

# LAWRENCE LIBRARY

## MECHANICAL AND ELECTRICAL STUDY

NO VEMBER 2008



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## **SCOPE OF WORK**

On Tuesday, November 11, 2008 we visited the site to gather data and review the project with Dan Sabatini and Bruce Flanders, Library Director. We were asked to review the existing mechanical and electrical systems to see how they could be updated to provide increased occupant comfort and better energy efficiency.

This study will look at defining the existing conditions of the mechanical and electrical systems and defining some options for upgrade or replacement. Opinions of probable construction costs are included.

## **EXISTING CONDITIONS**

This two story, including the basement level, 47,000 square foot building was built around 1972. A remodel of a portion of the building was done in 1992.

## **MECHANICAL**

The Heating, ventilating and air conditioning (HVAC) system has been well maintained, but is mostly the original equipment 1972. At over thirty-five years old it is in need of upgrading and replacement. The building is an all electric building for heating and cooling, there is no gas service to the building. The cooling for the basement air handling units comes from the chiller located on the roof. This chiller is the original 1972 chiller and should be replaced as soon as possible for increased efficiency and because the existing unit is not expected to last much longer.

The cooling is distributed by three air handling units located in the basement and five DX cooling roof top units. The air handling units are the original 1972 units with chilled water cooling coils. Electric duct heaters throughout the building in each zone provide the heating.



The existing air handling units for the basement that should be replaced due to efficiency and condition.



The existing 1972 Rooftop Units that need to be replaced for efficiency and condition.



The existing 1972 chiller and its related pump that need to be replaced for improved efficiency and because of age and condition.





The three east roof top units have been replaced in the past several years with newer units that are in good condition.

### HVAC CONTROLS

The heating and cooling controls are the original controls and are in need of replacement. The comfort levels in the building are not maintained very well due to the lack of adequate controls and the condition of the existing equipment. The existing equipment can provide heating and cooling to individual spaces at the same time from two separate units which is very inefficient.

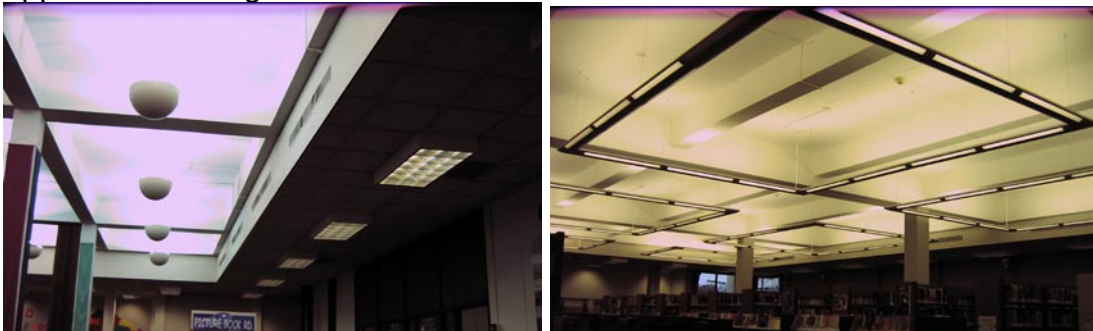
## ELECTRICAL

The electrical service is a 1,000 amp, 277/480 volt, service that is original but appears to be in relatively good condition.



Existing main distribution panel board.

The lighting in a portion of the public spaces on the upper floor has been updated and appears to be in good condition.



The lighting in the office areas and basement should be updated



## **RECOMMENDATIONS**

### **HVAC Priority One**

The first priority we would recommend is to replace the two west roof top units and the chiller because of their age, condition, and energy usage. Along with this we would recommend installing a new building HVAC control system to increase comfort and better control energy usage. Also a part of this would be to add more air conditioning capacity for the Adult Services Lower Level area.

**ANTICIPATED COST PRIORITY ONE: \$342,000**

### **HVAC Priority Two**

The second priority we would recommend is to replace the three basement air handling units because of their age, and condition.

**ANTICIPATED COST PRIORITY TWO: \$230,000**

### **Remodeled Areas**

Adult Services Upper Level: some minor lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$12,000

Adult Services Lower Level: new lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$16,000

Business Outreach Center: new lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$9,000

Meeting Rooms and Auditorium: new lighting and electrical modifications required for new space layouts. Preliminary mechanical and electrical costs: \$21,000

Young Adult Room: modify lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$17,000

Circulation Non Public: new lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$9,000

Self Check, Circulation, and Reserve Pick-up: new lighting and electrical modifications required for new space layout.

Preliminary mechanical and electrical costs: \$15,000

Youth Services: some minor lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$6,000

Friends: new mechanical and electrical modifications required for new space layout.

Preliminary mechanical and electrical costs: \$4,000

Offices and Maintenance spaces: new mechanical and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$54,000

Inter Library Loan: new lighting and electrical modifications required for new space layout. Preliminary mechanical and electrical costs: \$9,000

**ANTICIPATED REMODELED AREAS: \$172,000**

**TOTAL MECHANICAL AND ELECTRICAL ANTICIPATED COSTS: \$744,000**