COMPETITION | WORSKHOP DETAILS

CLT INDUCTION

IN **INDIA**

CLT PARK HARUMI © Kawasumi - Kobayashi Kenji Photograph Office

CONTENT

Conceived and Organized by Aakar Design Consultants

Aakar Design Consultants is an association of Architects offering specialized services in Urban Design, Architecture, Interiors and Project Execution / Management, for the last 40 years. With a team of well qualified, multi-disciplinary specialists and consultants, we are able to achieve a high level of quality and efficiency in the projects of distinction in the country and abroad, this includes Award winning Educational, Institutional, Recreational and Commercial Projects. We provide integrated design services, starting right from techno-feasibility study, program formulation to designing, preparation of working drawings and supervision of the work till the completion of the project.

Our architecture over the years seeks to respond to the local culture, history and context, apart from conserving natural environments. We strive to achieve best global practices encompassing the emerging new technologies and solutions. Sustainability and Environment friendliness is an integral part of the design philosophy and process.

Sponsored by Mitsubishi Estate Co. Ltd.

A comprehensive real estate developer, Mitsubishi Estate Co., Ltd. boasts the leading position in the Japanese market, operating a spectrum of businesses in diverse fields related to real estate, including an office building business centered on the Marunouchi district in central Tokyo, a retail property business, a residential business, a hotel business and airport business. The Company's area of operations is not confined to Japan; it includes the United States and the United Kingdom and extends to such Asian countries as China, Chinese Taipei, Singapore, Indonesia and Vietnam.

Mitsubishi Estate formed the CLT Unit, a dedicated department in the Residential Business Planning Department, in fiscal 2017. The unit is working on research and development aimed at commercialization of CLT and has already implemented several projects. MEC Industry Co., Ltd is a company formed by the joint investment of seven companies including MEC Estate Co., Ltd, the major general contractor Takenaka Corporation and other companies in various lines of business

01 INTRODUCTION

Cross Laminated Timber (CLT) is a Mass Timber Construction technique that distinguishes itself from the present-day steel and concrete construction. It is a renewable resource and has a negligible carbon footprint compared to carbon or steel, since carbon is sequestered within the wood it is made from. Cross Laminated Timber consists of lumber that is graded, kiln-dried and trimmed after which it is glued and stacked on one another in layers, such that each layer is placed perpendicular to the other. This perpendicular layering of wood helps the panel achieve structural rigidity in two directions. Since the panels are pre-fabricated, only component assembly is to be done on site, thus reducing the construction time and labour costs which can potentially help in lowering the construction cost. The CLT panels being light weight helps in reduction of the size of the foundations, reducing the carbon footprint, contributed by the use of concrete.

In Japan, CLT is being promoted as a new material to enhance sustainable forestry development. The sponsors, MEC Industry Co., Ltd. is a company formed by the joint investment of seven companies, including the major Japanese general developer Mitsubishi Estate Co, Ltd., the major general contractor Takenaka Corp., and other companies in various lines of business.

02 PROGRAM

The Competition challenges the participants to design an urban or peri-urban housing scheme with an innovative construction system using CLT. It is to explore cross laminated timber as a building material to fulfil the need of urban housing which is one of the main objectives of the Indian Government. The aim of the competition is to create awareness and promote Cross Laminated Timber as a primary building material for the future of housing in India. The idea is to have a system-based design to refine Housing Architecture in India making it more sustainable, green, quick and easy to construct.

The participants are invited to design an urban or peri-urban housing scheme catering to the needs of different user groups depending on a proposed site context. There is no defined site location for this Competition. The participants are free to select a site in an urban or semi-urban fabric anywhere in the Indian context. Although, the design proposals are expected to develop a response with the chosen context and its climatic conditions. The program is divided into two sections as described below and participants are free to choose any one of them for their design proposals.

PROGRAM A: Innovative Mid to High-rise Building

For Mid to High-Rise Building, to make the design proposal feasible and realizing that fire safety is a prime consideration, the height is restricted to 30 meters. The number of units for the urban housing scheme can be considered between 50-100 units and the size of the units can vary according to the chosen user groups.

PROGRAM B: Innovative Low-rise detached Housing/Villas

For, Low-Rise Housing/Villas, the number of units is 50 units and the size of the units can vary according to the chosen user groups.

The design competition targets to introduce the innovative use of Cross Laminated Timber in the Indian Context; hence the design proposal should explicitly focus on innovative structural as well as spatial building systems which can explore the use of CLT in the building industry. The participants are also allowed to pick up existing housing projects and re-designing the building system using CLT as the primary material. The proposed system can either be designed purely in Cross Laminated Timber or as a hybrid with reinforced concrete or steel or other carbon neutral/low carbon materials like stone or earth constructions.

MITSUBISHI ESTATE

MEC Industry aims to identify an ecosystem of players (in particular architects and structural engineers) stimulate and steward the timber construction movement in India and especially encourage professionals and young practitioners with current projects to join the sustainable construction movement.

03 BUILDING MATERIAL : CLT

Cross Laminated Timber (CLT)panels can be used for walls, floors and roofs in both load-bearing and non-load-bearing structures. The flexibility of thickness and sizes of CLT Panels, is able to fulfil the requirements of different types of projects. Initially these panels were used for low and mid-rises but in recent years it is also being used in construction of high-rises. It is also considered a good substitute to concrete and steel due to its strength to weight ratio. The prime advantages of these prefabricated panels are speed, efficiency and precision of construction. Participants are expected to propose innovative construction systems that draw on the performance characteristics of Cross Laminated Timber as the main building material.

04 SCHEDULE

21st January 2021

COA social reads, **Ar. KUMA Kengo** in conversation with **Ar. Durganand Balsavar** on **'Why Wood Matters'.**
Thursday, 12:15 PM (IST) on COA social platform

26th January 2021

Registration for the CLT Induction starts
Tuesday, 12:00 AM (IST) on www.aakardesign.com

13th February 2021

CLT Workshop A - Orientation to Cross Laminated Timber.
Saturday 11:00 AM - 01:00 PM (IST) on www.aakardesign.com

20th February 2021

CLT Workshop B - Innovation with Mass Timber, a house and a tower.
Saturday 07:00 PM - 09:00 PM (IST) on www.aakardesign.com

27th February 2021

CLT Workshop C - Understanding CLT design and engineering in the Indian context.
Case study - Kanchanjunga and Tube house by Charles Correa
Saturday 11:00 AM - 01:00 PM (IST) on www.aakardesign.com

15th March 2021

Registration for the CLT Induction ends
Monday 11:59 PM (IST) on www.aakardesign.com

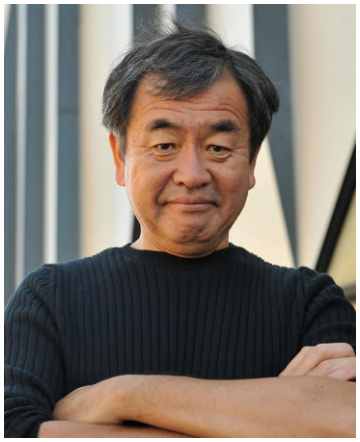
31st March 2021

Submission Deadline for CLT Induction
Wednesday 11:59 PM (IST) on www.aakardesign.com

30th April 2021

Results announced for CLT Induction
Friday 11:59 PM (IST) on www.aakardesign.com

05 JURY MEMBERS

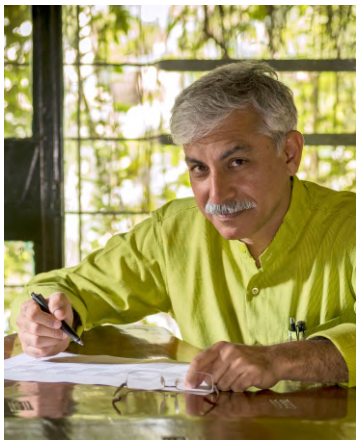


KUMA KENGO, Kengo Kuma and Associates.

KUMA Kengo was born in 1954. Before establishing Kengo Kuma & Associates in 1990, he received his Master's Degree in Architecture from the University of Tokyo, where he is currently a University Professor and a Professor Emeritus. During his Graduate studies, he made a research trip across the Sahara, exploring various villages and settlements, observing a unique power and beauty. After his time as a Visiting Scholar at Columbia University in New York, he established his office in Tokyo.

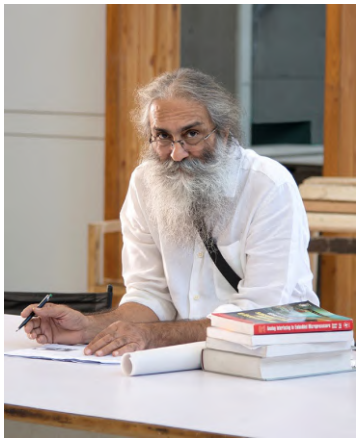
MAHENDRA RAJ , Mahendra Raj Consultants.

Mahendra Raj was introduced to structural design as an Assistant and later, as an Executive Engineer working on the buildings of Le Corbusier in Chandigarh, which inspired him to pursue further studies from the University of Minnesota, USA, in structures in 1956. He then moved to New York and worked at Ammann & Whitney Consulting Engineers until 1959 and also won the Boese Fellowship at Columbia University, New York. Raj returned to India and set up his consultancy in 1960. He has to his design credit a number of innovative large-span structures many of which are one of their kind globally. Over the last two decades he has received Lifetime Achievement Awards and Scrolls of Honour by the Indian Concrete Institute (2001), the Institution of Engineers (India) (2001), the Consulting Engineers Association of India (2009) and the Institute for Steel Development & Growth (2014). The Structural Engineers World Congress-India honoured him with the Sundaram Medal in 2013.



RAJEEV KATHPALIA, Vastu Shilpa Foundation.

Rajeev Kathpalia is a partner at Vastu Shilpa Consultants or VSC, the multi-disciplinary practice founded in 1955 by the Pritzker laureate Balkrishna Doshi. Kathpalia's work integrates frugal and environmentally responsible strategies to create inclusive habitats for people. Designing across a range of scales he integrates architecture, landscape, ecology and energy strategies to create equitable and inclusive social milieus, and has set new benchmarks for sustainability and innovation.



GURDEV SINGH, Aakar Design Consultants.

Prof Gurdev Singh is a graduate from CEPT University, Ahmedabad. He is not only an Architect but also a Designer, Teacher and a Builder (Someone who builds with his hands), with 45 years of professional and teaching experience in different institutions in India and Australia. He has received 'A LifeTime Achievement Award' in Teaching, by Australian Institute of Architects ACT Chapter, in special recognition of contribution to Architecture education. He also held the position of the Dean of School of Environmental Design and Architecture Navrachana University, Vadodara from 2011 to 2018. Currently he is Interested in exploring new and lightweight materials and technologies.

MORISHITA YOSHITAKA , MEC Industry Co. .

Mr Morishita is CEO of MEC Industry Co., Ltd. He is a graduate of Faculty of Law from Doshisha University. He joined Mitsubishi Estate Co., Ltd on his graduation and has been involved in the development of condominium and office buildings before taking charge of housing business strategy. He incubated CLT business while he was in charge of housing business planning department and in January 2020 became the CEO of MEC Industry. Mr Morishita is passionate about sustainability initiatives with CLT at its core. He is looking forward to build a new vision with engineered wood as a material, along with an ecosystem of architects and structural engineers who want to work with wood, not just in Japan but also across Asia and other parts of the world.

ROHIT RAJ MEHNDIRATTA , Studio VanRO

Rohit Raj Mehndiratta is an architect, artist and urbanist. He runs an architectural design practice with Vandini Mehta in New Delhi, called Studio VanRO. The work of Studio VanRO is an outcome of several years of international experience, engagement in the public domain through presentations, art/architecture exhibitions, publications in urban and architectural research and also academic teaching. The firm's work has been published and presented nationally and internationally and has also won many awards and recognitions. Rohit previously worked as an architect for five years in New York City and before that worked on projects in India, Canada and interned in Germany for Frei Otto's Institute of Light weight Structures. He graduated from School of Architecture CEPT, Ahmedabad and went onto a postgraduate degree from the Massachusetts Institute of Technology (M.I.T) where he received the ANN M BEHA Award in 2001 and Merit Recognition Awards in 2000-01 and 2001-02.

(Other Jury Members to be announced shortly)

06 AWARDS

1st PRIZE

Trip to Japan, including a visit to the Tokyo Olympics Stadium and a meeting with Kengo Kuma and Associates. (2 Business Class Packages) or a Cash award of INR 6,00,000.*

2nd PRIZE

Trip to Japan, including a visit to the Tokyo Olympics Stadium and a meeting with Kengo Kuma and Associates. (2 Economy Class Packages) or a Cash award of INR 3,00,000.*

3rd PRIZE

Trip to Japan, including a visit to the Tokyo Olympics Stadium and a meeting with Kengo Kuma and Associates.(1 Economy Class Packages) or a Cash award of INR 2,00,000.*

STUDENT PRIZE

INR 1,00,000

06 HONOURABLE MENTIONS

20 FINALISTS

Publications + Certificate of achievement and a book signed by Architect KUMA Kengo.

SPECIAL SPONSOR AWARD

Additionally, the sponsors would consider practising professionals with keen interest in the material to visit their plant and opportunities to visit other buildings using CLT in Japan and become a part of the Indian ecosystem to design with CLT in India.

* Given the special circumstances due to Covid 19, the sponsors may at their discretion present cash awards to the winners in lieu of the trip. All winners and finalists will be awarded a certificate of achievement and a book signed by Architect Kengo Kuma.

07 ELIGIBLITY

There are no restrictions to the number of members per team. Any student or professional from different universities, countries and backgrounds can participate in the Competition. Additionally, interdisciplinary teams are encouraged, although it is recommended that at least one member of the team should have an architectural background. Teams with Architects and structural engineers are encouraged to bring out the potential of the building material.

Under no circumstances will the members of the jury, members of the organisation, or persons with a direct personal or professional relationship with members of the jury be allowed to participate in the Competition.

08 SUBMISSIONS

The content of the boards is open, as far as the participants are able to clearly express their idea. However, it is important to detail out the proposal and focus more on the construction system of the design. Submissions must be done in two A2 digital boards with a maximum file size of 10MB, oriented in either landscape or portrait format with the registration number on the lower right corner of the board. The boards must not indicate any information related to an individual's/team's identity.

All boards must be uploaded through the website in Portable Document Format (PDF). In addition, one description of the design proposal should be submitted in not more than 500 words (PDF) and populating a framework to enable the ecosystem to be able to promote the sustainable architecture with focus on CLT. All information provided in writing must be in English.

PLEASE NOTE -
The participants are required to submit the final project online. It must be uploaded through the submission section in the Competition website by 11:59 pm IST, on 31st March 2021.


CLT PARK HARUMI©Kawasumi - Kobayashi Kenji Photograph Office

09 JUDGING CRITERIA

Material, Structure and Technological Innovation - 50%
CLT as a Creative and Innovative Building System as well as modularity and adaptability of the system in the Indian Context. In order to make buildings utilizing CLT truly sustainable, it is necessary to prepare and nurture the other enablers of CLT architecture in India to achieve sustainability goals.

Response to climatic factors - 20%
The proposed design system should respond to the climatic conditions on site.

Design and Spatial Innovation - 20%
Using CLT as a building material to generate design and spatial variations in the building system.

Social Context - 10%
Integration of the conceptual Building System into the local context.

10 **CLT WORKSHOP A**

13 th February 2021, Saturday, 11:00 AM – 1:00PM (IST)

Orientation to Cross Laminated Timber

The first CLT Workshop will attempt to orient cross laminated timber to participants. The workshop will discuss merits of using CLT as the primary building product in the industry. Apart from discussing CLT Merits and its consideration in MEC Projects, the workshop will also discuss Innovative Architectural examples of buildings designed with CLT in the world. The following case studies of work done in Japan will be elaborated on -

- CLT Park Harumi
- Park Wood Takamori
- Shimojishima Airport Terminal
- Odori Nishi 1-chome Project
- Shinjuku Senri Model House

The Second part of the workshop will discuss the possibilities of exploring CLT as the primary construction material for low rise houses. The house has been a site for much architectural innovation through history. India has long standing traditions of timber house construction from the hot and moist climates of Kerala to the colder climes of Assam and Himachal Pradesh. The stand alone house remains deeply aspirational in evolving economies like India where concrete and steel remain the primary construction material. The houses for the ascendant classes are increasingly built in fragile ecosystems and seek respite in nature. Our ecological challenges necessitate new strategies towards carbon neutrality for this popular typology. This workshop seeks to explore possibilities of using CLT as a primary construction material for private house building in India.

INSTRUCTORS -

- **ITO Yasutaka,** MEC Industry Co. Ltd.
- **NAGURA Yoshiyuki,** Mitsubishi Jissho Sekkei Architects.
- **ABE Yusuke,** Mitsubishi Estate Co. Ltd.
- **Kapil Gupta,** Serie Architects.

The workshop is conducted by MEC Industry Co. Ltd., Mitsubishi Jissho Sekkei Architects and Serie Architects.

CLT PARK HARUMI©Kawasumi - Kobayashi Kenji Photograph Office

11 **CLT WORKSHOP B**

20 th February 2021, Saturday, 07:00 PM – 09:00PM (IST)

Innovation with Mass Timber, a house and a tower.

A presentation of student projects made out of Cross-Laminated Timber (CLT) as a part of "Mass Timber and the Scandinavian Effect" studio led by Jennifer Bonner and Hanif Kara of the Harvard Graduate School of Design. The projects speculate on the structural and aesthetic possibilities of a CLT panel on two different scales- a house and a mid-rise tower in Raleigh, North Carolina. A group of 6 Harvard Graduate School of Design Students will be discussing their studio project which explores innovative use of CLT to design a house and a high-rise tower. The following projects will be discussed –

- A Taller Pile of CLT
- Balloons and Booleans
- Kissing Stack
- 300 Panels, 400 Cuts, 400 Bandages
- CLT = Cross Laminated Tower
- Table Stack

Image Courtesy- Edgar Rodriguez, GSD Harvard
Project- A taller pile of CLT

INSTRUCTORS -

- **Anna Goga,** Harvard GSD
- **Aryan Khalighy,** Harvard GSD
- **Benson Chine,** Harvard GSD
- **Kyat Chin,** Harvard GSD
- **Edgar Rodriguez,** Harvard GSD
- **Ed Han Myo Oo,** Harvard GSD

The workshop is conducted by students who participated in the "Mass Timber and the Scandinavian Effect" led by Jennifer Bonner and Hanif Kara at the Harvard Graduate School of Design

12 **CLT WORKSHOP C**

27th February 2021, Saturday, 11:00 AM – 01:00PM (IST)

Understanding CLT design and engineering in India

The workshop explores possibilities of using CLT as a primary construction material for low-rise housing and mid to high-rise buildings in India. Kanchenjunga Apartments and Tube House, a few of the many classic architectural landmark designed by Charles Correa have been chosen as case studies for demonstration. The workshop will focus on re-designing these building to explore innovative building systems using Cross Laminated Timber. Further on a detailed carbon footprint analysis comparing the existing (concrete) and the proposed (CLT) will be discussed.

INSTRUCTORS -

- **Prof. Gurdev Singh,** Aakar Design Consultants.
- **Manjunath BL,** Manjunath and co. Structural Consultants.
- **Rushita Vora**.

The workshop is conducted by Aakar Design Consultants in collaboration with Manjunath & Co.

13 CLT WORKSHOP INSTRUCTORS

CLT Workshop A

Orientation to Cross Laminated Timber

ITO YASUTAKA, MEC Industry Co. Ltd.

Mr Ito is Vice President of MEC Industry Co., Ltd. He joined Mitsubishi Estate Co., Ltd in 2005 and has been with Mitsubishi Estate Residence since 2011. As part of Mitsubishi Estate Housing Planning Department, he initiated the CLT Unit, becoming its Unit Leader, before establishing the new company. He has been instrumental in building its sales promotion activities and is passionate about expanding to the Global market including India.

NAGURA YOSHIYUKI, Mitsubishi Jissho Sekkei Architects.

Mr Nagura has a Masters in Architecture from Waseda University. He is a chief architect of Mitsubishi Jisho Sekkei Design Department II and has dual responsibility with Mitsubishi Estate Business Promotion Office CLT Unit and MEC Industry. His most recent work using CLT is CLT PARK HARUMI. In 2019, he was also a member of designing team of Tokyo Olympic Village, PARK WOOD office Iwamotocho, Ascott Marunouchi Tokyo and Takanawa Forum, Kojimachi PARK HOUSE. He has won many awards, Wood Design Award-Forestry Agency Secretary Award Good Design Award by Japan Institute of Design Promotion, Ministry of the Environment Energy Saving Lighting Design Award Grand Prix and others

ABE YUSUKE , Mitsubishi Estate Co. Ltd.

Mr Abe graduated from the Department of Architecture, Faculty of Science and Technology, Tokyo University of Science in 2004. He has been involved in the structural design of housing wooden buildings from medium to large scale at a major housing manufacturer.
In November 2020, he joined Mitsubishi Estate Co., Ltd., concurrently serving as the CLT Unit of the Related Business Promotion Office and the Planning and Sales Department of MEC Industry Co., Ltd. He is involved in the technology and product development of wood-based building materials such as CLT.

KAPIL GUPTA , Serie Architects

Kapil graduated with honours from Sir JJ School of Architecture in 1996, Mumbai followed by postgraduate studies at the Architectural Association, London. He was a Director at the Urban Design Research Institute, Mumbai between 2003 and 2008, where he led India's first entry to theVenice Architecture Biennale in 2006. He has served as a visiting critic at numerous schools in India and been on several jury panels for competitions and design awards including Archiprix in 2010. He was the Charles Correa Design Chair at the Goa School of Architecture for 2020. Kapil leads and manages Serie's project portfolio in India with projects ranging across housing, commercial and institutional sectors. He is closely involved with the development of projects from inception to completion. He has written on the challenges of south Asian urbanisation and is currently involved with ecological and land regeneration strategies in India as a response to climate change.

CLT Workshop B
Innovation with Mass Timber, a house and a tower.

ANNA GOGA, Graduate School of Design, Harvard University.

Anna Goga is an architect from Russia currently working in Diller Scofidio + Renfro in New York. She holds a Bachelor and Master Degree in Architecture with a distinction from the Moscow Architectural Institute and a Master Degree in Architecture from the Harvard University Graduate School of Design. Goga is a recipient of the James Templeton Kelley Prize.

ARYAN KHALIGHY, Graduate School of Design, Harvard University.

Aryan Khalighy is a designer and writer from Tehran, Iran. He has been a part of several research projects, focusing on the intersection of contemporary digital culture and the vernacular masonry architecture of Iran, producing 1:1 scale installations and pavilions. Aryan's professional experience in the U.S. includes collaborations with Howeler + Yoon architects, Paul Lukez architects, and Jennifer Bonner/MALL. He is currently doing research on rethinking the future of architectural pedagogy and learning spaces for his master's degree thesis advised by Mohsen Mostafavi at Harvard Graduate School of Design.

EDGAR RODRIGUEZ, Graduate School of Design, Harvard University.

Edgar Rodriguez is a Mexican architect and designer living in Providence, Rhode Island where he is currently working as an architect at Ultramoderne. In 2014 he co-founded Operadora, an architecture and design practice based in Mexico City. Rodriguez holds a Bachelor of Architecture with Honours from Universidad Iberoamericana in Mexico City and a Master in Architecture degree from the Harvard University Graduate School of Design.

ED HAN MYA OO, Graduate School of Design, Harvard University.

Ed Han Myo Oo is from Yangon, Myanmar, and just completed his MArch thesis at the GSD that reimagines a heritage building in downtown Yangon as a hub for knowledge preservation. His interests include researching nation-building projects, particularly how post-Independence Modernist architecture in India and Bangladesh has been appropriated by its users over time.

CLT Workshop B
Innovation with Mass Timber, a house and a tower.

BENSON CHIEN, Graduate School of Design, Harvard University.

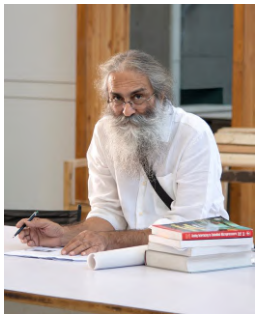
Benson Chien received his Bachelor of Architecture from the University of Southern California. He is currently at the Harvard Graduate School of Design pursuing his Masters in Architecture. Prior to Harvard, Benson worked at offices in Los Angeles and New York, including five years at Bjarke Ingels Group. While at BIG, he has worked on various architectural projects and competitions from Google offices to World Trade Center 2.

KYAT CHIN, Graduate School of Design, Harvard University.

Kyat Chin is an architectural designer, currently based in Boston, Massachusetts. Kyat will be completing his Master in Architecture degree program at Harvard Graduate School of Design in the spring of 2021. Prior to Harvard, Kyat worked as a designer for architecture firms in Shanghai, San Francisco, and Los Angeles. Kyat holds a Bachelor in Architecture from the California State Polytechnic University of Pomona.

CLT Workshop C

Understanding CLT Design and Engineering in India Context.



GURDEV SINGH, Aakar Design Consultants.

Prof Gurdev Singh is a graduate from CEPT University, Ahmedabad. He is not only an Architect but also a Designer, Teacher and a Builder (Someone who builds with his hands), with 45 years of professional and teaching experience in different institutions in India and Australia. He has received 'A LifeTime Achievement Award' in Teaching, by Australian Institute of Architects ACT Chapter, in special recognition of contribution to Architecture education. He also held the position of the Dean of School of environmental Design and Architecture NUV (2011- 2018) . Currently he is Interested in exploring new lightweight materials and technologies.

MANJUNATH BL , Manjunath & Co. Structural Consultants.

Manjunath BL is an engineer based out of Bangalore. He heads his own practice in the city since 1994, having built up a portfolio of works and sketches that encompasses some of the most exciting buildings being built today where he is seen (primarily) as a conceptual co-author as much as a consultant/collaborator. In his own words, the work of his practice stems from a "Vision for the role of engineering in design and of design in engineering shaped by humanistic, rather than simply technical principles." In this talk, he will focus on the trajectory of his practice and working methods as well as his evolving stance as a structural Engineer involved in the complex and multi-layered task of a building.

RUSHITA VORA

Rushita Vora is an architect, currently living in Los Angeles, USA. She will graduate with a Masters in Building Science in May 2021. She is currently completing her thesis, where she's evaluating the embodied carbon footprint for different timber structural systems. She has worked in the BIM industry in the USA and as an architect in India.

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