



Construction of a vault at the Barri Demonstration House

AVEI NEWSLETTER

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It has been a very international start to 2022, with the three-month construction of the Barri Demonstration House in Syria and a CSEB training course given in Mauritania. CSEB from the Earth Institute also featured in two exhibitions in Europe.

Meanwhile in Auroville, the Earth Institute's mason team worked locally on a house renovation and the regular schedule of on-campus training courses has resumed. A French option is now also available for the CSEB Theory and AVD Theory online courses and AVEI team members participated in two webinars.

And if you are inspired by our work, do take a look at the opening for a Website / Communications Assistant, to start as soon as possible!

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



Building the Barri Demonstration House in Syria



Construction of the overhangs on the Barri Demonstration House

Satprem returned to Syria at the end of January to lead the construction of a demonstration house made from CSEB and showcasing several of the Earth Institute's building technologies for the **Aga Khan Agency for Habitat (AKAH)**. This visit was part of a larger CSEB technology transfer with AKAH to revive the traditions of earthen architecture in Syria and to develop sustainable local livelihood prospects.

This project began in 2020 with the design of the demonstration house by the AVEI team and online training courses for over 50 AKAH-sponsored participants (see **Newsletter No. 47**), and continued with Satprem's first two visits to Syria in 2021 to evaluate soil suitability in the targeted region and to later start block production in Barri, the Syrian village where the demonstration house was to be built (see **Newsletter No. 48**).

And so, on 7 February, Satprem and a team of approximately 12 Syrian masons and 18 Syrian workers, along with the volunteer assistance of two architects and a civil engineer who had been trained during the online courses, began construction on the Barri demonstration house. The two-story CSEB structure with 105 m² of carpet area and 59 m² of accessible terrace gave the team the opportunity to gain experience working with CSEB masonry, including composite ring beams and lintels, constructing segmental vaults and a cloister dome, in situ casting of RCC and precast ferrocement elements like ferrocement stairs and sunshades, the use of T beams with both hourdis and polystyrene panels as filler, and the application of earth-based plasters.

The site was not without its challenges: the temperatures there in the Salamiyah ➡



region of Syria regularly went below freezing, even into March, and access to construction materials and fuel for generators and transport was limited and intermittent. The quality of the CSEB due to soil composition and issues with curing was more variable than usual, with particular fragility of the hourdi blocks leading to the need to use polystyrene panels as infill for some roofs in the place of the damaged hourdis.

By Satprem's departure at the end of April, however, the house was about 80% done, and what largely remained for the team to complete was the first-floor vault and the wall of the first floor to the parapet, as well as finishes such as plastering and placing pre-cast ferrocement elements.

Now what remains to more fully achieve the aims of the CSEB technology transfer project is to see the Syndicate of Engineers approve the CSEB technology and for wider adoption of CSEB through the work of the building professionals who worked on the demonstration house. ■



Top: Laying hourdis between the T beams for roofing **Middle:** Laying the keystone for an arch
Bottom: The team of masons, workers, and volunteer architects and engineers with Satprem on the last day



CSEB training with the ILO in Mauritania



Satprem demonstrating the Auram Press 3000 during the one-week CSEB training program in Nouakchott (© ILO / BIT)

The Mauritanian office of the **International Labor Organization (ILO)** has been using two Auram presses 3000 since 2018 to build schools and houses around Mauritania. Their successful endeavors have resulted in the creation of a new project "PROMOPÊCHE", which aims to promote and develop the fishing sector all along the Mauritanian coast and to generate job opportunities for youth between 15 and 35 years old, who represent 60% of the Mauritanian work force. As a starting point, the European Union has funded two fish processing plants, which are large halls (~158 x 23 m) where the fish can be cleaned and stored before supplying Mauritanian markets.

Therefore, the ILO has purchased six more Auram presses 3000 in order to produce over 300,000 blocks for these buildings.

The ILO invited Satprem to Nouakchott, Mauritania at the end of May to give a one-week training course on CSEB Production to a group of 25 Mauritanian architects, engineers, and technicians, and six site workers to further promote the use of CSEB in the country. The focus of the training was on soil identification through sensitive analysis, with several soil samples brought for analysis both by the ILO and the individual participants, handling of the Auram equipment, and production of a ➤



variety of block types. The group also made a visit to the village of Tiguent where the ILO has already been working.

In addition to this hands-on training, 25 people were also enrolled in the CSEB Theory online course, offered for the first time in French, to give them a deeper theoretical understanding of CSEB composition and production, as well as how to efficiently scale up production.

This was Satprem's third visit to Mauritania in the past two years, and his collaboration with the ILO is intended to continue through consultancy on masonry bond pattern for a training center to be built by the ILO. ■



AVEI Projects & Consultancy Abroad



Top: Students handling the raw material – locally sourced soil (© ILO / BIT)

Bottom: Some of the students trained during the training course in Nouakchott (© ILO / BIT)



House renovation in Utilité Community

The renovation of Radhika's house brought together a diverse range of techniques that particularly showcased the masonry skills of the Earth Institute's team. The bathroom was fully remodelled using oxide and featured a striking ferrocement wash basin that was cast in situ. For the bedroom addition, the walls were made with stabilized rammed earth, the floors were made with oxide, and the roof was constructed of aluminium panels on wooden rafters.

For the detached parking structure, the team experimented with using Triphala as an alternative to cement stabilization, the recipe supplied by Radhika's mentor Sashikala Ananth. Strata of leftover oxide were also interspersed with the layers of soil. ■



Top: Preparing the Triphala for the rammed earth
Bottom: The parking structure with rammed earth walls



Top: AVEI team and volunteers on site in Utilité
Middle: Taking soil from the garden for the rammed earth
Bottom: Casting the bathroom wash basin in situ



Top: Starting the bedroom addition in Utilité Community in Auroville
Bottom: The completed cement-stabilized rammed earth bedroom addition

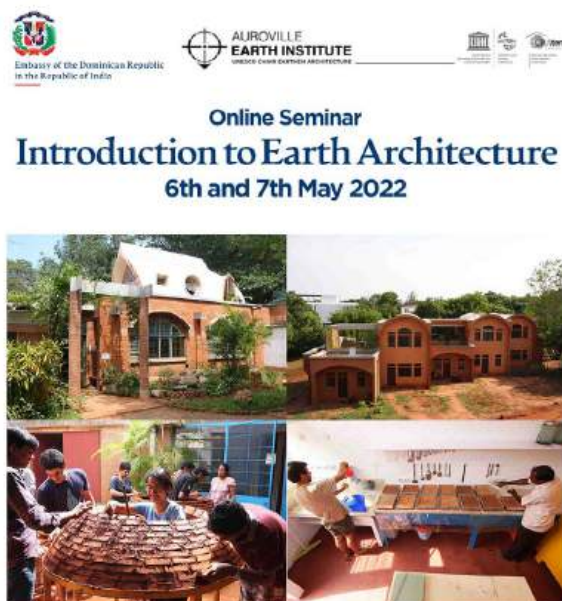


Webinar: Promoting earthen architecture in the Dominican Republic

In May, Satprem and Earth Institute faculty member Omar Rabie offered a two-day Introduction to Earthen Architecture webinar to a group of over 30 professionals from the Dominican Republic. The event was sponsored by the Embassy of the Dominican Republic in India and offered the participants an overview of the work and activities of the Earth Institute, the potential of CSEB for designing bioclimatic buildings using arches, vaults, and domes.

This program was requested by the ambassador of the Dominican Republic in India, who is a friend of Omar and who wished to introduce the Dominican Republic to CSEB, the various technologies developed by the Earth Institute, and the bioclimatic design practiced by Omar. This webinar was a first step toward this transfer of technology. The next steps might be training Dominicans in

Auroville or in the Dominican Republic itself, and later assisting them in the design and construction of bioclimatic earthen buildings.



Webinar: Library services at the Earth Institute



An AVEI book cupboard with a tray of salt to reduce humidity

In February, the Earth Institute's librarian Hilary was invited to give a presentation at a one-day online international seminar on "Research and Library Services", organized by Shri Shahu Mandir Mahavidyalaya in Pune, India. Her talk centered around the "Challenges of Preserving and Providing Access to Library Collections in Hot, Humid Climates", where she focused on the intersection of collection preservation and architecture when trying to meet the needs of library users.

The seminar was well attended with the participation of 1,070 librarians and students, including 950 from India and 120 from 16 other countries. ■



AVEI blocks in international exhibitions

This year, the Earth Institute shipped a selection of its CSEB to be displayed in two different events: the Biennale of Architecture and Landscape in Versailles and the “Our Time on Earth” exhibition in London.

The Biennale of Architecture and Landscape, Ile-de-France, started its second edition in May around the theme of “Land and Cities”. For the **“Visible Invisible”** exhibition, which explored the ways in which innovative approaches to building are addressing the ecological crisis around the world, samples of the Earth Institute’s CSEB were displayed on a table interspersed with images from past projects.

At the Barbican Centre in London, the **“Our Time on Earth”** exhibition likewise considered the ecological crisis at hand and how we can address it through the way we live. One of the Earth Institute’s CSEB was displayed alongside other sustainable building materials, such as mycelium and cross-laminated timber. ■



AVEI Communications & Dessimination



Above: An assortment of the Earth Institute’s Plain 290, Round 290, Plain 240, Half Plain 240, U-shaped 240, Round 240, Hourdi 400, Hollow Interlocking 245, D300, and Mini Block laid out at the “Visible Invisible” exhibition at the Biennale of Architecture and Landscape in Versailles (© Salem Mostefaoui)

Left: The Earth Institute’s Innobloc 250 on display at the Barbican Centre (©Tim P. Whitby)



AVEI visitor

In March, the Additional Secretary for the Ministry of Housing and Urban Affairs, Surendrakumar Bagde, visited the Earth Institute with his family. The Additional Secretary had enthusiastically encountered the Earth Institute's work at the Indian Housing Mela in Lucknow when Radhika had presented there in November 2021 (see **Newsletter No. 48**).

During their visit, Radhika and Ayyappan gave a tour of the exhibition room and a demonstration of the CSEB technology and the use of the Auram press.



Top: Ayyappan showing S.K. Bagde the exposition room

Bottom: A hands-on demonstration of the Auram press for S.K Bagde and his family



Online and on-campus courses in 2022



Trainees learning to use the Auram press during the CSEB Intensive course in May

In addition to training and technology transfer activities abroad, the Earth Institute has hosted its regular on-campus and online training courses. During the year thus far, there have been four weeks of on-campus courses, comprising two sessions of CSEB Intensive, one session of AVD Intensive, and one session of Ferrocement. There was a total of 79 enrollments, predominantly from India with only one participant from the United States. This low number of international participants undoubtedly reflects the on-going challenge for international travel for potential trainees in the current situation.

However, there was a mix of nationalities represented in the first sessions for 2022 of AVD Theory, CSEB Design, and CSEB Theory

offered this year. Fifteen participants took part in this session of online courses, including participants from Uganda, from the United Kingdom, and from Thailand. ■



Trainees participating in the Ferrocement course in March



French translation of select online AVEI courses

The Earth Institute has recently expanded its training efforts to offer online courses in French. In May, a first edition of the CSEB Theory online training course was offered to a group of 25 professionals sponsored by the ILO in Mauritania, with the same coverage as the English course but the presentations, demonstration video, quizzes, and assignments translated into French. AVD Theory has also been translated by Satprem

and Hilary, with dubbing for its catenary method demonstration video by Swar, but has not yet been offered for students.

We hope that having these materials ready for future sponsored groups will allow the reach of these courses to grow, not only to those who are unable to travel to Auroville for on-site training, but also to those who find the English medium to be a barrier. ■

New team member

The Earth Institute has welcomed a new team members this year!

Lisa: I am Lisa a young architect from Germany, passionate about architecture and sustainability. I am here at AVEI as a volunteer for two months, learning more about combining both in Earthen Architecture.

Recently graduated after studying at KU Leuven in Brussels and TU Berlin, I worked in Berlin for almost a year before leaving for new adventures. I believe international exchange and hands-on experience are the best ways of learning, a philosophy lived by in Auroville and at AVEI.

Living and working here on campus is an amazing experience. Not being used to the hot climate I can say first hand that the buildings with CSEB are well designed and do an amazing job at keeping the heat out ;) ■

Job / internship opening:

The Auroville Earth Institute is looking for a website and communications assistant. The role will involve updating website content, preparing social media posts, writing newsletter articles, and responding to emails and phone calls. The ideal candidate will be tech-savvy, possess the ability to synthesize information from a variety of sources, often of a technical nature, and have a very strong command of written English. A willingness to become conversant on the basics of sustainable earth-based construction techniques will be important.

The full description can be read [here](#).



AVEI on-campus training course schedule for 2022

July

4th to 9th: AVD Masonry
25th to 30th: CSEB Design

August

1st to 6th: CSEB Intensive
15th to 29th: Bioclimatic Earth

September

5th to 10th: CSEB Production
12th to 17th: CSEB Masonry
19th to 24th: AVD Theory
26th to 1st (Oct): AVD Masonry

October

10th to 15th: Ferrocement
17th to 22nd: Wind Generator

November

21st to 26th: CSEB Design
28th to 3rd (Dec): CSEB Intensive

December

5th to 10th: AVD Intensive

AVEI online training course schedule for 2022

Second Session

4th to 30th July: CSEB Design
1st to 13th August: CSEB Theory

Third Session

3rd to 29th October: AVD Theory
31st Oct to 26th Nov: CSEB Design
28th Nov to 10th Dec: CSEB Theory

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