

# AVEI NEWSLETTER



The Sri Vast Ashram Reception Hall is now in the final stages of construction and the first courses have been laid for the dome.

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A new year has begun and the Auroville Earth Institute has turned the calendar page in the midst of several architectural and research projects. Construction continues at Sri Vast Ashram and the Earth Institute’s engineers have been busy with work on a PEC road and the Auram Soil Crusher.

The team has evolved with the welcome of a new team member, a sad goodbye to Anna, and Lara’s promotion to the position of co-director.

With the pleasant winter weather, many people have taken the opportunity to visit the Earth Institute, and so the staff has had the pleasure of sharing knowledge with several visiting experts, journalists, and student groups.

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

## Second Generation Earth Building in AV

Over the summer of 2014, Satprem was contacted by Aryan, a long-time Aurovillian, to design for him a small house made with CSEB. But unlike the many individuals who contact the Earth Institute with an interest to build with earthen techniques, Aryan is no stranger to earthen dwellings. In fact, he grew up in Auroville living in a house built with CSEB.

Jaap, Aryan's father and collaborator for the construction of his house, built their family house with CSEB 25 years ago in the Auroville Green Belt community where Jaap is the forest steward. Jaap produced the block using an Astram press, a CSEB press manufactured in Bangalore. This construction was well underway when Satprem first came to Auroville in 1989 to consult on the construction of the Visitors' Center.

Now that Aryan is beginning his own family, he has decided to build his house with CSEB as well. When asked why, he says that he always liked CSEB. It's natural, and when constructing in the Green Belt, one must use as little concrete as possible. From his own experience, he has seen that CSEB lasts quite well.

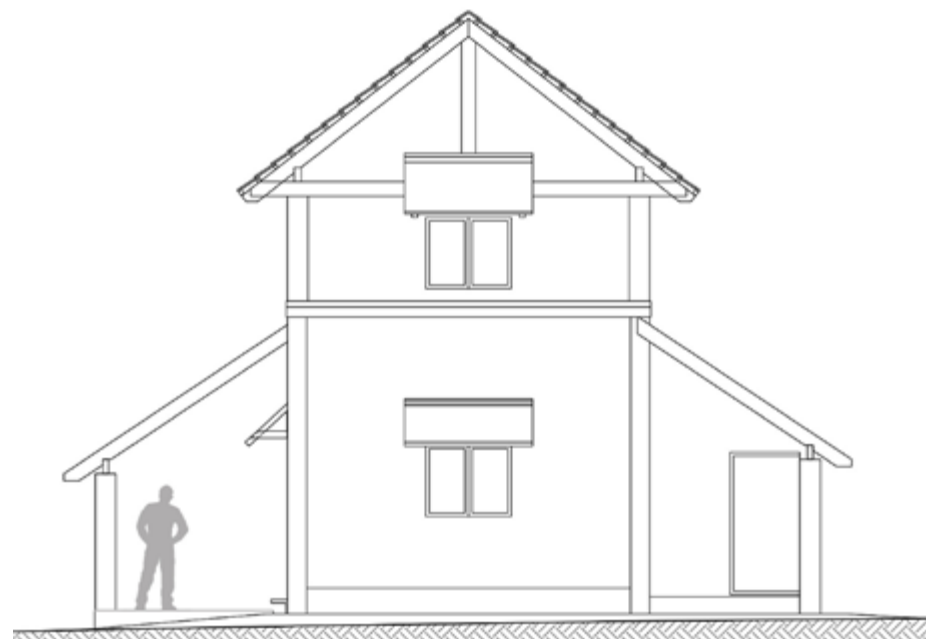
Aryan will manage the construction with the assistance of his friends, but he asked the Earth

Institute to do the concept design and working drawings. With a simple, two-story design and the option of later expansion, the house has been designed with hollow interlocking CSEB, which

allow a mortar-free construction with the use of a stabilized earth grout that is poured into the cavities. This will speed up the masonry work and reduce the cost of construction. ■



*Jaap's family house shortly after construction*



*Elevation of Aryan's house*

## Pour Earth Concrete Road, Part Two

The Auroville Earth Institute has been experimenting with the capabilities of Poured Earth Concrete (PEC) for road surfaces. In August 2014, we completed a first stretch of PEC road (see issue 18 for the full write-up). This road section was a small area of 35.9 m<sup>2</sup> at the entrance to the driveway into the Earth Institute premises. It had very promising results, showing very little cracking and good endurance. A second, larger stretch was therefore planned, and work began at the end of November 2014 with the excavation of a 102 m<sup>2</sup> area further along the driveway. The challenge and goal for this new road section was a large surface area with no split joints; alternatively, in concrete roads, split joints are usually placed every four meters.



*Overview of the road casting*

The goals of this new experiment were to improve workability of the PEC, to adjust the workflow process, to study whether a larger surface area would cause cracking in the PEC, and to observe the durability of the material at a high trafficked location on the AVEI driveway. The challenges of the particular area chosen for

paving were the difficult shape (from a bend in the driveway and the surrounding buildings), and the presence of multiple slopes in different directions.

The area of the road was excavated over the course of four days. Then a 9 to 10 cm layer of gravel was laid down and a compressor roller passed over the top to obtain a compression ratio of 1.25. In one day, the 15 cm PEC wearing course was cast by a team of 17 people. Eight people were dedicated to the measuring and mixing with the cement mixer. Then another 9 people worked to cast the road, transporting the PEC in wheel barrows, spreading it on top of the gravel, operating the concrete vibrator, and passing the screed bar to level the surface. The perimeter and center strip were cast first as reference levels, however the work-



*Leveling the PEC with a steel screed bar*



ers encountered some difficulties because the distance between these reference levels was longer than the length of the screed bar.

The day after casting the PEC road, workers passed over the surface with wire brushes to give a rough finish for better traction. The road was then cured for four days under plastic sheeting and then cured in the open air for twenty-one more days.

This PEC road experiment had very positive results. The cost per meter for the wearing course was calculated to be 592 Rs. Taking statistics from Auroville's Road Service, this price has proven to be 45% cheaper than the average per-meter cost for a concrete paver block road, one of the common road paving techniques in Auroville.

Now it will be important to evaluate the durability and the cost of maintenance of the PEC road, and compare this with conventional road methods. ■

### Rural Housing Knowledge Network (RHKN) Website

The Auroville Earth Institute was requested by Mona Chhabra Anand and Prof. Vijayaraghavan M Chariar (director of the Centre for Rural Development & Technology at IIT Delhi and head of



*Giving a rough finish to the road with wire brushes*

the Rural Housing Knowledge Network (RHKN)), to partner with the RHKN Project and serve as a State Node for Tamil Nadu.

The Rural Housing Knowledge Network is "an updatable repository of information and experiences pertaining to rural housing. The network has been envisaged as a platform to connect various stakeholders involved in rural housing, including rural families, panchayat functionaries, voluntary organizations, officials in local, state and central governments and practitioners. Entrepreneurs and manufacturers, financial institutions and corporate bodies would also have a presence on this portal."

The aim of the partnership is to assist RHKN in strengthening the housing ecosystem in India with appropriate, aesthetic and affordable housing for people at the grassroots level. AVEI was re-

quested to enrich the web portal with state-specific innovations, case studies, and success stories from all over India.

The knowledge portal has been extremely well organized and executed. An impressive quantity of data has been synthesized to provide a comprehensive view of affordable/ sustainable building technologies for housing in the various states of India. This website will serve as a fantastic tool to promote affordable and sustainable building materials and technologies and to enable a diverse range of interest groups to benefit from them.

<http://www.ruralhousingnetwork.in/>



**New Auroville Green Practices Website**

Auroville Green Practices, which promotes workshops around Auroville related to sustainably integrated human habitats, has recently redesigned their website. The new site elegantly presents information about upcoming educational opportunities, enabling students to make inquiries and sign up through an integrated form. The Earth Institute is a frequent collaborator with AGP, and our courses are listed through this site.

To take a look, visit:

<http://www.agpworkshops.com/>



INTERESTS

All workshops

Building & Architecture



Enter to date



UNDO

SEARCH

**Visitors**

On 14th December, Barbara Widera from Wroclaw University of Technology visited the Auroville Earth Institute during her trip to India, en route to give a lecture for the PLEA2014 Conference in Ahmedabad.

Barbara is an architect and researcher, Head of the Contemporary Architecture Department at Wroclaw University of Technology. She is currently working on a book about biological architecture.

**AVEI on the Radio**

On the 12th of November, Christine Hamel, a journalist from German public radio station Bayerischer Rundfunk, interviewed Satprem and Lara about their views on architecture, urban planning, and Auroville.

The program was aired in Munich on the 11th of January. A summary of the broadcast can be found here (in German):

<http://www.br.de/radio/bayern2/kultur/kulturjournal/auroville-100.html>

**AVEI in the Press**

The winter issue of the journal published by the Development and Research Organization for Nature, Arts, and Heritage (DRO-NAH), Context: Built, Living, and Natural, features an article written by Hilary about India's vernacular traditions of building with earth. The article covers regional earth-based construction techniques, methods for modernization of earthen construction, and a case study of the Earth Institute's Spiti project, the Kaza Community Centre.

To read this article (pg. 21) and see the full Context issue on vernacular building:

<http://www.dronah.org/issueetails.aspx?issueid=48>



**Lara Becomes an AVEI Co-Director**

At the beginning of the new year, Lara joined Satprem and Ayyappan as a co-director of the Earth Institute. After these past three years of her teaching training courses, supervising research, overseeing construction projects, and revising core Earth Institute publications, the Earth Institute's whole team is pleased to recognize Lara's unique expertise and dedication to its mission. Congratulations Lara! ■



**New Team Member**

The Earth Institute has welcomed a new member to the team.

**Yves**

I was born and raised in Kigali, Rwanda. After finishing my schooling where I was doing an A2-level construction curricu-

lum, I came to India to pursue my studies in a relevant field. Unfortunately, it did not work out as I planned. Due to my diploma's lack of chemistry and physics elements, Annamalai University said that I was not eligible for Civil Engineering. Frustrated, I even considered going back to my country, but I stayed and did Economics instead.

I started visiting Auroville between 2009 and 2010 and fell in love with the environment, the people, and Sri Aurobindo and the Mother's ideology on human unity. What had been done for Auroville's landscape in transforming a barren land into this green forest, converted me to environmentalism and alternative strategies to protect nature.

That resulted in me doing a Master's degree in Environmental Economics, and here I am in the Earth Institute, chasing my dreams, and looking forward to implementing my environmental and construction skills in AVEI and living harmoniously with nature by choosing earth as the most alternative raw material for a better future for our Mother Nature. ■

**¡Hasta Luego, Anna!**

The Auroville Earth Institute thanks Catalan architect Anna Muset for a year of dedicated work and enthusiasm for the

earth building medium! Anna took on the drawings for AVEI School's dormitories and classrooms, supervised interns, interfaced with clients and visitors, and spiced up the office social life.

The whole office wishes her the best of luck back in Spain! ■



**Recent AVEI Courses**

While the Earth Institute's main training courses will not begin until early February, the past two months have seen quite a few awareness courses and other introductory courses on the Earth Institute campus.

On the 2nd of December, the Earth Institute gave a lecture on "Earth Construction Technologies: Overview, Experimentation, and Applications in Auroville" as part of the CEPT Winter School



program. This five-day program entitled "Sustainable Practices in Auroville" brought students from CEPT University in Ahmedabad for an interactive study of Auroville's efforts in the field of sustainability. Dr. Sarah Strauss, Professor at the Department of Anthropology, University of Wyoming, USA also visited AVEI with some of her students as part of a course entitled "Cultures of Energy: Climate Change and Sustainable Systems in India". Both of these visits were organized by Lalit Kishor Bhati, Auroville Integral Sustainability Institute (AISI).

At the beginning of January, eleven graduate students in Urban Planning and Urban Environmental Systems Management from the Pratt Institute, New York City, came to the Earth Institute for a one-day awareness program. This visit was part of a course entitled "Affordable Housing and Sustainable Design in Urban India", led by Prof. Shachi Pandey, founding principal of Metropolitan Urban Design (MUD) Workshop. A few days later, 28 architecture

students and 2 faculty members from the BVB College of Engineering came for a two-day awareness course. Concurrent to this group, seven Australian students and one faculty member from Swinburne University came for an intensive training session on earth construction, soil analysis, and CSEB production before heading on to the Jamnya Project in Maharashtra to participate in the building of a school with CSEB. To read more about this project, see their blog at: <http://thejamnyaproject.org/> The month ended with another two groups who came for two one-day awareness programs. First a group of 35 people came from Marg Institute of Design and Architecture, and then 45 students and 3 faculty members came from Manoharbai Patel Institute of Engineering and Technology.

If you would like to organize an awareness program at the Earth Institute for a group, please contact: [info@earth-auroville.com](mailto:info@earth-auroville.com) ■

## AVEI Training Course Schedule for Early 2015

### February

2nd to 7th: CSEB Design  
9th to 14th: CSEB Intensive  
16th to 21st: AVD Intensive

### April

13th to 18th: CSEB Production  
20th to 25th: CSEB Masonry

### June

1st to 6th: Ferrocement  
8th to 13th: AVD Theory  
15th to 20th: AVD Masonry

### July

6th to 11th: CSEB Design  
13th to 18th: CSEB Intensive  
20th to 25th: AVD Intensive

## AVEI Newsletter

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Editorial Team:  
Hilary D. Smith  
Lara K. Davis

Auroville Earth Institute  
Auroshilpam  
Auroville 605 101 T.N.  
India

Tel.: +91 (0) 413 - 262 3330  
/ 262 3064  
Fax: +91 (0) 413 - 262 2886

[www.earth-auroville.com](http://www.earth-auroville.com)

[info@earth-auroville.com](mailto:info@earth-auroville.com)  
[training@earth-auroville.com](mailto:training@earth-auroville.com)



*The Earth Institute team sporting the new Earth Block t-shirt*