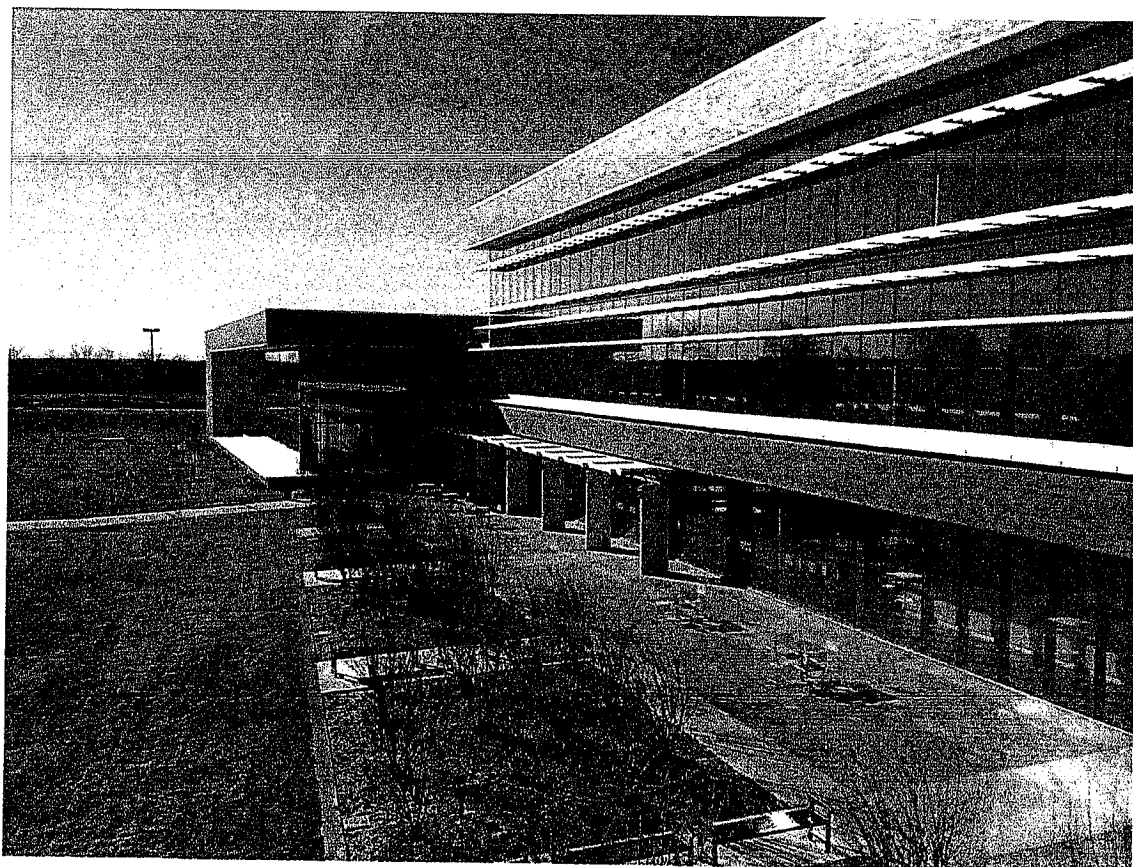


**Joint Committee on State Building Construction
University of Kansas – Lawrence Campus
FY 2014 Capital Improvements Request
November 13, 2012**

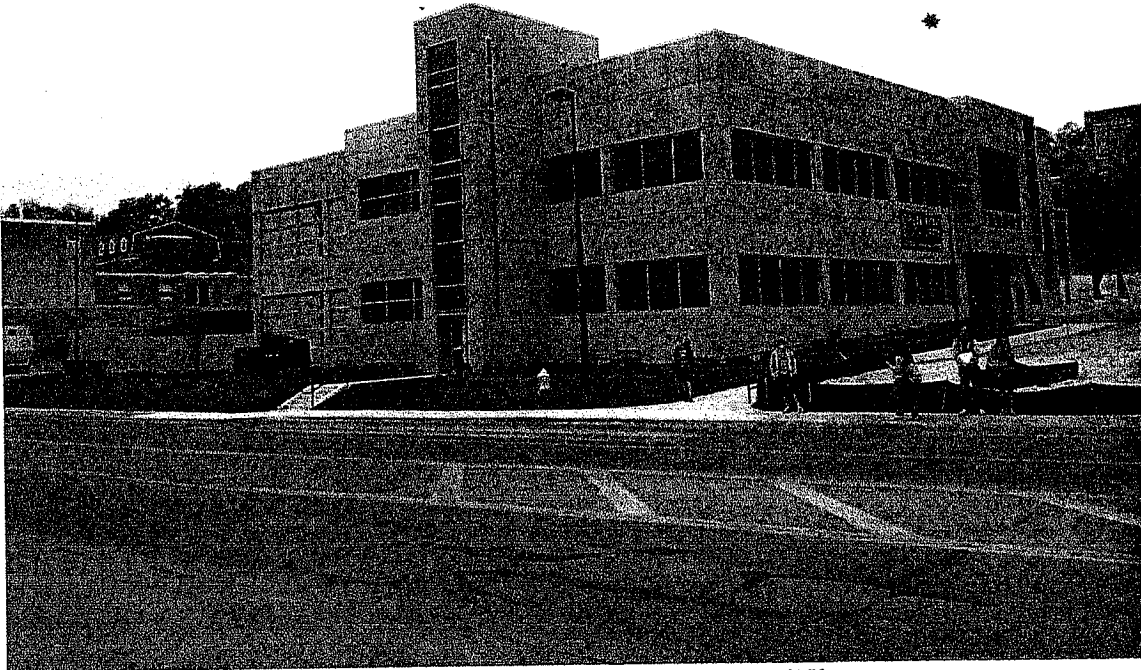
Capital Improvement Project Update

Edwards Campus – Business, Engineering, Science and Technology (BEST) Building

Growth of the Edwards Campus continues to support Johnson County and the larger metropolitan area by providing programs focused on advanced degrees and career development, a growing program in undergraduate education and support for KU faculty and their research. This 75,000 SF facility has instructional classrooms, computer laboratory facilities, conference/seminar rooms and academic support offices. It also provides spaces that serve as a community resource for business and community meetings, educational sessions and presentation of cultural events, including lectures and entertainment. The \$24,950,000 project bid in April 2010 and completed in January 2012.



View of the New BEST Building – South Side



M2SEC – View of Southeast side of Building

Measurement, Materials and Sustainable Environment Center (M2SEC) – \$23,200,000

The M2SEC building is an interdisciplinary research building of 34,690 gross square feet which was recently completed on the School of Engineering (SOE) quadrangle, located on the west end of the Learned Hall front lawn. SOE lacked a facility that would permit extensive research activities in Energy/Transportation, Global Change, Composite Materials/ Technology and Sustainable Building Practices to be housed in a modern laboratory structure. SOE secured approximately \$3M for equipment from USDOE, USDOT and NSF to support programs in these focus areas. Uniquely, the M2SEC building is being used in a research effort to determine its own carbon footprint, energy savings and sustainable practices and will serve as a test bed for new sustainable materials and energy-saving modeling of the building, by monitoring the facility's operation.

The project budget was \$23.2 million. An ARRA grant from NIST funded \$12.3 million and the balance of funding was private funding sources. Construction was completed in June 2012.

Nichols Hall NIH Grant – Bioinformatics Computing Facility Core Renovation - \$4,650,000

The University requested and received ARRA funding to renovate and expand 3,646 square feet in Nichols Hall, designated as the Bioinformatics Computing Facility core (BCF). The renovated space supports computationally intensive multidisciplinary and integrative research projects in the life sciences. In addition, this project accommodates computing requirements for ten core service laboratories that provide analytical instrumentation and technical services to the University's biological and biomedical sciences researchers. This computational commons is a sustainable, energy efficient data center for hosting existing and future assets dedicated to biological and biomedical computing. It supports a computing capacity twenty fold greater than currently available in a highly sustainable and energy efficient manner.

This \$4.65 million project started construction in September 2011 and was funded by the National Institutes of Health (NIH). Construction was complete in June 2012, and was fully operational in October 2012.

Dyche Hall – NSF Repair and Renovation: Advancing Research in Biodiversity - \$1,500,000

The Biodiversity Institute is primarily located in Dyche Hall, one of the oldest buildings on campus which has an aging building infrastructure. This project renovated portions of the 1st, 5th and 7th floors. Separate from the grant, HVAC and electrical system improvements were made to the building and that work has been coordinated with this renovation. The grant project modernized a suite of laboratories and a server room that support biodiversity research from genomics to ecosystems forecasting.

The University received a \$1.5 million National Science Foundation (NSF) ARRA grant and bids were received in October 2011. Construction was completed in October 2012.

Gertrude Sellards Pearson (GSP) Residence Hall Renovation - \$14,750,000–

This facility initially served as a women's residence hall. The project renovated 96,970 gross square feet of student rooms and public spaces, creating a diverse mix of room occupancies and types. At the conclusion of the renovation, the residence hall became co-ed.

The project was funded with revenue bonds issued by the Kansas Development Finance Authority and secured with a pledge of Housing System revenues.

Kurata Thermodynamics Lab Remodel for EHS Offices - \$1,400,000 -

The project consists of the total renovation of the Kurata Thermodynamics Building to house KU's Office of Environmental Health and Safety (EHS). This is the first phase in preparing for the construction of the **Learned Hall Engineering Expansion Phase II (LEEP2)**. EHS is currently housed in Burt Hall. The northern two-thirds of Burt Hall must be razed to make way for the engineering expansion. The old reactor bay portion of Burt Hall is proposed to remain and be repurposed for a chilled water plant for the engineering complex.

EHS assists faculty, staff, and students with designing facilities that meet safety requirements and with inculcating and implementing safe practices in the conduct and operation of University programs, activities, and facilities. EHS also monitors campus activities to assure that Federal, State, Local, and University environmental, health and safety laws, regulations, ordinances, and policies are being followed. The project funding is included within the total project funding for the Engineering Expansion Phase II.

Lewis Hall, Ekdahl Dining Commons Renovation - \$3,400,000 –

KU Dining Services has approximately 3,900 meal plan contracts spread among 3 residential dining centers. It also manages 3 retail food courts, 1 residential Euro-bar/coffee house, 7 grab and go locations, 3 large coffee shops, a full service restaurant, athletic training table, and campus wide catering. Today Ekdahl Dining Commons, also know as Mrs. E's, serves five residence halls housing 2598 students and feeds approximately 1800 meals at dinner during the academic year and approximately 3,500 meals per day.

The proposed project is the renovation of the Servery and entry area at Ekdahl Dining Commons which was built 16 years ago as a food court. The years of heavy use have taken a toll on the facility and it is now in need of renovation. As the number of daily meals has increased the facility has become crowded and less efficient. Issues today include circulation, inefficient use of space, and finishes and equipment that are outdated or do not comply with current health codes. The renovation entails approximately 5,190

square feet in the servery and adjacent seating area located to the east of the current space. The project is currently in design and is projected to bid in April 2013.

The project is funded by the Kansas Memorial Union Corporation (Student Union).

Murphy Hall Swarthout Recital Hall Remodel - \$1,450,000 -

After many years of wonderful and significant use to the School of Music at the University of Kansas, Swarthout Recital Hall is in need of a major renovation to keep pace with the current demands placed upon it. In the Recital Hall, new seating, accessibility, mechanical, electrical and acoustical improvements would be major elements in a total renovation. In addition, the lighting system, audio system and all finishes would be upgraded. Back stage, a new accessible entry would be created along with new back stage restrooms. Lastly the entire experience of attending a concert in Swarthout Recital Hall would be improved with major enhancements to the lobby which serves both Swarthout and Crafton Pryor Theatre. The renovation of Swarthout Recital Hall will enhance both the experience of the performer and of the audience by providing a hall with acoustical, accessibility, lighting and comfort improvements. In addition, the performer experience will be enhanced by improvements to the back of house areas.

The University continues to seek private gift funds for the project.

FY 2014 Capital Improvements Request

Parking Repair and Improvement Projects - \$1,000,000 -

This is our annual request for funding approval to spend \$1,000,000 of parking fee funds to repair pavements and related improvements including new site lighting and associated storm water management. The \$1,000,000 per year was the recommended allocation to take care of the deferred maintenance of the parking lots.

The parking lot projects are parking fee funded.

Amend FY 2014 Capital Improvements Request

McCollum Hall Replacement - \$47,800,000 -

McCollum Hall was built in 1965 and has a capacity of 910 residents. The condition of the building infrastructure and need for major code improvements resulted in the need to do a more comprehensive review of the facility. The market analysis indicated the size of the residential community was not marketable. The code requirements are required to be corrected by 2016. After considerable review of the cost of improving the existing facility verses new construction, new facilities were more marketable and cost only slightly more than renovation. The proposed two new residence halls will house 350 residents each for a total of 189,930 GSF.

The project will be funded with revenue bonds issued by the Kansas Development Finance Authority and secured with a pledge of Housing System and Parking revenues.

New School of Business - \$65,740,000 -

The KU School of Business is transforming how business students are educated in the 21st century. To compete in a global market for students, faculty and staff, the School of Business leverages the mission and vision to serve the citizens of Kansas and their state and regional industries. The University of Kansas will grow and the School of Business will be a key component of this growth. Growth means higher rankings and a higher quality students. This vision will be supported by world-class facilities second to none, aligning physical resources to support the goals of the University of Kansas School of Business.

The new facility will consist of 166,183 GSF of classrooms and offices for undergraduate and graduate programs. The new facility is proposed to be designed to LEED Gold standards resulting in a very sustainable and efficient building.

The project will be funded with revenue bonds issued by the Kansas Development Finance Authority and secured with a combination of private funds and university resources.

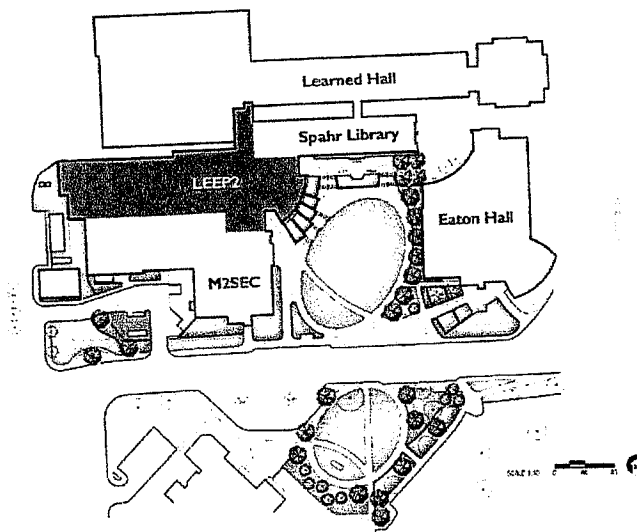
Amend FY 2013 Capital Improvements Request

Engineering Expansion Phase II+ - Originally \$65,000,000 - Increase to \$80,635,000 -

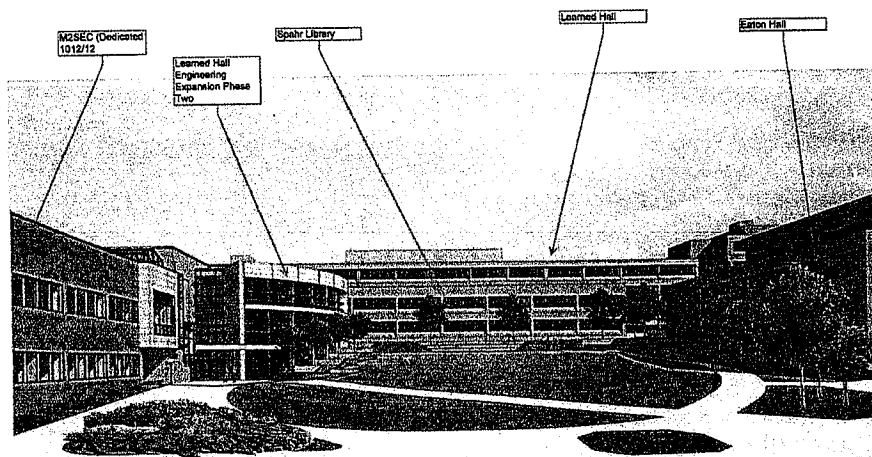
This project was originally approved for FY 2012. It will create a new main entrance to the engineering complex (the curvilinear façade in the rendering above) and will provide needed classroom, research, office and student spaces necessary to grow the engineering program. Design has started and is projected to reach 50% construction documents phase by April 2013, at which time major construction will begin.

The increase in budget will add approximately 29,000 GSF of additional research laboratory and other associated space. The funding break down provides \$78.6 M. for the Learned expansion and \$2.035 M. for the relocation of Environmental Health and Safety from Burt Hall to the Kurata Building. The relocation will allow Burt Hall to be razed and LEEP2+ to expand into the western edge of the project site. Construction is scheduled to complete late Spring 2015.

The University proposes to increase the original \$65M bonding authority for the project by \$15 million and to provide \$635,000 in restricted fees funds for the Kurata Remodel component of the project. The bonds will be secured and debt serviced with a pledge of KU's share of the Expanded Lottery Act Revenue Funds, a grant from the Department of Commerce and other appropriate, unencumbered special revenue funds of the University.



KU Learned Hall Engineering Expansion Phase 2



Advise of Capital Improvement Project

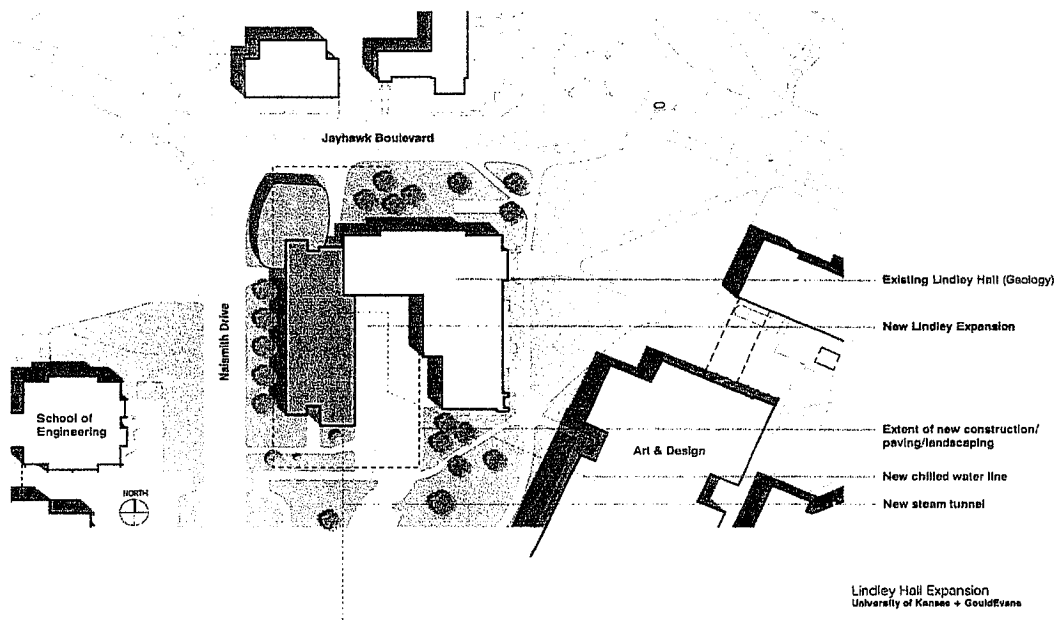
Lindley Hall Addition/ Energy and Environment Center - \$28,785,000 –

The Department of Geology is an academic research, educational, and service unit of the University of Kansas Lawrence campus providing degrees in a variety of geological and geophysical disciplines. It maintains an extensive program of funded research and serves KU, the local and regional community, the nation, and the professions it represents. It has a remarkable history of combining donated, granted and appropriated resources to build strong programs and has a graduate programs ranking in the top ten by US News, and overall is among the top 50 geology programs.

The University of Kansas has identified as two of its strategic initiative the themes “Sustaining the Planet, Powering the World” and “Harnessing Information and Powering the World”. At KU interdisciplinary groups are engaged in key collaborative research and education linked to these initiatives. Researchers from KU’s department of Geology are working with the faculty in the departments of Geography, Ecology and Evolutionary Biology, Civil and Environmental Engineering, and Chemical and Petroleum Engineering. In addition, many of these researchers are active members or work closely with key research centers including the Kansas Geological Survey, Tertiary Oil Recovery Project, Center for Remote Sensing of Ice Sheets, and Kansas Biological Survey.

The project will construct research laboratories, classroom and office space totaling 42,200 GSF. Design is projected to start in April 2013 with construction complete by November 2015.

The project will be funded from private gifts.

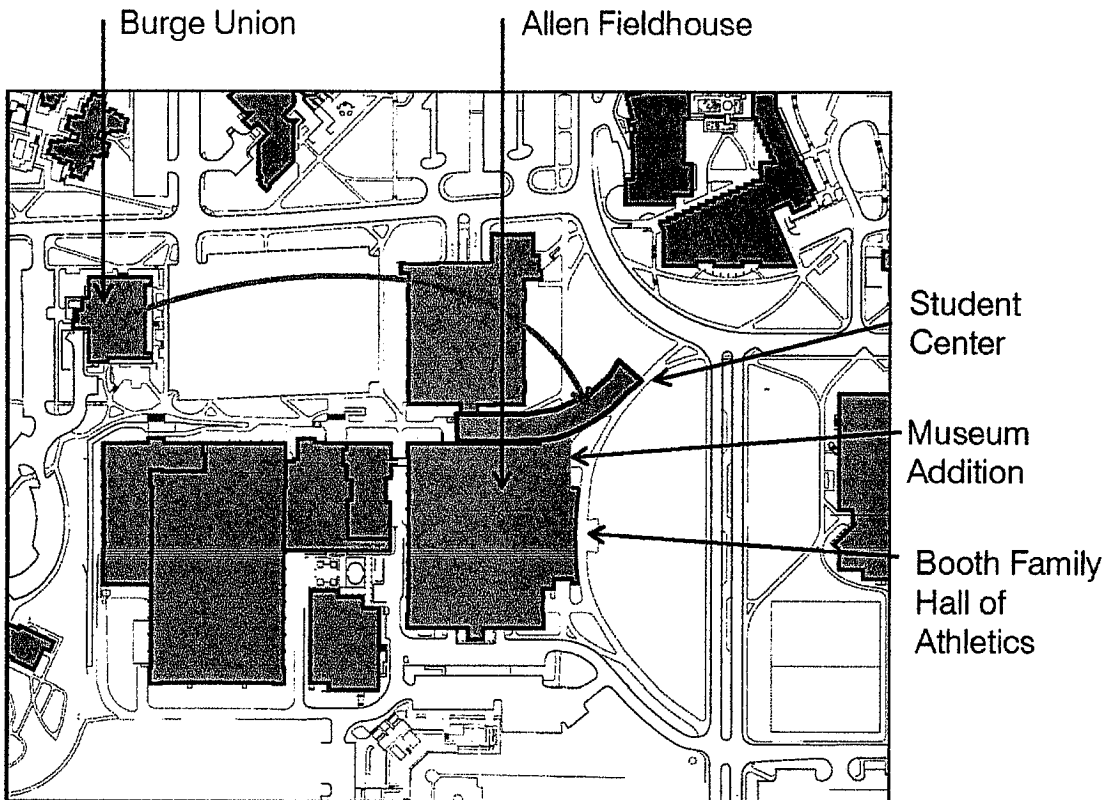


Site Plan

Allen Fieldhouse Addition - \$18,000,000 –

The Naismith “Rules of Basket Ball” and Student Activity Center Addition will further enhance the Hall of Athletics at Allen Fieldhouse and will provide facilities for students, student athletes, fans and the public. The KU basketball legacy includes the inventor of the game, who was KU’s first basketball coach and a “coaching tree” unmatched by any college program. The new facility will be an expansion of the history of Kansas athletics with exhibit space, student commons (study and gathering space), dining, training table and other associated space. The project will include 27,000 GSF of new space and 14,000 GSF of renovated space in Allen Fieldhouse.

The project is funded by private gift.



Site Plan

Architectural Program

McCollum Hall Replacement

KU Project No. 093-8245

Date: September 21, 2012

Revised: October 12, 2012

Prepared by:

The University of Kansas, Lawrence Campus
Department of Student Housing
Office of Design & Construction Management



Programming Committee

Diana Robertson, Director - Dept. of Student Housing

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Introduction

Daisy Hill is a community of five residence halls on the University of Kansas' Lawrence Campus. The five residence halls, built between 1959 and 1965, line the hillside and stand as an icon of the university visible for miles around. Housing up to 2,420 students, Daisy Hill is a residential hub in which a majority of residents are freshmen with a small mix of upperclassmen. All of the residence halls have been recently renovated with the exception of McCollum, the largest hall on the site.

McCollum, which opened in 1965, is a ten story, three wing residence hall that has the capacity to house 910 residents. The building, comprised of traditional double occupancy unit types, primarily houses freshmen students at roughly an 80% occupancy rate. Though McCollum Hall has been well maintained over the years, renovation is not an option as the space needs for the new housing model do not fit efficiently within the form of the building. As well, the high-rise, elevator-dependent lifestyle is institutional and unlike anything students would consider home. Equally important, the cost of renovation likely would approach the value of the building.

To determine the demand for housing at the university, an independent consultant was hired. Student surveys and focus groups were conducted as well as an external market analysis and competitive context analysis. This research led to the development of a housing model for the replacement of McCollum to foster academic success and meet the social needs and living styles desired of students.

Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

- The design of the completed project must attract and retain students.
- The design of the residence halls must support academic needs of students while providing a positive social environment.
- The unit types shall appeal to freshman students.
- Amenities must be competitive with those available elsewhere on campus as well as other universities and meet the expectations of the current student population.
- Provide a common outdoor area to be used by all residents of Daisy Hill with space for outdoor study, socializing and informal recreation.
- Provide an aesthetically appropriate design for the site.
- Provide a new sense of place and community on Daisy Hill.
- Address energy conservation and sustainability issues in the building's design.
- The buildings must be universally accessible.
- Minimize noise, disruptions and inconvenience to adjacent occupants during construction.
- Result in a site with well-planned parking, safe pedestrian accommodations, and good traffic flow.
- Provide a site design that meets the needs for ongoing delivery for existing and new buildings.

8-12

Space and Program Needs

General

- Two residence halls will be built with the 350 bed program as outlined below, for a total of 700 new beds to be built on Daisy Hill.
- One hall will be sited to the west of Hashinger Hall and the other west of Lewis Hall, to create a centralized common green space for all residents use.
- Each residence hall will be five stories tall with ten community wings, five floor commons, a building commons, staff support space, two apartments and building support space
- Interiors shall be open and inviting, with good lighting and finishes. Ease of maintenance, ease of replacement, and a long term life cycle should be considerations in finish selection.
- ADA: Accessibility shall be provided throughout the building and site.

Common Areas – First and Second Floors

Building Commons:

- The building commons shall provide amenities to students and wing communities that are not provided on each floor of the building
- The program includes a lobby/lounge where students can gather to socialize or study and a living room where wing communities can gather for activities and events
- The hall has an Academic Resource Center to support the academic needs of students with current technology.
- The hall also provides a laundry room, vending area, and community kitchen for residents.

- Finally spaces such as the entry desk, office, hall government office, and conference room support the hall's staff and housing programs.

Building Program:

Vestibule	100 SF
Entry Desk	120 SF
Office/Storage	3 @ 120 SF
Lobby/Lounge	1,000 SF
Living Room	1,000 SF
Academic Resource Center	550 SF
Hall Government Office	120 SF
Conference Room	370 SF
Community Kitchen	240 SF
Laundry	800 SF
Retail/Vending	200 SF
Public Restrooms	2 @ 140 SF

Community Commons:

- The community commons shall be located centrally on each floor of the building with access to each wing community.
- The lounge will provide a small social space for residents.
- The study nooks will provide quiet spaces with comfortable seats and worktables for students to meet in small groups of 3-5.

Building Program:

Lounge	5 @ 200 SF
Study Nooks/Small Studies	10 @ 100 SF

11/12

Interiors

Residences:

- Each of the ten wing communities shall consist of three 4-person double occupancy suites, nine 2-person double occupancy semi-suites, two 2-person single occupancy semi-suites, and one resident assistant semi-suite.

4-Person Double Occupancy Suite – approximately 660 SF

- This suite accommodates four residents in two bedrooms with a shared living room, restroom and storage area.
- The bedrooms shall have two beds, two desks, two closets and two dressers.
- The living room shall be an open space centrally located in plan.
- The restroom shall contain a toilet, shower and sink with space for changing and be lockable from the interior
- The storage area shall have a sink and cabinets accessible to the living room.

2-Person Double Occupancy Semi-Suite – 270 SF

- The two person semi-suite provides one living space for two occupants, with a private restroom
- The living space shall provide two beds, desks for studying, a closet and sink area
- The restroom shall contain a toilet and shower with space for changing and be lockable from the interior

2-Person Single Occupancy Semi-Suite – 350 SF

- The two person semi-suite provides two single occupancy living spaces and restroom.
- The living spaces shall contain one bed, one dresser, a desk and closet area

- The restroom shall contain a toilet, sink and shower with space for changing and be lockable from the interior

Resident Assistant Semi-Suite – 270 SF

- The RA semi-suite shall be identical in plan to the 2-person double occupancy semi-suite but only provide the furniture for one person.

Building Program:

- 30 - 4-Person Double Occupancy Suite
- 90 - 2-Person Double Occupancy Semi-Suite
- 20 - 2-Person Single Occupancy Semi-Suite
- 10 - Resident Assistant Semi-Suite

Apartments:

- Two apartments will be provided for use by the housing department
- Building Program:
 - Two Bedroom Apartment 875 SF
 - One Bedroom Apartment 650 SF

Mechanical / Electrical

- Mechanical/Electrical Rooms: 2,500 SF
- Data Closets 8 @ 50 SF: One primary at 100 SF
- HVAC systems shall be sized to meet code and provide suitable comfort conditions year-round, with appropriately separate control systems.
 - Consultants shall evaluate energy-efficient options for heating and cooling spaces. A written comparison with appropriate calculations will be required prior to making final decisions on systems.
- Extra attention shall be paid to providing good ventilation in all spaces, particularly those subject to above-average amounts of humidity or solar exposure.

- Fire sprinkler systems shall be installed in each building, with piping concealed in walls, soffits or ceilings.

Telecommunications

- All data and cable television lines shall be installed throughout. The typical service provided is one data port per pillow, and one cable and data jack per room. Wireless should be provided per KU-NTS design standards
- Provide a new main service entrance / equipment room in each building to serve entire building, as well as intermediate rooms in each wing of each floor.
- Comply with current KU-NTS design standards.
- Provide wireless data access in all public spaces, bedrooms and other areas as directed by DSH
- Telephone service in each corridor, in staff office and at front desk.

Site Improvements & Infrastructure

Site Improvements

- A common outdoor space shall be constructed between Hashinger Hall, Lewis Hall and the two new residence halls (see master plan).
- This outdoor space shall be a pedestrian only area, with the exception of the ability for emergency vehicles to access the front door of each hall from the common green space.
- The centralized common green space shall provide adequate space for informal recreation, and plaza areas for study and socializing.
- The master plan shall provide adequate parking for staff on Daisy Hill as well as enough parking spaces for 52% of the maximum occupancy of Daisy Hill residents and short term metered parking.
- Engel Road shall be rerouted (see master plan) to the west of the new housing development to so that the new green space is limited to pedestrian traffic.
- The intersection at Engel Road and 15th St. shall be moved west of its current location and the road rerouted concurrently alongside Templyn Hall.

Space Summary

Space	Area (GSF)
Building One	94,965
Building Two	94,965
Total Building Area	189,930

Utilities & Infrastructure

- Extensions of the utility services shall be included as part of this work, as required to serve the new facilities.
- Relocation of underground utilities will be required to achieve maximum site utilization.
- A Site Utilities map will be provided by the University.

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Hazardous Materials

- This site is currently occupied by a parking lot, there is no abatement anticipated at this time at the site of the new construction. However, abatement will be necessary as preparation for the demolition of McCollum Hall, and is part of this project's scope.

Code Requirements

- Codes currently used on KU projects include the following:
 - International Building Codes, 2006 edition.
 - Kansas Fire Prevention Code, KSFMO, current edition.
 - Other codes as listed at the State of Kansas, Office of Facilities and Planning Management (OFPM) website.
 - Code Footprints of the new buildings shall be prepared by the consultant and shall be furnished to DCM for submittal to OFPM on DCM's standard 11x17 code footprint sheets.
 - The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Design Development phase.
 - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- The buildings shall be fully protected by fire sprinkler and fire alarm systems throughout. Fire alarm shall comply with current code and KU requirements for an intelligent addressable system.

Design Standards & Consultant

Services

- The consultant team shall comply with the latest provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM).
 - These standards are available at the DCM website: <http://www.dcm.ku.edu/desstds/stds.htm>
 - The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project. It is up to the consultants to periodically check to see if updated standards have been posted.
- The University's Project Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.
- Special Consultants that will be required on the A-E team, in addition to the usual architectural and engineering disciplines:
 - Acoustical Engineer (to evaluate and advise on sound isolation provisions from M/E rooms and equipment, and the acoustical requirements of meeting spaces)
 - Telecommunications System Engineer (must be pre-approved by KU-NTS)
 - Civil Engineer for the roadwork and parking lot modifications.
- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal, and for the bid sets and as-built sets.

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- Physical or 3D/CAD models, if produced by the consultant to explain the design, shall be delivered to and remain the property of the University.
 - Photo-realistic renderings may be required during the design phase to clearly communicate the proposed design options, for both exterior and interior spaces, and for the Owner's use in media distribution and other purposes.
- Contract: An American Institute of Architects B101 contract form, as amended solely by the University, will be used to contract for these professional services.
 - Copies of this contract template will be provided to each short-listed firm, along with the corresponding A201 General Conditions document that will be issued to the Contractor.

Historic Preservation Reviews

This existing site is not located within 500 feet of any properties listed on either the State or National Registers of Historic Places.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from housing fees collected by the Department of Student Housing. No state funding will be required to cover any of these costs.

Space Standards & Utilization Analysis

This project consists of the demolition of an existing building which contains a total area of 224,565 GSF. It will be replaced with two new buildings with a total area of 193,930 GSF.

Project Budget

Project Schedule

Construction Costs

Building Construction (\$180/SF)	34,187,000
Telecommunications Provisioning	400,000
Abatement, Demolition and Clean-up	2,834,000
Site Construction (streets, parking, sidewalks, Landscaping)	3,427,000
Demolition (Existing Parking and Streets)	429,000
Subtotal - Construction Costs	\$41,277,000

Miscellaneous Costs

Fees – Consultants and State/KU Agency	2,817,000
Testing Fees, Surveys, Etc	120,000
Furniture Fixtures and Equipment	1,260,000
Local Fees and Permits	50,000
Moving Expenses	NA
Project Contingency	2,276,000
Subtotal - Miscellaneous Costs	\$6,523,000

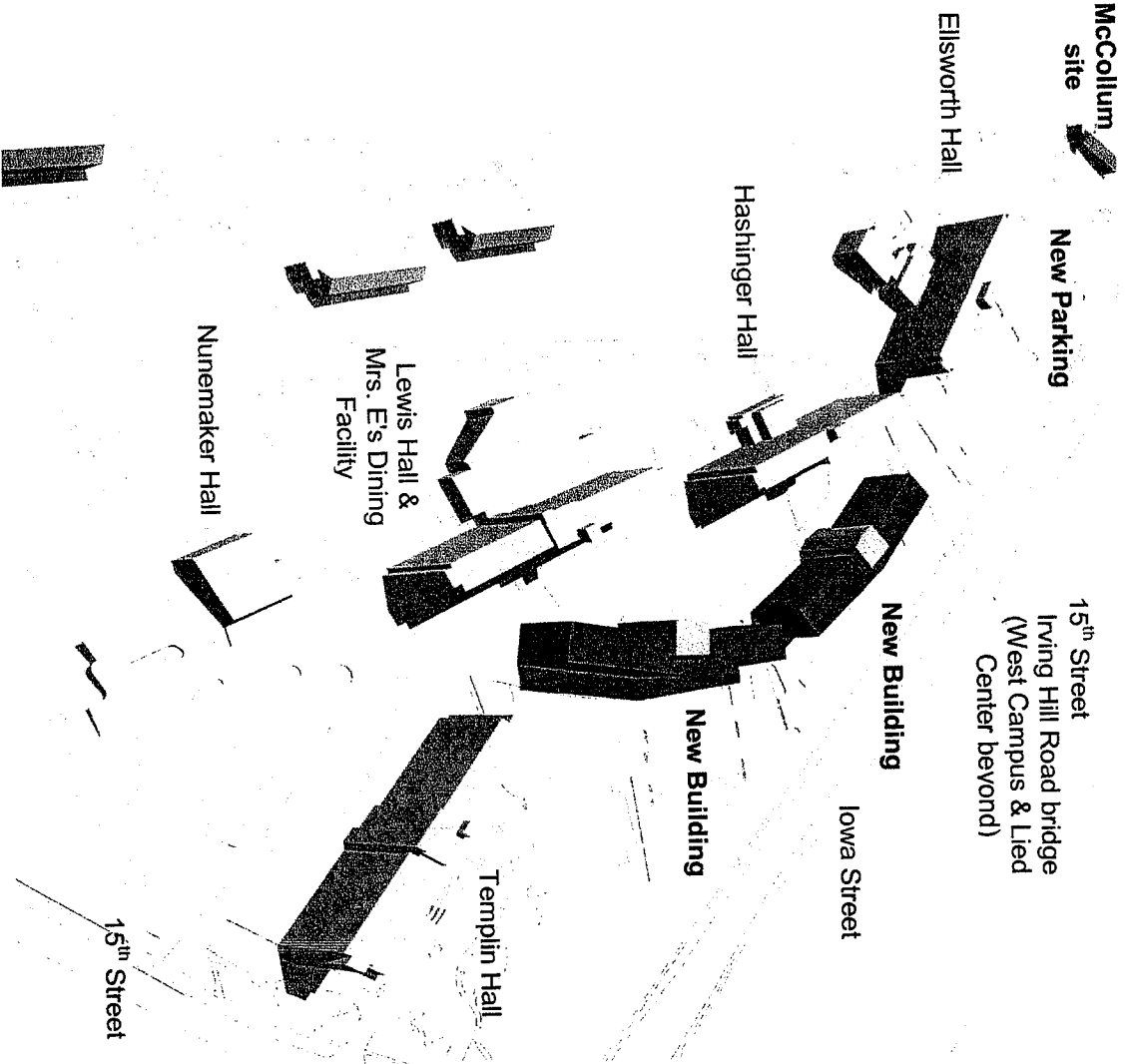
Total Estimated Project Cost **\$47,800,000**

Notes:

- 1) Funding is proposed to come from the sale of bonds, which will be repaid from housing system and parking system revenues.
- 2) Funds are proposed to be available FY 2014 (July 2013).
- 3) Financing fees are not included as part of the project budget.

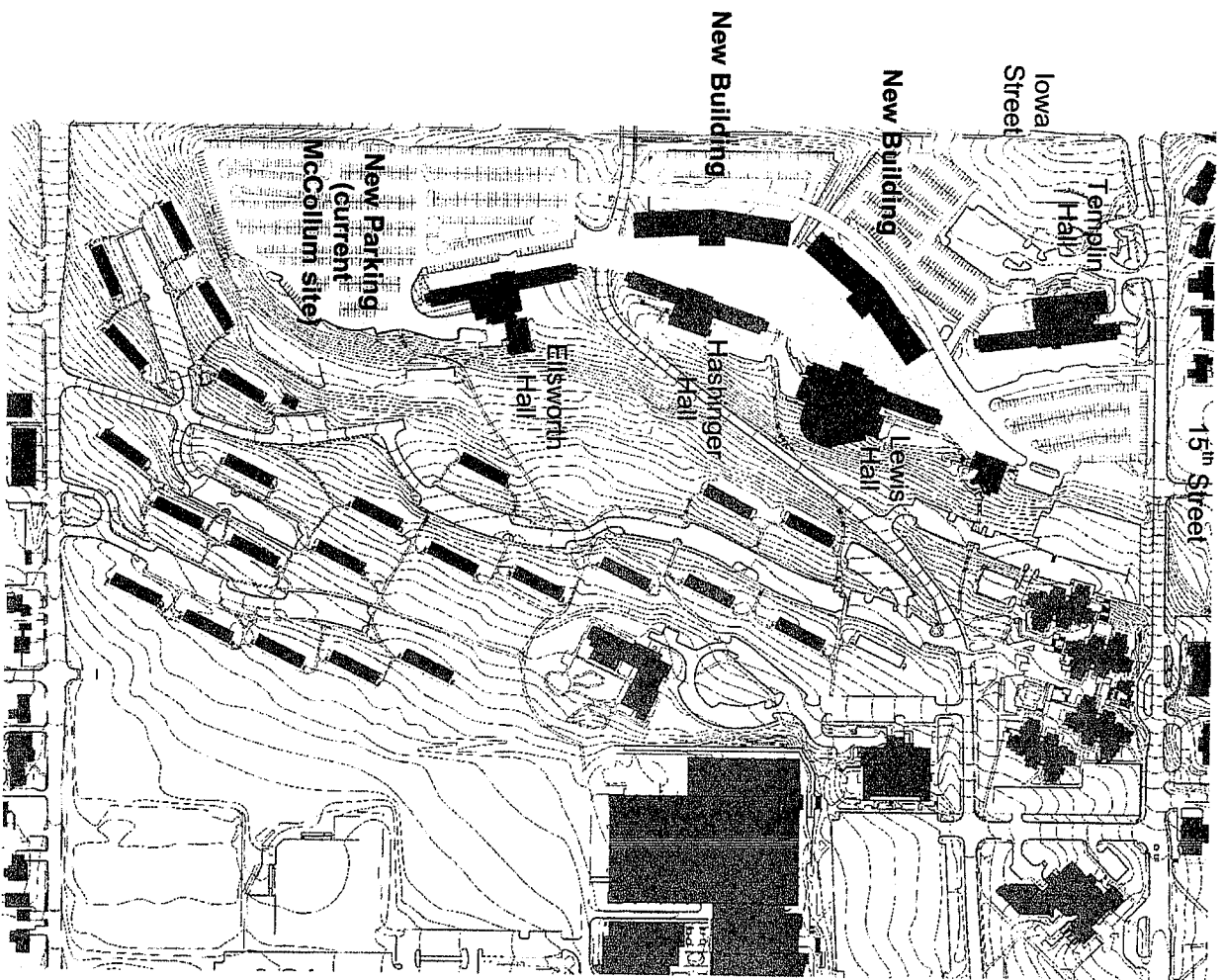
Program Submission to Board of Regents	October 2012
Program & Funding Approval (BOR, Legisl.)	May 2013
Request for Construction Manager at Risk	October 2012
Advertise & Shortlist Consultants	November 2012
Interview & Select Consultants	December 2012
Advertise and Shortlist CM at Risk	January 2013
Negotiate Fees & Process Contracts	January 2013
Program Review & Prelim. Design (2 mos.)	Feb. - March 2013
Design Development (2 mos.)	April - May. 2013
Construction Documents (4 mos.)	June - Oct. 2013
Bidding (1 month)	November 2013
Contract Award & Execution (1 mo.)	December 2013
Construction – Start	January 2014
Construction – Complete	June 2015
Final Move-In and Occupancy Date	July 2015

Proposed Site - 3D Aerial View



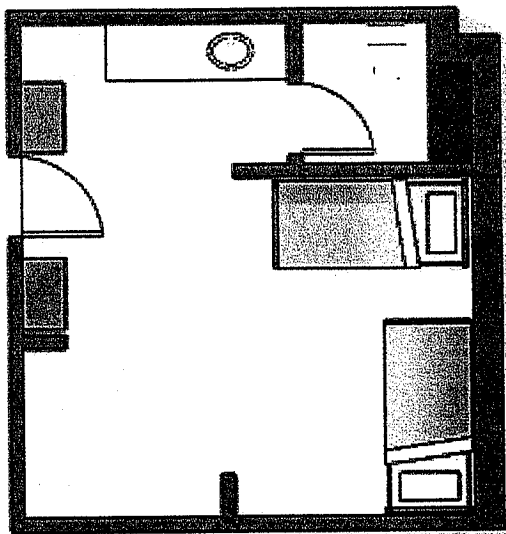
Date: September 21, 2012 ** Revised October 12, 2012

Proposed Site Plan

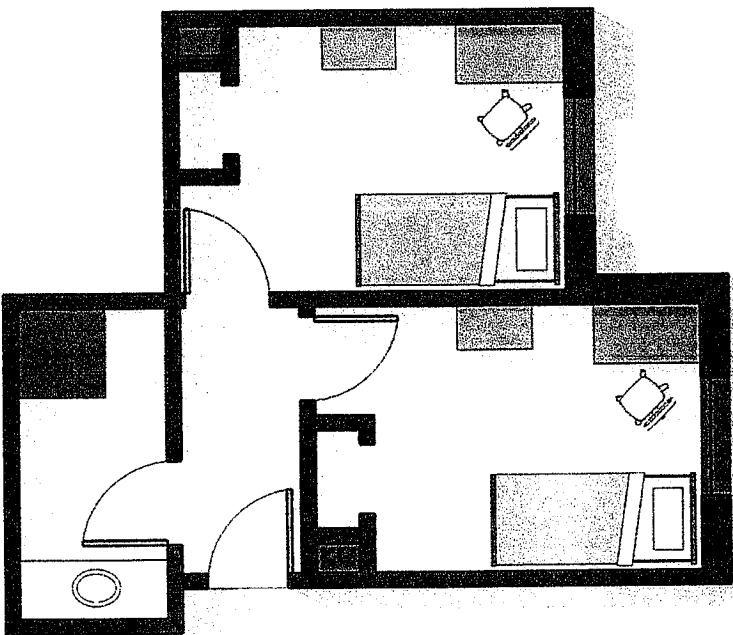


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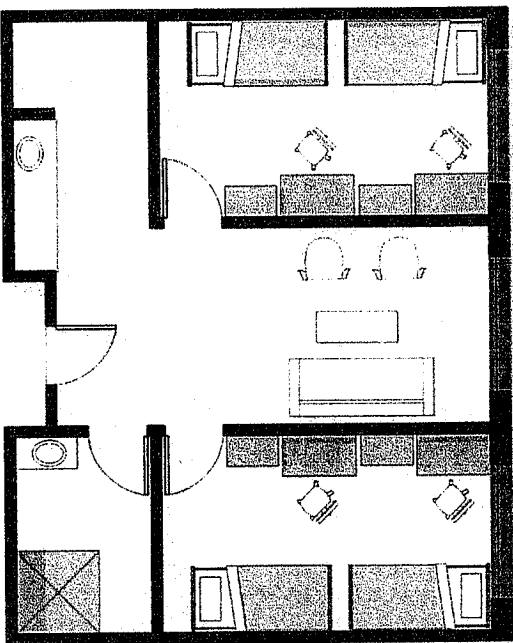
Proposed Room Types



Double



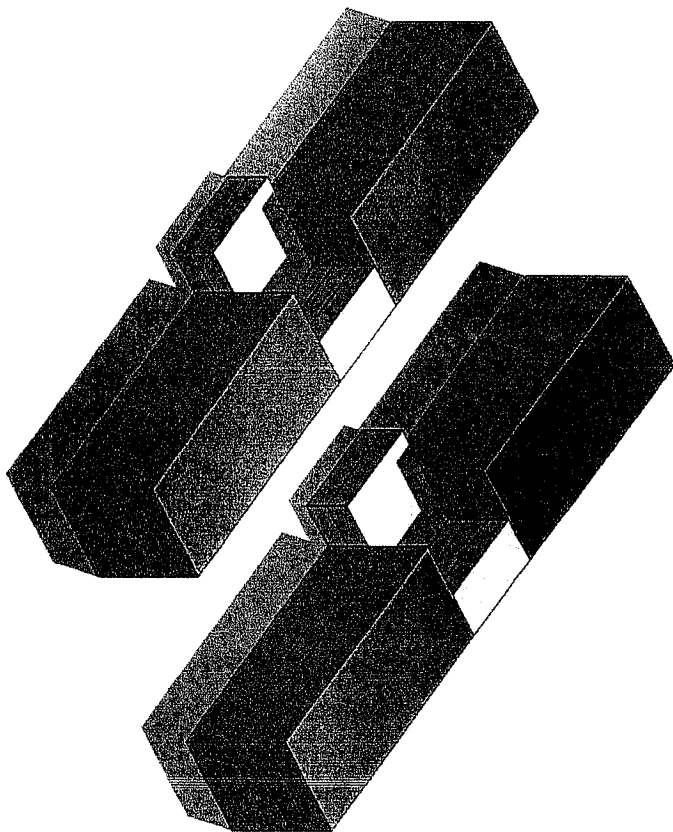
Single Occupancy Semi Suite



Four Person Suite

820

Proposed Stacking Model



Architectural Program

School of Business - New Building

KU Project No. 299-8585

Date: September 21, 2012
Revised: October 12, 2012

Prepared by:
The University of Kansas, Lawrence Campus
School of Business
Office of Design & Construction Management



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Programming Committee

- Neeli Bendapudi, Dean, School of Business
- Doug Houston, Associate Dean/Professor, School of Business
- Jim Guthrie, William and Judy Docking, Professor of Business
- Mark Strand, Administrative Assistant, School of Business
- Jim Modig, University Architect & Director - Design & Construction Management
- Laura Gagliano, Project Manager, Design and Construction Management
- Tracy Horstman, Assistant Vice Provost, Capital Planning and Space Management
- Tom Waechter, Director of Capital Planning, CPSSM

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Introduction

Background and Purpose

The KU School of Business is transforming how business students are educated in the 21st century. To compete in a global market for students, faculty and staff, the School of Business leverages the mission and vision to serve the citizens of Kansas and their state and regional industries. The University of Kansas will grow and the School of Business will be a key component of this growth. Growth means higher rankings and a higher quality student. Therefore the vision of the School of Business is to be: **a great place to learn, work, and invest.** This vision will be supported by world-class facilities second to none, aligning physical resources to support the goals of the University of Kansas School of Business.

A Great Place to Learn – Graduate Programs, Student Service and Community

The School of Business delivers business education across many programs. Key to the success of the School will be to build on the strength of each program by embracing the resources supporting them while enhancing the student experience.

Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

- The proposed new building will support graduate education and specifically the Master of Accounting (MAcc) and Master of Business Administration (MBA) programs in several ways including:
- Acknowledging the uniqueness of the MAcc student profile by providing organizational adjacencies and spaces to better serve these students.
- Providing instructional space that specifically serves MBA students.
- Providing for a second cohort within the MBA program.
- Increasing academic advising space serving these programs by 189%.
- Providing dedicated doctoral student space.
- Providing dedicated lounge and study space for graduate students.
- The ability to highlight and showcase each of these programs within a new building's configuration.
- Computer "touchdown" locations throughout to access printers and digital media.
- Expanding the Student Career Center by 173% to better serve both Graduate and Undergraduate Programs. This will double the number of interview rooms, and include a recruiter's lounge and resource area.

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A Great Place to Learn – Undergraduate Programs, Student Service and Community

The undergraduate program is the largest within the School and will continue to be the foundation of success and brand identity. This program also has the largest growth projections within the School and will now begin admitting freshman. The number of undergraduate students enrolled (headcount) is planned to increase 46% with credit hour production projected to increase 25% over the next five years. The number of graduate students is projected to increase by 51% over the next seven years. These statistics reflect an overall increase of 47% in the number of students enrolled. The key to elevating the quality of student will be directly related to the experience of the students.

The proposed new building will support the undergraduate program in several ways including:

- Enhancing access to student academic advising, increasing the number of advisors by 67%.
- Dedicated quiet study space for the undergraduate program.
- Providing an expanded Student Assistance Center of over 4,000 square feet of dedicated student help area for 40 teaching assistants, resource area and study space.
- Providing a growth of 164% in classroom space to accommodate the growth in undergraduate enrollment.
- Computer “touchdown” locations throughout the facility to access printers and digital media.
- Expanding the Student Career Center by 173% to better serve both the Graduate and Undergraduate Programs. This will double the number of interview rooms, and include a recruiter’s lounge and resource area.

- Improved student organization and meeting space for 15 student organizations.

A Great Place to Learn – Team-Based Curricula

The School of Business has embraced the University’s commitment to a dynamic educational model. The SCALE UP model is based on experiential, team teaching methodologies requiring a shift in space needs and configurations. The proposed new building will support this dynamic direction in several ways including:

- Instructional space that embraces the SCALE UP model for teaching, increasing the average assignable area per student seat from 16.4 to 21.0, a 128% increase.
- Pervasive technology integration facilitating collaboration and Learning.
- Providing 25 team study rooms for team collaboration outside the classroom.
- Providing specialized teaching spaces including a Communications Lab, Behavioral Lab, Systems Networking Lab, Financial Markets Lab and Small and Large Teaching Labs.
- Providing an increase in teaching space of nearly 170% over existing space to accommodate the substantial growth projections in enrollment.
- Providing a variety of teaching venues to support all the instructional needs within the School including seminar rooms, 40 and 60 seat classrooms, 150 seat lecture hall and 350 seat auditorium.

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A Great Place to Work – Interdisciplinary and Collaborative

The overall success of the School will be highly dependent on the ability to attract and recruit the best faculty and staff. Physical facilities can play a key part in this effort. The proposed new building will support this in several ways including:

- A design that maximizes daylighting as a key organizing element, providing narrow floor plates which allow visual access to the outside and natural light into every office space.
- Providing a flexible building planning module that will accommodate an endless array of office configurations and adjacency relationships between units and departments.
- Providing a series of spaces supporting a variety of function including: student faculty interaction areas within each departmental area; small break rooms within each departmental area allowing small informal gatherings; conference and meeting spaces ranging from 6 – 25 seats accommodating nearly 160 people at one time.
- Dedicated quiet lounge space for faculty and staff for 25.
- Growth in faculty and staff office space to acknowledge growth projections across all of the programs, including an additional 25 spaces for full-time, part-time and visiting faculty members.
- On-site food service with seating for 60 people.

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Design Concept Summary

Connecting Campus with Community

Through careful siting and design, the new School of Business building at the University of Kansas will maximize access to business education and interdisciplinary scholarship by providing a symbolic and physical link between the external business community and academic core of the KU campus. The new building will present a strong brand image and program identity for the School of Business to the local, regional and global community. It will provide a memorable new south gateway entry to the distinctive KU campus and most significantly, convey the School's goal to be the premier provider of business education in Kansas.

Understanding Campus

The historic core of the University of Kansas sits distinctively atop Mount Oread where the first structures were built directly from limestone quarried on site. Over time, a memorable ensemble of buildings have followed Jayhawk Boulevard from east to west across the ridge timelessly anchoring the KU Campus experience with a handsome material palette of warm gray limestone, red terracotta and blond brick.

All is set within a spectacular landscape of sweeping natural bowls juxtaposed with the formal outdoor rooms and walks of a large public campus. The planning team followed campus guidelines to study siting options for a new School of Business that will locate undergraduate and graduate programs close to the historic heart of campus, maximize trans-disciplinary collaborations with other professional schools and remain easily accessible to business visitors.

After a thoughtful examination of campus functions and character, including traffic patterns, parking locations, landscape zones, future campus buildings and other influences; the planning team arrived at a site and building organization concept that embodies the rich heritage of the KU campus and pushes forward the pedagogical objectives of the School of Business.

Business Building Concept

The new School of Business will be located at the transit & pedestrian-focused intersection of Naismith Drive and Schwegler Drive. This unique south gateway location, between Allen Fieldhouse and Watkins Health Center, and directly south of Robinson Recreation Center, will foster healthy campus connections between the historic education core atop the hill, the professional schools growing to the west and the sport/rec/student life facilities to the south, adjacent to Lawrence's residential neighborhoods.

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The Business Of Sustainability

Economic, social and environmental sustainability is an important part of the current and future business dialogue. The new University of Kansas School of Business will present an education and business model for high performance building, lowered operating costs and increased operating efficiencies while improving the health, well-being and productivity of our students, faculty and community. Shaping a healthy, productive environment for today's environmentally-savvy students and staff creates an opportunity to incorporate a sustainable philosophy into curriculum, overall school management and culture. A whole systems approach allows long-term efficiencies to be accounted for, monetized and integrated into project budgets.

The design team proposes developing a sustainable economic scenario that incorporates operational savings, building productivity, brand value, and external relationships into payback time frames and return on investment goals.

Starting early with a cross-disciplinary approach is fundamental to effective whole systems building design. By mapping out synergistic solutions between various project components and performing computer simulations for energy, water, and space planning, the design team pursues high-performing and simultaneously cost effective solutions.

The University of Kansas, School of Business is currently targeting LEED Gold Certification. Some of the sustainable design solutions that should be considered include:

- High Efficiency Mechanical System including Ground Source Geo-Exchange.
- Daylight Design and Electronic Light Dimming System.
- Occupancy Sensors.
- Low VOC and Healthy Building Materials.
- Locally Sourced, Renewable or Recycled Building Materials.
- Low Flow and Dual Flush Fixtures.
- Green Roofs and Native, Drought-Resistant Landscaping.
- Sustainable Stormwater Management Systems.
- On-Site Renewable Power Generation, including Photovoltaics.

Space and Program Needs

Learning Environments

<u>Classrooms</u>	<u>QTY</u>	<u>SF</u>	<u>Total SF</u>
350 Auditorium	1	4900	4900
150 Small Lecture Hall	1	3000	3000
60 Seat Large Classroom	5	1380	6900
MBA Classroom	1	1150	1150
40 Seat Classroom	6	960	5760
25 Seat Seminar Room	5	625	3125
PhD Seminar Room	1	500	500
			25335

Labs

Financial Markets Lab	1	1000	1000
Behaviorial Lab	1	750	750
Network Lab	1	375	375
Large Computer Teaching Lab	1	1500	1500
Small Computer Teaching Lab	1	1000	1000
			4625

Collaboration Spaces

Breakout Rooms / Seating	4	500	2000
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Total Learning Environments 31,960

Administrative Offices

Deans Office

Dean	1	300	300
Associate Dean	1	175	175
Assistant Dean (Future Position)	1	140	140
Asst to Dean	1	140	140
Asst to Assoc Dean	1	140	140
Administrative Assistants	1	140	140
Student Assistants	1	100	100
Communications Director	1	140	140

Date: September 21, 2012 **Revised October 12, 2012

Communications Coordinator	1	100	100
Events Coordinator	1	100	100
Reception/Waiting	1	300	300
Student Work Area (Comm)	1	150	150
Workroom/Storage	1	140	140
Conference Room	0	300	0
Dean's Executive Boardroom	1	600	600
Files Storage	1	100	100
Pantry	1	50	50
Internal Circulation	1	563	563
			3378

Financial Services

Director 1	140	140	
Administrative Offices	4	100	400
Reception/Waiting	1	150	150
Student Work Area	1	100	100
Files/Storage	1	140	140
Internal Circulation	1	186	186
			1116

Information Technology Services

Systems Administrator	1	140	140
Administrative Staff	1	200	200
Reception/Waiting	1	100	100
Student Work Area	1	150	150
Workroom	1	140	140
IT Storage/Checkout	1	140	140
Internal Circulation	1	174	174
			1044

Administrative Support Services

Administrative Coordinator	1	100	100
Student Worker	1	50	50
Copy/Mail/Supplies/Recycle Service	1	700	700
Storage	1	100	100
			950

Total Administrative Offices 6,488

628

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Student Advising Offices

Undergraduate Programs

	QTY	SF	Total SF
Assistant Dean	1	140	140
Administrative Offices	1	140	140
Administrative Staff	1	100	100
Student Work Area	1	140	140
Academic Advisors	10	100	1000
Files/Storage	1	140	140
Reception/Waiting	1	480	480
Conference Room	1	350	350
Internal Circulation	1	498	498
Total			2988

Multicultural Business Scholar Program

Director	1	140	140
Administrative Support	1	100	100
Student Worker	1	50	50
Total			290

Masters of Accountancy (MAcc) Program

Program Director (Faculty)	0	140	0
Administrative Director (Staff)	1	100	100
Academic Advisor	1	100	100
Administrative Offices	1	100	100
Reception Area / Waiting Area	1	160	160
Conference Room	0	180	0
Student Work Area	1	50	50
Files/Storage	1	50	50
Internal Circulation	1	112	112
Total			672

MBA Program

Program Director (Faculty)	1	140	140
Administrative Director (Staff)	1	100	100
Administrative Offices	2	100	200
Reception / Waiting Area	1	210	210
Student Work Area			
(+Edwards Campus Stf)	2	50	100
Career Advisors	2	75	150
Conference Room	0	180	0

Date: September 21, 2012 **Revised October 12, 2012

Files/Storage	1	50	50
3.4.9 Internal Circulation	1	190	190
Total			1140

Doctoral Program

Program Director (Faculty)	0	140	0
Administrative Director (Staff)	1	100	100
Total			100

Total Student Advising Offices

Student Career Offices

Business Career Services Center

Director (Jordan)	1	140	140
Administrative Offices	5	100	500
Reception/Waiting	1	100	100
Reception/Waiting (Receptionist = 60 sf)	1	450	450
Student Work Area	1	50	50
Interview Rooms	12	100	1200
Recruiters Lounge	1	150	150
Files/Storage	1	125	125
Resource Area	1	100	100
Conference Room	1	300	300
Advising Offices	0	100	0
Workroom	1	125	125
Internal Circulation	1	648	648
Total Student Career Offices			3,888

Area Faculty and Administrative Offices

<i>AIS Department</i>	QTY	SF	Total SF
Accounting Faculty	9	140	1260
Accounting Faculty	1	140	140
Accounting Lecturers	4	140	560
Accounting Lecturers - (PT)	2	70	140
Accounting Lecturers - (PT)	1	140	140
Information Systems Faculty	5	140	700
Information Systems Lecturers	1	140	140
Information Systems Lecturers - PT			
Area Director	1	160	160
Future Faculty	3	140	420
Visiting Scholars	1	150	150
Administrative Support	1	125	125
Student Work Station	1	50	50
Reception Area	1	150	150
Conference Room	1	750	750
Student Faculty Interaction	1	120	120
Workrooms/Files/Copy	1	175	175
			5040

FEEDS

Finance Faculty	9	140	1260
Finance Lecturers	3	140	420
Finance Lecturers - PT Share	1	100	100
Economics Faculty	2	140	280
Economics Lecturers	1	125	125
Economics Lecturers - PT	1	100	100
Economics Lecturers - PT Share	1	140	140
Decision Sci/Supply Chain Fac.	4	140	560
Dec Sciences/SCM Lecturers	2	140	280
Dec Sciences/SCM Lecturers - (PT)	2	100	200
Dec Sciences/SCM Lecturers - (PT) Share	1	210	210
Area Director	1	160	160
Future Faculty	3	140	420
Visiting Scholars	1	150	150

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Administrative Support	1	125	125
Student Work Station	1	50	50
Reception Area	1	150	150
Conference Room	1	750	750
Student Faculty Interaction	0	120	0
Workrooms/Files/Copy	1	175	175
			5655

MGMT

Human Resources Faculty	3	140	420
Human Resources Lecturers	1	140	140
Human Resources Lecturers - PT Share	1	140	140
International Business Faculty	3	140	420
International Business Lecturers	1	140	140
International Business Lecturers - PT Share	1	140	140
Organizational Behavior Faculty	5	140	700
Organizational Behavior Lecturers	3	140	420
Organizational Behavior Lecturers - (PT Share)	1	140	140
Strategic Management Faculty	3	140	420
Strategic Management Lecturers	1	140	140
Strategic Management Lecturers - PT Share	1	140	140
Area Director	1	160	160
Future Faculty	3	140	420
Visiting Scholars	1	150	150
Administrative Support	1	125	125
Student Work Station	1	50	50
Reception Area	1	150	150
Conference Room	1	750	750
Student Faculty Interaction	0	120	0
Workrooms/Files/Copy	1	175	175
			5340

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	QTY	SF	Total SF
<u>MEL</u>			
Marketing Faculty Offices	7	140	980
Marketing Lecturers	1	140	140
Marketing Lecturers - PT Share	1	140	140
Entrepreneurship Faculty Offices	1	140	140
Entrepreneurship Lecturers	0	140	0
Entrepreneurship Lecturers			
- PT Share	1	210	210
Entrepreneurship - Student Consulting	1	140	140
Business Law Faculty Offices	3	140	420
Business Law Lecturers	1	100	100
Business Law Lecturers			
- PT Share	0	0	0
General Business Lecturer	1	140	140
Area Director	1	175	175
Future Faculty	3	140	420
Visiting Scholars	1	140	140
Administrative Support	1	100	100
Student Work Station	1	50	50
Reception Area	1	200	200
Conference Room	1	750	750
Student Faculty Interaction	0	120	0
Workrooms/Files/Copy	1	175	175
			4420

<u>Doctoral Students</u>			
PhD Students	23	100	2300
<u>Shared Departmental Resources</u>			
Faculty Resource Area	0	180	0
Kitchen/Breakroom	2	150	300
			300

Dept Admin Internal Circulation 1 4639 4639

Total Dept. Administrative Offices 27,694

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Centers and Outreach

	QTY	SF	Total SF
<u>Small Business Development Center (SBDC)</u>			
Director	1	140	140
Administrative Support	1	100	100
			240

<u>Entrepreneurship Center</u>			
Director	1	140	140
Administrative Support	1	100	100
Faculty Lecturer	2	125	250
Faculty Lecturers - PT Share	1	125	125
Student Work Station - Jayhawk Consulting	1	125	125
			740

<u>Institute for International Business</u>			
Faculty Director	0	140	0
Staff Director	1	125	125
Administrative Support	1	125	125
Language Center & Resource Center	1	125	125
			375

<u>CIMBA Study Abroad</u>			
Director	1	125	125
Student Work Station	1	50	50
			175

<u>CARAT</u>			
Director	0	140	0
Administrative Support (Student)	1	50	50
			50

<u>Center for Applied Economics</u>			
Director	1	140	140
Administrative Support	0	50	0
			140

	QTY	SF	Total SF
<u>Center for Business Ethics</u>			
Director	1	140	140
Administrative Support	0	50	0
			140
<u>Student Incubator/Franchise Center</u>			
Director	1	140	140
Administrative Support	0	50	0
			140
<u>Center for Executive in Residence</u>			
Executive in Residence	1	140	140
Administrative Support	0	50	0
			140
<u>Shared Centers Support Areas</u>			
Reception/ Waiting	1	160	160
Administrative Support	3	50	150
Conference Room	1	250	250
Breakroom/Kitchenette	1	125	125
Workroom/Files/Storage	1	100	100
Internal Circulation	1	157	157
			942
<u>Distance Learning Studio - Media Support</u>			
Distance Learning/Media Support Studio	1	300	300
Technology Support	1	200	200
			500
Total Centers and Outreach			3,582

	QTY	SF	Total SF
<u>Food Service</u>			
Seating	1	720	720
Servery	1	432	432
Kitchen	1	269	269
Storage	1	173	173
			1594
<u>Lounge</u>			
Faculty/Staff Lounge	1	500	500
Quiet Student Lounge	1	1000	1000
MBA/Graduate/Alumni Lounge	1	625	625
			2125
<u>Student Organizations</u>			
Organization Spaces	15	30	450
Meeting Area	1	375	375
Storage Areas	1	100	100
			925
Total Common Areas			12,844
<u>Learning Support</u>			
<u>Student Assistance Center</u>			
Teaching Assistants Offices (TA's)	34	70	2380
Teaching Assistant Office (TA)	1	100	100
Help Room	1	875	875
Waiting/Studying Area	1	500	500
Resource Support Area	1	200	200
			4055
<u>Student Assistance Labs</u>			
Open Student Computer Lab Monitors	1	1250	1250
Open Student Computer Lab			1250
<u>Shared Student Support Spaces</u>			
Team Rooms	25	150	3750
Graduate Lockers and Changing Rooms	0	6	0
			3750
Total Learning Support			9,055
Total Assignable Areas			100,841

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Exterior Areas

Entry Plaza
School of Business Courtyard
Roof Top Terraces

Non-Assignable Areas

<u>Non-Assignable Areas</u>		
Building Circulation Systems	1	28235
Vestibules	2	1000
Restrooms	1	4034
Housekeeping	1	1008
General Building Storage	1	3000
Receiving/Loading Area	1	2000
Mechanical Systems	1	9668
Mechanical Equipment		
Mechanical Shafts	1	5525
Electrical Systems		
Electrical Equipment		
Electrical & Telecommunication Closets		
Structure/Exterior Walls/Partitions	1	10872

Total Non-Assignable Areas **65,342**

Total Proposed Gross Building Area **166,183 GSF**

Site Improvements & Infrastructure

Site Improvements

- Parking: Existing parking to the south of the site shall remain unchanged.
- Trash and Service Drives: Provide new trash dumpster locations and service drives as required to serve the new facility. Dumpsters shall be screened from public view.
- Bus Stops: The bus stop is currently at the corner of Schwegler and the parking lot drive. Maintaining adequate drop off and pick up areas and integrating this into the design is an important consideration.

Utilities & Infrastructure

- Extensions of the utility services shall be included as part of this work, as required to serve the new facilities.
- Relocation of underground utilities will be required to achieve maximum site utilization.
- A Site Utilities map will be provided by the University.

Existing Utility Tunnel

The existing utility tunnel may have to be extended to accommodate bringing steam and low voltage to the site.

Hazardous Materials

- This site is currently occupied by tennis courts, there is no abatement anticipated at this time.

Code Requirements

- Codes currently used on KU projects include the following:
 - International Building Codes, 2006 edition.
 - Kansas Fire Prevention Code, KSFMO, current edition.
 - Kansas Dept. of Agriculture (KDA), Kansas Food Code, 2005 edition.
 - Other codes as listed at the State of Kansas, Office of Facilities and Property Management (OFFPM) website.
 - Code Footprint templates shall be furnished to the architect on DCM's standard 11x17 code footprint sheets.
 - The architect shall update these drawings to reflect all proposed work and submit them for approval to OFFPM through the KU-DCM office, immediately following approval of the Design Development phase, at the latest.
 - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
 - The building shall be fully protected by fire sprinkler and fire alarm systems throughout. Fire alarm shall comply with current code and KU requirements for an intelligent addressable system.

Historic Preservation Reviews

This existing building is not located within 500 feet of any properties currently listed on either the State or National Registers of Historic Places.

Project Budget

Construction Cost

Estimated Cost of Construction	43,820,100
Estimated Infrastructure Costs	1,458,700
Design & Construction Contingency	3,575,700
	48,854,500

Miscellaneous Costs

Fees - Consultants & State/KU Agencies	4,191,200
Printing & Shipping of Bid Documents	50,000
Construction Testing & M/E Commissioning	120,000
Furnishings	1,980,000
Equipment	4,075,000
Moving Expenses	NA
Owner Contingency	3,419,800
	13,836,000

Subtotal – Project Costs (August 2012 \$\$) 48,854,500

Inflation – August 2012 to December 2013 3,050,075

Total Estimated Project Cost (rounded) \$65,740,000

Notes:

1) The project will be funded with a combination of private funds and university resources. The university requests bonding authority in the amount of \$65,740,000 to provide flexibility in the event of multi-year pledges.

Date: September 21, 2012 **Revised October 12, 2012

Project Schedule

The design and construction schedule for the new proposed School of Business will be depend on the source of funding and timing of the financial model for the project. To utilize bonding authority would require legislative approval. The legislative process begins in January and completes by May of each year and the statutory authority would be effective on July 1st of the same year. The decision to seek bonding authority would need to be made prior to December 1st in order to properly prepare for the upcoming legislative session. Other influencing factors will be the construction delivery method as well as the involvement of any public financing. The schedule will be composed of several steps including:

- Consultant Selection
- Program/Concept Verification
- Design (Schematic Design, Design Development, Construction
- Documentation, Bidding)
- Construction
- Commissioning
- Occupancy

Consultant selection would likely take 2 months.

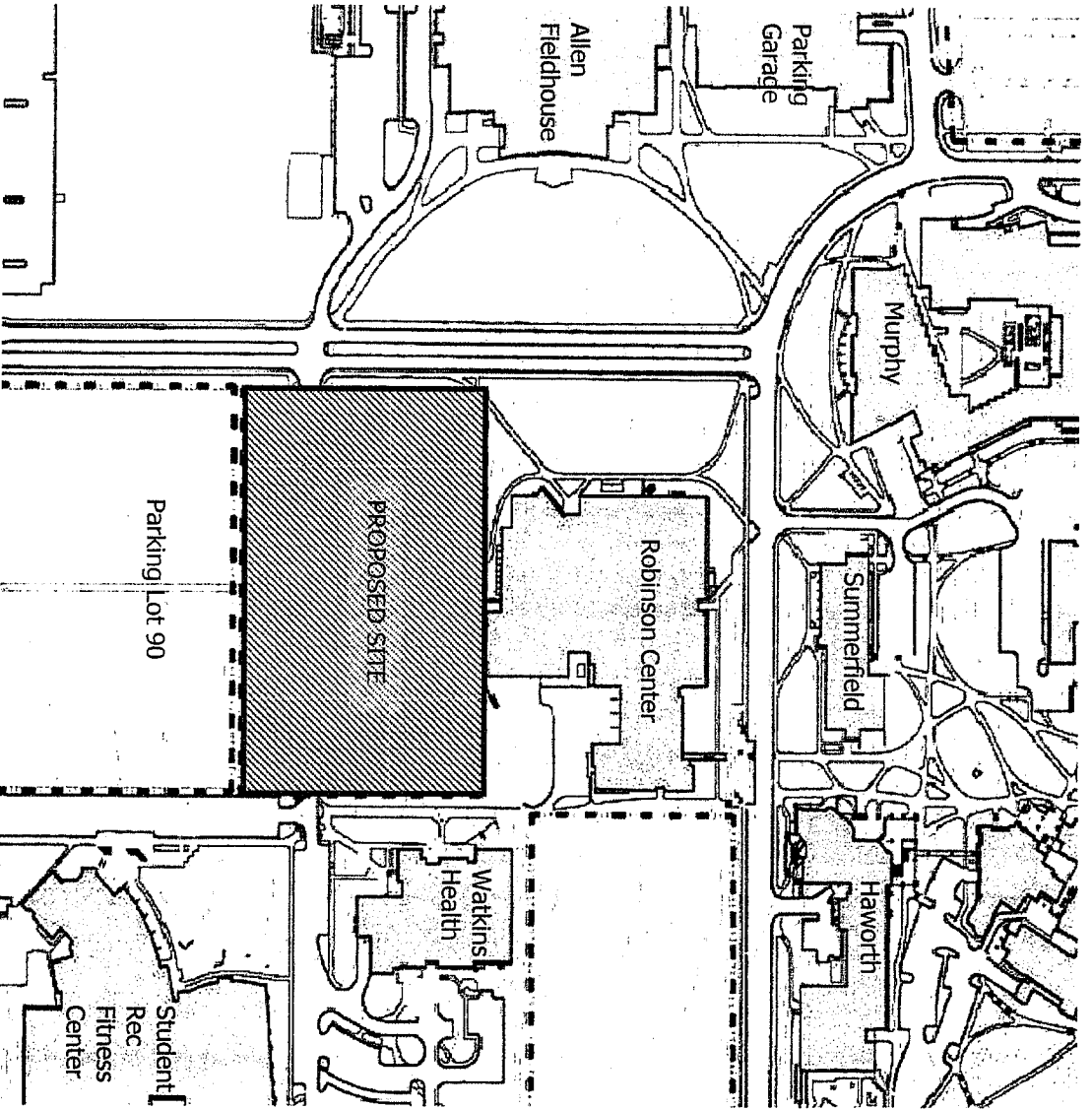
Program/Concept Verification and Design will be approximately 12 - 14 months under a normal non-accelerated design process. However, involvement of public funding would increase review periods of this design process and extend this time frame. The construction delivery method would also impact this schedule.

Construction for the new proposed building would be approximately 20-24 months. Again the delivery method could impact the length of construction (there are methods that could accelerate this time frame).

Commissioning of the new building is the time period to fine tune the systems of the building prior to moving in. Typically this is a 6 – 8 week time frame.

In summary, from a Notice to Proceed with the project to the point at which the occupants of the new School of Business could move in is approximately 40 to 46 months.

Proposed Site Location Plan



Date: September 21, 2012 **Revised October 12, 2012

School of Business - New Building
 KU Project #299-8585

The Naismith Tennis Court site is located relatively close to other campus destinations and academic buildings. The location on Naismith Drive offers the potential for high visibility and a "gateway" building for visitors entering the campus from the south. Because of the adjacency to Allen Field House, there is strong potential for connection/synergy with the visiting alumni and the KU Basketball events. The building could potentially provide a pedestrian bridge connection across Naismith Drive.

- Major Storm Sewer Relocation located in central location of the site running South (Size 8'x3' @ 60" deep).
- Existing Storm in Schwegler may be relocated.
- Sanitary not affected - New building to connect to 12" PVC along new south project limits line.
- Water service available.
- No Fire Hydrant conflicts.
- IT location along Naismith Dr. not affected.
- Light/Electrical service lines to be relocated.
- No Gas line conflicts.
- Tennis courts to be relocated.
- Site to be accessed from Schwegler Dr., which may be relocated south.
- Relatively flat site.

Architectural Program

Learned Hall Engineering Expansion Phase II+

KU Project No. 088-8941

Date: April 1, 2011

Updated: November 29, 2011

Updated: May 30, 2012

Prepared by:

The University of Kansas, Lawrence Campus
School of Engineering
Office of Capital Planning
Office of Design & Construction Management



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Programming Committee

Contents

- Stuart Bell, Dean, School of Engineering (SOE)
- JoAnn Browning, Associate Dean, SOE
- Glen Marotz, Associate Dean, SOE
- Robb Sorem, Associate Dean, SOE
- Tom Waechter, Director, Capital Planning
- Jim Modig, Director, DCM & University Architect
- Steve Scannell, Assistant Director, DCM
- Leigh Myers, Project Manager, DCM

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NOTE: This architectural program was revised in May 2012 to reflect a proposed increase in the project budget from \$65M to **\$80,635,000 overall**. This expanded project scope (approx. **29,000 addl. GSF**) is required to more fully accommodate the space needs of the new faculty which the KU School of Engineering must hire to meet the projected growth in student enrollment and academic / research programs.

The original narrative describes the required space types, but the updated space summary (ref. p. 13) reflects the currently proposed general space distribution. The actual specific space distribution related to the expanded project scope will be determined during the preliminary stages of design.

The revised sections of this program are identified by yellow highlighted text, for ease of reference and review.

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Introduction

The University of Kansas, School of Engineering is rich in tradition and excellence. One of the first degrees granted by the University in 1873 was a degree in civil engineering. In 1891, KU became home to the first school of engineering in the State. Over the years, the school has continually adapted its programs to fit the needs and demands of society, and reflect the changing forces of technology. Today the School of Engineering has eight departments and programs, offers ten undergraduate and sixteen graduate programs emphasizing strong educational and interdisciplinary projects and leading edge development in a variety of disciplines.

The demand for engineering graduates at national and state levels is high and projections indicate this trend will continue for many years. In fact, most projections suggest that engineering and technology fields will play key roles in a state's ability to rebound from the current economic downturn. In the National Academy of Sciences/Engineering report, "Rising Above the Gathering Storm," the shortage of professionals in the science, technology, engineering and mathematics (STEM) areas was reported to be staggering, and could lead to a national and State crisis. The report pointed out that as much as 85 percent of measured growth in income per capita in the United States over the last several years has been due to technological change.

In Kansas, 80 percent of all science and technology-based occupations are in the engineering and IT fields. The State's engineering programs are the primary source of this workforce for companies. Unfortunately, compared to surrounding states, Kansas produces the lowest fraction of engineering graduates per capita. Thus, there is an immediate need to bolster the production of engineering graduates in Kansas.

Date: April 1, 2011 (Updated: May 30, 2012)

Current Space and Pressing Demand

Our current principal classroom and project development space, Learned Hall, contains 144,000 net square feet (nsf)/225,000 gross square feet (gsf). The original building was constructed in 1963. Although expanded in a series of additions and renovations, Learned is sized for much smaller student and faculty populations than we currently have within the School of Engineering (SOE).

A principal goal for Engineering programs is to increase the number of Bachelor of Science graduates by 50 percent annually. In order to accomplish this goal, the School must build its educational capability by adding faculty, instructional and support staff, and facilities. Over the last five years, the KU School of Engineering has been able to attract, develop and retain faculty who can generate and lead instructional and research project development efforts. Success requires expansion of physical structures that can accommodate recent and projected growth. We cannot ensure capacity for continued growth, diversification, and improvement, or meet the many and varied requirements of our industry partners for graduates unless space is added to the Engineering complex.

The school serves Kansas by the production of engineers and computer scientists who become employed in a broad range of Kansas industries. The SOE also serves Kansas through partnerships, new development, applied technologies and outreach programs. A brief sample of programs would include a focus on better recovery of oil from our aging petroleum reservoirs; aircraft design and manufacturing; developing bio-fuels and bio-chemicals; serving the IT industry needs of Kansas companies; and working with companies focused on design and construction, transportation planning and technology development.

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Competing demands for space have reached a critical level that threatens to decrease productivity, to further limit our ability to meet industry's demand for new graduates, and to limit opportunities in areas where the SOE has a leadership position nationally. The school's activities are currently spread not only among buildings in the engineering complex but throughout other structures considerable distances from the main buildings and classrooms.

The proposed structure is an essential component in an overall building plan that the SOE has developed with its industry and other partners over the last five years.

The first component is an ARRA Stimulus Proposal submitted in September 2009 for a \$21.6 million, 36,000 gsf interdisciplinary research facility, which was awarded a \$12.3M NIST grant and is currently under construction. The partially-NIST-funded Measurement, Materials and Sustainable Environment Center (M2SEC) project is scheduled for completion in June 2012.

The additional component proposed for development is envisioned as a combined Classroom Instructional, Academic Support and Student Project Expansion that incorporates project development and instructional labs and core service facilities. This will allow expansion of the project development resources available to Engineering and related industrial and commercial partners. This proposed development will also provide a building complex that will accommodate the many varied, existing and planned projects that, at this point, cannot be effectively accomplished.

In recent years, KU has developed an interdisciplinary service lab approach used in the design of its Multidisciplinary Research Building on KU's West Campus. That structure houses faculty and graduate students associated with

multidisciplinary science programs including Engineering from across the campus. The building is designed to encourage interaction among its many disciplines and personnel. The design integrates shared support labs for specialized instrumentation to enable access from multiple participants engaged in projects.

The same approach applied to the proposed structure will help to create critical links between faculty expertise, student development, project-focused initiatives and outside enterprise. The building project is required to further integrate an academic focus, to expand training and development ventures that benefit graduates, to deliver research ventures and outreach projects related to the Kansas economy and the next generation of the KU School of Engineering students and graduates.

School of Engineering Expansion Phase II

Instructional Space	26,800 gsf
Academic Program Support Space and Tutoring Areas	18,850 gsf
Student Project Center	<u>17,600 gsf</u>
Total Academic and Student Project Space	63,250 gsf
Project Development Laboratories/Research	<u>66,540 gsf</u>
Total Project Area	129,790 gsf

Space for Contemporary Models for Instruction

The current engineering classroom space is at capacity and growing enrollments cannot be accomplished without adding additional instructional space. Nearly all of the engineering teaching facilities, other than computerized classrooms, are located in Learned Hall. The only teaching classroom in Eaton Hall is Spahr Classroom which has a capacity of 233. Learned Hall has small 1970's lecture-style classrooms.

Most existing classrooms are long, flat and narrow which was indicative of the teaching style when they were constructed and are not able to accommodate larger classes or newer methods or technology. Today's instructional models are different but the physical construction of Learned Hall prohibits reconfiguration of the classrooms to better integrate technology and accommodate enrollment growth.

The School of Engineering remains committed to producing top-level undergraduates. Today, the School of Engineering's top faculty are as successful in classroom instruction as they are in leading-edge project development and related research. Two School of Engineering departments were among the first three at KU to receive KU's Center for Teaching Excellence departmental award recognizing excellence across the department. Numerous faculty are Kemper Awardees as well as HOPE winners which recognizes exemplary teachers selected by students.

New teaching facilities are needed not only to maintain but to improve the level of student engagement. New instructional methods are based on interactive discussion and work related to shared project development. Contemporary standards for classrooms provide spaces which are wider and tiered to provide a better view for students of the instructor as well as the instructor viewing the students.

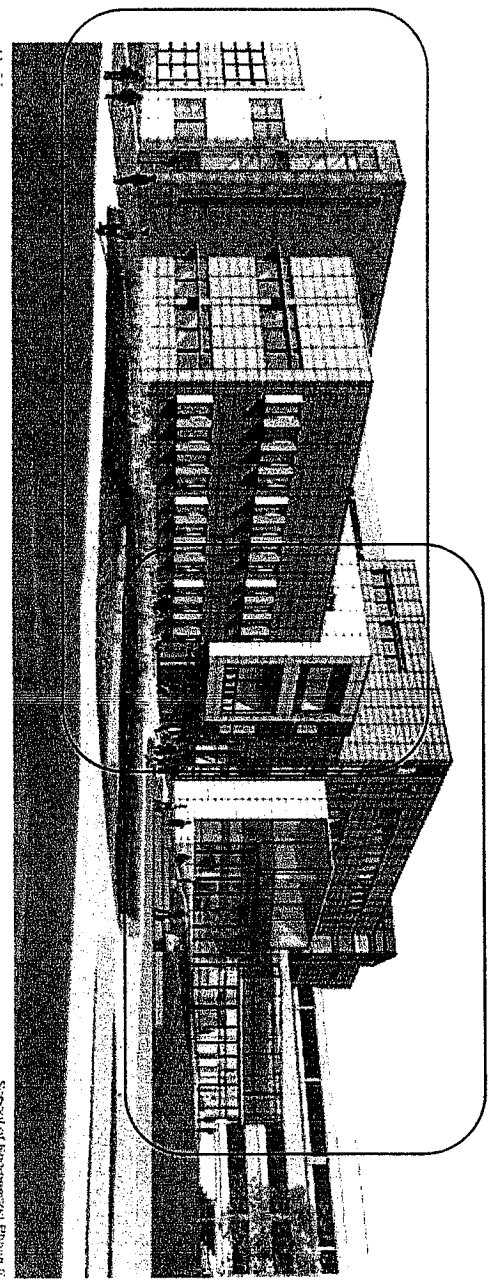
Instead of the tablet arm chairs used since the 1970s, work tables are implemented where students can spread their work and share ideas. In the 1970s views were focused on the instructor, emphasis was on the individual student working alone and teamwork was not encouraged. Today's engineering market demands that students are adept at working in teams. Modern teaching trends maintain individual work to ensure that each student grasps the concepts, but meshes teamwork into the curricula to reinforce the principles used in today's industry. Larger tiered lecture classrooms will provide the necessary space and working environment for both lecture and projects to improve student outcomes.

Once larger classrooms are provided in the new facility, the existing classrooms in Learned Hall can be reconfigured for the newer teaching style needs for Engineering classrooms with existing smaller-capacity classes in Learned Hall. The goal is to benefit overall classroom utilization. Generally, larger freshman and sophomore classes will be accommodated in the larger new classrooms and somewhat smaller upperclassman courses in existing renovated classrooms.

One of the newer teaching methods for lecture-laboratory classes is to integrate both functions into one classroom. This requires a larger room with round tables with computers at each table. The tables typically hold four to nine students with projection equipment and flat panel monitors serving the room and available to each group. Several studies have been conducted documenting improved student learning as well as increased retention. The advantage of this type of classroom is it can be easily reconfigured to suit changing needs and different methods of instruction.

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	Quantity	Seats	NSF per space	Total GSF
Instructional Space				
Instructional classrooms, tiered lecture	1	125	3,125 nsf x 1.65 =	5,200 gsf
Instructional classrooms, tiered lecture	1	100	2,500 nsf x 1.65 =	4,100 gsf
Integrated lecture/lab, flat floor w/round tables	1	80	2,400 nsf x 1.65 =	4,000 gsf
Instructional tiered classroom	1	75	1,950 nsf x 1.65 =	3,200 gsf
Computerized classroom for design classes	1	60	1,800 nsf x 1.65 =	3,000 gsf
Instructional classrooms, tiered lecture	2	50	2,400 nsf x 1.65 =	4,000 gsf
Wet lab (Environmental/Chemical coursework)	1		1,350 nsf x 1.65 =	2,200 gsf
Instructional classrooms, flat floor	1	30	660 nsf x 1.65 =	<u>1,100 gsf</u>
Total classroom seat count		520		26,800 gsf



School of Engineering Phase II
 Proposed Engineering Expansion Phase II
 Project Number: 101-1111-1111

Rendering above shows NIST-M2SEC Facility (on left) to be complete June 2012. Total Construction Cost = \$24 million.

Proposed Engineering Expansion Phase II (shown above, to right of M2SEC) with Instructional Space adjacent to Learned Hall (right).

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Academic Support Program Elements

Along with the necessary instructional facilities for expansion of the number of KU engineering graduates, this proposal also incorporates programs intended to retain larger percentages of students by expanding programs for Student Engagement.

Student Engagement

To maximize the success rate of students, expanded programs and facilities will be provided to engage individual students from the recruiting process through graduation. This focus on individual success and related programs requires a physical layout of academic support facilities and a program connection between time spent in the classroom and reinforcement outside of the classroom integrated with the student's day. While students transition from one phase of their education to another, engagement is provided by access to programs that bridge instruction, provide peer support, and support overall student development.

These sorts of programs require configurable space suitable for meetings and discussions that will support a few students to an entire visiting class of potential students. As the students matriculate, the space will also serve the Engineering Learning Community, a student group focused on improving student engagement and retention. Currently, the learning community meets in a large lecture room or in smaller groups in classrooms.

These activities are better accomplished in a space staffed and available during and outside of the class hour day. Directly related to work outside the classroom, improving retention requires a strong model and program for tutoring.

The School of Engineering has tried various models for tutoring, but they have been limited in scope and success due to space constraints. The new space for this program will include an area with multiple tables, computers and marker boards. Staff and teaching assistants will be available outside of the scheduled classroom sessions and will include office and tutoring space. The teaching assistants will hold office hours and help sessions in this area rather than in remote buildings as is the case today. This will provide greater access for students and better support given the academic and development challenges of an engineering program.

The School of Engineering also has very active student groups, such as the Engineering Student Senate, Society for Women Engineers, Engineers Without Borders and the Society of Black Engineers to name a few. Prior to Summer 2004, student groups were able to utilize Koch Lounge located in the Spahr Engineering Library which contained a few offices and areas for study. When the library was renovated in 2004, the area for Koch Lounge was eliminated to create the current library circulation work area. While the overall benefit of the library renovation was very positive, it did leave an unmet need for the student groups.

Social learning and creating a sense of shared community are facets of education expanding upon work in the classroom that have related operational and space requirements for students. The proposed programs and related facilities will help with the process of building success both in retention and graduation rates. As students make progress towards a degree these program spaces will be used by the Engineering Career Center for conducting academic support sessions ranging from resume writing to interview workshops and culminating with information sessions with industry representatives and interviews.

Academic Program Support Space

<u>Program Areas of Support</u>	<u>Quantity</u>	<u>NSF</u>	<u>GSF</u>
Offices	15	140 nsf = 3500 gsf	
Cubicles	8	45 nsf = 590 gsf	
File room	1	200 nsf = 330 gsf	
Work room	1	300 nsf = 500 gsf	
Storage room	1	400 nsf = 660 gsf	
Kitchen	1	140 nsf = 230 gsf	
Restrooms	2	90 nsf = 300 gsf	
Large Conference Room	1	550 nsf = 910 gsf	
Small Conference Rooms	1	320 nsf = 530 gsf	
100 person convertible meeting space	1	2000 nsf = 3300 gsf	
(To be divisible, 4 to 8)			
Catering kitchen	1	250 nsf = 410 gsf	
Small offices/interview rooms	6	120 nsf = 1390 gsf	
Lounge area	1	300 nsf = 500 gsf	
Libraries	1	150 nsf = 250 gsf	
Student conference room (12 person)	1	320 nsf = 530 gsf	
Informal study (tables, couches, etc.)	1	1000 nsf = 1650 gsf	
Student offices around lounge area	6	100 nsf = 990 gsf	
Student Resource Room (tutoring)	1	1000 nsf = 1650 gsf	
<u>GTA/TA offices</u>	<u>4</u>	<u>100 nsf</u> = <u>630 gsf</u>	
Total Academic Program Space			18,850 gsf

Student Project Center Space

The heart of Engineering education, student and faculty development and professional practice is projects. Engineers produce products and services that improve humankind ranging from methods for drug delivery, to bio-engineered components for joint replacements, to cleaner, more efficient energy, transportation systems and related infrastructure. Academic programs in the School of Engineering have student projects of one form or another. Currently, those projects are spread throughout Learned and Eaton Halls as well as facilities at the Lawrence Municipal Airport. There are departments that have little or no space for these activities.

The concept being implemented at most other Engineering programs in the country is to include a central student project center. Individual project labs would be located around central facilities that are shared by all student project groups. For example, the central facility capabilities would range from composite material construction space for Aerospace or Structural engineering to a computer integrated machining center for the production of precision parts and components for any relevant engineering project.

Students would gain a knowledge and understanding of state-of-the-art manufacturing techniques that they would be expected to apply to industrial processes. And after experience with this type of project development lab they would have experience with a range of engineered solutions, processes and products. For example, the Formula SAE vehicle team arguably has the best facilities of any student group at KU in a retrofit lower level of a 1984 addition to Learned—marginal, with concerns about appropriate ventilation and access to utility services—but used to exceptional levels for an annual project of producing a competitive race car.

Through the years, the vehicle design team has performed at an award-winning level at international competitions. This has provided a high level of engagement in the process of design, fabrication, integration and overall student performance. In an expanded program, the goal is for student projects in various disciplines to engage in leading edge competition. The program investment and resources include the required space for a variety of student developed projects.

The new building is intended to bring engineering disciplines together to support project and personal development. This will improve the support for ways to develop ideas and the required skills to share ideas—skills critical to the professional engineer. This results in a higher graduation rate and more engaged graduates for the engineering workforce.

Today most students are exposed to project development, in one form or another, during their studies and the clear trend is for greater exposure to interdisciplinary and team based project research and development. Although interdisciplinary activities are the preferred practice among faculty, students, and our industry partners, lack of adequate and appropriate space diminishes potential opportunities to collaborate. And this diminishes the likelihood of developing skills important to interdisciplinary solutions to various problems.

Placing faculty, student researchers and industry partners in environments that encourage informal and frequent communication will enhance project-focused problem-solving.

Space planning must also address an efficient model for resource allocation that reflects State and National interests, needs and opportunities. Evolving areas of emphasis need to be accommodated and the development of shared support spaces should maximize the number and type of projects accommodated. Facilities need to integrate opportunities for

personal exchange, communication, insight, and technical support and the space required to effectively complete projects. Principles that will guide the building design include:

- Collaborative spaces must be interwoven into the lab/office mix so that students, faculty, industry representatives, etc. have multiple opportunities to meet and discuss projects, developments, information, and project relevant topics;
- Equipment and instrumentation must be in shared spaces so that multi-disciplinary and inter-disciplinary teams have ready access;
- All labs/offices/collaborative spaces must be designed as functional units in order to promote maximum space usage efficiencies and interaction;
- All spaces must, to the extent possible, be reconfigurable to meet larger, newer or more pressing demands for programs

Principles for operating the space also require that designated spaces be allocated on the basis of external funding sufficient to support usage of project development lab, equipment and supporting design and meeting space and retained for the duration of a project, then shifted as needs dictate.

Assignment of space based upon project duration will be the practice with a preference for long-term, interdisciplinary use for larger team projects. The focus will be on the ability of teams to share space and analytical and development capabilities within a project development and office complex.

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Student Projects Center

Composite materials processing room (curing oven, walk-in freezer, autoclave, hot press, lay-up room)	1	800	nsf x	1.7	=	1400	gsf
Materials finishing lab (sanding room, etc.)	1	800	nsf x	1.7	=	1400	gsf
Engine Test Facility	1	400	nsf x	2	=	800	gsf
Restricted machining center	1	1500	nsf x	1.7	=	2600	gsf
(CNC mill, lathe, router, manual machines)							
Open access manufacturing lab (Welder, drill presses, etc.)	1	1000	nsf x	1.7	=	1700	gsf
Conference room (seats 12)	1	320	nsf x	1.7	=	500	gsf
Open, clean work area (computers, tables, etc.)	1	600	nsf x	1.7	=	1000	gsf
20 x 40 configurable bays	6	800	nsf x	1.7	=	8200	gsf
						17,600	gsf
Total Academic Program Space						17,600	gsf

Project Development Investment Principles

The positive performance of the sponsored project development components enhances the likelihood that there will be a return for the investment of State and Federal dollars. Either through Indirect Cost Return or more robust intellectual property development, it is anticipated that the revenue potential will be both more robust and diversified by the projects supported by faculty within this complex. In order to increase these prospects, the next generation of core service lab capabilities will need to be developed.

Properly equipped and staffed service labs support institutional outreach and open the door to use for industry and university partnerships. Unique capabilities and services provide added revenue that can help pay for staff, equipment and building operations and maintenance. The focus is on state-of-the-art components and adaptability. The construction of project labs assigned to individuals is intended to be a minor component in the complex.

Core service labs have been developed in KU's National Institutes for Standards and Technology (NIST) funded ARRA Stimulus project and are included in the current separately-

funded \$24 million expansion. These **Core Shared Project Labs** include:

1. **Sustainable Practices** (Energy; fuel development and testing; water),
2. **Materials** (Biomaterials, composite development, construction and testing)
3. **Chemical Analysis and Imaging** (Cross-disciplinary)

Each of these project support areas will provide opportunities to tackle larger-scale projects expanding the potential rates of return. Services would also be available to a range of interested parties, including start-up ventures and commercial purposes. Access to key technologies supporting entrepreneurial activities and job creation will also help to provide revenue to support core service labs as shared resources and the required skilled personnel needed to provide services, complete analytical steps and to maintain and update specialized equipment.

Project Development Lab Components

Sustainability, Water, Fuels, Transportation, Oil Recovery, New Materials, Bioengineering and Instrumentation Labs

Sustainability: The increase in funding for project development and education in sustainable energy practices, together with the increased demand for "energy literate" graduates, will provide major growth opportunities within Engineering. Similarly, water has become a limiting factor in energy and biomass production; professionals in water supply and demand are in equally short supply. The project development space includes wet labs for water and waste

reuse research, biofuels testing and characterization, biofuels processing, testing, treatment and chemical analysis.

Biofuels and Biorefining: This area will continue to develop over the next 10 years as the nation moves towards the production of transportation fuels and chemical feedstocks from renewables. Progress requires interdisciplinary collaboration among chemical, mechanical, electrical and computer science, and environmental engineers, as well as chemists, mathematicians, and physicists. KU SOE's key strengths are directly relevant to this area, and include catalysis, separations, process development and applications, coupled with the integration of production technologies for fuels with vehicle design and performance, and with environmental impact considerations. Lab space is needed to support this effort, which is led by KU's Center for Environmentally Beneficial Catalysis and the Transportation Research Institute, both affiliated with the School of Engineering.

Transportation: The KU Energy Research Council's 'Feedstock to Tailpipe' initiative involving the development of algae based feedstocks will continue to grow. The major demand for space is related to process demonstration and scale-up. This is a key step to obtain realistic data which will provide proven models for industry and then the industrial and venture capital partners to participate in full-scale development of KU based technologies.

Currently, there is no facility for the construction of pilot-scale evaluation experiments. Such a facility requires specialized construction for the installation of larger scale process equipment, such as water and solvent storage, solid-liquid separation equipment, high speed centrifuges, distillation columns, mixers, reactors, and product storage. The area would require "tail space" for distillation and absorption

columns and for the support of heavy equipment. The building includes a high-bay, open area for installation of this type of equipment as well as other large scale installations.

Petroleum Engineering: The need for enhanced oil recovery (EOR) technologies will undoubtedly continue for many years. The leading edge EOR techniques which Chemical and Petroleum Engineering will continue to invest in include use of nano-structured particles for the delivery of EOR reagents, biosurfactants, gel polymer techniques, and fundamental understanding of CO₂ near-miscible flooding systems.

Material Development and Testing: KU SOE has significant experience in material development and testing, and structural characteristics. Examples include carbon-fiber (C-F), bio-mechanical substrates, polymers, hydrogels, nano-scale and phase-change materials, and other composite materials. Students currently work in collaboration with our colleagues in various SOE departments, as well as our partners in Chemistry, Pharmacy, and Physics on material development, testing, and application.

Our material development work is particularly significant given international trends. At present, the automobile industry is the major user of carbon fiber worldwide. The market will expand in the near future as uses, such as antistatic coatings, sensors for gas detection, electrode material for batteries, touch-screen displays, structural reinforcements, and composite matrices grow. The US Department of Energy has declared the area one of three significant research and development areas for its national laboratories.

Medical Devices: Innovation in biomaterials will lead to a new generation of medical devices. One of the primary goals of the Bioengineering program is to serve as a catalyst in bringing together leading medical and bioengineering

Date: April 1, 2011 (Updated: May 30, 2012)

research with advanced manufacturing and materials development applications.

Kurata Thermodynamics Lab Remodel for EHS Offices

Burt Hall, which is located west of the M2SEC/Phase One expansion building, currently houses several SOE researchers and the offices and labs for KU's Environment, Health & Safety (EHS) department. The SOE researchers will relocate into the M2SEC building in June 2012.

In order to accommodate the new Engineering Expansion building's footprint, and the partial demolition / conversion of Burt Hall to serve as a district chilled water plant for the engineering complex, EHS must first have replacement facilities prepared for their use.

As a separate, but related and required component of the Engineering Expansion Phase 2+ project, KU will renovate the Kurata Thermodynamics Lab (KTL) facility on West Campus to serve as the new EHS office and lab building. The KTL facility is located immediately adjacent to EHS' current waste material building, and the research facilities being developed around Becker Drive. A small addition is proposed, which will make the renovated facility approximately the same net area as the spaces EHS is being required to vacate for the LEEP2+ project.

A separate program document has been developed for the KTL Remodel for EHS Offices project (KU #190-9246), which includes the details of the proposed program needs, spaces, activities within the renovated facility budget details and schedule.

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SPACE SUMMARY - Engineering Expansion Phase II+		Phase II - \$65M		Phase II+ - \$80M	
Updated/Revised: May 25, 2012		Ind. Total	Area Total	Ind. Total	Area Total
Class labs	CPE/Env/Thermo	4,000	13,000	4,000	13,000
	Instrumentation and Mech of Materials	2,000		2,000	
	*Student Fabrication/Projects	3,000		3,000	
	Sr Design Lab	2,000		2,000	
	HVAC/BTS/III	2,000		2,000	
Classrooms	15,000	15,000	15,000	15,000	
Research	Analytical Chemistry	1,500	19,600	1,500	35,100
	Thermofluids	1,000		1,000	
	Imaging	1,000		1,000	
	*High bay	10,000		10,000	
	Primary assignable lab spaces				
Phase II+	17 @ 800	6,100		13,600	
Phase II+	5 @ 1,600	-		8,000	
Career Center		1,060	1,060	1,060	1,060
Undergrad recruitment and retention		3,270	3,270	3,270	3,270
Library	student meeting rooms (6)	1,340	2,340	1,340	2,340
	informal study	1,000		1,000	
Entry	informal study	1,000	5,700	1,000	5,700
	grad student offices	4,000		4,000	
	student group offices	5 @ 140		700	
Overall Subtotals - Net Area (NSF)		59,970		75,470	
Gross to Net Area factor:		1.68		1.72	
Overall Totals - Gross Area (GSF)		100,790		129,790	

* Primary location currently being considered is on West Campus.

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Project Budget (Note: this has been revised / reformatted in its entirety.)

	Phase II -- \$65M	Phase II+ -- \$80M
Estimated Construction Costs - General Construction		
Building Construction	\$42,300,000	\$54,500,000
Fire Alarm & Bldg. Controls	1,131,000	1,500,000
Site Development, Exterior Plaza & Landscaping	1,450,000	1,450,000
Site Utilities & Tunnel Extensions	1,481,000	1,481,000
Central Chilled Water Plant (renovated Burt Hall)	5,254,000	5,254,000
Parking, roads & sidewalks	<u>300,000</u>	<u>300,000</u>
Subtotal - Estimated Construction Costs	51,916,000	64,485,000
Estimated Construction Costs - Separate Contracts		
Voice & Data (KU-IT) & AV Systems	2,200,000	2,650,000
Equipment & Furnishings	960,000	1,175,000
Security Cameras & Access Control Systems	100,000	150,000
HazMat Abatement	<u>50,000</u>	<u>50,000</u>
Subtotal - Est. Construction Costs - Separate Contracts	3,310,000	4,025,000
Miscellaneous Costs		
Fees (A/E consultants & state agencies)	4,470,000	5,278,000
Printing, Shipping & Travel	50,000	80,000
Survey, Borings, Geotech Report & Construction Testing	235,000	228,800
Commissioning	400,000	500,000
Signage & Moving Expenses	100,000	100,000
EHS Relocation - Kurata Labs Renovation	1,400,000	2,035,000
Bidding & Construction Contingency	<u>3,119,000</u>	<u>3,903,200</u>
Subtotal - Miscellaneous Costs	9,774,000	12,125,000
Overall Total - Estimated Project Costs	<u>\$65,000,000</u>	<u>\$80,635,000</u>

Note: The updated Project Budget is presented in KU's standard format for projects which are in the A/E selection and early design stages. The project costs included in the original program budget have been re-distributed to incorporate the inflation factor costs into each line item, and to reflect some currently known actual budget amounts.

Overall Project Funding/Allocations:	
Learned Hall, Engineering Expansion Phase II+ (LEEP2+)	\$78,600,000
Remodel Kurata Labs for EHS Offices (separate but related project)	<u>\$2,035,000</u>
Total Proposed Project Funding	\$80,635,000

The University proposes to increase the original \$65M bonding authority for the project by \$15 million and to provide \$635,000 in restricted fees funds for the Kurata Remodel component of the project. The bonds will be secured and debt serviced with a pledge of KU's share of the Expanded Lottery Act Revenue Funds, a grant from the Department of Commerce and other appropriate, unencumbered special revenue funds of the University.

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Project Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

Building design for sustainable construction: We expect significant growth in energy conservation technologies associated with construction of this building. This project will provide opportunities for application of photovoltaic technology experimentation, solar energy, phase change materials and potential of wind energy technologies for purposes of evaluation and additional research. The first phase of this is being developed in the course of the design for the NIST building.

The application of these techniques ultimately involves development of components and techniques for realistic testing, evaluation and prototyping of materials, units and modules used in building construction.

The larger application of Smart-grid technologies for the optimization of power usage in institutional, commercial and domestic buildings will grow rapidly. The local impact includes opportunities to save energy and reduced utility bills and reduce emissions associated with campus buildings.

The proposed building will be designed with sustainability as a design principle with LEED-caliber design as a goal. Additional project and site development components include:

- Maintain access to and use of adjacent site areas and buildings and address the delivery, trash, maintenance and service needs of the complex, both during design and in the completed project, including provision of

appropriately screened trash dumpsters and parking for service vehicles.

- Address life safety issues and meet current code requirements.

- Develop separate bidding / procurement packages for work that can be expedited, including abatement, demolition and long-lead-time equipment.

- Develop and implement a proactive and collaborative team approach to delivering the overall project on time and within budget.

Site Improvements

- The existing parking area and entry drive west of Learned Hall shall remain and existing parking west of Burt Hall shall be retained as much as possible.

- The north end of Burt Hall shall be demolished once vacated by EHS and SOE personnel/programs, as part of this project scope.

- A new service shall be extended to the M2SEC/NIST building, which is currently under construction, from the existing service drive serving the parking and dock area west of Learned Hall, through the area currently occupied by the north end of Burt Hall.

- The project scope includes provision of an outdoor terrace extension adjacent to Spahr Library, to serve the new main entrance to this project.

- The green space south of Spahr Library shall be retained and enhanced, with consideration for future development

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- of an extended compatible green space on the south side of 15th Street.
- Existing pedestrian pathways shall be retained or relocated as approved in the course of project design. In addition, sidewalk and bus stop locations along 15th Street will be included in the project scope.
- Landscaping including appropriate shrubs, trees and perennials shall be planted around the new building, with an emphasis on low-maintenance landscape materials and details.
- Storm water management will require expansion of the underground storage system which currently exists under the lawn south of Spahr Library.
- Site furnishings shall include exterior benches, bus stops, waste receptacles and lighting specified to comply with current KU standards.
- Provide new service drives and trash dumpster locations, if existing areas are affected. Dumpsters shall be screened from public view.

Utilities & Infrastructure

- The project scope includes a budget allocation for central plant chilled water to be placed in the remaining south structure of Burt Hall. Extensions of the utility services shall be included as part of this work, as required to serve the proposed expansion and potential service back to the existing facility.
- The design team shall advise KU on potential costs and benefits of replacing/relocating the primary electrical service equipment.

- The existing underground primary electrical service which crosses the new building's footprint, between Burt Hall and Learned Hall, will be relocated as an early separate bid package. The new service will be routed to the south and to the east, along 15th Street, to a point of re-connection near Eaton Hall.
- Water service to this complex is owned by the University. Fire sprinkler systems will be added and will require the design team to evaluate the available water pressure and flow capacities, and to provide appropriate service to serve that need.
- Existing mechanical / electrical equipment serving undisturbed portions of the complex shall be maintained in service at all times, except for short-term shutdowns scheduled well in advance. All proposed outages shall be anticipated and planned for during design, with temporary provisions included as part of the project scope as needed to maintain essential services to the building, particularly related to ongoing research.
- All necessary utility systems and infrastructure needs shall be fully addressed as part of this project scope, in the most cost-effective manner for the University's ongoing operation and maintenance of those systems. If adjustments are required in the project scope, they shall be made in other areas of the proposed program, after these needs are met.

Hazardous Materials

The KU Environmental Health & Safety Office has performed tests of existing materials in the affected buildings and has identified the asbestos-containing and radioactive materials that need to be abated prior to demolition of existing components of Burt Hall.

Burt Hall was originally constructed as a nuclear reactor facility for teaching and research. It has been partially decommissioned, but was never formally decommissioned. KU-EHS has determined the costs to complete that process, and they are included in these project costs. This work will take approximately 10-12 months to complete prior to any demolition activities, and will need to be accounted for in the overall project delivery schedule.

Code Requirements

Codes currently used on KU projects include the following:

- International Building Codes
- Kansas Fire Prevention Code, KSFMO, current edition.
- Other codes as listed at the State of Kansas, Division of Facilities Management (DFM) website.

Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the architect. The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Design Development phase.

- Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- Fire alarm systems shall comply with current code and KU requirements for an intelligent addressable system.

The A/E consultant shall include, as part of the code footprint and as part of the overall project schedule, phasing plans and temporary means of egress from adjacent occupied buildings, as required to meet the approval of OFPM and the University Fire Marshal.

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Design Standards & Consultant Services

The consultant team shall comply with the latest provisions of The University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM). These standards are available online at the DCM website: <http://www.dcm.ku.edu/standards/design/>

The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project.

- The University's Owner Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.
- Special Consultants that will be required on the A-E team, in addition to the usual A/E disciplines:
 - Lab design consultant for a range of lab types
 - Classroom program and technology consultant for direction regarding instructional spaces and related technology
 - Acoustical engineer to evaluate and advise on sound isolation provisions from M/E rooms and equipment
 - Telecommunications system engineer must be pre-approved by KU-NTS
 - Construction market analyst and cost estimator
 - Optional – Construction Cost auditor
- Commissioning Agent: Will be separately selected and contracted directly to the University. A/E consultants will fully cooperate and assist the commissioning agent in the delivery of their services, both during design and construction / close-out of the building.

- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal and for the bid sets and as-built sets. Each set of electronic files shall include both PDF and AutoCAD .dwg files for each sheet.
 - Revit files shall also be provided to the University, if used in the project's document development.
 - Models, if produced by the consultant to explain the design, shall be delivered to and remain at KU.
 - Full-color renderings will be required to fully explain the exterior and interior design of the project. Rendered prints and copies of the electronic files are to be provided to KU.

Future Project Planning

Planning may be required in order to include provisions for future phases of the Engineering facility expansion. Those provisions would include issues such as appropriate interior and exterior circulation paths, site improvements, extension of utilities and infrastructure to serve future phases of development and similar considerations.

The A/E team shall review future expansion options with the University and shall include appropriate provisions to responsibly develop the architectural and engineering components of this project so that they may be extended to and incorporated into those future projects, with the least amount of future cost or disruption. Future provisions may include a structural frame that would support additional or future floors.

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Historic Preservation Reviews

The proposed new construction is not located within 500 feet of any properties listed on either the State or National Registers of Historic Place being outside of the 500' notification limits of the Chi Omega Sorority, which is a listed property. It is also located in a non-impact zone as identified in the environs definition that was mutually developed and approved by the Campus Historic Preservation Board (CHPB) and the Lawrence Historic Resources Commission (LHRC) for the Chi Omega Sorority property.

KU / City of Lawrence Agreement

This project does fall within 150' of the perimeter of the University's property, and will be required to comply with the provisions of the KU / City of Lawrence Cooperation Agreement.

The project team will be required to assist the University, with compliance with those provisions, including but not limited to:

- Reviewing the proposed design with the Neighborhood Advisory Committee, and addressing their concerns to the greatest extent feasible, while fully addressing the University's programmatic needs.
- Preparing impact studies on transportation and pedestrian traffic, noise,, and storm water.
- KU will provide samples of previous impact studies to use as a guideline for preparing these studies.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from University general funds. Estimated annual operating costs are based on historic data collected by KU-

Date: April 1, 2011 (Updated: May 30, 2012)

FO for Learned Hall and Eaton Hall, which through 2009 was averaging \$2.55/GSF/year.

The estimated annual utility costs (to be escalated to Fall, 2013) are 129,790 GSF x \$2.55/GSF = \$331,000 per year. Housekeeping and maintenance personnel costs are based on the campus average through 2009 of \$1.38/GSF/year. The estimated housekeeping and maintenance costs are 129,790 GSF x \$1.38/GSF = \$180,000 per year; inflation to be added to FY 2014.

Space Standards & Utilization Analysis

This project consists primarily of new space, with a partial demolition and reconstruction of existing space. The net effect on the University's space inventory is as follows:

<i>New Construction:</i>	129,790 SF
Academic/Office Space	45,650 SF
Student Project Space	17,600 SF
Research Space	66,540 SF
<i>Demolished Space:</i>	19,120 SF
Burt Hall	19,120 SF
Learned Hall	0SF
<i>Net Additional Space:</i>	110,670 SF

This additional space is required in order to expand the School of Engineering's student enrollment, hire additional faculty members, accommodate existing program, and to expand other required support spaces. There will be no space vacated as a result of this expansion.

Construction Method Options

The University of Kansas chose to utilize the State of Kansas alternate project delivery method for "Construction Management At-Risk" for this project, as approved by the State Building Advisory Commission (SBAC).

The University believes that a CM At-Risk method may be appropriate for this project due to challenging phasing and staging complexities. This method may result in cost and time savings to the State of Kansas for the following reasons.

- Extensive remediation, demolition and construction work adjacent to the current project for the NIST / M2SEC building scheduled to be completed in June 2012.
- Temporary exiting requirements and pathways that must be identified and maintained at all times from Learned Hall, Spahr Library and the M2SEC/NIST building during construction. This is complicated by the fact that they new construction will about those buildings, which may require temporary exit paths through the construction site.
- Staging of Burt Hall demolition concurrent with structural work on the Phase II expansion is a concern related to project sequence. Completion of proposed High-Bay

project space which sits on the original site of the north wing of Burt Hall may be delayed.

- Relocation of the primary electrical underground service that crosses the project site must be completed as an early separate package of work.
- The existing site allows virtually no staging area for the Contractor adjacent to the construction site and site access issues will be difficult.
- Existing parking lots are over-taxed and must largely remain usable. Emergency access to the west end of the site will also be a concern.
- A Construction Manager's input is needed to verify non-standard processes which may be needed for material deliveries / storage, and to adjust the project schedule and work activities to avoid disruptions to the University's ongoing academic programs and to minimize disruptions that may affect adjacent property owners.

Proposed Project Schedule

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FY 2012 Funding availability

July, 2011

Engineering Expansion Phase II design consultant selection
(Includes EHS relocation)

November, 2011 – March 2012

EHS Relocation design and construction complete (separate Contract)

January 2013

Engineering Expansion building design

March, 2012 – May 2013

Engineering Expansion contractor selection

May, 2012

Early Construction Package(s) – Start of Construction

November 2012

FY 2013 Start of Building Construction

October 2013

Burt Hall remediation complete

May, 2013

Burt Hall demolition complete (Bid as part of the construction contract)

July, 2013

Completion of Engineering Expansion Phase II target date

March 2015

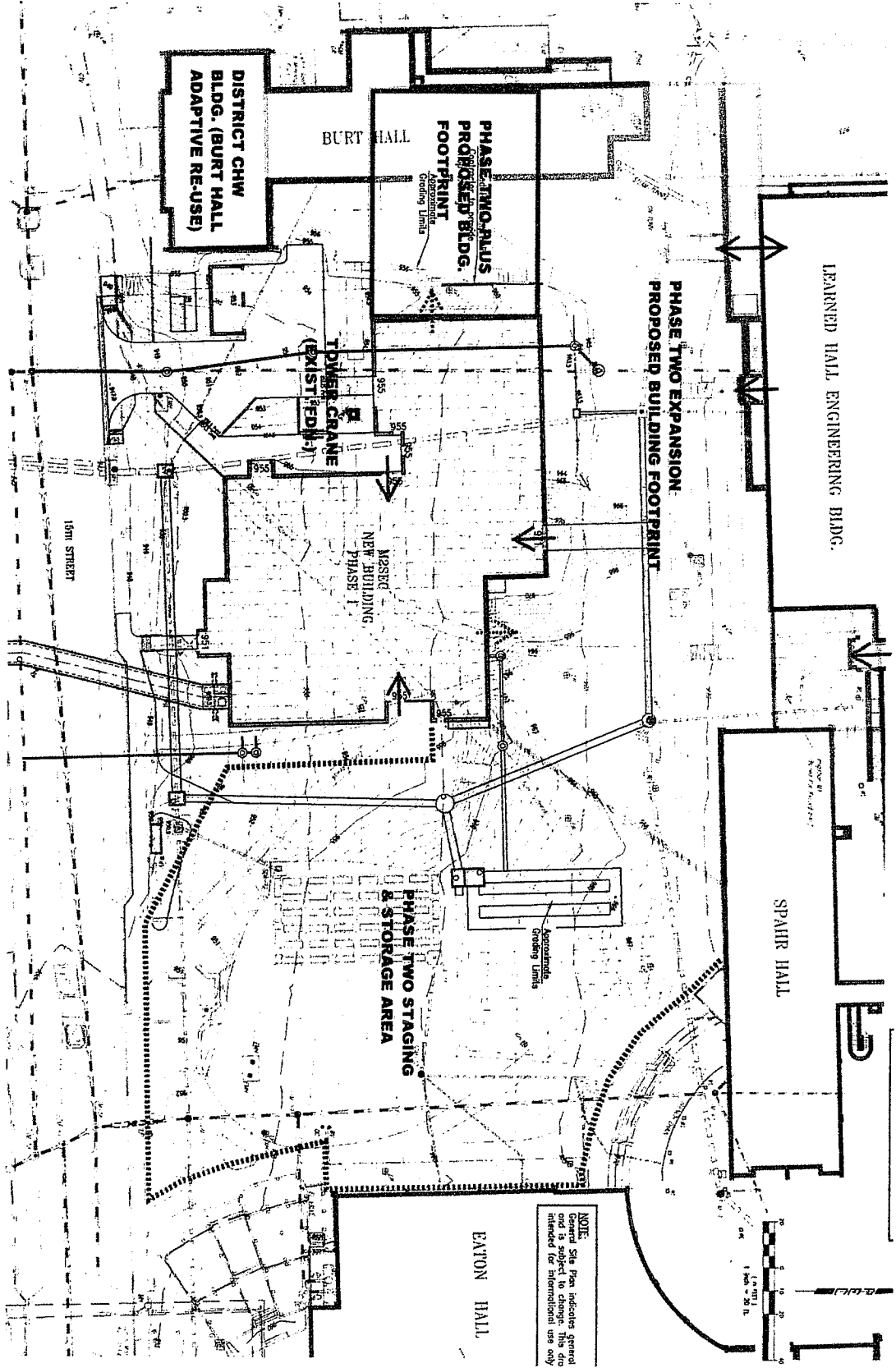
(Note: This target date needs to be confirmed, but is probably still achievable with the expanded \$80M scope.)

Faculty and Student project development space occupancy

March 2015

Date: April 1, 2011 (Updated: May 30, 2012)

Proposed Engineering Expansion Phase II+ - Conceptual Site Plan



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Architectural Project Description

Lindley Hall Addition
Energy and Environment Center

KU Project No. 042-9348

Date: April 1, 2012

Prepared by:

The University of Kansas, Lawrence Campus

KU Office of Capital Planning and Space Management
College of Liberal Arts and Sciences



Proposal Development

Bob Goldstein, College of Liberal Arts and Sciences
Luis Gonzalez, Geology Department Chair
Tom Waechter, Capital Planning
Jim Modig, University Architect/ Design and
Construction Management

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Lindley Hall Energy and Environment
Addition and Renovation for Department of Geology

The Department of Geology is an academic research, educational, and service unit of the University of Kansas Lawrence campus providing degrees in a variety of geological and geophysical disciplines. It maintains an extensive program of funded research and serves KU, the local and regional community, the nation, and the professions it represents. It has a remarkable history of combining donated, granted and appropriated resources to build strong programs and has a graduate programs ranking in the top ten by US News, and overall is among the top 50 geology programs.

The Department of Geology has been located in Lindley Hall since just after World War II. Between then and 1975 several units moved out of Lindley including an office of the Water Resources Division of the US Geological Survey, the Kansas Geological Survey, and the Department of Chemical and Petroleum Engineering. In 1980-82 Lindley was renovated to house the departments of Geology and Geography. The renovation included installing a new elevator, central air conditioning and new laboratories, renovating some classrooms, laboratories and offices, and bringing the building up to life safety code requirements of that time.

Geology is one of five KU units that are in Lindley Hall and the building contains five general-use classrooms. Geology occupies space in the basement and on the first and third floors. The Department of Geography occupies space on the

second and fourth floors of plus a single lab on the third floor and a storage room in the basement. The Invertebrate Paleontology Division of the Natural History Museum occupies part of the basement and the Paleontological Institute of the Biodiversity Research Center occupies part of the first floor.

As the field of Geology has changed over the years, the department's facilities have lagged behind. Facilities must be constructed and renovated to accommodate expansion and to suit the requirements of programs and activities of a modern department with national prominence. The science of geology, like most other technical areas, has greatly changed in the past half century. This existing building, though usable for many purposes, is difficult to adapt to modern research and teaching activities. Although the space available to Geology on west campus has increased in recent years, changes in usage and expansion of the program have spread faculty and students into four separate buildings, and housed research labs in facilities now inappropriate for their use.

Expansion of the program, faculty, additional projects and students addressing environmental and energy issues are all compromised by the lack of space. Most importantly the current facility places limits on the ability to address enrollments and expand the number of graduating students to meet the increased national and international demand in the geosciences.

The Geology Associates Program, a very successful department-based development program begun in 1971, has provided the funds to build excellence in programs beyond what is possible using State funds alone. Our efforts to build excellence has brought KU outstanding faculty and state-of-the-art research facilities. These successes have also brought us to the limit of space in Lindley, making further growth of research problematic. The expansion of Lindley Hall has been a major goal of the Geology Associates Advisory Board for many years. Support for building an addition to Lindley has grown in recent months, now with substantial multi-million dollar commitments. Relying almost entirely on private support, and with current times in the energy industry, now is the best time for fundraising for such a project.

Space in Lindley Hall currently used by Geology includes five teaching laboratories, two instructional and general use computer laboratories, three research computer labs, seven specialized research labs, sample preparation space, library of fossils, rocks and minerals, 21 offices occupied by faculty and retired faculty, two offices occupied by post-doctoral researchers, 11 offices occupied by graduate students (both GTAs and GRAs), two rooms occupied by technical support personnel and additional administrative space.

The Geology department has successfully expanded to 22 faculty and is currently searching for 2 more, and has retired faculty who have active research programs. It trains over 2,000 students in geology classes each semester, and currently has 106 undergraduate majors and 95 graduate students. The

current and future growth of the faculty has enhanced the department's traditional strengths and expanded it into exciting new areas of geology and geophysics to best prepare the current and future students of the department. In the last five years graduate enrollments have increased by 42% and undergraduate enrollments (BS and BA) by 25 %. The KU Department of Geology is striving to support the success of its students, the needs of society, and to make the greatest impact possible on areas of study within the Geosciences.

Geology at KU has increased its vitality and leadership role by integrating new methodologies and recruiting new faculty in emerging fields while still emphasizing the basics. It continues to improve the depth and breadth of curriculum in Geology and Geophysics. The program currently is among the strongest in the nation. In the last ten years, members of KU's program have received more than twenty awards that acknowledge the impact of their research programs.

High standing is evident in *US News and World Reports* top-ten ranking of the sedimentary geology and paleontology programs, a distinction that places KU's program among only a few top universities. Program strengths are in sedimentology, stratigraphy, environmental geology, petroleum geology, and paleontology, geochronology, geophysics, hydrogeology, and geomicrobiology. To support both teaching and research Geology also has a permanent field station in Cañon City, owned by the department, teaching state of the art computer based mapping skills and other field geology skills reinforcing the critical component of field work in the curriculum.

Geology undergraduates fare well upon graduation many continue on to graduate school to pursue MS degrees, the working degree in most geoscience careers, and others obtain employment with local (Kansas and KC Metro area) environmental or energy companies, and government (state and federal). Well over 80 % of our graduating MS and PhD students are employed by the energy industry, environmental companies and government, and a small percentage pursue academic careers.

The Energy and Environment Center – Phase I

The University of Kansas has identified as two of its strategic initiative the themes “Sustaining the Planet, Powering the World” and “Harnessing Information and Powering the World”. At KU interdisciplinary groups are engaged in key collaborative research and education linked to these initiatives. Researchers from KU’s department of Geology are working with the faculty in the departments of Geography, Ecology and Evolutionary Biology, Civil and Environmental Engineering, and Chemical and Petroleum Engineering. In addition, many of these researchers are active members or work closely with key research centers including the Kansas Geological Survey, Tertiary Oil Recovery Project, Center for Remote Sensing of Ice Sheets, and Kansas Biological Survey.

These researchers work to develop a fundamental understanding of natural processes and earth history. At the same time they find practical and immediate solutions to problems such as energy supply and independence,

environmental degradation and restoration, changing climate and its impact on key resources such as water availability and the response of organisms to climate change. These researchers utilize skills from basic field observation to the most sophisticated field and laboratory instrumentation and analytics. The research generates copious amounts of data used to construct and fine-tune the models that help us understand natural processes and stimulate future and past workings of key systems of our planet with KU Geology faculty leaders in harnessing and distributing geologic information.

The College of Liberal Arts and Sciences (CLAS) and the Department of Geology are working with Endowment to generate the funding necessary to construct a teaching and research facility to support and enhance these interdisciplinary efforts and increase the throughput of adequately trained scientists needed to meet national demands. In the process of conducting their research these scientists also train the scientific workforce needed for large and small businesses adding value to a key Kansas workforce.

The Energy and Environment Center will add 42,200 gsf (29,800 nsf) adjacent to Lindley Hall, home to Geology and Geography departments across from Learned/Eaton Hall, home to the School of Engineering and a short walking distance from Ecology and Evolutionary Biology in Haworth Hall and the physical sciences of Chemistry and Physics in Malott Hall. This proposed EEC facility will immediately impact the activities of at least 18 researchers and over 50

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graduate students and expand opportunities for well over 30 researchers and more than 150 graduate students.

The research in key areas of Energy and Environment at KU has advanced considerably during the last decade. These researchers bring well over \$20 million in sponsored research, have collectively acquired over \$6 million in instrumentation to support their laboratory and field activities and are currently pursuing over \$3 million of additional resources.

Housed in the nearly 70 year old Lindley spaces for research and teaching suffer from poor water quality, electrical service, HVAC distribution and required ventilation. Expansion of projects and programs is limited by the lack of suitable space to conduct research and promote collaborative efforts.

Research housed at KU's Multidisciplinary Research Building (MRB), a newer lab facility on west campus presents barriers to engagement and new ideas across the Geology faculty, and requires transportation of critical samples between laboratories dispersed across campus. In addition, suitable facilities for the analysis, including 3-D visualization, of the large datasets generated by this research are now needed. This proposal addresses the physical barriers that limit innovation and cross-disciplinary collaborations intended to support and expand leading edge research.

The Energy and Environment Center is to be configured to maximize the use of space with areas to be used concurrently or sequentially by various projects with coordination provided by strong project management teams. The goal is to enhance

research addressing critical issues related to past, present and future environments and climate change, conventional (e.g. hydrocarbons) and alternative energy, extending the life of existing natural resources deposits and developing techniques to find new ones. In addition these projects address limiting environmental degradation and improving restoration, water availability and scarcity, biogeochemistry with emphasis on microbial systems, and the impactful changes in landscape and related concerns for the human condition.

Key Facilities included in EEC Phase I Proposal

- **State of the Art Auditorium** – a 200+ seat auditorium with synchronous high-definition presentation capabilities
- **Data analysis and visualization suite** – a centralized facility that will provide researchers with state of the art data analysis, modeling, 3D and 4D data visualization. These facilities will serve both research and educational missions. The suite will include: The remote sensing and GIS facility; the geocomputing facility for geo-physics, petrophysics and geo-chemical analysis
- **A reconfigurable 3D visualization facility** - an industry standard visualization room for research, education, which could also serve small business in Kansas
- **Two core laboratories** – improvements and centralization of laboratory facilities that serve the multitude of researchers. In addition, space is added to support lab users including the Keck

Paleoenvironmental and Environmental Stable Isotope Lab and the Environmental Biogeochemistry Lab

- **Three shared experimental laboratories:** Biogeochemistry Labs; High pressure experimental lab: Micro Imaging Lab including "in progress" imaging capabilities
- **Two shared microscopy rooms** – outfitted to support activities in adjacent labs
- **Field Staging Areas:** much need space for research to deploy and test equipment in preparation for fieldwork.
- Sample storage and processing facility

In addition, space for installation of environmental chambers and other transient equipment is planned.

Additional Geology Department Space

As the Department has grown and incorporated the technological advances that keep it at the forefront of Geology and Geophysics, it has been forced to spread out its facilities and student space over many separate buildings across the KU campus. It currently has expanded to the point in which it now occupies parts of four buildings that are widely spread across campus. And even in multiple locations, space is no longer available to accommodate the growth currently occurring in the program.

This document proposes enhancements to the program by building an addition to Lindley Hall with the goals to:

- build an infrastructure capable of supporting the modern labs needed for the present work and into the future
- increase research and instructional interdisciplinary collaborations
- improve the environment to recruit and retain the best faculty and students
- provide appropriate learning facilities, offices and common space for the students
- locate the Department all in one building complex to enhance interactions between faculty and students
- provide space to improve integration of emeritus faculty, visiting faculty, post docs, and Kansas Geological Survey staff
- address future Geoscience needs

Because much of the expansion space will be used to bring the laboratories and offices of faculty and students (now isolated from the main campus and on west campus) back home to Lindley Hall this serves to improve the collective creativity, productivity and accessibility of the faculty both for purposes of the academic day and for research. Other space will be used for expansion to accommodate growth of the program. Still other space will be used to enhance interactions between the department, Kansas Geological Survey, and School of Engineering. Another important goal is to provide additional space for expansion of the faculty, staff, and students over the next 5-10 years and for inclusion of space for visiting scientists, courtesy and emeritus faculty.

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EEC-Phase I Programs and Activities

The Energy and Environment Center (EEC) at KU will bring together researchers that work on energy independence and sustainability, water quality and resources, and a range of environmental projects relating to global change (past, present, and future). KU's EEC will serve as the locus and catalyst for inter- and multi-disciplinary research activities addressing critical issues facing the North American Midwest as well as national and global issues.

The new facility will increase collaborations among scientists in the departments of Geology, Geography, Ecology and Evolutionary Biology, Chemical and Petroleum Engineering, Civil and Environmental Engineering; support programs in Energy Resources (conventional and alternative), Climate, Atmospheric Sciences, Global Change, Paleoclimatology, Carbon Mitigation/Sequestration, Water Resources Quality and Availability; and provide access to modern geochemical and computational labs housed in the center.

The EEC state of the art core laboratories will provide for chemical and physical analysis supporting numerous projects. The computing facilities will support data processing and modeling activities, a 3D data visualization and manipulation facility, and a collaborative space suitable for data synthesis and analysis to support and foment interdisciplinary research activities. As many of the activities carried out by EEC's researchers are field based, much needed field support will be provided by the multuser field staging and equipment storage facilities to be provided in a service area of the facility.

KU also excels in collaborative research linking landscape modeling with climate and water, the latter constituting a critical and limiting resource addressing expanding global population. This analysis serves to couple the stresses of climate change, compromised water supply because of contamination, and increasing demand linked with technological development both in developed and underdeveloped regions. In addition researcher's expertise and resources are used in various development projects, for example with engineering faculty in construction and highway materials characterization.

Research Activities and Potential Impacts

Plant-Soil-Freshwater Interaction/Biogeochemistry:

The investigators in these research areas, both collaboratively and individually, with support from NSF, DOE, and multiple other agencies study the influence of environmental change on the biogeochemical processes that govern nitrogen, carbon, trace element and water fluxes in terrestrial and aquatic ecosystems. Their foci range from microscale changes in nutrient availability as they relate to soil mineralogy and microbial ecology to global-scale perturbations (e.g., changed precipitation and temperature regimes) and resulting geo-, bio-, and atmosphere interactions. Studies of these processes rely on a variety of molecular biology (enzymes, DNA, RNA) and isotope and trace element geochemical techniques. Such work is critical for ground truthing paleoclimatic indicators in ancient rocks and for evaluating the effects of Earth's future

atmospheric composition on its ecosystems' processes, and the feedbacks of those changes to climate. Collectively, the portfolio of research programs and the interactions between them that the facility will support represent keystones for bridging our knowledge gaps for predicting Earth's climatic future and for calibrating the planet's paleoclimate.

The Experimental Environmental Biogeochemistry (EEB)

Facility is a multidisciplinary, experimental biogeochemistry research facility within the EEC Phase I. The activities include experimental flex space for Earth sciences, including such sub-disciplines as microbiology, plant biology and ecology, and algal and cyanobacterial ecology and physiology, organic chemistry, microbial biogeochemistry. Within this space are laboratories and equipment providing custom-designed controlled experimental capabilities that permit the probing of complex life-rock-atmosphere-water systems, as monitored by quantitative molecular biological, geochemical, and stable isotopic analytical tools. The facilities will also be used to study the use of microorganism to enhance oil and gas recovery, enhance CO2 sequestrations, and their use for contaminant degradation or sequestration.

EEC Phase I will relieve key limitations to KU researchers productivity. It will increase the physical capacity to assess the impact of environmental change on complex trophic interactions or physiochemical processes. By providing researchers with the ability to conduct experiments at multiple scales -- from micro- to meso- scale -- all while controlling concentrations of key atmospheric constituents,

light, humidity, and temperature, the EEB facility will provide novel insights into calibration of paleo or future global-scale climate models, critical biogeochemical process, and to explore the transfer of experimental results to industry partners. Because the space is intended to be comprised of flexible, modular components, this building will accommodate a diverse array of scientists, even when the makeup of these research groups will change over the coming decades.

EEC Phase I will also support research focused on understanding the impacts of land cover change and large scale irrigation on local environments as well as atmospheric processes over the immediate region. The EEC facilities will greatly improve our ability to develop and evaluate land cover and land surface properties datasets for use in climate model simulations. Specific tools used will include remote sensing software and GIS systems to manage and build information sources about land cover and soil characteristics. This work is tightly integrated with social science work on farmer decision making under changing climate conditions.

Along with substantial computing resources, the facility will provide workspace for developing models, running simulations, and post-processing model analysis as well as laboratory space to support the collection of field data for water and carbon cycling.

The proposed facilities will support new interactions and assist in developing common resources across a number of the projects. For example, the facilities would provide an ideal

nexus for several of the participants developing a quantitative interdisciplinary approach to modeling the hydrologic cycle that brings together researchers active in atmospheric science, soil science, and surface and ground water hydrology.

A current EPSCoR project has a major component that looks at the surface water balance of Kansas and its relation to groundwater recharge conditions. In addition, the work on farmer decision making has significant implications for the potential longevity of the Aquifer by considering the potential withdrawal rates in the future (Kansas uses proportionally more groundwater than any other State).

We also feel that the resources provided by this project would greatly enhance our competitiveness in acquiring future projects. The success of this project would open up significant new areas of enquiry across a number of disciplines, including better interactions with social sciences to help provide more insight into impacts and human responses.

Water Resources and Aquifers

Researchers at KU have a long history of funding that supports the physical and chemical characterization of surface water and groundwater, surface water-groundwater interaction, and subsurface transport and remediation of contaminants. Recent faculty hires reinforce this area of expertise. This research at KU is part of a larger effort at quantifying and modeling processes in the global hydrologic and biogeochemical cycles that affect supply of adequate amounts of sufficiently potable water.

Water security is threatened by a number of current and projected conditions: climate changes that reduces and/or alters the delivery pattern of meteoric precipitation; deterioration of groundwater quality; deterioration of surface-water because of climate-induced; changes in shallow-groundwater chemistry or because of groundwater overuse altering water-flow paths and thereby bringing poor quality water to streams; increasing demand on all sources of water.

High precision and accuracy of measurements of water quantity and quality are essential to formulating appropriate actions that will limit the impact of these threats to water security. Even as more and higher-resolution remotely-sensed data become available, the need to calibrate those data against field-site conditions becomes more critical to using the data most effectively.

The Lindley Hall EEC Phase I Addition will create a high-precision research environment housing equipment in support of the types of measurements described above, and creating a staging area that will permit rapid deployment of field equipment to capture episodic events.

High Pressure-Temperature and Imaging Facilities

The shared laboratories will enhance current research collaboration and foster new interdisciplinary collaborations. Current projects that involve experimentation with techniques for enhanced oil and gas recovery or for CO2 sequestration will be able to utilize the unique capabilities of the shared PVT and Imaging facilities. The proposed experimental and

imaging equipment, will include the ability to monitor experimental progress in high pressure and temperature cells and even imaging the interactions between chemical or biogeochemical processes and reservoir materials. This unique facility will place Kansas researchers at the forefront of experimental research in this area, allow faculty and students with unique skills to conduct research that will result in faster technology transfer to the private sector.

Geology in the Future

The geologic sciences have depended more and more on utilization of progressively sophisticated analytical facilities, whether it is high-resolution seismology, scanning electron microscopy, mass spectrometry, experimental simulations of natural processes, or other methods. For Geology the future has arrived as it has successfully moved into these more sophisticated, space-intensive endeavors. New options available to its students include:

- Equipment, software and expertise supporting five computer laboratories for students with Macintosh, PC, remote sensing, geophysics workstations, and Geographic Information Systems (GIS) capabilities
- Geochemistry labs including stable isotopes, geochronology, thermochronology, fluid inclusions, organic geochemistry
- Geomicrobiology lab
- Improved technical support staff
- Space freed up in existing Lindley for expanded faculty count and a large number of active emeritus faculty

- New commitments to field training with increased field offerings, field work generally being better supported with on-site equipment and vehicle storage provided in this facility.

The goal of the Department is to create the best environment to help students develop the skills necessary for them to succeed in careers in the geosciences. Many of the students today and the future will focus on issues relating to sustaining energy supplies for the world, and focusing on environmental issues related to the future habitability of planet earth. To be prepared for a long and successful career students will need to be prepared for a very broad range of science as the needs and directions of the geosciences change.

Many geology courses include a lab component and much of the space requested will have an instructional and research focus. A large portion of lab instruction in geology involves chemical analysis, experiments, microscopic examination of samples, or computer work. The importance of lab work in geological courses requires a somewhat higher proportion of teaching labs than some other sciences may require when compared to enrollment.

Existing instructional lab spaces in Lindley are dated and in need of significant improvement to airhandling, casework, interior finishes, electrical services, lighting and network capacity. And as a number of activities are moved to the new expansion, the intent is to look at opportunities to renovate existing instructional labs.

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To relieve some of the pressure on instructional space, and present an alternative to the more traditional lecture space, a new collaborative learning space for 200 seats is proposed. The space will be equipped with the types of wireless technology and network capabilities to support high-end interactions in the space and real time connections to sites outside of Lindley and off campus.

Geological research involves the same activities, but frequently requires some restrictions because of the delicate or specialized equipment used or the possibility of contamination. Most research labs are used for instruction in graduate-level courses and faculty are developing research groups involving graduate students and post-doctoral researchers. Such groups require additional space for their activities, both office space and project space.

Space for modern geology also includes computing capabilities and student access to this technology. The existing computer labs are deficient, designed for other purposes, crowded, poorly configured and conditioned. The Department needs larger computer labs proposed to effectively use peripherals and access expensive shared analytical equipment.

Need for Research Space

To increase the level of research funding and to attract the best faculty and graduate students, Geology will require research faculty and post-doctoral scientists and will need more space for those individuals. Currently, with very little space for additional people, our ability to expand research is

limited. Problems in using existing space for modern research facilities include deficiencies in air-handling, electrical and purified water systems appropriate for modern laboratories. Modern laboratories will expand the capabilities for major analytical facilities. Space for ancillary preparation facilities, support space and offices for technicians are also needed.

This arrangement provides high-quality space for a major research function of the Department of Geology but physically separates many members of the Geology faculty and graduate student body from the others. The current isotope geochemistry lab is located in Nichols Hall on west campus, and the groundwater organic geochemistry lab is located in Moore Hall on west campus. As a result 10 out of the 22 current Geology faculty have their laboratories and offices located on west campus, splitting the department, graduate students and laboratory resources.

In recent year major research facilities, including the Keck Paleoenvironmental Isotope Lab, the microbial paleoecology lab, and the mineral-microbe interaction lab were relocated to the Multidisciplinary Research Building on west campus. The Department proposes locating all of these labs in this Lindley Hall addition and freeing space for others on west campus.

Academic Program Growth and Required Space

Geology will continue to grow over the next few decades, with more students taking courses in the discipline and more faculty required to teach them. This is a natural response to a nationally recognized program in energy and environment

research and growing national need that exceeds current student production of all US institutions. Current space will permit virtually no growth and at this point there are no funded projects for improvements to add to the availability of classrooms or class labs for Geology instruction.

During a period of increasing needs of faculty and students a teaching lab was converted into four rooms, two for analytical geochemistry research, one faculty office, and one teaching and general-use computer lab. This move has reduced our capacity to offer lab sections in undergraduate courses. As enrollment continues to grow, we may need to offer two or three sections of laboratories for our courses, up from the current one or two. Relocating research functions will allow more opportunities for instructional use of these labs.

Outline of Spaces and Facility Improvements

Five undergraduate teaching and research computer labs in the addition, three for Geology principal courses and two to expand GIS and Remote Sensing research capacity:

- Department of Geology administrative offices
- Research lab space for faculty to include moving faculty currently in west campus labs back to this Lindley expansion.
- Offices for an increased number of GRA's and GTA's and additional office space for post docs in either new or renovated space
- The opportunity to renovate vacated space in Lindley for other office, teaching and research needs

Reallocation of Vacated Space
Approximately 8,700 net square feet of laboratory space vacated in the Multidisciplinary Research Building, Moore Hall, and Nichols Hall will be used for additional faculty positions and sponsored research projects to be re-allocated through the KU Center for Research and the office of the Provost.

The current Geology department office suite will also be vacated and is intended to be reassigned either as graduate student study space and/or another administrative function. Space to be added with the proposed addition approximately 29,780 net square feet, and 42,200 gross square feet.

Project Utility and Maintenance Costs

The estimated annual total utility, maintenance personnel and OOE costs for the additional square footage added is \$240,000. The estimated cost for new equipment for Facilities Operations to service the building is \$34,000. University resources will be provided to support the necessary funding.

Project Design for Energy Conservation

The University of Kansas is committed to designing and constructing the most energy efficient facilities possible. This is a high priority for the architecture and engineering firms that are working on KU projects. The consulting firms shall prepare cost estimates to provide for this need. During the schematic and design development stages energy conserving measures, drawings and specifications shall be provided for owner's approval.

Funding Feasibility

The following program of work requires funding that is being raised based on a currently secured lead gift and additional commitments KU has already confirmed for a total at this point in time of \$17 million. A process of approaching other potential donors and fundraising continues to be directed through the Kansas University Endowment Association. And as a privately funded project it is anticipated that this project may move ahead prior to a FY 2014 timeline.

Proposed Project Schedule

An accelerated timeline is proposed below.

- September, 2012 Finalize project scope/ budget
- December, 2012 Complete Documentation for Interviews
- January, 2013 Interview, select design firm(s)
- April, 2013 Negotiate contract, initiate design
- January, 2014 Complete construction documents
- February, 2014 Bid/award construction of the facility
- March, 2014 Start of construction
- November, 2015 Substantial completion
- January, 2016 EEC research and instructional use
- Summer, 2016 Conversion/renovation of vacated
Lindley space; Re-occupancy of KU CR
managed MRB labs

Lindley Hall Expansion Energy and Environment Center

Proposed Project Costs

EEC Estimated Building Construction Cost

Building Construction Cost	42,200	gsf @	\$425	/gsf	=	\$17,935,000
Building Construction Cost						\$17,935,000
Building Construction Cost						\$890,000
Site work, retention and landscaping						\$820,000
Infrastructure/utility extensions						\$359,000
Building Automation Control system						\$224,000
Fire alarm/security system						\$337,600
Voice/data requirements	42,200	gsf @	\$8.00	/gsf	=	\$20,565,600
Project Construction Cost						\$20,565,600

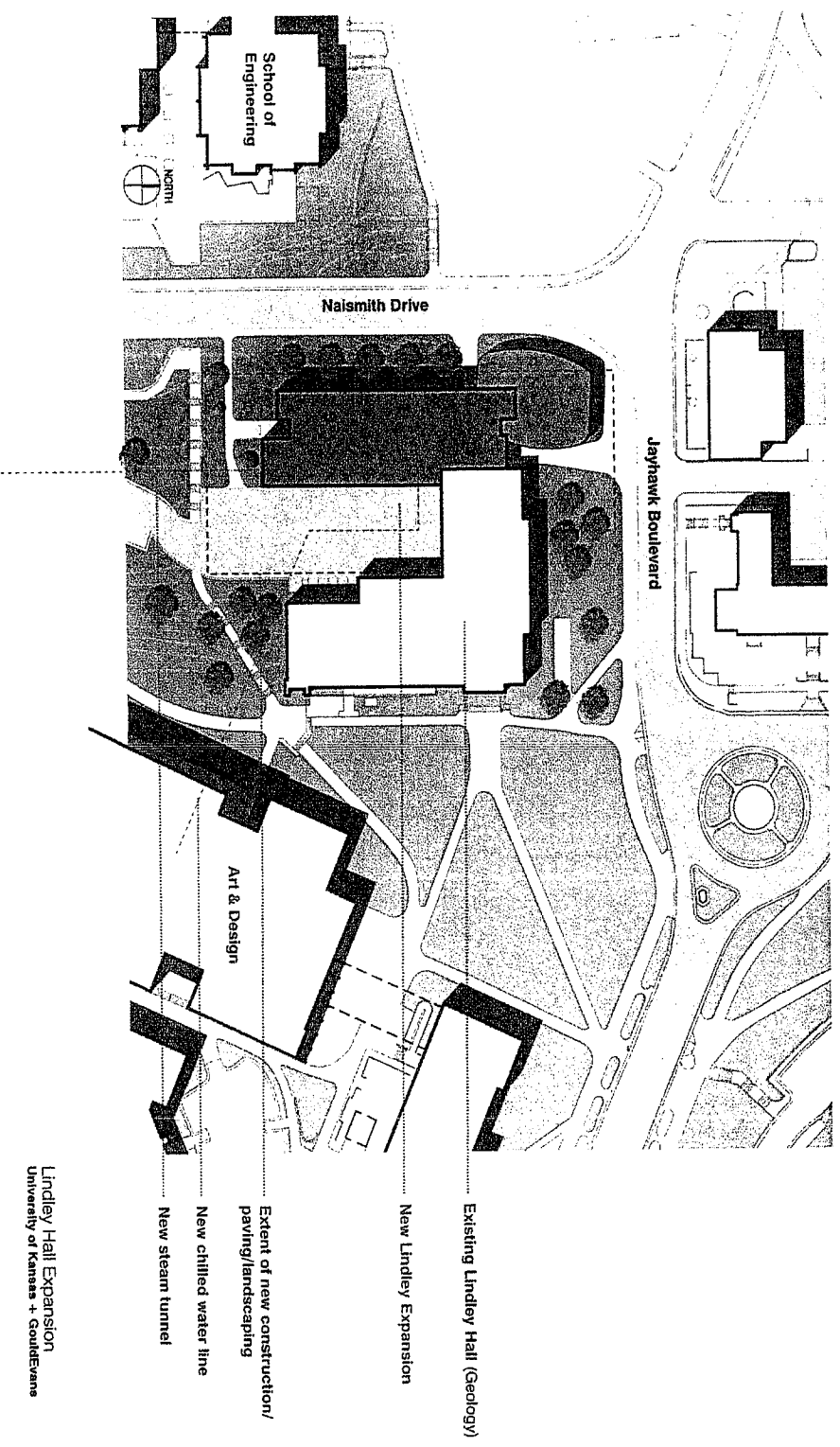
A/E, DCM, FPM and other consultant fees	@	8.25%	\$1,697,000
Site survey, borings, testing			\$55,000
Printing, mailing and travel reimbursables			\$35,000
Building commissioning			\$220,000
Building signage			\$60,000
Design and construction contingency	@	7.50%	\$1,542,000
KU Campus Infrastructure Fee	@	3.00%	\$538,000
Fixed/moveable lab equipment			\$540,000
Classroom equip/furnishings			\$680,000

Total FY 2012 Project Cost \$25,932,600

Total Project Cost w/ Inflation for FY 2014 Project 2 yrs @ 5.50% /year **\$28,785,000**

Lindley Hall Expansion Energy and Environment Center 15 KU – Lawrence Campus

Proposed Lindley Hall Addition for Energy and Environment Center



Lindley Hall Expansion
University of Kansas + SouthEvans

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Operating/ Maintenance Costs

The university will endeavor to secure additional gift funding to set aside in an interest-bearing account in the same proportion as the gift fund relates to the remainder of the funding for the project. This interest-bearing account will help provide for the maintenance of the new building for the expected life of the building. The university will provide from its own operating budget additional funds as necessary to cover the remainder of the maintenance each year.

- greatest extent feasible, while fully addressing the University's programmatic needs.
- Preparing impact studies on transportation and pedestrian traffic, noise,, and storm water.
- KU will provide samples of previous impact studies to use as a guideline for preparing these studies.

Historic Preservation Reviews

The proposed new construction is located within 500 feet of the Chi Omega Sorority, which is a listed property. Environs definition that have been developed and approved by the Campus Historic Preservation Board (CHPB) and the Lawrence Historic Resources Commission (LHRC) for the Chi Omega Sorority property will need to be referenced and a process involving both University and City environs reviews will be required.

KU / City of Lawrence Agreement

This project does fall within 150' of the perimeter of the University's property, and will be required to comply with the provisions of the KU / City of Lawrence Cooperation Agreement. The project team will be required to assist the University, with compliance with those provisions, including but not limited to:

- Reviewing the proposed design with the Neighborhood Advisory Committee, and addressing their concerns to the

Architectural Program

Allen Fieldhouse Addition
Naismith "Rules of Basket Ball"
& Student Activity Center Addition

KU Project No. 059-9808

Date: September 21, 2012

Prepared by:

The University of Kansas, Lawrence Campus
Kansas Athletics Inc.
KU Endowment Association
Office of Design & Construction Management



8-8-8

Programming Committee

- Sheahon Zenger, Director, Kansas Athletics
- Sean Lester, Senior Associate Director, Kansas Athletics
- Brad Nachtigal, Associate Director, Kansas Athletics
- Dale Seufferling, President, KU Endowment Association
- Monte Soukup, Sr. Vice-President, KU Endowment Assn.
- David Mucci, Director, KU Memorial Unions
- Jim Modig, University Architect & Director, DCM
- Bob Rombach, KU Fire Marshal & Project Manager, DCM
- Steve Scannell, Asst. Director/Consultant Services, DCM

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Introduction

KU's Basketball Legacy

The University of Kansas Men's Basketball program is recognized around the world for its consistent winning record at the highest level of the collegiate game. The recent record of success is unparalleled, not only in KU history, but also in the history of the college game. In the last six years, KU has won more games than any other college team — in fact, KU's 197 wins in six years is the most number of wins by any team in the history of college basketball.

Moreover, the KU legacy includes the inventor of the game as our first coach and a "coaching tree" unmatched by any college program. This record of excellence and the legacy of Kansas basketball is not only a source of pride for our students, faculty and alumni, but serves as a point of distinction for the citizens of our state and the Greater Kansas City region.

Through the generosity of Suzanne Deal Booth and David G. Booth, the University of Kansas has the opportunity to house James Naismith's original "Rules of Basket Ball" on the KU campus. With the Rules as a catalyst for creating a special venue on campus, the University of Kansas seeks to construct a facility that will become a highly visible gathering spot for students and faculty and a place for special events, meetings and visits by tourists.

Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

- Create a uniquely useful and attractive facility that highlights the rules in a lively setting.
- Display the historic Naismith "Rules of Basket Ball" in a venue appropriate to their national significance.
- Create a new hub of student activity and dining, at a heavily-trafficked pedestrian hub.
- Preserve the historic appearance, integrity and aesthetic appeal of Allen Fieldhouse.
- Create a new venue with its own unique character that stands alone, yet extends the architectural vocabulary of Allen Fieldhouse.
- Develop enhanced public plazas and outdoor gathering spaces.
- Create conference/event facilities unique to KU and Lawrence which serve the larger campus community and which connect/attract people to the rules and KU athletic history.
- Celebrate the historic legacy and timeless values embodied by Dr. Naismith's life.
- Collaboratively develop an updated and detailed program document, project budget and project schedule that are acceptable to the University and which achieve the key program goals and functional purposes.
- Minimize noise, disruptions and inconvenience to the occupants of adjacent buildings during construction.
- Maintain access to and use of adjacent site areas and buildings during construction.

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- Provide excellent public and student access to the facility, and maintain or enhance existing pedestrian circulation paths in the area.
- Maintain unimpeded access to and use of parking areas and fire lanes at all times during construction.
- Address the delivery, trash, maintenance and service needs of the complex, both during construction and in the completed project, including provision of appropriately screened trash dumpsters and parking for service vehicles.
- Address energy conservation and sustainability issues in the building's design, and create a facility that exceeds normal energy performance levels for similar facilities.
- Minimize costs of site utility relocations, in order to maximize effective use of available funding in creating usable spaces of high quality.
- Address life safety and code issues as early as possible in the concept/schematic design phase, and meet all applicable code requirements for this facility and for the overall complex.
- Provide a facility that is universally accessible and meets the needs of the diverse audiences served by its programs -- from physically active students and athletes to those with disabilities, and from the very young to the very old.
- Develop and implement a proactive and collaborative team approach to delivering the overall project on time and within budget.

Space and Program Needs

Project Overview

A new addition of approximately 31,000 square feet is proposed to be constructed on the northeast corner of Allen Fieldhouse, to establish a museum addition both alongside the Booth Family Hall of Athletics and inside Allen Fieldhouse.

Renovation of approximately 28,000 square feet of existing concourse space in Allen Fieldhouse is proposed to achieve a seamless flow between the two buildings.

Existing museum and store spaces may also be rearranged or relocated and remodeled, as required to integrate the new facilities with these existing components.

The project includes a student activity / services wing which will fit between and connect the parking garage and Allen Fieldhouse, while reaching towards main campus and creating a pedestrian plaza facing Naismith Drive.

Total site development is proposed to encompass 110,000 square feet, including a large public plaza proposed off Naismith Drive.

A total project budget of at least \$18 million is anticipated to achieve the full potential of a highly visible and interactive facility to generate a high volume of visitor traffic. Funding is proposed to come from private gifts.

Building Features

- Exhibit for the "Rules of Basket Ball".
- Galleries and exhibits on the history of Kansas basketball.
- Theater for video presentations.
- Café/dining/banquet space and training table.
- Museum store and KU retail outlet.
- Seamless integration into two levels of the north and east sides of Allen Fieldhouse.
- Pedestrian plaza for outdoor gatherings.
- Direct access from parking garage.
- Offices for museum curatorial staff.
- Offices for security staff and monitoring equipment.
- Appropriate storage areas, dispersed throughout.

Building Uses

In addition to housing the "Rules of Basket Ball," the new facility will serve the additional role as a student commons for the south side of the Lawrence campus.

Currently, no such facility exists to serve students, faculty and staff in the nearby Schools of Engineering, Law, Music and Business. Soon, major new facilities will be built within a two block radius for Engineering, Business and a new Energy and Environment Center at Lindley Hall.

Banquet facilities will be available for special events, and on game days several hundred fans will use the dining facilities both before and after games.

The athletic training table, public dining and retail functions are considered key components of this initiative, and will be developed and operated as a collaborative partnership between the KU Memorial Unions and Kansas Athletics Inc.

The scope of the dining services and public spaces within this building will need to be confirmed during the early design stages. A preliminary draft of those program goals are included in Appendix A as background information.

Audiences Served

- Students, faculty and staff throughout the academic year.
- Allen Fieldhouse fans, both before and after games.
- Guests attending special functions, banquets and conferences.
- Daily visitors to the exhibits and customers of the café/restaurant.
- KU athletes making use of the training table.
- Numerous campus visitors associated with student recruitment visits, new student orientation, football pre-game functions, university award events and community events.

Mechanical / Electrical

- It is anticipated that new energy-efficient MEP systems will be provided to serve these new facilities.
- All new MEP systems must extend or supplement existing systems where possible.
- If a new emergency electrical generator is required to serve the life safety and critical systems in the new facilities, options to avoid adding a separate new generator shall be discussed with the Owner.

Telecommunications & Security

- Wireless data service shall be provided throughout.
- CCTV cameras, access control systems and security alarm systems shall be included as part of this project work, and shall be designed and coordinated by the A/E in collaboration with each vendor, and shall be procured by the Contractor using KU's standard vendors/contracts.
 - The scope and locations of each system shall be as determined by the KU Office of Public Safety, in collaboration with other University personnel.

Site Improvements & Infrastructure

Site Improvements

- Parking: Existing parking areas shall remain. A-E shall verify an appropriate numbers of accessible stalls are provided to serve this facility, with an ADA-compliant ramp or walk / accessible path from each stall to the closest public entrance.
- Accessible Entrances: Power-assist operators on exterior entrance doors shall be provided on each accessible path into buildings.
 - Provide suitable accessible paths from transit stops in the area, to accessible entrances.
 - Provide paved, illuminated accessible egress paths to nearby public spaces.
- Trash and Service Drives: Provide new service drive and trash dumpster/compactor locations to serve the new facility, with appropriate space for service vehicles to enter, maneuver and exit.
 - Verify specific service vehicle needs (semi-trailers for food deliveries, etc.) and delivery process/path from

service drive/loading dock area into areas served (i.e., food prep/storage areas).

- Dumpsters, compactors and service / loading dock areas shall be screened from public view.
- Consider and mitigate the spread of undesirable odors from trash/food waste, dumpsters, compactors, idling diesel trucks, etc.
- Provide temporary service parking stalls, in the number required for temporary or long-term parking at this venue.
- Service drive and loading dock issues must be addressed at the earliest stages of design, given the critical nature of addressing them as unobtrusively and effectively as possible, integrated into the overall design.
- Landscaping: A new public entrance / courtyard is anticipated leading to these new facilities, from Naismith Drive. Exterior areas shall be landscaped consistent with the Campus Landscape Plan and with the existing landscaping that will remain.

Utilities & Infrastructure

- Extensions of the utility services shall be included as part of this work, as required to serve these new facilities.
- Electrical service to this complex is owned by KU.
- Water service to this complex is owned by KU. The design team shall evaluate the available water pressure and flow capacities, and shall include appropriate extensions of domestic water and fire systems within the existing buildings, or shall extend new services to the new building, as required.

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- A new fire pump will be included if required to boost pressure and flow of new lines serving the sprinkler system.
- Existing mechanical / electrical equipment serving undisturbed portions of the complex shall be maintained in service at all times, except for short-term shutdowns.
- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with University personnel, and others who may be affected.

Hazardous Materials

The KU Environmental Health & Safety Office will perform tests of existing materials which will be affected by renovations or demolition within the existing buildings, to determine if any of them are asbestos-containing.

KU's standard policy is to remove all hazardous materials when undertaking major renovations of existing buildings.

Code Requirements

- Codes currently used on KU projects include the following:
 - International Building Codes, 2006 edition.
 - Kansas Fire Prevention Code, KSFMO, current edition.
 - Kansas Dept. of Agriculture (KDA), Kansas Food Code, 2005 edition.
 - Other codes as listed at the State of Kansas, Office of Facilities and Property Management (OPFM) website.
 - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the architect on DCM's standard 11x17 code footprint sheets.

- The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Design Development phase.
- Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- Construction Exiting: Temporary fire-rated exit corridors shall be provided through the construction site, if required to protect and direct occupants from all required exits in the surrounding occupied existing buildings to a public way. They shall remain in-place at all times while construction work is underway.
- The building shall be fully protected by fire sprinkler and fire alarm systems throughout. Fire alarm shall comply with current code and KU requirements for an intelligent addressable system.

● SPECIAL ALLEN FIELDHOUSE CODE REQUIREMENTS:

- Consultant team shall be required to:
 - meet all prescriptive code requirements in all new addition and renovated areas.
 - maintain the life-safety and code compliance features of the existing building, and all associated code agreements.
 - improve non-conforming code conditions where possible or as required by the authorities with jurisdiction (AHJs).
- Consultant team shall update and resubmit the Code Egress Modeling of the existing Fieldhouse, if it is affected by these proposed improvements.
 - Updated code modeling shall include all new work / life safety provisions which shall be included as part of this project.

- Current Fire Protection Program / Plan of Compliance was prepared by FP&C Consultants, of Kansas City, MO dated December 17, 1993; with supplemental agreements to-date.
 - Copies of this documentation will be furnished to each short-listed consultant team that is invited to the selection interviews.
- The consultant team shall develop a revised Plan of Compliance which coordinates with and supplements existing provisions which address deficiencies in Allen Fieldhouse, if any of those components are affected by any of the proposed improvements.
- The consultant team shall also create an updated Code Footprint for all floors of Allen Fieldhouse, for review and approval by the University Fire Marshal, the State Fire Marshal and the Office of Facilities and Property Management.
- The existing contiguous building and associated additions are all smoke-controlled, and new facilities shall maintain or extend these provisions.

Design Standards & Consultant Services

- The consultant team shall comply with the latest provisions of The University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM).
 - These standards are available online at the DCM website: <http://www.dcm.ku.edu/standards/design>
 - The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
- The University's Project Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and

who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.

- Special Consultants that will be required on the A-E team, in addition to the usual A/E disciplines:
 - Acoustical Engineer (to evaluate and advise on sound isolation provisions from M/E rooms and equipment).
 - Telecommunications System Engineer (must be pre-approved by KU-NTS).
 - Code Compliance / Fire Protection Engineer (required to update the currently approved performance-based Plan of Compliance, to incorporate the new facility needs and requirements).
 - Security & Preservation Consultant (to evaluate and provide guidance on appropriate space conditions and physical security measures to protect the "Rules of Basket Ball").
 - Exhibit Designer (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
 - Food Service Consultant (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
 - Audio/Video Vendor / Installer (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
 - Furnishings Vendor / Installer (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal, and for the bid sets and as-built sets.

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- o Each set of electronic files shall include both PDF and AutoCAD .dwg files for each drawing sheet.

- Physical or 3D/CAD models, if produced by the consultant to explain the design, shall be delivered to and remain the property of the University.

- o Photo-realistic renderings will be required during the design phase to clearly communicate the proposed design options, for both exterior and interior spaces, and for the Owner's use in fund-raising, media distribution and other purposes.

- Contract: An American Institute of Architects B101 contract form, as amended solely by the University and the KU Endowment Association, will be used to contract for these professional services.

- o Copies of this contract template will be provided to each short-listed firm, along with the corresponding A201 General Conditions document that will be issued to the Contractor.

- During the selection process, prospective firms shall identify the individuals on their team who will be responsible for the design of this facility, and shall provide examples of their recent work, including examples of building additions to existing facilities with similar issues and concerns.

- o Concept designs are included which have been used to secure key donations and administrative support, and to illustrate several key principles that will be goals or parameters informing the final design.

- o The proposed site at the northeast corner of Allen Fieldhouse is a given parameter, not subject to change.

- Optional Additional Service: KU may ask the A/E team to evaluate options for re-purposing portions of the Burge Union, in coordination with the goals of this project. It is anticipated that those would be additional services, funded by the Memorial Unions.

Historic Preservation Reviews

The proposed site is not located within 500 feet of any properties listed on either the State or National Registers of Historic Places.

Although Allen Fieldhouse is not listed on an official register of historic places, it is considered one of the most treasured and historic buildings on the KU campus. It also has an international reputation as an icon of basketball history and is one of the most revered basketball venues in the world.

The design of this facility must be developed with a fundamental respect for the historic integrity and image of Allen Fieldhouse, and must maintain and enhance the historic aesthetic qualities of the overall complex.

The Booth Family Hall of Athletics represents a good example of a new addition which respected and enhanced the architectural qualities of the existing Allen Fieldhouse facilities.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs for this facility will come from partnership revenue collected by the Kansas Athletics and Memorial Union corporations.

No state funding will be required to cover any of these costs.

Space Standards & Utilization Analysis

This project consists in part of a new addition of approximately 27,000 GSF to Allen Fieldhouse, and will also include the renovation of approximately 14,000 GSF in the existing building.

Proposed Project Delivery Method

The University of Kansas (KU) anticipates using the Kansas Board of Regents alternate project delivery method for "Construction Management At-Risk" for this project, subject to Procurement Negotiating Committee (PNC) approval, as outlined at the DCM website:

http://www.dcm.ku.edu/standards/bor/files/SB9_2009.pdf

The University believes that a CM At-Risk method is appropriate for this project due to its many difficult phasing and staging complexities, which may result in cost and time savings to the State of Kansas for the following reasons.

- Phased expedited construction will be necessary to meet the desired overall schedule and target completion date.
- Contractor input is needed to fully inform the design of the new facility and to develop realistic cost estimates during the earliest stages of the program review, scope confirmation and project design.
- Contractor input is needed during design to identify the appropriate phasing of the new and renovation work, in collaboration with the Owner, to ensure limited disruption of existing activities.
- The existing site allows very little staging area for the Contractor adjacent to the construction site, and site access issues will be difficult.
- Existing parking lots and the parking garage immediately adjacent to the project site must remain in use at all times by students, faculty, staff and visitors.
- Contractor input is needed to verify non-standard processes which may be needed for trash removal, material deliveries / storage and to coordinate with ongoing activities in this area.
- Extensive demolition and construction work will occur within the existing buildings, which must remain in operation at all times.
- Contractor input is needed to verify which portions of the demolition and reconstruction work will be required to occur off-hours or utilize non-standard procedures, to avoid disrupting student life in the adjacent buildings and site.

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Project Budget

Construction Costs

New Addition - 27,000 GSF @ approx. \$300/SF	\$8,000,000
Renovation - 14,000 GSF @ approx. \$150/SF	\$2,000,000
Food Service Equipment & Furnishings	\$2,500,000
Site Development	\$1,500,000
Subtotal - Construction Costs	\$14,000,000

Miscellaneous Costs

Fees, Support Services, Contingency, etc. (22%)	4,000,000
Subtotal - Miscellaneous Costs	\$4,000,000

Total Project Cost **\$18,000,000**

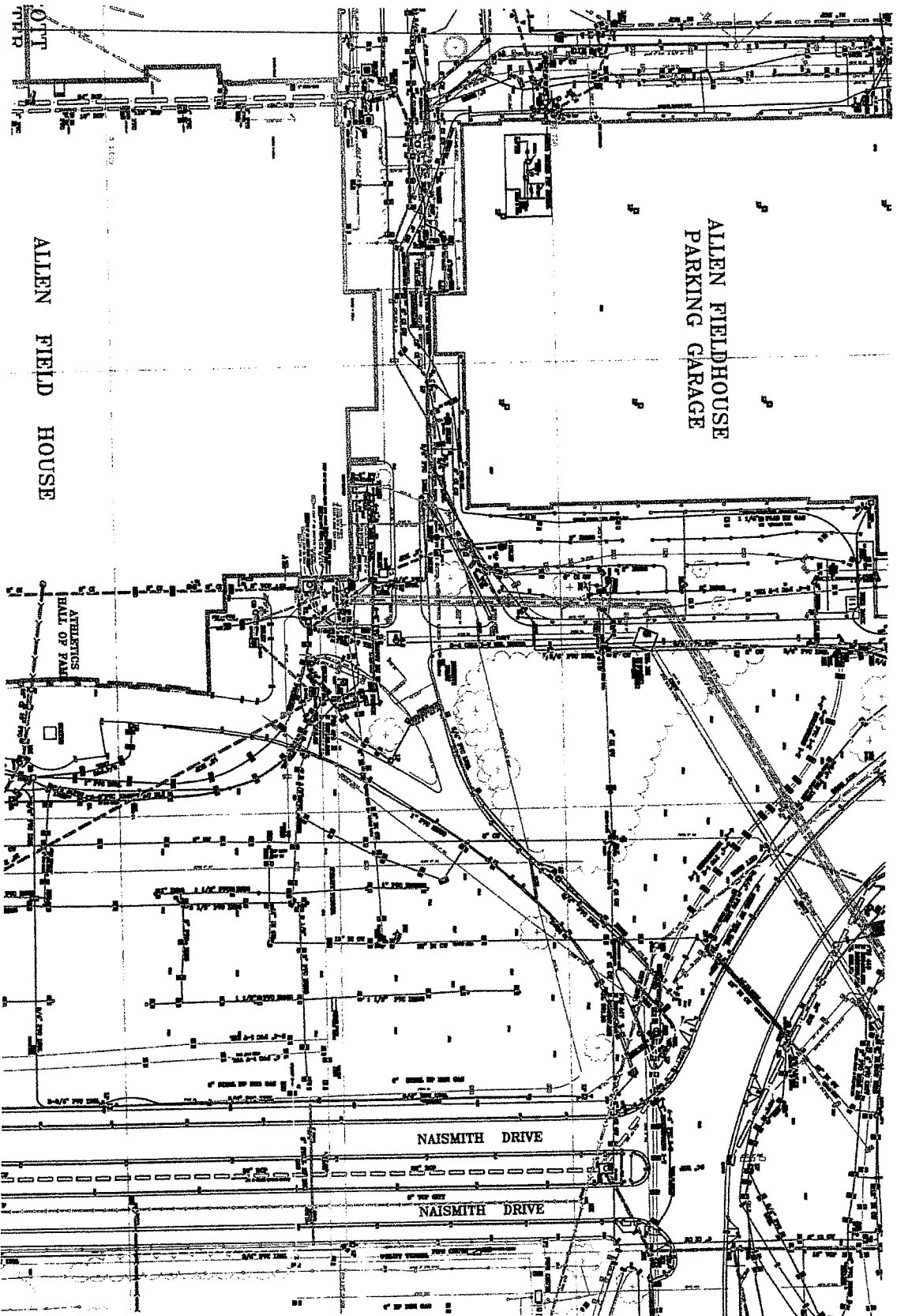
Notes:

- 1) The project will be funded from private gifts.
- 2) Note: All indicated areas and estimated costs are preliminary. The project scope will need to be adjusted as required to fit within the available funding. This will be evaluated as a collaborative effort by the consultant team, CM and Owner during the earliest stages of design.
 - a) Training table/dining, retail operations and appropriate display of the "Rules of Basket Ball" are core design components that must be retained.
 - b) Meeting rooms and public spaces probably have the most flexibility for scope adjustments, to fit the project within the available funding.

Project Schedule

KU Capital Projects Council Review & Approval	Aug. 2012
KBOR Review & Approval	Oct. 2012
A/E Interviews & Selection	Sept. 2012
Negotiate Fees / Start Design	Oct. 2012
CM Interviews & Selection	Oct. 2012
Legislative Review (JCSCB)	Oct. 2012
Start Constr. (site prep/foundations)	April 2013
GMP Submission/Approval (50% CD stage)	July 2013
Design Complete (9 Mos.)	Sept. 2013
Construction Complete (15 Mos.)	Sept. 2014

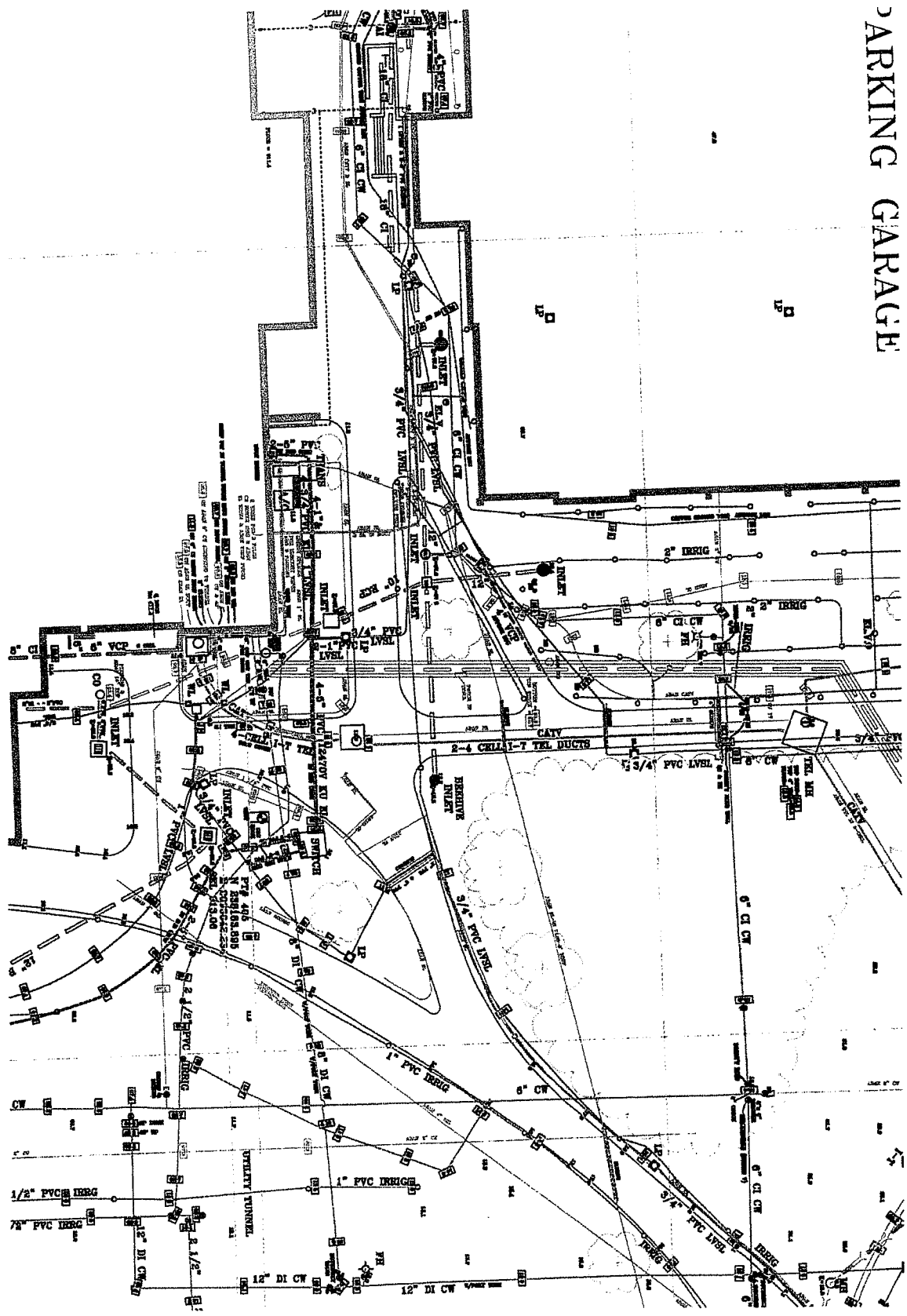
Existing Site Utilities Plan



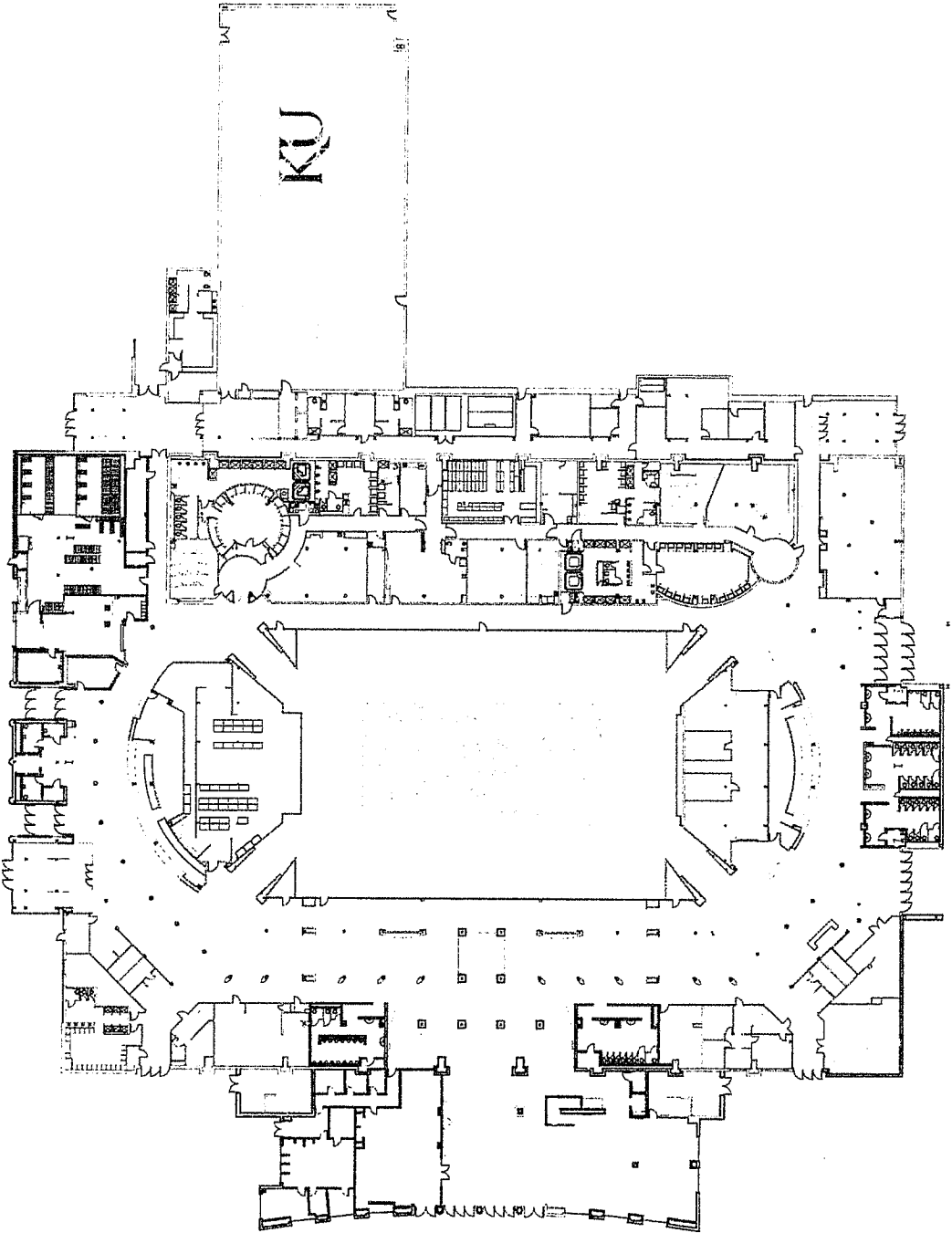
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Enlarged Site Utilities Plan

PARKING GARAGE

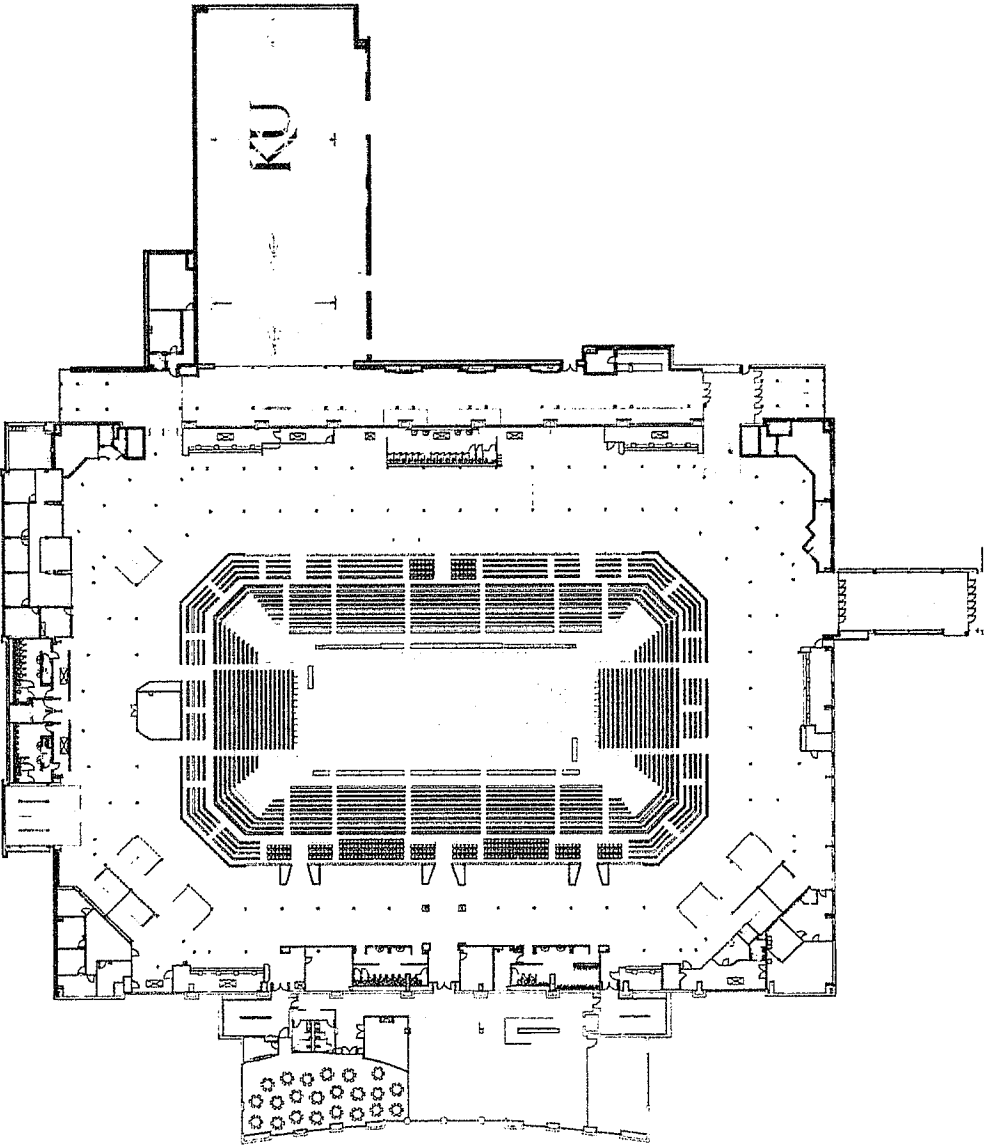


Existing First Floor Plan

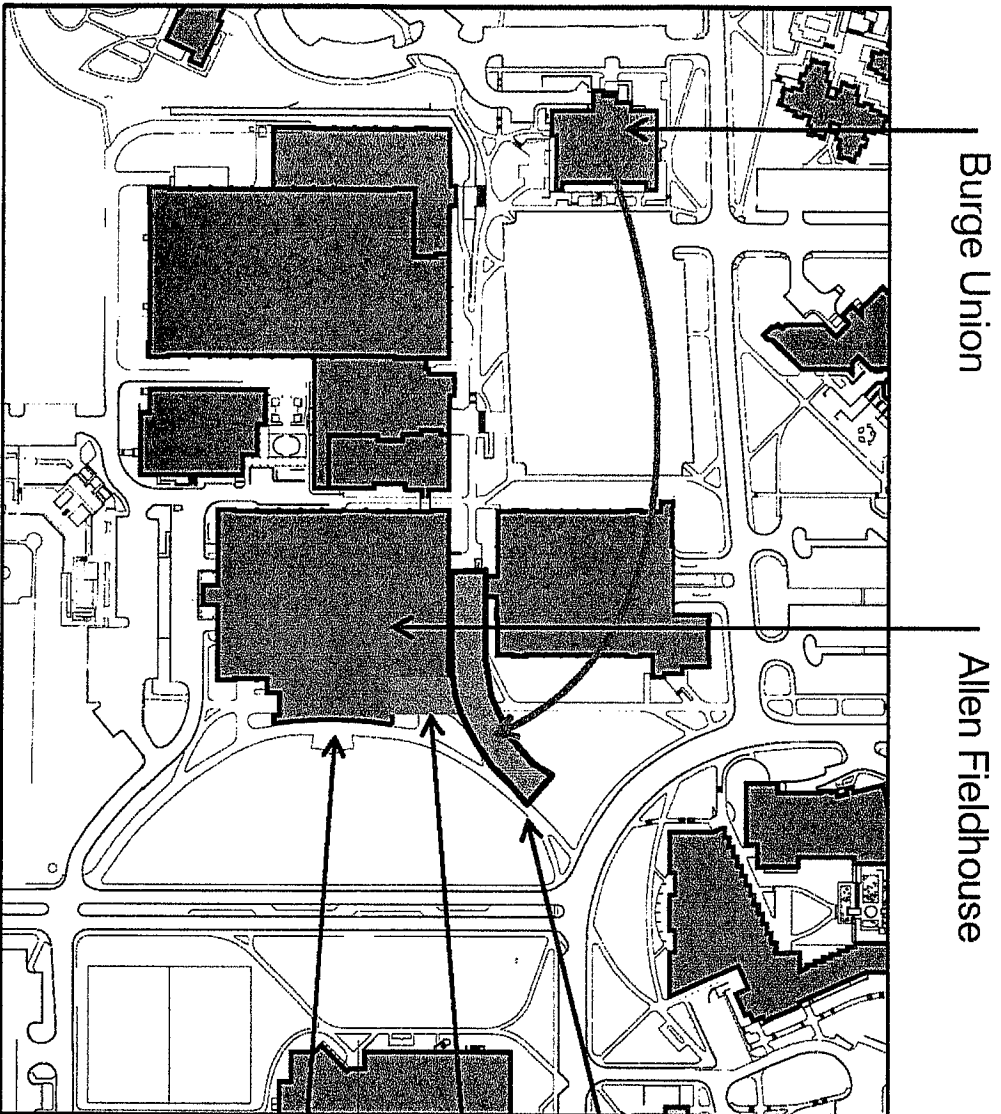


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Existing Second Floor Plan



Conceptual Design Site Plan



Burge Union

Allen Fieldhouse

Student Center

Museum Addition

Booth Family Hall of Athletics

Athletics

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Aerial Rendering of Conceptual Design

Allen Fieldhouse Addition
KU Project #059-9808

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