



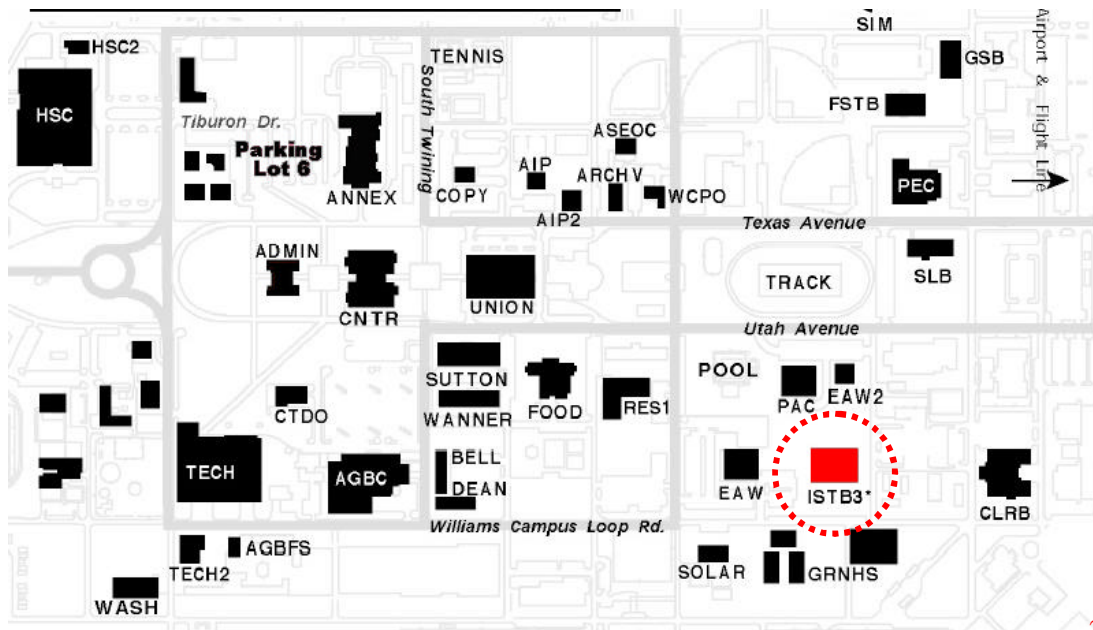
interdisciplinary science and technology building III

Williams Field Rd, Mesa, Arizona

01. building data

Project: The Interdisciplinary Science and Technology Building III will be home to the Applied Biological Sciences Research Laboratories, Applied Cognitive Sciences Center, Healthy Lifestyles Center and Plant Made Pharmaceutical Research and Manufacturing Facility. The building is part of the \$185 million state of Arizona Research Infrastructure Bill passed by the Legislature in June 2003.

Location: Located on the northwest corner of Sawyer and Unity Avenue on the campus of Arizona State University East.



Cost: \$12 million

Architect: Jones Studio Architects

Building Area: 34,600 square feet

Engineer: Evans, Kuhn & Associates

Completion Date: December 2005

Contractor: Hardison / Downey Const.

Occupancy Date: January 2006

Project Manager: Todd Kadjan

Goals: Seeking LEED Silver Certification.

If accepted, it will be the only facility on the ASU East Campus with this distinction.

02. hypothesis

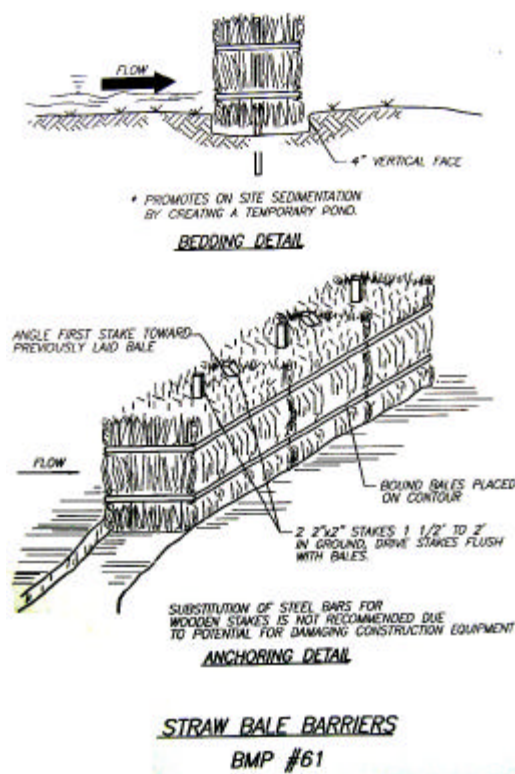
Any hypothesis fashioned on the performance of this building at this time would be established solely on statements made by the architects or their design team. This conclusion is based on the fact that there is no building currently on site and construction will not be completed during the course of our investigation this semester. Any hypothesis could therefore only be made based on current plans and specifications and tested only through simulation programs. Without a building no measurements can be taken and analyzed.

Our assumption is that this building will conform to high energy performance standards due to the design team's desire to receive a LEED Silver certification.

The following statement has been made by the architect: "Some of the 'green' features include day lighting; the mechanical systems will meet stringent LEED specifications; most building materials used will come from sources within a 500-mile radius of the site; the landscaping is drought-tolerant; a 'gray water' reuse recovery system and low-flow toilet fixtures will be installed, along with waterless urinals; we will use recycled building materials, energy efficient lighting fixtures and an Energy Star rated roofing; and the storm water is contained on site, meaning no runoff." The facility also will feature three gardens within the footprint of the building that are accessible to the occupants, as well as a charging station for electric vehicles and a changing room with showers for those who wish to ride their bicycles.

Based on this, we have concluded that further investigation must still be done in order to properly form a hypothesis.

Therefore, we propose that interviews with the architect and design team must be done in order to accurately detail all the systems that will be in place. Once these systems are identified, a proper hypothesis based on their performance can be formulated. After which simulation and analysis can be done to demonstrate any thermal comfort that the systems provide.



We have conducted a site visit which has not informed us well. Also we have obtained some construction drawings, but they are an incomplete set in that there are no floor plans or mechanical systems specified.



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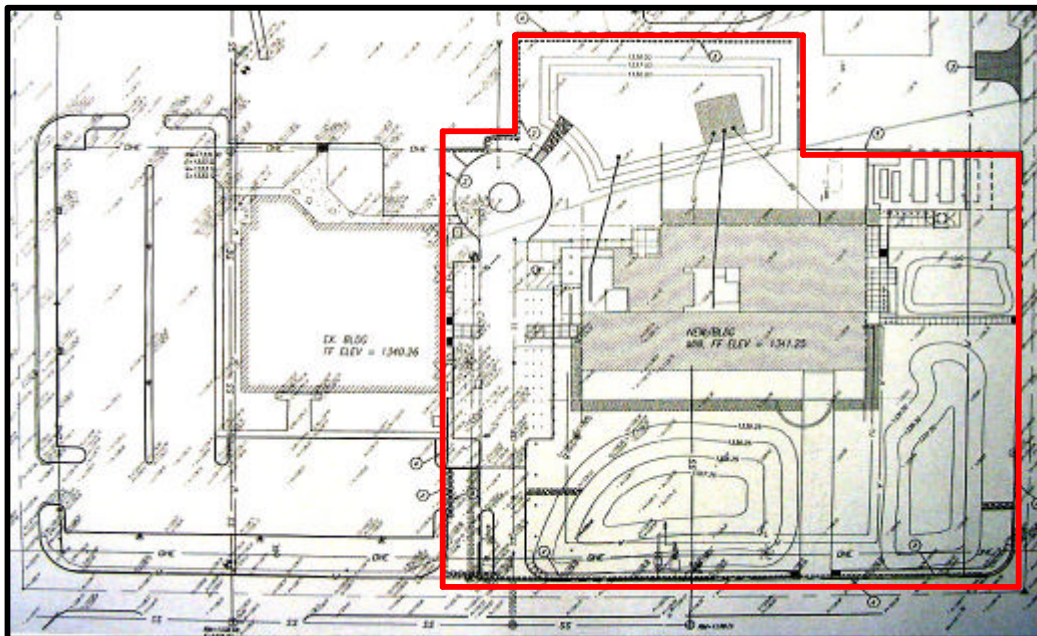
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Therefore, at this time we can only say that based on the architect's statements, we assume that the building will perform well and operate using less energy than a traditional building of the same size. Consequently, our attempt to simulate its conditions will either prove or disprove this statement.

03. schedule of data

In order to simulate any building's energy performance certain criteria must be defined. For the ISTB III, we must identify all planned systems and simulate their performance against all claims made by the architect. All the building systems must first be identified: the site systems, envelope systems, structural systems, mechanical systems, and interior systems. Once these have been defined and analyzed a suitable hypothesis can then be constructed. After which, these systems can be simulated within the microclimate of the site and their energy performance determined. There is, of course, a good deal of investigation to do in analyzing how the systems are integrated to work together as well as respond to their site. This begs many questions. Are the systems integrated well? Do they compliment each other? Do they conserve energy? Do they generate adequate thermal comfort? Do the systems comply with ASHRAE / IESNA standard 90.1-1999? There are many questions that can be identified once the systems have been understood.

04. references:

Architect's homepage found on January 21, 2005 at web address:

<http://www.jonesstudioinc.com>

Lambrakis, Christine. (December 3, 2004). "ASU Breaks New Ground for Research Facility." Arizona State University Website: News and Information. Found online on January 22, 2005 at web address:

http://www.public.asu.edu/asunews/research/groundbreaking_120304.htm

Padgett, Mike. (December 10, 2004). "ASU East Work Starting." The Business Journal of Phoenix: Real Estate Section. Found online on January 22, 2005 at web address:

<http://phoenix.bizjournals.com/phoenix/stories/2004/12/13/newscolumn3.html>

05. images:

1. Illustration of ISTB III, taken from Jones Studio website
 2. Map of ASU East Campus, provided by Office of Facilities Mgt.
 3. Detail of Straw Bale Barriers, taken from construction drawings
 4. Photo of site taken by authors
 5. Photo of site taken by authors
 6. Photo of site taken by authors
 7. Photo of site taken by authors
 8. Site plan taken from construction drawings
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