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SPACE *and* CONSTRUCTION



NEEDS FOR KANSAS HIGHER EDUCATION
KANSAS BOARD OF REGENTS

**SPACE AND
CONSTRUCTION
NEEDS FOR
KANSAS
HIGHER
EDUCATION**

**KANSAS BOARD
OF REGENTS**

MARCH 1992

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SUMMARY OF NEEDS

One of the pressing needs at the Board of Regents institutions is facilities improvement. The quality of facilities and the learning environment affects the quality of instruction for our Kansas students, whether in classroom, laboratory, library, or rehearsal room. And many of our facilities are in need of maintenance, repairs, renovation, upgrading to comply with codes, expansion, or replacement.

Programs have outgrown facilities not originally intended for instruction, laboratories, offices, or the specific programs that now occupy that space. Or the space available is not flexible or functional enough for modern-day programs.

- The destruction of Hoch Auditorium by fire eliminated 7.3 percent of the total classroom space on the University of Kansas campus.

- Kansas State University's Farrell Library provides seating for only 4 percent of the K-State student body, and shelves are at full capacity.

- Nursing instruction at the University of Kansas Medical Center takes place in a former dormitory.

Many of our structures are rundown and have become obsolete or even dangerous.

- Mechanical and electrical systems in Beach Music Hall on the Emporia State University campus require immediate attention to meet current building codes, life-safety, and fire-code regulations.

- A deteriorating Albertson Hall on the Fort Hays State University campus is not only incapable of handling space and educational requirements, but inadequate fume exhaust has caused corrosion in the laboratories.

- Poor indoor air quality and the migration of fumes and chemical odors in Wichita State University's McKinley Hall have caused students and faculty to suffer discomfort and headaches. The condition of the building systems hinders ongoing teaching and modern chemical research.

- The antiquated electrical distribution system at ESU supplies power to the entire campus through a single KP&L substation. In 1990 a fault in a distribution cable caused a fire that evacuated several buildings and shut down power to part of the campus for 36 hours.

Inadequate facilities can harm the quality of instruction by not allowing our universities to keep pace with program growth and modern technological developments that will keep our instruction and our students competitive.

In some cases, consolidation of programs into a single building will allow related disciplines both a better opportunity to exchange ideas and to increase efficiency because of proximity. In other cases, more space is needed to eliminate overcrowding. Programs have grown, but the buildings have not.

- Building a Technology Center at Pittsburg State University will bring together all programs in the School of Technology and Applied Sciences that are now housed in several buildings throughout campus. This new, modern facility would provide safe and functional laboratories and classrooms for modern-day technology programs.

- An addition to KU's Murphy Hall will eliminate conditions that pack 250 people into an 80-person room.

- ESU's Beach Music Hall needs renovation to update architectural, structural, mechanical, and electrical elements and to update a building layout that has not kept up with changing technological and physical requirements of a growing program.

Our students are the state's most valuable natural resource, and our educational system is one of the state's major assets. The condition of our facilities has become a critical problem, one that demands our immediate attention.

Construction Cost Increases

In the 30 years since 1961 construction costs have increased approximately 400 percent. Classroom and office facilities that cost \$20 per square foot in 1961 now cost \$80. The Consumer Price Index has risen 300 percent since 1961.

During that same 30-year period the Education Building Fund (EBF) rose less than 150 percent, including the recent increase due to property reappraisal. The EBF provides funds for maintenance, repairs and renovation of facilities, remodeling, upgrading to comply with codes, additions to existing facilities, and new buildings.

While construction costs were outpacing our ability to fund them by more than two to one, our problem was compounded by a tremendous growth in enrollment and a 45-percent increase in our inventory of owned space. An increase in private giving has helped, but it cannot solve the problem.

The state of Kansas has a serious problem to face in unmet facilities needs. The following table illustrates the immediate funding needs for \$140 million of construction for the highest priorities on each campus.

Kansas Board of Regents Capital Improvement Summary of Needs

	State	Gifts	Students	Federal	Total
<i>University of Kansas</i>					
Hoch	\$ 18.0	—	—	—	\$ 18.0
Murphy Hall	7.8	—	—	—	7.8
<i>University of Kansas Medical Center</i>					
Nursing Education Building	10.0	—	—	—	10.0
<i>Kansas State University</i>					
Farrell Library	18.7	5.0	5.0	—	28.7
<i>Wichita State University</i>					
Chemistry Building	21.0	—	—	—	21.0
Power Plant addition	11.0	—	—	—	11.0
<i>Emporia State University</i>					
Beach Music Hall	3.2	—	—	—	3.2
Electrical distribution project	3.8	—	—	—	3.8
<i>Pittsburg State University</i>					
Technology Center	10.4	7.3	—	10.0	27.7
<i>Fort Hays State University</i>					
Physical Sciences building	8.0	—	—	4.0	12.0
Total	\$111.9	12.3	5.0	14.0	143.2

\$ in millions
March 16, 1992

HOCH RECONSTRUCTION

UNIVERSITY OF KANSAS

Lightning struck Hoch Auditorium on June 15, 1991, igniting an inferno that decimated the 64-year-old campus landmark. The fire forced administrators to relocate 15 large lecture classes scheduled in Hoch for the fall 1991 and spring 1992 semesters. It also displaced public radio development, housekeeping, and teaching assistant offices.

The need for large lecture hall facilities at KU has been apparent for a number of years. The demand has been increasing because of rising enrollments and budget limitations on the hiring of new faculty, both of which create the need to schedule larger classes. In the year immediately preceding the fire, Hoch provided 7.3 percent of the total classroom space on campus. It was used heavily for undergraduate classes, and its loss

impacts the disciplines of chemistry, biology, physics, sociology, psychology, history, American studies, and band. Last year more than 20,000 student credit hours were generated in Hoch alone. This year, with Hoch no longer available, Sociology 104 had an enrollment that exceeded 1,400 students, placing enormous strain on the temporary facilities that have been called into service as a result of the fire.

In addition to the need for large lecture facilities, the need for smaller classroom space has risen. The university's most frequently used teaching facilities will continue to be classrooms for 50 students or fewer.

The current space available for classrooms for all courses is well below the accepted goal for space based on student contact hours as recommended by the Kansas Board of Regents.

While the need for classroom space is critical, a well-documented, pressing, academic need is for additional library space. For years the physical facilities necessary to house the collections and provide reader and staff areas have been deficient. Specific gains that will be achieved through construction of a portion of the Hoch Reconstruction for library space are:

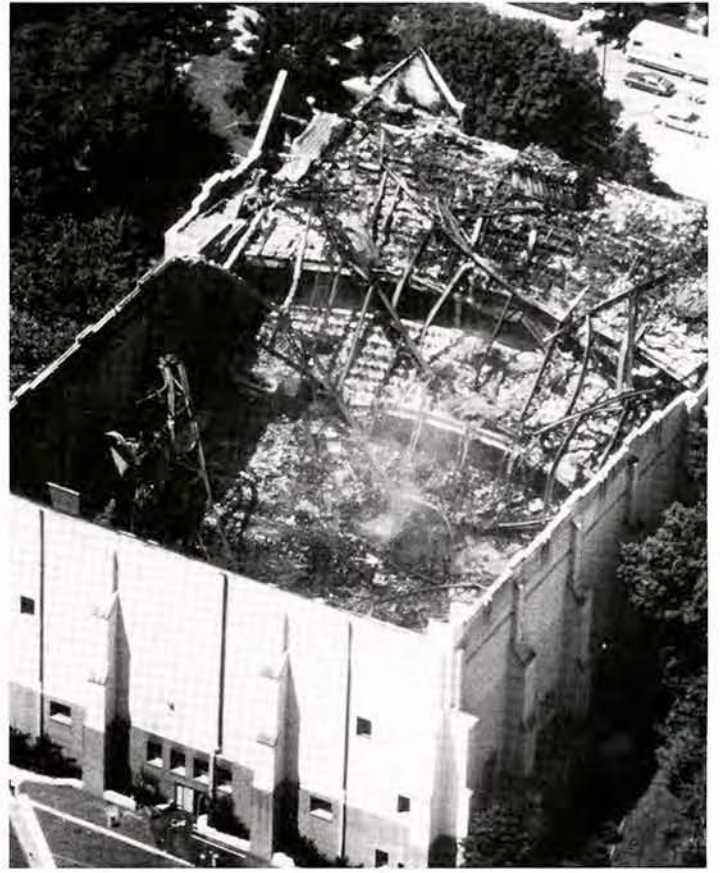
- Additional reference and study space.
- Additional bookstacks for collections.
- Improved facilities for social sciences holdings, government documents, and maps.

The concerns in the aftermath of the fire are many, but of significant importance is the loss of instructional space incurred by the loss of Hoch Auditorium. The instructional space that Hoch provided needs to be replaced and augmented as soon as possible.

The reconstruction of Hoch would provide 115,000 gross square feet of classroom and library space. The total project cost is estimated at \$18 million.



Fighting the fire at Hoch Auditorium. Photograph by Richard Gwin.



Hoch Auditorium from the air after the fire. Photograph by Daniel Starling, Kansas City Star.

MURPHY HALL ADDITION

UNIVERSITY OF KANSAS

The music programs in the Department of Music and Dance at the University of Kansas have long been recognized for their excellence in many areas. However, the educational process is seriously compromised because of inadequate facilities. The research capabilities and opportunities of both faculty and students are severely limited and compromised by inadequate, inappropriate, or nonexistent facilities.

During the last 30 years the Departments of Music and Dance, Theater, and Communications have outgrown Murphy Hall. The instrumental rehearsal room, designed to accommodate 80 musicians, has problems of acoustics, availability, accessibility, and size. The marching band can no longer practice in Hoch Auditorium,

and when it cannot practice outdoors, 250 people try to crowd into an 80-person room. The sound levels are deafening, and they travel to the choral rehearsal rooms above. With the loss of Hoch, temporary practice facilities have been set up in the Military Science Building firing range. There are currently no rehearsal rooms for smaller instrumental and choral ensembles or sectional rehearsals.

There are no facilities for the rehearsal of opera and musical performances, chamber, or mainstage productions. Chairs are pushed to the walls in classrooms at night to create rehearsal space. There is no opportunity for staging, movement, lighting, blocking, or decent acoustics. There is no recording and playback equipment in either of the rehearsal areas.

Storage in general is inadequate. Because of the tremendous growth in programs, the space designed for instrument storage has been converted to the per-

cussion studio, and an area designed for building maintenance has been converted to instrument storage. Tens of thousands of dollars worth of instruments are rapidly deteriorating because there is no temperature or humidity control in the room.

Additional library space for the music holdings is required. Presently there are many resources that are not available to faculty and students because there is not adequate space in the existing music library to shelve the holdings.

Improvements to offices and support spaces and accessibility throughout Murphy Hall will remain as areas to be addressed by future improvements. However, the additional rehearsal hall, new teaching and support spaces, and storage areas, along with limited renovation in the existing facility, will solve many of the needs of the music department. Since Hoch Auditorium was used for marching band rehearsals, it has become even more critical that a new rehearsal facility be built within the next few years.

The addition to Murphy Hall will provide 47,150 gross square feet of rehearsal and support space. The total project cost is estimated at \$7.8 million.



Due to lack of space in Murphy Hall, the KU band must practice in the firing range underneath the Military Science Building.



Crowded, makeshift office in Murphy Hall.

NURSING EDUCATION BUILDING

UNIVERSITY OF KANSAS MEDICAL CENTER

Instruction for nursing began on the University of Kansas Medical Center campus in 1906 when the School of Nursing was founded as a department within the School of Medicine. In 1974 the School of Nursing was organized as a separate school, and since that time has consolidated all its administrative, faculty, and teaching labs into the Taylor building.

This facility, constructed in 1953, was designed for student housing. As student housing on campus was phased out, these spaces were occupied by the School of Nursing with very minor renovations. The basic configuration of a "dormitory" structure is very inefficient for the use of faculty offices and clerical space due to the dimensions of the individual rooms, as well as the long, double-loaded corridor arrangement. The classrooms and teaching laboratories are not appropriate for today's learning strategies, such as small group exercises and experimental learning, or for current teaching technologies, such as computer-assisted instruction, interactive video, and distance learning.

The school currently has approximately 300 undergraduate students, 197 master's students, and 25 doctoral students. Applications to the undergraduate program were up by 32 percent this past year and have increased by 125 percent over the past five years. Enrollment in the master's program has increased 152 percent in the same timeframe.

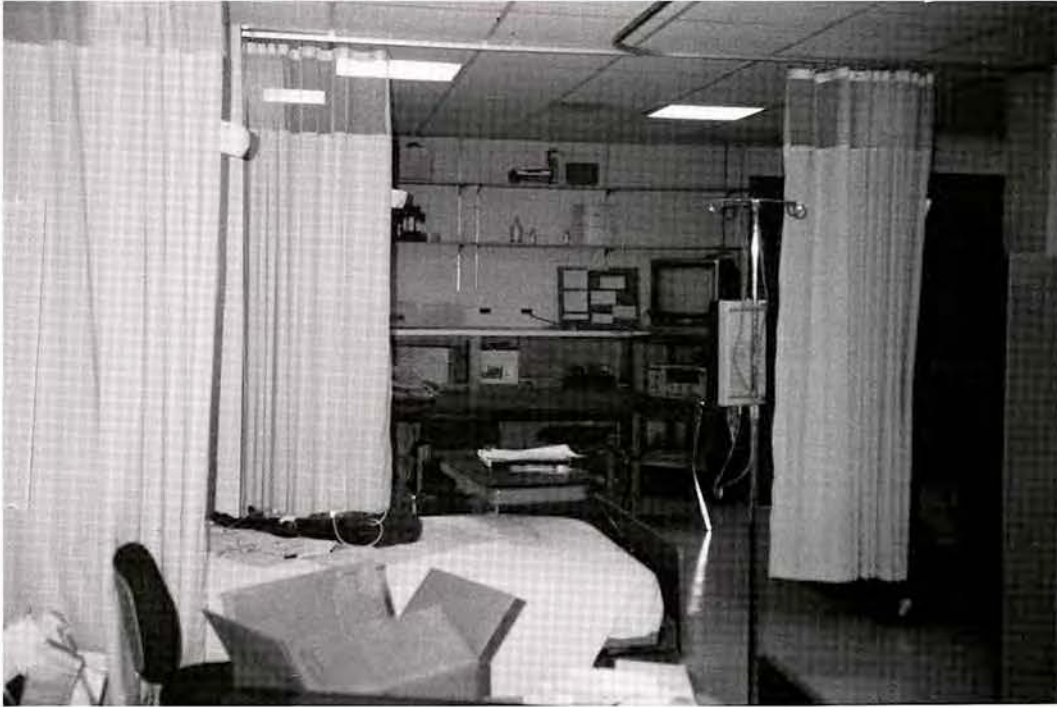
The demand for nurses has increased as a result of improvements in health care, shortened hospital stays, increased longevity, and the growth in health care technology. In addition, nursing skills required in today's highly technical health care environment demand specialized equipment and intensive teaching strategies. The current facility does not allow for flexibility to cover the demands of this environment, and will not provide for space for new programs as the need develops in the next decade. Additional faculty will be needed to meet the demands of the increased enrollment in graduate and doctoral programs.

The doctoral students and the growing research programs in the School of Nursing also require unique dedicated space. Specialized nursing research requires

space for clinically oriented activities such as individual patient assessments, private interviews of research subjects, and in-group and individual nursing practice intervention studies.

The health care community throughout Kansas looks to the KU School of Nursing for continuing education to provide essential programming to meet the mandatory continuing education credits required for ongoing licensure. Continuing nursing education to the community and outlying areas will multiply in the years to come. These programs also require state-of-the-art classrooms and clinical laboratory facilities to keep practicing nurses current. This will require additional computer labs, TV equipment for teleconferencing to facilities around the state, and technical equipment for teaching purposes that will be new to the medical field in future years. The Taylor facility has one classroom for teaching purposes, thus requiring the school to schedule other classrooms as available throughout the Medical Center.

The present facility contains 41,000 gross square feet with 25,357 net square feet of assignable space. Projected needs require a facility of 67,500 gross square feet, which has a projected construction cost of \$8.1 million. Consultant fees, construction costs, and equipment costs put the project total at \$10 million.



Nursing skills laboratory.



The Taylor Building is a former dormitory now used for the School of Nursing.

FARRELL LIBRARY EXPANSION AND RENOVATION

KANSAS STATE UNIVERSITY

Expansion and renovation of Farrell Library is critical to educational quality and growth at Kansas State University. A 1991 consulting study showed that, as of June 30, 1990, total library space at K-State was 35,550 net assignable square feet (nasf) short of adequacy (19 percent). This value considers multiple indices. The calculations included all main campus branch libraries and accounted for 200,000 volumes already in remote storage. K-State's January 23, 1992, update of library space needs shows a deficit of 69,000 square feet, based on Board of Regents (BOR) guidelines.

To evaluate space needs the consultants used national and BOR standards and realistic growth estimates, and assumed 25 percent of book collections would remain in remote storage. They projected a space shortfall of 68,610 nasf by the year 2000 and 122,250 nasf by the year 2020. Consequently, 50 percent of the space required by 2020 should be constructed before the end of this decade.

Farrell Library currently provides seating for only 4 percent of the K-State student body. However, less than one-quarter of the 850 available seats meets acceptable environmental standards. K-State thus provides a quality seat for only about one percent of its more than 20,000 students. The seating standard used by the consultants was a conservative 10 percent for calculating space needs. Thus, there is a need for nearly 1,200 new seats.

Farrell shelves are presently at full capacity. The Library will move 125,000 books from the general collections, 100,000 archival volume equivalents, and the 200,000 Nichols Hall volumes to the KSU Foundation Center storage in spring 1992. However, vacated shelf space will fill within four years, considering growth rates of nearly 40,000 general collection volumes each year. It is thus not possible to add seating or to vacate shelving for collection growth beyond 1996.

This proposal recommends the addition of 122,250 nasf (159,000 gross square feet) and extensive renovation and reconstruction of older phases of Farrell. Analysis of existing architectural, struc-

tural, and HVAC systems in 1927 and 1955 structures shows that:

- Large areas with improper air delivery systems are negatively affecting the physical collections.
- Vented eight-level steel frame stacks are a hazard and are not up to current fire codes.
- Inadequate electrical capacity inhibits implementation of electronic access systems.
- Poor integration of the three phases inhibits access and services.

The expansion and renovation is necessary as the means for (a) providing shelving for growth of the collections until 2020; (b) adding more than 1,200 quality study spaces for students; (c) providing space and utilities for new electronic information systems; (d) integrating service and access traffic patterns; and (e) providing a quality library that meets present, and future, study and research needs of K-State students and faculty.

Kansas State University requests a commitment of \$18.7 million from the state of Kansas for a \$28.7 million expansion and renovation of the Farrell Library facility. Student fees and private gifts will provide the remaining \$10 million.



K-State lost 900 seats in 10 years due to growth of stacks into seating areas.



Because poor integration and traffic flow exists between phases of Farrell Library, students often crawl through "windows" to get to the stacks.

CHEMISTRY BUILDING

THE WICHITA STATE UNIVERSITY

The Department of Chemistry currently is housed in McKinley Hall along with the Departments of Geology and Anthropology. McKinley Hall is an old building, having been built in 1928. The north and south wings were added in the 60s. Over the years aging and modifications to the building and its engineering systems have resulted in conditions that contribute to poor indoor air quality. Chronic problems continue for the chemistry program and the building's occupants relative to available space, quality of space, storage of chemicals, venting and exhausting of fumes, and the related complications with the building's HVAC system. Modern chemical research involves handling of materials with varying levels of toxicity, and the condition of the building's systems does in fact hinder research with certain materials.

Students and faculty within McKinley Hall have on several occasions complained of discomfort and headaches. This has generally been attributable to the migration of fumes and chemical odors within the building. Physical plant personnel, along with engineering and air quality consultants, have investigated these problems on several occasions. R. G. Vanderweil Engineers, Inc.,

of Boston, Massachusetts, reported: "The engineering systems in the building are old and have reached the end of their useful life." Many recommendations for enhancements to the building's air supply and exhaust systems have been completed, yet problems persist.

A new Chemistry Building is proposed as the number one priority project for which the WSU requests state financing.

A preliminary outline of the program proposed for the Chemistry Building is as follows:

Department of Chemistry	80,000	nasf
Chemistry Library	2,500	
General Classrooms	8,000	
Commons	2,000	
Total net assignable	92,500	nasf
	x 1.6	multiple
Total gross area	148,000	GSF
	x \$147	per foot
Estimated project cost	\$21,000,000	

In conjunction with the new Chemistry Building project, it will be necessary to expand the heating and cooling capabilities of the WSU central energy plant. Based upon findings and recommendations in a comprehensive study conducted by Mid-Kansas Engineering Consultants, Inc., such expansion is required not only for the Chemistry Building, but is

also needed to provide proper back-up capacity for existing buildings, boilers, and chillers in the event of equipment failure under peak load conditions.

The consultant's estimated costs for Phase I improvements to the energy plant, estimated in 1991 dollars are as follows:

Central plant building expansion	\$1,155,420
Phase I central plant chillers, pumps, and piping	4,978,000
Phase I central plant boilers and accessories	1,249,535
Variable flow controls and building connections	883,922
Utility tunnel	1,707,551
Phase I estimated in 1991 dollars	\$9,974,428

With allowance for inflation Phase I construction is estimated to be \$11 million.

Total estimated project costs	
Chemistry Building	\$21,000,000
Phase I energy plant expansion and utility tunnel	11,000,000
Total estimate	\$32,000,000



Damage from hazardous fumes.



Crowded, unsafe chemistry research and preparation area.

BEACH MUSIC HALL RENOVATION

EMPORIA STATE UNIVERSITY

Beach Music Hall has served the Department of Music at Emporia State University in basically the same configuration since it opened in 1926. Expansion of the music program over the years has required the department to expand into the Liberal Arts and Sciences Building immediately adjacent to Beach Music Hall and to "make do" with the restrictions and conditions of each building. The time has arrived to proceed with a major renovation of Beach Music Hall if we expect to utilize this facility into the next century.

Beach Music Hall's architectural, structural, mechanical, and electrical elements and systems have remained unchanged since the opening day of this facility. Obviously,

the mechanical and electrical systems require immediate attention just to meet the current building, life-safety, and fire code regulations. The building appears, through inspections by the Division of Architectural Services, to be structurally sound. However, a thorough structural analysis and testing will be required to verify the capability of this structure. Architectural elements within this facility (doors, windows, finishes, detailing, etc.) are at or near deterioration due to weathering, termite damage, abuse, deferred maintenance, and the age of these elements. Piecemeal patching and repair hardly make for a positive environment to provide instruction.

The layout of Beach Music Hall is the same as when it was originally designed. It is obvious that the requirements and demands placed on this music instruction facility have grown and expanded since 1926. The technological and physical

requirements of this building need immediate updating to meet the current and future needs of the music program. Proper planning of existing space is vital to the success of the project and program. The building program indicates a close scrutiny of current and future requirements is necessary to adequately accommodate the spatial demands of the music program. Space planning may indicate an addition to the building is necessary.

On many occasions, ESU has given tours of Beach Music Hall to representatives and members from the Board of Regents, the Legislature, and the Governor's Office. The reaction and comments from these visitors has reinforced our belief that the need for major renovation of this facility is critical, not only for the physical elements of the building, but also for the continued success of the music program at Emporia State University.

The estimated project budget is set at \$3.2 million, which includes construction, professional fees, moveable equipment, 10 percent project contingency, miscellaneous costs, and asbestos removal.



Typical outdated practice
cubicle in Beach Music Hall.



Termite damage in Beach
Music Hall.

ELECTRICAL DISTRIBUTION PROJECT

EMPORIA STATE UNIVERSITY

Emporia State University is served electrically by a single KP&L substation located south of the Maintenance Building. This substation serves 6 distribution circuits. The distribution of 4.16-kV power from KP&L substation to the building transformers is supplied radially. In a radial system, a single substation supplies each building through a single cable, and there is no alternate source of power for the cable.

The supply of power using a radial system has reliability disadvantages when compared to the "loop" system employed at many university campuses. There are approximately 8,000 feet of 4.16-kV conductor cables on the campus distribution system. Most cables are 30 or more years old. The reliable, useful life of these cables is normally considered to be 35 years. Therefore, some of the cables on the system are approaching the end of their useful life.

On August 28, 1990, a 4,160-volt distribution cable faulted in the steam tunnel north of the Liberal Arts and Sciences Building. The fault started a fire in the communications cable that was routed with the distribution cable. Several buildings were evacuated, and part of the campus was without electricity for approximately 36 hours.

Parts of the existing electrical system have been in service for more than 20 years, and parts of the electrical distribution system are at or beyond their useful life. Much of the communication cable for the university's phone and computer system is run in the same raceways as the distribution cables. These conditions caused concern for ESU personnel.

Another concern is the existence of PCB transformers inside the stadium.

The recommendation for corrective action is the replacement of the existing radial system with a loop system. The existing switchgear, with six cubicles, permits three loops to be used to provide electrical service to the campus, with each

source on the loop being supplied from a separate cubicle.

The first loop of the new electrical distribution system will include, in order of connection, Stormont Maintenance Center, the Powerhouse, the Memorial Union, King Hall, Plumb Hall, Beach Music Hall, and Liberal Arts and Sciences. Loop switches will be located at each building, requiring a new cable to be run. In addition, the transformer at Beach Music Hall will be replaced, along with a new section of low voltage distribution gear.

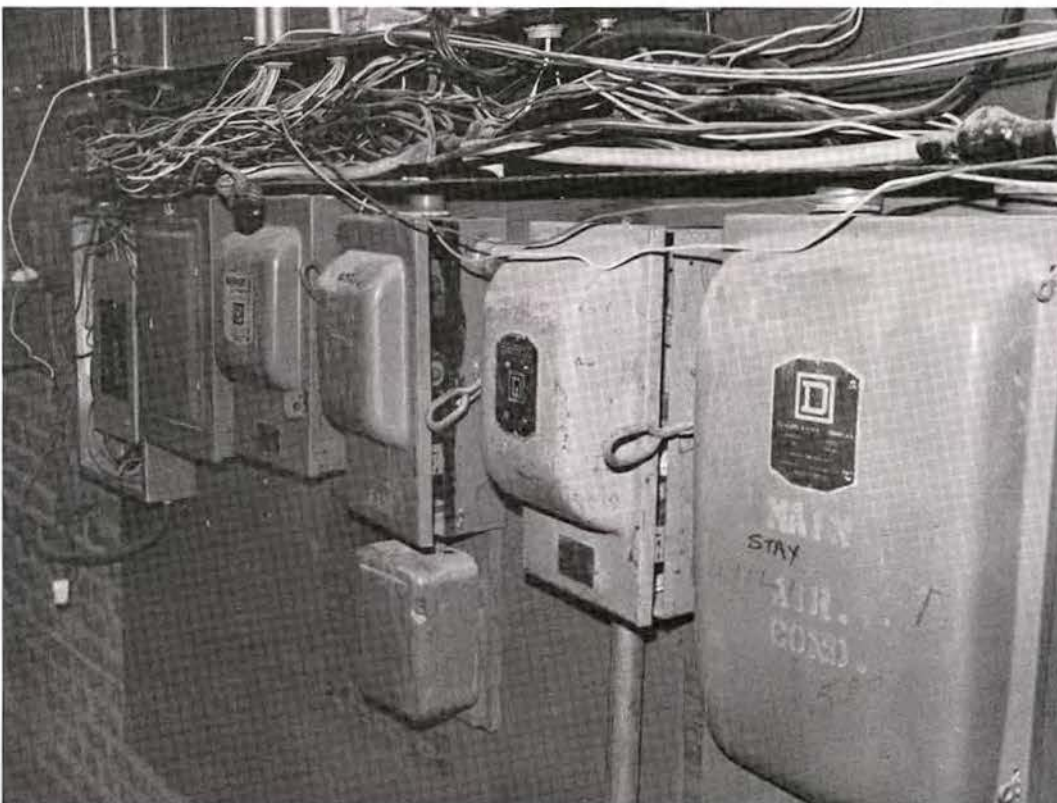
The second loop of the new electrical system will be configured similar to the first loop. The buildings on the second loop will be Twin Towers, Singular, Trusler, Welch Stadium, Welch Stadium West, Police and Safety, Morse North, Morse Northeast, Visser, Butcher, and Cremer. Welch Stadium will also get a new transformer and a new lineup of low voltage distribution gear.

The final loop on the electrical distribution will provide electrical power to William Allen White Library, Breukelman, Brighton, Cram, Morse South, Morse Southeast, and Morse Central.

The estimated project budget is set at \$3.8 million, which includes construction, professional fees, 10 percent project contingency, miscellaneous costs, and asbestos removal.



Antiquated and unreliable high voltage electrical distribution system on the Emporia State University campus.



KANSAS TECHNOLOGY CENTER

PITTSBURG STATE UNIVERSITY

The School of Technology and Applied Science at Pittsburg State University is housed in a number of facilities on the campus, including Whitesitt Hall, Hartman Hall, the Wood Technology Facility, Russ Hall, and Willard Hall. Over the years the School of Technology and Applied Science has taken aging facilities and made use of them with limited renovation money from the State Legislature. They can never be adequately renovated for

many of the high technology programs, even if significant sums were invested in them to meet the needs of modern day (and always changing) technology.

Except for the recently partially renovated Wood Technology Building, the School of Technology and Applied Science facilities are minimal or poor at best for their intended purpose. Whitesitt Hall (built in 1912) and Hartman Hall (built in 1927) were built in response to the original mission as the industrial arts and vocational teacher education program for the state of Kansas. Those who designed the buildings could not have envisioned the need for the functional, flexible space

and services that are required by modern-day industrial technology and engineering technology programs.

The School of Technology and Applied Science is truly a unique and innovative training unit in vocational/technical education. The school makes a substantial impact upon the economic development of southeast Kansas, the state, and the region. There is a real need to provide safe and functional laboratories and classrooms to house modern-day technology programs that need functional and flexible space.

This project requires a commitment of \$10.4 million from the state of Kansas. Private gifts of \$7.3 million and federal funding of \$10 million are also part of the \$27.7 million necessary for the construction of a Technology Center at Pittsburg State University.



A combination faculty office-lecture space for automotive repair in Hartman Hall.



Crowded conditions in the automotive service laboratory in Hartman Hall.

PHYSICAL SCIENCES BUILDING

FORT HAYS STATE UNIVERSITY

The Physical Sciences Building will provide sufficient space, equipment, and support to house the Departments of Chemistry, Geosciences, and Physics. This configuration will allow those disciplines the opportunity for the cross-fertilization of ideas and increased efficiency due to proximity. All three are housed in a deteriorating Albertson Hall, which is incapable of handling the space requirements, as well as the electrical demands, placed upon it by changing curricular patterns and new technology. Inadequate fume exhaust is a problem that has caused corrosion on light fixtures and metal surfaces throughout the existing labs.

The building will be capable of accommodating FHSU's computing center. The

center is the focal point of the communicative process at Fort Hays State University. It houses and administers the instruction, research, and service efforts of academic users as well as the management information system utilized by the campus community. Complete administrative support is also provided by the center.

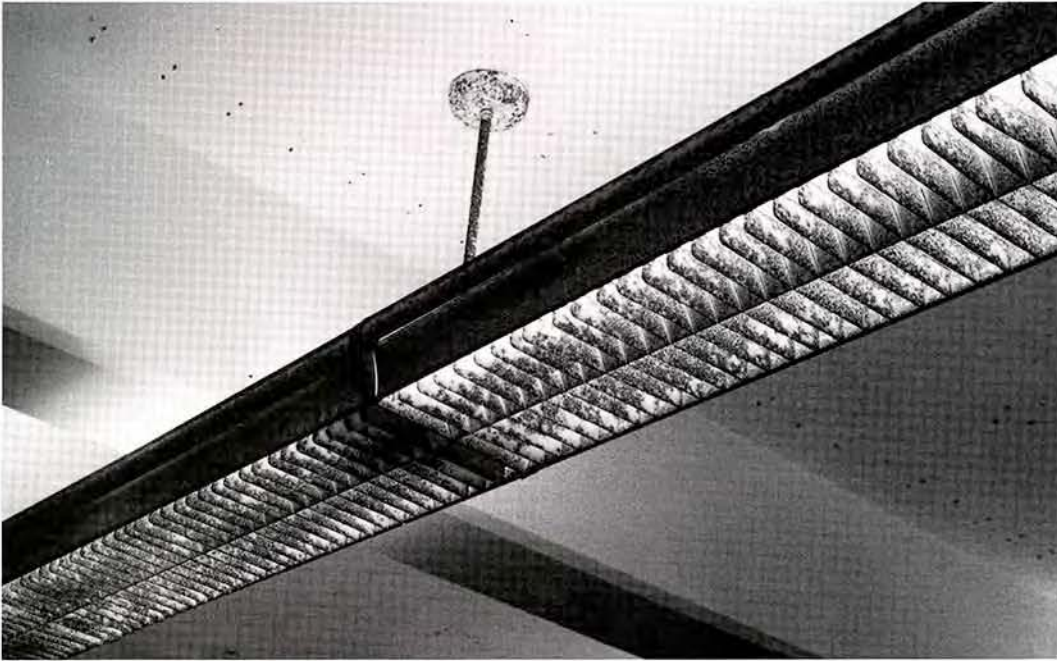
All buildings are connected by an information systems network, which provides the path for electronic mail and will have the capability for full transmittal of voice, data, and video transmission. The center provides technical expertise for academic and administrative applications as well as direction for future automation processes.

The center currently occupies Martin Allen Hall, which is inadequate for the demands placed upon it. It is not designed for current and future curriculum and technology. The space is limited, outmoded, and because of inferior electrical design, incapable of handling increased demands.

Finally, the facility will be unique in its capability to facilitate the use of computer simulations, two-way interactive video, computer disc technology, and accessibility to mainframe and external databases. Much of the time, these technologies will be utilized for on-campus instruction and research. Equally important, however, will be the building's potential to deliver long-distance learning off-campus.

Despite an increasing interest in long-distance learning technologies, efficient utilization of the potential of these telecommunication advances remains spotty and demand relatively weak across the nation. With 48,000 square miles of service area to cover, however, it is easy to understand how FHSU has become known as a pioneer in applying long-distance learning approaches. By linking this new science facility into a regional fiber optics network and the university's five off-campus centers, it will create a state-of-the-art educational facility that is certain to serve as a model for small to medium size science buildings of the 21st century.

The total project cost is estimated at \$12 million, \$8 million to come from state funding and \$4 from federal funding.



Metal light fixtures attacked by hazardous fumes.



Poor ventilation in Albertson Hall.

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