

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Ag Hall – Basement and Third Floor Renovations

space and general assignment of the spaces will remain very similar to the existing space assignments. The third floor will continue to be used as the undergraduate labs for the Biology/Microbiology Department.

The space in Ag Hall dedicated to heating and ventilating equipment is very limited. There is no air conditioning equipment in the building. Without removing assignable space from service and to facilitate renovations, we intend to construct a small addition to the building that will house mechanical and electrical equipment dedicated to serve the building. It will extend from the basement floor to the top of the third floor (4 stories). We anticipate each story of the addition will house air handling equipment that will be dedicated to serving that floor level. The first and second floors of the addition will remain shell space until the remainder of the building can be renovated.

The table below projects the space allocation and use of the renovated spaces. The first and second floors will not be affected by the project, except for plumbing risers, ductwork risers, and possibly elevator modifications. Therefore, space allocations of the first and second floors are omitted from the table except for the additional square footage for the mechanical room addition.

SOUTH DAKOTA STATE UNIVERSITY Board of Regents Science Facility Renovations Ag Hall – Projected Space Allocations
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Space Use	Count	Discipline	Level	Gross Square Feet
Basement				
Lab Storage	7	Soils Laboratory	Graduate & Extension	1,074
Research Lab	5	Soils Laboratory	Graduate & Extension	2,082
Lab Support	9	Soils Laboratory	Graduate & Extension	1,001
Office	11	Soils Laboratory	Graduate & Extension	1,232
Circulation	2		NA	1,693
Custodial	1		NA	82
Mechanical	2		NA	1,479
Mech. Addition	1		NA	775
Restrooms	2		NA	114
Basement Subtotal				9,532

First Floor	Count	Discipline	Level	GSF
Mech. Addition	1		NA	775
First Floor Subtotal				775

Second Floor	Count	Discipline	Level	GSF
Mech. Addition	1		NA	775

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Ag Hall – Basement and Third Floor Renovations

Second Floor Subtotal				775
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Third Floor	Count	Discipline	Level	GSF
Research Lab	5	Biology/Microbiology	Undergraduate, Graduate	1,513
Lab Support	7	Biology/Microbiology	Undergraduate, Graduate	2,723
Classlab	7	Biology/Microbiology	Undergraduate	7,272
Classroom Support	1	Biology/Microbiology	Undergraduate	326
Office	18	Biology/Microbiology	Bio-Micro, Plant Science, Doctoral	2,359
Circulation	1		NA	4,308
Custodial	4		NA	128
Mechanical	2		NA	219
Mech Addition	1		NA	775
Restrooms	2		NA	545
Third Floor Subtotal				20,168

g. Initial Cost Estimates

A preliminary estimate of the project costs is shown below. This estimate is based on cost estimates from previous lab renovation projects on the campus, and consultants' estimates for renovations of Shepard Hall and the Seed Technology Lab.

SOUTH DAKOTA STATE UNIVERSITY
 Board of Regents Science Facility Renovations
 Ag Hall – Preliminary Project Cost Estimate

Space Use	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Basement			
Lab Storage	1,074	\$ 275	\$ 295,350
Research Lab	2,082	\$ 275	\$ 572,550
Lab Support	1,001	\$ 275	\$ 275,275
Office	1,232	\$ 150	\$ 184,800
Circulation	1,693	\$ 150	\$ 253,950
Custodial	82	\$ 150	\$ 12,300
Mechanical	1,479	\$ 200	\$ 295,800
Mech. Addition	775	\$ 200	\$ 155,000
Restrooms	114	\$ 150	\$ 17,100
Basement Subtotal	9,532		\$ 2,062,125

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Ag Hall – Basement and Third Floor Renovations

First Floor	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Mech. Addition	775	\$ 200	\$ 155,000
First Floor Subtotal	775		\$ 155,000
Second Floor	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Mech. Addition	775	\$ 200	\$ 155,000
Second Floor Subtotal	775		\$ 155,000
Third Floor	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Research Lab	1,513	\$ 275	\$ 416,075
Lab Support	2,723	\$ 275	\$ 748,825
Classlab	7,272	\$ 275	\$ 1,999,800
Classroom Support	326	\$ 275	\$ 89,650
Office	2,359	\$ 150	\$ 353,850
Circulation	4,308	\$ 150	\$ 646,200
Custodial	128	\$ 150	\$ 19,200
Mechanical	219	\$ 200	\$ 43,800
Mech Addition	775	\$ 200	\$ 155,000
Restrooms	545	\$ 150	\$ 81,750
Third Floor Subtotal	20,168		\$ 4,554,150
Other Project Costs			Estimated Cost
Infrastructure Improvements			\$ 570,000
Asbestos Abatement			\$ 210,000
Relocation Costs			\$ 300,000
Subtotal			\$ 1,080,000
Project Total			\$ 8,006,275

h. Additional Services to be offered or benefits of the renovation

The nature of the project is to provide essential renovations, maintenance and repairs to the building so it can continue to be used in its current capacity. No additional services will be provided as a part of this project. We expect the Soils Lab to benefit greatly from this project. Modular laboratory renovations will allow more efficient laboratory work and will provide researchers an opportunity to organize the laboratory around the flow and sequence of the work. Air conditioning the lab spaces will directly improve the comfort of the office and lab environment. Ventilation will directly improve the lab safety. Upgrades to lighting systems will provide energy efficiency benefits.

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Ag Hall – Basement and Third Floor Renovations

The third floor research labs will benefit from improved modular lab designs and adequate temperature controls and air conditioning. The Biology/Microbiology labs will also benefit from improved infrastructure support and occupant comfort. The learning environment can also be enhanced through selective renovations that improve the laboratory support facilities.

Improvements to the building infrastructure will significantly improve the ability of the building to support the activities (research, office, teaching) of the occupants.

i. Analysis of student body, function, or constituents to be served

Basement renovations will directly serve the researchers and technicians who provide services as part of the SDSU and State Soils Laboratory. Indirectly, ag producers and other public groups will benefit from the improved layout and efficiency of the laboratory spaces.

Renovated third floor biology/microbiology labs will provide enhanced instruction space that will serve over 50% of the students attending SDSU. Improved research labs and lab support spaces (mammalian collection, insectarium, herbarium, lab prep space) will provide better support to faculty and researchers for their work in instruction, ecology research, environmental research, wildlife habitat maintenance, and the many ways humans interact and affect the environment locally and regionally.

j. Impact to Maintenance and Repair

This project will partially address a number of backlogged M&R projects the University has identified for infrastructure needs, space upgrades, building envelope repairs, and finish renewal. Since this is the renovation of an existing building, impact to maintenance and repair will be from the increased value of the building based on a major renovation.

k. Impact to Operational Costs

There will be added costs for space heating and cooling the renovated building. The existing building does not meet current ventilation rates. Additional ventilation air will be required for laboratory occupancies. Heat recovery systems will be installed to maximize energy efficiency. However, the renovations will likely result in an increase in heat energy consumed since basic quantities of ventilated air will increase substantially. We estimate that electrical costs will also increase when the building is provided a central air conditioning system. Currently, only about 50% of the existing building is cooled, albeit with inefficient window air conditioning units. A central air handling system will be much more efficient, but will not offset the increased costs from cooling 100% of the space.

l. Proposed funding sources for costs of:

1. **Construction** - The renovation project is part of the Board of Regents' request for funding for science lab facilities.

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Ag Hall – Basement and Third Floor Renovations

2. **Ongoing operations** - These will be funded by existing budgets in Facilities Management.

3. **Maintenance and repair** – These needs will be funded with the campus's HEFF M&R allocation. Current M&R allocations are insufficient so the Board has also requested additional funding to bring M&R allocations closer to 2% of building replacement values.

**SOUTH DAKOTA BOARD OF REGENTS
JOINT APPROPRIATIONS COMMITTEE BUDGET REQUEST HEARINGS
JANUARY 2008**

**SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation**

a. Project Overview

This project will completely renovate the Dairy & Microbiology Building, including the utility infrastructure serving the building. This project is independent of the Dairy Processing Plant Addition and Renovation project that is currently under design. However, this project coupled with the ongoing project to add on to and renovate the Dairy Processing Plant will completely upgrade the building to serve the researchers and students using the facility. With only a few exceptions, the building has not been upgraded or modified since it was constructed. The entire building needs renovation to bring it to modern standards, including needed life safety upgrades for general life safety protection and specialized laboratory protection.

b. Current Facility Description

The Dairy & Microbiology Building was constructed in 1962. This building is a laboratory, class/lab, and office building on the campus of SDSU. It also contains a dairy processing facility and the SDSU Dairy Bar. The building has not received any major renovations since construction.

The building is in good structural condition and structural capabilities are compatible with use as a laboratory and classroom facility. The building is a steel frame building with nonbearing masonry exterior and corridor walls. The building has received basic maintenance and repair throughout its life, but no major renovations have been undertaken to modernize the building. The upper roof of the building was reroofed with a modern single ply roofing system (including added insulation) in 1994. An elevator was added to the north end of the building in 1989. The transformer serving the building was replaced in 1996 after a lighting strike took out the transformer and the service to the building.

Since the building's construction a few renovation projects were undertaken to modernize individual spaces in the building. All projects were accomplished in a piecemeal fashion to address pressing needs for maintenance or renovations that could no longer be ignored. A cooling system was provided to the State Dairy Lab in 1989 which required major repairs in 2006. The lecture hall was renovated in 1995. The research laboratory for Alfred Cheese Chair was upgraded in 1994. The glazing system at the main south entrance and the northeast entrance were replaced in 2003 due to extensive leaking and failed seals.

The building finishes and infrastructure are showing the effects of 46 years of use. Heating piping, plumbing, electrical, built-in laboratory casework, and laboratory utilities are all original equipment. Water piping is galvanized piping which is corroded and leaking. It is about 20 years beyond its normal life expectancy. The building has a central ventilation system, but it does not meet modern standards for air changes required in a laboratory building. The building does not have air conditioning. Window air conditioners are used where needed. The secondary

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology -- Building Renovation

electrical system is at its recommended capacity. We are unable to add on electrical panels or accommodate large acquisitions of laboratory equipment due to the limitations of the existing electrical service. There are nonfriable asbestos containing materials that should be removed (primarily floor tile and piping insulation). The finishes throughout the building should be renewed except for the terrazzo flooring and interior brick walls. The microbiology labs have received no work since 1962 and built in casework and laboratory utilities should be replaced. Lighting is very energy inefficient. To meet modern life safety requirements, a fire sprinkler system should be installed and the fire detection system upgraded.

c. Proposed Renovations

SDSU proposes to use the funds allocated to renovate the entire building except the dairy processing plant. SDSU has a separate project to construct an addition to the dairy processing plant and renovate the existing dairy processing plant and SDSU dairy bar. This represents 35% of the space on the first floor.

The entire classroom and laboratory wing (three floors) of the building will be renovated. The work will include the lecture hall on the southwest corner of the building and the main lobby. This will include all laboratory built-in casework, room finishes, lighting, plumbing, laboratory service piping, fume hoods, heat systems and ventilation systems. The renovated building will be air conditioned. A fire sprinkler system will be installed. Other work will be required to support these renovations. A three story mechanical addition will be constructed on the north end of the building adjacent to the elevator. This will house the heating, cooling, and air handling equipment for the renovated building. The existing ventilation system will be removed and the space used for expanding the electrical service to the building. Windows will be replaced throughout the facility, except at the primary stair towers where a recent maintenance and repair project replaced the existing glass curtain walls. The building utilities will be upgraded or replaced (i.e. steam service, water supply service, plumbing and heating risers, waste piping, and laboratory utilities). The water service line will be upgraded to a 6" or 8" line for a fire sprinkler system. The secondary electrical distribution center will be replaced with a new distribution center.

d. Location and Site Analysis

Dairy and Microbiology is located on the western part of the campus on Medary Avenue. It is an 'L' shaped floor plan on the main floor. The north/south wing of the building is 3 stories tall. A large parking lot is located east of the building. Land slopes down to the main entrance of the building from the south, and the primary entrances to the building access the main floor of the building. All basic utilities are available to the building. A water main is south of the building that can provide adequate fire and domestic water service. The steam tunnel south of the building branches to the north and is directly under the sidewalk that constitutes the main entrance to the building. The building is located close to primary electrical switchgear, and the transformer is adjacent to the building. Sanitary sewer service drains away from the building to the west and north.

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

e. Space Allocation and Uses of Current Facility

The Dairy and Microbiology Building houses the Department of Dairy Sciences, microbiology classrooms, dairy research laboratories, and the State Dairy Lab. Portions of all three floors are devoted to undergraduate class labs and research labs. The research lab functions are directly tied to the dairy processing plant, in that much of the theoretical and practical research work is executed through sample trials in the processing plant production areas.

Basement level - The gross floor area of the basement is 521 sf. The space is mechanical equipment space housing infrastructure equipments that serves the entire building. This part of the building is tied directly to the steam tunnel surrounding the first floor level of the building and the steam tunnels serving the campus.

First Floor level – The gross floor area of the first floor is 22,654 gsf. 30% is used for general classroom space (one lecture hall), class/labs, and the State Dairy Lab for South Dakota (dairy quality testing). 9% of the space is used for offices and office support space for the Dairy Science Department and South Dakota Dairy Extension. 35% of the space is the SDSU Dairy Processing Plant and SDSU Dairy Bar. The SDSU Dairy Processing Plant and SDSU Dairy Bar will not be affected by the lab renovations project, but will be renovated under a separate project to construct and renovate the Dairy Processing Plant.

Second Floor level - The gross area of the 2nd floor is 9,380 gsf. 30% of this floor is used for research labs & research support space, or researcher’s offices. 44% of this floor is used for dairy science class labs and microbiology class labs.

Third Floor level - The third floor has 9,313 gsf. 79% of this floor is used for research labs, support space, and research faculty offices. One of the laboratories is an endowed research chair, the Alfred Cheese Research Lab.

The table below shows the current use of space in Dairy & Microbiology, by the category of use.

SOUTH DAKOTA STATE UNIVERSITY Board of Regents Science Facility Renovations Dairy and Microbiology Building - Existing Space Allocations				
Space Use	Count	Discipline	Level	Gross Square Feet
Basement				
Mechanical	1		NA	521
Basement Subtotal				521
First Floor				
Research Lab	1	Dairy Science	Doctoral	674
Classroom/Lab Support	4	Dairy Science	Undergraduate, Doctoral	648

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

Classroom & Class Lab	3	Biology/Microbiology & General Use	Undergraduate	4,407
Mercantile	2	Dairy Science	Dairy Science, Doctoral	863
Office	12		Dairy Science	2,056
Conference Room	1	General Use	NA	644
Circulation	2		NA	3,676
Custodial	4		NA	450
Mechanical	3		NA	666
Restrooms	3		NA	558
Dairy Processing Plant	19	Dairy Science	Undergraduate, Graduate, Doctoral	7,423
Processing Plant Offices	1	Dairy Science	Undergraduate, Graduate, Doctoral	252
Processing Plant Mech	1	Dairy Science	NA	337
First Floor Subtotal				22,654

Second Floor				
Research Lab	1	Biology/Microbiology	Graduate, Doctoral	799
Lab Support	8	Biology/Microbiology	Graduate, Doctoral	1,299
Class Lab	4	Biology/Microbiology	Undergraduate, Graduate	4,096
Office	5	Biology, Extension	Graduate, Doctoral	643
Conference Room	1	General Use	NA	376
Circulation	2		NA	1,837
Custodial	1		NA	52
Restroom	1		NA	278
Second Floor Subtotal				9,380

Third Floor				
Research Lab	11	Biology/Microbiology	Graduate, Doctoral	5,705
Lab Support	4	Biology/Microbiology	Graduate, Doctoral	241
Office	13	Biology/Microbiology	Graduate, Doctoral	1,428
Circulation	2		NA	1,603
Custodial	1		NA	62
Restroom	1		NA	274
Third Floor Subtotal				9,313

Building Area				41,868
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f. Space Allocation and Uses of Renovated Facility

The proposed project will renovate the entire laboratory and classroom wing of the building. The condition of the infrastructure support facilities is inadequate to allow room by room renovations of the existing building. We expect the space allocation on each floor to be similar to current space allocations. We plan to explore renovations that will improve efficiency of lab

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

operations, office layouts, and support spaces. The existing Dairy Processing Plant and SDSU Dairy Bar will be renovated and added to under the scope of a separate project that will be completed prior to renovations of the existing facility. The scope of the lab renovations project does not include work in the existing Dairy Processing Plant.

The space in Dairy and Microbiology dedicated to heating and ventilating equipment is very limited. There is no air conditioning equipment in the building. Without removing assignable space from service and to facilitate renovations, we intend to construct an addition to the north end of the building that will house mechanical and electrical equipment dedicated to serve the building. It will extend from the first floor to the top of the third floor. We anticipate each story of the addition will house air handling equipment and electrical equipment that will be dedicated to serving that floor level.

The following table estimates the space allocation and use of the renovated spaces. Although mechanical space will be added we do not expect significant changes to the space uses and allocations within the building as a result of this project.

SOUTH DAKOTA STATE UNIVERSITY Board of Regents Science Facility Renovations Dairy and Microbiology Building - Space Allocation of Renovated Facility				
Space Use	Count	Discipline	Level	Gross Square Feet
Basement				
Mechanical	1		NA	521
Basement Subtotal				521

First Floor				
Research Lab	1	Dairy Science	Doctoral	674
Classroom/Lab Support	4	Dairy Science	Undergraduate, Doctoral	648
Classroom & Class Lab	4	Biology/Microbiology & General Use	Undergraduate	5,270
Office	12		Dairy Science, Doctoral	2,056
Conference Room	1	General Use	Dairy Science	644
Circulation	2		NA	3,676
Custodial	4		NA	450
Mechanical	3		NA	666
Mechanical Addition	1		NA	800
Restrooms	3		NA	558
*Dairy Processing Plant	12	Dairy Science	Undergraduate, Graduate, Doctoral	-
*Processing Plant Restrooms	2	Dairy Science	Undergraduate, Graduate, Doctoral	-
*Processing Plant Corridor	1	Dairy Science	NA	-
*Processing Plant	4	Dairy Science	NA	-

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

Mech				
First Floor Subtotal				15,442

Note: * - Portion of the Dairy & Microbiology Building to be renovated through a separate project. Separate project is an addition and renovation project for the Processing Plant alone.

Second Floor				
Research Lab	1	Dairy Science, Microbiology	Graduate, Doctoral	799
Lab Support	8	Dairy Science, Microbiology	Graduate, Doctoral	1,299
Class Lab	4	Dairy Science, Microbiology	Undergraduate, Graduate	4,096
Office	5	Dairy Science, Microbiology	Graduate, Doctoral	643
Conference Room	1	General Use	NA	376
Circulation	2		NA	1,837
Custodial	1		NA	52
Mechanical Addition	1		NA	800
Restroom	1		NA	278
Second Floor Subtotal				10,180

Third Floor				
Research Lab	11	Dairy Science, Microbiology	Graduate, Doctoral	5,705
Lab Support	4	Dairy Science, Microbiology	Graduate, Doctoral	241
Office	13	Dairy Science, Microbiology	Graduate, Doctoral	1,428
Circulation	2		NA	1,603
Custodial	1		NA	62
Mechanical Addition	1		NA	800
Restroom	1		NA	274
Third Floor Subtotal				10,113

Renovated Area of Building				36,256
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g. Initial Cost Estimates

A preliminary estimate of the project costs is shown below. This estimate is based on cost estimates from previous lab renovation projects on the campus, and consultants' estimates for renovations of Shepard Hall and the SDSU Seed Technology Lab.

SOUTH DAKOTA STATE UNIVERSITY Board of Regents Science Facility Renovations Dairy & Microbiology Building – Preliminary Project Cost Estimate
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SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

Space Use	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Basement			
Mechanical	521	\$ 200	\$ 104,200
Basement Subtotal	521		\$ 104,200
First Floor			
	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Research Lab	674	\$ 275	\$ 185,350
Classroom/Lab Support	648	\$ 275	\$ 178,200
Classroom & Class Lab	5,270	\$ 275	\$ 1,449,250
Office	2,056	\$ 150	\$ 308,400
Conference Room	644	\$ 150	\$ 96,600
Circulation	3,676	\$ 150	\$ 551,400
Custodial	450	\$ 150	\$ 67,500
Mechanical	666	\$ 200	\$ 133,200
Mechanical Addition	800	\$ 200	\$ 160,000
Restrooms	558	\$ 150	\$ 83,700
First Floor Subtotal			\$ 3,213,600
Second Floor			
	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Research Lab	799	\$ 275	\$ 219,725
Lab Support	1,299	\$ 275	\$ 357,225
Class Lab	4,096	\$ 275	\$ 1,126,400
Office	643	\$ 150	\$ 96,450
Conference Room	376	\$ 150	\$ 56,400
Circulation	1,837	\$ 150	\$ 275,550
Custodial	52	\$ 150	\$ 7,800
Mechanical Addition	800	\$ 200	\$ 160,000
Restroom	278	\$ 150	\$ 41,700
Second Floor Subtotal			\$ 2,341,250
Third Floor			
	Gross Square Feet	Per Square Foot Cost	Estimated Cost
Research Lab	5,705	\$ 275	\$ 1,568,875
Lab Support	241	\$ 275	\$ 66,275
Office	1,428	\$ 150	\$ 214,200
Circulation	1,603	\$ 150	\$ 240,450
Custodial	62	\$ 150	\$ 9,300
Mechanical Addition	800	\$ 200	\$ 160,000
Restroom	274	\$ 150	\$ 41,100
Third Floor Subtotal			\$ 2,300,200
Other Project Costs			Estimated Cost

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

Asbestos Abatement			\$ 200,000
Relocation Costs			\$ 100,000
Subtotal			\$ 300,000
Project Total			\$ 8,259,250

h. Additional Services to be offered or benefits of the renovation

The nature of the project is to provide essential renovations, maintenance and repairs to the building so it can continue to be used in its current capacity. No additional services will be provided as a part of this project. We expect the research labs to benefit by the renovations so more efficient laboratory work can take place, and researchers will have an opportunity to organize the laboratory around the flow and sequence of the work. Air conditioning the lab spaces will directly improve the comfort of the office and lab environment. Ventilation will directly improve the lab safety. Upgrades to lighting systems will provide energy efficiency benefits.

Improvements to the building infrastructure will significantly improve the ability of the building to support the activities (research, office, teaching) of the occupants.

i. Analysis of student body, function, or constituents to be served

The entire Dairy Science Department will be served by this project. Also, approximately 25% of the undergraduate students who take microbiology classes will benefit from this project as class labs that support these teaching efforts take place in this building. Improved research labs and lab support spaces will provide better support to faculty and researchers for their work in instruction, dairy product improvement and development. The renovations will go hand-in-hand with the Dairy Processing Plant addition, since the research labs conduct theoretical and analysis work that can be substantiated and modeled by small scale production work that takes place in the Processing Plant.

j. Impact to Maintenance and Repair

This project will address a number of backlogged M&R projects the University has identified for infrastructure needs, space upgrades, building envelope repairs, and finish renewal. Since this is the renovation of an existing building, impact to maintenance and repair will be from the increased value of the building based on a major renovation.

k. Impact to Operational Costs

There will be added costs for space heating and cooling the renovated building. The existing building does not meet current ventilation rates. Additional ventilation air will be required for laboratory occupancies. Heat recovery systems will be installed to maximize energy efficiency.

SOUTH DAKOTA STATE UNIVERSITY
Board of Regents Science Facility Renovations
Dairy & Microbiology – Building Renovation

However, the renovations will likely result in a small increase in heat energy consumed since basic quantities of ventilated air will increase substantially. We estimate that electrical costs will also increase when the building is provided a central air conditioning system. Currently, only about 50% of the existing building is cooled, albeit with window air conditioning units. A central air handling system will be much more efficient, but will not offset the increased costs from cooling 100% of the space.

1. Proposed funding sources for costs of:

- 1. Construction** - The renovation project is part of the Board of Regents' request for funding for science lab facilities.
- 2. Ongoing operations** - These will be funded by existing budgets in Facilities Management.
- 3. Maintenance and repair** – These needs will be funded with the campus's HEFF M&R allocation. Current M&R allocations are insufficient so the Board has also requested additional funding to bring M&R allocations closer to 2% of building replacement values.

SOUTH DAKOTA BOARD OF REGENTS
JOINT APPROPRIATIONS COMMITTEE BUDGET REQUEST HEARINGS
JANUARY 2008

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovations
Renovation of Arthur M. Pardee Laboratory

a. Project Overview:

The University of South Dakota plans to renovate the existing Arthur M. Pardee Laboratory. Pardee Laboratory was built in 1914 and houses research and teaching labs for the Department of Chemistry including the Governor's 2010 Center for Research and Development of Light-Activated Materials and the labs for the Materials Chemistry program which was recently approved for a PhD. Pardee is also home to most of the teaching laboratories where USD students including future medical and other health profession students receive their chemistry instruction. The current condition of the labs is both a recruitment and retention issue for students and faculty. Improving the facility to contemporary laboratory building standards will improve student and faculty working conditions, increase recruitment and retention, and enable the University to fulfill its strategic mission of educating future scientists, teachers and health care professionals as well as increasing the level of research and helping to drive the South Dakota economy.

Historic preservation is a hallmark of the USD campus. The renovation will include internal work that will maintain the historical significance of the facility.

b. Current Facility Description:

Arthur M. Pardee Laboratory is an early twentieth century building built in 1914 with brick façade and limestone cornice in the Neo-Classical Architectural Style. The building has three floors and is used by the Chemistry Department for both research and classroom laboratories. Recent renovations to the building include: installation of an elevator, upgrade of the electrical service to the building and a class laboratory has been renovated to current laboratory standards. A deferred critical maintenance project to address the life-safety and major building infrastructure will start construction this spring. However, the laboratories have not had a major renovation, the systems are quite outdated and do not meet current laboratory requirements. The utility services to the individual laboratories need to be upgraded. The design elements are the main exterior of the building and the grand entry staircase. Neither element will be part of the interior renovation of the teaching and research laboratories.

c. Proposed Renovations:

The project will address critical laboratory deficiencies. Currently the laboratories do not have proper exhaust systems, since the fume hoods are not functioning properly. The air exchanges in the Chemistry laboratories do not meet current laboratory standards for that function and limit the use of the rooms. The electrical service does not meet laboratory standards. This is has become more problematic as research has expanded. The work will include renovating research lab spaces, and modernizing the existing classroom and class laboratories. The lab services rooms are also included in the renovation. This work will include combining many small

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovations
Renovation of Arthur M. Pardee Laboratory

unusable spaces into shared functioning spaces. The work will address infrastructure issues including exhaust, electrical and plumbing improvements and renovations to current laboratory standards. The project will address the remainder of the phases identified in the Master Plan documentation for Pardee Laboratories.

d. Location and Site Analysis:

The Arthur M. Pardee Laboratory is directly south of Churchill-Haines Laboratory and east of Akeley Lawrence Science Center.

e. Space Allocation and Uses of Current Facility:

The building is used for chemistry. These spaces include the both classroom and research laboratories and the required support spaces. The remaining spaces are used for support spaces and general purpose classrooms for chemistry. Based on the room's disciplines, they are highly utilized spaces.

Space Use	Count	Discipline	Level	Gross Square Feet
First Floor				
Classroom Lab	1	Chemistry	Undergraduate and Graduate	1481
Research Labs	2	Chemistry	Undergraduate and Graduate	920
Lab Services	10	Chemistry	Undergraduate and Graduate	2665
Custodial/Mechanical/Restroom	4		NA	386
Circulation			NA	2471
First Floor Subtotal				7924
Second Floor				
Classroom Lab	2	Chemistry	Undergraduate and Graduate	926
Lab Services	1	Chemistry	Undergraduate and Graduate	810
Classroom	1	Chemistry	Undergraduate and Graduate	495
Offices	3	Chemistry	Undergraduate and Graduate	625
Custodial/Mechanical/Restrooms	1		NA	202
Circulation			NA	905
Second Floor Subtotal				3962
Third Floor				

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovations
Renovation of Arthur M. Pardee Laboratory

Classroom Lab	1	Chemistry	Undergraduate and Graduate	926
Research Labs	2	Chemistry	Undergraduate and Graduate	777
Lab Services	14	Chemistry	Undergraduate and Graduate	906
Classroom	1	Chemistry	Undergraduate and Graduate	833
Offices	2	Research	Undergraduate, Graduate and Doctorate	516
Offices	1	Chemistry	Undergraduate and Graduate	130
Custodial/Mechanical/Restrooms	2		NA	56
Circulation			NA	876
Third Floor Subtotal				5019
Total Renovated Gross Square Footage				16,905
Total Building Square Footage				22,909

f. Space Allocation and Uses of Renovated Facility:

The intent of the renovation is to upgrade the utilities to the building to provide current laboratory standards. Along with the modifications to the infrastructure there will be modification of general purpose classrooms to research laboratories and some classroom laboratories will be modified and used for research laboratories. The first floor will focus on upgrades to the existing spaces the utilization of those spaces will remain the same function. The second floor will include modifications to utilization as well as a modification to spaces. The proposed changes include removal of a general purpose classroom and a decrease in office spaces; this will allow the addition of the required restroom facilities for the building and increase square footage of the classroom laboratories. The third floor will have the most significant change in usage. On the north side of the building the existing lab services space will be modified into research laboratory spaces. The southeast class laboratory is also proposed to be modified into a research laboratory. The utilization of the spaces will remain with Chemistry.

Space Use	Count	Discipline	Level	Gross Square Feet
First Floor				
Classroom Lab	1	Chemistry	Undergraduate and Graduate	1481
Research Labs	2	Chemistry	Undergraduate	920

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovations
Renovation of Arthur M. Pardee Laboratory

			and Graduate	
Lab Services	10	Chemistry	Undergraduate and Graduate	2665
Custodial/Mechanical/Restroom	4		NA	386
Circulation			NA	2471
First Floor Subtotal				7924
Second Floor				
Classroom Lab	2	Chemistry	Undergraduate and Graduate	1851
Lab Services	1	Chemistry	Undergraduate and Graduate	481
Offices	1	Chemistry	Undergraduate and Graduate	220
Custodial/Mechanical/Restrooms	2		NA	624
Circulation			NA	787
Second Floor Subtotal				3962
Third Floor				
Research Labs	5	Chemistry	Undergraduate and Graduate	1581
Lab Services	3	Chemistry	Undergraduate and Graduate	641
Classroom	1	Chemistry	Undergraduate and Graduate	833
Offices	2	Research	Undergraduate, Graduate and Doctorate	516
Offices	2	Chemistry	Undergraduate and Graduate	506
Custodial/Mechanical/Restrooms	1		NA	66
Circulation			NA	876
Third Floor Subtotal				5019
Total Renovated Gross Square Footage				16,905
Total Building Square Footage				22,909

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovations
Renovation of Arthur M. Pardee Laboratory

g. Initial costs estimated based on gross square footage and types of space:

Space Use	Gross Square Feet	Per Square Foot Cost	Estimated Costs
Class Labs	3332	\$275.00	\$916,265
Research Labs	2501	\$275.00	\$687,835
Lab Services	3788	\$275.00	\$1,041,632
Classrooms	833	\$150.00	\$124,945
Offices	1241	\$150.00	\$186,203
Mechanical	1076	\$200.00	\$215,183
Circulation	4134	\$150.00	\$620,041
Total	16,905		\$3,792,104

h. Additional services to be offered or benefits of the renovation:

When Pardee was originally constructed, Chemistry did not have a doctoral program. Today, Chemistry offers a Materials Chemistry PhD. With the new graduate program come additional faculty, who need office space and research labs, and graduate students, who also require some type of space within the department. Additionally, an increase in external funding has allowed chemistry faculty to hire post-doctoral research associates, all of whom must be given some type of office/research space. Completing the renovation of Pardee will provide modern research facilities to the new faculty in support of the expanded research activities and the new doctoral program. Additional research provides opportunities for students and strengthens the state economy.

i. Analysis of student body, function or constituents to be served:

The renovations to Pardee will benefit the chemistry faculty, their graduate students, post-doctoral researchers and undergraduate students. In addition to the research facilities, Pardee also houses several teaching labs. Most pre-med students take their year of organic chemistry in Pardee, and these renovations will affect these students also.

j. Impact to Maintenance & Repair:

Arthur M. Pardee Laboratory is classified as an academic building and as such is eligible for funding from USD's annual HEFF allocation. This renovation project addresses mechanical and electrical infrastructure system upgrades. In addition to updating the building to current laboratory standards this project will address existing deferred maintenance items.

k. Impact to operational costs:

Arthur M. Pardee Laboratory building is an existing building. Improved infrastructure should result in lower operational costs although changing some space to research space may mitigate some of the savings.

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovations
Renovation of Arthur M. Pardee Laboratory

1. Proposed funding sources for costs of:

1. Construction

The construction project is part of the Board's request for funding for science lab facilities.

2. Ongoing operations

Ongoing operations will be funded by existing budgets in Facilities Management.

3. Maintenance and repair

Future maintenance and repair will be funded with the campus's HEFF M&R allocation. Current M&R allocations are insufficient so the Board has also requested additional funding to bring M&R allocations closer to 2% of building replacement values.

SOUTH DAKOTA BOARD OF REGENTS
JOINT APPROPRIATIONS COMMITTEE BUDGET REQUEST HEARINGS
JANUARY 2008

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovation
Renovation of Churchill-Haines Laboratory

a. Project Overview:

The University of South Dakota plans to renovate portions of the existing Churchill-Haines Laboratory. Churchill-Haines was built in 1977 and houses laboratories for the Departments of Biology and Chemistry. The building was designed at a time when the primary mission of the university was teaching. The university has responded to the state's emphasis on competitive research which has resulted in significant growth in the research program. As a result of an increased focus on competitive research and USD's success in expanding research activities, inadequate space exists to house research labs, research faculty, graduate students and post doctoral researchers. Churchill-Haines houses research laboratories for the 2010 Center for Research and Development of Light-Activated Materials and serves as a home to both the Biology and Chemistry Ph.D. programs. Churchill-Haines is home to the teaching laboratories where USD students including future science teachers, and medical and other health profession students receive their biology instruction. The renovation project will bring a portion of the facility to contemporary laboratory standards.

b. Current Facility Description:

Churchill-Haines Laboratory is a late twentieth century building with brick façade in the Modern Architectural Style. The building has one floor with a mechanical space in a partial basement and is used by the Chemistry and Biology Department for both research and classroom laboratories. The laboratories have not had a major renovation, the systems are outdated and do not meet current laboratory requirements, including the services to the individual laboratories. The linear laboratory layout design of the building will be maintained in the renovation.

c. Proposed Renovations:

The project will address critical laboratory deficiencies. The laboratories do not have proper exhaust systems since the fume hoods are not functioning properly. The air exchanges in the Chemistry and Biology laboratories do not meet current laboratory standards for that function and limit the use of the rooms. Many of the laboratories do not have proper ventilation for the equipment in the rooms to function. The electrical service does not meet laboratory standards. This has become more problematic as research has expanded and as research equipment has become more powerful and more sensitive to poor electrical service. The work will include renovating a portion of the existing research space, class laboratories, and laboratory service space. The renovation will also include converting some of the existing space into research laboratories for Biology. The infrastructure upgrade will be the biggest portion of the renovation. This will include the heating and ventilation system, including a laboratory exhaust system designed for expansion and redundancy. The mechanical infrastructure will include improving air-handling systems, controls, plumbing supply and waste, acid waste system and

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovation
Renovation of Churchill-Haines Laboratory

vent lines. The electrical infrastructure renovation will include improving the electrical service to the building, new panelboards, lighting upgrades and improved electrical service to the labs.

d. Location and Site Analysis:

The Churchill-Haines Laboratory is directly north of Arthur M Pardee Laboratory and east of Akeley Lawrence Science Center.

e. Space Allocation and Uses of Current Facility:

To a great extent the building is used for biology research. These spaces include the required support spaces for this research. It also houses Biology and Chemistry classroom laboratories, laboratory support spaces and general purpose classrooms. These are highly utilized spaces, in particular the year round need of the research spaces.

Space Use	Count	Discipline	Level	Gross Square Feet
Basement				
Custodial/Mechanical	2		NA	4,464
Basement Floor Subtotal				4,464
First Floor				
Classroom Lab	11	Chemistry and Earth Sciences	Undergraduate and Graduate	11,102
Lab Services	20	Chemistry and Biology	Undergraduate and Graduate	6,873
Classroom	1	Chemistry and Biology	Undergraduate and Graduate	1,049
Offices	1	Chemistry and Biology	Undergraduate and Graduate	1,068
Custodial/Mechanical	7		NA	1,664
First Floor Subtotal				21,757
Total				26,221
Total Renovated Gross Square Footage				26,221
Total Building Gross Square Footage				74,273

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovation
Renovation of Churchill-Haines Laboratory

f. Space Allocation and Uses of Renovated Facility:

The intent of the renovation is to upgrade the infrastructure of the building to contemporary laboratory standards. Along with the modifications to the infrastructure there will be modification of general purpose classrooms, class laboratories and offices into research laboratories.

Space Use	Count	Discipline	Level	Gross Square Feet
Basement				
Custodial/Mechanical	2		NA	4,464
Basement Floor Subtotal				4,464
First Floor				
Classroom Lab	7	Chemistry and Earth Sciences	Undergraduate and Graduate	7,439
Research Labs	6	Chemistry and Biology	Undergraduate and Graduate	5,781
Lab Services	20	Chemistry and Biology	Undergraduate and Graduate	6,873
Custodial/Mechanical	7		NA	1,664
First Floor Subtotal				21,757
Total Renovated Gross Square Footage				26,221
Total Building Gross Square Footage				74,273

g. Initial costs estimated based on gross square footage and types of space:

Space Use	Gross Square Feet	Per Square Foot Cost	Estimated Costs
Class Labs	7,439	\$275.00	\$2,045,808
Research Labs	5,781	\$275.00	\$1,589,638
Lab Services	6,873	\$275.00	\$1,890,020
Mechanical	6,128	\$200.00	\$1,225,680
Total	26,221		\$6,751,145

h. Additional services to be offered or benefits of the renovation:

When Churchill-Haines was originally constructed, neither Biology nor Chemistry had a doctoral program. Today, both programs have PhD degrees and Biology is exploring a new doctoral

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovation
Renovation of Churchill-Haines Laboratory

degree in evolutionary ecology and genomics. As Biology's doctoral program has grown, quality space for graduate students has become a problem. Additionally, the increase in external funding has allowed Biology faculty to hire post-doctoral research associates, all of whom must be given some type of office/research space. The renovation of Churchill-Haines will provide much needed space for graduate students and post-docs. As the research activities have increased, so has the sophistication of the equipment needed for conducting this research. Equipment of this quality must be connected to clean sources of power to avoid damaging the equipment and to protect the integrity of the data. This renovation will modify the electrical infrastructure to provide clean sources of power. Finally, the nature of the experiments carried out in Churchill-Haines requires that air be properly cleaned and circulated. The renovation will allow the air handling system to be upgraded to current standards and improve the HVAC of the building so that all teaching and research labs have contemporary environments for conducting research throughout the year.

i. Analysis of student body, function or constituents to be served:

The renovations to Churchill-Haines will benefit the Biology and Chemistry faculty, their graduate students, post-doctoral researchers and undergraduate students. Biology is one of the largest undergraduate majors at USD and many of these majors continue on to medical school and are the future physicians of South Dakota. Biology also has one of the largest service courses at USD, allowing these renovations to touch a large number of undergraduate students. Although the greatest effect from these renovations will be felt by the biology program, the renovations will also benefit chemistry faculty, their graduate students, post-doctoral researchers and undergraduate students.

j. Impact to Maintenance & Repair:

Churchill-Haines Laboratory is classified as an academic building and as such is eligible for funding from USD's annual HEFF allocation. This renovation project addresses mechanical and electrical infrastructure system upgrades. In addition to updating the building to current laboratory standards this project will address existing deferred maintenance items.

k. Impact to operational costs:

Churchill-Haines Laboratory building is an existing building. Improved infrastructure should result in lower operational costs although changing some space to research space may mitigate some of the savings.

l. Proposed funding sources for costs of:

1. Construction

The construction project is part of the Board's request for funding for science lab facilities.

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility Renovation
Renovation of Churchill-Haines Laboratory

2. Ongoing operations

Ongoing operations will be funded by existing budgets in Facilities Management.

3. Maintenance and repair

Future maintenance and repair will be funded with the campus's HEFF M&R allocation. Current M&R allocations are insufficient so the Board has also requested additional funding to bring M&R allocations closer to 2% of building replacement values.

**SOUTH DAKOTA BOARD OF REGENTS
JOINT APPROPRIATIONS COMMITTEE BUDGET REQUEST HEARINGS
JANUARY 2008**

**THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility
Renovation of Akeley Lawrence Science Center**

a. Project Overview:

The University of South Dakota plans to renovate the existing Akeley-Lawrence Science Center. Akeley-Lawrence was built in 1962 and houses laboratories for the Department of Earth Science and Physics and one Chemistry teaching laboratory. The building was designed at a time when the primary mission of the university was teaching, principally during the nine-month academic year, and few research activities were carried out on campus. To help the State advance the Deep Underground Science and Engineering Lab (DUSEL) the university is aggressively pursuing expansion of its Physics program through partnerships with Lawrence Berkeley National Laboratory and Los Alamos National Laboratory, through expansion of the undergraduate program, and through the addition of a Ph.D program. These efforts will help to fulfill the State's DUSEL research agenda and to provide more physics teachers to the state. Doing so will require upgrades to current space to contemporary laboratory standards.

b. Current Facility Description:

Akeley Lawrence Science Center is a mid twentieth century building with brick façade in the Modern Architectural Style. The building has four floors and is used by the Chemistry, Physics, Earth Sciences, and Geological Survey departments for both research and classroom laboratories. The laboratories have not had a major renovation, the systems are outdated and do not meet current laboratory requirements, including the services to the individual laboratories. The linear laboratory layout design of the building will be maintained in the renovation.

c. Proposed Renovations:

The project will address critical laboratory deficiencies. The infrastructure upgrade will be the biggest portion of the renovation. Currently the laboratories do not have proper ventilation to allow the required cooling in the rooms for the equipment to function. The electrical service does not meet laboratory standards. This is has become more problematic as research has expanded. The work will include renovation of the individual research lab spaces, modernizing the existing classroom and class laboratories. Renovation will include upgrading the heating and ventilation system including a laboratory exhaust system designed for expansion and redundancy. The mechanical infrastructure will include a new air-handling system and improving controls, plumbing supply and waste, acid waste system and vent lines. The electrical infrastructure renovation will include improving the electrical service to the building, new panelboards, lighting upgrades and improved electrical service to the labs. The project will not renovate office space used by Geological Survey.

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility
Renovation of Akeley Lawrence Science Center

d. Location and Site Analysis:

The Akeley Lawrence Science Center is directly north of Julian Addition and west of Arthur M Pardee Laboratory.

e. Space Allocation and Uses of Current Facility:

The building is used for physics, chemistry and earth sciences. These spaces include both classrooms and research laboratories and the required support spaces. The remaining spaces are used for support spaces and general purpose classrooms. Based on the room's disciplines, they are highly utilized spaces.

Space Use	Count	Discipline	Level	Gross Square Feet
First Floor				
Classroom Lab	4	Chemistry and Physics	Undergraduate and Graduate	3,255
Research Labs	1	Physics	Undergraduate and Graduate	1,942
Lab Services	10	Chemistry and Physics	Undergraduate and Graduate	995
Classroom	2	Chemistry and Physics	Undergraduate and Graduate	2,117
Offices	9	Physics	Undergraduate and Graduate	1,217
Custodial/Mechanical/Restroom	6		NA	922
Circulation			NA	2,980
First Floor Subtotal				13,427
Second Floor				
Classroom Lab	4	Chemistry and Earth Sciences	Undergraduate and Graduate	3,583
Lab Services	13	Chemistry and Earth Sciences	Undergraduate and Graduate	1,859
Classroom	2	Chemistry and Earth Sciences	Undergraduate and Graduate	873
Offices	7	Earth Sciences	Undergraduate and Graduate	1,575
Custodial/Mechanical/Restroom	5		NA	1,125
Circulation			NA	2,225

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility
Renovation of Akeley Lawrence Science Center

Second Floor Subtotal				11,240
Total Renovated Gross Square Footage				24,667
Total Building Gross Square Footage				40,662

f. Space Allocation and Uses of Renovated Facility:

The intent of the renovation is to upgrade the utilities to the building to meet current laboratory standards. Along with the modifications to the infrastructure there will be modification of the utilizations of the spaces. The proposed use changing involves modifying laboratory service spaces into research laboratory spaces. On the first floor room 110 and room 111 are proposed to change from laboratory services to a research laboratory for Physics. On the second floor room 204 and room 205 are proposed to be changed from lab services to a research laboratory for Earth Sciences.

Space Use	Count	Discipline	Level	Gross Square Feet
First Floor				
Classroom Lab	4	Physics	Undergraduate	3,255
Research Labs	2	Physics	Undergraduate	1,942
Lab Services	8	Physics	Undergraduate	995
Classroom	2	General*	Undergraduate and Graduate	2,117
Offices	9	Physics	Undergraduate	1,217
Custodial/Mechanical/Restroom	6		NA	922
Circulation			NA	2,980
First Floor Subtotal				13,427
Second Floor				
Classroom Lab	4	Chemistry and Earth Sciences	Undergraduate	3,583
Research Labs	2	Earth Sciences	Undergraduate	545
Lab Services	11	Chemistry and Earth Sciences	Undergraduate	1,315
Classroom	2	Chemistry and Earth Sciences	Undergraduate	873

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility
Renovation of Akeley Lawrence Science Center

Offices	7	Earth Sciences	Undergraduate	1,575
Custodial/Mechanical/Restroom	5		NA	1,125
Circulation			NA	2,225
Second Floor Subtotal				11,240
Total Renovated Gross Square Footage				24,667
Total Building Gross Square Footage				40,662

g. Initial costs estimated based on gross square footage and types of space:

Space Use	Gross Square Feet	Per Square Foot Cost	Estimated Costs
Class Labs	6,839	\$275.00	\$1,880,619
Research Labs	2,487	\$275.00	\$683,859
Lab Services	2,309	\$275.00	\$635,052
Classrooms	2,990	\$150.00	\$448,443
Offices	2,792	\$150.00	\$418,761
Mechanical	2,046	\$200.00	\$409,290
Circulation	5,205	\$150.00	\$780,728
Total	24,667		\$5,256,751

h. Additional services to be offered or benefits of the renovation:

The upgrades to HVAC will allow year-round operation of the building and will increase the research productivity of the current faculty particularly in areas that will support experiments at DUSEL/SUSEL. As the research activities have increased, so has the sophistication of the equipment needed for conducting this research. Equipment of this quality must be connected to clean sources of power to avoid damaging the equipment and to protect the integrity of the data. This renovation will modify the electrical infrastructure to provide clean sources of power.

i. Analysis of student body, function or constituents to be served:

The planned upgrades will benefit all undergraduate students enrolled in physics courses. These students include physics majors, who will contribute directly to DUSEL/SUSEL related activities, and students taking physics as a requirement for other programs such as medicine. Additionally, the environmental upgrades may allow for expansion of the Master of Natural Science program, which provides professional development opportunities for 6 – 12 teachers in content intensive courses. Not only will these upgrades benefit students enrolled at the University, but they will indirectly benefit students enrolled in high schools around the state and region.

THE UNIVERSITY OF SOUTH DAKOTA
Board of Regents Science Facility
Renovation of Akeley Lawrence Science Center

j. Impact to Maintenance & Repair:

Akeley Lawrence Science Center is classified as an academic building and as such is eligible for funding from USD's annual HEFF allocation. This renovation project addresses mechanical and electrical infrastructure system upgrades. In addition to updating the building to current laboratory standards this project will address existing deferred maintenance items.

k. Impact to operational costs:

Akeley Lawrence Science Center building is an existing building. Improved infrastructure should result in lower operational costs although changing some space to research space may mitigate some of the savings.

l. Proposed funding sources for costs of:

1. **Construction** - The construction project is part of the Board's request for funding for science lab facilities.
2. **Ongoing operations** - Ongoing operations will be funded by existing budgets in Facilities Management.
3. **Maintenance and repair** - Future maintenance and repair will be funded with the campus's HEFF M&R allocation. Current M&R allocations are insufficient so the Board has also requested additional funding to bring M&R allocations closer to 2% of building replacement values.

SOUTH DAKOTA BOARD OF REGENTS
JOINT APPROPRIATIONS COMMITTEE BUDGET REQUEST HEARINGS
JANUARY 2008

Board of Regents Science Facility Construction
Health Sciences Simulation Center
Sioux Falls

a. Project Overview:

This new space would provide space for all types of Health Science Students on high fidelity simulators, standardized patients, and task trainers. Higher quality simulation equipment is now more readily available for Health Science students. Simulation experiences are needed for students from nursing, medicine, physical therapy, occupational therapy, health promotion and other disciplines to gain "hands-on" knowledge prior to coming in contact with "real" patients in the clinical setting. The simulation center would be designed as a patient care setting with the various simulation models in a "typical hospital setting." This setting would provide opportunities for a variety of case scenarios on the high-fidelity models that students may or may not experience in student clinical rotations.

The Simulation Center would provide a unique setting with advanced equipment and highly skilled faculty members who would guide the critical thinking of each student in a variety of simulated clinical experiences which would enhance their clinical judgment skills. Research supports the basis that students learn and retain information when they are actively involved in the learning process. A simulation center that is large enough to accommodate a variety of health science students will promote inter-professional learning as students and enhanced collaboration as graduates.

Included as part of the Simulation Center, this request would create two new science labs at the University Center to support the delivery of upper division courses likely leading to baccalaureate degrees in sciences such as biology, chemistry or a composite major. We would integrate these labs into the Simulation Center project and plan for the expansion of science labs in the future.

b. Facility to be Replaced - or - Need for New Space:

This is a new facility designed to provide current educational techniques to health care students. Each health science student who spends time in a Simulation Center will be able to gain skill mastery for interventions of a variety of case scenarios, i.e., how to appropriately respond when a "simulated patient" experiences an electrolyte imbalance, or a drug reaction, or goes into insulin shock. The case scenario can be replayed in a "simulated patient" more than once so that students can safely learn from their mistakes. Every year, despite the heroic efforts of health-care professionals, more than 100,000 patients die as a result of medical error. Using patient simulation in health care education will help reduce medical errors. The long term need would be a 140,000 to 160,000 sq ft building that houses the simulation center, classrooms for the health science students, conference rooms, additional skill-practice areas, examination rooms, and faculty and support personnel offices.

**Board of Regents Science Facility Construction
Health Sciences Simulation Center
Sioux Falls**

The University Center cannot deliver a science based major because there are no science lab facilities to support a major. Also, it was not appropriate, after consultation with campus experts, to include such labs in the new classroom building. Even though we do not deliver any science majors today, the need for a science major is evidenced in many ways. First, major economic development activities underway in Sioux Falls focus on the application of science more than ever before. This includes the recent announcements from Sanford Health, continued expansion by Avera Health and the prospect of expanded research on the University Center land.

c. Location and Site Analysis

The facility would be located in Sioux Falls. The site analysis has not been completed at this time.

d. Space Allocation and Uses of Current Facility:

Not Applicable.

e. Space Allocation and Uses of Replacement Facility:

Space Use	Count	Discipline	Level	Gross Square Feet
First Floor				
Simulations Suites	10			10,500
Simulation Equipment Storage	1			750
Clinical Evaluation Space	15			3,456
Class Labs	2			2,800
Computer Lab	1			600
Control Rooms for CERs	1			400
Conference, reception, gen. storage	5			1,520
Offices/work areas	7			3,360
Restrooms/lockers	5			1,104
Mechanical	1			1,650
Circulation				5,695
Total	48			31,835

**Board of Regents Science Facility Construction
Health Sciences Simulation Center
Sioux Falls**

f. Initial costs estimated based on gross square footage and types of space:

Space Use	Gross Square Feet	Per Square Foot Cost	Estimated Costs
Simulation Rooms	10,500	\$340.00	\$3,570,000
Equipment Storage	750	\$200.00	\$150,000
Clinical Evaluation Space	3,456	\$250.00	\$864,000
Class Labs	2,800	\$220.00	\$616,000
Computer Lab	600	\$250.00	\$150,000
CER Control Room	400	\$300.00	\$120,000
Reception/Conf./Gen Storage	1,520	\$150.00	\$228,000
Offices	3,360	\$220.00	\$739,200
Restrooms/Locker areas	1,104	\$200.00	\$220,800
Mechanical	1,650	\$400.00	\$660,000
Circulation	5,695	\$150.00	\$854,250
Site costs – site work, geopiers, flatwork			\$302,825
Design fees/contingency			\$2,118,767
Total			\$10,593,842

g. Additional services to be offered or benefits of the renovation:

This new space would provide space for all types of Health Science Students on high fidelity simulators, standardized patients, and task trainers. Higher quality simulation equipment is now more readily available for Health Science students. Simulation experiences are needed for students from nursing, medicine, physical therapy, occupational therapy, health promotion and other disciplines to gain “hands-on” knowledge prior to coming in contact with “real” patients in the clinical setting. Ideally, the simulation center would be uniquely designed as a patient care setting with the various simulation models in a “typical hospital setting.” This setting would provide opportunities for a variety of case scenarios on the simulation models that students may or may not experience in student clinical rotations. There are patient exam rooms, various types of procedure rooms (surgery, delivery, ICU), a waiting room area for patients, rooms for students and staff to debrief after an experience/encounter. Everything is audio and video recorded for the later debriefing/learning session. The facility might use real, standardized patients or might use some type of mechanical or robotic manikin or part thereof. The manikins range from simple to very sophisticated in what they can do, talk, react to treatment or intervention, whatever. The partial manikins might be used for practicing procedures, like endoscopy or suturing. Low-end manikins have been used in on-campus laboratories for a long time, however, the “reality” of true clinical case scenarios is currently lacking.

Each health science student who spends time in a Simulation Center will be able to gain skill mastery for interventions of a variety of case scenarios, i.e., how to appropriately respond when a “simulated patient” experiences an electrolyte imbalance, or a drug reaction, or goes into insulin shock. The case scenario can be replayed in a “simulated patient” more than once so that

**Board of Regents Science Facility Construction
Health Sciences Simulation Center
Sioux Falls**

students can safely learn from their mistakes. Every year, despite the heroic efforts of health-care professionals, more than 100,000 patients die as a result of medical error. Using patient simulation in health care education will help reduce medical errors.

The Simulation Center would provide a unique setting with advanced equipment and highly skilled faculty members who would guide the critical thinking of each student in a variety of simulated clinical experiences which would enhance their clinical judgment skills. Research supports the basis that students learn and retain information when they are actively involved in the learning process. A simulation center that is large enough to accommodate a variety of health science students will promote inter-professional learning as students and enhanced collaboration as graduates.

As noted above the class labs will permit the development of a science major at University Center. There are no science majors nor is there appropriate lab space to support a science major today.

h. Analysis of student body, function or constituents to be served:

It is anticipated that there will be 260 medical, 75 residents, 600 USD health science (nursing, physician assistants, physical therapists, and occupational therapists), and 700 SDSU nursing and pharmacy students who will use this simulation space each semester. The simulation center could also serve the RNs, MDs and other practicing professionals from the health care centers in the Sioux Falls and surrounding areas who could use the equipment and space for annual competency-based testing.

There is also significant demand expressed by students for a science major in Sioux Falls. The fall 2007 headcount at University Center includes 47 students who have indicated biology as their chosen major. As for chemistry, there are 10. Neither of these majors is available at the University Center so these students must either transfer to another Sioux Falls university or one of the partner campuses to complete either of these programs.

The long term projections for health care workers to meet the growing demands of an aging population will require the training of more students in the decades ahead. The Health Science Simulator will increase the capacity of the state to educate this added workforce. Students will be able to do some of their clinical work at the Center, making it possible for actual clinics to host more students than is true today.

i. Impact to Maintenance & Repair:

This facility is classified as an academic facility, and as such is eligible for funding from BOR annual HEFF allocation. As this project is new construction the need for M&R will not occur for several years.

**Board of Regents Science Facility Construction
Health Sciences Simulation Center
Sioux Falls**

j. Impact to operational costs:

Annual facility operating costs for the Simulation and Clinical Skills Center are projected at \$220,000 which included utility and utilities operation, custodial, security, routine maintenance and repair, grounds and other environmental services.

The budget for the Mayo Health System Simulation Center was 2.5M to build in renovated space for 10,000 gsf and requires 2.5M annual operating budget which includes 8.7 FTE training staff plus equipment purchase and replacement (Equipment 1M in 2005; 1.5M in 2006; and Audio Visual Equipment 1.4M to open facility).

k. Proposed funding sources for costs of:

1. **Construction** – State funds through legislation.
2. **Ongoing operations** – Student Fees.
3. **Maintenance and repair** – HEFF Funds.

TABLE OF CONTENTS

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008 Financing
Final Numbers

Report	Page
Sources and Uses of Funds	1
Bond Summary Statistics	2
Bond Pricing	7
Bond Debt Service	9
Cost of Issuance	19

SOURCES AND USES OF FUNDS

SOUTH DAKOTA BUILDING AUTHORITY

Series 2008 Financing
Final Numbers

Sources:	Series 2008A1 - State Supported	Series 2008A2 - HEF and M&R Fee Supported	Series 2008A3 - HEF Supported	Series 2008A4 Game Fish and Parks	Total
Bond Proceeds:					
Par Amount	32,500,000.00	31,060,000.00	9,950,000.00	2,175,000.00	75,685,000.00
Net Premium	570,084.70	544,996.40	174,591.00	44,220.65	1,333,892.75
	<u>33,070,084.70</u>	<u>31,604,996.40</u>	<u>10,124,591.00</u>	<u>2,219,220.65</u>	<u>77,018,892.75</u>
Uses:	Series 2008A1 - State Supported	Series 2008A2 - HEF and M&R Fee Supported	Series 2008A3 - HEF Supported	Series 2008A4 Game Fish and Parks	Total
Project Fund Deposits:					
Blackhills Science Building	8,078,400.00				8,078,400.00
SDSMT Chemistry Building	7,957,700.00		10,000,000.00		17,957,700.00
SDSMT Paleontology Building	6,640,544.03	422,883.71			7,063,427.74
MSU MeWaldt-Jensen Hall	2,701,900.00				2,701,900.00
SDSU Dairy Building	7,298,100.00	961,150.00			8,259,250.00
SDSU Agricultural Hall		8,006,275.00			8,006,275.00
USD Pardee Lab		3,792,104.00			3,792,104.00
USD Churchhill-Haines		6,751,145.00			6,751,145.00
USD Akeley Lawrence Science Center		5,256,751.00			5,256,751.00
DSU Habeger Science Center		6,038,670.00			6,038,670.00
Game Fish and Parks				2,194,232.43	2,194,232.43
	<u>32,676,644.03</u>	<u>31,228,978.71</u>	<u>10,000,000.00</u>	<u>2,194,232.43</u>	<u>76,099,855.17</u>
Delivery Date Expenses:					
Cost of Issuance	67,231.87	64,252.99	24,723.76	4,499.34	160,707.96
Underwriter's Discount	130,632.72	124,844.69	39,993.72	8,742.32	304,213.45
Bond Insurance @ 35 bps	195,576.08	186,920.01	59,873.52	11,746.56	454,116.17
	<u>393,440.67</u>	<u>376,017.69</u>	<u>124,591.00</u>	<u>24,988.22</u>	<u>919,037.58</u>
	<u>33,070,084.70</u>	<u>31,604,996.40</u>	<u>10,124,591.00</u>	<u>2,219,220.65</u>	<u>77,018,892.75</u>

Notes:

Final Pricing Numbers as of 7.9.08
Insurance Premium Verified by FSA
Bond Counsel Approved Numbers

BOND SUMMARY STATISTICS

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008 Financing
Final Numbers

Dated Date	07/29/2008
Delivery Date	07/29/2008
Last Maturity	06/01/2033
Arbitrage Yield	4.643626%
True Interest Cost (TIC)	4.685410%
Net Interest Cost (NIC)	4.680798%
All-In TIC	4.706371%
Average Coupon	4.771680%
Average Life (years)	14.970
Duration of Issue (years)	10.245
Par Amount	75,685,000.00
Bond Proceeds	77,018,892.75
Total Interest	54,062,476.23
Net Interest	53,032,796.93
Total Debt Service	129,747,476.23
Maximum Annual Debt Service	5,228,947.50
Average Annual Debt Service	5,223,562.00
Underwriter's Fees (per \$1000)	
Average Takedown	3.710000
Other Fee	0.309468
Total Underwriter's Discount	4.019468
Bid Price	101.360480

Bond Component	Par Value	Price	Average Coupon	Average Life
Serial bonds	53,800,000.00	102.009	4.590%	11.729
Term Bond	21,885,000.00	101.156	5.000%	22.936
	75,685,000.00			14.970

	TIC	All-In TIC	Arbitrage Yield
Par Value	75,685,000.00	75,685,000.00	75,685,000.00
+ Accrued Interest			
+ Premium (Discount)	1,333,892.75	1,333,892.75	1,333,892.75
- Underwriter's Discount	-304,213.45	-304,213.45	
- Cost of Issuance Expense		-160,707.96	
- Other Amounts	-454,116.17	-454,116.17	-454,116.17
Target Value	76,260,563.13	76,099,855.17	76,564,776.58
Target Date	07/29/2008	07/29/2008	07/29/2008
Yield	4.685410%	4.706371%	4.643626%

BOND SUMMARY STATISTICS

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A1 - State Supported

Dated Date	07/29/2008
Delivery Date	07/29/2008
Last Maturity	06/01/2033
Arbitrage Yield	4.643626%
True Interest Cost (TIC)	4.690634%
Net Interest Cost (NIC)	4.686069%
All-In TIC	4.710974%
Average Coupon	4.775840%
Average Life (years)	15.062
Duration of Issue (years)	10.286
Par Amount	32,500,000.00
Bond Proceeds	33,070,084.70
Total Interest	23,378,879.29
Net Interest	22,939,427.31
Total Debt Service	55,878,879.29
Maximum Annual Debt Service	2,237,085.00
Average Annual Debt Service	2,249,652.93
Underwriter's Fees (per \$1000)	
Average Takedown	3.710000
Other Fee	0.309468
Total Underwriter's Discount	4.019468
Bid Price	101.352160

Bond Component	Par Value	Price	Average Coupon	Average Life
Serial bonds	22,825,000.00	102.008	4.590%	11.725
Term Bond	9,675,000.00	101.156	5.000%	22.937
	32,500,000.00			15.062

	TIC	All-In TIC	Arbitrage Yield
Par Value	32,500,000.00	32,500,000.00	32,500,000.00
+ Accrued Interest			
+ Premium (Discount)	570,084.70	570,084.70	570,084.70
- Underwriter's Discount	-130,632.72	-130,632.72	
- Cost of Issuance Expense		-67,231.87	
- Other Amounts	-195,576.08	-195,576.08	-195,576.08
Target Value	32,743,875.90	32,676,644.03	32,874,508.62
Target Date	07/29/2008	07/29/2008	07/29/2008
Yield	4.690634%	4.710974%	4.643626%

BOND SUMMARY STATISTICS

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A2 - HEF and M&R Fee Supported

Dated Date	07/29/2008
Delivery Date	07/29/2008
Last Maturity	06/01/2033
Arbitrage Yield	4.643626%
True Interest Cost (TIC)	4.690701%
Net Interest Cost (NIC)	4.686143%
All-In TIC	4.711039%
Average Coupon	4.775942%
Average Life (years)	15.064
Duration of Issue (years)	10.287
Par Amount	31,060,000.00
Bond Proceeds	31,604,996.40
Total Interest	22,345,717.61
Net Interest	21,925,565.90
Total Debt Service	53,405,717.61
Maximum Annual Debt Service	2,139,170.00
Average Annual Debt Service	2,150,084.81
Underwriter's Fees (per \$1000)	
Average Takedown	3.710000
Other Fee	0.309468
Total Underwriter's Discount	4.019468
Bid Price	101.352710

Bond Component	Par Value	Price	Average Coupon	Average Life
Serial bonds	21,810,000.00	102.009	4.590%	11.725
Term Bond	9,250,000.00	101.156	5.000%	22.935
	31,060,000.00			15.064

	TIC	All-In TIC	Arbitrage Yield
Par Value	31,060,000.00	31,060,000.00	31,060,000.00
+ Accrued Interest			
+ Premium (Discount)	544,996.40	544,996.40	544,996.40
- Underwriter's Discount	-124,844.69	-124,844.69	
- Cost of Issuance Expense		-64,252.99	
- Other Amounts	-186,920.01	-186,920.01	-186,920.01
Target Value	31,293,231.70	31,228,978.71	31,418,076.39
Target Date	07/29/2008	07/29/2008	07/29/2008
Yield	4.690701%	4.711039%	4.643626%

BOND SUMMARY STATISTICS

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A3 - HEF Supported

Dated Date	07/29/2008
Delivery Date	07/29/2008
Last Maturity	06/01/2033
Arbitrage Yield	4.643626%
True Interest Cost (TIC)	4.690440%
Net Interest Cost (NIC)	4.685883%
All-In TIC	4.714878%
Average Coupon	4.775700%
Average Life (years)	15.061
Duration of Issue (years)	10.286
Par Amount	9,950,000.00
Bond Proceeds	10,124,591.00
Total Interest	7,156,718.64
Net Interest	7,022,121.36
Total Debt Service	17,106,718.64
Maximum Annual Debt Service	687,105.00
Average Annual Debt Service	688,707.08
Underwriter's Fees (per \$1000)	
Average Takedown	3.710000
Other Fee	0.309469
Total Underwriter's Discount	4.019469
Bid Price	101.352736

Bond Component	Par Value	Price	Average Coupon	Average Life
Serial bonds	6,990,000.00	102.008	4.590%	11.727
Term Bond	2,960,000.00	101.156	5.000%	22.935
	9,950,000.00			15.061

	TIC	All-In TIC	Arbitrage Yield
Par Value	9,950,000.00	9,950,000.00	9,950,000.00
+ Accrued Interest			
+ Premium (Discount)	174,591.00	174,591.00	174,591.00
- Underwriter's Discount	-39,993.72	-39,993.72	
- Cost of Issuance Expense		-24,723.76	
- Other Amounts	-59,873.52	-59,873.52	-59,873.52
Target Value	10,024,723.76	10,000,000.00	10,064,717.48
Target Date	07/29/2008	07/29/2008	07/29/2008
Yield	4.690440%	4.714878%	4.643626%

BOND SUMMARY STATISTICS

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A4 Game Fish and Parks

Dated Date	07/29/2008
Delivery Date	07/29/2008
Last Maturity	06/01/2028
Arbitrage Yield	4.643626%
True Interest Cost (TIC)	4.476493%
Net Interest Cost (NIC)	4.453648%
All-In TIC	4.500225%
Average Coupon	4.591564%
Average Life (years)	11.827
Duration of Issue (years)	8.782
Par Amount	2,175,000.00
Bond Proceeds	2,219,220.65
Total Interest	1,181,160.69
Net Interest	1,145,682.36
Total Debt Service	3,356,160.69
Maximum Annual Debt Service	170,775.00
Average Annual Debt Service	169,170.80
Underwriter's Fees (per \$1000)	
Average Takedown	3.710000
Other Fee	0.309457
Total Underwriter's Discount	4.019457
Bid Price	101.631188

Bond Component	Par Value	Price	Average Coupon	Average Life
Serial bonds	2,175,000.00	102.033	4.592%	11.827
	2,175,000.00			11.827

	TIC	All-In TIC	Arbitrage Yield
Par Value	2,175,000.00	2,175,000.00	2,175,000.00
+ Accrued Interest			
+ Premium (Discount)	44,220.65	44,220.65	44,220.65
- Underwriter's Discount	-8,742.32	-8,742.32	
- Cost of Issuance Expense		-4,499.34	
- Other Amounts	-11,746.56	-11,746.56	-11,746.56
Target Value	2,198,731.77	2,194,232.43	2,207,474.09
Target Date	07/29/2008	07/29/2008	07/29/2008
Yield	4.476493%	4.500225%	4.643626%

BOND PRICING
SOUTH DAKOTA BUILDING AUTHORITY
 Series 2008 Financing
 Final Numbers

Bond Component	Maturity Date	Amount	Rate	Yield	Price	Yield to Maturity	Call Date	Call Price	Premium (-Discount)	Takedown
Serial bonds:										
	06/01/2009	2,215,000	4.000%	1.730%	101.880				41,642.00	2.500
	06/01/2010	1,745,000	4.500%	2.630%	103.332				58,143.40	3.750
	06/01/2011	1,825,000	4.500%	3.010%	104.021				73,383.25	3.750
	06/01/2012	1,910,000	4.500%	3.250%	104.473				85,434.30	3.750
	06/01/2013	1,990,000	4.000%	3.390%	102.697				53,670.30	3.750
	06/01/2014	2,075,000	5.000%	3.510%	107.800				161,850.00	3.750
	06/01/2015	2,175,000	5.000%	3.630%	108.226				178,915.50	3.750
	06/01/2016	2,285,000	5.000%	3.740%	108.487				193,927.95	3.750
	06/01/2017	2,395,000	5.000%	3.850%	108.541				204,556.95	3.750
	06/01/2018	2,515,000	5.000%	3.960%	108.401		06/01/2018	100.000	211,285.15	3.750
	06/01/2019	2,640,000	5.000%	4.080%	107.388	C	06/01/2018	100.000	195,043.20	3.750
	06/01/2020	2,775,000	5.000%	4.180%	106.553	C	06/01/2018	100.000	181,845.75	3.750
	06/01/2021	2,915,000	4.250%	4.400%	98.535				-42,704.75	3.750
	06/01/2022	3,040,000	4.400%	4.480%	99.176				-25,049.60	3.750
	06/01/2023	3,170,000	4.500%	4.550%	99.459				-17,149.70	3.750
	06/01/2024	3,315,000	4.500%	4.610%	98.767				-40,873.95	3.750
	06/01/2025	3,465,000	4.500%	4.660%	98.141				-64,414.35	3.750
	06/01/2026	3,615,000	4.500%	4.710%	97.478				-91,170.30	3.750
	06/01/2027	3,785,000	4.500%	4.760%	96.783				-121,763.45	3.750
	06/01/2028	3,950,000	4.500%	4.810%	96.059				-155,669.50	3.750
		53,800,000							1,080,902.15	
Term Bond:										
	06/01/2029	3,960,000	5.000%	4.850%	101.156	C	06/01/2018	100.000	45,777.60	3.750
	06/01/2030	4,165,000	5.000%	4.850%	101.156	C	06/01/2018	100.000	48,147.40	3.750
	06/01/2031	4,365,000	5.000%	4.850%	101.156	C	06/01/2018	100.000	50,459.40	3.750
	06/01/2032	4,585,000	5.000%	4.850%	101.156	C	06/01/2018	100.000	53,002.60	3.750
	06/01/2033	4,810,000	5.000%	4.850%	101.156	C	06/01/2018	100.000	55,603.60	3.750
		21,885,000							252,990.60	
		75,685,000							1,333,892.75	

BOND PRICING

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008 Financing
Final Numbers

Dated Date	07/29/2008
Delivery Date	07/29/2008
First Coupon	12/01/2008
Par Amount	75,685,000.00
Premium	1,333,892.75
Production	77,018,892.75
Underwriter's Discount	-304,213.45
Purchase Price	76,714,679.30
Accrued Interest	101.762427%
Net Proceeds	-0.401947%
	101.360480%
	76,714,679.30

BOND DEBT SERVICE
SOUTH DAKOTA BUILDING AUTHORITY
Series 2008 Financing
Final Numbers

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2008			1,209,222.48	1,209,222.48	
06/01/2009	2,215,000	4.000%	1,784,098.75	3,999,098.75	
06/30/2009					5,208,321.23
12/01/2009			1,739,798.75	1,739,798.75	
06/01/2010	1,745,000	4.500%	1,739,798.75	3,484,798.75	
06/30/2010					5,224,597.50
12/01/2010			1,700,536.25	1,700,536.25	
06/01/2011	1,825,000	4.500%	1,700,536.25	3,525,536.25	
06/30/2011					5,226,072.50
12/01/2011			1,659,473.75	1,659,473.75	
06/01/2012	1,910,000	4.500%	1,659,473.75	3,569,473.75	
06/30/2012					5,228,947.50
12/01/2012			1,616,498.75	1,616,498.75	
06/01/2013	1,990,000	4.000%	1,616,498.75	3,606,498.75	
06/30/2013					5,222,997.50
12/01/2013			1,576,698.75	1,576,698.75	
06/01/2014	2,075,000	5.000%	1,576,698.75	3,651,698.75	
06/30/2014					5,228,397.50
12/01/2014			1,524,823.75	1,524,823.75	
06/01/2015	2,175,000	5.000%	1,524,823.75	3,699,823.75	
06/30/2015					5,224,647.50
12/01/2015			1,470,448.75	1,470,448.75	
06/01/2016	2,285,000	5.000%	1,470,448.75	3,755,448.75	
06/30/2016					5,225,897.50
12/01/2016			1,413,323.75	1,413,323.75	
06/01/2017	2,395,000	5.000%	1,413,323.75	3,808,323.75	
06/30/2017					5,221,647.50
12/01/2017			1,353,448.75	1,353,448.75	
06/01/2018	2,515,000	5.000%	1,353,448.75	3,868,448.75	
06/30/2018					5,221,897.50
12/01/2018			1,290,573.75	1,290,573.75	
06/01/2019	2,640,000	5.000%	1,290,573.75	3,930,573.75	
06/30/2019					5,221,147.50
12/01/2019			1,224,573.75	1,224,573.75	
06/01/2020	2,775,000	5.000%	1,224,573.75	3,999,573.75	
06/30/2020					5,224,147.50
12/01/2020			1,155,198.75	1,155,198.75	
06/01/2021	2,915,000	4.250%	1,155,198.75	4,070,198.75	
06/30/2021					5,225,397.50
12/01/2021			1,093,255.00	1,093,255.00	
06/01/2022	3,040,000	4.400%	1,093,255.00	4,133,255.00	
06/30/2022					5,226,510.00
12/01/2022			1,026,375.00	1,026,375.00	
06/01/2023	3,170,000	4.500%	1,026,375.00	4,196,375.00	
06/30/2023					5,222,750.00
12/01/2023			955,050.00	955,050.00	
06/01/2024	3,315,000	4.500%	955,050.00	4,270,050.00	
06/30/2024					5,225,100.00
12/01/2024			880,462.50	880,462.50	
06/01/2025	3,465,000	4.500%	880,462.50	4,345,462.50	
06/30/2025					5,225,925.00
12/01/2025			802,500.00	802,500.00	
06/01/2026	3,615,000	4.500%	802,500.00	4,417,500.00	
06/30/2026					5,220,000.00

BOND DEBT SERVICE
SOUTH DAKOTA BUILDING AUTHORITY
Series 2008 Financing
Final Numbers

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2026			721,162.50	721,162.50	
06/01/2027	3,785,000	4.500%	721,162.50	4,506,162.50	5,227,325.00
06/30/2027				636,000.00	
12/01/2027			636,000.00	636,000.00	
06/01/2028	3,950,000	4.500%	636,000.00	4,586,000.00	5,222,000.00
06/30/2028				547,125.00	
12/01/2028			547,125.00	547,125.00	
06/01/2029	3,960,000	5.000%	547,125.00	4,507,125.00	5,054,250.00
06/30/2029				448,125.00	
12/01/2029			448,125.00	448,125.00	
06/01/2030	4,165,000	5.000%	448,125.00	4,613,125.00	5,061,250.00
06/30/2030				344,000.00	
12/01/2030			344,000.00	344,000.00	
06/01/2031	4,365,000	5.000%	344,000.00	4,709,000.00	5,053,000.00
06/30/2031				234,875.00	
12/01/2031			234,875.00	234,875.00	
06/01/2032	4,585,000	5.000%	234,875.00	4,819,875.00	5,054,750.00
06/30/2032				120,250.00	
12/01/2032			120,250.00	120,250.00	
06/01/2033	4,810,000	5.000%	120,250.00	4,930,250.00	5,050,500.00
06/30/2033					
	75,685,000		54,062,476.23	129,747,476.23	129,747,476.23

BOND DEBT SERVICE
SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A1 - State Supported

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2008			519,600.54	519,600.54	
06/01/2009	950,000	4.000%	766,623.75	1,716,623.75	2,236,224.29
06/30/2009					
12/01/2009			747,623.75	747,623.75	
06/01/2010	740,000	4.500%	747,623.75	1,487,623.75	2,235,247.50
06/30/2010					
12/01/2010			730,973.75	730,973.75	
06/01/2011	775,000	4.500%	730,973.75	1,505,973.75	2,236,947.50
06/30/2011					
12/01/2011			713,536.25	713,536.25	
06/01/2012	810,000	4.500%	713,536.25	1,523,536.25	2,237,072.50
06/30/2012					
12/01/2012			695,311.25	695,311.25	
06/01/2013	845,000	4.000%	695,311.25	1,540,311.25	2,235,622.50
06/30/2013					
12/01/2013			678,411.25	678,411.25	
06/01/2014	880,000	5.000%	678,411.25	1,558,411.25	2,236,822.50
06/30/2014					
12/01/2014			656,411.25	656,411.25	
06/01/2015	920,000	5.000%	656,411.25	1,576,411.25	2,232,822.50
06/30/2015					
12/01/2015			633,411.25	633,411.25	
06/01/2016	970,000	5.000%	633,411.25	1,603,411.25	2,236,822.50
06/30/2016					
12/01/2016			609,161.25	609,161.25	
06/01/2017	1,015,000	5.000%	609,161.25	1,624,161.25	2,233,322.50
06/30/2017					
12/01/2017			583,786.25	583,786.25	
06/01/2018	1,065,000	5.000%	583,786.25	1,648,786.25	2,232,572.50
06/30/2018					
12/01/2018			557,161.25	557,161.25	
06/01/2019	1,120,000	5.000%	557,161.25	1,677,161.25	2,234,322.50
06/30/2019					
12/01/2019			529,161.25	529,161.25	
06/01/2020	1,175,000	5.000%	529,161.25	1,704,161.25	2,233,322.50
06/30/2020					
12/01/2020			499,786.25	499,786.25	
06/01/2021	1,235,000	4.250%	499,786.25	1,734,786.25	2,234,572.50
06/30/2021					
12/01/2021			473,542.50	473,542.50	
06/01/2022	1,290,000	4.400%	473,542.50	1,763,542.50	2,237,085.00
06/30/2022					
12/01/2022			445,162.50	445,162.50	
06/01/2023	1,345,000	4.500%	445,162.50	1,790,162.50	2,235,325.00
06/30/2023					
12/01/2023			414,900.00	414,900.00	
06/01/2024	1,405,000	4.500%	414,900.00	1,819,900.00	2,234,800.00
06/30/2024					
12/01/2024			383,287.50	383,287.50	
06/01/2025	1,470,000	4.500%	383,287.50	1,853,287.50	2,236,575.00
06/30/2025					
12/01/2025			350,212.50	350,212.50	
06/01/2026	1,535,000	4.500%	350,212.50	1,885,212.50	2,235,425.00
06/30/2026					
12/01/2026			315,675.00	315,675.00	

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A1 - State Supported

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
06/01/2027	1,605,000	4.500%	315,675.00	1,920,675.00	
06/30/2027					2,236,350.00
12/01/2027			279,562.50	279,562.50	
06/01/2028	1,675,000	4.500%	279,562.50	1,954,562.50	
06/30/2028					2,234,125.00
12/01/2028			241,875.00	241,875.00	
06/01/2029	1,750,000	5.000%	241,875.00	1,991,875.00	
06/30/2029					2,233,750.00
12/01/2029			198,125.00	198,125.00	
06/01/2030	1,840,000	5.000%	198,125.00	2,038,125.00	
06/30/2030					2,236,250.00
12/01/2030			152,125.00	152,125.00	
06/01/2031	1,930,000	5.000%	152,125.00	2,082,125.00	
06/30/2031					2,234,250.00
12/01/2031			103,875.00	103,875.00	
06/01/2032	2,025,000	5.000%	103,875.00	2,128,875.00	
06/30/2032					2,232,750.00
12/01/2032			53,250.00	53,250.00	
06/01/2033	2,130,000	5.000%	53,250.00	2,183,250.00	
06/30/2033					2,236,500.00
	32,500,000		23,378,879.29	55,878,879.29	55,878,879.29

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A2 - HEF and M&R Fee Supported

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2008			496,597.61	496,597.61	
06/01/2009	905,000	4.000%	732,685.00	1,637,685.00	
06/30/2009					2,134,282.61
12/01/2009			714,585.00	714,585.00	
06/01/2010	710,000	4.500%	714,585.00	1,424,585.00	
06/30/2010					2,139,170.00
12/01/2010			698,610.00	698,610.00	
06/01/2011	740,000	4.500%	698,610.00	1,438,610.00	
06/30/2011					2,137,220.00
12/01/2011			681,960.00	681,960.00	
06/01/2012	775,000	4.500%	681,960.00	1,456,960.00	
06/30/2012					2,138,920.00
12/01/2012			664,522.50	664,522.50	
06/01/2013	805,000	4.000%	664,522.50	1,469,522.50	
06/30/2013					2,134,045.00
12/01/2013			648,422.50	648,422.50	
06/01/2014	840,000	5.000%	648,422.50	1,488,422.50	
06/30/2014					2,136,845.00
12/01/2014			627,422.50	627,422.50	
06/01/2015	880,000	5.000%	627,422.50	1,507,422.50	
06/30/2015					2,134,845.00
12/01/2015			605,422.50	605,422.50	
06/01/2016	925,000	5.000%	605,422.50	1,530,422.50	
06/30/2016					2,135,845.00
12/01/2016			582,297.50	582,297.50	
06/01/2017	970,000	5.000%	582,297.50	1,552,297.50	
06/30/2017					2,134,595.00
12/01/2017			558,047.50	558,047.50	
06/01/2018	1,020,000	5.000%	558,047.50	1,578,047.50	
06/30/2018					2,136,095.00
12/01/2018			532,547.50	532,547.50	
06/01/2019	1,070,000	5.000%	532,547.50	1,602,547.50	
06/30/2019					2,135,095.00
12/01/2019			505,797.50	505,797.50	
06/01/2020	1,125,000	5.000%	505,797.50	1,630,797.50	
06/30/2020					2,136,595.00
12/01/2020			477,672.50	477,672.50	
06/01/2021	1,180,000	4.250%	477,672.50	1,657,672.50	
06/30/2021					2,135,345.00
12/01/2021			452,597.50	452,597.50	
06/01/2022	1,230,000	4.400%	452,597.50	1,682,597.50	
06/30/2022					2,135,195.00
12/01/2022			425,537.50	425,537.50	
06/01/2023	1,285,000	4.500%	425,537.50	1,710,537.50	
06/30/2023					2,136,075.00
12/01/2023			396,625.00	396,625.00	
06/01/2024	1,345,000	4.500%	396,625.00	1,741,625.00	
06/30/2024					2,138,250.00
12/01/2024			366,362.50	366,362.50	
06/01/2025	1,405,000	4.500%	366,362.50	1,771,362.50	
06/30/2025					2,137,725.00
12/01/2025			334,750.00	334,750.00	
06/01/2026	1,465,000	4.500%	334,750.00	1,799,750.00	
06/30/2026					2,134,500.00
12/01/2026			301,787.50	301,787.50	

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A2 - HEF and M&R Fee Supported

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
06/01/2027	1,535,000	4.500%	301,787.50	1,836,787.50	
06/30/2027					2,138,575.00
12/01/2027			267,250.00	267,250.00	
06/01/2028	1,600,000	4.500%	267,250.00	1,867,250.00	
06/30/2028					2,134,500.00
12/01/2028			231,250.00	231,250.00	
06/01/2029	1,675,000	5.000%	231,250.00	1,906,250.00	
06/30/2029					2,137,500.00
12/01/2029			189,375.00	189,375.00	
06/01/2030	1,760,000	5.000%	189,375.00	1,949,375.00	
06/30/2030					2,138,750.00
12/01/2030			145,375.00	145,375.00	
06/01/2031	1,845,000	5.000%	145,375.00	1,990,375.00	
06/30/2031					2,135,750.00
12/01/2031			99,250.00	99,250.00	
06/01/2032	1,940,000	5.000%	99,250.00	2,039,250.00	
06/30/2032					2,138,500.00
12/01/2032			50,750.00	50,750.00	
06/01/2033	2,030,000	5.000%	50,750.00	2,080,750.00	
06/30/2033					2,131,500.00
	31,060,000		22,345,717.61	53,405,717.61	53,405,717.61

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A3 - HEF Supported

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2008			159,076.14	159,076.14	
06/01/2009	290,000	4.000%	234,702.50	524,702.50	683,778.64
06/30/2009					
12/01/2009			228,902.50	228,902.50	
06/01/2010	225,000	4.500%	228,902.50	453,902.50	682,805.00
06/30/2010					
12/01/2010			223,840.00	223,840.00	
06/01/2011	235,000	4.500%	223,840.00	458,840.00	682,680.00
06/30/2011					
12/01/2011			218,552.50	218,552.50	
06/01/2012	250,000	4.500%	218,552.50	468,552.50	687,105.00
06/30/2012					
12/01/2012			212,927.50	212,927.50	
06/01/2013	260,000	4.000%	212,927.50	472,927.50	685,855.00
06/30/2013					
12/01/2013			207,727.50	207,727.50	
06/01/2014	270,000	5.000%	207,727.50	477,727.50	685,455.00
06/30/2014					
12/01/2014			200,977.50	200,977.50	
06/01/2015	285,000	5.000%	200,977.50	485,977.50	686,955.00
06/30/2015					
12/01/2015			193,852.50	193,852.50	
06/01/2016	295,000	5.000%	193,852.50	488,852.50	682,705.00
06/30/2016					
12/01/2016			186,477.50	186,477.50	
06/01/2017	310,000	5.000%	186,477.50	496,477.50	682,955.00
06/30/2017					
12/01/2017			178,727.50	178,727.50	
06/01/2018	325,000	5.000%	178,727.50	503,727.50	682,455.00
06/30/2018					
12/01/2018			170,602.50	170,602.50	
06/01/2019	345,000	5.000%	170,602.50	515,602.50	686,205.00
06/30/2019					
12/01/2019			161,977.50	161,977.50	
06/01/2020	360,000	5.000%	161,977.50	521,977.50	683,955.00
06/30/2020					
12/01/2020			152,977.50	152,977.50	
06/01/2021	380,000	4.250%	152,977.50	532,977.50	685,955.00
06/30/2021					
12/01/2021			144,902.50	144,902.50	
06/01/2022	395,000	4.400%	144,902.50	539,902.50	684,805.00
06/30/2022					
12/01/2022			136,212.50	136,212.50	
06/01/2023	410,000	4.500%	136,212.50	546,212.50	682,425.00
06/30/2023					
12/01/2023			126,987.50	126,987.50	
06/01/2024	430,000	4.500%	126,987.50	556,987.50	683,975.00
06/30/2024					
12/01/2024			117,312.50	117,312.50	
06/01/2025	450,000	4.500%	117,312.50	567,312.50	684,625.00
06/30/2025					
12/01/2025			107,187.50	107,187.50	
06/01/2026	470,000	4.500%	107,187.50	577,187.50	684,375.00
06/30/2026					
12/01/2026			96,612.50	96,612.50	

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A3 - HEF Supported

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
06/01/2027	490,000	4.500%	96,612.50	586,612.50	683,225.00
06/30/2027			85,587.50	85,587.50	
12/01/2027			85,587.50	600,587.50	
06/01/2028	515,000	4.500%			686,175.00
06/30/2028			74,000.00	74,000.00	
12/01/2028			74,000.00	609,000.00	
06/01/2029	535,000	5.000%			683,000.00
06/30/2029			60,625.00	60,625.00	
12/01/2029			60,625.00	625,625.00	
06/01/2030	565,000	5.000%			686,250.00
06/30/2030			46,500.00	46,500.00	
12/01/2030			46,500.00	636,500.00	
06/01/2031	590,000	5.000%			683,000.00
06/30/2031			31,750.00	31,750.00	
12/01/2031			31,750.00	651,750.00	
06/01/2032	620,000	5.000%			683,500.00
06/30/2032			16,250.00	16,250.00	
12/01/2032			16,250.00	666,250.00	
06/01/2033	650,000	5.000%			682,500.00
06/30/2033					
	9,950,000		7,156,718.64	17,106,718.64	17,106,718.64

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A4 Game Fish and Parks

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2008			33,948.19	33,948.19	
06/01/2009	70,000	4.000%	50,087.50	120,087.50	154,035.69
06/30/2009					
12/01/2009			48,687.50	48,687.50	
06/01/2010	70,000	4.500%	48,687.50	118,687.50	167,375.00
06/30/2010					
12/01/2010			47,112.50	47,112.50	
06/01/2011	75,000	4.500%	47,112.50	122,112.50	169,225.00
06/30/2011					
12/01/2011			45,425.00	45,425.00	
06/01/2012	75,000	4.500%	45,425.00	120,425.00	165,850.00
06/30/2012					
12/01/2012			43,737.50	43,737.50	
06/01/2013	80,000	4.000%	43,737.50	123,737.50	167,475.00
06/30/2013					
12/01/2013			42,137.50	42,137.50	
06/01/2014	85,000	5.000%	42,137.50	127,137.50	169,275.00
06/30/2014					
12/01/2014			40,012.50	40,012.50	
06/01/2015	90,000	5.000%	40,012.50	130,012.50	170,025.00
06/30/2015					
12/01/2015			37,762.50	37,762.50	
06/01/2016	95,000	5.000%	37,762.50	132,762.50	170,525.00
06/30/2016					
12/01/2016			35,387.50	35,387.50	
06/01/2017	100,000	5.000%	35,387.50	135,387.50	170,775.00
06/30/2017					
12/01/2017			32,887.50	32,887.50	
06/01/2018	105,000	5.000%	32,887.50	137,887.50	170,775.00
06/30/2018					
12/01/2018			30,262.50	30,262.50	
06/01/2019	105,000	5.000%	30,262.50	135,262.50	165,525.00
06/30/2019					
12/01/2019			27,637.50	27,637.50	
06/01/2020	115,000	5.000%	27,637.50	142,637.50	170,275.00
06/30/2020					
12/01/2020			24,762.50	24,762.50	
06/01/2021	120,000	4.250%	24,762.50	144,762.50	169,525.00
06/30/2021					
12/01/2021			22,212.50	22,212.50	
06/01/2022	125,000	4.400%	22,212.50	147,212.50	169,425.00
06/30/2022					
12/01/2022			19,462.50	19,462.50	
06/01/2023	130,000	4.500%	19,462.50	149,462.50	168,925.00
06/30/2023					
12/01/2023			16,537.50	16,537.50	
06/01/2024	135,000	4.500%	16,537.50	151,537.50	168,075.00
06/30/2024					
12/01/2024			13,500.00	13,500.00	
06/01/2025	140,000	4.500%	13,500.00	153,500.00	167,000.00
06/30/2025					
12/01/2025			10,350.00	10,350.00	
06/01/2026	145,000	4.500%	10,350.00	155,350.00	165,700.00
06/30/2026					
12/01/2026			7,087.50	7,087.50	

BOND DEBT SERVICE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008A4 Game Fish and Parks

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
06/01/2027	155,000	4.500%	7,087.50	162,087.50	
06/30/2027					169,175.00
12/01/2027			3,600.00	3,600.00	
06/01/2028	160,000	4.500%	3,600.00	163,600.00	
06/30/2028					167,200.00
	2,175,000		1,181,160.69	3,356,160.69	3,356,160.69

COST OF ISSUANCE

SOUTH DAKOTA BUILDING AUTHORITY
Series 2008 Financing
Final Numbers

Cost of Issuance	\$/1000	Amount
Financial Advisor	0.52851	40,000.00
Bond Counsel	0.94824	71,767.50
Local Counsel	0.07928	6,000.00
S & P Rating Fee	0.37392	28,300.00
Trustee Fee	0.03964	3,000.00
SDBA Upfront Fee	0.06606	5,000.00
Printer Fee	0.03303	2,500.00
Miscellaneous	0.05471	4,140.46
	2.12338	160,707.96

SOUTH DAKOTA BUILDING AUTHORITY
 \$73,906,158 SERIES 2008
 REVENUE BONDS
 BOARD OF REGENTS - COMBINING
 TAX EXEMPTION AGREEMENT EXHIBIT B
 DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		73,905,623
September 30, 2008	390,000	73,515,623
October 31, 2008	370,000	73,145,623
November 30, 2008	400,000	72,745,623
December 31, 2008	435,000	72,310,623
January 31, 2009	735,000	71,575,623
February 28, 2009	735,000	70,840,623
March 31, 2009	660,000	70,180,623
April 30, 2009	860,000	69,320,623
May 31, 2009	1,410,000	67,910,623
June 30, 2009	2,290,000	65,620,623
July 31, 2009	2,875,000	62,745,623
August 31, 2009	3,600,000	59,145,623
September 30, 2009	3,925,000	55,220,623
October 31, 2009	4,050,000	51,170,623
November 30, 2009	3,875,000	47,295,623
December 31, 2009	3,851,900	43,443,723
January 31, 2010	3,930,000	39,513,723
February 28, 2010	3,950,000	35,563,723
March 31, 2010	4,100,000	31,463,723
April 30, 2010	4,050,000	27,413,723
May 31, 2010	4,007,700	23,406,023
June 30, 2010	4,373,428	19,032,595
July 31, 2010	4,175,000	14,857,595
August 31, 2010	3,950,000	10,907,595
September 30, 2010	3,575,000	7,332,595
October 31, 2010	2,850,000	4,482,595
November 30, 2010	2,208,917	2,273,678
December 31, 2010	1,638,153	635,525
January 31, 2011	635,525	-
Totals	<u>73,905,623</u>	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$8,078,400 SERIES 2008
REVENUE BONDS
BHSU - Science Building
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		8,078,400
September 30, 2008	100,000	7,978,400
October 31, 2008	50,000	7,928,400
November 30, 2008	100,000	7,828,400
December 31, 2008	125,000	7,703,400
January 31, 2009	125,000	7,578,400
February 28, 2009	75,000	7,503,400
March 31, 2009	50,000	7,453,400
April 30, 2009	125,000	7,328,400
May 31, 2009	350,000	6,978,400
June 30, 2009	450,000	6,528,400
July 31, 2009	575,000	5,953,400
August 31, 2009	450,000	5,503,400
September 30, 2009	475,000	5,028,400
October 31, 2009	650,000	4,378,400
November 30, 2009	625,000	3,753,400
December 31, 2009	450,000	3,303,400
January 31, 2010	480,000	2,823,400
February 28, 2010	450,000	2,373,400
March 31, 2010	450,000	1,923,400
April 30, 2010	450,000	1,473,400
May 31, 2010	450,000	1,023,400
June 30, 2010	125,000	898,400
July 31, 2010	125,000	773,400
August 31, 2010	150,000	623,400
September 30, 2010	125,000	498,400
October 31, 2010	150,000	348,400
November 30, 2010	158,917	189,483
December 31, 2010	189,483	-
January 31, 2011	-	-
Totals	<u>8,078,400</u>	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$6,038,670 SERIES 2008
REVENUE BONDS
DSU - HABEGER SCIENCE CENTER
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		6,038,670
September 30, 2008	-	6,038,670
October 31, 2008	-	6,038,670
November 30, 2008	-	6,038,670
December 31, 2008	-	6,038,670
January 31, 2009	-	6,038,670
February 28, 2009	-	6,038,670
March 31, 2009	-	6,038,670
April 30, 2009	-	6,038,670
May 31, 2009	-	6,038,670
June 30, 2009	-	6,038,670
July 31, 2009	-	6,038,670
August 31, 2009	-	6,038,670
September 30, 2009	100,000	5,938,670
October 31, 2009	200,000	5,738,670
November 30, 2009	300,000	5,438,670
December 31, 2009	400,000	5,038,670
January 31, 2010	500,000	4,538,670
February 28, 2010	500,000	4,038,670
March 31, 2010	500,000	3,538,670
April 30, 2010	500,000	3,038,670
May 31, 2010	500,000	2,538,670
June 30, 2010	500,000	2,038,670
July 31, 2010	500,000	1,538,670
August 31, 2010	500,000	1,038,670
September 30, 2010	500,000	538,670
October 31, 2010	250,000	288,670
November 30, 2010	250,000	38,670
December 31, 2010	38,670	-
January 31, 2011	-	-
Totals	6,038,670	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$3,792,104 SERIES 2008
REVENUE BONDS
USD - ARTHUR M. PARDEE LABORATORIES
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		3,792,104
September 30, 2008	30,000	3,762,104
October 31, 2008	30,000	3,732,104
November 30, 2008	30,000	3,702,104
December 31, 2008	30,000	3,672,104
January 31, 2009	30,000	3,642,104
February 28, 2009	30,000	3,612,104
March 31, 2009	30,000	3,582,104
April 30, 2009	30,000	3,552,104
May 31, 2009	30,000	3,522,104
June 30, 2009	150,000	3,372,104
July 31, 2009	200,000	3,172,104
August 31, 2009	300,000	2,872,104
September 30, 2009	300,000	2,572,104
October 31, 2009	400,000	2,172,104
November 30, 2009	100,000	2,072,104
December 31, 2009	-	2,072,104
January 31, 2010	-	2,072,104
February 28, 2010	-	2,072,104
March 31, 2010	-	2,072,104
April 30, 2010	-	2,072,104
May 31, 2010	50,000	2,022,104
June 30, 2010	200,000	1,822,104
July 31, 2010	400,000	1,422,104
August 31, 2010	400,000	1,022,104
September 30, 2010	350,000	672,104
October 31, 2010	300,000	372,104
November 30, 2010	300,000	72,104
December 31, 2010	72,104	-
January 31, 2011	-	-
Totals	<u>3,792,104</u>	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$5,256,751 SERIES 2008
REVENUE BONDS
USD _AKELEY LAWRENCE SCIENCE CENTER
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		5,256,751
September 30, 2008	40,000	5,216,751
October 31, 2008	40,000	5,176,751
November 30, 2008	40,000	5,136,751
December 31, 2008	40,000	5,096,751
January 31, 2009	40,000	5,056,751
February 28, 2009	40,000	5,016,751
March 31, 2009	40,000	4,976,751
April 30, 2009	40,000	4,936,751
May 31, 2009	40,000	4,896,751
June 30, 2009	100,000	4,796,751
July 31, 2009	150,000	4,646,751
August 31, 2009	175,000	4,471,751
September 30, 2009	200,000	4,271,751
October 31, 2009	300,000	3,971,751
November 30, 2009	300,000	3,671,751
December 31, 2009	300,000	3,371,751
January 31, 2010	300,000	3,071,751
February 28, 2010	300,000	2,771,751
March 31, 2010	300,000	2,471,751
April 30, 2010	300,000	2,171,751
May 31, 2010	300,000	1,871,751
June 30, 2010	300,000	1,571,751
July 31, 2010	300,000	1,271,751
August 31, 2010	300,000	971,751
September 30, 2010	300,000	671,751
October 31, 2010	300,000	371,751
November 30, 2010	200,000	171,751
December 31, 2010	171,751	-
January 31, 2011	-	-
Totals	<u>5,256,751</u>	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
 \$6,751,145 SERIES 2008
 REVENUE BONDS
 USD - CHURCHILL-HAINES BUILDING
 TAX EXEMPTION AGREEMENT EXHIBIT B
 DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		6,751,145
September 30, 2008	40,000	6,711,145
October 31, 2008	40,000	6,671,145
November 30, 2008	40,000	6,631,145
December 31, 2008	40,000	6,591,145
January 31, 2009	40,000	6,551,145
February 28, 2009	40,000	6,511,145
March 31, 2009	40,000	6,471,145
April 30, 2009	40,000	6,431,145
May 31, 2009	40,000	6,391,145
June 30, 2009	100,000	6,291,145
July 31, 2009	150,000	6,141,145
August 31, 2009	175,000	5,966,145
September 30, 2009	200,000	5,766,145
October 31, 2009	400,000	5,366,145
November 30, 2009	400,000	4,966,145
December 31, 2009	400,000	4,566,145
January 31, 2010	400,000	4,166,145
February 28, 2010	450,000	3,716,145
March 31, 2010	500,000	3,216,145
April 30, 2010	450,000	2,766,145
May 31, 2010	400,000	2,366,145
June 30, 2010	400,000	1,966,145
July 31, 2010	400,000	1,566,145
August 31, 2010	400,000	1,166,145
September 30, 2010	400,000	766,145
October 31, 2010	400,000	366,145
November 30, 2010	200,000	166,145
December 31, 2010	166,145	-
January 31, 2011	-	-
Totals	6,751,145	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$17,957,700 SERIES 2008
REVENUE BONDS
SDSM&T - CHEMICAL & BIOLOGICAL ENGINEERING BUILDING
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		17,957,700
September 30, 2008	-	17,957,700
October 31, 2008	50,000	17,907,700
November 30, 2008	-	17,907,700
December 31, 2008	50,000	17,857,700
January 31, 2009	-	17,857,700
February 28, 2009	-	17,857,700
March 31, 2009	50,000	17,807,700
April 30, 2009	100,000	17,707,700
May 31, 2009	250,000	17,457,700
June 30, 2009	750,000	16,707,700
July 31, 2009	1,000,000	15,707,700
August 31, 2009	1,500,000	14,207,700
September 30, 2009	1,500,000	12,707,700
October 31, 2009	1,000,000	11,707,700
November 30, 2009	1,000,000	10,707,700
December 31, 2009	1,000,000	9,707,700
January 31, 2010	1,000,000	8,707,700
February 28, 2010	1,000,000	7,707,700
March 31, 2010	1,000,000	6,707,700
April 30, 2010	1,000,000	5,707,700
May 31, 2010	957,700	4,750,000
June 30, 2010	1,250,000	3,500,000
July 31, 2010	1,000,000	2,500,000
August 31, 2010	750,000	1,750,000
September 30, 2010	750,000	1,000,000
October 31, 2010	500,000	500,000
November 30, 2010	250,000	250,000
December 31, 2010	250,000	-
January 31, 2011	-	-
Totals	17,957,700	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$8,006,275 SERIES 2008
REVENUE BONDS
SDSU - Ag Hall Building
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		8,006,275
September 30, 2008	60,000	7,946,275
October 31, 2008	50,000	7,896,275
November 30, 2008	40,000	7,856,275
December 31, 2008	40,000	7,816,275
January 31, 2009	40,000	7,776,275
February 28, 2009	40,000	7,736,275
March 31, 2009	40,000	7,696,275
April 30, 2009	40,000	7,656,275
May 31, 2009	40,000	7,616,275
June 30, 2009	20,000	7,596,275
July 31, 2009	100,000	7,496,275
August 31, 2009	200,000	7,296,275
September 30, 2009	300,000	6,996,275
October 31, 2009	400,000	6,596,275
November 30, 2009	400,000	6,196,275
December 31, 2009	450,000	5,746,275
January 31, 2010	450,000	5,296,275
February 28, 2010	450,000	4,846,275
March 31, 2010	450,000	4,396,275
April 30, 2010	450,000	3,946,275
May 31, 2010	450,000	3,496,275
June 30, 2010	500,000	2,996,275
July 31, 2010	450,000	2,546,275
August 31, 2010	450,000	2,096,275
September 30, 2010	450,000	1,646,275
October 31, 2010	450,000	1,196,275
November 30, 2010	450,000	746,275
December 31, 2010	400,000	346,275
January 31, 2011	346,275	-
Totals	<u>8,006,275</u>	

Estimated closing date is August 14, 2008 or sooner

SOUTH DAKOTA BUILDING AUTHORITY
\$2,701,900 SERIES 2008
REVENUE BONDS
NSU - MEWALT/JENSEN AND KRIKAC BUILDINGS
TAX EXEMPTION AGREEMENT EXHIBIT B
DRAWDOWN SCHEDULE OF BOND PROCEEDS - PROJECT FUND

<u>Period Ending</u>	<u>Draws to Date and Future Draws Estimated</u>	<u>Ending Balance of Period</u>
Deposited in Project Fund prior to 9/30/08		2,701,900
September 30, 2008	-	2,701,900
October 31, 2008	50,000	2,651,900
November 30, 2008	50,000	2,601,900
December 31, 2008	50,000	2,551,900
January 31, 2009	400,000	2,151,900
February 28, 2009	400,000	1,751,900
March 31, 2009	350,000	1,401,900
April 30, 2009	350,000	1,051,900
May 31, 2009	350,000	701,900
June 30, 2009	300,000	401,900
July 31, 2009	200,000	201,900
August 31, 2009	100,000	101,900
September 30, 2009	50,000	51,900
October 31, 2009	-	51,900
November 30, 2009	-	51,900
December 31, 2009	51,900	-
January 31, 2010	-	-
February 28, 2010	-	-
March 31, 2010	-	-
April 30, 2010	-	-
May 31, 2010	-	-
June 30, 2010	-	-
July 31, 2010	-	-
August 31, 2010	-	-
September 30, 2010	-	-
October 31, 2010	-	-
November 30, 2010	-	-
December 31, 2010	-	-
January 31, 2011	-	-
Totals	2,701,900	

Estimated closing date is August 14, 2008 or sooner