

SECOND NATIONAL TECHNICAL CONFERENCE ON EARTH SHELTER PERFORMANCE AND EVALUATION

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During the last few years, interest has been revived in the passive design methodology for achieving energy conservation. One of the interesting ways of achieving thermal balance and saving energy is by building subterranean or above ground earth sheltered structures.

The Second National Technical Conference on Earth Shelter Performance and Evaluation (sponsored by Oklahoma State University's Architectural Extension in co-operation with the American Underground Space Association and *Earth Shelter Digest* magazine) proved once again successful in bringing together more than two hundred professionals with expertise in architecture, planning, building industry, and energy as well as the occupants of earth sheltered structures with their personal experiences of building and living in them. The conference participants discussed vernacular earth sheltered structures in various parts of the world as well as the most recent findings in design and construction techniques of contemporary earth sheltered buildings.

Professor Lester Boyer of the Architectural Extension at Oklahoma State University, an authority in the field of subterranean structures and Chairman of the conference, has been the prime force behind the revival of the world-wide interest in earth sheltered buildings. According to Professor Boyer: 'A shifting emphasis toward passive cooling has been emerging with regard to the energy incentive for building earth shelters'.

According to a survey conducted by the *Earth Shelter Digest* a total of 2250250 existing earth sheltered structures have been verified in U.S.A. while an equal number remain unsurveyed. In comparison, ten million people live and work underground in the Chinese loess belt in the provinces of Honnan, Shansi, Shensi and Kansu, where dwellings and other buildings are carved out around central atriums from soft loess depositions. Such a unique concept of dwelling underground and having fields as the roof allows the

land to perform a dual function. Professor Arthur Bowen of the University of Miami, an invited dinner speaker reviewed such earth sheltered buildings throughout the world with a special focus on the monolithic carved rock temples of India. My own presentation, entitled 'Atrium Adobe Houses of the Arab World', similarly focused on the contextual relationship of atrium adobe houses to their environmental elements, the significance of such building forms ('mud lumps'), and the application of their design methodology in contemporary architecture. Thus, throughout the world such earth sheltered buildings exist in one form or another and the interest in their potential for energy conservation is growing. According to Professor John Yellot, Technical Chairman of the upcoming 1981 International Passive Cooling Conference in Miami, the technical papers submitted this year undoubtedly showed growing interest in the area of earth shelter integration for cooling. In the tropics, especially in the arid regions, earth sheltered buildings integrated with the concept of atrium as an environmental moderator can be an important aspect of the design philosophy.

The papers presented in the conference were grouped into seven topical areas. The first three groups dealt with energy design strategies on an overall holistic basis, and on the building form. The next two categories discussed the analysis of passive solar integration and the performance modeling and simulation process. The remaining topics dealt with reactions of those who occupy such building types and energy usage. During the conference residential as well as institutional projects were analyzed. The Building Research Advisory Board of the National Research Council as well as U.S. Government facilities in Illinois, Iowa and Idaho were represented.

Twenty-three papers, carefully selected from a large number of papers submitted, presented very high quality research and analysis dealing with performance of earth sheltered buildings. Vernacular solutions as

well as future development in earth sheltered buildings showed much promise.

This was the Second National Technical Conference on Earth Shelters organized by the Oklahoma State University and Professor Lester Boyer its founder is hopeful that in the near future it will be organized as an international congress. During several discussions with him I have suggested that the venue for such an international meeting could be in one of the arid

regions of the world such as the Middle East. One hopes that such future expectations on the part of the organizers will be fulfilled as they deserve recognition for having already generated considerable world-wide interest in earth sheltered buildings.

Proceedings of the conference which include all twenty-three papers are being published by the Oklahoma State University and A & M College, and Professor Lester Boyer is the editor.