# School of Social Work Energy Audit

**Sponsor:** Delta E Consulting

To conduct an ASHRAE Energy Audit of the UW Social Work Building to identify Energy Efficiency Measures (EEMs) and recommend the most effective strategies to UW Facilities for reducing carbon emissions.

## Introduction

**Campus decarbonization:**
UW sustainability goal, the campus aims to be **carbon neutral by 2050**.

Our capstone project implements energy analysis techniques to study the mechanical systems of one building on campus. We aim to identify inefficiencies in order to reduce consumption, carbon emissions, and improve sustainability.

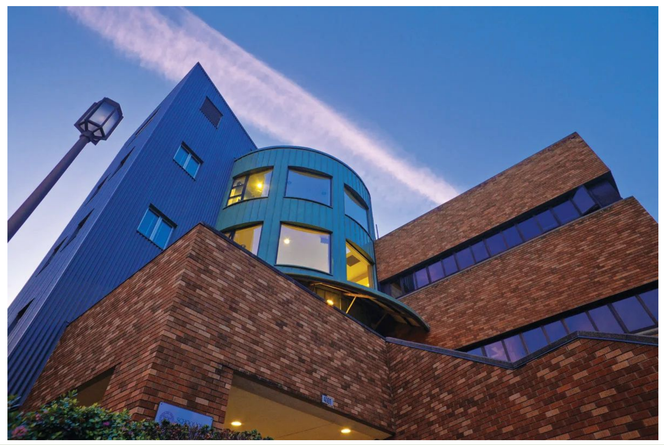
### Building Selection

Built in 1980, the Social Work Building is a multi-use facility located on UW campus. Previous renovations occurred in 1997, 2001, 2005, and 2024, including HVAC upgrades to the building.

## Energy Audit

Our first step was to conduct an energy audit through ASHRAE's Building EQ Portal. This provided:

- A quick energy analysis based on inputted measurements taken from the building
- Building energy consumption based on metered data
- Basis for our energy efficiency measures



## Energy Efficiency Measures

**Top 5**
Suggested measures to reduce the energy consumption or lower carbon emissions.

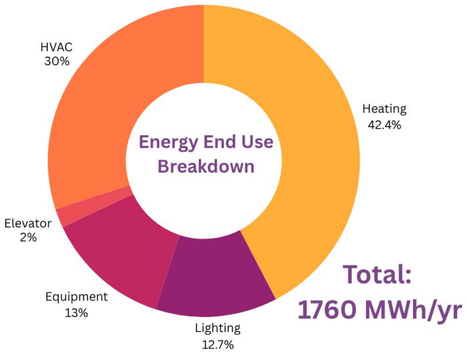
| Measure | Existing | Proposed |
|---|---|---|
| Ducted ERV | Air heated with campus steam | Air heat recovered |
| Roof Solar Panel | Seattle City Light | On site electricity generation |
| Air to Water Heat Pump | Air heated with campus steam | Efficient, clean heat production |
| Fix Blown Out Duct | Leaking conditioned air | Stop energy waste |
| Reduce Air Flow | Unnecessary over ventilation | Stop energy waste |

## Building EQ Results

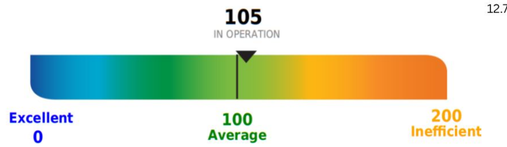
Building eq POWERED BY ASHRAE

ASHRAE

**Social Work**
4101 15th Ave NE, Seattle, WA, 98105




**Total: 1760 MWh/yr**





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MECHANICAL ENGINEERING
UNIVERSITY of WASHINGTON

**Mechanical Engineering Capstone Exposition**
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