

Dakota State University Infrastructure Renovation Facility Design Plan

A. Architectural, mechanical and electrical schematic design

The proposed Infrastructure Renovation projects within this Facility Design Plan are categorized in three main areas:

1. Medium Voltage Campus Distribution Upgrades
2. Campus Steam and Boiler Plant Upgrades
3. HVAC and Other General Upgrades

The Medium Voltage Campus Distribution Upgrades will include replacement of several outdated switches. A medium voltage loop feed will also be part of the renovation which will be a significant improvement over our existing radial feed. This provides a more reliable and redundant electrical feed system to the buildings on campus.

Campus Steam and Boiler Plant Upgrades will include the replacement of one boiler within the DSU boiler plant. A 750 HP boiler will be replaced with a smaller 250 HP boiler which will allow the boiler plant to be more effective and efficient. All campus steam service valves will be replaced. All condensate piping will be insulated for improved efficiency. Steam drip traps will be replaced as necessary and potentially resized for better efficiency. Steam piping supports within the steam tunnels will also be replaced.

HVAC upgrades will be made within the buildings of Beadle Hall, Mundt Library, and Memorial Gymnasium. In combination with the HVAC upgrades, Mundt Library will receive upgrades to the lighting, lighting controls, and a new ceiling system. The current Mundt Library ceiling system is both obsolete and very inefficient from both an HVAC and lighting perspective.

Other general upgrades include a new fire escape for Beadle Hall and fire alarm upgrades to the Mundt Library.

B. Changes from facility program plan

The Facility Program Plan for the DSU Infrastructure Renovation has no significant differences to that of the Facility Design Plan, other than the revision to the individual cost estimates for each individual project based on further design work done by TSP. The Plan also includes add alternates to the project.

C. Impact to existing building or campus-wide heating / cooling / electrical systems

The Infrastructure Renovation project will create significant improvements to the campus-wide steam heating system and also the electrical system as outlined in section A. These improvements will provide

better efficiency overall (electrical, steam, and HVAC), and a much more reliable campus electrical system.

D. Total construction cost estimates

Construction Cost	\$2,427,934
Design Contingency	\$236,917
Abatement	\$5,000
Total A/E Fee	\$298,500
OSE Fee	\$26,649
Testing	\$5,000
Total Base Budget	<u>\$3,000,000</u>

E. Changes from cost estimates for operational or M&R expenses.

The Infrastructure Renovation project is an M&R project and thus DSU is addressing some of the M&R backlog with these HEFF funds.