Architectural Program

Deferred Maintenance - Mechanical / Electrical & Related Improvements (Multiple Buildings)

Master KU Project No. LzU-10577
(see attachments for individual project numbers)

Date: March 31, 2014
Revised: May 30, 2014 (to issue as one combined project)

Prepared by:

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

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Overall Project Scope Summary

The University of Kansas (KU) is proposing multiple projects that will address deferred maintenance needs in multiple facilities, primarily regarding deficient, outdated, energy-inefficient heating and cooling systems.

KU is proposing to advertise, interview and select architectural/engineering (A/E) consultants and proceed into design in the current fiscal year (FY 2015). All six projects are to be designed as one combined project under one A/E team. Each of the six projects is to be designed as a separate bid package with separate cost estimates, funding, and project budget. The approach for one A/E to design all six projects should offer efficiencies in both design and project management which should result in lower project costs and better coordination between projects.

These projects would all be funded during design using available EBF (R&R) funding and would have their construction funded by revenue bonds.

Overall Budget Summary

Item of Cost	Art & Design	Lindley Hall	CHW Plant	Strong Hall	Bailey Hall	Summerfield	Overall Totals
Building Construction	2,700,000	2,300,000	4,900,000	2,600,000	1,100,000	1,800,000	**15,400,000**
Fees	400,000	350,000	700,000	390,000	165,000	270,000	**2,275,000**
Contingency	220,000	180,000	350,000	200,000	90,000	140,000	**1,180,000**
Misc. Costs	130,000	120,000	150,000	160,000	145,000	90,000	**795,000**
Bldg. Totals	**3,450,000**	**2,950,000**	**6,100,000**	**3,350,000**	**1,500,000**	**2,300,000**	**19,650,000**

Notes:

1) Between the program verification and bidding/GMP stages of the project, when the actual scopes and costs of each individual project has been confirmed, the cost/funding allocation for each individual project may be adjusted in order to best meet the University's prioritized needs, within the overall proposed funding limits.

Overall Project Schedule

KU Capital Projects Council Review & Approval	Nov. 2013
KBOR Review & Approval	April 2014
Send A/E ad to OFPM	May 2014
A/E ad published in Kansas Register	June 2014
A/E Proposal due to OFPM	June 2014
SBAC Meeting to shortlist A/E candidates	July 2014
Select A/E, Negotiate Fees / Contract	July 2014
Start Design	Aug. 2014
Joint Legislative Committee on State Building Construction Review	Fall 2014
Submit code footprints	Oct. 2014
Complete CD's, submit for permit (5 mos.)	April 2015
Receive Bids; Award Contract	July 2015
Construction Starts	Aug. 2015
Construction Completion (12 Mos.)	July 2016

Notes:

1) The dates for issuance of construction documents for bidding and construction are dependent on confirmed funding (TBD) in current or future fiscal years.

Proposed Project Delivery Process

Competitive Bid or CM At-Risk

The University of Kansas (KU) may choose to use a traditional but expedited design-bid-build process for this project. If it does, the Owner and consultant team will jointly develop strict pre-qualification criteria, designed to ensure that the only contractors approved to bid this project have a proven track record delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

The University may elect to retain the services of a CM-Consultant during the design phases, to assist with cost estimating, value-engineering and scheduling issues.

In lieu of an expedited bid process, the University may choose to utilize the State of Kansas alternate project delivery method for "Construction Management At-Risk" for this project, subject to State Building Advisory Commission (SBAC) approval.

The University believes that a CM At-Risk method may be 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 and KU for the following reasons.

- A CMAR would provide valuable input during design regarding project phasing, scheduling, cost estimating, and constructability.
- Early construction in packages could be released before final designs are complete, which could help improve project schedules and/or meet seasonal or academic calendar needs. Project could be completed more quickly with CMAR process.
- CMAR process may help KU to plan for and address complex phasing or scheduling needs and the inevitable problems that will crop up with a large HVAC retrofit project in existing buildings.
- The six existing project sites may prove challenging regarding construction staging. Just-in-time deliveries and a tightly coordinated site management plan may need to be actively managed in an ongoing manner.
- Existing parking lots are over-taxed and must remain usable to the greatest degree possible. Contractor input is needed to verify non-standard processes which may be needed for trash removal, material deliveries / storage and to coordinate with other construction projects in these areas.
- The projects are in existing buildings adjacent to other KU buildings that will remain occupied during construction. Some portions of the project buildings may remain occupied during construction. The Lindley project is near a residential area with single-family residences and the Chi Omega sorority. A CMAR may be better equipped to work in and properly manage this construction environment.
- Construction noise, vibrations, traffic and other activities must be carefully coordinated and managed to avoid disrupting students, faculty and staff while they conduct their academic and research activities.
- Strong Hall and Bailey Hall are older buildings listed on the National Historic Register of Historic Places, and all but Summerfield are in the KU Historic District. Extra planning and adaptability may be required for the work in those buildings.

Project Coordination Requirements

Reference individual programs for more information.

District Chilled Water Plant #3

New plant is to serve new HVAC equipment in Lindley (KU#042-5481) and Art & Design (KU#151-10381). It will also serve a new building, Earth, Energy and Environment Center (EEEC KU#042-9348) under separate contract, which is expected to be at 50% CD design in September of 2015. Coordinate with the EEEC engineer on expected cooling loads. Additional plant capacity is to possibly serve Murphy, Summerfield, Marvin, and Budig Halls also.

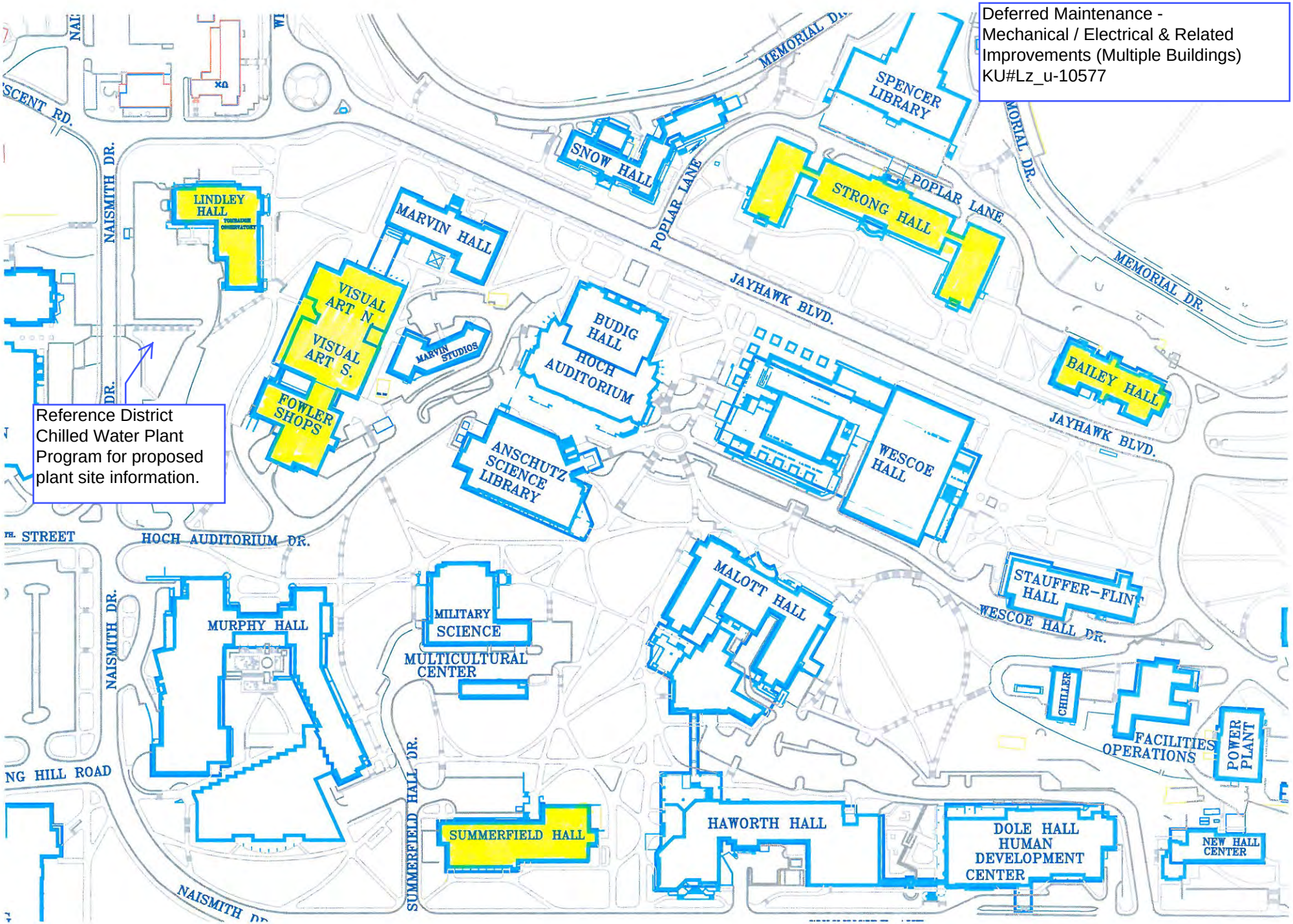
Bailey Hall and Strong Hall

Coordinate HVAC design and construction with concurrent Bailey Hall fire sprinkler project under separate contract. Coordinate connection of chilled water supply and return piping to Bailey and Strong Hall from the recently improved 2,000 ton district chilled water plant in Spencer Research Library (KU#100-8669 and KU#100-9105).

Lindley Hall

Coordinate HVAC design and construction with concurrent Earth, Energy and Environment Center (EEEC KU#042-9348) project adjacent to Lindley under separate contract.

Deferred Maintenance - Mechanical / Electrical & Related Improvements (Multiple Buildings) KU#Lz_u-10577



Reference District Chilled Water Plant Program for proposed plant site information.

Architectural Program

Art and Design Building - HVAC Improvements

(A Deferred Maintenance, Repair & Rehabilitation Project)

KU Project No. 151-10381

Date: March 31, 2014

Prepared by:

The University of Kansas, Lawrence Campus

Office of Design & Construction Management

Programming Committee

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Introduction

The Art & Design Building, located at 1467 Jayhawk Boulevard, was constructed in two phases. The original 27,000 SF limestone building, commonly known as the Fowler Shops, is located at the south end of this facility and was opened in 1949. A red brick addition was completed in 1978, adding 115,000 SF and creating a new presence along Jayhawk Boulevard.

The building houses classrooms, shops and studios for design, painting, printmaking, sculpture, ceramics, industrial and interior design, weaving, metalsmithing/jewelry, printing, staff offices and studios, and a faculty/student exhibition gallery.

In 2009, an administrative reorganization split the School of Fine Arts to create the School of Music, which continues to be housed in Murphy Hall; and the School of the Arts, affiliated with the College of Liberal Arts and Sciences and comprising the departments of dance, film and media studies, theatre, and visual art. The offices for these departments remain in Art & Design and Murphy. Several design programs housed in Art & Design are now affiliated with the School of Architecture, Design and Planning.

The existing mechanical equipment serving the Art & Design building is beyond its service life and in need of replacement and upgrading, except as noted.

Project Overview

Existing Mechanical System - Original Building

The mechanical systems serving the original building consist of various small systems of various ages and conditions. Systems include single zone air handling units, unit heaters and various ventilation systems for the removal of heat, vapors and particulate.

Existing Mechanical System - 1978 Addition

The existing mechanical systems serving the 1978 addition consist primarily of four central station variable air volume air handling units which originally supplied approximately 165 induction terminal units. The terminal units were replaced/retrofitted in the mid-1990's. Perimeter terminals are equipped with hot water reheat coils and interior terminals are cooling only. Air handling unit #1 was replaced in 2011. The remaining three air handling units are original to the building.

Cooling is provided by a single 375 ton water cooled centrifugal chiller which is slated for removal as part of a separate project to service the building from a district chiller plant. Heat is provided from the campus central steam plant to a steam to hot water convertor and circulation pump located in the 1978 addition mechanical room.

Related KU Projects

#LzF1-10382: District Chilled Water Plant – Lindley Hall, Marvin Hall, Art & Design Building and EEEC Building

#042-5481: Lindley Hall HVAC Improvements

Design Criteria and Goals

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

- Upgrade all mechanical systems serving the facility.
- Upgrade ventilation systems in shop areas to improve safety and comfort for students and staff utilizing these areas.
- Provide properly designed source capture systems for various applications.
- Provide adequate source and control of make-up air to shop and studio areas.
- Improve indoor air quality throughout the facility.
- Upgrade electrical distribution serving mechanical systems in the original building.
- Comply with KU design standards for energy conservation.
- Address life safety issues and meet current code requirements.
- Develop phased implementation plan to minimize impact on the facilities daily operations and mission.
- Collaborate with the designer of the proposed district chilled water plant, and if space for that plant is proposed to be located in the A&D Building, cooperate with and assist that designer to meet the goals of both projects.

Space and Program Needs

Proposed improvements include the following items, which will be prioritized in collaboration with KU and which shall be completed to the extent that current funding allows. Alternate bids will be taken for flexibility in bid awards & overall phasing.

Mechanical

- Replace (3) air handling units and terminal units serving the 1977 addition including controls.
- Evaluate options to improve performance of the ventilation systems serving shop and studio areas including, but not limited to, source capture methods (hoods, downdraft tables etc.). Submit options/costs to KU for consideration and direction.
- Replace existing dust collection and contaminate removal systems and provide properly designed make-up air systems.
- Add cooling to sculpture classroom.
- Evaluate needs for additional ventilation in spaces not currently ventilated.
- Evaluate space utilization, develop options, and make recommendations to KU for possible modifications that would improve indoor air quality and comfort including, but not limited to, relocation of kilns.

Electrical

- Upgrade electrical distribution serving mechanical systems as required.

Telecommunications & Security

- New data ports as needed to service controls system.
- Security cameras shall remain or be relocated.
- Access control systems shall remain as-is.

Site Improvements & Infrastructure

Site Improvements

- No exterior sitework is proposed in the current project scope.

Utilities & Infrastructure

- Extension of chilled water service from the district chilled water plant concurrently under development is included in this work. No other modifications or extensions of the utility services to this building are anticipated as part of this work.
    - Existing mechanical / electrical equipment serving un-disturbed portions of the building 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 DCM and FS 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 the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

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

Deferred Maintenance

The Art & Design Building is considered a mission-critical facility by the Board of Regents, and was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 76

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.04

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work: The currently proposed project will address, at least in part, the following items which have been identified as deferred maintenance needs:

- HVAC Systems
- Related Electrical Systems

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 & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the A/E on DCM's standard 11x17 code footprint sheets.
  - A/E shall update these drawings to reflect all proposed work and submit them for approval to OFPM thru DCM/UFMA, immediately following approval of the Schematic Design 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 fire sprinkler system shall be modified as required to maintain coverage throughout the building.
- Fire alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- Project scope will include any code or ADA-related improvements that are required in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

Design Standards / Consultant Services

The architectural/engineering (A/E) 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), posted online at DCM's website at: http://www.dcm.ku.edu/standards

  - The A/E team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
  - The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.
- The Owner's 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:
  - Telecommunications Engineer (KU-IT pre-approved)
  - Acoustical Engineer (to evaluate & advise on M/E sound isolation provisions)
- Electronic Files: Consultants shall deliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.
  - 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.
- Program Verification: A/E shall review and confirm all program needs with KU client/DCM, and shall reconcile the proposed project scope with the available funding.

- Contract: Since this project is considered to be state funded, A/E selection and contracting will be via State of Kansas, using OFPM's standard form of contract.

University Energy Policy

The University is engaged in ongoing reviews of campus energy use and sustainability plans and policies, and has adopted an *Energy Policy* that includes requirements for projects to be designed and constructed so as to minimize energy use. The full policy is found at the KU Policy Library: https://documents.ku.edu/policies/provost/EnergyPolicy.htm#measures. The consultant shall become acquainted with this policy in its entirety.

- The following excerpt is from paragraph III-B *New Construction* of the *Energy Policy*. The design requirements included in this excerpt shall be considered project requirements.

  New construction [and major renovations, where feasible] should be designed and built to minimize energy use. The most recent version of ASHRAE Standard 90.1 - Energy Efficient Design of New Buildings except Low Rise Residential Buildings should be set as the minimum energy efficiency guideline, since it has been shown that further reductions in energy use are economically achievable. The current KU standard for new construction is 30% improvement on ASHRAE 90.1. The design process should include energy life cycle costing analyses. New construction should be added to the existing building automated control system for enhanced energy management capabilities. Alternative energy sources such as passive solar heating and heat recovery should be considered, as well as daylighting and other strategies for decreasing building energy consumption. Primary consideration should be given to connecting and/or extending central systems for heating, cooling and other mechanical systems. Year-round cooling needs should be met by utilizing the most energy efficient systems, for example plate-and-frame heat exchangers versus less efficient air-cooled systems. All new construction should include utility metering (electricity, natural gas, steam, and water).

- With regard to the University's expectations for sustainable designs, the current University Sustainability Plan, issued July 2011 can be found at: http://www.provost.ku.edu/pdf/sustainability-plan.pdf, and includes the following action step:

  Within the next year, establish a standards advisory board to update existing standards, with a goal of requiring all new construction and major renovation to meet or exceed minimum LEED Silver criteria by 2015.

  There is no specific funding identified within the budget of this project to account for incremental project costs that might arise from designing to meet LEED Silver criteria. However, the consultant should become familiar with both University sustainability policy and LEED criteria and is expected to identify design opportunities for University consideration during completion of schematic design.

- Regarding the *Energy Policy's* reference to preparation of an energy life cycle costing analysis, the University's expectation is that the consultant will, as part of the schematic design, include life cycle cost analysis of at least three alternatives for HVAC system improvements that are feasible solutions within this building.

- The consultant will be expected to provide the University with recommendations based on energy efficiency, costs, and O&M considerations. Costs should include life-cycle analyses.

Major Equipment Pre-Purchase Packages

The consultant team will be expected to assist with finalizing specification information and review of subsequent submittal information for the certain equipment, which the University expects to purchase directly and turn over to the successful bidding contractor for installation. Examples of equipment candidates for strategic sourcing include:

- Central Station Air Handling Units

- Secondary Recirculating Heating and/or Chilled Water Pumps
- Steam-to-Hot Water Converter for building recirculating heating water and/or domestic potable water needs

Construction Bid Document Preparation

The consultant shall prepare a consolidated set of construction drawings and specifications that encompass all anticipated work, i.e. sprinkler system (if applicable), mechanical system improvements, related electrical improvements and building envelope or interior space modifications or improvements.

The anticipated design sequence will follow requirements of Chapter 12 of the State Office of Facilities and Property Management's (OFPM) Building Design and Construction Manual. At a minimum, the following milestones are anticipated:

- Schematic Design Review
- Design Development Review
- 50% Construction Document Review
- 100% Construction Document Review

Construction Phase Submittal Requirements

The University is investigating options for enhancement of its existing Computerized Maintenance Management System (CMMS). Specific objectives for the use of the enhanced system are being developed at this time. It is anticipated that an important component of the upgraded system will be the ability to directly import construction phase equipment submittal data into the asset management module of the CMMS.

During the design phase of this project, the consultant will be expected to become familiar with the University's CMMS so that appropriate specifications can be prepared to clearly convey to bidding contractors the University's expectations for format and delivery of project submittal data.

The consultant should anticipate that, at a minimum, the University will require Submittals and O&M information be provided in electronic PDF format for all materials and equipment, for incorporation into the University's asset management system.

Historic Preservation Reviews

Projects on the KU Lawrence campus that are within a KU building listed on the State or National Register of Historic Places, or within one of KU's Historic Districts, require administrative review by DCM staff or full review by DCM staff and the Campus Historic Preservation Board (CHPB).

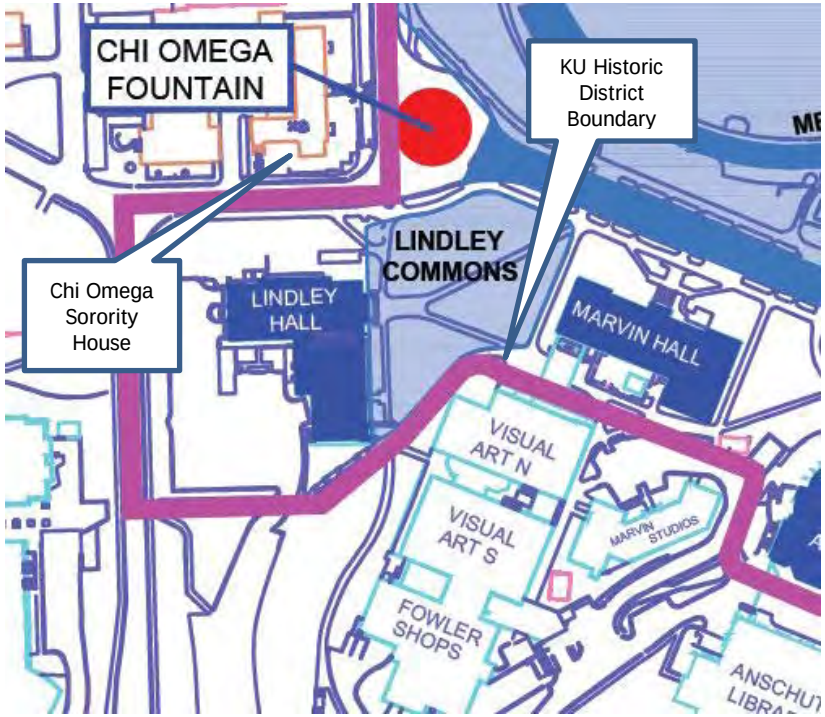
The Kansas Legislature repealed the 500' historic environs reviews in 2013, and although the City of Lawrence still requires environs reviews within 250' of properties listed on the City's historic register, KU projects within the City's 250' environs limits are not subject to review if on State property.

A copy of the KU Historic District Map can be viewed online at the DCM website, KU Buildings page. An excerpt can be viewed on the next page.

The City's environs limits can be viewed on the Lawrence Interactive City Map.

Note: This project is located outside the environs boundaries of the Chi Omega Sorority House and the KU Historic District, in a building that does not contribute to the KU Historic District.

This project will not need to be reviewed by DCM staff and by the Campus Historic Preservation Board (CHPB).



KU - City Cooperation Agreement

KU and the City of Lawrence entered into a jointly-beneficial Cooperation Agreement in April 2005. It designated a compatibility buffer zone that extends 150' deep onto KU's property from the primary exterior boundary of KU's property.

New construction on the KU Lawrence campus within the 150' buffer zone must comply with designated City land-use regulations, standards and requirements.

Note: This project is <u>not</u> located within the 150' buffer zone, so the KU-City Cooperation Agreement does not apply.

Impact on Overall Campus Space

This project is a renovation / remodel of an existing building, and will not add to or remove any space from the University's space inventory.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources or new private resources. No new state funding will be required to cover any of these costs.

Proposed Project Delivery Process

Competitive Bid

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

Project Budget

Construction Costs	
HVAC	2,200,000
Electrical	200,000
Controls	300,000
Code/ADA-Required Improvements	TBD (as required)
Subtotal - Construction Costs	**$2,700,000**
Miscellaneous Costs	
Fees - Consultants, State & KU Agencies, IRF	400,000
Printing & Shipping of Bid Documents; Misc.	15,000
Asbestos & HazMat Abatement (scope TBD)	40,000
Construction Testing & M/E Commissioning	75,000
Bidding & Construction Contingency (6%)	220,000
Subtotal - Miscellaneous Costs	**$750,000**
Total Project Cost	**$3,450,000**

Notes:

1) Funding is proposed to be from revenue bonds, which will be paid off during a five-year period using EBF funds.
2) Funding is available in current fiscal year (FY 2015) for design. Construction will be funded in future fiscal year(s).

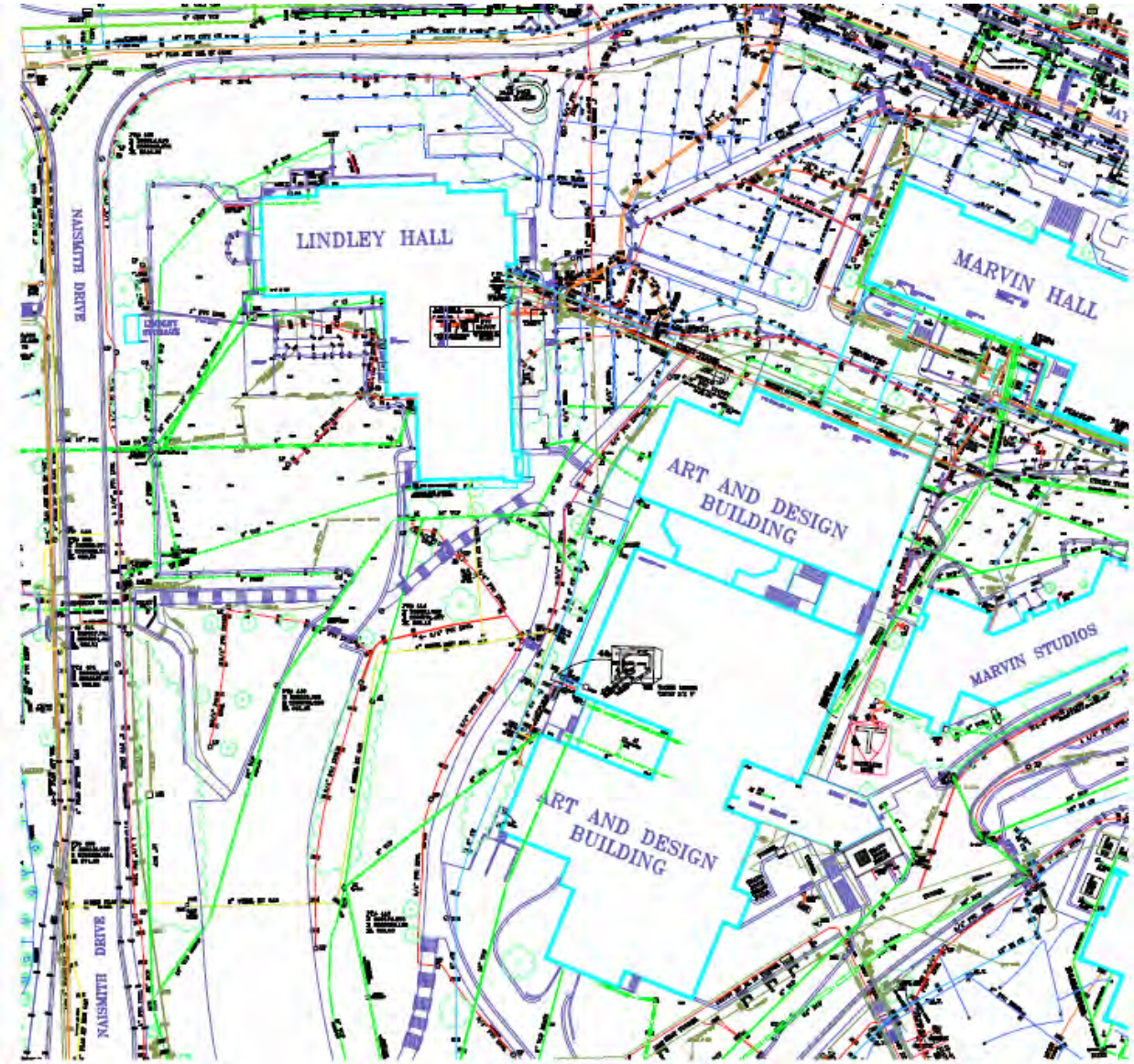
Project Schedule

KU Capital Projects Council Review & Approval	Nov. 2013
KBOR Review & Approval	April 2014
Joint Legislative Committee on State Building Construction Review	Fall 2014
A/E Selection	July 2014
Negotiate Fees / Contract	Aug. 2014
Start Design	Sept. 2014
Complete CD's, submit for permit (5 mos.)	April 2015
Receive Bids; Award Contract	July 2015
Construction Starts	Aug. 2015
Construction Completion (8 Mos.)	April 2016

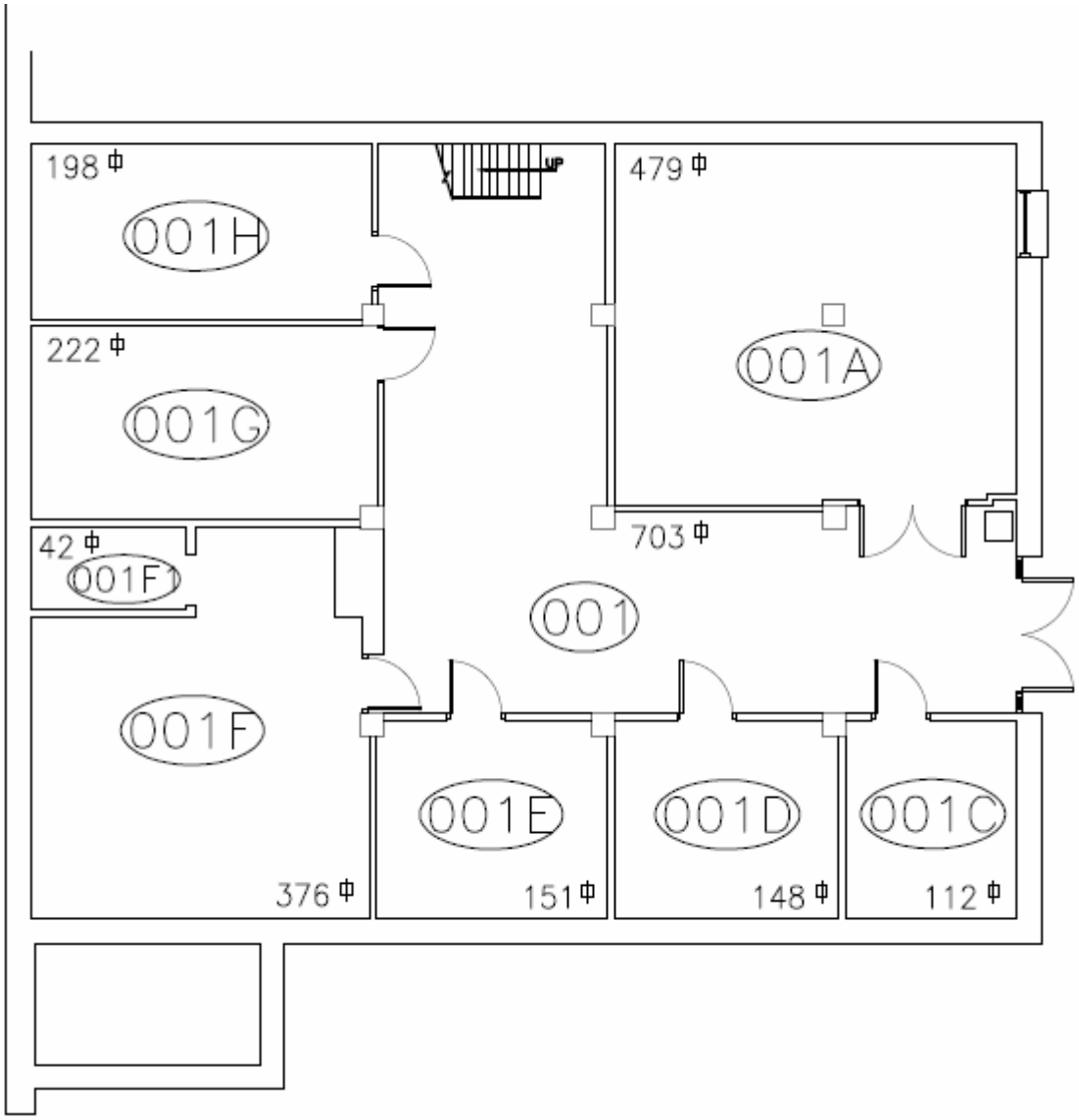
Notes:

1) The dates for issuance of construction documents for bidding and construction are dependent on confirmed funding (TBD) in current or future fiscal years.

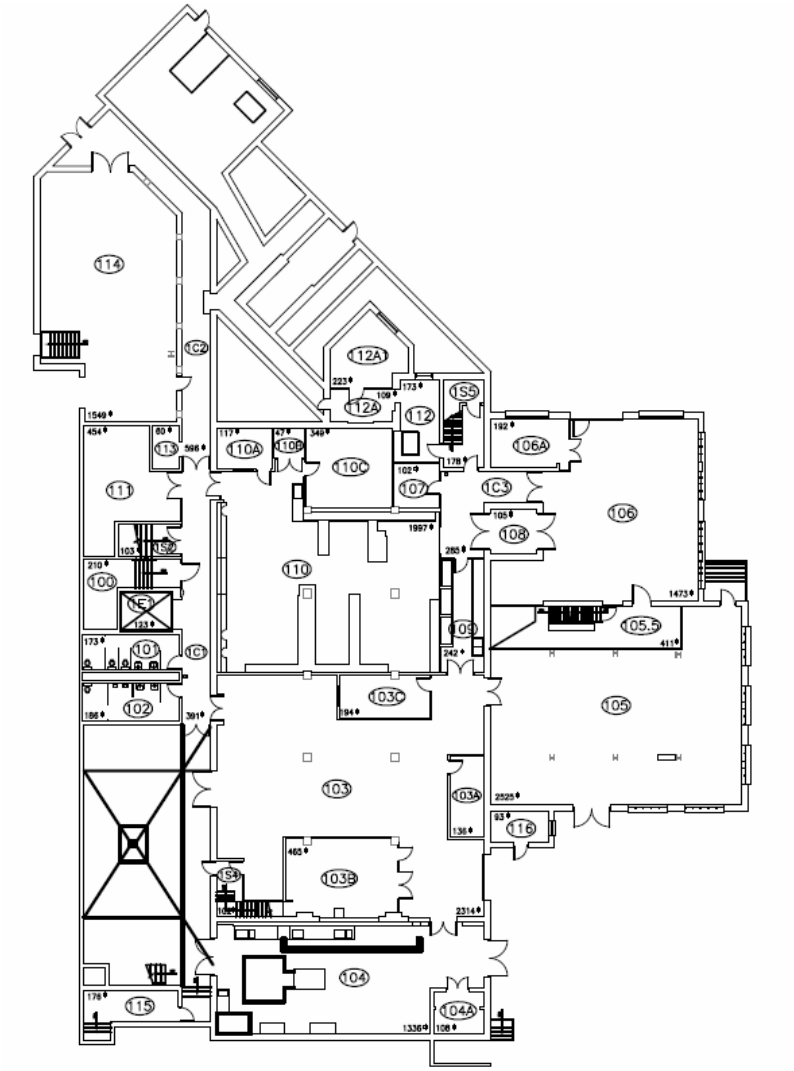
Existing Site Plan



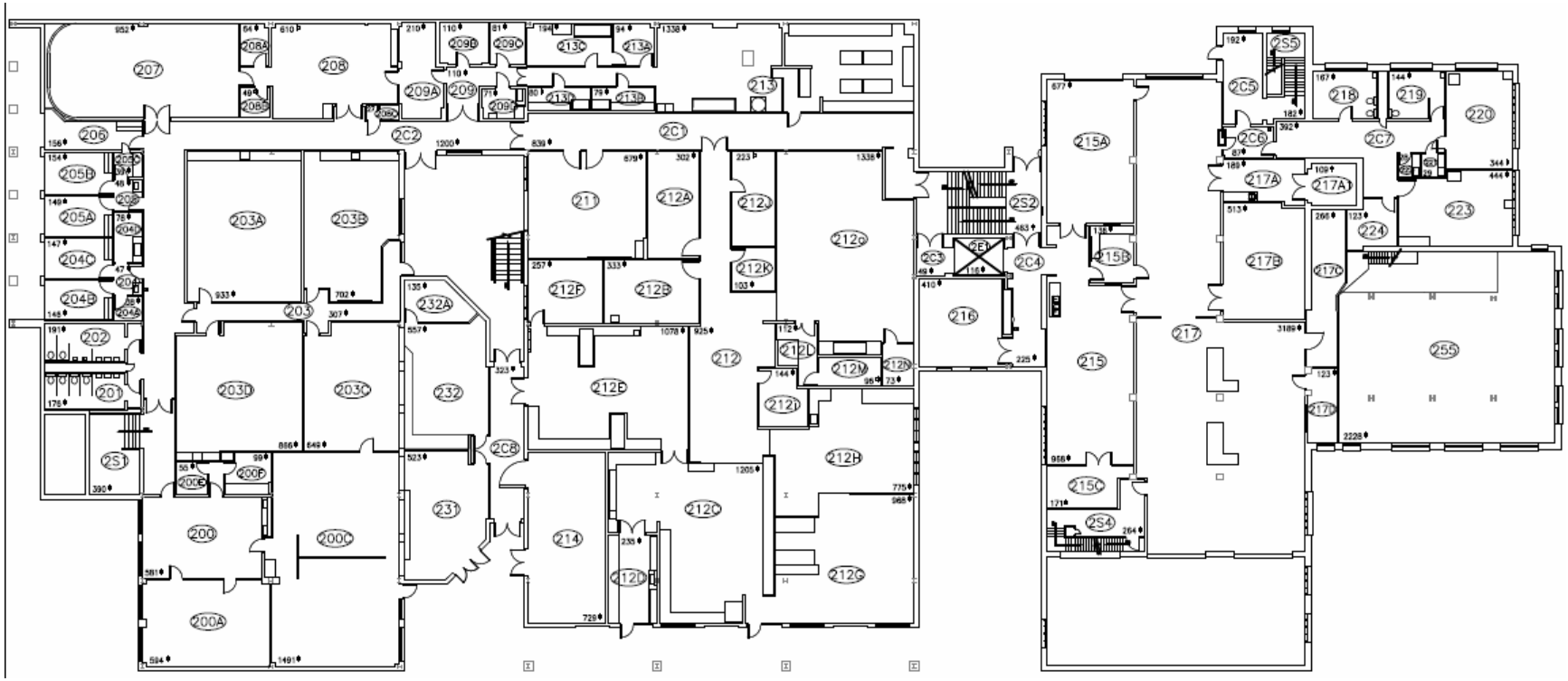
Existing Basement Plan



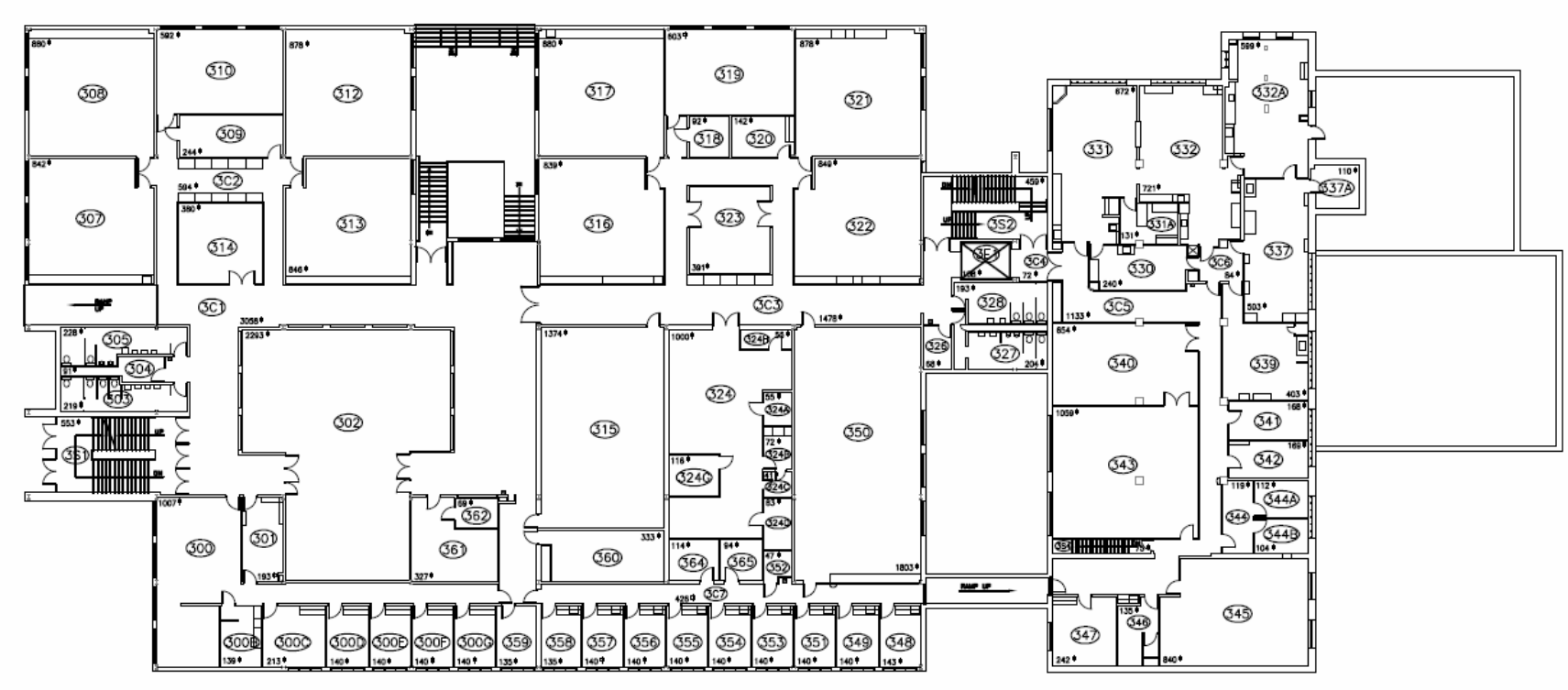
Existing First Floor Plan



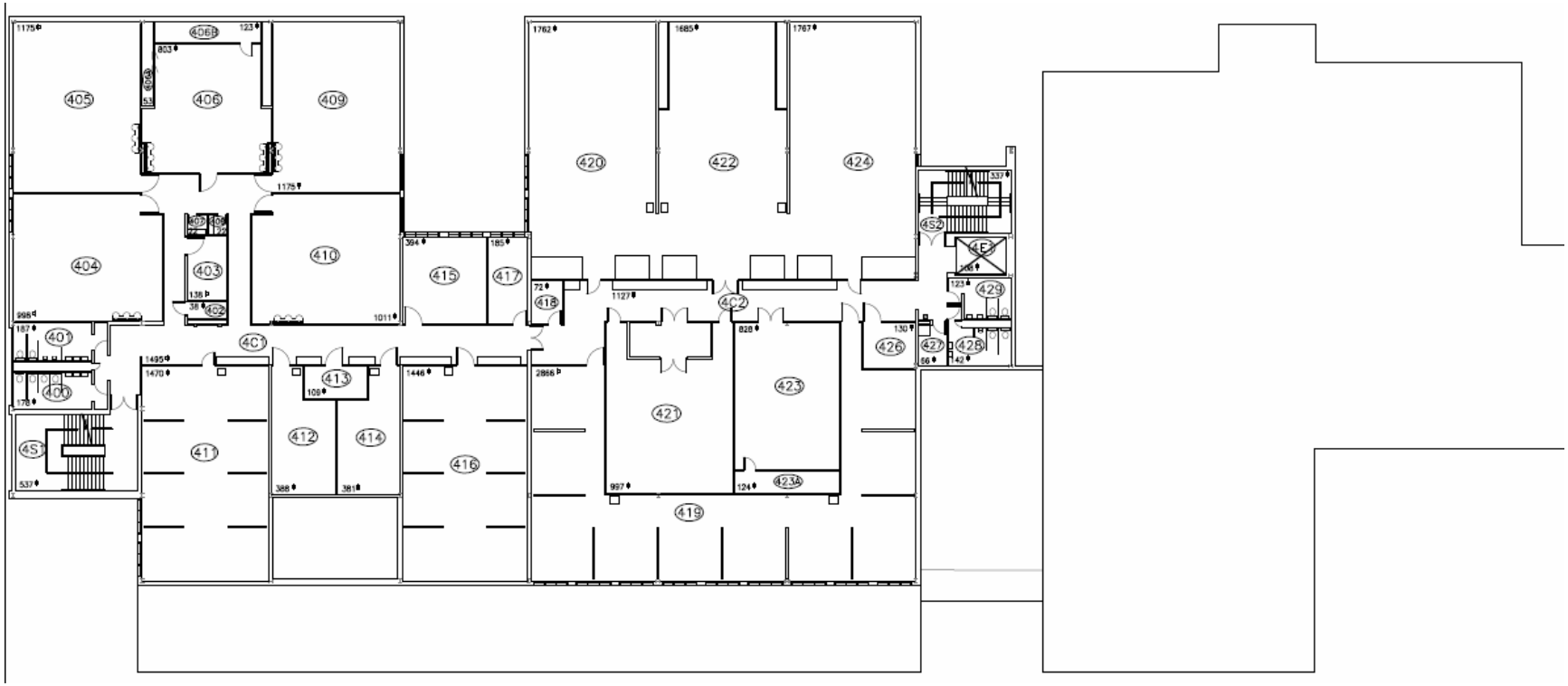
Existing Second Floor Plan



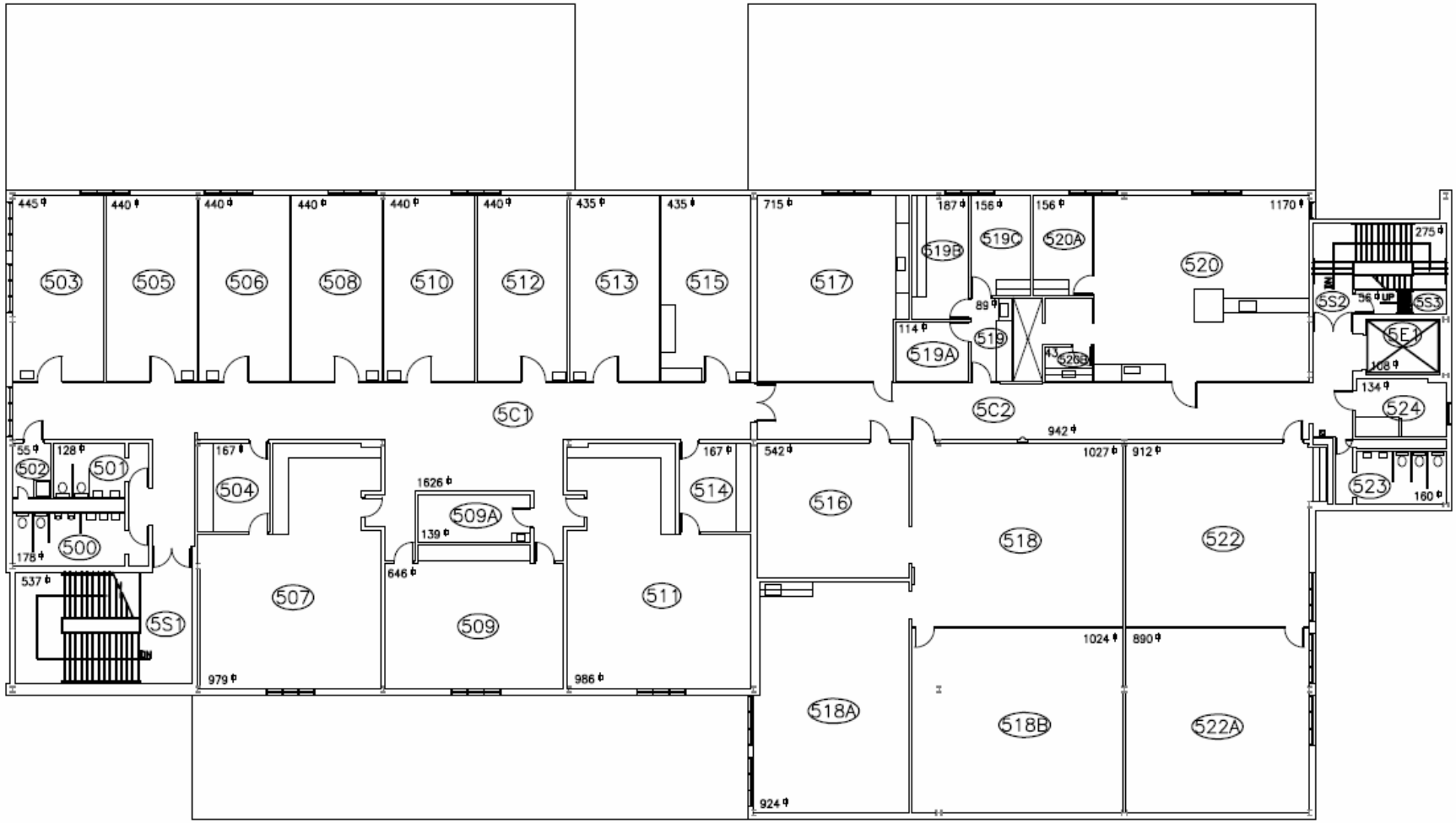
Existing Third Floor Plan



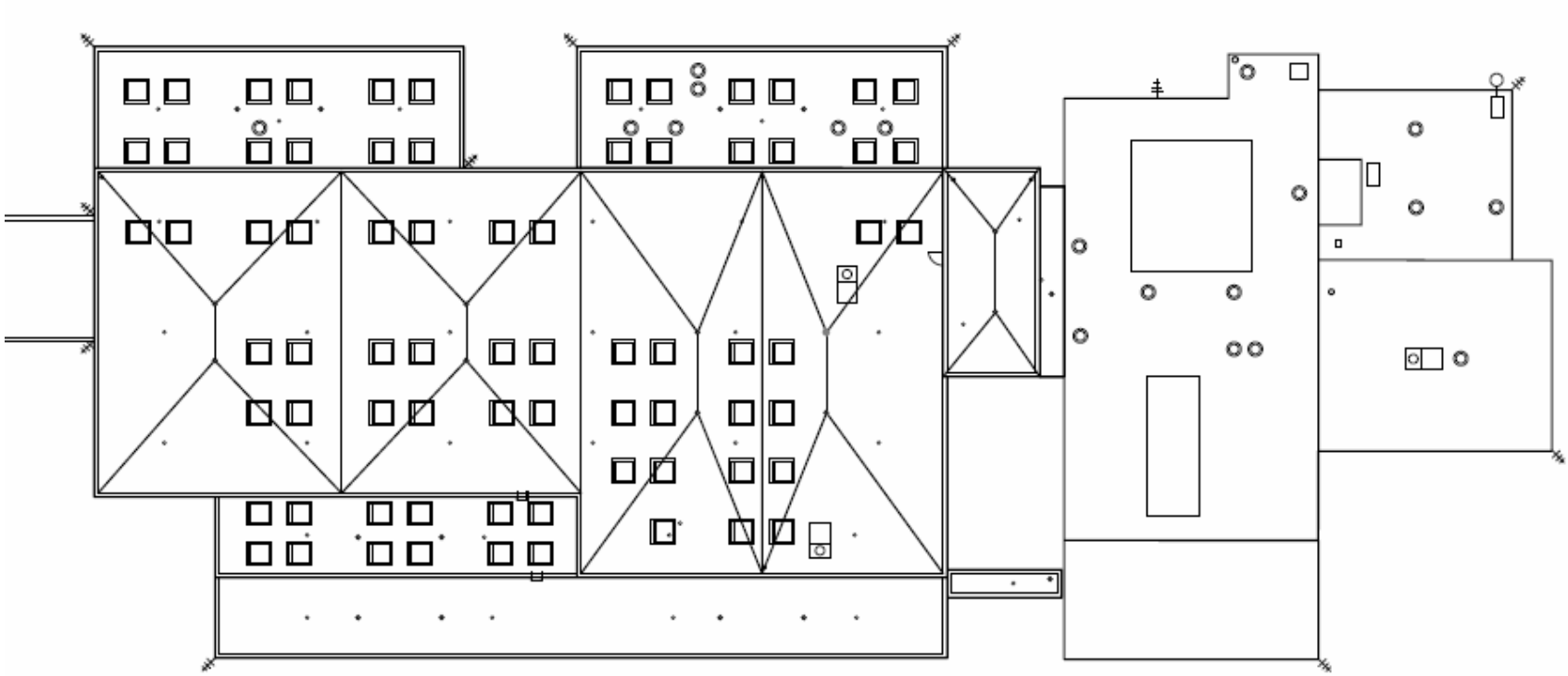
Existing Fourth Floor Plan



Existing Fifth Floor Plan



Existing Roof Plan



Architectural Program

Lindley Hall - HVAC Improvements

(A Deferred Maintenance, Repair & Rehabilitation Project)

KU Project No. 042-5481

Date: March 31, 2014

Prepared by:

The University of Kansas, Lawrence Campus

Office of Design & Construction Management

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Gary Mohr, DCM Project Manager

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Introduction

The Lindley Hall located at 1475 Jayhawk Blvd was constructed in 1943. The building houses classrooms, labs, and staff offices for the geology and geography departments and the Paleontological Institute.

The existing mechanical equipment serving Lindley Hall is beyond service life and in need of replacement and upgrading except as noted.

Project Overview

Existing Mechanical System

The existing mechanical system consists of four cooling only central station air handling units located in penthouses with direct expansion cooling provided by roof mounted air-cooled condensing units.

Air from the central air handling units is distributed to cooling only, shut-off type variable air volume terminals throughout the building.

A single zone direct expansion rooftop unit serves the fourth floor lecture hall (room 412). The central air conditioning was added to the entire building in approximately 1980.

The package rooftop unit was added in 1994 and a split system make-up air unit was added in 1995 to serve room 301.

Heating is provided by perimeter steam convectors with the exception of room 412.

Related Projects

Lz_f1-10382: District Chilled Water Plant – Lindley Hall, Art & Design Building and Marvin Hall

151-10381: Art and Design Building HVAC Improvements

Design Criteria and Goals

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

- Upgrade all mechanical systems serving the facility.
- Improve indoor air quality throughout the facility.
- Upgrade electrical distribution serving mechanical systems.
- Comply with KU design standards for energy conservation.
- Address life safety issues and meet current code requirements.
- Develop phased implementation plan to minimize impact on the facilities daily operations and mission.

Space and Program Needs

Proposed improvements include the following items, which will be prioritized in collaboration with KU and which shall be completed to the extent that current funding allows. Alternate bids will be taken for flexibility in bid awards & overall phasing.

Mechanical

- Replace (4) air handling units, package rooftop unit, make-up air unit and terminal units including controls. New equipment should utilize chilled water as the cooling medium (from district chilled water plant).
- Upgrade for space heating systems and provide year round ventilation to comply with ASHRAE Standards.
- Evaluate condition of existing distribution ductwork.
- Evaluate existing lab ventilation systems and make recommendations for upgrades/replacement as needed.

- Extend chilled water from district chilled water plant to mechanical equipment.

Electrical

- Upgrade electrical distribution serving mechanical systems as required.

Telecommunications & Security

- New data ports as needed to service control system.
- Security cameras shall remain or be relocated.
- Access control systems shall remain as-is.

Site Improvements & Infrastructure

Site Improvements

- No exterior sitework is proposed in the current project scope.

Utilities & Infrastructure

- Extension of chilled water service from the district chilled water plant is included in this work. No other modifications or extensions of the utility services to this building are anticipated as part of this work.
    - Existing mechanical / electrical equipment serving un-disturbed portions of the building 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 DCM and FS 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 the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

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

Deferred Maintenance

The Art & Design Building is considered a mission-critical facility by the Board of Regents, and was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 74

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.06

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work: The currently proposed project will address, at least in part, the following items which have been identified as deferred maintenance needs:

- HVAC and Electrical System Improvements

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 & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the A/E on DCM's standard 11x17 code footprint sheets.
  - A/E shall update these drawings to reflect all proposed work and submit them for approval to OFPM thru DCM/UFMA, immediately following approval of the Schematic Design 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 fire sprinkler system shall be modified as required to maintain coverage throughout the building.
- Fire alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- Project scope will include any code or ADA-related improvements that are required in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

Design Standards / Consultant Services

The architectural/engineering (A/E) 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), posted online at DCM's website at: http://www.dcm.ku.edu/standards

  - The A/E team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
  - The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.
- The Owner's 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:
  - Telecommunications Engineer (KU-IT pre-approved)
  - Acoustical Engineer (to evaluate & advise on M/E sound isolation provisions)
- Electronic Files: Consultants shall deliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.
  - 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.
- Program Verification: A/E shall review and confirm all program needs with KU client/DCM, and shall reconcile the proposed project scope with the available funding.

- Contract: Since this project is considered to be state funded, A/E selection and contracting will be via State of Kansas, using OFPM's standard form of contract.

University Energy Policy

The University is engaged in ongoing reviews of campus energy use and sustainability plans and policies, and has adopted an *Energy Policy* that includes requirements for projects to be designed and constructed so as to minimize energy use. The full policy is found at the KU Policy Library: https://documents.ku.edu/policies/provost/EnergyPolicy.htm#measures. The consultant shall become acquainted with this policy in its entirety.

- The following excerpt is from paragraph III-B *New Construction* of the *Energy Policy*. The design requirements included in this excerpt shall be considered project requirements.

  New construction [and major renovations, where feasible] should be designed and built to minimize energy use. The most recent version of ASHRAE Standard 90.1 - Energy Efficient Design of New Buildings except Low Rise Residential Buildings should be set as the minimum energy efficiency guideline, since it has been shown that further reductions in energy use are economically achievable. The current KU standard for new construction is 30% improvement on ASHRAE 90.1. The design process should include energy life cycle costing analyses. New construction should be added to the existing building automated control system for enhanced energy management capabilities. Alternative energy sources such as passive solar heating and heat recovery should be considered, as well as daylighting and other strategies for decreasing building energy consumption. Primary consideration should be given to connecting and/or extending central systems for heating, cooling and other mechanical systems. Year-round cooling needs should be met by utilizing the most energy efficient systems, for example plate-and-frame heat exchangers versus less efficient air-cooled systems. All new construction should include utility metering (electricity, natural gas, steam, and water).

- With regard to the University's expectations for sustainable designs, the current University Sustainability Plan, issued July 2011 can be found at: http://www.provost.ku.edu/pdf/sustainability-plan.pdf, and includes the following action step:

  Within the next year, establish a standards advisory board to update existing standards, with a goal of requiring all new construction and major renovation to meet or exceed minimum LEED Silver criteria by 2015.

  There is no specific funding identified within the budget of this project to account for incremental project costs that might arise from designing to meet LEED Silver criteria. However, the consultant should become familiar with both University sustainability policy and LEED criteria and is expected to identify design opportunities for University consideration during completion of schematic design.

- Regarding the *Energy Policy's* reference to preparation of an energy life cycle costing analysis, the University's expectation is that the consultant will, as part of the schematic design, include life cycle cost analysis of at least three alternatives for HVAC system improvements that are feasible solutions within this building.

- The consultant will be expected to provide the University with recommendations based on energy efficiency, costs, and O&M considerations. Costs should include life-cycle analyses.

Major Equipment Pre-Purchase Packages

The consultant team will be expected to assist with finalizing specification information and review of subsequent submittal information for the certain equipment, which the University expects to purchase directly and turn over to the successful bidding contractor for installation. Examples of equipment candidates for strategic sourcing include:

- Central Station Air Handling Units

- Secondary Recirculating Heating and/or Chilled Water Pumps
- Steam-to-Hot Water Converter for building recirculating heating water and/or domestic potable water needs

Construction Bid Document Preparation

The consultant shall prepare a consolidated set of construction drawings and specifications that encompass all anticipated work, i.e. sprinkler system (if applicable), mechanical system improvements, related electrical improvements and building envelope or interior space modifications or improvements.

The anticipated design sequence will follow requirements of Chapter 12 of the State Office of Facilities and Property Management's (OFPM) Building Design and Construction Manual. At a minimum, the following milestones are anticipated:

- Schematic Design Review
- Design Development Review
- 50% Construction Document Review
- 100% Construction Document Review

Construction Phase Submittal Requirements

The University is investigating options for enhancement of its existing Computerized Maintenance Management System (CMMS). Specific objectives for the use of the enhanced system are being developed at this time. It is anticipated that an important component of the upgraded system will be the ability to directly import construction phase equipment submittal data into the asset management module of the CMMS.

During the design phase of this project, the consultant will be expected to become familiar with the University's CMMS so that appropriate specifications can be prepared to clearly convey to bidding contractors the University's expectations for format and delivery of project submittal data.

The consultant should anticipate that, at a minimum, the University will require Submittals and O&M information be provided in electronic PDF format for all materials and equipment, for incorporation into the University's asset management system.

Historic Preservation Reviews

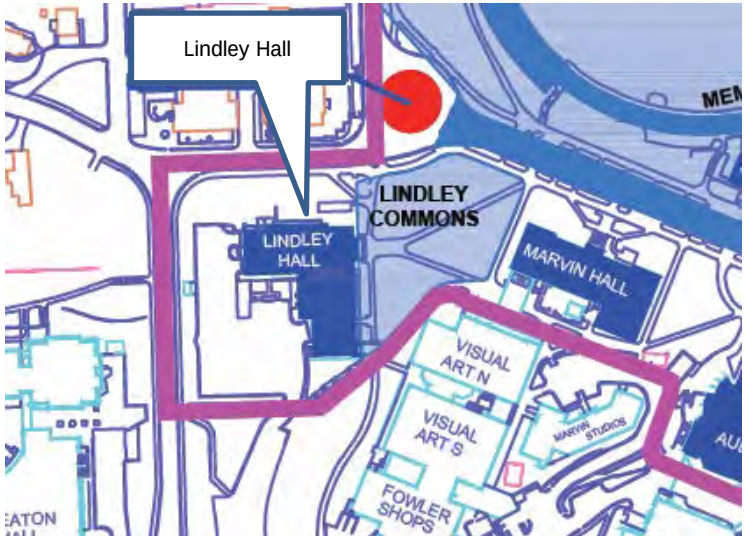
Projects on the KU Lawrence campus that are within a KU building listed on the State or National Register of Historic Places, or within one of KU's Historic Districts, require administrative review by DCM staff or full review by DCM staff and the Campus Historic Preservation Board (CHPB).

The Kansas Legislature repealed the 500' historic environs reviews in 2013, and although the City of Lawrence still requires environs reviews within 250' of properties listed on the City's historic register, KU projects within the City's 250' environs limits are not subject to review if on State property.

A copy of the KU Historic District Map can be viewed online at the DCM website, KU Buildings page. An excerpt can be viewed on the next page.

The City's environs limits can be viewed on the Lawrence Interactive City Map.

Note: This project is located within a listed Historic District, in a building that is a contributing resource, so historic preservation compliance reviews will be required, as applicable.



KU - City Cooperation Agreement

KU and the City of Lawrence entered into a jointly-beneficial Cooperation Agreement in April 2005. It designated a compatibility buffer zone that extends 150' deep onto KU's property from the primary exterior boundary of KU's property.

New construction on the KU Lawrence campus within the 150' buffer zone must comply with designated City land-use regulations, standards and requirements.

Note: This project is located within the 150' buffer zone, and compliance with the following shall be required, as applicable:

- Potable water service, wastewater service and stormwater management and detention.
- City requirements for public rights-of-way, curb cuts and similar traffic measures.
- Height restrictions (building height no greater than setback distance from nearest City ROW).
- City off-street parking requirements, with specific exceptions as noted in agreement.
- Impact analysis, which may include vehicle & pedestrian traffic, noise, lighting, service areas, HVAC units.
- Reviews with ad hoc Community Program Advisory Committee (including representatives from adjacent property owners, neighborhood associations, City & KU personnel).
- Notifications to City prior to start of construction activities.

Impact on Overall Campus Space

This project is a renovation / remodel of an existing building, and will not add to or remove any space from the University's space inventory.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources or new private resources. No new state funding will be required to cover any of these costs.

Proposed Project Delivery Process

Competitive Bid

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

Project Budget

Construction Costs	
HVAC	1,900,000
Electrical	100,000
Controls	300,000
Code/ADA-Required Improvements	TBD (as required)
Subtotal - Construction Costs	**$2,300,000**
Miscellaneous Costs	
Fees - Consultants, State & KU Agencies, IRF	350,000
Printing & Shipping of Bid Documents; Misc.	10,000
Asbestos & HazMat Abatement (scope TBD)	40,000
Construction Testing & M/E Commissioning	70,000
Bidding & Construction Contingency (6%)	180,000
Subtotal - Miscellaneous Costs	**$650,000**
Total Project Cost	**$2,950,000**

Notes:

1) Funding is proposed to be from revenue bonds, which will be paid off during a five-year period using EBF funds.
2) Funding is available in current fiscal year (FY 2015) for design. Construction will be funded in future fiscal year(s).

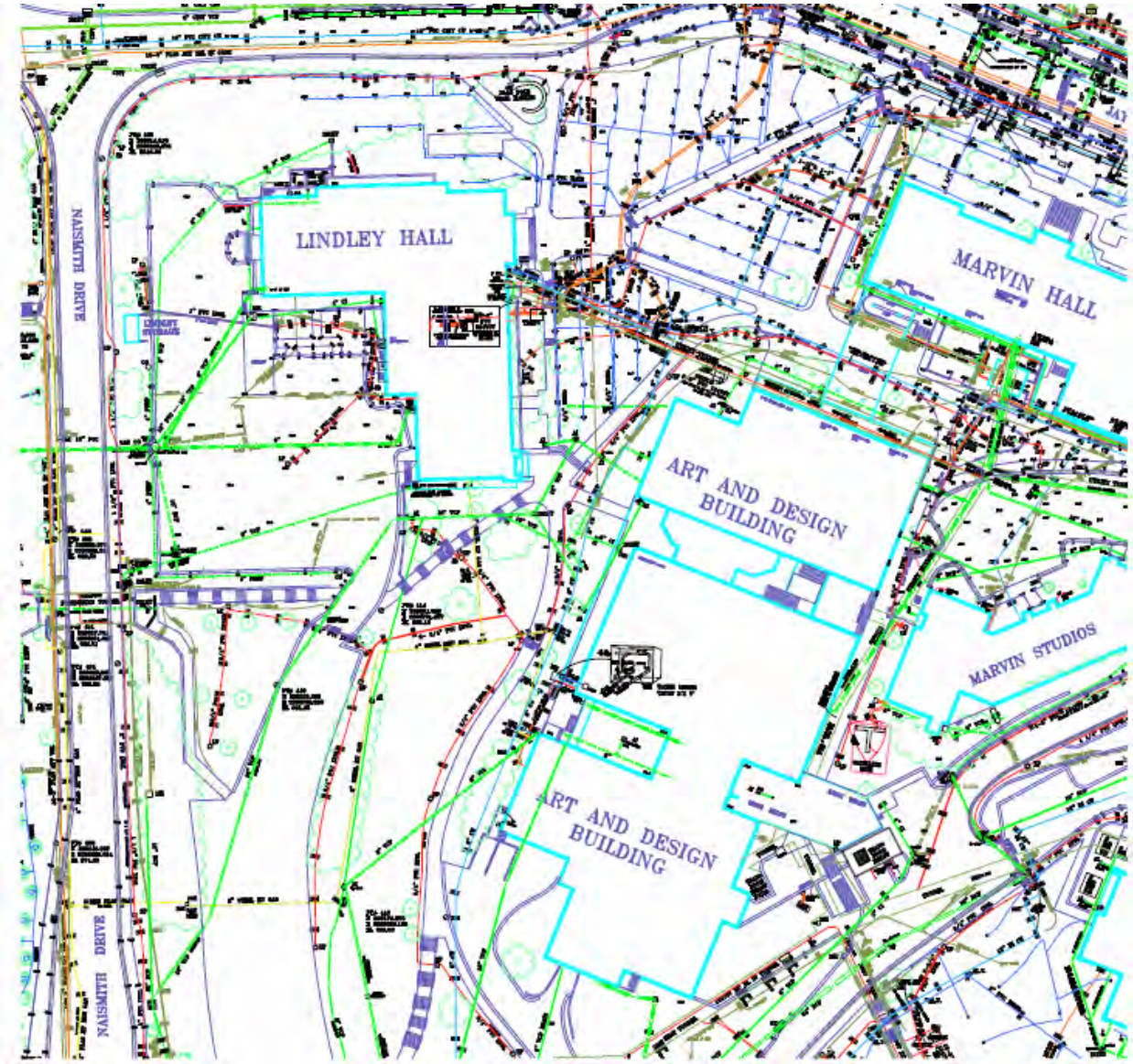
Project Schedule

KU Capital Projects Council Review & Approval	Nov. 2013
KBOR Review & Approval	April 2014
Joint Legislative Committee on State Building Construction Review	Fall 2014
A/E Selection	July 2014
Negotiate Fees / Contract	Aug. 2014
Start Design	Sept. 2014
Complete CD's, submit for permit (5 mos.)	April 2015
Receive Bids; Award Contract	July 2015
Construction Starts	Aug. 2015
Construction Completion (8 Mos.)	April 2016

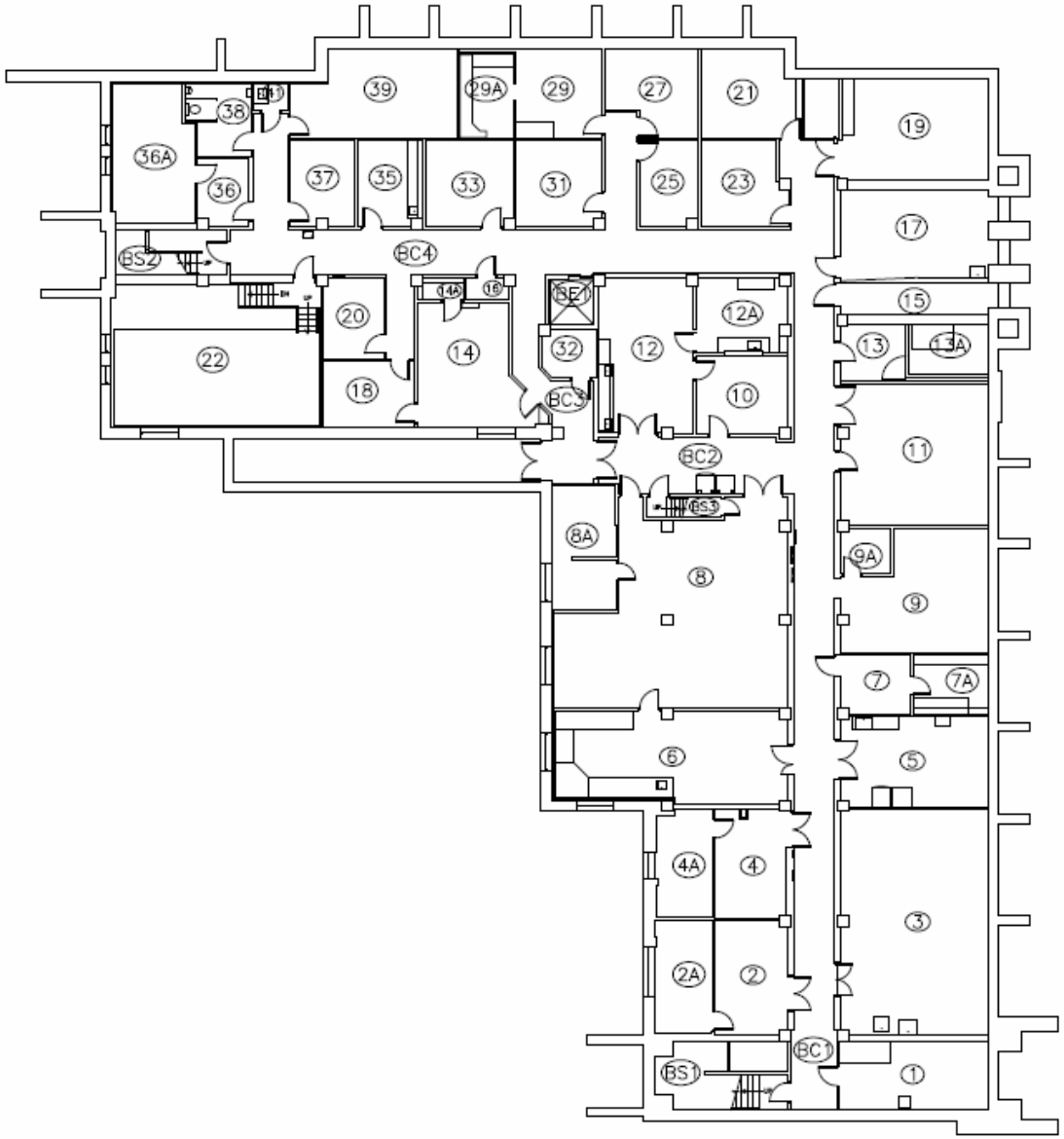
Notes:

1) The dates for issuance of construction documents for bidding and construction are dependent on confirmed funding (TBD) in current or future fiscal years.

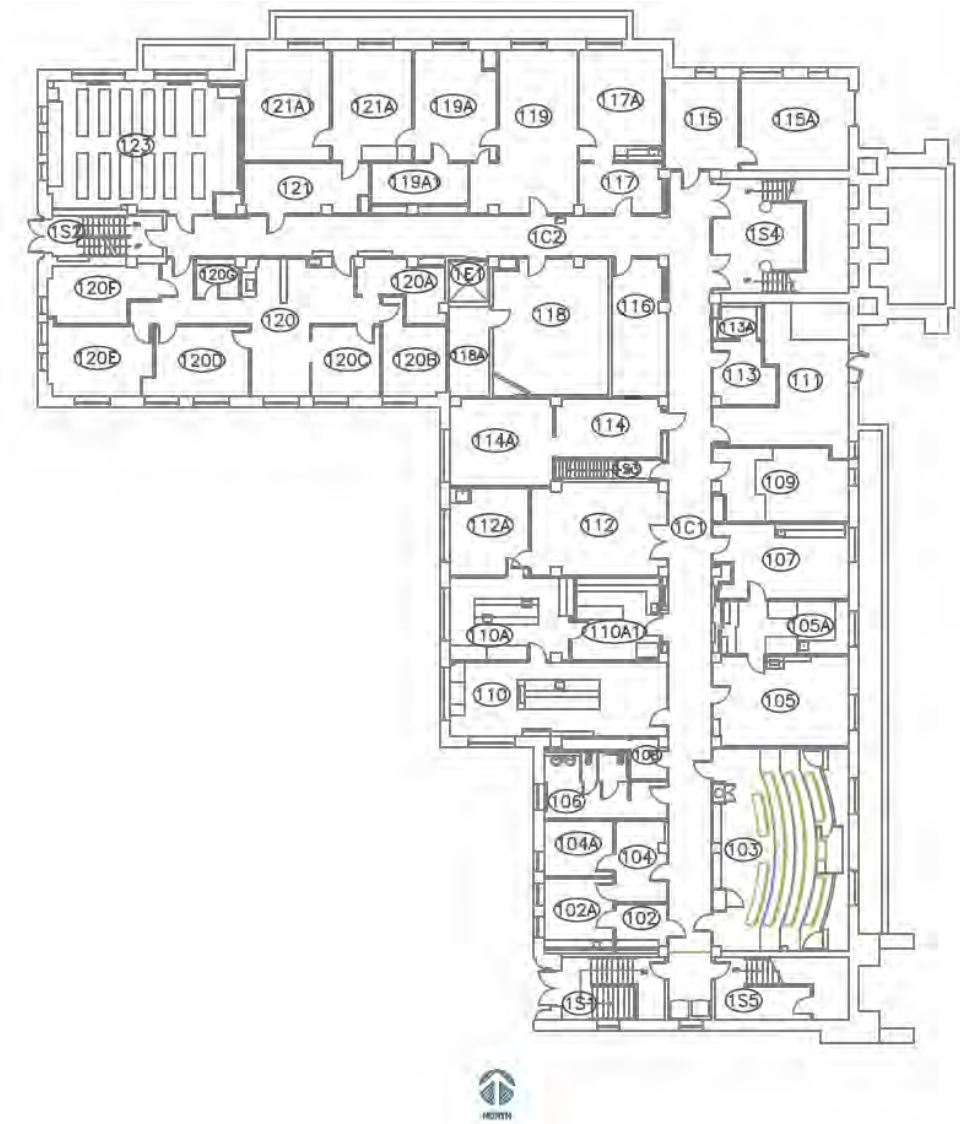
Existing Site Plan



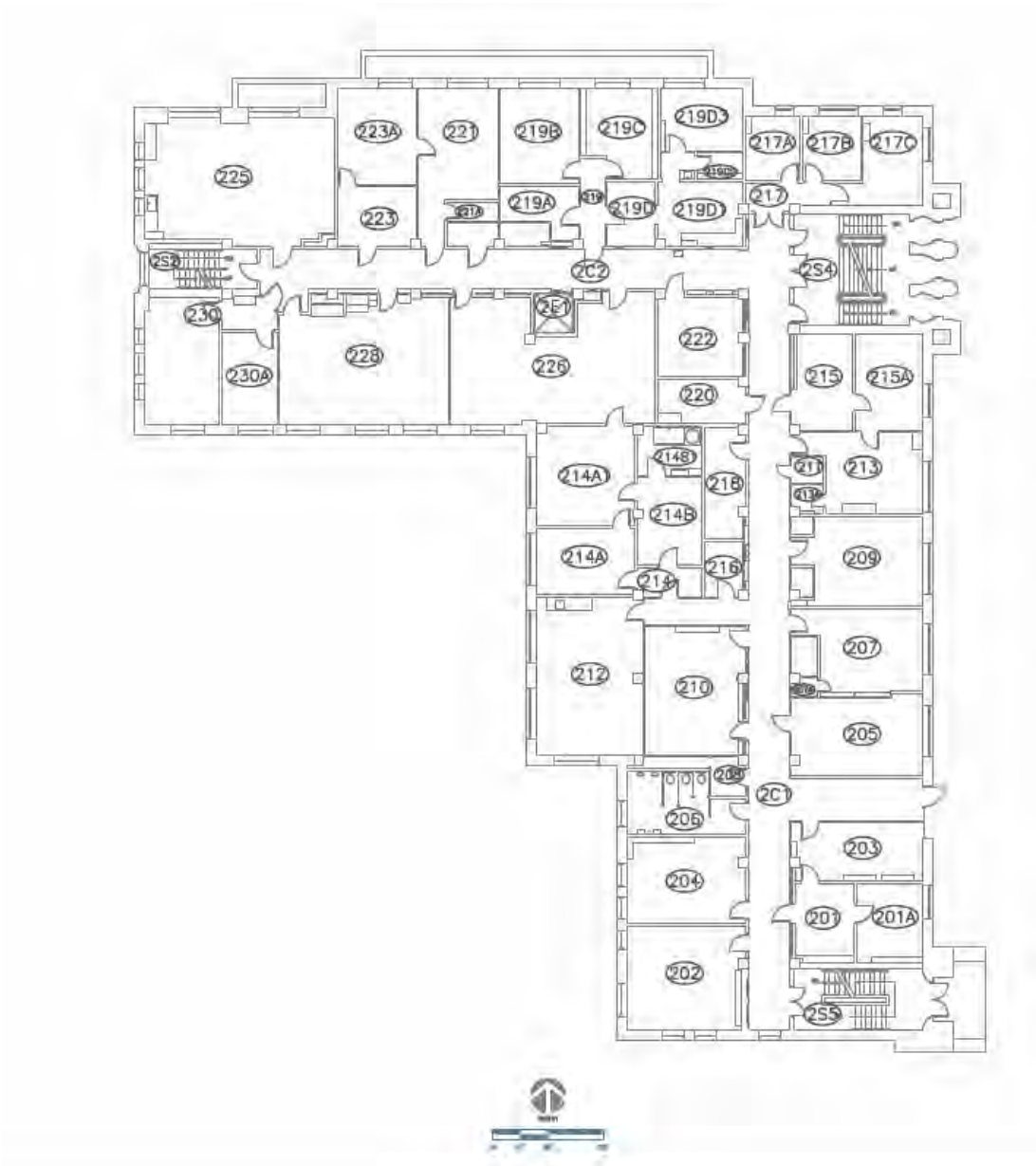
Existing Basement Plan



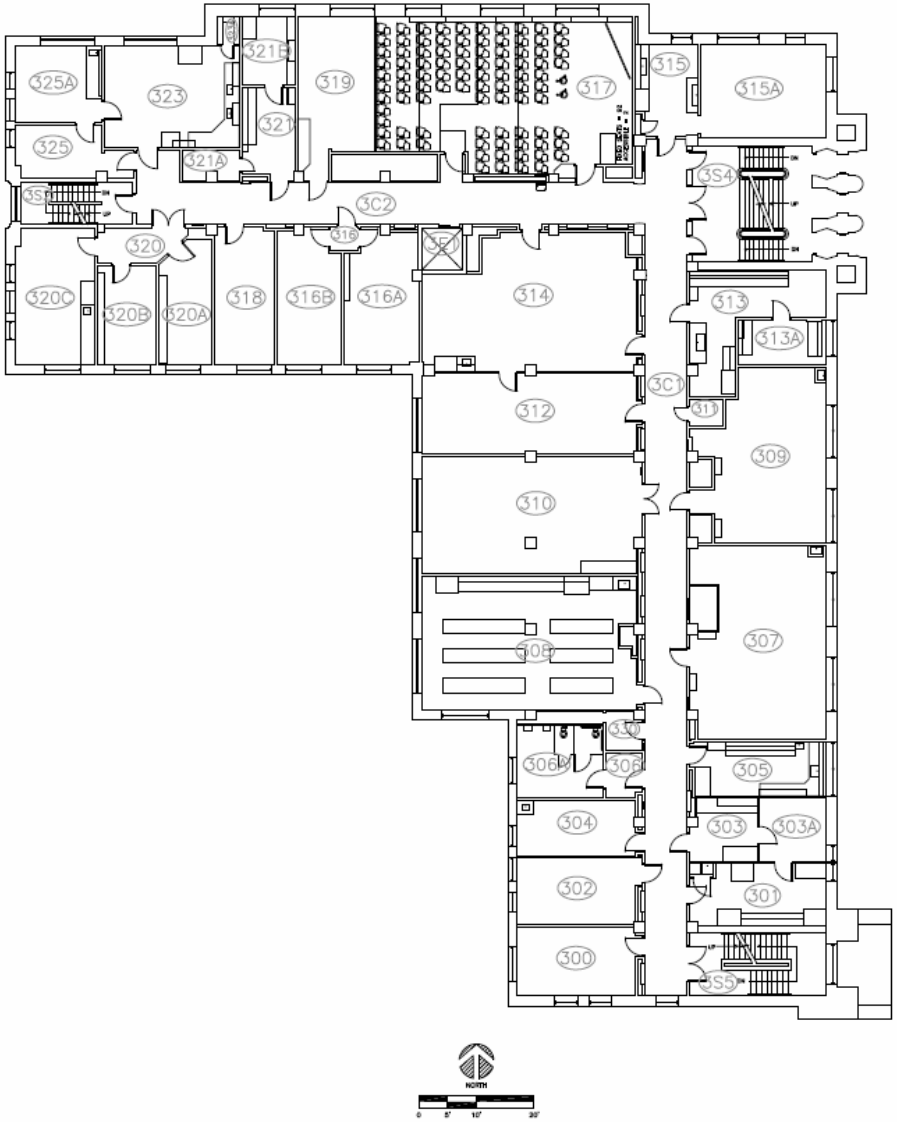
Existing First Floor Plan



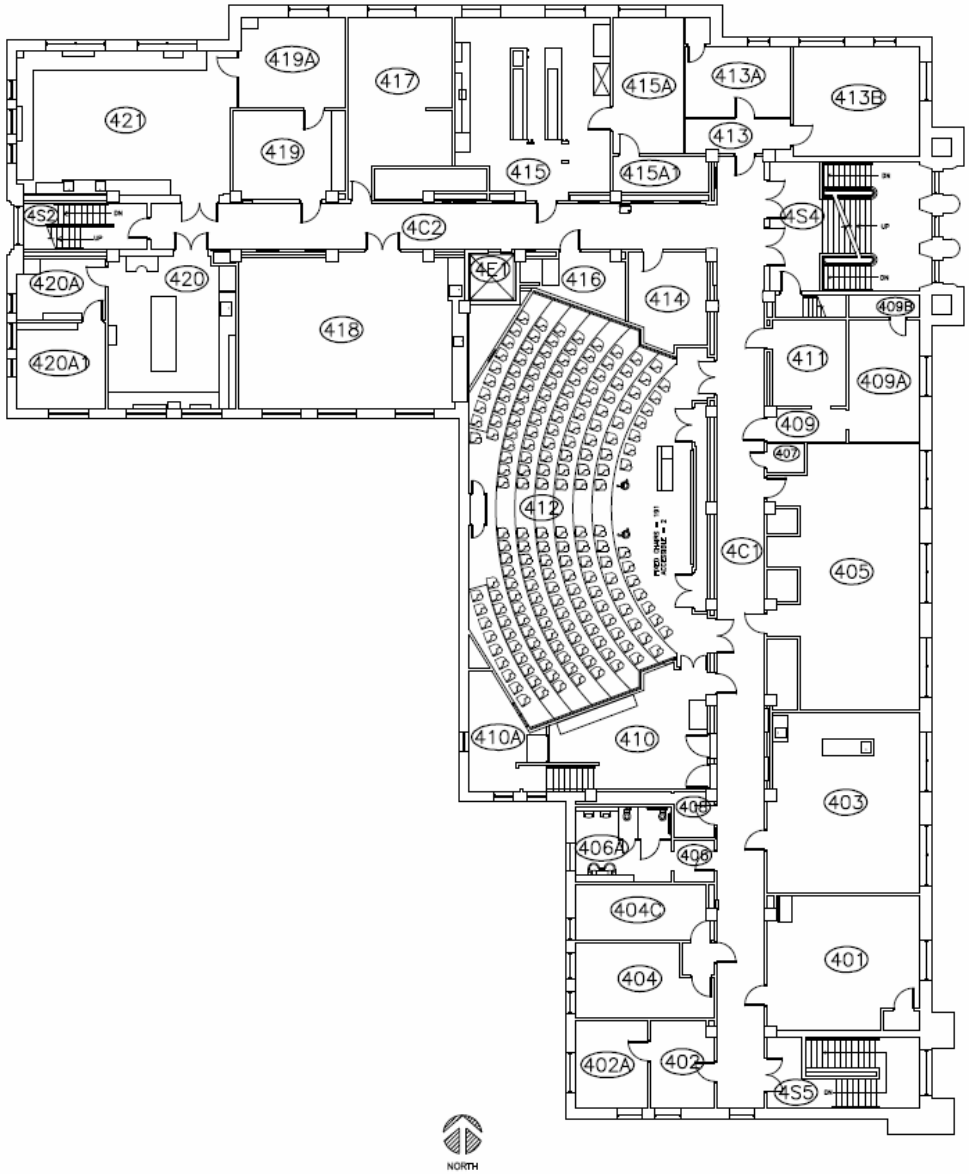
Existing Second Floor Plan



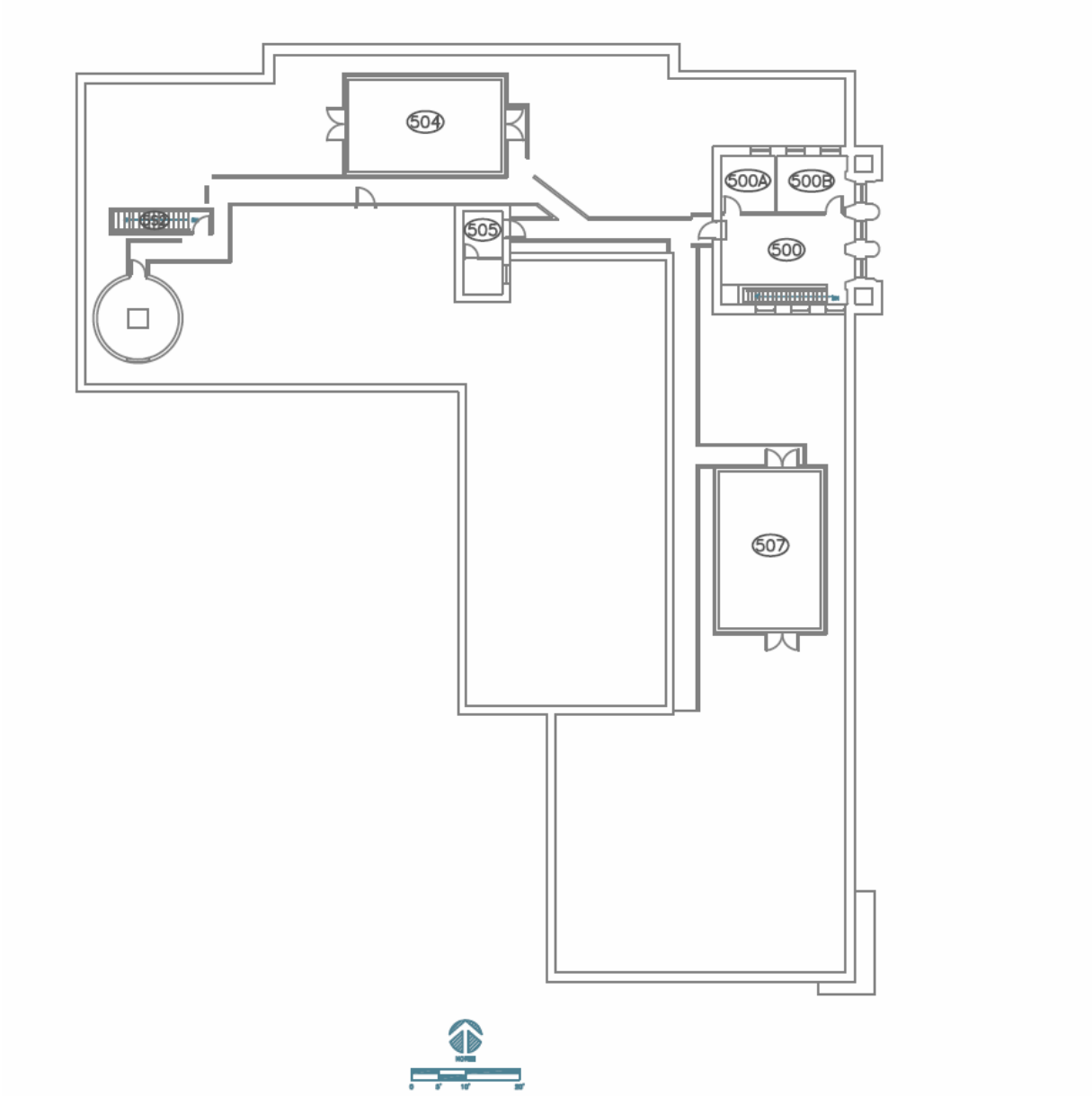
Existing Third Floor Plan



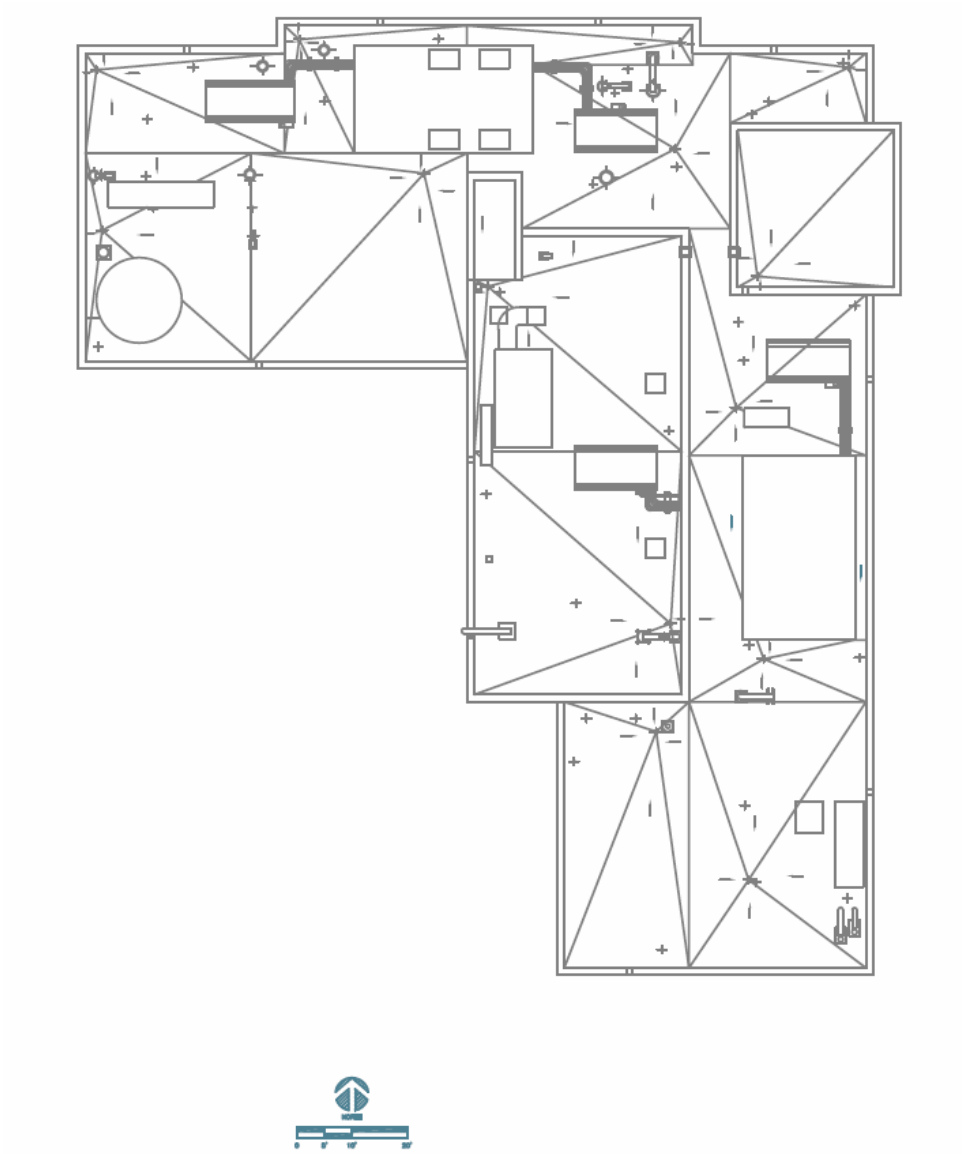
Existing Fourth Floor Plan



Existing Penthouse Plan



Existing Roof Plan



Architectural Program

District Chilled Water Plant

Serving Lindley Hall, Marvin Hall, and Art & Design Building

KU Project No. LzF1-10382

Date: March 31, 2014

Prepared by:

The University of Kansas, Lawrence Campus

Office of Design & Construction Management

Programming Committee

Jim Modig, University Architect & Director, DCM

Paul Graves, Deputy Director, DCM

Steve Scannell, Asst. Director-Consultant Services, DCM

Gary Mohr, DCM Project Manager

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Introduction

Buildings on the KU Lawrence Campus have traditionally been cooled by stand-alone, building-based systems. In an effort to improve operational and energy efficiency, the University has begun moving towards district chilled water plants to serve clustered groups of buildings.

This project will develop a district chilled water (CHW) plant to serve Lindley Hall, Marvin Hall, Art and Design Building and the proposed Earth, Energy and Environment Center buildings.

The existing buildings proposed to be in this chilled water district have outdated, inefficient cooling equipment which needs to be replaced. Many of the existing equipment rooms have exceeded their physical capacity, and are physically not able to be retrofitted with current equipment and central systems within currently available spaces.

Project Overview

Existing Mechanical Systems

The Art and Design Building and Marvin Hall are currently served by single, building-based chiller systems. Lindley Hall is served by air cooled direct expansion systems.

The related projects listed below will replace and upgrade mechanical systems serving Lindley Hall and the Art and Design Building. It is anticipated that new air handling equipment in both buildings will utilize chilled water generated by the district chilled water plant.

Related KU Projects

#042-5481: Lindley Hall - HVAC Improvements

#151-10381: Art and Design Building - HVAC Improvements

Design Criteria and Goals

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

- Provide reliable, energy efficient source of chilled water to serve existing and proposed buildings.
- Provide redundancy to minimize potential for single point of failure; ideally as N+1.
- Provide all required utilities and infrastructure.
- Provide variable volume chilled water distribution to facilities served by the district chilled water plant.
- Comply with KU design standards for energy conservation.
- Address life safety issues and meet current code requirements.
- Determine optimum location for district chilled water plant.
- Provide additional capacity, and/or ability to add capacity, to serve other current or future facilities, which may include:
    - Murphy Hall
    - Summerfield Hall
    - Others to be determined

Space and Program Needs

Proposed improvements include the following items, which will be prioritized in collaboration with KU and which shall be completed to the extent that current funding allows. Alternate bids will be taken for flexibility in bid awards & overall phasing.

Mechanical

- Evaluate optimum location for chiller plant and supporting infrastructure, develop options and submit for KU consideration. Locations/options to be considered:
  - Existing Art & Design Building space or addition.
  - New stand-alone building adjacent to the buildings being served.
  - Addition to the proposed EEEC1 building, which is anticipated to proceed on a concurrent timeline.
- Select chiller plant equipment and distribution design on the basis of life-cycle cost analysis. Options shall include but not be limited to chiller type and energy recovery opportunities.
- Extend chilled water distribution system from district chilled water plant to buildings being served.
- Evaluate options for connection of distribution system to existing chilled water system serving Budig Hall.
- Develop phased implementation plan as required to meet the schedule for related projects and minimize disruption of services to affected buildings.
- Conceptual capacity estimate for the fully configured plant is approximately 1900 tons. The consultant will verify required capacity to provide firm capacity to satisfy connected loads.

Electrical

- Provide electric service to the chiller plant including medium voltage distribution, service transformer and building power and lighting.

Telecommunications, Life Safety & Security

- Extend connectivity to the new facility.
- Provide fire sprinkler and fire alarm systems in accordance with published KU design standards.

Site Improvements & Infrastructure

Site Improvements

- To be determined based on selected location of the district chilled water plant.

Utilities & Infrastructure

- Extension of required utility services including water, sanitary and storm sewer, electric service, telecommunications and chilled water distribution is included in this work.
- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with DCM and FS 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 the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

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

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  There is no specific funding identified within the budget of this project to account for incremental project costs that might arise from designing to meet LEED Silver criteria. However, the consultant should become familiar with both University sustainability policy and LEED criteria and is expected to identify design opportunities for University consideration during completion of schematic design.

- Regarding the *Energy Policy's* reference to preparation of an energy life cycle costing analysis, the University's expectation is that the consultant will, as part of the schematic design, include life cycle cost analysis of at least three alternatives for HVAC system improvements that are feasible solutions within Strong Hall.
  The consultant will be expected to provide the University with recommendations based on energy efficiency, costs, and O&M considerations. Costs should include life-cycle analyses.

Major Equipment Pre-Purchase Packages

The consultant team will be expected to assist with finalizing specification information and review of subsequent submittal information for the certain equipment, which the University expects to purchase directly and turn over to the successful bidding contractor for installation. Examples of equipment candidates for strategic sourcing include:

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- Schematic Design Review
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- 100% Construction Document Review

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During the design phase of this project, the consultant will be expected to become familiar with the University's CMMS so that appropriate specifications can be prepared to clearly convey to bidding contractors the University's expectations for format and delivery of project submittal data.

The consultant should anticipate that, at a minimum, the University will require Submittals and O&M information be provided in electronic PDF format for all materials and equipment, for incorporation into the University's asset management system.

Construction Administration

The consultant will be expected to provide construction administration (CA) services during the construction phase of the project. CA service requirements will follow requirements of the OFPM Building Design and Construction Manual.

Historic Preservation Reviews

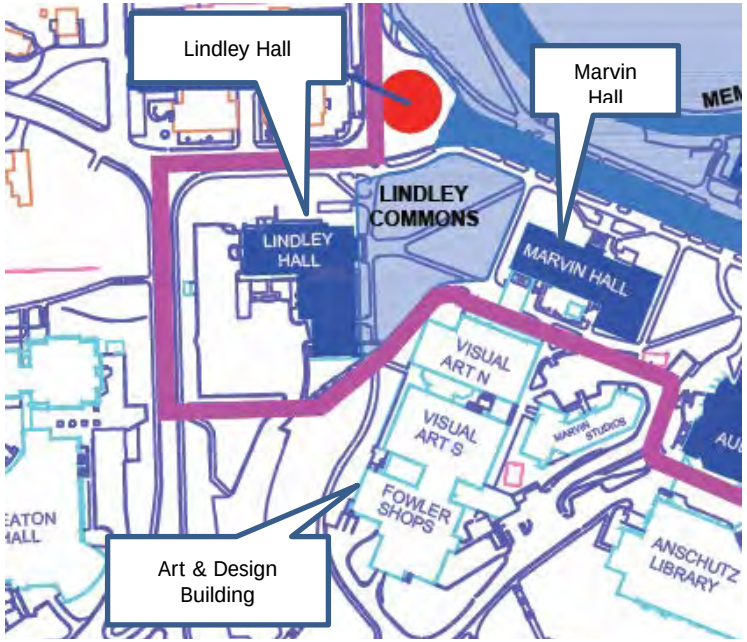
Projects on the KU Lawrence campus that are within a KU building listed on the State or National Register of Historic Places, or within one of KU's Historic Districts, require administrative review by DCM staff or full review by DCM staff and the Campus Historic Preservation Board (CHPB).

The Kansas Legislature repealed the 500' historic environs reviews in 2013, and although the City of Lawrence still requires environs reviews within 250' of properties listed on the City's historic register, KU projects within the City's 250' environs limits are not subject to review if on State property.

A copy of the KU Historic District Map can be viewed online at the DCM website, KU Buildings page. (Excerpt can be viewed on next page.)

The City's environs limits can be viewed on the Lawrence Interactive City Map.

Note: This project may be located within a listed KU Historic District, possibly in or as an addition to a building that is a contributing resource, so historic preservation compliance reviews may be required, as applicable.



KU - City Cooperation Agreement

KU and the City of Lawrence entered into a jointly-beneficial Cooperation Agreement in April 2005. It designated a compatibility buffer zone that extends 150' deep onto KU's property from the primary exterior boundary of KU's property.

New construction on the KU Lawrence campus within the 150' buffer zone must comply with designated City land-use regulations, standards and requirements.

Note: This project may located within the 150' buffer zone, and if it is, compliance with the following shall be required, as applicable:

- Potable water service, wastewater service and stormwater management and detention.
- City requirements for public rights-of-way, curb cuts and similar traffic measures.
- Height restrictions (building height no greater than setback distance from nearest City ROW).
- City off-street parking requirements, with specific exceptions as noted in agreement.
- Impact analysis, which may include vehicle & pedestrian traffic, noise, lighting, service areas, HVAC units.
- Reviews with ad hoc Community Program Advisory Committee (including representatives from adjacent property owners, neighborhood associations, City & KU personnel).
- Notifications to City prior to start of construction activities.

Impact on Overall Campus Space

This project is a renovation / remodel of an existing building, and will not add to or remove any space from the University's space inventory.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources or new private resources. No new state funding will be required to cover any of these costs.

Proposed Project Delivery Process

Competitive Bid

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

Project Budget

Construction Costs	
MEP (incl. CHW distribution)	4,100,000
General Construction	500,000
Site	300,000
Code/ADA-Required Improvements	TBD (as required)
Subtotal - Construction Costs	**$4,900,000**
Miscellaneous Costs	
Fees - Consultants, State & KU Agencies, IRF	700,000
Printing & Shipping of Bid Documents; Misc.	20,000
Asbestos & HazMat Abatement (scope TBD)	30,000
Construction Testing & M/E Commissioning	100,000
Bidding & Construction Contingency (6%)	350,000
Subtotal - Miscellaneous Costs	**$1,200,000**
Total Project Cost	**$6,100,000**

Notes:

1) Funding is proposed to be from revenue bonds, which will be paid off during a five-year period using EBF funds.
2) Funding is available in current fiscal year (FY 2015) for design. Construction will be funded in future fiscal year(s).

Project Schedule

KU Capital Projects Council Review & Approval	Nov. 2013
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Joint Legislative Committee on State Building Construction Review	Fall 2014
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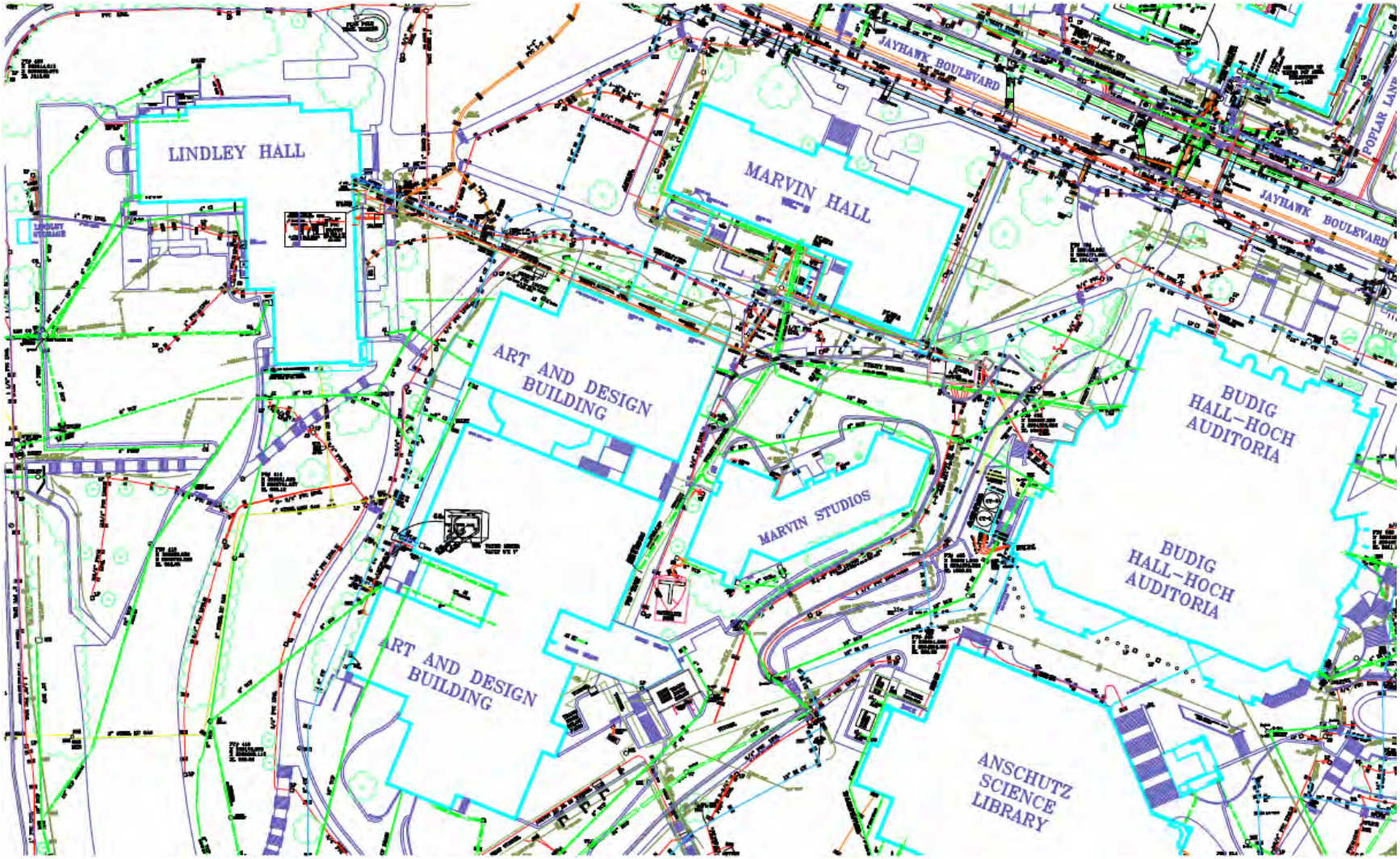
Receive Bids; Award Contract	July 2015
Construction Starts	Aug. 2015
Construction Completion (9 mos.)	May 2016

Notes:

1) The dates for issuance of construction documents for bidding and construction are dependent on confirmed funding (TBD) in current or future fiscal years.

Existing Site Plan



Architectural Program

Strong Hall – HVAC Improvements

(A Deferred Maintenance, Repair & Rehabilitation Project)

KU Project No. 037-5910

Date: March 31, 2014

Prepared by:

The University of Kansas, Lawrence Campus

Office of Design & Construction Management

Programming Committee

Tracy Horstman, Asst. Vice Provost for Capital Planning and Space Management (CPSM)

Jim Modig, University Architect & Director of Design and Construction Management (DCM)

Steve Scannell, Asst. Director-Consultant Services, DCM

Gary Lawson, DCM Project Manager

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Introduction

General Description

Strong Hall is located at 1450 Jayhawk Blvd., Lawrence, KS on the East Campus of the University of Kansas. The three (3) story building with basement was originally constructed in 1911. Due to budget constraints, original construction included only the east wing. Later construction added the west wing in 1918 and central section in 1923. Major renovations and upgrading were done in 1998. The facility has a total area of 176,070 gross square feet (GSF).

The building houses the offices and support staff for the chancellor, provost and registrar; the dean of the College of Liberal Arts and Sciences; the vice provosts for information services, for research and graduate studies, and for Student Success; the associate vice provosts for International Programs; the Academic Achievement and Access Center; University Governance; and several student programs and services in advising, tutoring, financial aid, and disability needs as well as some classrooms and auditorium, which are located on the third floor.

Historical Description

Surging enrollments after 1900 made a new administration and classroom building necessary, and Chancellor Frank H. Strong (1902-1920) began petitioning the legislature for funding. St. Louis architect Montrose Pallen McArdle was hired to design the building that Strong and the regents hoped would be “the center of the University architecture as well as the University life.” State Architect John Stanton, art professor William A. Griffith and College Dean Olin Templin advised.

McArdle’s grandiose, $500,000 Classical Renaissance design had pillars, a rotunda, an art gallery and a classical museum. The Legislature balked, and the plans were scaled back; although echoes of the original exist, it now has a Classical Revival style.

Construction began on the east wing of the Administration Building in 1909; it was occupied by seven departments in 1911. Due to budget constraints, “West Ad” and “Center Ad” were completed in stages, with the overall building completed in January 1924.

The 130-room building, faced in buff terra cotta, housed the Graduate School and the schools of fine arts and business; the departments of drawing/painting/design, psychology, mathematics, economics and philosophy; the chancellor’s and registrar’s offices; a chapel; and an auditorium. It was renamed for sixth chancellor Strong in 1934, after his death. In 1998 it was listed on the National Register of Historic Places. Major renovations and upgrading were completed in 1998.

Strong Hall now houses the offices and support staff for the chancellor, provost and registrar; the dean of the College of Liberal Arts & Sciences; senior vice provost for academic affairs; vice provosts for administration and finance, faculty development, graduate studies and student affairs; International Programs; the Academic Achievement and Access Center; University Governance; and several student programs and services in advising, tutoring, financial aid, and disability needs. The third-floor auditorium is named for chemistry professor and longtime department chair Raymond Q. Brewster.

Project Overview

Original Strong Hall construction featured perimeter steam radiator heating, operable windows for ventilation, and no mechanical cooling. The majority of the original steam distribution header/riser piping system, and associated cast iron radiators, remain in-service.

As the result of incremental remodeling projects over the years since original occupancy of the building, most of the occupied, non-corridor spaces now feature some system of air conditioning, predominately split-systems fan coil units and window AC units. Some spaces in suites are served by packaged air handling units with direct expansion coils and associated outdoor pad-mounted condenser units.

As the result of recently completed construction, Strong Hall now has access to a 2,000-ton distributed district chilled water plant loop. The primary impetus for initiating the current project is to provide replacement HVAC equipment in Strong Hall which is capable of converting the newly available chilled water supply to building space cooling.

This conversion represents a significant step in the University's long term plan of eliminating air-cooled type direct expansion refrigeration equipment in favor of more efficient central plant generated chilled water for space cooling. Other buildings served by this newly developed loop include Bldg. #100 - Spencer Research Library, Bldg. #152 - Spencer Museum of Art, Bldg. #005 – Dyche Hall, Bldg. #008 - Lippincott Hall, and Bldg. #035 - Bailey Hall.

An additional scope component of this project is de-commissioning and replacement of the existing distributed steam heating system. Due to its age, the existing system is prone to failure in the form of leaks, blockages, and condensate trap failures. When these failure modes occur they result in damage to building finishes, loss of occupant comfort and productivity, and expenditure of maintenance labor.

As-built drawing information related to Strong Hall mechanical equipment is very limited. Appendices A and B feature schematic footprint and data sheets that describe the general locations of these units and the approximate areas served.

Design Criteria and Goals

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

- Goal #1 - Replace all defective and non-functioning heating, ventilation, and air conditioning (HVAC) equipment with equipment/systems which insure that all occupied building spaces operate within acceptable comfort ranges.
- Goal #2 – Replace all direct expansion (DX) refrigeration AC equipment with chilled water-based cooling equipment.
- Goal #3 – Provide sufficient design detail to insure that the work of equipment de-commissioning and subsequent new equipment installation does not compromise the historic character of the building.
- Goal #4 – Use appropriate best engineering practices in specifying, sizing, and arranging replacement M/E/P components to insure future equipment accessibility and serviceability.
- Goal #5 - Complete rigorous construction-phase commissioning to verify and document that goal #1 has been accomplished.
- Goal #6 – Provide appropriate measurement & verification (M&V) elements to insure that the cost of future building operations can be monitored, trended, and optimized.
- Goal #7 - Complete all work with minimal disruption and inconvenience to staff and ongoing activities in building.

Space and Program Needs

The stated goals and objectives of this project are all related to renovation, replacement, and operation of the HVAC equipment that provides comfort conditioning for Strong Hall.

Strong Hall is a 100-year old building. Societal expectations for comfort conditions within occupied spaces have evolved significantly over the life of this building. The engineered systems necessary to meet those expectations typically require space that was not provided for in the original building space and program planning, and may not exist in current building configuration.

It is anticipated that designs intended to accomplish the stated project goals may require modifications to current space utilization. Entities involved in review and approval of design options will necessarily include the KU Office of Capital Planning & Space Management and representatives of the various University departments housed in Strong Hall.

Site Improvements & Infrastructure

Site Improvements

- De-commissioning and removal of existing outdoor pad-mounted mechanical equipment will result in opportunities for landscaping of areas adjacent to the entire perimeter of the building.
- Depending on available budget, the scope of work may include grading and sodding to re-establish the site, landscaping, or establishment of plantings.

Utilities & Infrastructure

- The chilled water loop utility exists within the underground connecting tunnel on the north side of the building. This project will be responsible for extending the supply and return piping into the Strong Hall sub-basement, where it will connect to the building secondary system.
- This project will connect to the existing campus steam utility at the existing, newly installed pressure regulating station within the building sub-basement adjacent to the underground connecting tunnel.
- Existing mechanical / electrical equipment serving un-disturbed portions of the building 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 DSH and FS 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 the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

Deferred Maintenance

Strong Hall is considered a mission-critical facility by the Board of Regents, and was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 79

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.21

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a

facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work: The currently proposed project will address, at least in part, the following items which have been identified as deferred maintenance needs:

- Split-System DX air conditioning systems that are beyond their useful life
- NOTE: Although not listed in the current University VFA Assets assessments database, the entire Strong Hall building distributed steam heating system is well beyond its useful life and will be replaced as part of this project.

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 & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing building shall be prepared by DCM and furnished to the A/E on DCM's standard 11x17 code footprint sheets.
  - A/E shall update these drawings to reflect all proposed work and submit them for approval to OFPM thru DCM/UFMA, immediately following approval of the Schematic Design 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 currently lacks a fire sprinkler system.
  - This project does not anticipate adding a fire sprinkler system as part of this project's scope.
- Where applicable, fire alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- ADA: The building is equipped with one (1) hydraulic elevator, has accessible toilet facilities on each level, and is generally ADAAG compliant. The fire alarm system is equipped with visual warning devices.
  - Project scope will include any code or ADA-related improvements that are required by the authorities having jurisdiction (AHJ) in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

Design Standards / Consultant Services

The architectural/engineering (A/E) 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), posted online at DCM's website at: http://www.dcm.ku.edu/standards

- The A/E team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
- The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.

- The Owner's Representative will be a DCM staff person assigned to serve as KU's Project Manager, and who will be the primary point of contact for all communications between the Owner, A/E and Contractor.
- Special Consultants that may be required on the A/E team, in addition to the usual A/E disciplines:
  - Historical Preservation Consultant
  - Acoustical Engineer (to evaluate & advise on M/E sound isolation provisions & meeting spaces)
- Electronic Files: Consultants shall deliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.
  - 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.
- Program Verification: A/E shall review and confirm all program needs with KU client/DCM, and shall reconcile the proposed project scope with the available funding.
- State Contracts: Since this project is considered to be state funded, A/E selection and contracting will be via State of Kansas, using OFPM's standard form of contract.

University Energy Policy

The University is engaged in ongoing reviews of campus energy use and sustainability plans and policies, and has adopted an *Energy Policy* that includes requirements for projects to be designed and constructed so as to minimize energy use. The full policy is found at the KU Policy Library: https://documents.ku.edu/policies/provost/EnergyPolicy.htm#measures. The consultant shall become acquainted with this policy in its entirety.

- The following excerpt is from paragraph III-B *New Construction* of the *Energy Policy*. The design requirements included in this excerpt shall be considered project requirements.

  New construction [and major renovations, where feasible] should be designed and built to minimize energy use. The most recent version of ASHRAE Standard 90.1 - Energy Efficient Design of New Buildings except Low Rise Residential Buildings should be set as the minimum energy efficiency guideline, since it has been shown that further reductions in energy use are economically achievable. The current KU standard for new construction is 30% improvement on ASHRAE 90.1. The design process should include energy life cycle costing analyses. New construction should be added to the existing building automated control system for enhanced energy management capabilities. Alternative energy sources such as passive solar heating and heat recovery should be considered, as well as daylighting and other strategies for decreasing building energy consumption. Primary consideration should be given to connecting and/or extending central systems for heating, cooling and other mechanical systems. Year-round cooling needs should be met by utilizing the most energy efficient systems, for example plate-and-frame heat exchangers versus less efficient air-cooled systems. All new construction should include utility metering (electricity, natural gas, steam, and water).

- With regard to the University's expectations for sustainable designs, the current University Sustainability Plan, issued July 2011 can be found at: http://www.provost.ku.edu/pdf/sustainability-plan.pdf, and includes the following action step:

  Within the next year, establish a standards advisory board to update existing standards, with a goal of requiring all new construction and major renovation to meet or exceed minimum LEED Silver criteria by 2015.

  There is no specific funding identified within the budget of this project to account for incremental project costs that might arise from designing to meet LEED Silver criteria. However, the consultant should become familiar with both

University sustainability policy and LEED criteria and is expected to identify design opportunities for University consideration during completion of schematic design.

- Regarding the *Energy Policy's* reference to preparation of an energy life cycle costing analysis, the University's expectation is that the consultant will, as part of the schematic design, include life cycle cost analysis of at least three alternatives for HVAC system improvements that are feasible solutions within this building.
- The consultant will be expected to provide the University with recommendations based on energy efficiency, costs, and O&M considerations. Costs should include life-cycle analyses.

Major Equipment Pre-Purchase Packages

The consultant team will be expected to assist with finalizing specification information and review of subsequent submittal information for the certain equipment, which the University expects to purchase directly and turn over to the successful bidding contractor for installation. Examples of equipment candidates for strategic sourcing include:

- Central Station Air Handling Units
- Secondary Recirculating Heating and/or Chilled Water Pumps
- Steam-to-Hot Water Converter for building recirculating heating water and/or domestic potable water needs

Construction Bid Document Preparation

The consultant shall prepare a consolidated set of construction drawings and specifications that encompass all anticipated work, i.e. sprinkler system (if applicable), mechanical system improvements, related electrical improvements and building envelope or interior space modifications or improvements.

The anticipated design sequence will follow requirements of Chapter 12 of the State Office of Facilities and Property Management's (OFPM) Building Design and Construction Manual. At a minimum, the following milestones are anticipated:

- Schematic Design Review
- Design Development Review
- 50% Construction Document Review
- 100% Construction Document Review

Construction Phase Submittal Requirements

The University is investigating options for enhancement of its existing Computerized Maintenance Management System (CMMS). Specific objectives for the use of the enhanced system are being developed at this time. It is anticipated that an important component of the upgraded system will be the ability to directly import construction phase equipment submittal data into the asset management module of the CMMS.

During the design phase of this project, the consultant will be expected to become familiar with the University's CMMS so that appropriate specifications can be prepared to clearly convey to bidding contractors the University's expectations for format and delivery of project submittal data.

The consultant should anticipate that, at a minimum, the University will require Submittals and O&M information be provided in electronic PDF format for all materials and equipment, for incorporation into the University's asset management system.

Historic Preservation Reviews

Projects on the KU Lawrence campus that are within a KU building listed on the State or National Register of Historic Places, or within one of KU's Historic Districts, require administrative review by DCM staff or full review by DCM staff and the Campus Historic Preservation Board (CHPB).

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A copy of the KU Historic District Map can be viewed online at the DCM website, KU Buildings page. The City's environs limits can be viewed on the Lawrence Interactive City Map.

Note: This project is located within a listed KU property and within a listed Historic District, so historic preservation compliance reviews will be required, as applicable.

KU - City Cooperation Agreement

KU and the City of Lawrence entered into a jointly-beneficial Cooperation Agreement in April 2005. It designated a compatibility buffer zone that extends 150' deep onto KU's property from the primary exterior boundary of KU's property.

New construction on the KU Lawrence campus within the 150' buffer zone must comply with designated City land-use regulations, standards and requirements.

Note: This project is not located within the 150' buffer zone, so the KU-City Cooperation Agreement does not apply.

Impact on Overall Campus Space

This project is a renovation / remodel of an existing building, and will not add to or remove any space from the University's space inventory.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources or new private resources. No new state funding will be required to cover any of these costs.

Proposed Project Delivery Process

Competitive Bid

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

Project Budget

Construction Costs	
Replacement distributed heating system(s) (@ $8 per nasf)	900,000
Air Conditioning and Ventilating system(s) (@ $9 per nasf)	1,000,000
HVAC Controls	200,000
Demolition of existing systems	100,000
Architectural Finishes	400,000
Code/ADA-Required Improvements	TBD (as required)
Subtotal - Construction Costs	**$2,600,000**

Miscellaneous Costs	
Fees - Consultants, State & KU Agencies, IRF	390,000
Printing & Shipping of Bid Documents; Misc.	10,000
Asbestos & HazMat Abatement (scope TBD)	80,000
Construction Testing & M/E Commissioning	70,000
Bidding & Construction Contingency (6%)	200,000
Subtotal - Miscellaneous Costs	**$750,000**

Total Project Cost	**$3,350,000**

Notes:

1) Funding is proposed to be from revenue bonds, which will be paid off during a five-year period using EBF funds.
2) Funding is available in current fiscal year (FY 2015) for design. Construction will be funded in future fiscal year(s).

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Notes:

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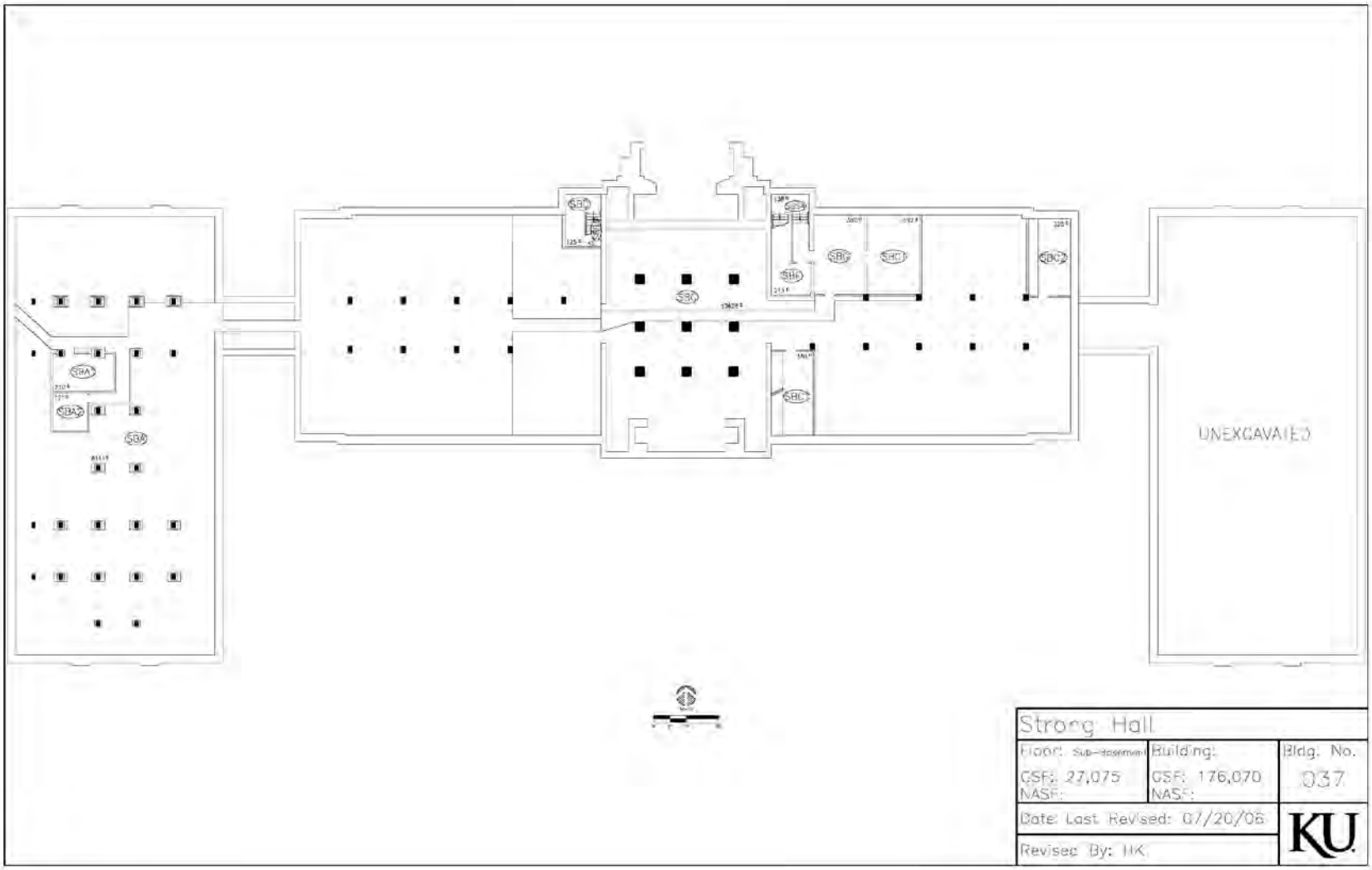
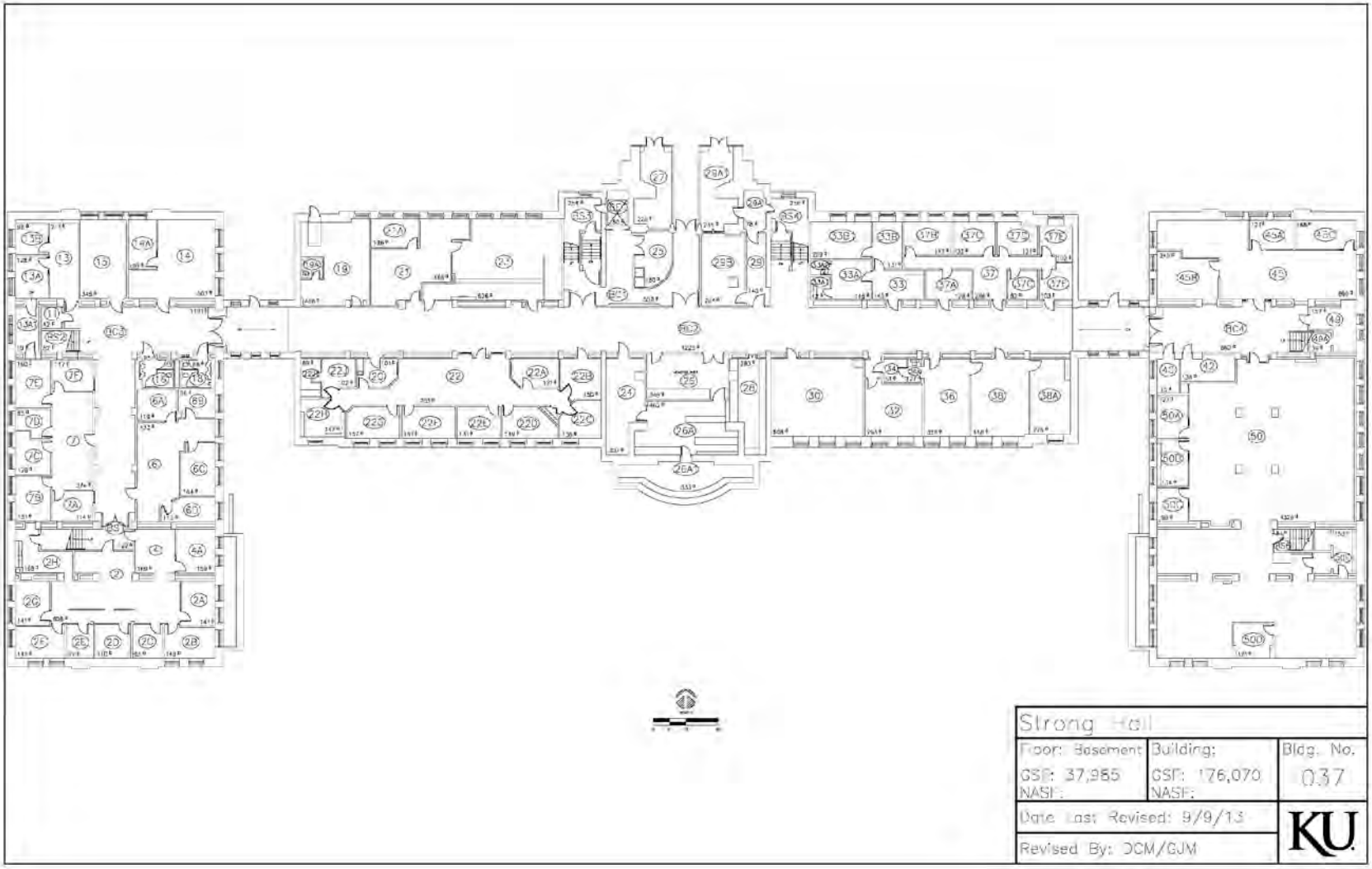
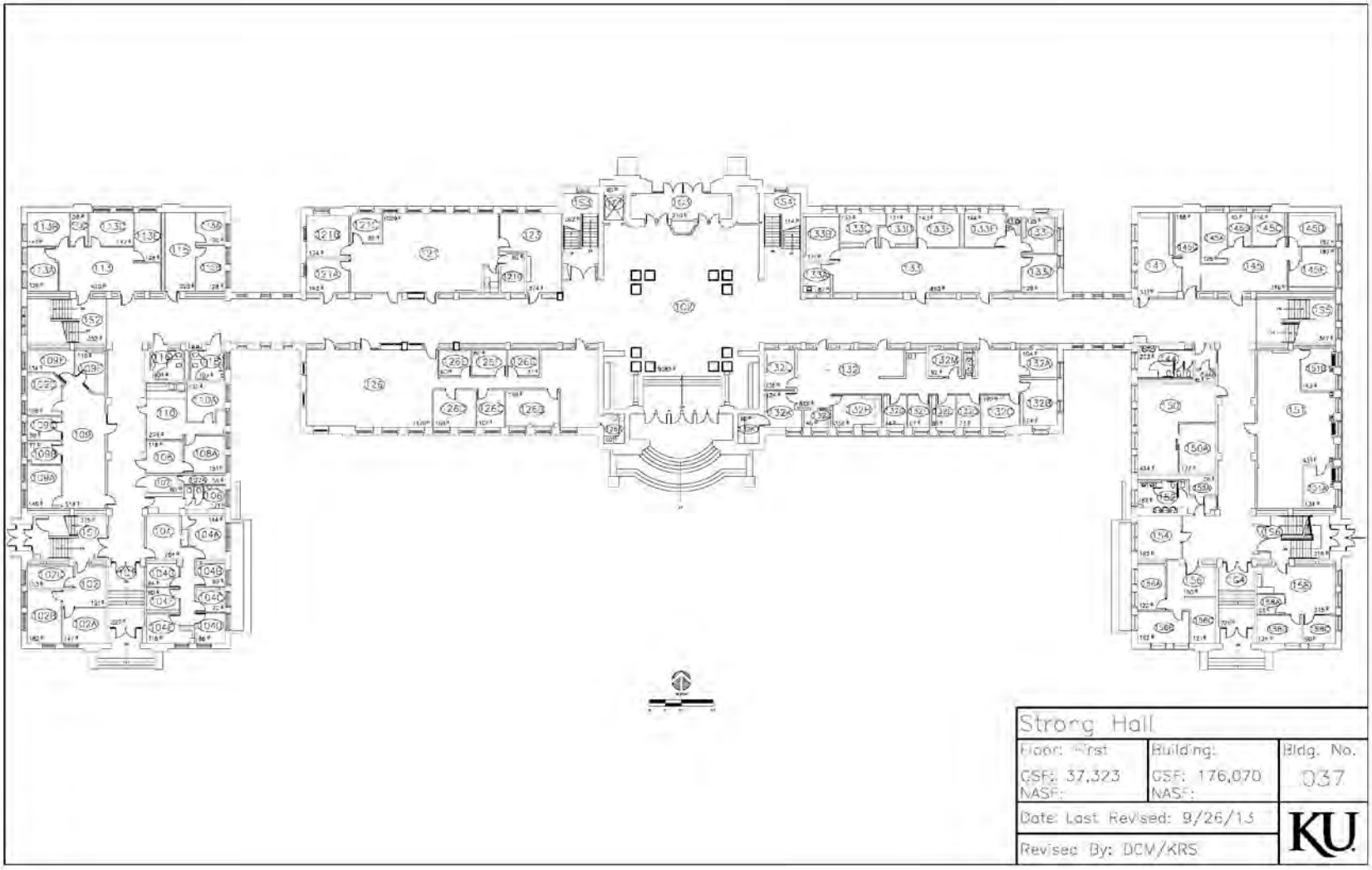
Existing Sub-Basement Floor Plan



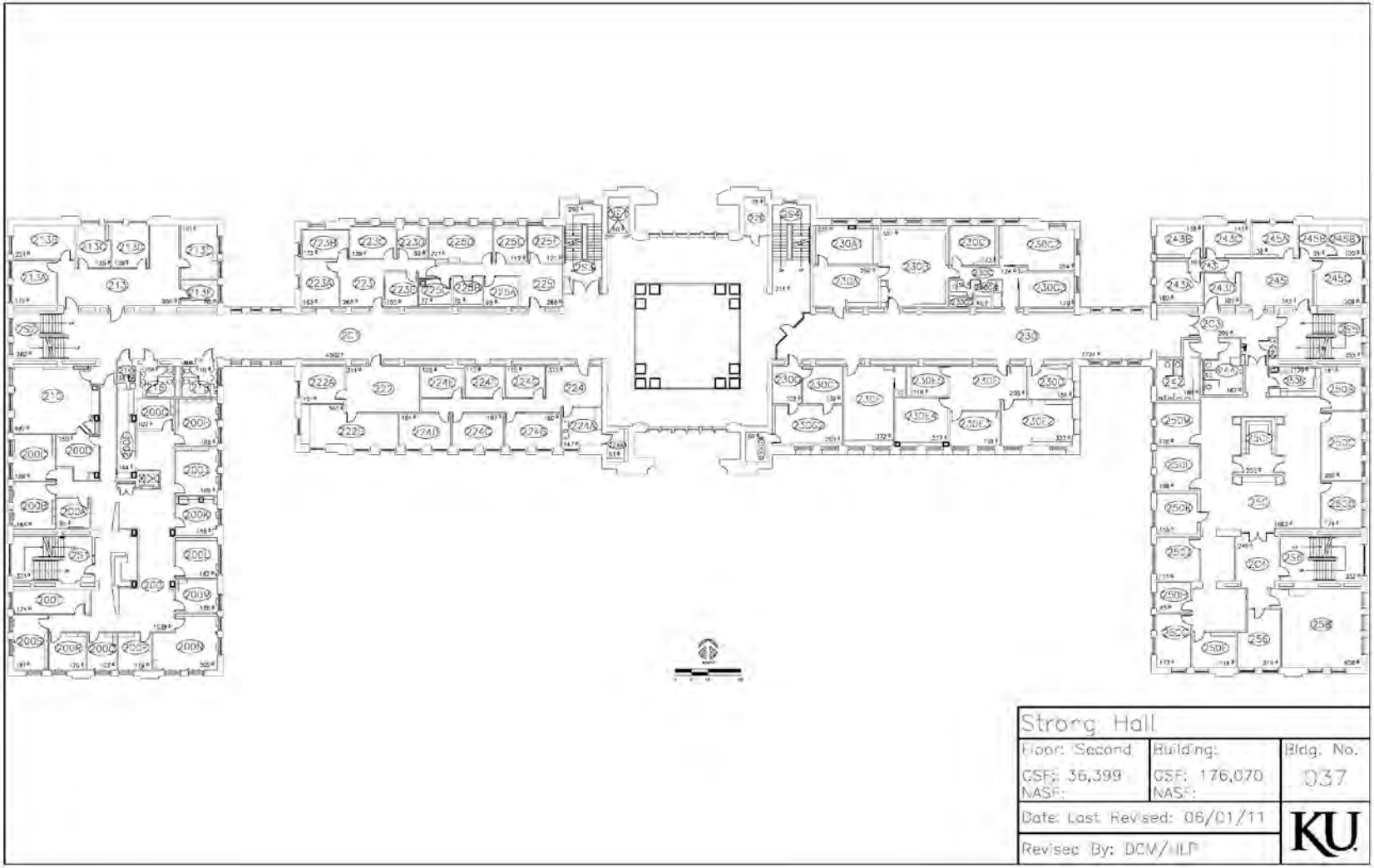
Existing Basement Floor Plan



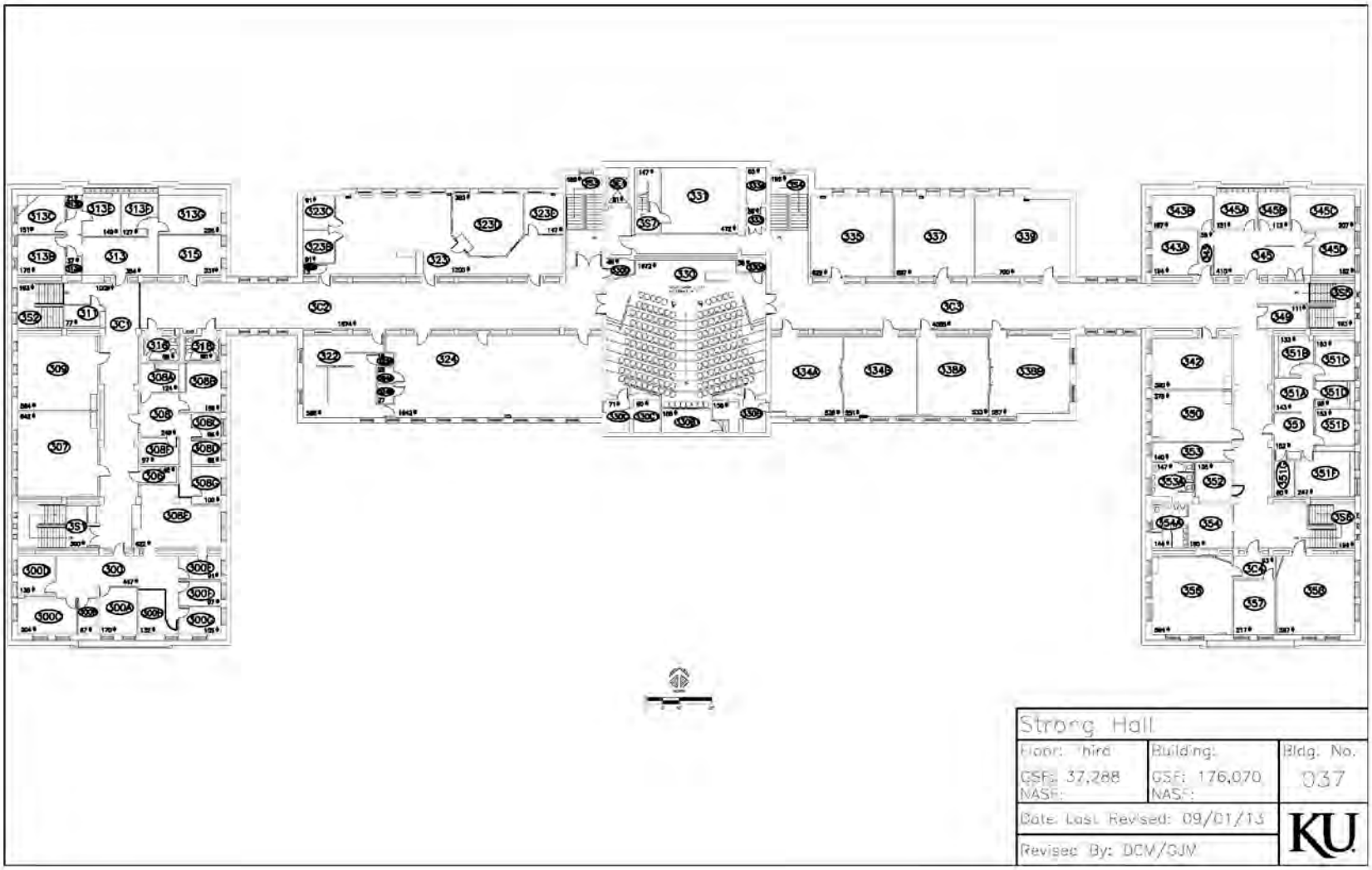
Existing First Floor Plan



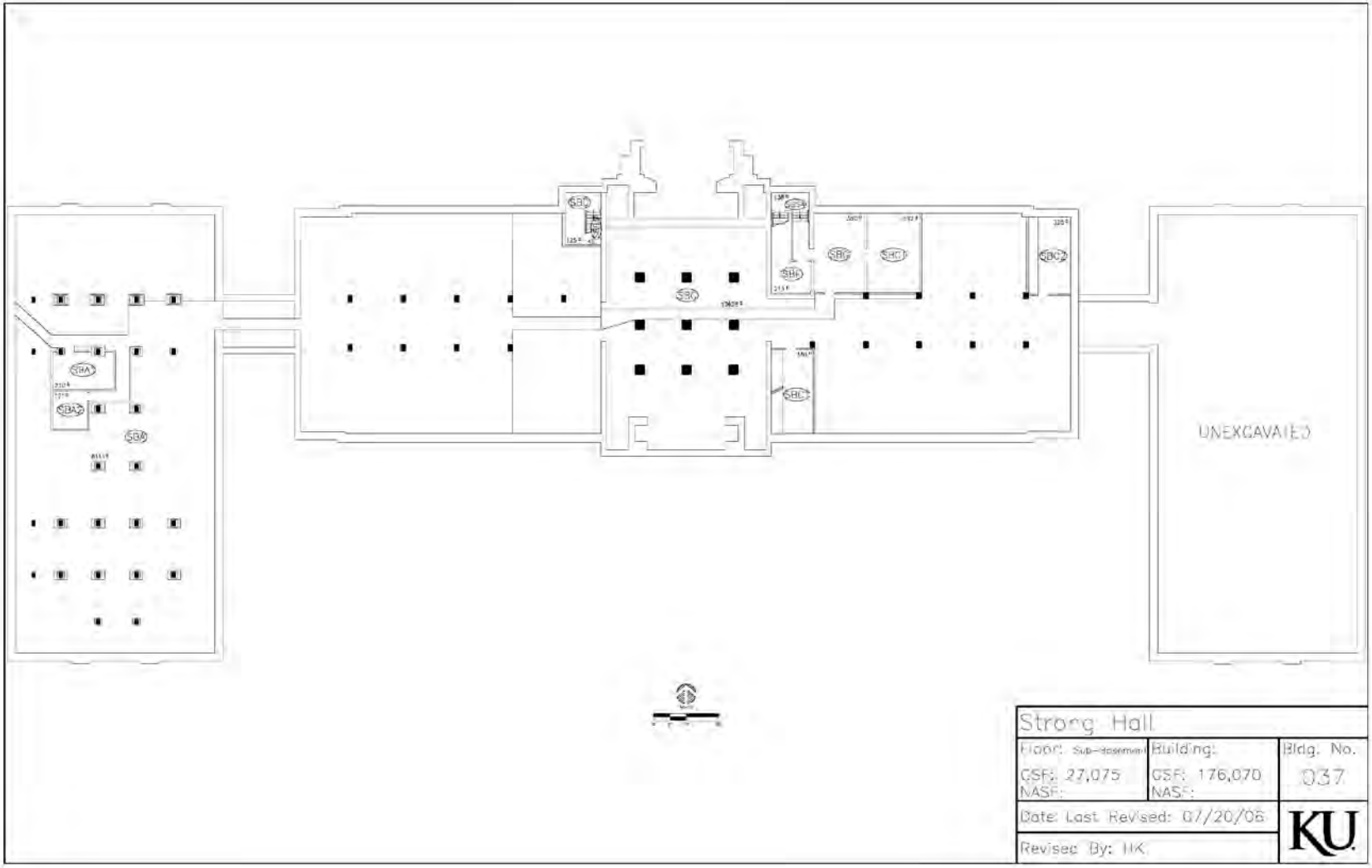
Existing Second Floor Plan



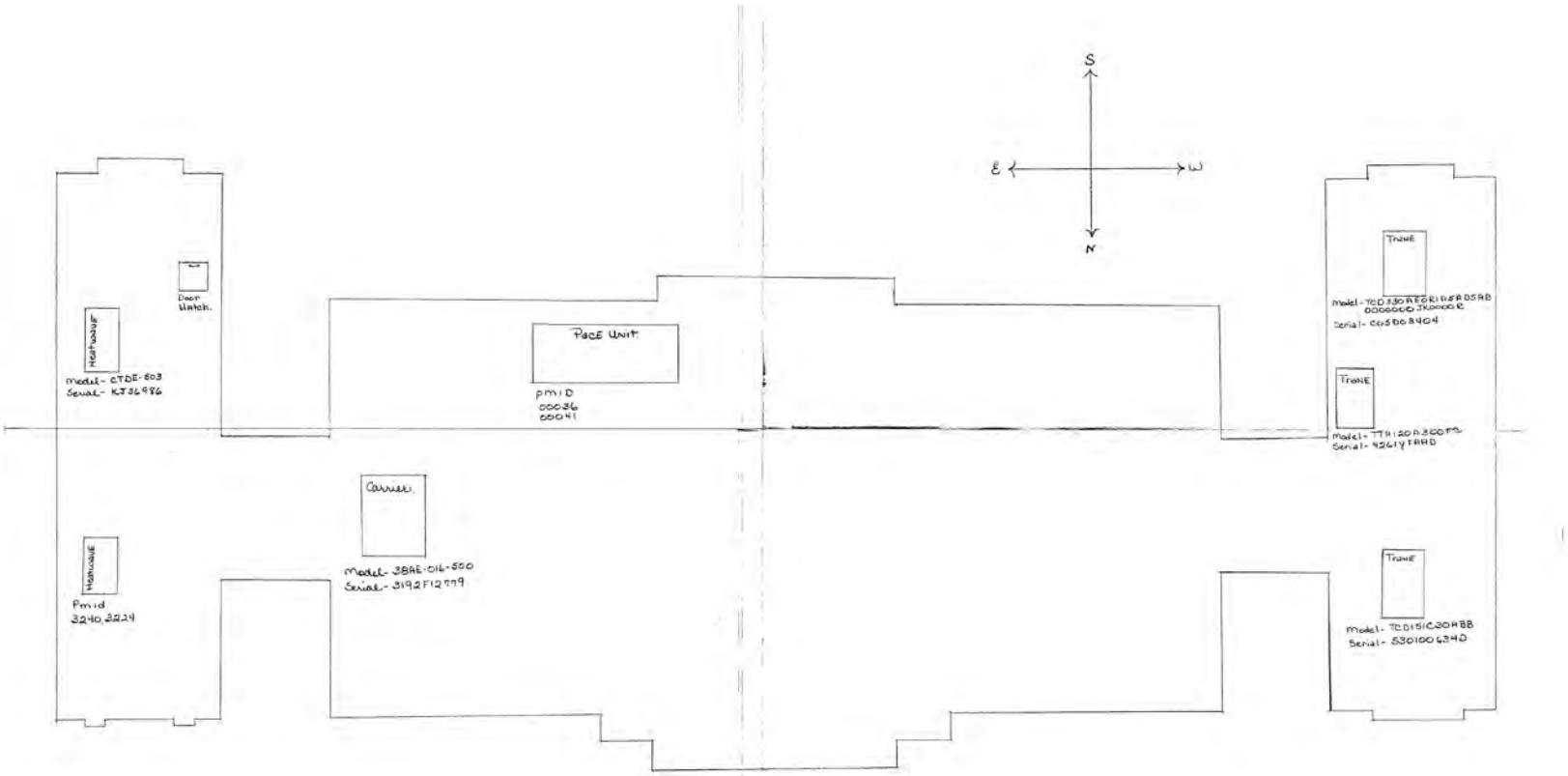
Existing Third Floor Plan



Existing Roof Plan

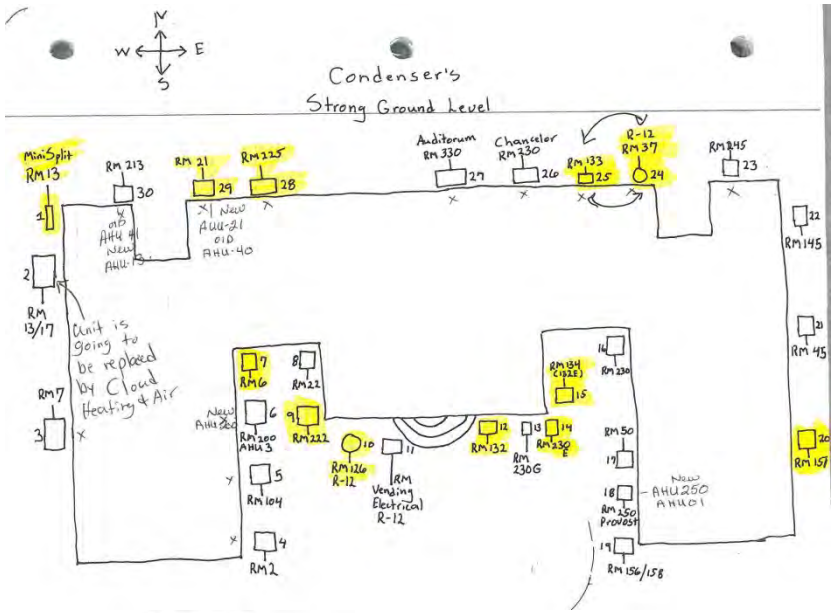


Appendix A – Example of Current Strong Hall Rooftop Equipment Documentation



Rooftop Equipment

Appendix B – Example of Current Strong Hall HVAC Equipment Documentation



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Serial - P285YBEAH
Volts - 208/230 3ph
R-22

2. Trane. Rm. AUD.
Model –TTA240B300BA
Serial - JD4198521
Volts - 208/230 3ph
R-22

3. Carrier. Rm 230 Chancellor office
Model.- 3BARZ008— 501 —
Serial .- 0404G4004
Volts - 208/230 3ph
R-22

4. Fanaire Rm33, 37
R-12

5. Trane Rm 133,135
Model.- TTR060C100AZ
Serial .- K14269710
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R-22

6. Heatwave Rm 245
R-22

7. Carrier Rm 145
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Serial. –0905G50055
Volts 208/230 3ph
R-22

8.Trane Rm 249
Model.- TTA120B300CA
Serial.- P435LSPAH
Volts.- 208/230 3ph
R-22

9.Trane
Model . TTA120B300CA
Serial. Z023R6KAH
Volts . 208/230 3ph
R-22

10. Sanyo Rm 1stfloor class rm.
R-22

11. Sanyo Rm 1stfloor class rm.
R-22.

12. Trane Rm 250 Provost office
Model- RAUCC26EBM03AD1
Serial.- J97C80853\
Volts – 200/208 3ph
R-22

13. Trane Rm 50
Model.- TTA180B300BA
Serial. – H09198882
Volts –208/230 3ph
R-22

14.Heatwave Rm 132
R-22

15. Trane Rm Chancellor office (copy are
Model – TTA120C300GC
Serial.- S2225K9GA9
Volts- 208/230 3ph
R-22

16.Heatwave Rm 231
R-22

17. Trane Rm 227
Model- TTA042A300A0
Serial.- D51271378
Volts. 208/230 3ph
R-22

18. Trane Rm 132
Model.- RAUCB756A
Serial.- D81B-19294
Volts –208/230 3ph
R-22

19 FanAire Rm 24 Vault rm.
Volts 208/230 3ph
R-12

20. FanAire Rm 126
Volts 208/230 3ph
R-12

21. Trane
Model.- TTA120B300CA
Serial.- N4936E7AH
Volts 200/208 3ph
R-22

22.Trane.
Model.- TTA180B300CA
Serial .- K364ACAH
Volts. – 208/230 3ph
R-22

23.Westherking. Rm 6,8
Model.- 10AJB36A01
Serial.- 6934 T3804 06361
Volts 208/230 3ph
R-22

24. Trane.
Model- RAUCC25EEU030000
Serial- C01J60133
Volts- 200/208 3ph
R-22

25.Ruud Rm 104,108
Model. – RAWD-075CA5
Serial. – 5382 G1196 00026
Volts.- 208/230 3ph
R-22

26.Heatwave Rm 2
208/230 volt
R-22

27. Commerical Comfort 3 Rm 7
Model.- CA0060HCA
Model.- ACC060HCA
Serial.- E040719523
P/N 328858-4075
MFG- CAC060HCA
Volts- 208/230 3ph

28. GLYCOL Rm 13 LARA

29.
Model- GS3BA-060CB
Serial – GSAD0800419
Volts – 208/230 3ph
R-22

Architectural Program

Bailey Hall – HVAC Improvements

(A Deferred Maintenance, Repair & Rehabilitation Project)

KU Project No. 035-5615

Date: March 31, 2014

Prepared by:

The University of Kansas, Lawrence Campus

Office of Design & Construction Management

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Introduction

State of Kansas funding has been identified for a project to install a fire sprinkler system and to replace certain heating, ventilating, and air conditioning (HVAC) equipment in Bailey Hall on the University of Kansas, Lawrence campus.

The equipment to be replaced has for some time been included on a more comprehensive list of deteriorated campus infrastructure that has typically been referred to as the deferred maintenance backlog. The primary objective of the project is to directly replace obsolete, deteriorated, and dysfunctional equipment with new.

Much of this work will involve removing ceilings and in some cases relocating duct vents and utility penetrations. New ceilings will be installed unless existing ceilings are in satisfactory condition. In addition, corridors will be renovated with new carpet tiles, painted walls and lighting upgrades to improve the aesthetics and serviceability of the building.

Building History and Uses

Bailey Hall housed chemistry, pharmacy, and laboratories when it opened in 1900; in 1938 it was named for chemistry professor E.H.S. Bailey. It now houses several College of Liberal Arts and Sciences (CLAS) programs, including communication studies; African and African-American, European, and American studies; and women's studies. In 2001, Bailey was placed on the National Register of Historic Places. Additional relevant building history is available at http://www.union.ku.edu/hmof/landmarks/bailey.shtml and additional current uses are listed at http://www.buildings.ku.edu/b.shtml

1954 Remodel for the School of Education

In 1954 the Chemistry department and the School of Pharmacy moved to the then-new Malott Hall. Bailey Hall was renovated to house the School of Education.

This renovation featured the addition of mechanical equipment for mechanically ventilating and air conditioning the remodeled spaces. Cooling was provided by a steam-turbine driven chilled water generator. A pad-mounted cooling tower rejected heat both of the refrigeration unit and of the turbine spent steam condenser heat exchanger.

Steam-to-hot water converters produced heating water for building heating.

Terminal units included eighteen ceiling-mounted fan coil units located throughout the building for heating and cooling occupied spaces and as many as 120 hot water wall radiators for off-setting exterior wall heat loss.

The full set of construction documents that detail this remodel is available as an electronic pdf set.

1976 Heating & Cooling Piping Replacement

In 1976 a project was completed that replaced all perimeter hot water heating recirculation piping and all piping associated with the two-pipe chilled-hot water system associated with the building fan coil units.

The full set of construction documents that detail this remodel is available as an electronic pdf set.

1984 HVAC System Replacement

In 1984 a project was completed that replaced the following:

- The 1954-vintage water chiller was replaced with a remotely located refrigeration condensing unit.
- All fan coil units were replaced with a variable air volume air handling unit with DX cooling coil. This unit was

installed in the mechanical room previously occupied by the water chiller. The scope of the current program includes replacement of this AHU.

- VAV terminal units with hot water reheat coils were installed throughout the building for zoned comfort conditioning. The scope of the current program includes replacement of these terminal units and all associated medium and low pressure ducting, diffusers, and grilles.
- The full set of construction documents that detail this remodel is available as an electronic pdf set.

Project Scope

This program describes a project scope of work that includes:

- Installation of code-required building-wide fire protection systems comprised of:
  - Class I manual wet standpipe in the two interior stairwells.
  - Wet pipe sprinkler throughout the building, including the attic and combustible concealed spaces.
- Installation of a replacement central station air handling unit; and associated electrical, plumbing, and controls systems; for heating, air conditioning, and ventilation of Bailey Hall.
- Renovation of building finishes that are disturbed by the work of installing the fire sprinkler system and the replacement HVAC system.

Fire Sprinkler System

During the spring of 2011 construction documents were prepared for a project (KU#035-9124) that was intended to install wet pipe, automatic sprinkler protection throughout all levels of Bailey Hall. Upon receipt of contractor bids it was determined that the project was not awardable as configured. As a result, the University elected to delay completion of the sprinkler work and re-issue the design as part of a larger program of work. This program describes that larger project.

The prior fire sprinkler system design work was completed by FP&C Consultants, Inc., Kansas City, MO. It is assumed that the consultant firm retained to complete the current program will team with FP&C for assistance in completing the coordination required to incorporate the prior fire protection design into the larger project. At a minimum the following tasks are anticipated:

- Complete any Code Footprint revisions necessary as the result of the expanded project scope.
- Complete any FP-series drawing revisions necessary as the result of the expanded project scope.

A reference set of those final construction drawings that have been created for the sprinkler system installation will be provided to this project's design team.

Building-wide HVAC Equipment Replacement

This program describes a scope of work that includes replacement of all HVAC equipment within the building. The current systems require replacement because: 1) reliability and serviceability of the existing equipment is poor due to its age, 2) energy use result of existing equipment operation is significantly greater than is expected of replacement equipment, 3) in some cases current HVAC zoning is incorrect due to remodeling projects that have reconfigured building spaces without modifying air conditioning zones.

Consultant shall confirm the specification for replacement of the existing central station VAV air supply unit.

- In order to compress the project schedule the University expects to place an order for procurement of the replacement AHU through the University's department of

Purchasing Services via existing Total Consortium Purchasing Contract Network (TCPN) simultaneous with consultant's completion of the construction documents for this project. Trane Service of Mid-America has reviewed the specifications and shop drawing submittal information of the existing unit and has offered a proposal for a direct replacement unit.

- Two draft proposal options for unit selections will be made available to the design team for reference. A subsequent purchase order is pending review by the selected consultant. The consultant will be expected to review this proposal for the following purposes:
  - To confirm suitability of the proposed AHU capacity and configuration.
  - As the basis for the equipment layout in the existing mechanical equipment.

Design shall include provisions for total refurbishment of the central air handling unit equipment room.

- The existing mechanical equipment that contains the existing AHU, and that will house the replacement AHU, is seriously deteriorated. All mechanical equipment existing in the room will be removed from service and replaced with appropriately sized new equipment.
- The existing equipment room walls feature loose and spalling plaster finishes. The design should include removal of all existing plaster and re-finishing of the wall surfaces with materials selected for durability, light reflectance, and sound attenuation qualities.
- The design should feature re-lighting of the equipment room.

Design modifications to the building chilled water piping to allow for chilled water service by a remote district cooling plant.

- In the summer of 2011, the University put into service central cooling for several buildings north of Jayhawk Blvd., including Bailey Hall.
- The consultant will be expected to identify, during schematic design, any criteria or specification details that will require coordination between new building mechanical equipment and the newly operational central cooling plant equipment.
- Key design criteria that the consultant will be expected to document during design are primary loop supply/return differential pressure and differential temperature available at Bailey Hall.

Design shall include provisions for modifications to existing supply, return, and exhaust air ducting.

- The current building VAV air supply terminals and associated heating water coils are installed in 1984. Problems with the existing system include loss of air flow due to coil face blinding result of air borne debris, poor controllability due to defective pneumatic controls components, and incorrect zoning due to modifications to space configuration since the 1984 system replacement project.
- <u>Review and revise existing zoning as appropriate to optimize system function and space comfort.</u>
  - Modify conditioning/ventilation zones where recent remodels have resulted in changes to heating/cooling space loads without accompanying HVAC modifications.
  - Modify zones where adjacent spaces share common heating/cooling loads but have separate thermostats.
  - Modify zones where occupied spaces share common zone thermostats but have dissimilar occupancies and loads.

- Design a return/exhaust air system with provision for code-compliant outdoor air makeup and air side economizer cooling.

Design a replacement perimeter radiation hot water heating system to replace the existing system.

- The current piping, valving, and baseboard convectors were installed in 1976. Problems with the existing system include system leaks and poor controllability.
- The new system design should insure that each individual baseboard convector is equipped with a flow control valve that should be modulated in response to output signal of the thermostat associated with the zone in which the convector(s) is located. The convector hot water flow control must be coordinated with control of the VAV air supply box and the reheat coil heating water flow to provide for optimal zone comfort and to minimize the potential for simultaneous zone heating and cooling.

Renovations and Improvements to Building Finishes

Design should include Structural and Architectural details and specifications necessary to restore building finishes that will be disturbed and/or demolished during completion of this project.

Utility Outages and Construction Phase Coordination

- Identify feasible solutions to the following critical logistical issues
    - This program anticipates that building occupants will be temporarily relocated out of the building during the post-commencement phase of the construction.
    - This program does not anticipate that the consultant will assist in the work of identifying appropriate temporary locations or preparing those locations for temporary occupancy. However, construction documents should describe the requirements for contractor support of these moves in sufficient detail to insure complete and comparable contractor bids.
    - This program anticipates: Occupants will remove personal items; Facilities Services will remove University contents to temporary office/classroom locations or to storage pods on the premises, etc.
    - During completion of the Schematic Design final determinations will be made as to whether on-site storage pods will be mobilized to the site during construction.
    - A primary criterion for this project is that building occupants must be moved back into occupied spaces in the building prior to the start of the 2013 fall semester. Construction documents should include:
        - A construction phasing schedule with sufficient detail to insure that the required move-in milestone can be accomplished.
        - Clear language describing the University's expectations, including an appropriately valued liquidated damages clause.
        - Double-shifts may be necessary to ensure completion of the project in the allotted time.
    - Determine a code compliant mode of removal and a building exit pathway for removal of the existing air handling equipment that is acceptable to the authority having jurisdiction (AHJ), and compatible with the ongoing functions of the building.
    - Evaluate the duration and consequences of, and areas affected by, the loss of ventilation/conditioning air supply during completion of the project; and, design compensating measures necessary to minimize the impact to ongoing functions of the building.
    - Identify an acceptable contractor staging area.

Hazardous Materials

The KU Environmental Health & Safety Office has performed tests of some, but not all, of the existing materials in Bailey Hall. These tests have found some asbestos-containing materials, which typically consists of piping and pipe fitting insulation materials.

- A complete set of hazmat tests will be needed prior to construction to verify exact locations of remaining materials that will need to be abated.
- Estimated abatement costs are estimated to be approximately $40,000.
- KU policy is to remove all hazardous materials when undertaking major renovations of existing buildings.
- The University will separately contract for this work, using departmental funding that is separate from the proposed project funding.

Deferred Maintenance

Bailey Hall is considered a mission-critical facility by the Board of Regents, and was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 68

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.32

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work: The currently proposed project will address, at least in part, the following items which have been identified as deferred maintenance needs:

- DX Condensing Unit
- Central AHU – VAV
- DDC/Pneumatic Controls
- Heat Exchangers – Steam-to-Hot Water – both Heating and Domestic Hot Water
- Steam System Condensate Return Pumps

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 & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing building shall be prepared by DCM and furnished to the A/E on DCM's standard 11x17 code footprint sheets.
  - A/E shall update these drawings to reflect all proposed work and submit them for approval to OFPM thru DCM/UFMA, immediately following approval of the Schematic Design 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 currently lacks a fire sprinkler system.
  - This project will require installing a fire sprinkler system in the existing building.
- Where applicable, fire alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- ADA: The building is equipped with one (1) hydraulic elevator, has accessible toilet facilities on each level, and is generally ADAAG compliant. The fire alarm system is equipped with visual warning devices.
  - Project scope will include any code or ADA-related improvements that are required by the authorities having jurisdiction (AHJ) in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

Design Standards / Consultant Services

The architectural/engineering (A/E) 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), posted online at DCM's website at: http://www.dcm.ku.edu/standards

  - The A/E team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
  - The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.
- The Owner's Representative will be a DCM staff person assigned to serve as KU's Project Manager, and who will be the primary point of contact for all communications between the Owner, A/E and Contractor.
- Special Consultants that may be required on the A/E team, in addition to the usual A/E disciplines:
  - Historical Preservation Consultant
  - Acoustical Engineer (to evaluate & advise on M/E sound isolation provisions & meeting spaces)
- Electronic Files: Consultants shall deliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.

- 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.
- Program Verification: A/E shall review and confirm all program needs with KU client/DCM, and shall reconcile the proposed project scope with the available funding.
- State Contracts: Since this project is considered to be state funded, A/E selection and contracting will be via State of Kansas, using OFPM's standard form of contract.

University Energy Policy

The University is engaged in ongoing reviews of campus energy use and sustainability plans and policies, and has adopted an *Energy Policy* that includes requirements for projects to be designed and constructed so as to minimize energy use. The full policy is found at the KU Policy Library: https://documents.ku.edu/policies/provost/EnergyPolicy.htm#measures. The consultant shall become acquainted with this policy in its entirety.

- The following excerpt is from paragraph III-B *New Construction* of the *Energy Policy*. The design requirements included in this excerpt shall be considered project requirements.

  New construction [and major renovations, where feasible] should be designed and built to minimize energy use. The most recent version of ASHRAE Standard 90.1 - Energy Efficient Design of New Buildings except Low Rise Residential Buildings should be set as the minimum energy efficiency guideline, since it has been shown that further reductions in energy use are economically achievable. The current KU standard for new construction is 30% improvement on ASHRAE 90.1. The design process should include energy life cycle costing analyses. New construction should be added to the existing building automated control system for enhanced energy management capabilities. Alternative energy sources such as passive solar heating and heat recovery should be considered, as well as daylighting and other strategies for decreasing building energy consumption. Primary consideration should be given to connecting and/or extending central systems for heating, cooling and other mechanical systems. Year-round cooling needs should be met by utilizing the most energy efficient systems, for example plate-and-frame heat exchangers versus less efficient air-cooled systems. All new construction should include utility metering (electricity, natural gas, steam, and water).

- With regard to the University's expectations for sustainable designs, the current University Sustainability Plan, issued July 2011 can be found at: http://www.provost.ku.edu/pdf/sustainability-plan.pdf, and includes the following action step:

  Within the next year, establish a standards advisory board to update existing standards, with a goal of requiring all new construction and major renovation to meet or exceed minimum LEED Silver criteria by 2015.

  There is no specific funding identified within the budget of this project to account for incremental project costs that might arise from designing to meet LEED Silver criteria. However, the consultant should become familiar with both University sustainability policy and LEED criteria and is expected to identify design opportunities for University consideration during completion of schematic design.

- Regarding the *Energy Policy's* reference to preparation of an energy life cycle costing analysis, the University's expectation is that the consultant will, as part of the schematic design, include life cycle cost analysis of at least three alternatives for HVAC system improvements that are feasible solutions within this building.
- The consultant will be expected to provide the University with recommendations based on energy efficiency, costs, and O&M considerations. Costs should include life-cycle analyses.

Major Equipment Pre-Purchase Packages

The consultant team will be expected to assist with finalizing specification information and review of subsequent submittal information for the certain equipment, which the University expects to purchase directly and turn over to the successful bidding contractor for installation. Examples of equipment candidates for strategic sourcing include:

- Central Station Air Handling Units
- Secondary Recirculating Heating and/or Chilled Water Pumps
- Steam-to-Hot Water Converter for building recirculating heating water and/or domestic potable water needs

Construction Bid Document Preparation

The consultant shall prepare a consolidated set of construction drawings and specifications that encompass all anticipated work, i.e. sprinkler system (if applicable), mechanical system improvements, related electrical improvements and building envelope or interior space modifications or improvements.

The anticipated design sequence will follow requirements of Chapter 12 of the State Office of Facilities and Property Management's (OFPM) Building Design and Construction Manual. At a minimum, the following milestones are anticipated:

- Schematic Design Review
- Design Development Review
- 50% Construction Document Review
- 100% Construction Document Review

Construction Phase Submittal Requirements

The University is investigating options for enhancement of its existing Computerized Maintenance Management System (CMMS). Specific objectives for the use of the enhanced system are being developed at this time. It is anticipated that an important component of the upgraded system will be the ability to directly import construction phase equipment submittal data into the asset management module of the CMMS.

During the design phase of this project, the consultant will be expected to become familiar with the University's CMMS so that appropriate specifications can be prepared to clearly convey to bidding contractors the University's expectations for format and delivery of project submittal data.

The consultant should anticipate that, at a minimum, the University will require Submittals and O&M information be provided in electronic PDF format for all materials and equipment, for incorporation into the University's asset management system.

Construction Administration

The consultant will be expected to provide construction administration (CA) services during the construction phase of the project. CA service requirements will follow requirements of Chapter 16 of the OFPM Building Design and Construction Manual.

Historic Preservation Reviews

Projects on the KU Lawrence campus that are within a KU building listed on the State or National Register of Historic Places, or within one of KU's Historic Districts, require administrative review by DCM staff or full review by DCM staff and the Campus Historic Preservation Board (CHPB).

The Kansas Legislature repealed the 500' historic environs reviews in 2013, and although the City of Lawrence still requires environs reviews within 250' of properties listed on the City's historic register, KU projects within the City's 250' environs limits are not subject to review if on State property.

A copy of the KU Historic District Map can be viewed online at the DCM website, KU Buildings page. The City's environs limits can be viewed on the Lawrence Interactive City Map.

Note: This project is located within a listed KU property and within a listed Historic District, so historic preservation compliance reviews will be required, as applicable.

This work shall be developed consistent with the guidelines of the Secretary of the Interior. Public spaces, such as entrances and corridors, require a higher level of attention. Wherever possible, existing historic features, materials and details shall be retained. Spaces behind the public corridors can typically be standard details and construction.

KU - City Cooperation Agreement

KU and the City of Lawrence entered into a jointly-beneficial Cooperation Agreement in April 2005. It designated a compatibility buffer zone that extends 150' deep onto KU's property from the primary exterior boundary of KU's property.

New construction on the KU Lawrence campus within the 150' buffer zone must comply with designated City land-use regulations, standards and requirements.

Note: This project is not located within the 150' buffer zone, so the KU-City Cooperation Agreement does not apply.

Impact on Overall Campus Space

This project is a renovation / remodel of an existing building, and will not add to or remove any space from the University's space inventory.

No specific building space reassignments are anticipated in direct fulfillment of objectives of this program. However, schematic design findings may determine that reassign of space in the building basement and/or subbasement may be necessary in order to improve/facilitate mechanical and electrical equipment siting or to improve ADA accessibility to occupied spaces in the building.

Additionally, during completion of the schematic design, building occupants may suggest other space reallocation plans that they determine to be priorities for fulfillment of their academic mission within the building. An example of possible space reallocation might be combining two small rooms into a larger, more usable room.

If during preparation of the schematic design, the program committee determines that it is appropriate to incorporate these priorities into the scope of this project; program scope, budget, and schedule will be reviewed with the consultant.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources or new private resources. No new state funding will be required to cover any of these costs.

This project includes replacement of an existing central station air handler that features direct expansion cooling with an air handler that will feature cooling by use of a distributed campus chilled water loop. As such, both annual maintenance needs and equipment energy use and operating costs are expected to be reduced.

Proposed Project Delivery Process

Competitive Bid

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

Project Budget

Construction Costs

Air Handling Equipment	250,000
(Note: assumes Central Station AHU Option)	
VAV Air Distribution System	200,000
(Note: includes boxes, reheat coils, and ducting)	
Chilled Water System	45,000
(Note: includes building secondary circulating pumps, piping, and BTU Metering Station)	
Heating Water System	110,000
(Note: includes circulating heating water pumps, piping, steam/hot water converter(s), and condensate return pump set.)	
Mechanical System Controls	120,000
Electrical to support new HVAC equipment	50,000
Allowance for New Light Fixtures	240,000
(Note: includes fixtures in all corridors and selected occupied spaces due to ceiling removal.)	
Fire Sprinkler System ($750,000; separate funds/contract)	-0-
Misc. Structural / Architectural	
- Allowance for Demolition to expose structure and existing air distribution system	20,000
- Allowance for Ceiling Grids and Tile	10,000
- Allowance for New Carpet Tile	30,000
- Allowance for Replacement Wallboard	15,000
- Allowance for Painting	10,000
Subtotal – Construction Costs	**1,100,000**

Miscellaneous Costs

Fees - Consultants, State & KU Agencies, IRF	165,000
Printing & Shipping of Bid Documents; Misc.	5,000
Asbestos & HazMat Abatement	45,000
Allowance - Occupant Relocation Expenses	35,000
(Note: includes facilities services moving support, on-site storage container rental, and expendables)	
M/E Commissioning	60,000
Bidding & Construction Contingency (6%)	90,000
Subtotal - Miscellaneous Costs	**$400,000**
Total Estimated Project Cost	**$1,500,000**

Notes:

1) Funding is proposed to be from revenue bonds, which will be paid off during a five-year period using EBF funds.
2) Funding is available in current fiscal year (FY 2015) for design. Construction will be funded in future fiscal year(s).
3) Fire sprinkler system is estimated to have a $750,000 construction cost, and is required to be installed concurrent with this work. KU is currently proposing that it will be delivered as a separately funded but related project, since it will have non-revenue bond funding. KU is proposing to deliver it thru separate design and construction teams, but will evaluate it further to determine if there are advantages to delivering it as part of this project; if so, the overall project cost is estimated to be $2,400,000 total, once misc. costs are included.

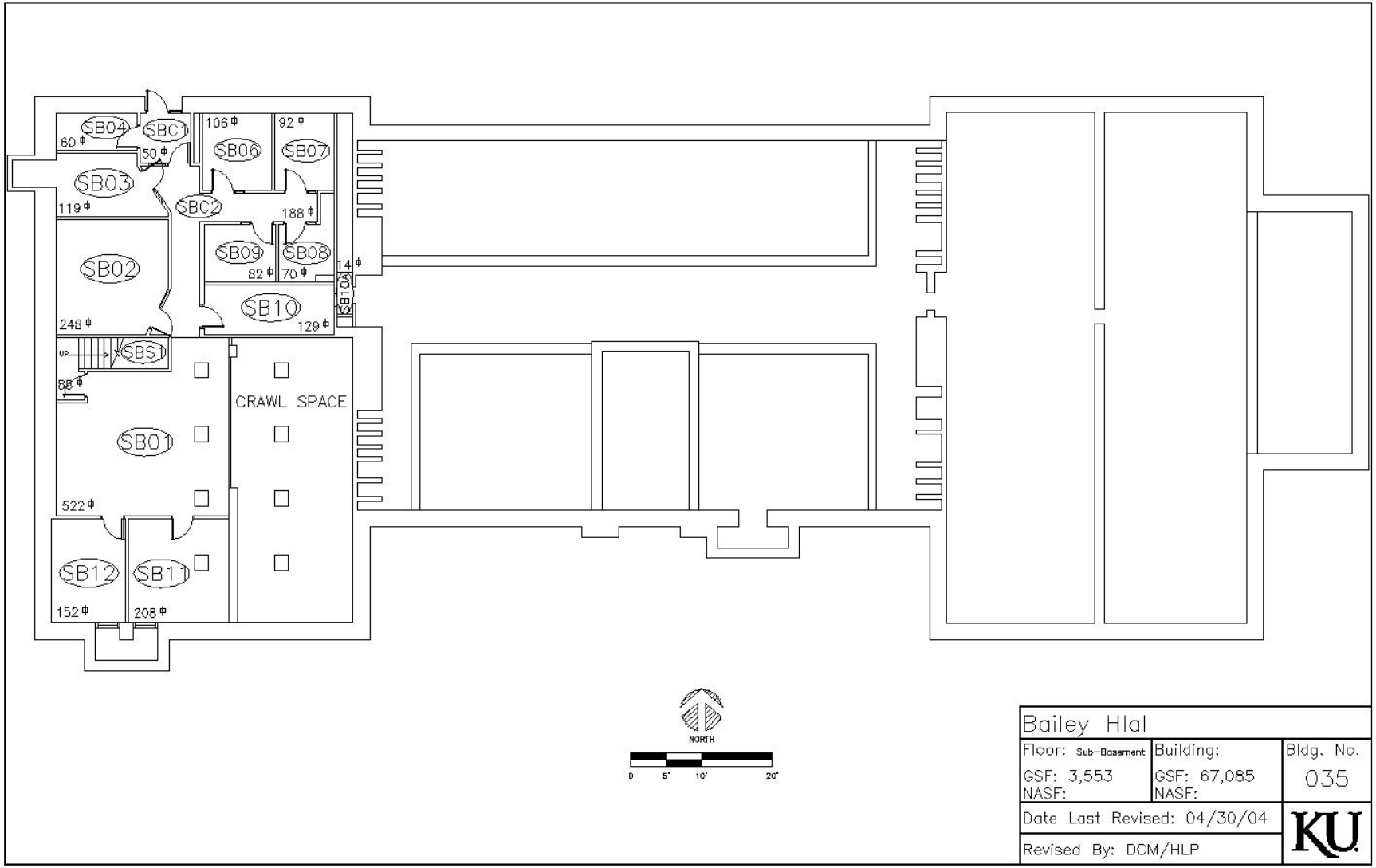
Project Schedule

Pre-Design Phase	
KU Capital Projects Council Review & Approval	Nov. 2013
KBOR Review & Approval	April 2014
Joint Legislative Committee on State Building Construction Review	Fall 2014
A/E Selection	July 2014
Negotiate Fees / Start Design	Aug. 2014
Design Phase	
Program Review & Prelim. Design	Sept. 2014
Construction Documents (7 mos.)	April 2015
Bidding (1-month)	July 2015
Construction Phase	
Contract Award & Execution (1 mo.)	Aug. 2015
Phased Construction – Pre-Commencement 2015	
Install Fire Sprinkler Supply Line & Stairwell Risers	Fall 2015
Demo Contents of Mech Equip Rm & Outdoor Condensing Unit	Spring 2016
Phased Construction – Post-Commencement 2015	
Relocate Building Occupants & Contents	June 2016
Improve HVAC system, install fire sprinkler system, renovate corridors, phased by floor	Summer 2016
Complete Construction and Final Occupant Move In	July 2017

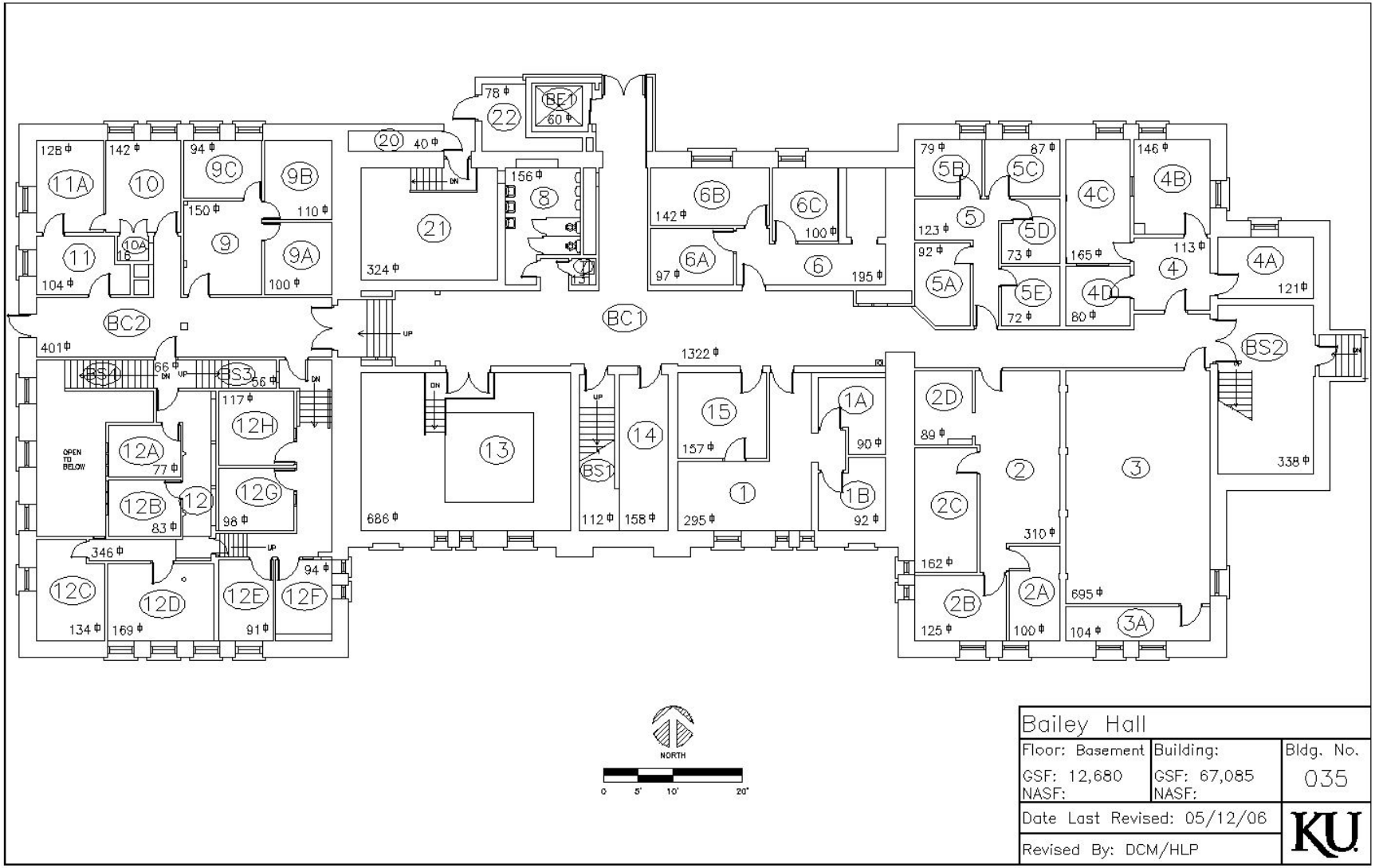
Notes:

1) The dates for issuance of construction documents for bidding and construction are dependent on confirmed funding (TBD) in current or future fiscal years.

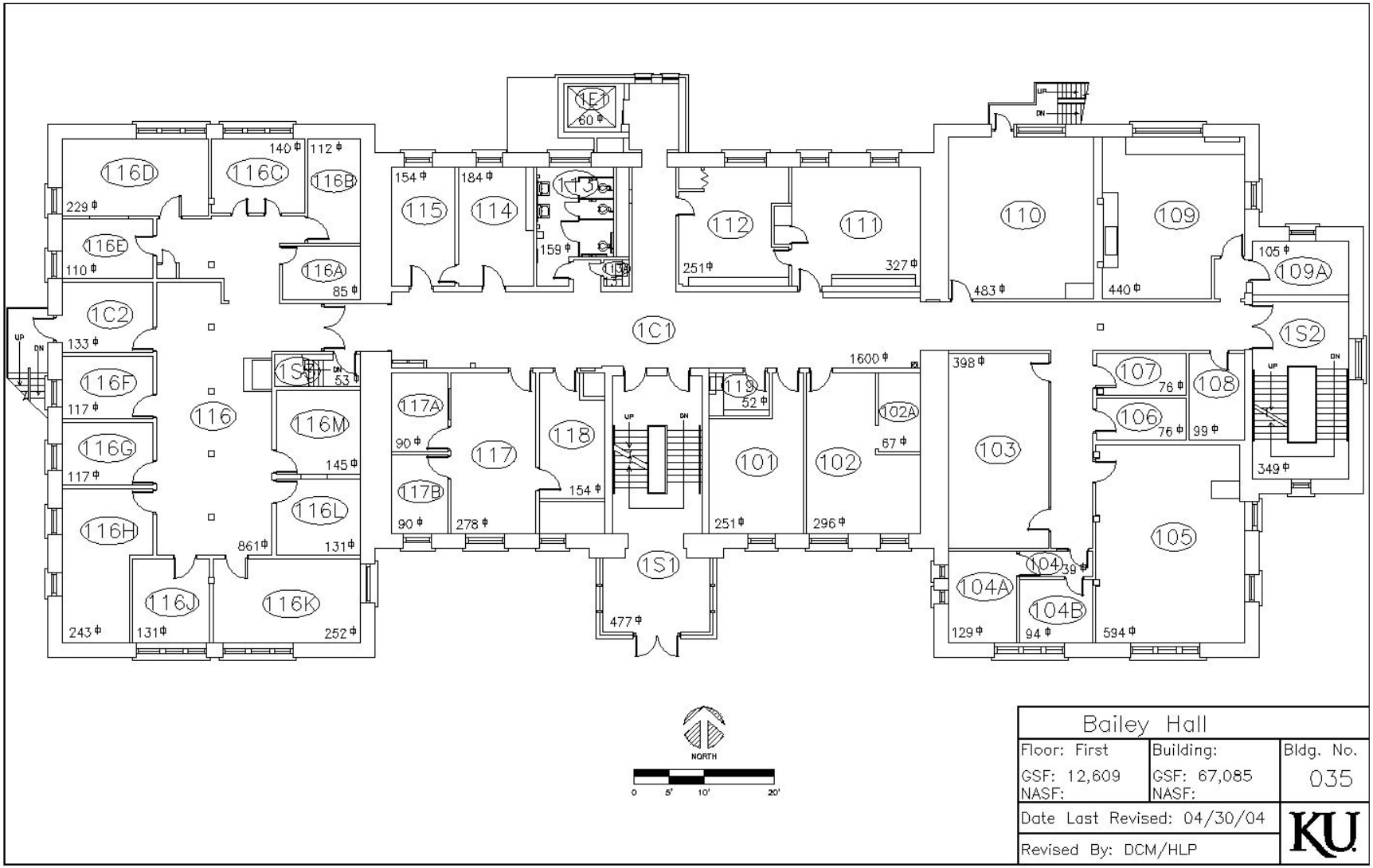
Existing Sub-Basement Floor Plan



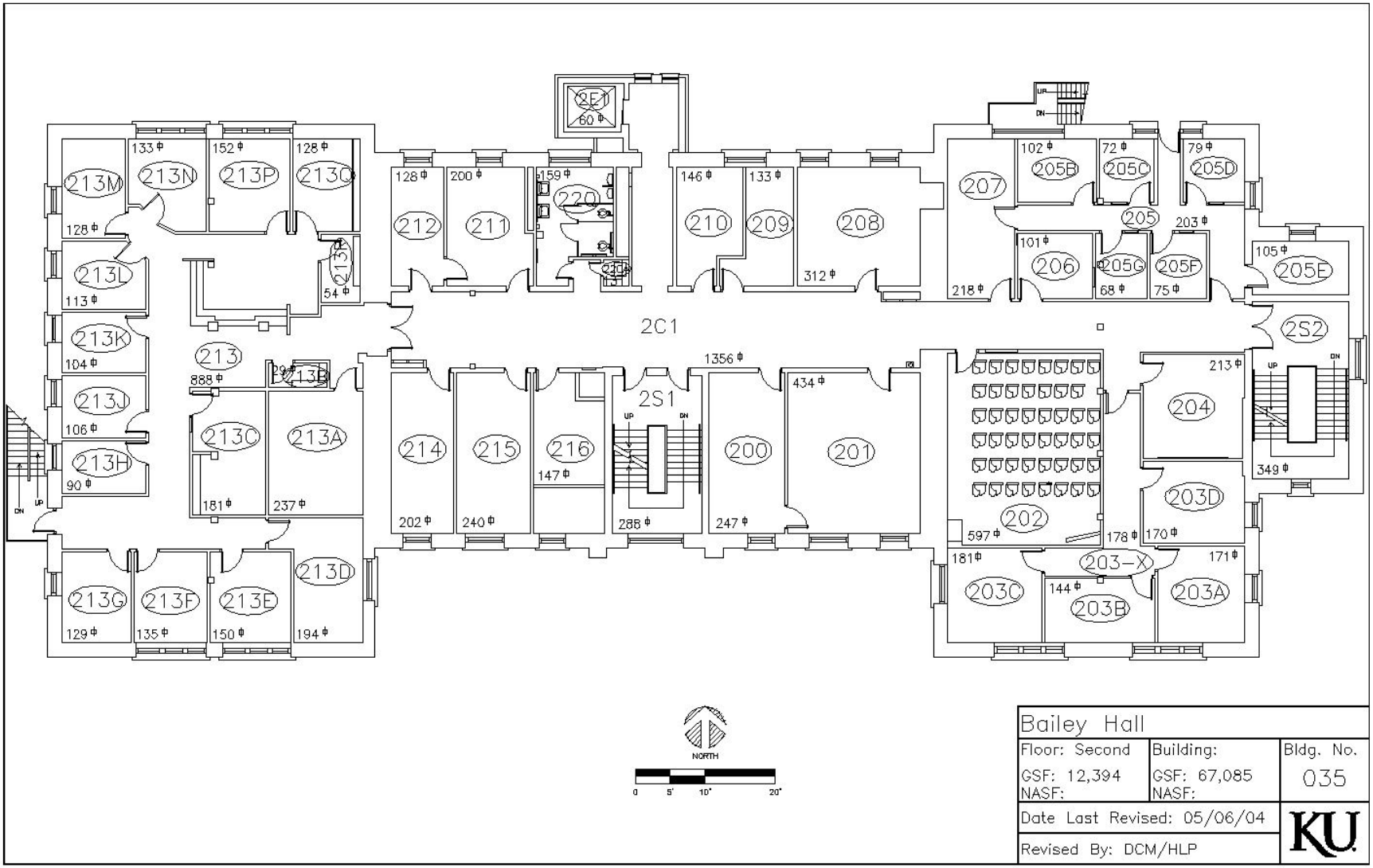
Existing Basement Floor Plan



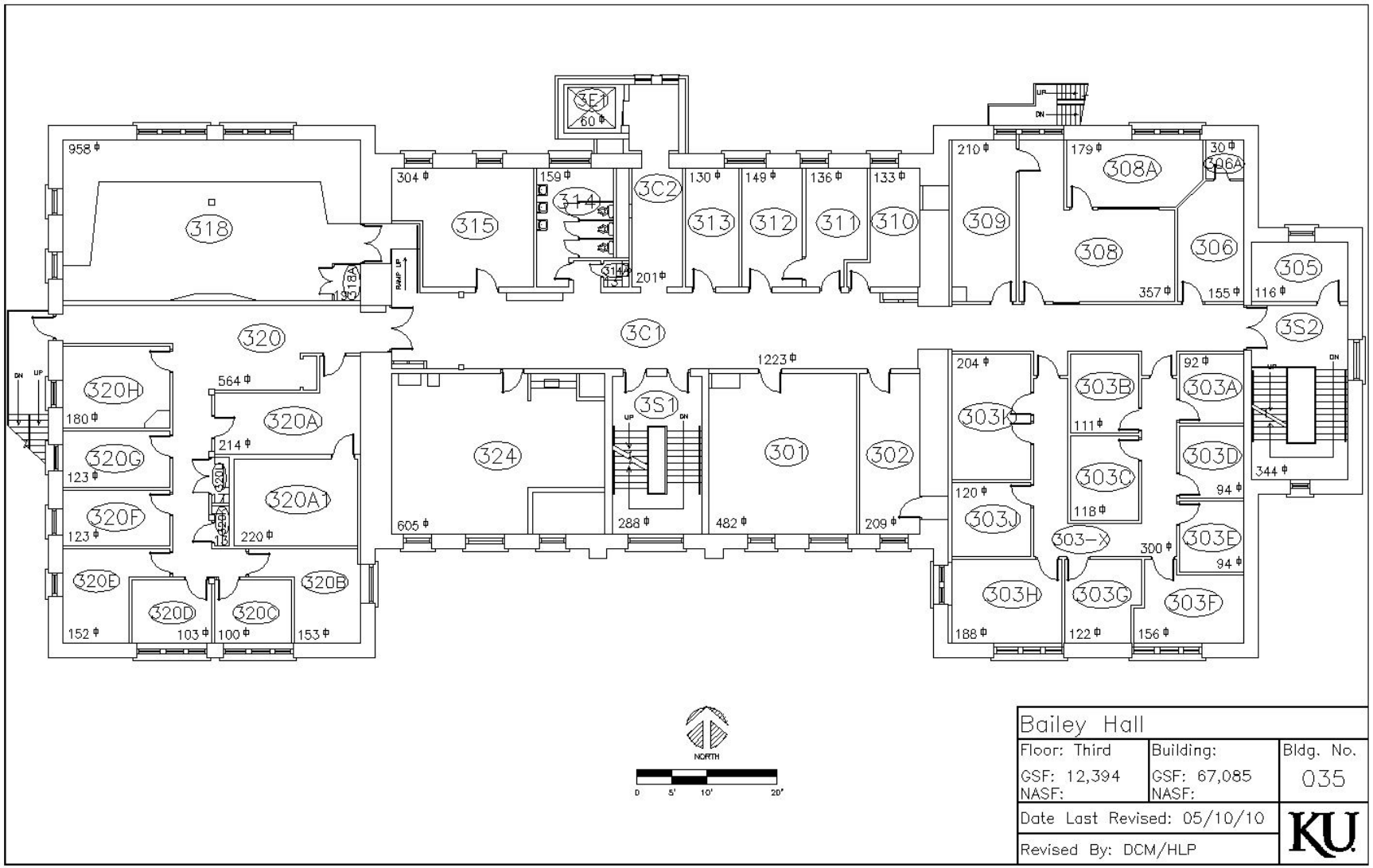
Existing First Floor Plan



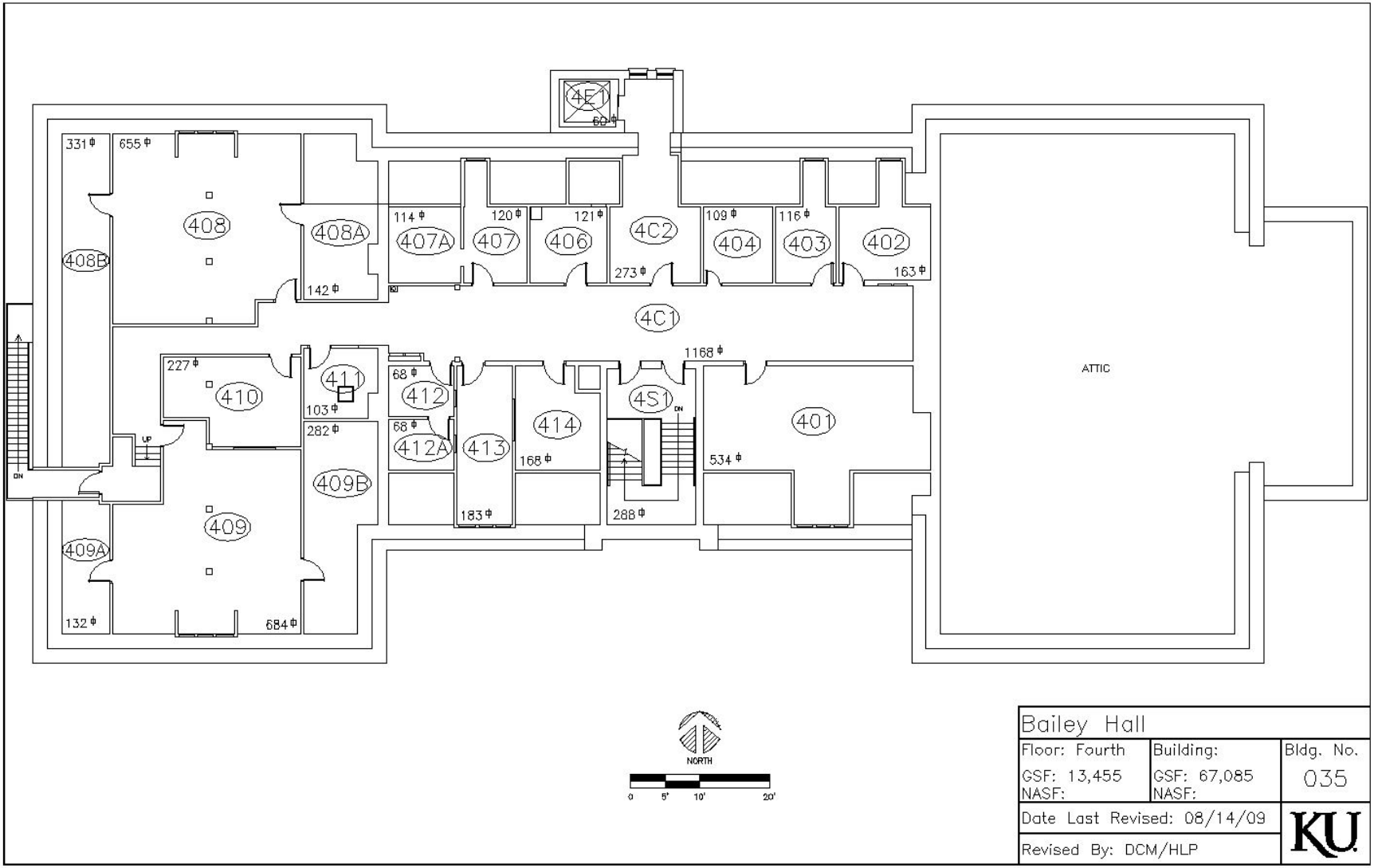
Existing Second Floor Plan



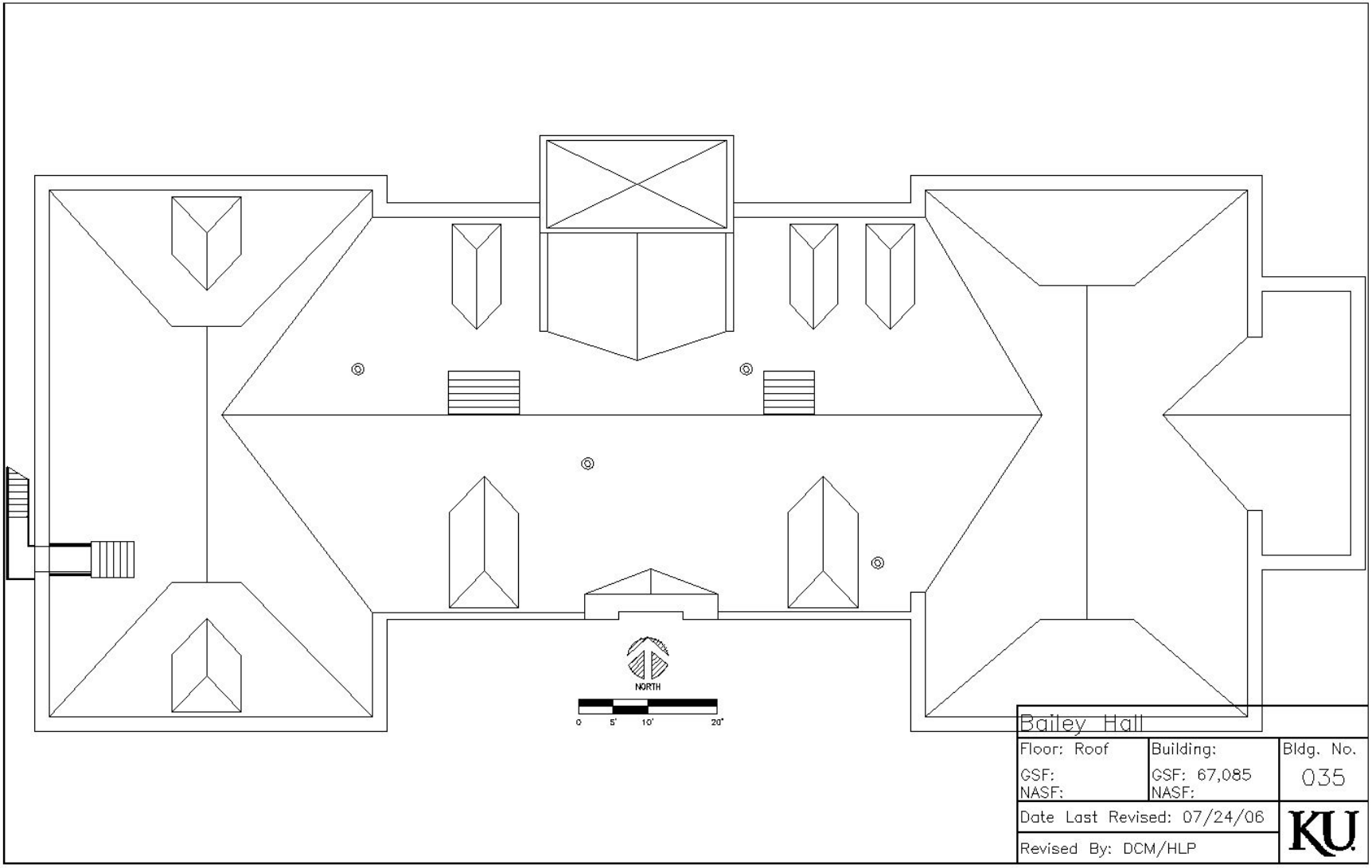
Existing Third Floor Plan



Existing Fourth Floor Plan



Existing Roof Plan



Architectural Program

Summerfield Hall - Mechanical & Electrical Improvements

(A Deferred Maintenance, Repair & Rehabilitation Project)

KU Project No. 079-9987

Date: March 31, 2014

Prepared by:

The University of Kansas, Lawrence Campus

Office of Design & Construction Management

Programming Committee

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Introduction

Summerfield Hall, 1300 Sunnyside Avenue, is a five-story yellow-buff brick building designed by State Architect John Brink and dedicated in 1960. The building was notable for the glass curtain wall on its south face. It occupies the previous site of eight World War II temporary buildings used as Sunnyside Apartments for married students.

The building was built for the KU School of Business. Space types include offices, conference rooms, classrooms, and lecture rooms. In 1982 a five-story addition was added to the south and west of the original building. The addition was primarily made up of office, open, and conference room space.

Today, the School of Business is still the occupant but will be moving into a new building in August 2015. New tenants are proposed to move into Summerfield, including the department of Film and Media. Other departments are being considered as potential tenants as well, at the time of this writing.

It is anticipated that Summerfield will be vacated in June 2016, at which time construction is expected to start. Space remodeling construction will start at that same time, as separate but related project(s) for the new departments that will move in. Due to the age and condition of the existing mechanical and electrical systems, they will need to be replaced at the same time or prior to the remodeling projects. If certain components can be replaced during the summer 2015 period, while the building is still occupied, that is an option that can be discussed with KU.

Project Overview

Building characteristics:

- Much of the original building has a perimeter utility tunnel below the first floor.
- Building gross square feet = 94,925
- Floor to floor height is 12’ 0”
- Structure is steel reinforced concrete frame
- Concrete beam depths including floor depth is 26” in many locations
- Floor to bottom of concrete beam heights in many locations approximately 9’ 10” (field verify) not leaving much room for plenum space utilities
- Aluminum framed exterior windows were installed in 1983.

The building is served by the following site utilities:

- 6” diameter, 90 psi campus steam service via utility tunnel to the northwest (1960)
- 6” VCP sanitary sewer (1960)
- Chilled water is delivered to the building from chilled water plant at Murphy Hall via tunnel to the northwest of Summerfield.
    - There is a packaged Carrier air-cooled chiller used as a backup chiller located on finished grade just west of the building that was installed around 2000. The unit is not used frequently due to how loud it is.
    - It is anticipated that the Murphy Hall chiller plant will continue to be used to serve Summerfield with the new tenants in 2016.
- 4” DI domestic water service off of a KU-owned line.
- 4” water line with PIV serving 1982 addition standpipe system.
- Building is not fire sprinklered.
- 1600A 120/208V electrical service
- Multi-pair copper cabling (voice) and multi-mode optical fiber cabling (data)

The existing mechanical systems include:

- Air compressors and pneumatic controls. Some Johnson controls exist in building.
- In original building section, 1960 vintage AHUs and one MZU with chilled water, heating hot water coils, and pneumatic controls; outdoor air provided via unit ventilators at exterior wall.
- Steam to heating hot water heat exchanger
- Steam to domestic hot water heat exchanger
- Carrier packaged air-cooled chiller located on finished grade west of building inside screened area.
- Mechanical penthouse
- No backflow on domestic water
- In 1982 addition, AHU with chilled water, heating hot water, hot deck and cold deck in mechanical penthouse added to serve addition's five floors via dual duct boxes.

Existing Electrical/Telecom Systems:

- Original 1960 Federal Pacific electrical panels. Many panels are full. There is a need for additional panels. Breakers are not available anymore for some of the existing panels.
- Original 1982 Gould switchgear
- Original building electrical feeders
- Spectron Dua-Lite Inverter to serve life safety systems
- Network uplink is 1 gigabit per second via specialty gigabit over multi-mode optics.
- Multi-pair copper cabling and multi-mode optical fiber cabling risers within the building from the main telecommunications room to each telecommunications room (TR). There is a TR on each floor with the exception of the fifth floor. All cabling on this floor feeds down to the fourth floor. This building has recently (within the last 10 years) been rewired and has a Category 5e cabling infrastructure capable of supporting gigabit Ethernet to the desktop. This building has also recently (within the last 2 years) had ubiquitous wireless installed in the building. The wireless was designed to ubiquitously cover the building to support computers and laptops. It was not necessarily designed to support handheld devices such as tablets and smart phones.

Proposed remodeling includes converting 1,500 square feet of office space on two floors into a 1,500 square foot 2-story space for sound stage. 2,200 square feet of space is to be converted into a sound recording studio. 2,500 square feet is to be converted into a computer lab.

Design Criteria and Goals

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

- Upgrade mechanical and electrical systems for new building tenants.
- Match systems to meet requirements of both existing spaces to remain and the new remodeled spaces. Coordinate MEP updates with remodel project.
- Mechanical systems to meet sound requirements for Film and Media spaces such as soundstage and recording studio.
- Complete the work within the design and construction schedule.
- Address energy conservation and sustainability issues in the mechanical and electrical design.
- Address life safety issues and meet current code requirements.
- Develop and implement a proactive and collaborative team approach to delivering the overall project on time and within budget.
- Reference KU Masterplan to inform any aspects of MEP design.

Space and Program Needs

Proposed improvements include the following items, which will be prioritized in collaboration with KU and which shall be completed to the extent that current funding allows. Alternate bids will be taken for flexibility in bid awards & overall phasing.

Mechanical / Electrical

- Mechanical and electrical systems shall be upgraded as indicated or required to support the existing and indicated improvements.

Telecommunications & Security

- At the time of this writing, the campus Distributed Antenna System (DAS) project is being implemented to improve cell phone service on campus. This includes addition of three antennas on the roof of Summerfield as well as a cable riser which shall remain.
- Access control, security, and telecom work not part of this program except for telecom serving BAS system needs.

Site Improvements & Infrastructure

Site Improvements

- N/A.

Utilities & Infrastructure

- Replace 53 year old 6” VCP sanitary sewer.
    - Existing mechanical / electrical systems to remain that are serving un-disturbed portions of the building shall be maintained.

- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with DCM and FS 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 the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

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

Deferred Maintenance

Summerfield was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 72

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.28

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work: The currently proposed project will address, at least in part, the following items which have been identified as deferred maintenance needs:

- Upgrade/replace HVAC systems with new DDC controls, meet current ventilation requirements, replace ductwork, and provide new grilles, registers, and diffusers.
- Replace inverter with small generator as an alternate.
- Fire alarm system upgrades not included in this program except for tie-ins to support new HVAC (fire/smoke dampers, duct smoke detectors, etc.). Existing Simplex main fire alarm panel (4100U) will continue to be used with new building tenants.
- Upgrade/replace electrical switchgear and panels as an alternate. Add new electrical panels to support new tenants and remodeling.
- Upgrade plumbing as needed to support remodeling. Add backflow protection to domestic water service line. Design and bid as an alternate the replacement of domestic hot and cold water piping.

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 & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the A/E on DCM's standard 11x17 code footprint sheets.
  - A/E shall update these drawings to reflect all proposed work and submit them for approval to OFPM thru DCM/UFMA, immediately following approval of the Schematic Design 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 fire sprinkler system shall be modified as required to maintain coverage throughout the building.
- Fire alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- Project scope will include any code or ADA-related improvements that are required in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

Design Standards / Consultant Services

The architectural/engineering (A/E) 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), posted online at DCM's website at: http://www.dcm.ku.edu/standards

  - The A/E team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
  - The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.
- The Owner's 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 & advise on M/E sound isolation provisions
- Electronic Files: Consultants shall deliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.
  - Each set of electronic files shall include both PDF and AutoCAD .dwg files for each drawing sheet.
- State Contracts: Since this project is considered to be state funded, A/E selection and contracting will be via State of Kansas, using OFPM's standard form of contract.
- Program Verification: A/E shall review and confirm all program needs with KU client/DCM, and shall reconcile the proposed project scope with the available funding.

University Energy Policy

The University is engaged in ongoing reviews of campus energy use and sustainability plans and policies, and has adopted an *Energy Policy* that includes requirements for projects to be designed and constructed so as to minimize energy use. The full policy is found at the KU Policy Library: https://documents.ku.edu/policies/provost/EnergyPolicy.htm#measures. The consultant shall become acquainted with this policy in its entirety.

- The following excerpt is from paragraph III-B *New Construction* of the *Energy Policy*. The design requirements included in this excerpt shall be considered project requirements.

  New construction [and major renovations, where feasible] should be designed and built to minimize energy use. The most recent version of ASHRAE Standard 90.1 - Energy Efficient Design of New Buildings except Low Rise Residential Buildings should be set as the minimum energy efficiency guideline, since it has been shown that further reductions in energy use are economically achievable. The current KU standard for new construction is 30% improvement on ASHRAE 90.1. The design process should include energy life cycle costing analyses. New construction should be added to the existing building automated control system for enhanced energy management capabilities. Alternative energy sources such as passive solar heating and heat recovery should be considered, as well as daylighting and other strategies for decreasing building energy consumption. Primary consideration should be given to connecting and/or extending central systems for heating, cooling and other mechanical systems. Year-round cooling needs should be met by utilizing the most energy efficient systems, for example plate-and-frame heat exchangers versus less efficient air-cooled systems. All new construction should include utility metering (electricity, natural gas, steam, and water).

- With regard to the University's expectations for sustainable designs, the current University Sustainability Plan, issued July 2011 can be found at: http://www.provost.ku.edu/pdf/sustainability-plan.pdf, and includes the following action step:

  Within the next year, establish a standards advisory board to update existing standards, with a goal of requiring all new construction and major renovation to meet or exceed minimum LEED Silver criteria by 2015.

  There is no specific funding identified within the budget of this project to account for incremental project costs that might arise from designing to meet LEED Silver criteria. However, the consultant should become familiar with both University sustainability policy and LEED criteria and is expected to identify design opportunities for University consideration during completion of schematic design.

- Regarding the *Energy Policy's* reference to preparation of an energy life cycle costing analysis, the University's expectation is that the consultant will, as part of the schematic design, include life cycle cost analysis of at least three alternatives for HVAC system improvements that are feasible solutions within Strong Hall.
  The consultant will be expected to provide the University with recommendations based on energy efficiency, costs, and O&M considerations. Costs should include life-cycle analyses.

Major Equipment Pre-Purchase Packages

The consultant team will be expected to assist with finalizing specification information and review of subsequent submittal information for the certain equipment, which the University expects to purchase directly and turn over to the successful bidding contractor for installation. Examples of equipment candidates for strategic sourcing include:

- Central Station Air Handling Units
- Secondary Recirculating Heating and/or Chilled Water Pumps

- Steam-to-Hot Water Converter for building recirculating heating water and/or domestic potable water needs

Construction Bid Document Preparation

The consultant shall prepare a consolidated set of construction drawings and specifications that encompass all anticipated work, i.e. sprinkler system (if applicable), mechanical system improvements, related electrical improvements and building envelope or interior space modifications or improvements.

The anticipated design sequence will follow requirements of Chapter 12 of the State Office of Facilities and Property Management's (OFPM) Building Design and Construction Manual. At a minimum, the following milestones are anticipated:

- Schematic Design Review
- Design Development Review
- 50% Construction Document Review
- 100% Construction Document Review

Construction Phase Submittal Requirements

The University is investigating options for enhancement of its existing Computerized Maintenance Management System (CMMS). Specific objectives for the use of the enhanced system are being developed at this time. It is anticipated that an important component of the upgraded system will be the ability to directly import construction phase equipment submittal data into the asset management module of the CMMS.

During the design phase of this project, the consultant will be expected to become familiar with the University's CMMS so that appropriate specifications can be prepared to clearly convey to bidding contractors the University's expectations for format and delivery of project submittal data.

The consultant should anticipate that, at a minimum, the University will require Submittals and O&M information be provided in electronic PDF format for all materials and equipment, for incorporation into the University's asset management system.

Construction Administration

The consultant will be expected to provide construction administration (CA) services during the construction phase of the project. CA service requirements will follow requirements of Chapter 16 of the OFPM Building Design and Construction Manual.

Historic Preservation Reviews

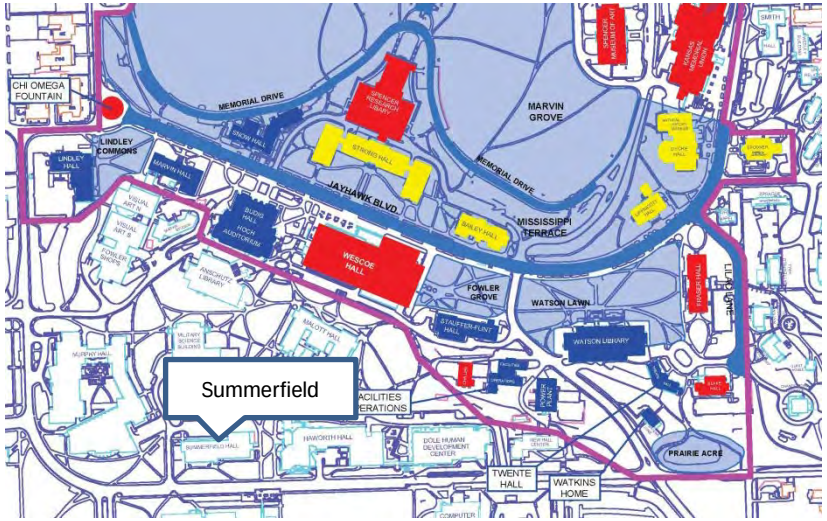
Projects on the KU Lawrence campus that are within a KU building listed on the State or National Register of Historic Places, or within one of KU's Historic Districts, require administrative review by DCM staff or full review by DCM staff and the Campus Historic Preservation Board (CHPB).

The Kansas Legislature repealed the 500' historic environs reviews in 2013, and although the City of Lawrence still requires environs reviews within 250' of properties listed on the City's historic register, KU projects within the City's 250' environs limits are not subject to review if on State property.

A copy of the KU Historic District Map can be viewed online at the DCM website, KU Buildings page. (Excerpt can be viewed on next page.)

The City's environs limits can be viewed on the Lawrence Interactive City Map.

Note: This project is not located within a listed KU property or within a listed Historic District, so no environs or historic preservation compliance reviews will be required.



KU - City Cooperation Agreement

KU and the City of Lawrence entered into a jointly-beneficial Cooperation Agreement in April 2005. It designated a compatibility buffer zone that extends 150' deep onto KU's property from the primary exterior boundary of KU's property.

New construction on the KU Lawrence campus within the 150' buffer zone must comply with designated City land-use regulations, standards and requirements.

Note: This project is <u>not</u> located within the 150' buffer zone, so the KU-City Cooperation Agreement does not apply.

Impact on Overall Campus Space

This project is a renovation / remodel of an existing building, and will not add to or remove any space from the University's space inventory.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources or new private resources. No new state funding will be required to cover any of these costs.

Proposed Project Delivery Process

Competitive Bid

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

Project Budget

Construction Costs	
Mechanical	1,450,000
Electrical	350,000
Subtotal - Construction Costs	**$1,800,000**
Miscellaneous Costs	
Fees - Consultants, State & KU Agencies, IRF	270,000
Printing & Shipping of Bid Documents; Misc.	5,000
Asbestos & HazMat Abatement (scope TBD)	30,000
M/E Commissioning	55,000
Bidding & Construction Contingency (6%)	140,000
Subtotal - Miscellaneous Costs	**$500,000**
Total Estimated Project Cost	**$2,300,000**

Notes:

1) Funding is proposed to be from revenue bonds, which will be paid off during a five-year period using EBF funds.
2) Funding is available in current fiscal year (FY 2015) for design. Construction will be funded in future fiscal year(s).

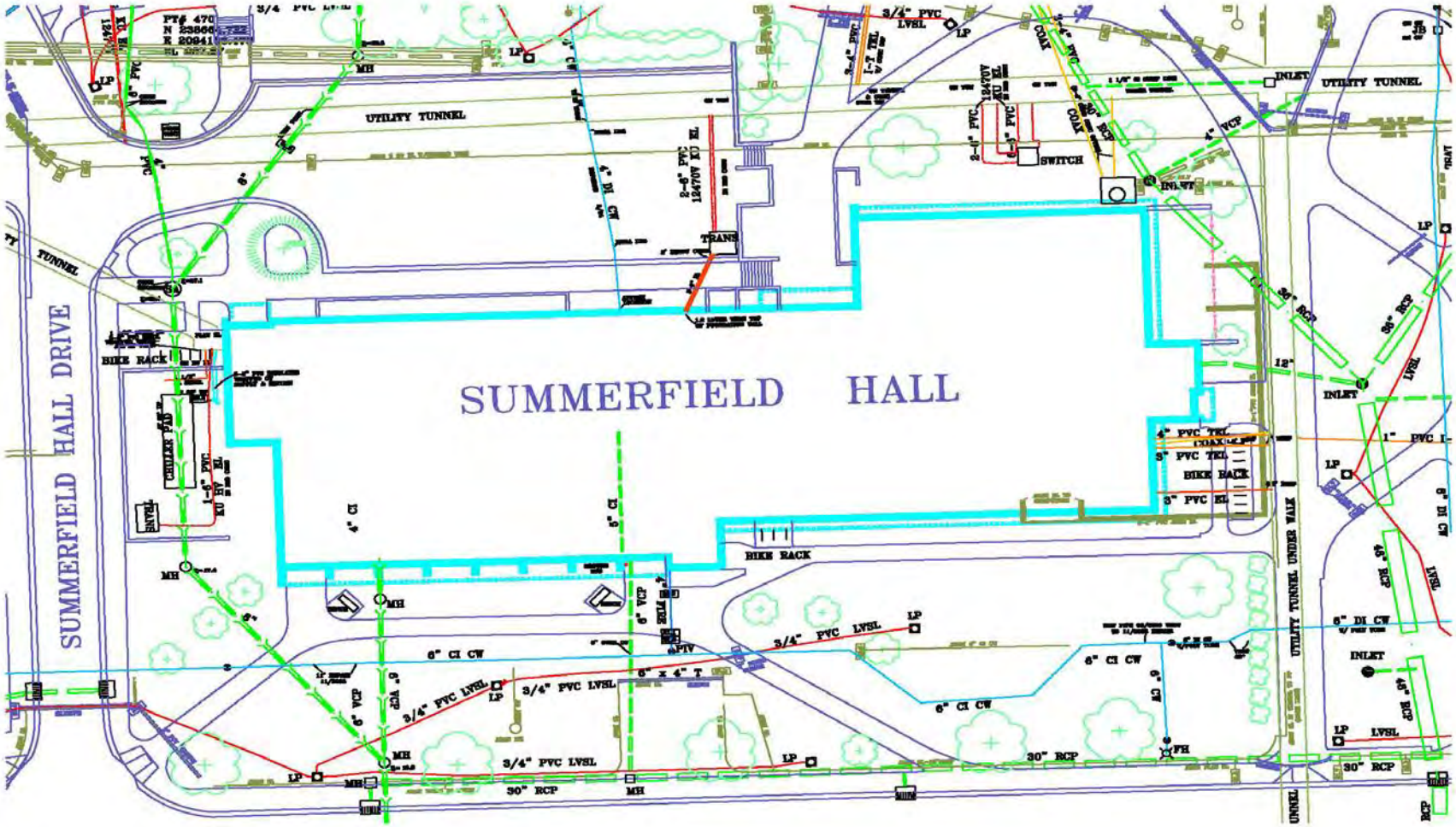
Project Schedule

KU Capital Projects Council Review & Approval	Nov. 2013
KBOR Review & Approval	April 2014
Joint Legislative Committee on State Building Construction Review	Fall 2014
Advertise for A/E team	June 2014
A/E Selection	July 2014
Negotiate Fees / Start Design	Aug. 2014
Submit Code Footprint / SD Submittal (2 mos.)	Oct. 2014
Code Footprint Approval / DD Submittal (3 mos.)	Jan. 2015
Complete CD's, submit for permit (3 mos.)	April 2015
Receive Bids; Award Contract	July 2015
Construction Starts	
Notice to Proceed	Aug. 2015
Early work (if applicable, during breaks)	TBD
After bldg. vacated by School of Business	June 2016
Construction Completion (9 mos. overall)	Mar. 2017

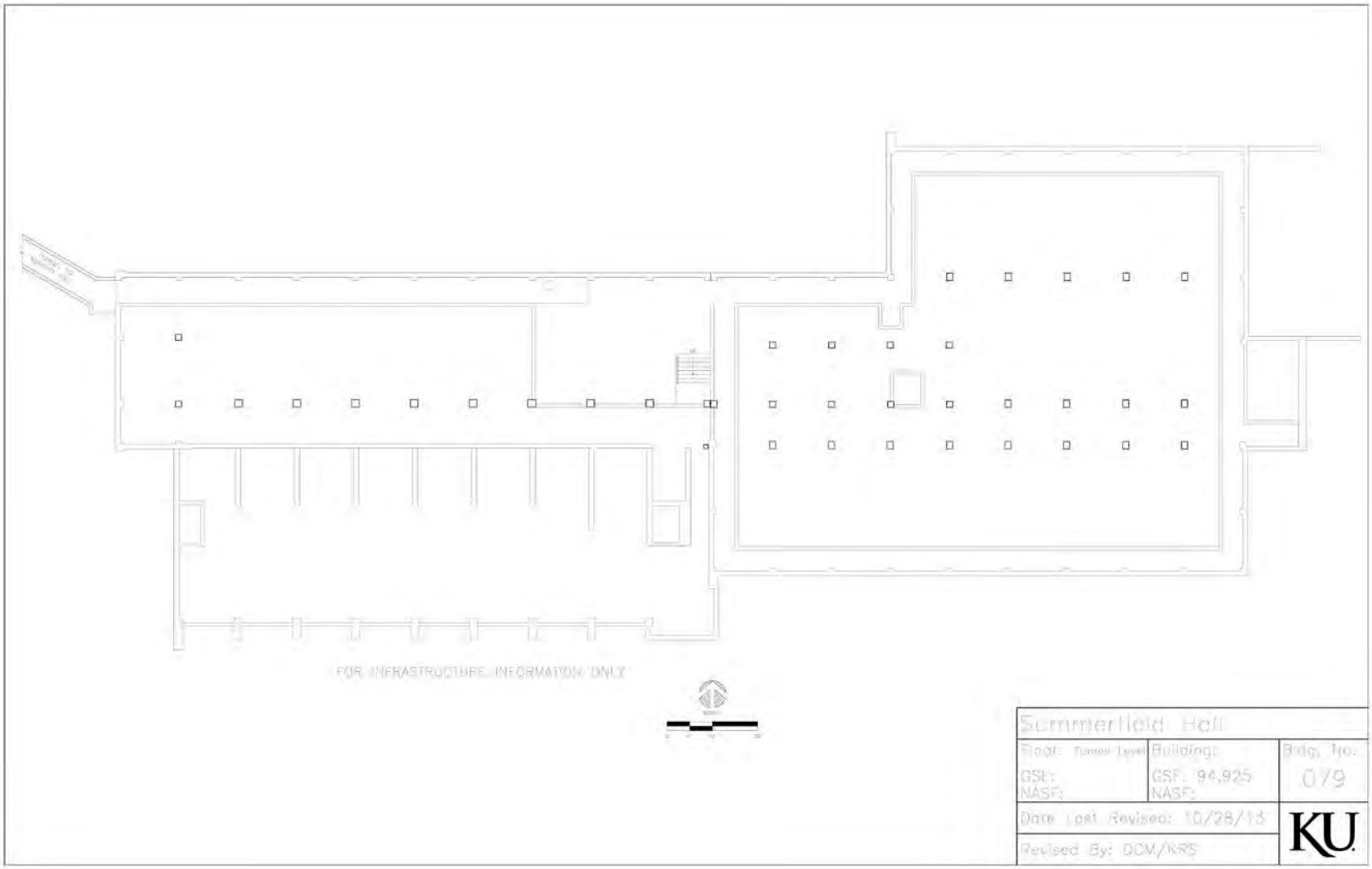
Notes:

1) The dates for issuance of construction documents for bidding and construction are dependent on confirmed funding (TBD) in current or future fiscal years.

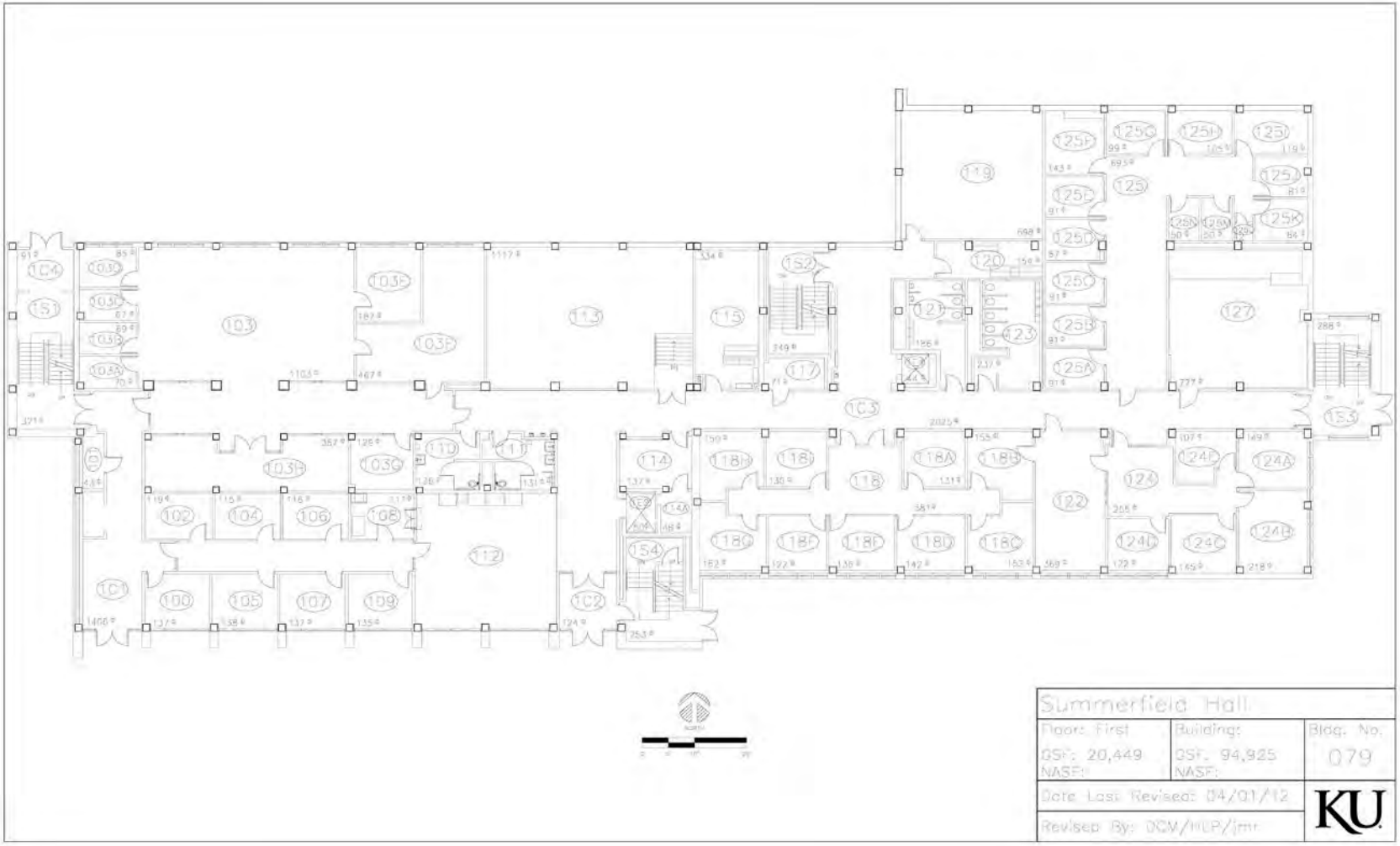
Existing Site Plan



Existing Tunnel Level Plan



Existing First Floor Plan



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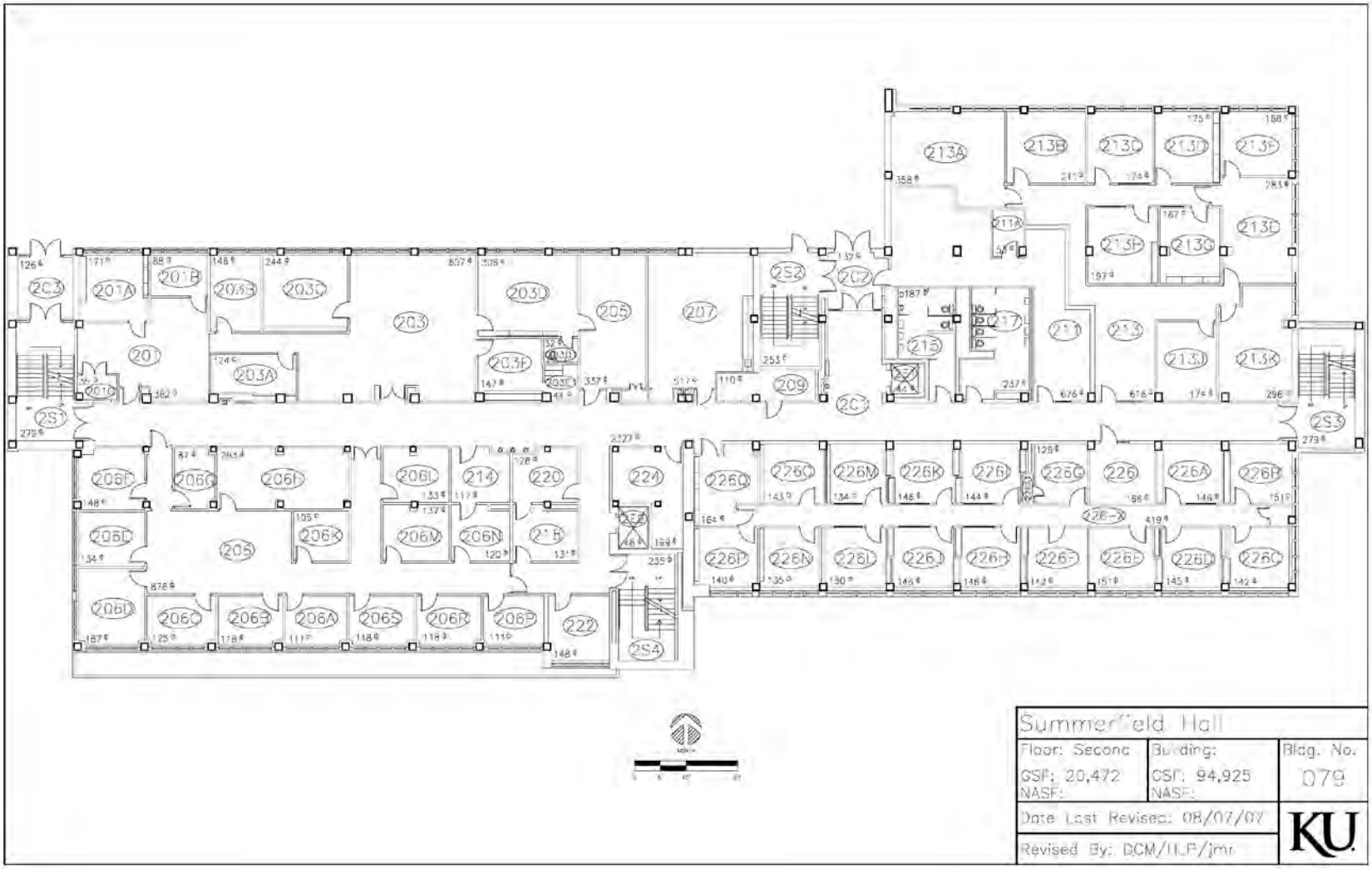
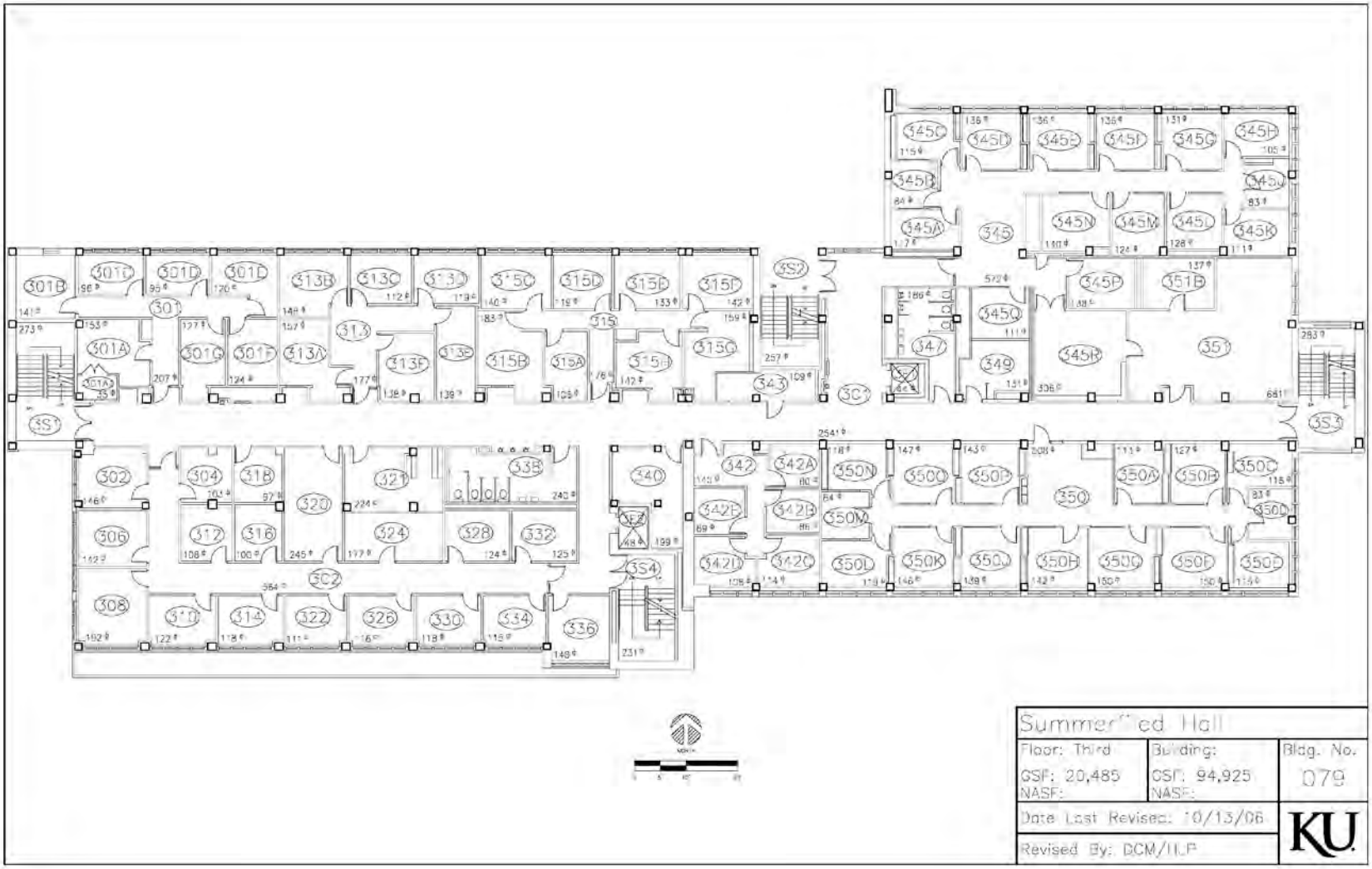


Existing Third Floor Plan



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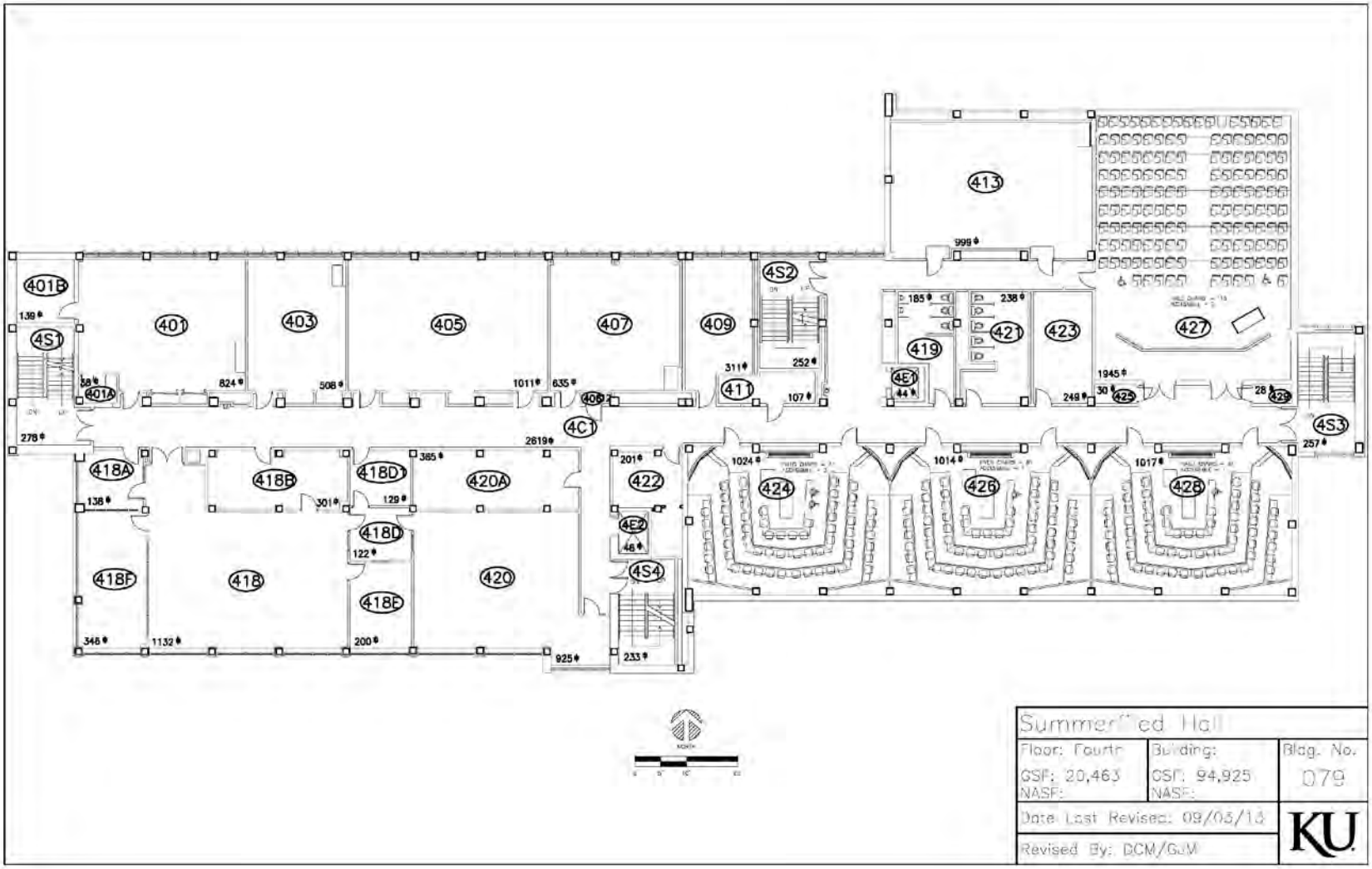
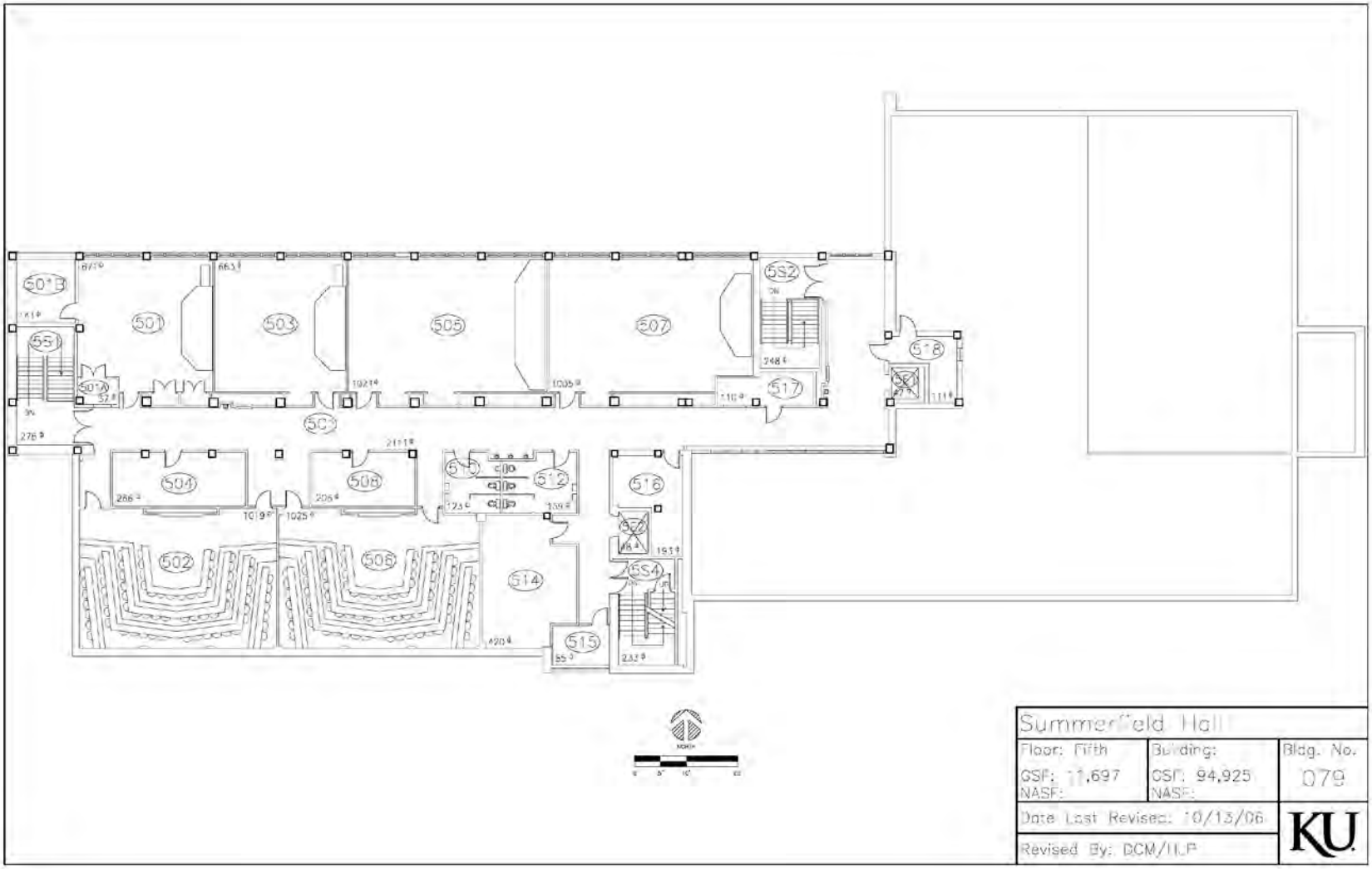
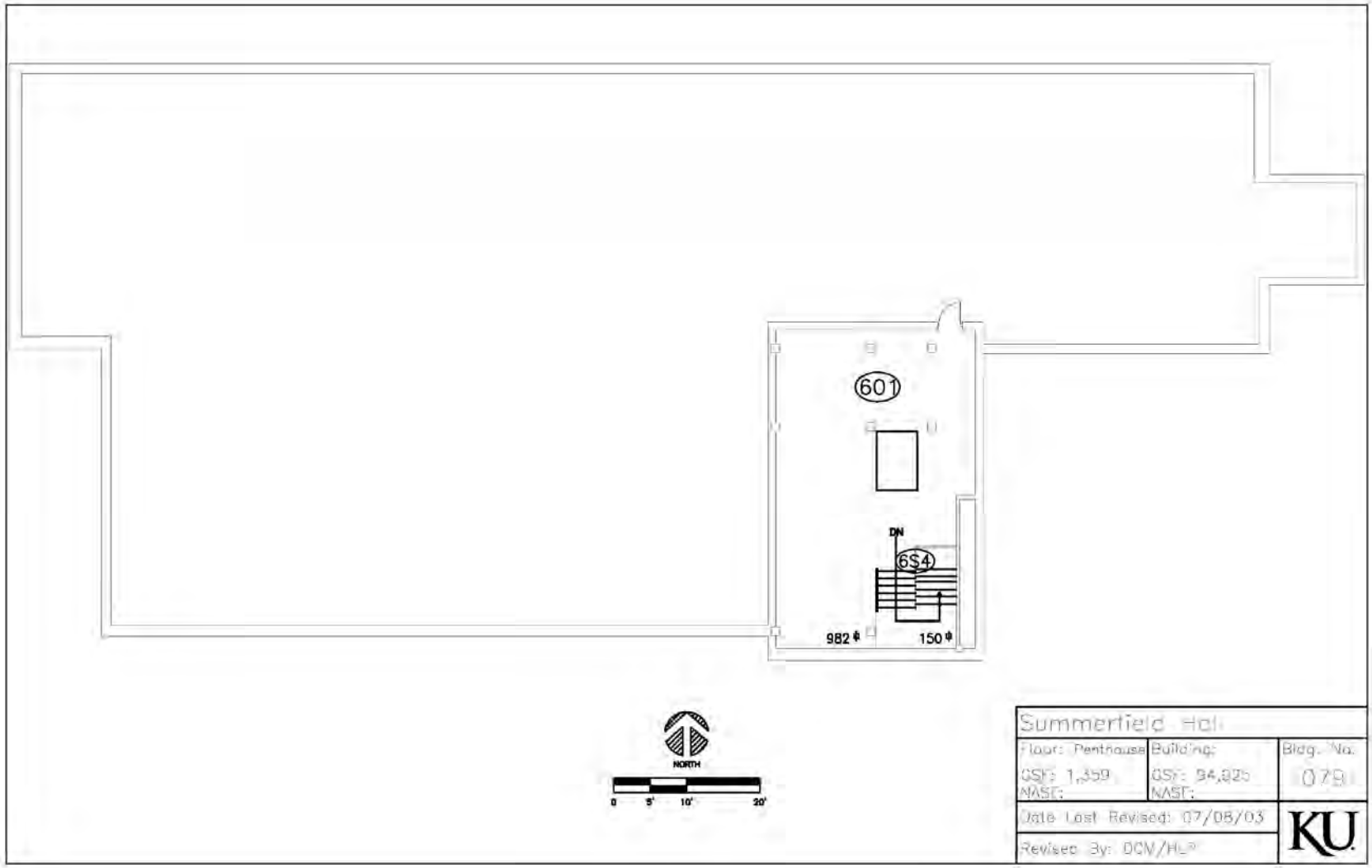


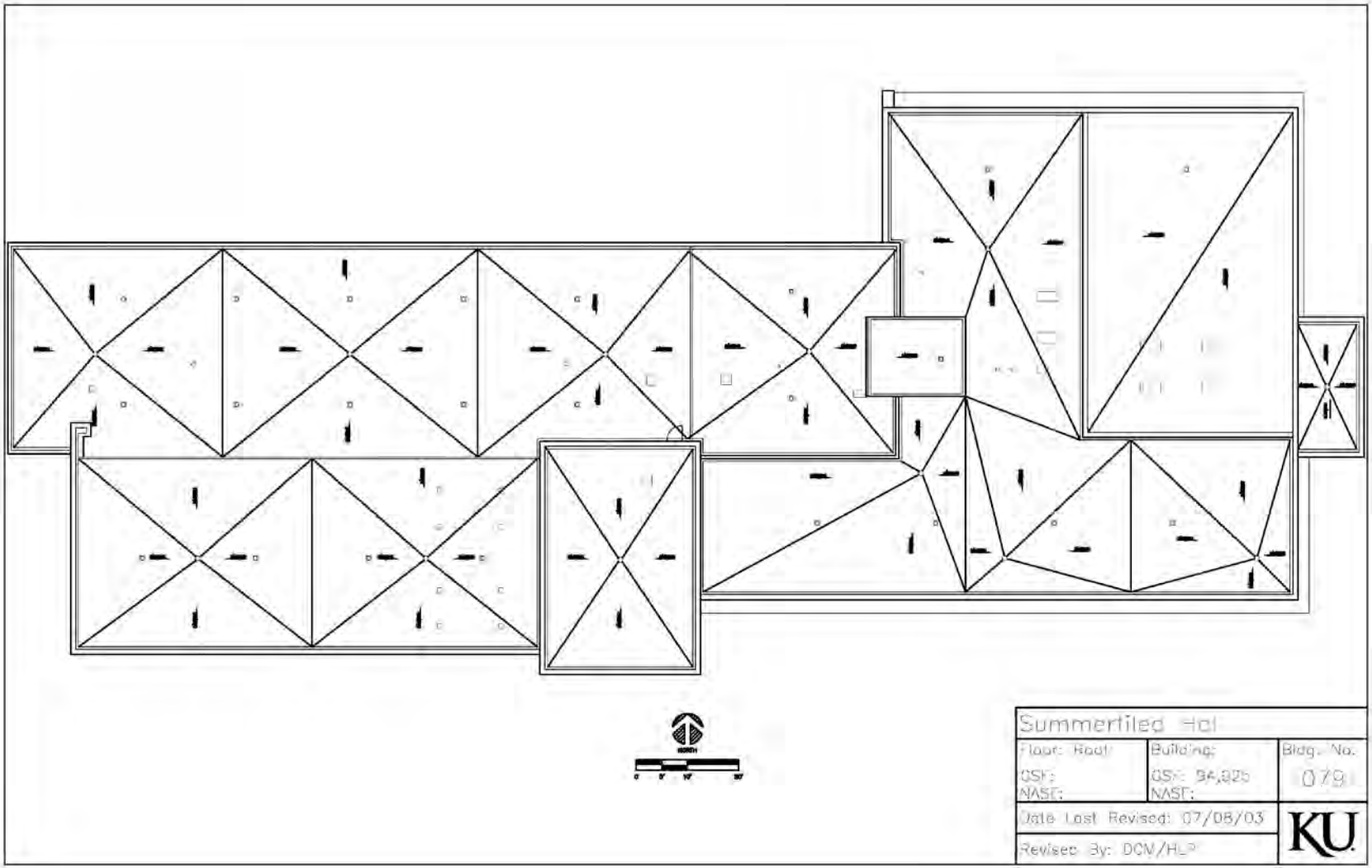
Existing Fifth Floor Plan



Existing Penthouse Plan



Roof Plan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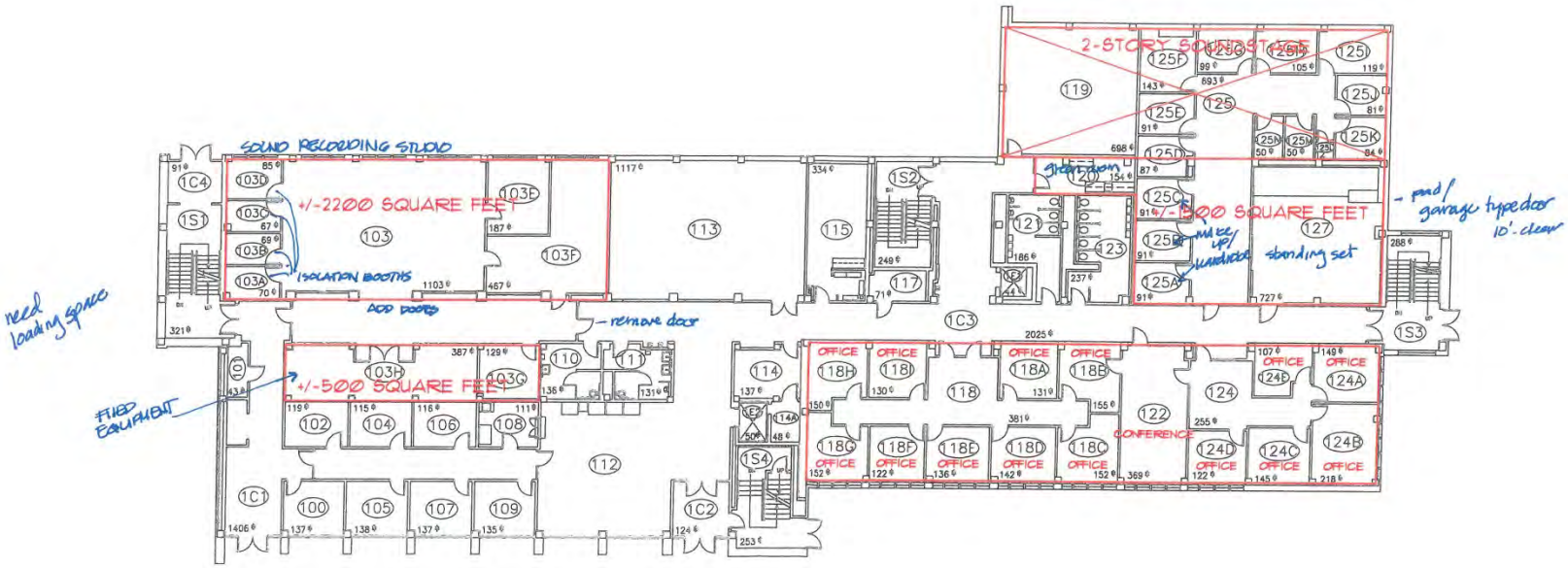
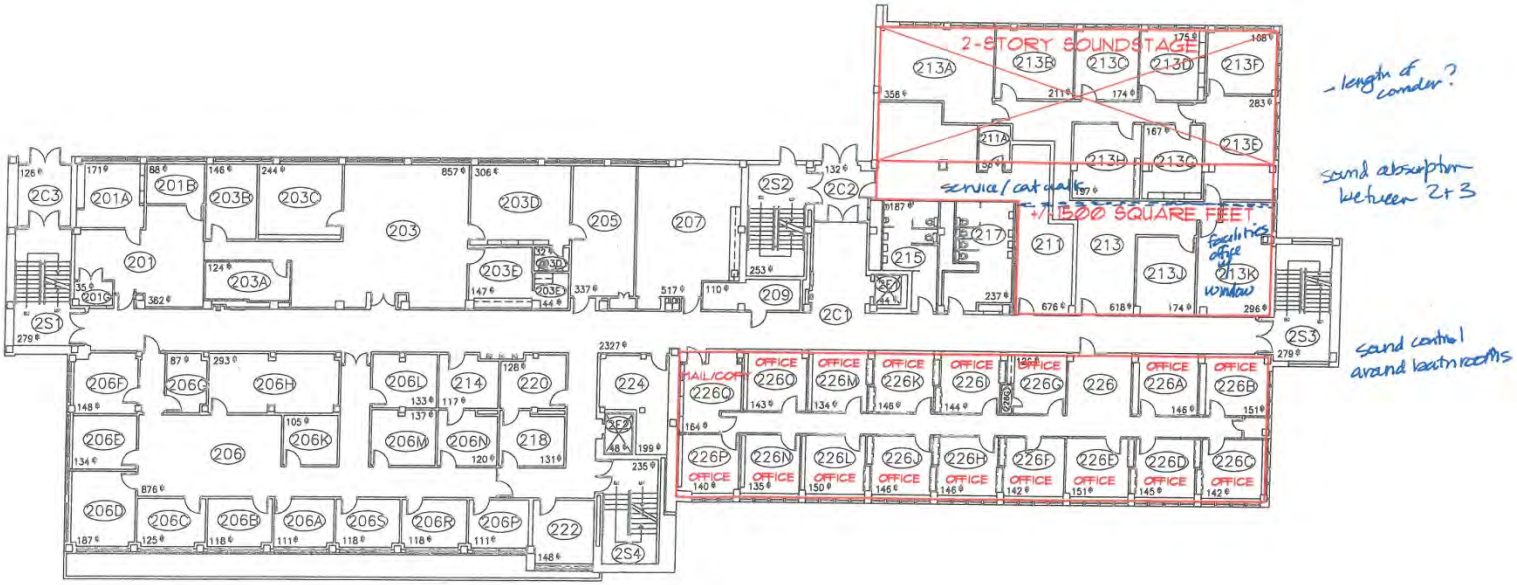
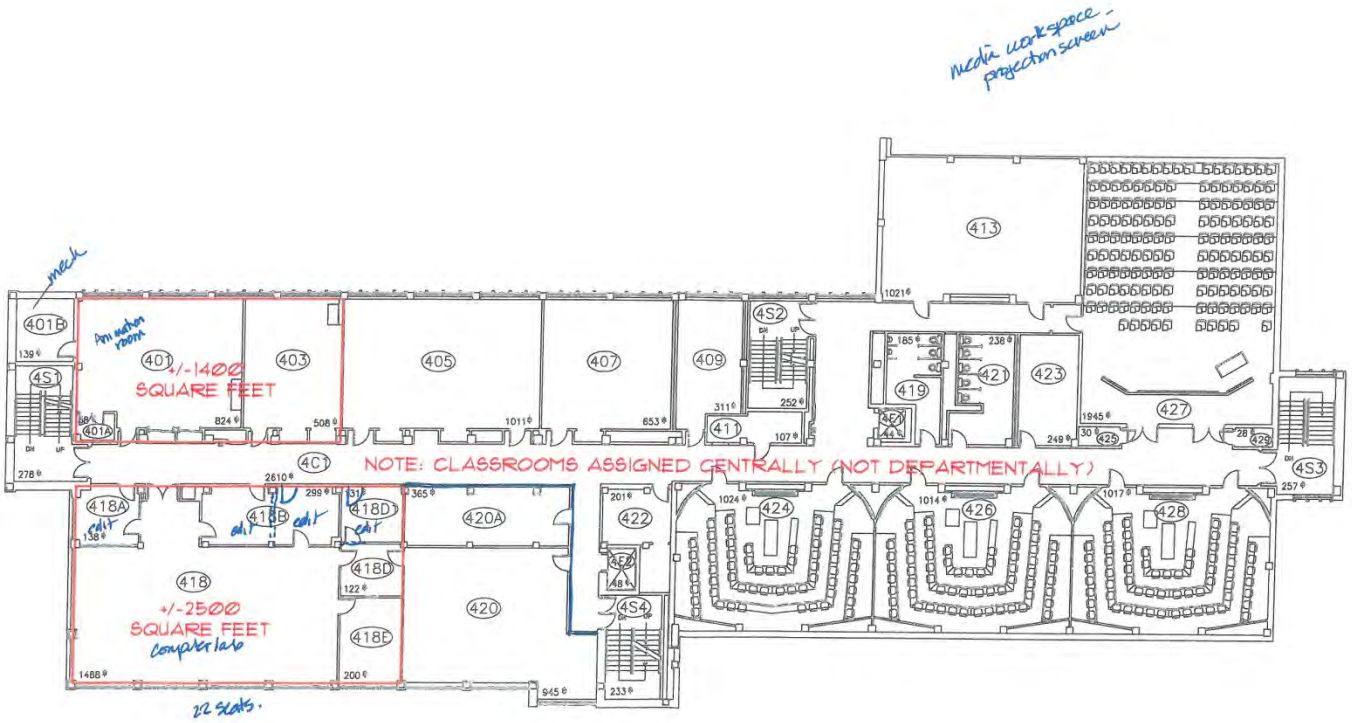
Floor: Roof
GSF:
NASF:
Building:
GSF: 94,925
NASF:
Bldg. No.
079
Date Last Revised: 07/08/03
Revised By: DCM/HLP
KU

Proposed First Floor Remodeling



Proposed Second Floor Remodel



Proposed Fourth Floor Remodel