



Construction of arches and vaults by the trainees of our AVD Masonry Training Course in July, 2022

AVEI NEWSLETTER

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It has been an eventful half year for the Earth Institute, welcoming many new team members as well as spreading our reach to new horizons. AVEI is now active on various social media platforms, where one can follow our day to day activities and announcements.

Towards the end of the year, Satprem travelled to France, Prague and Mauritania for the UNESCO Chairs Conference in Paris, a lecture at the Czech Technical University, and to continue the Technology Transfer in collaboration with ILO respectively.

The Earth Institute has also continued its online and on-campus training courses, some of which saw large participation reminiscent of our pre-COVID trainings; an encouraging sign of things picking back up.

Please feel free to share this newsletter with your friends and colleagues as we spread the knowledge of earth architecture to the world!

*Earthily yours,
The AVEI Team*



33 m dome of the Oshodhara Meditation Centre



Water body under construction as of December 2022

Satprem travelled to Gujarat in August 2022 to conduct some more research for using earth from the site for casting 6,350 m³ of poured earth concrete (PEC) foundation (6 m deep x 8.5 m wide) of the 33 m diameter dome of the Oshodhara Meditation Centre. See [Newsletter No. 47](#) (2020) for a description of the design and [Newsletter No. 48](#) (2021) for the training course conducted on CSEB production.

This Meditation Centre is part of the development of Oshodhara Ashram, which has been planned by the architect Dinesh Suthar of "Design Work Group" from Surat, Gujarat. Satprem did the design of the dome and the whole structure in 2021. Mahesh Varma and Aditya Kabra from Nandadeep Building Center, Aurangabad, assisted him for the design of the dome. During the August visit, Satprem also

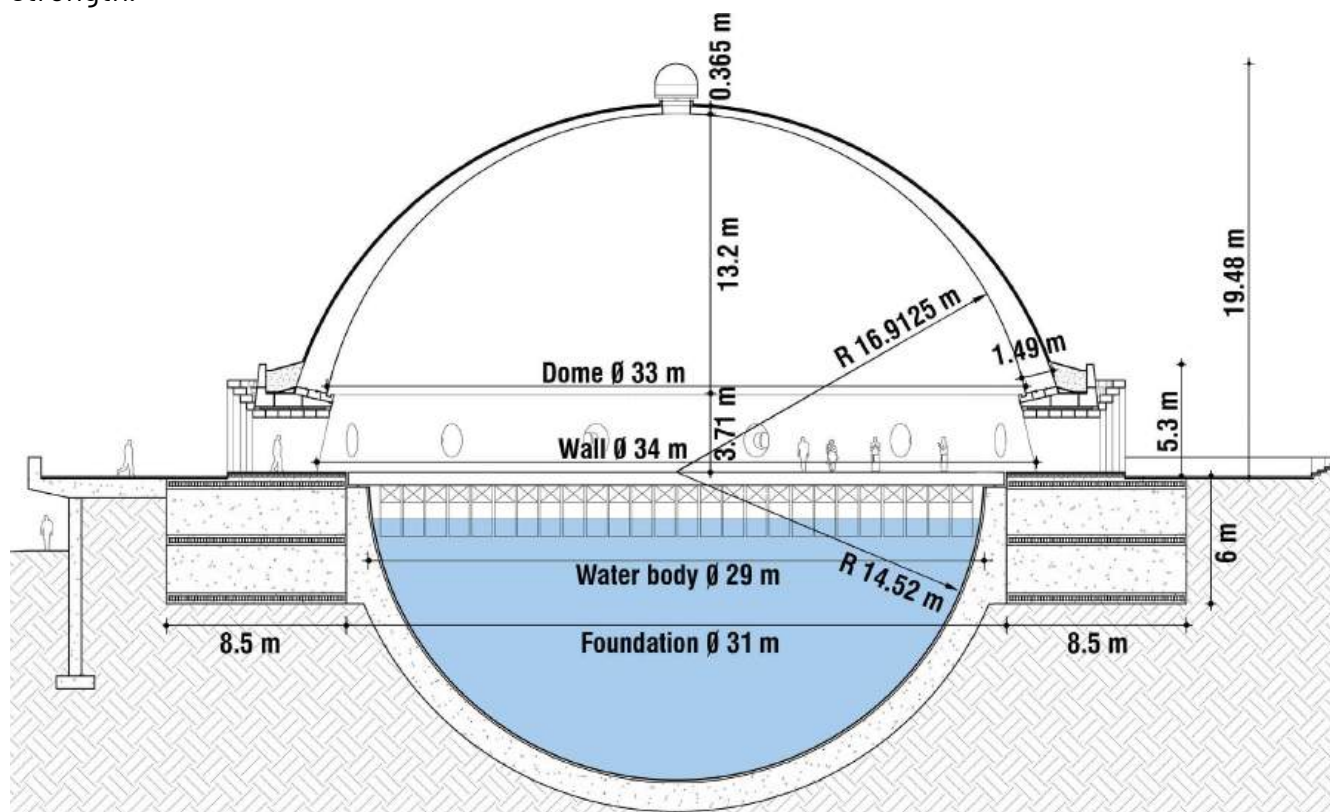
evaluated the ~378,500 CSEB of 16 different sizes which had been produced by the local team in 2021 and 2022 with 3 Auram presses 3000.

Satprem and Ayyappan previously conducted extensive research in 2021 for the PEC. The best results were obtained with a mix of 8.9% cement, 50% soil from the site, 30% sand, and 20% of 40 mm aggregates. The wet crushing strength of this mix was 4.93 MPa after 48 hours of immersion. However, due to difficulties faced by the site manager to store and segregate on the hill sides ~13,000 m³ of materials from the excavation of the water body and the foundation, it was necessary for Satprem to evaluate the resources and define new ratios for the PEC.





Satprem elaborated twelve types of mixes and 6 samples per type were cast. Mixes had various proportions of soil (35% to 60%), quarry dust, sand and crushed stones. 7%, 9% and 11% of cement were tried. The aim was to maximise the amount of soil, while have a minimum of 5 MPa for the wet crushing strength. The optimum result was obtained with a mix of 7% cement, 40% raw soil, 10% quarry dust, 20% quarry sand and 30% of 40 mm crushed stones, giving 5.5 MPa of wet crushing strength.



Section of the dome with the water body

Besides the strength required for the PEC, another aspect to evaluate was the process to cast such a large amount of PEC. A 3 m³ concrete mixer truck, "Ajax Fiori" was experimented, to define the loading sequences, the proper moisture content and to know the casting speed. It was calculated that casting 6,350 m³ of PEC would have taken 3 months with 3 concrete mixer trucks. Despite the success of this mission and research, the client and local engineer later decided not to use PEC for the foundations but a conventional plain cement concrete, since they did not feel confident to manage such a large task without Satprem.



Concrete mixer truck "Ajax Fiori"



Casting PEC samples on site

The construction site managed by the local team has progressed quite slowly and the structure of the water body is planned to be finalised in February 2023. Later this year, Satprem will train the manpower to build critical parts of the stone wall and the CSEB dome, as well as supervise its construction. ■



Building the Residence for Bonnet Family

AVEI Projects & Consultancy near Auroville



Construction of the Bonnet Family Residence

Last August, the Bonnet Family residence marked the beginning of construction with a Bhoomi Pooja, a ritual to worship Mother Earth and the ground that we borrow to build our shelter. The residential project showcases the various techniques that the Auroville Earth Institute has developed over the years. From its trusted poured earth concrete foundations, CSEB walls, ring beams to arches for windows and a cloister dome crowning the living room. There is a separate bedroom unit planned to be double storied that will use composite columns. Both the bedroom units are planned to be completed with vaults as their roofing.

The design was inspired by a simple square zoning diagram by Marc Bonnet, one of the clients. He played around with square spaces and their interactions and envisioned them according to the site to ideate this diagram. We built off of this idea and reworked the

spaces such that the living room rotates, and the bedrooms become rectangles around the rotated square, which then becomes a diamond. The spaces were designed to respond to the site and maximise the natural light and ventilation of the spaces. As of December 2022, the project has been constructed up to the window lintel level and the work continues to find its shape and being. ■



Building the external staircase to the terrace



Dome for the Pool in Temple Tree Retreat

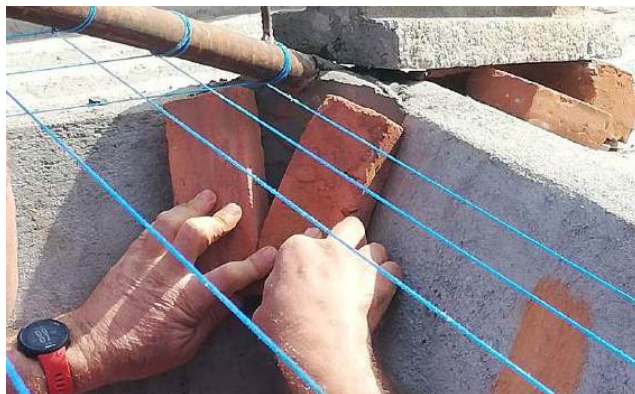
AVEI Projects & Consultancy near Auroville



The Earth Institute was approached for the design and structural stability analysis of a dome for the Wastu Pool in the Temple Tree Complex for Ar. Mona Doctor-Pingel of Studio Naqshbandi in March of 2020.

The construction began in early August this year, in collaboration with Studio Naqshbandi, where the Earth Institute's core team of masons worked and further trained more masons who all constructed the cloister dome of 10 meter diameter.

The dome was made with around 35,000 achakali bricks (small size fired bricks), some of which turned out to be slightly irregular and needed to be sanded. The sanding ensured that the bricks were all even in size, so that the courses are all properly aligned and not staggered in their placement. ■



Placing the first course to start the dome



Consultancy and Advisory

The Auroville Earth Institute consulted on various projects to support the execution of earth-based technology and their appropriate construction according to the context.

The Youth Center of Auroville suffered demolition of its kitchen space in December of 2021. During the latter half of 2022, the youth of Auroville started building a new kitchen on campus. Satprem consulted for the project by providing support, knowledge and training for the youth. Together, they built low walls of CSEB with poured earth flooring after which the resourceful and capable youth of Auroville continued the work with metal sheets. The kitchen also featured Ferrocement counters with Kadappa shelves below the counter. Satprem primarily assisted the proficient youth with the masonry part of the construction, and the new kitchen is now complete and functioning.



Satprem and the AVEI Team also consulted on projects like the ECOSCULP Club House for stability and structural analysis of domes and vaults. Additionally, a former trainee of ours employed our expertise to consult on the stability analysis calculations of vaults for a residence in Kodaikanal.

Advisory:

AVEI also offered guidance to many in their earth construction endeavours such as the use of excavated material by BFG International, for their tender proposal to the NEOM - 'The Line' project in Saudi Arabia, who got through the 1st round of tender applications. We assisted other enquiries in the execution of CSEB walls as well as educated them about its structural stability and the management of moisture for the maintenance of spaces. ■



Top: Exterior of Youth Center kitchen, showing the CSEB walls and metal sheet roofing

Bottom: Interior of Youth Center kitchen.



UNESCO/UNITWIN Chairs International Conference

UNESCO marked the 30th anniversary of the **UNESCO/UNITWIN Chairs Programme** by holding an International Conference entitled “**Transforming Knowledge for Just and Sustainable Futures**” at the UNESCO headquarters in Paris, on the 3rd and 4th of November.

Being the representative for Asia of the UNESCO Chair “**Earthen Architecture, Constructive Culture and Sustainable Development**”, Satprem was invited to attend this two-day event celebrating the spirit of scientific, moral, intellectual and academic solidarity.

Over 500 people from 80 countries, representing some 250 Chairs, were in attendance, covering many fields in higher education and research, from social science,



Top: Conference webinars

Left: Statue of Sri Aurobindo at the UNESCO Headquarters

natural science, medical science, ocean science, technologies, architecture to information and communication technologies, human rights, community empowerment, artificial intelligence, and many more.

After an overview of the 30 years of work by the Chairs across the world, the conversation focused on the need to move the culture of education from one of competition to that of collaboration, building a perennial repository of knowledge.

This is exactly the tenet discussed in the Auroville Charter and the Dream, being implemented here for over 50 years. The Earth Institute continues to try to uphold these values of Auroville and ultimately, Human Unity, down the pursuit of sustainable living and collective consciousness. ■



Malavika in ARCH22 health conference - TU Delft

This August, our Communication and Website Specialist, Malavika S Nair presented her dissertation virtually at ARCH22: The 5th Architecture Research Care and Health Conference organized by the department of Architecture & the Built Environment in Technische Universiteit Delft, Netherlands and Erasmus MC.



ARCH22 – the 5th Architecture Research Care and Health conference

Enabling health, care and well-being through design research

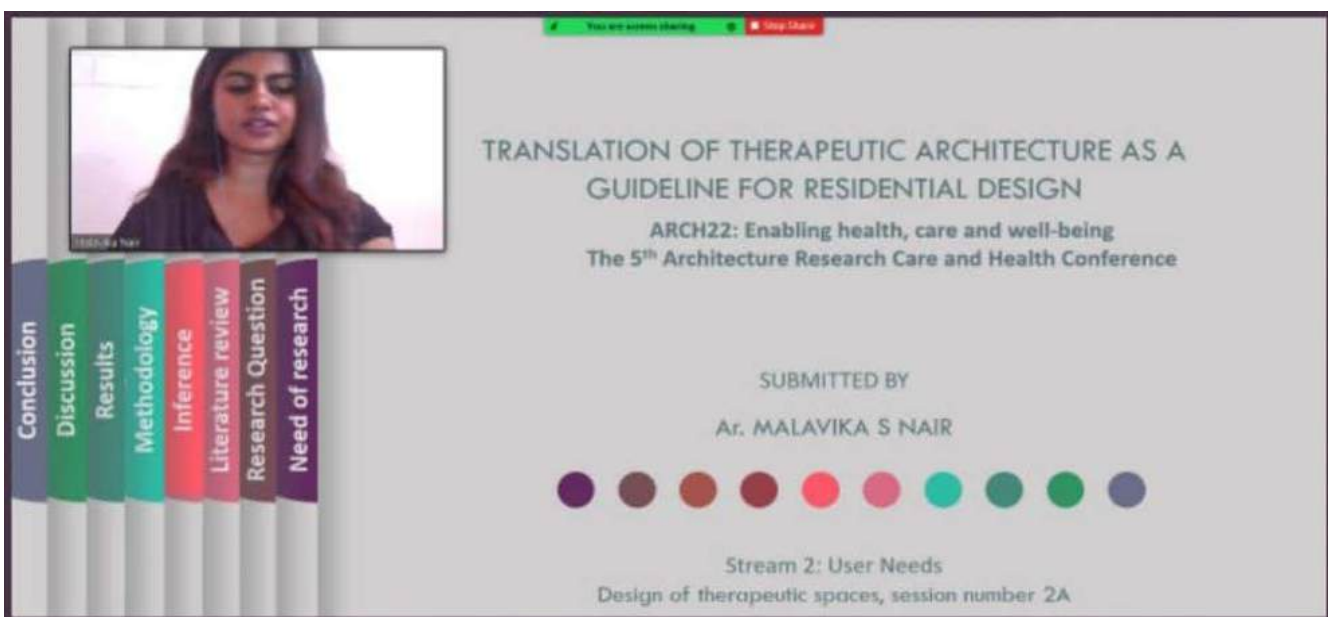
The paper titled “Translation of Therapeutic Architecture as a Guideline for Residential Design” discussed the healing design strategies of therapeutic architecture that can be implemented in residential spatial design to support a healthier lifestyle for its residents. Her paper was 1 among 9 selected from across the world to be presented under the Stream: User Needs during the 2-day conference. This research stemmed from her interest to improve modern spacial design to realize inherent human psychological and physiological needs. We congratulate her on her achievement and hope to see a lot more earnest work that serves to improve society.



Above: Conference Logo (©TU Delft)

Bottom: Research paper presentation

Read the published paper [here](#)





'Prayaas se Prabhaav tak' - Indian Pavilion, COP 27

AVEI featured

PRAYAAS SE

PRA BHAAV TAK

FROM
MINDLESS CONSUMPTION
TO MINDFUL UTILIZATION

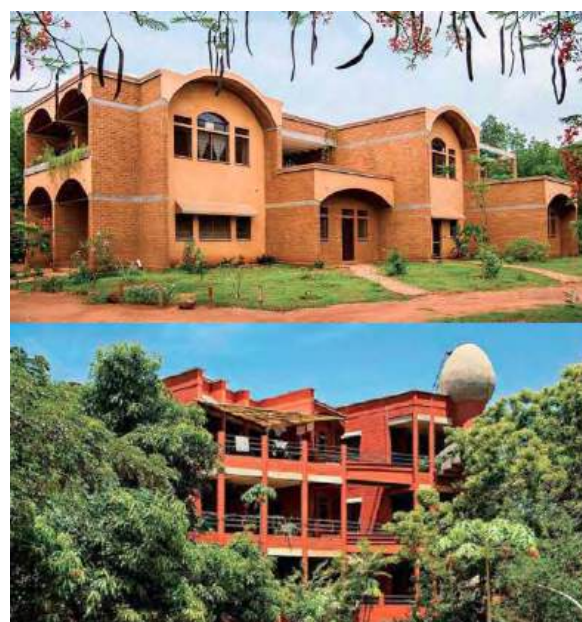


The Auroville Earth Institute was included in the LiFE-Lifestyle for Environment compendium 'Prayaas se Prabhaav tak', one of the key documents released by the Ministry of Environment, Forest and Climate Change at the Indian Pavilion of COP 27 (27th Conference of Parties of the UNFCCC).

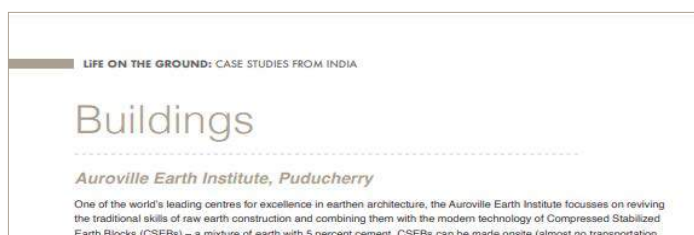
The document builds a repository of projects in India that have exemplified the principles of environmental consciousness and mindful utilisation of resources, to serve as a framework for others.

AVEI was 1 among 2 of the only projects cited under the Building category for all of India. The book highlighted the environmental and social footprint of our research of CSEB & earthquake-resistant technology and our global impact training thousands in earth construction, among other things.

Read more of the document [here](#).



Above: AVEI project pictures featured (©LiFE).



Top: Compendium cover page (©LiFE). Source: UNDP

Middle: AVEI cited under Building category. (©LiFE)

Bottom: Indian Pavilion at COP27. Source: pib.gov.in



'Pioneering the Revival of Earth Architecture' - ArchDaily

A recent ArchDaily article titled 'Pioneering the Revival of Earth Architecture: Egypt, France, and India' credited Ar. Hassan Fathy, CRAterre and Auroville Earth Institute respectively, for spearheading the renaissance of earthen architecture across the world.

It recounted the contribution of each in the research, construction and training of earthen construction and its consequent role in bringing earth to the forefront of the contemporary built environment. The Earth Institute was particularly cited for being 'the world's largest and most rapidly growing carbon economy' and its crucial role in building a movement of sustainable practitioners in India and the world.

The whole article can be found [here](#) ■



Left Above: CRAterre featured as pioneer in France

Right Top: Archdaily feature title. Source: ArchDaily

Right Middle: Hassan Fathy featured as the pioneer in Egypt (©Omar Bárcena)

Right Bottom: AVEI featured as pioneer in India





AVEI on Social Media

Recognizing the catalytic potential of the internet, the Auroville Earth Institute is now active on its various social media accounts on Instagram, Facebook and LinkedIn. Our new Communication and Website Specialist, Malavika, has been carefully curating the behemoth of knowledge under the Earth Institute's belt to make it more accessible to the audience of the platforms.

So now in addition to the website and the Newsletters, one can stay up to date on AVEI's activities by following us on the social media handles, with Instagram in particular showing our day-to-day activities such as trainings, workshops, announcements, campus tours, national and international technology transfers, conferences and office culture.

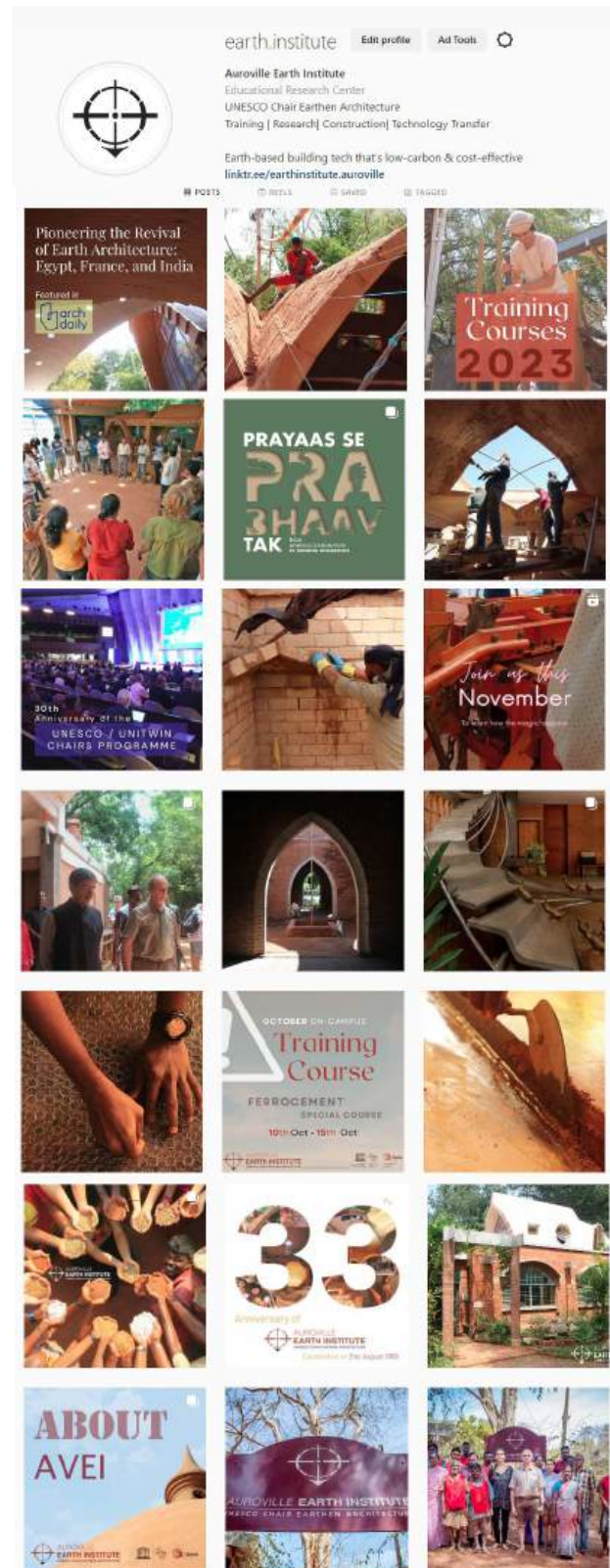
We hope that with this we'll be able to reach a wider audience and can continue spreading the knowledge of sustainable earth construction while building a network of skilled students and professionals.

Find us by clicking the following handles:

Instagram: [@earth.institute](https://www.instagram.com/earth.institute)

Facebook: [@av.earth.institute](https://www.facebook.com/av.earth.institute)

LinkedIn: [Auroville Earth Institute](https://www.linkedin.com/company/auroville-earth-institute)



Above: Auroville Earth Institute's instagram feed

Left: AVEI on Facebook



AVEI visitor



AVEI Communications & Dissemination

Satprem giving a tour of the exhibition room

In October, the Auroville Earth Institute had the pleasure of hosting the respected Governor of Tamil Nadu & Chairman of Auroville Foundation, R. N. Ravi, during his visit to Auroville. Secretary of Auroville Foundation, Dr. Jayanti Ravi, and a member of the Working Committee elected by the Resident's Assembly of Auroville, accompanied the Governor as well.

Our Director, Satprem Maini, gave everyone a tour of our office, exhibition room and laboratory while introducing the Earth Institute's work and research, particularly CSEB (Compressed Stabilised Earth Blocks). It was encouraging to behold the Governor's inquisitiveness and enthusiasm to learn more about Earth Construction and the worldwide impact of AVEI. ■





Online and on-campus courses in 2022



Above: Trainees from Iran working with CSEB

Along with the On-Campus Courses, the Auroville Earth Institute continued its cycle of Online Training Courses which was completed to certification by 13 students from India, Thailand, Australia and Mauritania.

The next cycle of training courses start in the latter half of January 2023, the schedule of which can be found in the Colophon. ■

The Earth Institute held 8 training courses in the second half of the year which saw consistent participation throughout. The CSEB Masonry course taught in September, in particular, saw a large group of 32 participants. It was encouraging to see the participation pick up after the decline since the pandemic that made on-campus courses more difficult to execute. The other courses conducted were Arches, Vaults and Domes (AVD) Theory, AVD Masonry, Compressed Stabilised Earth Blocks (CSEB) Design, CSEB Intensive, CSEB Production and Ferrocement. While most of the participants were from various parts of India, there were also participants from the U.S., Zambia, Australia, Bangladesh, and Germany.

In August, a Special CSEB Intensive course was curated for a team of participants that joined us from Esfahk Mud Centre in Iran. The course combined 2 one-week programs on CSEB Production and CSEB Masonry into a condensed 10-day course.

Bottom Left: Trainees preparing the soil for block making in the Auram press during the CSEB Production Course.

Bottom Right: Trainees learning bond patterns during the CSEB Masonry Course in September





Saluting our colleagues in the earthen architecture network



Jackfruit garden residence, ©Anand Jaju, Source: Archdaily

Vinu Daniel & the Wallmakers winning the Royal Academy Dorfman Award: AVEI congratulations Ar. Vinu Daniel, our former student and the Principal of Wallmakers, for the achievement of winning The Royal Academy Dorfman Award for Emerging Architecture 2022.

The jury for the competition applauded Vinu for his willingness to take risks that support the urgency for conscious design and creative solutions.

They recognised his work for treading a beautiful balance between ambitious, mindful and sustainable, actualizing many awe-inspiring projects over the years. Vinu and his ingenuity of realising spaces that seem to irrefutably sprout from its context, showcase the immeasurable potential of earth architecture in contemporary design. We congratulate Ar. Vinu Daniel and the Wallmakers for the win and wish them many more years of rewarding, conscious and aspirational work that strives to serve humanity and our earth. ■

Masons Ink at COP27: Architect Rosie Paul, Principal of Masons Ink and former architect of the Earth Institute, was invited to COP27 in Egypt as an Issue Lead this year. Working to represent earth architecture at a global stage along with her Co-Principal Architect, Sridevi Changali, they have strived to spark crucial conversation on the complex intersections between gender, culture and climate resilience.



Source: Masons Ink Architecture instagram account



Source: Masons Ink Architecture instagram account

As the Issue Lead for Gender Day, Ar. Rosie, curated 2 events on "Culture, Gender, and Resilience: Unlocking Diverse Knowledge Systems" and "Intangible and tangible intersections between culture, climate and gender", while also speaking at the event on "Mobilising Creativity: Showcasing the depth, range and potential of creative climate practices". With the fountain of traditional knowledge that women possess, their role in climate governance is more valuable than ever before and yet grossly neglected. We commend Ar. Rosie and Mason's Ink for strengthening the ever-raging battle for better representation and inclusion in a sustainable future. ■



Source: *The Hindu*, © Special Arrangement

Nadu challenges traditional notions of construction”, **The Better India** in “TN Engineer Pays Just Rs 20 For Electricity in His Mud-Brick Home That Has No ACs”, **The New Indian Express** in “Passion shapes this mud house in Perambalur” and **Inmathi** in “Thaiman Veedu: an engineer’s promise to Mother Earth”. We applaud A. Jagatheesan for embodying his commitment to sustainability and its advantages by example. ■

Earth architecture being recognised for sustainability:

A.Jegatheesan, a civil engineer from Tamil Nadu and a former trainee of the Auroville Earth Institute recently won a State level award for the “**Best Sustainable Architecture House**” from the Hon’ble Minister of Tamil Nadu T.M. Anbarasan. Fuelled by his passion to build a sustainable house that challenges the myths of modern construction, Jegatheesan trained with the Earth Institute to learn about building with Compressed Stabilised Earth Blocks (CSEB) using techniques like Arches Vaults and Domes (AVD). His achievement has been cited in various Media Platforms including **The Hindu** in “This mud brick house in Tamil

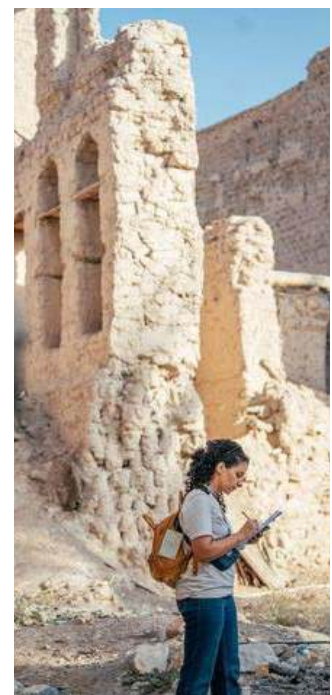


Source: *Inmathi*



Conserving earth architecture: Our Alumni, Ar. Dania Aburouss, was one among 20 participants of the 2nd edition of the International Course on Conservation of Earthen Architecture in November this year. This one-month course was organised by the Department of Culture and Tourism, Abu Dhabi, in collaboration with the Getty Conservation Institute.

The course aimed to enhance the practice of earthen heritage conservation by providing practical training. The November cohort focused on conserving the heritage of Al Ain and Nizwa, using it as an open-air laboratory with site visits, field experiments, discussions, lab experiments, lectures, etc. to learn the theories and technological advances of conservation to further the mission of the program. Experiences like these illustrate the dedication of architects like Dania in furthering the knowledge and global impact of the community of earthen heritage and conservation. ■





New team members

The Earth Institute has welcomed four team members this year!

Pavneet: I joined AVEI in September 2022. Coming from an Architecture background, I have always been intrigued and interested in how the built and the un-built environments come together, along with all the 'services', the infrastructure that goes into making such environments and the subsequent functioning of it.

Being here in Auroville for the past 6 years, I found myself landing different opportunities, from working in the green work/ reforested areas in Auroville to working in the water sector and having explored tools like GIS for mapping. After that I involved myself in the natural and biological wastewater treatment systems research which informed me better about the socio-economic context around water and sanitation. I hope to make use of the knowhow of such tools and carry out an integrated practice and applied urban research. ■

Kishor: I'm a person who had the intent of becoming an Architect ever since middle school. And what I am today is the development through the years as an Architecture student and also as an Environmentalist. I have had a strong belief in Sustainability for a long time, hoping to see everyone in the world living a sustainable life. This path has led me to work in Auroville Earth institute as a Junior architect, where I'm gaining a lot of knowledge and exposure related to Earthen Architecture. The time here has been rewarding, as I get the experience & insights of working with Satprem, a veteran in this field of architecture. ■

Malavika: I am an architecture graduate with a passion for sustainability and humanitarian causes with a penchant for writing, research and pedagogy. Architecture is a discipline intrinsically enmeshed with life and society and yet treated as an esoteric subject. I believe that communicating architecture is the branch that has the scope to disseminate the knowledge of spaces and living to a larger community and convey its crucial role in everyday life.

My work at the Auroville Earth Institute as the communication and website specialist has allowed me to widen my personal knowledge of sustainable construction practices and at the same time help others access this intensive knowledge through our communication handles. It has already been a journey that taught me not just about earth architecture, but about living a holistic, meaningful and well-rounded life and I look forward to continue learning. ■

Saloni: I am from Mumbai and pursuing my Bachelors of Architecture from Pune University. Before coming to AVEI, I had a very different and basic notion about sustainability in architecture, but after interning here, I believe I have developed a new sense and depth towards Earthen Architecture, and how sustainable architecture can solve a lot of problems in terms of climate. The hands-on workshop which I attended at AVEI was one of the best things I learned here, as it gave me perspective and knowledge about earth as a material. I'm really grateful that I got to be a part of the AVEI team. I learnt a different way of thinking, researching and applying. I will always remember my time over here at the institute and auroville :)) ■



AVEI on-campus training course schedule for 2023

January

23rd to 26th: Ferrocement

February

30th (Jan) to 4th: CSEB Intensive
6th to 11th: AVD Intensive

April

3rd to 17th: Bioclimatic Earth

June

5th to 10th: CSEB Design
12th to 17th: CSEB Intensive
19th to 24th: AVD Theory
26th to 1st (Jul): AVD Masonry

August

14th to 28th: Bioclimatic Earth

September

4th to 9th: CSEB Production
11th to 16th: CSEB Masonry
18th to 23rd: AVD Theory
25th to 30th: AVD Masonry

October

9th to 12th: Ferrocement
16th to 21st: Wind Generator

November

20th to 25th: CSEB Design
27th to 2nd (Dec): CSEB Intensive

December

4th to 9th: AVD Intensive

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Colophon

AVEI online training course schedule for 2023

First Session

2nd to 28th January: AVD Theory
30th Jan to 25th Feb: CSEB Design
27th Feb to 11th March: CSEB Theory

Second Session

5th Jun to 1st July: AVD Theory
3rd to 29th July: CSEB Design
31st Jul to 12th August: CSEB Theory

Third Session

2nd to 28th October: AVD Theory
30th Oct to 25th Nov: CSEB Design
27th Nov to 9th Dec: CSEB Theory

Register at:
registration.earth-auroville.com