

"It is timely and meaningful to discuss the Phi Theta Kappa International Service Program 'Operation Green: Improving Our Communities.' We are all too aware that we are using up our natural resources at an exponential rate; consuming energy inefficiently; contributing to the pollution of our earth, water and air; filling up our landfills with environmentally-damaging material and depleting our water sources and much more. As an architect that has practiced exclusively in the Phoenix metropolitan area for the past 30 years, the architectural work has strived to be environmentally conscious and minimize energy consumption with passive energy-saving systems and concepts. Title of the talk is 'Environmentally Sensitive Desert Architecture' and were five basic design principles to discuss; 1. Site Planning; 2. Building Orientation; 3. Building Structures; 4. Recycling; and 5. Landscape. There would also be some overall wrap-up and summary comments.

Site Planning priorities include: 1. Avoid impacting existing natural washes to maintain the existing drainage patterns; 2. Salvage existing landscape that is mature and often clustered around drainage patterns; 3. Place a new structure so that it is ecologically the least disruptive to the natural systems on a given site; 4. Where possible, bring the desert landscape back to urban settings; and 5. Minimize the heat sink factor through various effective design strategies. Specific projects highlighted at addressing these points included the Unitarian Universalist Congregation of Phoenix 9-acre Master Plan in Paradise Valley, City of Scottsdale Loloma Transportation Station and the recently constructed Yen-Li Chen Ballet School in Chandler.

Building orientation priorities include: 1. Respect a longer east/west axis with the building footprint, thereby minimizing heat gain on the most severe exposures; 2. Extend interior spaces to the outdoors which has us rely less on the interior conditioned space; 3. Provide less conditioned space with the use of a very efficient Floor Plan where unoccupied areas as circulation are reduced to the minimum; 4. Incorporate a host of shading features at exterior glazed areas and even walls to cut off the direct sun from hitting such surfaces and encouraging more solar heat gain than is necessary. Specific projects addressing these ideas include the City of Scottsdale Appaloosa Branch Library being designed with DWL Architects of Phoenix; Scottsdale Community College Applied Sciences Classroom Building and the City of Chandler Solid Waste Administration Offices.

Building structure priorities include: 1. A well-insulated building envelope with a minimum of insulative value of R-15 walls and R-30 roof systems; 2. Encourage multiple stories in lieu of the typical one-story, which reduces roof area and therefore solar heat gain; 3. Avoid glazing on the more severe exposures as the west; 4. Shade glazing and walls where appropriate and exploit natural day-lighting concepts to minimize energy consumption and avoid the use of artificial lighting during the day. Specific projects includes the Graves Residence Renovation in Phoenix with its 'Intrega Block' system that is an insulative block system with about an R-15 rating while allowing the masonry to be aesthetically exposed on the exterior and interior. This project also suggested a floating roof form that is very protective of the uses below while shading all glass area. Other projects included the Yen Li Chen Ballet School of Chandler with various shading strategies, Prestige Cleaners Airpark Store in Phoenix and the Oasis Community Center Additions in Rio Verde.

Recycling priorities include: 1. Save existing structures where possible, rather than expending significant energy and resources to construct new buildings; 2. Salvage and potentially reuse building components and within the same project; and 3. Specify and use materials that are recyclable, have recyclable content and are not environmentally damaging. Specific projects that expressed these points included the Unitarian Universalist Congregation of Phoenix Master Plan in Paradise Valley and the 4821 North Scottsdale Road Retail Development in downtown Scottsdale.

Landscape priorities include 1. Specifying drought resistant xeriscaping and avoiding turf or grass; 2. Engineer water-efficient irrigation systems; 3. Reinforce the architectural intentions as shading glass and wall areas; 4. Minimize the reflectance of glare and heat into glass areas with

landscape, and 5. Filter the intense harsh sun before it reaches glass areas. Projects that featured these aspects included the Oasis Community Center Renovation in Rio Verde and the Signature Salon Studios in Mesa.

Summary comments included the 1. Encouragement of mixed-use developments where people may work and live in the same structure, thereby reducing lengthy vehicle trips that require gas and pollute the air. 2. Take a more holistic and integrated approach where various energy-saving and environmentally sensitive concepts are balanced and 3. Move towards sustainability where we are less reliant on natural resources and inefficient energy consumption. Specific projects include the LVA mixed-use development at 75<sup>th</sup> Street and Main Street in downtown Scottsdale. It included a café and retail at the first level, office suites at the second level and 4 residential units on the third top level. The City of Scottsdale Appaloosa Branch Library located at the former Rawhide Property and now known as the Silverstone Development is pursuing the LEED certification at the Gold Level. This requires that all systems, products and materials potentially being incorporated into the structure is evaluated and tested against the environmentally-conscious criteria without exception.”