

UNIVERSITY OF MISSOURI LED ENERGY EFFICIENT PROJECTS IN GLOBAL MARKET: APPLICATION OF SUSTAINABLE GROUND ENERGY IN OLYMPIC FACILITIES

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University of Missouri, Columbia (MU) faculty members are involved in energy efficient projects in China with grant support by both the U.S. and Chinese governments. A large commercial building was selected by the Beijing City Government to demonstrate sustainable energy applications for space heating and cooling, prior to the construction of the 2008 Beijing Olympic Facilities. A large underground heat exchange system with 700 borehole matrix was designed by Dr. Shawn Xu to provide full heating and cooling of a building with a space of 287,000m² (309,000 ft²). Economic analysis with actual initial installation investment and operation costs for the project showed the feasibility of this technology. After successful operation of the demonstration project, Dr. Xu assisted the Chinese developers in adopting similar energy efficient technologies for the 2008 Beijing Olympic Facilities. Detailed engineering aspects of the energy efficient utility system for the National Stadium (Bird Nest), Olympic Athlete Village, and the National Olympic Forest Park will be given in the presentation. MU opened its Environmental and Energy Technology Office (ENTECH) in Beijing in 2006 through a partnership with the U.S. Department of Commerce. ENTECH serves as a resource center for information on US environmental and energy efficient technologies and products for use in China.