

CONSTRUCTION DRY HEAT

Oakland University
Human Health Building



**CASE
STUDY**

FROM THE

Mobile Air Force™



"THE DEFENDERS OF DRY HEAT"

Project Concerns

Mobile Air met with the construction team to uncover the concerns and difficulties that the construction team would face.

- First and foremost was moisture control.
 - The building is loaded with high end moisture sensitive products.
 - An aggressive build schedule means there can be no delays, moisture control would keep the drywall, paint etc. ahead of schedule while preventing any moisture related damage down the road.
 - Unique flooring such as cork and plyboo require tight concrete moisture levels prior to installation. The goal was to enhance concrete drying early on so that it would minimize future flooring installation issues.
- The Project Team did not want to have to use separate dehumidifiers to complete the project.
 - The use of dehumidifiers in conjunction with construction heat is a sign of a poor heat design. Their effectiveness is questionable and they have been found to be unreliable in winter construction heating.
 - This would be an unexpected extra cost to the project
 - The units would physically be in the way of the building trades

- Safety
 - No open flame recirculating heaters inside the building
 - No high pressure fuel hose inside the building
 - Clean construction air for the workers on-site to enhance trades physical safety
- Manage and minimize fuel costs
 - Fuel is the single largest expense during construction heat.
- The ability to monitor and verify to the owner that the building conditions during construction where met.
 - Document and verify that the building is under control.
 - Share this information with subcontractors and the owner.

Fuel costs and indoor air quality are growing industry concerns. Fuel costs can easily consume the lion's share of a project's total heat cost during temporary construction heating – and these costs can drastically rise or fall depending on the design and utilization of heating equipment. When it comes to indoor air quality, there is an increasing consensus that better air improves worker health and productivity, and prevents pollutants from impacting building materials.

“(Mobile Air) took away any questions about temperature and humidity and helped with risk management in providing documentation for the owner and gave me an understanding of the building and a window of knowledge. And when final finishes were going in, it gave me great confidence.”

Mr. Jeff White, Senior Superintendent,
The Christman Company



Building for the Next Generation of Doctors

The new Oakland University Human Health Building (Medical School) opened its doors in September of 2012. This is a targeted LEED certified building at the Gold level on a Michigan University Campus, with a goal set to achieve Platinum. With advanced building design and unique sensitive building finish products, the construction of the building was no small feat. To do the job, Oakland University hired Lansing, Michigan based-The Christman Company, who appointed Mr. Jeff White as the Senior Superintendent and Mr. Brian Crumm as the Project Manager.

It became clear to the Christman Team that managing and controlling the indoor building environment during construction, especially during the winter months was critical to the success of the project. They first considered the typical old fashioned method

of heating the building. The basic concept was to place open flame recirculating construction heaters inside the building, placing several on each floor. The construction team's past bad experiences with this method such as high moisture levels, uneven heat distribution, poor air quality, and heat safety issues lead them to pursue alternative methods.

They turned to Mr. John Johnson, Vice President of Macomb Mechanical, who was the mechanical and plumbing contractor on the project for his expert advice. John has had long and great success in solving these difficult construction heating issues, typically teaming with the experts at Mobile Air, Inc. Mobile Air is known throughout the Midwest for their expertise and leading edge designs for complete control of buildings while under construction.



"Mobile Air's product and services provided were exceptional. From the beginning in design to help meet the building requirements to installation, you guys did a really great job and I appreciate the help!"

Mr. John Johnson, Macomb Mechanical

The Solution

Comprehensive Building Control: Mobile Air implemented a construction heat plan using the new patent pending SSF (super secret hidden flame) style of construction heaters. Using only four heaters placed outside and ducted into the building achieved complete control of temperature and humidity for the 5-story, 173,000 sqft building. During the winter months temperatures held at the customer's designed set points and humidity was held at a consistent level between 35% and 40%. As spring approached the SSF Heaters were adjusted by Mobile Air to account for the changing weather conditions. During these warmer and wetter months the building humidity remained in control and averaged below 46%. During this entire process, winter through Spring, no dehumidifiers were added or required. The SSF heaters continuously monitored the indoor building temperatures and automatically reduced fuel consumption as required. While at the same time the heaters were maintaining a controlled air volume which helped to eliminate building air infiltration and the associated building heat loss. The result was even heat and humidity throughout the building and lowered fuel use. Typically a savings of 10% to 20% in fuel costs is seen when compared to the old method of open flame recirculating heaters placed inside the space.

Safety is Key: Mobile Air implemented their Safety Construction Heat Program on the project. The heating design was such that the heaters and all high pressure fuel hoses were installed on the outside the building. The fuel hoses were protected from activities such as construction traffic. The heater installation and start-up were performed and documented by a Mobile Air technician's, ensuring a safe dependable installation and operation.

Continuous Monitoring: Jeff White of The Christman Company took the use of Mobile Air's remote monitoring System to a new level. He was able to gain valuable insight into what was taking place within the structure and how various construction practices and daily operations would affect the building control. He believes that the monitoring system was a great risk management tool. The documentation that he was able to provide to subcontractors and the owner mitigated many delays, questions and concerns helping to keep the project on schedule.



"I loved the outside heaters...a little more money in the beginning and saved money in the end...no tripping over heaters...no hoses inside the building to mess with...great moisture control and no need for dehumidifiers."

Mr. Jeff White, Senior Superintendent,
The Christman Company