UNIVERSITY OF ARIZONA
YUMA AGRICULTURAL CENTER STUDY

UA PROJECT NO.: 23-9698
CONCEPT DOCUMENT
JAN. 04, 2024

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Introduction
The University of Arizona’s Yuma Agricultural Center (YAC) needs more lab and meeting space to meet the expected increase in research and outreach focused on sustaining the 53B agricultural industry in the Yuma region in the face of climate uncertainty, water insecurity, and potentially for new diseases and pests. Currently, the existing space at the YAC is over-committed with many labs and offices in double-occupancy. Yet, the University is pursuing external funding to increase research and extension activities, increasing research collaborations with private and public partners, and developing a strategic plan to sustain desert agriculture. Therefore, to support these current and future needs, we present this conceptual design and preliminary budget estimate for new labs and meeting spaces at the YAC. We expect this plan to generate dialog and support for expanding the capacity of the YAC to deliver on the land grant mission of the University of Arizona.

To this end, the University of Arizona Office of Planning Design & Construction (PDC) , on behalf of the University’s Arizona Experiment Station, engaged Sears Gerbo Architecture (SGA) to provide conceptual programming and design for a new laboratory and support, faculty offices, classroom and meeting spaces located on the YAC in Yuma, Arizona. The proposed laboratory will provide space for as many as 12 new faculty hires. The new facility will provide additional research opportunities for new and existing outside partnerships. The proposed facility will also provide a new exchange center, meeting and gathering spaces that will relieve pressure on the existing structures on campus. This conceptual design will be used by the YAC as a mechanism for the University to focus budgeting and philanthropic fundraising opportunities.

Weekly programming and design meetings were held between October 2023 and January 2024 with YAC faculty and staff to discuss project goals, ascertain functional needs, operational concerns, and organizational relationships summarized below.

Program Elements

Three functional areas are provided

- Laboratory and support spaces
- Faculty Offices, open access work spaces, and meeting spaces
- Exchange Center for meetings and classes to accommodate 120 people
- Outdoor covered courtyard

Concepts

The proposed 26,723 square foot for two buildings, strategically located on 8th Street, Yuma, integrates seamlessly with the existing Glen C. Curtis Laboratory building, infrastructure, and greenhouses on the YAC. A central covered courtyard serves as a unifying element, connecting new and existing structures. The proposed laboratory building comprises 12 modular laboratories designed for phased construction, allowing flexibility in building six labs at a time. The proposed future laboratory function intended to have an insectary, BSL-2 laboratories, and laboratory shop space for research equipment maintenance. Support spaces, including tissue culture, chemical storage, freezer farm, and server room, and are strategically placed to optimize laboratory functions. The faculty and office spaces, featuring both closed and open office plans, promote adaptability and collaboration. Notably, a kitchenette at the main entrance, with an operable glass partition, enhances connectivity to the covered courtyard, bridging the indoors and the outdoors. The adjacent Exchange Center building, located on the south side of the courtyard, accommodates up to 120 people, offering a versatile space for academic and community outreach events.

Sustainability lies at the core of the design, with a focus on energy conservation and environmental responsibility. The building's east-west orientation maximizes exposure to the north and south façades, capitalizing on energy efficiency in the hot-arid climate. Overhangs, covered courtyards, and strategically planted trees on the west and east façades minimize sun exposure. The project leverages existing site infrastructure and buildings to reduce demolition and environmental impact. Water harvesting strategies, coupled with the use of native plants, aim to minimize landscaping water usage. The incorporation of solar photo-voltaic panel systems on roofs, covered courtyards, and parking areas demonstrates a commitment to clean energy generation. Windows on the north side optimize natural daylight, with clerestory windows facilitating light penetration throughout the building. South-facing windows are equipped with overhanging window controls, ensuring a balance between natural illumination and shading.

In conclusion, the proposed laboratory and Exchange Center buildings at the YAC not only address the immediate needs for additional space at the YAC, but also represents a sustainable and forward-thinking approach to architectural design. This conceptual design serves as a catalyst for positioning the University of Arizona as a leader in innovative research in desert agriculture, and for future budgeting and fundraising endeavors to support the new infrastructure.

At the request of CALES, separate preliminary total project budget estimates were prepared for the following conceptual options:

- A) Full build-out of Lab Building, includes Exchange Center, PV covered roofs, parking and outdoor courtyard $40,000,000
- B) Full build-out of Lab Building, excludes Exchange Center, includes PV covered roof, parking and outdoor courtyard $35,000,000
- C) 6 Lab build-out with 6 Lab shell space, includes Exchange Center, PV covered roof, parking and outdoor courtyard $36,000,000

These total project budgets were based on historical cost data for similar building types and site development allowances for utility infrastructure and solar covered parking/solar roof installations. Budgets include one year of escalation and will be refined as the project is further developed.

Acknowledgements

Sears Gerbo Architecture would like to thank the following people for their valuable time and participation in this effort.

**UA Yuma Agriculture Center**
Mitchel McClaran  Director, Arizona Experiment Station
Humberto Hernandez  Director, Yuma Agricultural Center
Sonnet Nelson  Associate Director of Operations, Yuma Center for Excellence in Desert Agriculture
Stephanie Slinski  Interim Director, Yuma Center for Excellence in Desert Agriculture

**Planning Design & Construction**
Ralph Banks P.E., P. Eng., CEM, LEEDAP
Sears Gerbo Architecture
Tom Gerbo AIA, LEEDAP
Fatemeh Sharaf Zadeh LEED Green Associate
### LABORATORY SERVICES

#### CLOSED OFFICES AND CONFERENCE ROOMS

- **LAB SUPPORT**
  - **BUILDING SERVICES**
  - **KITCHEN & GATHERING**
  - **LABORATORY**

#### OPEN OFFICE SPACES

- **EXCHANGE CENTER**
  - **INDIRECT ACCESS**
  - **DIRECT ACCESS**

### SPACE SUMMARY

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<th>SPACE</th>
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<th>NASF</th>
<th>GF</th>
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SITE PLAN

BUILDING GROSS AREA = 26,723 SF
EXTERIOR VIEW - NORTH ELEVATION

Plot Date: 01.04.2024

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UA Project No.: 24-0698

Plotted Scale: AS NOTED

Project No.: 1001-007

SEARS GERBO ARCHITECTURE
4547 E. FT. LOWELL RD., STE 421
TUCSON, ARIZONA, 85712
TEL: 520-732-0579
NORTH NATURAL DAYLIGHT

PV PANELS ON ROOF FACING SOUTH

OPEN OFFICE

LAB SUPPORT

CLOSED OFFICES & CONFERENCE ROOMS

BUILDING SECTION

SC: N.T.S

A3.0
INTERIOR VIEW - LABORATORY

SC: N.T.S