

Objectives



Research office utilities that consume low amounts of energy, and investigate how to improve the efficiency of current utilities.



Research and test various energy efficient lighting solutions.

Research environmentally friendly floor, wall, and ceiling finishes along with necessary office furniture.



Develop a website to display the development progress of the Zero-Energy Lab and provide information regarding "green technology"



Develop a rating system that can be used by consumers and industry to compare the embodied energy of products

ZEL Rating

The purpose of the ZEL rating is to compare the environmental impact of consumer and industrial goods. The following is a brief overview of how the ZEL rating is calculated for a particular item:

ZEL Rating =

$$\begin{aligned} & \{ \textit{Transportation Energy} \\ & \quad + \\ & \quad \textit{Energy Efficiency} \\ & \quad + \\ & \quad \textit{Embodied Energy} \\ & \quad + \\ & \quad \textit{Recycleability} \\ & \quad + \\ & \quad \textit{Lifecycle Costing} \\ & \quad + \\ & \quad \textit{Energy Production} \} \end{aligned}$$

The ZEL rating has the capacity to be used internationally in such a way as the LEED rating is.

Ultimately, rating items according to the ZEL scale will allow individual products to be compared and environmentally friendly solutions to be met. This particularly applies in construction and manufacturing applications.

Lab Space

The Zero Energy Lab team has been developing a lab space to work in. The image below is a 3D rendering of the proposed Zero Energy Lab space.



The Zero Energy Lab space can be potentially used in many different applications for renewability and sustainability research.

