News Release

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Arizona State University's Vision Takes Shape With Completion of First Phase of The Biodesign Institute

Interdisciplinary Research Facility's Design Evokes Values of Communication, Collaboration and Integration

TEMPE, Ariz., July 2005 – Arizona State University (ASU) President Michael Crow's vision of promoting interdisciplinary research and collaborative partnerships in the growing and converging fields of biology, computing and engineering, is becoming reality with the completion of the first phase of The Biodesign Institute. Dr. George Poste, *R&D Magazine*'s 2004 Scientist of the Year, has described The Biodesign Institute, which he heads up, as the "flagship entity" that will make ASU one of the country's leading centers of research excellence.

Biodesign Phase I is a $74 million, 176,018 gross-square-foot facility planned and designed by the architecture team of Lord, Aeck & Sargent and Gould Evans Associates. When completed, The Biodesign Institute will comprise four buildings grouped together and linked by atriums and green space. Phase II, a $78.4 million,

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174,373 gross-square-foot building, is scheduled to open in fall 2005. The first two phases have been funded in part by a research infrastructure bill passed by the Arizona state legislature.

The physical design of Phase I and future buildings in the complex is meant to symbolize the mission of The Biodesign Institute, which is to improve human health and quality of life through use-inspired biosystems research and effective multi-disciplinary partnerships.

Building Design Evokes Values

In designing the building, the Lord, Aeck & Sargent / Gould Evans team gave careful consideration to the values of The Biodesign Institute – communication, collaboration and integration.

The building's design encourages both planned and informal communication among researchers. Since circulation of scientists is key to maximizing their interaction opportunities, lab, office and conference spaces converge around an open atrium that links people visually, vertically and horizontally in the four-story structure. The atrium concept forms the central spine of Phase I and will continue as a theme in future phases.

The atrium features a monumental staircase designed to encourage interaction. As the main circulation space between the building's laboratory and office spaces, it is the first choice of travel between floors. Staircase landings, sized for the planned intersections of people, provide spontaneous meeting places. Markerboards, strategically placed throughout the space, further support the informal exchange of ideas.

The building also makes extensive use of glass and natural light throughout the first through third floors in order to create a transparency that encourages interaction. Glass-walled conference rooms and break rooms as well as open laboratories on each of these floors encourage an open culture that invites dialogue and exchange of ideas. Both conference and break rooms are situated in corners, which are important intersections of circulation.

Forward-looking Research Labs

The Biodesign Institute consists of approximately 40,500 square feet of research laboratory space, 22,700 square feet of lab support space, and 31,000 square feet of co-lab space (offices, conference rooms and collaboration spaces).

Research laboratories, located on the first, second and third floors, were designed using a forward-looking open lab concept that provides both extensive flexibility to promote plug and play as well as rapid and inexpensive adaptability to the changing nature of research and scientific instruments. The labs are designed to meet the foreseeable demands for power, data service, water, sewer, and ventilation/temperature control. In addition, the design will facilitate future infrastructure modifications, as research needs and demands will inevitably change over time.

The open labs and lab support spaces use 11-foot modules so that basic utilities such as power and gas can be extended from vertical utility shafts via overhead service carriers. This allows researchers to respond to new requirements by rearranging instruments and other equipment and extending the amount of bench space needed in a much easier manner than if the utilities were delivered via countertop. As utilities are not connected to the lab benches, the overhead service carrier design allows for an

enormous amount of flexibility in that the benches themselves can be moved and reconfigured without requiring extensive utility work.

The labs' HVAC design is such that every two laboratory modules have their own independent HVAC and controls. This allows for subdivision of the open lab concept with walls in the event that security or chemical/biosafety issues require it.

The result of the open, module-based laboratory design approach is that research can progress without physical restraint and productivity will be increased.

A Vibration-free Environment

A significant portion of the research areas on both the lower and first levels of the Biodesign Institute's first phase is programmed to house highly sensitive equipment that operates at the nano-scale. In order to accommodate the stringent requirements of this equipment, it was important to design a vibration-free environment as well as one that would be shielded from electromagnetic interference (EMI) in the external environment as well as equipment within the building (such as metallic building components and elevators).

To address this, the architects created vibration and EMI control zones using thick (18-inch) concrete slab floors, condensed column spacing and special construction methods in the center portion of the basement and first-floor labs. The mechanical ductwork and all above-ceiling plumbing utilities supplying these areas are suspended from a separate structural system so as not to transfer vibration to the first floor slab. Major electrical runs are routed around these sensitive areas. The south elevator shaft is totally lined with half-inch-thick low carbon steel to mitigate the EMI field generated when the elevator is moving.

Connection to the Community

The Biodesign Institute will ultimately occupy a 13-acre site and be a new eastern gateway to the ASU campus. The architecture design team gave careful consideration to the materials and siting of the Biodesign Institute complex in order to maximize a sense of connection to the existing campus context as well as the larger community. A brick façade makes a connection to the masonry vocabulary of other buildings on the campus.

The building's east elevation faces the community and rises from a beautifully landscaped Sonoran desert garden located in the forecourt. Laboratory spaces face the garden, and a custom-designed glass curtainwall allows the building – though not open to the public – to become a window to research, reinforcing the idea that science can be both transparent and accessible.

Connection to Nature

The building also maintains a connection to natural light and nature. Its high ceilings feature glass partitions to the exterior, permitting researchers to view the outside from their lab spaces. Another reference to nature is the lower level terrazzo floor, which uses native river rock, paying tribute to the fact that the Salt River used to flow through the site.

Extensive daylighting studies were conducted to allow maximum light to enter the building without subjecting its occupants to the intense desert sun. A carefully designed atrium skylight brings diffused daylight into the colab zone and allows natural light to spill into laboratory and open office areas as well as the lower level of the building.

In addition, an exterior louver shading system was designed to function as a sunscreen and to give the exterior a sophisticated image. The louver system is

designed in two sections: the portion from the ceiling is automatically controlled to maximize daylight and minimize direct sunlight from entering the space; the bottom section can be adjusted by the occupant.

The Design and Construction Team

In addition to Lord, Aeck & Sargent and Gould Evans Associates as architects, the design and construction team for Phase I of The Biodesign Institute includes:

- Paragon Structural Design (Phoenix) – structural engineer
- Newcomb & Boyd (Atlanta) – MEP/FP
- Evans Kuhn Associates (Phoenix) – civil engineer
- Ten Eyck (Phoenix) – landscape architecture
- Colin, Gordon & Associates (San Bruno, Calif.) – vibration/acoustical consultants
- VitaTech Engineering (Springfield, Va.) – EMI consultant
- Prof. Marlin Addison (Arizona State University, Tempe) – DOE energy design
- Sundt/DPR, a joint venture of Sundt Construction and DPR Construction – construction managers

About Lord, Aeck & Sargent

Founded in 1942, Lord, Aeck & Sargent is an award-winning architectural firm serving clients in scientific, academic, historic preservation, arts and cultural, and multi-family housing and mixed-use markets. The firm's core values are responsive design, technological expertise and exceptional service. Lord, Aeck & Sargent has offices in Ann Arbor, Michigan; Atlanta; and Chapel Hill, North Carolina. For more information, visit the firm at www.lordaecksargent.com.

About Gould Evans

Gould Evans is a multi-disciplinary design firm founded in 1974, known for its collaborative approach, commitment to design excellence, and award-winning architecture. The firm's staff of 200 are located in eight offices across the United States, including Phoenix, Tampa, Kansas City, Sausalito, Salt Lake City and San Antonio. The Phoenix office of Gould Evans has emerged in the southwest with an award-winning portfolio of higher education, cultural, housing, sports and civic projects.

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