

Bemidji State University – HEAPR Projects

1. Sattgast Hall Re-Roof (Original Building)

Sattgast Hall (Original Building) needs to be Re-Roofed. The current problems with the roof are:

- The roof is at the end of its useful life and a built up system offers the best long term performance and meets the roofing standards set by Minnesota State. A built up system would also provide more durability for foot traffic and can be monitored using nondestructive methods.
- The deck has little or no structural slope; therefore a fully tapered insulation system will be required
- The existing parapets will be raised to accommodate the necessary base flashing height required to meet Minnesota state standards
- The existing drains and leaders will be replaced with larger size and additional drains to meet current code requirement. Also, overflow drains and scuppers will be provided.
- Two new OSHA approved access ladders will be installed to meet current state and local codes.
- At the skylight / Greenhouse, waterproofing will be necessary to ensure the water tightness of the new roof system.

2. BSU Mechanical System Upgrade

There are numerous mechanical units that are beyond life expectancy in 3 buildings (Heating Plant, Deputy Hall, Recreation Center) which range from 1960 to 1989 vintage. The units provide HVAC to classrooms, shops, data rooms, offices and student athletic areas. Indoor air handling systems have an expected life expectancy of 30 years per ASHRAE standard guidelines. These systems are well beyond their expected useful life and are operating on borrowed time. To keep these units operational, excess energy costs and maintenance expenses are required each year to keep them operational. In addition, as the systems continue to age, parts are harder and harder to come by.

The current units are Hydronic Heat, with DX cooling. The heating system has water (Not glycol) which is subject to freezing if unprotected. The piping appears to be in good condition. The air handling units that serves these areas has a condensing unit on it that has refrigerant (R-22) and is not long produced. Our recommendation is to replace the condensing units along with the air handling units.

The control systems on these units where upgrade per the HEAPR Energy Control Project in 2019 and will be reused

The replacement of these units will improve air quality, air flow and a more suitable climate-controlled environment for Students, Faculty and Staff

3. Bangsberg Hall Mechanical Upgrades (Original Building)

Bangsberg Hall is a music and performing arts building located on the campus of Bemidji State University. The size of the building is currently 86,878 square feet and was built in 1971. The purpose of this project is to evaluate the existing mechanical and plumbing systems and controls focusing on the performance with regards to pressurization and humidity control for Bangsberg Hall. In addition, there are many building system deficiencies that need correction. A brief summary below:

1. There are pressurization issues throughout the building, most notably when entering mechanical rooms and throughout the building during economizer conditions.
2. The building and occupants experience high humidity within Bangsberg hall during the cooling times of year and low humidity conditions in the wintertime. Many musical instruments in the building require 30-50% RH conditions for proper operation.
3. Most of the areas in the building are served by constant volume re-heat coils.
4. Heating systems within the building are 100% water and are used for heat in the air handlers. Without anti-freeze, the coils in the air handlers are subject to freezing.
5. Existing steam-to-hot-water heat exchangers and pumps are original in the building and in need of replacement. Multiple repairs have been completed for leaks and new motors.
6. Existing roof mounted and in-line exhaust fans for the building are past their life expectancy and in need of replacement.
7. The existing steam water heater is oversized for the building and in need of replacement.
8. Only the basement is currently sprinkled in the building.
9. Upper floor mechanical rooms have potential leak points in case of pipe burst or unit leaking.
10. Rated ceiling tiles in mechanical rooms are in need of replacement and may contain asbestos.

Northwest Technical College – HEAPR Projects

1. Fire Alarm Upgrade

The scope of our work on the project has been to replace and upgrade the existing fire alarm system. The new system shall involve a new fire alarm panel, new notification devices, and new smoke detection devices. New annunciators shall also be included, located at entrances. The existing F/A system will remain in working condition until new system is in place, tested, and approved for use. Existing building sprinkler system will remain and be connected to new system. Any city fire department Code requirements have been coordinated with the local Codes official. Construction schedule will also be coordinated with the local fire department, when it is available.

2. Replacing interior and exterior doors locking systems

This project is to upgrade the keying and locking system at Northwest Technical College. There are currently numerous key to open interior doors with no master key and no way to monitor access into classrooms and labs. The purpose of this project is to upgrade the keying hardware so, a new tracking system can be implanted and provide key card access to various interior door locations. The will provide a safer environment for students, Staff and Faculty.