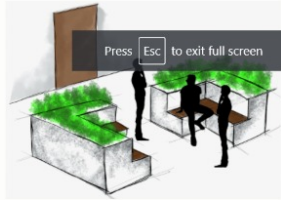
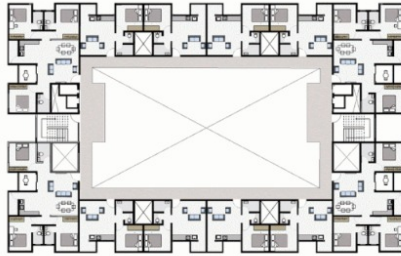


TENNIS COURT WITH NET, SURROUNDED WITH JOGGING TRACK

Slide 17

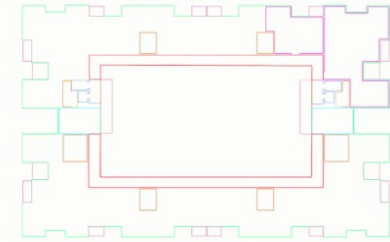
NAME : RUJUTA KILLEDAR  
 SMEF'S BRICK SCHOOL OF ARCHITECTURE  
 SUBJECT: DESIGN VII  
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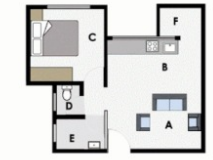


**SITTING SPACE IN THE COURTYARD**

- THE COURTYARD SPACE CAN BE USED BY VARIOUS AGE GROUPS AND GENDERS AT DIFFERENT TIMES OF THE DAY.
- DURING THE DAY, THE LADIES CAN COME TOGETHER AND WORK TOGETHER OR THE CHILDREN CAN PLAY, WHILE THE AGED PEOPLE CAN SIT AND HAVE A CHAT.
- DURING THE NIGHT, BOTH THE MEN AND WOMEN CAN COME TOGETHER TO TALK, PLAY INDOOR GAMES LIKE CARROM OR CHESS.



Floor	Block	normal	Dry balcony	terrace	staircase	passage	lift	F.S.I	h/Up	ten	carpet
Ground	1238.5	430.7	11.08	8.9	34	98.86	19.8	754	807.8	12	433.84
First	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Second	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Third	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Fourth	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Fifth	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Sixth	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Seventh	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Eighth	1238.5	430.7	17.28	17.2	34	98.86	19.8	754	807.8	12	589.84
Total											



**UNIT : 35 SQ M**

- A : LIVING ROOM = 4 X 2.8 M
- B : KITCHEN = 2 X 3.5 M
- C : BEDROOM = 3.1 X 3 M
- D : TOILET = 1 X 1.2 M
- E : BATH SPACE = 2 X 1.2 M
- F : DRY BALCONY = 1.7 X 1.2 M

- A : LIVING ROOM = 3.3 X 3 M
- B : KITCHEN = 2.6 X 2.7 M
- C : BEDROOM 1 = 2.8 X 4.2 M
- D : BEDROOM 2 = 2.8 X 4.2 M
- E : BEDROOM 3 = 3.1 X 3.3 M
- F : TOILET 1 = 1.2 X 2.1 M
- G : TOILET 2 = 1.2 X 2.1 M
- H : TOILET 3 = 1.5 X 2.1 M
- I : DINING = 3.3 X 1.8 M
- J : BALCONY = 2 X 2.1 M
- K : DRY BALCONY = 1.1 X 2.7 M

**UNIT : 80 SQ M**

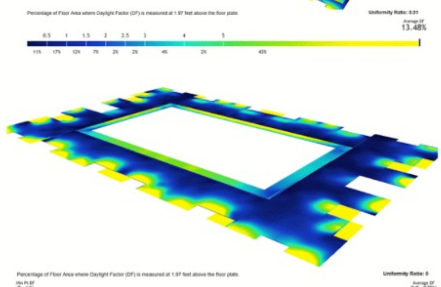
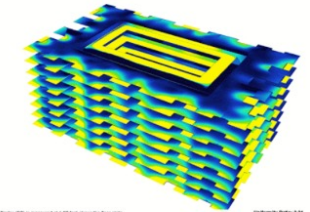
NAME : RUJUTA KILLEDAR  
 SMEF'S BRICK SCHOOL OF ARCHITECTURE  
 SUBJECT: DESIGN VII  
 AQUAMARINE BATCH ROLL NO:25

**PASSIVE DESIGN STRATEGIES USED IN THE DESIGN:**

- SOLAR PANELS PROVIDED FOR EVERY BUILDING AS WELL AS THE CLUBHOUSE TO CATER TO THE LIGHTING NEEDS OF THE SOCIETY.
- COURTYARD EFFECT TO EVERY BUILDING HELPS IN MAINTAINING COOL AIR INSIDE THE UNITS AS THE HOT AIR RISES THROUGH THE COURTYARD AND COOL AIR PASSES INSIDE THE UNITS THROUGH AND OPENINGS PROVIDED AT HIGHER LEVEL OF THE UNIT TO MAINTAIN PRIVACY.
- ALL THE BUILDINGS ARE ORIENTED IN THE NORTH SOUTH DIRECTION , AND THE OPENINGS FACING THE SOUTH SIDE ARE PROVIDE WITH CHAJJAS TO AVOID GLARE.
- THE BUILDINGS ARE PLACED SUCH THAT THEY MUTUALLY SHADE EACH OTHER.
- WINDOWS ARE PLACED SUCH THAT CROSS VENTILATION TAKES PLACE AND THE COURTYARD EFFECT OF HOT AIR RISING UP AND COOL AIR ENTERING THE UNIT TAKES PLACE. ( AS SEEN IN THE SCHEMATIC SECTION)

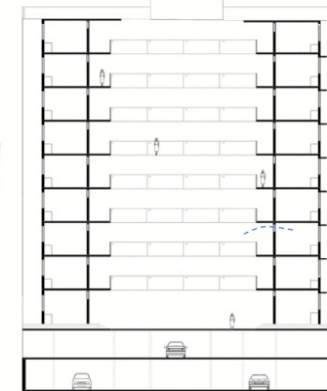
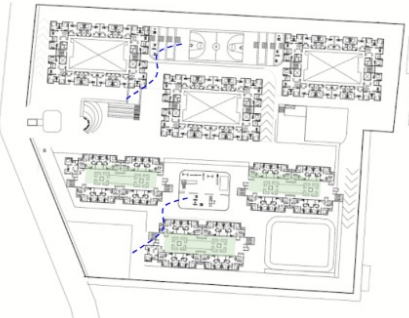
**INFERENCE FROM THE SIMULATIONS:**

- OPENINGS WERE NOT PROVIDED BEFORE THE SIMULATION ON THE WALLS FACING THE COURTYARD
- AFTER THE SIMULATION, DARK AREAS WERE LOCATED NEAR THE INTERNAL SIDE, HENCES PROVIDED OPENINGS THERE, WHICH FACILITATE THE LIGHT AND WIND MOVEMENT IN THE UNIT.
- AREAS WITH BRIGHT YELLOW COLOUR ARE PROVIDED WITH CHAJJAS AND THE DRY BALCONIES ARE PROVIDED WITH JALI WALL.
- THE PASSAGE IS COVERED WITH EXTRA 0.6 M CHAJJJA TO AVOID GLARE IN THE PASSAGE AREA AS IT WAS SHOWN OVERLIT.



**DAYLIGHT SIMULATIONS FOR 35-80 SQM FLOOR PLAN**

NAME : RUJUTA KILLEDAR  
 SMEF'S BRICK SCHOOL OF ARCHITECTURE  
 SUBJECT: DESIGN VII  
 AQUAMARINE BATCH ROLL NO:25



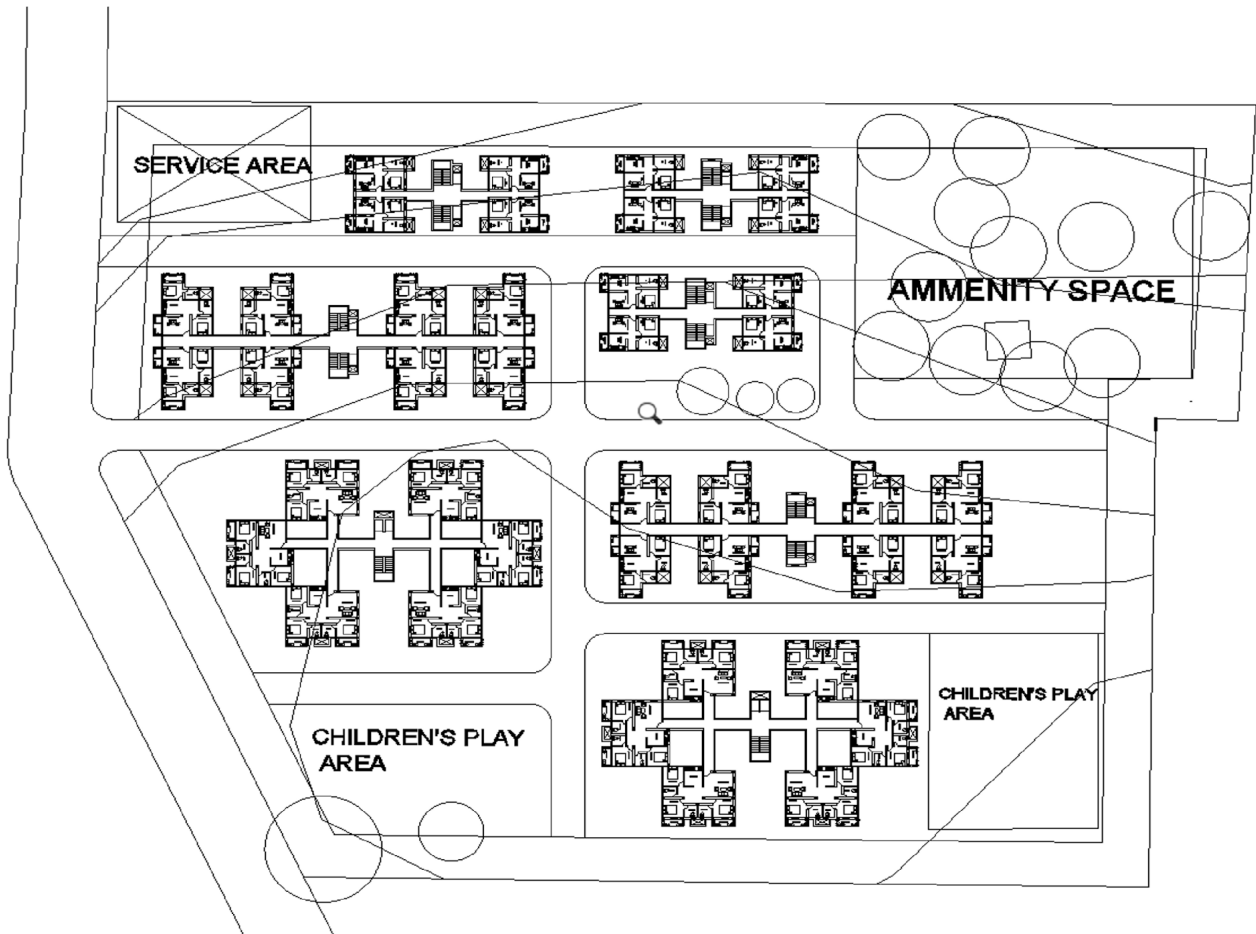
**SECTION**

Slide 27 | Q & A | Notes | Pointer | Captions | Tips | EXIT

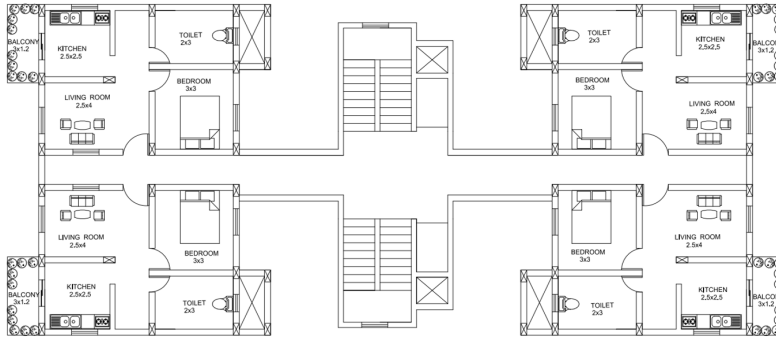
viii. Example of a good work (considered as below average work) – Harshada Khaire

• **DBD CALCULATIONS**

Sr.no	F.S.I. calculations	In Sq m	Remarks
1	Area of Plot	19185.00	Basic plot area
2	area under road	205.20	considering 136.8 mts frontage and 1.5 mts width
3	Net Gross Plot	18979.80	A (1-2)
4	Amenity Space	948.99	5% of A( public utilities or amenities like Fire Station, Police Station etc.)
5	Net Plot	18030.81	net gross plot- amenity
6	Open Space (10%)	1803.08	10% of net plot in which club house or support activities
7	Net Plot Area	18030.81	to be considered for FSI
8	F.S.I. Permissible	19833.89	it is 1.1 of Net Plot Area
9	Add for		
10	TDR 40% of NPA (3)	7212.32	40% of Net Plot Area to be considered as TDR
		2308.38	Area to be handed over to local body
		4903.94	Area to be purchased
11	Premium F.S.I.(50%)	5409.24	30% of Net Plot Area as premium paid to Government
12	Total Addition	12621.57	10 + 11
13	Total potential add. FSI	12621.57	
14			
15	Max. Building potential	32455.46	12 + 8 Total: (1.8 FSI)
Housing Categories			
	30-35 sq.mts.	7776.00	35% of max building potential
	<b>No.Of Units (Avg. 35)</b>	156	considering Carpet area of 35 sq.mts. and Built up of 42 sq. M
	40-50 sq.mts.	12576.00	35% of max building potential
	<b>No.Of Units (Avg 48)</b>	192	considering Carpet area of 45 sq.mts. and Built up of 54 sq. M
	70-80 sq.mts.	7743.40	30% of max building potential
	<b>No.Of Units (75 sq.mts.)</b>	84	considering Carpet area of 75 sq.mts. and Built up of 86.2 sq. M
	<b>Total no of Units</b>	432	



- FLOOR PLAN-1



FLOOR PLAN OF 35 SQ.M UNITS  
13 FLOORS

- FLOOR PLAN -2



FLOOR PLAN OF 50 SQ.M UNITS  
12 FLOORS

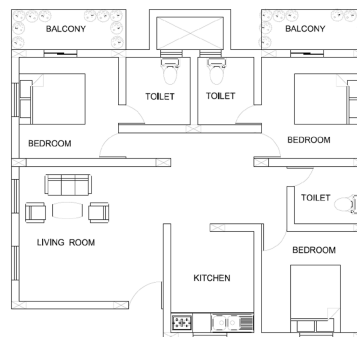
- UNIT PLANS



35 SQ.M



50 SQ.M



80 SQ.M

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## 8. Summary with basic observations –

### **Student Feedback:**

“ We enjoyed this new way of learning but we definitely missed having one on one interaction with our faculties and friends on campus.”

### **Faculty Feedback:**

“We thoroughly enjoyed the new way of online teaching and learning. This is the first time that we collaborated on our design semester with an internationally acclaimed University. Our students also participated in a national level competition called the ENS competition. It was a great learning experience for us while handling various online tools or teaching.” Design Team.



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## International Collaboration with Coop Himmelblau for a certificate course on Parametric Architecture:

A highlight of the course was the one-week long program in collaboration with Coop Himmelblau, a renowned international firm, based in Austria. Focused on long-span structures, particularly airport terminal roof design, this collaboration provided students with a unique opportunity to apply their theoretical knowledge in a real-world context. The objectives of the workshop included parametric thinking, considerations for long-span structures, integration of structural aesthetics, and the utilization of AI for concept development.

### **1. Proposal Objectives for Long Span Structures:**

The culmination of this topic involved students developing proposals for long-span structures based on inputs from Coop Himmelblau. The objectives of these proposals included incorporating parametric thinking, addressing the specific challenges of long-span structures, ensuring structural aesthetics, and utilizing AI for concept development. This practical exercise allowed students to synthesize their learning and apply it to a real-world design scenario.

### **2. In-Depth Understanding of Architectural and Constructional Detailing:**

Recognizing the importance of architectural and constructional detailing in the design process, the course sought to instill in students a profound understanding of its significance, especially for large-span structures. Special attention was given to the detailed design aspects concerning structural integrity, aesthetics, and functionality. This involved exploring complex roof structures and architectural detailing that not only supported the functionality of long-span structures but also contributed to their visual appeal.

### **3. Technical Aspects of Integrating Services within Structural Frameworks:**

A crucial component of the curriculum was dedicated to imparting knowledge about the technical intricacies of integrating services within the structural framework of buildings. Students were guided through the complexities of ensuring that services, ranging from electrical and plumbing to HVAC systems, seamlessly integrated with the overarching structural design. This included a comprehensive understanding of how services impact structural integrity and functionality.

### **4. Innovative Approaches to Long-Span Structures:**

To cultivate a mind-set of exploration and innovation, the course encouraged students to explore inventive approaches to stretch the limits of long-span structures. Emphasis was placed on pushing the boundaries of conventional design thinking, challenging students to conceptualize and implement novel ideas that enhance both the functionality and aesthetic appeal of large-span structures.

### **5. Parametric Thinking and AI Tools for Structural Enhancement:**

Recognizing the role of technology in modern architectural practice, the curriculum integrated parametric thinking and the use of AI tools. Students were equipped with the skills to leverage parametric design thinking, allowing them to explore dynamic and responsive designs for long-span structures. Additionally, the course delved into the application of artificial intelligence tools to enhance structural behaviour while ensuring optimal material efficiency.

The planning of learning activities for the Advanced Building Construction and Services course was a meticulous process aimed at achieving the dual objectives of theoretical understanding and practical application. By combining traditional lectures with case studies, design projects, specialized modules, and practical demonstrations, students were not only educated about

advanced building construction but were also equipped to integrate this knowledge seamlessly into their architectural endeavours. The course provided a solid foundation for future architects and construction professionals to navigate the complexities of modern building construction, ensuring they are well-prepared to address the challenges of the industry.

In conclusion, the Advanced Building Construction and Services course not only aimed to meet the core objectives of educating students about advanced structural systems and materials but also went above and beyond to foster a deep understanding of architectural and constructional detailing, encourage innovation in long-span structures, and integrate cutting-edge technology into the design process. The collaboration with coop Himmelblau provided a unique and enriching experience, bridging the gap between theoretical knowledge and practical application in the dynamic field of building construction.

#### **Exercise 4: Presentation Including Case Study Analysis, Concept, Design, and Detailing of Airport Terminal Roof**

**Objective:** To showcase a comprehensive understanding of long-span structures, students presented their case study analysis, conceptual approach, design, and detailing of airport terminal roofs.

**Method Adopted:** Each group prepared a detailed presentation covering all aspects of their airport terminal roof design. Presentations included case study analysis, conceptual frameworks, design rationale, and detailed construction and structural considerations. Peer review sessions were conducted to encourage constructive feedback and collaborative learning.

**Duration:** The presentation exercise spanned one week.

**Teacher's Observation:** The teacher assessed the depth and coherence of each group's presentation. Feedback focused on effective communication of concepts, clarity in design rationale, and the integration of structural considerations into the overall design.

#### **Exercise 5: Report Compilation on Long Span Steel Structures and Terminal Roof Design**

**Objective:** To document the collective understanding of long-span steel structures and terminal roof design, students compiled a comprehensive report.

**Method Adopted:** Collaborated with Coop Himmelblau for insights into terminal roof design. Conducted a detailed study of various long-span structures to comprehend their structural behavior. Prepared a report encompassing a case study and construction detail sketches.

**Duration:** The report compilation exercise spanned one week.

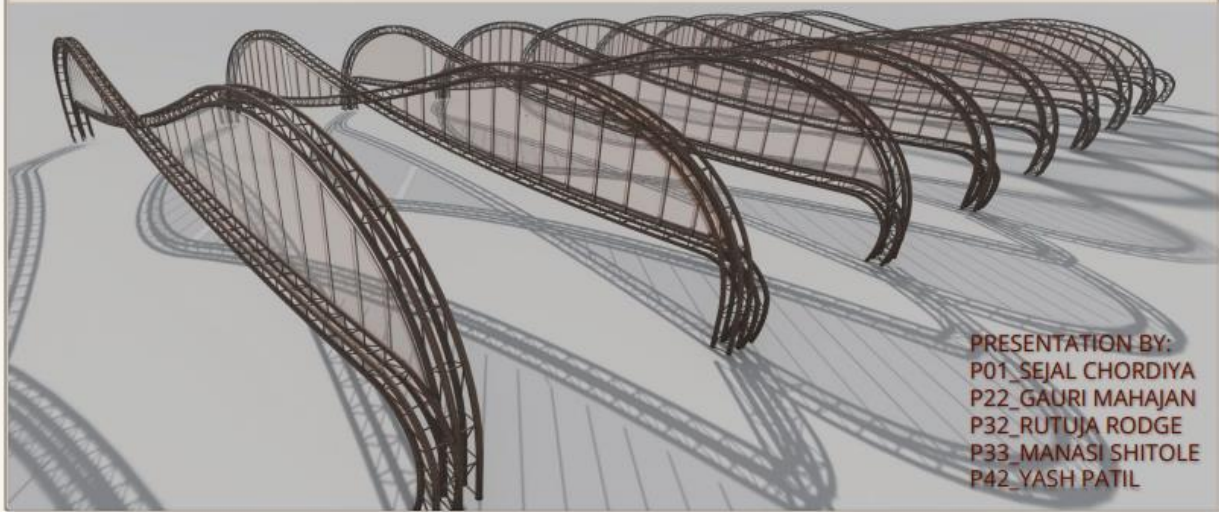
**Teacher's Observation:** The teacher assessed the thoroughness and depth of the report, ensuring that it reflected a nuanced understanding of long-span structures. Feedback emphasized the importance of collaboration with Coop Himmelblau and the need for a well-documented case study and sketches in the report.

A representative work of a group is given here.

# MARRAKECH MENARA AIRPORT, MOROCCO



----- DESIGN AND DETAILING FOR RETHINKING OF  
AIRPORT TERMINAL ROOF -----



PRESENTATION BY:  
 P01\_SEJAL CHORDIYA  
 P22\_GAURI MAHAJAN  
 P32\_RUTUJA RODGE  
 P33\_MANASI SHITOLE  
 P42\_YASH PATIL

## INTRODUCTION

Location : Marrakech - Safi,  
Morocco.  
 Architect : E2A Architects,  
 Total floor area : 42000 sqm  
 Construction started : 2006  
 Completed : 2008



Terminal 2



### SITE ANALYSIS



Menara Mosque



Onssa service  
protection vegetaux



Mosque Almirah



Menara  
gardens



Oliveraie



Menara desert camp



Skatepark Menara




Place de la jeunesse



Terminal 1



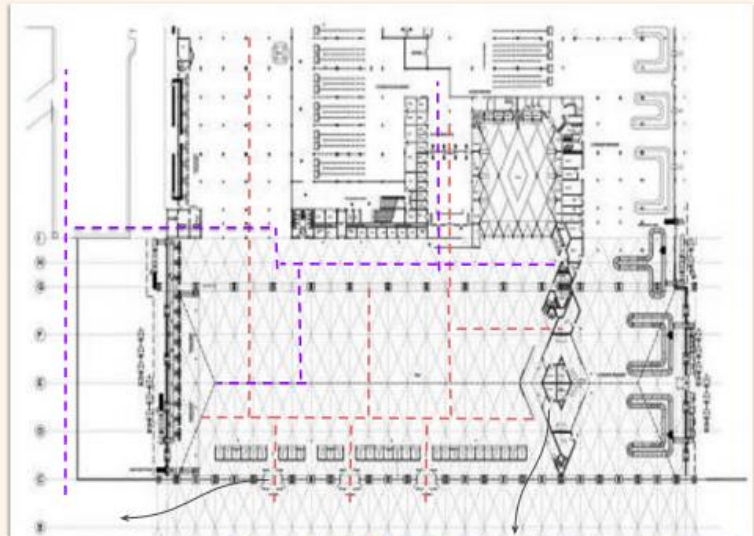


  
 Runway Landscaping Terminal Terminal 2 Terminal 1





## FUNCTIONAL ANALYSIS

- ❑ Taking an international flight to Marrakech Airport, you will arrive at the international section and will have to pass through immigration and customs.
- ❑ Marrakech airport is a fairly small affair, there's no posh walkways directly from the door of the plane to the Airport.
- ❑ Navigating the airport is fairly easy with good signage in English and other languages.



- - - Passenger circulation
- - - Staff circulation



Entrance check



Cafe and shops

## ARCHITECTURAL DESIGN

### CONCEPT

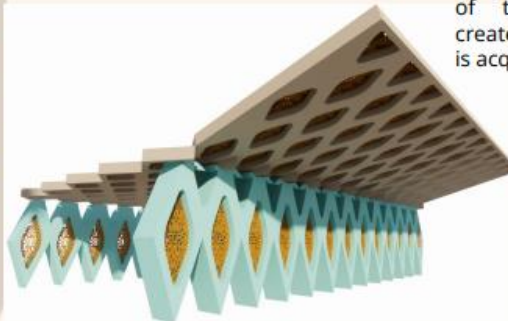
The project focuses on three main ideas:

- ❑ Give the world a modern vision of Moroccan architecture, not forgetting the traditions.
- ❑ Develop a friendly and safe space.
- ❑ Through materials and techniques of past and present, apply a new modernity.



A common type of home in Morocco is called a 'Dar'. These types of houses are found in medina. The exterior of Dar is A devoid of any windows or ornamentation. There are small openings in staircases or service areas which provide ventilation and light to the house.

### DECODING THE FORM

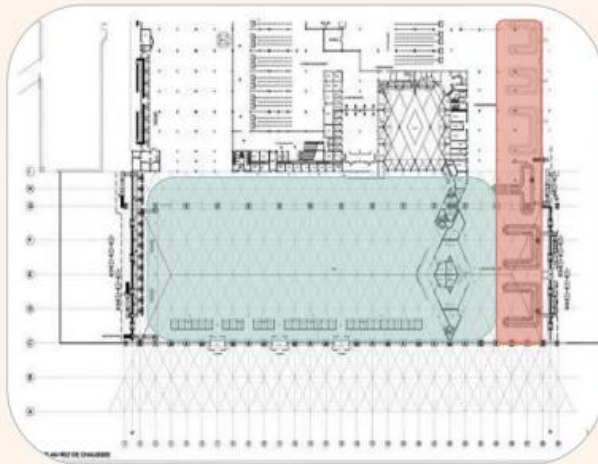


1. Diamond shape generated and given an offset.
2. A void is created from the offset and the surface is extruded with thickness.
3. Jaali is placed inside the void.
4. When a defined 3D form is obtained, an array of the form is created and pattern is acquired.

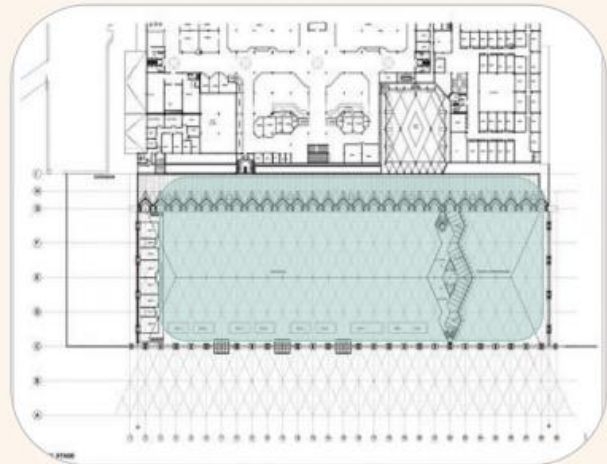
Same pattern is repeated on the roof and the final skeleton is acquired.



## EXISTING DESIGN



GROUND FLOOR PLAN

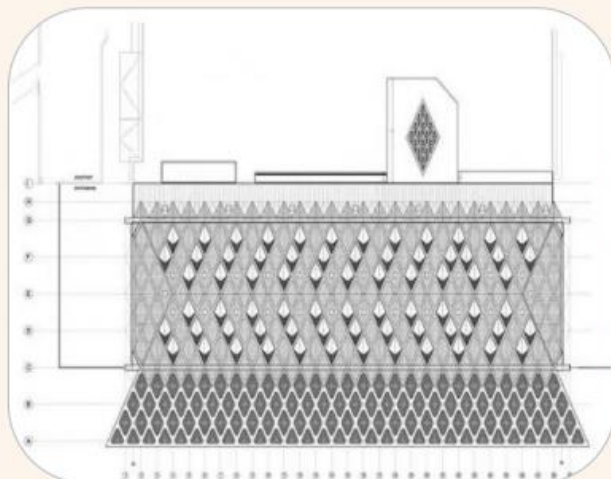


FIRST FLOOR PLAN

- Departure hall with seating
- Check in counters

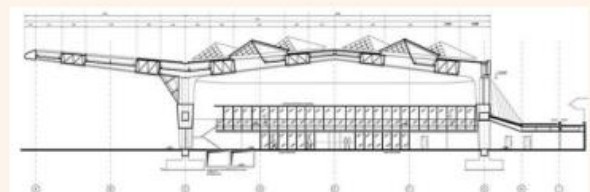
- Overall length - 183 m
- Overall width - 84m (12m + 48m +24m)
- Height - 13.7-15.8 m
- Menara Airport has two passenger terminals housed in one large building. A third terminal has been built.
- The existing T1/T2 offer a space of 42,000 m<sup>2</sup> and have a designed capacity of 9 million passengers/year.
- The separate freight-terminal has 340m<sup>2</sup> covered space

## EXISTING DESIGN

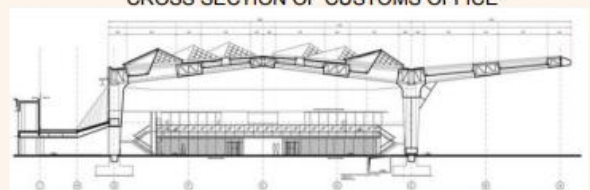


ROOF PLAN

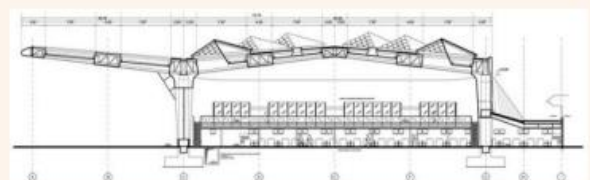
- ❑ Roof covers 72 support photovoltaic pyramids, in a package that represents 15,300 square meters.
- ❑ Small plates imitate the designs of mosaics found in traditional Islamic architecture while allowing light to enter through the skylights.
- ❑ The entrance patch of shade extends further to form a 24 m wide cantilevered canopy.



CROSS SECTION OF CUSTOMS OFFICE



CROSS SECTION OF PASSENGER ARRIVAL



CROSS SECTION OF INTERNATIONAL REGISTRATION

## INTERIOR VIEWS



Exit of the terminal



Departure Hall



Interior of departure hall



Waiting area



Interior views of the extension of Terminal 1

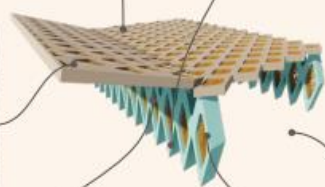
## MATERIAL SPECIFICATIONS FOR STRUCTURAL FRAMEWORK AND ENVELOPE

Both the triangles located above the entrance doors, with a measure of 12x6 meters as the lozenges are filled with glass ornaments printed with Islamic style.



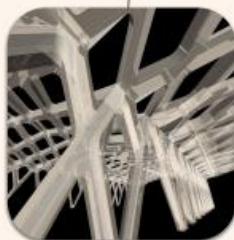
On the facade the rhombuses of the same dimensions receive inside aluminium trellis composed by the same ornamental motives.

Following the identity of the facade, diamonds of equal size, forming a white aluminum-coated grating that allows natural light and shape to the terminal.



The original terminal has columns that are the typical diamond-shaped tiles in shades of green, raw and a wide range of terracotta.

The roof, consisting of a steel skeleton, flying outwards creating a patch of shade through an overhang of 24 meters.



The floors are granite and the interior columns that continue the rhomboid shape of the whole structure are lined with sheets of plasterboard in some cases combined with wood at medium altitude.



## ASPECTS FOR RETHINKING

- ❑ To create a visually stunning design that makes a bold architectural statement.
- ❑ Futuristic designs often include dynamic shapes, asymmetrical patterns, and fluid lines that evoke a sense of movement and innovation.
- ❑ Airport authorities may explore the use of advanced materials and technologies that provide better insulation, reduce maintenance costs, and enhance the overall passenger experience.
- ❑ Ensuring that the new roof design meets stringent safety and structural standards to withstand extreme weather conditions and potential loads is crucial.
- ❑ The rethinking process may involve considerations for future airport expansion and increasing passenger capacity to handle the growing number of travelers.
- ❑ Sustainability working of airport with energy efficiency.



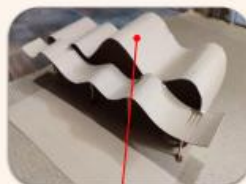
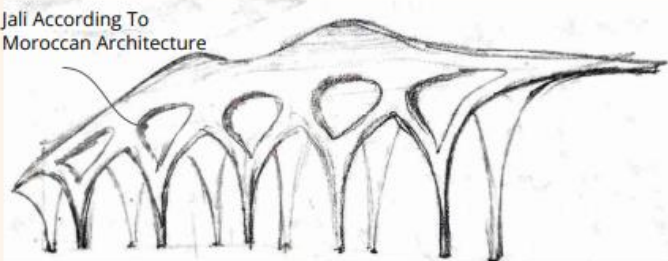
## PROCESS SKETCHES AND PROCESS MODEL

### TRY 1 : CONCEPT AND PHYSICAL MODEL



AI Inspiration

Jali According To Moroccan Architecture



Structure Roof

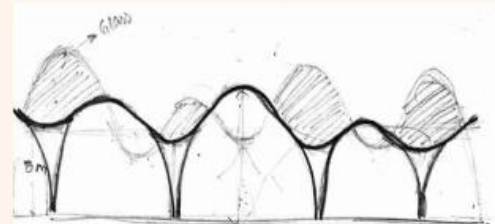
Glass



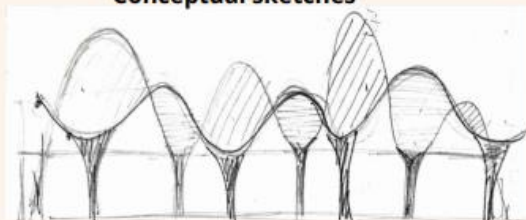
Entrance Canopy



Conceptual model



Conceptual sketches



## CONCEPT AND IDEA BOARD

### TRADITIONAL MOORISH ARCHITECTURE

1. LATTICE WORK
2. ARCHES
3. DOMES
4. VOIDS
5. SKYLIGHT



### SUSTAINABILITY

- GFRG AS CLADDING MATERIAL
1. FLEXIBLE
  2. LIGHTWEIGHT
  3. AESTHETIC
  4. SUSTAINABLE

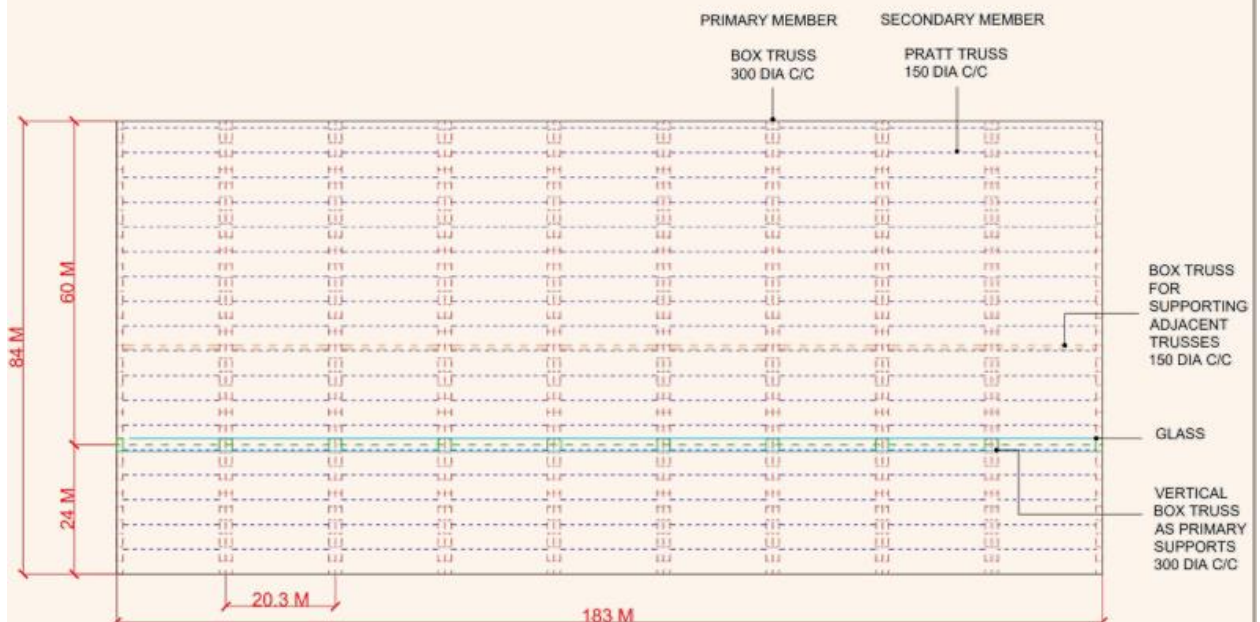


### FLUIDITY

1. WAVES
2. CURVES
3. OVERLAPPING



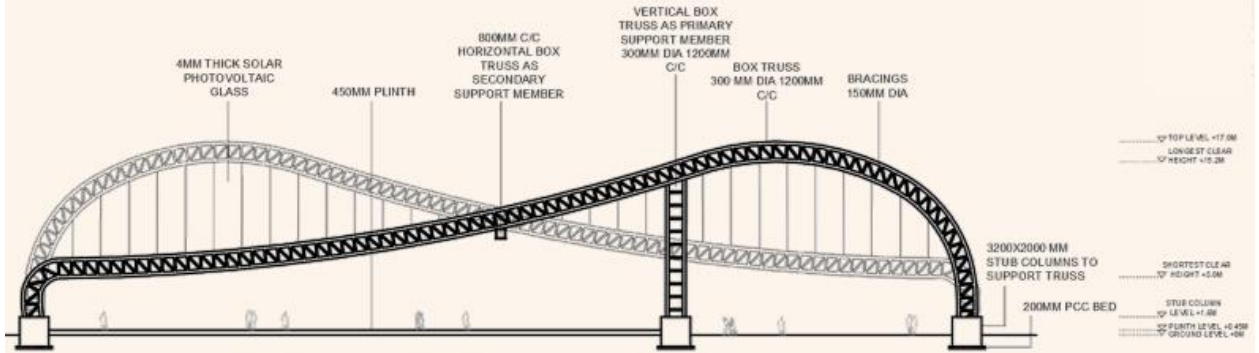
## PROPOSED STRUCTURAL PLAN



**STRUCTURAL PLAN**

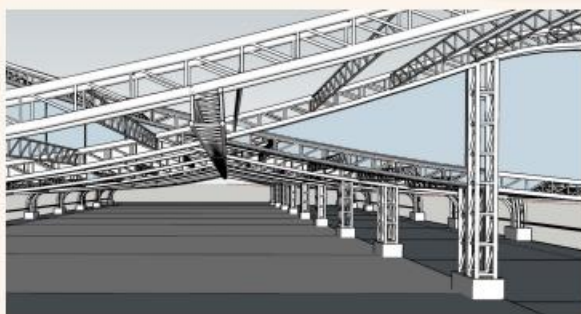
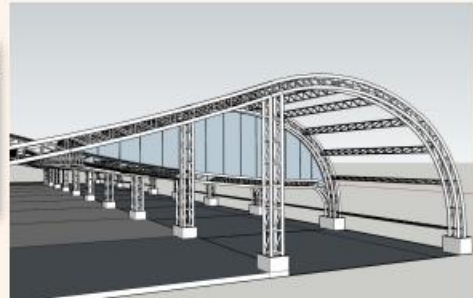
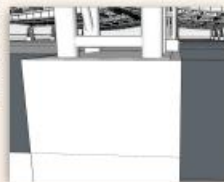
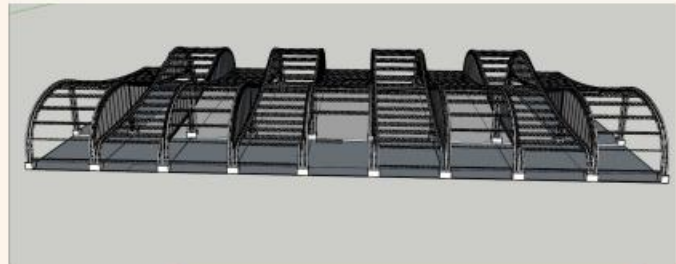
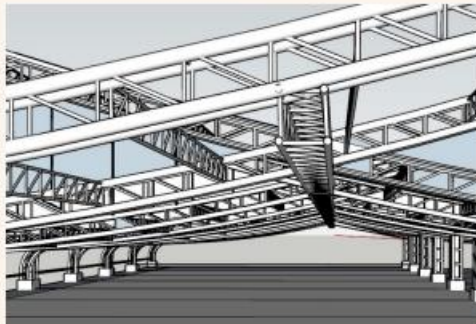


**SECTION**





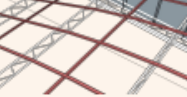
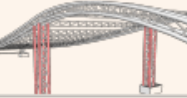
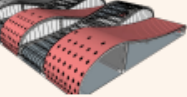


**SECTION**

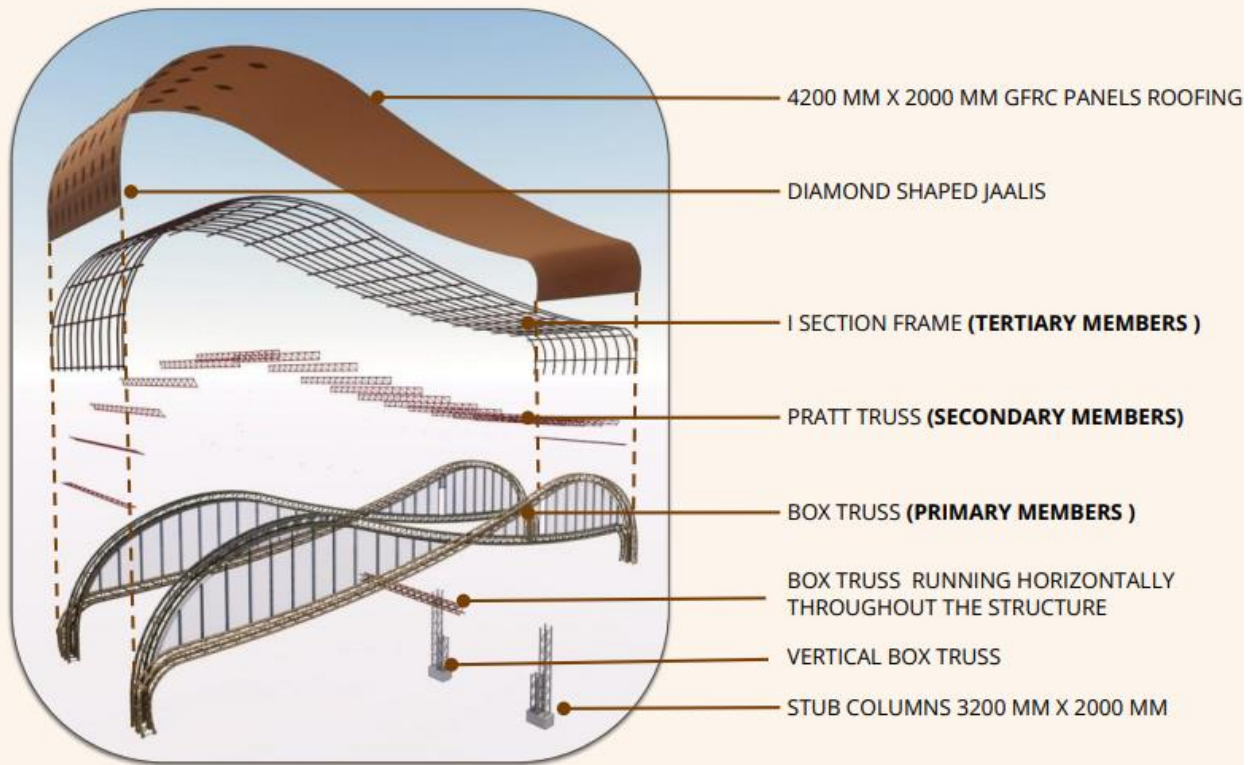
**STRUCTURAL MODEL**



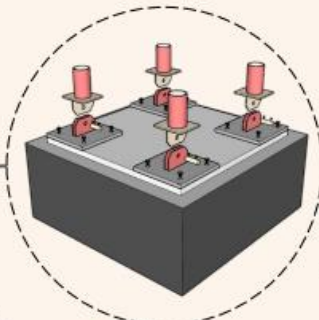
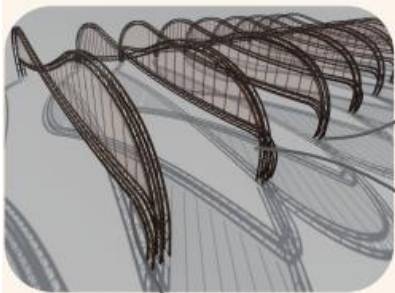
### STRUCTURAL MEMBERS

SR. NO	STRUCTURAL MEMBERS	SIZE	FLAMMABILITY	IMAGE
1.	Primary members - Circular hollow section	300 mm dia	Fire resistant	
2.	Primary members bracings - Circular hollow sections	150 mm dia	Fire resistant	
3.	Secondary members ( Pratt truss ) - Circular hollow sections	150 mm dia	Fire resistant	
4.	Secondary members bracings - Circular hollow sections	75 mm dia	Fire resistant	
5.	Tertiary members - I section	100 x 75 mm	Fire resistant	
6.	Vertical Box columns- Circular hollow sections	300 mm dia	Fire resistant	
7.	GFRC cladding panels	4200 mm x 2000 mm	Non flammable	

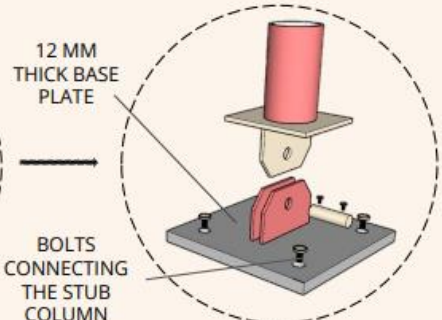
### EXPLODED VIEW



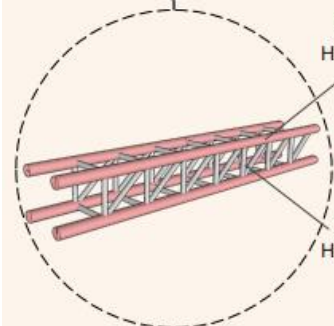
### STRUCTURAL DETAILS



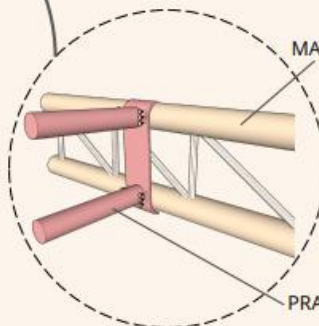
**STUB COLUMN AND MAIN TRUSS JOINERY**



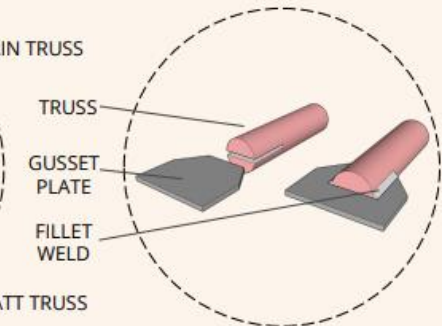
**TRUSS AND BASE PLATE JOINERY**



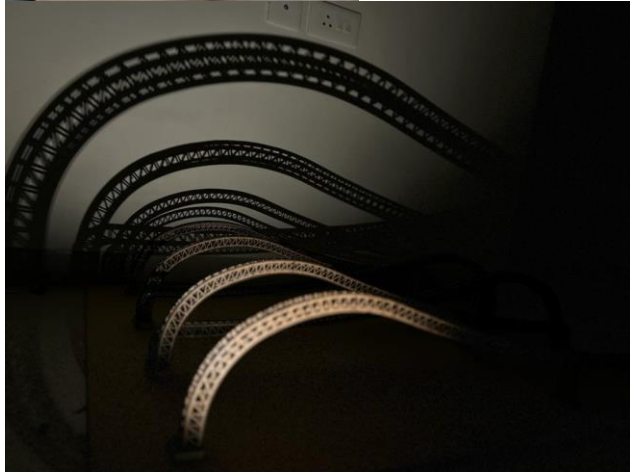
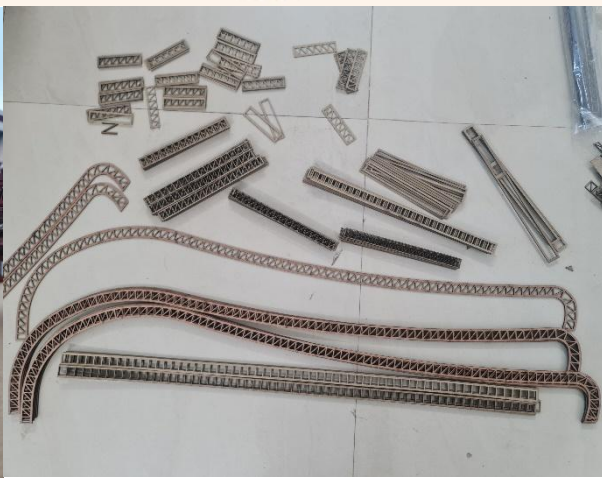
**ISOMETRIC VIEW OF BOX TRUSS**



**MAIN TRUSS AND PRATT TRUSS JOINERY**



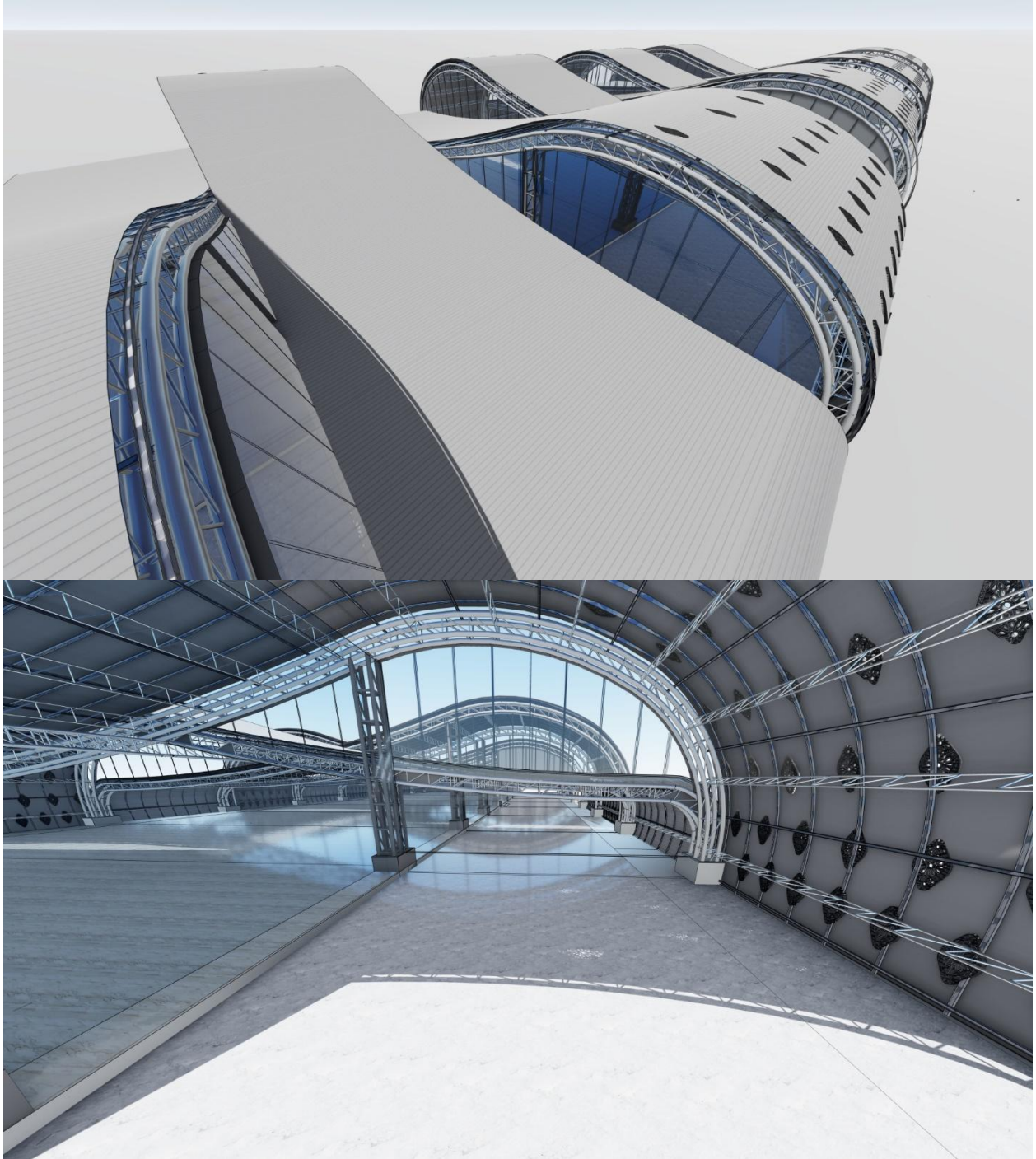
**TRUSS AND GUSSET PLATE JOINERY**

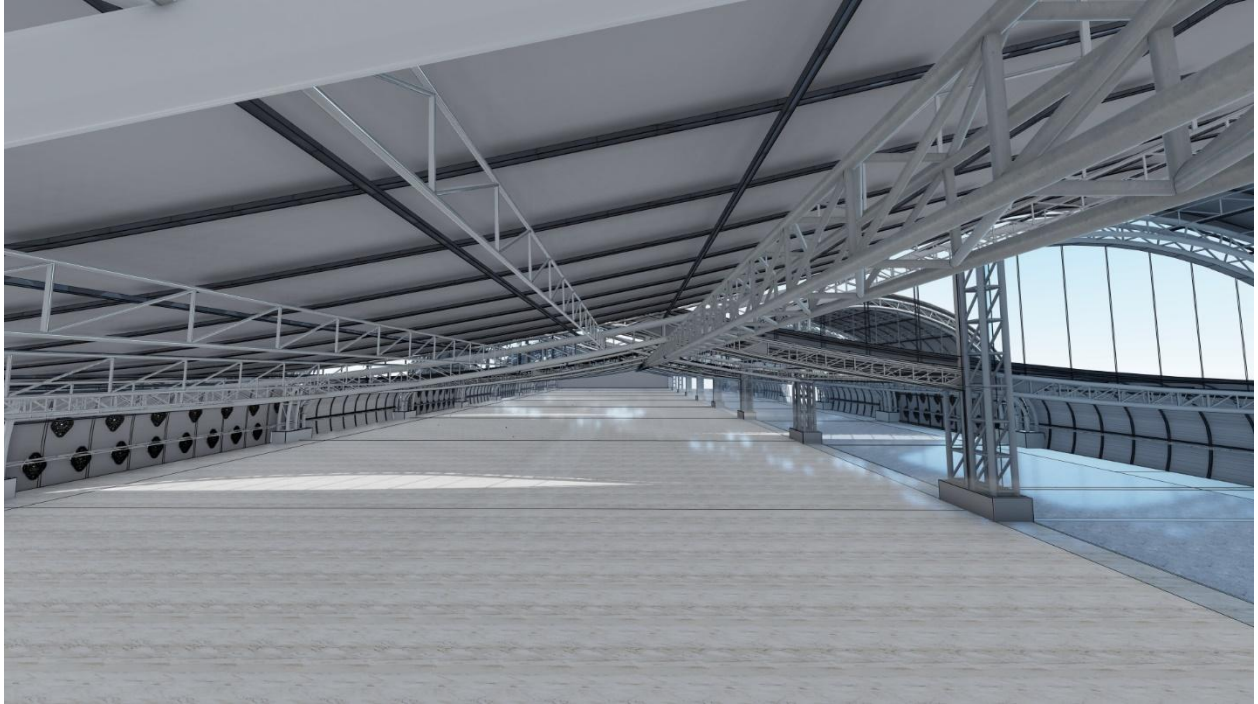
















Thomas Jefferson University

COLLEGE of ARCHITECTURE and the BUILT ENVIRONMENT

**Virtual Lecture & Graduate Information Session  
 Jefferson – SMEF's Brick School of Architecture**

Tuesday Nov. 30, 2021

7:00PM GMT / 8:30AM EST

[Click Here to Join Zoom](#)


Dr. Du is currently an Assistant Professor and Director of both the Master of Urban Design – Future Cities (MUD) and M.S. in Geospatial Technology for Geodesign programs at the College of Architecture and Built Environment in the Thomas Jefferson University. Dr. Du's research focuses on net-zero buildings and cities, computational urban design, urban energy modeling, and urban data analytics, incorporating interdisciplinary approaches. Prior to joining Thomas Jefferson University, Dr. Du taught at the Illinois Institute of Technology and Texas Tech University. Dr. Du is a LEED-Accredited Professional and WELL-Accredited Professional.

# Dr. Peng Du



**Name of the Event:** Virtual Lecture and Graduate Information Session

**Date:** Tuesday 30th November 2021 from 6:30pm to 8:30pm

**Venue:** Online webinar on Zoom platform

**Guests:** Barbara Klinkhammer, Dr. Peng Du, Suzanne Iseminger, Perry D'Amelio

**Coordinated by:** Ar. Shraddha Gurjar, Ar. Divya Mallavarapu

**Objective:** The event was organized in association with Thomas Jefferson University, Philadelphia with the following objectives:

1. To discuss the collaboration opportunities with the university
2. To brief students about the courses and opportunities available in Thomas Jefferson University

**About the Guest:**

Barbara Klinkhammer is the Dean and Professor at the College of Architecture and the Built Environment, Thomas Jefferson University's East Fall Campus. She led the event with Dr. Peng Du who is currently an Assistant Professor and Director of both the Master of Urban Design - Future Cities (MUD) and MS in Geospatial Technology for Geodesign programs at the College of Architecture and Built Environment in the Thomas Jefferson University.

**Brief of the Session:**

The session was conducted in two parts. In the first part, all the collaboration opportunities between the two institutes were discussed by the leadership while in the second session students were briefed about the graduate programmes and scholarship at TJU.

Following points were discussed in the leadership session:

- Studio exchange
- Semester exchange where a student can travel to TJU for one semester
- Combined Masters Programme where a student can learn one year at Brick and one at TJU. Construction Management can give the flexibility to design such programmes.
- Shorter exchange programmes like summer school, certificate programme
- Grant for live project
- Elective course
- Joint research projects
- Pre-cursor course for the post graduate programme where a student can get a sneak peak into the entire course

The session opened up a lot of opportunities where the students from both the universities can benefit from each other. The first important step to begin the collaboration was Umbrella MOU to be signed by both the institutes.

The leadership session was followed by the session focused on the students. This session was divided into three parts as follows:

1. Presentation by **Dr. Peng Du** on the topic: "**Sustainable cities of the future: Typology, Performance & Intelligence**"

**The session**

2. **Overview of the Graduate programs at TJU**



### 3. Admission process, other formalities and QnA

#### List of people who attended :

The session was mainly attended by the fourth, fifth year students and a few alumni. Few faculty and students from the second and third year were also present. The list of attendees is given below:

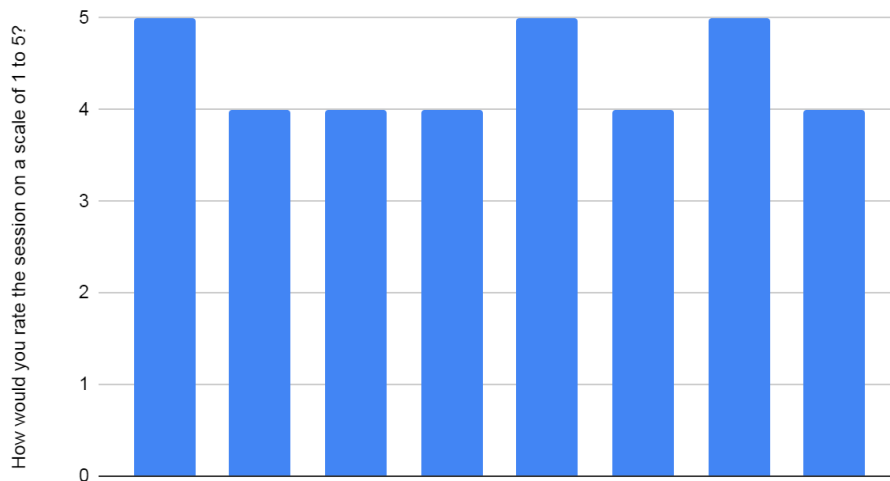
Burhanuddin Saifee	sakshi	Kaustubh Somshetti
Achyut Vanarse	Heet Sanghvi	siddharth
Rushali Rokade	Aniket Tayade	Aiswarya Prasad C
Atharva Sakore	SAKSHI TALANKAR	lalit
cheekoti vivek	Aanchal Mugdiya	Hrishikesh J
Aditya Kote	Ar. Siddhant Sethi	Twinkle Jadhav
Aman Shaikh	Reva Doshi	Sejal Lodha
Gaurav Mali	Ar Jayalaxmi Deshmukh	Vaishnavi Pawar
Anurakti Yadav	Tanishq	Siddhant Sethi
Harshraj	pranav hake	Vaishnavi Pawar
Harshul Oswal	Hrishikesh J	Akanksha
Rucha Kulkarni	Atharva Kulkarni	Vinit Kothari
Shreya K	Aiswarya Prasad C	harshita
shreya Gaikwad	Ar. Mohak Chavan	Twinkle Jadhav
Unnati Jain	Gaurav	Girija Indulkar
Aakash Sontakke	Ankit Borawake	Twinkle Jadhav
Aditya Sawalkar	bhagyashree bandekar	Harshita
vaishnavi Kolhe	farida fidvi	Hrishikesh J
Nipun Agarwal	Asmita Khot	Neha
Swapnil Wagh	Harshita	vishwaja dhankawade
Ninad Rewatkar	Rutuj	RUCHA KULKARNI
Siddhant Pawale	Komal	Neha
Krupa Ingale	Aashay Mulate	Sejal Chordiya

The attendees were awarded a certificate of participation for the webinar.

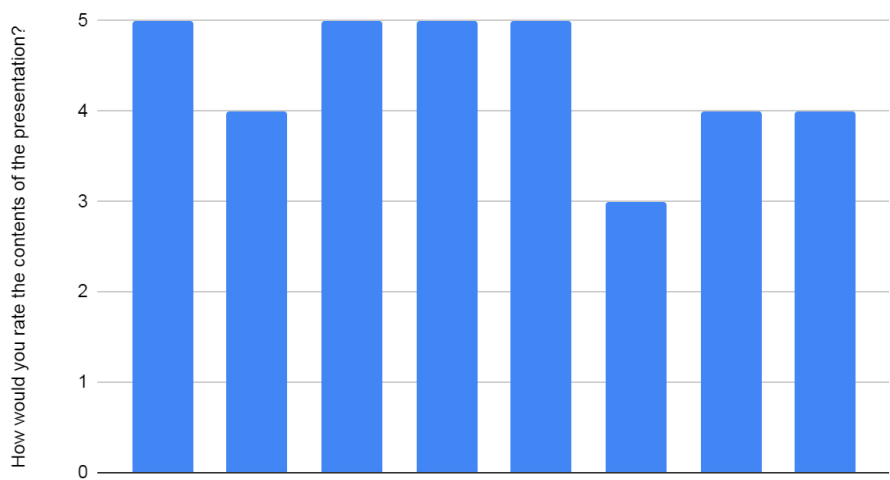
**Event Feedback:**

A feedback form was circulated to the participants, the summary of the responses is attached below:

How would you rate the session on a scale of 1 to 5?



How would you rate the contents of the presentation?



Most of the student participants found the session relevant and are looking forward to a career in the CRIP sector. The students were happy to know about the numerous possibilities in the construction industry and NICMAR.

## PERISCOPE \_ Blurred Boundaries: In search of an identity



# International Conference on Blurred Boundaries: In Search of an Identity

24th-26th September 2021



### Keynote Speakers



**Ar. Jacob van Rijs**  
 Founding Partner, MVRDV,  
 Amsterdam, Netherlands



**Ar. Ernesto Klingenberg**  
 Senior Partner at L35,  
 Barcelona, Spain



**Ar. Md. Rafiq Azam**  
 Principal Architect at SHATOTTO  
 Architecture for Green Living,  
 Dhaka, Bangladesh



**Ar. Christopher Benninger**  
 Principal Architect at CCBA,  
 Pune, India

### Session Chairs



**Dr. Amit Srivastava**  
 Senior Lecturer,  
 School of Architecture  
 and Built Environment  
 University of Adelaide,  
 Australia



**Dr. Shaji K. Panicker**  
 Associate Professor  
 School of Design  
 and Architecture,  
 Manipal Academy  
 of Higher Education,  
 Dubai



**Ar. Robert Fleming**  
 HOD, Sustainable Design  
 Thomas Jefferson University,  
 Philadelphia,  
 USA



**Dr. Emanuela Garofalo**  
 Associate Professor,  
 Department of Architecture  
 University of Palermo, Italy



**Dr. Harn Wei Kua**  
 Associate Professor  
 Department of Building  
 School of Design  
 and Environment  
 National University  
 of Singapore, Singapore



**Dr. Abel Tablada**  
 Adjunct Professor,  
 Faculty of Architecture,  
 Technological  
 University of Havana,  
 Cuba

### Panelists



**Ar. Bijoy Ramachandran**  
 Founder and Principal  
 Hundredhands,  
 Bangalore, India



**Ar. Chi Ti-Nan**  
 Founder of Chi's Workshop  
 Beijing, China



**Dr. Kaiwan Mehta**  
 Theorist, Author and  
 Architectural Critic,  
 India



**Ar. Pedro Aibéo**  
 Founder and CEO of  
 Gamified Cohousing Oy,  
 Helsinki, Finland



**Dr. Peter Scriver**  
 Associate Professor  
 University of Adelaide,  
 Australia



**Ar. Savneet Kaur**  
 Founder and Principal  
 Imarat Architects  
 Chandigarh, India



**Dr. Suha Özkan**  
 Architectural Theorist,  
 former Secretary-General  
 of the Aga Khan Award  
 for Architecture, Turkey

### Design Jury



**Ar. Md. Rafiq Azam**  
 SHATOTTO, Bangladesh



**Ar. Shimul Javeri Kadri**  
 SJK Architects, Mumbai



**Ar. Dean D'Cruz**  
 Mozaic Design, Goa

Register Now | Delegate Registrations: [www.brick.edu.in/conference-register](http://www.brick.edu.in/conference-register)

#### Support Partners



#### Knowledge Partners

For details and queries contact: [conference@brick.edu.in](mailto:conference@brick.edu.in)

#### Organizing Team

**Convener**  
 Ms. Pooja Misal

**Co-Convener**  
 Dr. Poorva Keskar

**International Relations Chair**  
 Ar. Manali Deshmukh

#### Advisors

Mr. Ramprasad Akkiseti  
 Ar. Vishwas Kulkarni

**Conference Chair**  
 Ar. Sharduli Joshi

**Conference Chair**  
 Ar. Ketaki Gujar

**Design Competition Chair**  
 Ar. Rama Raghavan



## **PERISCOPE\_ Blurred Boundaries: In search of an identity**

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**Name of the Event: Periscope Session during the conference on 'Blurred Boundaries: In search of an Identity'**

**Date: 24th to 26th September 2021 from 4:00pm to 4:30pm**

**Venue:** Online on Zoom platform

**Guests:** Experts from the knowledge partner universities of the conference

**Coordinated by:** Brick Conference team

**Objective:** The objective of the event was to make students aware of the various courses in the knowledge partner universities of the conference. The session provided a platform to the students to directly receive information and interact with the experts from the universities.

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**About the Guest:** Experts from four international universities took part in the session. The session was coordinated by Brick faculty while the list of experts is as below:

- 
1. University of Adelaide, Australia- Hemant Singh, Swati Thakur and Nischint Vora joined from the University of Adelaide to brief students about the opportunities.
  2. Thomas Jefferson University, Philadelphia- Prof. Robert Fleming and his team had joined the session from TJU.
  3. Manipal Academy of Higher Education (MAHE), Dubai- Ar. Dipti Shukla from MAHE, Dubai explained the students about courses at the university.
  4. University of Palermo, Italy

---

### **Brief of the Session:**

The session was organized with an intent to expose students to the various career opportunities at the international universities. The universities got a platform to reach out to students not only from Brick School but also from other institutes. Students were able to interact with the experts directly and clear their doubts.

The session was divided in two parts- In the first part, the experts from the university addressed the students and presented the courses offered by them. This was followed by question and answers session. The presentations covered the following points-

- 
- Information about the courses offered including course details, credits, time duration, pedagogy followed and faculty involved

## PERISCOPE\_Blurred Boundaries: In search of an identity

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- Procedure and time to apply for the course
- Application process including visa guidance

The session was conducted parallelly in four different meetings. The session was opened to authors and delegates and they were given a choice to choose the university they are interested in. The same session was repeated for all the three days so students could listen to all the four universities.

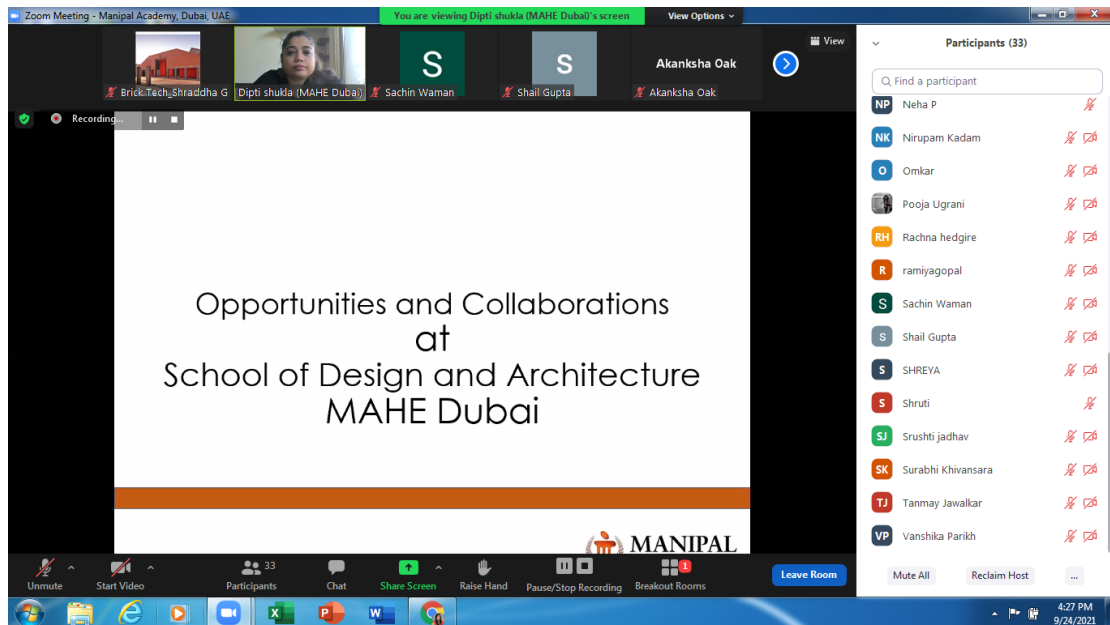
Few glimpses of the session are attached below:



*University of Adelaide, Australia*

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## PERISCOPE \_Blurred Boundaries: In search of an identity



*MAHE, Dubai*

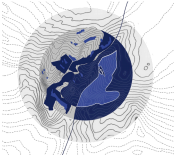


*University of Palermo, Italy*

The sessions were attended by all the delegates and authors of the conference. The recording of the sessions can be found on the following link-

<https://drive.google.com/drive/folders/1rM-Att6BypWt4dy4KcHeNo-2FfH9Z5Lr>





## Panel Discussion

Saturday, 25th September 2021 - Day 2

### The panelists



**Ar. Savneet Kaur**  
Founder and Principal



**Dr. Suha Özkan**  
Architectural Theorist

## Summary of the panel discussion

### Panel Discussion 1 Saturday, 25th September - Day 2

### The panelists



**Ar. Bijoy Ramachandran**  
Founder and Principal  
Hundredhands,  
Bangalore, India

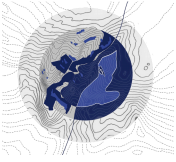


**Ar. Pedro Aibéo**  
Founder and CEO of  
Gamified Cohousing Oy,  
Helsinki, Finland



**Dr. Peter Scriver**  
Associate Professor  
University of Adelaide,  
Australia

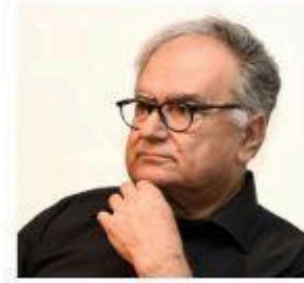
**Ar. Bijoy Ramachandran**



## Panel Discussion

Saturday, 25th September 2021 - Day 2

### The panelists



**Ar. Savneet Kaur**  
Founder and Principal

**Dr. Suha Özkan**  
Architectural Theorist

Bijoy Ramachandran is an architect and urban designer based in Bangalore. He is currently a partner at Hundredhands. Bijoy has a Bachelor's degree in Architecture from BMS College, Bangalore University, a Masters degree in Architecture & Urbanism from the Massachusetts Institute of Technology, Cambridge, USA, and in 2012 he did the Glenn Murcutt Master Class in Sydney, Australia. He is currently the Design Chair in the Department of Architecture, BMS College of Architecture, Bangalore, serves on the Academic Councils of the Wadiyar Centre for Architecture Mysore and Avani Institute of Design, Calicut and is a member of the Board of Studies of the Visvesvaraya Technological University. Apart from architecture he has also made two films – 'Architecture & the City: A Bangalore Perspective', a documentary feature on professional practice in the city and 'Doshi', on the Pritzker award winning Indian architect and B.V. Doshi, directed by Premjit Ramachandran.

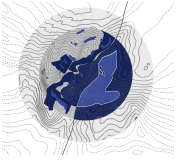
### **Ar. Pedro Aibeo**

Pedro Aibéo is an internationally awarded Architect (M.Sc., Dipl. Ing., TU Darmstadt, Germany) and Civil Engineer (M.Sc., Licenciatura, FEUP, Porto) with over 50 buildings designed and built in 18 countries, currently practicing at the Gamified Cohousing, which he is the CEO of. Aibéo is also a Kone Säätiö Research Fellow, a Visiting Associate Professor at UNAM University, Mexico and at Wuhan University of Technology, China, and a Doctoral Candidate at Aalto University, Finland on its research of Architectural Democracy.

In arts and the public understanding of science, Aibéo is the founder and Artistic Director of Ciudadania theatre+games group, with written and directed theater plays at the United Nations on urban slavery and astronomy. He runs an art gallery cooperative in Helsinki, Myymälä 2, teaches weekly drawing at the croquis nights and at Kiasma in Helsinki and he is a graphic novel writer with its latest bestseller in Portugal being on the topics of mathematics.

Aibéo is also the founder and Chairman of the "World Music School Helsinki" an international network of schools teaching music as a language.

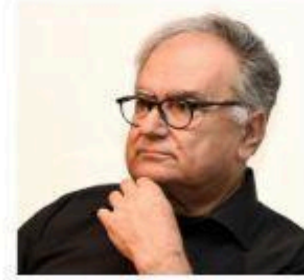
In politics, he is the Vice-Chairman of "Perpetuum Mobile" in its decade long work of offering protection to artists at risk. He is a published current affairs author in several newspapers, and in 2017 Aibéo ran as a candidate for the Helsinki Municipal elections under the Left Alliance List, but independent in terms



## Panel Discussion

Saturday, 25th September 2021 - Day 2

### The panelists



**Ar. Savneet Kaur**  
Founder and Principal

**Dr. Suha Özkan**  
Architectural Theorist

of political affiliation.

### Dr. Peter Scriver

**Peter Scriver** has played a leading role in the teaching of Architectural History, Theory and Architectural Design, and the development of postgraduate research across the Built Environment disciplines at the University of Adelaide since 1996. His research engages cultural and cognitive approaches to the study of architecture and the broader built environment, with a particular focus on colonial architectures and urbanism, and the professional networks and institutional frameworks in which the design disciplines operate. Scriver's books include *After the Masters: Contemporary Indian Architecture* (1990), *Colonial Modernities: Building, Dwelling and Architecture in British India and Ceylon* (Routledge, 2007), and *India: Modern Architectures in History* (Reaktion 2015, with Amit Srivastava), a critical history of modern India through the lens of architecture.

### Moderators

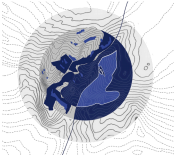
#### Dr. Poorva Keskar



She is the Director at VK:e environmental, a consultancy firm with a mandate to consult on energy conservation, green buildings and environmental planning.

Her practice has won the HUDCO national award for outstanding green rated office building and the AESA award for her LEED project for skf bearings in the year 2015. She serves as a member on various boards and committees at national and local level in the areas of energy efficient buildings, green buildings and sustainable urban planning. Dr. Poorva is an expert with the bureau of energy efficiency, ministry of power, has served as a member of GRIHA technical advisory committee and is the co-chair of IGBC Pune chapter.





## Panel Discussion

Saturday, 25th September 2021 - Day 2

### The panelists



**Ar. Savneet Kaur**  
Founder and Principal

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Architectural Theorist

With a view to contribute towards urban sustainable development, she along with like minded professionals formed an NGO "Sustainability Initiatives". The NGO works with a three pronged objective of advocacy, awareness and training and research in the field of urban sustainability.

Dr. Poorva headed the department for environmental planning and architecture at Dr. B.N. college of architecture, till June 2012. Currently she heads the brick school of architecture at Pune. She spearheaded the structuring of syllabus for master's program in environment architecture; Pune university. She was the team member for structuring "computer aided interior design program" at mksss, BNCA.

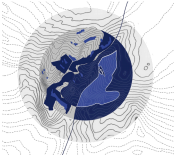
She has delivered expert lectures at Mejan arc university, Sweden, IIT powai, cept, Ahmedabad, Rachana sansad Mumbai and many architecture colleges in Maharashtra, on architecture, energy conservation in buildings and environment planning.

Dr. Poorva was given citation and recognition for her contribution to academics and profession by Indian Institute of Architects in the year 2015.



**Dr. Pushkar Sohoni** Dr Pushkar Sohoni is an architect, an architectural and cultural historian. He is an Associate Professor and the Chair of the department of Humanities and Social Sciences at the Indian Institute of Science Education and Research, Pune. He has been a Postdoctoral fellow from Indo-Persian Studies at the University of British Columbia, Canada. He earned his Ph.D. from the University of Pennsylvania and has a M.S. in Historic Preservation from University of Pennsylvania School of Design. He has over 30 research papers published.

### Summary of the panel discussion



## Panel Discussion

Saturday, 25th September 2021 - Day 2

### The panelists



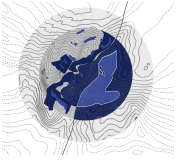
**Ar. Savneet Kaur**  
Founder and Principal

**Dr. Suha Özkan**  
Architectural Theorist

Both Moderators had initiated the discussion by mentioning that with the melting geographies, there are different threads of Blurring identities- mainly global and provisional identities. The 3 panelists have very different perspectives about the identity. When asked about how the aspirations from the West and real estate market are shaping Urban Agglomeration in Indian context Ar. Bijoy stated that it was Dr. Peter Scriver's books which gave us the background for understanding Indian modernity. He quoted Prem Chandvarkar by stating a true identity can be understood through Palpability of Place, followed by Dominic Dube's ideas about India and its multiple identities within various Indian cities. The quest for identity is a very wide spectrum, and to arrive at some kind of meaningful point during this discussion is necessary.

Dr. Puskar Sohani asked Dr. Peter Scriver about the two opposing narratives, colonial modernity giving various opportunities versus post colonial ideas of imposition of modernity as a great challenge. So, with these notions in the background, if there is a need to frame some sort of Indian Identity? Answering to this question Dr. Peter threw light upon his journey of conducting research in the Indian Subcontinent. He mentioned how Britshers brought the western typologies to India and tried to merge it with Indian Architecture. This Amalgamation gave rise to a new kind of Architecture which was replicated in some countries of Africa and Southeast Asia where British imperialism grew during the 20th century. This really suggests us to think about our real - true identity, which has been blurred throughout the 19th and 20th century during colonialism.

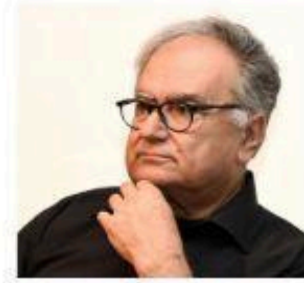
Next question was to Ar. Pedro about his work on Architectural Democracy which is repurposing old buildings to enhance the life of communities and local economies. He responded by telling us about his ongoing Heritage building project which focuses on the aberrations in the Top down approach of development of our cities. These projects make locals feel to be part of a community and enhance the notions of local identity. The idea of not pulling down these Heritage buildings to give rise to new concrete boxes was well received by Peter Scriver and he started building on the facts earlier stated by Ar. Bijoy Ramachandran about "The central Vista Project". He explained that the initial noise about this project was about Heritage and environment but now it has become more of a political debate questioning our Approach of Democracy. He mentioned that there could have been a grounded solution of Adaptive Re-Use just like the methodologies earlier explained by Ar. Pedro. He compared our government's current actions to the Pompous act of Domination by Brits in 1912. The Brits didn't take



## Panel Discussion

Saturday, 25th September 2021 - Day 2

### The panelists



**Ar. Savneet Kaur**  
Founder and Principal

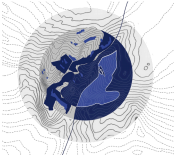
**Dr. Suha Özkan**  
Architectural Theorist

Indian Craftsmen during the process of development, thus distancing them from public participation. This example was followed by Pedro's similar example of Northern Macedonian rebellions where they imposed Soviet architectural styles which was considered as a fake identity by the Local communities. The conversation proceeded when Peter Scriver Asked Bijoy about his recent film "Doshi" which touched upon his work about dealing with Multiple Identities during his practice. Ar. Bijoy replied to this by giving an example of Doshi's Architectural School project where he considered himself both as a student as well as a teacher while designing and his urge to follow Critical Regionalism as a design development tool.

Offshooting from the conversation about the Bangalore's International center project of Ar. Bijoy, further discussions were about the complexity of designing any Public space projects. He gave an example of Correa's kala Academy project, how the project is a cultural hub which created a sense of belonging in the minds of local residents. Architecturally the design enables the building to open itself out to welcome any user to reach to the river from the streets. This connection really brought the communities together when there were demands of it getting demolished.

Upon asking the Last question to Peter Scriver, How is Indian Modernism different from the rest of the World and how do the notions of modernity unify yet regionalise the world, Peter tried to take us through the works of various contemporary modern architects, Its evolution taking into the systematic approach of combining the wisdoms of vernacular Architecture with the ideas developed with the industrial productions. We have always thought of answering questions of Indian identity of Modernity. Dr. Peter Scriver was elated at the culmination of panel discussion, where a mix of panelists from academia and practitioners touched on a range of issues from simple to complex things which greatly affect our communities and societies. He said, Architects should be aspiring to learn from the projects done in their studio which not only solve a particular issue at the time of construction but also tries to solve obvious problems at the time but tries for solve more that was reckoned up in design that benefits the communities.



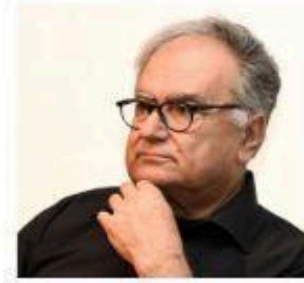


Multidisciplinary International conference on  
**Blurred boundaries:** In search of an identity

**Panel Discussion**

Saturday, 25th September 2021 - Day 2

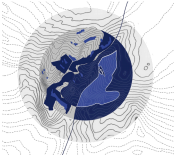
**The panelists**



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Multidisciplinary International conference on  
**Blurred boundaries: In search of an identity**

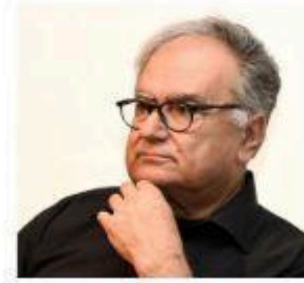
## Panel Discussion

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**Dr. Suha Özkan**  
Architectural Theorist

Recording

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**BRICK**  
SMEF's Brick School of Architecture,  
Pune, India  
Presents  
**International Conference on  
Blurred Boundaries:  
In Search of an Identity**

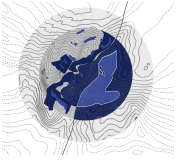
**Panelist**  
Ar. Bijoy Ramachandran is an architect and urban designer based in Bangalore. His firm, Hundredhands is an internationally recognized practice and has been featured in Architectural Design (UK) magazine's survey of contemporary Indian architecture ('Made in India', January 2008). Other awards include an official selection for the Project South Exhibition and the Leone di Pietra at the Venice Biennale, 2006, and the Cityscape/Architectural Review Award in 2005.

**Ar. Bijoy Ramachandran**  
Founder and Principal  
Hundredhands,  
Bangalore, India

Poorva Keskar

Audio Settings

Chat Raise Hand Q&A Leave



Multidisciplinary International conference on  
**Blurred boundaries:** In search of an identity

**Panel Discussion**

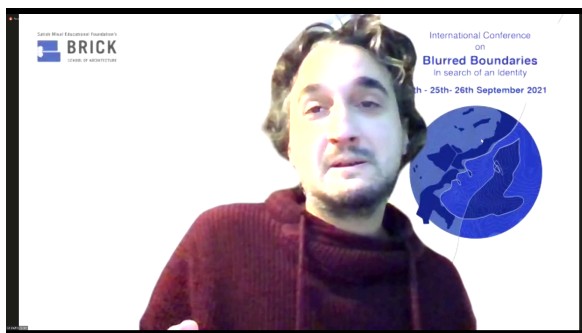
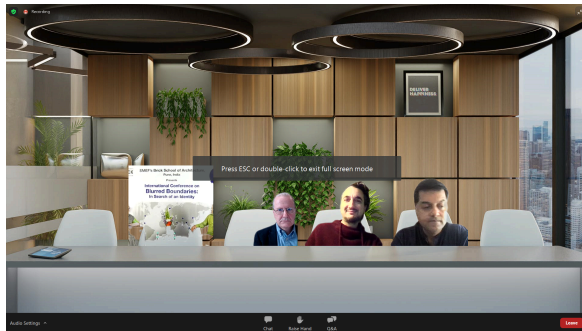
Saturday, 25th September 2021 - Day 2

**The panelists**

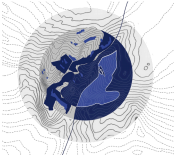


**Ar. Savneet Kaur**  
Founder and Principal

**Dr. Suha Özkan**  
Architectural Theorist







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