## Lighting Energy Balance Lab

The Lighting Energy Lab was generated from an AAON sponsored mechanical engineering senior design project. This particular lab focuses on the heating effects of six 500 watt halogen work lights, thereby creating a real life energy balance problem. MET 466 students are able to analyze four days worth of thermocouple readings strategically place throughout the test room walls, ceiling, and floor. Two examples of the thermocouple locations are shown in Figures 1 and 2.



Figure 1: Ceiling Cross-Section

## Testing:

The experiment is located in the outdoor room of Montana State University HVAC lab's psychrometric chambers. In this chamber six 500 watt halogen work lights situated evenly throughout the room are turned on for two days until steady state hot а temperature is achieved and then the lights are turned off and data is recorded. This process is shown in Figure 3.

