

INSULATED ROOF YIELDS ENERGY SAVINGS AT SPRINGBOARD ENGINEERING

HOW TO GET LOWER ENERGY BILLS

OVERVIEW

Springboard Engineering insulated the roof throughout its commercial building with closed-cell spray polyurethane foam. The insulated roof reduced natural gas and electric usage, energy bills, and also increased employee comfort. Springboard Engineering received \$8,100 total in rebates from energy efficiency programs offered through Black Hills Energy and now saves approximately \$11,000 in annual energy costs.

THE BACKGROUND

Jordan Bruntz, president and CEO of Springboard Engineering, and seven others co-founded the company in January 2008 and set up shop in an older building in Newton, Iowa. The commercial building is just off Newton's main drag and appears commonplace from the outside; however, inside is where some of Iowa's most intelligent engineers and scientists work to provide customers with full-service product development that includes engineering, prototyping and testing.

"The Custom Rebate program was a fantastic experience. The process was simple, fast, and the Black Hills Energy Team was truly committed to helping my company."

Without the assistance of the rebate program, our company budget couldn't complete projects of this magnitude."

– Jordan Bruntz, CEO & President of Springboard Engineering.



Employees enjoy a comfortable work environment as a result of the closed-cell polyurethane spray foam that has been installed throughout Springboard Engineering's building.

THE CHALLENGE

When Springboard Engineering moved into the 1970s vintage building, the roof was in poor condition. Bare metal was exposed throughout the facility's ceiling and the leaky roof allowed the heated air to escape the building at a quicker rate than the facility's natural gas heaters could keep up. The roof's poor quality made the work environment drafty and uncomfortable for employees, and also resulted in higher than necessary operating costs.

As a temporary roof solution, Bruntz used an external water sealant. However, testing appliances creates humidity, and without a properly insulated roof, the humidity would turn into indoor rain – this would ultimately ruin the facility's ceiling over time. Bruntz wanted a long-term solution to reduce his energy costs and improve the comfort of his employees' work environment.



An external water sealant was applied throughout the facility's roof as a short-term solution for fixing the drafty roof. The patching on the ceiling began to fall apart and the bare metal roof was once again exposed. However, the temporary fix didn't last long and the bare metal roof was once again exposed. After researching different options, Springboard Engineering determined that insulating the facility's ceilings with a high-quality spray foam would provide a long-term solution.

Improving life with energy



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THE SOLUTION

How Black Hills Energy's Commercial Custom program works

Closed-cell spray polyurethane foam was installed throughout the roof of Springboard Engineering's 40,000 square foot building. The project was split into two phases, and when complete, the foam increased the facility's R-Value to 17, up from its initial R-Value of 3. The foam has among the highest R-Values of available insulation options, and provides an efficient air barrier, low moisture vapor permeability and high resistance to water. *(Insulating effectiveness is rated on thermal resistance, or resistance to heat flow, known as "R-value." The R-value is a factor of the type of material, its thickness and its density. The greater the R-value, the greater the insulation's effectiveness.)*

Springboard Engineering worked with Pella Roofing & Insulation, Inc. (www.pellaroofting.com) to submit a project proposal to Black Hills Energy for approval to participate in the Commercial Custom program. The Black Hills Energy team reviewed the project's cost and energy savings to determine program eligibility.

For the first phase, spray foam was installed in the front of the structure where offices for administrative and engineering personnel are located. The first phase of the project was completed in November 2008 and the entire process - including applying for the rebate, installing the insulation and receiving the rebate - took approximately one and a half months.

The second phase of the project was a similar process. Roof insulation was installed on the West end of the structure where the appliance and product testing areas are located. Bruntz applied for another rebate for the second phase and after completing the work, received a rebate check from Black Hills Energy just a few weeks later.

For both phases, a reflective coating was added over the top of the spray polyurethane foam. Adding this coating to Springboard Engineering's galvanized metal roof reduces the roof's temperature - by as much as 30 to 40 degrees - which reduces the demand load on the high velocity air conditioning units during the summer months.

THE BENEFITS

Springboard Engineering now saves approximately \$11,000 in energy costs per year. The natural gas savings will provide Springboard Engineering with a simple payback of 12 years. The total project cost Springboard Engineering \$128,625, and the company received rebates from Black Hills Energy totaling \$8,100.

Additionally, as opposed to insulating the ceiling from the facility's interior, insulating the roof on the exterior side of the facility allowed the work to be complete without disrupting day to day business.



From left to right are Summer Wade, Black Hills Energy operations supervisor in Newton, and Jordan Bruntz, president and CEO of Springboard Engineering.

THE BENEFITS

- ~\$11,000 in energy savings per year
- \$8,100 in rebates from Black Hills Energy
- Improved employee comfort
- Easier to control indoor temperature, which is critical for testing appliances

WHO ELSE CAN BENEFIT?

Any Black Hills Energy customer occupying an older, re-purposed facility with a large roof surface that hasn't had an energy audit for the facility could likely benefit from undertaking the same type of review performed by Springboard.

HOW TO GET STARTED

- VISIT www.BHEHowTo.com
- CALL 888-567-0799