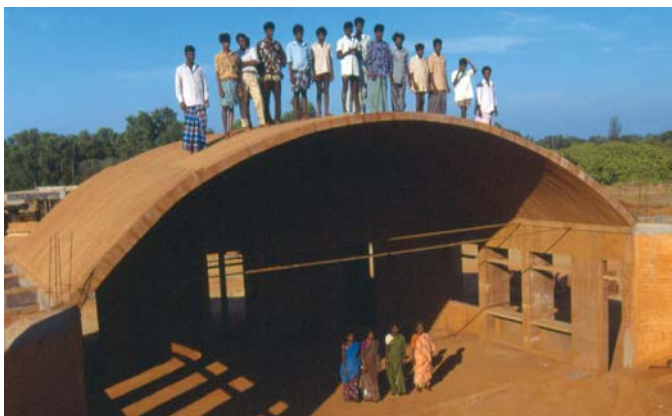
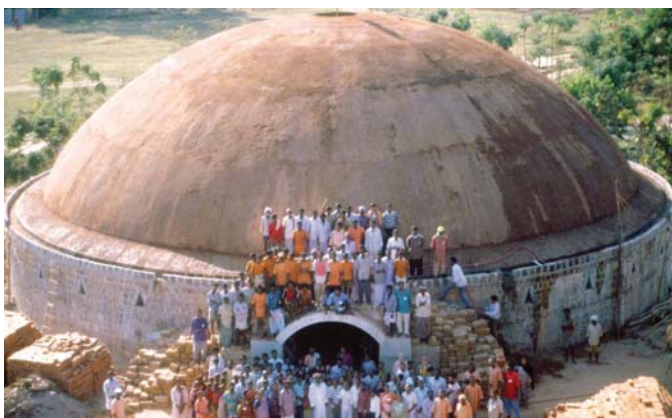


BUILDING WITH ARCHES, VAULTS AND DOMES



Deepanam School, Auroville

Research on **Arches, Vaults and Domes (AVD)** aims to develop constructive techniques integrating 21st century technologies with age-old building techniques, such as those developed in ancient Egypt or medieval Europe.



Dhyanalinga Temple, Coimbatore

AVEI designs structurally optimized, large-span arches, vaults and domes for flooring and roofing, built with CSEB laid with the AVEI **Freespanning technique** (without the use of formwork).

SOIL SAMPLES FROM AROUND THE WORLD

AVEI offers the service of analysing and identifying soil qualities for construction purposes. Today **380 samples** from **92 nations** are displayed in AVEI's exhibition space, demonstrating different textures and colours of soil samples from around the world.

SUSTAINABLE ARCHITECTURE AND CONSTRUCTION

Along with the promotion of earth technologies, AVEI integrates various alternative technologies and renewable energies for the promotion of **eco-friendly and sustainable development**. Earth as a building material plays a major role by reducing the initial embodied energy of buildings; other appropriate technologies like ferrocement, biological wastewater treatment, solar lighting, wind and solar energy are also extensively used for integrated sustainable design. AVEI's approach is to pair earthen construction with **sustainable land management practices** to design a circular ecology for precious natural resources.



*Vikas Community, Auroville
Finalist for the 2000 World Habitat Award*

The Vikas community in Auroville, a **4-story earthen construction**, is a standing example of integrated, sustainable architectural design and construction. The exclusive use of eco-friendly materials, appropriate building technologies, renewable energy sources and biological wastewater treatment creates a model for a healthy living space and local ecology.



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Raw earth as a cost effective and sustainable building material? The **Auroville Earth Institute (AVEI)** has made this possible through its extensive research, promotion and dissemination of earth architecture. Founded in 1989 by the Housing and Urban Development Corporation (HUDCO), Government of India, AVEI has to date won **13 awards**: two international and 11 national. AVEI has worked in **36 countries** across the globe, enabling people to design and build their own habitats using earth techniques.



*Visitor's Centre, Auroville
1992 Hassan Fathy Award for Architecture for the Poor*

UNESCO CHAIR EARTHEN ARCHITECTURE

AVEI is the Representative for Asia for the **UNESCO Chair Earthen Architecture—Constructive Cultures and Sustainable Development**. AVEI's network is far and wide. We collaborate with CRATERre (The International Centre for Earth Construction) based in France, ABC Terra in Brazil and a number of global and Indian NGO's. Besides this, AVEI has a partnership agreement with the School of Architecture of Grenoble, France for providing long-term training to their students. AVEI is also a member of BASIN South Asia (Building Advisory Service and Information Network). AVEI provides information and guidance to interested people.

AURAM EQUIPMENT

From its inception, AVEI has developed a wide range of equipment for building with earth, notably the **Auram Press 3000** for the production of **Compressed Stabilised Earth Blocks (CSEB)**. This press has gained a reputation of being one of the best presses available worldwide. In partnership with **Aureka**, AVEI provides the AURAM equipment along with quality control devices for block making, handling equipment, hand tools, scaffoldings and rammed earth equipment.



The Auram Press 3000

BUILDING TECHNOLOGIES

AVEI's aim has been development with extensive use of raw earth as a building material, thereby maximising the use of local resources and minimising the use of steel, cement and other high embodied energy building materials.

Building technologies developed by AVEI include:

- Stabilised Rammed Earth Foundations and Walls
- Compressed Stabilised Earth Blocks (CSEB) — 18 moulds for the production of 70 different blocks
- Composite Columns (round and hollow CSEB with RCC)
- Composite Beams (U shaped CSEB with RCC)
- Stabilised Earth mortars, plasters and alternative stabilisers (homeopathic milk of lime and alum)
- Alternative Waterproofing with stabilised earth (soil, sand, cement, lime, alum and tannin)
- CSEB Arches, Vaults and Domes

TRAINING COURSES

AVEI offers regular training programmes both in India and abroad. Since the beginning of training activities in 1990, more than **11,000 people** from **80 countries** have been trained.



Training in Progress

The training courses offered are:

- **Production of CSEB** — [4 TO 6 COURSES PER YEAR]
One week course for various skill levels.
- **Masonry with CSEB** — [4 TO 6 COURSES PER YEAR]
One week course for various skill levels.
- **Theory of Arches, Vaults & Domes** — [3 TO 5 COURSES PER YEAR]
One week course for engineers/architects/technicians/students.
- **Building with Arches, Vaults & Domes** — [3 COURSES PER YEAR]
One week course for various skill levels.
- **Long-term Training** — [1 TO 6 MOS.]
15 to 30 students of architecture trained every year.
- **Awareness Programmes** — [8 TO 10 PROGRAMMES PER YEAR]
1 or 2 day programmes for Schools of Architecture, Council of Architecture, architects and engineers.

PUBLICATION OF MANUALS

AVEI has **16 publications** for sale for the dissemination of earth technologies, presently available in four series - Introductory Booklets, Training Manuals, Case Studies and DVD's.

DISASTER RESISTANT CONSTRUCTIONS

In response to the need for **disaster resilient** structures, AVEI has developed several **reinforced masonry systems**, including hollow interlocking and dry hollow interlocking CSEB systems, which have provisions for vertical and horizontal reinforcement.

The square Hollow Interlocking Block 245 allows for constructions up to 2 floors high and the rectangular Hollow Interlocking Block 295 is used only for ground floors. Laying hollow interlocking blocks requires only a thin mortar of 5 mm to bind the blocks. With the assistance of AVEI, several thousand houses were built in Gujarat after the 2001 earthquake.



*AUM House Prototype, New Delhi, India
Assembled in 66 hours. ITPO Gold Medal, 1999*

These technologies have been approved as a suitable construction methods for the rehabilitation of disaster affected areas by the Governments of Gujarat, India after the 2001 earthquake, Iran after the 2003 earthquake in Bam, and Tamil Nadu, India after 2004 tsunami in Indonesia.

RESOURCE CENTRE

AVEI operates as a resource centre, collecting information relevant to suitable technologies for development. Besides a wide range of physical samples available in the exhibition room, the centre hosts an extensive library of books, digital publications, photos, slides and videos on appropriate building technologies.