



RESEARCH CAPACITY ASSESSMENT

University of Arizona

Introduction

The University of Arizona (UA), located in Tucson, was founded in 1891 with the establishment of the College of Agriculture and the College of Mines. The University expanded rapidly in the following years, with the College of Law added in 1925, the College of Management in 1944, and the College of Medicine in 1961. Today, UA is the second largest institution of higher education in Arizona, with an enrollment of more than 33,000 students. More than 300 degree programs are offered, including 114 masters and 89 doctoral and professional degree programs. Its purpose remains, in the language of the original law, "to provide the inhabitants of this state with the means of acquiring a thorough knowledge of the various branches of literature, science, and the arts," and, insofar as possible, to provide a technical education adapted to the development of the resources peculiar to Arizona.

Maintaining strong research programs is a primary concern of the more than 1,500 full-time faculty and research staff at UA. The University received \$345 million in external support for sponsored activities in fiscal year 2002 from both private and public sources. Research interests at the University include a variety of academic disciplines, as demonstrated by the number of research groups and facilities (Environmental Research Laboratory, the Arizona Research Laboratory, UA Steward Observatory, Arizona Cancer Center, UA Optical Sciences Center, and UA Science and Technology Park, to name a few). Because of the longstanding tradition in research at UA, creative partnerships have been developed among the University, federal and state agencies, and private businesses to bring practical application to the results of research efforts.

Research Areas and Programs

Tucson, Arizona, is representative of housing challenges in the Southwest. The region has more than 300 days of sunlight, a hot, arid climate, and a long history of responding to water resource challenges. Housing research at the UA is a shared endeavor between the College of Agriculture and Life Sciences and the College of Arts and Sciences. Faculty collaborations on both basic and applied aspects of housing research focus on building thermal performance (energy efficiency and human comfort) and residential water (management, safety, and security).

Energy and Building Thermal Performance

The oil crisis of the 1970s proved to be a catalyst for the University of Arizona's research in resource-efficient housing design. Federal funding for the Passive Heating and Cooling Test Facility at the University of Arizona's Environmental Research Laboratory (ERL) supported seminal research on housing energy performance in the arid southwest. This research has continued and is currently focused in several areas:

- Performance standards for residential energy efficiency
- Analytical tools for building thermal performance modeling
- Fundamental aspects of mass, thermal transfer, and human thermal comfort
- Development of human thermal comfort simulation tools
- Barrier to improvements in housing energy performance toward zero energy
- Monitoring and assessment

Water Management, Safety, and Security

The Water Quality Center (WQC), a National Science Foundation industry-university cooperative research center, is housed at the University of Arizona's Environmental Research Laboratory. The WQC consists of a prestigious group of research scientist within the UA. The Center is a unique combination of University expertise and corporate interest that leads to scientific discoveries that can enhance water quality for communities. Research is focused in several areas:

- Water security
- Fate and remediation of water contaminants
- Agrochemical products and practices that influence water quality
- Municipal waste treatment and reuse
- Potable water quality

Research Facilities and Capabilities

Housing research at the University of Arizona will be performed principally at the Environmental Research Laboratory, an off-campus research facility adjacent to the Tucson International Airport. It includes laboratories, offices, test facilities, and demonstration areas on its 6-acre campus. The Environmental Research Laboratory is part of the

Department of Soils, Water, and Environmental Sciences of the College of Agriculture and Life Sciences.

Outreach activities will involve local initiatives, regional conferences, and faculty presentations at community education forums and at national and international meetings. Technology transfer will be through peer-reviewed publications, patents, and technical assistance contracts.

Staff and Contact Information

- Martin R. Yoklic (myoklic@ag.arizona.edu), Associate Research Scientist (ERL/SWES), community energy and water security.

- Nader V. Chalfoun (chalfoun@u.arizona.edu), Professor (ARCH), thermal mass in production housing
- Ian Pepper (ipepper@u.arizona.edu), Professor (ERL/SWES), identifying contaminants and pathogens in potable water systems

Current as of October 13, 2004