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# Overcoming Cold-Storage Challenges



# Badger State Fruit Processing finds ways to institute temperature control, manage operating cost and be more sustainable.

BY PAT AUSTIN

**As Butch Gardner** hauls cranberries between two cold-storage facilities on the Badger State Fruit Processing property in Pittsville, Wis., he gives the “thumbs-up” to plant manager Mark Konrardy for a job well done. Konrardy met three tough challenges for the construction of a new cold-storage facility—built to house Badger’s 200 million pounds of cranberries with room to grow.

Gardner, owner of Badger State Fruit Processing, is getting ready for the new cranberry harvest, which happens in just a few short weeks. Badger State’s 200 million pounds of cranberries represents about 45 percent of Wisconsin’s enormous crop. With Wisconsin’s claim to the largest cranberry-producing state in the union, that’s no small potatoes. According to Gardner, Wisconsin harvests about 52 percent of the world’s cranberries.

Badger State Fruit Processing sought a cost-effective and environmental solution to protect its harvest.

IMAGE COURTESY OF ACH FOAM TECHNOLOGIES



Foam-Control Plus+ architectural grade perimeter and underslab EPS insulations are designed to maintain R-value better than XPS because their permeability allows trapped moisture to escape.

IMAGE COURTESY OF ACH FOAM TECHNOLOGIES

“Right now I grow, sell and process cranberries for all of the buyers in the [U.S.] states—including the very biggest,” says Gardner. With 1,100 acres of cranberries, Butch Gardner is Wisconsin’s largest independent grower. “Our cranberries are stored in our combined two cold-storage buildings. With the new facility we’ll go past that as new acres are planned to meet world demand for cranberry products.”

The new cold-storage facility had to be built to withstand many years of operation. Gardner issued a directive to his plant manager, Mark Konrardy. “The owner challenged me to find a way to keep our operating costs on the new cold-storage facility low while achieving demanding temperature control requirements,” explains Konrardy. “Our choice to use Foam-Control

and Foam-Control Plus+ architectural grade EPS insulation evolved out of my research into materials that would meet performance, cost, constructability and environmental criteria. We wanted to make sure it wouldn’t break down underground—it has to hold up for years of operation and not become damaged by moisture.”

Nearly 2 million board feet of ACH Foam Technologies’ Foam-Control flat EPS roof insulation and more than half a million board feet of the manufacturer’s new Foam-Control Plus+ architectural grade perimeter and underslab insulation were used in the construction of the new cold-storage facility this summer.

Mark Konrardy has had a long-term interest in environmental stewardship. “I set up a list of quantifiable parameters

grouped into three categories: performance, cost and environmental stewardship. Within those categories I researched various materials available, and when all was said and done, Foam Control EPS insulation came out the clear winner for several reasons,” Konrardy adds.

When researching the long-term warranted R-value of rigid foam insulations, Konrardy found that both Foam-Control and Foam-Control Plus+ provide a 100 percent R-value warranty for 20 years.

Compressive strength concerns were addressed by using Foam-Control Plus+ 400 (40 psi) for the freezer area and Foam-Control Plus+ 250 (25 psi) for the remainder of the perimeter and underslab areas. “I also researched the performance of rigid insulations when exposed to



Foam-Control Plus+ architectural grade EPS insulations can now be compared easily with other insulations.

IMAGE COURTESY OF ACH FOAM TECHNOLOGIES

## Criteria: Badger State Fruit Processing

### Performance Criteria

- Warranted, Long-Term In-Service R-Value
- Compressive Strength
- Water Absorption and Impact on R-Value
- Water Permeability

### Environmental Criteria

- Recycled Content
- Recyclability
- Leachates

### Cost + Constructability

- Cost of Product per R-Value
- Availability of Sizes

moisture,” states Konrardy, “and found that EPS has a higher permeability than XPS. That extra permeability allows trapped moisture to escape. This is a good thing, because it maintains its R-value better.”

Because Konrardy was very interested in environmental considerations, he wanted to find an insulation that contained recycled content and didn't leach toxic chemicals into the groundwater. “This was a great find for me: that Foam-Control insulations contain up to 15 percent recycled content in the code-approved labeled EPS. This is the highest percentage of recycled content of all the rigid foam insulations on the market,” explains Konrardy. “I also

know that EPS is easy to recycle and doesn't contain leachates.”

The tipping point, according to Konrardy, was cost savings. “My decision wasn't that difficult,” he adds. “I was able to find a material that satisfied the criteria Mr. Gardner set out for me and satisfy my desire to make our plant greener.” edc



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