

AVEI NEWSLETTER



Masonry detail from the Madrasa Ben Youssef, Marrakesh (See: archnet.org/sites/2160)

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With a weak North East Monsoon this year, work on the Sharanam site has been progressing steadily, allowing the team further opportunity to apply research in Poured Earth Concrete foundations.

Lara traveled to attend two conferences: the IA&B conference "Architecture & the City" and COP22-affiliated events in Marrakesh, including the international Construction21 awards ceremony where the Kaza Eco-Community Centre received the Low Carbon Award.

Be sure to look at the revised training course schedule for 2017 on the last page of this issue, which includes the new two-week Bioclimatic Earth course. The Earth Institute will also be hosting a course on lime-stabilized earth building in February facilitated by experts from Strawbuild.

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



Colloquium on Eco-Construction and Sustainable Development held at Marrakesh's City Hall

**Events at COP 22
UN Climate Change
Conference**

Lara traveled to this year's UN Climate Change Conference (COP22) in Marrakesh to represent Satprem and the Earth Institute and to participate in a number of COP22 affiliated events which engaged the Moroccan earthen construction community:

Lara gave a presentation at the colloquium "Eco-construction et Développement Durable", organized by the National & Regional Councils of the Order of Architects of Morocco and Association Eco-Construction & Sustainable Architecture. This event was principally organized by architects Rachid Bouqartacha

and Mohammed El Anbassi. The presentation, entitled "Low carbon construction with earth by the Auroville Earth Institute" gave a general overview of the research and innovation of AVEL, with a case study of the Kaza Eco-Community Centre, Spiti Valley. www.cop22-architecture-climat.ma/programme-activites-parallele.html

At the international conference on "Architecture and Climate Change", organized by The National Council of the Order of Architects of Morocco (CNOAM), Mr. Hayder Ali (Vice President UIA Region V Sudan), Prof. Dominique Gauzin-Müller and Jean Dethier presented compelling calls for contemporary design and urban development with the

environmental sensitivity of the traditional Moroccan medina. www.cop22-architecture-climat.ma

Jean Dethier presented an absolutely stunning illustrated lecture entitled "60 Years of Eco-Construction in Raw Earth in Morocco: What Lessons to Face the Climate Challenge?" on 9th November at Centre of Artisans.

"Earthen Architecture of Today" was exhibited at the Garden of the Radeema, the headquarters of Marrakesh Safi region, and the l'Ecole Nationale d'Architecture de Marrakech.

Ateliers amàco presented "Matières à Construire" 14-18th November, at the Ecole Nationale d'Architecture de Marrakech. ■



MARRAKECH 2016

COP22 | CMP12 | CMA1

UN CLIMATE CHANGE CONFERENCE

مؤتمر الأمم المتحدة لتغير المناخ
+٤١٥٧١ | +٢٢٢ ٤٢٥١١ ٣٣ ٤٠٣٣١١ | ١٥٣٧٤٤



Dominique Gauzin-Müller speaking at 'Architecture & Climate Change', organized by the National Council of the Order of Architects of Morocco



A lecture by architect, city planner, historian, and architectural critic Jean Dethier



EXPOSITION TERRA AWARD - COP22 À MARRAKECH
 À partir du 7 novembre 2016
 1^{re} exposition présentée sur les grilles du Jardin de la Radeema (avenue Mohammed 6, Marrakech)
 2^e exposition présentée au Siège de la Région Marrakech-Safi
 3^e exposition présentée à l'École Nationale d'Architecture de Marrakech

ATELIERS À MACO « MATIÈRES À CONSTRUIRE »
 Du 14 au 18 novembre
 à l'École Nationale d'Architecture de Marrakech

DIFFUSION DE FILMS
 École Nationale d'Architecture de Marrakech
 Stand COP22 du Siège de la Région Marrakech-Safi
 Stand COP22 du Ministère de l'Urbanisme et de l'Aménagement du Territoire

CONFÉRENCES
 Site Event le 12 novembre 2016, à partir de 17 heures
 à la zone verte du site de la COP22, Salle 5

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An exhibition entitled "Earthen Architecture of Today", held at the headquarters of Marrakesh Safi region



Flag-lined road leading to the COP22 events



A workshop organized by amàco on the topic of Raw Earth Construction



Hayder Ali, VP of the UIA - Region V, valorizing the contributions of African architecture



Professional Salon « Minyadina : Eco-responsible Moroccan Artisananship »

Low Carbon Award for Kaza Eco-Community Centre

In conjunction with COP22 in Marrakesh, Construction21 announced its annual international Green Building & City Solutions Awards for 2016. Three urban scale projects were recognized for the categories of Smart City, Sustainable City, and Users' Choice, and seven buildings were recognized in the categories of Users' Choice, Energy & Temperature Climates, Energy & Hot Climates, Low Carbon, Smart Building, Sustainable Renovation, and Sustainable Construction. Construction21 is a collaborative platform for the construction industry, supported and managed by academic institutions and nonprofits in each member country and region.

The Earth Institute's Kaza Eco-Community Centre, located in the Spiti Valley in the Indian Hi-



malayas, was recognized with the international Low Carbon award. Lara and Spiti Projects' director Joan Pollock traveled to Marrakesh to attend the awards ceremony and to represent the incredible team of people responsible for the construction of the centre.

The community centre incorporated the traditional rammed earth technique of the Spiti Valley, adding certain innovative

features to increase the seismic resistance and thermal performance in this extreme climatic and geographical context.

The Earth Institute team would like to dedicate the honor of this award to the traditional rammed earth craftsmen of the Spiti Valley, whose skill and dedication made this earthen building possible and so meaningful in the face of the rampant spread of concrete construction in the valley. The Earth Institute was privileged to work alongside them.

For more information about the award and the Kaza Eco-Community Centre, please see:

www.construction21.org/static/award-2016-videos.html

www.construction21.org/case-studies/h/kaza-eco-community-centre.html

www.earth-auroville.com/kaza_en.php ■



Gatuk, a traditional mason of the Pin Valley

**Architecture | Urbanism
| Sustainability
Seminar, Bangalore**

“Architecture And The City”, a seminar on architecture, urbanism, and sustainability organized by ‘Indian Architect & Builder’ (IA&B) magazine, was held on the 7th October at Nimhans Convention Centre in Bangalore.

Curated by Chitra Vishwanath, principal architect of Biome Environmental Solutions and fellow earth builder, this seminar offered a fascinating medley of thinkers and practitioners in architectural theory, design and planning. Chitra paired two professionals and one academic for each panel discussion, provoking questions about urban consumption, stress on resources, the pressures of development, and the crisis of ecological services in urban India.

“Our cities are ecological tyrants which impose a parasitical relationship with their neighbourhoods and sometimes even within the city they create zones of conflict through enshrined class discrimination.”

The first track on “Architecture” was moderated by Architect Himanshu Burte (Assistant Professor, Centre for Urban Policy and Governance, School of Habitat Studies TISS Mumbai), who problematized some of the conditions of contemporary architecture by critically assessing urban flows of capital, power and aesthetics. Lara (Earth Institute) gave a lecture entitled “Earth For Future



Architects and planners, throughout history, have dreamed of better and innovative cities— more manageable, defensible, efficient, denser, sparser or greener. The built and un-built environments are in constant relationship with each other – sometimes conflictual, ideally harmonious and symbiotic – are integral to the form and functioning of our cities which we must constantly explore to institute and develop.

“One cannot make architecture without studying the condition of life in the city.” – Aldo Rossi

FRIDAY, 7TH OCTOBER, 2016

Registrations; 11.00 am - 11.30 am

Introduction & Welcome Note by IA&B

Lighting of the Lamp

Presentation by Industry partner- JSW Cements

Address by Architect Chitra Vishwanath, Biome- Curator of conference

Track: Architecture
 Speakers- Architect Soumitro Ghosh (Bengaluru), Architect Lara K Davis (Auroville)
 Moderated by: Architect Himanshu Burte, TISS Mumbai

Lunch Break 1.45 pm- 2.30 pm

Audio Visual & details of 361 Degree Conference, 2017

Presentation by Industry partner

Track: Urbanism
 Speakers- Architect Biju Kuniakose (Chennai), Architect Mohan S Rao (Bengaluru)
 Moderated by: Jayaraj Sunderesan, IHS, Bengaluru

Discussion & Question & Answer session

Closing Note at 5.15 pm



Chitra Vishwanath
Bengaluru



Soumitro Ghosh
Bengaluru



Lara K Davis
Auroville



Himanshu Burte
Mumbai



Biju Kuniakose
Chennai



Mohan S Rao
Bengaluru



Jayaraj Sunderesan
Bengaluru

For Pre - Registration email at: iabevents@jesubhai.com



Cities? The Search For The Urban Craftsman”, juxtaposing some of the environmental promises and technical challenges of the use of earth as a building material in modern Indian cities.

The second track on “Urbanism” was moderated by Jayaraj Sunderesan (Urbanist at IHS Bangalore), who spoke on intricate subtleties in the politics of decision-making

in urban planning. Mohan Rao (Landscape Architect, Integrated Design), presented complex regional land usage analyses, making the radical but well-founded claim that architects should be lining up last in the queue of design professionals. ■

www.iabforum.com

www.biome-solutions.com

PEC Foundations at Sharanam

The Earth Institute has continued its research and application of Poured Earth Concrete (PEC) with the casting of the foundations for the Sharanam project in Pondicherry. The implementation of PEC foundations first started in October 2015 with the construction of the single-story units and later with the double-story units of the project. This foundation system is a new alternative to Stabilized Rammed Earth Foundations (SREF), which have been developed and used by AVEI since 1990. Because of the increasing cost of labor in the Auroville area, SREF has become too expensive. PEC foundations are about 25% cheaper than SREF, and have proven to be the least expensive and most efficient foundation construction method in Auroville. PEC foundations can use up to ~50% of local resources, as the earth dug from the foundation is used for the PEC.

The development of PEC foundations has also aided in simplifying the mix ratio used for PEC wall casting. Previous applications of PEC foundations used mixes of 8% cement and equal parts of raw soil from the foundation, sand, 0.5" gravel and 1.5" gravel. This ratio resulted in a crushing strength of about 12.5 MPa (dry) and 10.9 MPa (wet, after immersion in water for 48 hours).

These results were much beyond the required strength, especially

when load bearing requirements do not exceed 0.5 MPa for the double-story units. Therefore, the subsequent research aimed to reduce the cement percentage and change the ratio of soil, sand and gravel. Three different mix ratios were initially tested and the selected sample achieved a strength of 6.5 MPa (dry) and 5 MPa (wet), with a mix ratio of

16.67 kg cement: 50 L. soil: 50 L. sand: 50 L. gravel 1/2", 50 L. gravel 1.5", resulting in cement stabilization of only 5.5%. The 50 m³ foundations of the conference hall were cast with this mix ratio in 2.5 days by a team of 15 people using a medium-sized concrete mixer. Samples collected during casting will be tested at the end of December. ■



Spreading and vibrating the PEC for the conference hall foundations



Controlling the levels at the top of the foundation

Hilary's Book Corner

In 2016, CRAterre, the amàco project, and Ecologik/EK magazine inaugurated the first annual Terra Awards to recognize noteworthy innovative earthen architecture examples around the world as well as the foremost architects who have promoted the earthen medium. To accompany this award, Dominique Gauzin-Müller and illustrator Pauline Sémon created a beautiful publication entitled *Architecture en terre d'aujourd'hui* (in French) to present the architecture projects and pioneers selected by the Terra Awards selection committee, as well as to give an introduction to the basic techniques and principles of earthen construction.

The large format of this book allows it to showcase each architecture project with detailed



© Gauzin-Müller & Sémon

photos, floor plans or elevations, and text descriptions. The jury has favored a certain modern aesthetic in the buildings it selected, but it is also interesting to note the incorporation of vernacular techniques as well as local materials particular to the various regions.

Interspersed between the architecture projects are Sémon's engaging graphic-novel-style illustrations that show step-by-step how to do sensitive soil analysis and how to implement the principle earth building techniques. These images are available on-

line as a dedicated digital document here: https://issuu.com/doc_aecc/docs/16331_bd_terra_award

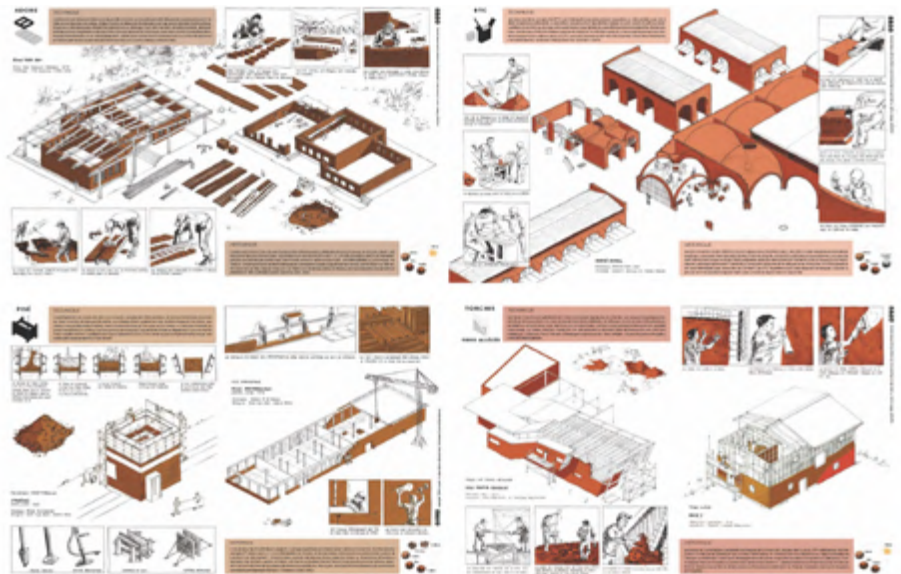
This book touches upon the wealth of innovative earthen buildings around the world, gives a visually stunning introduction to many notable projects and their striking characteristics, and does a beautiful job of valorizing contemporary earthen architecture. Included are two in India: the SECMOL campus in Ladakh and a housing project for a Leper community in Bihar (as well



as three others in the honorable mentions section). The Earth Institute's own Satprem was recognized also as one of the pioneers of the earth building community.

For more information about this publication, please see:

terra-award.org/livre/



Excerpt from *Architecture de terre d'aujourd'hui* (© Gauzin-Müller & Sémon)

Natural Building Workshop: Lime Stabilized Soil

Delivered by Strawbuild
Bee Rowan & Stafford Holmes

Hosted by the Earth Institute &
the Language Lab, Auroville, India

7th - 16th February 2017
PLEASE SAVE THE DATE!

This 10-day Level 1 & 2 workshop will be taught by Bee Rowan (founder and director of Strawbuild, and specialist in low-impact, high-performance building methods with local materials) and Stafford Holmes (author of "Building with Lime: A Practical Introduction", and specialist in historic buildings and limes for conservation). The workshop will offer an introductory and advanced course on lime and lime stabilized soil (LSS) for flood and monsoon resilience building.

Lime and LSS building applications to be addressed include: foundations, walls (i.e. earth block, rammed earth, cob), mortars, subfloors, floor screeds, roof screeds or clay-based plasters/ renders.



**AVEI Training Course
Schedule for 2016-17**

2016

December

5th to 10th: CSEB Intensive
12th to 17th: AVD Theory
19th to 24th: AVD Masonry

2017

February

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

April

3rd to 15th: Bioclimatic Earth

June

5th to 10th: Ferrocement
12th to 17th: AVD Theory
19th to 24th: AVD Masonry

July

10th to 15th: CSEB Design
17th to 22nd: CSEB Intensive

September

28/8 to 2nd: CSEB Production
4th to 9th: CSEB Masonry
11th to 16th: AVD Theory
18th to 23rd: AVD Masonry

October

16th to 28th: Bioclimatic Earth

December

4th to 9th: CSEB Intensive
11th to 16th: AVD Intensive

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A street in the Medina of Marrakesh (See: whc.unesco.org/en/list/331)